VOLUME 3

REQUEST FOR BID PROPOSALS

FOR

GREAT RIVER PARK IMPROVEMENT PROJECT

301 East River Drive, East Hartford, CT

BID NO. 26-05

Owned by: TOWN OF EAST HARTFORD
DEPARTMENT OF PUBLIC WORKS
740 MAIN STREET
EAST HARTFORD, CT 06108

Park Operator: RIVERFRONT RECAPTURE, INC.

Designer: GEI CONSULTANTS, INC.

ATTACHMENT A
OWNER OBTAINED PERMITS

Attachment A

Owner Obtained Permits (and test results)

- USACE Section 404 Permit (incl. time of year restrictions for Pile Driving)
- USACE Section 408 Permit
- CT DEEP Structures Dredge and Fill and 401 WQC (incl. Mussell Relocation Plan)
- Town of East Hartford Inland Wetlands Permit
- Geotechnical (Borings) and Environmental Test Report

October 4, 2024

File Number: NAE-2022-00480
CT DEEP File Number: 202200467-SDF

Riverfront Recapture, Inc. / Great River Park Improvements
Attn: Marc Nicol
50 Columbus Boulevard
Hartford, Connecticut 06106
mnicol@riverfront.org

Dear Mr. Nicol:

We have reviewed your application to the CT Dept. of Energy & Environmental Protection, Land and Water Resources Division to remove two (2) existing timber pier and concrete surface overlooks; to install a new 105-ft long (total) x 10 to 11-ft wide, steel pile-supported, L-shaped, concrete-decked fishing pier; and to extend an existing timber float to improve ADA accessibility and expand usable area by 180 square feet. The work will take place in the Connecticut River within Great River Park at 301 East River Drive, East Hartford, Connecticut. The work is shown on the enclosed plans titled "GREAT RIVER PARK IMPROVEMENTS, 301 EAST RIVER DRIVE, EAST HARTFORD, CONNECTICUT 06108," prepared by GEI Consultants, Inc., in 11 sheets, with Cover Sheet dated MAY 26, 2022, with sheets C-007 and C-008 revised July 12, 2022, and sheets C-004 and C-006 revised November 4, 2022. The purpose of the project is to improve public access to the Connecticut River for fishing and boating.

Specifically, the following work is proposed:

- Remove two (2) existing timber pier and concrete-surface overlooks; including the removal of 54 existing timber piles from above the mudline; and

- Install a new approximately 85-ft. long x 10-ft wide concrete-decked, fixed fishing pier with a 20-ft. x 11-ft. L-shaped pierhead and deck elevation of 15-ft. (NAVD88), supported by fourteen, 16-in. diameter, concrete-filled steel pipe piles. Approximately 90 feet of the total fishing pier length (includes 20 feet of the pierhead length) extends into the waterway beyond Mean High Water (MHW). Also, to

- Install a 24-in. diameter concrete-filled steel pipe pile approximately 6-in. from the western corner of the L- pierhead of the fishing pier; and

- Install 80 linear feet of orange debris boom at the water surface (with no appurtenances beneath) waterward of MHW anchored to the upland and the

24-in. diameter pile described above, to help protect the boat ramp and float(s) and reduce maintenance costs associated with debris removal; and

- At the existing dock on the southern side of the public boat launch ramp: remove 7 pairs (total of 14) of existing 10-in. diameter timber ADA float support piles and replace them with 10 pairs (total of 20) 10-in. diameter timber ADA float support piles (net increase of 3 pairs, or 6 new ADA float support piles); and install two 16-in. diameter concrete-filled, steel pipe float restraint piles; and

- Also, at the existing dock on the southern side of the public boat launch ramp: install/attach three (3) new floats, consisting of: a 25.5-ft. long x 8-ft. wide float, a 5-ft. long by 8-ft. wide float, and a 30-ft. long x 6-ft. wide float.

Based on the information you have provided, we verify that the activity is authorized under General Permit # 4 of the enclosed December 15, 2021, Federal permit known as the Connecticut General Permits (GPs). This verification is subject to the following special conditions:

1. If pile driving is occurring during a time of year when ESA-listed species may be present, and the anticipated noise is above the behavioral noise threshold, a “soft start” is required to allow animals an opportunity to leave the project vicinity before sound pressure levels increase. In addition to using a soft start at the beginning of the workday for pile driving, one must also be used at any time following cessation of pile driving for a period of 30 minutes or longer.

For impact pile driving: pile driving will commence with an initial set of three strikes by the hammer at 40% energy, followed by a one minute wait period, then two subsequent 3-strike sets at 40% energy, with one-minute waiting periods, before initiating continuous impact driving.

For vibratory pile installation: pile driving will be initiated for 15 seconds at reduced energy followed by a one-minute waiting period. This sequence of 15 seconds of reduced energy driving, one-minute waiting period will be repeated two additional times, followed immediately by pile-driving at full rate and energy.

2. Fisheries Protection: Pile driving and/or pile removal is prohibited between December 1st to June 30th, inclusive, of any year unless otherwise authorized in writing by the CT DEEP Commissioner. The specific closure dates are as follows December 1st to March 31st, inclusive to protect federally endangered shortnose sturgeon; and April 1st to June 30th, inclusive to protect diadromous fish migration and spawning.

3. Float stops shall be used to prevent the subsurface of the floats from resting on the substrate during low water conditions.

4. You must complete and return the enclosed Work Start Notification Form to this office at least two weeks before the anticipated starting date.

Further, since it has been determined that the activities authorized do not impair the usefulness of the Connecticut River Left Bank & Hockanum River Right Bank - East Hartford, CT Flood Risk Management System (FRMS) in East Harford, operated and maintained by the USACE and Town of East Hartford, Connecticut, and is not injurious to the public interest, this authorization also constitutes your approval under Section 14 of the Rivers and Harbors Act of 1899 (33 U.S.C. 408). To comply with the permission to alter portions of the Connecticut River Left Bank & Hockanum River Right Bank - East Hartford, CT Flood Risk Management System (FRMS) in East Harford, Connecticut, the permittee shall comply with all the terms and conditions outlined on the attached letter dated September 25, 2024, addressed to Marc Nicol, Director of Planning & Park Development, Riverfront Recapture, Inc., from David I. Margolis, P.E., PMP, Chief, Engineering Division, Levee Safety Officer. Please note that included in the Special Conditions in the 9-25-2024 letter, are three (3) conditions requiring that documents be submitted to USACE at least 30 days prior to the start of construction.

Please review the enclosed GPs and general conditions carefully to be sure that you and whoever does the work understand its requirements. A copy of the GPs and this verification letter shall be available at the project site throughout the time the work is underway. Performing work within our jurisdiction that is not specifically authorized by this determination or failing to comply with any special condition(s) provided above or all the terms and conditions of the GPs may subject you to the enforcement provisions of our regulations.

This authorization expires on December 15, 2026, unless the GPs are modified, suspended, or revoked before then. You must commence or have under contract to commence the work authorized herein by December 15, 2026 and complete the work by December 15, 2027. If not, you must contact this office to determine the need for further authorization before beginning or continuing the activity. We recommend that 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 authorization does not obviate the need to obtain other Federal, state, or local authorizations required by law.

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 https://regulatory.ops.usace.army.mil/customer-service-survey/

Please contact Paula Kullberg, of my staff, at (978) 318-8170 if you have any questions.

Ryan Malterud
Deputy Chief
Regulatory Division

Enclosures

cc:
CT DEEP, Chief, Land & Water Resources Division, Darcy Winther: Darcy.Winther@ct.gov
CT DEEP, Permit Analyst, LWRD, Farrah Ashe: Farrah.Ashe@ct.gov
Town of East Hartford, John Lawlor: engineering@easthartfordct.gov
GEI Consultants, Inc., Brad Saunders: bsaunders@geiconsultants.com
GEI Consultants, Inc., John McGrane: jmcgrane@geiconsultants.com
Chief, CENAE-ENG, David I. Margolis: David.I.Margolis@usace.army.mil

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

September 25, 2024

Engineering Division
Geotechnical/Water Resources Branch

Marc Nicol
Director of Planning & Park Development
Riverfront Recapture, Inc.
10 Columbus Boulevard
Hartford, CT 06016

Dear Mr. Nicol:

This letter is regarding the Riverfront Recapture, Inc. request to perform the proposed Great River Park Improvement Project, which could impact portions of the Connecticut River Left Bank & Hockanum River Right Bank - East Hartford, CT Flood Risk Management System (FRMS) in East Harford, Connecticut.

The New England District of the U.S. Army Corps of Engineers (USACE) has completed its review of the request to perform the proposed project under Section 14 of the Rivers and Harbors Act of 1899, 33 U.S.C. § 408 (Section 408). This evaluation was performed consistent with Engineer Circular (EC) 1165-2-220. Based on this evaluation, the New England District is granting permission to execute the Great River Park Improvement Project as specified in the request and subject to compliance with the terms and conditions below.

The proposed project is located at the Connecticut River Left Bank & Hockanum River Right Bank - East Hartford, CT Flood Risk Management System (FRMS), which was constructed between December 1938 and July 1943. The FRMS was authorized by the Flood Control Act of 28 June 1938 (House Document No. 455, 75th Congress, 2d Session), as modified by Public No. 859, 76th Congress, approved 15 October 1940.

Prior to construction of the FRMS, the town of East Hartford entered a Local Cooperation Agreement (LCA) with USACE. The town of East Hartford provided the lands, easements, and rights-of-way needed to construct the project and agreed to operate and maintain the project once it was constructed. The town of East Hartford is the non-federal sponsor for this FRMS. The East Hartford Department of Public Works (DPW) currently operates and maintains the FRMS.

The FRMS is approximately 20,700 feet long and extends from high ground near Greene Terrace to high ground near the intersection of Brewer Lane and Central

Avenue in the south. Work will be primarily performed in the Great River Park adjacent to a section of levee embankment along the Connecticut River. The improvement work in Great River Park will include:

- Removing the existing waterfront fishing pier and observation platforms.
- Constructing a new pile supported fishing pier with greater riverward extension.
- Modifying the existing floating dock for ADA compliance.
- Improving lighting and signage adjacent to the levee toe and on the levee surface and making landscape, lighting, and hardscape improvements within the levee right of way.
- Making minor structural repairs to staircase over the levee and connecting ramps.

The USACE New England District, in accordance with guidance and Title 33 United States Code Section 408 (33 USC 408) requirements, reviewed the information supplied in the following documents:

- Submittal titled *Great River Park Improvement Project, East Hartford, CT USACE Section 408 Permit Application* prepared by the Town of East Hartford, dated 23 March 2023.
- Plan Set titled *Great River Park Improvements*, prepared by GEI Consultants, dated 13 September 2021, revised 5 August 2022.
- Report titled *Hydraulic Analysis, Great River Park, Connecticut River, East Hartford, CT*, prepared by GEI Consultants, dated 21 March 2023.
- Plan Set titled *Right of Way Survey of the East Hartford Dike*, prepared by BSC Group, dated 24 January 2014.

The permission for the above-referenced project is contingent upon adhering to the attached Standard Terms and Conditions and the following Special Conditions:

- At least 30 days prior to the start of construction, provide a copy of the contract plans and specifications issued for construction to USACE.
- At least 30 days prior to the start of construction, provide a copy of the construction schedule to USACE.
- At least 30 days prior to the start of construction, submit the Monitoring and Operations Plan to USACE for review and approval. The plan shall be prepared in

accordance with the requirements outlined in the document *Great River Park Improvement Project, East Hartford, CT USACE Section 408 Permit Application*, dated 23 March 2023.

- Within 90 days of the completion of the project, the town of East Hartford shall provide USACE a Completion of Work Report. This report should be an electronic copy in "pdf" format containing a copy of "As-Built" drawings, the associated conformed technical specifications, material specifications/product data sheets for the materials used for final construction, results of any required materials testing, pre- and post-construction condition surveys, and photographs documenting the construction. The report should be signed and sealed by a professional engineer.

- Within 180 days of the completion of the project, the town of East Hartford must submit an update to the O&M Manual to USACE documenting the modifications to the levee system and addressing any required changes to the FRMS operations and maintenance associated with the proposed project for review and approval.

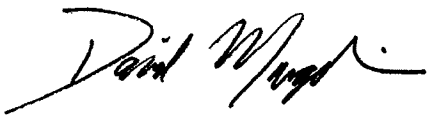
- All vertical data shall be in North American Vertical Datum of 1988 (NAVD88), which is the current orthometric vertical reference datum within the National Spatial Reference System. A datum conversion shall be provided to the National Geodetic Vertical Datum of 1929 (NGVD29) to establish the relationship with the original design reference datum.

- The proposed project components are not integral to the Town's flood control operations. As such, the proposed project elements are not eligible for repair in accordance with the Rehabilitation Program under Public Law 84-99. Only the existing portions of the FRMS will be eligible for repair under Public Law 84-99.

- Any changes or amendments to the above referenced documents or drawings shall be submitted to USACE for acceptance *prior* to implementation.

Be assured that USACE holds life and public safety paramount with regards to protecting the residents behind the Connecticut River Left Bank & Hockanum River Right Bank - East Hartford, CT FRMS. Should you have any further questions or concerns, please feel free to contact Alex Garneau, Project Manager, at (978) 318-8389 or Kevin DiRocco, at (978) 318-8396.

Sincerely,



David I. Margolis, P.E., PMP
Chief, Engineering Division
Levee Safety Officer

STANDARD TERMS AND CONDITIONS

LIMITS OF THE AUTHORIZATION

1. This permission only authorizes you, the requester, to undertake the activity described herein under the authority provided in Section 14 of the Rivers and Harbors Act of 1899, as amended (33 USC 408). This permission does not obviate the need to obtain other federal, state, or local authorizations required by law. This permission does not grant any property rights or exclusive privileges, and you must have appropriate real estate instruments in place prior to construction and/or installation.

2. The time limit for completing the work authorized ends on December 31, 2029. If you find that you need more time to complete the authorized activity, submit your request for a time extension to this office for consideration at least one month before the above date is reached.

3. Without prior written approval of the USACE, you must neither transfer nor assign this permission nor sublet the premises or any part thereof, nor grant any interest, privilege, or license whatsoever in connection with this permission. Failure to comply with this condition will constitute noncompliance for which the permission may be revoked immediately by USACE.

4. The requester understands and agrees that, if future operations by the United States require the removal, relocation, or other alteration of the work herein authorized, or if, in the opinion of the Secretary of the Army or an authorized representative, said work will cause unreasonable conditions and/or obstruction of USACE project authorized design, the requester will be required upon due notice from the USACE, to remove, relocate, or alter the structural work or obstructions caused thereby, without expense to the United States. No claim can be made against the United States on account of any such removal or alteration.

INDEMNIFICATION AND HOLD HARMLESS

5. The United States will in no case be liable for:

    a. any damage or injury to the structures or work authorized by this permission that may be caused or result from future operations undertaken by the United States, and no claim or right to compensation will accrue from any damage; or

    b. damage claims associated with any future modification, suspension, or revocation of this permission.

12. In the event of any deficiency in the design or construction of the requested activity, you are solely responsible for taking remedial action to correct the deficiency.

13. The right is reserved to the USACE to enter upon the premises at any time and for any purpose necessary or convenient in connection with government purposes, to make inspections, to operate and/or to make any other use of the lands as may be necessary in connection with government purposes, and you will have no claim for damages on account thereof against the United States or any officer, agent, or employee thereof.

14. You must provide copies of pertinent design, construction, and/or usage submittals/documents. USACE may request that survey and photographic documentation of the alteration work and the impacted project area be provided before, during, and after construction and/or installation.

15. You may be required to perform an inspection of the federal project with the USACE, prior to your use of the structure, to document existing conditions.

16. USACE shall not be responsible for the technical sufficiency of the alteration design nor for the construction and/or installation work.

17. Once permission is granted, you must notify the USACE District at least fourteen (14) days before work/usage is started so that post-permission oversight can be performed by USACE.

Applicant: General Public, State of Connecticut **Effective Date: December 15, 2021**
Expiration Date: December 15, 2026

CONDITIONS INDEX TO THE

DEPARTMENT OF THE ARMY
REGIONAL GENERAL PERMITS FOR THE
STATE OF CONNECTICUT

1.APPENDIX B GENERAL CONDITIONS……. pg. 2
Applicable to all activity categories pertinent to the project type

2.CT DEEP SECTION 401 WATER QUALITY CONDITIONS……..pg. 14
Applicable only to GP Nos. 1 through 9 and GP Nos. 16 through 23

3.APPENDIX C STANDARD AQUACULTURE CONDITIONS……pg. 22
Applicable only to GP No. 16

4.APPENDIX G STREAM CROSSING BMPs……..pg. 25
Applicable to GP Nos. 2 and 19

5.APPENDIX H CONDITION AND RESTRICTIONS IN STREAMS……pg. 28
Applicable to work in coastal and inland streams with
diadromous (migratory) fish

APPENDIX B - GENERAL CONDITIONS

1. Other Permits. Authorizations provided by these GPs do not obviate the need for project proponents to obtain other Federal, State, or local permits, approvals, or authorizations required by law. Applicants are responsible for applying and obtaining all such permits, approvals or authorizations. Work that is not regulated by the State, but subject to USACE jurisdiction, may be still be eligible for these GPs.

2. Federal Jurisdiction

a. Applicability of these GPs shall be evaluated with reference to federal jurisdictional boundaries (e.g., mean high water mark (MWH), high tide line (HTL), ordinary high water mark (OHW), and wetland boundary). Activities shall be evaluated with reference to "waters of the U.S." under the Clean Water Act (33 CFR 328) and "navigable waters of the U.S." under Section 10 of the Rivers and Harbors Act of 1899 (33 CFR 329). Prospective permittees are responsible for ensuring that the boundaries satisfy the federal criteria defined at 33 CFR 328 – 329. These sections prescribe the policy, practice, and procedures to be used in determining the extent of USACE jurisdiction.

b. Permittees shall identify the following aquatic resources on project plans: wetlands and other special aquatic sites (SAS) including vegetated shallows (also known as submerged aquatic vegetation (SAV)), riffle and pool complexes, sanctuaries and refuges, coral reefs, and mudflats; and other waters such as lakes and ponds; and perennial and intermittent streams on the project site. Wetlands shall be delineated in accordance with the Corps of Engineers Wetlands Delineation Manual and its applicable regional supplement.

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

a. Activities shall be designed and constructed to avoid and minimize adverse effects, both temporary and permanent, to waters of the U.S. to the maximum extent practicable at the project site (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 unavoidable impacts 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.

Note: The USACE Connecticut In-Lieu Fee Program allows USACE permittees, as compensation for their project impacts to aquatic resources of the U.S. in Connecticut to make monetary payment *in-lieu* of permittee-responsible mitigation. Information is provided at https://www.nae.usace.army.mil/Missions/Regulatory/Mitigation/In-Lieu-Fee Programs/CT/. This only applies to USACE required mitigation and additional CT DEEP mitigation may be required.

4. Discretionary Authority. Notwithstanding compliance with the terms and conditions of this permit, USACE 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 USACE 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 cumulative adverse environmental effects that are more than minimal, or if there is a special resource or concern

[1] Compensatory mitigation sites proposed to offset losses of aquatic resource function must comply with the applicable provisions of 33 CFR 332. See also the New England District Compensatory Mitigation Standard Operating Procedures 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).

associated with a particular project. Whenever USACE notifies an applicant that an Individual Permit may be required, authorization under these GPs is voided and no work may be conducted in waters of the U.S. until a USACE Individual Permit is obtained or until USACE notifies the applicant that further review has demonstrated that the work may be reviewed under these GPs.

5. Fills Within 100-Year Floodplains. The activity shall comply with applicable Federal Emergency Management Agency (FEMA)-approved State of Connecticut or local floodplain management requirements. Permittees should contact FEMA and/or the State of Connecticut regarding floodplain management requirements.

6. 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 USACE determines the activity has independent utility, all components of a single project and/or all planned phases of a multi-phased project (e.g., subdivisions should include all work such as roads, utilities, and lot development) shall be 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.

7. Use of Multiple General Permits. The use of more than one GP for a single and complete project is prohibited, except when the acreage loss of waters of the U.S. authorized by the GPs does not exceed the acreage limit of the GPs with the highest specified acreage limit. For example, if a road crossing over waters is constructed under GP 19, with an associated utility line crossing authorized by GP 6, if the maximum acreage loss of waters of the U.S. for the total project is ≥1 acre it shall be evaluated as an IP.

8. USACE Property and Federal Projects

a. USACE projects and property can be found at: www.nae.usace.army.mil/Missions/Civil-Works

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

c. Any proposed temporary or permanent 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 USACE pursuant to Section 14 of the Rivers and Harbors Act of 1899 (33 USC 408) (Section 408)

d. A PCN is required for all work in, over, under, or within a distance of three times the authorized depth of a USACE Federal Navigation Project (FNP) and may also require permission under Section 408.

e. Any structure or work that extends closer than a distance of three times the project's authorized depth to the horizontal limits of any FNP shall be subject to removal at the owner's expense prior to any future USACE dredging or the performance of periodic hydrographic surveys.

f. Where a Section 408 permission is required, written verification for the PCN will not be issued prior to the decision on the Section 408 permission request.

9. 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 and require either a PCN or Individual Permit.

10. Wild and Scenic Rivers

a. The following activities in designated rivers of the National Wild and Scenic River (WSR) System, or in a river designated by Congress as a "study river" for possible inclusion in the system, require a PCN or IP unless the National Park Service (NPS) has determined in writing to the proponent that the proposed work will not adversely affect the WSR designation or study status:

(1) Activities that occur in WSR segments, in and 0.25 mile up or downstream of WSR segments, or in tributaries within 0.25 miles of WSR segments;

(2) Activities that occur in wetlands within 0.25 mile of WSR segments; or

(3) Activities that have the potential to alter free-flowing characteristics in WSR segments. The District Engineer will coordinate the application with the NPS or its designee with direct management responsibility for that river.

b. 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).

c. As of 2021, designated 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); the Lower Farmington River from Canton to Windsor (study river – including its tributary Salmon Brook) and the Wood & Pawcatuck Rivers. Additional information can be found at: http://www.rivers.gov/connecticut.php.

11. Historic Properties

a. No undertaking shall cause effects (defined at 33 CFR 325 Appendix C and 36 CFR 800) to 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 USACE 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:

(1) Previously identified historic properties; and

(2) Areas with potential for the presence of historic or cultural resources, which may require identification and evaluation by qualified historic preservation and/or archaeological consultants or tribal entities in consultation with USACE and the SHPO and/or THPO(s).

b. For activities eligible for SV, proponents must document that the activity will not cause effects as stated in 11(a). To comply with this condition, both SV and PCN prospective permittees shall notify the CT SHPO and THPOs for projects in close proximity to tribal lands or with potential impacts to tribal lands and request their identification of historic properties and cultural resources. The notification shall consist of the project location, plans, and brief narrative and state that a federal permit is required. Documentation of the notification to the SHPO/THPO shall be included with the SV or PCN submittal and dated. If no response is received within 30-days from the SHPO/THPO notification, the Corps may proceed to a permit decision on an SV or PCN. A PCN or IP is required if any activity may have an adverse effect on a historic property or cultural resource.

[3] Many 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 USACE and the SHPO and/or THPO(s).

c. Proponents must submit a PCN to USACE as soon as possible if the authorized activity may cause effects as stated in 11(a) to ensure that USACE is aware of any potential effects of the permitted activity on any historic property or cultural resource so that the consultation requirements of Section 106 of NHPA can be satisfied.

d. All PCN (inland projects) submittals shall:

1) show notification to the SHPO and applicable THPO(s) for their identification of historic properties or cultural resources (https://portal.ct.gov/-/media/DECD/Historic-Preservation/01_Programs_Services/Environmental-Review/ProjectNotificationForm_2021.pdf). If no response is received within 30-days from the SHPO/THPO notification, the Corps may proceed to a permit decision on an SV or PCN.

2) state which historic properties or cultural resources may be affected by the proposed work or include a vicinity map indicating the location of them, and

3) include any available documentation from the SHPO or THPO(s) indicating that there are, or are not, historic properties or cultural resources 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.

f. Federal agencies should follow their own procedures for complying with the requirements of Section 106 of the NHPA. Along with the application, Federal permittees shall provide USACE with the appropriate documentation to demonstrate compliance with those requirements.

g. Federal and non-federal applicants should coordinate with USACE before conducting any onsite archeological work (reconnaissance, surveys, recovery, etc.) requested by the SHPO or the THPOs, as USACE will determine the permit area for the consideration of historic properties based on 33 CFR 325 Appendix C. This is to ensure that work done is in accordance with USACE requirements.

12. Federal Threatened and Endangered Species

a. No activity is authorized by these GPs which:

(1) Is likely to directly or indirectly jeopardize the continued existence of a threatened or endangered species or a species proposed for such designation, as identified under the Federal Endangered Species Act (ESA), or which will directly or indirectly destroy or adversely modify the critical habitat or proposed critical habitat of such species.

(2) "May affect" a listed species or critical habitat, unless Section 7 consultation addressing the effects of the proposed activity has been completed.

(3) Is "likely to adversely affect" a listed species or critical habitat unless Section 7 consultation has been completed by USACE or another lead action agency in coordination with USACE.

(4) Violates the ESA.

b. All prospective permittees shall attach to their SVNF or PCN an Official Species List obtained from the U.S. Fish and Wildlife Service's Information for Planning and Consultation (IPaC) found at: *https://ecos.fws.gov/ipac* and provide the email address of the person who generated the list.

c. For proposed activities in waters with tidal influence, prospective permittees shall also refer to the National Oceanic and Atmospheric Administration (NOAA) Fisheries' Section 7 Mapper for federally-listed species found at: *https://noaa.maps.arcgis.com/apps/webappviewer/index.html.*

Several tidal freshwater waterways in Connecticut have been identified as foraging and overwintering areas, or designated as critical habitat, for the endangered Atlantic sturgeon and shortnose sturgeon. The extent of these waterways is highlighted below. The list of waters below does not include higher salinity coastal tidal creeks and brackish waterways which also possess habitat for these species, so it is strongly recommended that applicants refer to the NOAA Section 7 mapper (link above) for all work in waterways that may have tidal influence:

- Mainstem Housatonic River from Long Island Sound (LIS) to the upstream limit of the Derby Dam in Shelton, CT (Atlantic sturgeon critical habitat; migrating and foraging habitat for Atlantic sturgeon and shortnose sturgeon).
  - Naugatuck River confluence with the Housatonic River up to the Naugatuck River Reservoir dam in Ansonia, CT.
- Quinnipiac River from LIS to the bridge/intersection of Quinnipiac Street and River Road, Wallingford, CT (migrating and foraging habitat for Atlantic sturgeon and shortnose sturgeon).
- Mainstem Connecticut River from LIS to the Massachusetts Border (Atlantic sturgeon critical habitat; spawning, migrating, and foraging for Atlantic sturgeon; overwintering, migrating, and foraging for shortnose sturgeon).
  - Salmon River confluence at Connecticut River to the dam at Powerhouse Road, Leesville, CT
  - Farmington River confluence with the Connecticut River to Tunxis Road, Tariffville, CT
  - Pattaconk Brook confluence with the Connecticut River to North Quarter Park, Chester, CT
  - Confluence of Hamburg Cove with the Connecticut River to Eightmile River at Joshuatown Road/Old Hamburg Road, Hamburg, CT.
  - Lord Creek confluence with the Connecticut River to Coults Hole and Mack Creek to Lord Hill Lane, Lyme, CT.
  - North Cove confluence with Connecticut River and Falls River confluence in North Cove to River Road, Essex, CT.
  - Mattabassett River confluence at the Connecticut River to Rt. 3, northeast of Newfield Street in Middletown, CT.
  - Coginchaug River confluence with the Mattabassett River to Johnson Street north of the Providence & Worcester Railroad.
  - Selden Creek, Lyme, CT.
- Mainstem of the Thames River to Norwich, Connecticut (migrating and foraging habitat for Atlantic sturgeon and shortnose sturgeon).
  - Shetucket River confluence with Thames River up to Greenville Dam, Greenville, CT
  - Yantic River confluence with the Thames River to Yantic Falls, Norwich, CT.
  - Horton Cove confluence with the Thames River to Stony Brook and Mohegan Brook, Montville, CT.
  - Poquetanuck Cove confluence with the Thames River to Poquetanuck Brook at Shingle Road, Poquetanuck, CT.

d. A PCN is required if a threatened or endangered species, a species proposed for listing as threatened or endangered, or designated or proposed critical habitat (all hereinafter referred to as "listed species or habitat"), as identified under the ESA, may be affected by the proposed work, unless consultation is completed by another lead Federal agency, in which case, an application can be SV. An activity may remain eligible for SV if the only listed species affected is the northern long-eared bat (*Myotis septrionalis*), and only after Section 7 consultation has been completed by USACE under the 4(d) Rule Streamlined Consultation.

e. Federal agencies shall follow their own procedures for complying with the requirements of the ESA while ensuring that USACE and any other federal action agencies are included in the consultation process.

f. Non-federal representatives designated by USACE to conduct informal consultation or prepare a biological assessment shall follow the requirements in the designation document(s) and the ESA. Non-federal representatives shall also provide USACE with the appropriate documentation to demonstrate compliance with those requirements. The USACE will review the documentation and determine whether it is sufficient to address ESA compliance for the GP activity, or whether additional ESA consultation is necessary.

g. The requirements to comply with Section 7 of the ESA may be satisfied by a programmatic agreement (PA) or programmatic consultation (PC) with USACE, the New England District, or another federal agency. New England District PAs and PCs are found at: https://www.nae.usace.army. mil/Missions/Regulatory/State-General-Permits/Connecticut-General-Permit.

13. Pile Installation and Removal and Related Time of Year Restrictions

a. Derelict, degraded, or abandoned piles and sheet piles in the project area shall be removed in their entirety as practicable and properly disposed of in an upland location and not in wetlands or other waters of the U.S. In areas of fine-grained substrates, piles/sheets shall be removed by direct, vibratory, or clamshell pull method to minimize potential turbidity and sedimentation impacts. If removal is not practicable, said piles/sheets shall be cut off or driven to a depth of, at least, one foot below substrate.

b. Work involving pile installation and/or removal should occur "In-the-dry" or adhere to the applicable waterbody's time-of-year restrictions in Appendix H.

14. 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 or otherwise, 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 USACE FNP 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 USACE 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 USACE, to remove, relocate, or alter the structural work or obstructions caused thereby, without expense to the U.S. No claim shall be made against the U.S. on account of any such removal or alteration.

f. A PCN is required for all work in, over or under an FNP or its buffer zone unless otherwise indicated in Appendix A. as the work may also require a Section 408 permit.

15. Federal Liability. In issuing these permits, 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; and/or (e) damage claims associated with any future modification, suspension, or revocation of these permits.

16. 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 construction mats if working within a wetland. Dragging construction mats into position is prohibited. Other support structures that are capable of safely supporting equipment may be used with written USACE authorization. Similarly, the permittee may request written authorization from USACE 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 BMPs:

- 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.
- Construction mats shall be thoroughly cleaned before re-use to minimize spread of invasive species.

17. Temporary Fill

a. Temporary fill, including but not limited to 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 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.

18. 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 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.

19. Coastal Bank Stabilization. Projects involving construction or reconstruction/maintenance of bank stabilization structures within USACE 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 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. For more information, go to the USACE Coastal Engineering Manual (supersedes the Shore Protection Manual) located at https://www.nae.usace.army.mil/Missions/Regulatory/Useful-Documents-Forms-and-Publications/. Select "Products/ Services," "Publications." Part 5, Chapter 7-8, a (2) c.

20. 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 OHW or HTL, must be permanently stabilized at the earliest practicable date. Permittees are encouraged to perform work within waters of the U.S. during periods of low-flow or no-flow, or during low tides.

21. 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:

(1) Suitably culverted, bridged, or otherwise designed and constructed to maintain low flows to sustain the movement of those aquatic species; and

(2) 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).

d. Refer to Appendix G for Stream Crossing BMPs.

22. 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 six months of the effective date of such revision or modification, or within a longer period 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).

23. 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.

24. 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 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.

25. 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.

26. Vernal Pools.

a. A PCN is required if a discharge of dredged or fill material is proposed within a vernal pool depression located within waters of the U.S.

b. GC 26(a) above does not apply to projects that are within a municipality that meets the provisions of a USACE-approved vernal pool Special Area Management Plan (SAMP) and are otherwise eligible for SV, and the applicant meets the requirements to utilize the vernal pool SAMP.

27. 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 USACE, all applications for PCN inland projects proposing fill in USACE jurisdiction shall include an Invasive Species Control Plan. Additional information can be found at www.nae.usace.army.mil/missions/regulatory/invasive-species and https://cipwg.uconn.edu/

28. 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 all contracts and sub-contracts for work that affects areas of USACE jurisdiction at the site of the work authorized by these GPs. This shall be achieved by including the entire permit authorization in the specifications for work. The term "entire permit authorization" means these GPs, including GCs and the authorization letter (including its drawings, plans, appendices, and other attachments) and 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 USACE jurisdiction.

29. Inspections. The permittee shall allow USACE to make periodic inspections at any time deemed necessary to ensure that the work is being or has been performed in accordance with the terms and conditions of this permit. To facilitate these inspections, the permittee shall complete and return to USACE the Work-Start Notification Form and the Compliance Certification Form when either is provided with a verification letter. The USACE may also require post-construction engineering drawings for completed work or post-dredging survey

drawings for any dredging work.

30. 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 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 USACE 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).

31. Property Rights. Per 33 CFR 320.4(g)(6), these GPs do not convey any property rights, either in real estate or material, or any exclusive privileges, nor does it authorize any injury to property or invasion of rights or any infringement of federal, state, or local laws or regulations.

32. Transfer of GP Verifications. If the permittee sells the property associated with a GP verification, the permittee may transfer the GP verification to the new owner by submitting a letter to this office to validate the transfer. A copy of the GP verification must be attached to the letter, and the letter must contain the following statement and signature:

When the structures or work authorized by this general permit are still in existence at the time the property is transferred, the terms and conditions of this general permit, including any special conditions, will continue to be binding on the new owner(s) of the property. To validate the transfer of this general permit and the associated liabilities associated with compliance with its terms and conditions, have the transferee sign and date below.

_____(Transferee)
_____(Date)

33. Modification, Suspension, and Revocation. These GPs and any individual authorization 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.

34. Special Conditions. The USACE 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.

35. False or Incomplete Information. If USACE decides 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.

36. 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 USACE.

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

38. Previously Authorized Activities

a. Completed projects that received prior authorization from USACE (via SV or PCN), shall remain authorized in accordance with the original terms and conditions of those authorizations, including their terms, general conditions, and any special conditions provided in a written verification.

b. Activities authorized pursuant to 33 CFR Part 330.3 ("Activities occurring before certain dates") are not affected by these GPs.

39. Duration of Authorization

a. 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 USACE satisfaction that the project had commenced or was under contract by the expiration date of these GPs. If work is not completed within the one-year extended timeframe, the permittee must contact USACE. The USACE may issue a new authorization provided the project meets the terms and conditions of the CT GPs in effect at the time.

b. 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 require an Individual Permit in accordance with 33 CFR 325.2(e)(2), or the authorization is modified, suspended, or revoked in accordance with 33 CFR 325.7. Activities completed under the SV or PCN authorizations of these GPs will continue to be authorized after its expiration date.

Tammy Turley, Regulatory Division
U.S. Army Corps of Engineers New England District
696 Virginia Road
Concord, MA 01742-2751

RE: **SECTION 401 WATER QUALITY CERTIFICATION**
Department of the Army
General Permits for the State of Connecticut 2021
CT DEEP License No.: WQC-202108351 (Non-Tidal),
WQC-202108352 (Tidal) & FCC-202108353

NON-TIDAL WATERS, WETLANDS AND WATERCOURSES

Pursuant to Section 401 of the Federal Clean Water Act (33 USC 1341), and except for those activities specifically waived or denied herein, Water Quality Certification is hereby **granted with conditions** for activities that comport with the water quality standards contained within section 22a-426-1 et seq. of the Regulations of Connecticut State Agencies and with terms, limitations and conditions specified in this Certification for the Department of the Army, Regional General Permits for the State of Connecticut ("RGPs"), dated July 16th and revised July 19th, 2021 for activities, including but not limited to, the construction or operation of facilities, which may result in any discharge into the waters of the State. Such terms, limitations and conditions of this permit are outlined in the **General Terms and Conditions** contained herein.

This certification does not apply in cases where the Commissioner has deemed an activity to have greater than minimal direct, indirect, secondary or cumulative impacts to state waters.

Pursuant to Section 401 of the Federal Clean Water Act (33 USC 1341), Water Quality Certification is hereby **waived** in entirety for GP 10., GP 11., GP 12., GP 13., GP 14. and GP 15.

Further, the following limited activities that are potentially authorized by this RGP are **not eligible** for Section 401 Water Quality Certification under this general permit certification and will instead require an individual 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)].

TIDAL, COASTAL AND NAVIGABLE WATERS

With respect to tidal, coastal and navigable waters, Section 401 Water Quality Certification is granted conditionally for Self-Verification (SV) and Pre-Construction Notification (PCN) eligible activities. The conditional granting of Section 401 Water Quality Certification for SV and PCN eligible activities is subject to the applicant obtaining the appropriate Structures, Dredging and Fill authorization, Tidal Wetland authorization, or Coastal Consistency Concurrence, and the Commissioner finding that the activity is reasonably likely to have no more than minimal impact on water quality individually or cumulatively. Substantive evaluations of consistency of individual activities, listed under the GP in Section 2, paragraph II. with state water quality standards and coastal management policies will be conducted at the time of application.

Pursuant to Section 307(c)(1) of the Coastal Zone Management Act the proposed regional general permits were reviewed and determined to be consistent with the enforceable policies of Connecticut's federally approved Coastal Management Program as contained in Sections 22a-90 through 22a-112 of the Connecticut General Statutes

GENERAL TERMS AND CONDITIONS

Section 401 Water Quality Certification **granted with the following conditions** for **NON-TIDAL WATERS, WETLANDS and WATERCOURSES**, and **TIDAL, COASTAL and NAVIGABLE WATERS:**

1. **Activities in Non-tidal Waters**. A written determination of concurrence of eligibility for Section 401 Water Quality Certification prior to the start of construction from the Commissioner is required for all Pre-Construction Notification (PCN) for non-tidal activities. Applicants seeking a written concurrence of eligibility for PCN activities must submit an application to the Connecticut Department of Energy and Environmental Protection (CT DEEP) on

such form as the Commissioner may prescribe and with such information as the Commissioner deems necessary to fulfill the purposes of Section 401 of the Federal Clean Water Act and to determine compliance with the conditions of this Water Quality Certification. Upon completion of the review and evaluation of such application, the Commissioner will issue either a written concurrence of eligibility determination of Section 401 Certification upon such terms, limitations or conditions as the Commissioner deems necessary, or a written determination that an individual Section 401 Water Quality Certification is required for the proposed activity or activities. CT DEEP shall give the applicant a written concurrence of eligibility or a notification that the applicant must obtain an individual 401 Water Quality Certification within 120 days of receiving a complete request for a concurrence of eligibility.

2. **Best Management Practices.** In constructing or maintaining the activities authorized herein, the permittee shall employ best management practices in accordance with Section 22a-426-1 of the Regulations for Connecticut State Agencies, consistent with the terms and conditions of this certificate, to control storm water discharges and erosion and sedimentation and to prevent pollution. Such practices to be implemented by the permittee at the site include, but are not necessarily limited to:

    a. Prohibiting dumping of any quantity of oil, chemicals or other deleterious material on the ground;

    b. Immediately informing the Commissioner's Oil and Chemical Spill Response Division at (860) 424-3338 (24 hour phone line) of any adverse impact or hazard to the environment, including any discharges, spillage, or loss of oil or petroleum or chemical liquids or solids, which occurs or is likely to occur as the direct or indirect result of the activities authorized herein;

    c. Separating staging areas at the site from the regulated areas by silt fences or straw/hay bales at all times;

    d. Prohibiting storage of any fuel and refueling of equipment within twenty-five (25) feet from any wetland or watercourse;

    e. Preventing pollution of wetlands and watercourses in accordance with the document "Connecticut Guidelines for Soil Erosion and

Sediment Control" as revised. Said controls shall be inspected by the permittee for deficiencies at least once per week and immediately after each rainfall and at least daily during prolonged rainfall. The permittee shall correct any such deficiencies within 48 hours of said deficiencies being found;

f. Stabilizing disturbed soils in a timely fashion to minimize erosion. If a grading operation at the site will be suspended for a period of thirty (30) or more consecutive days, the permittee shall, within the first seven (7) days of that suspension period, accomplish seeding and mulching or take such other appropriate measures to stabilize the soil involved in such grading operation. Within seven (7) days after establishing final grade in any grading operation at the site the permittee shall seed and mulch the soil involved in such grading operation or take such other appropriate measures to stabilize such soil until seeding and mulching can be accomplished.

g. Prohibiting the storage of any materials at the site which are buoyant, hazardous, flammable, explosive, soluble, expansive, radioactive, or which could in the event of a flood be injurious to human, animal or plant life, below the elevation of the five hundred (500) year flood. Any other material or equipment stored at the site below said elevation by the permittee or the permittee's contractor must be firmly anchored, restrained or enclosed to prevent flotation. The quantity of fuel stored below such elevation for equipment used at the site shall not exceed the quantity of fuel that is expected to be used by such equipment in one day.

h. Immediately informing the Commissioner's Land & Water Resources Division at (860) 424-3019 and the U.S. Army Corps of Engineers' Permit Compliance Section at (617) 647-8674, of the occurrence of pollution or other environmental damage resulting from construction or maintenance of the authorized activity or any construction associated therewith in violation of this certificate. The permittee shall, no later than 48 hours after the permittee learns of a violation of this certificate, report same in writing to the Commissioner. Such report shall contain the following information:

(i) the provision(s) of this certificate that has/have been violated;
(ii) the date and time the violation(s) was first observed and by whom;

(iii) the cause of the violation(s), if known
(iv) if the violation(s) has ceased, the duration of the violation(s) and the exact date(s) and times(s) it was corrected;
(v) if the violation(s) has not ceased, the anticipated date when it will be corrected;
(vi) steps taken and steps planned to prevent a reoccurrence of the violation(s) and the date(s) such steps were implemented or will be implemented;
(vii) the signatures of the permittee and of the individual(s) responsible for actually preparing such report, each of whom shall certify said report in accordance with condition 7 of this certificate.

For information and technical assistance, contact the Land & Water Resources Division at (860) 424-3019.

3. **Inspection of the Facility or Activity, Adaptive Best Management Practices & Compliance with Conditions**. The concurrence of eligibility letters for Pre-Construction Notifications will be considered the initial inspection of the facility or activity for the purpose of determining whether the discharge from the certified project may violate this certification. The concurrence of eligibility letters may also address the remedial actions necessary in order to be considered to be compliance with this certification.

   In the event that Best Management Practices employed to maintain compliance with the conditions of this Water Quality Certificate, as described in paragraph 2 above, have been found to be insufficient to protect existing and designated uses of waters such as propagation of fish, shellfish and wildlife, recreation, public water supply, and agriculture, industrial use and navigation, and the water quality necessary for their protection, such permittee shall employ additional or alternative adaptive best management practices to protect water quality.

   All work and all activities authorized herein conducted by the permittee at the site shall be consistent with the terms and conditions of this certificate. Upon initiation of the activities authorized herein, the permittee thereby accepts and agrees to comply with the terms and conditions of this Water Quality Certificate.

4. **Rights.** This certificate is subject to and does not derogate any present or future property rights or other rights or powers of the State of Connecticut, and conveys no property rights in real estate or material nor any exclusive privileges, and is further

subject to any and all public and private rights and to any federal, state, or local laws or regulations pertinent to the property or activity affected hereby. This certification does not comprise the permits or approvals as may be required by Chapters 440, 446i, 446j and 446k of the Connecticut General Statutes.

5. **Expiration of Certificate.** The Section 401 Water Quality Certifications contained herein shall be valid until such time as the Department of the Army Regional General Permits for the State of Connecticut expires or is modified, suspended, revoked or reissued.

6. **Transfer of Certificate.** This authorization is not transferable without the written consent of the Commissioner.

7. **Reliance on Application.** In evaluating the permittee's application, the Commissioner has relied on information provided by the permittee. If such information subsequently proves to be false, deceptive, and incomplete or in accurate, this certificate may be modified, suspended or revoked.

8. **Installation and Removal of Confining Structures.** Confinement of a work area by cofferdam techniques using sand bag placement, sheet pile installation (vibratory method only), portadam, or similar confinement devices is allowed any time of the year unless specifically prohibited by a permit condition. The removal of such confinement devices is allowed any time of the year unless specifically prohibited by a permit condition. Once a work area has been confined, in-water work within the confined area is allowed any time of the year. The confinement technique used shall completely isolate and protect the confined area from all flowing water. The use of silt boom/curtain or similar technique as a means for confinement is prohibited.

9. **Certification of Documents.** Any document, including but not limited to any notice, which is required to be submitted to the Commissioner under this certificate shall be signed by the permittee, a responsible corporate officer of the permittee, a general partner of the permittee , or a duly authorized representative of the permittee and by the individual or individuals responsible for actually preparing such document, each of whom shall certify in writing as follows:

> "I have personally examined and am familiar with the information submitted in this document and all attachments and certify that based on reasonable investigation, including my inquiry of those individuals responsible for obtaining the information, the submitted information is true, accurate and complete to the best of my knowledge and belief , and I

understand that any false statement made in this document or its attachments may be punishable as a criminal offense in accordance with Section 22a-6 under Section 53a-157 of the Connecticut General Statutes."

10. **Submission of Documents.** The date of submission to the Commissioner of any document required by this certificate shall be the date such document is received by the Commissioner. Except as otherwise specified in this certificate, the word "day" as used in this certificate means the calendar day. Any document or action which falls on a Saturday, Sunday, or legal holiday shall be submitted or performed by the next business day thereafter.

    Any document or notice required to be submitted to the Commissioner under this certificate shall, unless otherwise specified in writing by the Commissioner, be directed to:

    Director, Land & Water Resources Division
    Bureau of Water Protection and Land Reuse
    Department of Energy & Environmental Protection
    79 Elm Street
    Hartford, Connecticut 06106-5127

Issued by the Commissioner of Energy & Environmental Protection on November 1, 2021

Betsey C. Wingfield
Deputy Commissioner

CC: Diane M. Ray, US ACE NED
Kevin Kotelly, US ACE NED
Nathaniel Margason, US EPA Region 1
Jacqueline LeClair, US EPA Region 1

DEFINITIONS

(l) **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 the RGP:

Bog: a peat accumulating wetland dominated by sphagnum moss. Typical plant species include sphagnum moss, leatherleaf, black spruce, pitcher plant and s u n d e w .

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 supporting 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 DEEP 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.

Aquaculture activities authorized under GP 16 in Appendix A are subject to the applicable conditions and requirements of the Connecticut GPs in addition to the following Standard Aquaculture Terms and Conditions:

1. The permittee shall ensure that a copy of the project authorization (including its drawings, plans, appendices, and other attachments) is present on the vessel that attends the work site (and the project office), and that all appropriate personnel performing work at the site are fully aware of its terms and conditions.

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 the CT DEEP boating regulation does not apply, the applicant shall contact the U.S. Coast Guard (USCG), First District; Sector Long Island Sound, 120 Woodward Avenue, New Haven, CT 06512 (203-468-4401) or SECLISSPWMarineEvent@uscg.mil to coordinate the proper buoy markers per 33 CFR 64. 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 Department of Army and for authorizations from the CT DA/BA.

4. If the authorized gear is inadvertently shifted to a location outside of the bounds of the approved perimeter (as a result of adverse environmental conditions, breakage, or other unforeseen event), the permittee must submit the enclosed Aquaculture Gear Recovery Form to the Dept. of Agriculture, Bureau of Aquaculture within 48 hours of discovery (phone: 203-874-0696; facsimile: 203-783-9976; email: lori.scianna@ct.gov) and submit a courtesy copy to USACE (phone: 978-318-8338 facsimile: 978-318-8303 or via email: cenae-r- ct@usace.army.mil). This condition is to facilitate notification of marine safety police and regulatory agencies so that the public can be alerted to the presence of free-floating gear and to prompt mitigating action before the lost gear becomes a threat to either navigation, marine animals or the environment, either individually or cumulatively.

5. 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.

6. 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.

7. To prevent introduction of aquatic nuisance species, no material that has been taken from a different waterbody may be reused in the current project area, unless it has been treated in accordance with the applicable

regional/Connecticut aquatic nuisance species management plan (see https://www.fws.gov/anstaskforce/State%20Plans/CT_ANS_Plan.pdf).

8. 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 http://www.nae.usace.army.mil/Missions/Navigation/Connecticut-Projects/.

9. 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.

10. The placement of cultch shall comply with all 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 shell fishing 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.

11. The permittee shall be responsible to remove all gear and associated equipment within the leased or designated shellfish area if the operator surrenders or loses the right to its use.

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

13. 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."

14. Aquaculture projects authorized herein shall not interfere with public shore access at or below MHW or interfere with the access to any riparian or littoral property.

15. The following may be required as special conditions of an authorization to protect Federally-listed species:

a. In season, the gear site shall be visited by an attendant surface vessel at least once a week, site conditions permitting. During the off season the vertical mooring lines will be visited bi-weekly. Any noticeable difference in surface buoy or line tension such as any gaps in the horizontal line or movement of vertical lines will prompt an investigation into the tension of that line. If a problem is identified, it will be corrected that day. This condition has been included to ensure that if an entanglement or other issue related to the stability of the system arises, that it will be expeditiously addressed by the permittee.

b. Seasonal gear including cages, lines and buoys shall be removed during the offseason or when not in use. The gear shall be stored in upland areas to minimize the effects of habitat exclusion, loss, or alteration.

c. Any in-water lines, ropes, or chains must be made of materials and installed in a manner to minimize or avoid the risk of entanglement by using thick, heavy, and taut lines that do not loop or entangle.

d. For lines that are suspended in the water column, the permittee shall maintain all project equipment, including vertical mooring lines, to ensure that constant tension is kept on the line at all tides. This requirement for counterweight on the vertical lines is intended to minimize the likelihood that the lines will entangle as they will hang straight down and will be less likely to wrap around appendages of endangered marine sea turtles/mammals.

e. On-bard staff will maintain a vigilant watch for protected resources (sea turtles, whales, sturgeon, or marine mammals). during all transit vessel speeds shall be kept to a minimum and operate below a speed limit of 10 knots, where feasible.

f. Each sighting of a federally listed threatened or endangered sea turtle or fish shall be recorded and the following information shall be provided:

(1) Date, time, coordinates of vessel
(2) Visibility, weather, sea state
(3) Vector of sighting (distance, bearing)
(4) Duration of sighting
(5) Species and number of animals
(6) Observed behaviors (feeding, diving, breaching, etc.)
(7) Description of interaction with aquaculture facility

g. If any listed species of sea turtle is observed to be entangled or otherwise interacting with the facility's structure, the permittee (or onboard staff) shall immediately contact NOAA Stranding Hotline at (866) 755-NOAA (6622) and email incidental.take@noaa.gov. The permittee should also contact the NOAA Fisheries Protected Resources Division, Gloucester, MA at (978) 281-9328. This condition is included to ensure that the proper authorities will be consulted in case of gear interaction with protected resources.

APPENDIX G – 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). Single span structures are required to the extent practicable 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 (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.

[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, where necessary, does not prevent a structure from being considered as a span.

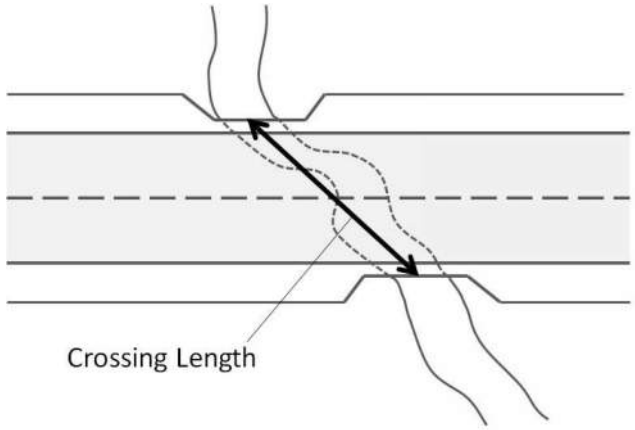
[3] BFW corresponds with "bankfull stage" and this should be field delineated in accordance with the U.S. Forest Service also found at https://www.nae.usace.army.mil/Missions/Regulatory/Stream-and-River-Continuity/

[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.

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

[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.

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.

DIADROMOUS FISH IN CONNECTICUT
Diadromous fish are a type of fish that move between salt and fresh water, usually for feeding or reproduction. Anadromous fish are a subset of diadromous fish that spend most of their lives in the coastal waterway as adults, but then migrate to fresh water to breed. Thus, young anadromous fish begin their life in freshwater, swim to the sea to feed and mature, then return to the rivers of their birth to reproduce. Diadromous fish are some of the more ecologically and economically important fish species in the region.

ANADROMOUS FISH IN CONNECTICUT:

Blueback herring (*Alosa aestivalis*)
Alewife (*Alosa pseudoharengus*)
American shad (*Alosa sapidissima*)
Gizzard shad (*Dorosoma cepedianum*)
Striped bass (*Morone saxatilis*)
Sea lamprey (*Petromyzone marinus*)

HOW TO DETERMINE IF ANY OF THE ANADROMOUS FISH ABOVE ARE AT MY PROJECT SITE
To see if any of the fish species above may be in the waterway affiliated with your project go to the Fisheries Division, Migratory-Fish-Runs-of-Connecticut webpage at https://portal.ct.gov/DEEP/Fishing/Fisheries-Management/Migratory-Fish-Runs-of-Connecticut.

ENDANGERED STURGEON IN CONNECTICUT:

Shortnose sturgeon (*Acipenser brevirostrum*)
Atlantic sturgeon (*Acipenser oxyrhynchus oxyrinchus*)

The shortnose sturgeon and shortnose sturgeon populations that are present in Connecticut are both listed under the Endangered Species Act. Critical habitat for Atlantic sturgeon was designated in the Connecticut River and the Housatonic River in 2012. Species presence and designated critical habitat can be viewed by going to *https://noaa.maps.arcgis.com/apps/webappviewer/index.html*. See General Condition 11 of these CT GPs for more information and conditional requirements.

CATADROMOUS FISH IN CONNECTICUT
American eel (*Anguilla rostrata*)

Catadromous fish spend most of their adult life in fresh water, then migrate to salt water where they return to the Sargasso Sea to reproduce. The only catadromous fish in Connecticut is the American eel, which are found in all waterbodies in Connecticut except for the following locations:

- East Branch Farmington River and tributaries upstream of the Saville Dam in Barkhamsted.
- West Branch Farmington River and tributaries upstream of the Goodwin Dam in Hartland.
- Shepaug River and tributaries upstream of the Shepaug Reservoir Dam in Warren.

CONDITIONS AND TIME OF YEAR RESTRICTIONS (TOYRs) TO PROTECT ANADROMOUS FISH
These GPs use conservation recommendations to minimize adverse impact to anadromous fish in Connecticut waterways. **The following conditions are required for work under Self-Verification**:

- Unconfined, in-stream work, not including installation and removal of cofferdams, is limited to the low-flow period, July 1 – September 30 unless the agencies require a different resource-driven time of year restriction.
- In-water work is prohibited from April 1 to June 30 unless it occurs behind a cofferdam (see above).
- In non-tidal streams, controls shall only be installed and removed during the approved window for work (July 1 – March 31) and must not encroach >25% of the stream width measured from OHW during the prohibited work window.

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: **Paula Kullberg** *

* U.S. Army Corps of Engineers, New England District *

* CT & RI Section *

* Regulatory Division *

* 696 Virginia Road *

* Concord, Massachusetts 01742-2751 *

****

Corps of Engineers Permit No. **NAE-2022-00480** was issued to **Riverfront Recapture, Inc. – Great River Park Improvements**. This work is located in the Connecticut River within Great River Park at 301 East River Drive, East Hartford, Connecticut. The permittee is authorized to install a new 105-ft long (total) x 10 to 11-ft wide, steel pile-supported, L-shaped, concrete-decked fishing pier; and to extend an existing timber float to improve ADA accessibility and expand usable area by 180 square feet. The purpose of the project is to improve public access to the Connecticut River for fishing and boating.

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: **October 4, 2024** **Date Permit Expires:** **December 15, 2026**

****

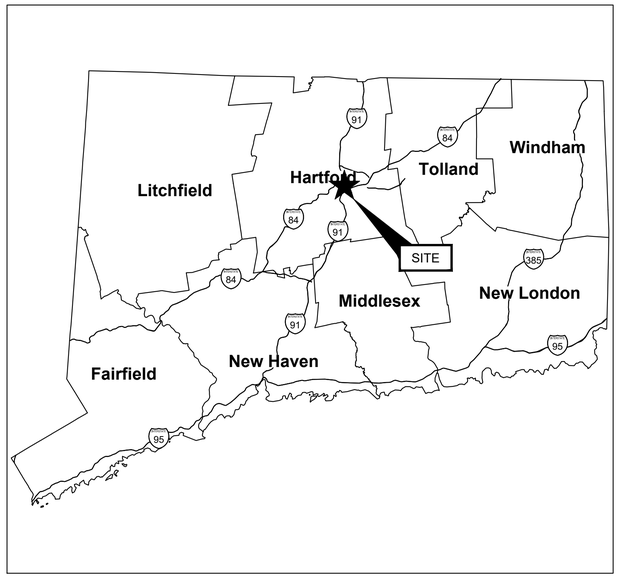
FOR USE BY THE CORPS OF ENGINEERS

PM: Paula Kullberg **Submittals Required:** [Permittee: S408 submittals to Chief, ENG]

Inspection Recommendation: _____

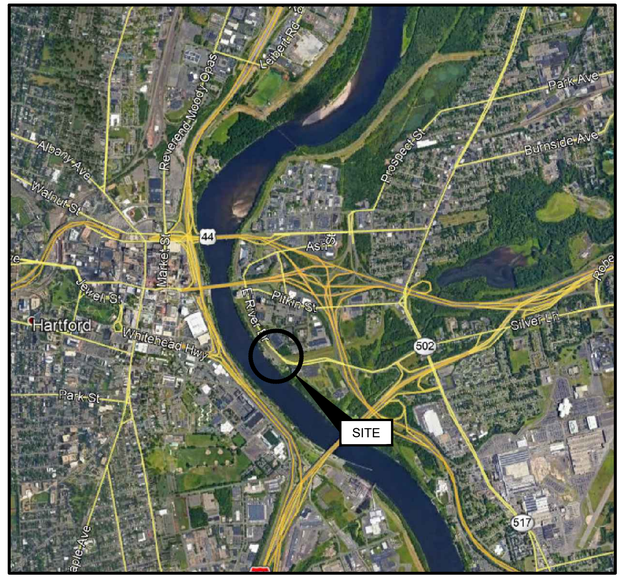
GREAT RIVER PARK IMPROVEMENTS

301 EAST RIVER DRIVE,
EAST HARTFORD, CT 06108



SOURCE:
{ENTER MAP SOURCE HERE.....}

STATE or COUNTY MAP
(NOT TO SCALE)



SOURCE:
{ENTER MAP SOURCE HERE.....}

SITE LOCATION MAP
(NOT TO SCALE)

PREPARED FOR:

RIVERFRONT RECAPTURE, INC
50 COLUMBUS BLVD
HARTFORD, CT 06106
(860) 713-3131

PREPARED BY:

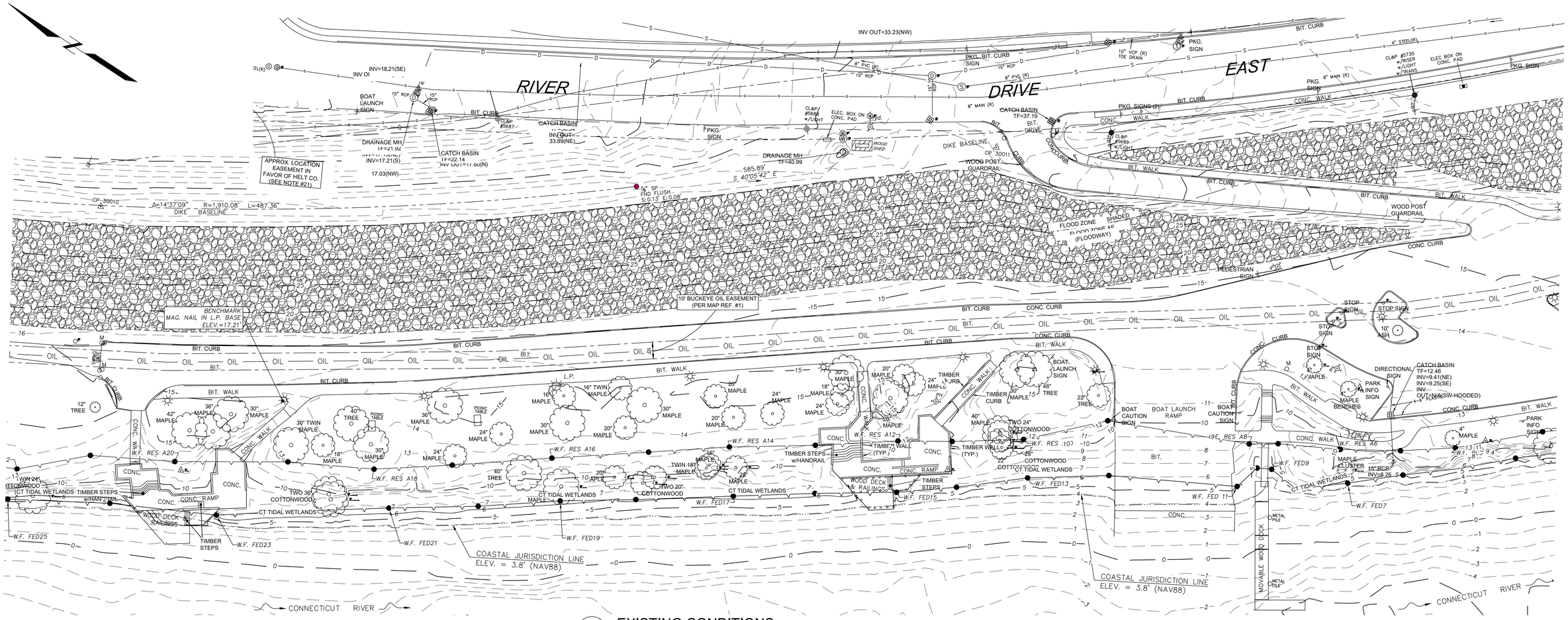
GEI CONSULTANTS, INC.
455 WINDING BROOK DRIVE
SUITE 201
GLASTONBURY, CT 06033
(860)368-5300

GEI Consultants

FOR PERMITS ONLY

	DWG. NO. G-001
	SHEET NO. 01 OF 10
	REV NO.

GEI PROJECT NO. 200282
MAY 26, 2022



A C-001 EXISTING CONDITIONS
SCALE: 1" = 30'-0"

MAP REFERENCE

1. " RIGHT OF WAY SURVEY OF THE EAST HARTFORD DIKE FOR THE EAST HARTFORD FLOOD CONTROL SYSTEM FEMA ACCREDITATION PROJECT SITUATED IN THE TOWN OF EAST HARTFORD, COUNTY OF HARTFORD, STATE OF CONNECTICUT JANUARY 24, 2014" SCALE: 1" = 30 '. PREPARED BY BSC GROUP

SURVEY NOTES

1. THIS SURVEY AND MAP HAVE BEEN PREPARED PURSUANT TO THE REGULATIONS OF CONNECTICUT STATE AGENCIES SECTIONS 20 - 300B - 1 THROUGH 20 - 3006 - 20 AND THE STANDARDS FOR SURVEYS AND MAPS IN THE STATE OF CONNECTICUT AS ADOPTED BY THE CONNECTICUT ASSOCIATION OF LAND SURVEYORS, INC. ON SEPTEMBER 26, 1996.

   TOPOGRAPHIC ACCURACY CONFORMS WITH T- 2 STANDARDS AND IS BASED ON AN ACTUAL FIELD SURVEY

   THIS IS A NOT A PROPERTY BOUNDARY SURVEY.

2. THE INTENT OF THIS SURVEY AND PLAN: DOCUMENT EXISTING CONDITIONS

3. THE FIELD SURVEY WAS PERFORMED ON THE GROUND BY BSC GROUP IN JUNE 2020.

4. HORIZONTAL AND VERTICAL DATUM ARE BASED ON MAP REFERENCE #1. HORIZONTAL DATUM IS APPROXIMATE NORTH AMERICAN DATUM OF 1983 (NAD8 3). VERTICAL DATUM IS APPROXIMATE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88).

5. EXISTING UTILITIES, WHERE SHOWN HEREON, ARE APPROXIMATE. NO GUARANTEE IS IMPLIED OR INTENDED AS TO THE ACCURACY, LOCATION OR THAT ALL UTILITIES AND/OR SUBSURFACE STRUCTURES ARE SHOWN. CONSULT WITH THE APPROPRIATE UTILITY COMPANY OR AGENCY PRIOR TO DESIGNING IMPROVEMENTS, COMMENCING DEMOLITION OR CONSTRUCTION. "CALL BEFORE YOU DIG" 1-800-9 22-4 455 .

6. INLAND WETLANDS WERE FIELD DELINEATED BY REMA ECOLOGICAL SERVICES, LLC FOR BSC GROUP ON JUNE 22, 2020 .

THE SURVEYED PROPERTY IS PARTIALLY LOCATED WITHIN FLOOD ZONE X (SHADED) AND FLOOD ZONE AE AS SCALED FROM AND DEFINED BY THE FLOOD INSURANCE RATE MAP (FIRM) ENTITLED "HARTFORD COUNTY. CONNECTICUT (ALL JURISDICTIONS) PANEL 368 OF 675," MAP NUMBER 09003C0368G MAP REVISED SEPTEMBER 16, 2011

FLOOD ZONE AE: SPECIAL FLOOD HAZARD ARE AS (SFHAs) SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD. BASE FLOOD ELEVATIONS DETERMINED. THE BASE FLOOD ELEVATION IS THE WATER-SURFACE ELEVATION OF THE 1% ANNUAL CHANCE FLOOD.

FLOOD ZONE X: AREAS OF 0.2% ANNUAL CHANCE FLOOD; AREAS OF 1% ANNUAL CHANCE FLOOD WITH AVERAGE DEPTHS OF LESS THAN 1 FOOT OR WITH DRAINAGE AREAS LESS THAN 1 SQUARE MILE; AND AREAS PROTECTED BY LEVEES FROM 1% ANNUAL CHANCE FLOOD.

SHADED AREA DEPICTS AREA PROTECTED FROM THE 1-PERCENT- ANNUAL-CHANCE OR GREATER FLOOD HAZARD BY A LEVEE SYSTEM.

1% ANNUAL CHANCE FLOOD ELEVATION = 28.7' ±
2% ANNUAL CHANCE FLOOD ELEVATION = 32. 6 '+

LEGEND & ABBREVIATIONS

- SIGN
- LIGHT POLE
- STATUE/SCULPTURE
- DECIDUOUS TREE
- WETLAND FLAG
- N/F NOW OR FORMERLY
- CONC CONCRETE
- BIT BITUMINOUS
- RET RETAINING
- WF WETLAND FLAG
- COASTAL JURISDICTION LINE
- FEMA FLOOD BOUNDARY
- EASEMENT
- WATER/STREAM
- TREE LINE
- LIMIT OF WETLANDS
- MAJOR CONTOUR
- MINOR CONTOUR
- OIL PIPELINE
- WOOD GUARDRAIL

DATUM CONVERSION TABLE

HTL	EL. 6.0
CJL	EL. +3.8
MHW	EL. +2.19
MLW	EL. +0.25
NAVD88	EL. 0.0
NGVD	EL. -1.0

Attention:
0 1"
If this scale bar does not measure 1" then drawing is not original scale.

Designed:	MUS
Drawn:	JSF
Checked:	BAP
Approved:	-
P.E. No:	-
GEI Project	-

GEI Consultants
GEI CONSULTANTS, INC.
455 WINDING BROOK DRIVE
SUITE 201
GLASTONBURY, CT 06033
(860)368-5300

Riverfront Recapture, Inc
50 Columbus Blvd
Hartford, CT 06106

Great River Park Improvements

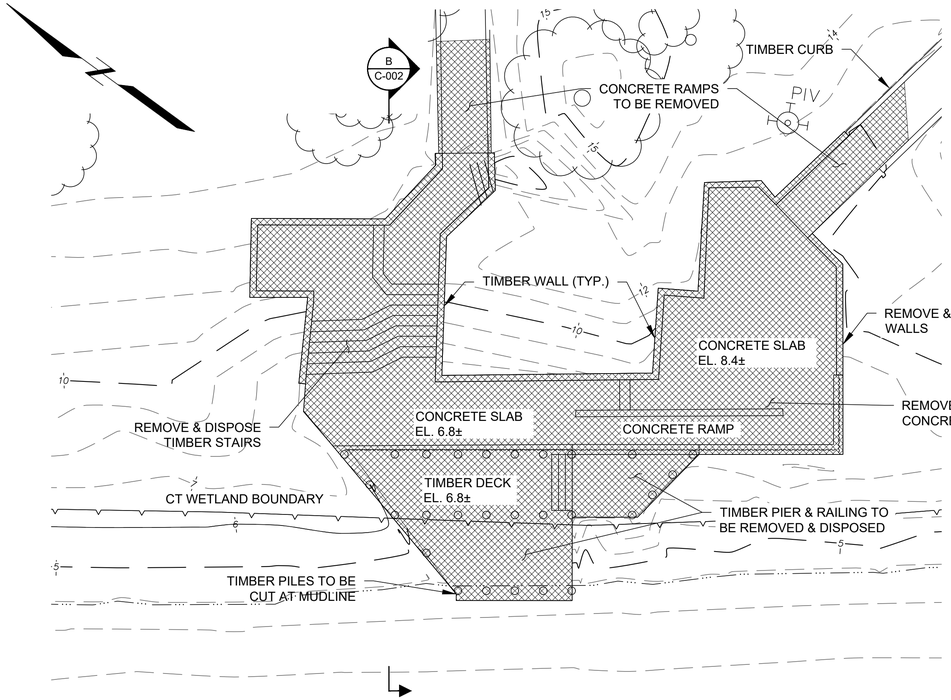
East Hartford, CT

NO	DATE	ISSUE/REVISION	APP

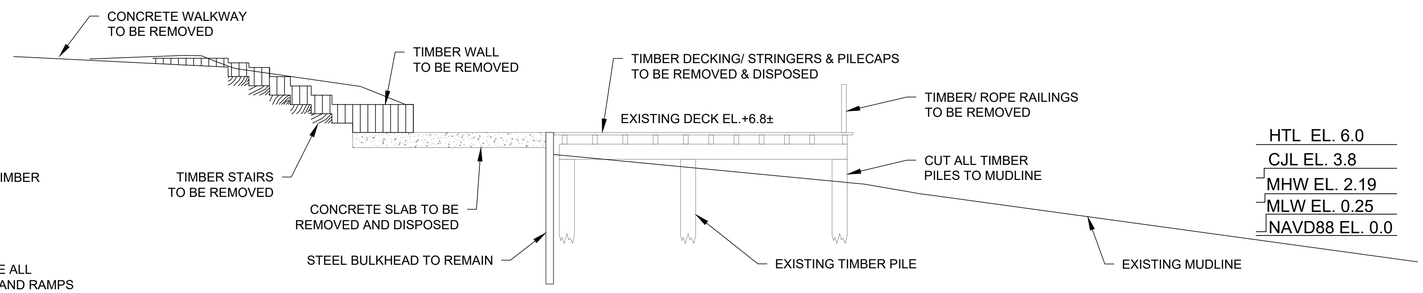
SHEET NAME: EXISTING SITE PLAN

SHEET NO.: **C-001**

12/8/2021 2:44:45 PM B:\Working\RIVERFRONT RECAPTURE, INC\2002828 Great River Park Improvement\00_CAD\Design\Working\C-001 OVERALL SITE PLAN.dwg



A C-002 DEMOLITION OVERLOOK - PLAN
SCALE: 1" = 10'-0"
(2 LOCATIONS)



B C-002 DEMOLITION OVERLOOK - SECTION
SCALE: 1" = 10'-0"

NOTE: BOTH TIMBER PIERS AND THEIR ASSOCIATED ELEMENTS ARE TO BE REMOVED IN THEIR ENTIRETY

DATUM CONVERSION TABLE

HTL	EL. 6.0
CJL	EL. +3.8
MHW	EL. +2.19
MLW	EL. +0.25
NAVD88	EL. 0.0
NGVD	EL. -1.0

Attention:
0 1"
If this scale bar does not measure 1" then drawing is not original scale.

Designed:	MUS
Drawn:	JSF
Checked:	BAP
Approved:	-
P.E. No:	-
GEI Project	-

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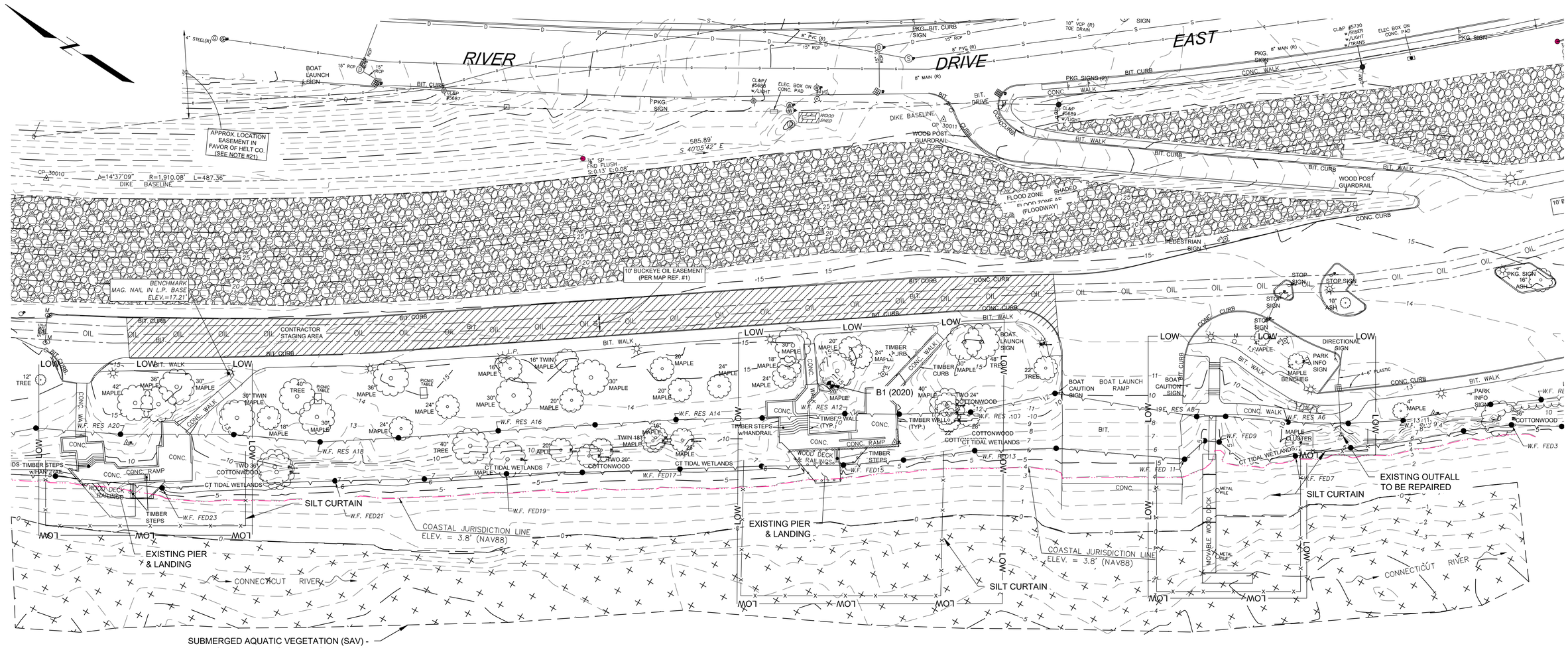
Great River Park Improvements

East Hartford, CT

NO	DATE	ISSUE/REVISION	APP

SHEET NAME: DEMOLITION OVERLOOKS

SHEET NO.: **C-002**



LEGEND:

SUBMERGED AQUATIC VEGETATION (SAV): VALLISNERIA AMERICANA

A / C-003 LIMIT OF WORK - PLAN
SCALE: 1" = 30'-0"

DATUM CONVERSION TABLE

HTL	EL. 6.0
CJL	EL. +3.8
MHW	EL. +2.19
MLW	EL. +0.25
NAVD88	EL. 0.0
NGVD	EL. -1.0

Attention:
0 1"
If this scale bar does not measure 1" then drawing is not original scale.

Designed:	MUS
Drawn:	JSF
Checked:	BAP
Approved:	-
P.E. No:	-
GEI Project	-

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Hartford, CT 06106

Great River Park Improvements

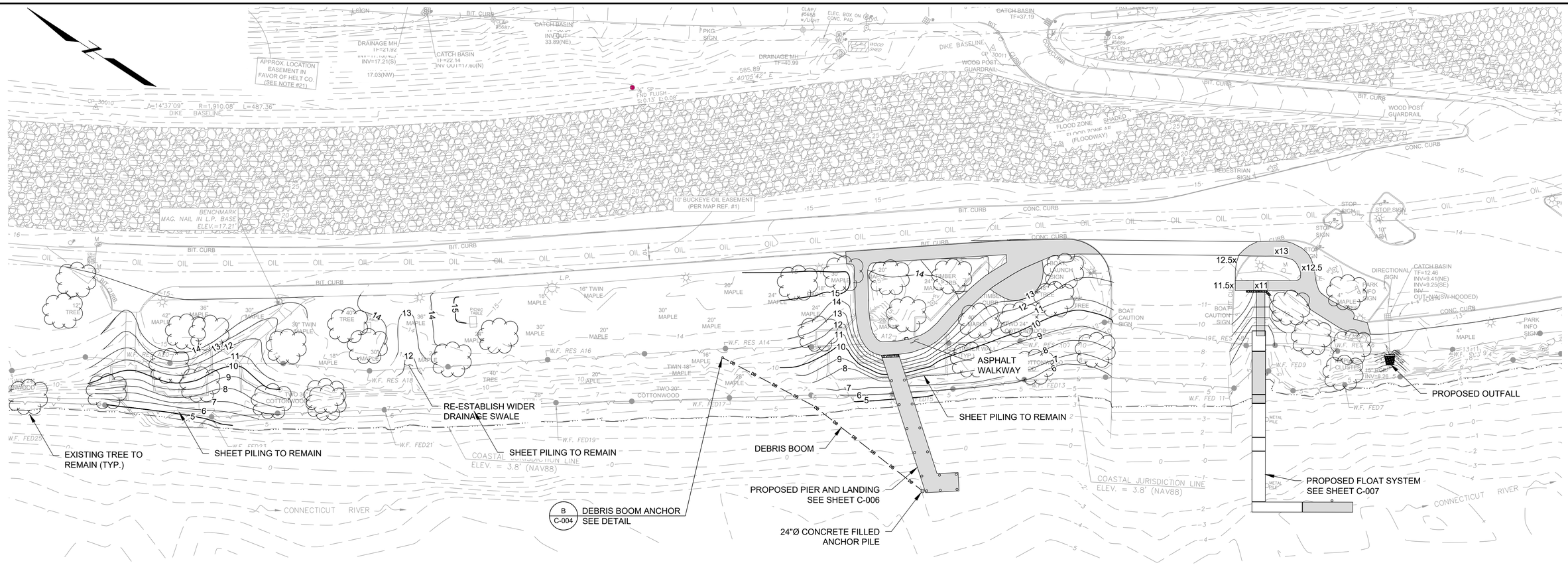
East Hartford, CT

NO	DATE	ISSUE/REVISION	APP
1	5/9/2022	REVISED PER DEEP COMMENT	AMH

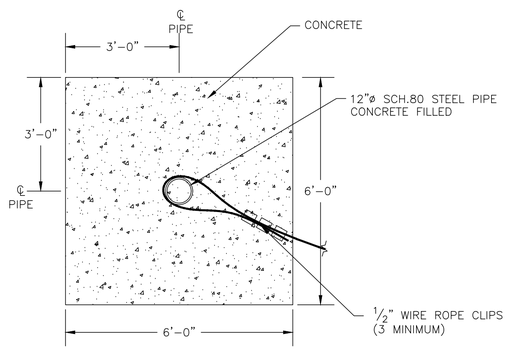
SHEET NAME: LIMIT OF WORK - PLAN

SHEET NO.: **C-003**

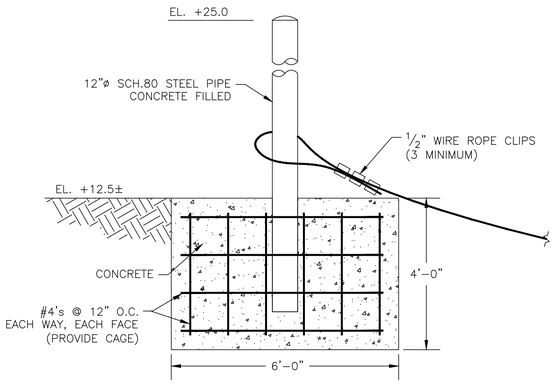
5/6/2022 10:02:50 AM B:\Working\RIVERFRONT RECAPTURE, INC\2002828 Great River Park Improvement\00_CAD\Design\Working\C-003 STAGING PLAN_r1 for permit.dwg



A C-004 PROPOSED CONDITIONS
SCALE: 1" = 30'-0"



B C-004 ANCHOR PLAN
SCALE: 1/2" = 1'-0"



C C-004 ANCHOR DETAIL
SCALE: 1/2" = 1'-0"

DATUM CONVERSION TABLE

HTL	EL. 6.0
CJL	EL. +3.8
MHW	EL. +2.19
MLW	EL. +0.25
NAVD88	EL. 0.0
NGVD	EL. -1.0

Attention:
0 1"
If this scale bar does not measure 1" then drawing is not original scale.

Designed:	MUS
Drawn:	JSF
Checked:	BAP
Approved:	-
P.E. No:	-
GEI Project	-

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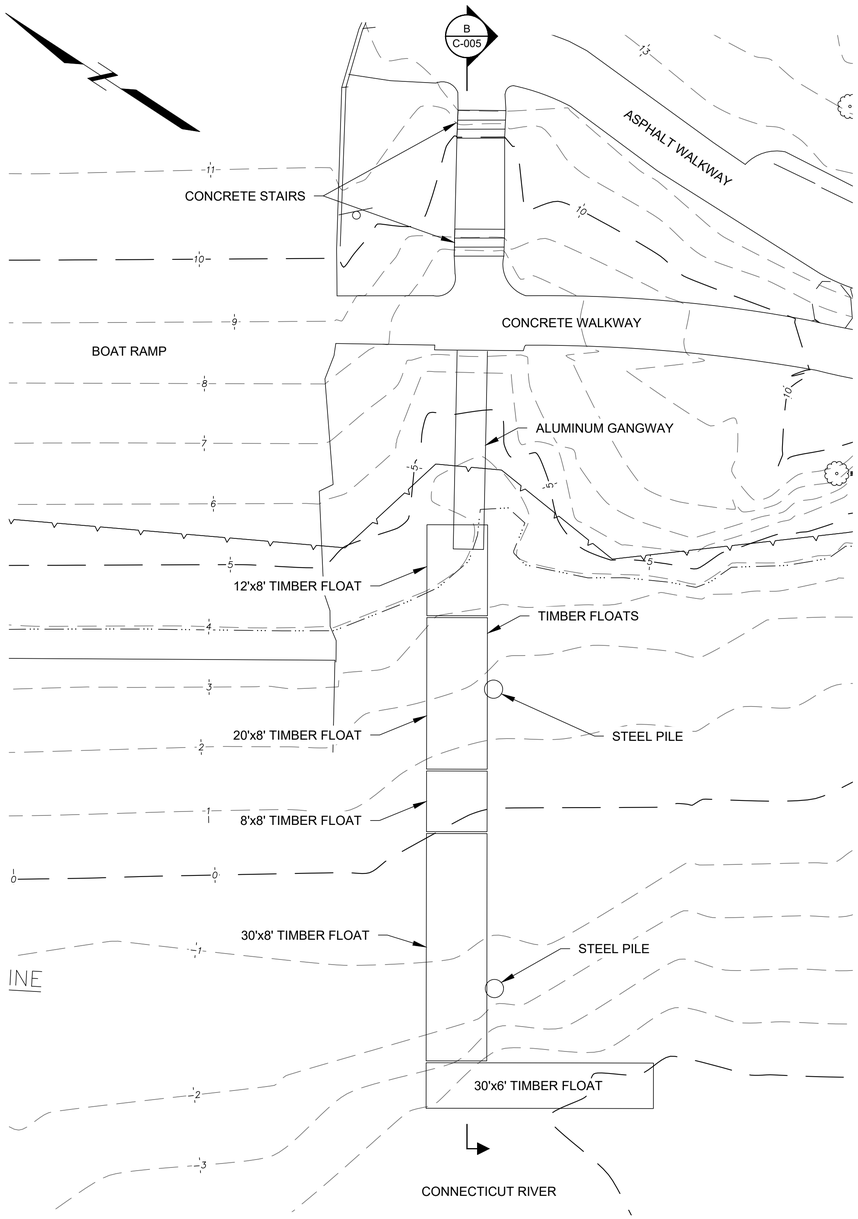
Great River Park Improvements

East Hartford, CT

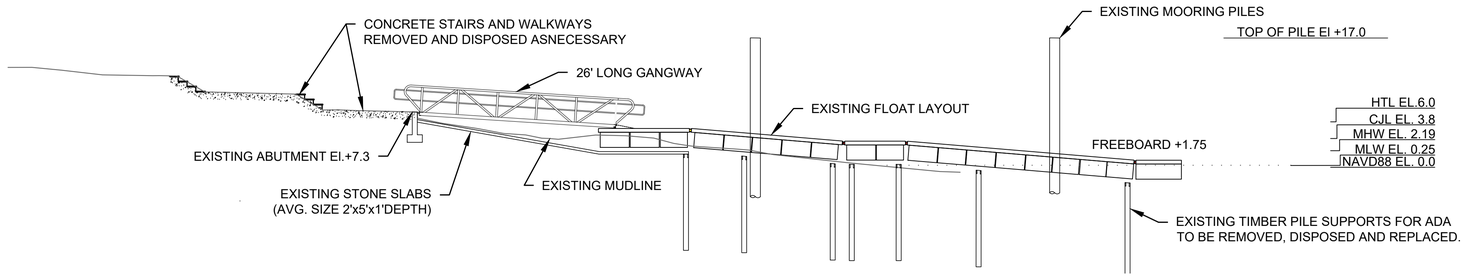
NO	DATE	ISSUE/REVISION	APP
2	11/04/2022	Proposed Grades - Outfall	
1	7/12/2022	Add Debris Boom and Details	

SHEET NAME: PROPOSED SITE PLAN

SHEET NO.: **C-004**



A C-005 EXISTING FLOAT & GANGWAY - PLAN
SCALE: 1" = 10'-0"



B C-005 EXISTING FLOAT & GANGWAY - SECTION
SCALE: 1" = 5'-0"

NOTES:
ALL FLOATS SHALL BE REMOVED AND RECONFIGURED AS SHOWN ON SHEET C-007

DATUM CONVERSION TABLE

HTL	EL. 6.0
CJL	EL. +3.8
MHW	EL. +2.19
MLW	EL. +0.25
NAVD88	EL. 0.0
NGVD	EL. -1.0

Attention:
0 1"
If this scale bar does not measure 1" then drawing is not original scale.

Designed:	MUS
Drawn:	JSF
Checked:	BAP
Approved:	-
P.E. No:	-
GEI Project	-

GEI Consultants
GEI CONSULTANTS, INC.
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GLASTONBURY, CT 06033
(860)368-5300

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50 Columbus Blvd
Hartford, CT 06106

Great River Park Improvements

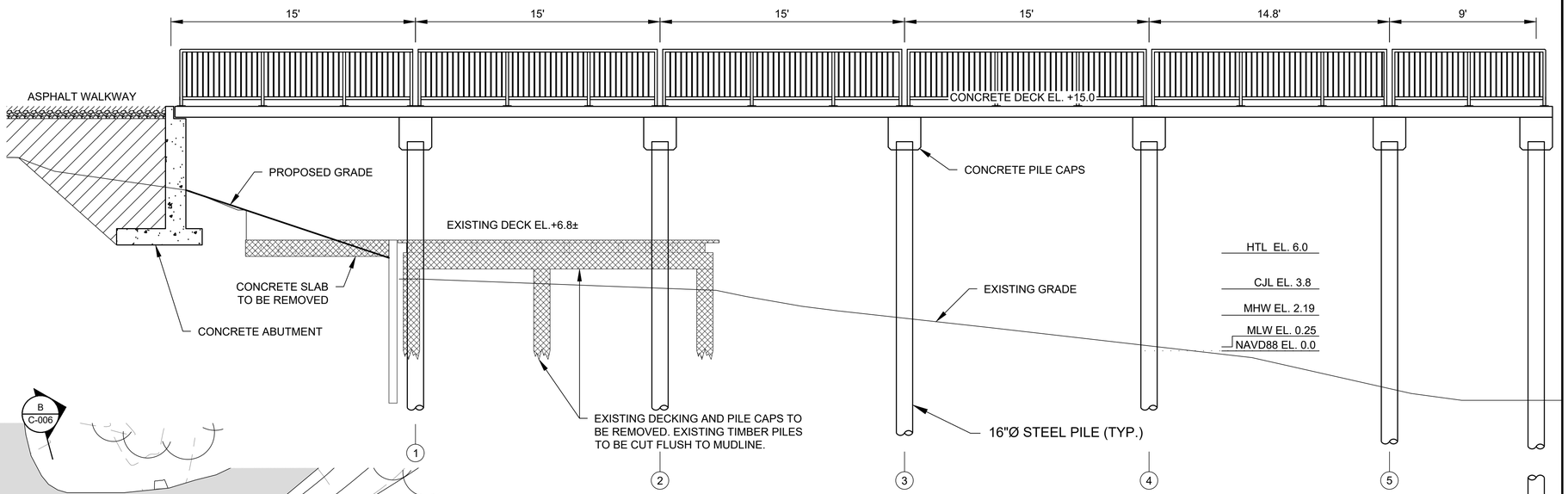
East Hartford, CT

NO	DATE	ISSUE/REVISION	APP

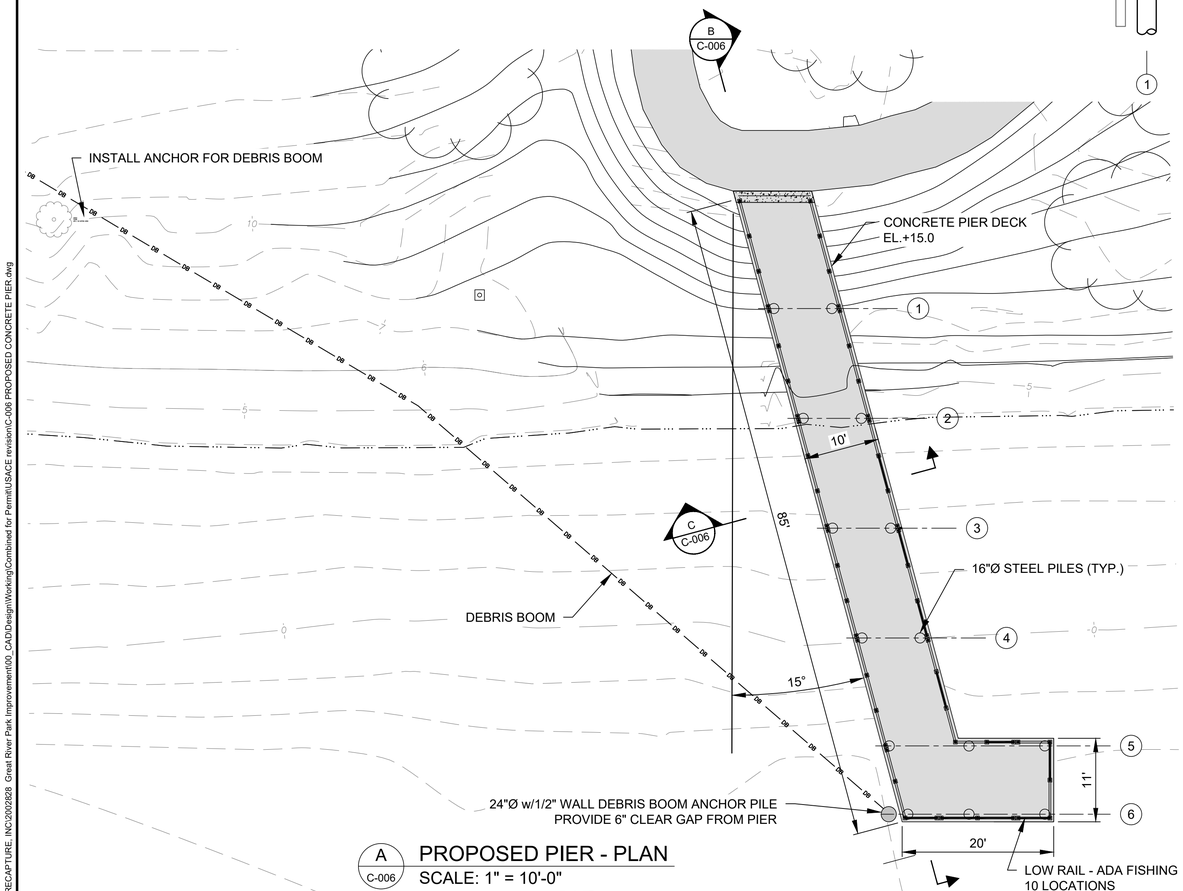
SHEET NAME: EXISTING FLOAT & GANGWAY

SHEET NO.: **C-005**

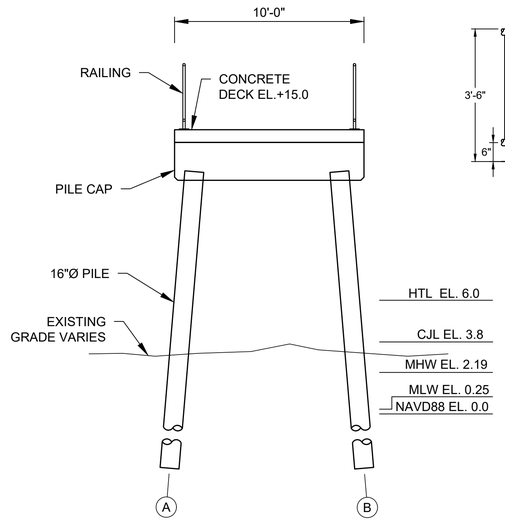
7/12/2022 1:35:23 PM B:\Working\RIVERFRONT RECAPTURE, INC\2002828 Great River Park Improvement\00_CAD\Design\Working\C-005 EXISTING GANGWAY.dwg



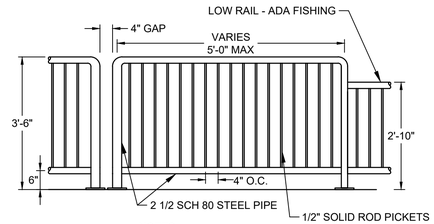
B C-006 PROPOSED PIER - ELEVATION
SCALE: 1/4" = 1'-0"



A C-006 PROPOSED PIER - PLAN
SCALE: 1" = 10'-0"

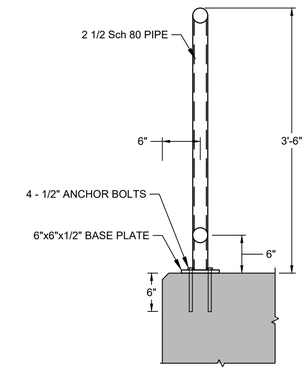


C C-006 PROPOSED PIER - SECTION
SCALE: 1/4" = 1'-0"

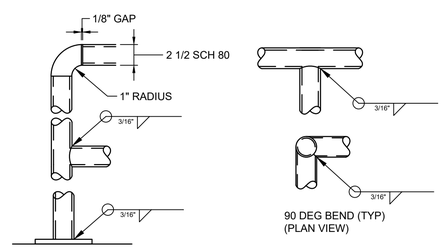


NOTES:
1. ALL STEEL FOR RAILINGS SHALL BE HOT DIPPED GALVANIZED

D C-006 RAILING ELEVATION
SCALE: 1/2" = 1'-0"



E C-006 RAILING DETAIL
SCALE: 1" = 1'-0"



F C-006 RAIL DETAILS
SCALE: 1-1/2" = 1'-0"

DATUM CONVERSION TABLE

HTL	EL. 6.0
CJL	EL. +3.8
MHW	EL. +2.19
MLW	EL. +0.25
NAVD88	EL. 0.0
NGVD	EL. -1.0

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Drawn:	JSF
Checked:	BAP
Approved:	-
P.E. No:	-
GEI Project	-

GEI Consultants
GEI CONSULTANTS, INC.
455 WINDING BROOK DRIVE
SUITE 201
GLASTONBURY, CT 06033
(860)368-5300

Riverfront Recapture, Inc
50 Columbus Blvd
Hartford, CT 06106

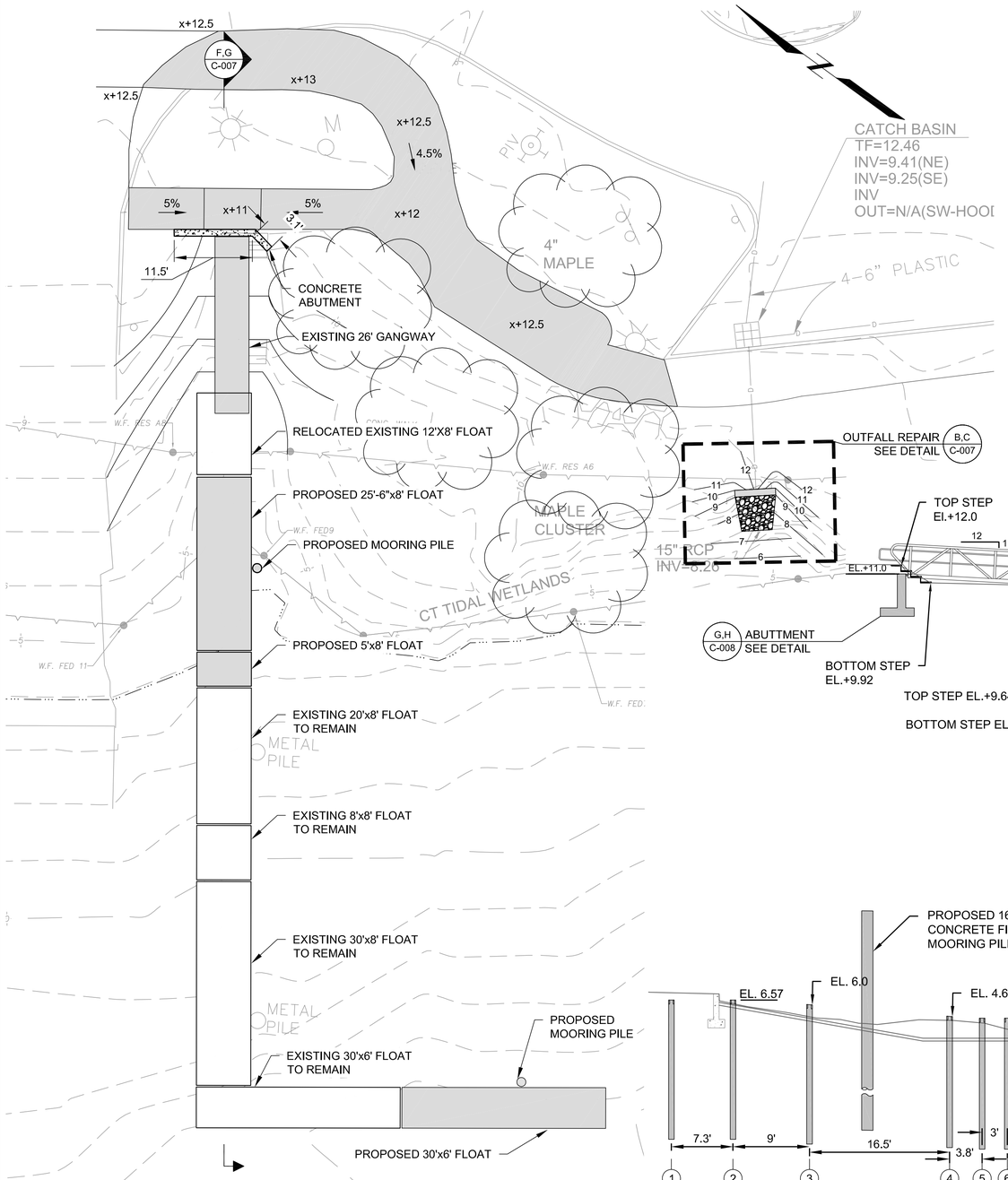
Great River Park Improvements

East Hartford, CT

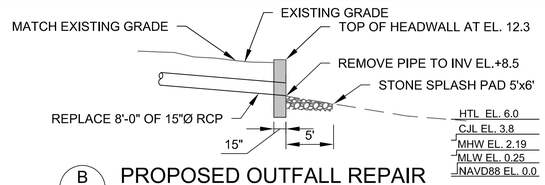
NO	DATE	ISSUE/REVISION	APP
2	11/04/2022	Add ADA Locations	
1	7/12/2022	Add Railing Details	

SHEET NAME: PROPOSED PIER

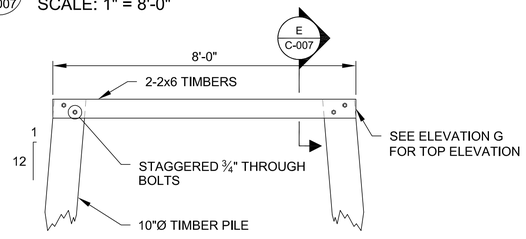
SHEET NO.: **C-006**



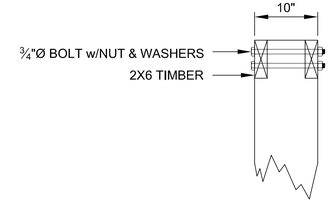
A C-007 PROPOSED FLOAT & GANGWAY - PLAN
SCALE: 1" = 10'-0"



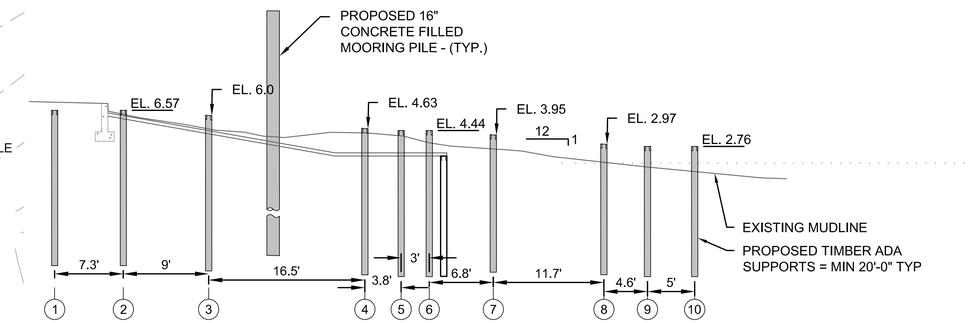
B C-007 PROPOSED OUTFALL REPAIR
SCALE: 1" = 8'-0"



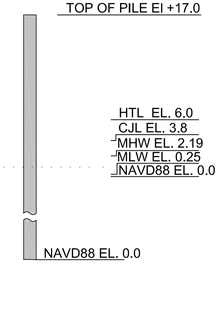
D C-007 PROPOSED TIMBER ADA SUPPORT - SECTION
SCALE: 1/2"=1'-0"

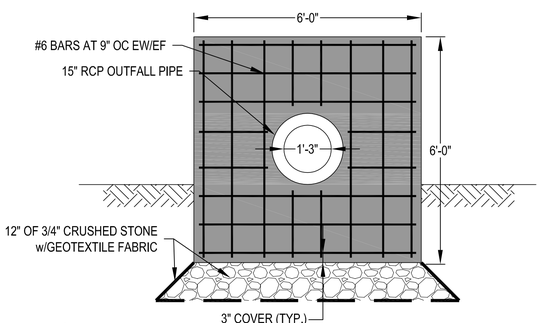


E C-007 PROPOSED TIMBER PILE CAP CONNECTION
SCALE: 1"=1'-0"



G C-007 PROPOSED TIMBER ADA SUPPORTS - ELEVATION
SCALE: 1" = 8'-0"





C C-007 PROPOSED OUTFALL REPAIR REINFORCING
SCALE: 1/2" = 1'-0"

DATUM CONVERSION TABLE

HTL	EL. 6.0
CJL	EL. +3.8
MHW	EL. +2.19
MLW	EL. +0.25
NAVD88	EL. 0.0
NGVD	EL. -1.0

Attention:
0 1"
If this scale bar does not measure 1" then drawing is not original scale.

Designed:	MUS
Drawn:	JSF
Checked:	BAP
Approved:	-
P.E. No:	-
GEI Project	-

GEI Consultants
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SUITE 201
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50 Columbus Blvd
Hartford, CT 06106

Great River Park Improvements

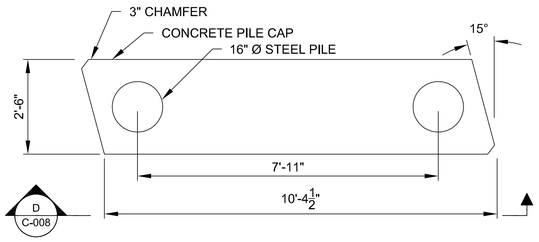
East Hartford, CT

NO	DATE	ISSUE/REVISION	APP
1	7/12/2022	Add Float Support Details	

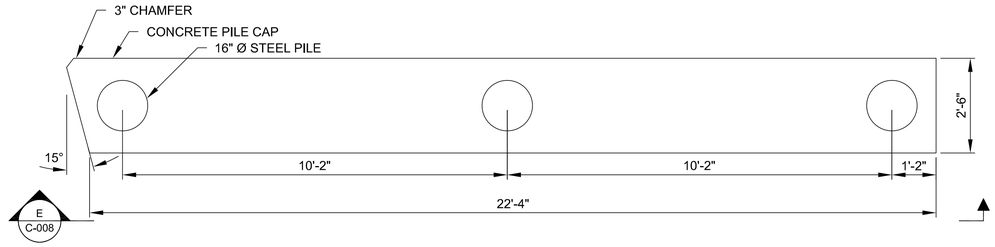
SHEET NAME: PROPOSED FLOAT & GANGWAY

SHEET NO.: **C-007**

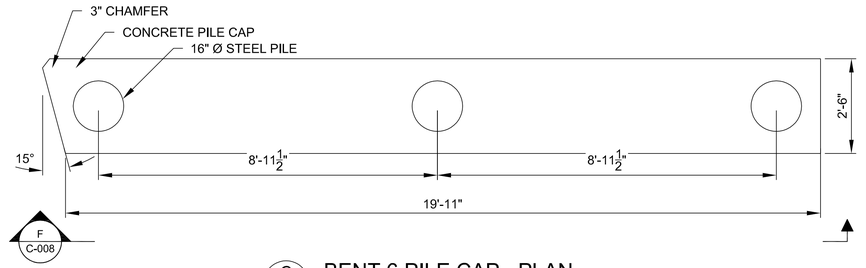
10/11/2022 11:03:53 AM B:\Working\RIVERFRONT RECAPTURE, INC\20020828 Great River Park Improvement\00_CAD\Design\Working\Combined for Permit\USACE revision\C-007 PROPOSED GANGWAY & FLOAT.dwg



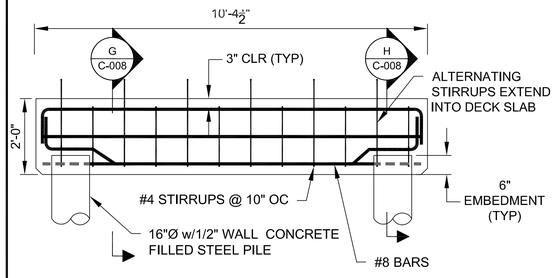
A C-008 BENTS 1 -4 PILE CAP - PLAN
SCALE: 1/2" = 1'-0"



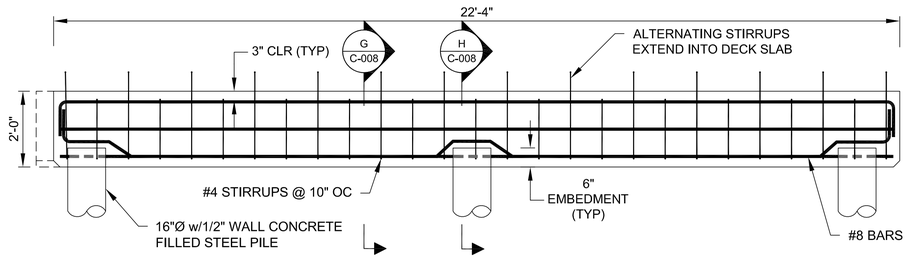
B C-008 BENT 5 PILE CAP - PLAN
SCALE: 1/2" = 1'-0"



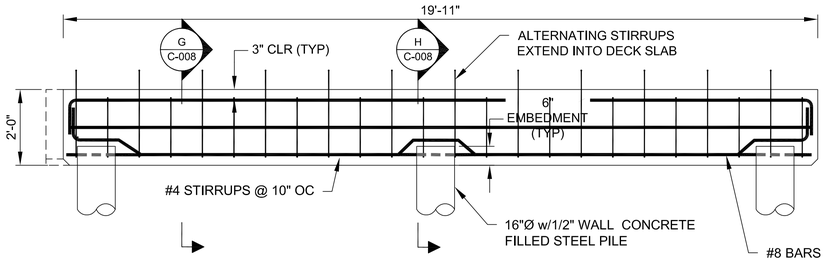
C C-008 BENT 6 PILE CAP - PLAN
SCALE: 1/2" = 1'-0"



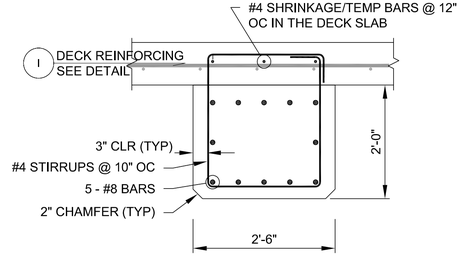
D C-008 PILE CAP REINFORCING - SECTION
SCALE: 1/2" = 1'-0"



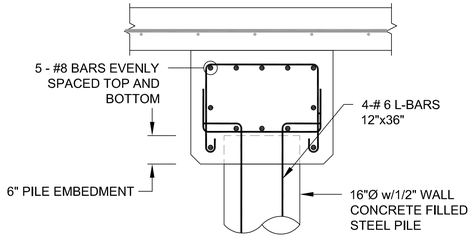
E C-008 BENT 5 PILE CAP - PLAN
SCALE: 1/2" = 1'-0"



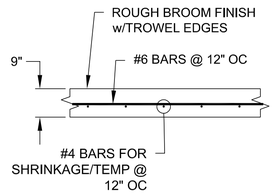
F C-008 BENT 6 PILE CAP - PLAN
SCALE: 1/2" = 1'-0"



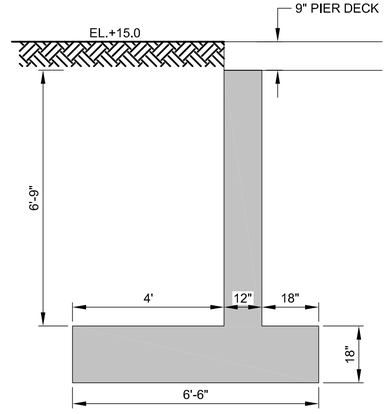
G C-008 PILE CAP REINFORCING - TYP SECTION
SCALE: 3/4"=1'-0"



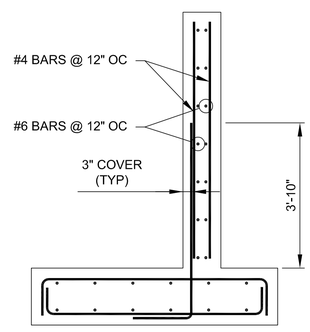
H C-008 PILE CAP REINFORCING OVER PILE - SECTION
SCALE: 3/4"=1'-0"



I C-008 DECK REINFORCING - SECTION
SCALE: 1/2" = 1'-0"



J C-008 PIER ABUTMENT - SECTION
SCALE: 1/2" = 1'-0"



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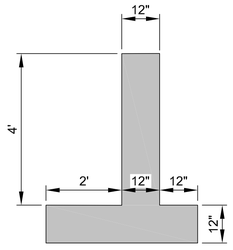

L C-008 GANGWAY ABUTMENT - SECTION
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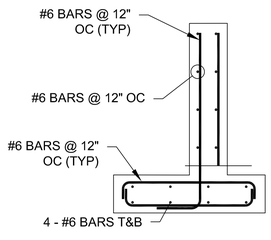

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DATUM CONVERSION TABLE

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CJL	EL. +3.8
MHW	EL. +2.19
MLW	EL. +0.25
NAVD88	EL. 0.0
NGVD	EL. -1.0

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If this scale bar does not measure 1" then drawing is not original scale.

Designed:	MUS
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Approved:	-
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GEI Project	-

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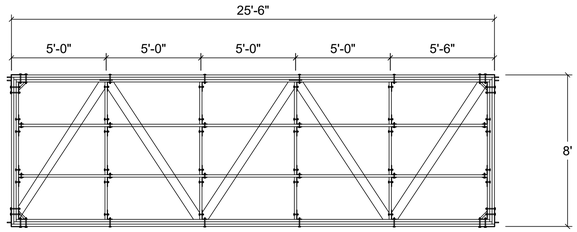
Great River Park Improvements

East Hartford, CT

NO	DATE	ISSUE/REVISION	APP
1	7/12/2022	Additional Details	

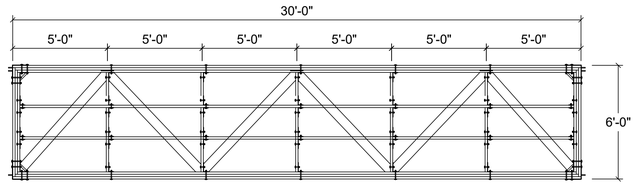
SHEET NAME: CONCRETE DETAILS

SHEET NO.: **C-008**



NOTES:
1. FINAL FLOAT CONSTRUCTION & FRAMING SHALL BE DETERMINED BY MANUFACTURER

A C-009 25'-6" TIMBER FLOAT - PLAN
SCALE: 1/4" = 1'-0"



B C-009 30' x 6' TIMBER FLOAT - PLAN
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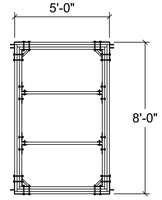

C C-009 5' x 8' TIMBER FLOAT - PLAN
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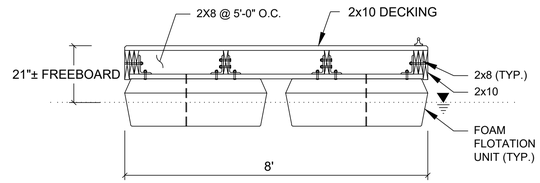

D C-009 TIMBER FLOAT SECTION (TYP.)
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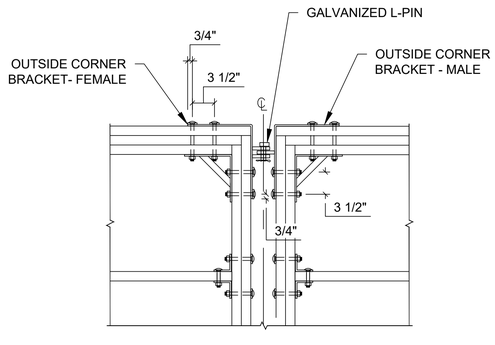

E C-009 TIMBER FLOAT CONNECTION - PLAN
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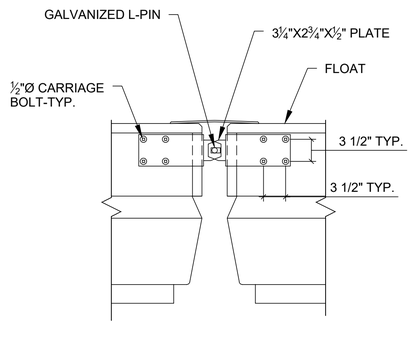

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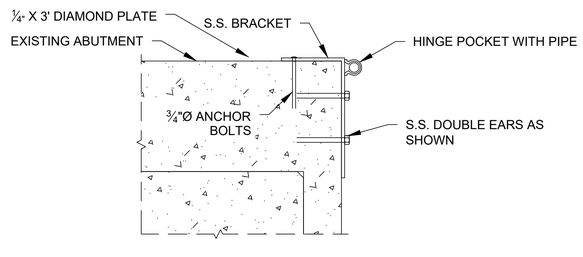

G C-009 PROPOSED GANGWAY ATTACHMENT
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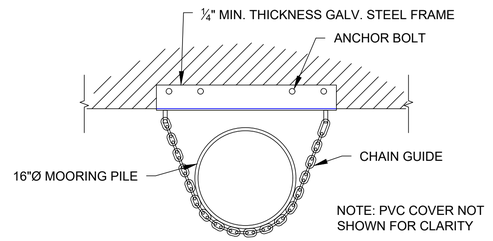

H C-009 PILE GUIDE - PLAN
SCALE: 1" = 1'-0"

FOR PERMITS ONLY

DATUM CONVERSION TABLE

HTL	EL. 6.0
CJL	EL. +3.8
MHW	EL. +2.19
MLW	EL. +0.25
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Approved:	-
P.E. No:	-
GEI Project	-

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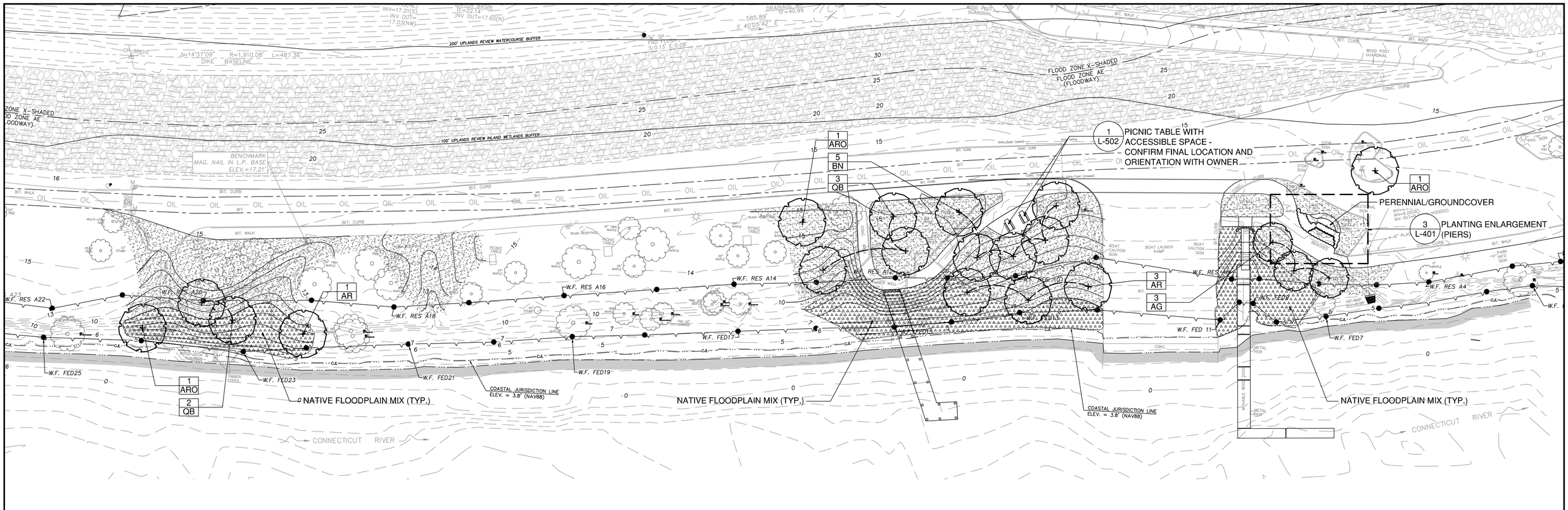
Great River Park Improvements

East Hartford, CT

NO	DATE	ISSUE/REVISION	APP

SHEET NAME: FLOAT PLAN & DETAILS

SHEET NO.: **C-009**



PLANT SCHEDULE - PIERS

CATEGORY	SYM	BOTANICAL NAME	COMMON NAME	QUANTITY	SIZE	COMMENTS
DECIDUOUS TREES	AG	AMELANCHIER x GRANDIFLORA 'AUTUMN BRILLIANCE'	APPLE SERVICEBERRY	3	3-3 1/2" CAL.	B&B, SINGLE STEM
	AR	ACER RUBRUM 'RED SUNSET'	RED SUNSET RED MAPLE	4	3-3 1/2" CAL.	B&B
	ARO	ACER RUBRUM 'OCTOBER GLORY'	OCTOBER GLORY RED MAPLE	3	3-3 1/2" CAL.	B&B
	BN	BETULA NIGRA 'DURA HEAT'	DURA HEAT RIVER BIRCH	5	3-3 1/2" CAL.	B&B, SINGLE STEM
	QB	QUERCUS BICOLOR	SWAMP WHITE OAK	5	3-3 1/2" CAL.	B&B
PERENNIAL/ GROUNDCOVER	hbm	HEMEROCALLIS 'BARBARA MITCHELL'	DAYLILY		#1 CONT.	15" O.C.
	hbt	HEMEROCALLIS 'BIG TIME HAPPY'	DAYLILY		#1 CONT.	15" O.C.
	hcw	HEMEROCALLIS 'CATHERINE WOODBURY'	DAYLILY		#1 CONT.	18" O.C.
	hh	HEMEROCALLIS 'HYPERION'	DAYLILY		#1 CONT.	18" O.C.
	pah	PENNISETUM ALOPECUROIDES 'HAMELN'	DWARF FOUNTAIN GRASS		#1 CONT.	24" O.C.
	pv	PANICUM VIRGATUM 'RUBY RIBBONS'	SWITCHGRASS		#1 CONT.	24" O.C.

NATIVE FLOODPLAIN MIX

BOTANICAL NAME	COMMON NAME
ANDROPOGON GERARDII	BIG BLUESTEM
ASCLEPIAS INCARNATA	SWAMP MILKWEED
ASTER NOVAE-ANGLIAE	NEW ENGLAND ASTER
ASTER PUNICEUS	PURPLESTEM ASTER
ASTER UMBELLATUS	FLAT TOPPED WHITE ASTER
BROMUS ALTISSIMUS	WILD BROMEGRASS
CAREX LUPULINA	HOP SEDGE
CAREX LURIDA	LURID SEDGE
CAREX SCOPARIA	BLUNT BROOM SEDGE
CAREX VULPINOIDEA	FOX SEDGE
ELYMUS VIRGINICUS	VIRGINIA WILDRYE
EUPATORIUM PERFOLIATUM	BONESET
HELENIUM AUTUMNALE	COMMON SNEEZEWEED
HELIOPSIS HELIANTHOIDES	OXEYE SUNFLOWER
JUNCUS EFFUSUS	SOFT RUSH
LOBELIA SIPHILITICA	GREAT BLUE LOBELIA
MONARDA FISTULOSA	WILD BERGAMOT
PANICUM CLANDESTINUM	DEERTONGUE
PENTHORUM SEDOIDES	DITCH STONECROP
PYCNANTHEMUM TENUIFOLIUM	NARROWLEAF MOUNTAINMINT
SCIRPUS CYPERINUS	WOOLGRASS
SOLIDAGO RUGOSA	WRINKLELEAF GOLDENROD
VERBENA HASTATA	BLUE VERVAIN
ZIZIA AUREA	GOLDEN ALEXANDERS

NOTES:
1. SEE DRAWING L-501 FOR PLANTING DETAILS.
2. ALL EXTERIOR GROUND AREAS DISTURBED BY CONSTRUCTION AND NOT COVERED BY BUILDINGS, STRUCTURES, PAVING, CONTINUOUS PLANTING BEDS OR OTHER SITE IMPROVEMENTS SHALL BE GRADED, TOP SOILED WITH PLANTING SOIL TO A DEPTH OF 6" AND LAWN SEEDED.
3. MULCH ALL NEW PLANT BEDS TO ACHIEVE A 3" DEPTH (AFTER SETTLEMENT) FOR TREES AND SHRUBS, AND A 2" DEPTH (AFTER SETTLEMENT) FOR PERENNIAL AND GROUNDCOVER BEDS.

0 15 30 60'
SCALE: 1" = 30' - 0"

PLANTING LEGEND
- PROPOSED DECIDUOUS TREE
- EXISTING TREE
- PERENNIALS/GROUNDCOVER
- NATIVE FLOODPLAIN MIX
- LAWN SEED

FOR PERMITS ONLY

DATUM CONVERSION TABLE
HTL EL. 6.0
CJL EL. +3.8
MHW EL. +2.19
MLW EL. +0.25
NAVD88 EL. 0.0

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P.E. No: -
GEI Project -

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LANDSCAPE ARCHITECT
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Great River Park Improvements
East Hartford, CT

NO	DATE	ISSUE/REVISION	APP
0	12/3/2021	FOR PERMIT	

SHEET NAME: LANDSCAPE PLANTING PLAN (PIERS)
SHEET NO.: **L-151**

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NORMANDEAU ASSOCIATES
ENVIRONMENTAL CONSULTANTS

Memorandum

Tuesday, April 23, 2024

TO: John McGrane, GEI Consultants Inc.
FROM: Mindy Sweeny
SUBJECT: Great River Park, East Hartford, CT – Acoustic Report

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Introduction

This report provides estimated distances to acoustic threshold criteria for Atlantic Sturgeon (*Acipenser oxyrinchus oxyrinchus*) and Shortnose Sturgeon (*Acipenser brevirostrum*) from pile driving activities for the Great River Park Project in East Hartford, CT. Estimates were calculated using the most current version of the National Marine Fisheries Multi-Species Pile Driving Calculator (August 2022). Based on specifications provided via email on February 2, 2024, the analysis included estimates for 16″ steel pipe piles, a 24″ steel pipe pile, and 10″ timber piles using a vibratory hammer. The estimated duration of work is 3-4 hours/day for 12-15 days (which may not be consecutive).

ESA species and critical habitat in the Project Area

Two federally listed species may occur in the Connecticut River and Great River Park Project Area, Atlantic Sturgeon and Shortnose Sturgeon. Atlantic Sturgeon and Shortnose Sturgeon lifestages, activities, and time of year when they may occur in the Connecticut River is summarized in Table 1. In addition, Atlantic Sturgeon critical habitat is designated for the New York Bight Distinct Population Segment (DPS) Unit 1 (i.e., the Connecticut River; Figure 1; 82 FR 39160). Critical Habitat for the Connecticut River is designated as an Atlantic Sturgeon Spawning and Rearing Area (NOAA GeoPlatform ArcGIS Hub. 2024)

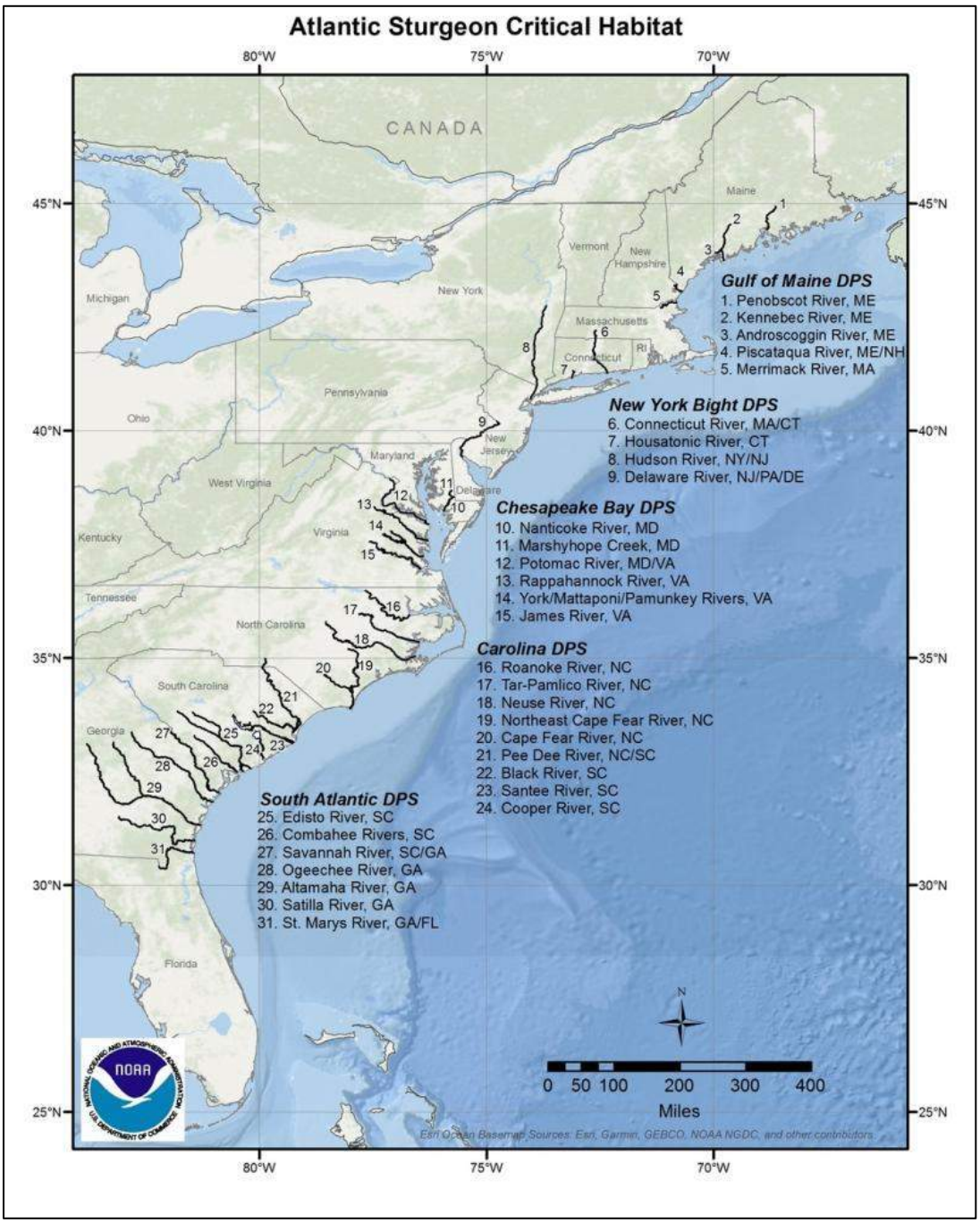

Figure 1. Map of Atlantic Sturgeon Critical Habitat (NMFS 2022).

Table 1. Summary of Atlantic Sturgeon and Shortnose Sturgeon lifestage, activity, and occurrence in the Connecticut River

Species	Scientific name	ESA Federal Status	Lifestage	DPS	Activity	Time of Year	Critical Habitat
Atlantic Sturgeon	*Acipenser oxyrinchus oxyrinchus*	Endangered; New York Bight DPS[1]	Adult	All[2]	Migrating and Foraging	Apr 15 - Nov 30	Yes, Connecticut River
			Adult	NYDPS	Spawning	Apr 15 - Aug 31	
			Eggs & yolk sac larvae	NYDPS	NA	Apr 15 - Sep 30	
			Post yolk sac larve	NYDPS	Migrating and Foraging	Apr 15 - Oct 31	
			Young-of-year	NYDPS	Migrating and Foraging	Jan 1 - Dec 31	
			Juvenile	NYDPS	Migrating and Foraging	Jan 1 - Dec 31	
			Subadult	All	Migrating and Foraging	Apr 15 - Nov 30	
Shortnose Sturgeon	*Acipenser brevirostrum*	Endangered throughout range	Adult	NA	Migrating and Foraging	Jan 1 - Dec 31	No
			Adult	NA	Overwintering	Nov 15 – Apr 15	
			Post yolk sac larve	NA	Migrating and Foraging	Apr 15 - Jul 31	
			Young-of-year	NA	Migrating and Foraging	Jan 1 - Dec 31	
			Juvenile	NA	Migrating and Foraging	Jan 1 - Dec 31	
			Subadult	NA	Overwintering	Nov 15 – Apr 15	

[1]DPS = Distinct Population Segment
[2]There are 5 DPSs for Atlantic Sturgeon: Carolina DPS, Chesapeake Bay DPS, New York Bight DPS (NYDPS), South Atlantic DPS, and Gulf of Maine DPS
NA = not applicable
Critical Habitat New York Bight Unit 1 = Connecticut River[1]
Source NOAA 2024

[1] Specific occupied areas designated as critical habitat for the New York Bight DPS of Atlantic sturgeon contain approximately 547 km (340 miles) of aquatic habitat in the following rivers of Connecticut, Massachusetts, New York, New Jersey, Pennsylvania, and Delaware: Connecticut, Housatonic, Hudson, and Delaware. Critical Habitat for New York Bight Distinct Population Segment of Atlantic Sturgeon: Unit 1 (i.e., Connecticut River).

Underwater noise

Underwater sound propagation in complex coastal waters is complicated (Erbe et al. 2022) and can be difficult to predict especially in rivers and estuaries due to the surrounding land masses and shoreline. For example, sound produced from pile driving does not propagate linearly, but rather reflects, refracts, and diffracts scattering off the sea surface, bottom, and various reflectors in the water column including fish swim bladders, gas bubbles, and suspended particles (Erbe et al. 2022).

As primitive fish, Atlantic Sturgeon have no known connection between the swim bladder and inner ear. They are able to localize sound and produce sound (Popper 2005) and are thus susceptible to acoustic impacts, though little species-specific data are available to support criteria for physiological effects that are categorized as injury.

There are two types of sound generated during pile driving depending on the hammer type, impulsive sound produced by impact hammering and non-impulsive sound from vibratory hammering. Impulsive sounds are characterized by a rapid rise from ambient pressure to a maximal pressure followed by a period of diminishing pressures and generally have an increased capacity to induce physical injury compared to non-impulsive sound (Southall et al. 2007). Sound levels are commonly characterized using three different acoustic metrics, peak pressure, root-mean-squared (RMS) pressure, and sound exposure level (SEL). There are also different threshold criteria based on the level of impact (behavioral modification and physiological). Behavioral responses could range from a temporary startle to avoidance of an ensonified area, heightened awareness of the sound, and to changes in movement or feeding activity (Popper and Hastings 2009). Physiological impacts include temporary threshold shift (TTS) in hearing and permanent threshold shift (PTS), with PTS being the more impactful of the two. TTS thresholds use a weighted cumulative sound exposure level (SEL_{cum}) that includes auditory weighted functions specific to an animal's hearing abilities. PTS thresholds use dual metric criteria[2]: SEL_{cum} and peak sound level (PK) for impulsive (impact hammering) sound and weighted SEL_{cum} for non-impulsive (vibratory hammering) sound.

The threshold criterion for sturgeon are as follows (NMFS GARFO 2022):

- Onset of behavioral response for both impact and vibratory hammering is 150 decibels (dB) re 1 μPa RMS,
- Onset of physiological effects for impact hammering[3]:
    - Peak SPL 206 dB re 1 μPa
    - SEL_{cum} 187 dB re 1 $\mu Pa^2/s$ for fish > 2g in weight
    - SEL_{cum} 183 dB re 1 $\mu Pa^2/s$ for fish < 2g in weight.

[2] Dual metric thresholds for impulsive sounds: Use whichever results in the largest isopleth for calculating PTS onset. If a non-impulsive sound has the potential of exceeding the peak sound pressure level thresholds associated with impulsive sounds, these thresholds are recommended for consideration.

[3] The onset for physiological effects to sturgeon may be incurred only during impact hammering.

Acoustic Model Results

The NMFS Pile Driving Calculator (NMFS GARFO 2022) was used to provide estimated distance to behavioral impacts for Atlantic Sturgeon and Shortnose Sturgeon from installation of (16) 16" steel pipe piles, (1) 24" steel pipe piles, and (20) 10" timber piles (Table 2). Input data (source levels) for 16" steel pipe for vibratory hammering were not available in the Pile Driving Calculator, and in this case the next largest size steel pipe pile (18") was used as a proxy. Available input data for timber piles did not include pile size. However, the project description provided for timber piles in the Pile Driving calculator, "Navy, east coast installations" (Illingworth and Rodkin 2017), suggests that the timber piles were likely at least 10", and thus were an appropriate proxy.

Behavioral effects from noise may occur to Atlantic Sturgeon and Shortnose Sturgeon during vibratory pile driving. Radial distances to the behavioral threshold criterion are summarized in **Error! Reference source not found.** for the three pile sizes and types. Threshold criteria for behavioral changes would be exceeded at 34 meters (m) from the pile location for both the 16" steel pipe piles and timber piles and 54 m for the 24" steel pipe pile (Figures 2 through 4; NMFS GARFO 2022).

Table 2. Summary of estimated distance to behavioral changes for sturgeon using a vibratory hammer to install piles at the proposed Great River Project Area, East Hartford, CT.

Pile size/type	Number	Model input data (pile size)	Model input data (water depth; m)	Model input (dB RMS[1])	Threshold Criteria for behavioral changes in sturgeon (150 dB RMS)[1]	Estimated distance to behavioral changes in sturgeon (m)
16" steel pipe	16	18" steel pipe	3	158	150	34.1
24" steel pipe	1	24" steel pipe	varied	161	150	54.1
10" timber piles	20	not available	not available	158	150	34.1

NMFS GARFO 2022

[1]RMS = root-me root-mean-square sound pressure level

Assumptions modeled: Duration to drive a single pile using a vibratory hammer = 20 minutes/hour

Estimated number of piles installedper day using a vibratory hammer = 6 days

Estimated duration of work = 3-4 hours/day for 12-15 days (may not be consecutive)

Impacts to Atlantic Sturgeon and Shortnose Sturgeon and Atlantic Sturgeon Critical Habitat

Acoustic effects from pile driving are not expected to impact Atlantic Sturgeon or Shortnose Sturgeon for the following reasons:

- Pile driving would be temporary, occurring for 3-4 hours per day for up to 12 to 15 days, thus leaving a temporal zone of passage clear of noise of approximately 20 hours per day.
- The Connecticut River is approximately 218 m wide at the proposed construction area at the Great River Park. The estimated isopleth of 34 m during installation of the 16" steel pipe piles and 10" timber piles would result in an estimated ensonified area of 16% of the river width. This would leave approximately 84% of the river width clear of noise for sturgeon to pass. During installation of the 24" steel pipe pile, the estimated ensonified

area (54 m) would be equivalent to 25% of the river width, leaving approximately 75% of the river available for passage clear of noise.

In the unlikely event that sturgeon were present during pile driving, the following Best Management Practices (BMP) would be used to minimize acoustic effects:

- Vibratory hammering, which would produce noise resulting in behavioral modifications, not physiological impacts.
- Soft start[4] would serve as a warning and allow any Atlantic Sturgeon and Shortnose Sturgeon within the ensonified area to move from the area before the equipment is ramped up to full energy.

Negative impacts to the Critical Habitat for Atlantic Sturgeon spawning and rearing in the Great River Park area of the Connecticut River are not expected for the following reasons:

- A vibratory hammer would be used for all pile driving activities,
- The duration of work (3 to 4 hours per day for 12 to 15 days) is relatively short, and
- The ensonified isopleths for behavioral modifications (34 m and 54 m) would leave at least 75% of the river width available for passage clear of noise.

Summary

Behavioral effects, such as avoidance or disruption of foraging activities, may occur in Atlantic Sturgeon and Shortnose Sturgeon exposed to noise above 150 dB RMS. Considering all the pile driving activities, it is expected that underwater noise levels would be below 150 dB RMS for Atlantic Sturgeon at distances beyond a maximum of 34 m during installation of the 16" steel pipe and 10" timber piles and 54 m during installation of the 24" steel pipe pile. It is reasonable to assume that a sturgeon beyond the larval stage, upon detecting underwater noise levels at or above these thresholds, would modify its behavior such that it redirects its course of movement away from the ensonified area surrounding the activity (Krebs et al. 2016). Given that the time to drive the piles would be short and at least ¾ of the river width would be available for passage clear of noise, the effects of underwater noise on Atlantic Sturgeon, Atlantic Sturgeon Critical Habitat, and Shortnose Sturgeon would be too small to be meaningfully measured or detected and would be insignificant.

[4] This procedure involves initially operating the pile driving equipment at reduced energy to serve as a warning and provide an opportunity to any Atlantic Sturgeon (or other protected species) nearby to move from the area before the equipment is ramped up to full energy. For vibratory driving, sound will be initiated for 15 seconds at approximately 50 percent energy followed by a 30 second waiting period. This procedure will be repeated two additional times. This reduced energy "soft start" will be implemented at the start of each day's pile driving and at any time following cessation of pile driving for a period of one hour or longer.

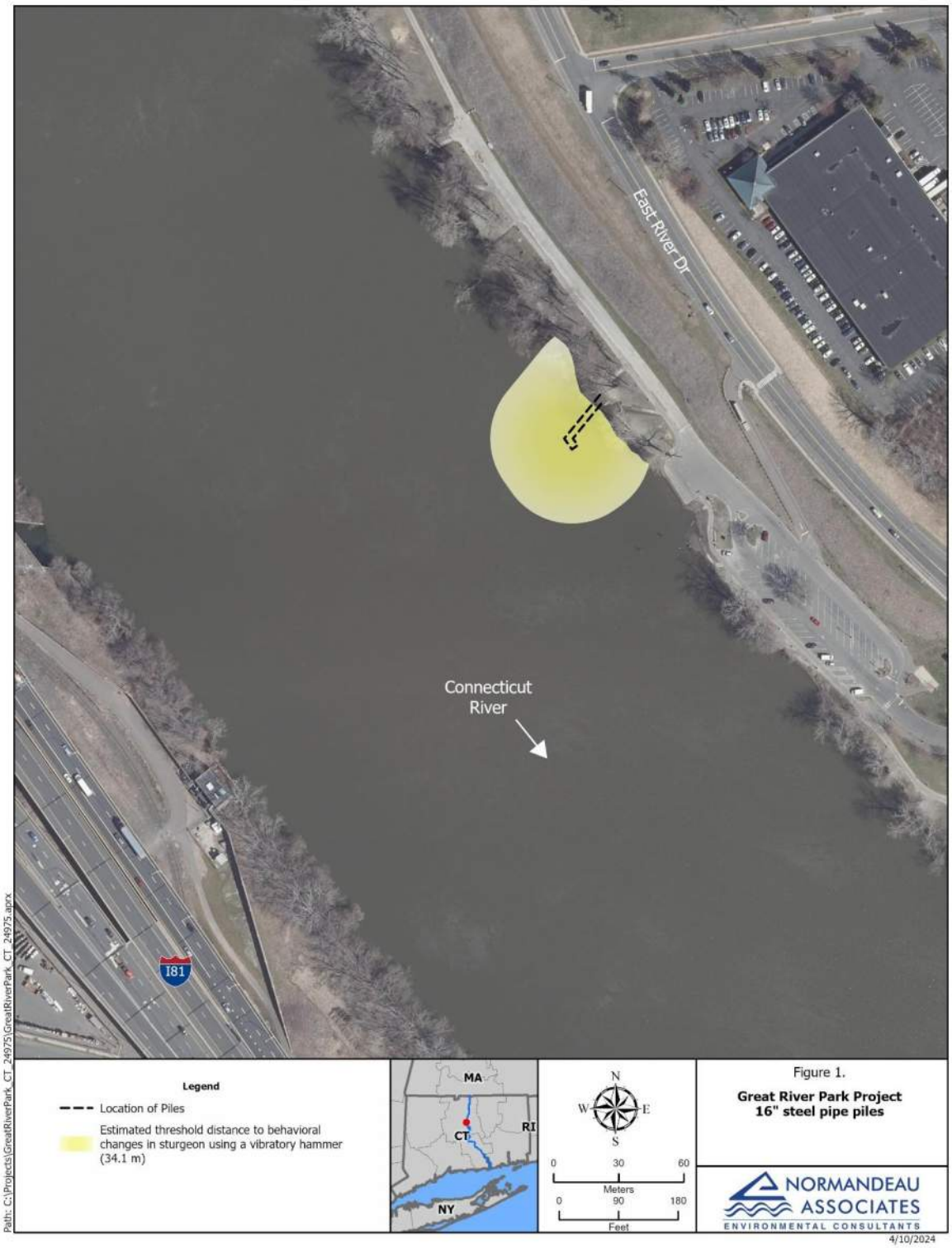

Figure 2. Estimated threshold criteria distance (34.1 m) to behavioral changes in sturgeon for 16″ steel pipe piles using a vibratory hammer.

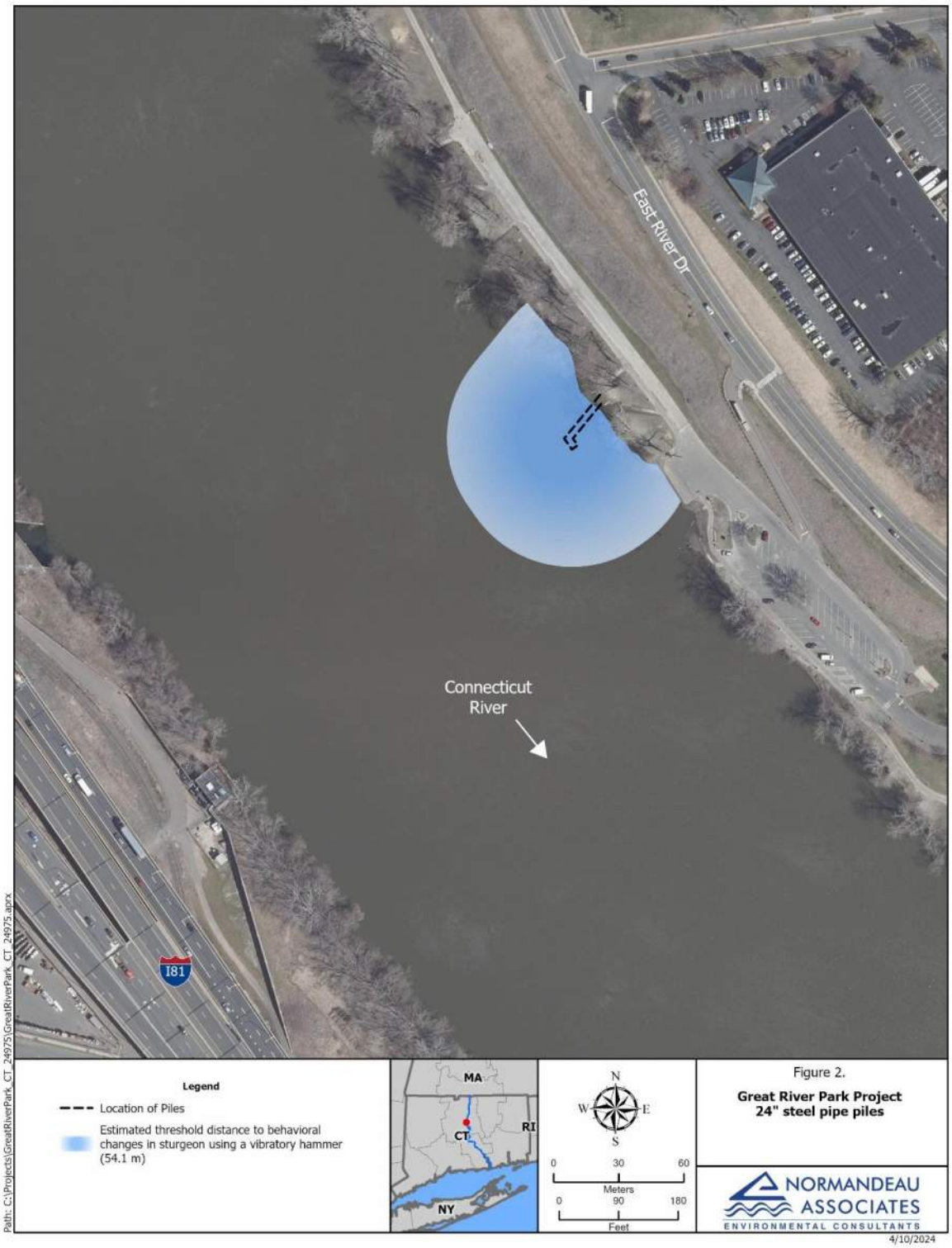

Figure 3. Estimated threshold criteria distance (54.1 m) to behavioral changes in sturgeon for 24″ steel pipe pile using a vibratory hammer.

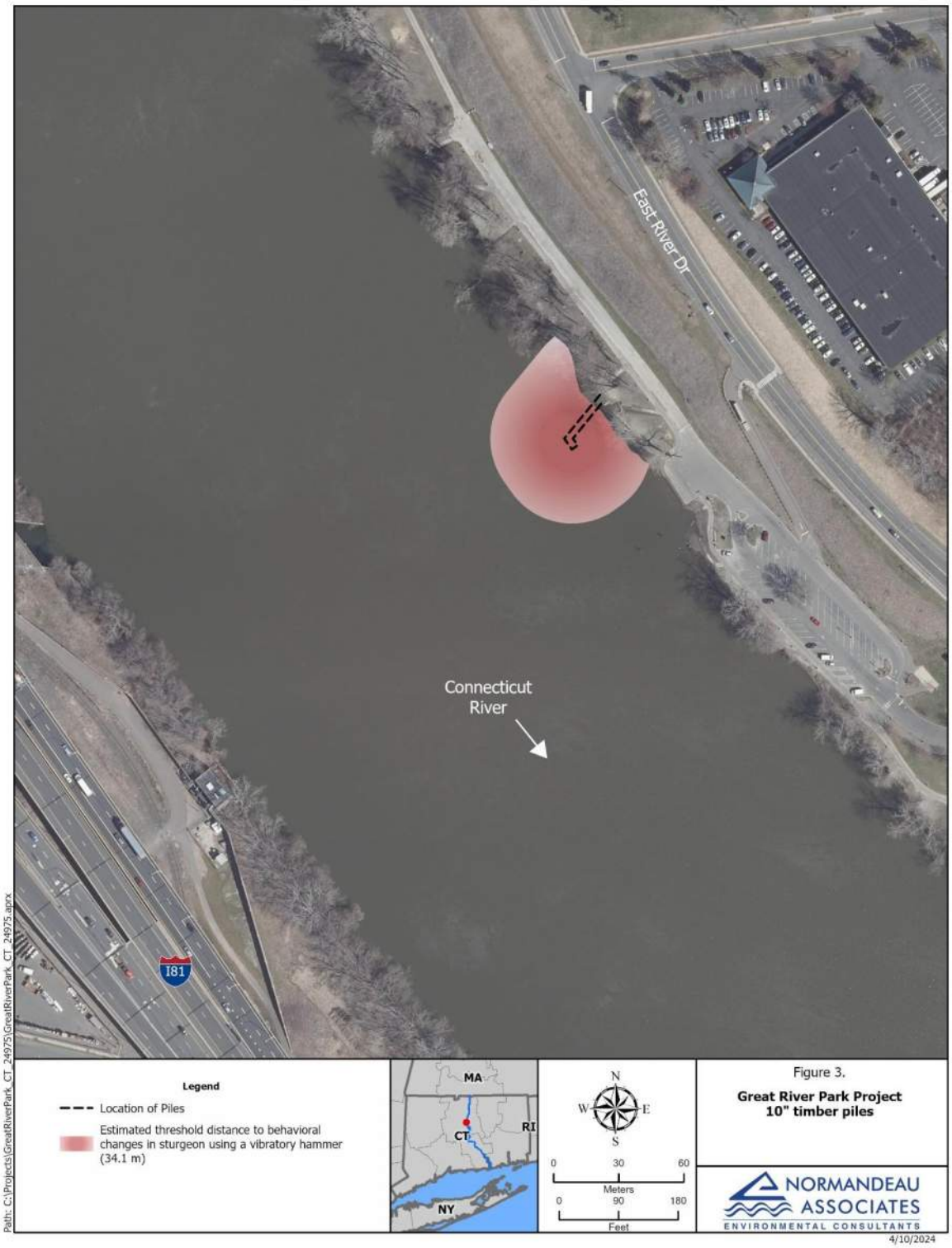

Figure 4. Estimated threshold distance (34.1 m) to behavioral changes in sturgeon for 10″ timber piles using a vibratory hammer.

References

82 FR 39160. Department of Commerce NOAA. 2017. Endangered and Threatened Species; Designation of Critical Habitat for the Endangered New York Bight, Chesapeake Bay, Carolina and South Atlantic Distinct Population Segments of Atlantic Sturgeon and the Threatened Gulf of Maine Distinct Population Segment of Atlantic Sturgeon. Docket number 2017-17207 https://www.federalregister.gov/documents/2017/08/17/2017-17207/endangered-and-threatened-species-designation-of-critical-habitat-for-the-endangered-new-york-bight

Erbe, C., Duncan, A., Vigness-Raposa, K.J. (2022). Introduction to Sound Propagation Under Water. In: Erbe, C., Thomas, J.A. (eds) Exploring Animal Behavior Through Sound: Volume 1. Springer, Cham. https://doi.org/10.1007/978-3-030-97540-1_6

FHWG (Fisheries Hydroacoustic Working Group). 2008. Agreement in Principle for Interim Criteria for Injury to Fish from Pile Driving Activities. Memorandum to Applicable Agency Staff. 12 June 2008. 4 pp.

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Connecticut Department of Energy and Environmental Protection License*

Structures, Dredging & Fill Permit

Licensee(s):	Riverfront Recapture, Inc.
Licensee Address(s):	50 Columbus Boulevard Hartford, CT 06106
License Number(s):	202200467-SDF
Municipality:	East Hartford
Project Description:	Remove two existing overlook piers. Install a new fishing pier and install new floats at an existing public boat launch ramp for fishing access and public boating access respectively
Project Address/Location:	Great River Park, 301 East River Drive
Waters:	Connecticut River
Authorizing CT Statute(s) and/or Federal Law:	CGS Section 22a-359 to 363g
Applicable Regulations of CT State Agencies:	
Agency Contact:	Land & Water Resources Division, Bureau of Water Protection & Land Reuse, 860-424-3019
License Expiration:	Five (5) years from the date of issuance of this license.
Project Site Plan Set:	*Great River Park Improvements*, 10 sheets, prepared by GEI Consultants, Inc., dated December 3, 2021, sheets C-007 and C-008 revised July 12, 2022 and sheets C-004 and C-006 revised November 4, 2022.
License Enclosures:	Mussel Management Plan; LWRD Compliance Certification Form; Land Record Filing; LWRD General Conditions; Site Plan Set; LWRD Work Commencement Form

*Connecticut's Uniform Administrative Procedure Act defines License to include, "*the whole or part of any agency permit, certificate, approval, registration, charter or similar form of permission required by law . . .*"

Authorized Activities:

The Licensee is hereby authorized to conduct the following work as described in application # 202200467 and as depicted on any site plan sheets / sets cited herein:

1. Remove two existing timber overlook piers and concrete pads and cut associated timber piles;
2. Install a new 10' wide and 85' long (54' waterward of the CJL) fixed fishing pier with an 11' by 20' L pierhead and a deck elevation of 15' (NAVD88) and associated 16" diameter piles as depicted on sheet C-006 of the site plan set;
3. Install a 24" diameter pile approximately 6" from the western corner of the L pierhead of the fishing pier;
4. Install 80 linear feet of debris boom waterward of the CJL anchored to the upland and the 24" diameter pile described in activity 3, above;
5. Install new floats to the existing dock on the southern side of the boat launch ramp for public boating consisting of a 8' by 25.5' float, a 8' by 5' float, and a 6' by 30' float as depicted on sheet C-007 of the site plan set;

Failure to comply with the terms and conditions of this license shall subject the Licensee and / or the Licensee's contractor(s) to enforcement actions and penalties as provided by law.

This license is subject to the following Terms and Conditions:

1. **License Enclosure(s) and Conditions.** The Licensee shall comply with all applicable terms and conditions as may be stipulated within the License Enclosure(s) listed above.
2. **Fisheries Protection.** Pile driving and/or pile removal is prohibited between December 1st to June 30th, inclusive, of any year unless otherwise authorized in writing by the Commissioner. The specific closure dates are as follows December 1st to March 31st, inclusive in order to protect federally endangered shortnose sturgeon and April 1st to June 30th, inclusive in order to protect diadromous fish migration and spawning.
3. **Mussel Protection.** The Licensee shall conduct work in accordance with the protection measures identified in the Mussel Management Plan attached herein with the exception that a mussel survey one (1) year post relocation is not required. The Licensee shall conduct a pre-construction mussel sweep to collect and relocate any state-listed mussels occurring within the footprint of the proposed disturbance plus a twenty-five (25) meter upstream buffer, 25 meter downstream buffer, and ten (10) meter offshore buffer within three (3) weeks prior to construction commencement. The Licensee shall submit a report of the mussel relocation effort and a report of the mussel survey one (1) month post-relocation to DEEP.nddbrequest@ct.gov.
4. **Fishing Access.** The Licensee shall install and maintain ten (10) lower railing height sections on the fishing pier authorized herein of no greater than 34 inches, unless otherwise authorized in writing by the Commissioner, from the coastal jurisdiction line waterward on the pier. The Licensee shall install and maintain gaps between railing of no less than four (4) inches for the purpose of landing fish.

5. **Fishing Access Signage.** The Licensee shall install multilingual signage on current fishing regulation, prohibited species, and consumption advisories provided by the Connecticut Department of Energy and Environmental Protection Fisheries Division in locations clearly visible when approaching the fishing pier authorized herein.
6. **Debris Boom Design.** The Licensee shall not install a debris boom with a debris screen or any other such structure which extends beneath the water surface to, or near, the substrate. The debris boom shall be orange.
7. **Float Stops.** The Licensee shall install float stops or other such device to prevent the entire float surface from resting on the bottom at low water. Such structure shall be maintained in optimal operating condition for the life of the structure.
8. **Barge Staging and Storage.** Any barge utilized in the execution of the work authorized herein shall occur only during periods of higher water to prevent the barge from resting on, or coming into contact with, the substrate at any time and shall not be placed in an area which will impact navigation.

Issued under the authority of the Commissioner of Energy and Environmental Protection on:

February 1, 2023
Date

Tracy R. Babbidge
Acting Deputy Commissioner
Environmental Quality Branch

APPENDIX 1

MUSSEL MANAGEMENT PLAN

Initial Mussel Survey

A freshwater mussel survey was conducted on May 24, 2021, to assist with the planning and permitting for the Great River Park Site Improvements. The survey documented tidewater mucket, yellow lampmussel, and eastern pondmussel occupying nearshore areas of the Connecticut River near and within the areas of direct impacts. Based on the locations and water depths occupied by these mussels, proposed improvements to the fishing pier adjacent to the boat ramp and construction of the replacement pier upstream from the boat ramp may adversely affect mussels and their habitat, and therefore standard avoidance and minimization measures are recommdned. During the survey, biologists also identified a suitable relocation site approximately 150 meters upstream from the boat ramp.

Pre-Construction Mussel Relocation

- For mussel relocation, this plan recommends a *survey area* that includes all areas of direct impacts plus a 25-meter upstream buffer, 25-meter downstream buffer, and 10-meter offshore buffer.
- Within three weeks prior to construction, biologists will collect and relocate all state-listed mussels from the survey area.
- Biologists will conduct visual searches for mussels while snorkeling or SCUBA diving, depending on water depth.
- Biologists will also excavate and sieve sediment using a 6-mm screen to attempt to detect buried adults or juveniles. Excavation will primarily occur in the area of direct impacts + 10-meter buffer.
- All individuals of state-listed species will be gathered and held underwater in mesh bags during the collection process.
- Each mussel will be measured, photographed, and tagged using a numeric 3x5mm tag affixed with super glue.
- After mussels have been tagged, they will be transported to the relocation site identified in the survey report and placed carefully into the substrate. Permanent markers will be established on the river bottom and bank to facilitate finding these animals at a later date.
- A written report will summarize results of the pre-construction mussel relocation. It will include a map of the survey area showing where target species were collected and relocated, and provide tag numbers, shell length measurements, shell condition, habitat, and photographs of relocated mussels

Post-Construction Mussel Monitoring

- All mussels that are relocated and tagged will be checked one month and one year following relocation to monitor mortality, movement, or growth.
- Tag numbers and any movement or mortality will be recorded during the each follow-up survey, and shell length and shell condition will be recorded during the one-year survey.
- Results of the post-construction monitoring will be submitted as written addenda to the relocation report.

Schedule

- Pre-Construction Mussel Relocation: This should be completed within three weeks prior to construction, within the time period from late May to late September. The construction schedule has not yet been determined.
- Post-Construction Mussel Monitoring: One month and one year following relocation.
- Reporting: Reports will be submitted to the client within three weeks of each field effort. Contractors will comply with other permit conditions specified by the CTDEEP.

Connecticut Department of
ENERGY &
ENVIRONMENTAL
PROTECTION

79 Elm Street • Hartford, CT 06106-5127 portal.ct.gov/DEEP Affirmative Action/Equal Opportunity Employer

Compliance Certification Form

The following certification must be signed by the licensee working in consultation with a Connecticut-licensed design professional and must be submitted to the address indicated at the end of this form within ninety (90) days of completion of the authorized work.

1. Licensee Name: Riverfront Recatpure, Inc.

   DEEP License Number(s): 202200467

   Municipality in which project is occurring: East Hartford

2. **Check one:**

   (a) ☐ "I certify that the final site conditions and / or structures are in general conformance with the approved site plans". Identify and describe any deviations and attach to this form.

   (b) ☐ "The final site conditions and / or structures are not in general conformance with the approved site plans. The enclosed "as-built" plans note the modifications".

3. "I understand that any false statement in this certification is punishable as a criminal offence under section 53a-157b of the General Statutes and under any other applicable law."

_____ _____
Signature of Licensee Date

_____
Name of Licensee (print or type)

_____ _____
Signature of CT-Licensed Design Professional Date

_____
Name of CT-Licensed Design Professional (print or type)

_____
Professional License Number (if applicable) Affix Stamp Here

- As-built plans shall include: elevations or tidal datums, as applicable, and structures, including any proposed elevation views and cross sections included in the approved license plans. Such as-built plans shall be the original ones and be signed and sealed by an engineer, surveyor or architect, as applicable, who is licensed in the State of Connecticut.
- The Licensee will be notified by staff of the Land and Water Resources Division (LWRD) if further compliance review is necessary. Lack of response by LWRD staff does not imply compliance.

Submit this completed form to :
DEEP.LWRDRegulatory@ct.gov or
Regulatory Section
Department of Energy and Environmental Protection
Land & Water Resources Division
79 Elm Street
Hartford, CT 06106-5127

Land Record Filing*

To: DO NOT FILE

Signature and

NOTE: Due to the electronic delivery of this license and the legal requirement to have a live signature on this document, the "Land Record Filing" as detailed in General Condition #1 will be sent to the Licensee via U.S. Mail for the Licensee to file with the city/town clerk.

~~**Date:**~~

~~**Subject:**~~ _____
~~License #~~ _____

If you have any questions pertaining to this matter, please contact the Land & Water Resources Division at 860-424-3019.

~~Return to:~~

~~Land & Water Resources Division~~
~~State of Connecticut~~
~~Department of Energy & Environmental Protection~~
~~79 Elm Street~~
~~Hartford, CT 06106-5127~~

*The Licensee shall file the Land Record Filing on the land records of the municipality in which the subject property is located not later than thirty (30) days after license issuance pursuant to Connecticut General Statutes (CGS) Section 22a-363g. A copy of the Notice with a stamp or other such proof of filing with the municipality shall be submitted to the Commissioner no later than sixty (60) days after license issuance.

LWRD General Conditions

1. **Land Record Filing (for *Structures Dredging & Fill*, *Tidal Wetlands*, *Certificate of Permission*, and *Long Island Sound General Permit* Licenses only).** The Licensee shall file the Land Record Filing on the land records of the municipality in which the subject property is located not later than thirty (30) days after license issuance pursuant to Connecticut General Statutes (CGS) Section 22a-363g. A copy of the Notice with a stamp or other such proof of filing with the municipality shall be submitted to DEEP.LWRDRegulatory@ct.gov no later than sixty (60) days after license issuance. If a Land Record Filing form is not enclosed and the work site is not associated with an upland property, no filing is required.

2. **Contractor Notification.** The Licensee shall give a copy of the license and its attachments to the contractor(s) who will be carrying out the authorized activities prior to the start of construction and shall receive a written receipt for such copy, signed and dated by such contractor(s). The Licensee's contractor(s) shall conduct all operations at the site in full compliance with the license and, to the extent provided by law, may be held liable for any violation of the terms and conditions of the license. At the work site, the contractor(s) shall, whenever work is being performed, have on site and make available for inspection a copy of the license and the authorized plans.

3. **Work Commencement[1].** Not later than two (2) weeks prior to the commencement of any work authorized herein, the Licensee shall submit to DEEP.LWRDRegulatory@ct.gov, on the Work Commencement Form attached hereto, the name(s) and address(es) of all contractor(s) employed to conduct such work and the expected date for commencement and completion of such work, if any.
    - For water diversion activities authorized pursuant to 22a-377(c)-1 of the Regulations of Connecticut State Agencies, the Licensee shall also notify the Commissioner in writing two weeks prior to initiating the authorized diversion.
    - For emergency activities authorized pursuant Connecticut General Statutes Section 22a-6k, the Licensee shall notify the Commissioner, in writing, of activity commencement at least one (1) day prior to construction and of activity completion no later than five (5) days after conclusion.

4. **For Coastal Licenses Only - License Notice.** The Licensee shall post the first page of the License in a conspicuous place at the work area while the work authorized therein is undertaken.

5. **Unauthorized Activities.** Except as specifically authorized, no equipment or material, including but not limited to, fill, construction materials, excavated material or debris, shall be

[1] The Work Commencement condition and the need for a Work Commencement Form is not applicable to Flood Management Certification approvals.

deposited, placed or stored in any wetland or watercourse on or off-site. The Licensee may not conduct work within wetlands or watercourses other than as specifically authorized, unless otherwise authorized in writing by the Commissioner. Tidal wetlands means "wetland" as defined by section 22a-29 and "freshwater wetlands and watercourses" means "wetlands" and "watercourses" as defined by section 22a-38.

6. **Management of Materials.** Any materials removed from the site shall be managed in accordance with all federal, state, and local requirements, including Chapter 446K Water Pollution Control, Chapter 445 Hazardous Waste, and Chapter 446d Solid Waste of the Connecticut General Statutes.

7. **Unconfined Instream Work.** Unless otherwise noted in a condition of the license, the following conditions apply to projects in non-coastal waters:

   - Unconfined instream work is limited to the period June 1 through September 30.
   - Confinement of a work area by cofferdam techniques using sand bag placement, sheet pile installation (vibratory method only), portadam, or similar confinement devices is allowed any time of the year. The removal of such confinement devices is allowed any time of the year.
   - Once a work area has been confined, in-water work within the confined area is allowed any time of the year.
   - The confinement technique used shall completely isolate and protect the confined area from all flowing water. The use of silt boom/curtain or similar technique as a means for confinement is prohibited.

8. **For State Actions Only - Material or Equipment Storage in the Floodplain.** Unless approved by a Flood Management Exemption, the storage of any materials at the site which are buoyant, hazardous, flammable, explosive, soluble, expansive, radioactive, or which could in the event of a flood be injurious to human, animal or plant life, below the elevation of the five-hundred (500) year flood is prohibited. Any other material or equipment stored at the site below said elevation by the Licensee or the Licensee's contractor must be firmly anchored, restrained or enclosed to prevent flotation. The quantity of fuel stored below such elevation for equipment used at the site shall not exceed the quantity of fuel that is expected to be used by such equipment in one day. In accordance with the licensee's Flood Contingency Plan, the Licensee shall remove equipment and materials from the floodplain during periods when flood warnings have been issued or are anticipated by a responsible federal, state or local agency. It shall be the Licensee's responsibility to obtain such warnings when flooding is anticipated.

9. **Temporary Hydraulic Facilities for Water Handling.** If not reviewed and approved as a part of the license application, temporary hydraulic facilities shall be designed by a qualified professional and in accordance with the *Connecticut Guidelines for Soil Erosion and Sediment Control*, the *2004 Connecticut Stormwater Quality Manual*, or the *Department of Transportation's ConnDOT Drainage Manual,* as applicable. Temporary hydraulic facilities may include channels, culverts or bridges which are required for haul roads, channel relocations, culvert installations, bridge construction, temporary roads, or detours.

10. **Excavated Materials.** Unless otherwise authorized, all excavated material shall be staged and managed in a manner which prevents additional impacts to wetlands and watercourses.

11. **Best Management Practices.** The Licensee shall not cause or allow pollution of any wetlands or watercourses, including pollution resulting from sedimentation and erosion. In constructing or maintaining any authorized structure or facility or conducting any authorized activity, or in removing any such structure or facility, the Licensee shall employ best management practices to control storm water discharges, to prevent erosion and sedimentation, and to otherwise prevent pollution of wetlands and other waters of the State. For purposes of the license, "pollution" means "pollution" as that term is defined by CGS section 22a-423. Best Management Practices include, but are not limited, to practices identified in the *Connecticut Guidelines for Soil Erosion and Sediment Control* as revised, *2004 Connecticut Stormwater Quality Manual*, Department of Transportation's *ConnDOT Drainage Manual* as revised, and the Department of Transportation Standard Specifications as revised.

12. **In-Water Work Vessel Staging and Storage. (for Structures Dredging & Fill, Tidal *Wetlands*, *Certificate of Permission*, and *Long Island Sound General Permit* Licenses only).** For any barge, vessel, skiff or floating work platform ("work vessels") utilized in the execution of the work authorized herein, the Licensee shall ensure that such work vessels:
    - do not rest on, or come in contact with, the substrate at any time, unless specifically authorized in the license.
    - are not stored over intertidal flats, submerged aquatic vegetation or tidal wetland vegetation or in a location that interferes with navigation. In the event any work vessel is grounded, no dragging or prop dredging shall occur to free it.

13. **Work Site Restoration.** Upon completion of any authorized work, the Licensee shall restore all areas impacted by construction, or used as a staging area or accessway in connection with such work, to their condition prior to the commencement of such work.

14. **Inspection.** The Licensee shall allow any representative of the Commissioner to inspect the project location at reasonable times to ensure that work is being or has been conducted in accordance with the terms and conditions of this license.

15. **Change of Use. (Applies only if a use is specified within the License "*Project Description*")**
    a. The work specified in the license is authorized solely for the purpose set forth in the license. No change in purpose or use of the authorized work or facilities as set forth in the license may occur without the prior written approval of the Commissioner. The Licensee shall, prior to undertaking or allowing any change in use or purpose from that which is authorized by this license, request permission from the Commissioner for such change. Said request shall be in writing and shall describe the proposed change and the reason for the change.

    b. A change in the form of ownership of any structure authorized herein from a rental/lease commercial marina to a wholly-owned common interest community or dockominium may constitute a change in purpose as specified in paragraph (a) above.

16. **De Minimis Alteration.** The Licensee shall not deviate from the authorized activity without

prior written approval from the Commissioner. The Licensee may request a de minimis change to any authorized structure, facility, or activity. A de minimis alteration means a change in the authorized design, construction or operation that individually and cumulatively has minimal additional environmental impact and does not substantively alter the project as authorized.

- For diversion activities authorized pursuant to 22a-377(c)-2 of the Regulations of Connecticut State Agencies, a de minimis alteration means an alteration which does not significantly increase the quantity of water diverted or significantly change the capacity to divert water.

17. **Extension Request.** The Licensee may request an extension of the license expiration date. Such request shall be in writing and shall be submitted to DEEP.LWRDRegulatory@ct.gov at least thirty (30) days prior to the license expiration. Such request shall describe the work done to date, what work still needs to be completed, and the reason for such extension. The Commissioner may extend the expiration date of this license for a period of up to one year, in order for the Licensee to complete the authorized activities. It shall be at the Commissioner's sole discretion to grant or deny such request. No more than three (3) one-year extensions will be granted under this license.

18. **Compliance Certification.** Not later than 90 days after completion of the authorized work, the Licensee shall prepare and submit to DEEP.LWRDRegulatory@ct.gov, the attached Compliance Certification Form. Such Compliance Certification shall be completed, signed, and sealed by the Licensee and a Connecticut Licensed Design Professional. If non-compliance is indicated on the form, or the Commissioner has reason to believe the activities and/or structures were conducted in non-compliance with the license, the Commissioner may require the Licensee to submit as-built plans as a condition of this license.

19. **Maintenance.** The Licensee shall maintain all authorized structures or work in optimal condition or shall remove such structures or facility and restore the affected waters to their pre-work condition. Any such maintenance or removal activity shall be conducted in accordance with applicable law and any additional approvals required by law.

20. **No Work After License Expiration.** Work conducted after the license expiration date is a violation of the license and may subject the licensee to enforcement action, including penalties, as provided by law.

21. **License Transfer.** The license is not transferable without prior written authorization of the Commissioner. A request to transfer a license shall be submitted in writing and shall describe the proposed transfer and the reason for such transfer. The Licensee's obligations under the license shall not be affected by the passage of title to the license site to any other person or municipality until such time as a transfer is approved by the Commissioner.

22. **Document Submission.** Any document required to be submitted to the Commissioner under the license or any contact required to be made with the Commissioner shall, unless otherwise specified in writing by the Commissioner, be directed to:

    DEEP.LWRDRegulatory@ct.gov or

Regulatory Section
Land & Water Resources Division
Department of Energy and Environmental Protection
79 Elm Street
Hartford, Connecticut 06106-5127
860-424-3019

23. **Date of Document Submission.** The date of submission to the Commissioner of any document required by the license shall be the date such document is received by the Commissioner. The date of any notice by the Commissioner under the license, including but not limited to notice of approval or disapproval of any document or other action, shall be the date such notice is personally delivered or the date three (3) days after it is mailed by the Commissioner, whichever is earlier. Except as otherwise specified in the license, the word "day" as used in the license means calendar day. Any document or action which is required by the license to be submitted or performed by a date which falls on a Saturday, Sunday or a Connecticut or federal holiday shall be submitted or performed on or before the next day which is not a Saturday, Sunday, or a Connecticut or federal holiday.

24. **Certification of Documents.** Any document, including but not limited to any notice, which is required to be submitted to the Commissioner under the license shall be signed by the Licensee and by the individual or individuals responsible for actually preparing such document, each of whom shall certify in writing as follows: "I have personally examined and am familiar with the information submitted in this document and all attachments and certify that based on reasonable investigation, including my inquiry of those individuals responsible for obtaining the information, the submitted information is true, accurate and complete to the best of my knowledge and belief, and I understand that any false statement made in this document or its attachments may be punishable as a criminal offense."

25. **Accuracy of Documentation.** In evaluating the application for the license, the Commissioner has relied on information and data provided by the Licensee and on the Licensee's representations concerning site conditions, design specifications and the proposed work, including but not limited to representations concerning the commercial, public or private nature of the work or structures, the water-dependency of said work or structures, its availability for access by the general public, and the ownership of regulated structures or filled areas. If such information proves to be false, deceptive, incomplete or inaccurate, the license may be modified, suspended or revoked, and any unauthorized activities may be subject to enforcement action.

26. **Limits of Liability.** In granting the license, the Commissioner has relied on all representations of the Licensee, including information and data provided in support of the Licensee's application. Neither the Licensee's representations nor the issuance of the license shall constitute an assurance by the Commissioner as to the structural integrity, the engineering feasibility or the efficacy of such design.

27. **Reporting of Violations.** In the event that the Licensee becomes aware that they did not or may not comply, or did not or may not comply on time, with any provision of this license or of any document incorporated into the license, the Licensee shall immediately notify the

agency contact specified within the license and shall take all reasonable steps to ensure that any noncompliance or delay is avoided or, if unavoidable, is minimized to the greatest extent possible. In so notifying the agency contact, the Licensee shall provide, for the agency's review and written approval, a report including the following information:

a. the provision(s) of the license that has been violated;

b. the date and time the violation(s) was first observed and by whom;

c. the cause of the violation(s), if known;

d. if the violation(s) has ceased, the duration of the violation(s) and the exact date(s) and times(s) it was corrected;

e. if the violation(s) has not ceased, the anticipated date when it will be corrected;

f. steps taken and steps planned to prevent a reoccurrence of the violation(s) and the date(s) such steps were implemented or will be implemented; and

g. the signatures of the Licensee and of the individual(s) responsible for actually preparing such report.

If the violation occurs outside of normal business hours, the Licensee shall contact the Department of Energy and Environmental Protection Emergency Dispatch at 860-424-3333. The Licensee shall comply with any dates which may be approved in writing by the Commissioner.

28. Revocation/Suspension/Modification. The license may be revoked, suspended, or modified in accordance with applicable law.

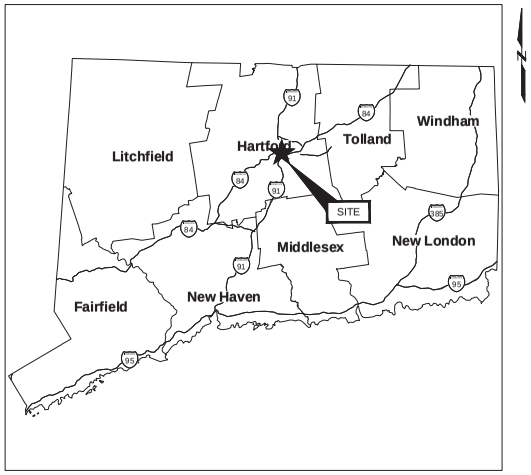
29. Other Required Approvals. License issuance does not relieve the Licensee of their obligations to obtain any other approvals required by applicable federal, state and local law.

30. Rights. The license is subject to and does not derogate any present or future property rights or powers of the State of Connecticut, and conveys no property rights in real estate or material nor any exclusive privileges, and is further subject to any and all public and private rights and to any federal, state or local laws or regulations pertinent to the property or activity affected hereby.

31. Condition Conflicts. In the case where a project specific special condition listed on the license differs from, or conflicts with, one of the general conditions listed herein, the project specific special condition language shall prevail. It is the licensee's responsibility to contact the agency contact person listed on the license for clarification if needed prior to conducting any further regulated activities.

GREAT RIVER PARK IMPROVEMENTS

301 EAST RIVER DRIVE,
EAST HARTFORD, CT 06108



SOURCE:
(ENTER MAP SOURCE HERE.....)

STATE or COUNTY MAP
(NOT TO SCALE)

SOURCE:
(ENTER MAP SOURCE HERE.....)

SITE LOCATION MAP
(NOT TO SCALE)

PREPARED FOR:

RIVERFRONT RECAPTURE, INC
50 COLUMBUS BLVD
HARTFORD, CT 06106
(860) 713-3131

PREPARED BY:

GEI CONSULTANTS, INC.
455 WINDING BROOK DRIVE
SUITE 201
GLASTONBURY, CT 06033
(860)368-5300

GEI Consultants

FOR PERMITS ONLY

DWG. NO.
G-001
SHEET NO.
01 OF 10
REV NO.

GEI PROJECT NO. 2002828
DECEMBER 3, 2021

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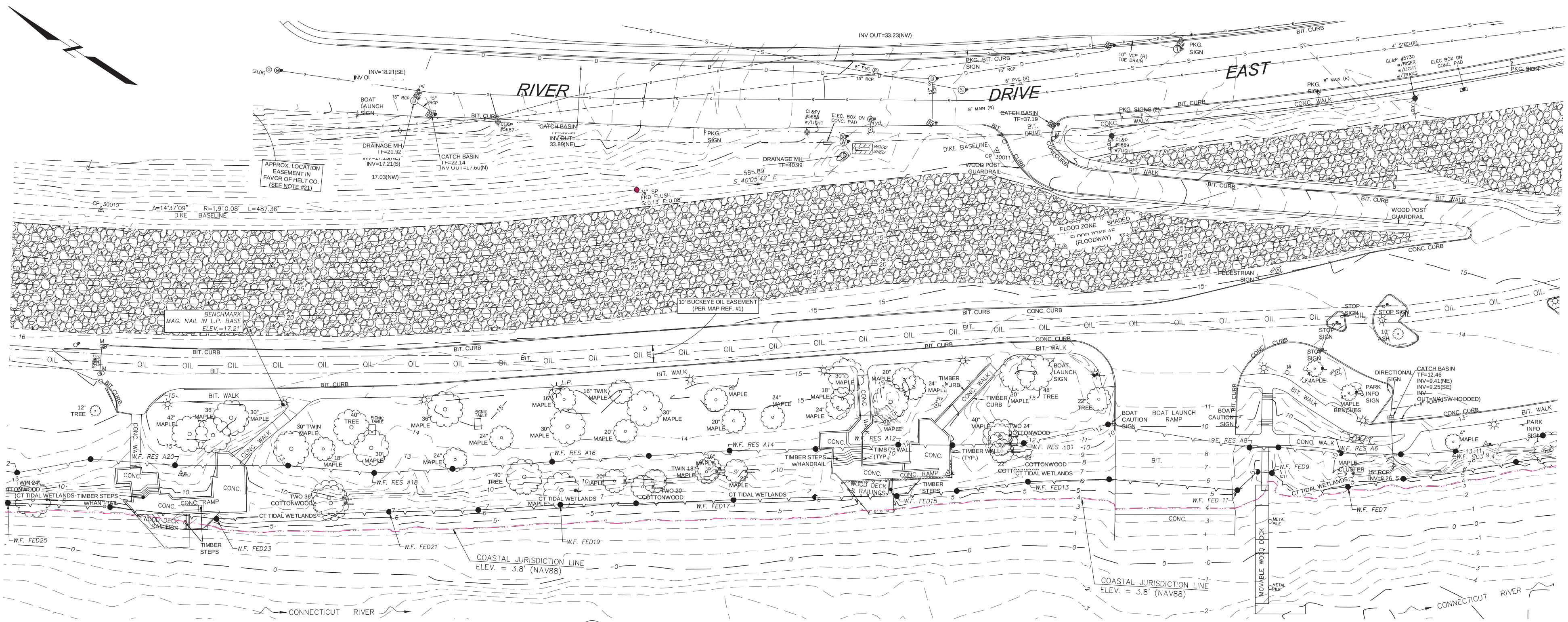


A
C-001

EXISTING CONDITIONS
SCALE: 1" = 30'-0"

MAP REFERENCE
1. " RIGHT OF WAY SURVEY OF THE EAST HARTFORD DIKE FOR THE EAST HARTFORD FLOOD CONTROL SYSTEM FEMA ACCREDITATION PROJECT SITUATED IN THE TOWN OF EAST HARTFORD, COUNTY OF HARTFORD, STATE OF CONNECTICUT JANUARY 24, 2014" SCALE: 1" = 30 '. PREPARED BY BSC GROUP

SURVEY NOTES
1. THIS SURVEY AND MAP HAVE BEEN PREPARED PURSUANT TO THE REGULATIONS OF CONNECTICUT STATE AGENCIES SECTIONS 20 - 300B - 1 THROUGH 20 - 3006 - 20 AND THE STANDARDS FOR SURVEYS AND MAPS IN THE STATE OF CONNECTICUT AS ADOPTED BY THE CONNECTICUT ASSOCIATION OF LAND SURVEYORS, INC. ON SEPTEMBER 26, 1996.

   TOPOGRAPHIC ACCURACY CONFORMS WITH T- 2 STANDARDS AND IS BASED ON AN ACTUAL FIELD SURVEY

   THIS IS A NOT A PROPERTY BOUNDARY SURVEY.

2. THE INTENT OF THIS SURVEY AND PLAN: DOCUMENT EXISTING CONDITIONS
3. THE FIELD SURVEY WAS PERFORMED ON THE GROUND BY BSC GROUP IN JUNE 2020.
4. HORIZONTAL AND VERTICAL DATUM ARE BASED ON MAP REFERENCE #1. HORIZONTAL DATUM IS APPROXIMATE NORTH AMERICAN DATUM OF 1983 (NAD8 3). VERTICAL DATUM IS APPROXIMATE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88).
5. EXISTING UTILITIES, WHERE SHOWN HEREON, ARE APPROXIMATE. NO GUARANTEE IS IMPLIED OR INTENDED AS TO THE ACCURACY, LOCATION OR THAT ALL UTILITIES AND/OR SUBSURFACE STRUCTURES ARE SHOWN. CONSULT WITH THE APPROPRIATE UTILITY COMPANY OR AGENCY PRIOR TO DESIGNING IMPROVEMENTS, COMMENCING DEMOLITION OR CONSTRUCTION. "CALL BEFORE YOU DIG" 1-800-9 22-4 455 .
6. INLAND WETLANDS WERE FIELD DELINEATED BY REMA ECOLOGICAL SERVICES, LLC FOR BSC GROUP ON JUNE 22, 2020 .

THE SURVEYED PROPERTY IS PARTIALLY LOCATED WITHIN FLOOD ZONE X (SHADED) AND FLOOD ZONE AE AS SCALED FROM AND DEFINED BY THE FLOOD INSURANCE RATE MAP (FIRM) ENTITLED "HARTFORD COUNTY. CONNECTICUT (ALL JURISDICTIONS) PANEL 368 OF 675," MAP NUMBER 09003C0368G MAP REVISED SEPTEMBER 16, 2011

FLOOD ZONE AE: SPECIAL FLOOD HAZARD ARE AS (SFHAs) SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD. BASE FLOOD ELEVATIONS DETERMINED. THE BASE FLOOD ELEVATION IS THE WATER-SURFACE ELEVATION OF THE 1% ANNUAL CHANCE FLOOD.

FLOOD ZONE X: AREAS OF 0.2% ANNUAL CHANCE FLOOD; AREAS OF 1% ANNUAL CHANCE FLOOD WITH AVERAGE DEPTHS OF LESS THAN 1 FOOT OR WITH DRAINAGE AREAS LESS THAN 1 SQUARE MILE; AND AREAS PROTECTED BY LEVEES FROM 1% ANNUAL CHANCE FLOOD.

SHADED AREA DEPICTS AREA PROTECTED FROM THE 1-PERCENT- ANNUAL-CHANCE OR GREATER FLOOD HAZARD BY A LEVEE SYSTEM.

1% ANNUAL CHANCE FLOOD ELEVATION = 28.7' ±
2% ANNUAL CHANCE FLOOD ELEVATION = 32. 6 '+

LEGEND & ABBREVIATIONS

FOR PERMITS ONLY

DATUM CONVERSION TABLE

HTL EL. 6.0
CJL EL. +3.8
MHW EL. +2.19
MLW EL. +0.25
NAVD88 EL. 0.0
NGVD EL. -1.0

Attention:
0 1"
If this scale bar does not measure 1" then drawing is not original scale.

Designed:	ASC
Drawn:	ASC
Checked:	BAP
Approved:	-
P.E. No:	-
GEI Project	-

GEI Consultants
GEI CONSULTANTS, INC.
455 WINDING BROOK DRIVE
SUITE 201
GLASTONBURY, CT 06033
(860)368-5300

Riverfront Recapture, Inc
50 Columbus Blvd
Hartford, CT 06106

Great River Park Improvements

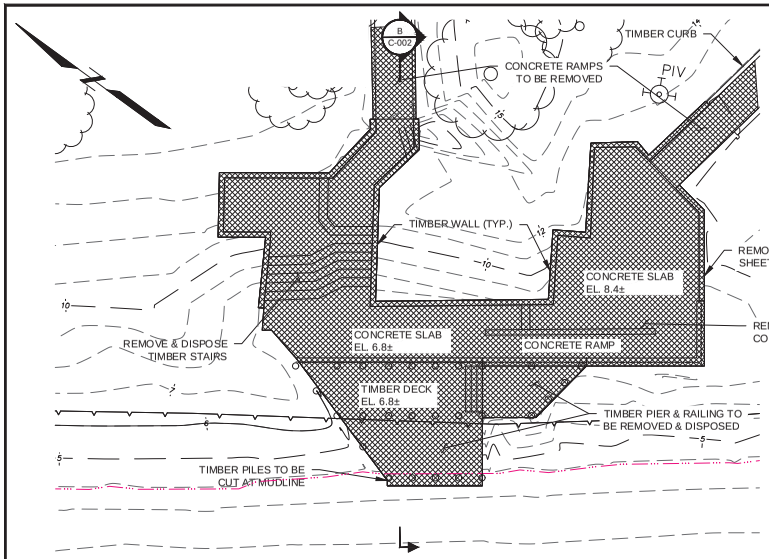
East Hartford, CT

NO	DATE	ISSUE/REVISION	APP

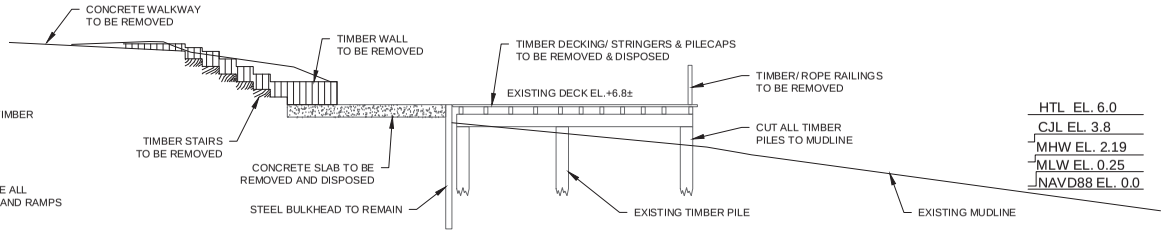
SHEET NAME: EXISTING SITE PLAN

SHEET NO.: C-001

12/8/2021 2:44:45 PM B:\Working\RIVERFRONT RECAPTURE, INC\2002828 Great River Park Improvement\00_CAD\Design\Working\C-001 OVERALL SITE PLAN.dwg



A C-002 DEMOLITION OVERLOOK - PLAN
SCALE: 1" = 10'-0"
(2 LOCATIONS)



B C-002 DEMOLITION OVERLOOK - SECTION
SCALE: 1" = 10'-0"

NOTE: BOTH TIMBER PIERS AND THEIR ASSOCIATED ELEMENTS ARE TO BE REMOVED IN THEIR ENTIRETY

FOR PERMITS ONLY

DATUM CONVERSION TABLE
HTL EL. 6.0
CJL EL. +3.8
MHW EL. +2.19
MLW EL. +0.25
NAVD88 EL. 0.0
NGVD EL. -1.0

Attention:
0 1"
If this scale bar does not measure 1" then drawing is not original scale.

Designed: ASC
Drawn: ASC
Checked: BAP
Approved: -
P.E. No: -
GEI Project -

GEI Consultants
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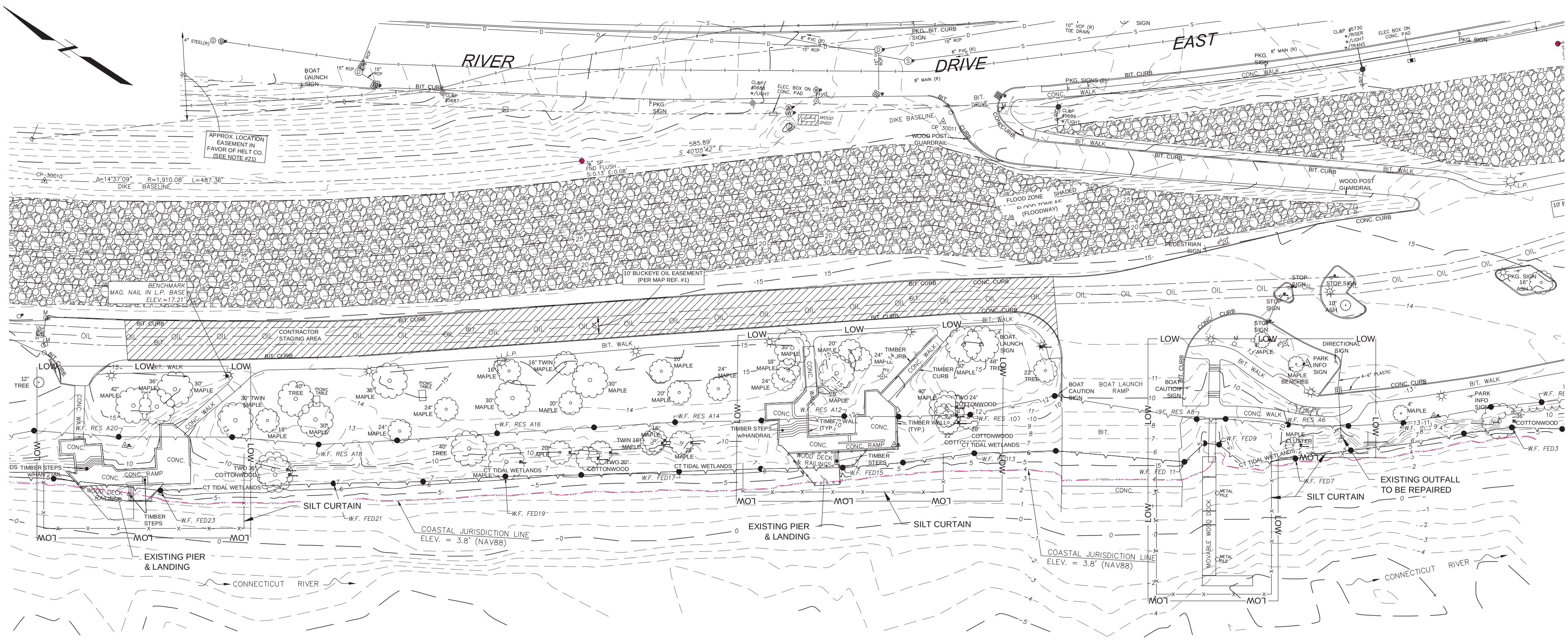
East Hartford, CT

NO	DATE	ISSUE/REVISION	APP

SHEET NAME: DEMOLITION OVERLOOKS
SHEET NO.: **C-002**



A LIMIT OF WORK - PLAN (C-003)
SCALE: 1" = 30'-0"

FOR PERMITS ONLY

DATUM CONVERSION TABLE

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- CJL EL. +3.8
- MHW EL. +2.19
- MLW EL. +0.25
- NAVD88 EL. 0.0
- NGVD EL. -1.0

Attention: 0 — 1"
If this scale bar does not measure 1" then drawing is not original scale.

Designed:	ASC
Drawn:	ASC
Checked:	BAP
Approved:	-
P.E. No:	-
GEI Project	-

GEI Consultants
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East Hartford, CT

NO	DATE	ISSUE/REVISION	APP

SHEET NAME: LIMIT OF WORK - PLAN
SHEET NO.: **C-003**

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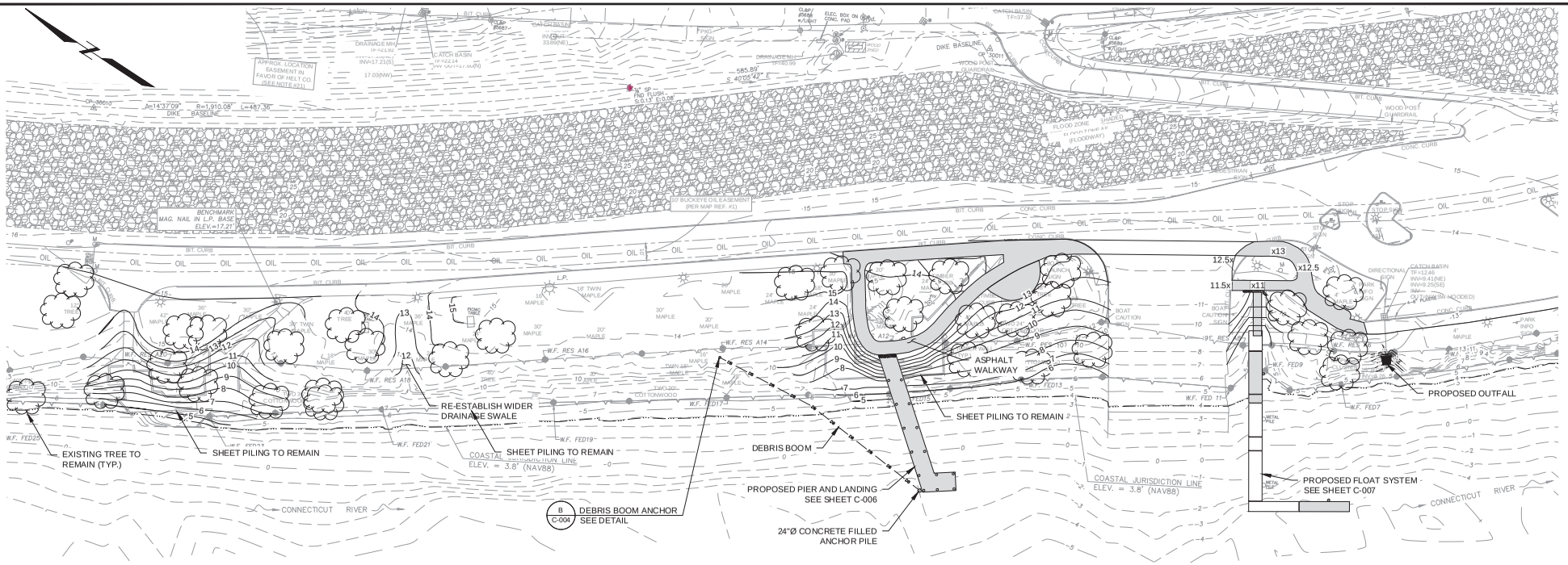
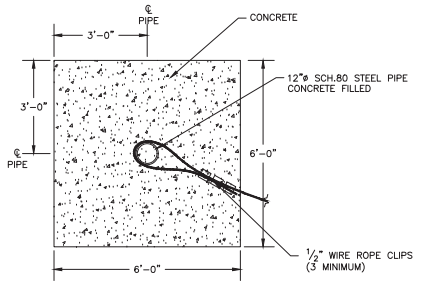
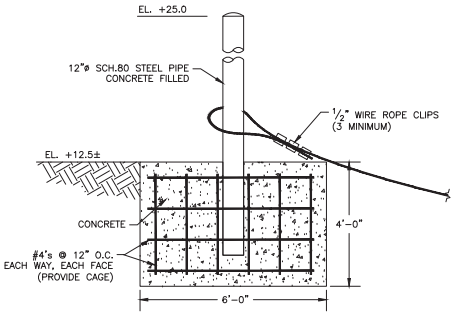


A C-004 **PROPOSED CONDITIONS**
SCALE: 1" = 30'-0"



B C-004 **ANCHOR PLAN**
SCALE: 1/2" = 1'-0"



C C-004 **ANCHOR DETAIL**
SCALE: 1/2" = 1'-0"

DATUM CONVERSION TABLE

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CJL	EL. +3.8
MHW	EL. +2.19
MLW	EL. +0.25
NAVD88	EL. 0.0
NGVD	EL. -1.0

Attention:
0 1"
If this scale bar does not measure 1" then drawing is not original scale.

Designed:	MUS
Drawn:	JSF
Checked:	BAP
Approved:	-
P.E. No:	-
GEI Project	-

GEI Consultants
GEI CONSULTANTS, INC.
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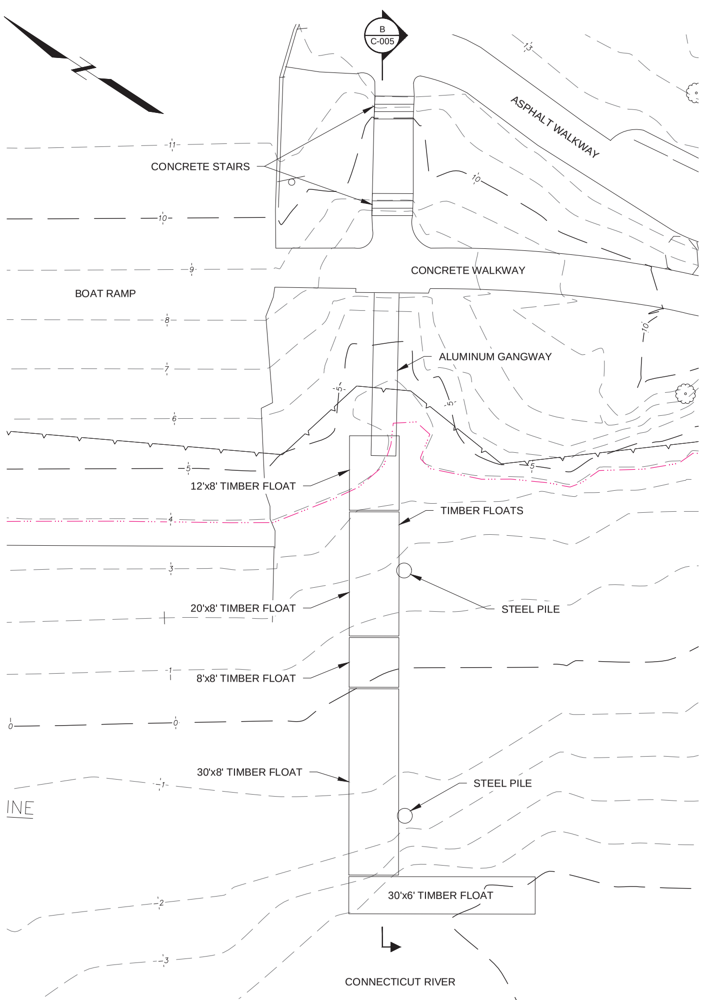
Great River Park Improvements

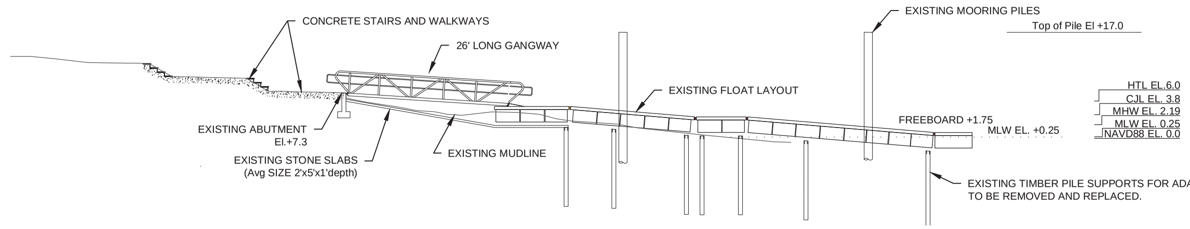
East Hartford, CT

NO	DATE	ISSUE/REVISION	APP
2	11/04/2022	Proposed Grades - Outfall	
1	7/12/2022	Add Debris Boom and Details	

SHEET NAME: PROPOSED SITE PLAN
SHEET NO.: **C-004**



A C-005 EXISTING FLOAT & GANGWAY - PLAN
SCALE: 1" = 10'-0"



B C-005 EXISTING FLOAT & GANGWAY - SECTION
SCALE: 1" = 5'-0"

FOR PERMITS ONLY

DATUM CONVERSION TABLE

HTL EL.	6.0
CJL EL.	+3.8
MHW EL.	+2.19
MLW EL.	+0.25
NAVD88 EL.	0.0
NGVD EL.	-1.0

Attention: 0 1"
If this scale bar does not measure 1" then drawing is not original scale.

Designed:	ASC
Drawn:	ASC
Checked:	BAP
Approved:	-
P.E. No:	-
GEI Project	-

GEI Consultants
GEI CONSULTANTS, INC.
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Great River Park Improvements

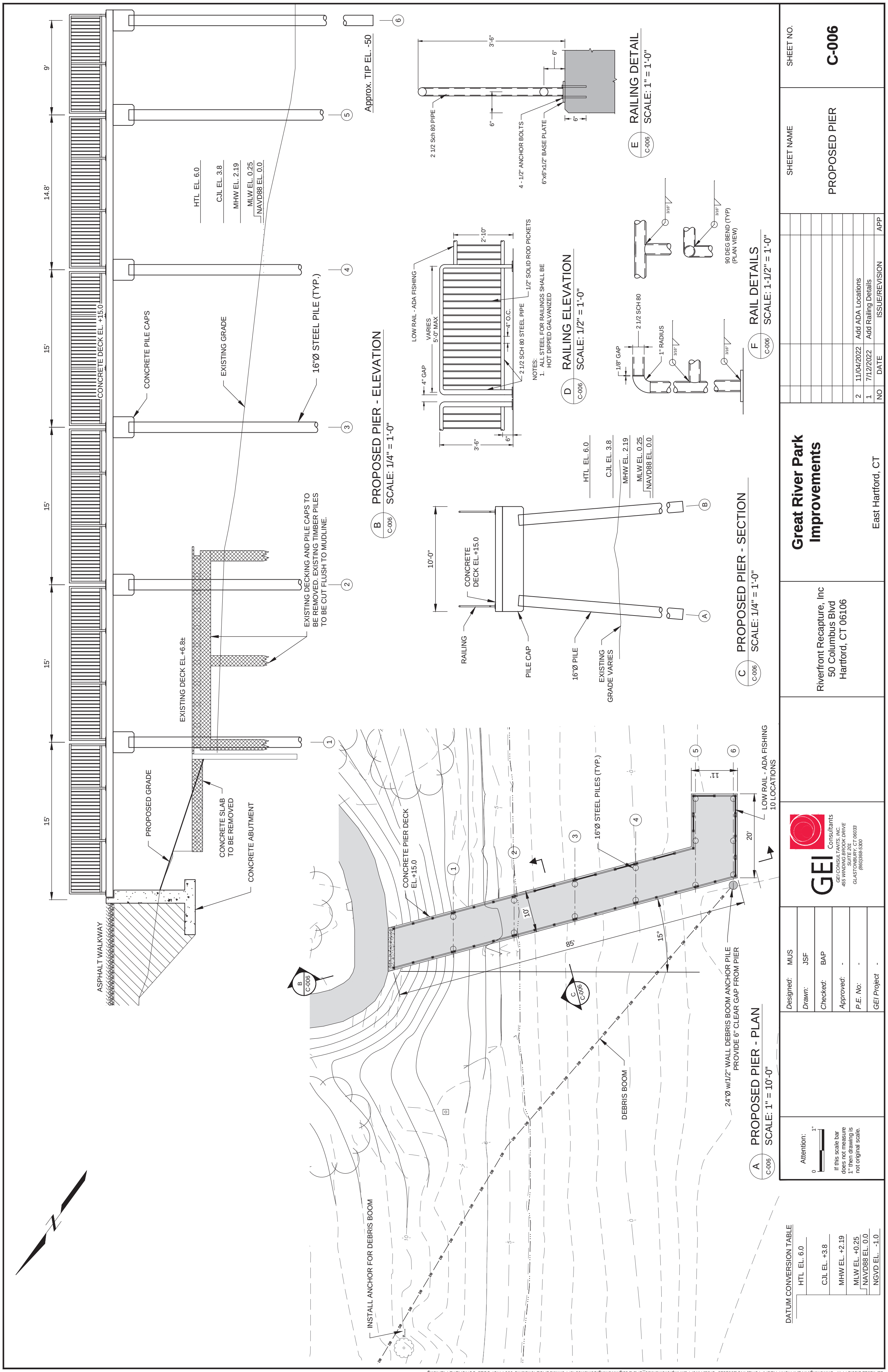
East Hartford, CT

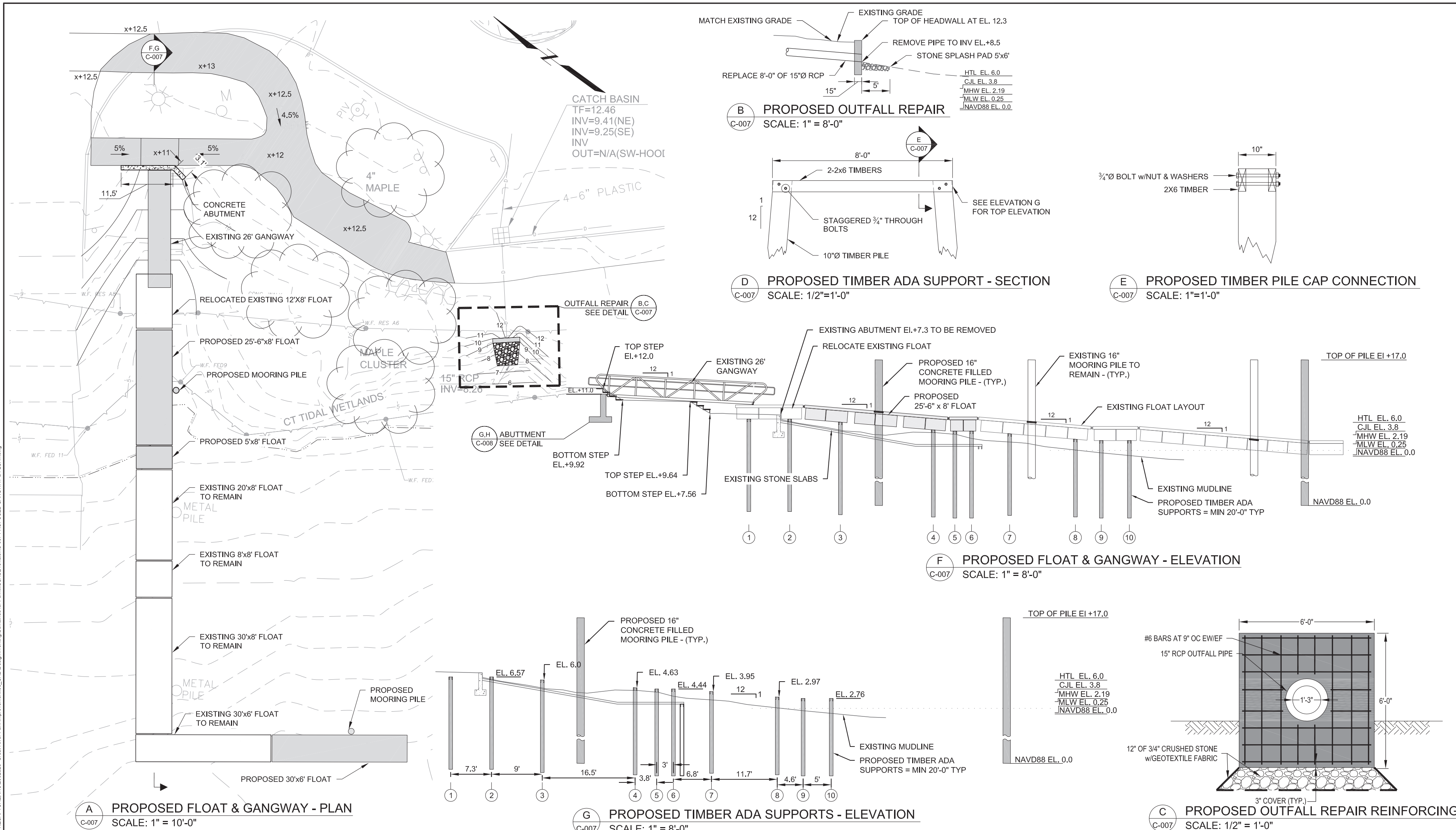
NO	DATE	ISSUE/REVISION	APP

SHEET NAME: EXISTING FLOAT & GANGWAY

SHEET NO.: C-005

12/1/2021 3:39:22 PM B:\Working\RIVERFRONT RECAPTURE, INC\2002828 Great River Park Improvements\00_CAD\Design\Working\C-005 EXISTING GANGWAY.dwg


PROPOSED PIER - ELEVATION
SCALE: 1/4" = 1'-0"
PROPOSED PIER - SECTION
SCALE: 1/4" = 1'-0"
PROPOSED PIER - PLAN
SCALE: 1" = 10'-0"
RAILING ELEVATION
SCALE: 1/2" = 1'-0"
RAILING DETAIL
SCALE: 1" = 1'-0"
RAIL DETAILS
SCALE: 1-1/2" = 1'-0"
CONCRETE DECK EL +15.0
CONCRETE PILE CAPS
EXISTING GRADE
16"Ø STEEL PILE (TYP.)
Approx. TIP EL. -50
EXISTING DECKING AND PILE CAPS TO BE REMOVED. EXISTING TIMBER PILES TO BE CUT FLUSH TO MUDLINE.
EXISTING DECK EL.+6.8±
PROPOSED GRADE
CONCRETE SLAB TO BE REMOVED
CONCRETE ABUTMENT
ASPHALT WALKWAY
HTL EL. 6.0
CJL EL. 3.8
MHW EL. 2.19
MLW EL. 0.25
NAVD88 EL. 0.0
RAILING
PILE CAP
16"Ø PILE
EXISTING GRADE VARIES
CONCRETE DECK EL.+15.0
LOW RAIL - ADA FISHING
VARIES 5'-0" MAX
4" GAP
4" O.C.
2 1/2 SCH 80 STEEL PIPE
1/2" SOLID ROD PICKETS
NOTES:
1. ALL STEEL FOR RAILINGS SHALL BE HOT DIPPED GALVANIZED
2 1/2 Sch 80 PIPE
4 - 1/2" ANCHOR BOLTS
6"x6"x1/2" BASE PLATE
2 1/2 SCH 80
1" RADIUS
1/8" GAP
90 DEG BEND (TYP) (PLAN VIEW)
CONCRETE PIER DECK EL.+15.0
16"Ø STEEL PILES (TYP.)
LOW RAIL - ADA FISHING 10 LOCATIONS
24"Ø w/1/2" WALL DEBRIS BOOM ANCHOR PILE PROVIDE 6" CLEAR GAP FROM PIER
DEBRIS BOOM
INSTALL ANCHOR FOR DEBRIS BOOM
DATUM CONVERSION TABLE
HTL EL. 6.0
CJL EL. +3.8
MHW EL. +2.19
MLW EL. +0.25
NAVD88 EL. 0.0
NGVD EL. -1.0
Attention:
If this scale bar does not measure 1" then drawing is not original scale.
Designed: MUS
Drawn: JSF
Checked: BAP
Approved: -
P.E. No: -
GEI Project -
GEI Consultants
GEI CONSULTANTS, INC.
455 WINDING BROOK DRIVE SUITE 201
GLASTONBURY, CT 06033
(860)368-5300
Riverfront Recapture, Inc
50 Columbus Blvd
Hartford, CT 06106
Great River Park Improvements
East Hartford, CT
2 11/04/2022 Add ADA Locations
1 7/12/2022 Add Railing Details
NO DATE ISSUE/REVISION APP
SHEET NAME
PROPOSED PIER
SHEET NO.
C-006



DATUM CONVERSION TABLE
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CJL EL. +3.8
MHW EL. +2.19
MLW EL. +0.25
NAVD88 EL. 0.0
NGVD EL. -1.0

Attention:

If this scale bar does not measure 1" then drawing is not original scale.

Designed:	MUS
Drawn:	JSF
Checked:	BAP
Approved:	-
P.E. No:	-
GEI Project	-

GEI Consultants
GEI CONSULTANTS, INC.
455 WINDING BROOK DRIVE
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Hartford, CT 06106

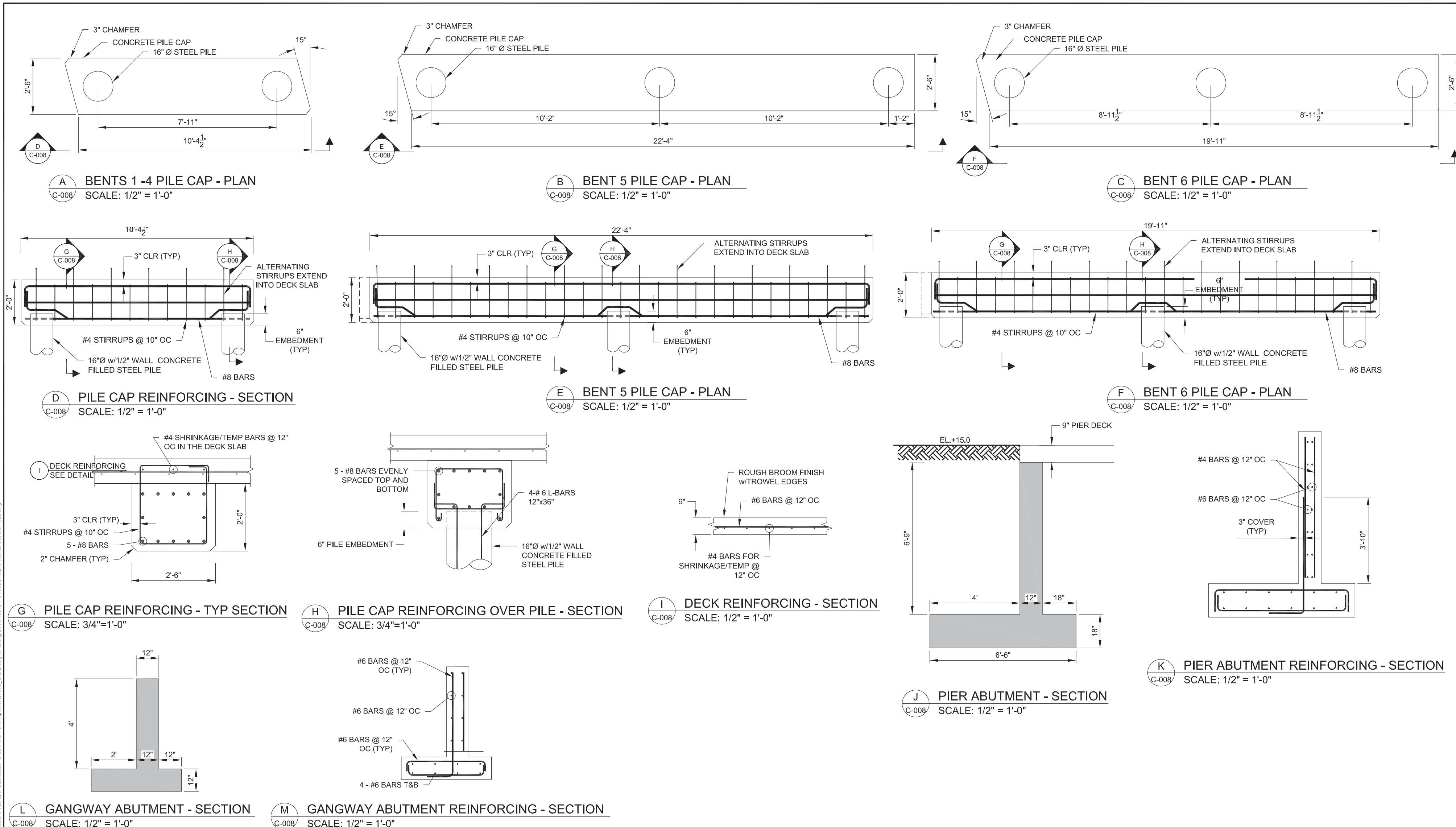
Great River Park Improvements

East Hartford, CT

NO	DATE	ISSUE/REVISION	APP
1	7/12/2022	Add Float Support Details	

SHEET NAME: PROPOSED FLOAT & GANGWAY

SHEET NO.: C-007



DATUM CONVERSION TABLE

HTL	EL. 6.0
CJL	EL. +3.8
MHW	EL. +2.19
MLW	EL. +0.25
NAVD88	EL. 0.0
NGVD	EL. -1.0

Attention: 0 1" If this scale bar does not measure 1" then drawing is not original scale.

Designed:	MUS
Drawn:	JSF
Checked:	BAP
Approved:	-
P.E. No:	-
GEI Project	-

GEI Consultants
GEI CONSULTANTS, INC.
455 WINDING BROOK DRIVE
SUITE 201
GLASTONBURY, CT 06033
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Riverfront Recapture, Inc
50 Columbus Blvd
Hartford, CT 06106

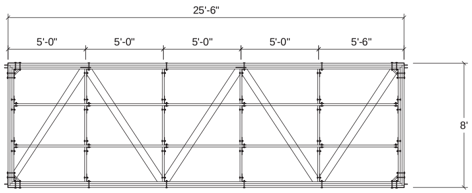
Great River Park Improvements

East Hartford, CT

NO	DATE	ISSUE/REVISION	APP
1	7/12/2022	Additional Details	

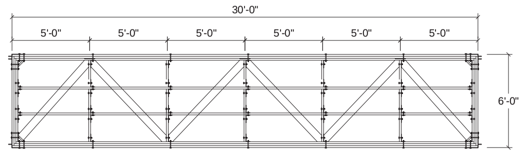
SHEET NAME: CONCRETE DETAILS

SHEET NO.: C-008

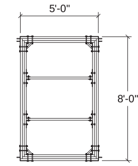


NOTES:
1. FINAL FLOAT CONSTRUCTION & FRAMING SHALL BE DETERMINED BY MANUFACTURER

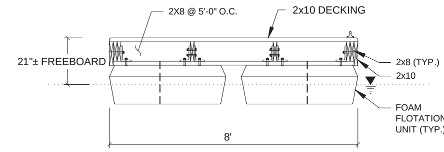
A C-009 **25'-6" TIMBER FLOAT - PLAN**
SCALE: 1/4" = 1'-0"



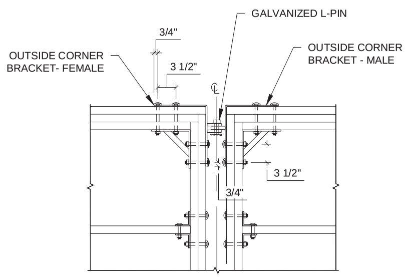
B C-009 **30' x 6' TIMBER FLOAT - PLAN**
SCALE: 1/4" = 1'-0"



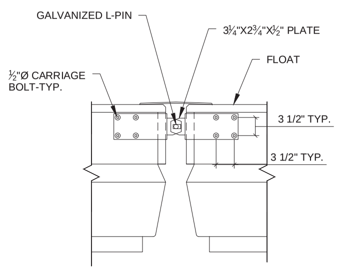
C C-009 **5' x 8' TIMBER FLOAT - PLAN**
SCALE: 1/4" = 1'-0"



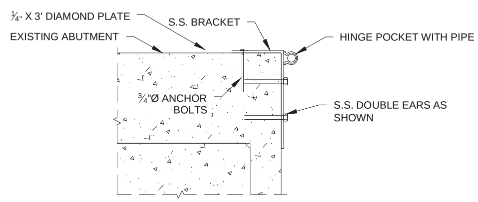
D C-009 **TIMBER FLOAT SECTION (TYP.)**
SCALE: 1/2" = 1'-0"



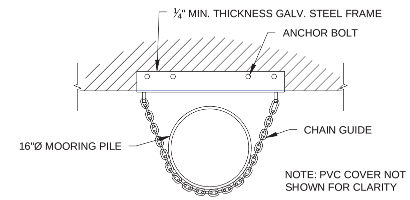
E C-009 **TIMBER FLOAT CONNECTION - PLAN**
SCALE: 1" = 1'-0"



F C-009 **TIMBER FLOAT CONNECTION - SECTION**
SCALE: 1" = 1'-0"



G C-009 **PROPOSED GANGWAY ATTACHMENT**
SCALE: 1" = 1'-0"



H C-009 **PILE GUIDE - PLAN**
SCALE: 1" = 1'-0"

FOR PERMITS ONLY

DATUM CONVERSION TABLE

HTL	EL. 6.0
CJL	EL. +3.8
MHW	EL. +2.19
MLW	EL. +0.25
NAVD88	EL. 0.0
NGVD	EL. -1.0

Attention: 0 1"
If this scale bar does not measure 1" then drawing is not original scale.

Designed:	ASC
Drawn:	ASC
Checked:	BAP
Approved:	-
P.E. No:	-
GEI Project	-

GEI Consultants
GEI CONSULTANTS, INC.
455 WINDING BROOK DRIVE
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GLASTONBURY, CT 06033
(860)368-5300

Riverfront Recapture, Inc
50 Columbus Blvd
Hartford, CT 06106

Great River Park Improvements

East Hartford, CT

NO	DATE	ISSUE/REVISION	APP

SHEET NAME: FLOAT PLAN & DETAILS

SHEET NO.: **C-009**

1/13/2021 10:42:54 AM B:\Working\RIVERFRONT RECAPTURE, INC\2002828 Great River Park Improvements\00_CAD\Design\Working\C-009 FLOAT PLAN & DETAILS.dwg

LWRD Work Commencement Form

To: DEEP.LWRDRegulatory@ct.gov or
Regulatory Section
Department of Energy and Environmental Protection
Land & Water Resources Division
79 Elm Street
Hartford, CT 06106-5127

Licensee Name: Riverfront Recapture, Inc.
Municipality in which the project is occurring: East Hartford
DEEP License No(s): 202200467

CONTRACTOR(s):

1 Name: _____
Address: _____
Telephone: _____
E-mail: _____

2 Name: _____
Address: _____
Telephone: _____
E-mail: _____

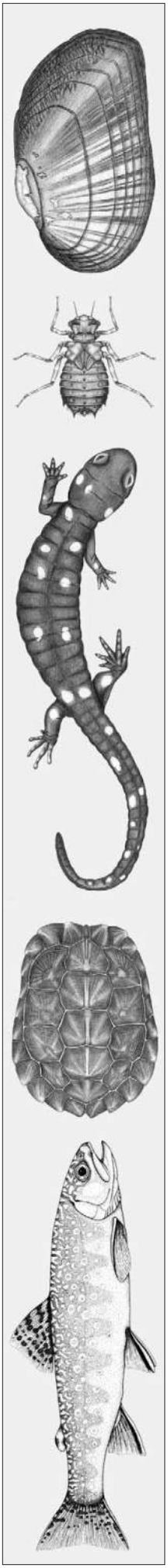
3 Name: _____
Address: _____
Telephone: _____
E-mail: _____

Date Contractor(s) received a copy
of the license and approved plans: _____

EXPECTED DATE OF COMMENCEMENT OF WORK: _____

EXPECTED DATE OF COMPLETION OF WORK: _____

LICENSEE: _____ _____
(Signature) (Date)



GEI Consultants, Inc
455 Winding Brook Dr, Suite 201
Glastonbury, CT 06033

biodrawversity
ecological consulting
and communications

June 22, 2021

REPORT

Freshwater Mussel Survey in the Connecticut River for the Great River Park Site Improvements (East Hartford, Connecticut)

Introduction: Biodrawversity LLC conducted a freshwater mussel survey in the Connecticut River as part of the environmental review and permitting for the Great River Park Site Improvements at 301 East River Drive in East Hartford, CT. The improvements include three major elements: (1) removal of one wooden pier and associated timber piles upstream from the boat ramp, (2) removal and replacement of a second wooden pier upstream from the boat ramp, and (3) improvements to the fishing pier adjacent to the ramp (Figure 1). The Connecticut Department of Energy and Environmental Protection (CTDEEP) requested a mussel survey and, if state-listed species were found, a management plan developed for CTDEEP approval (NDDB Preliminary: 202102807). Yellow lampmussel (*Lampsilis cariosa*), tidewater mucket (*Leptodea ochracea*), and eastern pondmussel (*Ligumia nasuta*) were the three target (state-listed) species for the survey. These species are fully aquatic and may be affected by any instream disturbance within and near the construction footprint.

Survey Date and Conditions: The survey was conducted by Ethan Nedeau on May 24, 2021. Weather was dry and sunny, with light winds. Water was clear and the water temperature was in the mid-60s. The survey was conducted at low tide, and the Connecticut River discharge at the USGS streamgage in Thompsonville (USGS 01184000) was below average for late May: ~9,000 cubic ft/sec compared to the long-term average of ~19,000 cubic ft/sec.

Survey Methods: The survey was conducted along ~160 meters of the Connecticut River from 50 meters downstream from the fishing pier/floats to 75 meters upstream from the boat ramp (Figure 1). The survey was conducted by snorkeling in water depths of <1.0 ft to >8.0 ft, from the shallow subtidal

Connecticut River at Great River Park in East Hartford, Connecticut.

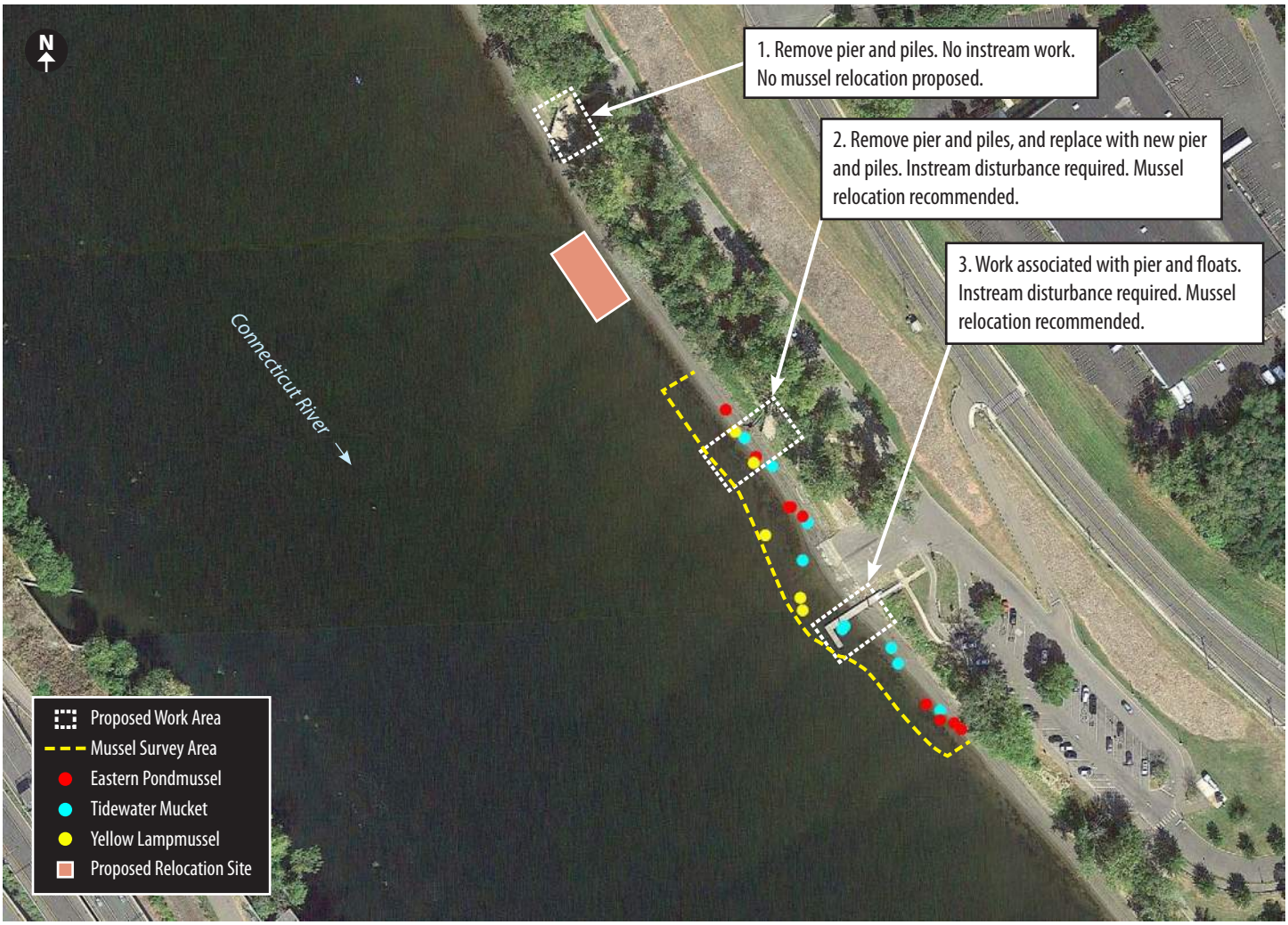


Figure 1. Freshwater mussel survey area, state-listed species locations, and proposed relocation site in relation to proposed work areas for the Great River Park improvements (East Hartford, Connecticut).

Upstream from the Great River Park boat ramp at low tide.

Downstream from the Great River Park boat ramp and dock at low tide.

zone to not more than 20 meters offshore. Shell length, shell condition, habitat (depth, substrate), and location (using GPS) were recorded for every state-listed mussel that was found. Because state-listed species were found, an area farther upstream with similar habitat was evaluated as a potential relocation site.

Survey Results: All three target (state-listed) species were found, including five yellow lampmussels, nine tidewater muckets, and nine eastern pondmussels. Table 1 provides location, shell length, shell condition, and habitat data for these 23 individuals. Locations are mapped in Figure 1. Other species present included eastern elliptio (*Elliptio complanata*), eastern lampmussel (*Lampsilis radiata*), triangle floater (*Alasmidonta undulata*), and alewife floater (*Anodonta implicata*).

State-listed mussels, particularly eastern pondmussels and tidewater muckets, were found primarily in shallow (<2.0 ft) nearshore areas, in silt and sand substrates. Several were found in areas less than 1.0 ft deep, in the shallowest part of the subtidal zone. Yellow lampmussels were generally found farther offshore, in deeper water and mostly in sand. Although submerged aquatic vegetation (SAV) had not yet begun to reach its full extent, eastern pondmussels and tidewater muckets were found mostly within or upslope of SAV, whereas yellow lampmussels were found mostly downslope of SAV.

The habitat conditions observed within the survey area also extended well upstream and downstream, for at least several hundred meters in both directions. One area ~150 meters upstream from the boat ramp was specifically assessed to determine if it would be a suitable relocation site (Figure 1). Both tidewater muckets and eastern pondmussels were observed in shallow areas, similar to areas farther downstream, and habitat appeared to be identical.

Recommendation: The Great River Park Site Improvement project includes work in three primary areas: (1) removal of one wooden pier and associated timber piles upstream from the boat ramp, (2) removal and replacement of a second wooden pier upstream from the boat ramp, and (3) improvements to the fishing pier adjacent to the ramp (Figure 1). The first does not have an in-water component; this activity is upslope of ordinary high water (OHW), and therefore can be done without disturbing mussels or their habitat, which are confined to subtidal areas. We recommend that this removal occurs during low

Tidewater mucket found during the survey.

Eastern pondmussel found during the survey.

Yellow lampmussel found during the survey.

Table 1. Location, shell length and condition, and habitat data collected for each state-listed mussel observed during the survey.

Species	Latitude	Longitude	Length (mm)	Shell Condition[1]	Depth (ft)	Substrate
Yellow Lampmussel	41.76009	-72.66139	72.0	0.00	6.0	Silt
Yellow Lampmussel	41.76066	-72.66168	85.0	0.50	1.0	Silt-Sand
Yellow Lampmussel	41.76056	-72.66160	87.0	0.00	3.0	Silt-Sand
Yellow Lampmussel	41.76033	-72.66155	90.0	0.25	4.0	Sand
Yellow Lampmussel	41.76013	-72.66140	95.0	0.25	3.0	Sand
Tidewater Mucket	41.76064	-72.66164	48.0	0.00	0.5	Silt-Sand
Tidewater Mucket	41.76037	-72.66137	56.0	0.00	0.5	Silt-Sand
Tidewater Mucket	41.76004	-72.66121	67.0	0.00	2.0	Sand
Tidewater Mucket	41.76003	-72.66122	69.0	0.00	2.5	Sand
Tidewater Mucket	41.76055	-72.66152	73.0	0.00	0.5	Silt-Sand
Tidewater Mucket	41.76025	-72.66139	75.0	0.25	1.5	Sand-Cobble
Tidewater Mucket	41.75977	-72.66080	79.0	0.00	1.0	Silt-Sand
Tidewater Mucket	41.75997	-72.66101	83.0	0.25	1.0	Silt-Sand
Tidewater Mucket	41.75992	-72.66098	85.0	0.50	1.0	Silt-Sand
Eastern Pondmussel	41.76042	-72.66145	57.0	0.00	1.0	Silt-Sand
Eastern Pondmussel	41.76042	-72.66144	57.0	0.00	0.5	Silt-Sand
Eastern Pondmussel	41.75973	-72.66074	57.0	0.00	1.0	Silt-Sand
Eastern Pondmussel	41.76073	-72.66172	60.0	0.00	0.5	Silt-Sand
Eastern Pondmussel	41.75971	-72.66071	60.0	0.00	1.0	Silt-Sand
Eastern Pondmussel	41.75979	-72.66086	60.0	0.00	1.0	Silt-Sand
Eastern Pondmussel	41.76037	-72.66137	65.0	0.00	0.5	Silt-Sand
Eastern Pondmussel	41.75974	-72.66080	78.0	0.25	1.0	Silt-Sand
Eastern Pondmussel	41.76058	-72.66159	83.0	0.00	1.0	Silt-Sand

1. Shell condition refers to the degree of shell erosion; for each animal, this was recorded as one of five numeric categories (0 = Light, 0.25 = Light/Medium, 0.5 = Medium, 0.75 = Medium/Heavy, and 1.0 = Heavy). A shell condition index ranging from 0 to 1 in then calculated as the average of these shell condition values.

tide and at a time of low-flow conditions in the Connecticut River. As an extra precaution, a silt fence could be installed between the work area and OHW. Construction of the new wooden pier and Improvements to the fishing pier adjacent to the boat ramp (areas 2 and 3, Figure 1) will require in-water disturbance. State-listed mussels occur throughout this area. Therefore, we recommend a pre-construction mussel sweep to collect and relocate any state-listed mussels occurring within the footprint of proposed disturbance plus a 25-meter upstream buffer, 25-meter downstream buffer, and 10-meter offshore buffer. See Appendix 1 for a typical approach to these projects that follows CTDEEP recommended protocols.

APPENDIX 1

MUSSEL MANAGEMENT PLAN

Initial Mussel Survey

A freshwater mussel survey was conducted on May 24, 2021, to assist with the planning and permitting for the Great River Park Site Improvements. The survey documented tidewater mucket, yellow lampmussel, and eastern pondmussel occupying nearshore areas of the Connecticut River near and within the areas of direct impacts. Based on the locations and water depths occupied by these mussels, proposed improvements to the fishing pier adjacent to the boat ramp and construction of the replacement pier upstream from the boat ramp may adversely affect mussels and their habitat, and therefore standard avoidance and minimization measures are recommdned. During the survey, biologists also identified a suitable relocation site approximately 150 meters upstream from the boat ramp.

Pre-Construction Mussel Relocation

- For mussel relocation, this plan recommends a *survey area* that includes all areas of direct impacts plus a 25-meter upstream buffer, 25-meter downstream buffer, and 10-meter offshore buffer.
- Within three weeks prior to construction, biologists will collect and relocate all state-listed mussels from the survey area.
- Biologists will conduct visual searches for mussels while snorkeling or SCUBA diving, depending on water depth.
- Biologists will also excavate and sieve sediment using a 6-mm screen to attempt to detect buried adults or juveniles. Excavation will primarily occur in the area of direct impacts + 10-meter buffer.
- All individuals of state-listed species will be gathered and held underwater in mesh bags during the collection process.
- Each mussel will be measured, photographed, and tagged using a numeric 3x5mm tag affixed with super glue.
- After mussels have been tagged, they will be transported to the relocation site identified in the survey report and placed carefully into the substrate. Permanent markers will be established on the river bottom and bank to facilitate finding these animals at a later date.
- A written report will summarize results of the pre-construction mussel relocation. It will include a map of the survey area showing where target species were collected and relocated, and provide tag numbers, shell length measurements, shell condition, habitat, and photographs of relocated mussels

Post-Construction Mussel Monitoring

- All mussels that are relocated and tagged will be checked one month and one year following relocation to monitor mortality, movement, or growth.
- Tag numbers and any movement or mortality will be recorded during the each follow-up survey, and shell length and shell condition will be recorded during the one-year survey.
- Results of the post-construction monitoring will be submitted as written addenda to the relocation report.

Schedule

- Pre-Construction Mussel Relocation: This should be completed within three weeks prior to construction, within the time period from late May to late September. The construction schedule has not yet been determined.
- Post-Construction Mussel Monitoring: One month and one year following relocation.
- Reporting: Reports will be submitted to the client within three weeks of each field effort. Contractors will comply with other permit conditions specified by the CTDEEP.

MICHAEL P. WALSH
MAYOR

TOWN OF EAST HARTFORD
740 Main Street
East Hartford, Connecticut 06108

Phone: 860 291-7380
Fax: 860 289-0831

ENGINEERING DIVISION

VIA: CERTIFIED MAIL

March 31, 2022

Mr. Marc Nicol
Riverfront Recapture, Inc
50 Columbus Blvd
Hartford, CT 06106

Re: Inland Wetland – Environment Commission Application
Great River Park Improvements
301 East River Drive
East Hartford, CT

Dear Mr. Nicol:

This letter is to notify you that at the March 29, 2022 meeting of the Inland-Wetlands-Environment Commission of the Town of East Hartford, the Commission:

> **Approved**: File #22-04, Application of Riverfront Recapture, Inc. to conduct a regulated activity in the inland wetlands and inland wetlands upland review area in conjunction with the replacement of fishing piers and landscaping at Great River Park off of East River Drive.

In accordance with Section 12.11 of the East Hartford Inland Wetlands-Environment Commission Regulations, *this approval* was advertised in a local newspaper on March 31, 2022 and *becomes effective on April 16, 2022.*

This approval was granted with the following conditions:

1. The permit is non-transferable without the written consent of the Town of East Hartford Inland Wetlands – Environment Commission.
2. Soil sedimentation and erosion controls acceptable to the Town Engineer are to be maintained at all times.
3. All work in the Inland Wetlands and/or Inland Wetland Upland Review Area shall be commenced within five (5) years from the effective date. The activity shall be completed within one (1) year from the commencement of the activity.
4. Written notice shall be submitted to the Town Engineer 48 hours prior to the starting date of the approved activity.
5. In evaluating this application, the Inland Wetlands - Environment Commission has relied on information provided by the applicant, and if such information

subsequently proves to be false, deceptive, incomplete and/or inaccurate, this permit shall be modified, suspended, or revoked.

6. Approval is granted based on the maps submitted with the application with plans dated Jan 3, 2021.

Sincerely,

Warren W. Disbrow, P.E.
Assistant Town Engineer
Designated Agent for the Inland
Wetlands-Environment Commission

Copy to: Jeffrey Cormier, Town Planner

File # _____ Fee: _____ Paid: Cash ☐ or Check # _____ Date Filed: _____

TOWN OF EAST HARTFORD
INLAND WETLANDS – ENVIRONMENT COMMISSION
APPLICATION FOR PERMIT

NOTE: All applications must be submitted by 3:30 P.M. of the closeout date. Any applications received after that time will be placed on the agenda for the following month.

1. Geographical location of the property (Street and House No.)

   301 East River Drive, East Hartford, CT

   a. This property may be reached from the East River Drive/Pitkin Street intersection

   b. by proceeding south on East River Drive

   c. Subject property is located on Wetlands map # 14 & 19

2. Name of applicant Riverfront Recapture, Inc.

   Home address _____

   Business address 50 Columbus Blvd, Hartford, CT 06106

   Telephone # Home _____ Business 860-713-3131

   Email Address: mnicol@riverfront.org

3. Applicant's interest in the property *(Check Applicable Box)*

   ☐ Owner ☐ Lessee ☐ Optione ☒ Other park operator

4. Name of property owner *(if not applicant)* Town of East Hartford

   Home address _____

   Business address 740 Main Street, East Hartford, CT 06108

   Telephone # Home _____ Business 860-291-7100

   Email Address: _____

5. Complete the attached form entitled "Property Owners Written Consent Form" if applicant is not the property owner. Each owner of an interest in the property must sign on that form.

6. Purpose and description of activity for which authorization is requested. *(check all applicable boxes below)*

   a. Activity within the Inland Wetlands or Watercourse ☒ Yes ☐ N/A

      The proposal will involve the following activities:

      ☒ Alteration ☒ Construction ☒ Removal of material

      ☒ Deposition of material ☒ Other Cutting vegetation

   b. Activity within an Inland Wetland Upland Review Area ☒ Yes ☐ N/A

      The proposal will involve the following activities:

      ☒ Alteration ☒ Construction ☒ Removal of material

      ☒ Deposition of material ☐ Other _____

   c. Extension of term to an existing permit ☐ Yes ☒ N/A

   d. Transfer of permit to new title holder ☐ Yes ☒ N/A

   e. Map Amendment *(redefinition of Inland Wetlands limits)* ☐ Yes ☒ N/A

   f. Regulation text amendment or modification ☐ Yes ☒ N/A

   g. Modification to an existing permit ☐ Yes ☒ N/A

   h. Description of the proposed activity (e.g., addition to existing dwelling, new business, industrial park):

      Removal of two existing piers and replacement of one new pile-supported pier with associated landscaping and grading. Removal of existing float and piles and replacement with new float, new pile supports, and new mooring piles. Clearing and grubbing vegetation, repairs/modifications to existing overlook, lighting repairs/replacements, new signs.

   i. Attach a copy of the 1"=200' Inland Wetlands map depicting the location of the proposed activity. (8 ½" x 11" copy is acceptable)

   j. Attach a detailed plan of the proposal.
      A full plan set is attached.

   k. Attach a general description of sufficient detail, regarding the proposal and identity of each regulated activity for which a permit is sought.

k. General description of work:

The project includes six major areas: the Overlook area (north end of project), lighting (project-wide), signage (project-wide), and three piers (south end of project). The work occurring within each area is described in more detail below, with reference to the relevant plan view drawings.

The Bulkeley Bridge Overlook Area (drawings G-102, L-111, L-121, L-131)

- Clearing and grubbing vegetation.
- Installation of rip rap. The rip rap will be installed to existing grade (no net cut or fill).
- Cut 30 CY to smooth grading.
- Removal of pavement and base material. Replacement with plantings.
- Cleaning of concrete curbs and pavers.
- Landscaping (plantings).

Site Lighting (drawings C-004, C-100)

- In the area to the north of the Founders Bridge, removal of 11 existing light poles and their associated foundations, and conduit. Installation of 11 new light poles with new foundations and conduit.
- Removal of 7 existing light poles and installation of new light poles on the existing foundations.
- Installation of new pier light on new foundation near middle pier.

Site Signage (drawing C-004, C-100)

- Installation of new signs throughout the park. 4 of the new signs within the upland review area will be installed on new foundations; all other signs within the upland review area will be installed on existing foundations, light poles, or gates. A new sign on a new foundation will also be installed at the northernmost entrance to the park, near the I-84 off ramp (not shown on plans).

North Pier "Overlook" (drawings G-101, C-004)

- Remove existing pier, cut existing timber piles to mudline.
- Regrade to provide smooth grading where existing pier was removed.
- Restore vegetative cover.

Middle Pier (drawings G-101, C-004, C-006)

- Remove existing pier, cut existing timber piles to mudline.
- Install new pier, piles, and abutment. Regrade. Construct new asphalt walkway.
- Restore vegetative cover.
- Some of this work is taking place within a tidal stream and tidal wetlands.

South Float (drawings G-101, C-004, C-007)

- Remove existing float. Remove existing wood ADA dock support piles below floats.
- Regrade.
- Install new float and existing floats on new timber support piles. Install 2 new steel mooring piles.
- Most of this work is taking place within a tidal stream and tidal wetlands.

l. Provide the total area of Inland Wetlands/Watercourses and/or Inland Wetland upland review area respectively on the subject property:

Inland wetland upland review area 378,510 square feet

Inland Wetlands/Watercourses 54,136 square feet

m. Provide the total area of Inland Wetlands/Watercourses and/or Inland Wetland upland review area respectively, to be affected by the proposed regulated activity on the subject property:

Inland wetland upland review area 42,237 square feet affected

Inland Wetlands/Watercourses 10,534 square feet affected

n. Provide an estimate of the quantity of all materials, in cubic yards (cy), to be placed within or removed from the Inland Wetlands/Watercourses and/or the Inland Wetland upland review area on the subject property.

	Cut		Fill	
Inland Wetland/Watercourse	315	cy	200	cy
Inland Wetland Upland Review Area	50	cy	25	cy

7. The property to be affected by the proposed activity contains a:
(check all applicable boxes below)

☐ swamp ☐ marsh ☐ bog ☐ pond ☐ vernal pool

☒ stream or river ☒ flood plain ☒ other regulated area

describe other: Tidal stream and tidal wetlands

8. Current names and addresses of abutting property owners
(Attach separate sheet)

9. Attach a completed copy of CT DEEP Statewide Inland Wetlands & Watercourse Activity Reporting Form, an online version may be obtained at this address:

http://www.ct.gov/deep/lib/deep/water_inland/wetlands/siwwarf.pdf

http://www.ct.gov/deep/lib/deep/water_inland/wetlands/siwwarf.doc

The undersigned applicant hereby consents to necessary and proper inspections of the above-mentioned property by Agents of the Inland Wetlands Commission, at reasonable times, both before and after the permit in question has been granted by the Commission.

The undersigned swears that the information supplied in the completed application is accurate, to the best of his or her knowledge and belief.

Marc Nicol
Signature of Applicant

MARC NICOL
Printed Name of Applicant

1-11-2022
Signature Date

NOTE: An application that requires local Inland Wetlands approval may also be regulated by the Federal Government under the Clean Water Act which is administered by the U. S. Army Corps of Engineers. Obtaining federal and/or state permits is a responsibility of the applicant as are any fines, penalties, and delays due to the applicant's failure to seek permits or to question their applicability to the proposed activity.

Department of the Army
Corps of Engineers
696 Virginia Road
Concord, MA 01742-2751
Phone: 1-800-343-4789

State of Connecticut - D.E.E.P.
Inland Water Resources Division
79 Elm Street
Hartford, CT 06106-5127
Phone: (860) 424-3019

PROPERTY OWNERS WRITTEN CONSENT FORM

This notice will serve to advise the Inland Wetlands - Environment Commission of the Town of East Hartford that (print owner's name) The Town of East Hartford

is/are aware of and give(s) consent to the attached application submitted by (print applicant's name) Riverfront Recapture, Inc. - MARC NICOL

The property is located at (address) 301 East River Drive, East Hartford, CT

Signature of applicant Marc Nicol

Date 1-11-2022

Signature of property owner (s)

Date 1/11/2022

GIS CODE #: ___ ___ ___ ___ ___ ___ ___ ___ ___
For DEEP Use Only

Statewide Inland Wetlands & Watercourses Activity Reporting Form

Please complete this form in accordance with the instructions on pages 2 and 3 and mail to:
DEEP Land & Water Resources Division, Inland Wetlands Management Program, 79 Elm Street, 3rd Floor, Hartford, CT 06106
Incomplete or incomprehensible forms will be mailed back to the inland wetlands agency.

PART I: Must Be Completed By The Inland Wetlands Agency

1. DATE ACTION WAS TAKEN: year: _____ month: _____
2. ACTION TAKEN (see instructions - one code only): _____
3. WAS A PUBLIC HEARING HELD (check one)? yes ☐ no ☐
4. NAME OF AGENCY OFFICIAL VERIFYING AND COMPLETING THIS FORM:

   (print name) _____ (signature) _____

PART II: To Be Completed By The Inland Wetlands Agency Or The Applicant

5. TOWN IN WHICH THE ACTIVITY IS OCCURRING (print name): East Hartford_____

   does this project cross municipal boundaries (check one)? yes ☐ no [X]

   if yes, list the other town(s) in which the activity is occurring (print name(s)): _____, _____
6. LOCATION (see instructions for information): USGS quad name: _North Hartford_____ or number: 37_____

   subregional drainage basin number: __4000_____
7. NAME OF APPLICANT, VIOLATOR OR PETITIONER (print name): Riverfront Recapture _____
8. NAME & ADDRESS OF ACTIVITY / PROJECT SITE (print information): Great River Park, 301 East River Drive, East Hartford, CT__

   briefly describe the action/project/activity (check and print information): temporary [X] permanent [X] description: _____

Removal of three existing piers and replacement of two piers with associated landscaping and grading. Clearing and grubbing vegetation, repairs/modifications to existing overlook, lighting repairs/replacements (temporary), new signs.

9. ACTIVITY *PURPOSE* CODE (see instructions - one code only): _E_____
10. ACTIVITY *TYPE* CODE(S) (see instructions for codes): _12_____, ___1_____, ____2_____, ___3_____
11. WETLAND / WATERCOURSE AREA ALTERED (see instructions for explanation, must provide acres or linear feet):

    wetlands: __0.24_____ acres open water body: ____0_____ acres stream: _79 (tidal stream) linear feet
12. UPLAND AREA ALTERED (must provide acres): ___0.9_____ acres
13. AREA OF WETLANDS / WATERCOURSES RESTORED, ENHANCED OR CREATED (must provide acres): ____0_____ acres

PART III: To Be Completed By The DEEP

DATE RECEIVED: DATE RETURNED TO DEEP:

FORM COMPLETED: YES NO FORM CORRECTED / COMPLETED: YES NO

ATTACHMENT B
OWNER OBTAINED TEST RESULTS

Consulting Engineers
and Scientists

Geotechnical Report

Great River Park Improvement Project
East Hartford, Connecticut

Submitted to:
GEI Consultants, Inc.
124 Grove Street, Suite 300
Franklin, MA 02038
774.277.6005

Prepared by:
GEI Consultants, Inc.
455 Winding Brook Drive, Suite 201
Glastonbury, CT 06033
860.368.5300

August 7, 2020

GEI Project 2002828

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1. Site Location Map

Appendices

A. Boring Log
B. Laboratory Test Results
C. Reference Boring Log and Laboratory Test Results

1. Introduction

1.1 Purpose

This portion of the Great River Park Improvement Project work consists of the replacement of an existing fishing pier with a new fishing pier on the east side of the Connecticut River.

GEI Consultants, Inc. (Glastonbury) performed a subsurface exploration program and is preparing this Geotechnical Report in support of the design efforts. This report presents the results of the subsurface explorations, our evaluation of the existing subsurface condition for design and construction.

1.2 Scope of Services

GEI's scope of work for this project included the following:

1. Reviewed available information of nearby projects GEI has completed nearby this location.
2. Developed a subsurface exploration program, consisting of one boring.
3. Provided full-time observation of the test borings and classified recovered samples.
4. Assigned and coordinated laboratory testing on samples collected from the test borings.
5. Reviewed the results of the geotechnical explorations, prepared a subsurface profile, and developed soil properties for analyses.
6. Presented the results of the explorations, our analyses, and our recommendations in this report.

2. Site and Project Descriptions

2.1 Site Description

The new fishing pier for the Great River Park Improvement Project is located on the east side of the Connecticut River shore, in the city of East Hartford. The area has an existing pier that will be demolished to construct a new pier at a higher surface elevation and longer span.

2.2 Project Description

The Great River Park Improvement Project consists of providing engineering services to improve the waterfront areas of East Hartford Great River Park area south of Founder's Bridge, on the east shore of the Connecticut River. The project consists of lights, landscape architecture and waterfront engineering of ramps and a new fishing pier.

3. Subsurface Conditions

3.1 Site Geology

The Surficial Materials Map of Connecticut (Stone, 1992) identifies alluvial overlying fines deposits immediately along the Connecticut River channel.

3.2 Subsurface Exploration Program

New England Boring Contractors, Inc, (NEBC) under subcontract to GEI, drilled one test borings (B-01) on June 26th, 2020. A GEI representative was on-site full time to observe the drilling procedures and classify the soil samples. Boring log are presented in **Appendix A**.

The boring was advanced using solid stem augers to a depth of 92.0 feet. Standard Penetration tests and split-spoon sampling in general accordance with ASTM D1586 were taken continuously in the upper 10 feet, then at 5-feet intervals thereafter between 10 feet and 30 feet in depth, and finally at 10-feet intervals thereafter. The borehole was advanced using a truck-mounted rig equipped with a 140-lb safety hammer.

After the boring was completed, the holes were backfilled with drill cuttings supplemented with sand.

3.3 Laboratory Testing

Laboratory testing was performed on selected samples collected during the exploration program. Testing was performed by GeoTesting Express, under subcontract to GEI. The test included Atterberg tests and Chlorine Method B test.

Laboratory testing results are presented in **Appendix B**.

3.4 Subsurface Conditions

Based on our review of the available geotechnical information, the general soil strata are as follows, beginning at the ground surface. A subsurface profile is provided on Figure 3. The subsurface conditions are known only at the exploration locations. Conditions between explorations may differ significantly from those shown in the subsurface profiles and described below.

I. Sand – Sand was encountered to a depth of 12 feet below grade. The gray sand is comprised predominantly of fine sand with varying amounts of silty fines (5% to 20%).

No debris or otherwise deleterious material was noted within the samples recovered from the fill. SPT N-values generally ranged from 5 to 9 blows per foot (bpf), indicating loose relative density conditions.

II. Silty Sand – Silt Sand was encountered below the sand, extending to about 22 feet below grade. Recovered samples generally consisted of gray fine to coarse-grained with little silty fines. SPT N-values typically ranged from 8 to 13 bpf, indicating loose to medium dense conditions.

III. Varved Clay – Varved Clay was encountered below the Silty Sand, extending to about 90 feet below grade. Recovered samples generally consisted of gray to reddish brown, medium plasticity fines. SPT N-values typically ranged from 2 to 10 bpf, indicating soft to stiff consistency.

IV. Till – Silty Sand with Gravel was encountered below varved clay. The transition to till was generally noted by a change in color to reddish brown and change of matrix to fine to coarse sand, fine to coarse gravel, and higher SPT N-values, which were approximately 144 bpf.

3.5 Groundwater Levels

A wet sample at 4 feet in depth was recovered, possibly indicating a wet zone, water did not surface or was observed during drilling.

3.6 Laboratory Testing Results

Geotechnical laboratory tests were conducted on the Varved Clay zone to link similarities to laboratory testing done to a similar material.

Table 1 – Great River Park Improvement Test Boring B1 Laboratory Results with N60 Field Data

Material	Laboratory Results		Field Data
Varved Clay	**Plasticity Index**	**Classification**	**N_{60}**
Depth: 30 - 32 ft	32	Clay of High Plasticity	3
Depth: 60 – 62 ft	24	Clay of Low Plasticity	4
Depth: 80 – 82 ft	31	Clay of High Plasticity	10

Additionally, a sample at depth 30-32 ft was tested for Chloride, the tests show 49.0 ppm (mg/kg). Laboratory testing results are presented in **Appendix B**.

A geotechnical investigation from the East Hartford Flood Control Project July 2008 with a test boring named GEI-134A was used to add information. **Figure 1**, presents the location of the site investigation in the current program and the location of GEI-134A.

GEI-134A had a sample ID ST-20, at depth 38 to 40 feet, with a Plasticity Index of 15 and classified as varved clay. The blow counts per feet prior to the Shelby Tube collection of the sample were 2, 6, 15 prior to sampling. This report assumes the material tested is similar to the material encountered during the site investigation for the fishing pier site. Table 2 presents a summary of the laboratory results from the Consolidated Undrained Triaxial Test on the varved clay. The log and laboratory tests of GEI-134A are presented in **Appendix C**.

Table 2: GEI-134A Sample ID ST-20, GEI 2008 Laboratory Data

Material	Laboratory Results				
Varved Clay	**Cohesion c'**	**Friction Angle ϕ'**	**Moisture Content**	**Plasticity Index**	**Classification**
Depth: 38 - 40 ft	4.11 psi	19.1	40%	15	Clay with low plasticity

3.7 Soil Properties

Recommended soil properties for the site are presented below. We estimated the values for stratum I, II and IV based on published correlations to SPT N-values and visual soil descriptions. Minimum, maximum, and average blow count numbers have been corrected for hammer efficiency and depth.

We estimated the values for stratum III based on laboratory tests conducted in a project nearby the pier location.

Table 3 – Soil Properties

STRATUM	Angle of Internal Friction (ϕ°)	Cohesion	Moist Unit Weight (γ) (lb/ft^3)
(I) Sand	31	0	125
(II) Silty Sand	34	0	130
(III) Varved Clay	19	4 psi	110
(IV) Till	38	0	135

4. Design Recommendations

Depending on the load, the pier should consider the varved clay and till properties for foundation capacities. This report summarizes the geotechnical site investigation and provides a summary of soil properties determined through soil classification and literature review of similar soil properties (varved clay).

5. Limitations

Our recommendations are based on the project information provided to us at the time of this report and may require modification if there are any changes in the nature, design, or location of the proposed construction. We recommend that GEI be engaged to review the final plans and specifications to judge whether changes in the project affect the validity of our recommendations and whether our recommendations have been properly implemented in the design.

The recommendations in this report are based in part on the data obtained from the borings. The nature and extent of variations between borings may not become evident until construction. If variations from the anticipated conditions are encountered, it may be necessary to revise the recommendations in this report. Therefore, we recommend that GEI be engaged to make site visits during construction to: a) check that the subsurface conditions exposed during construction are in general conformance with our design assumptions and b) ascertain that, in general, the geotechnical aspects of the work are being performed in compliance with the contract documents.

Our professional services for this project have been performed in accordance with generally accepted engineering practices; no warranty, express or implied, is made.

6. References

Rodgers, John (1985). Bedrock Geological Map of Connecticut, Connecticut Geological and Natural History Survey in cooperation with U.S. Geological Survey, U.S. Department of the Interior.

GEI 2009. Geotechnical Data Report, East Hartford Flood Control System, FEMA Accreditation.

State of Connecticut Department of Environmental Protection (DEP) (2009). Surficial Materials, Glacial and Postglacial Deposits, Stamford, Connecticut.

LEGEND

2020 Boring Location

Reference Boring Location
GEI 134A – (GEI, 2009)

Proposed New Pier Location

SOURCE: Google Earth
(April 2020 Aerial)

SCALE:	NTS
DRAWN BY:	DG
CHECKED BY:	--
DATE:	08/01/2020

GEI Consultants

SUBSURFACE INVESTIGATION
Great River Park Improvement Project
East Hartford, CT

PROJECT NO: 2002828

FIGURE NO.
1

Appendix A

Boring Logs

BORING INFORMATION

LOCATION: See Boring Location Plan.

GROUND SURFACE EL. (ft): 23.5 **DATE START/END:** 6/26/2020 - 6/26/2020

VERTICAL DATUM: NAVD 88 **DRILLING COMPANY:** New England Boring

TOTAL DEPTH (ft): 92.0 **DRILLER NAME:** Anthony McKiernan

LOGGED BY: Bosede Akereyeni **RIG TYPE:** Mobile B-57

BORING B1

DRILLING INFORMATION

HAMMER TYPE: Safety Hammer **CASING I.D./O.D.:** 3.75 inch / 4 inch **CORE BARREL TYPE:**

AUGER I.D./O.D.: 2.25 inch / 4 inch **DRILL ROD O.D.:** NM **CORE BARREL I.D./O.D.** NA / NA

DRILLING METHOD: Rotary Drilling with Casing

WATER LEVEL DEPTHS (ft): 6/26/2020 Wet sample at 4 ft.

ABBREVIATIONS:
Pen. = Penetration Length
Rec. = Recovery Length
RQD = Rock Quality Designation = Length of Sound Cores>4 in / Pen.,%
WOR = Weight of Rods
WOH = Weight of Hammer
S = Split Spoon Sample
C = Core Sample
U = Undisturbed Sample
SC = Sonic Core
DP = Direct Push Sample
HSA = Hollow-Stem Auger
Qp = Pocket Penetrometer Strength
Sv = Pocket Torvane Shear Strength
LL = Liquid Limit
PI = Plasticity Index
PID = Photoionization Detector
I.D./O.D. = Inside Diameter/Outside Diameter
NA, NM = Not Applicable, Not Measured
Blows per 6 in.: 140-lb hammer falling 30 inches to drive a 2-inch-O.D. split spoon sampler.

Elev. (ft)	Depth (ft)	Sample Information: Sample No.	Sample Information: Depth (ft)	Sample Information: Pen./ Rec. (in)	Sample Information: Blows per 6 in. or RQD	Drilling Remarks/ Field Test Data	Layer Name	Soil and Rock Description
		S1	0 to 2	24/12	2-3-4-4		SAND	S1: NARROWLY GRADED SAND (SP); ~95% fine sand, ~5% nonplastic fines, brown, dry. Contain organic fibers.
		S2	2 to 4	24/21	4-5-5-4			S2: SILTY SAND (SM); ~80% fine sand, ~20% nonplastic to low plasticity fines, gray, moist. Contain organic fibers.
20	5	S3	4 to 6	24/12	3-3-4-4			S3: NARROWLY GRADED SAND (SP); ~95% fine sand, ~5% nonplastic fines, gray, wet.
		S4	6 to 8	24/19	6-5-5-4			S4: NARROWLY GRADED SAND (SP); ~95% fine sand, ~5% nonplastic fines, gray, wet.
	10	S5	10 to 12	24/6	1-1-2-3			S5: NARROWLY GRADED SAND (SP); ~95% fine sand, ~5% fine gravel, gray, wet.
10	15	S6	15 to 17	24/7	3-3-3-5			S6: WIDELY GRADED SAND WITH SILT (SW-SM); ~80% fine to coarse sand, ~10% fine to medium gravel, ~10% nonplastic to low plasticity fines, gray, wet.
	20	S7	20 to 22	24/13	7-4-7-6			S7: SILTY SAND (SM); ~75% fine to medium sand, ~15% nonplastic to low plasticity fines, ~10% fine to medium gravel, gray ,wet. Finer with depth.
0								

NOTES: Ground surface elevation is approximate.

PROJECT NAME: Riverfront Recapture

CITY/STATE: East Hartford, Connecticut

GEI PROJECT NUMBER: 2002828

GEI Consultants

GEI WOBURN STD 1-LOCATION-LAYER NAME GREAT RIVER PARK.GPJ GEI DATA TEMPLATE 2013.GDT 6/30/20

LOCATION: See Boring Location Plan.
GROUND SURFACE EL. (ft): 23.5 **DATE START/END:** 6/26/2020 - 6/26/2020
VERTICAL DATUM: NAVD 88 **DRILLING COMPANY:** New England Boring

BORING B1

Elev. (ft)	Depth (ft)	Sample Information: Sample No.	Sample Information: Depth (ft)	Sample Information: Pen./ Rec. (in)	Sample Information: Blows per 6 in. or RQD	Drilling Remarks/ Field Test Data	Layer Name	Soil and Rock Description
	25	S8	25 to 27	24/24	1-1-1-1		VARVED CLAY	S8: CLAY (CL); medium plasticity fines, brownish gray, moist.
	30	S9	30 to 32	24/24	2-2-1-2			S9: VARVED-LIKE DEPOSIT (CL); medium plasticity fines, up to 1" thick, gray to reddish brown, moist.
-10	35							
	40	S10	40 to 42	24/24	WOH/6"-2-3-2			S10: Similar to S9, reddish brown.
-20	45							
	50	S11	50 to 52	24/24	WOR-WOR-3-0			S11: Similar to S9, reddish brown.
-30	55							

NOTES: Ground surface elevation is approximate.

PROJECT NAME: Riverfront Recapture

CITY/STATE: East Hartford, Connecticut

GEI PROJECT NUMBER: 2002828

GEI Consultants

GEI WOBURN STD 1-LOCATION-LAYER NAME GREAT RIVER PARK.GPJ GEI DATA TEMPLATE 2013.GDT 6/30/20

LOCATION: See Boring Location Plan.
GROUND SURFACE EL. (ft): 23.5 **DATE START/END:** 6/26/2020 - 6/26/2020
VERTICAL DATUM: NAVD 88 **DRILLING COMPANY:** New England Boring

BORING B1

Elev. (ft)	Depth (ft)	Sample Information: Sample No.	Depth (ft)	Pen./ Rec. (in)	Blows per 6 in. or RQD	Drilling Remarks/ Field Test Data	Layer Name	Soil and Rock Description
	60	S12	60 to 62	24/24	WOR-WOR-4-0		VARVED CLAY	S12: Similar to S9, reddish brown.
-40	65							
	70	S13	70 to 72	24/24	WOR/6"-4-4-3			S13: Similar to S9, reddish brown.
-50	75							
	80	S14	80 to 82	24/24	WOR/6"-4-5-5			S14: Similar to S9, reddish brown.
-60	85							

NOTES: Ground surface elevation is approximate.

PROJECT NAME: Riverfront Recapture

CITY/STATE: East Hartford, Connecticut

GEI PROJECT NUMBER: 2002828

GEI Consultants

GEI WOBURN STD 1-LOCATION-LAYER NAME GREAT RIVER PARK.GPJ GEI DATA TEMPLATE 2013.GDT 6/30/20

LOCATION: See Boring Location Plan.
GROUND SURFACE EL. (ft): 23.5 **DATE START/END:** 6/26/2020 - 6/26/2020
VERTICAL DATUM: NAVD 88 **DRILLING COMPANY:** New England Boring

BORING B1

Elev. (ft)	Depth (ft)	Sample Information: Sample No.	Sample Information: Depth (ft)	Sample Information: Pen./ Rec. (in)	Sample Information: Blows per 6 in. or RQD	Drilling Remarks/ Field Test Data	Layer Name	Soil and Rock Description
	90	S15	90 to 92	24/18	49-87-82-62		TILL	S15: SILTY SAND WITH GRAVEL (ML); 50% fine to coarse sand, ~25% nonplastic to low plasticity fines, ~25% fine to coarse gravel, reddish brown, damp
-70	95							Planned Extent. Backifilled with drill cuttings.
	100							
-80	105							
	110							
-90	115							

NOTES: Ground surface elevation is approximate.

PROJECT NAME: Riverfront Recapture

CITY/STATE: East Hartford, Connecticut

GEI PROJECT NUMBER: 2002828

GEI Consultants

GEI WOBURN STD 1-LOCATION-LAYER NAME GREAT RIVER PARK.GPJ GEI DATA TEMPLATE 2013.GDT 6/30/20

Appendix B

Laboratory Test Results

GeoTesting EXPRESS

Technologies to manage risk for infrastructure

Boston
Atlanta
Chicago
Los Angeles
New York
www.geotesting.com

Transmittal

TO:

Dan Granda

GEI Consultants, Inc.

455 Winding Brook Drive, Suite 201

Glastonbury, CT 06033

DATE: 7/24/2020	GTX NO: 312027
RE: Great River Park Improve	

COPIES	DATE	DESCRIPTION
	7/24/2020	**July 2020 Laboratory Test Report**

REMARKS:

SIGNED: Lynn Delaney

Sarah Delaney, Assistant Laboratory Manager

CC:

APPROVED BY: Jon Campbell

Jonathan Campbell, Laboratory Manager

GeoTesting EXPRESS

Technologies to manage risk for infrastructure

Boston
Atlanta
Chicago
Los Angeles
New York
www.geotesting.com

July 24, 2020

Dan Granda
GEI Consultants, Inc.
455 Winding Brook Drive, Suite 201
Glastonbury, CT 06033

RE: Great River Park Improve, (GTX-312027)

Dear Dan Granda:

Enclosed are the test results you requested for the above referenced project. GeoTesting Express, Inc. (GTX) received three samples from you on 7/10/2020. These samples were labeled as follows:

Boring Number	Sample Number	Depth
B1	S12	60-62 ft
B1	S14	80-82 ft
B1	S9	30-32 ft

GTX performed the following tests on these samples:

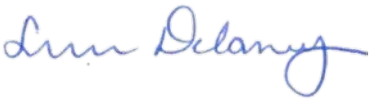
3 ASTM D4318 - Atterberg Limits

GTX also subcontracted TEI Testing Services, LLC of Salt Lake City, UT to perform Chloride analysis by ASTM D512 on one of your samples. See the attached TEI test report for results.

A copy of your test request is attached.

The results presented in this report apply only to the items tested. This report shall not be reproduced except in full, without written approval from GeoTesting Express. The remainder of these samples will be retained for a period of sixty (60) days and will then be discarded unless otherwise notified by you. Please call me if you have any questions or require additional information. Thank you for allowing GeoTesting Express the opportunity of providing you with testing services. We look forward to working with you again in the future.

Respectfully yours,



Sarah Delaney
Assistant Laboratory Manager

GeoTesting EXPRESS

Technologies to manage risk for infrastructure

Boston
Atlanta
Chicago
Los Angeles
New York

www.geotesting.com

Geotechnical Test Report **7/24/2020**

GTX-312027

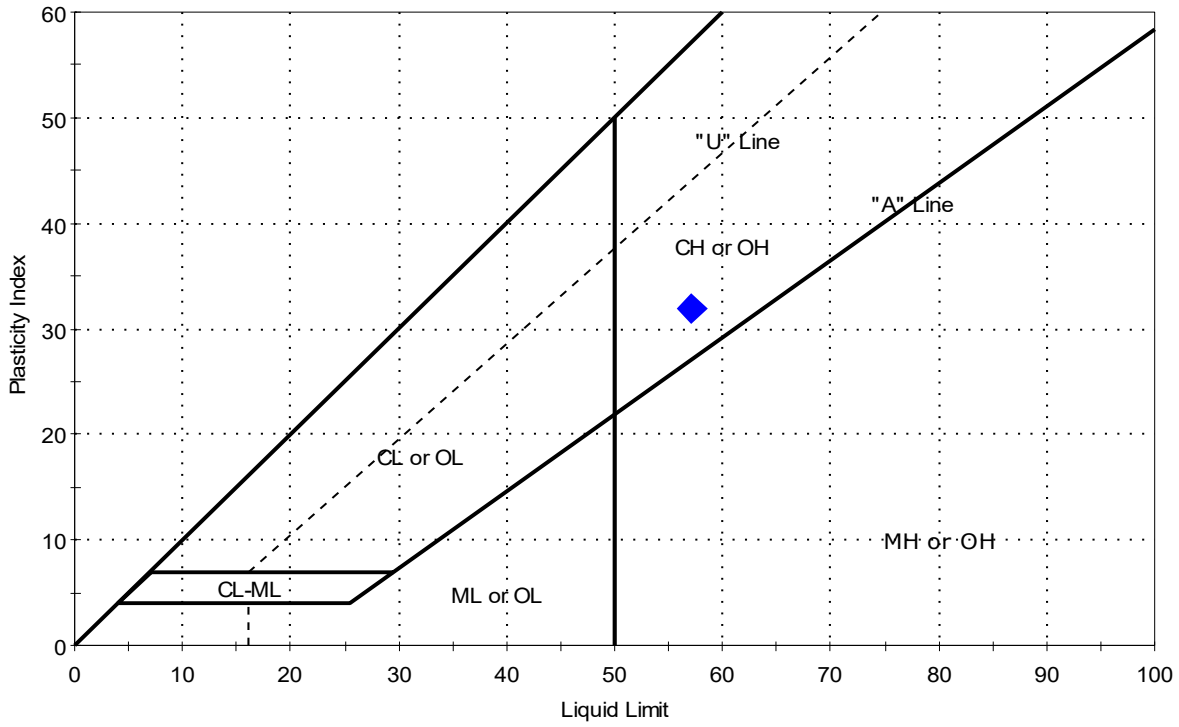
Great River Park Improve

Prepared for:

GEI Consultants, Inc.

Client:	GEI Consultants, Inc.				
Project:	Great River Park Improve				
Location:				Project No:	GTX-312027
Boring ID:	B1	Sample Type:	bag	Tested By:	cam
Sample ID:	S9	Test Date:	07/16/20	Checked By:	bfs
Depth :	30-32 ft	Test Id:	564371		
Test Comment:	---				
Visual Description:	Moist, brown clay				
Sample Comment:	---				

Atterberg Limits - ASTM D4318



Symbol	Sample ID	Boring	Depth	Natural Moisture Content,%	Liquid Limit	Plastic Limit	Plasticity Index	Liquidity Index	Soil Classification
◆	S9	B1	30-32 ft	53	57	25	32	0.9	

Sample Prepared using the WET method

Dry Strength: HIGH

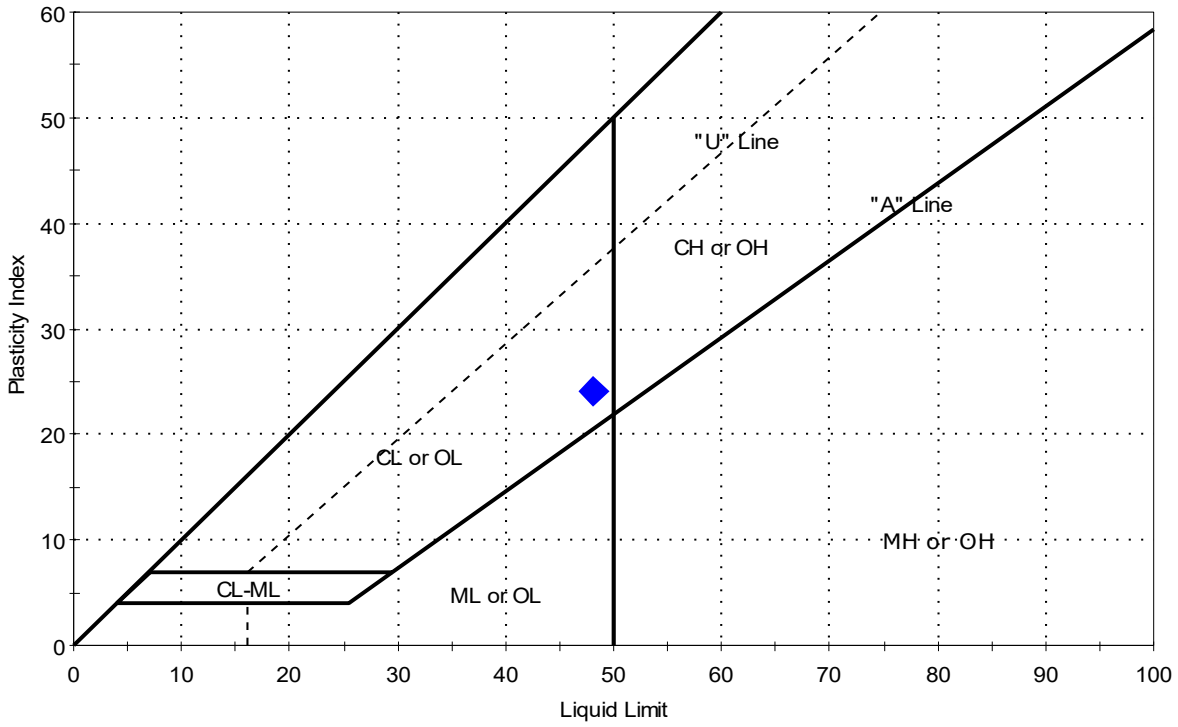
Dilatancy: SLOW

Toughness: LOW

printed 7/16/2020 10:27:15 AM

Client:	GEI Consultants, Inc.				
Project:	Great River Park Improve				
Location:				Project No:	GTX-312027
Boring ID:	B1	Sample Type:	bag	Tested By:	cam
Sample ID:	S12	Test Date:	07/16/20	Checked By:	bfs
Depth :	60-62 ft	Test Id:	564372		
Test Comment:	---				
Visual Description:	Moist, brown clay				
Sample Comment:	---				

Atterberg Limits - ASTM D4318



Symbol	Sample ID	Boring	Depth	Natural Moisture Content,%	Liquid Limit	Plastic Limit	Plasticity Index	Liquidity Index	Soil Classification
◆	S12	B1	60-62 ft	49	48	24	24	1	

Sample Prepared using the WET method

Dry Strength: VERY HIGH

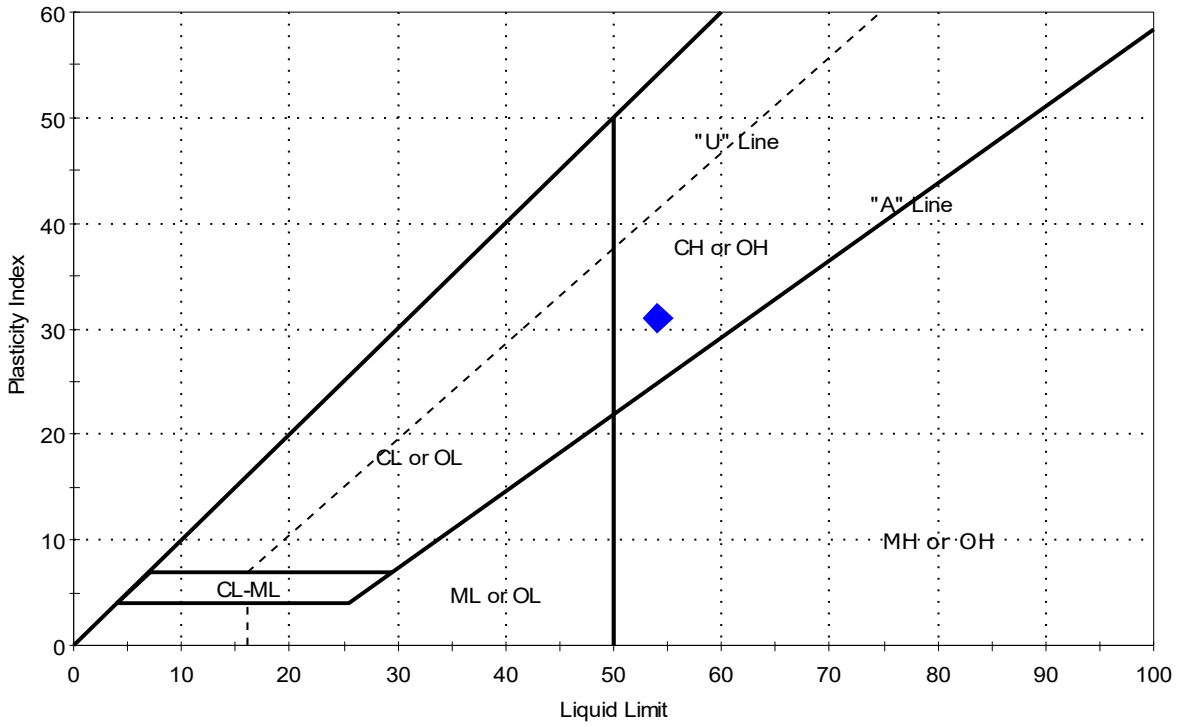
Dilatancy: SLOW

Toughness: LOW

printed 7/16/2020 10:27:24 AM

Client:	GEI Consultants, Inc.				
Project:	Great River Park Improve				
Location:				Project No:	GTX-312027
Boring ID:	B1	Sample Type:	bag	Tested By:	cam
Sample ID:	S14	Test Date:	07/16/20	Checked By:	bfs
Depth :	80-82 ft	Test Id:	564373		
Test Comment:	---				
Visual Description:	Moist, brown clay				
Sample Comment:	---				

Atterberg Limits - ASTM D4318



Symbol	Sample ID	Boring	Depth	Natural Moisture Content,%	Liquid Limit	Plastic Limit	Plasticity Index	Liquidity Index	Soil Classification
◆	S14	B1	80-82 ft	37	54	23	31	0.4	

Sample Prepared using the WET method

Dry Strength: HIGH

Dilatancy: SLOW

Toughness: LOW

printed 7/16/2020 10:27:34 AM

PO Box 572455 / Salt Lake City UT 84157-2455 / USA
TEL +1 801 262 2448 · FAX +1 801 262 9870 · www.TEi-TS.com

GEOTESTING EXPRESS INCORPORATED
125 NAGOG PARK
ACTON MA 01720-3451
USA

Analysis No.	TS-A2008810
Report Date	16 July 2020
Date Sampled	13 July 2020
Date Received	16 July 2020
Where Sampled	Acton, MA USA
Sampled By	Client

This is to attest that we have examined: Soil for Project Name: Great River Park Improvement; Site Location: - ; Job Number: GTX-312027

When examined to the applicable requirements of:

ASTM D 512 - 12 "Standard Test Methods for Chloride Ion in Water" Method B

Results:

ASTM D 512 – Chloride Method B

Sample		Results		Detection Limit
		ppm (mg/kg)	%[1]	
B-1		49.	0.0049	10.
S-9	30 – 32			

NOTE: [1]Percent by weight as received.

END OF ANALYSIS

USEPA Laboratory ID UT00930

Merrill Gee P.E. – Engineer in Charge

GeoTesting EXPRESS

SOIL CHAIN OF CUSTODY & TEST REQUEST

GeoTesting Express, Inc.
125 Nagog Park
Acton, MA 01720
800 434 1062 Toll Free
978 635 0266 Fax

2358 Perimeter Park Drive, Suite 320
Atlanta, GA 30341
770 645 6575 Tel
770 645 6570 Fax

www.geotesting.com

CLIENT		INVOICE (complete if different from Client)	
Company: GEI Consultants		Company:	
Address: 455 Winding Brook Drive Suite 201		Address:	
City, State, Zip: Glastonbury, CT 06033		City, State, Zip:	
Contact: Dan Granda	Phone:	Contact:	Phone:
E-mail:dgranda@geiconsultants.com	Cell: 860.368.5390	E-mail:	Cell:

PROJECT		
Project Name: Great River Park Improvement	Client Project #:	Purchase Order#:2002828
Project Location: Great River Front Park	GTX Sales Order #:	Requested Turnaround:7/20/2020
On-site Contact:	E-mail:	Phone:

SOIL			Atterberg Limits (ASTM D 4318)	USCS – Classification (ASTM D 2487)	Grain Size (ASTM D 422) (Sieve Only)	Density (ASTM D 2937) (ASTM D 7263) please circle one	Moisture Content (ASTM D 2216)	Organic Content (ASTM D 2974)	pH (ASTM D 4972)	Specific Gravity (ASTM D 854)	Electrical Resistivity (ASTM G 57)	Proctor Compaction (Standard – ASTM D 698) (Modified – ASTM D 1557) please circle one	California Bearing Ratio * (ASTM D 1883)	Direct Shear* (ASTM D 3080)	Triaxial Shear* (UU – ASTM D 2850) (CU – ASTM D 4767) (CD – ASTM D7181)	Incremental Consolidation* (ASTM D 2435)	Permeability/ Hydraulic Conductivity* (Fixed Wall – ASTM D 2434) (Flexible Wall – ASTM D 5084) Please circle one	Unconfined Compression (ASTM D 2166)	Sieve & Hydrometer ASTM D6913/D7928 or D422. AASHTO T	Other:___CHLORINE___ ___ ___
Boring ID	Sample ID	Depth																		
B1	S9	30-32'	X																	X
B1	S12	60-62'	X																	X
B1	S14	80-82'	X																	X

*Specify Test Conditions (Undisturbed or Remolded, Density and moisture, Test Normal Loads, Test Confining Stresses, etc.):

AUTHORIZE BY SIGNING AND DATING:

SIGNATURE:_____ PRINT NAME: Dan Granda DATE: 07/09/2020

Incoming Sample Inspection Performed ☐
Adverse conditions: _____

Relinquished By:	DATE: / TIME:	Received By:	DATE: 7/10/20 TIME: 1:15
Relinquished By:	DATE: / TIME:	Received By:	DATE: / TIME:

Testing sm Services analytical Laboratory
3455 South 500 West
Salt Lake City, UT 84115-4234 · USA
Phone 801 262 2448
Fax 801 262 9870

ANALYSIS REQUEST and CHAIN OF CUSTODY

Company: GeoTesting Express, Inc.

Address: 125 Nagog Park
Acton, MA 01720-3451
USA

Contact: Ethan Marro or Jon Campbell, Laboratory Managers

Phone: +1 978 635 0424 | Direct 978-893-1267 / 978-893-1291

e-mail: emarro@geotesting.com / jcampbell@geotesting.com
Send Results to : geotestingma@gmail.com

Date: 7/13/20 | Requested Turnaround 7/20/20

Project Name: Great River Park Improv

Site Location:

Job No: 312027

ANALYSES REQUESTED*

Sample ID	Date Collected	Time Collected	Matrix	Preservative Added	D512	D516	D1498	T290	T291	C1580	G200	D4658	SM4500			COMMENTS (e.g. pH, on ice, temperature, *Test Method, etc.)
S9, B1, 30-32ft					X											

Special Instructions/Comments:
Send Certificate by .pdf format to email address listed above.

(1) Released By: (Signature)	(2) Received By: (Signature)	(3) Released By: (Signature)
(1) Date/Time: 7/13/20 / 3:00	(2) Date/Time:	(3) Date/Time:
(1) Company: GeoTesting Express	(2) Company:	(3) Company:

WARRANTY and LIABILITY

GeoTesting Express (GTX) warrants that all tests it performs are run in general accordance with the specified test procedures and accepted industry practice. GTX will correct or repeat any test that does not comply with this warranty. GTX has no specific knowledge as to conditioning, origin, sampling procedure or intended use of the material.

GTX may report engineering parameters that require us to interpret the test data. Such parameters are determined using accepted engineering procedures. However, GTX does not warrant that these parameters accurately reflect the true engineering properties of the *in situ* material. Responsibility for interpretation and use of the test data and these parameters for engineering and/or construction purposes rests solely with the user and not with GTX or any of its employees.

GTX's liability will be limited to correcting or repeating a test which fails our warranty. GTX's liability for damages to the Purchaser of testing services for any cause whatsoever shall be limited to the amount GTX received for the testing services. GTX will not be liable for any damages, or for any lost benefits or other consequential damages resulting from the use of these test results, even if GTX has been advised of the possibility of such damages. GTX will not be responsible for any liability of the Purchaser to any third party.

Commonly Used Symbols

A	pore pressure parameter for $\Delta\sigma_1 - \Delta\sigma_3$
B	pore pressure parameter for $\Delta\sigma_3$
CAI	CERCHAR Abrasiveness Index
CIU	isotropically consolidated undrained triaxial shear test
CR	compression ratio for one dimensional consolidation
CSR	cyclic stress ratio
C_c	coefficient of curvature, $(D_{30})^2 / (D_{10} \times D_{60})$
C_u	coefficient of uniformity, D_{60}/D_{10}
C_c	compression index for one dimensional consolidation
C_α	coefficient of secondary compression
c_v	coefficient of consolidation
c	cohesion intercept for total stresses
c'	cohesion intercept for effective stresses
D	diameter of specimen
D	damping ratio
D_{10}	diameter at which 10% of soil is finer
D_{15}	diameter at which 15% of soil is finer
D_{30}	diameter at which 30% of soil is finer
D_{50}	diameter at which 50% of soil is finer
D_{60}	diameter at which 60% of soil is finer
D_{85}	diameter at which 85% of soil is finer
d_{50}	displacement for 50% consolidation
d_{90}	displacement for 90% consolidation
d_{100}	displacement for 100% consolidation
E	Young's modulus
e	void ratio
e_c	void ratio after consolidation
e_o	initial void ratio
G	shear modulus
G_s	specific gravity of soil particles
H	height of specimen
H_R	Rebound Hardness number
i	gradient
I_S	Uncorrected point load strength
$I_{S(50)}$	Size corrected point load strength index
H_A	Modified Taber Abrasion
H_T	Total hardness
K_o	lateral stress ratio for one dimensional strain
k	permeability
LI	Liquidity Index
m_v	coefficient of volume change
n	porosity
PI	plasticity index
P_c	preconsolidation pressure
p	$(\sigma_1 + \sigma_3) / 2$, $(\sigma_v + \sigma_h) / 2$
p'	$(\sigma'_1 + \sigma'_3) / 2$, $(\sigma'_v + \sigma'_h) / 2$
p'_c	p' at consolidation
Q	quantity of flow
q	$(\sigma_1 - \sigma_3) / 2$
q_f	q at failure
q_o, q_i	initial q
q_c	q at consolidation
S_r	Post cyclic undrained shear strength
T	temperature
t	time
U, UC	unconfined compression test
UU, Q	unconsolidated undrained triaxial test
u_a	pore gas pressure
u_e	excess pore water pressure
u, u_w	pore water pressure
V	total volume
V_g	volume of gas
V_s	volume of solids
V_s	shear wave velocity
V_v	volume of voids
V_w	volume of water
V_o	initial volume
v	velocity
W	total weight
W_s	weight of solids
W_w	weight of water
w	water content
w_c	water content at consolidation
w_f	final water content
w_l	liquid limit
w_n	natural water content
w_p	plastic limit
w_s	shrinkage limit
w_o, w_i	initial water content
α	slope of q_f versus p_f
α'	slope of q_f versus p_f'
γ_t	total unit weight
γ_d	dry unit weight
γ_s	unit weight of solids
γ_w	unit weight of water
ε	strain
ε_{vol}	volume strain
ε_h, ε_v	horizontal strain, vertical strain
μ	Poisson's ratio, also viscosity
σ	normal stress
σ'	effective normal stress
σ_c, σ'_c	consolidation stress in isotropic stress system
σ_h, σ'_h	horizontal normal stress
σ_v, σ'_v	vertical normal stress
σ'_{vc}	Effective vertical consolidation stress
σ_1	major principal stress
σ_2	intermediate principal stress
σ_3	minor principal stress
τ	shear stress
φ	friction angle based on total stresses
φ'	friction angle based on effective stresses
φ'_r	residual friction angle
φ_{ult}	φ for ultimate strength

Appendix C

Reference Boring Log and Laboratory Test Results

GEODESIGN INCORPORATED
Geotechnical Engineers and Environmental Consultants
984 Southford Road
Middlebury, Connecticut 06762
Telephone: 203-758-8836 Fax: 203-758-8842

BORING LOG

Project Name: FEMA Levee Accreditation Engineering Study, East Hartford, Connecticut

Boring No.: GEI-134A
Page No.: 1 of 4
File No.: 3238-001.0
Checked By: MPT

Boring Company:	GeoLogic Earth Explorations		
Foreman:	Tim Tucker		
GeoDesign Rep.:	Brien Waterman		
Date Started:	July 8, 2008	Date Finished:	July 8, 2008
N. Coordinate:	839289.2	E. Coordinate:	1023479.8
Ground Surface Elevation (feet):	15.0		
Station:	148+53	Offset:	13.0 ft Riverside

	Casing:	Sampler:
Type:	HW	SS
I.D.:	4.0 in.	1.38 in.
Hammer Wt.:	NA	140 lbs
Hammer Fall:	NA	30 in
Rig Type:	CME LC60	
Hammer Type:	Automatic - Hydraulic	

Groundwater Observations

Date	Depth (ft)	Elev. (ft)	Notes
▼			
▼			
▼			
▼			

Depth (ft)	Casing Blows/ft	Sample Info: Number	Type	Penetration (inches)	Recovery (inches)	Depth (ft)	Blows / 6 inch Interval: 0 - 6	6 - 12	12 - 18	18 - 24	Coring Time (min./ft)	Moisture Content (%)	Strata Description (Depth & Elevation (feet))	Symbol	Sample Description (Classification System: USCS)
		1	SS	24	22	0.0	6	8	5	8			Silty Sand 0.5		Top 3": SILTY SAND (SM); ~60% mostly fine sand; ~40% fines; brown.
													Asphalt 0.9		Next 4": SILTY SAND (SM); ~80% sand, fine to coarse; ~20% silty fines; brown.
													Silty Gravel with Sand 1.4		Next 1": Asphalt; black.
													Sandy Silt 4.1		Next 2": SILTY GRAVEL WITH SAND (GM); ~50% gravel, fine to coarse; ~30% sand, fine to coarse; ~20% fines; reb-brown, Glacial Till.
		2	SS	24	20	2.0	9	8	6	9			2.0 Silty Sand 13.0		Bot 12": SANDY SILT (ML); ~60% fines, non plastic; ~40% mostly fine sand, brown.
															SILTY SAND (SM); ~60% mostly fine sand; ~40% fines, non plastic, brown.
													4.0 Narrowly Graded Gravel 11.0		Top 1": NARROWLY GRADED GRAVEL (GP); ~100% gravel, coarse, max. size 1"; black.
5		3	SS	24	11	4.0	8	5	5	6			Widely Graded Sand with Gravel		Bot 10": WIDELY GRADED SAND WITH GRAVEL (SW); ~90% sand, fine to coarse; ~5% gravel, fine, subrounded, max. size 1"; ~5% fines, brown.
															WIDELY GRADED SAND WITH GRAVEL (SW); ~90% sand, fine to medium; ~5% gravel, fine to coarse, subangular, max. size 1"; ~5% fines, gray-brown.
		4	SS	24	10	6.0	4	4	3	4					WIDELY GRADED SAND WITH GRAVEL (SW); ~90% sand, fine to coarse; ~5% gravel, fine, subangular, max. size 3/4"; ~5% fines, gray-brown.
		5	SS	24	12	8.0	4	3	4	3					
10													10.0		
		6	SS	24	14	10.0	4	2	4	4			Sandy Silt 5.0 / 10.5 Silty Sand 4.5		Top 3": SANDY SILT (ML); ~80% fines, low plasticity; ~20% sand, fine to medium; root fibers, gray.
															Bot 11": SILTY SAND (SM); ~85% mostly fine sand; ~15% fines, gray-brown.
		7	SS	24	10	12.0	6	3	2	2					SILTY SAND (SM); 50% sand, mostly fine to medium; 48% fines, non-plastic, no dry strength; 2% gravel, fine; dark gray, oil odor, root fibers 2" from top of sample.
15		8	SS	24	10	14.0	1	2	1	1					SILTY SAND (SM); 50% sand, mostly fine to medium; 48% fines, non plastic, no dry strength; 2% gravel, fine; dark gray, oil odor.

Remarks: Borehole backfilled with cement-bentonite grout upon completion.

Notes:
1) Stratification lines represent approximate boundary between material types, transitions may be gradual.
2) Water level readings have been made at times and under conditions stated, fluctuations of groundwater may occur due to other factors than those present at the time measurements were made. AC = After coring; NR = Not Recorded.
3) Abbreviations: A = Auger; C = Core; D = Driven; G = Grab; PS = Piston Sample; SS = Split Spoon; SSL = 3.5 Inch ID Split Spoon; ST = Shelby Tube; V = Vane; WOR/H = Weight of Rod/Hammer
4) Proportions Used: Trace = 1-10%; Little = 10-20%; Some = 20-35%; And = 35-50%

Boring No.: GEI-134A

BORING LOG MC 12/19/03 GEI LOGS.GPJ GEODESIGN STANDARD.GDT 9/8/08

GEODESIGN INCORPORATED
Geotechnical Engineers and Environmental Consultants
984 Southford Road
Middlebury, Connecticut 06762
Telephone: 203-758-8836 Fax: 203-758-8842

BORING LOG

Project Name

FEMA Levee Accreditation
Engineering Study
East Hartford, Connecticut

Boring No.: GEI-134A
Page No.: 2 of 4
File No.: 3238-001.0
Checked By: MPT

Boring Company:	GeoLogic Earth Explorations		
Foreman:	Tim Tucker		
GeoDesign Rep.:	Brien Waterman		
Date Started:	July 8, 2008	Date Finished:	July 8, 2008
N. Coordinate:	839289.2	E. Coordinate:	1023479.8
Ground Surface Elevation (feet):	15.0		
Station:	148+58	Offset:	13.0 ft Riverside

	Casing:	Sampler:
Type:	HW	SS
I.D.:	4.0 in.	1.38 in.
Hammer Wt.:	NA	140 lbs
Hammer Fall:	NA	30 in.
Rig Type:	CME LC60	
Hammer Type:	Automatic - Hydraulic	

Groundwater Observations

Date	Depth (ft)	Elev. (ft)	Notes
▼			
▼			
▼			
▼			

Depth (ft)	Casing Blows/ft	Sample Information: Number	Type	Penetration (inches)	Recovery (inches)	Depth (ft)	Blows / 6 inch Interval: 0 - 6	6 - 12	12 - 18	18 - 24	Coring Time (min./ft)	Moisture Content (%)	Strata Description: Depth & Elevation(feet)	Symbol	Sample Description: Classification System: USCS
													Silty Sand *(Continued)*		root fibers 2" from top of sample.
		9	SS	24	14	16.0	3	1	2	6					SILTY SAND (SM); ~85% sand, fine to medium; ~15% fines, non plastic, no dry strength; oil odor, gray-black.
													18.0		
		10	SS	24	2	18.0	6	3	3	5			Narrowly Graded Gravel -3.0		NARROWLY GRADED GRAVEL (GP); ~90% gravel, coarse, subangular, max. size 1 1/2"; ~5% mostly fine sand; ~5% fines; oil odor, gray.
20															
		11	SS	24	0	20.0	6	7	7	7					No recovery.
													22.0		
		12	SS	24	7	22.0	10	5	10	8			Narrowly Graded Sand with Silt -7.0		NARROWLY GRADED SAND WITH SILT (SP-SM); sand, fine to medium; ~5% to 10% fines, oil odor, gray-brown.
		13	SS	24	9	24.0	4	7	11	8					NARROWLY GRADED SAND WITH SILT (SP-SM); sand, fine to medium; ~5% to 10% fines, gray-brown.
25															
													26.0		
		14	SS	24	10	26.0	7	7	6	6			Widely Graded Sand with Silt -11.0		WIDELY GRADED SAND WITH SILT (SW-SM); 84% sand, fine to coarse; 9% fines; 7% gravel, fine; grayish brown.
		15	SS	24	7	28.0	5	5	6	8					WIDELY GRADED SAND WITH SILT (SW-SM); sand, fine to coarse; ~5% to 10% fines, gray-brown.
30															

Remarks

Notes:
1) Stratification lines represent approximate boundary between material types, transitions may be gradual.
2) Water level readings have been made at times and under conditions stated, fluctuations of groundwater may occur due to other factors than those present at the time measurements were made. AC = After coring; NR = Not Recorded.
3) Abbreviations: A = Auger; C = Core; D = Driven; G = Grab; PS = Piston Sample; SS = Split Spoon; SSL = 3.5 Inch ID Split Spoon; ST = Shelby Tube; V = Vane; WOR/H = Weight of Rod/Hammer
4) Proportions Used: Trace = 1-10%; Little = 10-20%; Some = 20-35%; And = 35-50%

Boring No.: GEI-134A

GEODESIGN INCORPORATED
Geotechnical Engineers and Environmental Consultants
984 Southford Road
Middlebury, Connecticut 06762
Telephone: 203-758-8836 Fax: 203-758-8842

BORING LOG

Project Name

FEMA Levee Accreditation
Engineering Study
East Hartford, Connecticut

Boring No.: GEI-134A
Page No.: 3 of 4
File No.: 3238-001.0
Checked By: MPT

Boring Company:	GeoLogic Earth Explorations		
Foreman:	Tim Tucker		
GeoDesign Rep.:	Brien Waterman		
Date Started:	July 8, 2008	Date Finished:	July 8, 2008
N. Coordinate:	839289.2	E. Coordinate:	1023479.8
Ground Surface Elevation (feet):	15.0		
Station:	148+53	Offset:	13.0 ft Riverside

	Casing:	Sampler:
Type:	HW	SS
I.D.:	4.0 in.	1.38 in.
Hammer Wt.:	NA	140 lbs
Hammer Fall:	NA	30 in.
Rig Type:	CME LC60	
Hammer Type:	Automatic - Hydraulic	

Groundwater Observations

Date	Depth (ft)	Elev. (ft)	Notes
▼			
▼			
▼			
▼			

Depth (ft)	Casing Blows/ft	Sample Information: Number	Type	Penetration (inches)	Recovery (inches)	Depth (ft)	Blows / 6 inch Interval: 0 - 6	6 - 12	12 - 18	18 - 24	Coring Time (min./ft)	Moisture Content (%)	Strata Description: Depth & Elevation(feet)	Symbol	Sample Description: Classification System: USCS
		16	SS	24	12	30.0	2	6	7	8			Widely Graded Sand with Silt *(Continued)*		WIDELY GRADED SAND WITH SILT (SW-SM); sand, fine to coarse; ~5% to 10% fines, olive.
		17	SS	24	24	32.0	9	9	7	8					WIDELY GRADED SAND WITH SILT (SW-SM); sand, fine to coarse;~5% to 10% fines, olive.
35		18	SS	24	18	34.0	3	4	3	3			34.5 Varved Deposits: Lean Clay & Silt -19.5		Top 5": WIDELY GRADED SAND WITH SILT (SW-SM); sand, fine to coarse; ~5% to 10% fines, olive. Bot 13": VARVED DEPOSIT: LEAN CLAY AND SILT (CL-ML); ~100% fines, medium plasticity, medium dry strength, no dilatancy, low toughness; red brown, 1/4" silt varves spaced approximately 1/2".
		19	SS	24	14	36.0	2	1	1	1					VARVED DEPOSIT: LEAN CLAY AND SILT (CL-ML); ~100% fines, medium plasticity, medium dry strength, no dilatancy, low toughness; red brown, 1/8" to 1/4" silt varves spaced approximately 1/2".
		20	ST	24	24	38.0	P	U	S	H					SHELBY TUBE: VARVED DEPOSIT: LEAN CLAY AND SILT (CL-ML).
40															
		21	SS	24	24	40.0	WOH	WOH	WOH	WOH					VARVED DEPOSIT: LEAN CLAY AND SILT (CL-ML); ~100% fines, medium plasticity, medium dry strength, no dilatancy, low toughness; red brown to gray, 1/4" to 1/2" silt varves spaced approximately 1/2" to 1".
		22	SS	24	24	42.0	WOH	1	1	1					VARVED DEPOSIT: LEAN CLAY AND SILT (CL-ML); ~100% fines, medium plasticity, medium dry strength, no dilatancy, low toughness; red brown to gray, 1/8" silt varves spaced approximately 1/2".
45		23	SS	24	24	44.0	WOH	WOH	WOH	WOH					VARVED DEPOSIT: LEAN CLAY AND SILT (CL-ML); ~100% fines, medium plasticity, medium dry strength, no dilatancy, low

Remarks

Notes:
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3) Abbreviations: A = Auger; C = Core; D = Driven; G = Grab; PS = Piston Sample; SS = Split Spoon; SSL = 3.5 Inch ID Split Spoon; ST = Shelby Tube; V = Vane; WOR/H = Weight of Rod/Hammer
4) Proportions Used: Trace = 1-10%; Little = 10-20%; Some = 20-35%; And = 35-50%

Boring No.: GEI-134A

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984 Southford Road
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BORING LOG

Project Name

FEMA Levee Accreditation
Engineering Study
East Hartford, Connecticut

Boring No.: GEI-134A
Page No.: 4 of 4
File No.: 3238-001.0
Checked By: MPT

Boring Company:	GeoLogic Earth Explorations				
Foreman:	Tim Tucker				
GeoDesign Rep.:	Bnen Waterman				
Date Started:	July 8, 2008	Date Finished:	July 8, 2008		
N. Coordinate:	839289.2	E. Coordinate:	1023479.8		
Ground Surface Elevation (feet):	15.0				
Station:	148+53	Offset:	13.0 ft Riverside		

	Casing:	Sampler:
Type:	HW	SS
I.D.:	4.0 in.	1.38 in.
Hammer Wt.:	NA	140 lbs
Hammer Fall:	NA	30 in.
Rig Type:	CME LC50	
Hammer Type:	Automatic - Hydraulic	

Groundwater Observations

Date	Depth (ft)	Elev. (ft)	Notes
▼			
▼			
▼			
▼			

Depth (ft)	Casing Blows/ft	Sample Information: Number	Type	Penetration (inches)	Recovery (inches)	Depth (ft)	Blows / 6 inch Interval: 0 - 6	6 - 12	12 - 18	18 - 24	Coring Time (min./ft)	Moisture Content (%)	Strata Description: Depth & Elevation(feet)	Symbol	Sample Description: Classification System: USCS
													Varved Deposits: Lean Clay & Silt *(Continued)*		toughness; red brown to gray, 1/4" to 1" silt varves spaced approximately 1/2" to 1".
		24	SS	24	24	46.0	WOH	WOH	2	2					VARVED DEPOSIT: LEAN CLAY AND SILT (CL-ML); ~100% fines, medium plasticity, medium dry strength, no dilatancy, low toughness; red brown to gray, 1/4" to 1" silt varves spaced approximately 1/2" to 1 1/2".
		25	SS	24	24	48.0	WOH	WOH	1	1					VARVED DEPOSIT: LEAN CLAY AND SILT (CL-ML); ~100% fines, medium plasticity, medium dry strength, no dilatancy, low toughness; red brown to gray, 1/4" to 3/4" silt varves spaced approximately 1/2" to 1".
50													50.0		
													Bottom of Exploration at 50.0 ft -35.0		
55															
60															

Remarks

Notes:
1) Stratification lines represent approximate boundary between material types, transitions may be gradual.
2) Water level readings have been made at times and under conditions stated, fluctuations of groundwater may occur due to other factors than those present at the time measurements were made. AC = After coring; NR = Not Recorded.
3) Abbreviations: A = Auger; C = Core; D = Driven; G = Grab; PS = Piston Sample; SS = Split Spoon; SSL = 3.5 Inch ID Split Spoon; ST = Shelby Tube; V = Vane; WOR/H = Weight of Rod/Hammer
4) Proportions Used: Trace = 1-10%; Little = 10-20%; Some = 20-35%; And = 35-50%

Boring No.: GEI-134A

Boring Location

NORTHING: 845,260 **EASTING:** 1,028,594 **STATION:** 61+34 **OFFSET:** 104 ft R
HORIZONTAL DATUM: NAD 83 **STATION CENTERLINE:** East Hartford Dike
VERTICAL DATUM: NAVD 1988 **GROUND SURFACE ELEVATION (FT):** 17
LOCATION: Waterside Levee Toe

BORING

GEI - 201

Drilling Information

DATE START / END: 3/12/2009 - 3/12/2009 **TOTAL DEPTH (FT):** 44.0
CONTRACTOR: Geologic, Inc. **DRILLER:** Charlie O'Donnell **LOGGED BY:** Steven Hawkins
EQUIPMENT: CME-75 ATV Rig **BORING METHOD:** Cased Boring
AUGER ID/OD: N/A / N/A **CASING ID/OD:** 4 in / 4.5 in
HAMMER TYPE: Safety Hammer with Cathead **HAMMER WEIGHT (lbs):** 140 **HAMMER DROP (inch):** 30
WATER LEVEL DEPTHS (ft):
GENERAL NOTES:

ABBREVIATIONS:
ID = Inside Diameter; OD = Outside Diameter; Pen. = Penetration Length; Rec. = Recovery Length
bpf = Blows per Foot; mpf = Minute per Foot; S = Split Spoon; DP = Direct Push Sample
U = Undistrubed Tube Sample; C = Rock Core; V = Field Vane Shear; SC = Sonic Core
WOR = Weight of Rods; WOH = Weight of Hammer; RQD = Rock Quality Designation; OVM = Organic Vapor Meter
Q_p = Pocket Penetrometer Strength; S_v = Pocket Torvane Shear Strength; F_v = Field Vane Shear Strength; NA, NM = Not Applicable, Not Measured

Elev. (ft)	Depth (ft)	Casing Pen. (bpf) or Core Rate (mpf)	Sample No.	Type	Depth (ft)	Pen./ Rec. (in)	Blows Count or RQD	Field Test Data	GRAPHIC LOG	Sample Description & Classification	H_20 Depth	Remarks
			S1		0 to 2	24/17	5-5-6-5			S1 (0-11"): SILTY SAND (SM); ~60% fine to coarse sand, ~35% nonplastic fines, ~5% coarse sub-angular gravel (max size = 1.25"), brown, moist, FILL.		
										S1 (11-17"): NARROWLY GRADED SAND (SP); ~95% fine to medium sand, 5% nonplastic fines, brown, dry, FILL.		
15			S2		2 to 4	24/15	6-5-5-6			S2: SILT (ML); ~89% nonplastic fines, ~11% fine sand, olive, dry, root fragments, FILL.		
			S3		4 to 6	24/20	2-3-5-6	Q_p=1tsf S_V=0.2tsf		S3: SILT (ML); ~95% low plasticity fines, ~5% fine sand, brownish gray with iron oxide mottling, trace organics, ALLUVIUM.		
	5											
			S4		6 to 8	24/0	4-4-5-7			S4: SILTY SAND (SM); ~75% fine sand, ~25% nonplastic fines, olive, wet, ALLUVIUM.		No recovery, redrove with 3" OD split spoon, R=10".
10			S5		8 to 10	24/12	4-5-6-7			S5: NARROWLY GRADED SAND WITH SILT (SP-SM); ~90% fine sand, ~10% nonplastic fines, gray, moist, ALLUVIUM.		
	10											
			S6		10 to 12	24/7	5-4-5-3			S6: NARROWLY GRADED SAND WITH SILT (SP-SM); ~91% fine sand, ~9% nonplastic fines, gray, wet, ALLUVIUM.		

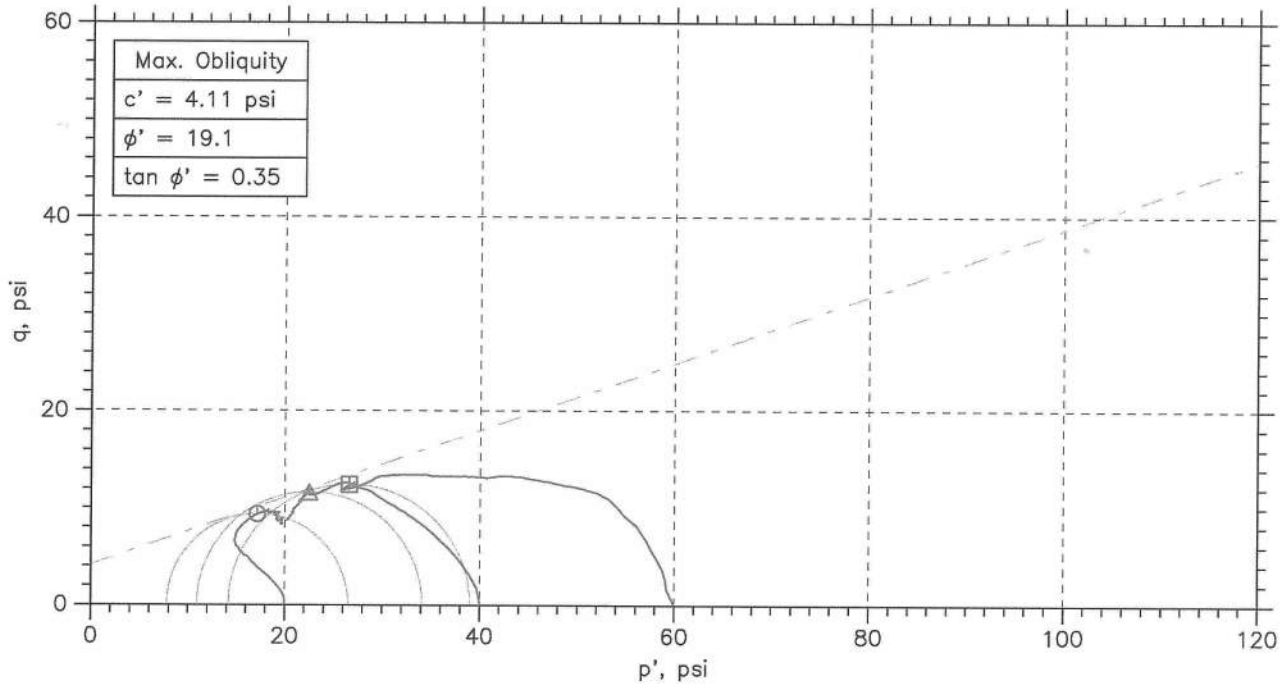
Strata lines represent the approximate boundaries between soil types. Actual transitions may be gradual. Water level readings have been made at times stated. Water levels may be different at other times.

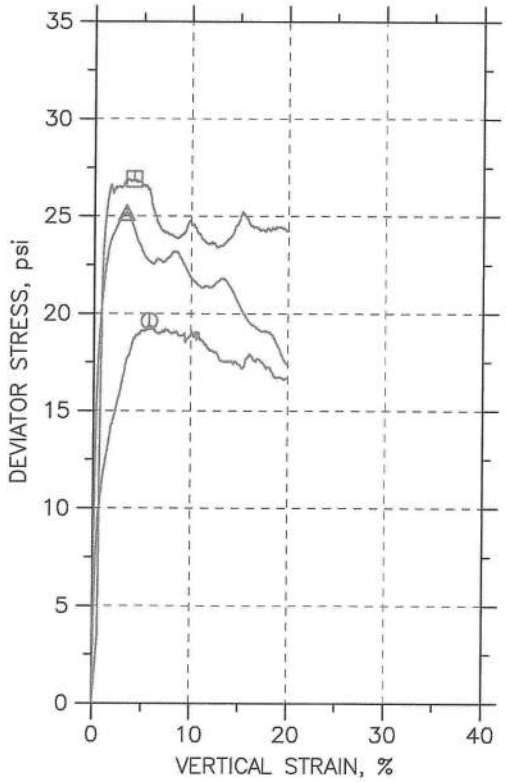
CLIENT: Town of East Hartford
PROJECT NAME: EHFCS FEMA Accreditation
CITY/STATE: East Hartford, Connecticut
GEI PROJECT NUMBER: 081210

GEI Consultants Inc.
400 Unicorn Park Drive
Woburn, MA 01801
(781) 721-4000

GEOTECHNICAL BORING LOG 02 W/ SAMPLE GEI EAST HARTFORD BORING LOGS (CURRENT).GPJ GEI DATA TEMPLATE.GDT 7/24/09

CONSOLIDATED UNDRAINED TRIAXIAL TEST by ASTM D4767

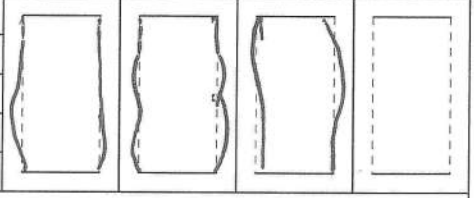




Symbol		⊙	△	⊡	
Sample No.		ST-20	ST-20	ST-20	
Test No.		CU-9-1	CU-9-2A	CU-9-3	
Depth		38-40	38-40	38-40	
Initial	Diameter, in	2.01	2.01	2	
	Height, in	4.01	4.2	4.04	
	Water Content, %	42.4	39.6	38.4	
	Dry Density, pcf	78.2	82.18	83.5	
	Saturation, %	97.6	100.0	100.0	
	Void Ratio	1.2	1.09	1.06	
Before Shear	Water Content, %	39.5	45.4	34.7	
	Dry Density, pcf	82.34	76.4	87.87	
	Saturation*, %	100.0	100.0	100.0	
	Void Ratio	1.08	1.25	0.954	
	Back Press., psi	118.	130.	90.99	
Ver. Eff. Cons. Stress, psi		20.	40.01	60.	
Shear Strength, psi		9.803	12.59	13.45	
Strain at Failure, %		5.68	3.28	4.05	
Strain Rate, %/min		0.01	0.01	0.01	
B-Value		0.87	0.93	0.95	
Estimated Specific Gravity		2.75	2.75	2.75	
Liquid Limit		39	39	39	
Plastic Limit		24	24	24	

GeoTesting express
a subsidiary of Geocomp Corporation

Project: E. Hartford Flood Control
Location: E. Hartford, CT
Project No.: GTX-8361
Boring No.: GEI-134A
Sample Type: tube

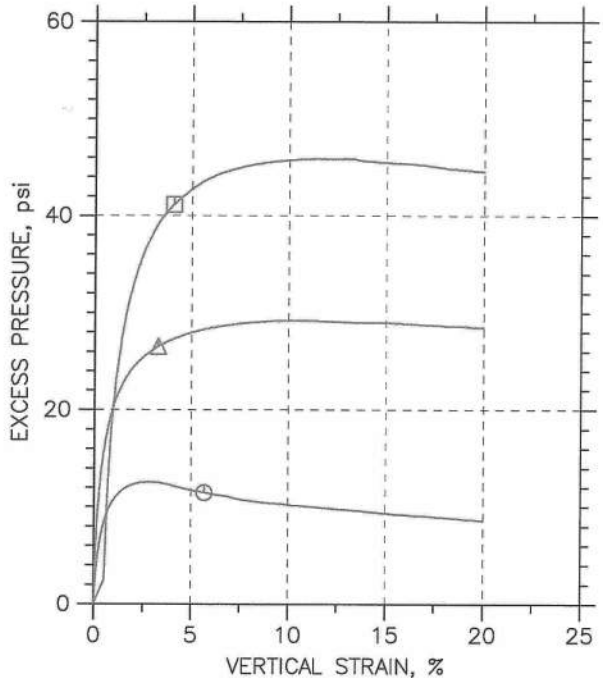


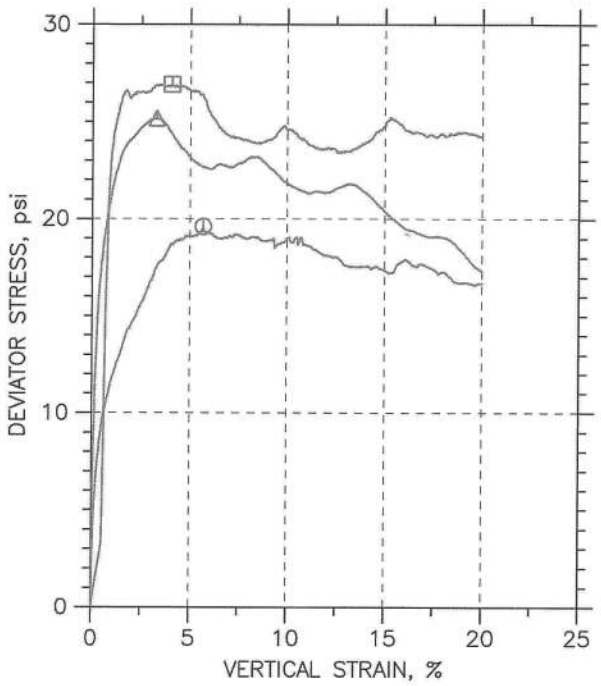
Description: Moist, reddish brown clay
Remarks: System D

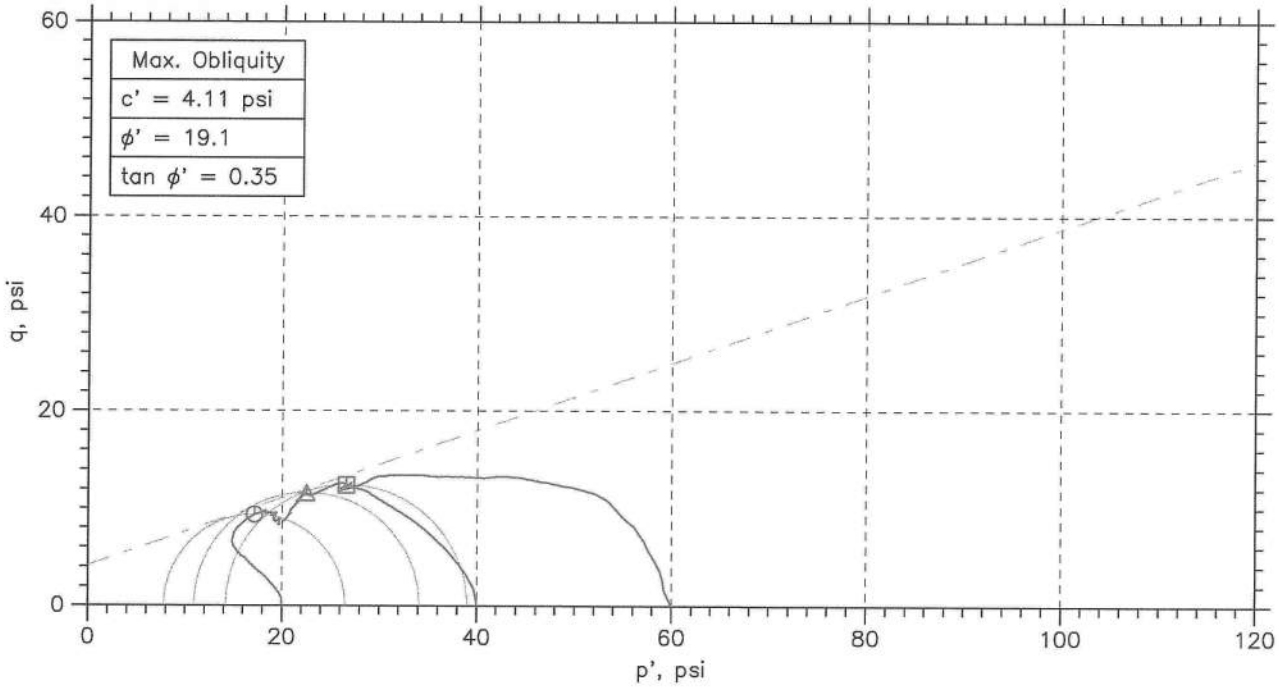
Phase calculations based on start and end of test.
* Saturation is set to 100% for phase calculations.

Fri, 05-SEP-2008 08:30:41

CONSOLIDATED UNDRAINED TRIAXIAL TEST by ASTM D4767







	Sample No.	Test No.	Depth	Tested By	Test Date	Checked By	Check Date	Test File
○	ST-20	CU-9-1	38-40	njh	08/22/08	jdt		8361-CU-9-1n.dat
△	ST-20	CU-9-2A	38-40	md	08/28/08	jdt		8361-CU-9-2an.dat
□	ST-20	CU-9-3	38-40	njh	08/21/08	jdt		8361-CU-9-3n.dat

GeoTesting express
a subsidiary of Geocomp Corporation

Project: E. Hartford Flood Control	Location: E. Hartford, CT	Project No.: GTX-8361
Boring No.: GEI-134A	Sample Type: tube	
Description: Moist, reddish brown clay		
Remarks: System D		

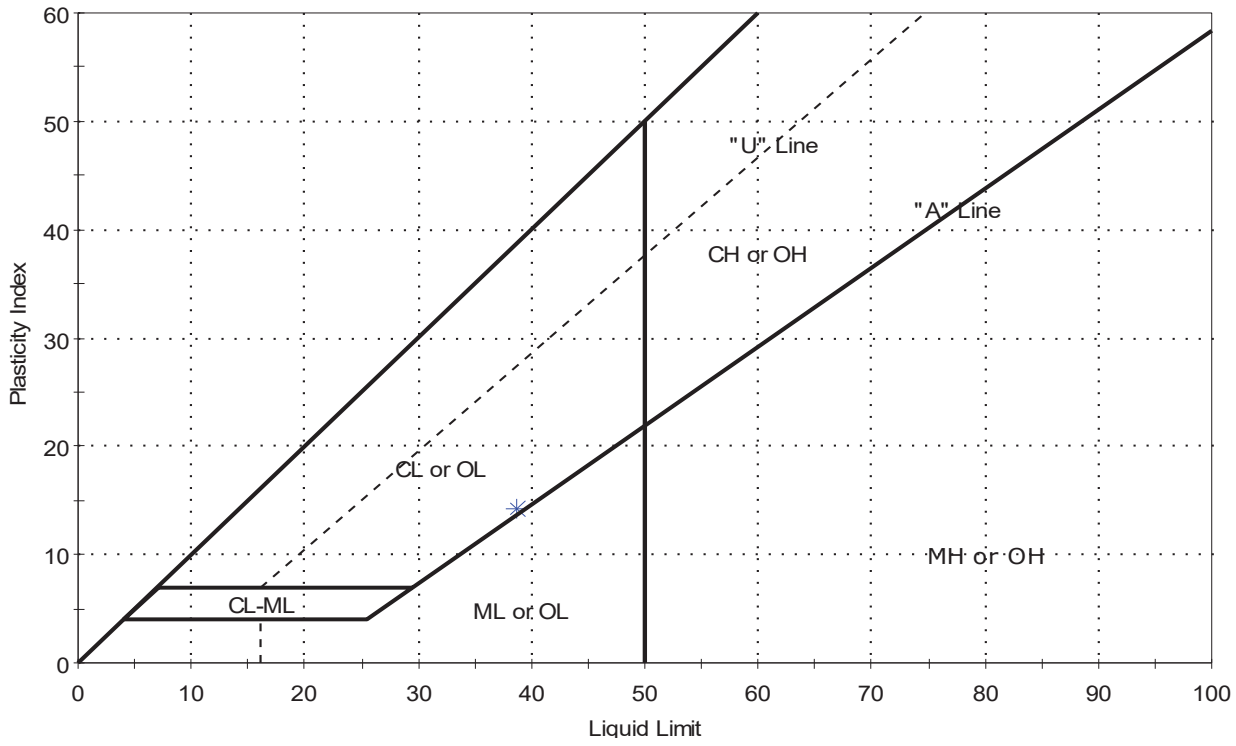
Fri, 05-SEP-2008 08:30:48

GeoTesting express
a subsidiary of Geocomp Corporation

Client:	GEI Consultants, Inc.				
Project:	E. Hartford Flood Control System				
Location:	East Hartford, CT			Project No:	GTX-8361
Boring ID:	GEI-134A	Sample Type:	tube	Tested By:	ap
Sample ID:	ST-20	Test Date:	08/21/08	Checked By:	jdt
Depth :	38-40 ft	Test Id:	136001		
Test Comment:	---				
Sample Description:	Moist, reddish brown clay				
Sample Comment:	--				

Atterberg Limits - ASTM D 4318-05

Plasticity Chart



Symbol	Sample ID	Boring	Depth	Natural Moisture Content,%	Liquid Limit	Plastic Limit	Plasticity Index	Liquidity Index	Soil Classification
✳	ST-20	GEI-134A	38-40 ft	40	39	24	15	1	

Sample Prepared using the WET method

Dry Strength: VERY HIGH
Dilentancy: SLOW
Toughness: LOW

printed 9/16/2008 6:52:14 AM

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a subsidiary of Geocomp Corporation

Client:	GEI Consultants, Inc.				
Project:	E. Hartford Flood Control System				
Location:	East Hartford, CT			Project No:	GTX-8361
Boring ID:	GEI-134A	Sample Type:	tube	Tested By:	ap
Sample ID:	ST-20	Test Date:	09/16/08	Checked By:	jdt
Depth :	38-40 ft	Sample Id:	64584		
Test Comment:	---				
Sample Description:	Moist, reddish brown clay				
Sample Comment:	--				

Moisture Content of Soil - ASTM D 2216-05

Boring ID	Sample ID	Depth	Description	Moisture Content,%
GEI-134A	ST-20	38-40 ft	Moist, reddish brown clay	40

Notes: Temperature of Drying : 110º Celsius

printed 9/16/2008 6:52:41 AM

PHOENIX
Environmental Laboratories, Inc.

Thursday, July 02, 2020

Attn: Dom Granda
GEI Consultants
455 Winding Brook Drive
Suite 201
Glastonbury, CT 06033

Project ID: **2002828-RIVERFRONT RECAPTURE**
SDG ID: **GCG22457**
Sample ID#s: CG22457 - CG22460

This laboratory is in compliance with the NELAC requirements of procedures used except where indicated.

This report contains results for the parameters tested, under the sampling conditions described on the Chain Of Custody, as received by the laboratory. This report is incomplete unless all pages indicated in the pagination at the bottom of the page are included.

All soils, solids and sludges are reported on a dry weight basis unless otherwise noted in the sample comments.

A scanned version of the COC form accompanies the analytical report and is an exact duplicate of the original.

If you are the client above and have any questions concerning this testing, please do not hesitate to contact Phoenix Client Services at ext.200. The contents of this report cannot be discussed with anyone other than the client listed above without their written consent.

Sincerely yours,

Phyllis Shiller
Laboratory Director

NELAC - #NY11301
CT Lab Registration #PH-0618
MA Lab Registration #M-CT007
ME Lab Registration #CT-007
NH Lab Registration #213693-A,B
NJ Lab Registration #CT-003
NY Lab Registration #11301
PA Lab Registration #68-03530
RI Lab Registration #63
UT Lab Registration #CT00007
VT Lab Registration #VT11301

587 East Middle Turnpike, P.O. Box 370, Manchester, CT 06040
Telephone (860) 645-1102 Fax (860) 645-0823

Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102 Fax (860) 645-0823

Sample Id Cross Reference

July 02, 2020

SDG I.D.: GCG22457

Project ID: 2002828-RIVERFRONT RECAPTURE

Client Id	Lab Id	Matrix
GEI/B1/2-4`	CG22457	SOIL
GEI/B1/2-4`	CG22458	SOIL
TB LL	CG22459	SOIL
TB HL	CG22460	SOIL

Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102 Fax (860) 645-0823

Analysis Report

July 02, 2020

FOR: Attn: Dom Granda
GEI Consultants
455 Winding Brook Drive
Suite 201
Glastonbury, CT 06033

Sample Information		Custody Information		Date	Time
Matrix:	SOIL	Collected by:		06/26/20	8:00
Location Code:	GEI	Received by:	SW	06/26/20	14:23
Rush Request:	Standard	Analyzed by:	see "By" below		
P.O.#:					

Laboratory Data

SDG ID: GCG22457
Phoenix ID: CG22457

Project ID: 2002828-RIVERFRONT RECAPTURE
Client ID: GEI/B1/2-4`

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Volatiles							
1,1,1,2-Tetrachloroethane	ND	4.0	ug/Kg	1	06/30/20	JLI	SW8260C
1,1,1-Trichloroethane	ND	4.0	ug/Kg	1	06/30/20	JLI	SW8260C
1,1,2,2-Tetrachloroethane	ND	2.4	ug/Kg	1	06/30/20	JLI	SW8260C
1,1,2-Trichloroethane	ND	4.0	ug/Kg	1	06/30/20	JLI	SW8260C
1,1-Dichloroethane	ND	4.0	ug/Kg	1	06/30/20	JLI	SW8260C
1,1-Dichloroethene	ND	4.0	ug/Kg	1	06/30/20	JLI	SW8260C
1,1-Dichloropropene	ND	4.0	ug/Kg	1	06/30/20	JLI	SW8260C
1,2,3-Trichlorobenzene	ND	4.0	ug/Kg	1	06/30/20	JLI	SW8260C
1,2,3-Trichloropropane	ND	4.0	ug/Kg	1	06/30/20	JLI	SW8260C
1,2,4-Trichlorobenzene	ND	4.0	ug/Kg	1	06/30/20	JLI	SW8260C
1,2,4-Trimethylbenzene	ND	4.0	ug/Kg	1	06/30/20	JLI	SW8260C
1,2-Dibromo-3-chloropropane	ND	4.0	ug/Kg	1	06/30/20	JLI	SW8260C
1,2-Dibromoethane	ND	4.0	ug/Kg	1	06/30/20	JLI	SW8260C
1,2-Dichlorobenzene	ND	4.0	ug/Kg	1	06/30/20	JLI	SW8260C
1,2-Dichloroethane	ND	4.0	ug/Kg	1	06/30/20	JLI	SW8260C
1,2-Dichloropropane	ND	4.0	ug/Kg	1	06/30/20	JLI	SW8260C
1,3,5-Trimethylbenzene	ND	4.0	ug/Kg	1	06/30/20	JLI	SW8260C
1,3-Dichlorobenzene	ND	4.0	ug/Kg	1	06/30/20	JLI	SW8260C
1,3-Dichloropropane	ND	4.0	ug/Kg	1	06/30/20	JLI	SW8260C
1,4-Dichlorobenzene	ND	4.0	ug/Kg	1	06/30/20	JLI	SW8260C
2,2-Dichloropropane	ND	4.0	ug/Kg	1	06/30/20	JLI	SW8260C
2-Chlorotoluene	ND	4.0	ug/Kg	1	06/30/20	JLI	SW8260C
2-Hexanone	ND	20	ug/Kg	1	06/30/20	JLI	SW8260C
2-Isopropyltoluene	ND	4.0	ug/Kg	1	06/30/20	JLI	SW8260C
4-Chlorotoluene	ND	4.0	ug/Kg	1	06/30/20	JLI	SW8260C
4-Methyl-2-pentanone	ND	20	ug/Kg	1	06/30/20	JLI	SW8260C

Ver 1

Project ID: 2002828-RIVERFRONT RECAPTURE
Client ID: GEI/B1/2-4`

Phoenix I.D.: CG22457

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	
Acetone	ND	200	ug/Kg	1	06/30/20	JLI	SW8260C
Acrylonitrile	ND	4.0	ug/Kg	1	06/30/20	JLI	SW8260C
Benzene	ND	4.0	ug/Kg	1	06/30/20	JLI	SW8260C
Bromobenzene	ND	4.0	ug/Kg	1	06/30/20	JLI	SW8260C
Bromochloromethane	ND	4.0	ug/Kg	1	06/30/20	JLI	SW8260C
Bromodichloromethane	ND	4.0	ug/Kg	1	06/30/20	JLI	SW8260C
Bromoform	ND	4.0	ug/Kg	1	06/30/20	JLI	SW8260C
Bromomethane	ND	4.0	ug/Kg	1	06/30/20	JLI	SW8260C
Carbon Disulfide	ND	4.0	ug/Kg	1	06/30/20	JLI	SW8260C
Carbon tetrachloride	ND	4.0	ug/Kg	1	06/30/20	JLI	SW8260C
Chlorobenzene	ND	4.0	ug/Kg	1	06/30/20	JLI	SW8260C
Chloroethane	ND	4.0	ug/Kg	1	06/30/20	JLI	SW8260C
Chloroform	ND	4.0	ug/Kg	1	06/30/20	JLI	SW8260C
Chloromethane	ND	4.0	ug/Kg	1	06/30/20	JLI	SW8260C
cis-1,2-Dichloroethene	ND	4.0	ug/Kg	1	06/30/20	JLI	SW8260C
cis-1,3-Dichloropropene	ND	4.0	ug/Kg	1	06/30/20	JLI	SW8260C
Dibromochloromethane	ND	2.4	ug/Kg	1	06/30/20	JLI	SW8260C
Dibromomethane	ND	4.0	ug/Kg	1	06/30/20	JLI	SW8260C
Dichlorodifluoromethane	ND	4.0	ug/Kg	1	06/30/20	JLI	SW8260C
Ethylbenzene	ND	4.0	ug/Kg	1	06/30/20	JLI	SW8260C
Hexachlorobutadiene	ND	4.0	ug/Kg	1	06/30/20	JLI	SW8260C
Isopropylbenzene	ND	4.0	ug/Kg	1	06/30/20	JLI	SW8260C
m&p-Xylene	ND	4.0	ug/Kg	1	06/30/20	JLI	SW8260C
Methyl Ethyl Ketone	ND	24	ug/Kg	1	06/30/20	JLI	SW8260C
Methyl t-butyl ether (MTBE)	ND	7.9	ug/Kg	1	06/30/20	JLI	SW8260C
Methylene chloride	ND	7.9	ug/Kg	1	06/30/20	JLI	SW8260C
Naphthalene	ND	4.0	ug/Kg	1	06/30/20	JLI	SW8260C
n-Butylbenzene	ND	4.0	ug/Kg	1	06/30/20	JLI	SW8260C
n-Propylbenzene	ND	4.0	ug/Kg	1	06/30/20	JLI	SW8260C
o-Xylene	ND	4.0	ug/Kg	1	06/30/20	JLI	SW8260C
p-Isopropyltoluene	ND	4.0	ug/Kg	1	06/30/20	JLI	SW8260C
sec-Butylbenzene	ND	4.0	ug/Kg	1	06/30/20	JLI	SW8260C
Styrene	ND	4.0	ug/Kg	1	06/30/20	JLI	SW8260C
tert-Butylbenzene	ND	4.0	ug/Kg	1	06/30/20	JLI	SW8260C
Tetrachloroethene	ND	4.0	ug/Kg	1	06/30/20	JLI	SW8260C
Tetrahydrofuran (THF)	ND	7.9	ug/Kg	1	06/30/20	JLI	SW8260C
Toluene	ND	4.0	ug/Kg	1	06/30/20	JLI	SW8260C
Total Xylenes	ND	4.0	ug/Kg	1	06/30/20	JLI	SW8260C
trans-1,2-Dichloroethene	ND	4.0	ug/Kg	1	06/30/20	JLI	SW8260C
trans-1,3-Dichloropropene	ND	4.0	ug/Kg	1	06/30/20	JLI	SW8260C
trans-1,4-dichloro-2-butene	ND	7.9	ug/Kg	1	06/30/20	JLI	SW8260C
Trichloroethene	ND	4.0	ug/Kg	1	06/30/20	JLI	SW8260C
Trichlorofluoromethane	ND	4.0	ug/Kg	1	06/30/20	JLI	SW8260C
Trichlorotrifluoroethane	ND	7.9	ug/Kg	1	06/30/20	JLI	SW8260C
Vinyl chloride	ND	4.0	ug/Kg	1	06/30/20	JLI	SW8260C
QA/QC Surrogates							
% 1,2-dichlorobenzene-d4	94		%	1	06/30/20	JLI	70 - 130 %
% Bromofluorobenzene	88		%	1	06/30/20	JLI	70 - 130 %
% Dibromofluoromethane	104		%	1	06/30/20	JLI	70 - 130 %

Ver 1

Project ID: 2002828-RIVERFRONT RECAPTURE
Client ID: GEI/B1/2-4`

Phoenix I.D.: CG22457

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	
% Toluene-d8	93		%	1	06/30/20	JLI	70 - 130 %
Field Extraction	Completed				06/26/20		SW5035A

RL/PQL=Reporting/Practical Quantitation Level ND=Not Detected BRL=Below Reporting Level
QA/QC Surrogates: Surrogates are compounds (preceeded with a %) added by the lab to determine analysis efficiency. Surrogate results(%) listed in the report are not "detected" compounds.

Comments:

Results are reported on an ``as received`` basis, and are not corrected for dry weight.

All soils, solids and sludges are reported on a dry weight basis unless otherwise noted in the sample comments.

If you are the client above and have any questions concerning this testing, please do not hesitate to contact Phoenix Client Services at ext.200.
The contents of this report cannot be discussed with anyone other than the client listed above without their written consent.

Phyllis Shiller, Laboratory Director
July 02, 2020
Reviewed and Released by: Rashmi Makol, Project Manager

Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102 Fax (860) 645-0823

Analysis Report

July 02, 2020

FOR: Attn: Dom Granda
GEI Consultants
455 Winding Brook Drive
Suite 201
Glastonbury, CT 06033

Sample Information		Custody Information		Date	Time
Matrix:	SOIL	Collected by:		06/26/20	8:00
Location Code:	GEI	Received by:	SW	06/26/20	14:23
Rush Request:	Standard	Analyzed by:	see "By" below		
P.O.#:					

Laboratory Data

SDG ID: GCG22457
Phoenix ID: CG22458

Project ID: 2002828-RIVERFRONT RECAPTURE
Client ID: GEI/B1/2-4`

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Silver	< 0.53	0.53	mg/Kg	1	06/29/20	TH	SW6010D
Arsenic	3.0	1.1	mg/Kg	1	06/29/20	TH	SW6010D
Barium	64.1	0.53	mg/Kg	1	06/29/20	TH	SW6010D
Cadmium	1.36	0.53	mg/Kg	1	06/29/20	TH	SW6010D
Chromium	24.4	0.53	mg/Kg	1	06/29/20	TH	SW6010D
Copper	25.9	1.1	mg/kg	1	06/29/20	TH	SW6010D
Mercury	0.48	0.05	mg/Kg	2	06/29/20	RS	SW7471B
Nickel	23.9	0.53	mg/Kg	1	06/29/20	TH	SW6010D
Lead	18.2	0.53	mg/Kg	1	06/29/20	TH	SW6010D
Selenium	< 2.1	2.1	mg/Kg	1	06/29/20	TH	SW6010D
Zinc	89.5	1.1	mg/Kg	1	06/29/20	TH	SW6010D
Percent Solid	57		%		06/26/20	HB	SW846-%Solid
Conductivity - Soil Matrix	21	5	umhos/cm	1	06/26/20	AP	SW9050A
Corrosivity	Negative		Pos/Neg	1	06/26/20	AP/MB	SW846-Corr
Flash Point	>200	200	Degree F	1	06/29/20	ARG	1010/CH7/ASTMD92
Ignitability	Passed	140	degree F	1	06/29/20	ARG	SW846-Ignit
pH at 25C - Soil	5.72	1.00	pH Units	1	06/26/20 21:51	AP/MB	SW846 9045
Reactivity Cyanide	< 9	9	mg/Kg	1	07/01/20	KT/GD	SW846 7.3.3.1/90
Reactivity Sulfide	< 20	20	mg/Kg	1	07/01/20	KT/GD	SW846 CH7
Reactivity	Negative		Pos/Neg	1	07/01/20	KT/GD	SW846-React
Mercury Digestion	Completed				06/27/20	KL/VT/VT	SW7471B
Extraction of CT ETPH	Completed				06/26/20	GG/AE	SW3546
Soil Extraction for SVOA	Completed				06/26/20	RR/AE	SW3546
Total Metals Digest	Completed				06/26/20	S/AG/BF	SW3050B
TPH by GC (Extractable Products)							
Ext. Petroleum H.C. (C9-C36)	ND	87	mg/Kg	1	06/28/20	JRB	CTETPH 8015D
Identification	ND		mg/Kg	1	06/28/20	JRB	CTETPH 8015D

Ver 1

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	
QA/QC Surrogates							
% n-Pentacosane	83		%	1	06/28/20	JRB	50 - 150 %
Semivolatiles							
1,2,4,5-Tetrachlorobenzene	ND	400	ug/Kg	1	06/27/20	AW	SW8270D
1,2,4-Trichlorobenzene	ND	400	ug/Kg	1	06/27/20	AW	SW8270D
1,2-Dichlorobenzene	ND	400	ug/Kg	1	06/27/20	AW	SW8270D
1,2-Diphenylhydrazine	ND	570	ug/Kg	1	06/27/20	AW	SW8270D
1,3-Dichlorobenzene	ND	400	ug/Kg	1	06/27/20	AW	SW8270D
1,4-Dichlorobenzene	ND	400	ug/Kg	1	06/27/20	AW	SW8270D
2,4,5-Trichlorophenol	ND	400	ug/Kg	1	06/27/20	AW	SW8270D
2,4,6-Trichlorophenol	ND	400	ug/Kg	1	06/27/20	AW	SW8270D
2,4-Dichlorophenol	ND	400	ug/Kg	1	06/27/20	AW	SW8270D
2,4-Dimethylphenol	ND	400	ug/Kg	1	06/27/20	AW	SW8270D
2,4-Dinitrophenol	ND	570	ug/Kg	1	06/27/20	AW	SW8270D
2,4-Dinitrotoluene	ND	400	ug/Kg	1	06/27/20	AW	SW8270D
2,6-Dinitrotoluene	ND	400	ug/Kg	1	06/27/20	AW	SW8270D
2-Chloronaphthalene	ND	400	ug/Kg	1	06/27/20	AW	SW8270D
2-Chlorophenol	ND	400	ug/Kg	1	06/27/20	AW	SW8270D
2-Methylnaphthalene	ND	400	ug/Kg	1	06/27/20	AW	SW8270D
2-Methylphenol (o-cresol)	ND	400	ug/Kg	1	06/27/20	AW	SW8270D
2-Nitroaniline	ND	570	ug/Kg	1	06/27/20	AW	SW8270D
2-Nitrophenol	ND	400	ug/Kg	1	06/27/20	AW	SW8270D
3&4-Methylphenol (m&p-cresol)	ND	570	ug/Kg	1	06/27/20	AW	SW8270D
3,3'-Dichlorobenzidine	ND	400	ug/Kg	1	06/27/20	AW	SW8270D
3-Nitroaniline	ND	570	ug/Kg	1	06/27/20	AW	SW8270D
4,6-Dinitro-2-methylphenol	ND	570	ug/Kg	1	06/27/20	AW	SW8270D
4-Bromophenyl phenyl ether	ND	570	ug/Kg	1	06/27/20	AW	SW8270D
4-Chloro-3-methylphenol	ND	400	ug/Kg	1	06/27/20	AW	SW8270D
4-Chloroaniline	ND	400	ug/Kg	1	06/27/20	AW	SW8270D
4-Chlorophenyl phenyl ether	ND	400	ug/Kg	1	06/27/20	AW	SW8270D
4-Nitroaniline	ND	910	ug/Kg	1	06/27/20	AW	SW8270D
4-Nitrophenol	ND	400	ug/Kg	1	06/27/20	AW	SW8270D
Acenaphthene	ND	400	ug/Kg	1	06/27/20	AW	SW8270D
Acenaphthylene	ND	400	ug/Kg	1	06/27/20	AW	SW8270D
Acetophenone	ND	400	ug/Kg	1	06/27/20	AW	SW8270D
Aniline	ND	570	ug/Kg	1	06/27/20	AW	SW8270D
Anthracene	ND	400	ug/Kg	1	06/27/20	AW	SW8270D
Benz(a)anthracene	ND	400	ug/Kg	1	06/27/20	AW	SW8270D
Benzidine	ND	400	ug/Kg	1	06/27/20	AW	SW8270D
Benzo(a)pyrene	ND	400	ug/Kg	1	06/27/20	AW	SW8270D
Benzo(b)fluoranthene	ND	400	ug/Kg	1	06/27/20	AW	SW8270D
Benzo(ghi)perylene	ND	400	ug/Kg	1	06/27/20	AW	SW8270D
Benzo(k)fluoranthene	ND	400	ug/Kg	1	06/27/20	AW	SW8270D
Benzoic acid	ND	1100	ug/Kg	1	06/27/20	AW	SW8270D
Benzyl butyl phthalate	ND	400	ug/Kg	1	06/27/20	AW	SW8270D
Bis(2-chloroethoxy)methane	ND	400	ug/Kg	1	06/27/20	AW	SW8270D
Bis(2-chloroethyl)ether	ND	570	ug/Kg	1	06/27/20	AW	SW8270D
Bis(2-chloroisopropyl)ether	ND	400	ug/Kg	1	06/27/20	AW	SW8270D
Bis(2-ethylhexyl)phthalate	ND	400	ug/Kg	1	06/27/20	AW	SW8270D

Project ID: 2002828-RIVERFRONT RECAPTURE
Client ID: GEI/B1/2-4`

Phoenix I.D.: CG22458

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	
Carbazole	ND	570	ug/Kg	1	06/27/20	AW	SW8270D
Chrysene	ND	400	ug/Kg	1	06/27/20	AW	SW8270D
Dibenz(a,h)anthracene	ND	400	ug/Kg	1	06/27/20	AW	SW8270D
Dibenzofuran	ND	400	ug/Kg	1	06/27/20	AW	SW8270D
Diethyl phthalate	ND	400	ug/Kg	1	06/27/20	AW	SW8270D
Dimethylphthalate	ND	400	ug/Kg	1	06/27/20	AW	SW8270D
Di-n-butylphthalate	ND	570	ug/Kg	1	06/27/20	AW	SW8270D
Di-n-octylphthalate	ND	400	ug/Kg	1	06/27/20	AW	SW8270D
Fluoranthene	ND	400	ug/Kg	1	06/27/20	AW	SW8270D
Fluorene	ND	400	ug/Kg	1	06/27/20	AW	SW8270D
Hexachlorobenzene	ND	400	ug/Kg	1	06/27/20	AW	SW8270D
Hexachlorobutadiene	ND	400	ug/Kg	1	06/27/20	AW	SW8270D
Hexachlorocyclopentadiene	ND	400	ug/Kg	1	06/27/20	AW	SW8270D
Hexachloroethane	ND	400	ug/Kg	1	06/27/20	AW	SW8270D
Indeno(1,2,3-cd)pyrene	ND	400	ug/Kg	1	06/27/20	AW	SW8270D
Isophorone	ND	400	ug/Kg	1	06/27/20	AW	SW8270D
Naphthalene	ND	400	ug/Kg	1	06/27/20	AW	SW8270D
Nitrobenzene	ND	400	ug/Kg	1	06/27/20	AW	SW8270D
N-Nitrosodimethylamine	ND	570	ug/Kg	1	06/27/20	AW	SW8270D
N-Nitrosodi-n-propylamine	ND	400	ug/Kg	1	06/27/20	AW	SW8270D
N-Nitrosodiphenylamine	ND	570	ug/Kg	1	06/27/20	AW	SW8270D
Pentachloronitrobenzene	ND	570	ug/Kg	1	06/27/20	AW	SW8270D
Pentachlorophenol	ND	570	ug/Kg	1	06/27/20	AW	SW8270D
Phenanthrene	ND	400	ug/Kg	1	06/27/20	AW	SW8270D
Phenol	ND	400	ug/Kg	1	06/27/20	AW	SW8270D
Pyrene	ND	400	ug/Kg	1	06/27/20	AW	SW8270D
Pyridine	ND	570	ug/Kg	1	06/27/20	AW	SW8270D
QA/QC Surrogates							
% 2,4,6-Tribromophenol	68		%	1	06/27/20	AW	30 - 130 %
% 2-Fluorobiphenyl	59		%	1	06/27/20	AW	30 - 130 %
% 2-Fluorophenol	64		%	1	06/27/20	AW	30 - 130 %
% Nitrobenzene-d5	61		%	1	06/27/20	AW	30 - 130 %
% Phenol-d5	69		%	1	06/27/20	AW	30 - 130 %
% Terphenyl-d14	78		%	1	06/27/20	AW	30 - 130 %

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By

RL/PQL=Reporting/Practical Quantitation Level ND=Not Detected BRL=Below Reporting Level
QA/QC Surrogates: Surrogates are compounds (preceeded with a %) added by the lab to determine analysis efficiency. Surrogate results(%) listed in the report are not "detected" compounds.

Comments:

Per 1.4.6 of EPA method 8270D, 1,2-Diphenylhydrazine is unstable and readily converts to Azobenzene. Azobenzene is used for the calibration of 1,2-Diphenylhydrazine.

Corrosivity is based solely on the pH analysis performed above.

Ignitability is based solely on the results of the closed cup flashpoint analysis performed above. Passed is >140 degree F.

The regulatory hold time for pH is immediately. This pH was performed in the laboratory and may be considered outside of hold-time.

The reactivity, reported above, is based only on the EPA Interim Guidance for Reactive Cyanide. This method is no longer listed in the current version of SW-846.

The reactivity, reported above, is based only on the EPA Interim Guidance for Reactive Sulfide. This method is no longer listed in the current version of SW-846.

All soils, solids and sludges are reported on a dry weight basis unless otherwise noted in the sample comments.

If you are the client above and have any questions concerning this testing, please do not hesitate to contact Phoenix Client Services at ext.200.
The contents of this report cannot be discussed with anyone other than the client listed above without their written consent.

Phyllis Shiller, Laboratory Director
July 02, 2020
Reviewed and Released by: Rashmi Makol, Project Manager

Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102 Fax (860) 645-0823

Analysis Report

July 02, 2020

FOR: Attn: Dom Granda
GEI Consultants
455 Winding Brook Drive
Suite 201
Glastonbury, CT 06033

Sample Information		Custody Information		Date	Time
Matrix:	SOIL	Collected by:		06/26/20	
Location Code:	GEI	Received by:	SW	06/26/20	14:23
Rush Request:	Standard	Analyzed by:	see "By" below		
P.O.#:					

Laboratory Data

SDG ID: GCG22457
Phoenix ID: CG22459

Project ID: 2002828-RIVERFRONT RECAPTURE
Client ID: TB LL

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Volatiles							
1,1,1,2-Tetrachloroethane	ND	5.0	ug/Kg	1	06/27/20	JLI	SW8260C
1,1,1-Trichloroethane	ND	5.0	ug/Kg	1	06/27/20	JLI	SW8260C
1,1,2,2-Tetrachloroethane	ND	3.0	ug/Kg	1	06/27/20	JLI	SW8260C
1,1,2-Trichloroethane	ND	5.0	ug/Kg	1	06/27/20	JLI	SW8260C
1,1-Dichloroethane	ND	5.0	ug/Kg	1	06/27/20	JLI	SW8260C
1,1-Dichloroethene	ND	5.0	ug/Kg	1	06/27/20	JLI	SW8260C
1,1-Dichloropropene	ND	5.0	ug/Kg	1	06/27/20	JLI	SW8260C
1,2,3-Trichlorobenzene	ND	5.0	ug/Kg	1	06/27/20	JLI	SW8260C
1,2,3-Trichloropropane	ND	5.0	ug/Kg	1	06/27/20	JLI	SW8260C
1,2,4-Trichlorobenzene	ND	5.0	ug/Kg	1	06/27/20	JLI	SW8260C
1,2,4-Trimethylbenzene	ND	5.0	ug/Kg	1	06/27/20	JLI	SW8260C
1,2-Dibromo-3-chloropropane	ND	5.0	ug/Kg	1	06/27/20	JLI	SW8260C
1,2-Dibromoethane	ND	5.0	ug/Kg	1	06/27/20	JLI	SW8260C
1,2-Dichlorobenzene	ND	5.0	ug/Kg	1	06/27/20	JLI	SW8260C
1,2-Dichloroethane	ND	5.0	ug/Kg	1	06/27/20	JLI	SW8260C
1,2-Dichloropropane	ND	5.0	ug/Kg	1	06/27/20	JLI	SW8260C
1,3,5-Trimethylbenzene	ND	5.0	ug/Kg	1	06/27/20	JLI	SW8260C
1,3-Dichlorobenzene	ND	5.0	ug/Kg	1	06/27/20	JLI	SW8260C
1,3-Dichloropropane	ND	5.0	ug/Kg	1	06/27/20	JLI	SW8260C
1,4-Dichlorobenzene	ND	5.0	ug/Kg	1	06/27/20	JLI	SW8260C
2,2-Dichloropropane	ND	5.0	ug/Kg	1	06/27/20	JLI	SW8260C
2-Chlorotoluene	ND	5.0	ug/Kg	1	06/27/20	JLI	SW8260C
2-Hexanone	ND	25	ug/Kg	1	06/27/20	JLI	SW8260C
2-Isopropyltoluene	ND	5.0	ug/Kg	1	06/27/20	JLI	SW8260C
4-Chlorotoluene	ND	5.0	ug/Kg	1	06/27/20	JLI	SW8260C
4-Methyl-2-pentanone	ND	25	ug/Kg	1	06/27/20	JLI	SW8260C

Ver 1

Project ID: 2002828-RIVERFRONT RECAPTURE
Client ID: TB LL

Phoenix I.D.: CG22459

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	
Acetone	ND	250	ug/Kg	1	06/27/20	JLI	SW8260C
Acrylonitrile	ND	5.0	ug/Kg	1	06/27/20	JLI	SW8260C
Benzene	ND	5.0	ug/Kg	1	06/27/20	JLI	SW8260C
Bromobenzene	ND	5.0	ug/Kg	1	06/27/20	JLI	SW8260C
Bromochloromethane	ND	5.0	ug/Kg	1	06/27/20	JLI	SW8260C
Bromodichloromethane	ND	5.0	ug/Kg	1	06/27/20	JLI	SW8260C
Bromoform	ND	5.0	ug/Kg	1	06/27/20	JLI	SW8260C
Bromomethane	ND	5.0	ug/Kg	1	06/27/20	JLI	SW8260C
Carbon Disulfide	ND	5.0	ug/Kg	1	06/27/20	JLI	SW8260C
Carbon tetrachloride	ND	5.0	ug/Kg	1	06/27/20	JLI	SW8260C
Chlorobenzene	ND	5.0	ug/Kg	1	06/27/20	JLI	SW8260C
Chloroethane	ND	5.0	ug/Kg	1	06/27/20	JLI	SW8260C
Chloroform	ND	5.0	ug/Kg	1	06/27/20	JLI	SW8260C
Chloromethane	ND	5.0	ug/Kg	1	06/27/20	JLI	SW8260C
cis-1,2-Dichloroethene	ND	5.0	ug/Kg	1	06/27/20	JLI	SW8260C
cis-1,3-Dichloropropene	ND	5.0	ug/Kg	1	06/27/20	JLI	SW8260C
Dibromochloromethane	ND	3.0	ug/Kg	1	06/27/20	JLI	SW8260C
Dibromomethane	ND	5.0	ug/Kg	1	06/27/20	JLI	SW8260C
Dichlorodifluoromethane	ND	5.0	ug/Kg	1	06/27/20	JLI	SW8260C
Ethylbenzene	ND	5.0	ug/Kg	1	06/27/20	JLI	SW8260C
Hexachlorobutadiene	ND	5.0	ug/Kg	1	06/27/20	JLI	SW8260C
Isopropylbenzene	ND	5.0	ug/Kg	1	06/27/20	JLI	SW8260C
m&p-Xylene	ND	5.0	ug/Kg	1	06/27/20	JLI	SW8260C
Methyl Ethyl Ketone	ND	30	ug/Kg	1	06/27/20	JLI	SW8260C
Methyl t-butyl ether (MTBE)	ND	10	ug/Kg	1	06/27/20	JLI	SW8260C
Methylene chloride	ND	10	ug/Kg	1	06/27/20	JLI	SW8260C
Naphthalene	ND	5.0	ug/Kg	1	06/27/20	JLI	SW8260C
n-Butylbenzene	ND	5.0	ug/Kg	1	06/27/20	JLI	SW8260C
n-Propylbenzene	ND	5.0	ug/Kg	1	06/27/20	JLI	SW8260C
o-Xylene	ND	5.0	ug/Kg	1	06/27/20	JLI	SW8260C
p-Isopropyltoluene	ND	5.0	ug/Kg	1	06/27/20	JLI	SW8260C
sec-Butylbenzene	ND	5.0	ug/Kg	1	06/27/20	JLI	SW8260C
Styrene	ND	5.0	ug/Kg	1	06/27/20	JLI	SW8260C
tert-Butylbenzene	ND	5.0	ug/Kg	1	06/27/20	JLI	SW8260C
Tetrachloroethene	ND	5.0	ug/Kg	1	06/27/20	JLI	SW8260C
Tetrahydrofuran (THF)	ND	10	ug/Kg	1	06/27/20	JLI	SW8260C
Toluene	ND	5.0	ug/Kg	1	06/27/20	JLI	SW8260C
Total Xylenes	ND	5.0	ug/Kg	1	06/27/20	JLI	SW8260C
trans-1,2-Dichloroethene	ND	5.0	ug/Kg	1	06/27/20	JLI	SW8260C
trans-1,3-Dichloropropene	ND	5.0	ug/Kg	1	06/27/20	JLI	SW8260C
trans-1,4-dichloro-2-butene	ND	10	ug/Kg	1	06/27/20	JLI	SW8260C
Trichloroethene	ND	5.0	ug/Kg	1	06/27/20	JLI	SW8260C
Trichlorofluoromethane	ND	5.0	ug/Kg	1	06/27/20	JLI	SW8260C
Trichlorotrifluoroethane	ND	10	ug/Kg	1	06/27/20	JLI	SW8260C
Vinyl chloride	ND	5.0	ug/Kg	1	06/27/20	JLI	SW8260C
QA/QC Surrogates							
% 1,2-dichlorobenzene-d4	97		%	1	06/27/20	JLI	70 - 130 %
% Bromofluorobenzene	98		%	1	06/27/20	JLI	70 - 130 %
% Dibromofluoromethane	100		%	1	06/27/20	JLI	70 - 130 %

Ver 1

Project ID: 2002828-RIVERFRONT RECAPTURE
Client ID: TB LL

Phoenix I.D.: CG22459

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	
% Toluene-d8	93		%	1	06/27/20	JLI	70 - 130 %
Field Extraction	Completed				06/26/20		SW5035A

RL/PQL=Reporting/Practical Quantitation Level ND=Not Detected BRL=Below Reporting Level
QA/QC Surrogates: Surrogates are compounds (preceeded with a %) added by the lab to determine analysis efficiency. Surrogate results(%) listed in the report are not "detected" compounds.

Comments:

TRIP BLANK INCLUDED.

Results are reported on an ``as received`` basis, and are not corrected for dry weight.

All soils, solids and sludges are reported on a dry weight basis unless otherwise noted in the sample comments.

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Phyllis Shiller, Laboratory Director
July 02, 2020
Reviewed and Released by: Rashmi Makol, Project Manager

Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102 Fax (860) 645-0823

Analysis Report

July 02, 2020

FOR: Attn: Dom Granda
GEI Consultants
455 Winding Brook Drive
Suite 201
Glastonbury, CT 06033

Sample Information		Custody Information		Date	Time
Matrix:	SOIL	Collected by:		06/26/20	
Location Code:	GEI	Received by:	SW	06/26/20	14:23
Rush Request:	Standard	Analyzed by:	see "By" below		
P.O.#:					

Laboratory Data

SDG ID: GCG22457
Phoenix ID: CG22460

Project ID: 2002828-RIVERFRONT RECAPTURE
Client ID: TB HL

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Volatiles							
1,1,1,2-Tetrachloroethane	ND	250	ug/Kg	50	06/27/20	JLI	SW8260C
1,1,1-Trichloroethane	ND	250	ug/Kg	50	06/27/20	JLI	SW8260C
1,1,2,2-Tetrachloroethane	ND	250	ug/Kg	50	06/27/20	JLI	SW8260C
1,1,2-Trichloroethane	ND	250	ug/Kg	50	06/27/20	JLI	SW8260C
1,1-Dichloroethane	ND	250	ug/Kg	50	06/27/20	JLI	SW8260C
1,1-Dichloroethene	ND	250	ug/Kg	50	06/27/20	JLI	SW8260C
1,1-Dichloropropene	ND	250	ug/Kg	50	06/27/20	JLI	SW8260C
1,2,3-Trichlorobenzene	ND	250	ug/Kg	50	06/27/20	JLI	SW8260C
1,2,3-Trichloropropane	ND	250	ug/Kg	50	06/27/20	JLI	SW8260C
1,2,4-Trichlorobenzene	ND	250	ug/Kg	50	06/27/20	JLI	SW8260C
1,2,4-Trimethylbenzene	ND	250	ug/Kg	50	06/27/20	JLI	SW8260C
1,2-Dibromo-3-chloropropane	ND	250	ug/Kg	50	06/27/20	JLI	SW8260C
1,2-Dibromoethane	ND	250	ug/Kg	50	06/27/20	JLI	SW8260C
1,2-Dichlorobenzene	ND	250	ug/Kg	50	06/27/20	JLI	SW8260C
1,2-Dichloroethane	ND	250	ug/Kg	50	06/27/20	JLI	SW8260C
1,2-Dichloropropane	ND	250	ug/Kg	50	06/27/20	JLI	SW8260C
1,3,5-Trimethylbenzene	ND	250	ug/Kg	50	06/27/20	JLI	SW8260C
1,3-Dichlorobenzene	ND	250	ug/Kg	50	06/27/20	JLI	SW8260C
1,3-Dichloropropane	ND	250	ug/Kg	50	06/27/20	JLI	SW8260C
1,4-Dichlorobenzene	ND	250	ug/Kg	50	06/27/20	JLI	SW8260C
2,2-Dichloropropane	ND	250	ug/Kg	50	06/27/20	JLI	SW8260C
2-Chlorotoluene	ND	250	ug/Kg	50	06/27/20	JLI	SW8260C
2-Hexanone	ND	1300	ug/Kg	50	06/27/20	JLI	SW8260C
2-Isopropyltoluene	ND	250	ug/Kg	50	06/27/20	JLI	SW8260C
4-Chlorotoluene	ND	250	ug/Kg	50	06/27/20	JLI	SW8260C
4-Methyl-2-pentanone	ND	1300	ug/Kg	50	06/27/20	JLI	SW8260C

Ver 1

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	
Acetone	ND	5000	ug/Kg	50	06/27/20	JLI	SW8260C
Acrylonitrile	ND	500	ug/Kg	50	06/27/20	JLI	SW8260C
Benzene	ND	250	ug/Kg	50	06/27/20	JLI	SW8260C
Bromobenzene	ND	250	ug/Kg	50	06/27/20	JLI	SW8260C
Bromochloromethane	ND	250	ug/Kg	50	06/27/20	JLI	SW8260C
Bromodichloromethane	ND	250	ug/Kg	50	06/27/20	JLI	SW8260C
Bromoform	ND	250	ug/Kg	50	06/27/20	JLI	SW8260C
Bromomethane	ND	250	ug/Kg	50	06/27/20	JLI	SW8260C
Carbon Disulfide	ND	250	ug/Kg	50	06/27/20	JLI	SW8260C
Carbon tetrachloride	ND	250	ug/Kg	50	06/27/20	JLI	SW8260C
Chlorobenzene	ND	250	ug/Kg	50	06/27/20	JLI	SW8260C
Chloroethane	ND	250	ug/Kg	50	06/27/20	JLI	SW8260C
Chloroform	ND	250	ug/Kg	50	06/27/20	JLI	SW8260C
Chloromethane	ND	250	ug/Kg	50	06/27/20	JLI	SW8260C
cis-1,2-Dichloroethene	ND	250	ug/Kg	50	06/27/20	JLI	SW8260C
cis-1,3-Dichloropropene	ND	250	ug/Kg	50	06/27/20	JLI	SW8260C
Dibromochloromethane	ND	250	ug/Kg	50	06/27/20	JLI	SW8260C
Dibromomethane	ND	250	ug/Kg	50	06/27/20	JLI	SW8260C
Dichlorodifluoromethane	ND	250	ug/Kg	50	06/27/20	JLI	SW8260C
Ethylbenzene	ND	250	ug/Kg	50	06/27/20	JLI	SW8260C
Hexachlorobutadiene	ND	250	ug/Kg	50	06/27/20	JLI	SW8260C
Isopropylbenzene	ND	250	ug/Kg	50	06/27/20	JLI	SW8260C
m&p-Xylene	ND	250	ug/Kg	50	06/27/20	JLI	SW8260C
Methyl Ethyl Ketone	ND	3000	ug/Kg	50	06/27/20	JLI	SW8260C
Methyl t-butyl ether (MTBE)	ND	250	ug/Kg	50	06/27/20	JLI	SW8260C
Methylene chloride	ND	500	ug/Kg	50	06/27/20	JLI	SW8260C
Naphthalene	ND	250	ug/Kg	50	06/27/20	JLI	SW8260C
n-Butylbenzene	ND	250	ug/Kg	50	06/27/20	JLI	SW8260C
n-Propylbenzene	ND	250	ug/Kg	50	06/27/20	JLI	SW8260C
o-Xylene	ND	250	ug/Kg	50	06/27/20	JLI	SW8260C
p-Isopropyltoluene	ND	250	ug/Kg	50	06/27/20	JLI	SW8260C
sec-Butylbenzene	ND	250	ug/Kg	50	06/27/20	JLI	SW8260C
Styrene	ND	250	ug/Kg	50	06/27/20	JLI	SW8260C
tert-Butylbenzene	ND	250	ug/Kg	50	06/27/20	JLI	SW8260C
Tetrachloroethene	ND	250	ug/Kg	50	06/27/20	JLI	SW8260C
Tetrahydrofuran (THF)	ND	500	ug/Kg	50	06/27/20	JLI	SW8260C
Toluene	ND	250	ug/Kg	50	06/27/20	JLI	SW8260C
Total Xylenes	ND	250	ug/Kg	50	06/27/20	JLI	SW8260C
trans-1,2-Dichloroethene	ND	250	ug/Kg	50	06/27/20	JLI	SW8260C
trans-1,3-Dichloropropene	ND	250	ug/Kg	50	06/27/20	JLI	SW8260C
trans-1,4-dichloro-2-butene	ND	500	ug/Kg	50	06/27/20	JLI	SW8260C
Trichloroethene	ND	250	ug/Kg	50	06/27/20	JLI	SW8260C
Trichlorofluoromethane	ND	250	ug/Kg	50	06/27/20	JLI	SW8260C
Trichlorotrifluoroethane	ND	250	ug/Kg	50	06/27/20	JLI	SW8260C
Vinyl chloride	ND	250	ug/Kg	50	06/27/20	JLI	SW8260C
QA/QC Surrogates							
% 1,2-dichlorobenzene-d4 (50x)	98		%	50	06/27/20	JLI	70 - 130 %
% Bromofluorobenzene (50x)	100		%	50	06/27/20	JLI	70 - 130 %
% Dibromofluoromethane (50x)	96		%	50	06/27/20	JLI	70 - 130 %

Ver 1

Project ID: 2002828-RIVERFRONT RECAPTURE
Client ID: TB HL

Phoenix I.D.: CG22460

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	
% Toluene-d8 (50x)	95		%	50	06/27/20	JLI	70 - 130 %
Field Extraction	Completed				06/26/20		SW5035A

RL/PQL=Reporting/Practical Quantitation Level ND=Not Detected BRL=Below Reporting Level
QA/QC Surrogates: Surrogates are compounds (preceeded with a %) added by the lab to determine analysis efficiency. Surrogate results(%) listed in the report are not "detected" compounds.

Comments:

TRIP BLANK INCLUDED.

Results are reported on an ``as received`` basis, and are not corrected for dry weight.

All soils, solids and sludges are reported on a dry weight basis unless otherwise noted in the sample comments.

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Phyllis Shiller, Laboratory Director
July 02, 2020
Reviewed and Released by: Rashmi Makol, Project Manager

Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102 Fax (860) 645-0823

QA/QC Report

July 02, 2020

QA/QC Data

SDG I.D.: GCG22457

Parameter	Blank	Blk RL	Sample Result	Dup Result	Dup RPD	LCS %	LCSD %	LCS RPD	MS %	MSD %	MS RPD	% Rec Limits	% RPD Limits
QA/QC Batch 535381 (mg/kg), QC Sample No: CG22129 2X (CG22458)													
Mercury - Soil	BRL	0.02	0.04	0.05	NC	101	105	3.9	97.8	91.9	6.2	70 - 130	30
Comment:													
Additional Mercury criteria: LCS acceptance range for waters is 80-120% and for soils is 70-130%. MS acceptance range is 75-125%.													
QA/QC Batch 535301 (mg/kg), QC Sample No: CG22574 (CG22458)													
ICP Metals - Soil													
Arsenic	BRL	0.67	1.25	1.32	NC	102	93.5	8.7	102			75 - 125	35
Barium	BRL	0.33	50.2	52.4	4.30	112	104	7.4	111			75 - 125	35
Cadmium	BRL	0.33	0.87	0.98	NC	107	107	0.0	105			75 - 125	35
Chromium	BRL	0.33	15.2	15.9	4.50	107	105	1.9	103			75 - 125	35
Copper	BRL	0.67	14.7	16.4	10.9	102	118	14.5	102			75 - 125	35
Lead	BRL	0.33	5.5	5.61	2.00	109	96.7	12.0	102			75 - 125	35
Nickel	BRL	0.33	15.7	18.6	16.9	116	112	3.5	101			75 - 125	35
Selenium	BRL	1.3	<1.4	<1.5	NC	86.8	81.7	6.1	101			75 - 125	35
Silver	BRL	0.33	<0.35	<0.38	NC	113	101	11.2	103			75 - 125	35
Zinc	BRL	0.67	30.7	34.1	10.5	112	106	5.5	107			75 - 125	35
Comment:													
Additional Criteria: LCS acceptance range is 80-120% MS acceptance range 75-125%.													

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QA/QC Report

July 02, 2020

QA/QC Data

SDG I.D.: GCG22457

Parameter	Blank	Blk RL	Sample Result	Dup Result	Dup RPD	LCS %	LCSD %	LCS RPD	MS %	MSD %	MS RPD	% Rec Limits	% RPD Limits
QA/QC Batch 535789 (mg/Kg), QC Sample No: CG21501 4.72X (CG22458)													
Reactivity Cyanide	BRL	5	<5	<5.3	NC	101						85 - 115	30
Reactivity Sulfide	BRL	20	<20	<20	NC	90.8						80 - 120	30
QA/QC Batch 535491 (Degree F), QC Sample No: CG20481 (CG22458)													
Flash Point			**	**	NC	101						75 - 125	30
Comment:													
Additional criteria matrix spike acceptance range is 75-125%.													
QA/QC Batch 535147 (umhos/cm), QC Sample No: CG21466 (CG22458)													
Conductivity - Soil Matrix	BRL	5	33	32	3.10	98.0						75 - 125	30
Comment:													
Additional criteria matrix spike acceptance range is 75-125%.													
QA/QC Batch 535354 (PH), QC Sample No: CG22122 (CG22458)													
pH at 25C - Soil			5.63	5.52	2.00	100						85 - 115	20

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QA/QC Report

July 02, 2020

QA/QC Data

SDG I.D.: GCG22457

Parameter	Blank	Blk RL	LCS %	LCSD %	LCS RPD	MS %	MSD %	MS RPD	% Rec Limits	% RPD Limits
QA/QC Batch 535254 (mg/Kg), QC Sample No: CG22472 (CG22458)										
TPH by GC (Extractable Products) - Soil										
Ext. Petroleum H.C. (C9-C36)	ND	4.8	74	80	7.8	80	96	18.2	60 - 120	30
% n-Pentacosane	60	%	68	73	7.1	61	70	13.7	50 - 150	30
Comment:										
Additional surrogate criteria: LCS acceptance range is 60-120% MS acceptance range 50-150%. The ETPH/DRO LCS has been normalized based on the alkane calibration.										
QA/QC Batch 535261 (ug/kg), QC Sample No: CG21498 (CG22458)										
Semivolatiles - Soil										
1,2,4,5-Tetrachlorobenzene	ND	230	58	67	14.4	65	62	4.7	40 - 140	30
1,2,4-Trichlorobenzene	ND	230	56	60	6.9	61	62	1.6	40 - 140	30
1,2-Dichlorobenzene	ND	180	47	52	10.1	48	51	6.1	40 - 140	30
1,2-Diphenylhydrazine	ND	230	64	70	9.0	72	68	5.7	40 - 140	30
1,3-Dichlorobenzene	ND	230	46	48	4.3	47	50	6.2	40 - 140	30
1,4-Dichlorobenzene	ND	230	46	50	8.3	47	50	6.2	40 - 140	30
2,4,5-Trichlorophenol	ND	230	76	81	6.4	84	78	7.4	40 - 140	30
2,4,6-Trichlorophenol	ND	130	75	80	6.5	85	79	7.3	30 - 130	30
2,4-Dichlorophenol	ND	130	69	77	11.0	76	71	6.8	30 - 130	30
2,4-Dimethylphenol	ND	230	68	76	11.1	81	78	3.8	30 - 130	30
2,4-Dinitrophenol	ND	230	76	91	18.0	90	83	8.1	30 - 130	30
2,4-Dinitrotoluene	ND	130	76	85	11.2	85	77	9.9	30 - 130	30
2,6-Dinitrotoluene	ND	130	72	78	8.0	79	74	6.5	40 - 140	30
2-Chloronaphthalene	ND	230	65	69	6.0	73	69	5.6	40 - 140	30
2-Chlorophenol	ND	230	58	66	12.9	63	62	1.6	30 - 130	30
2-Methylnaphthalene	ND	230	60	68	12.5	67	64	4.6	40 - 140	30
2-Methylphenol (o-cresol)	ND	230	63	75	17.4	73	65	11.6	40 - 140	30
2-Nitroaniline	ND	330	102	111	8.5	110	102	7.5	40 - 140	30
2-Nitrophenol	ND	230	61	67	9.4	69	66	4.4	40 - 140	30
3&4-Methylphenol (m&p-cresol)	ND	230	68	81	17.4	77	69	11.0	30 - 130	30
3,3'-Dichlorobenzidine	ND	130	56	59	5.2	84	80	4.9	40 - 140	30
3-Nitroaniline	ND	330	74	80	7.8	78	76	2.6	40 - 140	30
4,6-Dinitro-2-methylphenol	ND	230	82	95	14.7	94	86	8.9	30 - 130	30
4-Bromophenyl phenyl ether	ND	230	69	76	9.7	76	71	6.8	40 - 140	30
4-Chloro-3-methylphenol	ND	230	71	85	17.9	81	75	7.7	30 - 130	30
4-Chloroaniline	ND	230	41	46	11.5	59	57	3.4	40 - 140	30
4-Chlorophenyl phenyl ether	ND	230	67	75	11.3	76	71	6.8	40 - 140	30
4-Nitroaniline	ND	230	72	77	6.7	81	75	7.7	40 - 140	30
4-Nitrophenol	ND	230	79	86	8.5	90	82	9.3	30 - 130	30
Acenaphthene	ND	230	67	71	5.8	76	70	8.2	30 - 130	30
Acenaphthylene	ND	130	68	72	5.7	75	70	6.9	40 - 140	30
Acetophenone	ND	230	54	64	16.9	60	57	5.1	40 - 140	30
Aniline	ND	330	45	57	23.5	48	50	4.1	40 - 140	30
Anthracene	ND	230	66	73	10.1	73	67	8.6	40 - 140	30

QA/QC Data

SDG I.D.: GCG22457

Parameter	Blank	Blk RL	LCS %	LCSD %	LCS RPD	MS %	MSD %	MS RPD	% Rec Limits	% RPD Limits	
Benz(a)anthracene	ND	230	70	78	10.8	79	71	10.7	40 - 140	30	
Benzidine	ND	330	48	53	9.9	11	15	30.8	40 - 140	30	m,r
Benzo(a)pyrene	ND	130	71	77	8.1	77	70	9.5	40 - 140	30	
Benzo(b)fluoranthene	ND	160	81	92	12.7	90	85	5.7	40 - 140	30	
Benzo(ghi)perylene	ND	230	70	72	2.8	77	70	9.5	40 - 140	30	
Benzo(k)fluoranthene	ND	230	52	57	9.2	59	51	14.5	40 - 140	30	
Benzoic Acid	ND	670	84	81	3.6	94	86	8.9	30 - 130	30	
Benzyl butyl phthalate	ND	230	74	84	12.7	82	76	7.6	40 - 140	30	
Bis(2-chloroethoxy)methane	ND	230	60	67	11.0	66	65	1.5	40 - 140	30	
Bis(2-chloroethyl)ether	ND	130	47	53	12.0	50	50	0.0	40 - 140	30	
Bis(2-chloroisopropyl)ether	ND	230	41	47	13.6	43	43	0.0	40 - 140	30	
Bis(2-ethylhexyl)phthalate	ND	230	74	84	12.7	80	77	3.8	40 - 140	30	
Carbazole	ND	230	70	76	8.2	79	71	10.7	40 - 140	30	
Chrysene	ND	230	70	77	9.5	78	71	9.4	40 - 140	30	
Dibenz(a,h)anthracene	ND	130	72	75	4.1	77	72	6.7	40 - 140	30	
Dibenzofuran	ND	230	67	73	8.6	76	70	8.2	40 - 140	30	
Diethyl phthalate	ND	230	69	77	11.0	78	73	6.6	40 - 140	30	
Dimethylphthalate	ND	230	69	76	9.7	78	72	8.0	40 - 140	30	
Di-n-butylphthalate	ND	670	71	79	10.7	76	73	4.0	40 - 140	30	
Di-n-octylphthalate	ND	230	77	86	11.0	85	81	4.8	40 - 140	30	
Fluoranthene	ND	230	67	74	9.9	79	69	13.5	40 - 140	30	
Fluorene	ND	230	68	74	8.5	76	70	8.2	40 - 140	30	
Hexachlorobenzene	ND	130	67	72	7.2	73	69	5.6	40 - 140	30	
Hexachlorobutadiene	ND	230	55	59	7.0	58	59	1.7	40 - 140	30	
Hexachlorocyclopentadiene	ND	230	45	59	26.9	63	54	15.4	40 - 140	30	
Hexachloroethane	ND	130	46	51	10.3	47	52	10.1	40 - 140	30	
Indeno(1,2,3-cd)pyrene	ND	230	71	74	4.1	78	72	8.0	40 - 140	30	
Isophorone	ND	130	57	63	10.0	62	60	3.3	40 - 140	30	
Naphthalene	ND	230	55	59	7.0	60	59	1.7	40 - 140	30	
Nitrobenzene	ND	130	55	64	15.1	61	58	5.0	40 - 140	30	
N-Nitrosodimethylamine	ND	230	34	33	3.0	33	37	11.4	40 - 140	30	l,m
N-Nitrosodi-n-propylamine	ND	130	56	67	17.9	63	60	4.9	40 - 140	30	
N-Nitrosodiphenylamine	ND	130	73	81	10.4	81	75	7.7	40 - 140	30	
Pentachloronitrobenzene	ND	230	70	76	8.2	74	69	7.0	40 - 140	30	
Pentachlorophenol	ND	230	71	86	19.1	78	73	6.6	30 - 130	30	
Phenanthrene	ND	130	65	71	8.8	75	66	12.8	40 - 140	30	
Phenol	ND	230	62	74	17.6	69	66	4.4	30 - 130	30	
Pyrene	ND	230	69	76	9.7	81	71	13.2	30 - 130	30	
Pyridine	ND	230	35	34	2.9	34	37	8.5	40 - 140	30	l,m
% 2,4,6-Tribromophenol	81	%	71	77	8.1	81	74	9.0	30 - 130	30	
% 2-Fluorobiphenyl	67	%	57	61	6.8	63	61	3.2	30 - 130	30	
% 2-Fluorophenol	68	%	53	60	12.4	58	59	1.7	30 - 130	30	
% Nitrobenzene-d5	60	%	50	59	16.5	55	53	3.7	30 - 130	30	
% Phenol-d5	69	%	58	69	17.3	65	62	4.7	30 - 130	30	
% Terphenyl-d14	85	%	71	79	10.7	80	73	9.2	30 - 130	30	

Comment:

Additional 8270 criteria: 20% of compounds can be outside of acceptance criteria as long as recovery is at least 10%. (Acid surrogates acceptance range for aqueous samples: 15-110%, for soils 30-130%)

QA/QC Batch 535456 (ug/kg), QC Sample No: CG22533 (CG22459)

Volatiles - Soil (Low Level)

1,1,1,2-Tetrachloroethane	ND	5.0	118	116	1.7	94	102	8.2	70 - 130	30	
1,1,1-Trichloroethane	ND	5.0	110	107	2.8	97	107	9.8	70 - 130	30	

QA/QC Data

SDG I.D.: GCG22457

Parameter	Blank	Blk RL	LCS %	LCSD %	LCS RPD	MS %	MSD %	MS RPD	% Rec Limits	% RPD Limits	
1,1,2,2-Tetrachloroethane	ND	3.0	109	110	0.9	89	111	22.0	70 - 130	30	
1,1,2-Trichloroethane	ND	5.0	108	105	2.8	88	95	7.7	70 - 130	30	
1,1-Dichloroethane	ND	5.0	106	104	1.9	96	102	6.1	70 - 130	30	
1,1-Dichloroethene	ND	5.0	110	105	4.7	98	104	5.9	70 - 130	30	
1,1-Dichloropropene	ND	5.0	102	104	1.9	92	98	6.3	70 - 130	30	
1,2,3-Trichlorobenzene	ND	5.0	100	102	2.0	37	33	11.4	70 - 130	30	m
1,2,3-Trichloropropane	ND	5.0	104	107	2.8	99	123	21.6	70 - 130	30	
1,2,4-Trichlorobenzene	ND	5.0	100	103	3.0	41	38	7.6	70 - 130	30	m
1,2,4-Trimethylbenzene	ND	1.0	104	105	1.0	57	57	0.0	70 - 130	30	m
1,2-Dibromo-3-chloropropane	ND	5.0	113	116	2.6	75	92	20.4	70 - 130	30	
1,2-Dibromoethane	ND	5.0	107	108	0.9	90	100	10.5	70 - 130	30	
1,2-Dichlorobenzene	ND	5.0	105	106	0.9	67	75	11.3	70 - 130	30	m
1,2-Dichloroethane	ND	5.0	114	113	0.9	103	112	8.4	70 - 130	30	
1,2-Dichloropropane	ND	5.0	108	106	1.9	94	99	5.2	70 - 130	30	
1,3,5-Trimethylbenzene	ND	1.0	104	105	1.0	74	78	5.3	70 - 130	30	
1,3-Dichlorobenzene	ND	5.0	102	104	1.9	72	81	11.8	70 - 130	30	
1,3-Dichloropropane	ND	5.0	107	106	0.9	93	104	11.2	70 - 130	30	
1,4-Dichlorobenzene	ND	5.0	102	103	1.0	71	79	10.7	70 - 130	30	
2,2-Dichloropropane	ND	5.0	113	111	1.8	102	108	5.7	70 - 130	30	
2-Chlorotoluene	ND	5.0	104	105	1.0	86	99	14.1	70 - 130	30	
2-Hexanone	ND	25	96	94	2.1	69	74	7.0	70 - 130	30	m
2-Isopropyltoluene	ND	5.0	100	102	2.0	68	72	5.7	70 - 130	30	m
4-Chlorotoluene	ND	5.0	102	101	1.0	81	94	14.9	70 - 130	30	
4-Methyl-2-pentanone	ND	25	95	97	2.1	66	65	1.5	70 - 130	30	m
Acetone	ND	10	115	109	5.4	57	64	11.6	70 - 130	30	m
Acrylonitrile	ND	5.0	98	99	1.0	78	86	9.8	70 - 130	30	
Benzene	ND	1.0	108	107	0.9	95	101	6.1	70 - 130	30	
Bromobenzene	ND	5.0	107	108	0.9	87	106	19.7	70 - 130	30	
Bromochloromethane	ND	5.0	111	110	0.9	100	109	8.6	70 - 130	30	
Bromodichloromethane	ND	5.0	116	115	0.9	98	104	5.9	70 - 130	30	
Bromoform	ND	5.0	115	117	1.7	83	92	10.3	70 - 130	30	
Bromomethane	ND	5.0	102	97	5.0	91	96	5.3	70 - 130	30	
Carbon Disulfide	ND	5.0	100	97	3.0	84	90	6.9	70 - 130	30	
Carbon tetrachloride	ND	5.0	111	108	2.7	96	104	8.0	70 - 130	30	
Chlorobenzene	ND	5.0	108	107	0.9	86	94	8.9	70 - 130	30	
Chloroethane	ND	5.0	108	103	4.7	97	102	5.0	70 - 130	30	
Chloroform	ND	5.0	107	106	0.9	100	106	5.8	70 - 130	30	
Chloromethane	ND	5.0	86	83	3.6	78	83	6.2	70 - 130	30	
cis-1,2-Dichloroethene	ND	5.0	102	100	2.0	93	103	10.2	70 - 130	30	
cis-1,3-Dichloropropene	ND	5.0	112	111	0.9	88	96	8.7	70 - 130	30	
Dibromochloromethane	ND	3.0	122	121	0.8	98	112	13.3	70 - 130	30	
Dibromomethane	ND	5.0	110	108	1.8	92	100	8.3	70 - 130	30	
Dichlorodifluoromethane	ND	5.0	112	106	5.5	94	100	6.2	70 - 130	30	
Ethylbenzene	ND	1.0	106	106	0.0	87	94	7.7	70 - 130	30	
Hexachlorobutadiene	ND	5.0	108	107	0.9	47	47	0.0	70 - 130	30	m
Isopropylbenzene	ND	1.0	103	105	1.9	93	108	14.9	70 - 130	30	
m&p-Xylene	ND	2.0	104	104	0.0	80	83	3.7	70 - 130	30	
Methyl ethyl ketone	ND	5.0	106	95	10.9	92	103	11.3	70 - 130	30	
Methyl t-butyl ether (MTBE)	ND	1.0	107	102	4.8	101	105	3.9	70 - 130	30	
Methylene chloride	ND	5.0	90	86	4.5	82	89	8.2	70 - 130	30	
Naphthalene	ND	5.0	105	107	1.9	30	22	30.8	70 - 130	30	m,r
n-Butylbenzene	ND	1.0	106	105	0.9	66	71	7.3	70 - 130	30	m
n-Propylbenzene	ND	1.0	102	103	1.0	88	101	13.8	70 - 130	30	

Parameter	Blank	Blk RL	LCS %	LCSD %	LCS RPD	MS %	MSD %	MS RPD	% Rec Limits	% RPD Limits	
o-Xylene	ND	2.0	108	107	0.9	80	83	3.7	70 - 130	30	
p-Isopropyltoluene	ND	1.0	106	106	0.0	77	82	6.3	70 - 130	30	
sec-Butylbenzene	ND	1.0	109	110	0.9	84	94	11.2	70 - 130	30	
Styrene	ND	5.0	107	107	0.0	76	82	7.6	70 - 130	30	
tert-Butylbenzene	ND	1.0	104	105	1.0	84	95	12.3	70 - 130	30	
Tetrachloroethene	ND	5.0	109	108	0.9	87	90	3.4	70 - 130	30	
Tetrahydrofuran (THF)	ND	5.0	90	91	1.1	85	92	7.9	70 - 130	30	
Toluene	ND	1.0	110	108	1.8	91	97	6.4	70 - 130	30	
trans-1,2-Dichloroethene	ND	5.0	109	108	0.9	98	109	10.6	70 - 130	30	
trans-1,3-Dichloropropene	ND	5.0	116	115	0.9	88	96	8.7	70 - 130	30	
trans-1,4-dichloro-2-butene	ND	5.0	118	121	2.5	93	118	23.7	70 - 130	30	
Trichloroethene	ND	5.0	106	106	0.0	97	102	5.0	70 - 130	30	
Trichlorofluoromethane	ND	5.0	102	98	4.0	93	100	7.3	70 - 130	30	
Trichlorotrifluoroethane	ND	5.0	95	90	5.4	85	89	4.6	70 - 130	30	
Vinyl chloride	ND	5.0	99	96	3.1	90	94	4.3	70 - 130	30	
% 1,2-dichlorobenzene-d4	97	%	101	102	1.0	97	98	1.0	70 - 130	30	
% Bromofluorobenzene	100	%	101	100	1.0	94	91	3.2	70 - 130	30	
% Dibromofluoromethane	102	%	101	96	5.1	102	101	1.0	70 - 130	30	
% Toluene-d8	94	%	101	101	0.0	97	95	2.1	70 - 130	30	

Comment:

Additional 8260 criteria: 10% of LCS/LCSD compounds can be outside of acceptance criteria as long as recovery is 40-160%, 25-160% for Chloroethane-HL and Trichlorofluoromethane-HL.

QA/QC Batch 535456H (ug/kg), QC Sample No: CG22533 50X (CG22460 (50X))

Volatiles - Soil (High Level)

1,1,1,2-Tetrachloroethane	ND	250	115	110	4.4	111	114	2.7	70 - 130	30	
1,1,1-Trichloroethane	ND	250	105	107	1.9	104	108	3.8	70 - 130	30	
1,1,2,2-Tetrachloroethane	ND	250	111	105	5.6	103	107	3.8	70 - 130	30	
1,1,2-Trichloroethane	ND	250	107	105	1.9	105	106	0.9	70 - 130	30	
1,1-Dichloroethane	ND	250	101	101	0.0	102	101	1.0	70 - 130	30	
1,1-Dichloroethene	ND	250	103	100	3.0	98	98	0.0	70 - 130	30	
1,1-Dichloropropene	ND	250	107	106	0.9	105	106	0.9	70 - 130	30	
1,2,3-Trichlorobenzene	ND	250	119	115	3.4	100	108	7.7	70 - 130	30	
1,2,3-Trichloropropane	ND	250	107	101	5.8	101	105	3.9	70 - 130	30	
1,2,4-Trichlorobenzene	ND	250	123	121	1.6	107	111	3.7	70 - 130	30	
1,2,4-Trimethylbenzene	ND	250	112	109	2.7	105	108	2.8	70 - 130	30	
1,2-Dibromo-3-chloropropane	ND	250	113	105	7.3	100	99	1.0	70 - 130	30	
1,2-Dibromoethane	ND	250	108	102	5.7	107	105	1.9	70 - 130	30	
1,2-Dichlorobenzene	ND	250	112	110	1.8	107	110	2.8	70 - 130	30	
1,2-Dichloroethane	ND	250	112	109	2.7	113	115	1.8	70 - 130	30	
1,2-Dichloropropane	ND	250	107	105	1.9	105	107	1.9	70 - 130	30	
1,3,5-Trimethylbenzene	ND	250	110	108	1.8	105	110	4.7	70 - 130	30	
1,3-Dichlorobenzene	ND	250	112	108	3.6	105	108	2.8	70 - 130	30	
1,3-Dichloropropane	ND	250	106	102	3.8	104	105	1.0	70 - 130	30	
1,4-Dichlorobenzene	ND	250	111	108	2.7	106	108	1.9	70 - 130	30	
2,2-Dichloropropane	ND	250	111	109	1.8	105	107	1.9	70 - 130	30	
2-Chlorotoluene	ND	250	110	110	0.0	106	109	2.8	70 - 130	30	
2-Hexanone	ND	1300	84	80	4.9	80	81	1.2	70 - 130	30	
2-Isopropyltoluene	ND	250	107	105	1.9	102	106	3.8	70 - 130	30	
4-Chlorotoluene	ND	250	109	107	1.9	102	106	3.8	70 - 130	30	
4-Methyl-2-pentanone	ND	1300	94	87	7.7	90	92	2.2	70 - 130	30	
Acetone	ND	500	52	68	26.7	69	67	2.9	70 - 130	30	l,m
Acrylonitrile	ND	250	108	92	16.0	95	98	3.1	70 - 130	30	

QA/QC Data

SDG I.D.: GCG22457

Parameter	Blank	Blk RL	LCS %	LCSD %	LCS RPD	MS %	MSD %	MS RPD	% Rec Limits	% RPD Limits	
Benzene	ND	250	107	107	0.0	106	108	1.9	70 - 130	30	
Bromobenzene	ND	250	112	109	2.7	107	110	2.8	70 - 130	30	
Bromochloromethane	ND	250	107	105	1.9	105	106	0.9	70 - 130	30	
Bromodichloromethane	ND	250	114	110	3.6	110	114	3.6	70 - 130	30	
Bromoform	ND	250	110	102	7.5	103	105	1.9	70 - 130	30	
Bromomethane	ND	250	81	82	1.2	75	78	3.9	70 - 130	30	
Carbon Disulfide	ND	250	94	94	0.0	89	90	1.1	70 - 130	30	
Carbon tetrachloride	ND	250	105	102	2.9	102	100	2.0	70 - 130	30	
Chlorobenzene	ND	250	110	109	0.9	109	109	0.0	70 - 130	30	
Chloroethane	ND	250	62	62	0.0	62	62	0.0	70 - 130	30	l,m
Chloroform	ND	250	104	103	1.0	105	105	0.0	70 - 130	30	
Chloromethane	ND	250	88	88	0.0	85	84	1.2	70 - 130	30	
cis-1,2-Dichloroethene	ND	250	102	101	1.0	99	101	2.0	70 - 130	30	
cis-1,3-Dichloropropene	ND	250	111	109	1.8	105	108	2.8	70 - 130	30	
Dibromochloromethane	ND	150	117	110	6.2	112	113	0.9	70 - 130	30	
Dibromomethane	ND	250	107	105	1.9	106	108	1.9	70 - 130	30	
Dichlorodifluoromethane	ND	250	115	112	2.6	101	102	1.0	70 - 130	30	
Ethylbenzene	ND	250	111	110	0.9	110	111	0.9	70 - 130	30	
Hexachlorobutadiene	ND	250	121	120	0.8	111	116	4.4	70 - 130	30	
Isopropylbenzene	ND	250	107	108	0.9	104	108	3.8	70 - 130	30	
m&p-Xylene	ND	250	108	107	0.9	107	108	0.9	70 - 130	30	
Methyl ethyl ketone	ND	250	92	88	4.4	88	88	0.0	70 - 130	30	
Methyl t-butyl ether (MTBE)	ND	250	104	96	8.0	99	99	0.0	70 - 130	30	
Methylene chloride	ND	250	85	84	1.2	85	84	1.2	70 - 130	30	
Naphthalene	ND	250	112	108	3.6	93	104	11.2	70 - 130	30	
n-Butylbenzene	ND	250	119	115	3.4	109	113	3.6	70 - 130	30	
n-Propylbenzene	ND	250	110	109	0.9	105	109	3.7	70 - 130	30	
o-Xylene	ND	250	112	110	1.8	109	111	1.8	70 - 130	30	
p-Isopropyltoluene	ND	250	114	112	1.8	108	111	2.7	70 - 130	30	
sec-Butylbenzene	ND	250	117	114	2.6	111	115	3.5	70 - 130	30	
Styrene	ND	250	112	110	1.8	110	110	0.0	70 - 130	30	
tert-Butylbenzene	ND	250	110	107	2.8	105	108	2.8	70 - 130	30	
Tetrachloroethene	ND	250	115	115	0.0	113	116	2.6	70 - 130	30	
Tetrahydrofuran (THF)	ND	250	94	87	7.7	89	89	0.0	70 - 130	30	
Toluene	ND	250	113	112	0.9	111	115	3.5	70 - 130	30	
trans-1,2-Dichloroethene	ND	250	105	107	1.9	107	106	0.9	70 - 130	30	
trans-1,3-Dichloropropene	ND	250	113	110	2.7	110	111	0.9	70 - 130	30	
trans-1,4-dichloro-2-butene	ND	250	119	108	9.7	102	104	1.9	70 - 130	30	
Trichloroethene	ND	250	108	108	0.0	106	108	1.9	70 - 130	30	
Trichlorofluoromethane	ND	250	44	43	2.3	45	43	4.5	70 - 130	30	l,m
Trichlorotrifluoroethane	ND	250	92	89	3.3	90	88	2.2	70 - 130	30	
Vinyl chloride	ND	250	101	100	1.0	96	97	1.0	70 - 130	30	
% 1,2-dichlorobenzene-d4	98	%	103	102	1.0	102	102	0.0	70 - 130	30	
% Bromofluorobenzene	99	%	101	102	1.0	101	100	1.0	70 - 130	30	
% Dibromofluoromethane	97	%	97	97	0.0	97	94	3.1	70 - 130	30	
% Toluene-d8	95	%	101	102	1.0	101	101	0.0	70 - 130	30	

Comment:

Additional 8260 criteria: 10% of LCS/LCSD compounds can be outside of acceptance criteria as long as recovery is 40-160%, 25-160% for Chloroethane-HL and Trichlorofluoromethane-HL.

QA/QC Batch 535825 (ug/kg), QC Sample No: CG23591 (CG22457)

Volatiles - Soil (Low Level)

1,1,1,2-Tetrachloroethane	ND	5.0	96	106	9.9	81	89	9.4	70 - 130	30	

QA/QC Data

SDG I.D.: GCG22457

Parameter	Blank	Blk RL	LCS %	LCSD %	LCS RPD	MS %	MSD %	MS RPD	% Rec Limits	% RPD Limits	
1,1,1-Trichloroethane	ND	5.0	90	105	15.4	76	90	16.9	70 - 130	30	
1,1,2,2-Tetrachloroethane	ND	3.0	98	106	7.8	81	84	3.6	70 - 130	30	
1,1,2-Trichloroethane	ND	5.0	94	102	8.2	79	85	7.3	70 - 130	30	
1,1-Dichloroethane	ND	5.0	94	105	11.1	82	92	11.5	70 - 130	30	
1,1-Dichloroethene	ND	5.0	100	113	12.2	86	97	12.0	70 - 130	30	
1,1-Dichloropropene	ND	5.0	94	105	11.1	79	90	13.0	70 - 130	30	
1,2,3-Trichlorobenzene	ND	5.0	100	109	8.6	78	77	1.3	70 - 130	30	
1,2,3-Trichloropropane	ND	5.0	92	99	7.3	77	80	3.8	70 - 130	30	
1,2,4-Trichlorobenzene	ND	5.0	101	109	7.6	77	78	1.3	70 - 130	30	
1,2,4-Trimethylbenzene	ND	1.0	99	106	6.8	78	85	8.6	70 - 130	30	
1,2-Dibromo-3-chloropropane	ND	5.0	104	115	10.0	78	88	12.0	70 - 130	30	
1,2-Dibromoethane	ND	5.0	93	102	9.2	78	85	8.6	70 - 130	30	
1,2-Dichlorobenzene	ND	5.0	97	105	7.9	80	83	3.7	70 - 130	30	
1,2-Dichloroethane	ND	5.0	96	104	8.0	81	90	10.5	70 - 130	30	
1,2-Dichloropropane	ND	5.0	97	106	8.9	81	92	12.7	70 - 130	30	
1,3,5-Trimethylbenzene	ND	1.0	98	106	7.8	81	87	7.1	70 - 130	30	
1,3-Dichlorobenzene	ND	5.0	97	106	8.9	80	85	6.1	70 - 130	30	
1,3-Dichloropropane	ND	5.0	94	103	9.1	81	87	7.1	70 - 130	30	
1,4-Dichlorobenzene	ND	5.0	97	105	7.9	78	83	6.2	70 - 130	30	
2,2-Dichloropropane	ND	5.0	100	112	11.3	81	88	8.3	70 - 130	30	
2-Chlorotoluene	ND	5.0	98	105	6.9	81	86	6.0	70 - 130	30	
2-Hexanone	ND	25	86	95	9.9	69	72	4.3	70 - 130	30	m
2-Isopropyltoluene	ND	5.0	98	108	9.7	81	87	7.1	70 - 130	30	
4-Chlorotoluene	ND	5.0	98	106	7.8	79	86	8.5	70 - 130	30	
4-Methyl-2-pentanone	ND	25	98	109	10.6	82	88	7.1	70 - 130	30	
Acetone	ND	10	76	82	7.6	55	55	0.0	70 - 130	30	m
Acrylonitrile	ND	5.0	94	104	10.1	80	83	3.7	70 - 130	30	
Benzene	ND	1.0	95	106	10.9	81	91	11.6	70 - 130	30	
Bromobenzene	ND	5.0	96	104	8.0	79	86	8.5	70 - 130	30	
Bromochloromethane	ND	5.0	93	102	9.2	81	88	8.3	70 - 130	30	
Bromodichloromethane	ND	5.0	99	107	7.8	82	91	10.4	70 - 130	30	
Bromoform	ND	5.0	101	109	7.6	79	84	6.1	70 - 130	30	
Bromomethane	ND	5.0	103	116	11.9	88	98	10.8	70 - 130	30	
Carbon Disulfide	ND	5.0	102	114	11.1	86	96	11.0	70 - 130	30	
Carbon tetrachloride	ND	5.0	96	107	10.8	79	90	13.0	70 - 130	30	
Chlorobenzene	ND	5.0	95	107	11.9	81	89	9.4	70 - 130	30	
Chloroethane	ND	5.0	107	121	12.3	90	103	13.5	70 - 130	30	
Chloroform	ND	5.0	92	102	10.3	81	89	9.4	70 - 130	30	
Chloromethane	ND	5.0	104	117	11.8	85	99	15.2	70 - 130	30	
cis-1,2-Dichloroethene	ND	5.0	90	100	10.5	78	87	10.9	70 - 130	30	
cis-1,3-Dichloropropene	ND	5.0	97	106	8.9	79	89	11.9	70 - 130	30	
Dibromochloromethane	ND	3.0	102	111	8.5	83	91	9.2	70 - 130	30	
Dibromomethane	ND	5.0	93	102	9.2	80	86	7.2	70 - 130	30	
Dichlorodifluoromethane	ND	5.0	132	149	12.1	105	121	14.2	70 - 130	30	l
Ethylbenzene	ND	1.0	97	108	10.7	82	91	10.4	70 - 130	30	
Hexachlorobutadiene	ND	5.0	104	112	7.4	79	73	7.9	70 - 130	30	
Isopropylbenzene	ND	1.0	97	107	9.8	80	88	9.5	70 - 130	30	
m&p-Xylene	ND	2.0	96	107	10.8	80	90	11.8	70 - 130	30	
Methyl ethyl ketone	ND	5.0	84	99	16.4	68	78	13.7	70 - 130	30	m
Methyl t-butyl ether (MTBE)	ND	1.0	86	93	7.8	73	77	5.3	70 - 130	30	
Methylene chloride	ND	5.0	92	100	8.3	80	86	7.2	70 - 130	30	
Naphthalene	ND	5.0	97	107	9.8	79	81	2.5	70 - 130	30	
n-Butylbenzene	ND	1.0	104	116	10.9	83	86	3.6	70 - 130	30	

QA/QC Data

SDG I.D.: GCG22457

Parameter	Blank	Blk RL	LCS %	LCSD %	LCS RPD	MS %	MSD %	MS RPD	% Rec Limits	% RPD Limits	
n-Propylbenzene	ND	1.0	99	109	9.6	80	88	9.5	70 - 130	30	
o-Xylene	ND	2.0	99	107	7.8	84	91	8.0	70 - 130	30	
p-Isopropyltoluene	ND	1.0	101	111	9.4	82	87	5.9	70 - 130	30	
sec-Butylbenzene	ND	1.0	105	114	8.2	85	91	6.8	70 - 130	30	
Styrene	ND	5.0	96	106	9.9	81	88	8.3	70 - 130	30	
tert-Butylbenzene	ND	1.0	96	104	8.0	80	85	6.1	70 - 130	30	
Tetrachloroethene	ND	5.0	99	110	10.5	80	92	14.0	70 - 130	30	
Tetrahydrofuran (THF)	ND	5.0	89	99	10.6	69	72	4.3	70 - 130	30	m
Toluene	ND	1.0	97	107	9.8	82	92	11.5	70 - 130	30	
trans-1,2-Dichloroethene	ND	5.0	101	115	13.0	89	98	9.6	70 - 130	30	
trans-1,3-Dichloropropene	ND	5.0	98	106	7.8	80	88	9.5	70 - 130	30	
trans-1,4-dichloro-2-butene	ND	5.0	113	125	10.1	87	91	4.5	70 - 130	30	
Trichloroethene	ND	5.0	95	108	12.8	81	92	12.7	70 - 130	30	
Trichlorofluoromethane	ND	5.0	104	114	9.2	86	98	13.0	70 - 130	30	
Trichlorotrifluoroethane	ND	5.0	99	108	8.7	82	93	12.6	70 - 130	30	
Vinyl chloride	ND	5.0	112	128	13.3	94	107	12.9	70 - 130	30	
% 1,2-dichlorobenzene-d4	97	%	102	100	2.0	101	100	1.0	70 - 130	30	
% Bromofluorobenzene	99	%	100	100	0.0	99	100	1.0	70 - 130	30	
% Dibromofluoromethane	102	%	99	99	0.0	98	102	4.0	70 - 130	30	
% Toluene-d8	93	%	101	101	0.0	100	101	1.0	70 - 130	30	

Comment:

Additional 8260 criteria: 10% of LCS/LCSD compounds can be outside of acceptance criteria as long as recovery is 40-160%, 25-160% for Chloroethane-HL and Trichlorofluoromethane-HL.

l = This parameter is outside laboratory LCS/LCSD specified recovery limits.
m = This parameter is outside laboratory MS/MSD specified recovery limits.
r = This parameter is outside laboratory RPD specified recovery limits.

If there are any questions regarding this data, please call Phoenix Client Services at extension 200.

RPD - Relative Percent Difference
LCS - Laboratory Control Sample
LCSD - Laboratory Control Sample Duplicate
MS - Matrix Spike
MS Dup - Matrix Spike Duplicate
NC - No Criteria
Intf - Interference

Phyllis Shiller, Laboratory Director
July 02, 2020

Thursday, July 02, 2020

Criteria: None

State: CT

Sample Criteria Exceedances Report

GCG22457 - GEI

SampNo	Acode	Phoenix Analyte	Criteria	Result	RL	Criteria	RL Criteria	Analysis Units

*** No Data to Display ***

Phoenix Laboratories does not assume responsibility for the data contained in this exceedance report. It is provided as an additional tool to identify requested criteria exceedences. All efforts are made to ensure the accuracy of the data (obtained from appropriate agencies). A lack of exceedence information does not necessarily suggest conformance to the criteria. It is ultimately the site professional's responsibility to determine appropriate compliance.

Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102 Fax (860) 645-0823

NY # 11301

Analysis Comments

July 02, 2020 SDG I.D.: GCG22457

The following analysis comments are made regarding exceptions to criteria not already noted in the Analysis Report or QA/QC Report:

SVOA Narration

CHEM07 06/26/20-3: CG22458

For 8270 full list, the DDT breakdown and pentachlorophenol & benzidine peak tailing were evaluated in the DFTPP tune and were found to be in control.
For 8270 BN list, benzidine peak tailing was evaluated in the DFTPP tune and was found to be in control.

The following Initial Calibration compounds did not meet recommended response factors: 2-Nitrophenol 0.067 (0.1), Hexachlorobenzene 0.089 (0.1)
The following Initial Calibration compounds did not meet minimum response factors: None.

The following Continuing Calibration compounds did not meet recommended response factors: 2-Nitrophenol 0.070 (0.1), Hexachlorobenzene 0.088 (0.1)
The following Continuing Calibration compounds did not meet minimum response factors: None.

Up to eight compounds can be outside of ICAL %RSD criteria and up to sixteen compounds can be outside of CCAL %Dev criteria if less than 40%.

VOA Narration

CHEM14 06/26/20-2: CG22459, CG22460

The following Initial Calibration compounds did not meet RSD% criteria: Methylene chloride 25% (20%)
The following Initial Calibration compounds did not meet maximum RSD% criteria: None.
The following Initial Calibration compounds did not meet recommended response factors: Acetone 0.079 (0.1)
The following Initial Calibration compounds did not meet minimum response factors: None.

Up to eight compounds can be outside of ICAL %RSD criteria and up to sixteen compounds can be outside of CCAL %Dev criteria if less than 40%.

CHEM14 06/30/20-1: CG22457

The following Initial Calibration compounds did not meet RSD% criteria: 1,2-Dibromo-3-chloropropane 24% (20%)
The following Initial Calibration compounds did not meet maximum RSD% criteria: None.
The following Initial Calibration compounds did not meet recommended response factors: Acetone 0.087 (0.1), Tetrachloroethene 0.188 (0.2)
The following Initial Calibration compounds did not meet minimum response factors: None.

Up to eight compounds can be outside of ICAL %RSD criteria and up to sixteen compounds can be outside of CCAL %Dev criteria if less than 40%.

Cooler: Yes ☑ No ☐
Coolant: IPK ☐ ICE ☑ No ☐

PHOENIX
Environmental Laboratories, Inc.

CHAIN OF CUSTODY RECORD

587 East Middle Turnpike, P.O. Box 370, Manchester, CT 06040
Email: info@phoenixlabs.com Fax (860) 645-0823
Client Services (860) 645-8726

Temp 8.1 °C Pg of

Data Delivery/Contact Options:
☐ Fax:
☐ Phone:
☒ Email: dgrand@geiconsultants.com

Customer: GEI Consultants, Inc,
Address: 455 Winding Brook Dr. Suite 201 Glastonbury, CT

Project: 2002828- Riverfront Recapture
Report to: Dom Grandq.
Invoice to: GEI Consultants / Dom Grandq.
QUOTE #

Project P.O:

This section MUST be completed with Bottle Quantities.

Client Sample - Information - Identification

Sampler's Signature: [signature] Date: 06/26/2020

Matrix Code:
DW=Drinking Water **GW**=Ground Water **SW**=Surface Water **WW**=Waste Water
RW=Raw Water **SE**=Sediment **SL**=Sludge **S**=Soil **SD**=Solid **W**=Wipe **OIL**=Oil
B=Bulk **L**=Liquid **X** = _____(Other)

Analysis Request

PHOENIX USE ONLY SAMPLE #	Customer Sample Identification	Sample Matrix	Date Sampled	Time Sampled	RCRA 8 metals (Cu, Ni, Zn)	TPH CT-ETPH method	SVOCs	VOCs	pH	Ignitability	Reactivity	Conductivity	GL Amber 8 oz. w/H3PO4	Soil VOA Vials [1] methanol [2] H2O	GL Soil container (4 oz)	GL Soil container (oz)	40 ml VOA Vial [ ] As is [ ] HCl	GL Amber 1000ml [ ] As is [ ] H2SO4	PL As is [ ] 250ml [ ] 500ml [ ] 1000ml	PL H2SO4 [ ] 250ml [ ] 500ml	PL HNO3 250ml	PL NaOH 250ml	Bacteria Bottle w/thio	Bacteria Bottle as is
22457	GEI/B2/2-4'	S	06-26-2020	0850			✓	✓					*BA											
22458	GEI/B1/2-4'	S	"	"	✓	✓			✓	✓	✓			2										
22459	TBLL																							
22460	TB HL																							

Relinquished by:	Accepted by:	Date:	Time:
Bosede Akerejeni	[signature]	06/26/20	14:23

Comments, Special Requirements or Regulations:
RCRA 8 metals: Total & contigent TCLP if elevated metals

Turnaround Time:
☐ 1 Day*
☐ 2 Days*
☐ 3 Days*
☒ Standard
☐ Other
* SURCHARGE APPLIES

RI
☐ (Residential) Direct Exposure
☐ (Comm/Industrial) Direct Exposure
☐ GA Leachability
☐ GB Leachability
☐ GA-GW Objectives
☐ GB-GW Objectives

CT
☐ RCP Cert
☐ GW Protection
☐ SW Protection
☐ GA Mobility
☐ GB Mobility
☐ Residential DEC
☐ I/C DEC
☐ Other

MA
☐ MCP Certification
☐ GW-1 ☐ MWRA eSMART
☐ GW-2
☐ GW-3
☐ S-1 GW-1 ☐ S-1 GW-2 ☐ S-1 GW-3
☐ S-2 GW-1 ☐ S-2 GW-2 ☐ S-2 GW-3
☐ S-3 GW-1 ☐ S-3 GW-2 ☐ S-3 GW-3
☐ SW Protection

State where samples were collected: CT

Data Format
☐ Excel
☑ PDF
☐ GIS/Key
☐ EQuIS
☐ Other

Data Package
☐ Tier II Checklist
☐ Full Data Package*
☑ Phoenix Std Report
☐ Other
* SURCHARGE APPLIES

ATTACHMENT C
CONNECTICUT DEPARTMENT OF LABOR
WAGE RATES

THIS IS A PUBLIC WORKS PROJECT

Covered by the

PREVAILING WAGE LAW

CT General Statutes Section 31-53

If you have QUESTIONS regarding your wages
CALL (860) 263-6790

Section 31-55 of the CT State Statutes requires every contractor or subcontractor performing work for the state to post in a prominent place the prevailing wages as determined by the Labor Commissioner.

Minimum Rates and Classifications for
Heavy/Highway Construction

ID#: 25-10867

Connecticut Department of Labor
Wage and Workplace Standards Division

By virtue of the authority vested in the Labor Commissioner under provisions of Section 31-53 of the General Statutes of Connecticut, as amended, the following are declared to be the prevailing rates and welfare payments and will apply only where the contract is advertised for bid within 20 days of the date on which the rates are established. Any contractor or subcontractor not obligated by agreement to pay to the welfare and pension fund shall pay this amount to each employee as part of his/her hourly wages.

Project Number: 26-05 Project Town: East Hartford
State#: FAP#:
Project: Great River Park Improvement Project

CLASSIFICATION	Hourly Rate	Benefits
1) Boilermaker	48.21	30.01
1a) Bricklayer, Cement Masons, Cement Finishers, Plasterers, Stone Masons	43.14	34.74
2) Carpenters, Piledrivermen	42.03	29.19
2a) Diver Tenders	42.03	29.19
2b) Divers Effluent	67.52	29.19
3) Divers	50.49	29.19
03a) Millwrights	43.25	29.13
03b) Carpenter-Welder	42.53	29.19
03c) Carpenter: Working with creosote lumber or acid	43.03	29.19

As of: October 23, 2025

4) Painters: (Bridge Construction) Brush, Roller, Blasting (Sand, Water, etc.), Spray	59.7	26.65
4a) Painters: Brush and Roller	39.57	26.50
4b) Painters: Spray	42.57	26.50
4bc) Painters: Spray Helper	40.57	26.50
4c) Painters: Steel Only	41.57	26.50
4d) Painters: Blast	44.57	26.50
4de) Painter: Blast Helper	40.57	26.50
4e) Painters: Tanks, Tower and Swingstage etc.	41.57	26.50
4f) Elevated Tanks (60 feet and above)	48.57	26.50
5) Electrician (Trade License required: E-1,2 L-5,6 C-5,6 T-1,2 L-1,2 V-1,2,7,8,9)	48.25	35.22+3% of gross wage
6) Ironworkers: Ornamental, Reinforcing, Structural, and Precast Concrete Erection	45.25	43.62 + a
7) Plumbers (Trade License required: (P-1,2,6,7,8,9 J-1,2,3,4 SP-1,2) and Pipefitters (Including HVAC Work) (Trade License required: S-1,2,3,4,5,6,7,8 B-1,2,3,4 D-1,2,3,4 G-1, G-2, G-8, G-9)	50.58	36.30
----LABORERS---- -		
8) Group 1: General Laborers and concrete specialist	35.7	28.85

As of: October 23, 2025

8) Group 1a: Acetylene Burners (Hours worked with a torch)	36.7	28.85
9) Group 2: Chain saw operators, fence and guard rail erectors, pneumatic tool operators, powdermen	35.95	28.85
10) Group 3: Pipelayers	36.2	28.85
11) Group 4: Jackhammer/Pavement breaker (handheld); mason tenders (cement/concrete), catch basin builders, asphalt rakers, air track operators, block paver, curb setter and forklift operators	36.2	28.85
12) Group 5: Toxic waste removal (non-mechanical systems)	37.7	28.85
13) Group 6: Blasters	37.45	28.85
Group 7: Asbestos/lead removal, non-mechanical systems (does not include leaded joint pipe)	38.7	28.85
Group 8: Traffic control signalmen	21.42	28.85
Group 9: Hydraulic Drills	36.45	28.85
Group 10: Toxic Waste Removers A or B With PPE	38.7	28.85
----LABORERS (TUNNEL CONSTRUCTION, FREE AIR). Shield Drive and Liner Plate Tunnels in Free Air.----		
13a) Miners, Motormen, Mucking Machine Operators, Nozzle Men, Grout Men, Shaft & Tunnel Steel & Rodmen, Shield & Erector, Arm Operator, Cable Tenders	37.93	28.85 + a
13b) Brakemen, Trackmen, Miners' Helpers and all other men	36.96	28.85 + a

As of: October 23, 2025

----CLEANING, CONCRETE AND CAULKING TUNNEL----		
14) Concrete Workers, Form Movers, and Strippers	36.96	28.85 + a
15) Form Erectors	37.29	28.85 + a
----ROCK SHAFT LINING, CONCRETE, LINING OF SAME AND TUNNEL IN FREE AIR:----		
16) Brakemen, Trackmen, Tunnel Laborers, Shaft Laborers, Miners Helpers	36.96	28.85 + a
17) Laborers Topside, Cage Tenders, Bellman	36.85	28.85 + a
18) Miners	37.93	28.85 + a
----TUNNELS, CAISSON AND CYLINDER WORK IN COMPRESSED AIR: ----		
18a) Blaster	44.42	28.85 + a
19) Brakemen, Trackmen, Groutman, Laborers, Outside Lock Tender, Gauge Tenders	44.22	28.85 + a
20) Change House Attendants, Powder Watchmen, Top on Iron Bolts	42.24	28.85 + a
21) Mucking Machine Operator, Grout Boss, Track Boss	45.01	28.85 + a
----TRUCK DRIVERS----(*see note below)		
Block Truck	37.48	32.68 + a

As of: October 23, 2025

2 Axle	36.16	32.68 + a
Helpers	34.66	32.68 + a
Three Axle Trucks; Two Axle Mixer	36.27	32.68 + a
Three Axle Mixer	36.33	32.68 + a
Four Axle Trucks	36.39	32.68 + a
Four Axle Mixer	37.19	32.68 + a
5 Axle	36.39	32.68 + a
5 Axle Mixer	37.19	32.68 + a
Heavy Duty Trailer (40 tons and over)	38.66	32.68 + a
Heavy Duty Trailer (up to 40 tons)	37.39	32.68 + a
Snorkle Truck	36.54	32.68 + a
Swivel Dump and Tack Truck	36.39	32.68 + a
Euclids and Semi Trailer	36.44	32.68 + a

----POWER EQUIPMENT OPERATORS----

As of: October 23, 2025

Group 1: Crane Handling or Erecting Structural Steel or Stone, Hoisting Engineer (2 drums or over). (Trade License Required)	58.19	29.80 + a
Group 1a: Front End Loader (7 cubic yards or over); Work Boat 26 ft. and over.	53.33	29.80 + a
Group 2: Cranes (100 ton rate capacity and over); Bauer Drill/Caisson. (Trade License Required)	57.78	29.80 + a
Group 2a: Cranes (under 100 ton rated capacity).	56.79	29.80 + a
Group 2b: Excavator over 2 cubic yards; Pile Driver ($3.00 premium when operator controls hammer).	52.92	29.80 + a
Group 3: Excavator; Gradall; Master Mechanic; Hoisting Engineer (all types of equipment where a drum and cable are used to hoist or drag material regardless of motive power of operation), Rubber Tire Excavator (Drott-1085 or similar);Grader Operator; Bulldozer Fine Grade (slopes, shaping, laser or GPS, etc.). (Trade License Required)	51.92	29.80 + a
Group 4: Trenching Machines; Lighter Derrick; CMI Machine or Similar; Koehring Loader (Skooper).	51.42	29.80 + a
Group 5: Specialty Railroad Equipment; Asphalt Paver; Asphalt Spreader; Asphalt Reclaiming Machine; Line Grinder; Concrete Pumps; Drills with Self Contained Power Units; Boring Machine; Post Hole Digger; Auger; Pounder; Well Digger; Milling Machine (over 24" mandrel)	50.63	29.80 + a
Group 5 continued: Side Boom; Combination Hoe and Loader; Directional Driller.	50.63	29.80 + a
Group 6: Front End Loader (3 up to 7 cubic yards); Bulldozer (rough grade dozer).	50.22	29.80 + a
Group 7: Asphalt Roller; Concrete Saws and Cutters (ride on types); Vermeer Concrete Cutter; Stump Grinder; Scraper; Snooper; Skidder; Milling Machine (24" and under Mandrel)	49.77	29.80 + a

As of: October 23, 2025

Group 8: Mechanic, Grease Truck Operator, Hydroblaster, Barrier Mover, Power Stone Spreader; Welder; Work Boat under 26 ft.; Transfer Machine.	49.25	29.80 + a
Group 9: Front End Loader (under 3 cubic yards), Skid Steer Loader regardless of attachments (Bobcat or Similar); Fork Lift, Power Chipper; Landscape Equipment (including hydroseeder), Vacuum Excavation Truck and Hydrovac Excavation Truck (27 HG pressure or greater).	48.67	29.80 + a
Group 10: Vibratory Hammer, Ice Machine, Diesel and Air Hammer, etc.	45.96	29.80 + a
Group 11: Conveyor, Earth Roller; Power Pavement Breaker (whiphammer), Robot Demolition Equipment.	45.96	29.80 + a
Group 12: Wellpoint Operator.	45.87	29.80 + a
Group 13: Compressor Battery Operator.	45.12	29.80 + a
Group 14: Elevator Operator; Tow Motor Operator (Solid Tire No Rough Terrain).	43.6	29.80 + a
Group 15: Generator Operator; Compressor Operator; Pump Operator; Welding Machine Operator; Heater Operator.	43.06	29.80 + a
Group 16: Maintenance Engineer.	42.2	29.80 + a
Group 17: Portable Asphalt Plant Operator; Portable Crusher Plant Operator; Portable Concrete Plant Operator., Portable Grout Plant Operator, Portable Water Filtration Plant Operator.	47.91	29.80 + a
Group 18: Power Safety Boat; Vacuum Truck; Zim Mixer; Sweeper; (minimum for any job requiring CDL license).	44.7	29.80 + a
Surveyor: Chief of Party	48.16	29.80 + a
Surveyor: Assistant Chief of Party	44.41	29.80 + a

As of: October 23, 2025

Surveyor: Instrument Man	42.73	29.80 + a
Surveyor: Rodman or Chairman	36.78	29.80 + a

**NOTE: SEE BELOW

----LINE CONSTRUCTION----(Railroad Construction and Maintenance)----

20) Lineman, Cable Splicer, Technician	59.91	34.00
21) Heavy Equipment Operator	53.92	31.88
22) Equipment Operator, Tractor Trailer Driver, Material Men	50.92	30.84
23) Driver Groundmen	44.93	28.47
23a) Groundman Experienced	32.95	13.99

----OUTSIDE LINE CONSTRUCTION----

24) Driver Groundmen	43.78	28.42
25) Groundmen	32.1	13.95
26) Heavy Equipment Operators	52.53	31.83
27) Linemen, Cable Splicers, Dynamite Men	58.37	33.94

As of: October 23, 2025

28) Material Men, Tractor Trailer Drivers, Equipment Operators	49.61	30.79
29) Technician	56.12	32.85
----COMMUNICATION----		
Sales & Service Technician: To include but not limited to: Installation, Repair, Splicing and Maintenance	48.84	18.07
----DREDGING----		
Class A1: Mechanical Dredge Operator	48.48	17.32+a+b
Class B1: Maintenance Engineer	41.93	16.87+a+b
Class C1: Mate/Welder	38.38	16.62+a+b
Class D: Deckhand	30.86	16.09+a+b

Welders: Rate for craft to which welding is incidental.
Surveyors: Hazardous material removal: $3.00 per hour premium.
*Note: Hazardous waste removal work receives additional $1.25 per hour for truck drivers.
**Note: Hazardous waste premium $3.00 per hour over classified rate.
Truck Drivers: Trainers Premium: $3.00 over wage rate.
Truck Drivers: Night Premium - Mixer Drivers: $2.00 over wage rate.

Crane with 150 ft. boom (including jib) - $1.50 extra
Crane with 200 ft. boom (including jib) - $2.50 extra
Crane with 250 ft. boom (including jib) - $5.00 extra
Crane with 300 ft. boom (including jib) - $7.00 extra
Crane with 400 ft. boom (including jib) - $10.00 extra

As of: October 23, 2025

All classifications that indicate a percentage of the fringe benefits must be calculated at the percentage rate times the "base hourly rate".

Apprentices duly registered under the Commissioner of Labor's regulations on "Work Training Standards for Apprenticeship and Training Programs" Section 31-51-d-1 to 12, are allowed to be paid the appropriate percentage of the prevailing journeymen hourly base and the full fringe benefit rate, providing the work site ratio shall not be less than one full-time journeyperson instructing and supervising the work of each apprentice in a specific trade.

~~Connecticut General Statute Section 31-55a: Annual Adjustments to wage rates by contractors doing state work ~~

The Prevailing wage rates applicable to this project are subject to annual adjustments each July 1st for the duration of the project.
Each contractor shall pay the annual adjusted prevailing wage rate that is in effect each July 1st, as posted by the Department of Labor.
It is the contractor's responsibility to obtain the annual adjusted prevailing wage rate increases directly from the Department of Labor's website.
The annual adjustments will be posted on the Department of Labor's Web page: www.ct.gov/dol. For those without internet access, please contact the division listed below.
The Department of Labor will continue to issue the initial prevailing wage rate schedule to the Contracting Agency for the project.
All subsequent annual adjustments will be posted on our Web Site for contractor access.
Contracting Agencies are under no obligation pursuant to State labor law to pay any increase due to the annual adjustment provision.

Effective October 1, 2005 - Public Act 05-50: any person performing the work of any mechanic, laborer, or worker shall be paid prevailing wage

All Person who perform work ON SITE must be paid prevailing wage for the appropriate mechanic, laborer, or worker classification.

All certified payrolls must list the hours worked and wages paid to All Persons who perform work ON SITE regardless of their ownership i.e.: (Owners, Corporate Officers, LLC Members, Independent Contractors, et. al)

Reporting and payment of wages is required regardless of any contractual relationship alleged to exist between the contractor and such person.

~~Unlisted classifications needed for work not included within the scope of the classifications listed may be added after award only as provided in the labor standards contract clause (29 CFR 5.5 (a) (1) (ii)).

Please direct any questions which you may have pertaining to classification of work and payment of prevailing wages to the Wage and Workplace Standards Division, telephone (860)263-6790.

As of: October 23, 2025

Sec. 31-53b. Construction safety and health course. New miner training program. Proof of completion required for mechanics, laborers and workers on public works projects. Enforcement. Regulations. Exceptions. (a) Each contract for a public works project entered into on or after July 1, 2009, by the state or any of its agents, or by any political subdivision of the state or any of its agents, described in subsection (g) of section 31-53, shall contain a provision requiring that each contractor furnish proof with the weekly certified payroll form for the first week each employee begins work on such project that any person performing the work of a mechanic, laborer or worker pursuant to the classifications of labor under section 31-53 on such public works project, pursuant to such contract, has completed a course of at least ten hours in duration in construction safety and health approved by the federal Occupational Safety and Health Administration or, has completed a new miner training program approved by the Federal Mine Safety and Health Administration in accordance with 30 CFR 48 or, in the case of telecommunications employees, has completed at least ten hours of training in accordance with 29 CFR 1910.268.

(b) Any person required to complete a course or program under subsection (a) of this section who has not completed the course or program shall be subject to removal from the worksite if the person does not provide documentation of having completed such course or program by the fifteenth day after the date the person is found to be in noncompliance. The Labor Commissioner or said commissioner's designee shall enforce this section.

(c) Not later than January 1, 2009, the Labor Commissioner shall adopt regulations, in accordance with the provisions of chapter 54, to implement the provisions of subsections (a) and (b) of this section. Such regulations shall require that the ten-hour construction safety and health courses required under subsection (a) of this section be conducted in accordance with federal Occupational Safety and Health Administration Training Institute standards, or in accordance with Federal Mine Safety and Health Administration Standards or in accordance with 29 CFR 1910.268, as appropriate. The Labor Commissioner shall accept as sufficient proof of compliance with the provisions of subsection (a) or (b) of this section a student course completion card issued by the federal Occupational Safety and Health Administration Training Institute, or such other proof of compliance said commissioner deems appropriate, dated no earlier than five years before the commencement date of such public works project.

(d) This section shall not apply to employees of public service companies, as defined in section 16-1, or drivers of commercial motor vehicles driving the vehicle on the public works project and delivering or picking up cargo from public works projects provided they perform no labor relating to the project other than the loading and unloading of their cargo.

(P.A. 06-175, S. 1; P.A. 08-83, S. 1.)

History: P.A. 08-83 amended Subsec. (a) by making provisions applicable to public works project contracts entered into on or after July 1, 2009, replacing provision re total cost of work with reference to Sec. 31-53(g), requiring proof in certified payroll form that new mechanic, laborer or worker has completed a 10-hour or more construction safety course and adding provision re new miner training program, amended Subsec. (b) by substituting "person" for "employee" and adding "or program", amended Subsec. (c) by adding "or in accordance with Federal Mine
Safety and Health Administration Standards" and setting new deadline of January 1, 2009, deleted former Subsec. (d) re "public building", added new Subsec. (d) re exemptions for public service company employees and delivery drivers who perform no labor other than delivery and made conforming and technical changes, effective January 1, 2009.

Informational Bulletin

THE 10-HOUR OSHA CONSTRUCTION SAFETY AND HEALTH COURSE

(applicable to public building contracts entered into *on or after July 1, 2007,* where the total cost of all work to be performed is at least $100,000)

(1) This requirement was created by Public Act No. 06-175, which is codified in Section 31-53b of the Connecticut General Statutes (pertaining to the prevailing wage statutes);

(2) The course is required for public building construction contracts (projects funded in whole or in part by the state or any political subdivision of the state) entered into on or after July 1, 2007;

(3) It is required of private employees (not state or municipal employees) and apprentices who perform manual labor for a general contractor or subcontractor on a public building project where the total cost of all work to be performed is at least $100,000;

(4) The ten-hour construction course pertains to the ten-hour Outreach Course conducted in accordance with federal OSHA Training Institute standards, and, for telecommunications workers, a ten-hour training course conducted in accordance with federal OSHA standard, 29 CFR 1910.268;

(5) The internet website for the federal OSHA Training Institute is http://www.osha.gov/fso/ote/training/edcenters/fact_sheet.html;

(6) The statutory language leaves it to the contractor and its employees to determine who pays for the cost of the ten-hour Outreach Course;

(7) Within 30 days of receiving a contract award, a general contractor must furnish proof to the Labor Commissioner that all employees and apprentices performing manual labor on the project will have completed such a course;

(8) Proof of completion may be demonstrated through either: (a) the presentation of a *bona fide* student course completion card issued by the federal OSHA Training Institute; *or* (2) the presentation of documentation provided to an employee by a trainer certified by the Institute pending the actual issuance of the completion card;

(9) Any card with an issuance date more than 5 years prior to the commencement date of the construction project shall not constitute proof of compliance;

(10) Each employer shall affix a copy of the construction safety course completion card to the certified payroll submitted to the contracting agency in accordance with Conn. Gen. Stat. § 31-53(f) on which such employee's name first appears;

(11) Any employee found to be in non-compliance shall be subject to removal from the worksite if such employee does not provide satisfactory proof of course completion to the Labor Commissioner by the fifteenth day after the date the employee is determined to be in noncompliance;

(12) Any such employee who is determined to be in noncompliance may continue to work on a public building construction project for a maximum of fourteen consecutive calendar days while bringing his or her status into compliance;

(13) The Labor Commissioner may make complaint to the prosecuting authorities regarding any employer or agent of the employer, or officer or agent of the corporation who files a false certified payroll with respect to the status of an employee who is performing manual labor on a public building construction project;

(14) The statute provides the minimum standards required for the completion of a safety course by manual laborers on public construction contracts; any contractor can exceed these minimum requirements; and

(15) Regulations clarifying the statute are currently in the regulatory process, and shall be posted on the CTDOL website as soon as they are adopted in final form.

(16) Any questions regarding this statute may be directed to the Wage and Workplace Standards Division of the Connecticut Labor Department via the internet website of http://www.ctdol.state.ct.us/wgwkstnd/wgemenu.htm; or by telephone at (860)263-6790.

THE ABOVE INFORMATION IS PROVIDED EXCLUSIVELY AS AN EDUCATIONAL RESOURCE, AND IS NOT INTENDED AS A SUBSTITUTE FOR LEGAL INTERPRETATIONS WHICH MAY ULTMATELY ARISE CONCERNIG THE CONSTRUCTION OF THE STATUTE OR THE REGULATIONS.

November 29, 2006

Notice

To All Mason Contractors and Interested Parties Regarding Construction Pursuant to Section 31-53 of the Connecticut General Statutes (Prevailing Wage)

The Connecticut Labor Department Wage and Workplace Standards Division is empowered to enforce the prevailing wage rates on projects covered by the above referenced statute.

Over the past few years the Division has withheld enforcement of the rate in effect for workers who operate a forklift on a prevailing wage rate project due to a potential jurisdictional dispute.

The rate listed in the schedules and in our Occupational Bulletin (see enclosed) has been as follows:

Forklift Operator:

- **Laborers (Group 4) Mason Tenders** - operates forklift solely to assist a mason to a maximum height of nine feet only.

- **Power Equipment Operator (Group 9)** - operates forklift to assist any trade and to assist a mason to a height over nine feet.

The U.S. Labor Department conducted a survey of rates in Connecticut but it has not been published and the rate in effect remains as outlined in the above Occupational Bulletin.

Since this is a classification matter and not one of jurisdiction, effective January 1, 2007 the Connecticut Labor Department will enforce the rate on each schedule in accordance with our statutory authority.

Your cooperation in filing appropriate and accurate certified payrolls is appreciated.

STATUTE 31-55a

- SPECIAL NOTICE -

To: All State and Political Subdivisions,Their Agents, and Contractors

Connecticut General Statute 31-55a - Annual adjustments to wage rates by contractors doing state work.

Each contractor that is awarded a contract on or after October 1, 2002, for (1) the construction of a state highway or bridge that falls under the provisions of section 31-54 of the general statutes, or (2) the construction, remodeling, refinishing, refurbishing, rehabilitation, alteration or repair of any public works project that falls under the provisions of section 31-53 of the general statutes shall contact the Labor Commissioner on or before July first of each year, for the duration of such contract, to ascertain the prevailing rate of wages on an hourly basis and the amount of payment or contributions paid or payable on behalf of each mechanic, laborer or worker employed upon the work contracted to be done, and shall make any necessary adjustments to such prevailing rate of wages and such payment or contributions paid or payable on behalf of each such employee, effective each July first.

- The prevailing wage rates applicable to any contract or subcontract awarded on or after October 1, 2002 are subject to annual adjustments each July 1st for the duration of any project which was originally advertised for bids on or after October 1, 2002.
- Each contractor affected by the above requirement shall pay the annual adjusted prevailing wage rate that is in effect each July 1st, as posted by the Department of Labor.
- It is the ***contractor's*** responsibility to obtain the annual adjusted prevailing wage rate increases directly from the Department of Labor's Web Site. The annual adjustments will be posted on the Department of Labor Web page: www.ctdol.state.ct.us. For those without internet access, please contact the division listed below.

- The Department of Labor will continue to issue the initial prevailing wage rate schedule to the Contracting Agency for the project. All subsequent annual adjustments will be posted on our Web Site for contractor access.

Any questions should be directed to the Contract Compliance Unit, Wage and Workplace Standards Division, Connecticut Department of Labor, 200 Folly Brook Blvd., Wethersfield, CT 06109 at (860)263-6790.

CONNECTICUT DEPARTMENT OF LABOR
WAGE AND WORKPLACE STANDARDS DIVISION

CONTRACTORS WAGE CERTIFICATION FORM

Construction Manager at Risk/General Contractor/Prime Contractor

I,_____ of _____
Officer, Owner, Authorized Rep. Company Name

do hereby certify that the _____
Company Name

_____
Street

_____
City

and all of its subcontractors will pay all workers on the

_____
Project Name and Number

_____
Street and City

the wages as listed in the schedule of prevailing rates required for such project (a copy of which is attached hereto).

_____
Signed

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

_____
Notary Public

Return to:

Connecticut Department of Labor
Wage & Workplace Standards Division
200 Folly Brook Blvd.
Wethersfield, CT 06109

Rate Schedule Issued (Date): _____

[New] In accordance with Section 31-53b(a) of the C.G.S. each contractor shall provide a copy of the OSHA 10 Hour Construction Safety and Health Card for each employee, to be attached to the first certified payroll on the project.

In accordance with Connecticut General Statutes, 31-53
Certified Payrolls with a statement of compliance
shall be submitted monthly to the contracting agency.

PAYROLL CERTIFICATION FOR PUBLIC WORKS PROJECTS

WEEKLY PAYROLL

Connecticut Department of Labor
Wage and Workplace Standards Division
200 Folly Brook Blvd.
Wethersfield, CT 06109

CONTRACTOR NAME AND ADDRESS:	SUBCONTRACTOR NAME & ADDRESS	WORKER'S COMPENSATION INSURANCE CARRIER POLICY # EFFECTIVE DATE: EXPIRATION DATE:
PAYROLL NUMBER | Week-Ending Date | PROJECT NAME & ADDRESS		

PERSON/WORKER, ADDRESS and SECTION	APPR RATE %	MALE/ FEMALE AND RACE*	WORK CLASSIFICATION Trade License Type & Number - OSHA 10 Certification Number	DAY AND DATE S	M	T	W	TH	F	S HOURS WORKED EACH DAY	Total ST Hours Total O/T Hours	BASE HOURLY RATE TOTAL FRINGE BENEFIT PLAN CASH	TYPE OF FRINGE BENEFITS Per Hour 1 through 6 (see back)	GROSS PAY FOR ALL WORK PERFORMED THIS WEEK	TOTAL DEDUCTIONS FICA	FEDERAL WITH-HOLDING	STATE WITH-HOLDING	LIST OTHER	GROSS PAY FOR THIS PREVAILING RATE JOB	CHECK # AND NET PAY
												$ Base Rate	1. $ 2. $ 3. $							
												$ Cash Fringe	4. $ 5. $ 6. $							
												$ Base Rate	1. $ 2. $ 3. $							
												$ Cash Fringe	4. $ 5. $ 6. $							
												$ Base Rate	1. $ 2. $ 3. $							
												$ Cash Fringe	4. $ 5. $ 6. $							
												$ Base Rate	1. $ 2. $ 3. $							
												$ Cash Fringe	4. $ 5. $ 6. $							

12/9/2013 *IF REQUIRED
WWS-CP1

*SEE REVERSE SIDE

PAGE NUMBER _____OF

OSHA 10 ~ATTACH CARD TO 1ST CERTIFIED PAYROLL

***FRINGE BENEFITS EXPLANATION (P):**

Bona fide benefits paid to approved plans, funds or programs, except those required by Federal or State Law (unemployment tax, worker's compensation, income taxes, etc.).

Please specify the type of benefits provided:

1) Medical or hospital care _____ 4) Disability_____

2) Pension or retirement _____ 5) Vacation, holiday_____

3) Life Insurance _____ 6) Other (please specify) _____

CERTIFIED STATEMENT OF COMPLIANCE

For the week ending date of _____,

I, _____of _____, (hereafter known as

Employer) in my capacity as _____ (title) do hereby certify and state:

Section A:

1. All persons employed on said project have been paid the full weekly wages earned by them during the week in accordance with Connecticut General Statutes, section 31-53, as amended. Further, I hereby certify and state the following:

a) The records submitted are true and accurate;

b) The rate of wages paid to each mechanic, laborer or workman and the amount of payment or contributions paid or payable on behalf of each such person to any employee welfare fund, as defined in Connecticut General Statutes, section 31-53 (h), are not less than the prevailing rate of wages and the amount of payment or contributions paid or payable on behalf of each such person to any employee welfare fund, as determined by the Labor Commissioner pursuant to subsection Connecticut General Statutes, section 31-53 (d), and said wages and benefits are not less than those which may also be required by contract;

c) The Employer has complied with all of the provisions in Connecticut General Statutes, section 31-53 (and Section 31-54 if applicable for state highway construction);

d) Each such person is covered by a worker's compensation insurance policy for the duration of his employment which proof of coverage has been provided to the contracting agency;

e) The Employer does not receive kickbacks, which means any money, fee, commission, credit, gift, gratuity, thing of value, or compensation of any kind which is provided directly or indirectly, to any prime contractor, prime contractor employee, subcontractor, or subcontractor employee for the purpose of improperly obtaining or rewarding favorable treatment in connection with a prime contract or in connection with a prime contractor in connection with a subcontractor relating to a prime contractor; and

f) The Employer is aware that filing a certified payroll which he knows to be false is a class D felony for which the employer may be fined up to five thousand dollars, imprisoned for up to five years or both.

2. OSHA~The employer shall affix a copy of the construction safety course, program or training completion document to the certified payroll required to be submitted to the contracting agency for this project on which such persons name first appears.

_____	_____	_____
(Signature)	(Title)	Submitted on (Date)

*****THIS IS A PUBLIC DOCUMENT*****
*****DO NOT INCLUDE SOCIAL SECURITY NUMBERS*****

Weekly Payroll Certification For
Public Works Projects (Continued)

PAYROLL CERTIFICATION FOR PUBLIC WORKS PROJECTS

WEEKLY PAYROLL

Week-Ending Date:
Contractor or Subcontractor Business Name:

PERSON/WORKER, ADDRESS and SECTION	APPR RATE %	MALE/ FEMALE AND RACE*	WORK CLASSIFICATION Trade License Type & Number - OSHA 10 Certification Number	DAY AND DATE S	M	T	W	TH	F	S HOURS WORKED EACH DAY	Total ST Hours Total O/T Hours	BASE HOURLY RATE TOTAL FRINGE BENEFIT PLAN CASH	TYPE OF FRINGE BENEFITS Per Hour 1 through 6 (see back)	GROSS PAY FOR ALL WORK PERFORMED THIS WEEK	TOTAL DEDUCTIONS FICA	FEDERAL WITH-HOLDING	STATE WITH-HOLDING	LIST OTHER	GROSS PAY FOR THIS PREVAILING RATE JOB	CHECK # AND NET PAY
												$ Base Rate $ Cash Fringe	1. $ 2. $ 3. $ 4. $ 5. $ 6. $							
												$ Base Rate $ Cash Fringe	1. $ 2. $ 3. $ 4. $ 5. $ 6. $							
												$ Base Rate $ Cash Fringe	1. $ 2. $ 3. $ 4. $ 5. $ 6. $							
												$ Base Rate $ Cash Fringe	1. $ 2. $ 3. $ 4. $ 5. $ 6. $							
												$ Base Rate $ Cash Fringe	1. $ 2. $ 3. $ 4. $ 5. $ 6. $							

*IF REQUIRED

12/9/2013
WWS-CP2

NOTICE: THIS PAGE MUST BE ACCOMPANIED BY A COVER PAGE (FORM # WWS-CP1)

PAGE NUMBER ______OF

Employee Complaint Forms
Employer Forms
Laws/Legislation
Manuals and Publications
Compliance Assistance
Prevailing Wages
Standard Wage Rates
Workplace Standards
Employment of Minors
FMLA
Joint Enforcement Commission For Worker Misclassification (JEC)
Stop Work Orders
Reports of Activities
FAQs
Newsroom
Contact Us

OCCUPATIONAL CLASSIFICATION BULLETIN

The Connecticut Department of Labor has the responsibility to properly determine "job classification" on prevailing wage projects covered under C.G.S. Section 31-53.

Note: This information is intended to provide a sample of some occupational classifications for guidance purposes only. It is not an all-inclusive list of each occupation's duties. This list is being provided only to highlight some areas where a contractor may be unclear regarding the proper classification.

Below are additional clarifications of specific job duties performed for certain classifications:

- **ASBESTOS WORKERS**
  - Applies all insulating materials, protective coverings, coatings and finishes to all types of mechanical systems.
- **ASBESTOS INSULATOR**
  - Handle, install apply, fabricate, distribute, prepare, alter, repair, dismantle, heat and frost insulation, including penetration and fire stopping work on all penetration fire stop systems.
- **BOILERMAKERS**
  - Erects hydro plants, incomplete vessels, steel stacks, storage tanks for water, fuel, etc. Builds incomplete boilers, repairs heat exchanges and steam generators.
- **BRICKLAYERS, CEMENT MASONS, CEMENT FINISHERS, MARBLE MASONS, PLASTERERS, STONE MASONS, PLASTERERS. STONE MASONS, TERRAZZO WORKERS, TILE SETTERS**
  - Lays building materials such as brick, structural tile and concrete cinder, glass, gypsum, terra cotta block. Cuts, tools and sets marble, sets stone, finishes concrete, applies decorative steel, aluminum and plastic tile, applies cements, sand, pigment and marble chips to floors, stairways, etc.
- **CARPENTERS, MILLWRIGHTS. PILEDRIVERMEN. LATHERS. RESILEINT FLOOR LAYERS, DOCK BUILDERS, DIKERS, DIVER TENDERS**
  - Constructs, erects, installs and repairs structures and fixtures of wood, plywood and wallboard. Installs, assembles, dismantles, moves industrial machinery. Drives piling into ground to provide foundations for structures such as buildings and bridges, retaining walls for earth embankments, such as cofferdams. Fastens wooden, metal or rockboard lath to walls, ceilings and partitions of buildings, acoustical tile layer, concrete form builder. Applies firestopping materials on fire resistive joint systems only. Installation of curtain/window walls only where attached to wood or metal studs. Installation of insulated material of all types whether blown, nailed or attached in other ways to walls, ceilings and floors of buildings. Assembly and installation of modular furniture/furniture systems. Free-standing furniture is not covered. This includes free standing: student chairs, study top desks, book box desks, computer furniture, dictionary stand, atlas stand, wood shelving, two-position information access station, file cabinets, storage cabinets, tables, etc.
- **CLEANING LABORER**
  - The clean up of any construction debris and the general cleaning, including sweeping, wash down, mopping, wiping of the construction facility, washing, polishing, dusting, etc., prior to the issuance of a certificate of occupancy falls under the *Labor classification.*
- **DELIVERY PERSONNEL**
  - If delivery of supplies/building materials is to one common point and stockpiled there, prevailing wages are not required. If the delivery personnel are involved in the distribution of the material to multiple locations within the construction site then they would have to be paid prevailing wages for the type of work performed: laborer, equipment operator,

electrician, ironworker, plumber, etc.

- An example of this would be where delivery of drywall is made to a building and the delivery personnel distribute the drywall from one "stockpile" location to further sub-locations on each floor. Distribution of material around a construction site is the job of a laborer/tradesman and not a delivery personnel.

- **ELECTRICIANS**
  - Install, erect, maintenance, alteration or repair of any wire, cable, conduit, etc., which generates, transforms, transmits or uses electrical energy for light, heat, power or other purposes, including the Installation or maintenance of telecommunication, LAN wiring or computer equipment, and low voltage wiring. ***License required per Connecticut General Statutes: E-1,2 L-5,6 C-5,6 T-1,2 L-1,2 V-1,2,7,8,9.**
- **ELEVATOR CONSTRUCTORS**
  - Install, erect, maintenance and repair of all types of elevators, escalators, dumb waiters and moving walks. ***License required by Connecticut General Statutes: R-1,2,5,6.**
- **FORK LIFT OPERATOR**
  - Laborers Group 4) Mason Tenders - operates forklift solely to assist a mason to a maximum height of nine (9) feet only.
  - Power Equipment Operator Group 9 - operates forklift to assist any trade, and to assist a mason to a height over nine (9) feet.
- **GLAZIERS**
  - Glazing wood and metal sash, doors, partitions, and 2 story aluminum storefronts. Installs glass windows, skylights, store fronts and display cases or surfaces such as building fronts, interior walls, ceilings and table tops and metal store fronts. Installation of aluminum window walls and curtain walls is the "joint" work of glaziers and ironworkers which requires either a blended rate or equal composite workforce.
- **IRONWORKERS**
  - Erection, installation and placement of structural steel, precast concrete, miscellaneous iron, ornamental iron, metal curtain wall, rigging and reinforcing steel. Handling, sorting, and installation of reinforcing steel (rebar). Metal bridge rail (traffic), metal bridge handrail, and decorative security fence installation. Installation of aluminum window walls and curtain walls is the "joint" work of glaziers and ironworkers which requires either a blended rate or equal composite workforce. Insulated metal and insulated composite panels are still installed by the Ironworker.
- **INSULATOR**
  - Installing fire stopping systems/materials for "Penetration Firestop Systems": transit to cables, electrical conduits, insulated pipes, sprinkler pipe penetrations, ductwork behind radiation, electrical cable trays, fire rated pipe penetrations, natural polypropylene, HVAC ducts, plumbing bare metal, telephone and communication wires, and boiler room ceilings. Past practice using the applicable licensed trades, Plumber, Sheet Metal, Sprinkler Fitter, and Electrician, is not inconsistent with the Insulator classification and would be permitted.
- **LABORERS**
  - Acetylene burners, asphalt rakers, chain saw operators, concrete and power buggy operator, concrete saw operator, fence and guard rail erector (except metal bridge rail (traffic), metal bridge handrail, and decorative security fence installation.), hand operated concrete vibrator operator, mason tenders, pipelayers (installation of storm drainage or sewage lines on the street only), pneumatic drill operator, pneumatic gas and electric drill operator, powermen and wagon drill operator, air track operator, block paver, curb setters, blasters, concrete spreaders.
- **PAINTERS**
  - Maintenance, preparation, cleaning, blasting (water and sand, etc.), painting or application of any protective coatings of every description on all bridges and appurtenances of highways, roadways, and railroads. Painting, decorating, hardwood finishing, paper hanging, sign writing, scenic art work and drywall hanging+ for any and all types of building and residential work.
- **LEAD PAINT REMOVAL**
  - Painter's Rate
    1. Removal of lead paint from bridges.
    2. Removal of lead paint as preparation of any surface to be repainted.
    3. Where removal is on a Demolition project prior to reconstruction.
  - Laborer's Rate
    1. Removal of lead paint from any surface NOT to be repainted.
    2. Where removal is on a *TOTAL* Demolition project only.
- **PLUMBERS AND PIPEFITTERS**
  - Installation, repair, replacement, alteration or maintenance of all plumbing, heating, cooling and piping. ****License required per Connecticut General Statutes: P-1,2,6,7,8,9 J-1,2,3,4 SP-1,2 S-1,2,3,4,5,6,7,8 B-1,2,3,4 D-1,2,3,4.***

- **POWER EQUIPMENT OPERATORS**
  - ates several types of power construction equipment such as compressors, pumps, hoists, derricks, cranes, shovels, tractors, scrapers or motor graders, etc. Repairs and maintains equipment. ***License required, crane operators only, per Connecticut General Statutes.**
- **ROOFERS**
  - Covers roofs with composition shingles or sheets, wood shingles, slate or asphalt and gravel to waterproof roofs, including preparation of surface. (tear-off and/or removal of any type of roofing and/or clean-up of any and all areas where a roof is to be relaid)
- **SHEETMETAL WORKERS**
  - Fabricate, assembles, installs and repairs sheetmetal products and equipment in such areas as ventilation, air-conditioning, warm air heating, restaurant equipment, architectural sheet metal work, sheetmetal roofing, and aluminum gutters. Fabrication, handling, assembling, erecting, altering, repairing, etc. of coated metal material panels and composite metal material panels when used on building exteriors and interiors as soffits, facia, louvers, partitions, wall panel siding, canopies, cornice, column covers, awnings, beam covers, cladding, sun shades, lighting troughs, spires, ornamental roofing, metal ceilings, mansards, copings, ornamental and ventilation hoods, vertical and horizontal siding panels, trim, etc. The sheet metal classification also applies to the vast variety of coated metal material panels and composite metal material panels that have evolved over the years as an alternative to conventional ferrous and non-ferrous metals like steel, iron, tin, copper, brass, bronze, aluminum, etc. Insulated metal and insulated composite panels are still installed by the Iron Worker. Fabrication, handling, assembling, erecting, altering, repairing, etc. of architectural metal roof, standing seam roof, composite metal roof, metal and composite bathroom/toilet partitions, aluminum gutters, metal and composite lockers and shelving, kitchen equipment, and walk-in coolers.
- **SPRINKLER FITTERS**
  - Installation, alteration, maintenance and repair of fire protection sprinkler systems. ***License required per Connecticut General Statutes: F-1,2,3,4.**
- **TILE MARBLE AND TERRAZZO FINISHERS**
  - Assists and tends the tile setter, marble mason and terrazzo worker in the performance of their duties.
- **TRUCK DRIVERS**
  - **Definitions:**
    - 1) “Site of the work” (29 Code of Federal Regulations (CFR) 5.2(l)(b) is the physical place or places where the building or work called for in the contract will remain and any other site where a significant portion of the building or work is constructed, provided that such site is established specifically for the performance of the contact or project;
      - (a) Except as provided in paragraph (l) (3) of this section, job headquarters, tool yards, batch plants, borrow pits, etc. are part of the “site of the work”; provided they are dedicated exclusively, or nearly so, to the performance of the contract or project, and provided they are adjacent to “the site of work” as defined in paragraph (e)(1) of this section;
      - (b) Not included in the “site of the work” are permanent home offices, branch plant establishments, fabrication plants, tool yards etc, of a contractor or subcontractor whose location and continuance in operation are determined wholly without regard to a particular State or political subdivision contract or uncertain and indefinite periods of time involved of a few seconds or minutes duration and where the failure to count such time is due to consideration justified by industrial realities (29 CFR 785.47)
    - 2) “Engaged to wait” is waiting time that belongs to and is controlled by the employer which is an integral part of the job and is therefore compensable as hours worked. (29 CFR 785.15)
    - 3) “Waiting to be engaged” is waiting time that an employee can use effectively for their own purpose and is not compensable as hours worked. (29 CFR 785.16)
    - 4) “De Minimus” is a rule that recognizes that unsubstantial or insignificant periods of time which cannot as a practical administrative matter be precisely recorded for payroll purposes, may be disregarded. This rule applies only where there are uncertain and indefinite periods of time involved of a short duration and where the failure to count such time is due to consideration justified by worksite realities. For example, with respect to truck drivers on prevailing wage sites, this is typically less than 15 minutes at a time.
  - **Coverage of Truck Drivers on State or Political subdivision Prevailing Wage Projects**
    - Truck drivers **are covered** for payroll purposes under the following conditions:
      - Truck Drivers for time spent working on the site of the work.
      - Truck Drivers for time spent loading and/or unloading materials and supplies on the site of the work, if such time is not de minimus
      - Truck drivers transporting materials or supplies between a facility that is deemed part of the site of the work and the actual construction site.

- Truck drivers transporting portions of the building or work between a site established specifically for the performance of the contract or project where a significant portion of such building or work is constructed and the physical places where the building or work outlined in the contract will remain.

For example: Truck drivers delivering asphalt are covered under prevailing wage while" engaged to wait" on the site and when directly involved in the paving operation, provided the total time is not "de minimus"

- Truck Drivers **are not** covered in the following instances:
  - Material delivery truck drivers while off "the site of the work"
  - Truck Drivers traveling between a prevailing wage job and a commercial supply facility while they are off the "site of the work"
  - Truck drivers whose time spent on the "site of the work" is de minimus, such as under 15 minutes at a time, merely to drop off materials or supplies, including asphalt.

These guidelines are similar to U.S. Labor Department policies. The application of these guidelines may be subject to review based on factual considerations on a case by case basis.

For example:

- Material men and deliverymen are not covered under prevailing wage as long as they are not directly involved in the construction process. If, they unload the material, they would then be covered by prevailing wage for the classification they are performing work in: laborer, equipment operator, etc.
- Hauling material off site is not covered provided they are not dumping it at a location outlined above.
- Driving a truck on site and moving equipment or materials on site would be considered covered work, as this is part of the construction process.

Any questions regarding the proper classification should be directed to:

Public Contract Compliance Unit
Wage and Workplace Standards Division
Connecticut Department of Labor
200 Folly Brook Blvd, Wethersfield, CT 06109
(860) 263-6543

Connecticut Department of Labor
Wage and Workplace Standards Division
FOOTNOTES

⇨ Please Note: If the "Benefits" listed on the schedule for the following occupations includes a letter(s) (+ a or + a+b for instance), refer to the information below.

Benefits to be paid at the appropriate prevailing wage rate for the listed occupation.

If the "Benefits" section for the occupation lists only a dollar amount, disregard the information below.

Bricklayers, Cement Masons, Cement Finishers, Concrete Finishers, Stone Masons
(Building Construction) and
(Residential- Hartford, Middlesex, New Haven, New London and Tolland Counties)

a. Paid Holiday: Employees shall receive 4 hours for Christmas Eve holiday provided the employee works the regularly scheduled day before and after the holiday. Employers may schedule work on Christmas Eve and employees shall receive pay for actual hours worked in addition to holiday pay.

Elevator Constructors: Mechanics

a. Paid Holidays: New Year's Day, Memorial Day, Independence Day, Labor Day, Veterans' Day, Thanksgiving Day, Christmas Day, plus the Friday after Thanksgiving.

b. Vacation: Employer contributes 8% of basic hourly rate for 5 years or more of service or 6% of basic hourly rate for 6 months to 5 years of service as vacation pay credit.

Glaziers

a. Paid Holidays: Labor Day and Christmas Day.

Power Equipment Operators
(Heavy and Highway Construction & Building Construction)

a. Paid Holidays: New Year's Day, Good Friday, Memorial day, Independence Day, Labor Day, Thanksgiving Day and Christmas Day, provided the employee works 3 days during the week in which the holiday falls, if scheduled, and if scheduled, the working day before and the working day after the holiday. Holidays falling on Saturday may be observed on Saturday, or if the employer so elects, on the preceding Friday.

Ironworkers

a. Paid Holiday: Labor Day provided employee has been on the payroll for the 5 consecutive work days prior to Labor Day.

Laborers (Tunnel Construction)

a. Paid Holidays: New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day and Christmas Day. No employee shall be eligible for holiday pay when he fails, without cause, to work the regular work day preceding the holiday or the regular work day following the holiday.

Roofers

a. Paid Holidays: July 4th, Labor Day, and Christmas Day provided the employee is employed 15 days prior to the holiday.

Sprinkler Fitters

a. Paid Holidays: Memorial Day, July 4th, Labor Day, Thanksgiving Day and Christmas Day, provided the employee has been in the employment of a contractor 20 working days prior to any such paid holiday.

Truck Drivers

(Heavy and Highway Construction & Building Construction)

a. Paid Holidays: New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, Christmas day, and Good Friday, provided the employee has at least 31 calendar days of service and works the last scheduled day before and the first scheduled day after the holiday, unless excused.

Rev. 7/1/15

Important Information:

For use with Building, Heavy/Highway, and Residential

Welders: Rate for craft to which welding is incidental.

*Note: Hazardous waste removal work receives additional $1.25 per hour for truck drivers.

**Note: Hazardous waste premium $3.00 per hour over classified rate.

ALL Cranes: When crane operator is operating equipment that requires a fully licensed crane operator to operate he receives an extra $4.00 premium in addition to the hourly wage rate and benefit contributions:

1) Crane handling or erecting structural steel or stone; hoisting engineer (2 drums or over)
2) Cranes (100 ton rate capacity and over) Bauer Drill/Caisson
3) Cranes (under 100 ton rated capacity)

Crane with boom including jib, 150 feet - $1.50 extra.

Crane with boom including jib, 200 feet - $2.50 extra.

Crane with boom including jib, 250 feet - $5.00 extra.

Crane with boom including jib, 300 feet - $7.00 extra.

Crane with boom including jib, 400 feet - $10.00 extra.

All classifications that indicate a percentage of the fringe benefits must be calculated at the percentage rate times the "base hourly rate".

- Apprentices duly registered under the Commissioner of Labor's regulations on "Work Training Standards for Apprenticeship and Training Programs" Section 31-51-d-1 to 12, are allowed to be paid the appropriate percentage of the prevailing journeymen hourly base and the full fringe benefit rate, providing the work site ratio shall not be less than one full-time journeyperson instructing and supervising the work of one apprentice in a specific trade.

Connecticut General Statute Section 31-55a: Annual Adjustments to wage rates by contractors doing state work

- The Prevailing wage rates applicable to this project are subject to annual adjustments each July 1st for the duration of the project.
- Each contractor shall pay the annual adjusted prevailing wage rate that is in effect each July 1st, as posted by the Department of Labor.
- It is the contractor's responsibility to obtain the annual adjusted prevailing wage rate increases directly from the Department of Labor's website.
- The annual adjustments will be posted on the Department of Labor's Web page: www.ctdol.state.ct.us.
- The Department of Labor will continue to issue the initial prevailing wage rate schedule to the Contracting Agency for the project.
- All subsequent annual adjustments will be posted on our Web Site for contractor access.

Effective October 1, 2005 - Public Act 05-50: any person performing the work of any mechanic, laborer, or worker shall be paid prevailing wage.

- All Persons who perform work ON SITE must be paid prevailing wage for the appropriate mechanic, laborer, or worker classification.
- All certified payrolls must list the hours worked and wages paid to All Persons who perform work ON SITE regardless of their ownership i.e.: (Owners, Corporate Officers, LLC Members, Independent Contractors, et. al)
- Reporting and payment of wages is required regardless of any contractual relationship alleged to exist between the contractor and such person.

Unlisted classifications needed for work not included within the scope of the classifications listed may be added after award only as provided in the labor standards contract clause (29 CFR 5.5 (a) (1) (ii)).

Please direct any questions which you may have pertaining to classification of work and payment of prevailing wages to the Wage and Workplace Standards Division, telephone (860)263-6790.