Weston & Sampson

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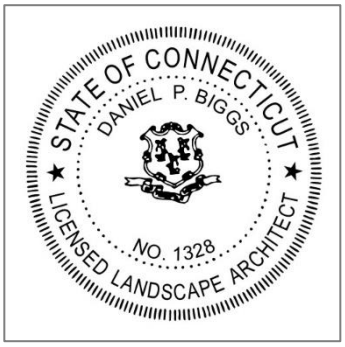
WESTON & SAMPSON ENGINEERS, INC.
712 Brook Street, Suite 103
Rocky Hill, CT 06067
tel: 860.513.1473

CONTRACT DOCUMENTS

July 3, 2025

TOWN OF
Darien
CONNECTICUT

Pear Tree Beach Park Improvements



Daniel P. Biggs, RLA, ISA. CERP
7/3/25

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Invitation to Bid

Town of Darien
Pear Tree Beach Park Improvements Project
Bid #2026-03

Sealed bids for construction of the **Pear Tree Beach Park Improvements Project** for the Town of Darien, Connecticut, will be received in the **Office of the Selectmen, Room 202, Darien Town Hall, 2 Renshaw Road, Darien, Connecticut** until **3:00 p.m.** on **Thursday**, **August 7th, 2025,** at which time and place said bids will be publicly opened and read aloud.

The scope of work includes construction of site improvements but is not limited to new parking lot, concrete curbing, concrete sidewalks, concrete paving, stormwater infrastructure, landscaping, site furniture, dredging, wetland restoration, and other beach improvements within the Pear Tree Beach Park on Pear Tree Point Road in the Town of Darien, Connecticut.

Bid specifications may be obtained online at the State of CT DAS Contracting Portal, as well as the Town of Darien website (www.darienct.gov/bids). All plan holders must register at the State of CT DAS Contracting Portal to receive any addenda.

The selected contractor shall furnish a performance bond and a payment bond in amount at least equal to one hundred percent (100%) of the contract price as stipulated in Section 00 72 00 GENERAL CONDITIONS of these specifications.

Attention of bidders is particularly called to the requirements as to conditions of employment observed and prevailing wage rates to be paid under contract as determined by Connecticut General Statutes 31-53.

By submission of a bid, the Bidder agrees that this bid shall be good and may not be withdrawn for a period of 60 working days, Saturdays, Sundays and legal holidays excluded after the opening of bids.

The Owner reserves the right to waive any informalities or to reject any or all bids.

The Town of Darien is an Affirmative Action/Equal Opportunity Employer; Minority/Women's Business Enterprises are encouraged to bid.

Jon Zagrodzky
Purchasing Agent

SECTION 00 21 13

INSTRUCTIONS TO BIDDERS

1. RECEIPT AND OPENING OF BIDS
2. BID FORM
3. BID DEPOSIT
4. BID OPENING PROCEDURES
5. COMPARISON OF BIDS
6. WITHDRAWAL OF BIDS
7. ADDENDA AND INTERPRETATIONS
8. DELETIONS FROM CONTRACT
9. EXAMINATION
10. CONTRACT TIME
11. PERFORMANCE AND PAYMENT BONDS
12. ABILITY AND EXPERIENCE
13. INSURANCE CERTIFICATES
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15. EXECUTION OF THE AGREEMENT
16. PREVAILING WAGE RATES
17. SAFETY AND HEALTH REGULATIONS
18. NON-DISCRIMINATION IN EMPLOYMENT
19. ACCESS TO THE SITE
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29. MINORITY PROCUREMENT GOALS
30. UTILITY INFORMATION
31. PREPARATION OF CONTRACT DOCUMENTS AND PLANS
32. NOTICE OF REQUIREMENTS RELATING TO SUBCONTRACTOR DUE TO GRANT
33. WAIVER OF LOCAL FEES
34. OSHA TEN HOUR TRAINING CERTIFICATION
35. BID SUBMITTAL REQUIREMENTS

1. RECEIPT AND OPENING OF BIDS

The Town of Darien, Connecticut, herein called the Awarding Authority or Owner, acting by and through its Board of Selectmen, will receive sealed Bids for Construction of the work to be done under this Contract, including the following, all as indicated on the Contract Drawings and specified herein:

A. Furnish all labor, materials, tools and equipment for the project as specified on the attached drawings and specifications.

B. The construction of all incidentals to complete work as described above.

Such Bids, addressed to the **Office of the Selectmen**, and clearly marked **"Proposal for Pear Tree Beach Park Improvements Project",** will be received at the Darien Town Hall, 2 Renshaw Road, Room 206, Darien, Connecticut 06820 until the date and time listed in Section 00 11 13 Advertisement for Bids.

2. BID FORM

A. Each Bid shall be submitted on the required Bid Form. The Bid Form shall be removed and submitted separately. All blank spaces for Bid prices must be filled in with the lump sum and unit prices for which the Bid is being submitted.

B. Bid Forms must be completed in ink or by typewriter. The Bid price for each item on the form shall be stated in words, and figures. Discrepancies between words and figures will be resolved in favor of words. Discrepancies between the indicated total of unit prices multiplied by the estimated quantities and the correct total will be resolved in favor of the correct total. Discrepancies between the indicated sum of any column of figures and the correct sum thereof will be resolved in favor of the correct sum.

C. A Bid which includes for any item a Bid Price that is abnormally low or high may be rejected as unbalanced.

3. BID DEPOSIT

A. Each Bid submitted by bidders filing bids in accordance with the required procedure shall be accompanied by a bid deposit in the form of a bid bond, or cash, or a certified check on, or a treasurer's or cashier's check issued by, a responsible bank or trust company in the amount of five percent (5%) of the value of the proposed work, payable to the "Town of Darien."

B. All bid deposits of general bidders except those of the three lowest responsible and eligible general bidders shall be returned within five (5) working days, Saturday, Sunday and legal holidays excluded, after the opening of bids. Bid deposits withheld shall be returned upon execution and delivery of the general contract; except that if the selected general bidder fails to execute a contract and furnish the required bonds and insurance certificates, the contractor's deposit shall become the property of the Awarding Authority as liquidated damages in an amount not to exceed the difference between the contractor's bid price and the bid price of the next lowest responsible and eligible bidder.

C. In case of death, disability, or other unforeseen circumstances affecting the bidder, such bid deposit may be returned. After execution of the Contract and acceptance of the bonds by the Awarding Authority, the bid deposit accompanying the proposal of the successful bidder will be returned.

D. All bid deposits will be returned on the execution of the Contract, or if no award is made within 90 days after the date of the opening thereof, unless forfeited under the conditions stipulated above.

4. BID OPENING PROCEDURES

A. Bid signatures will be checked.

B. Acknowledgement of addenda will be checked (see Section 00 41 13, Form of General Bid).

C. The total dollar amount of each bid will be read, and the individual bid prices for each item of the three apparent low bidders will be read.

D. The bid form attachments will be verified to be included with the bid and signatures confirmed. The review of the bid form attachments will be completed following the bid opening.

E. The bid opening will then be closed. All those present at the bid opening may examine any of the bids after close of the bid opening.

5. COMPARISON OF BIDS

A. Bids will be compared on the basis of the quantities and units and lump sum prices stated in Section 00 41 13, Form of General Bid.

B. In the event of a discrepancy between written and numerical figures in lump sum prices, the written figures shall govern.

6. WITHDRAWAL OF BIDS

Bidders may not withdraw or modify their bids for a period of 90 days, Saturday, Sunday and legal holidays excluded, following the opening of the bids.

7. ADDENDA AND INTERPRETATIONS

All questions by prospective bidders as to the interpretations of the Advertisement for Bids, Form of General Bid, Agreement, Drawings, Specifications or Bonds, must be submitted in writing to the Project Engineer, Weston & Sampson Engineers, Inc., via email: BiggsD@wseinc.com, at least ten (10) days before the date herein set for the opening of bids. Any interpretation of all questions so raised which, in the Engineer's opinion requires interpretation, will be posted no later than five (5) days before the date of opening of bids. No other form of communication in this regard will be considered legal and binding. Failure of any bidder to receive any such addendum or interpretation shall not relieve such bidder from any obligation under this bid as submitted. All addenda so issued shall be covered in the Bid and shall become part of the Contract Documents.

8. DELETIONS FROM CONTRACT

The Awarding Authority reserves the right, prior to award of the Contract, to delete any portion of the contractor's work as its interests may appear, and to adjust the quantities of work at any time.

9. EXAMINATION

By submitting a bid, the bidder warrants that they have examined the site of the work, the specifications and drawings and is fully acquainted with all conditions and restrictions pertaining to the work and the execution thereof. No claim for any extra work or extension of time will be allowed for failure to observe this requirement. Conditional bids will not be accepted.

10. CONTRACT TIME

All work related to the Contract shall be substantially completed by **April 18, 2026**. The successful bidder will be assessed $1,500.00 per calendar day as liquidated damages, and not as a penalty, for every day the work remains uncompleted after the scheduled completion date.

The Owner wishes to commence work on or about **November 3, 2025**, and complete all work by **May 1, 2026**. Important dates related to this project are as follows. The Boat Club last day is **November 2nd**. In-water work is prohibited from **February 1st through May 15th and July 1st through August 30th**. Bidders should not bid for this contract if they will be unable to meet the Owner's project schedule.

11. PERFORMANCE AND PAYMENT BONDS

A. The selected Bidder shall provide both performance and payment bonds at the time of execution of the contract.

B. Each bond shall be in amounts equal to one hundred percent (100%) of the contract amount, shall be in the form as given elsewhere herein, shall be by a surety qualified to do business under the laws of the State of Connecticut and satisfactory to the Awarding Authority.

12. ABILITY AND EXPERIENCE

A. The Awarding Authority will not award a contract to any bidder who cannot furnish satisfactory evidence of their ability and experience in this type of work and that they have sufficient plant and capital to enable them to prosecute and complete the work within the given time period.

B. The Awarding Authority may make such investigations as it deems necessary to determine the above and a bidder shall furnish any information requested in this regard and shall furnish same under oath if required.

13. INSURANCE CERTIFICATES

The Contractor will not be permitted to start any construction work until they have submitted certificates of insurance acceptable to the Awarding Authority. Certificates shall be submitted at the time of execution of the contract. Refer to Section **00 73 00 Supplemental General Conditions** for details regarding insurance requirements.

14. RIGHTS OF THE AWARDING AUTHORITY

A. The Awarding Authority may reject, as informal, bids that are incomplete, conditional, or obscure, or that contain additions or erasures that are not initialed or other irregularities.

B. The Awarding Authority reserves the right to reject any or all bids or to accept any bid as their interests may appear.

C. The Awarding Authority anticipates awarding a contract for this project within ten (10) days of the date of bid opening; however, this date is subject to change. Bidders shall be prepared to submit within four (4) working days all documents and information required for full execution of the Agreement. If the Contractor fails to do so, the Awarding Authority reserves the right to rescind the Contract Award.

15. EXECUTION OF THE AGREEMENT

A. Within ten (10) days of the receipt of the Agreement signed by the successful bidder and receipt of acceptable performance and payment bonds, the Awarding Authority shall sign the Agreement and return a duplicate of the executed Agreement.

B. The Notice to Proceed shall be issued within ten (10) days of the execution of the Agreement. This time period may be extended by mutual agreement between the Awarding Authority and the Contractor.

16. PREVAILING WAGE RATES

A. Federal Wage Rates and Connecticut Wage Rates are attached to these specifications. The higher of the Federal or Connecticut wage rates for each job classification shall apply.

B. All construction associated with this contract will be consistent with the federal wage rate decision included in this Bid Package.

17. SAFETY AND HEALTH REGULATIONS

A. The successful bidder shall comply with the Department of Labor Safety and Health Regulations for Construction promulgated under the Occupational Safety and Health Act of 1970 (PC-91-596) and under Section 107 of the Contract Work Hours and Safety Standards Act (PL-91-54).

B. The successful bidder shall have a competent person or persons, as required under Occupational Safety and Health Act, on the Site to inspect the work and to supervise the conformance of the work with the regulations of the Act.

C. This project is subject to the Safety and Health regulations of the U.S. Department of Labor set forth in 29 CFR, Part 1926. Contractors shall be familiar with the requirements of these regulations.

18. NON-DISCRIMINATION IN EMPLOYMENT

A. Contracts for work under this proposal shall obligate the Contractor and Subcontractor not to discriminate in employment practices.

B. Bidders for the General Contract must submit with their initial bid a signed statement as to whether they have previously performed work subject to the President’s Executive Order No. 11246, or any preceding similar Executive Order.

C. Bidders must, if requested, submit a compliance report concerning their employment practices and policies in order to maintain their eligibility to receive the award of the contract.

D. Bidders must, if requested, submit a list of all sub-contractors who will perform work on the project and submit written signed statements from authorized agents of the labor pools with which they will or may deal for employees on the work, together with supporting information to the effect that said labor pools' practices and policies are in conformity with Executive Order 11246, and that said labor pools will affirmatively cooperate in or offer no hindrance to the recruitment, employment, and equal treatment of employees seeking employment and performing work under the Contract, or certification as to what efforts have been made to secure such statement when such agents or labor pools have failed to furnish same prior to the Award of the Contract.

19. ACCESS TO THE SITE

Representatives of the Grant Awarding Agency and of the State of Connecticut shall have access to the work wherever it is in preparation or progress and the successful Bidder shall provide proper facilities for such access and inspection.

20. "OR EQUAL" CLAUSE

A. Whenever the specifications define the material or article required by using the name of the proprietary product or of a manufacturer or vendor rather than by using descriptive detail of substance and function, the words "or equal" are to be understood to follow immediately the name of the maker, vendor, or proprietary product. The words, "or equal" shall be interpreted as including any material or article which, in the opinion of the Engineer, is equal in quality durability, appearance, strength, and design to the article named and which will perform adequately the functions imposed by the general design.

B. Whenever in the specifications the names of manufacturers are mentioned as indicating that their products will comply with a particular specification, or when specific trade names or plate numbers or letters are mentioned, it is not intended to exclude products of other manufacturers whose names, trade names or symbols have not been mentioned, provided however, that such products otherwise comply, in the opinion of the Engineer, with the specification. The Engineer's opinion in all cases mentioned in this section shall be final.

21. PROJECT GUARANTEE

A. The Contractor guarantees that the work and services to be performed under the Contract and all work, material, and equipment performed, furnished, used or installed in the construction of the same, shall be free from defects and flaws and shall be performed and furnished in strict accordance with the Drawings, Specifications, and other Contract Documents; that the strength of all parts of all manufactured equipment shall be adequate and as specified and that the performance test requirements of the Contract shall be fulfilled. This guarantee shall be for a period of one (1) year from and after the date of completion and acceptance of the work as stated in the final estimate. If part of the work is accepted by the Awarding Authority, the guarantee for that part of the work shall be for a period of one (1) year from the date fixed for such acceptance.

B. If at any time within said period of guarantee any part of the work requires repairing, correction or replacement, the Awarding Authority may notify the Contractor in writing to make the required repairs, correction or replacements. If the Contractor neglects to commence making such repairs, corrections or replacements to the satisfaction of the Awarding Authority within three (3) days from the date of receipt of such notice, or having commenced fails to prosecute such work with diligence, the Awarding Authority may employ other persons to make the same, and all direct and indirect costs of making said repairs, corrections or replacements, including compensation for additional professional services, shall be paid by the Contractor.

C. It is hereby, however, agreed and understood that this guarantee shall not include any repairs or replacements made necessary by any cause or causes other than improper, inadequate, or defective work, quality of the work, materials or design by the Contractor or those employed directly or indirectly by the Contractor.

22. INFORMATION NOT GUARANTEED

A. All information given on the Drawings or in the other Contract Documents relating to subsurface and other conditions, natural phenomena, existing pipes, and other structures is from the best sources available to the Awarding Authority. All such information is furnished only for the information and convenience of bidders and is not guaranteed.

B. It is agreed and understood that the Awarding Authority does not warrant or guarantee that the subsurface or other conditions, natural phenomena, existing pipes, or other structures encountered during construction will be the same as those indicated on the Drawings or in the other Contract Documents.

C. It is agreed further and understood that no bidder or contractor shall use or be entitled to use any of the information made available to them or obtained in any examination made by them in any manner as a basis of or ground for any claim or demand against the Awarding Authority or the Engineer, arising from or by reason of any variance which may exist between the information made available and the actual subsurface or other conditions, natural phenomena, existing pipes or other structures actually encountered during the construction work, except as may be otherwise be expressly provided for in the Contract Documents.

23. LAWS AND REGULATIONS

The Bidder's attention is directed to the fact that all applicable Federal and State Laws, municipal ordinances, and the construction of the project shall apply to the contract throughout, as though herein written out in full.

24. METHOD OF AWARD - LOWEST RESPONSIBLE AND ELIGIBLE BIDDER

A. The Contract will be awarded on the basis of the lowest bid as submitted by a responsible and eligible Bidder if such bid does not exceed the amount of funds available to finance the Contract.

B. During the period of the Contract, the Awarding Authority shall have the right to add Alternate items through a Change Order at the Bid Price shown on the Bid Form.

25. SEVERABILITY

If any provisions of this Agreement or portion of such provision of the application thereof to any persons, entity, or circumstances is held invalid, the remainder of the Agreement (or remainder of such provision) and the application of such to other persons, entities, or circumstances shall not be affected thereby so long as such remaining or modified provisions reflect the intent of the parties.

26. POWER OF ATTORNEY

Attorneys-in-fact who sign contract bonds must file with each bond a certified and effectively dated copy of their power of attorney.

27. MINORITY/WOMEN BUSINESS ENTERPRISE PROCUREMENT GOALS

The Town of Darien is an Affirmative Action / Equal Opportunity Employer; Minority/Women’s Business Enterprises are encouraged to submit bids.

28. UTILITY INFORMATION

Following are the names and addresses of the agencies and utility companies which may be affected, but the completeness is not guaranteed:

Eversource Energy
Telephone: 1-203-352-5594

Aquarion Water Company of Connecticut
Telephone: 1-203-445-7310

Call-Before-You-Dig
Telephone: 1-800-922-4455

29. PREPARATION OF CONTRACT DOCUMENTS AND PLANS

The plans and specifications for the work have been prepared by Weston & Sampson Engineers, Inc. of Rocky Hill, CT.

30. WAIVER OF LOCAL FEES

The Awarding Authority shall waive permit and other local fees that are under its jurisdiction to so waive. Bids should reflect the waiver of such fees in the total bid price.

31. OSHA TEN HOUR TRAINING CERTIFICATION

Not later than thirty days after the award of this contract, the Contractor shall furnish proof to the Labor Commissioner that all employees performing manual labor on this project have completed a course of at least ten hours in duration in construction safety and health approved by OSHA.

32. BID SUBMITTAL REQUIREMENTS

A complete bid shall consist of all the following, completed in their entirety:

SECTION 00 41 13 - BID FORM

SECTION 00 41 13.07 – BID SURETY

SECTION 00 41 13.13 – BID BOND

SECTION 00 43 13.31 - BID FORM ATTACHMENTS

SECTION 00 45 13 – QUALIFICATIONS OF BIDDERS

- CONTRACTOR’S QUALIFICATION STATEMENT
- LISTING OF PROPOSED SUBCONTRACTORS
- AFFIDAVIT
- CERTIFICATE OF BIDDER REGARDING EQUAL EMPLOYMENT OPPORTUNITY

- CERTIFICATION BY PROPOSED SUBCONTRACTOR REGARDING EQUAL EMPLOYMENT OPPORTUNITY
- CERTIFICATE AS TO CORPORATE BIDDER
- STATEMENT OF BIDDER'S COMPLIANCE WITH EXECUTIVE ORDER NO. 3
- CERTIFICATE OF MATERIAL CONFORMANCE WITH THE SPECIFICATIONS
- CERTIFICATION CONCERNING LABOR STANDARDS AND PREVAILING WAGE REQUIREMENTS
- SUBCONTRACTOR'S CERTIFICATION CONCERNING LABOR STANDARDS AND PREVAILING WAGE REQUIREMENTS
- CERTIFICATION OF COMPLIANCE WITH TAX LAWS
- CERTIFICATE OF NON-COLLUSION

Failure to submit a bid that includes both the Bid Form and all Bid Form attachments listed above may result in bidder's disqualification by the Awarding Authority.

END OF SECTION

SECTION 00 31 43

PERMIT APPLICATIONS

1. General Requirements

A. The Owner has obtained or will obtain and pay for the permits listed below, which are required for this project. The Contractor shall assist in obtaining Town permits.

Permit/Approval	Status
• Town of Darien Planning & Zoning Commission Coastal Site Plan Review #384 Flood Damage Application #391-A Land Filling, Excavation & Regrading Application #581 (Pl-24-169)	Approval: 2/5/25
• Army Corps of Engineers General Permit NAE-2020-02349	Approval 5/1/25
• Connecticut Department of Energy and Environmental Protection (CT-DEEP) Certificate of Permission 202207720-COP	Approval: 10/20/22
• **Town of Darien Building Permit – Contact Town Building Department**	

B. The Contractor shall perform the work in accordance with the Contract Documents, including the attached permits/order of conditions, and any applicable municipal requirements.

2. Order of Conditions

Planning & Zoning Commission – Refer to Attachment A

Army Corps of Engineers General Permit – Refer to Attachment B

CT-DEEP – COP – Refer to Attachment C

END OF SECTION

SECTION 00 41 00

FORM OF GENERAL BID

1. *This proposal is signed by the bidder with the full knowledge and acceptance of all provisions of the plans, and specifications.*

2. *Bids must be submitted on this form (only one copy of bid required).*

3. *This form must be made out in the corporate or other name of the bidder and must be fully and properly executed by an authorized person of the company.*

==========

Proposal of _____ (hereinafter called "Bidder")*

(__) a corporation, organized and existing under the laws of the State of _____

(__) a partnership

(__) a joint venture

(__) a limited liability company

(__) an individual doing business as _____

**Check corporation, partnership, joint venture, LLC or individual as applicable.*

To the Town of Darien (hereinafter called "Owner").

To Whom it May Concern:

The undersigned Bidder, in compliance with your invitation for bids for the **Pear Tree Beach Park Improvements Project**, having examined the plans and specifications with related documents and the site of the proposed work, and being familiar with all of the conditions surrounding the construction of the proposed project including the availability of materials and labor, hereby proposes to furnish all superintendence, labor, services, materials, equipment, plant, machinery, apparatus, appliances, tools, supplies, shoring, removal, and all other things necessary to construct the project in accordance with the contract documents, within the time set forth below, and at the prices stated below. These prices are to cover all expenses incurred in performing the work required under the contract documents, of which this bid is a part.

Bidder accepts all of the terms and conditions of the Advertisement for Bids and Instructions to Bidders, including without limitation those dealing with the disposition of Bid security. This Bid will remain subject to acceptance for thirty days after the day of Bid opening. Bidder will sign and submit the Agreement with the Bonds and other documents required by the Bidding Requirements within seven (7) days after the date of Owner's Notice of Award.

The Bidder hereby agrees that if selected as the Contractor it will commence work under this contract to fully complete and deliver **Pear Tree Beach Park Improvements** shall be fully complete and operational by the date identified within Section 00 41 13, BID FORM. Each Bidder further agrees to pay as liquidated damages the sum of $1,500 for each consecutive calendar day thereafter during which the work has not been fully completed for the contract, as provided in the "Liquidated Damages" provisions of Section 00 73 00, SUPPLEMENTARY CONDITIONS.

Bidder acknowledges receipt of the following addenda:

No. _____ Dated: _____

No. _____ Dated: _____

No. _____ Dated: _____

No. _____ Dated: _____

Bidder has familiarized itself with the nature and extent of the Contract Documents, Work, site (by personal examination) locality, and all local conditions including the existence of poles, wires, pipes and other facilities on, over and under the site, and Laws and Regulations that in any manner may affect cost, progress, performance or furnishing of the Work.

Bidder has given Engineer written notice of all conflicts, errors or discrepancies that it has discovered in the Contract Documents and the written resolution thereof by Engineer is acceptable to Bidder.

Every bid or proposal hereafter made to a political subdivision of the state or any public department, agency or official thereof where competitive bidding is required by statute, rule, regulation or local law, for work or services performed or to be performed or goods sold or to be

sold, shall contain the statements included in the SECTION 00 43 13.31, BID FORM ATTACHMENTS subscribed by the Bidder and affirmed by such Bidder as true under the penalties of perjury.

(1) By submission of this Bid, each Bidder and each person signing on behalf of any Bidder certifies, and in the case of a joint Bid, each party thereto certifies as to its own organization under penalty of perjury, that to the best of knowledge and belief:

(a) The prices in this Bid have been arrived at independently without collusion, consultation, communication, or agreement, for the purpose of restricting competition, as to any matter relating to such prices with any other Bidder or with any competitor;

(b) Unless otherwise required by law, the prices which have been quoted in this Bid have not been knowingly disclosed by the Bidder and will not knowingly be disclosed by the Bidder prior to opening, directly or indirectly to any other Bidder or to any competitor and;

(c) No attempt has been made or will be made by the Bidder to induce any other person, partnership or corporation to submit or not to submit a Bid for the purpose of restricting competition.

(2) A Bid shall not be considered for award nor shall any award be made where (1) (a), (b) and (c) above have not been complied with; provided however, that if in any case the Bidder cannot make the foregoing certification, the Bidder shall so state and shall furnish with the bid a signed statement which sets forth in detail the reasons therefore. Where (1) (a), (b) and (c) above have not been complied with, the Bid shall not be considered for award nor shall any award be made unless the head of the purchasing unit of the political subdivision, public department, agency or official thereof to which the Bid is made, or his/her designee, determines that such disclosure was not made for the purpose of restricting competition.

The fact that a Bidder (a) has published price lists, rates, or tariffs covering items being procured, (b) has informed prospective customers of proposed or pending publication of

new or revised price lists of such items, or (c) has sold the same items to other customers at the same prices being bid, does not constitute, without more, a disclosure within the meaning of 3.8 (1) (a).

(3) Any Bid hereafter made to any political subdivision of the state or any public department, agency or official thereof by a corporate Bidder for work or services performed or to be performed or goods sold or to be sold, where competitive bidding is required by statute, rule, regulation, or local law, and where such Bid contains the certification referred to in subdivision 3.8 of this section, shall be deemed to have been authorized by the board of directors of the Bidder, and such authorization shall be deemed to include the signing and submission of the bid and the inclusion therein of the certificate as to non-collusion as the act and deed of the corporation.

Each contract will be awarded to the lowest responsible and eligible bidder.

Bidder understands that the Owner reserves the right to reject any or all bids and to waive any informalities in the bidding.

Within 10 days of receipt of the written notice of acceptance of this bid, the Bidder will execute the formal agreement attached in Section 00 52 00, AGREEMENT and provide the requisite payment and performance bonds and certificates of insurance.

Bid security is attached in the sum of five percent (5%) of the total bid in accordance with the conditions of Section 00 21 13 INSTRUCTIONS TO BIDDERS. The bid security may become the property of the Owner in the event the contract and bond are not executed within the time set forth above.

The selected Contractor shall furnish a performance bond and a payment bond in an amount at least equal to one hundred percent (100%) of the contract prices in accordance with Section 00 61 13.13 PERFORMANCE BOND, Section 00 61 13.16 PAYMENT BOND, and as stipulated in paragraph 5.01 of Section 00 72 00 GENERAL CONDITIONS of these specifications.

The undersigned offers the following information as evidence of its qualifications to perform the work as bid upon according to all the requirements of the plans and specifications.

1. Have been in business under present name for _____ years.

2. The names and addresses of all persons interested in the bid (if made by a partnership or corporation) as Principals, are as follows:

_____

_____

_____

_____

_____

(Attach supplementary list if necessary)

3. The Bidder shall state below what work of a similar character to that included in the proposed contract it has done, and give references that will enable the Owner to judge its experience, skill and business standing (add supplementary page if necessary).

	Completion Date	Project Name	Contract Amount	Design Engineer	Reference Name	Telephone No.
a.						
b.						
c.						
d.						
e.						
f.						

The undersigned Bidder for **Pear Tree Beach Park Improvements** certifies under penalties of perjury that this bid is in all respects bona fide, fair and made without collusion or fraud with any other person. As used in this paragraph the word "person" shall mean any natural person, joint venture, partnership, corporation or other business or legal entity which sells materials, equipment or supplies used in or for, or engages in the performance of, the same or similar construction, reconstruction, installation, demolition, maintenance or repair work or any part thereof.

The undersigned Bidder for **Pear Tree Beach Park Improvements** hereby certifies that (1) it is able to furnish labor that can work in harmony with all other elements of labor employed or to be employed in the work; (2) that all employees to be employed at the worksite will have successfully completed a course in construction safety and health approved by the United States Occupational Safety and Health Administration that is at least 10 hours in duration at the time the employee begins work and who shall furnish documentation of successful completion of said course with the first certified payroll report for each employee; and 3) that all employees to be employed in the work subject to this bid have successfully completed a course in construction safety and health approved by the United States Occupational Safety and Health Administration that is at least 10 hours in duration.

The undersigned Bidder for **Pear Tree Beach Park Improvements** hereby certifies, under pains and penalties of perjury, that the foregoing bid is based upon the payment to laborers to be employed on the project of wages in an amount no less than the applicable prevailing wage rates established for the project by the State of Connecticut. The undersigned bidder agrees to indemnify the awarding authority for, from and against any loss, expense, damages, actions or claims, including any expense incurred in connection with any delay or stoppage of the project work arising out of or as a result of (1) the failure of the said bid to be based upon the payment of the said applicable prevailing wage rates or (2) the failure of the bidder, if selected as the Contractor, to pay laborers employed on the project the said applicable prevailing wage rates.

The undersigned for **Pear Tree Beach Park Improvements** further certifies under penalty of perjury that the said undersigned is not presently debarred from doing public construction work in the state of Connecticut under General Laws or any rule or regulations promulgated thereunder.

The terms used in this Bid which are defined in the General Conditions of the Construction Contract included as part of the Contract Documents have the meanings assigned to them in the General Conditions.

Respectfully submitted on: _____, 20_____.

Date _____ By _____
(Signature)

_____
(Name - Typed or Printed)

_____
(Title)

(SEAL - if bid is by a corporation)

_____
(Business Name)

_____
(Federal ID Number)

_____
(Business Address)

_____
(City and State)

_____
(Telephone Number)

END OF SECTION

SECTION 00 41 13

BID FORM

TOWN OF DARIEN

FAIRFIELD COUNTY **CONNECTICUT**

PEAR TREE BEACH PARK IMPROVEMENTS PROJECT – BASE BID

Bidder agrees to perform all of the work described in the specifications and shown on the plans generally consisting of furnishing and installation of items in the Contract Documents, including but not limited to new parking lot, concrete curbing, concrete sidewalks, concrete paving, stormwater infrastructure, landscaping, site furniture, dredging, wetland restoration, and other beach improvements within the Pear Tree Beach Park on Pear Tree Point Road in Darien, CT.

ITEM NO.	DESCRIPTION	QTY	UNITS	UNIT PRICE	TOTAL ITEM PRICE
1	MOBILIZATION, DEMOBILIZATION & GENERAL CONDITIONS	1	L.S.		
2	DEMOLITION/ SITE PREPARATION/ CLEAN UP	1	L.S.		
3	EROSION & SEDIMENT CONTROL MEASURES (INCLUDING INLET PROTECTION, SILT FENCE, CONSTRUCTION ENTRANCE, SEDIMENT TRAPS, TREE PROTECTION, ETC.)	1	L.S.		
4	ROUGH GRADING (INCLUDING EARTHWORK, ASSOCIATED CUT/ FILL, ETC.)	1	L.S.		
5	83,500 S.F. OF MEDIUM DUTY ASPHALT PARKING LOT WITH CONCRETE CURB (INCLUDING EXCAVATION, STONE BASE, FABRIC, PAVEMENT COURSES, PAVEMENT MARKING, ETC.)	83,500	S.F.		
6	2,000 SF OF CONCRETE BOAT RAMP RECONSTRUCTION (INCLUDING SUBBASE, REMOVAL, INSTALLTION CONCRETE PLANKS, ETC.)	2,000	S.F.		
7	5,200 S.F. OF CONCRETE SIDEWALK WITH CURB (INCLUDING EXCAVATION, CURB RAMPS, STONE BASE, FABRIC, ETC.)	5,200	S.F.		
8	75 S.F. HAUNCHED CONCRETE SLAB AT GUARD BOOTH (INCLUDING EXCAVATION, STONE BASE, REINFORCEMENT, ETC.)	75	S.F.		
9	700 S.F. PAVER PLAZA (INCLUDING PAVERS, EXCAVATION, STONE BASE, EDGING, ETC.)	700	S.F.		
10	GATES, FENCING, SIGNAGE, AND STEEL BOLLARDS (INCLUDING POST EXCAVATION, FOOTINGS, ETC.)	1	L.S.		
11	3 CHARCOAL GRILLS (INCLUDING INSTALLATION, FOOTINGS, AND ETC.)	3	EA.		
12	10 STORM SEWER CATCH BASINS (INCLUDING EXCAVATION, SUBBASE, WATER QUALITY STRUCTURE, ETC.)	10	EA.		
13	880 L.F. OF STORM SEWER PIPING (INCLUDING EXCAVATION, BACKFILL, FABRIC, CONNECTION TO	880	L.F.		

ITEM NO.	DESCRIPTION	QTY	UNITS	UNIT PRICE	TOTAL ITEM PRICE
	EXISTING SYSTEM, ETC.)				
14	1 24" CHECK VALVE (INCLUDING EXCAVATION, INSTALLATION, RESTORATION, ETC.)	1	EA.		
15	LANDSCAPE PLANTINGS (INCLUDING INSTALLATION OF ALL TREES, SHURBS, GRASSES, MULCH, ETC.)	1	L.S.		
16	3,750 S.F. OF WETLAND RESTORATION (INCLUDING PLANTING PER PLANS AND SPECIFICATIONS, ETC.)	3,750	S.F.		
17	2,000 S.F. OF STONE MULCH	2,000	S.F.		
18	DREDGING AND MARINE CONSTRUCTION MOBILIZATION & DEMOBILIZATION	1	LS		
19	DREDGING AND MARINE CONSTRUCTION [51,048 SF/ 12,350 CY] (INCLUDING HANDLING AND DISPOSAL OF MATERIALS,)	12,350	C.Y..		
20	DREDGING AND MARINE CONSTRUCTION - REMOVAL/RESET PILES AND DOCK	1	L.S.		
21	DREDGING AND MARINE CONSTRUCTION – DEBRIS REMOVAL AND DISPOSAL (ALLOWANCE)	1	ALLOW	$15,000	$15,000

TOTAL AMOUNT OF BASE BID (ITEMS 1 TO 21)

_____Dollars

and _____ Cents Lump Sum ($_____)

(Amounts are to be shown in both words and figures. In case of discrepancy, the amount shown in words will govern.)

PEAR TREE BEACH PARK IMPROV. PROJECT – DEDUCT ALTERNATE #1

ITEM NO.	DESCRIPTION	QTY	UNITS	UNIT PRICE	TOTAL ITEM PRICE
1	DEDUCT 7,200 S.F. OF CONCRETE SIDEWALK (INCLUDING EXCAVATION, STONE BASE, FABRIC, ETC.)	7,200	S.F.		
2	PROVIDE 800 L.F. OF CONCRETE CURB (INCLUDING EXCAVATION, STONE BASE, FABRIC, ETC.)	800	L.F.		

TOTAL AMOUNT OF DEDUCT ALTERNATE #1 (ITEMS 1 TO 2)

_____Dollars

and _____ Cents Lump Sum ($_____)

(Amounts are to be shown in both words and figures. In case of discrepancy, the amount shown in words will govern.)

1. Bidder agrees that the work will be substantially complete, and completed and ready for final payment in accordance with paragraph 14.07 of the General Conditions as follows:

Substantial Completion	Final Completion
APRIL 1, 2026	MAY 1, 2026

See Standard General Conditions of the construction contract - Article 1.01 A. 43, for specific definition of substantial completion.

Bidder accepts the provisions of the Agreement as to liquidated damages in the event of failure to complete the various phases of the Work on time.

2. The following documents are attached to and made a condition of this Bid:

(a) Required Bid Security in the form of _____
(b) Required Bidder's Qualifications of Bidders statement with supporting data.
(c) Required Certification by Bidder regarding Employment Opportunity.

3. Communications concerning this Bid shall be addressed to:

The address of Bidder indicated below.

4. The terms used in this Bid which are defined in the General Conditions of the Construction Contract included as part of the Contract Documents have the meanings assigned to them in the General Conditions.

SUBMITTED on _____, 2025.

If Bidder is:

AN INDIVIDUAL

By _____
(Individual's Name)

doing business as _____

Business address: _____

Phone Number: _____

_____
Signature

A PARTNERSHIP

By _____
(Firm Name)

_____
(General Partner)

Business address: _____

Phone Number: _____

_____
Signature

A CORPORATION

By _____
(Corporation Name) (SEAL)

_____
(State of Incorporation)

By _____

(Name of Person Authorized to Sign) Signature

_____ (Corporate Seal)
(Title)

Attest _____
(Secretary)

Business address: _____

Phone Number: _____

A JOINT VENTURE

By _____
(Name)

_____
(Address)

By _____
(Name) Signature

_____
(Address)

By _____
(Name) Signature

_____
(Address)

(Each joint venturer must sign. The manner of signing for each individual, partnership and corporation that is a party to the joint venture should be in the manner indicated above).

SECTION 00 41 13.07

OFFER OF SURETY

(COMPLETE ONLY WHEN BID ACCOMPANIED BY A CERTIFIED CHECK

In the event the above Bid is accepted and the undersigned is awarded the contract for the work, the undersigned offers as surety for faithful performance bond, and on bond to protect labor and materialmen, the following surety:

_____

(Surety Company)

Signed: _____
(Bidder)

CERTIFICATE OF SURETY, to be signed by a duly authorized official, agent or attorney of the Surety Company.

In the event that the above Proposal is accepted, and the contract for the work is awarded to said

_____

(Name of Bidder)

the _____

(Surety Company)

will execute the Surety Bonds as hereinbefore provided.

Signed: _____
(authorized official, agent/attorney)

Dated: _____

SECTION 00 43 13.13

BID BOND

Bidder Name: Address *(principal place of business)*:	**Surety** Name: Address *(principal place of business)*:
Owner Name: **Town of Darien, Connecticut** Address: **Town Hall** **2 Renshaw Road** **Darien, CT 06820**	**Bid** Project: **Pear Tree Beach Park Improvements** **139 Pear Tree Point Road, Darien, CT 06820** Bid Due Date:
Bond Penal Sum: Date of Bond:	
Surety and Bidder, intending to be legally bound hereby, subject to the terms set forth in this Bid Bond, do each cause this Bid Bond to be duly executed by an authorized officer, agent, or representative.	
Bidder	Surety
_____ *(Full formal name of Bidder)*	_____ *(Full formal name of Surety) (corporate seal)*
By: _____ *(Signature)*	By: _____ *(Signature) (Attach Power of Attorney)*
Name: _____ *(Printed or typed)*	Name: _____ *(Printed or typed)*
Title: _____	Title: _____
Attest: _____ *(Signature)*	Attest: _____ *(Signature)*
Name: _____ *(Printed or typed)*	Name: _____ *(Printed or typed)*
Title:	Title:
Notes: (1) Note: Addresses are to be used for giving any required notice. (2) Provide execution by any additional parties, such as joint venturers, if necessary.	

EJCDC® C-430, Bid Bond (Penal Sum Form).
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1. Bidder and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors, and assigns to pay to Owner upon default of Bidder the penal sum set forth on the face of this Bond. Payment of the penal sum is the extent of Bidder's and Surety's liability. Recovery of such penal sum under the terms of this Bond will be Owner's sole and exclusive remedy upon default of Bidder.
2. Default of Bidder occurs upon the failure of Bidder to deliver within the time required by the Bidding Documents (or any extension thereof agreed to in writing by Owner) the executed Agreement required by the Bidding Documents and any performance and payment bonds required by the Bidding Documents.
3. This obligation will be null and void if:
    3.1. Owner accepts Bidder's Bid and Bidder delivers within the time required by the Bidding Documents (or any extension thereof agreed to in writing by Owner) the executed Agreement required by the Bidding Documents and any performance and payment bonds required by the Bidding Documents, or
    3.2. All Bids are rejected by Owner, or
    3.3. Owner fails to issue a Notice of Award to Bidder within the time specified in the Bidding Documents (or any extension thereof agreed to in writing by Bidder and, if applicable, consented to by Surety when required by Paragraph 5 hereof).
4. Payment under this Bond will be due and payable upon default of Bidder and within 30 calendar days after receipt by Bidder and Surety of written notice of default from Owner, which notice will be given with reasonable promptness, identifying this Bond and the Project and including a statement of the amount due.
5. Surety waives notice of any and all defenses based on or arising out of any time extension to issue Notice of Award agreed to in writing by Owner and Bidder, provided that the total time for issuing Notice of Award including extensions does not in the aggregate exceed 120 days from the Bid due date without Surety's written consent.
6. No suit or action will be commenced under this Bond prior to 30 calendar days after the notice of default required in Paragraph 4 above is received by Bidder and Surety, and in no case later than one year after the Bid due date.
7. Any suit or action under this Bond will be commenced only in a court of competent jurisdiction located in the state in which the Project is located.
8. Notices required hereunder must be in writing and sent to Bidder and Surety at their respective addresses shown on the face of this Bond. Such notices may be sent by personal delivery, commercial courier, or by United States Postal Service registered or certified mail, return receipt requested, postage pre-paid, and will be deemed to be effective upon receipt by the party concerned.
9. Surety shall cause to be attached to this Bond a current and effective Power of Attorney evidencing the authority of the officer, agent, or representative who executed this Bond on behalf of Surety to execute, seal, and deliver such Bond and bind the Surety thereby.
10. This Bond is intended to conform to all applicable statutory requirements. Any applicable requirement of any applicable statute that has been omitted from this Bond will be deemed to be included herein as if set forth at length. If any provision of this Bond conflicts with any applicable statute, then the provision of said statute governs and the remainder of this Bond that is not in conflict therewith continues in full force and effect.
11. The term "Bid" as used herein includes a Bid, offer, or proposal as applicable.

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SECTION 00 43 13.31

BID FORM ATTACHMENTS

1. CONTRACTOR'S QUALIFICATION STATEMENT
2. LISTING OF PROPOSED SUBCONTRACTORS
3. AFFIDAVIT
4. CERTIFICATE OF BIDDER REGARDING EQUAL EMPLOYMENT OPPORTUNITY
5. CERTIFICATION BY PROPOSED SUBCONTRACTOR REGARDING EQUAL EMPLOYMENT OPPORTUNITY
6. BID BOND
7. CERTIFICATE AS TO CORPORATE BIDDER
8. STATEMENT OF BIDDER'S COMPLIANCE WITH EXECUTIVE ORDER NO. 3
9. CERTIFICATE OF MATERIAL CONFORMANCE WITH THE SPECIFICATIONS
10. CERTIFICATION CONCERNING LABOR STANDARDS AND PREVAILING WAGE REQUIREMENTS
11. SUBCONTRACTOR'S CERTIFICATION CONCERNING LABOR STANDARDS AND PREVAILING WAGE REQUIREMENTS
12. CERTIFICATION OF COMPLIANCE WITH TAX LAWS
13. CERTIFICATE OF NON-COLLUSION
14. CERTIFICATION OF DUMPING FACILITIES

CONTRACTOR'S QUALIFICATION STATEMENT

TO: TOWN OF DARIEN, CONNECTICUT
hereinafter called "Owner"

Pursuant to bidding requirements for the Work titled:

The Bidder is qualified to complete the Work as stated below:

Construction of site improvements including but not limited to bituminous concrete walks, landscaping, asphalt parking area, wetland restoration, dredging, and stormwater drainage improvements within the Pear Tree Beach Park on Pear Tree Point Road in Darien, Connecticut.

ORGANIZATION

If your organization is a corporation, provide the following:

Date of incorporation: _____

State of incorporation: _____

President's name: _____

Vice-president's name(s): _____

_____

_____

Secretary's name: _____

Treasurer's name: _____

If your organization is a partnership, answer the following:

Date of organization: _____

Type of partnership: _____

Name(s) of general partner(s): _____

_____

_____

_____

_____

If your organization is individually owned, answer the following:

Date of organization: _____

Name of owner: _____

If the form of your organization is other than those listed above, describe it and name the principles:

_____

_____

EXPERIENCE

List the categories of work that your organization normally performs with its own forces.

_____

_____

Claims and Suits. ***(If the answer to any of the questions below is yes, please attach details.)***

No ☐ **Yes** ☐ Has your organization ever failed to complete any work awarded to it?

No ☐ **Yes** ☐ Are there any judgements, claims, arbitration proceedings or suits pending or outstanding against your organization or its officers?

No ☐ **Yes** ☐ Has your organization filed any lawsuits or requested arbitration with regard to construction contracts within the last five years?

No ☐ **Yes** ☐ Within the last five years, has any officer or principal of your organization ever been an officer or principal of another organization when it failed to complete a construction contract?

On a separate sheet, list major construction projects your organization has in progress, giving the name of project, owner, engineer, contract amount, percent complete and scheduled completion date. State the total worth of work in progress and under construction.

On a separate sheet, list the major projects your organization has completed in the past five years, giving the name of the project, owner, engineer, contract amount, date of completion and percentage of the cost of the work performed with your own forces. State average annual amount of construction work performed during the past five years.

On a separate sheet, list the construction experience and present commitments of the key individuals of your organization.

_____

Signature Date

_____

Printed Name

_____

Title

LISTING OF PROPOSED SUBCONTRACTORS

Bidder intends to utilize the following subcontractors on this project:

If none, write "none" here: _____

	Name, Address and Federal ID Number of Subcontractor	*Description of Work*	*Est. Value of Work*
1.	_____	_____	$_____
2.	_____	_____	$_____
3.	_____	_____	$_____
4.	_____	_____	$_____
5.	_____	_____	$_____
6.	_____	_____	$_____
7.	_____	_____	$_____
8.	_____	_____	$_____

AFFIDAVIT

To the Town of Darien, CONNECTICUT:

This is to certify that in submitting this bid, BIDDER represents that this Bid is not made in the interest of or on behalf of any undisclosed person and is not submitted in conformity with any agreement or rules of any group, association, organization, or corporation; BIDDER has not directly or indirectly induced or solicited any other Bidder to submit a false or sham Bid; BIDDER has not solicited or induced any person, firm, or corporation to refrain from bidding; and BIDDER has not sought by collusion to obtain for himself any advantage over any other Bidder or over OWNER; and the BIDDER or any person in his behalf, has not agreed, connived, or colluded to produce a deceptive show of competition in the matter of the bidding or award of the referenced contract.

Signature to be by signer of Bid Form.

_____

Signature

_____

Printed Name

_____

Title

Subscribed and sworn to before me this _____day of _____, 202__.

_____

Notary Public

My commission expires on:_____

CERTIFICATION OF BIDDER
REGARDING EQUAL EMPLOYMENT OPPORTUNITY (EEO)

Instructions

This certification is required pursuant to Executive Order 11246 (30 CFR 12319-25). The implementing rules and regulations provide that any bidder or prospective contractor, or any of their proposed subcontractors, shall state as an initial part of the bid or negotiations of the contract whether it has participated in any previous contract or subcontract subject to the equal opportunity clause; and if so, whether it has filed all compliance reports due under applicable instructions.

Where the certification indicates that the bidder has not filed a compliance report due under applicable instructions, such bidder shall be required to submit a compliance report within seven calendar days after bid opening. No contract shall be awarded unless such report is submitted.

Certification by Bidder

Name and Address of Bidder (include zip code)

1. Bidder has participated in a previous contract or subcontract subject to the Equal Opportunity Clause. Yes _____ No _____

2. Compliance Reports were required to be filed in connection with such contract or subcontract. Yes _____ No _____

3. Bidder has filed all compliance reports due under applicable instructions, including Monthly Employment Utilization Report (257). Yes _____ No _____ None Required _____

4. Have you ever been or are you being considered for sanction due to a violation of Executive Order 11246, as amended? Yes _____ No _____

Name and Title of Signer (please type)

Signature	Date

CERTIFICATION BY PROPOSED SUBCONTRACTOR REGARDING EQUAL EMPLOYMENT OPPORTUNITY (EEO)	
Name of Prime Contractor	
Instructions	
This certification is required pursuant to Executive Order 11246 (30 CFR 12319-25). The implementing rules and regulations provide that any bidder or prospective contractor, or any of their proposed subcontractors, shall state as an initial part of the bid or negotiations of the contract whether it has participated in any previous contract or subcontract subject to the equal opportunity clause; and if so, whether it has filed all compliance reports due under applicable instructions. Where the certification indicates that the subcontractor has not filed a compliance report due under applicable instructions, such subcontractor shall be required to submit a compliance report before the owner approves the subcontract or permits work to begin under the subcontract.	
Certification by Bidder	
Name and Address of Subcontractor (include zip code)	
1. Bidder has participated in a previous contract or subcontract subject to the Equal Opportunity Clause. Yes _____ No _____	
2. Compliance Reports were required to be filed in connection with such contract or subcontract. Yes _____ No _____	
3. Bidder has filed all compliance reports due under applicable instructions, including SF-100. Yes _____ No _____ None Required _____	
4. Have you ever been or are you being considered for sanction due to a violation of Executive Order 11246, as amended? Yes _____ No _____	
Name and Title of Signer (please type)	
Signature	Date

BID BOND

BIDDER (Name and Address):

_____

_____

_____

SURETY (Name and Address of Principal Place of Business):

_____

_____

_____

OWNER (Name and Address):

Town of Darien, Connecticut
Town Hall, 2 Renshaw Road
Darien, CT 06820

BID

BID DUE DATE: _____

PROJECT (Brief Description Including Location):

Construction of site improvements including but not limited to bituminous concrete walks, landscaping, asphalt parking areas, wetland restoration, dredging, and stormwater drainage improvements within the Pear Tree Beach Park on Pear Tree Point Road in Darien, Connecticut

BOND

BOND NUMBER: _____

DATE (Not later than Bid due date): _____

PENAL SUM: _____ _____

(Words) (Figures)

IN WITNESS WHEREOF, Surety and Bidder, intending to be legally bound hereby, subject to the terms printed on the reverse side hereof, do each cause this Bid Bond to be duly executed on its behalf by its authorized officer, agent, or representative.

BIDDER	SURETY
_____(Seal)	_____(Seal)
Bidder's Name and Corporate Seal	Surety's Name and Corporate Seal
By: _____	By: _____
Signature and Title	Signature and Title (Attach Power of Attorney)
Attest: _____	Attest: _____
Signature and Title	Signature and Title

Note: (1) Above addresses are to be used for giving required notice.
(2) Any singular reference to Bidder, Surety, OWNER or other party shall be considered plural where applicable.

1. Bidder and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors and assigns to pay to OWNER upon default of Bidder the penal sum set forth on the face of this Bond.

2. Default of Bidder shall occur upon the failure of Bidder to deliver within the time required by the Bidding Documents (or any extension thereof agreed to in writing by OWNER) the executed Agreement required by the Bidding Documents and any performance and payment Bonds required by the Bidding Documents.

3. This obligation shall be null and void if:

3.1. OWNER accepts Bidder's Bid and Bidder delivers within the time required by the Bidding Documents (or any extension thereof agreed to in writing by OWNER) the executed Agreement required by the Bidding Documents and any performance and payment Bonds required by the Bidding Documents, or

3.2. All Bids are rejected by OWNER, or

3.3. OWNER fails to issue a Notice of Award to Bidder within the time specified in the Bidding Documents (or any extension thereof agreed to in writing by Bidder and, if applicable, consented to by Surety when required by paragraph 5 hereof).

4. Payment under this Bond will be due and payable upon default by Bidder and within 30 calendar days after receipt by Bidder and Surety of written notice of default from OWNER, which notice will be given with reasonable promptness, identifying this Bond and the Project and including a statement of the amount due.

5. Surety waives notice of and any and all defenses based on or arising out of any time extension to issue Notice of Award agreed to in writing by OWNER and Bidder, provided that the total time for issuing Notice of Award including extensions shall not in the aggregate exceed 120 days from Bid due date without Surety's written consent.

6. No suit or action shall be commenced under this Bond prior to 30 calendar days after the notice of default required in paragraph 4 above is received by Bidder and Surety and in no case later than one year after Bid due date.

7. Any suit or action under this Bond shall be commenced only in a court of competent jurisdiction located in the state in which the Project is located.

8. Notices required hereunder shall be in writing and sent to Bidder and Surety at their respective addresses shown on the face of this Bond. Such notices may be sent by personal delivery, commercial courier or by United States Registered or Certified Mail, return receipt requested, postage pre-paid, and shall be deemed to be effective upon receipt by the party concerned.

9. Surety shall cause to be attached to this Bond a current and effective Power or Attorney evidencing the authority of the officer, agent or representative who executed this Bond on behalf of Surety to execute, seal and deliver such Bond and bind the Surety thereby.

10. This Bond is intended to conform to all applicable statutory requirements. Any applicable requirement of any applicable statute that has been omitted from this Bond shall be deemed to be included herein as if set forth at length. If any provision of this Bond conflicts with any applicable statute, then the provision of said statute shall govern and the remainder of this Bond that is not in conflict therewith shall continue in full force and effect.

11. The term "Bid" as used herein includes a Bid, offer or proposal as applicable.

CERTIFICATE AS TO CORPORATE BIDDER

I, _____, certify that I am the _____
(Name) (Title)
of the corporation named as the Bidder in the _____ within the

Bid Form: that _____, who signed the said Bid Form on behalf of
(Name)
the Bidder was then _____ of said corporation, that his/her
(Title)
signature thereto is genuine, and that said Bid Form was duly signed, sealed, and

executed for and on behalf of said corporation by authority of its governing body.

Dated: _____

(Corporate Seal)

By: _____

Name

STATEMENT OF BIDDER'S COMPLIANCE
WITH EXECUTIVE ORDER NO. 3

This statement must be completed by the Bidder and shall accompany his bid for this project.

IT IS HEREBY CERTIFIED THAT:

Name of Bidder: _____
Business Address: _____

Has ____ has not ____ previously performed work under the conditions of the Governor's Executive Order No. 3 of the State of Connecticut, or any preceding similar Executive Order with regards to Non-Discrimination.

_____
(Signature)

_____
(Title)

CERTIFICATION OF MATERIAL CONFORMANCE WITH THE SPECIFICATIONS

This statement must be completed by the Bidder and shall accompany his bid for this project.

IT IS HEREBY CERTIFIED THAT:

Name of Bidder: _____

Business Address: _____

That the equipment proposed to be supplied in fulfillment of this Contract conforms in all respects to the specifications. Further, the proposed equipment will perform its intended function in a manner acceptable and suitable to the Town of Darien.

_____

(Signature)

_____

(Title)

Certification Concerning Labor Standards and Prevailing Wage Requirements

TO: _____ _____
(Department, Agency, or Bureau) (Date)

_____
c/o Project Number
_____
Project Name
_____

1. The undersigned, having executed a contract with _____ for the construction of the above-identified project, acknowledges that:

   a) The Federal Labor Standards provisions are included in the aforesaid contract;
   b) Correction of any infractions of the aforesaid conditions, including infractions by any of his subcontractors and any lower tier subcontractors, is his responsibility;

2. He certifies that:

   a Neither he nor any firm, partnership or association in which he has substantial interest is designated as an ineligible contractor by the Comptroller General of the United States pursuant to Section 5.6(b) of the Regulations of the Secretary of Labor, Part 5 (29 CFR, Part 5) or pursuant to Section 3(a) of the Davis-Bacon Act, as amended (40 USC 276a-2(a)).
   b No part of the aforementioned contract has been or will be subcontracted to any subcontractor if such subcontractor or any firm, corporation, partnership or association in which such subcontractor has a substantial interest is designated as an ineligible contractor pursuant to any of the aforementioned regulatory or statutory provisions.

3. He agrees to obtain and forward to the aforementioned recipient within ten days after the execution of any subcontract, including those executed by his subcontractors and any lower tier subcontractors, a Subcontractor's Certification Concerning Labor Standards and Prevailing Wage Requirements executed by the subcontractors.

4. He certifies that:

   a The legal name and the business address of the undersigned are:

   b The undersigned is:
      - ☐ A Single Proprietorship
      - ☐ A Partnership
      - ☐ A Corporation Organized in the State of _____
      - ☐ Other Organization (describe)_____

c) The name, title, and address of the owner, partners or officers of the undersigned is/are:

NAME TITLE ADDRESS

_____
_____
_____
_____

d) The names and addresses of all other persons, both natural and corporate, having a substantial interest in the undersigned, and the nature of the interest are (if none, so state):

NAME ADDRESS NATURE OF INTEREST

_____
_____
_____
_____

e) The names, addresses and trade classifications of all other building construction contractors in which the undersigned has a substantial interest are (if none, so state):

NAME ADDRESS TRADE CLASSIFICATION

_____
_____
_____
_____

_____
CONTRACTOR

Date:_____ By:

_____

WARNING

The U.S. Criminal Code, Section 1010, Title 18, USC, provides in part: “Whoever...makes, passes, utters or publishes any statement, knowing the name to be false...shall be fined not more than $5,000 or imprisoned not more than two years, or both.”

Subcontractor's Certification Concerning Labor Standards and Prevailing Wage Requirements

TO: _____ _____
(Department, Agency, or Bureau) (Date)

_____
c/o Project Number
_____
Project Name
_____

I. The undersigned, having executed a contract with _____ (contractor or subcontractor) for _____ (nature of work) in the amount of $_____ in the construction of the above-identified project, certifies that:

a) The Federal Labor Standards provisions for the Contract for Construction are included in the aforesaid contract;
b) Neither he nor any firm, partnership or association in which he has substantial interest is designated as an ineligible contractor by the Comptroller General of the United States pursuant to Section 5.6(b) of the Regulations of the Secretary of Labor, Part 5 (29 CFR, Part 5) or pursuant to Section 3(a) of the Davis-Bacon Act, as amended (40 USC 276a-2(a)).
c) No part of the aforementioned contract has been or will be subcontracted to any subcontractor if such subcontractor or any firm, corporation, partnership or association in which such subcontractor has a substantial interest is designated as an ineligible contractor pursuant to any of the aforementioned regulatory or statutory provisions.

2. He agrees to obtain and forward to the contractor, for transmittal to the recipient, within ten days after the execution of any lower subcontract, a Subcontractor's Certification Concerning Labor Standards and Prevailing Wage Requirements executed by the lower tier subcontractor, in duplicate.

4. He certifies that:

a) The legal name and the business address of the undersigned are:

b) The undersigned is:
- ☐ A Single Proprietorship
- ☐ A Partnership
- ☐ A Corporation Organized in the State of _____
- ☐ Other Organization (describe)_____

c) The name, title, and address of the owner, partners or officers of the undersigned is/are:

NAME TITLE ADDRESS

_____
_____
_____
_____

d) The names and addresses of all other persons, both natural and corporate, having a substantial interest in the undersigned, and the nature of the interest are (if none, so state):

NAME ADDRESS NATURE OF INTEREST

_____
_____
_____
_____

e) The names, addresses and trade classifications of all other building construction contractors in which the undersigned has a substantial interest are (if none, so state):

NAME ADDRESS TRADE CLASSIFICATION

_____
_____
_____
_____

_____
CONTRACTOR

Date:_____ By:

_____

WARNING

The U.S. Criminal Code, Section 1010, Title 18, USC, provides in part: “Whoever...makes, passes, utters or publishes any statement, knowing the name to be false...shall be fined not more than $5,000 or imprisoned not more than two years, or both.”

CERTIFICATION OF COMPLIANCE WITH TAX LAWS

Project: **Pear Tree Beach Park Improvements**

I, _____ of _____
(Principal) (Corporation)

certify under pains and penalties of perjury that said corporation has complied with all laws of the State of Connecticut relating to taxes.

_____
Signature Date

_____
Printed Name

_____
Title

_____
Federal ID Number

CERTIFICATE OF NON-COLLUSION

The undersigned certifies under penalties of perjury that this bid or proposal has been made in good faith and without collusion or fraud with any other persons. As used in this certification, the word "person" shall mean any natural person, business, partnership, corporation, union, committee, club, or other organization, entity, or group of individuals.

By: _____
Signature of Authorized Individual

_____
Name of Business

_____
Address

_____
City, State, Zip Code

_____
Date

CERTIFICATION OF DUMPING FACILITIES

I, _____, certify that I have dumping facilities available at

_____

and use of such facilities during the term of the contract will comply with state and local requirements.

_____
Signature of Authorized Representative of Contractor

_____

_____
Name and Address of Contractor

_____
Name and Address of Disposal Facility

_____
Signature of Authorized Representative of Disposal Facility

SECTION 00 45 13

QUALIFICATIONS OF BIDDERS

ARTICLE 1—GENERAL INFORMATION

1.01 Provide contact information for the Business:

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

1.02 Provide information on the Business's organizational structure:

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

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

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

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Address:			
Name of business:		Affiliation:	
Address:			

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

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

ARTICLE 2—LICENSING

2.01 Provide information regarding licensure for Business:

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

ARTICLE 3—DIVERSE BUSINESS CERTIFICATIONS

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

Certification	Certifying Agency	Certification Date
☐ Disadvantaged Business Enterprise		
☐ Minority Business Enterprise		
☐ Woman-Owned Business Enterprise		
☐ Small Business Enterprise		
☐ Disabled Business Enterprise		
☐ Veteran-Owned Business Enterprise		
☐ Service-Disabled Veteran-Owned Business		
☐ HUBZone Business (Historically Underutilized) Business		

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☐ Other			
☐ None			

ARTICLE 4—SAFETY

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

Name of Business's Safety Officer	
Safety Certifications	

Certification Name	Issuing Agency	Expiration

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

Year									
Company	EMR	TRFR	MH	EMR	TRFR	MH	EMR	TRFR	MH

ARTICLE 5—FINANCIAL

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

Financial Institution:		
Business address:		
Date of Business's most recent financial statement:		☐ Attached
Date of Business's most recent audited financial statement:		☐ Attached
Financial indicators from the most recent financial statement		
Contractor's Current Ratio (Current Assets ÷ Current Liabilities)		
Contractor's Quick Ratio ((Cash and Cash Equivalents + Accounts Receivable + Short Term Investments) ÷ Current Liabilities)		

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ARTICLE 6—SURETY INFORMATION

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

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

ARTICLE 7—INSURANCE

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

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

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ARTICLE 8—CONSTRUCTION EXPERIENCE

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

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

8.02 Provide information regarding the Business's previous contracting experience.

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

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

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

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

ARTICLE 9—REQUIRED ATTACHMENTS

9.01 Provide the following information with the Statement of Qualifications:

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

B. Diverse Business Certifications if required by Paragraph 3.01.

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

D. Financial statements as required by Paragraph 5.01.

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

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

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

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

I. Additional items as pertinent.

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This Statement of Qualifications is offered by:

Business: _____
(typed or printed name of organization)

By: _____
(individual's signature)

Name: _____
(typed or printed)

Title: _____
(typed or printed)

Date: _____
(date signed)

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

Attest: _____
(individual's signature)

Name: _____
(typed or printed)

Title: _____
(typed or printed)

Address for giving notices:

_____

_____

_____

Designated Representative:

Name: _____
(typed or printed)

Title: _____
(typed or printed)

Address:

_____

_____

_____

Phone: _____

Email: _____

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Schedule A—Current Projects

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

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

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

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Schedule B—Previous Experience with Similar Projects

Name of Organization				
Project Owner		Project Name		
General Description of Project				
Project Cost		Date Project		
Key Project Personnel	Project Manager	Project Superintendent	Safety Manager	Quality Control Manager
Name				

Reference Contact Information (listing names indicates approval to contacting the names individuals as a reference)

	Name	Title/Position	Organization	Telephone	Email
Owner					
Designer					
Construction Manager					

Project Owner		Project Name		
General Description of Project				
Project Cost		Date Project		
Key Project Personnel	Project Manager	Project Superintendent	Safety Manager	Quality Control Manager
Name				

Reference Contact Information (listing names indicates approval to contacting the names individuals as a reference)

	Name	Title/Position	Organization	Telephone	Email
Owner					
Designer					
Construction Manager					

Project Owner		Project Name		
General Description of Project				
Project Cost		Date Project		
Key Project Personnel	Project Manager	Project Superintendent	Safety Manager	Quality Control Manager
Name				

Reference Contact Information (listing names indicates approval to contacting the names individuals as a reference)

	Name	Title/Position	Organization	Telephone	Email
Owner					
Designer					
Construction Manager					

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Schedule B—Previous Experience with Similar Projects

Name of Organization				
Project Owner		Project Name		
General Description of Project				
Project Cost		Date Project		
Key Project Personnel	Project Manager	Project Superintendent	Safety Manager	Quality Control Manager
Name				

Reference Contact Information (listing names indicates approval to contacting the names individuals as a reference)

	Name	Title/Position	Organization	Telephone	Email
Owner					
Designer					
Construction Manager					

Project Owner		Project Name		
General Description of Project				
Project Cost		Date Project		
Key Project Personnel	Project Manager	Project Superintendent	Safety Manager	Quality Control Manager
Name				

Reference Contact Information (listing names indicates approval to contacting the names individuals as a reference)

	Name	Title/Position	Organization	Telephone	Email
Owner					
Designer					
Construction Manager					

Project Owner		Project Name		
General Description of Project				
Project Cost		Date Project		
Key Project Personnel	Project Manager	Project Superintendent	Safety Manager	Quality Control Manager
Name				

Reference Contact Information (listing names indicates approval to contacting the names individuals as a reference)

	Name	Title/Position	Organization	Telephone	Email
Owner					
Designer					
Construction Manager					

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Schedule C—Key Individuals

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

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

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

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

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SECTION 00 52 00

AGREEMENT

THIS AGREEMENT, made this _____ day of _____, _____, by and between the Town of Darien, Connecticut hereinafter called "OWNER," acting herein through its _____ _____, and _____ doing business as (a corporation) (a partnership) (a joint venture) (a limited liability company) (an individual)* located in the (City) (Town)* of _____, County of _____ _____, and State of _____, hereinafter called "CONTRACTOR."

WITNESSETH: That for and in consideration of the payments and agreements hereinafter mentioned, to be made and performed by the OWNER, the CONTRACTOR hereby agrees with the OWNER to commence and complete the project described as follows:

Installation and construction of site improvements including but not limited to bituminous concrete walks, landscaping, asphalt parking areas, wetland restoration, dredging, and stormwater drainage improvements within the Pear Tree Beach Park on Pear Tree Point Road in Darien, Connecticut.

hereinafter called the project, for the sum of _____*Dollars and*_____ *Cents ($*_____*)* and all extra work in connection therewith, under the terms as stated in the Contract Documents; and at its own proper cost and expense to furnish superintendence, labor, services, materials, equipment, plant, machinery, apparatus, appliances, tools, supplies, bailing, shoring, removal, and all other things necessary to complete the said project in accordance with the conditions and prices stated in Section 00 41 13, FORM OF GENERAL BID, Section 00 72 00, GENERAL CONDITIONS, Section 00 73 00, SUPPLEMENTARY CONDITIONS, State and Federal Regulations if applicable, the plans, which include all maps, plates, drawings, blue prints, and the specifications and all other contract documents therefor as prepared by Weston & Sampson Engineers, Inc., including all bid documents.

The CONTRACTOR hereby agrees to commence work under this contract on or before a date to be fixed in the written Notice to Proceed given by the OWNER to the CONTRACTOR and to fully complete the project within the timeframe as noted within the Instructions to Bidders. The CONTRACTOR further agrees to pay as liquidated damages the sum of $1,500.00 for each consecutive calendar day thereafter during which the work has not been fully completed, as provided in the Liquidated Damages provisions of Section 00 73 00 SUPPLEMENTARY CONDITIONS.

The CONTRACTOR shall not discriminate against or exclude any person from participation herein on grounds of race, religion, color, sex, age or national origin; and that it shall take

affirmative actions to insure that applicants are employed, and that employees are treated during their employment, without regard to race, religion, color, sex, age, handicapped status, or national origin.

The CONTRACTOR shall not participate in or cooperate with an international boycott, as defined in Section 999 (b)(3) and (4) of the Internal Revenue Code of 1986, as amended.

Applicable provisions of Connecticut General Statutes and/or the United States Code and Code of Federal Regulations govern this Agreement and any provision in violation of the foregoing shall be deemed null, void and of no effect. Where conflict between Code of Federal Regulations and State laws and Regulations exist, the more stringent requirement shall apply.

The OWNER agrees to pay the CONTRACTOR in current funds for the performance of the Agreement, subject to additions and deductions, as provided in Section 00 72 00, GENERAL CONDITIONS, and to make payments on account thereof as provided in Section 00 72 00, GENERAL CONDITIONS.

IN WITNESS WHEREOF, the parties to these presents have executed this Agreement in six (6) counterparts, each of which shall be deemed an original, in the year and day first above mentioned.

AGREED:

_____ , Connecticut
(Owner)

By _____

_____
(Name)

_____
(Title)

_____
(Contractor)

By _____

_____
(Name)

_____
(Title)

_____
(Address)

_____
(City and State)

Certificate of Owner's Attorney Regarding Contract Execution

I, the undersigned, _____, the duly authorized and acting legal representative of the Town/City of _____, Connecticut do hereby certify as follows:

> I have examined the attached contracts and surety bonds and the manner of execution thereof, and I am of the opinion that each of the aforesaid agreements has been duly executed by the proper parties thereto acting through their duly authorized representatives; that said representatives have full power and authority to execute said agreements on behalf of the respective parties named thereon; and that the foregoing agreements constitute valid and legally binding obligations upon the parties executing the same in accordance with terms, conditions, and provisions thereof.

_____
(Signature)

_____
(Date)

CERTIFICATE OF VOTE
(to be filed if Contractor is a Corporation)

I, _____, hereby certify that I am the duly qualified and acting Secretary of
(Secretary of Corporation)
_____ and I further certify that a meeting of the Directors of said company,
(Name of Corporation)
duly called and held on _____, at which all members were present and voting, the
(Date of Meeting)
following vote was unanimously passed:

VOTED: To authorize and empower

_____

_____

_____

_____

_____

Anyone acting singly, to execute Forms of General Bid, Contracts or Bonds on behalf of the Corporation.

I further certify that the above vote is still in effect and has not been changed or modified in any respect.

By:_____
(Secretary of Corporation)

A True Copy:

Attest: _____
(Notary Public)

My Commission Expires:_____
(Date)

SECTION 00 61 13.13

PERFORMANCE BOND

KNOW ALL MEN BY THESE PRESENTS: That we _____
(Name of Contractor)

a _____ hereinafter called "Principal" and
(Corporation, Partnership, Joint Venture, Limited Liability Company or Individual)

_____of _____, State of ____
(Surety) (City) (State)

called the "Surety" and licensed by the Connecticut Insurance Department to do business under the laws of the State of Connecticut are held and firmly bound to Town/City of _____, Connecticut, hereinafter called "Owner," in the penal sum of _____ _____ Dollars and _____ _____ Cents ($_____) in lawful money of the United States, for the payment of which sum well and truly to be made, we bind ourselves, our heirs, executors, administrators and successors, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION is such that Whereas, the Principal entered into a certain contract with the Owner, dated the _____ day of _____, _____, a copy of which is hereto attached and made a part hereof for the construction described as follows:

Installation and construction of site improvements including but not limited to bituminous concrete walks, landscaping, compacted gravel parking areas, wetland restoration, vegetated sand dunes, and stormwater drainage improvements within the Pear Tree Beach Park on Pear Tree Point Road in Darien, Connecticut.

NOW, THEREFORE, if the Principal shall well, truly and faithfully perform its duties, all the undertakings, covenants, terms, conditions, and agreements of the Contract during the original term thereof, and any extensions thereof which may be granted by the Owner, with or without notice to the Surety, and if he shall satisfy all claims and demands incurred under the Contract, and shall fully indemnify and save harmless the Owner from all costs and damages which it may suffer by reason of failure to do so, and shall reimburse and repay the Owner all outlay and expense which the Owner may incur in making good any default, then this obligation shall be void; otherwise, this obligation shall remain in full force and effect.

PROVIDED, FURTHER, that the Surety's obligation under this Bond shall arise after (1) the Owner has declared the Principal in default of the Contract or any provision thereof, or (2) has declared that the Principal has failed, or is otherwise unable or unwilling, to execute the work consistent with, and in conformance to, the Contract (collectively referred to as a "Contractor Default"). The determination of a Contractor Default shall be made solely by the Owner. The Owner need not terminate the Contract to declare a Contractor Default or to invoke its rights under this Bond, and Contractor hereby agrees not to assert any claims against Surety under any indemnity or similar agreements on the grounds that Surety has interfered with the Contract by

fulfilling its obligations hereunder in the absence of a termination of said Contract.

When the Surety's obligation under this Bond arises, the Surety, at its sole expense and at the consent and election of the Owner, shall promptly take one of following steps: (1) arrange for the Principal to perform and complete the work of the Contract; (2) arrange for a contractor other than the Principal to perform and complete the work of the Contract; (3) reimburse the Owner, in a manner and at such time as the Owner shall reasonably decide, for all costs and expenses incurred by the Owner in performing and completing the work of the Contract. Surety will keep Owner reasonably informed of the progress, status and results of any investigation of any claim of the Owner.

If the Surety does not proceed as provided in this Bond with due diligence and all deliberate speed, the Surety shall be deemed to be in default of this Bond, and the Owner shall be entitled to enforce any remedy available to the Owner.

After the Surety's obligation under this Bond arises, the Surety is obligated, to the limit of the amounts of this Bond, for (1) the correction of defective work and completion of the Contract; (2) additional design, professional services, and legal costs, including attorney's fees, resulting from the Contractor Default or from the default of the Surety under this Bond; (3) any additional work beyond the Contract made necessary by the Contractor Default or default of the Surety under this Bond; (4) indemnification obligations of the Principal, if any, as provided in the Contract; and (5) liquidated damages as provided in the Contract, or if no such damages are specified, actual damages and consequential damages resulting from the Contractor Default or any default of the Surety under this Bond.

Any proceeding, legal or equitable, under this Bond shall be instituted in any court of competent jurisdiction in the State of Connecticut.

The Surety, for value received, hereby stipulates and agrees that no change, extension of time, alteration or addition to the terms of the Contract or to the work to be performed thereunder or the specifications accompanying the same shall in any way affect its obligation on this bond, and it does hereby waive notice of any such change, extension of time, alteration or addition to the terms of the Contract or to the work or to the specifications.

The Surety providing the Bond shall have a rating of A or better within Best's Key Rating Guide.

IN WITNESS WHEREOF, this instrument is executed in _____ ( ) counterparts, each one of which shall be deemed an original, this the _____ day of _____, 20___.

ATTEST:

_____ Principal	_____ Witness as to Principal Signature
By_____ Signature	_____ Name and Title
_____ Name and Title	_____ Address
_____ Address	_____ City and State
_____ City and State	(SEAL)

ATTEST:

_____ Surety	_____ Witness as to Surety Signature
By_____ Attorney-in-Fact Signature	_____ Name and Title
_____ Name and Title	_____ Address
_____ Address	_____ City and State
_____ City and State	(SEAL)

NOTE: Date of Bond must not be prior to date of Contract. If Contractor is a Partnership, all partners should execute Bond.

END OF SECTION

SECTION 00 61 13.16

PAYMENT BOND

KNOW ALL MEN BY THESE PRESENTS: That we _____
(Name of Contractor)
a _____hereinafter called "Principal"
and (Corporation, Partnership, Joint Venture, Limited Liability Company or Individual)
_____ of _____, State of _____
(Surety) (City) (State)
hereinafter called "Surety" and licensed by the Connecticut Insurance Department to do business under the laws of the State of Connecticut are held and firmly bound to the Town/City of _____, Connecticut, hereinafter called "Owner," in the penal sum of _____ _____ Dollars and _____Cents ($_____) in lawful money of the United States, for the payment of which sum well and truly to be made, we bind ourselves, our heirs, executors, administrators and successors, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION is such that whereas, the Principal has entered into a certain contract with the Owner (the "Contract"), dated the _____ day of _____ _____, 20____, which Contract is by reference made a part hereof, for the construction described as follows:

Installation and construction of site improvements including but not limited to bituminous concrete walks, landscaping, compacted gravel parking areas, wetland restoration, vegetated sand dunes, and stormwater drainage improvements within Pear Tree Beach Park on Pear Tree Point Road in Darien, Connecticut.

NOW, THEREFORE, if the Principal shall promptly make payment to all persons, firms, subcontractors, and corporations furnishing materials for or performing labor in the prosecution of the work provided for in such contract, and any authorized extension or modification thereof, including all amounts due for materials, lubricants, oil, gasoline, repairs on machinery, equipment and tools, consumed or used in connection with the construction of such work, and all insurance premiums on said work, and for all labor, performed in such work whether by subcontractor or otherwise, then this obligation shall be void; otherwise to remain in full force and effect.

PROVIDED, FURTHER, that the said Surety, for value received hereby stipulates and agrees that no change, extension of time, alteration or addition to the terms of the Contract or to the work to be performed thereunder or the specifications accompanying the same shall in any way affect its obligation on this bond, and it does hereby waive notice of any such change, extension of time, alteration or addition to the terms of this Contract or to the work or to the specifications. The Surety Company providing the bond shall have a rating of A or better within the Best Key Rating Guide.

PROVIDED, FURTHER, that no final settlement between the Owner and the Contractor shall abridge the right of any beneficiary hereunder, whose claim may be unsatisfied.

IN WITNESS WHEREOF, this instrument is executed in _____ ( ) counterparts, each one of which shall be deemed an original, this the _____ day of _____, 20___.

ATTEST:

_____	_____
Principal	Witness as to Principal Signature
By_____	_____
Signature	Name and Title
_____	_____
Name and Title	Address
_____	_____
Address	City and State
_____	
City and State	
	(SEAL)

ATTEST:

_____	_____
Surety	Witness as to Surety Signature
By_____	_____
Attorney-in-Fact Signature	Name and Title
_____	_____
Name and Title	Address
_____	_____
Address	City and State
_____	
City and State	
	(SEAL)

NOTE: Date of Bond must not be prior to date of Contract. If Contractor is a Partnership, all partners should execute Bond.

END OF SECTION

SECTION 00 72 00

STANDARD GENERAL CONDITIONS OF THE CONSTRUCTION CONTRACT

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STANDARD GENERAL CONDITIONS OF THE CONSTRUCTION CONTRACT

ARTICLE 1—DEFINITIONS AND TERMINOLOGY

1.01 *Defined Terms*

A. Wherever used in the Bidding Requirements or Contract Documents, a term printed with initial capital letters, including the term's singular and plural forms, will have the meaning indicated in the definitions below. In addition to terms specifically defined, terms with initial capital letters in the Contract Documents include references to identified articles and paragraphs, and the titles of other documents or forms.

1. *Addenda*—Written or graphic instruments issued prior to the opening of Bids which clarify, correct, or change the Bidding Requirements or the proposed Contract Documents.

2. *Agreement*—The written instrument, executed by Owner and Contractor, that sets forth the Contract Price and Contract Times, identifies the parties and the Engineer, and designates the specific items that are Contract Documents.

3. *Application for Payment*—The document prepared by Contractor, in a form acceptable to Engineer, to request progress or final payments, and which is to be accompanied by such supporting documentation as is required by the Contract Documents.

4. *Bid*—The offer of a Bidder submitted on the prescribed form setting forth the prices for the Work to be performed.

5. *Bidder*—An individual or entity that submits a Bid to Owner.

6. *Bidding Documents*—The Bidding Requirements, the proposed Contract Documents, and all Addenda.

7. *Bidding Requirements*—The Advertisement or invitation to bid, Instructions to Bidders, Bid Bond or other Bid security, if any, the Bid Form, and the Bid with any attachments.

8. *Change Order*—A document which is signed by Contractor and Owner and authorizes an addition, deletion, or revision in the Work or an adjustment in the Contract Price or the Contract Times, or other revision to the Contract, issued on or after the Effective Date of the Contract.

9. *Change Proposal*—A written request by Contractor, duly submitted in compliance with the procedural requirements set forth herein, seeking an adjustment in Contract Price or Contract Times; contesting an initial decision by Engineer concerning the requirements of the Contract Documents or the acceptability of Work under the Contract Documents; challenging a set-off against payments due; or seeking other relief with respect to the terms of the Contract.

10. *Claim*

a. A demand or assertion by Owner directly to Contractor, duly submitted in compliance with the procedural requirements set forth herein, seeking an adjustment of Contract Price or Contract Times; contesting an initial decision by Engineer concerning the requirements of the Contract Documents or the acceptability of Work under the Contract Documents; contesting Engineer's decision regarding a Change Proposal;

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seeking resolution of a contractual issue that Engineer has declined to address; or seeking other relief with respect to the terms of the Contract.

b. A demand or assertion by Contractor directly to Owner, duly submitted in compliance with the procedural requirements set forth herein, contesting Engineer's decision regarding a Change Proposal, or seeking resolution of a contractual issue that Engineer has declined to address.

c. A demand or assertion by Owner or Contractor, duly submitted in compliance with the procedural requirements set forth herein, made pursuant to Paragraph 12.01.A.4, concerning disputes arising after Engineer has issued a recommendation of final payment.

d. A demand for money or services by a third party is not a Claim.

11. *Constituent of Concern*—Asbestos, petroleum, radioactive materials, polychlorinated biphenyls (PCBs), lead-based paint (as defined by the HUD/EPA standard), hazardous waste, and any substance, product, waste, or other material of any nature whatsoever that is or becomes listed, regulated, or addressed pursuant to Laws and Regulations regulating, relating to, or imposing liability or standards of conduct concerning, any hazardous, toxic, or dangerous waste, substance, or material.

12. *Contract*—The entire and integrated written contract between Owner and Contractor concerning the Work.

13. *Contract Documents*—Those items so designated in the Agreement, and which together comprise the Contract.

14. *Contract Price*—The money that Owner has agreed to pay Contractor for completion of the Work in accordance with the Contract Documents.

15. *Contract Times*—The number of days or the dates by which Contractor shall: (a) achieve Milestones, if any; (b) achieve Substantial Completion; and (c) complete the Work.

16. *Contractor*—The individual or entity with which Owner has contracted for performance of the Work.

17. *Cost of the Work*—See Paragraph 13.01 for definition.

18. *Drawings*—The part of the Contract that graphically shows the scope, extent, and character of the Work to be performed by Contractor.

19. *Effective Date of the Contract*—The date, indicated in the Agreement, on which the Contract becomes effective.

20. *Electronic Document*—Any Project-related correspondence, attachments to correspondence, data, documents, drawings, information, or graphics, including but not limited to Shop Drawings and other Submittals, that are in an electronic or digital format.

21. *Electronic Means*—Electronic mail (email), upload/download from a secure Project website, or other communications methods that allow: (a) the transmission or communication of Electronic Documents; (b) the documentation of transmissions, including sending and receipt; (c) printing of the transmitted Electronic Document by the recipient; (d) the storage and archiving of the Electronic Document by sender and recipient; and (e) the use by recipient of the Electronic Document for purposes permitted by this Contract. Electronic Means does not include the use of text messaging, or of Facebook, Twitter, Instagram, or similar social media services for transmission of Electronic Documents.

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22. *Engineer*—The individual or entity named as such in the Agreement.

23. *Field Order*—A written order issued by Engineer which requires minor changes in the Work but does not change the Contract Price or the Contract Times.

24. *Hazardous Environmental Condition*—The presence at the Site of Constituents of Concern in such quantities or circumstances that may present a danger to persons or property exposed thereto.

    a. The presence at the Site of materials that are necessary for the execution of the Work, or that are to be incorporated into the Work, and that are controlled and contained pursuant to industry practices, Laws and Regulations, and the requirements of the Contract, is not a Hazardous Environmental Condition.

    b. The presence of Constituents of Concern that are to be removed or remediated as part of the Work is not a Hazardous Environmental Condition.

    c. The presence of Constituents of Concern as part of the routine, anticipated, and obvious working conditions at the Site, is not a Hazardous Environmental Condition.

25. *Laws and Regulations; Laws or Regulations*—Any and all applicable laws, statutes, rules, regulations, ordinances, codes, and binding decrees, resolutions, and orders of any and all governmental bodies, agencies, authorities, and courts having jurisdiction.

26. *Liens*—Charges, security interests, or encumbrances upon Contract-related funds, real property, or personal property.

27. *Milestone*—A principal event in the performance of the Work that the Contract requires Contractor to achieve by an intermediate completion date, or by a time prior to Substantial Completion of all the Work.

28. *Notice of Award*—The written notice by Owner to a Bidder of Owner's acceptance of the Bid.

29. *Notice to Proceed*—A written notice by Owner to Contractor fixing the date on which the Contract Times will commence to run and on which Contractor shall start to perform the Work.

30. *Owner*—The individual or entity with which Contractor has contracted regarding the Work, and which has agreed to pay Contractor for the performance of the Work, pursuant to the terms of the Contract.

31. *Progress Schedule*—A schedule, prepared and maintained by Contractor, describing the sequence and duration of the activities comprising Contractor's plan to accomplish the Work within the Contract Times.

32. *Project*—The total undertaking to be accomplished for Owner by engineers, contractors, and others, including planning, study, design, construction, testing, commissioning, and start-up, and of which the Work to be performed under the Contract Documents is a part.

33. *Resident Project Representative*—The authorized representative of Engineer assigned to assist Engineer at the Site. As used herein, the term Resident Project Representative (RPR) includes any assistants or field staff of Resident Project Representative.

34. *Samples*—Physical examples of materials, equipment, or workmanship that are representative of some portion of the Work and that establish the standards by which such portion of the Work will be judged.

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35. *Schedule of Submittals*—A schedule, prepared and maintained by Contractor, of required submittals and the time requirements for Engineer's review of the submittals.

36. *Schedule of Values*—A schedule, prepared and maintained by Contractor, allocating portions of the Contract Price to various portions of the Work and used as the basis for reviewing Contractor's Applications for Payment.

37. *Shop Drawings*—All drawings, diagrams, illustrations, schedules, and other data or information that are specifically prepared or assembled by or for Contractor and submitted by Contractor to illustrate some portion of the Work. Shop Drawings, whether approved or not, are not Drawings and are not Contract Documents.

38. *Site*—Lands or areas indicated in the Contract Documents as being furnished by Owner upon which the Work is to be performed, including rights-of-way and easements, and such other lands or areas furnished by Owner which are designated for the use of Contractor.

39. *Specifications*—The part of the Contract that consists of written requirements for materials, equipment, systems, standards, and workmanship as applied to the Work, and certain administrative requirements and procedural matters applicable to the Work.

40. *Subcontractor*—An individual or entity having a direct contract with Contractor or with any other Subcontractor for the performance of a part of the Work.

41. *Submittal*—A written or graphic document, prepared by or for Contractor, which the Contract Documents require Contractor to submit to Engineer, or that is indicated as a Submittal in the Schedule of Submittals accepted by Engineer. Submittals may include Shop Drawings and Samples; schedules; product data; Owner-delegated designs; sustainable design information; information on special procedures; testing plans; results of tests and evaluations, source quality-control testing and inspections, and field or Site quality-control testing and inspections; warranties and certifications; Suppliers' instructions and reports; records of delivery of spare parts and tools; operations and maintenance data; Project photographic documentation; record documents; and other such documents required by the Contract Documents. Submittals, whether or not approved or accepted by Engineer, are not Contract Documents. Change Proposals, Change Orders, Claims, notices, Applications for Payment, and requests for interpretation or clarification are not Submittals.

42. *Substantial Completion*—The time at which the Work (or a specified part thereof) has progressed to the point where, in the opinion of Engineer, the Work (or a specified part thereof) is sufficiently complete, in accordance with the Contract Documents, so that the Work (or a specified part thereof) can be utilized for the purposes for which it is intended. The terms "substantially complete" and "substantially completed" as applied to all or part of the Work refer to Substantial Completion of such Work.

43. *Successful Bidder*—The Bidder to which the Owner makes an award of contract.

44. *Supplementary Conditions*—The part of the Contract that amends or supplements these General Conditions.

45. *Supplier*—A manufacturer, fabricator, supplier, distributor, or vendor having a direct contract with Contractor or with any Subcontractor to furnish materials or equipment to be incorporated in the Work by Contractor or a Subcontractor.

46. *Technical Data*

    a. Those items expressly identified as Technical Data in the Supplementary Conditions, with respect to either (1) existing subsurface conditions at or adjacent to the Site, or

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existing physical conditions at or adjacent to the Site including existing surface or subsurface structures (except Underground Facilities) or (2) Hazardous Environmental Conditions at the Site.

b. If no such express identifications of Technical Data have been made with respect to conditions at the Site, then Technical Data is defined, with respect to conditions at the Site under Paragraphs 5.03, 5.04, and 5.06, as the data contained in boring logs, recorded measurements of subsurface water levels, assessments of the condition of subsurface facilities, laboratory test results, and other factual, objective information regarding conditions at the Site that are set forth in any geotechnical, environmental, or other Site or facilities conditions report prepared for the Project and made available to Contractor.

c. Information and data regarding the presence or location of Underground Facilities are not intended to be categorized, identified, or defined as Technical Data, and instead Underground Facilities are shown or indicated on the Drawings.

47. *Underground Facilities*—All active or not-in-service underground lines, pipelines, conduits, ducts, encasements, cables, wires, manholes, vaults, tanks, tunnels, or other such facilities or systems at the Site, including but not limited to those facilities or systems that produce, transmit, distribute, or convey telephone or other communications, cable television, fiber optic transmissions, power, electricity, light, heat, gases, oil, crude oil products, liquid petroleum products, water, steam, waste, wastewater, storm water, other liquids or chemicals, or traffic or other control systems. An abandoned facility or system is not an Underground Facility.

48. *Unit Price Work*—Work to be paid for on the basis of unit prices.

49. *Work*—The entire construction or the various separately identifiable parts thereof required to be provided under the Contract Documents. Work includes and is the result of performing or providing all labor, services, and documentation necessary to produce such construction; furnishing, installing, and incorporating all materials and equipment into such construction; and may include related services such as testing, start-up, and commissioning, all as required by the Contract Documents.

50. *Work Change Directive*—A written directive to Contractor issued on or after the Effective Date of the Contract, signed by Owner and recommended by Engineer, ordering an addition, deletion, or revision in the Work.

1.02 *Terminology*

A. The words and terms discussed in Paragraphs 1.02.B, C, D, and E are not defined terms that require initial capital letters, but, when used in the Bidding Requirements or Contract Documents, have the indicated meaning.

B. *Intent of Certain Terms or Adjectives*: The Contract Documents include the terms "as allowed," "as approved," "as ordered," "as directed" or terms of like effect or import to authorize an exercise of professional judgment by Engineer. In addition, the adjectives "reasonable," "suitable," "acceptable," "proper," "satisfactory," or adjectives of like effect or import are used to describe an action or determination of Engineer as to the Work. It is intended that such exercise of professional judgment, action, or determination will be solely to evaluate, in general, the Work for compliance with the information in the Contract Documents and with the design concept of the Project as a functioning whole as shown or indicated in the Contract Documents (unless there is a specific statement indicating otherwise). The use of any such term or adjective is not intended to and shall not be effective to assign to Engineer any duty or

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authority to supervise or direct the performance of the Work, or any duty or authority to undertake responsibility contrary to the provisions of Article 10 or any other provision of the Contract Documents.

C. *Day*: The word "day" means a calendar day of 24 hours measured from midnight to the next midnight.

D. *Defective*: The word "defective," when modifying the word "Work," refers to Work that is unsatisfactory, faulty, or deficient in that it:

1. does not conform to the Contract Documents;

2. does not meet the requirements of any applicable inspection, reference standard, test, or approval referred to in the Contract Documents; or

3. has been damaged prior to Engineer's recommendation of final payment (unless responsibility for the protection thereof has been assumed by Owner at Substantial Completion in accordance with Paragraph 15.03 or Paragraph 15.04).

E. *Furnish, Install, Perform, Provide*

1. The word "furnish," when used in connection with services, materials, or equipment, means to supply and deliver said services, materials, or equipment to the Site (or some other specified location) ready for use or installation and in usable or operable condition.

2. The word "install," when used in connection with services, materials, or equipment, means to put into use or place in final position said services, materials, or equipment complete and ready for intended use.

3. The words "perform" or "provide," when used in connection with services, materials, or equipment, means to furnish and install said services, materials, or equipment complete and ready for intended use.

4. If the Contract Documents establish an obligation of Contractor with respect to specific services, materials, or equipment, but do not expressly use any of the four words "furnish," "install," "perform," or "provide," then Contractor shall furnish and install said services, materials, or equipment complete and ready for intended use.

F. *Contract Price or Contract Times*: References to a change in "Contract Price or Contract Times" or "Contract Times or Contract Price" or similar, indicate that such change applies to (1) Contract Price, (2) Contract Times, or (3) both Contract Price and Contract Times, as warranted, even if the term "or both" is not expressed.

G. Unless stated otherwise in the Contract Documents, words or phrases that have a well-known technical or construction industry or trade meaning are used in the Contract Documents in accordance with such recognized meaning.

ARTICLE 2—PRELIMINARY MATTERS

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

A. *Performance and Payment Bonds*: When Contractor delivers the signed counterparts of the Agreement to Owner, Contractor shall also deliver to Owner the performance bond and payment bond (if the Contract requires Contractor to furnish such bonds).

B. *Evidence of Contractor's Insurance*: When Contractor delivers the signed counterparts of the Agreement to Owner, Contractor shall also deliver to Owner, with copies to each additional insured (as identified in the Contract), the certificates, endorsements, and other evidence of

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insurance required to be provided by Contractor in accordance with Article 6, except to the extent the Supplementary Conditions expressly establish other dates for delivery of specific insurance policies.

C. *Evidence of Owner's Insurance*: After receipt of the signed counterparts of the Agreement and all required bonds and insurance documentation, Owner shall promptly deliver to Contractor, with copies to each additional insured (as identified in the Contract), the certificates and other evidence of insurance required to be provided by Owner under Article 6.

2.02 *Copies of Documents*

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

B. Owner shall maintain and safeguard at least one original printed record version of the Contract, including Drawings and Specifications signed and sealed by Engineer and other design professionals. Owner shall make such original printed record version of the Contract available to Contractor for review. Owner may delegate the responsibilities under this provision to Engineer.

2.03 *Before Starting Construction*

A. *Preliminary Schedules*: Within 10 days after the Effective Date of the Contract (or as otherwise required by the Contract Documents), Contractor shall submit to Engineer for timely review:

1. a preliminary Progress Schedule indicating the times (numbers of days or dates) for starting and completing the various stages of the Work, including any Milestones specified in the Contract;

2. a preliminary Schedule of Submittals; and

3. a preliminary Schedule of Values for all of the Work which includes quantities and prices of items which when added together equal the Contract Price and subdivides the Work into component parts in sufficient detail to serve as the basis for progress payments during performance of the Work. Such prices will include an appropriate amount of overhead and profit applicable to each item of Work.

2.04 *Preconstruction Conference; Designation of Authorized Representatives*

A. Before any Work at the Site is started, a conference attended by Owner, Contractor, Engineer, and others as appropriate will be held to establish a working understanding among the parties as to the Work, and to discuss the schedules referred to in Paragraph 2.03.A, procedures for handling Shop Drawings, Samples, and other Submittals, processing Applications for Payment, electronic or digital transmittals, and maintaining required records.

B. At this conference Owner and Contractor each shall designate, in writing, a specific individual to act as its authorized representative with respect to the services and responsibilities under the Contract. Such individuals shall have the authority to transmit and receive information, render decisions relative to the Contract, and otherwise act on behalf of each respective party.

2.05 *Acceptance of Schedules*

A. At least 10 days before submission of the first Application for Payment a conference, attended by Contractor, Engineer, and others as appropriate, will be held to review the schedules submitted in accordance with Paragraph 2.03.A. No progress payment will be made to Contractor until acceptable schedules are submitted to Engineer.

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1. The Progress Schedule will be acceptable to Engineer if it provides an orderly progression of the Work to completion within the Contract Times. Such acceptance will not impose on Engineer responsibility for the Progress Schedule, for sequencing, scheduling, or progress of the Work, nor interfere with or relieve Contractor from Contractor's full responsibility therefor.
2. Contractor's Schedule of Submittals will be acceptable to Engineer if it provides a workable arrangement for reviewing and processing the required submittals.
3. Contractor's Schedule of Values will be acceptable to Engineer as to form and substance if it provides a reasonable allocation of the Contract Price to the component parts of the Work.
4. If a schedule is not acceptable, Contractor will have an additional 10 days to revise and resubmit the schedule.

2.06 *Electronic Transmittals*

A. Except as otherwise stated elsewhere in the Contract, the Owner, Engineer, and Contractor may send, and shall accept, Electronic Documents transmitted by Electronic Means.

B. If the Contract does not establish protocols for Electronic Means, then Owner, Engineer, and Contractor shall jointly develop such protocols.

C. Subject to any governing protocols for Electronic Means, when transmitting Electronic Documents by Electronic Means, the transmitting party makes no representations as to long-term compatibility, usability, or readability of the Electronic Documents resulting from the recipient's use of software application packages, operating systems, or computer hardware differing from those used in the drafting or transmittal of the Electronic Documents.

ARTICLE 3—CONTRACT DOCUMENTS: INTENT, REQUIREMENTS, REUSE

3.01 *Intent*

A. The Contract Documents are complementary; what is required by one Contract Document is as binding as if required by all.

B. It is the intent of the Contract Documents to describe a functionally complete Project (or part thereof) to be constructed in accordance with the Contract Documents.

C. Unless otherwise stated in the Contract Documents, if there is a discrepancy between the electronic versions of the Contract Documents (including any printed copies derived from such electronic versions) and the printed record version, the printed record version will govern.

D. The Contract supersedes prior negotiations, representations, and agreements, whether written or oral.

E. Engineer will issue clarifications and interpretations of the Contract Documents as provided herein.

F. Any provision or part of the Contract Documents held to be void or unenforceable under any Law or Regulation will be deemed stricken, and all remaining provisions will continue to be valid and binding upon Owner and Contractor, which agree that the Contract Documents will be reformed to replace such stricken provision or part thereof with a valid and enforceable provision that comes as close as possible to expressing the intention of the stricken provision.

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G. Nothing in the Contract Documents creates:

1. any contractual relationship between Owner or Engineer and any Subcontractor, Supplier, or other individual or entity performing or furnishing any of the Work, for the benefit of such Subcontractor, Supplier, or other individual or entity; or

2. any obligation on the part of Owner or Engineer to pay or to see to the payment of any money due any such Subcontractor, Supplier, or other individual or entity, except as may otherwise be required by Laws and Regulations.

3.02 *Reference Standards*

A. *Standards Specifications, Codes, Laws and Regulations*

1. Reference in the Contract Documents to standard specifications, manuals, reference standards, or codes of any technical society, organization, or association, or to Laws or Regulations, whether such reference be specific or by implication, means the standard specification, manual, reference standard, code, or Laws or Regulations in effect at the time of opening of Bids (or on the Effective Date of the Contract if there were no Bids), except as may be otherwise specifically stated in the Contract Documents.

2. No provision of any such standard specification, manual, reference standard, or code, and no instruction of a Supplier, will be effective to change the duties or responsibilities of Owner, Contractor, or Engineer from those set forth in the part of the Contract Documents prepared by or for Engineer. No such provision or instruction shall be effective to assign to Owner or Engineer any duty or authority to supervise or direct the performance of the Work, or any duty or authority to undertake responsibility inconsistent with the provisions of the part of the Contract Documents prepared by or for Engineer.

3.03 *Reporting and Resolving Discrepancies*

A. *Reporting Discrepancies*

1. *Contractor's Verification of Figures and Field Measurements*: Before undertaking each part of the Work, Contractor shall carefully study the Contract Documents, and check and verify pertinent figures and dimensions therein, particularly with respect to applicable field measurements. Contractor shall promptly report in writing to Engineer any conflict, error, ambiguity, or discrepancy that Contractor discovers, or has actual knowledge of, and shall not proceed with any Work affected thereby until the conflict, error, ambiguity, or discrepancy is resolved by a clarification or interpretation by Engineer, or by an amendment or supplement to the Contract issued pursuant to Paragraph 11.01.

2. *Contractor's Review of Contract Documents*: If, before or during the performance of the Work, Contractor discovers any conflict, error, ambiguity, or discrepancy within the Contract Documents, or between the Contract Documents and (a) any applicable Law or Regulation, (b) actual field conditions, (c) any standard specification, manual, reference standard, or code, or (d) any instruction of any Supplier, then Contractor shall promptly report it to Engineer in writing. Contractor shall not proceed with the Work affected thereby (except in an emergency as required by Paragraph 7.15) until the conflict, error, ambiguity, or discrepancy is resolved, by a clarification or interpretation by Engineer, or by an amendment or supplement to the Contract issued pursuant to Paragraph 11.01.

3. Contractor shall not be liable to Owner or Engineer for failure to report any conflict, error, ambiguity, or discrepancy in the Contract Documents unless Contractor had actual knowledge thereof.

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B. *Resolving Discrepancies*

1. Except as may be otherwise specifically stated in the Contract Documents, the provisions of the part of the Contract Documents prepared by or for Engineer take precedence in resolving any conflict, error, ambiguity, or discrepancy between such provisions of the Contract Documents and:

   a. the provisions of any standard specification, manual, reference standard, or code, or the instruction of any Supplier (whether or not specifically incorporated by reference as a Contract Document); or

   b. the provisions of any Laws or Regulations applicable to the performance of the Work (unless such an interpretation of the provisions of the Contract Documents would result in violation of such Law or Regulation).

3.04 *Requirements of the Contract Documents*

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

B. Engineer will, with reasonable promptness, render a written clarification, interpretation, or decision on the issue submitted, or initiate an amendment or supplement to the Contract Documents. Engineer's written clarification, interpretation, or decision will be final and binding on Contractor, unless it appeals by submitting a Change Proposal, and on Owner, unless it appeals by filing a Claim.

C. If a submitted matter in question concerns terms and conditions of the Contract Documents that do not involve (1) the performance or acceptability of the Work under the Contract Documents, (2) the design (as set forth in the Drawings, Specifications, or otherwise), or (3) other engineering or technical matters, then Engineer will promptly notify Owner and Contractor in writing that Engineer is unable to provide a decision or interpretation. If Owner and Contractor are unable to agree on resolution of such a matter in question, either party may pursue resolution as provided in Article 12.

3.05 *Reuse of Documents*

A. Contractor and its Subcontractors and Suppliers shall not:

1. have or acquire any title to or ownership rights in any of the Drawings, Specifications, or other documents (or copies of any thereof) prepared by or bearing the seal of Engineer or its consultants, including electronic media versions, or reuse any such Drawings, Specifications, other documents, or copies thereof on extensions of the Project or any other project without written consent of Owner and Engineer and specific written verification or adaptation by Engineer; or

2. have or acquire any title or ownership rights in any other Contract Documents, reuse any such Contract Documents for any purpose without Owner's express written consent, or violate any copyrights pertaining to such Contract Documents.

B. The prohibitions of this Paragraph 3.05 will survive final payment, or termination of the Contract. Nothing herein precludes Contractor from retaining copies of the Contract Documents for record purposes.

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ARTICLE 4—COMMENCEMENT AND PROGRESS OF THE WORK

4.01 *Commencement of Contract Times; Notice to Proceed*

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

4.02 *Starting the Work*

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

4.03 *Reference Points*

A. Owner shall provide engineering surveys to establish reference points for construction which in Engineer's judgment are necessary to enable Contractor to proceed with the Work. Contractor shall be responsible for laying out the Work, shall protect and preserve the established reference points and property monuments, and shall make no changes or relocations without the prior written approval of Owner. Contractor shall report to Engineer whenever any reference point or property monument is lost or destroyed or requires relocation because of necessary changes in grades or locations, and shall be responsible for the accurate replacement or relocation of such reference points or property monuments by professionally qualified personnel.

4.04 *Progress Schedule*

A. Contractor shall adhere to the Progress Schedule established in accordance with Paragraph 2.05 as it may be adjusted from time to time as provided below.

1. Contractor shall submit to Engineer for acceptance (to the extent indicated in Paragraph 2.05) proposed adjustments in the Progress Schedule that will not result in changing the Contract Times.

2. Proposed adjustments in the Progress Schedule that will change the Contract Times must be submitted in accordance with the requirements of Article 11.

B. Contractor shall carry on the Work and adhere to the Progress Schedule during all disputes or disagreements with Owner. No Work will be delayed or postponed pending resolution of any disputes or disagreements, or during any appeal process, except as permitted by Paragraph 16.04, or as Owner and Contractor may otherwise agree in writing.

4.05 *Delays in Contractor's Progress*

A. If Owner, Engineer, or anyone for whom Owner is responsible, delays, disrupts, or interferes with the performance or progress of the Work, then Contractor shall be entitled to an equitable adjustment in Contract Price or Contract Times.

B. Contractor shall not be entitled to an adjustment in Contract Price or Contract Times for delay, disruption, or interference caused by or within the control of Contractor. Delay, disruption, and interference attributable to and within the control of a Subcontractor or Supplier shall be deemed to be within the control of Contractor.

C. If Contractor's performance or progress is delayed, disrupted, or interfered with by unanticipated causes not the fault of and beyond the control of Owner, Contractor, and those

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for which they are responsible, then Contractor shall be entitled to an equitable adjustment in Contract Times. Such an adjustment will be Contractor's sole and exclusive remedy for the delays, disruption, and interference described in this paragraph. Causes of delay, disruption, or interference that may give rise to an adjustment in Contract Times under this paragraph include but are not limited to the following:

1. Severe and unavoidable natural catastrophes such as fires, floods, epidemics, and earthquakes;
2. Abnormal weather conditions;
3. Acts or failures to act of third-party utility owners or other third-party entities (other than those third-party utility owners or other third-party entities performing other work at or adjacent to the Site as arranged by or under contract with Owner, as contemplated in Article 8); and
4. Acts of war or terrorism.

D. Contractor's entitlement to an adjustment of Contract Times or Contract Price is limited as follows:

1. Contractor's entitlement to an adjustment of the Contract Times is conditioned on the delay, disruption, or interference adversely affecting an activity on the critical path to completion of the Work, as of the time of the delay, disruption, or interference.
2. Contractor shall not be entitled to an adjustment in Contract Price for any delay, disruption, or interference if such delay is concurrent with a delay, disruption, or interference caused by or within the control of Contractor. Such a concurrent delay by Contractor shall not preclude an adjustment of Contract Times to which Contractor is otherwise entitled.
3. Adjustments of Contract Times or Contract Price are subject to the provisions of Article 11.

E. Each Contractor request or Change Proposal seeking an increase in Contract Times or Contract Price must be supplemented by supporting data that sets forth in detail the following:

1. The circumstances that form the basis for the requested adjustment;
2. The date upon which each cause of delay, disruption, or interference began to affect the progress of the Work;
3. The date upon which each cause of delay, disruption, or interference ceased to affect the progress of the Work;
4. The number of days' increase in Contract Times claimed as a consequence of each such cause of delay, disruption, or interference; and
5. The impact on Contract Price, in accordance with the provisions of Paragraph 11.07.

Contractor shall also furnish such additional supporting documentation as Owner or Engineer may require including, where appropriate, a revised progress schedule indicating all the activities affected by the delay, disruption, or interference, and an explanation of the effect of the delay, disruption, or interference on the critical path to completion of the Work.

F. Delays, disruption, and interference to the performance or progress of the Work resulting from the existence of a differing subsurface or physical condition, an Underground Facility that was not shown or indicated by the Contract Documents, or not shown or indicated with reasonable accuracy, and those resulting from Hazardous Environmental Conditions, are governed by Article 5, together with the provisions of Paragraphs 4.05.D and 4.05.E.

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G. Paragraph 8.03 addresses delays, disruption, and interference to the performance or progress of the Work resulting from the performance of certain other work at or adjacent to the Site.

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

5.01 *Availability of Lands*

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

B. Upon reasonable written request, Owner shall furnish Contractor with a current statement of record legal title and legal description of the lands upon which permanent improvements are to be made and Owner's interest therein as necessary for giving notice of or filing a mechanic's or construction lien against such lands in accordance with applicable Laws and Regulations.

C. Contractor shall provide for all additional lands and access thereto that may be required for temporary construction facilities or storage of materials and equipment.

5.02 *Use of Site and Other Areas*

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

1. Contractor shall confine construction equipment, temporary construction facilities, the storage of materials and equipment, and the operations of workers to the Site, adjacent areas that Contractor has arranged to use through construction easements or otherwise, and other adjacent areas permitted by Laws and Regulations, and shall not unreasonably encumber the Site and such other adjacent areas with construction equipment or other materials or equipment. Contractor shall assume full responsibility for (a) damage to the Site; (b) damage to any such other adjacent areas used for Contractor's operations; (c) damage to any other adjacent land or areas, or to improvements, structures, utilities, or similar facilities located at such adjacent lands or areas; and (d) for injuries and losses sustained by the owners or occupants of any such land or areas; provided that such damage or injuries result from the performance of the Work or from other actions or conduct of the Contractor or those for which Contractor is responsible.

2. If a damage or injury claim is made by the owner or occupant of any such land or area because of the performance of the Work, or because of other actions or conduct of the Contractor or those for which Contractor is responsible, Contractor shall (a) take immediate corrective or remedial action as required by Paragraph 7.13, or otherwise; (b) promptly attempt to settle the claim as to all parties through negotiations with such owner or occupant, or otherwise resolve the claim by arbitration or other dispute resolution proceeding, or in a court of competent jurisdiction; and (c) to the fullest extent permitted by Laws and Regulations, indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them, from and against any such claim, and against all costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to any claim or action, legal or equitable, brought by any such owner or occupant against Owner, Engineer, or any other party indemnified hereunder to the extent caused directly or indirectly, in whole or in part by, or based upon, Contractor's performance of the Work, or because of other actions or conduct of the Contractor or those for which Contractor is responsible.

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B. *Removal of Debris During Performance of the Work*: During the progress of the Work the Contractor shall keep the Site and other adjacent areas free from accumulations of waste materials, rubbish, and other debris. Removal and disposal of such waste materials, rubbish, and other debris will conform to applicable Laws and Regulations.

C. *Cleaning*: Prior to Substantial Completion of the Work Contractor shall clean the Site and the Work and make it ready for utilization by Owner. At the completion of the Work Contractor shall remove from the Site and adjacent areas all tools, appliances, construction equipment and machinery, and surplus materials and shall restore to original condition all property not designated for alteration by the Contract Documents.

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

5.03 *Subsurface and Physical Conditions*

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

1. Those reports of explorations and tests of subsurface conditions at or adjacent to the Site that contain Technical Data;

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

3. Technical Data contained in such reports and drawings.

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

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

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

1. the completeness of such reports and drawings for Contractor's purposes, including, but not limited to, any aspects of the means, methods, techniques, sequences, and procedures of construction to be employed by Contractor, and safety precautions and programs incident thereto;

2. other data, interpretations, opinions, and information contained in such reports or shown or indicated in such drawings;

3. the contents of other Site-related documents made available to Contractor, such as record drawings from other projects at or adjacent to the Site, or Owner's archival documents concerning the Site; or

4. any Contractor interpretation of or conclusion drawn from any Technical Data or any such other data, interpretations, opinions, or information.

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5.04 *Differing Subsurface or Physical Conditions*

A. *Notice by Contractor*: If Contractor believes that any subsurface or physical condition that is uncovered or revealed at the Site:

1. is of such a nature as to establish that any Technical Data on which Contractor is entitled to rely as provided in Paragraph 5.03 is materially inaccurate;

2. is of such a nature as to require a change in the Drawings or Specifications;

3. differs materially from that shown or indicated in the Contract Documents; or

4. is of an unusual nature, and differs materially from conditions ordinarily encountered and generally recognized as inherent in work of the character provided for in the Contract Documents;

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

B. *Engineer's Review*: After receipt of written notice as required by the preceding paragraph, Engineer will promptly review the subsurface or physical condition in question; determine whether it is necessary for Owner to obtain additional exploration or tests with respect to the condition; conclude whether the condition falls within any one or more of the differing site condition categories in Paragraph 5.04.A; obtain any pertinent cost or schedule information from Contractor; prepare recommendations to Owner regarding the Contractor's resumption of Work in connection with the subsurface or physical condition in question and the need for any change in the Drawings or Specifications; and advise Owner in writing of Engineer's findings, conclusions, and recommendations.

C. *Owner's Statement to Contractor Regarding Site Condition*: After receipt of Engineer's written findings, conclusions, and recommendations, Owner shall issue a written statement to Contractor (with a copy to Engineer) regarding the subsurface or physical condition in question, addressing the resumption of Work in connection with such condition, indicating whether any change in the Drawings or Specifications will be made, and adopting or rejecting Engineer's written findings, conclusions, and recommendations, in whole or in part.

D. *Early Resumption of Work*: If at any time Engineer determines that Work in connection with the subsurface or physical condition in question may resume prior to completion of Engineer's review or Owner's issuance of its statement to Contractor, because the condition in question has been adequately documented, and analyzed on a preliminary basis, then the Engineer may at its discretion instruct Contractor to resume such Work.

E. *Possible Price and Times Adjustments*

1. Contractor shall be entitled to an equitable adjustment in Contract Price or Contract Times, to the extent that the existence of a differing subsurface or physical condition, or any related delay, disruption, or interference, causes an increase or decrease in Contractor's cost of, or time required for, performance of the Work; subject, however, to the following:

a. Such condition must fall within any one or more of the categories described in Paragraph 5.04.A;

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b. With respect to Work that is paid for on a unit price basis, any adjustment in Contract Price will be subject to the provisions of Paragraph 13.03; and,

c. Contractor's entitlement to an adjustment of the Contract Times is subject to the provisions of Paragraphs 4.05.D and 4.05.E.

2. Contractor shall not be entitled to any adjustment in the Contract Price or Contract Times with respect to a subsurface or physical condition if:

a. Contractor knew of the existence of such condition at the time Contractor made a commitment to Owner with respect to Contract Price and Contract Times by the submission of a Bid or becoming bound under a negotiated contract, or otherwise;

b. The existence of such condition reasonably could have been discovered or revealed as a result of any examination, investigation, exploration, test, or study of the Site and contiguous areas expressly required by the Bidding Requirements or Contract Documents to be conducted by or for Contractor prior to Contractor's making such commitment; or

c. Contractor failed to give the written notice required by Paragraph 5.04.A.

3. If Owner and Contractor agree regarding Contractor's entitlement to and the amount or extent of any adjustment in the Contract Price or Contract Times, then any such adjustment will be set forth in a Change Order.

4. Contractor may submit a Change Proposal regarding its entitlement to or the amount or extent of any adjustment in the Contract Price or Contract Times, no later than 30 days after Owner's issuance of the Owner's written statement to Contractor regarding the subsurface or physical condition in question.

F. *Underground Facilities; Hazardous Environmental Conditions*: Paragraph 5.05 governs rights and responsibilities regarding the presence or location of Underground Facilities. Paragraph 5.06 governs rights and responsibilities regarding Hazardous Environmental Conditions. The provisions of Paragraphs 5.03 and 5.04 are not applicable to the presence or location of Underground Facilities, or to Hazardous Environmental Conditions.

5.05 *Underground Facilities*

A. *Contractor's Responsibilities*: Unless it is otherwise expressly provided in the Supplementary Conditions, the cost of all of the following are included in the Contract Price, and Contractor shall have full responsibility for:

1. reviewing and checking all information and data regarding existing Underground Facilities at the Site;

2. complying with applicable state and local utility damage prevention Laws and Regulations;

3. verifying the actual location of those Underground Facilities shown or indicated in the Contract Documents as being within the area affected by the Work, by exposing such Underground Facilities during the course of construction;

4. coordination of the Work with the owners (including Owner) of such Underground Facilities, during construction; and

5. the safety and protection of all existing Underground Facilities at the Site, and repairing any damage thereto resulting from the Work.

B. *Notice by Contractor*: If Contractor believes that an Underground Facility that is uncovered or revealed at the Site was not shown or indicated on the Drawings, or was not shown or indicated

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on the Drawings with reasonable accuracy, then Contractor shall, promptly after becoming aware thereof and before further disturbing conditions affected thereby or performing any Work in connection therewith (except in an emergency as required by Paragraph 7.15), notify Owner and Engineer in writing regarding such Underground Facility.

C. *Engineer's Review*: Engineer will:

1. promptly review the Underground Facility and conclude whether such Underground Facility was not shown or indicated on the Drawings, or was not shown or indicated with reasonable accuracy;

2. identify and communicate with the owner of the Underground Facility; prepare recommendations to Owner (and if necessary issue any preliminary instructions to Contractor) regarding the Contractor's resumption of Work in connection with the Underground Facility in question;

3. obtain any pertinent cost or schedule information from Contractor; determine the extent, if any, to which a change is required in the Drawings or Specifications to reflect and document the consequences of the existence or location of the Underground Facility; and

4. advise Owner in writing of Engineer's findings, conclusions, and recommendations.

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

D. *Owner's Statement to Contractor Regarding Underground Facility*: After receipt of Engineer's written findings, conclusions, and recommendations, Owner shall issue a written statement to Contractor (with a copy to Engineer) regarding the Underground Facility in question addressing the resumption of Work in connection with such Underground Facility, indicating whether any change in the Drawings or Specifications will be made, and adopting or rejecting Engineer's written findings, conclusions, and recommendations in whole or in part.

E. *Early Resumption of Work*: If at any time Engineer determines that Work in connection with the Underground Facility may resume prior to completion of Engineer's review or Owner's issuance of its statement to Contractor, because the Underground Facility in question and conditions affected by its presence have been adequately documented, and analyzed on a preliminary basis, then the Engineer may at its discretion instruct Contractor to resume such Work.

F. *Possible Price and Times Adjustments*

1. Contractor shall be entitled to an equitable adjustment in the Contract Price or Contract Times, to the extent that any existing Underground Facility at the Site that was not shown or indicated on the Drawings, or was not shown or indicated with reasonable accuracy, or any related delay, disruption, or interference, causes an increase or decrease in Contractor's cost of, or time required for, performance of the Work; subject, however, to the following:

   a. With respect to Work that is paid for on a unit price basis, any adjustment in Contract Price will be subject to the provisions of Paragraph 13.03;

   b. Contractor's entitlement to an adjustment of the Contract Times is subject to the provisions of Paragraphs 4.05.D and 4.05.E; and

   c. Contractor gave the notice required in Paragraph 5.05.B.

2. If Owner and Contractor agree regarding Contractor's entitlement to and the amount or extent of any adjustment in the Contract Price or Contract Times, then any such adjustment will be set forth in a Change Order.

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3. Contractor may submit a Change Proposal regarding its entitlement to or the amount or extent of any adjustment in the Contract Price or Contract Times, no later than 30 days after Owner's issuance of the Owner's written statement to Contractor regarding the Underground Facility in question.

4. The information and data shown or indicated on the Drawings with respect to existing Underground Facilities at the Site is based on information and data (a) furnished by the owners of such Underground Facilities, or by others, (b) obtained from available records, or (c) gathered in an investigation conducted in accordance with the current edition of ASCE 38, Standard Guideline for the Collection and Depiction of Existing Subsurface Utility Data, by the American Society of Civil Engineers. If such information or data is incorrect or incomplete, Contractor's remedies are limited to those set forth in this Paragraph 5.05.F.

5.06 *Hazardous Environmental Conditions at Site*

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

1. those reports known to Owner relating to Hazardous Environmental Conditions that have been identified at or adjacent to the Site;

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

3. Technical Data contained in such reports and drawings.

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

1. the completeness of such reports and drawings for Contractor's purposes, including, but not limited to, any aspects of the means, methods, techniques, sequences and procedures of construction to be employed by Contractor, and safety precautions and programs incident thereto;

2. other data, interpretations, opinions, and information contained in such reports or shown or indicated in such drawings; or

3. any Contractor interpretation of or conclusion drawn from any Technical Data or any such other data, interpretations, opinions or information.

C. Contractor shall not be responsible for removing or remediating any Hazardous Environmental Condition encountered, uncovered, or revealed at the Site unless such removal or remediation is expressly identified in the Contract Documents to be within the scope of the Work.

D. Contractor shall be responsible for controlling, containing, and duly removing all Constituents of Concern brought to the Site by Contractor, Subcontractors, Suppliers, or anyone else for whom Contractor is responsible, and for any associated costs; and for the costs of removing and remediating any Hazardous Environmental Condition created by the presence of any such Constituents of Concern.

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E. If Contractor encounters, uncovers, or reveals a Hazardous Environmental Condition whose removal or remediation is not expressly identified in the Contract Documents as being within the scope of the Work, or if Contractor or anyone for whom Contractor is responsible creates a Hazardous Environmental Condition, then Contractor shall immediately: (1) secure or otherwise isolate such condition; (2) stop all Work in connection with such condition and in any area affected thereby (except in an emergency as required by Paragraph 7.15); and (3) notify Owner and Engineer (and promptly thereafter confirm such notice in writing). Owner shall promptly consult with Engineer concerning the necessity for Owner to retain a qualified expert to evaluate such condition or take corrective action, if any. Promptly after consulting with Engineer, Owner shall take such actions as are necessary to permit Owner to timely obtain required permits and provide Contractor the written notice required by Paragraph 5.06.F. If Contractor or anyone for whom Contractor is responsible created the Hazardous Environmental Condition in question, then Owner may remove and remediate the Hazardous Environmental Condition, and impose a set-off against payments to account for the associated costs.

F. Contractor shall not resume Work in connection with such Hazardous Environmental Condition or in any affected area until after Owner has obtained any required permits related thereto, and delivered written notice to Contractor either (1) specifying that such condition and any affected area is or has been rendered safe for the resumption of Work, or (2) specifying any special conditions under which such Work may be resumed safely.

G. If Owner and Contractor cannot agree as to entitlement to or on the amount or extent, if any, of any adjustment in Contract Price or Contract Times, as a result of such Work stoppage, such special conditions under which Work is agreed to be resumed by Contractor, or any costs or expenses incurred in response to the Hazardous Environmental Condition, then within 30 days of Owner's written notice regarding the resumption of Work, Contractor may submit a Change Proposal, or Owner may impose a set-off. Entitlement to any such adjustment is subject to the provisions of Paragraphs 4.05.D, 4.05.E, 11.07, and 11.08.

H. If, after receipt of such written notice, Contractor does not agree to resume such Work based on a reasonable belief it is unsafe, or does not agree to resume such Work under such special conditions, then Owner may order the portion of the Work that is in the area affected by such condition to be deleted from the Work, following the contractual change procedures in Article 11. Owner may have such deleted portion of the Work performed by Owner's own forces or others in accordance with Article 8.

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

J. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, from and against all claims,

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costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to the failure to control, contain, or remove a Constituent of Concern brought to the Site by Contractor or by anyone for whom Contractor is responsible, or to a Hazardous Environmental Condition created by Contractor or by anyone for whom Contractor is responsible. Nothing in this Paragraph 5.06.J obligates Contractor to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.

K. The provisions of Paragraphs 5.03, 5.04, and 5.05 do not apply to the presence of Constituents of Concern or to a Hazardous Environmental Condition uncovered or revealed at the Site.

ARTICLE 6—BONDS AND INSURANCE

6.01 *Performance, Payment, and Other Bonds*

A. Contractor shall furnish a performance bond and a payment bond, each in an amount at least equal to the Contract Price, as security for the faithful performance and payment of Contractor's obligations under the Contract. These bonds must remain in effect until one year after the date when final payment becomes due or until completion of the correction period specified in Paragraph 15.08, whichever is later, except as provided otherwise by Laws or Regulations, the terms of a prescribed bond form, the Supplementary Conditions, or other provisions of the Contract.

B. Contractor shall also furnish such other bonds (if any) as are required by the Supplementary Conditions or other provisions of the Contract.

C. All bonds must be in the form included in the Bidding Documents or otherwise specified by Owner prior to execution of the Contract, except as provided otherwise by Laws or Regulations, and must be issued and signed by a surety named in "Companies Holding Certificates of Authority as Acceptable Sureties on Federal Bonds and as Acceptable Reinsuring Companies" as published in Department Circular 570 (as amended and supplemented) by the Bureau of the Fiscal Service, U.S. Department of the Treasury. A bond signed by an agent or attorney-in-fact must be accompanied by a certified copy of that individual's authority to bind the surety. The evidence of authority must show that it is effective on the date the agent or attorney-in-fact signed the accompanying bond.

D. Contractor shall obtain the required bonds from surety companies that are duly licensed or authorized, in the state or jurisdiction in which the Project is located, to issue bonds in the required amounts.

E. If the surety on a bond furnished by Contractor is declared bankrupt or becomes insolvent, or the surety ceases to meet the requirements above, then Contractor shall promptly notify Owner and Engineer in writing and shall, within 20 days after the event giving rise to such notification, provide another bond and surety, both of which must comply with the bond and surety requirements above.

F. If Contractor has failed to obtain a required bond, Owner may exclude the Contractor from the Site and exercise Owner's termination rights under Article 16.

G. Upon request to Owner from any Subcontractor, Supplier, or other person or entity claiming to have furnished labor, services, materials, or equipment used in the performance of the Work, Owner shall provide a copy of the payment bond to such person or entity.

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H. Upon request to Contractor from any Subcontractor, Supplier, or other person or entity claiming to have furnished labor, services, materials, or equipment used in the performance of the Work, Contractor shall provide a copy of the payment bond to such person or entity.

6.02 *Insurance—General Provisions*

A. Owner and Contractor shall obtain and maintain insurance as required in this article and in the Supplementary Conditions.

B. All insurance required by the Contract to be purchased and maintained by Owner or Contractor shall be obtained from insurance companies that are duly licensed or authorized in the state or jurisdiction in which the Project is located to issue insurance policies for the required limits and coverages. Unless a different standard is indicated in the Supplementary Conditions, all companies that provide insurance policies required under this Contract shall have an A.M. Best rating of A-VII or better.

C. Alternative forms of insurance coverage, including but not limited to self-insurance and "Occupational Accident and Excess Employer's Indemnity Policies," are not sufficient to meet the insurance requirements of this Contract, unless expressly allowed in the Supplementary Conditions.

D. Contractor shall deliver to Owner, with copies to each additional insured identified in the Contract, certificates of insurance and endorsements establishing that Contractor has obtained and is maintaining the policies and coverages required by the Contract. Upon request by Owner or any other insured, Contractor shall also furnish other evidence of such required insurance, including but not limited to copies of policies, documentation of applicable self-insured retentions (if allowed) and deductibles, full disclosure of all relevant exclusions, and evidence of insurance required to be purchased and maintained by Subcontractors or Suppliers. In any documentation furnished under this provision, Contractor, Subcontractors, and Suppliers may block out (redact) (1) any confidential premium or pricing information and (2) any wording specific to a project or jurisdiction other than those applicable to this Contract.

E. Owner shall deliver to Contractor, with copies to each additional insured identified in the Contract, certificates of insurance and endorsements establishing that Owner has obtained and is maintaining the policies and coverages required of Owner by the Contract (if any). Upon request by Contractor or any other insured, Owner shall also provide other evidence of such required insurance (if any), including but not limited to copies of policies, documentation of applicable self-insured retentions (if allowed) and deductibles, and full disclosure of all relevant exclusions. In any documentation furnished under this provision, Owner may block out (redact) (1) any confidential premium or pricing information and (2) any wording specific to a project or jurisdiction other than those relevant to this Contract.

F. Failure of Owner or Contractor to demand such certificates or other evidence of the other party's full compliance with these insurance requirements, or failure of Owner or Contractor to identify a deficiency in compliance from the evidence provided, will not be construed as a waiver of the other party's obligation to obtain and maintain such insurance.

G. In addition to the liability insurance required to be provided by Contractor, the Owner, at Owner's option, may purchase and maintain Owner's own liability insurance. Owner's liability policies, if any, operate separately and independently from policies required to be provided by Contractor, and Contractor cannot rely upon Owner's liability policies for any of Contractor's obligations to the Owner, Engineer, or third parties.

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H. Contractor shall require:

1. Subcontractors to purchase and maintain worker's compensation, commercial general liability, and other insurance that is appropriate for their participation in the Project, and to name as additional insureds Owner and Engineer (and any other individuals or entities identified in the Supplementary Conditions as additional insureds on Contractor's liability policies) on each Subcontractor's commercial general liability insurance policy; and

2. Suppliers to purchase and maintain insurance that is appropriate for their participation in the Project.

I. If either party does not purchase or maintain the insurance required of such party by the Contract, such party shall notify the other party in writing of such failure to purchase prior to the start of the Work, or of such failure to maintain prior to any change in the required coverage.

J. If Contractor has failed to obtain and maintain required insurance, Contractor's entitlement to enter or remain at the Site will end immediately, and Owner may impose an appropriate set-off against payment for any associated costs (including but not limited to the cost of purchasing necessary insurance coverage), and exercise Owner's termination rights under Article 16.

K. Without prejudice to any other right or remedy, if a party has failed to obtain required insurance, the other party may elect (but is in no way obligated) to obtain equivalent insurance to protect such other party's interests at the expense of the party who was required to provide such coverage, and the Contract Price will be adjusted accordingly.

L. Owner does not represent that insurance coverage and limits established in this Contract necessarily will be adequate to protect Contractor or Contractor's interests. Contractor is responsible for determining whether such coverage and limits are adequate to protect its interests, and for obtaining and maintaining any additional insurance that Contractor deems necessary.

M. The insurance and insurance limits required herein will not be deemed as a limitation on Contractor's liability, or that of its Subcontractors or Suppliers, under the indemnities granted to Owner and other individuals and entities in the Contract or otherwise.

N. All the policies of insurance required to be purchased and maintained under this Contract will contain a provision or endorsement that the coverage afforded will not be canceled, or renewal refused, until at least 10 days prior written notice has been given to the purchasing policyholder. Within three days of receipt of any such written notice, the purchasing policyholder shall provide a copy of the notice to each other insured and Engineer.

6.03 *Contractor's Insurance*

A. *Required Insurance*: Contractor shall purchase and maintain Worker's Compensation, Commercial General Liability, and other insurance pursuant to the specific requirements of the Supplementary Conditions.

B. *General Provisions*: The policies of insurance required by this Paragraph 6.03 as supplemented must:

1. include at least the specific coverages required;

2. be written for not less than the limits provided, or those required by Laws or Regulations, whichever is greater;

3. remain in effect at least until the Work is complete (as set forth in Paragraph 15.06.D), and longer if expressly required elsewhere in this Contract, and at all times thereafter when Contractor may be correcting, removing, or replacing defective Work as a warranty or

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correction obligation, or otherwise, or returning to the Site to conduct other tasks arising from the Contract;

4. apply with respect to the performance of the Work, whether such performance is by Contractor, any Subcontractor or Supplier, or by anyone directly or indirectly employed by any of them to perform any of the Work, or by anyone for whose acts any of them may be liable; and

5. include all necessary endorsements to support the stated requirements.

C. *Additional Insureds*: The Contractor's commercial general liability, automobile liability, employer's liability, umbrella or excess, pollution liability, and unmanned aerial vehicle liability policies, if required by this Contract, must:

1. include and list as additional insureds Owner and Engineer, and any individuals or entities identified as additional insureds in the Supplementary Conditions;

2. include coverage for the respective officers, directors, members, partners, employees, and consultants of all such additional insureds;

3. afford primary coverage to these additional insureds for all claims covered thereby (including as applicable those arising from both ongoing and completed operations);

4. not seek contribution from insurance maintained by the additional insured; and

5. as to commercial general liability insurance, apply to additional insureds with respect to liability caused in whole or in part by Contractor's acts or omissions, or the acts and omissions of those working on Contractor's behalf, in the performance of Contractor's operations.

6.04 *Builder's Risk and Other Property Insurance*

A. *Builder's Risk*: Unless otherwise provided in the Supplementary Conditions, Contractor shall purchase and maintain builder's risk insurance upon the Work on a completed value basis, in the amount of the Work's full insurable replacement cost (subject to such deductible amounts as may be provided in the Supplementary Conditions or required by Laws and Regulations). The specific requirements applicable to the builder's risk insurance are set forth in the Supplementary Conditions.

B. *Property Insurance for Facilities of Owner Where Work Will Occur*: Owner is responsible for obtaining and maintaining property insurance covering each existing structure, building, or facility in which any part of the Work will occur, or to which any part of the Work will attach or be adjoined. Such property insurance will be written on a special perils (all-risk) form, on a replacement cost basis, providing coverage consistent with that required for the builder's risk insurance, and will be maintained until the Work is complete, as set forth in Paragraph 15.06.D.

C. *Property Insurance for Substantially Complete Facilities*: Promptly after Substantial Completion, and before actual occupancy or use of the substantially completed Work, Owner will obtain property insurance for such substantially completed Work, and maintain such property insurance at least until the Work is complete, as set forth in Paragraph 15.06.D. Such property insurance will be written on a special perils (all-risk) form, on a replacement cost basis, and provide coverage consistent with that required for the builder's risk insurance. The builder's risk insurance may terminate upon written confirmation of Owner's procurement of such property insurance.

D. *Partial Occupancy or Use by Owner*: If Owner will occupy or use a portion or portions of the Work prior to Substantial Completion of all the Work, as provided in Paragraph 15.04, then

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Owner (directly, if it is the purchaser of the builder's risk policy, or through Contractor) will provide advance notice of such occupancy or use to the builder's risk insurer, and obtain an endorsement consenting to the continuation of coverage prior to commencing such partial occupancy or use.

E. *Insurance of Other Property; Additional Insurance*: If the express insurance provisions of the Contract do not require or address the insurance of a property item or interest, then the entity or individual owning such property item will be responsible for insuring it. If Contractor elects to obtain other special insurance to be included in or supplement the builder's risk or property insurance policies provided under this Paragraph 6.04, it may do so at Contractor's expense.

6.05 *Property Losses; Subrogation*

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

1. Owner and Contractor waive all rights against each other and the respective officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, for all losses and damages caused by, arising out of, or resulting from any of the perils, risks, or causes of loss covered by such policies and any other property insurance applicable to the Work; and, in addition, waive all such rights against Engineer, its consultants, all individuals or entities identified in the Supplementary Conditions as builder's risk or installation floater insureds, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, under such policies for losses and damages so caused.

2. None of the above waivers extends to the rights that any party making such waiver may have to the proceeds of insurance held by Owner or Contractor as trustee or fiduciary, or otherwise payable under any policy so issued.

B. Any property insurance policy maintained by Owner covering any loss, damage, or consequential loss to Owner's existing structures, buildings, or facilities in which any part of the Work will occur, or to which any part of the Work will attach or adjoin; to adjacent structures, buildings, or facilities of Owner; or to part or all of the completed or substantially completed Work, during partial occupancy or use pursuant to Paragraph 15.04, after Substantial Completion pursuant to Paragraph 15.03, or after final payment pursuant to Paragraph 15.06, will contain provisions to the effect that in the event of payment of any loss or damage the insurer will have no rights of recovery against any insureds thereunder, or against Contractor, Subcontractors, or Engineer, or the officers, directors, members, partners, employees, agents, consultants, or subcontractors of each and any of them, and that the insured is allowed to waive the insurer's rights of subrogation in a written contract executed prior to the loss, damage, or consequential loss.

1. Owner waives all rights against Contractor, Subcontractors, and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them, for all losses and damages caused by, arising out of, or resulting from fire or any of the perils, risks, or causes of loss covered by such policies.

C. The waivers in this Paragraph 6.05 include the waiver of rights due to business interruption, loss of use, or other consequential loss extending beyond direct physical loss or damage to

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Owner's property or the Work caused by, arising out of, or resulting from fire or other insured peril, risk, or cause of loss.

D. Contractor shall be responsible for assuring that each Subcontract contains provisions whereby the Subcontractor waives all rights against Owner, Contractor, all individuals or entities identified in the Supplementary Conditions as insureds, the Engineer and its consultants, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, for all losses and damages caused by, arising out of, relating to, or resulting from fire or other peril, risk, or cause of loss covered by builder's risk insurance, installation floater, and any other property insurance applicable to the Work.

6.06 *Receipt and Application of Property Insurance Proceeds*

A. Any insured loss under the builder's risk and other policies of property insurance required by Paragraph 6.04 will be adjusted and settled with the named insured that purchased the policy. Such named insured shall act as fiduciary for the other insureds, and give notice to such other insureds that adjustment and settlement of a claim is in progress. Any other insured may state its position regarding a claim for insured loss in writing within 15 days after notice of such claim.

B. Proceeds for such insured losses may be made payable by the insurer either jointly to multiple insureds, or to the named insured that purchased the policy in its own right and as fiduciary for other insureds, subject to the requirements of any applicable mortgage clause. A named insured receiving insurance proceeds under the builder's risk and other policies of insurance required by Paragraph 6.04 shall maintain such proceeds in a segregated account, and distribute such proceeds in accordance with such agreement as the parties in interest may reach, or as otherwise required under the dispute resolution provisions of this Contract or applicable Laws and Regulations.

C. If no other special agreement is reached, Contractor shall repair or replace the damaged Work, using allocated insurance proceeds.

ARTICLE 7—CONTRACTOR'S RESPONSIBILITIES

7.01 *Contractor's Means and Methods of Construction*

A. Contractor shall be solely responsible for the means, methods, techniques, sequences, and procedures of construction.

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

7.02 *Supervision and Superintendence*

A. Contractor shall supervise, inspect, and direct the Work competently and efficiently, devoting such attention thereto and applying such skills and expertise as may be necessary to perform the Work in accordance with the Contract Documents.

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B. At all times during the progress of the Work, Contractor shall assign a competent resident superintendent who will not be replaced without written notice to Owner and Engineer except under extraordinary circumstances.

7.03 *Labor; Working Hours*

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

B. Contractor shall be fully responsible to Owner and Engineer for all acts and omissions of Contractor's employees; of Suppliers and Subcontractors, and their employees; and of any other individuals or entities performing or furnishing any of the Work, just as Contractor is responsible for Contractor's own acts and omissions.

C. Except as otherwise required for the safety or protection of persons or the Work or property at the Site or adjacent thereto, and except as otherwise stated in the Contract Documents, all Work at the Site will be performed during regular working hours, Monday through Friday. Contractor will not perform Work on a Saturday, Sunday, or any legal holiday. Contractor may perform Work outside regular working hours or on Saturdays, Sundays, or legal holidays only with Owner's written consent, which will not be unreasonably withheld.

7.04 *Services, Materials, and Equipment*

A. Unless otherwise specified in the Contract Documents, Contractor shall provide and assume full responsibility for all services, materials, equipment, labor, transportation, construction equipment and machinery, tools, appliances, fuel, power, light, heat, telephone, water, sanitary facilities, temporary facilities, and all other facilities and incidentals necessary for the performance, testing, start up, and completion of the Work, whether or not such items are specifically called for in the Contract Documents.

B. All materials and equipment incorporated into the Work must be new and of good quality, except as otherwise provided in the Contract Documents. All special warranties and guarantees required by the Specifications will expressly run to the benefit of Owner. If required by Engineer, Contractor shall furnish satisfactory evidence (including reports of required tests) as to the source, kind, and quality of materials and equipment.

C. All materials and equipment must be stored, applied, installed, connected, erected, protected, used, cleaned, and conditioned in accordance with instructions of the applicable Supplier, except as otherwise may be provided in the Contract Documents.

7.05 *"Or Equals"*

A. *Contractor's Request; Governing Criteria*: Whenever an item of equipment or material is specified or described in the Contract Documents by using the names of one or more proprietary items or specific Suppliers, the Contract Price has been based upon Contractor furnishing such item as specified. The specification or description of such an item is intended to establish the type, function, appearance, and quality required. Unless the specification or description contains or is followed by words reading that no like, equivalent, or "or equal" item is permitted, Contractor may request that Engineer authorize the use of other items of equipment or material, or items from other proposed Suppliers, under the circumstances described below.

1. If Engineer in its sole discretion determines that an item of equipment or material proposed by Contractor is functionally equal to that named and sufficiently similar so that no change in related Work will be required, Engineer will deem it an "or equal" item. For the purposes

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of this paragraph, a proposed item of equipment or material will be considered functionally equal to an item so named if:

a. in the exercise of reasonable judgment Engineer determines that the proposed item:

1) is at least equal in materials of construction, quality, durability, appearance, strength, and design characteristics;

2) will reliably perform at least equally well the function and achieve the results imposed by the design concept of the completed Project as a functioning whole;

3) has a proven record of performance and availability of responsive service; and

4) is not objectionable to Owner.

b. Contractor certifies that, if the proposed item is approved and incorporated into the Work:

1) there will be no increase in cost to the Owner or increase in Contract Times; and

2) the item will conform substantially to the detailed requirements of the item named in the Contract Documents.

B. *Contractor's Expense*: Contractor shall provide all data in support of any proposed "or equal" item at Contractor's expense.

C. *Engineer's Evaluation and Determination*: Engineer will be allowed a reasonable time to evaluate each "or-equal" request. Engineer may require Contractor to furnish additional data about the proposed "or-equal" item. Engineer will be the sole judge of acceptability. No "or-equal" item will be ordered, furnished, installed, or utilized until Engineer's review is complete and Engineer determines that the proposed item is an "or-equal," which will be evidenced by an approved Shop Drawing or other written communication. Engineer will advise Contractor in writing of any negative determination.

D. *Effect of Engineer's Determination*: Neither approval nor denial of an "or-equal" request will result in any change in Contract Price. The Engineer's denial of an "or-equal" request will be final and binding, and may not be reversed through an appeal under any provision of the Contract.

E. *Treatment as a Substitution Request*: If Engineer determines that an item of equipment or material proposed by Contractor does not qualify as an "or-equal" item, Contractor may request that Engineer consider the item a proposed substitute pursuant to Paragraph 7.06.

7.06 *Substitutes*

A. *Contractor's Request; Governing Criteria*: Unless the specification or description of an item of equipment or material required to be furnished under the Contract Documents contains or is followed by words reading that no substitution is permitted, Contractor may request that Engineer authorize the use of other items of equipment or material under the circumstances described below. To the extent possible such requests must be made before commencement of related construction at the Site.

1. Contractor shall submit sufficient information as provided below to allow Engineer to determine if the item of material or equipment proposed is functionally equivalent to that named and an acceptable substitute therefor. Engineer will not accept requests for review of proposed substitute items of equipment or material from anyone other than Contractor.

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2. The requirements for review by Engineer will be as set forth in Paragraph 7.06.B, as supplemented by the Specifications, and as Engineer may decide is appropriate under the circumstances.

3. Contractor shall make written application to Engineer for review of a proposed substitute item of equipment or material that Contractor seeks to furnish or use. The application:

   a. will certify that the proposed substitute item will:

      1) perform adequately the functions and achieve the results called for by the general design;

      2) be similar in substance to the item specified; and

      3) be suited to the same use as the item specified.

   b. will state:

      1) the extent, if any, to which the use of the proposed substitute item will necessitate a change in Contract Times;

      2) whether use of the proposed substitute item in the Work will require a change in any of the Contract Documents (or in the provisions of any other direct contract with Owner for other work on the Project) to adapt the design to the proposed substitute item; and

      3) whether incorporation or use of the proposed substitute item in connection with the Work is subject to payment of any license fee or royalty.

   c. will identify:

      1) all variations of the proposed substitute item from the item specified; and

      2) available engineering, sales, maintenance, repair, and replacement services.

   d. will contain an itemized estimate of all costs or credits that will result directly or indirectly from use of such substitute item, including but not limited to changes in Contract Price, shared savings, costs of redesign, and claims of other contractors affected by any resulting change.

B. *Engineer's Evaluation and Determination*: Engineer will be allowed a reasonable time to evaluate each substitute request, and to obtain comments and direction from Owner. Engineer may require Contractor to furnish additional data about the proposed substitute item. Engineer will be the sole judge of acceptability. No substitute will be ordered, furnished, installed, or utilized until Engineer's review is complete and Engineer determines that the proposed item is an acceptable substitute. Engineer's determination will be evidenced by a Field Order or a proposed Change Order accounting for the substitution itself and all related impacts, including changes in Contract Price or Contract Times. Engineer will advise Contractor in writing of any negative determination.

C. *Special Guarantee*: Owner may require Contractor to furnish at Contractor's expense a special performance guarantee or other surety with respect to any substitute.

D. *Reimbursement of Engineer's Cost*: Engineer will record Engineer's costs in evaluating a substitute proposed or submitted by Contractor. Whether or not Engineer approves a substitute so proposed or submitted by Contractor, Contractor shall reimburse Owner for the reasonable charges of Engineer for evaluating each such proposed substitute. Contractor shall also reimburse Owner for the reasonable charges of Engineer for making changes in the Contract

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Documents (or in the provisions of any other direct contract with Owner) resulting from the acceptance of each proposed substitute.

E. *Contractor's Expense*: Contractor shall provide all data in support of any proposed substitute at Contractor's expense.

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

7.07 *Concerning Subcontractors and Suppliers*

A. Contractor may retain Subcontractors and Suppliers for the performance of parts of the Work. Such Subcontractors and Suppliers must be acceptable to Owner. The Contractor's retention of a Subcontractor or Supplier for the performance of parts of the Work will not relieve Contractor's obligation to Owner to perform and complete the Work in accordance with the Contract Documents.

B. Contractor shall retain specific Subcontractors and Suppliers for the performance of designated parts of the Work if required by the Contract to do so.

C. Subsequent to the submittal of Contractor's Bid or final negotiation of the terms of the Contract, Owner may not require Contractor to retain any Subcontractor or Supplier to furnish or perform any of the Work against which Contractor has reasonable objection.

D. Prior to entry into any binding subcontract or purchase order, Contractor shall submit to Owner the identity of the proposed Subcontractor or Supplier (unless Owner has already deemed such proposed Subcontractor or Supplier acceptable during the bidding process or otherwise). Such proposed Subcontractor or Supplier shall be deemed acceptable to Owner unless Owner raises a substantive, reasonable objection within 5 days.

E. Owner may require the replacement of any Subcontractor or Supplier. Owner also may require Contractor to retain specific replacements; provided, however, that Owner may not require a replacement to which Contractor has a reasonable objection. If Contractor has submitted the identity of certain Subcontractors or Suppliers for acceptance by Owner, and Owner has accepted it (either in writing or by failing to make written objection thereto), then Owner may subsequently revoke the acceptance of any such Subcontractor or Supplier so identified solely on the basis of substantive, reasonable objection after due investigation. Contractor shall submit an acceptable replacement for the rejected Subcontractor or Supplier.

F. If Owner requires the replacement of any Subcontractor or Supplier retained by Contractor to perform any part of the Work, then Contractor shall be entitled to an adjustment in Contract Price or Contract Times, with respect to the replacement; and Contractor shall initiate a Change Proposal for such adjustment within 30 days of Owner's requirement of replacement.

G. No acceptance by Owner of any such Subcontractor or Supplier, whether initially or as a replacement, will constitute a waiver of the right of Owner to the completion of the Work in accordance with the Contract Documents.

H. On a monthly basis, Contractor shall submit to Engineer a complete list of all Subcontractors and Suppliers having a direct contract with Contractor, and of all other Subcontractors and Suppliers known to Contractor at the time of submittal.

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I. Contractor shall be solely responsible for scheduling and coordinating the work of Subcontractors and Suppliers.

J. The divisions and sections of the Specifications and the identifications of any Drawings do not control Contractor in dividing the Work among Subcontractors or Suppliers, or in delineating the Work to be performed by any specific trade.

K. All Work performed for Contractor by a Subcontractor or Supplier must be pursuant to an appropriate contractual agreement that specifically binds the Subcontractor or Supplier to the applicable terms and conditions of the Contract for the benefit of Owner and Engineer.

L. Owner may furnish to any Subcontractor or Supplier, to the extent practicable, information about amounts paid to Contractor for Work performed for Contractor by the Subcontractor or Supplier.

M. Contractor shall restrict all Subcontractors and Suppliers from communicating with Engineer or Owner, except through Contractor or in case of an emergency, or as otherwise expressly allowed in this Contract.

7.08 *Patent Fees and Royalties*

A. Contractor shall pay all license fees and royalties and assume all costs incident to the use in the performance of the Work or the incorporation in the Work of any invention, design, process, product, or device which is the subject of patent rights or copyrights held by others. If an invention, design, process, product, or device is specified in the Contract Documents for use in the performance of the Work and if, to the actual knowledge of Owner or Engineer, its use is subject to patent rights or copyrights calling for the payment of any license fee or royalty to others, the existence of such rights will be disclosed in the Contract Documents.

B. To the fullest extent permitted by Laws and Regulations, Owner shall indemnify and hold harmless Contractor, and its officers, directors, members, partners, employees, agents, consultants, and subcontractors, from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals, and all court or arbitration or other dispute resolution costs) arising out of or relating to any infringement of patent rights or copyrights incident to the use in the performance of the Work or resulting from the incorporation in the Work of any invention, design, process, product, or device specified in the Contract Documents, but not identified as being subject to payment of any license fee or royalty to others required by patent rights or copyrights.

C. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them, from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to any infringement of patent rights or copyrights incident to the use in the performance of the Work or resulting from the incorporation in the Work of any invention, design, process, product, or device not specified in the Contract Documents.

7.09 *Permits*

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

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negotiated contract). Owner shall pay all charges of utility owners for connections for providing permanent service to the Work.

7.10 *Taxes*

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

7.11 *Laws and Regulations*

A. Contractor shall give all notices required by and shall comply with all Laws and Regulations applicable to the performance of the Work. Neither Owner nor Engineer shall be responsible for monitoring Contractor's compliance with any Laws or Regulations.

B. If Contractor performs any Work or takes any other action knowing or having reason to know that it is contrary to Laws or Regulations, Contractor shall bear all resulting costs and losses, and shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such Work or other action. It is not Contractor's responsibility to make certain that the Work described in the Contract Documents is in accordance with Laws and Regulations, but this does not relieve Contractor of its obligations under Paragraph 3.03.

C. Owner or Contractor may give written notice to the other party of any changes after the submission of Contractor's Bid (or after the date when Contractor became bound under a negotiated contract) in Laws or Regulations having an effect on the cost or time of performance of the Work, including but not limited to changes in Laws or Regulations having an effect on procuring permits and on sales, use, value-added, consumption, and other similar taxes. If Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in Contract Price or Contract Times resulting from such changes, then within 30 days of such written notice Contractor may submit a Change Proposal, or Owner may initiate a Claim.

7.12 *Record Documents*

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

7.13 *Safety and Protection*

A. Contractor shall be solely responsible for initiating, maintaining, and supervising all safety precautions and programs in connection with the Work. Such responsibility does not relieve Subcontractors of their responsibility for the safety of persons or property in the performance of their work, nor for compliance with applicable safety Laws and Regulations.

B. Contractor shall designate a qualified and experienced safety representative whose duties and responsibilities are the prevention of Work-related accidents and the maintenance and supervision of safety precautions and programs.

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C. Contractor shall take all necessary precautions for the safety of, and shall provide the necessary protection to prevent damage, injury, or loss to:

1. all persons on the Site or who may be affected by the Work;

2. all the Work and materials and equipment to be incorporated therein, whether in storage on or off the Site; and

3. other property at the Site or adjacent thereto, including trees, shrubs, lawns, walks, pavements, roadways, structures, other work in progress, utilities, and Underground Facilities not designated for removal, relocation, or replacement in the course of construction.

D. All damage, injury, or loss to any property referred to in Paragraph 7.13.C.2 or 7.13.C.3 caused, directly or indirectly, in whole or in part, by Contractor, any Subcontractor, Supplier, or any other individual or entity directly or indirectly employed by any of them to perform any of the Work, or anyone for whose acts any of them may be liable, shall be remedied by Contractor at its expense (except damage or loss attributable to the fault of Drawings or Specifications or to the acts or omissions of Owner or Engineer or anyone employed by any of them, or anyone for whose acts any of them may be liable, and not attributable, directly or indirectly, in whole or in part, to the fault or negligence of Contractor or any Subcontractor, Supplier, or other individual or entity directly or indirectly employed by any of them).

E. Contractor shall comply with all applicable Laws and Regulations relating to the safety of persons or property, or to the protection of persons or property from damage, injury, or loss; and shall erect and maintain all necessary safeguards for such safety and protection.

F. Contractor shall notify Owner; the owners of adjacent property; the owners of Underground Facilities and other utilities (if the identity of such owners is known to Contractor); and other contractors and utility owners performing work at or adjacent to the Site, in writing, when Contractor knows that prosecution of the Work may affect them, and shall cooperate with them in the protection, removal, relocation, and replacement of their property or work in progress.

G. Contractor shall comply with the applicable requirements of Owner's safety programs, if any. Any Owner's safety programs that are applicable to the Work are identified or included in the Supplementary Conditions or Specifications.

H. Contractor shall inform Owner and Engineer of the specific requirements of Contractor's safety program with which Owner's and Engineer's employees and representatives must comply while at the Site.

I. Contractor's duties and responsibilities for safety and protection will continue until all the Work is completed, Engineer has issued a written notice to Owner and Contractor in accordance with Paragraph 15.06.C that the Work is acceptable, and Contractor has left the Site (except as otherwise expressly provided in connection with Substantial Completion).

J. Contractor's duties and responsibilities for safety and protection will resume whenever Contractor or any Subcontractor or Supplier returns to the Site to fulfill warranty or correction obligations, or to conduct other tasks arising from the Contract Documents.

7.14 *Hazard Communication Programs*

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

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7.15 *Emergencies*

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

7.16 *Submittals*

A. *Shop Drawing and Sample Requirements*

1. Before submitting a Shop Drawing or Sample, Contractor shall:

a. review and coordinate the Shop Drawing or Sample with other Shop Drawings and Samples and with the requirements of the Work and the Contract Documents;

b. determine and verify:

1) all field measurements, quantities, dimensions, specified performance and design criteria, installation requirements, materials, catalog numbers, and similar information with respect to the Submittal;

2) the suitability of all materials and equipment offered with respect to the indicated application, fabrication, shipping, handling, storage, assembly, and installation pertaining to the performance of the Work; and

3) all information relative to Contractor's responsibilities for means, methods, techniques, sequences, and procedures of construction, and safety precautions and programs incident thereto;

c. confirm that the Submittal is complete with respect to all related data included in the Submittal.

2. Each Shop Drawing or Sample must bear a stamp or specific written certification that Contractor has satisfied Contractor's obligations under the Contract Documents with respect to Contractor's review of that Submittal, and that Contractor approves the Submittal.

3. With each Shop Drawing or Sample, Contractor shall give Engineer specific written notice of any variations that the Submittal may have from the requirements of the Contract Documents. This notice must be set forth in a written communication separate from the Submittal; and, in addition, in the case of a Shop Drawing by a specific notation made on the Shop Drawing itself.

B. *Submittal Procedures for Shop Drawings and Samples*: Contractor shall label and submit Shop Drawings and Samples to Engineer for review and approval in accordance with the accepted Schedule of Submittals.

1. *Shop Drawings*

a. Contractor shall submit the number of copies required in the Specifications.

b. Data shown on the Shop Drawings must be complete with respect to quantities, dimensions, specified performance and design criteria, materials, and similar data to show Engineer the services, materials, and equipment Contractor proposes to provide,

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and to enable Engineer to review the information for the limited purposes required by Paragraph 7.16.C.

2. *Samples*

   a. Contractor shall submit the number of Samples required in the Specifications.

   b. Contractor shall clearly identify each Sample as to material, Supplier, pertinent data such as catalog numbers, the use for which intended and other data as Engineer may require to enable Engineer to review the Submittal for the limited purposes required by Paragraph 7.16.C.

3. Where a Shop Drawing or Sample is required by the Contract Documents or the Schedule of Submittals, any related Work performed prior to Engineer's review and approval of the pertinent submittal will be at the sole expense and responsibility of Contractor.

C. *Engineer's Review of Shop Drawings and Samples*

1. Engineer will provide timely review of Shop Drawings and Samples in accordance with the accepted Schedule of Submittals. Engineer's review and approval will be only to determine if the items covered by the Submittals will, after installation or incorporation in the Work, comply with the requirements of the Contract Documents, and be compatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents.

2. Engineer's review and approval will not extend to means, methods, techniques, sequences, or procedures of construction, or to safety precautions or programs incident thereto.

3. Engineer's review and approval of a separate item as such will not indicate approval of the assembly in which the item functions.

4. Engineer's review and approval of a Shop Drawing or Sample will not relieve Contractor from responsibility for any variation from the requirements of the Contract Documents unless Contractor has complied with the requirements of Paragraph 7.16.A.3 and Engineer has given written approval of each such variation by specific written notation thereof incorporated in or accompanying the Shop Drawing or Sample. Engineer will document any such approved variation from the requirements of the Contract Documents in a Field Order or other appropriate Contract modification.

5. Engineer's review and approval of a Shop Drawing or Sample will not relieve Contractor from responsibility for complying with the requirements of Paragraphs 7.16.A and B.

6. Engineer's review and approval of a Shop Drawing or Sample, or of a variation from the requirements of the Contract Documents, will not, under any circumstances, change the Contract Times or Contract Price, unless such changes are included in a Change Order.

7. Neither Engineer's receipt, review, acceptance, or approval of a Shop Drawing or Sample will result in such item becoming a Contract Document.

8. Contractor shall perform the Work in compliance with the requirements and commitments set forth in approved Shop Drawings and Samples, subject to the provisions of Paragraph 7.16.C.4.

D. *Resubmittal Procedures for Shop Drawings and Samples*

1. Contractor shall make corrections required by Engineer and shall return the required number of corrected copies of Shop Drawings and submit, as required, new Samples for

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review and approval. Contractor shall direct specific attention in writing to revisions other than the corrections called for by Engineer on previous Submittals.

2. Contractor shall furnish required Shop Drawing and Sample submittals with sufficient information and accuracy to obtain required approval of an item with no more than two resubmittals. Engineer will record Engineer's time for reviewing a third or subsequent resubmittal of a Shop Drawing or Sample, and Contractor shall be responsible for Engineer's charges to Owner for such time. Owner may impose a set-off against payments due Contractor to secure reimbursement for such charges.

3. If Contractor requests a change of a previously approved Shop Drawing or Sample, Contractor shall be responsible for Engineer's charges to Owner for its review time, and Owner may impose a set-off against payments due Contractor to secure reimbursement for such charges, unless the need for such change is beyond the control of Contractor.

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

1. The following provisions apply to all Submittals other than Shop Drawings, Samples, and Owner-delegated designs:

a. Contractor shall submit all such Submittals to the Engineer in accordance with the Schedule of Submittals and pursuant to the applicable terms of the Contract Documents.

b. Engineer will provide timely review of all such Submittals in accordance with the Schedule of Submittals and return such Submittals with a notation of either Accepted or Not Accepted. Any such Submittal that is not returned within the time established in the Schedule of Submittals will be deemed accepted.

c. Engineer's review will be only to determine if the Submittal is acceptable under the requirements of the Contract Documents as to general form and content of the Submittal.

d. If any such Submittal is not accepted, Contractor shall confer with Engineer regarding the reason for the non-acceptance, and resubmit an acceptable document.

2. Procedures for the submittal and acceptance of the Progress Schedule, the Schedule of Submittals, and the Schedule of Values are set forth in Paragraphs 2.03. 2.04, and 2.05.

F. Owner-delegated Designs: Submittals pursuant to Owner-delegated designs are governed by the provisions of Paragraph 7.19.

7.17 *Contractor's General Warranty and Guarantee*

A. Contractor warrants and guarantees to Owner that all Work will be in accordance with the Contract Documents and will not be defective. Engineer is entitled to rely on Contractor's warranty and guarantee.

B. Owner's rights under this warranty and guarantee are in addition to, and are not limited by, Owner's rights under the correction period provisions of Paragraph 15.08. The time in which Owner may enforce its warranty and guarantee rights under this Paragraph 7.17 is limited only by applicable Laws and Regulations restricting actions to enforce such rights; provided, however, that after the end of the correction period under Paragraph 15.08:

1. Owner shall give Contractor written notice of any defective Work within 60 days of the discovery that such Work is defective; and

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2. Such notice will be deemed the start of an event giving rise to a Claim under Paragraph 12.01.B, such that any related Claim must be brought within 30 days of the notice.

C. Contractor's warranty and guarantee hereunder excludes defects or damage caused by:

1. abuse, or improper modification, maintenance, or operation, by persons other than Contractor, Subcontractors, Suppliers, or any other individual or entity for whom Contractor is responsible; or

2. normal wear and tear under normal usage.

D. Contractor's obligation to perform and complete the Work in accordance with the Contract Documents is absolute. None of the following will constitute an acceptance of Work that is not in accordance with the Contract Documents, a release of Contractor's obligation to perform the Work in accordance with the Contract Documents, or a release of Owner's warranty and guarantee rights under this Paragraph 7.17:

1. Observations by Engineer;

2. Recommendation by Engineer or payment by Owner of any progress or final payment;

3. The issuance of a certificate of Substantial Completion by Engineer or any payment related thereto by Owner;

4. Use or occupancy of the Work or any part thereof by Owner;

5. Any review and approval of a Shop Drawing or Sample submittal;

6. The issuance of a notice of acceptability by Engineer;

7. The end of the correction period established in Paragraph 15.08;

8. Any inspection, test, or approval by others; or

9. Any correction of defective Work by Owner.

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

7.18 *Indemnification*

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

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B. In any and all claims against Owner or Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors, by any employee (or the survivor or personal representative of such employee) of Contractor, any Subcontractor, any Supplier, or any individual or entity directly or indirectly employed by any of them to perform any of the Work, or anyone for whose acts any of them may be liable, the indemnification obligation under Paragraph 7.18.A will not be limited in any way by any limitation on the amount or type of damages, compensation, or benefits payable by or for Contractor or any such Subcontractor, Supplier, or other individual or entity under workers' compensation acts, disability benefit acts, or other employee benefit acts.

7.19 *Delegation of Professional Design Services*

A. Owner may require Contractor to provide professional design services for a portion of the Work by express delegation in the Contract Documents. Such delegation will specify the performance and design criteria that such services must satisfy, and the Submittals that Contractor must furnish to Engineer with respect to the Owner-delegated design.

B. Contractor shall cause such Owner-delegated professional design services to be provided pursuant to the professional standard of care by a properly licensed design professional, whose signature and seal must appear on all drawings, calculations, specifications, certifications, and Submittals prepared by such design professional. Such design professional must issue all certifications of design required by Laws and Regulations.

C. If a Shop Drawing or other Submittal related to the Owner-delegated design is prepared by Contractor, a Subcontractor, or others for submittal to Engineer, then such Shop Drawing or other Submittal must bear the written approval of Contractor's design professional when submitted by Contractor to Engineer.

D. Owner and Engineer shall be entitled to rely upon the adequacy, accuracy, and completeness of the services, certifications, and approvals performed or provided by the design professionals retained or employed by Contractor under an Owner-delegated design, subject to the professional standard of care and the performance and design criteria stated in the Contract Documents.

E. Pursuant to this Paragraph 7.19, Engineer's review, approval, and other determinations regarding design drawings, calculations, specifications, certifications, and other Submittals furnished by Contractor pursuant to an Owner-delegated design will be only for the following limited purposes:

1. Checking for conformance with the requirements of this Paragraph 7.19;

2. Confirming that Contractor (through its design professionals) has used the performance and design criteria specified in the Contract Documents; and

3. Establishing that the design furnished by Contractor is consistent with the design concept expressed in the Contract Documents.

F. Contractor shall not be responsible for the adequacy of performance or design criteria specified by Owner or Engineer.

G. Contractor is not required to provide professional services in violation of applicable Laws and Regulations.

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ARTICLE 8—OTHER WORK AT THE SITE

8.01 *Other Work*

A. In addition to and apart from the Work under the Contract Documents, the Owner may perform other work at or adjacent to the Site. Such other work may be performed by Owner's employees, or through contracts between the Owner and third parties. Owner may also arrange to have third-party utility owners perform work on their utilities and facilities at or adjacent to the Site.

B. If Owner performs other work at or adjacent to the Site with Owner's employees, or through contracts for such other work, then Owner shall give Contractor written notice thereof prior to starting any such other work. If Owner has advance information regarding the start of any third-party utility work that Owner has arranged to take place at or adjacent to the Site, Owner shall provide such information to Contractor.

C. Contractor shall afford proper and safe access to the Site to each contractor that performs such other work, each utility owner performing other work, and Owner, if Owner is performing other work with Owner's employees, and provide a reasonable opportunity for the introduction and storage of materials and equipment and the execution of such other work.

D. Contractor shall do all cutting, fitting, and patching of the Work that may be required to properly connect or otherwise make its several parts come together and properly integrate with such other work. Contractor shall not endanger any work of others by cutting, excavating, or otherwise altering such work; provided, however, that Contractor may cut or alter others' work with the written consent of Engineer and the others whose work will be affected.

E. If the proper execution or results of any part of Contractor's Work depends upon work performed by others, Contractor shall inspect such other work and promptly report to Engineer in writing any delays, defects, or deficiencies in such other work that render it unavailable or unsuitable for the proper execution and results of Contractor's Work. Contractor's failure to so report will constitute an acceptance of such other work as fit and proper for integration with Contractor's Work except for latent defects and deficiencies in such other work.

F. The provisions of this article are not applicable to work that is performed by third-party utilities or other third-party entities without a contract with Owner, or that is performed without having been arranged by Owner. If such work occurs, then any related delay, disruption, or interference incurred by Contractor is governed by the provisions of Paragraph 4.05.C.3.

8.02 *Coordination*

A. If Owner intends to contract with others for the performance of other work at or adjacent to the Site, to perform other work at or adjacent to the Site with Owner's employees, or to arrange to have utility owners perform work at or adjacent to the Site, the following will be set forth in the Supplementary Conditions or provided to Contractor prior to the start of any such other work:

1. The identity of the individual or entity that will have authority and responsibility for coordination of the activities among the various contractors;

2. An itemization of the specific matters to be covered by such authority and responsibility; and

3. The extent of such authority and responsibilities.

B. Unless otherwise provided in the Supplementary Conditions, Owner shall have sole authority and responsibility for such coordination.

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8.03 *Legal Relationships*

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

B. Contractor shall take reasonable and customary measures to avoid damaging, delaying, disrupting, or interfering with the work of Owner, any other contractor, or any utility owner performing other work at or adjacent to the Site.

   1. If Contractor fails to take such measures and as a result damages, delays, disrupts, or interferes with the work of any such other contractor or utility owner, then Owner may impose a set-off against payments due Contractor, and assign to such other contractor or utility owner the Owner's contractual rights against Contractor with respect to the breach of the obligations set forth in this Paragraph 8.03.B.

   2. When Owner is performing other work at or adjacent to the Site with Owner's employees, Contractor shall be liable to Owner for damage to such other work, and for the reasonable direct delay, disruption, and interference costs incurred by Owner as a result of Contractor's failure to take reasonable and customary measures with respect to Owner's other work. In response to such damage, delay, disruption, or interference, Owner may impose a set-off against payments due Contractor.

C. If Contractor damages, delays, disrupts, or interferes with the work of any other contractor, or any utility owner performing other work at or adjacent to the Site, through Contractor's failure to take reasonable and customary measures to avoid such impacts, or if any claim arising out of Contractor's actions, inactions, or negligence in performance of the Work at or adjacent to the Site is made by any such other contractor or utility owner against Contractor, Owner, or Engineer, then Contractor shall (1) promptly attempt to settle the claim as to all parties through negotiations with such other contractor or utility owner, or otherwise resolve the claim by arbitration or other dispute resolution proceeding or at law, and (2) indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them from and against any such claims, and against all costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such damage, delay, disruption, or interference.

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ARTICLE 9—OWNER'S RESPONSIBILITIES

9.01 *Communications to Contractor*

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

9.02 *Replacement of Engineer*

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

9.03 *Furnish Data*

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

9.04 *Pay When Due*

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

9.05 *Lands and Easements; Reports, Tests, and Drawings*

A. Owner's duties with respect to providing lands and easements are set forth in Paragraph 5.01.

B. Owner's duties with respect to providing engineering surveys to establish reference points are set forth in Paragraph 4.03.

C. Article 5 refers to Owner's identifying and making available to Contractor copies of reports of explorations and tests of conditions at the Site, and drawings of physical conditions relating to existing surface or subsurface structures at the Site.

9.06 *Insurance*

A. Owner's responsibilities, if any, with respect to purchasing and maintaining liability and property insurance are set forth in Article 6.

9.07 *Change Orders*

A. Owner's responsibilities with respect to Change Orders are set forth in Article 11.

9.08 *Inspections, Tests, and Approvals*

A. Owner's responsibility with respect to certain inspections, tests, and approvals is set forth in Paragraph 14.02.B.

9.09 *Limitations on Owner's Responsibilities*

A. The Owner shall not supervise, direct, or have control or authority over, nor be responsible for, Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work. Owner will not be responsible for Contractor's failure to perform the Work in accordance with the Contract Documents.

9.10 *Undisclosed Hazardous Environmental Condition*

A. Owner's responsibility in respect to an undisclosed Hazardous Environmental Condition is set forth in Paragraph 5.06.

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9.11 *Evidence of Financial Arrangements*

A. Upon request of Contractor, Owner shall furnish Contractor reasonable evidence that financial arrangements have been made to satisfy Owner's obligations under the Contract (including obligations under proposed changes in the Work).

9.12 *Safety Programs*

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

B. Owner shall furnish copies of any applicable Owner safety programs to Contractor.

ARTICLE 10—ENGINEER'S STATUS DURING CONSTRUCTION

10.01 *Owner's Representative*

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

10.02 *Visits to Site*

A. Engineer will make visits to the Site at intervals appropriate to the various stages of construction as Engineer deems necessary in order to observe, as an experienced and qualified design professional, the progress that has been made and the quality of the various aspects of Contractor's executed Work. Based on information obtained during such visits and observations, Engineer, for the benefit of Owner, will determine, in general, if the Work is proceeding in accordance with the Contract Documents. Engineer will not be required to make exhaustive or continuous inspections on the Site to check the quality or quantity of the Work. Engineer's efforts will be directed toward providing for Owner a greater degree of confidence that the completed Work will conform generally to the Contract Documents. On the basis of such visits and observations, Engineer will keep Owner informed of the progress of the Work and will endeavor to guard Owner against defective Work.

B. Engineer's visits and observations are subject to all the limitations on Engineer's authority and responsibility set forth in Paragraph 10.07. Particularly, but without limitation, during or as a result of Engineer's visits or observations of Contractor's Work, Engineer will not supervise, direct, control, or have authority over or be responsible for Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work.

10.03 *Resident Project Representative*

A. If Owner and Engineer have agreed that Engineer will furnish a Resident Project Representative to represent Engineer at the Site and assist Engineer in observing the progress and quality of the Work, then the authority and responsibilities of any such Resident Project Representative will be as provided in the Supplementary Conditions, and limitations on the responsibilities thereof will be as provided in the Supplementary Conditions and in Paragraph 10.07.

B. If Owner designates an individual or entity who is not Engineer's consultant, agent, or employee to represent Owner at the Site, then the responsibilities and authority of such individual or entity will be as provided in the Supplementary Conditions.

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10.04 *Engineer's Authority*

A. Engineer has the authority to reject Work in accordance with Article 14.

B. Engineer's authority as to Submittals is set forth in Paragraph 7.16.

C. Engineer's authority as to design drawings, calculations, specifications, certifications and other Submittals from Contractor in response to Owner's delegation (if any) to Contractor of professional design services, is set forth in Paragraph 7.19.

D. Engineer's authority as to changes in the Work is set forth in Article 11.

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

10.05 *Determinations for Unit Price Work*

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

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

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

10.07 *Limitations on Engineer's Authority and Responsibilities*

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

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

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

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

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

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10.08 *Compliance with Safety Program*

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

ARTICLE 11—CHANGES TO THE CONTRACT

11.01 *Amending and Supplementing the Contract*

A. The Contract may be amended or supplemented by a Change Order, a Work Change Directive, or a Field Order.

B. If an amendment or supplement to the Contract includes a change in the Contract Price or the Contract Times, such amendment or supplement must be set forth in a Change Order.

C. All changes to the Contract that involve (1) the performance or acceptability of the Work, (2) the design (as set forth in the Drawings, Specifications, or otherwise), or (3) other engineering or technical matters, must be supported by Engineer's recommendation. Owner and Contractor may amend other terms and conditions of the Contract without the recommendation of the Engineer.

11.02 *Change Orders*

A. Owner and Contractor shall execute appropriate Change Orders covering:

1. Changes in Contract Price or Contract Times which are agreed to by the parties, including any undisputed sum or amount of time for Work actually performed in accordance with a Work Change Directive;

2. Changes in Contract Price resulting from an Owner set-off, unless Contractor has duly contested such set-off;

3. Changes in the Work which are: (a) ordered by Owner pursuant to Paragraph 11.05, (b) required because of Owner's acceptance of defective Work under Paragraph 14.04 or Owner's correction of defective Work under Paragraph 14.07, or (c) agreed to by the parties, subject to the need for Engineer's recommendation if the change in the Work involves the design (as set forth in the Drawings, Specifications, or otherwise) or other engineering or technical matters; and

4. Changes that embody the substance of any final and binding results under: Paragraph 11.03.B, resolving the impact of a Work Change Directive; Paragraph 11.09, concerning Change Proposals; Article 12, Claims; Paragraph 13.02.D, final adjustments resulting from allowances; Paragraph 13.03.D, final adjustments relating to determination of quantities for Unit Price Work; and similar provisions.

B. If Owner or Contractor refuses to execute a Change Order that is required to be executed under the terms of Paragraph 11.02.A, it will be deemed to be of full force and effect, as if fully executed.

11.03 *Work Change Directives*

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

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Contract Documents governing adjustments, expressly including Paragraph 11.07 regarding change of Contract Price.

B. If Owner has issued a Work Change Directive and:

1. Contractor believes that an adjustment in Contract Times or Contract Price is necessary, then Contractor shall submit any Change Proposal seeking such an adjustment no later than 30 days after the completion of the Work set out in the Work Change Directive.

2. Owner believes that an adjustment in Contract Times or Contract Price is necessary, then Owner shall submit any Claim seeking such an adjustment no later than 60 days after issuance of the Work Change Directive.

11.04 *Field Orders*

A. Engineer may authorize minor changes in the Work if the changes do not involve an adjustment in the Contract Price or the Contract Times and are compatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents. Such changes will be accomplished by a Field Order and will be binding on Owner and also on Contractor, which shall perform the Work involved promptly.

B. If Contractor believes that a Field Order justifies an adjustment in the Contract Price or Contract Times, then before proceeding with the Work at issue, Contractor shall submit a Change Proposal as provided herein.

11.05 *Owner-Authorized Changes in the Work*

A. Without invalidating the Contract and without notice to any surety, Owner may, at any time or from time to time, order additions, deletions, or revisions in the Work. Changes involving the design (as set forth in the Drawings, Specifications, or otherwise) or other engineering or technical matters will be supported by Engineer's recommendation.

B. Such changes in the Work may be accomplished by a Change Order, if Owner and Contractor have agreed as to the effect, if any, of the changes on Contract Times or Contract Price; or by a Work Change Directive. Upon receipt of any such document, Contractor shall promptly proceed with the Work involved; or, in the case of a deletion in the Work, promptly cease construction activities with respect to such deleted Work. Added or revised Work must be performed under the applicable conditions of the Contract Documents.

C. Nothing in this Paragraph 11.05 obligates Contractor to undertake work that Contractor reasonably concludes cannot be performed in a manner consistent with Contractor's safety obligations under the Contract Documents or Laws and Regulations.

11.06 *Unauthorized Changes in the Work*

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

11.07 *Change of Contract Price*

A. The Contract Price may only be changed by a Change Order. Any Change Proposal for an adjustment in the Contract Price must comply with the provisions of Paragraph 11.09. Any Claim for an adjustment of Contract Price must comply with the provisions of Article 12.

B. An adjustment in the Contract Price will be determined as follows:

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1. Where the Work involved is covered by unit prices contained in the Contract Documents, then by application of such unit prices to the quantities of the items involved (subject to the provisions of Paragraph 13.03);
2. Where the Work involved is not covered by unit prices contained in the Contract Documents, then by a mutually agreed lump sum (which may include an allowance for overhead and profit not necessarily in accordance with Paragraph 11.07.C.2); or
3. Where the Work involved is not covered by unit prices contained in the Contract Documents and the parties do not reach mutual agreement to a lump sum, then on the basis of the Cost of the Work (determined as provided in Paragraph 13.01) plus a Contractor's fee for overhead and profit (determined as provided in Paragraph 11.07.C).

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

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11.08 *Change of Contract Times*

A. The Contract Times may only be changed by a Change Order. Any Change Proposal for an adjustment in the Contract Times must comply with the provisions of Paragraph 11.09. Any Claim for an adjustment in the Contract Times must comply with the provisions of Article 12.

B. Delay, disruption, and interference in the Work, and any related changes in Contract Times, are addressed in and governed by Paragraph 4.05.

11.09 *Change Proposals*

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

B. *Change Proposal Procedures*

1. *Submittal*: Contractor shall submit each Change Proposal to Engineer within 30 days after the start of the event giving rise thereto, or after such initial decision.

2. *Supporting Data*: The Contractor shall submit supporting data, including the proposed change in Contract Price or Contract Time (if any), to the Engineer and Owner within 15 days after the submittal of the Change Proposal.

    a. Change Proposals based on or related to delay, interruption, or interference must comply with the provisions of Paragraphs 4.05.D and 4.05.E.

    b. Change proposals related to a change of Contract Price must include full and detailed accounts of materials incorporated into the Work and labor and equipment used for the subject Work.

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

3. *Engineer's Initial Review*: Engineer will advise Owner regarding the Change Proposal, and consider any comments or response from Owner regarding the Change Proposal. If in its discretion Engineer concludes that additional supporting data is needed before conducting a full review and making a decision regarding the Change Proposal, then Engineer may request that Contractor submit such additional supporting data by a date specified by Engineer, prior to Engineer beginning its full review of the Change Proposal.

4. *Engineer's Full Review and Action on the Change Proposal*: Upon receipt of Contractor's supporting data (including any additional data requested by Engineer), Engineer will conduct a full review of each Change Proposal and, within 30 days after such receipt of the Contractor's supporting data, either approve the Change Proposal in whole, deny it in whole, or approve it in part and deny it in part. Such actions must be in writing, with a copy provided to Owner and Contractor. If Engineer does not take action on the Change Proposal within 30 days, then either Owner or Contractor may at any time thereafter submit a letter to the other party indicating that as a result of Engineer's inaction the Change Proposal is deemed denied, thereby commencing the time for appeal of the denial under Article 12.

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5. *Binding Decision*: Engineer's decision is final and binding upon Owner and Contractor, unless Owner or Contractor appeals the decision by filing a Claim under Article 12.

C. *Resolution of Certain Change Proposals*: If the Change Proposal does not involve the design (as set forth in the Drawings, Specifications, or otherwise), the acceptability of the Work, or other engineering or technical matters, then Engineer will notify the parties in writing that the Engineer is unable to resolve the Change Proposal. For purposes of further resolution of such a Change Proposal, such notice will be deemed a denial, and Contractor may choose to seek resolution under the terms of Article 12.

D. *Post-Completion*: Contractor shall not submit any Change Proposals after Engineer issues a written recommendation of final payment pursuant to Paragraph 15.06.B.

11.10 *Notification to Surety*

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

ARTICLE 12—CLAIMS

12.01 *Claims*

A. *Claims Process*: The following disputes between Owner and Contractor are subject to the Claims process set forth in this article:

1. Appeals by Owner or Contractor of Engineer's decisions regarding Change Proposals;

2. Owner demands for adjustments in the Contract Price or Contract Times, or other relief under the Contract Documents;

3. Disputes that Engineer has been unable to address because they do not involve the design (as set forth in the Drawings, Specifications, or otherwise), the acceptability of the Work, or other engineering or technical matters; and

4. Subject to the waiver provisions of Paragraph 15.07, any dispute arising after Engineer has issued a written recommendation of final payment pursuant to Paragraph 15.06.B.

B. *Submittal of Claim*: The party submitting a Claim shall deliver it directly to the other party to the Contract promptly (but in no event later than 30 days) after the start of the event giving rise thereto; in the case of appeals regarding Change Proposals within 30 days of the decision under appeal. The party submitting the Claim shall also furnish a copy to the Engineer, for its information only. The responsibility to substantiate a Claim rests with the party making the Claim. In the case of a Claim by Contractor seeking an increase in the Contract Times or Contract Price, Contractor shall certify that the Claim is made in good faith, that the supporting data are accurate and complete, and that to the best of Contractor's knowledge and belief the amount of time or money requested accurately reflects the full amount to which Contractor is entitled.

C. *Review and Resolution*: The party receiving a Claim shall review it thoroughly, giving full consideration to its merits. The two parties shall seek to resolve the Claim through the exchange of information and direct negotiations. The parties may extend the time for resolving the Claim by mutual agreement. All actions taken on a Claim will be stated in writing and submitted to the other party, with a copy to Engineer.

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D. *Mediation*

1. At any time after initiation of a Claim, Owner and Contractor may mutually agree to mediation of the underlying dispute. The agreement to mediate will stay the Claim submittal and response process.

2. If Owner and Contractor agree to mediation, then after 60 days from such agreement, either Owner or Contractor may unilaterally terminate the mediation process, and the Claim submittal and decision process will resume as of the date of the termination. If the mediation proceeds but is unsuccessful in resolving the dispute, the Claim submittal and decision process will resume as of the date of the conclusion of the mediation, as determined by the mediator.

3. Owner and Contractor shall each pay one-half of the mediator's fees and costs.

E. *Partial Approval*: If the party receiving a Claim approves the Claim in part and denies it in part, such action will be final and binding unless within 30 days of such action the other party invokes the procedure set forth in Article 17 for final resolution of disputes.

F. *Denial of Claim*: If efforts to resolve a Claim are not successful, the party receiving the Claim may deny it by giving written notice of denial to the other party. If the receiving party does not take action on the Claim within 90 days, then either Owner or Contractor may at any time thereafter submit a letter to the other party indicating that as a result of the inaction, the Claim is deemed denied, thereby commencing the time for appeal of the denial. A denial of the Claim will be final and binding unless within 30 days of the denial the other party invokes the procedure set forth in Article 17 for the final resolution of disputes.

G. *Final and Binding Results*: If the parties reach a mutual agreement regarding a Claim, whether through approval of the Claim, direct negotiations, mediation, or otherwise; or if a Claim is approved in part and denied in part, or denied in full, and such actions become final and binding; then the results of the agreement or action on the Claim will be incorporated in a Change Order or other written document to the extent they affect the Contract, including the Work, the Contract Times, or the Contract Price.

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

13.01 *Cost of the Work*

A. *Purposes for Determination of Cost of the Work*: The term Cost of the Work means the sum of all costs necessary for the proper performance of the Work at issue, as further defined below. The provisions of this Paragraph 13.01 are used for two distinct purposes:

1. To determine Cost of the Work when Cost of the Work is a component of the Contract Price, under cost-plus-fee, time-and-materials, or other cost-based terms; or

2. When needed to determine the value of a Change Order, Change Proposal, Claim, set-off, or other adjustment in Contract Price. When the value of any such adjustment is determined on the basis of Cost of the Work, Contractor is entitled only to those additional or incremental costs required because of the change in the Work or because of the event giving rise to the adjustment.

B. *Costs Included*: Except as otherwise may be agreed to in writing by Owner, costs included in the Cost of the Work will be in amounts no higher than those commonly incurred in the locality

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of the Project, will not include any of the costs itemized in Paragraph 13.01.C, and will include only the following items:

1. Payroll costs for employees in the direct employ of Contractor in the performance of the Work under schedules of job classifications agreed upon by Owner and Contractor in advance of the subject Work. Such employees include, without limitation, superintendents, foremen, safety managers, safety representatives, and other personnel employed full time on the Work. Payroll costs for employees not employed full time on the Work will be apportioned on the basis of their time spent on the Work. Payroll costs include, but are not limited to, salaries and wages plus the cost of fringe benefits, which include social security contributions, unemployment, excise, and payroll taxes, workers' compensation, health and retirement benefits, sick leave, and vacation and holiday pay applicable thereto. The expenses of performing Work outside of regular working hours, on Saturday, Sunday, or legal holidays, will be included in the above to the extent authorized by Owner.
2. Cost of all materials and equipment furnished and incorporated in the Work, including costs of transportation and storage thereof, and Suppliers' field services required in connection therewith. All cash discounts accrue to Contractor unless Owner deposits funds with Contractor with which to make payments, in which case the cash discounts will accrue to Owner. All trade discounts, rebates, and refunds and returns from sale of surplus materials and equipment will accrue to Owner, and Contractor shall make provisions so that they may be obtained.
3. Payments made by Contractor to Subcontractors for Work performed by Subcontractors. If required by Owner, Contractor shall obtain competitive bids from subcontractors acceptable to Owner and Contractor and shall deliver such bids to Owner, which will then determine, with the advice of Engineer, which bids, if any, will be acceptable. If any subcontract provides that the Subcontractor is to be paid on the basis of Cost of the Work plus a fee, the Subcontractor's Cost of the Work and fee will be determined in the same manner as Contractor's Cost of the Work and fee as provided in this Paragraph 13.01.
4. Costs of special consultants (including but not limited to engineers, architects, testing laboratories, surveyors, attorneys, and accountants) employed or retained for services specifically related to the Work.
5. Other costs consisting of the following:
    a. The proportion of necessary transportation, travel, and subsistence expenses of Contractor's employees incurred in discharge of duties connected with the Work.
    b. Cost, including transportation and maintenance, of all materials, supplies, equipment, machinery, appliances, office, and temporary facilities at the Site, which are consumed in the performance of the Work, and cost, less market value, of such items used but not consumed which remain the property of Contractor.
        1) In establishing included costs for materials such as scaffolding, plating, or sheeting, consideration will be given to the actual or the estimated life of the material for use on other projects; or rental rates may be established on the basis of purchase or salvage value of such items, whichever is less. Contractor will not be eligible for compensation for such items in an amount that exceeds the purchase cost of such item.
    c. *Construction Equipment Rental*
        1) Rentals of all construction equipment and machinery, and the parts thereof, in accordance with rental agreements approved by Owner as to price (including any

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surcharge or special rates applicable to overtime use of the construction equipment or machinery), and the costs of transportation, loading, unloading, assembly, dismantling, and removal thereof. All such costs will be in accordance with the terms of said rental agreements. The rental of any such equipment, machinery, or parts must cease when the use thereof is no longer necessary for the Work.

2) Costs for equipment and machinery owned by Contractor or a Contractor-related entity will be paid at a rate shown for such equipment in the equipment rental rate book specified in the Supplementary Conditions. An hourly rate will be computed by dividing the monthly rates by 176. These computed rates will include all operating costs.

3) With respect to Work that is the result of a Change Order, Change Proposal, Claim, set-off, or other adjustment in Contract Price ("changed Work"), included costs will be based on the time the equipment or machinery is in use on the changed Work and the costs of transportation, loading, unloading, assembly, dismantling, and removal when directly attributable to the changed Work. The cost of any such equipment or machinery, or parts thereof, must cease to accrue when the use thereof is no longer necessary for the changed Work.

d. Sales, consumer, use, and other similar taxes related to the Work, and for which Contractor is liable, as imposed by Laws and Regulations.

e. Deposits lost for causes other than negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, and royalty payments and fees for permits and licenses.

f. Losses and damages (and related expenses) caused by damage to the Work, not compensated by insurance or otherwise, sustained by Contractor in connection with the performance of the Work (except losses and damages within the deductible amounts of builder's risk or other property insurance established in accordance with Paragraph 6.04), provided such losses and damages have resulted from causes other than the negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable. Such losses include settlements made with the written consent and approval of Owner. No such losses, damages, and expenses will be included in the Cost of the Work for the purpose of determining Contractor's fee.

g. The cost of utilities, fuel, and sanitary facilities at the Site.

h. Minor expenses such as communication service at the Site, express and courier services, and similar petty cash items in connection with the Work.

i. The costs of premiums for all bonds and insurance that Contractor is required by the Contract Documents to purchase and maintain.

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

1. Payroll costs and other compensation of Contractor's officers, executives, principals, general managers, engineers, architects, estimators, attorneys, auditors, accountants, purchasing and contracting agents, expediters, timekeepers, clerks, and other personnel employed by Contractor, whether at the Site or in Contractor's principal or branch office for general administration of the Work and not specifically included in the agreed upon schedule of job classifications referred to in Paragraph 13.01.B.1 or specifically covered by Paragraph 13.01.B.4. The payroll costs and other compensation excluded here are to be considered administrative costs covered by the Contractor's fee.

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2. The cost of purchasing, renting, or furnishing small tools and hand tools.

3. Expenses of Contractor's principal and branch offices other than Contractor's office at the Site.

4. Any part of Contractor's capital expenses, including interest on Contractor's capital employed for the Work and charges against Contractor for delinquent payments.

5. Costs due to the negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, including but not limited to, the correction of defective Work, disposal of materials or equipment wrongly supplied, and making good any damage to property.

6. Expenses incurred in preparing and advancing Claims.

7. Other overhead or general expense costs of any kind and the costs of any item not specifically and expressly included in Paragraph 13.01.B.

D. *Contractor's Fee*

1. When the Work as a whole is performed on the basis of cost-plus-a-fee, then:

a. Contractor's fee for the Work set forth in the Contract Documents as of the Effective Date of the Contract will be determined as set forth in the Agreement.

b. for any Work covered by a Change Order, Change Proposal, Claim, set-off, or other adjustment in Contract Price on the basis of Cost of the Work, Contractor's fee will be determined as follows:

1) When the fee for the Work as a whole is a percentage of the Cost of the Work, the fee will automatically adjust as the Cost of the Work changes.

2) When the fee for the Work as a whole is a fixed fee, the fee for any additions or deletions will be determined in accordance with Paragraph 11.07.C.2.

2. When the Work as a whole is performed on the basis of a stipulated sum, or any other basis other than cost-plus-a-fee, then Contractor's fee for any Work covered by a Change Order, Change Proposal, Claim, set-off, or other adjustment in Contract Price on the basis of Cost of the Work will be determined in accordance with Paragraph 11.07.C.2.

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

13.02 *Allowances*

A. It is understood that Contractor has included in the Contract Price all allowances so named in the Contract Documents and shall cause the Work so covered to be performed for such sums and by such persons or entities as may be acceptable to Owner and Engineer.

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B. *Cash Allowances*: Contractor agrees that:

1. the cash allowances include the cost to Contractor (less any applicable trade discounts) of materials and equipment required by the allowances to be delivered at the Site, and all applicable taxes; and

2. Contractor's costs for unloading and handling on the Site, labor, installation, overhead, profit, and other expenses contemplated for the cash allowances have been included in the Contract Price and not in the allowances, and no demand for additional payment for any of the foregoing will be valid.

C. *Owner's Contingency Allowance*: Contractor agrees that an Owner's contingency allowance, if any, is for the sole use of Owner to cover unanticipated costs.

D. Prior to final payment, an appropriate Change Order will be issued as recommended by Engineer to reflect actual amounts due Contractor for Work covered by allowances, and the Contract Price will be correspondingly adjusted.

13.03 *Unit Price Work*

A. Where the Contract Documents provide that all or part of the Work is to be Unit Price Work, initially the Contract Price will be deemed to include for all Unit Price Work an amount equal to the sum of the unit price for each separately identified item of Unit Price Work times the estimated quantity of each item as indicated in the Agreement.

B. The estimated quantities of items of Unit Price Work are not guaranteed and are solely for the purpose of comparison of Bids and determining an initial Contract Price. Payments to Contractor for Unit Price Work will be based on actual quantities.

C. Each unit price will be deemed to include an amount considered by Contractor to be adequate to cover Contractor's overhead and profit for each separately identified item.

D. Engineer will determine the actual quantities and classifications of Unit Price Work performed by Contractor. Engineer will review with Contractor the Engineer's preliminary determinations on such matters before rendering a written decision thereon (by recommendation of an Application for Payment or otherwise). Engineer's written decision thereon will be final and binding (except as modified by Engineer to reflect changed factual conditions or more accurate data) upon Owner and Contractor, and the final adjustment of Contract Price will be set forth in a Change Order, subject to the provisions of the following paragraph.

E. *Adjustments in Unit Price*

1. Contractor or Owner shall be entitled to an adjustment in the unit price with respect to an item of Unit Price Work if:

   a. the quantity of the item of Unit Price Work performed by Contractor differs materially and significantly from the estimated quantity of such item indicated in the Agreement; and

   b. Contractor's unit costs to perform the item of Unit Price Work have changed materially and significantly as a result of the quantity change.

2. The adjustment in unit price will account for and be coordinated with any related changes in quantities of other items of Work, and in Contractor's costs to perform such other Work, such that the resulting overall change in Contract Price is equitable to Owner and Contractor.

3. Adjusted unit prices will apply to all units of that item.

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

14.01 *Access to Work*

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

14.02 *Tests, Inspections, and Approvals*

A. Contractor shall give Engineer timely notice of readiness of the Work (or specific parts thereof) for all required inspections and tests, and shall cooperate with inspection and testing personnel to facilitate required inspections and tests.

B. Owner shall retain and pay for the services of an independent inspector, testing laboratory, or other qualified individual or entity to perform all inspections and tests expressly required by the Contract Documents to be furnished and paid for by Owner, except that costs incurred in connection with tests or inspections of covered Work will be governed by the provisions of Paragraph 14.05.

C. If Laws or Regulations of any public body having jurisdiction require any Work (or part thereof) specifically to be inspected, tested, or approved by an employee or other representative of such public body, Contractor shall assume full responsibility for arranging and obtaining such inspections, tests, or approvals, pay all costs in connection therewith, and furnish Engineer the required certificates of inspection or approval.

D. Contractor shall be responsible for arranging, obtaining, and paying for all inspections and tests required:

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

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

E. If the Contract Documents require the Work (or part thereof) to be approved by Owner, Engineer, or another designated individual or entity, then Contractor shall assume full responsibility for arranging and obtaining such approvals.

F. If any Work (or the work of others) that is to be inspected, tested, or approved is covered by Contractor without written concurrence of Engineer, Contractor shall, if requested by Engineer, uncover such Work for observation. Such uncovering will be at Contractor's expense unless

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Contractor had given Engineer timely notice of Contractor's intention to cover the same and Engineer had not acted with reasonable promptness in response to such notice.

14.03 *Defective Work*

A. *Contractor's Obligation*: It is Contractor's obligation to assure that the Work is not defective.

B. *Engineer's Authority*: Engineer has the authority to determine whether Work is defective, and to reject defective Work.

C. *Notice of Defects*: Prompt written notice of all defective Work of which Owner or Engineer has actual knowledge will be given to Contractor.

D. *Correction, or Removal and Replacement*: Promptly after receipt of written notice of defective Work, Contractor shall correct all such defective Work, whether or not fabricated, installed, or completed, or, if Engineer has rejected the defective Work, remove it from the Project and replace it with Work that is not defective.

E. *Preservation of Warranties*: When correcting defective Work, Contractor shall take no action that would void or otherwise impair Owner's special warranty and guarantee, if any, on said Work.

F. *Costs and Damages*: In addition to its correction, removal, and replacement obligations with respect to defective Work, Contractor shall pay all claims, costs, losses, and damages arising out of or relating to defective Work, including but not limited to the cost of the inspection, testing, correction, removal, replacement, or reconstruction of such defective Work, fines levied against Owner by governmental authorities because the Work is defective, and the costs of repair or replacement of work of others resulting from defective Work. Prior to final payment, if Owner and Contractor are unable to agree as to the measure of such claims, costs, losses, and damages resulting from defective Work, then Owner may impose a reasonable set-off against payments due under Article 15.

14.04 *Acceptance of Defective Work*

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

14.05 *Uncovering Work*

A. Engineer has the authority to require additional inspection or testing of the Work, whether or not the Work is fabricated, installed, or completed.

B. If any Work is covered contrary to the written request of Engineer, then Contractor shall, if requested by Engineer, uncover such Work for Engineer's observation, and then replace the covering, all at Contractor's expense.

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C. If Engineer considers it necessary or advisable that covered Work be observed by Engineer or inspected or tested by others, then Contractor, at Engineer's request, shall uncover, expose, or otherwise make available for observation, inspection, or testing as Engineer may require, that portion of the Work in question, and provide all necessary labor, material, and equipment.

1. If it is found that the uncovered Work is defective, Contractor shall be responsible for all claims, costs, losses, and damages arising out of or relating to such uncovering, exposure, observation, inspection, and testing, and of satisfactory replacement or reconstruction (including but not limited to all costs of repair or replacement of work of others); and pending Contractor's full discharge of this responsibility the Owner shall be entitled to impose a reasonable set-off against payments due under Article 15.

2. If the uncovered Work is not found to be defective, Contractor shall be allowed an increase in the Contract Price or an extension of the Contract Times, directly attributable to such uncovering, exposure, observation, inspection, testing, replacement, and reconstruction. If the parties are unable to agree as to the amount or extent thereof, then Contractor may submit a Change Proposal within 30 days of the determination that the Work is not defective.

14.06 *Owner May Stop the Work*

A. If the Work is defective, or Contractor fails to supply sufficient skilled workers or suitable materials or equipment, or fails to perform the Work in such a way that the completed Work will conform to the Contract Documents, then Owner may order Contractor to stop the Work, or any portion thereof, until the cause for such order has been eliminated; however, this right of Owner to stop the Work will not give rise to any duty on the part of Owner to exercise this right for the benefit of Contractor, any Subcontractor, any Supplier, any other individual or entity, or any surety for, or employee or agent of any of them.

14.07 *Owner May Correct Defective Work*

A. If Contractor fails within a reasonable time after written notice from Engineer to correct defective Work, or to remove and replace defective Work as required by Engineer, then Owner may, after 7 days' written notice to Contractor, correct or remedy any such deficiency.

B. In exercising the rights and remedies under this Paragraph 14.07, Owner shall proceed expeditiously. In connection with such corrective or remedial action, Owner may exclude Contractor from all or part of the Site, take possession of all or part of the Work and suspend Contractor's services related thereto, and incorporate in the Work all materials and equipment stored at the Site or for which Owner has paid Contractor but which are stored elsewhere. Contractor shall allow Owner, Owner's representatives, agents and employees, Owner's other contractors, and Engineer and Engineer's consultants access to the Site to enable Owner to exercise the rights and remedies under this paragraph.

C. All claims, costs, losses, and damages incurred or sustained by Owner in exercising the rights and remedies under this Paragraph 14.07 will be charged against Contractor as set-offs against payments due under Article 15. Such claims, costs, losses and damages will include but not be limited to all costs of repair, or replacement of work of others destroyed or damaged by correction, removal, or replacement of Contractor's defective Work.

D. Contractor shall not be allowed an extension of the Contract Times because of any delay in the performance of the Work attributable to the exercise by Owner of Owner's rights and remedies under this Paragraph 14.07.

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

15.01 *Progress Payments*

A. *Basis for Progress Payments*: The Schedule of Values established as provided in Article 2 will serve as the basis for progress payments and will be incorporated into a form of Application for Payment acceptable to Engineer. Progress payments for Unit Price Work will be based on the number of units completed during the pay period, as determined under the provisions of Paragraph 13.03. Progress payments for cost-based Work will be based on Cost of the Work completed by Contractor during the pay period.

B. *Applications for Payments*

1. At least 20 days before the date established in the Agreement for each progress payment (but not more often than once a month), Contractor shall submit to Engineer for review an Application for Payment filled out and signed by Contractor covering the Work completed as of the date of the Application and accompanied by such supporting documentation as is required by the Contract Documents.

2. If payment is requested on the basis of materials and equipment not incorporated in the Work but delivered and suitably stored at the Site or at another location agreed to in writing, the Application for Payment must also be accompanied by: (a) a bill of sale, invoice, copies of subcontract or purchase order payments, or other documentation establishing full payment by Contractor for the materials and equipment; (b) at Owner's request, documentation warranting that Owner has received the materials and equipment free and clear of all Liens; and (c) evidence that the materials and equipment are covered by appropriate property insurance, a warehouse bond, or other arrangements to protect Owner's interest therein, all of which must be satisfactory to Owner.

3. Beginning with the second Application for Payment, each Application must include an affidavit of Contractor stating that all previous progress payments received by Contractor have been applied to discharge Contractor's legitimate obligations associated with prior Applications for Payment.

4. The amount of retainage with respect to progress payments will be as stipulated in the Agreement.

C. *Review of Applications*

1. Engineer will, within 10 days after receipt of each Application for Payment, including each resubmittal, either indicate in writing a recommendation of payment and present the Application to Owner, or return the Application to Contractor indicating in writing Engineer's reasons for refusing to recommend payment. In the latter case, Contractor may make the necessary corrections and resubmit the Application.

2. Engineer's recommendation of any payment requested in an Application for Payment will constitute a representation by Engineer to Owner, based on Engineer's observations of the executed Work as an experienced and qualified design professional, and on Engineer's review of the Application for Payment and the accompanying data and schedules, that to the best of Engineer's knowledge, information and belief:

a. the Work has progressed to the point indicated;

b. the quality of the Work is generally in accordance with the Contract Documents (subject to an evaluation of the Work as a functioning whole prior to or upon

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Substantial Completion, the results of any subsequent tests called for in the Contract Documents, a final determination of quantities and classifications for Unit Price Work under Paragraph 13.03, and any other qualifications stated in the recommendation); and

c. the conditions precedent to Contractor's being entitled to such payment appear to have been fulfilled in so far as it is Engineer's responsibility to observe the Work.

3. By recommending any such payment Engineer will not thereby be deemed to have represented that:

   a. inspections made to check the quality or the quantity of the Work as it has been performed have been exhaustive, extended to every aspect of the Work in progress, or involved detailed inspections of the Work beyond the responsibilities specifically assigned to Engineer in the Contract; or

   b. there may not be other matters or issues between the parties that might entitle Contractor to be paid additionally by Owner or entitle Owner to withhold payment to Contractor.

4. Neither Engineer's review of Contractor's Work for the purposes of recommending payments nor Engineer's recommendation of any payment, including final payment, will impose responsibility on Engineer:

   a. to supervise, direct, or control the Work;

   b. for the means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto;

   c. for Contractor's failure to comply with Laws and Regulations applicable to Contractor's performance of the Work;

   d. to make any examination to ascertain how or for what purposes Contractor has used the money paid by Owner; or

   e. to determine that title to any of the Work, materials, or equipment has passed to Owner free and clear of any Liens.

5. Engineer may refuse to recommend the whole or any part of any payment if, in Engineer's opinion, it would be incorrect to make the representations to Owner stated in Paragraph 15.01.C.2.

6. Engineer will recommend reductions in payment (set-offs) necessary in Engineer's opinion to protect Owner from loss because:

   a. the Work is defective, requiring correction or replacement;

   b. the Contract Price has been reduced by Change Orders;

   c. Owner has been required to correct defective Work in accordance with Paragraph 14.07, or has accepted defective Work pursuant to Paragraph 14.04;

   d. Owner has been required to remove or remediate a Hazardous Environmental Condition for which Contractor is responsible; or

   e. Engineer has actual knowledge of the occurrence of any of the events that would constitute a default by Contractor and therefore justify termination for cause under the Contract Documents.

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D. *Payment Becomes Due*

1. Ten days after presentation of the Application for Payment to Owner with Engineer's recommendation, the amount recommended (subject to any Owner set-offs) will become due, and when due will be paid by Owner to Contractor.

E. *Reductions in Payment by Owner*

1. In addition to any reductions in payment (set-offs) recommended by Engineer, Owner is entitled to impose a set-off against payment based on any of the following:

    a. Claims have been made against Owner based on Contractor's conduct in the performance or furnishing of the Work, or Owner has incurred costs, losses, or damages resulting from Contractor's conduct in the performance or furnishing of the Work, including but not limited to claims, costs, losses, or damages from workplace injuries, adjacent property damage, non-compliance with Laws and Regulations, and patent infringement;

    b. Contractor has failed to take reasonable and customary measures to avoid damage, delay, disruption, and interference with other work at or adjacent to the Site;

    c. Contractor has failed to provide and maintain required bonds or insurance;

    d. Owner has been required to remove or remediate a Hazardous Environmental Condition for which Contractor is responsible;

    e. Owner has incurred extra charges or engineering costs related to submittal reviews, evaluations of proposed substitutes, tests and inspections, or return visits to manufacturing or assembly facilities;

    f. The Work is defective, requiring correction or replacement;

    g. Owner has been required to correct defective Work in accordance with Paragraph 14.07, or has accepted defective Work pursuant to Paragraph 14.04;

    h. The Contract Price has been reduced by Change Orders;

    i. An event has occurred that would constitute a default by Contractor and therefore justify a termination for cause;

    j. Liquidated or other damages have accrued as a result of Contractor's failure to achieve Milestones, Substantial Completion, or final completion of the Work;

    k. Liens have been filed in connection with the Work, except where Contractor has delivered a specific bond satisfactory to Owner to secure the satisfaction and discharge of such Liens; or

    l. Other items entitle Owner to a set-off against the amount recommended.

2. If Owner imposes any set-off against payment, whether based on its own knowledge or on the written recommendations of Engineer, Owner will give Contractor immediate written notice (with a copy to Engineer) stating the reasons for such action and the specific amount of the reduction, and promptly pay Contractor any amount remaining after deduction of the amount so withheld. Owner shall promptly pay Contractor the amount so withheld, or any adjustment thereto agreed to by Owner and Contractor, if Contractor remedies the reasons for such action. The reduction imposed will be binding on Contractor unless it duly submits a Change Proposal contesting the reduction.

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3. Upon a subsequent determination that Owner's refusal of payment was not justified, the amount wrongfully withheld will be treated as an amount due as determined by Paragraph 15.01.D.1 and subject to interest as provided in the Agreement.

15.02 *Contractor's Warranty of Title*

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

15.03 *Substantial Completion*

A. When Contractor considers the entire Work ready for its intended use Contractor shall notify Owner and Engineer in writing that the entire Work is substantially complete and request that Engineer issue a certificate of Substantial Completion. Contractor shall at the same time submit to Owner and Engineer an initial draft of punch list items to be completed or corrected before final payment.

B. Promptly after Contractor's notification, Owner, Contractor, and Engineer shall make an inspection of the Work to determine the status of completion. If Engineer does not consider the Work substantially complete, Engineer will notify Contractor in writing giving the reasons therefor.

C. If Engineer considers the Work substantially complete, Engineer will deliver to Owner a preliminary certificate of Substantial Completion which will fix the date of Substantial Completion. Engineer shall attach to the certificate a punch list of items to be completed or corrected before final payment. Owner shall have 7 days after receipt of the preliminary certificate during which to make written objection to Engineer as to any provisions of the certificate or attached punch list. If, after considering the objections to the provisions of the preliminary certificate, Engineer concludes that the Work is not substantially complete, Engineer will, within 14 days after submission of the preliminary certificate to Owner, notify Contractor in writing that the Work is not substantially complete, stating the reasons therefor. If Owner does not object to the provisions of the certificate, or if despite consideration of Owner's objections Engineer concludes that the Work is substantially complete, then Engineer will, within said 14 days, execute and deliver to Owner and Contractor a final certificate of Substantial Completion (with a revised punch list of items to be completed or corrected) reflecting such changes from the preliminary certificate as Engineer believes justified after consideration of any objections from Owner.

D. At the time of receipt of the preliminary certificate of Substantial Completion, Owner and Contractor will confer regarding Owner's use or occupancy of the Work following Substantial Completion, review the builder's risk insurance policy with respect to the end of the builder's risk coverage, and confirm the transition to coverage of the Work under a permanent property insurance policy held by Owner. Unless Owner and Contractor agree otherwise in writing, Owner shall bear responsibility for security, operation, protection of the Work, property insurance, maintenance, heat, and utilities upon Owner's use or occupancy of the Work.

E. After Substantial Completion the Contractor shall promptly begin work on the punch list of items to be completed or corrected prior to final payment. In appropriate cases Contractor may submit monthly Applications for Payment for completed punch list items, following the progress payment procedures set forth above.

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F. Owner shall have the right to exclude Contractor from the Site after the date of Substantial Completion subject to allowing Contractor reasonable access to remove its property and complete or correct items on the punch list.

15.04 *Partial Use or Occupancy*

A. Prior to Substantial Completion of all the Work, Owner may use or occupy any substantially completed part of the Work which has specifically been identified in the Contract Documents, or which Owner, Engineer, and Contractor agree constitutes a separately functioning and usable part of the Work that can be used by Owner for its intended purpose without significant interference with Contractor's performance of the remainder of the Work, subject to the following conditions:

1. At any time, Owner may request in writing that Contractor permit Owner to use or occupy any such part of the Work that Owner believes to be substantially complete. If and when Contractor agrees that such part of the Work is substantially complete, Contractor, Owner, and Engineer will follow the procedures of Paragraph 15.03.A through 15.03.E for that part of the Work.

2. At any time, Contractor may notify Owner and Engineer in writing that Contractor considers any such part of the Work substantially complete and request Engineer to issue a certificate of Substantial Completion for that part of the Work.

3. Within a reasonable time after either such request, Owner, Contractor, and Engineer shall make an inspection of that part of the Work to determine its status of completion. If Engineer does not consider that part of the Work to be substantially complete, Engineer will notify Owner and Contractor in writing giving the reasons therefor. If Engineer considers that part of the Work to be substantially complete, the provisions of Paragraph 15.03 will apply with respect to certification of Substantial Completion of that part of the Work and the division of responsibility in respect thereof and access thereto.

4. No use or occupancy or separate operation of part of the Work may occur prior to compliance with the requirements of Paragraph 6.04 regarding builder's risk or other property insurance.

15.05 *Final Inspection*

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

15.06 *Final Payment*

A. *Application for Payment*

1. After Contractor has, in the opinion of Engineer, satisfactorily completed all corrections identified during the final inspection and has delivered, in accordance with the Contract Documents, all maintenance and operating instructions, schedules, guarantees, bonds, certificates or other evidence of insurance, certificates of inspection, annotated record documents (as provided in Paragraph 7.12), and other documents, Contractor may make application for final payment.

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2. The final Application for Payment must be accompanied (except as previously delivered) by:

    a. all documentation called for in the Contract Documents;

    b. consent of the surety, if any, to final payment;

    c. satisfactory evidence that all title issues have been resolved such that title to all Work, materials, and equipment has passed to Owner free and clear of any Liens or other title defects, or will so pass upon final payment.

    d. a list of all duly pending Change Proposals and Claims; and

    e. complete and legally effective releases or waivers (satisfactory to Owner) of all Lien rights arising out of the Work, and of Liens filed in connection with the Work.

3. In lieu of the releases or waivers of Liens specified in Paragraph 15.06.A.2 and as approved by Owner, Contractor may furnish receipts or releases in full and an affidavit of Contractor that: (a) the releases and receipts include all labor, services, material, and equipment for which a Lien could be filed; and (b) all payrolls, material and equipment bills, and other indebtedness connected with the Work for which Owner might in any way be responsible, or which might in any way result in liens or other burdens on Owner's property, have been paid or otherwise satisfied. If any Subcontractor or Supplier fails to furnish such a release or receipt in full, Contractor may furnish a bond or other collateral satisfactory to Owner to indemnify Owner against any Lien, or Owner at its option may issue joint checks payable to Contractor and specified Subcontractors and Suppliers.

B. *Engineer's Review of Final Application and Recommendation of Payment*: If, on the basis of Engineer's observation of the Work during construction and final inspection, and Engineer's review of the final Application for Payment and accompanying documentation as required by the Contract Documents, Engineer is satisfied that the Work has been completed and Contractor's other obligations under the Contract have been fulfilled, Engineer will, within 10 days after receipt of the final Application for Payment, indicate in writing Engineer's recommendation of final payment and present the final Application for Payment to Owner for payment. Such recommendation will account for any set-offs against payment that are necessary in Engineer's opinion to protect Owner from loss for the reasons stated above with respect to progress payments. Otherwise, Engineer will return the Application for Payment to Contractor, indicating in writing the reasons for refusing to recommend final payment, in which case Contractor shall make the necessary corrections and resubmit the Application for Payment.

C. *Notice of Acceptability*: In support of its recommendation of payment of the final Application for Payment, Engineer will also give written notice to Owner and Contractor that the Work is acceptable, subject to stated limitations in the notice and to the provisions of Paragraph 15.07.

D. *Completion of Work*: The Work is complete (subject to surviving obligations) when it is ready for final payment as established by the Engineer's written recommendation of final payment and issuance of notice of the acceptability of the Work.

E. *Final Payment Becomes Due*: Upon receipt from Engineer of the final Application for Payment and accompanying documentation, Owner shall set off against the amount recommended by Engineer for final payment any further sum to which Owner is entitled, including but not limited to set-offs for liquidated damages and set-offs allowed under the provisions of this Contract with respect to progress payments. Owner shall pay the resulting balance due to Contractor within 30 days of Owner's receipt of the final Application for Payment from Engineer.

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15.07 *Waiver of Claims*

A. By making final payment, Owner waives its claim or right to liquidated damages or other damages for late completion by Contractor, except as set forth in an outstanding Claim, appeal under the provisions of Article 17, set-off, or express reservation of rights by Owner. Owner reserves all other claims or rights after final payment.

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

15.08 *Correction Period*

A. If within one year after the date of Substantial Completion (or such longer period of time as may be prescribed by the Supplementary Conditions or the terms of any applicable special guarantee required by the Contract Documents), Owner gives Contractor written notice that any Work has been found to be defective, or that Contractor's repair of any damages to the Site or adjacent areas has been found to be defective, then after receipt of such notice of defect Contractor shall promptly, without cost to Owner and in accordance with Owner's written instructions:

1. correct the defective repairs to the Site or such adjacent areas;

2. correct such defective Work;

3. remove the defective Work from the Project and replace it with Work that is not defective, if the defective Work has been rejected by Owner, and

4. satisfactorily correct or repair or remove and replace any damage to other Work, to the work of others, or to other land or areas resulting from the corrective measures.

B. Owner shall give any such notice of defect within 60 days of the discovery that such Work or repairs is defective. If such notice is given within such 60 days but after the end of the correction period, the notice will be deemed a notice of defective Work under Paragraph 7.17.B.

C. If, after receipt of a notice of defect within 60 days and within the correction period, Contractor does not promptly comply with the terms of Owner's written instructions, or in an emergency where delay would cause serious risk of loss or damage, Owner may have the defective Work corrected or repaired or may have the rejected Work removed and replaced. Contractor shall pay all costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such correction or repair or such removal and replacement (including but not limited to all costs of repair or replacement of work of others). Contractor's failure to pay such costs, losses, and damages within 10 days of invoice from Owner will be deemed the start of an event giving rise to a Claim under Paragraph 12.01.B, such that any related Claim must be brought within 30 days of the failure to pay.

D. In special circumstances where a particular item of equipment is placed in continuous service before Substantial Completion of all the Work, the correction period for that item may start to run from an earlier date if so provided in the Specifications.

E. Where defective Work (and damage to other Work resulting therefrom) has been corrected or removed and replaced under this paragraph, the correction period hereunder with respect to such Work will be extended for an additional period of one year after such correction or removal and replacement has been satisfactorily completed.

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

ARTICLE 16—SUSPENSION OF WORK AND TERMINATION

16.01 *Owner May Suspend Work*

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

16.02 *Owner May Terminate for Cause*

A. The occurrence of any one or more of the following events will constitute a default by Contractor and justify termination for cause:

1. Contractor's persistent failure to perform the Work in accordance with the Contract Documents (including, but not limited to, failure to supply sufficient skilled workers or suitable materials or equipment, or failure to adhere to the Progress Schedule);

2. Failure of Contractor to perform or otherwise to comply with a material term of the Contract Documents;

3. Contractor's disregard of Laws or Regulations of any public body having jurisdiction; or

4. Contractor's repeated disregard of the authority of Owner or Engineer.

B. If one or more of the events identified in Paragraph 16.02.A occurs, then after giving Contractor (and any surety) 10 days' written notice that Owner is considering a declaration that Contractor is in default and termination of the Contract, Owner may proceed to:

1. declare Contractor to be in default, and give Contractor (and any surety) written notice that the Contract is terminated; and

2. enforce the rights available to Owner under any applicable performance bond.

C. Subject to the terms and operation of any applicable performance bond, if Owner has terminated the Contract for cause, Owner may exclude Contractor from the Site, take possession of the Work, incorporate in the Work all materials and equipment stored at the Site or for which Owner has paid Contractor but which are stored elsewhere, and complete the Work as Owner may deem expedient.

D. Owner may not proceed with termination of the Contract under Paragraph 16.02.B if Contractor within 7 days of receipt of notice of intent to terminate begins to correct its failure to perform and proceeds diligently to cure such failure.

E. If Owner proceeds as provided in Paragraph 16.02.B, Contractor shall not be entitled to receive any further payment until the Work is completed. If the unpaid balance of the Contract Price exceeds the cost to complete the Work, including all related claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals) sustained by Owner, such excess will be paid to Contractor. If the cost to complete the Work including such related claims, costs, losses, and damages exceeds such

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unpaid balance, Contractor shall pay the difference to Owner. Such claims, costs, losses, and damages incurred by Owner will be reviewed by Engineer as to their reasonableness and, when so approved by Engineer, incorporated in a Change Order. When exercising any rights or remedies under this paragraph, Owner shall not be required to obtain the lowest price for the Work performed.

F. Where Contractor's services have been so terminated by Owner, the termination will not affect any rights or remedies of Owner against Contractor then existing or which may thereafter accrue, or any rights or remedies of Owner against Contractor or any surety under any payment bond or performance bond. Any retention or payment of money due Contractor by Owner will not release Contractor from liability.

G. If and to the extent that Contractor has provided a performance bond under the provisions of Paragraph 6.01.A, the provisions of that bond will govern over any inconsistent provisions of Paragraphs 16.02.B and 16.02.D.

16.03 *Owner May Terminate for Convenience*

A. Upon 7 days' written notice to Contractor and Engineer, Owner may, without cause and without prejudice to any other right or remedy of Owner, terminate the Contract. In such case, Contractor shall be paid for (without duplication of any items):

1. completed and acceptable Work executed in accordance with the Contract Documents prior to the effective date of termination, including fair and reasonable sums for overhead and profit on such Work;

2. expenses sustained prior to the effective date of termination in performing services and furnishing labor, materials, or equipment as required by the Contract Documents in connection with uncompleted Work, plus fair and reasonable sums for overhead and profit on such expenses; and

3. other reasonable expenses directly attributable to termination, including costs incurred to prepare a termination for convenience cost proposal.

B. Contractor shall not be paid for any loss of anticipated profits or revenue, post-termination overhead costs, or other economic loss arising out of or resulting from such termination.

16.04 *Contractor May Stop Work or Terminate*

A. If, through no act or fault of Contractor, (1) the Work is suspended for more than 90 consecutive days by Owner or under an order of court or other public authority, or (2) Engineer fails to act on any Application for Payment within 30 days after it is submitted, or (3) Owner fails for 30 days to pay Contractor any sum finally determined to be due, then Contractor may, upon 7 days' written notice to Owner and Engineer, and provided Owner or Engineer do not remedy such suspension or failure within that time, terminate the contract and recover from Owner payment on the same terms as provided in Paragraph 16.03.

B. In lieu of terminating the Contract and without prejudice to any other right or remedy, if Engineer has failed to act on an Application for Payment within 30 days after it is submitted, or Owner has failed for 30 days to pay Contractor any sum finally determined to be due, Contractor may, 7 days after written notice to Owner and Engineer, stop the Work until payment is made of all such amounts due Contractor, including interest thereon. The provisions of this paragraph are not intended to preclude Contractor from submitting a Change Proposal for an adjustment in Contract Price or Contract Times or otherwise for expenses or damage directly attributable to Contractor's stopping the Work as permitted by this paragraph.

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ARTICLE 17—FINAL RESOLUTION OF DISPUTES

17.01 *Methods and Procedures*

A. *Disputes Subject to Final Resolution*: The following disputed matters are subject to final resolution under the provisions of this article:

1. A timely appeal of an approval in part and denial in part of a Claim, or of a denial in full, pursuant to Article 12; and

2. Disputes between Owner and Contractor concerning the Work, or obligations under the Contract Documents, that arise after final payment has been made.

B. *Final Resolution of Disputes*: For any dispute subject to resolution under this article, Owner or Contractor may:

1. elect in writing to invoke the dispute resolution process provided for in the Supplementary Conditions;

2. agree with the other party to submit the dispute to another dispute resolution process; or

3. if no dispute resolution process is provided for in the Supplementary Conditions or mutually agreed to, give written notice to the other party of the intent to submit the dispute to a court of competent jurisdiction.

ARTICLE 18—MISCELLANEOUS

18.01 *Giving Notice*

A. Whenever any provision of the Contract requires the giving of written notice to Owner, Engineer, or Contractor, it will be deemed to have been validly given only if delivered:

1. in person, by a commercial courier service or otherwise, to the recipient's place of business;

2. by registered or certified mail, postage prepaid, to the recipient's place of business; or

3. by e-mail to the recipient, with the words "Formal Notice" or similar in the e-mail's subject line.

18.02 *Computation of Times*

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

18.03 *Cumulative Remedies*

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

18.04 *Limitation of Damages*

A. With respect to any and all Change Proposals, Claims, disputes subject to final resolution, and other matters at issue, neither Owner nor Engineer, nor any of their officers, directors,

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members, partners, employees, agents, consultants, or subcontractors, shall be liable to Contractor for any claims, costs, losses, or damages sustained by Contractor on or in connection with any other project or anticipated project.

18.05 *No Waiver*

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

18.06 *Survival of Obligations*

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

18.07 *Controlling Law*

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

18.08 *Assignment of Contract*

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

18.09 *Successors and Assigns*

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

18.10 *Headings*

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

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SECTION 00 73 00

SUPPLEMENTARY CONDITIONS OF THE CONSTRUCTION CONTRACT

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EJCDC® C-800, Supplementary Conditions of the Construction Contract.
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SUPPLEMENTARY CONDITIONS OF THE CONSTRUCTION CONTRACT

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

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

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

ARTICLE 1—DEFINITIONS AND TERMINOLOGY

No suggested Supplementary Conditions in this Article.

ARTICLE 2—PRELIMINARY MATTERS

2.01 *Delivery of Bonds and Evidence of Insurance*

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

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

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

2.02 *Copies of Documents*

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

Owner shall furnish to Contractor **[one-copy]** printed copies of the Contract Documents (including one fully signed counterpart of the Agreement), and **[one copy]** in electronic portable document format (PDF).

2.06 *Electronic Transmittals*

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

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

1. *Basic Requirements*

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a. To the fullest extent practical, the parties agree to and will transmit and accept Electronic Documents in an electronic or digital format using the procedures described in this Protocol. Use of the Electronic Documents and any information contained therein is subject to the requirements of this Protocol and other provisions of the Contract.

b. The contents of the information in any Electronic Document will be the responsibility of the transmitting party.

c. Electronic Documents as exchanged by this Protocol may be used in the same manner as the printed versions of the same documents that are exchanged using non-electronic format and methods, subject to the same governing requirements, limitations, and restrictions, set forth in the Contract Documents.

d. Except as otherwise explicitly stated herein, the terms of this Protocol will be incorporated into any other agreement or subcontract between a party and any third party for any portion of the Work on the Project, or any Project-related services, where that third party is, either directly or indirectly, required to exchange Electronic Documents with a party or with Engineer. Nothing herein will modify the requirements of the Contract regarding communications between and among the parties and their subcontractors and consultants.

e. When transmitting Electronic Documents, the transmitting party makes no representations as to long term compatibility, usability, or readability of the items resulting from the receiving party's use of software application packages, operating systems, or computer hardware differing from those established in this Protocol.

f. Nothing herein negates any obligation 1) in the Contract to create, provide, or maintain an original printed record version of Drawings and Specifications, signed and sealed according to applicable Laws and Regulations; 2) to comply with any applicable Law or Regulation governing the signing and sealing of design documents or the signing and electronic transmission of any other documents; or 3) to comply with the notice requirements of Paragraph 18.01 of the General Conditions.

2. *System Infrastructure for Electronic Document Exchange*

a. Each party will provide hardware, operating system(s) software, internet, e-mail, and large file transfer functions ("System Infrastructure") at its own cost and sufficient for complying with the EDP requirements. With the exception of minimum standards set forth in this EDP, and any explicit system requirements specified by attachment to this EDP, it is the obligation of each party to determine, for itself, its own System Infrastructure.

1) The maximum size of an email attachment for exchange of Electronic Documents under this EDP is **[20]** MB. Attachments larger than that may be exchanged using large file transfer functions or physical media.

2) Each Party assumes full and complete responsibility for any and all of its own costs, delays, deficiencies, and errors associated with converting, translating, updating, verifying, licensing, or otherwise enabling its System Infrastructure, including operating systems and software, for use with respect to this EDP.

b. Each party is responsible for its own system operations, security, back-up, archiving, audits, printing resources, and other Information Technology ("IT") for maintaining

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operations of its System Infrastructure during the Project, including coordination with the party's individual(s) or entity responsible for managing its System Infrastructure and capable of addressing routine communications and other IT issues affecting the exchange of Electronic Documents.

c. Each party will operate and maintain industry-standard, industry-accepted, ISO-standard, commercial-grade security software and systems that are intended to protect the other party from: software viruses and other malicious software like worms, trojans, adware; data breaches; loss of confidentiality; and other threats in the transmission to or storage of information from the other parties, including transmission of Electronic Documents by physical media such as CD/DVD/flash drive/hard drive. To the extent that a party maintains and operates such security software and systems, it shall not be liable to the other party for any breach of system security.

d. In the case of disputes, conflicts, or modifications to the EDP required to address issues affecting System Infrastructure, the parties shall cooperatively resolve the issues; but, failing resolution, the Owner is authorized to make and require reasonable and necessary changes to the EDP to effectuate its original intent. If the changes cause additional cost or time to Contractor, not reasonably anticipated under the original EDP, Contractor may seek an adjustment in price or time under the appropriate process in the Contract.

e. Each party is responsible for its own back-up and archive of documents sent and received during the term of the contract under this EDP, unless this EDP establishes a Project document archive, either as part of a mandatory Project website or other communications protocol, upon which the parties may rely for document archiving during the specified term of operation of such Project document archive. Further, each party remains solely responsible for its own post-Project back-up and archive of Project documents after the term of the Contract, or after termination of the Project document archive, if one is established, for as long as required by the Contract and as each party deems necessary for its own purposes.

f. If a receiving party receives an obviously corrupted, damaged, or unreadable Electronic Document, the receiving party will advise the sending party of the incomplete transmission.

g. The parties will bring any non-conforming Electronic Documents into compliance with the EDP. The parties will attempt to complete a successful transmission of the Electronic Document or use an alternative delivery method to complete the communication.

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

1. Each party will acquire the software and software licenses necessary to create and transmit Electronic Documents and to read and to use any Electronic Documents received from the other party (and if relevant from third parties), using the software formats required in this section of the EDP.

a. Prior to using any updated version of the software required in this section for sending Electronic Documents to the other party, the originating party will first notify and receive concurrence from the other party for use of the updated version or adjust its transmission to comply with this EDP.

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2. The parties agree not to intentionally edit, reverse engineer, decrypt, remove security or encryption features, or convert to another format for modification purposes any Electronic Document or information contained therein that was transmitted in a software data format, including Portable Document Format (PDF), intended by sender not to be modified, unless the receiving party obtains the permission of the sending party or is citing or quoting excerpts of the Electronic Document for Project purposes.

ARTICLE 3—CONTRACT DOCUMENTS: INTENT, REQUIREMENTS, REUSE

No suggested Supplementary Conditions in this Article.

ARTICLE 4—COMMENCEMENT AND PROGRESS OF THE WORK

No suggested Supplementary Conditions in this Article.

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

No suggested Supplementary Conditions in this Article.

ARTICLE 6—BONDS AND INSURANCE

6.01 *Performance, Payment, and Other Bonds*

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

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

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

1. The correction period specified as one year after the date of Substantial Completion in Paragraph 15.08.A of the General Conditions is hereby revised to be **[2]** years after Substantial Completion.
2. After Substantial Completion, Contractor shall furnish a warranty bond issued in the form of EJCDC® C-612, Warranty Bond (2018). The warranty bond must be in a bond amount of **[15]** percent of the final Contract Price. The warranty bond period will extend to a date **[2]** years after Substantial Completion of the Work. Contractor shall deliver the fully executed warranty bond to Owner prior to or with the final application for payment, and in any event no later than 11 months after Substantial Completion.
3. The warranty bond must be issued by the same surety that issues the performance bond required under Paragraph 6.01.A of the General Conditions.

6.02 *Insurance—General Provisions*

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SC-6.02 Add the following paragraph immediately after Paragraph 6.02.B:

1. Contractor may obtain worker's compensation insurance from an insurance company that has not been rated by A.M. Best, provided that such company (a) is domiciled in the state in which the Project is located, (b) is certified or authorized as a worker's compensation insurance provider by the appropriate state agency, and (c) has been accepted to provide worker's compensation insurance for similar projects by the state within the last 12 months.

6.03 *Contractor's Insurance*

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

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

E. Contractor shall procure insurance coverage against claims that may arise from, or in connection with the performance of the work hereunder by the Contractor, his agents, representatives, employees or subcontractors. **Contractor shall meet the minimum Scope and Limits of Insurance as included in Appendix A.**

7.03 *Labor; Working Hours*

SC-7.03 Amend the first and second sentences of Paragraph 7.03.C to state "…all Work at the Site must be performed during regular working hours, **7:00 AM to 5:30 PM Monday through Friday**. Contractor will not perform Work on **Saturday, Sunday or any legal holiday**, without written authorization from the Owner's Representative."

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

1. Regular working hours will be.
2. Owner's legal holidays anticipated during duration of construction are: 4th of July, and Labor Day or as determined by the State of Connecticut or the Town of Darien.

7.10 *Taxes*

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

A. Owner is exempt from payment of sales and compensating use taxes of the State of Connecticut and of cities and counties thereof on all materials to be incorporated into the Work.

1. Owner will furnish the required certificates of tax exemption to Contractor for use in the purchase of supplies and materials to be incorporated into the Work.
2. Owner's exemption does not apply to construction tools, machinery, equipment, or other property purchased by or leased by Contractor, or to supplies or materials not incorporated into the Work.

ARTICLE 7—OTHER WORK AT THE SITE

No suggested Supplementary Conditions in this Article.

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ARTICLE 8—OWNER'S RESPONSIBILITIES

No suggested Supplementary Conditions in this Article.

ARTICLE 9—ENGINEER'S STATUS DURING CONSTRUCTION

10.03 *Resident Project Representative*

SC-10.03 Add the following new subparagraph immediately after Paragraph 10.03.A:

1. On this Project, by agreement with the Owner, the Engineer will furnish on a part-time basis Resident Project Representative to represent Engineer at the Site or assist Engineer in observing the progress and quality of the Work.

ARTICLE 10—CHANGES TO THE CONTRACT

No suggested Supplementary Conditions in this Article.

ARTICLE 11—CLAIMS

No suggested Supplementary Conditions in this Article.

ARTICLE 12—COST OF WORK; ALLOWANCES, UNIT PRICE WORK

No suggested Supplementary Conditions in this Article.

ARTICLE 13—TESTS AND INSPECTIONS; CORRECTION, REMOVAL, OR ACCCEPTANCE OF DEFECTIVE WORK

No suggested Supplementary Conditions in this Article.

ARTICLE 14—PAYMENTS TO CONTRACTOR, SET OFFS; COMPLETIONS; CORRECTION PERIOD

15.03 *Substantial Completion*

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

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

ARTICLE 15—SUSPENSION OF WORK AND TERMINATION

No suggested Supplementary Conditions in this Article.

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ARTICLE 16—FINAL RESOLUTIONS OF DISPUTES

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

17.02 *Arbitration*

A. All matters subject to final resolution under this Article will be settled by arbitration administered by the American Arbitration Association in accordance with its Construction Industry Arbitration Rules (subject to the conditions and limitations of this Paragraph SC-17.02). Any controversy or claim in the amount of $100,000 or less will be settled in accordance with the American Arbitration Association's supplemental rules for Fixed Time and Cost Construction Arbitration. This agreement to arbitrate will be specifically enforceable under the prevailing law of any court having jurisdiction.

B. The demand for arbitration will be filed in writing with the other party to the Contract and with the selected arbitration administrator, and a copy will be sent to Engineer for information. The demand for arbitration will be made within the specific time required in Article 17, or if no specified time is applicable within a reasonable time after the matter in question has arisen, and in no event will any such demand be made after the date when institution of legal or equitable proceedings based on such matter in question would be barred by the applicable statute of limitations.

C. The arbitrator(s) must be licensed engineers, contractors, attorneys, or construction managers. Hearings will take place pursuant to the standard procedures of the Construction Arbitration Rules that contemplate in-person hearings. The arbitrators will have no authority to award punitive or other damages not measured by the prevailing party's actual damages, except as may be required by statute or the Contract. Any award in an arbitration initiated under this clause will be limited to monetary damages and include no injunction or direction to any party other than the direction to pay a monetary amount.

D. The Arbitrators will have the authority to allocate the costs of the arbitration process among the parties, but will only have the authority to allocate attorneys' fees if a specific Law or Regulation or this Contract permits them to do so.

E. The award of the arbitrators must be accompanied by a reasoned written opinion and a concise breakdown of the award. The written opinion will cite the Contract provisions deemed applicable and relied on in making the award.

F. The parties agree that failure or refusal of a party to pay its required share of the deposits for arbitrator compensation or administrative charges will constitute a waiver by that party to present evidence or cross-examine witness. In such event, the other party shall be required to present evidence and legal argument as the arbitrator(s) may require for the making of an award. Such waiver will not allow for a default judgment against the non-paying party in the absence of evidence presented as provided for above.

G. No arbitration arising out of or relating to the Contract will include by consolidation, joinder, or in any other manner any other individual or entity (including Engineer, and Engineer's consultants and the officers, directors, partners, agents, employees or consultants of any of them) who is not a party to this Contract unless:

1. the inclusion of such other individual or entity will allow complete relief to be afforded among those who are already parties to the arbitration;

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2. such other individual or entity is substantially involved in a question of law or fact which is common to those who are already parties to the arbitration, and which will arise in such proceedings;

3. such other individual or entity is subject to arbitration under a contract with either Owner or Contractor, or consents to being joined in the arbitration; and

4. the consolidation or joinder is in compliance with the arbitration administrator's procedural rules.

H. The award will be final. Judgment may be entered upon it in any court having jurisdiction thereof, and it will not be subject to modification or appeal, subject to provisions of the Laws and Regulations relating to vacating or modifying an arbitral award.

I. Except as may be required by Laws or Regulations, neither party nor an arbitrator may disclose the existence, content, or results of any arbitration hereunder without the prior written consent of both parties, with the exception of any disclosure required by Laws and Regulations or the Contract. To the extent any disclosure is allowed pursuant to the exception, the disclosure must be strictly and narrowly limited to maintain confidentiality to the extent possible.

17.03 *Attorneys' Fees*

SC-17.03 Add the following new paragraph immediately after Paragraph 17.02. [Note: If there is no Paragraph 17.02, because neither arbitration nor any other dispute resolution process has been specified here in the Supplementary Conditions, then revise this to state "Add the following new Paragraph immediately after Paragraph 17.01" and revise the numbering accordingly].

17.03 *Attorneys' Fees*

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

ARTICLE 17—MISCELLANEOUS

No suggested Supplementary Conditions in this Article.

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Appendix A

The Contractor shall procure insurance coverage against claims that may arise from, or in connection with the performance of the work hereunder by the Contractor, his agents, representatives, employees or subcontractors. The Contractor shall keep all the required insurance in force continuously pursuant to their responsibility described in this contract, including any and all extensions. The Contractor shall pay all costs, premiums, and audit charges earned and payable under the required insurance.

For the purpose of this exhibit: the term "Contractor" shall also include their respective agents, representatives, employees or subcontractors; and the term "Town of Darien" (hereinafter called the "Town") shall include their respective officers, agents, officials, employees, volunteers, boards and commissions.

A. Minimum Scope and Limits of Insurance:

The insurance required shall be written for not less than the scope and limits of insurance specified in this exhibit, or required by applicable federal, state and/or municipal law, regulation or requirement, whichever coverage is greater. It is agreed that the scope and limits of insurance coverage specified in this exhibit are minimum requirements and shall in no way limit or exclude the Town from additional limits and coverage provided under the Contractor's policies.

1) **Commercial General Liability:**
$2,000,000 per occurrence, $3,000,000 aggregate each claim for bodily injury, personal injury, property damage, contractual liability and products /completed operations.

2) **Automobile Liability and Physical Damage Coverage:**
$500,000 combined single limit per occurrence for any auto, including statutory uninsured/underinsured motorists coverage and $1,000 medical payments. Policy to include collision and comprehensive coverage for any auto used for the purpose of this contract.

3) **Workers' Compensation:**
Coverage A / Workers' Compensation: statutory limits as required by the Labor Code of the State of Connecticut. Coverage B / Employer's Liability: limits of $100,000 each accident, $500,000 disease/policy limit, $100,000 disease/each employee. If the Contractor decides not to procure workers' compensation in accordance with Connecticut law, the Contractor agrees to comply with the Connecticut Workers' Compensation Act's (Act) requirements for withdrawing from the provisions of the Act, including, but not limited to, filing the appropriate notice of withdrawal with the commissioner. The Contractor is wholly responsible for taking the actions necessary to withdraw from the provisions of the Act. In lieu of procuring workers' compensation insurance and providing the Town with proof thereof, the Contractor agrees to hold the Town of Darien, the Darien Board of Education, their respective boards and commissions, officers, agents, officials, employees, servants, volunteers, contractors and representatives harmless from any and all suits, claims, and actions arising from personal injuries sustained by the Contractor or Contractor's employees during the course of the performance of this contract, however caused.

4) **Crime & Fidelity:**
Coverage A - $1,000,000 Employee Theft
Coverage B - $1,000,000 Forgery & Alteration
Coverage C - $1,000,000 Theft of Monies & Securities

Coverage D - $1,000,000 Robbery & Safe Burglary

The above named coverages shall provide third party coverage. The Contractor shall provide that the bonding company name the **Town of Darien as Joint Loss Payee** for purposes of this Contract.

5) **Professional Liability:**
$1,000,000 per occurrence, $3,000,000 aggregate each claim.

6) **Personal Property:**
"All risk" insurance on a replacement cost basis to cover the value of personal property belonging to the Contractor and others (including but not limited to the personal property of subcontractors) located on Town property while in use or in storage for the duration of the contract. Deductible not to exceed $1,000. The Contractor agrees that the Town will not assume any responsibility for the Contractor's personal property.

B. Additional Insured Endorsement:

All liability policies (with the exception of Worker's Compensation and Professional Liability) shall have the Town of Darien endorsed as an Additional Insured on a primary and non-contributing basis. With respect to liability arising out of or in connection with the activities performed by or on behalf of the Contractor; products and completed operations of the Contractor; premises owned, leased, or used by the Contractor; or automobiles owned, leased, hired or borrowed by the Contractor. The coverage shall contain no special limitations on the scope of protection afforded to the Town.

C. Acceptability of Insurers:

Contractor's policies shall be written by insurance companies licensed to do business in the State of Connecticut, with a Best's rating of no less than A:VII, or otherwise deemed acceptable by the Town's Administrative Officer.

D. Subcontractors:

Contractor shall include all subcontractors as insured under its policies or shall furnish separate certificates and endorsements for each subcontractor. All coverage for subcontractors shall be subject to all of the requirements stated herein.

E. Waiver of Subrogation:

Contractor shall provide that all insurance policies include a waiver of subrogation clause that states that it is agreed that in no event shall the insurance company have any right of recovery against the Town. When the Contractor is self-insured, it is agreed that in no event shall the Contractor have any right of recovery against the Town.

F. Claims-Made Form:

If the insurance coverage is underwritten on a claims-made basis, the retroactive date shall be prior to or coincident with the date of the contract. The certificate of insurance shall state the

retroactive date and that the coverage is claims-made. The Contractor shall maintain coverage for the duration of the contract and for the two (2) years following the completion of the contract. Evidence of such coverage shall be provided to the Town thirty (30) days prior to each policy expiration.

G. Aggregate Limits:

If a general aggregate is used, the general aggregate limit shall apply separately to the project or shall be twice the occurrence limit. All aggregate limits must be declared to the Town. It is agreed that the Contractor shall notify the Town with reasonable promptness with information concerning the erosion of limits due to claims paid under the general aggregate during the contract term. If the aggregate limit is eroded, the Contractor agrees to reinstate or purchase additional limits to meet the minimum limit requirements stated herein. The Contractor shall pay the premium.

H. Deductibles and Self-Insured Retentions:

Contractor must declare any deductibles or self-insured retentions to the Town. All deductibles or self-insured retentions are the sole responsibility of the Contractor to pay and/or to indemnify.

I. Notice of Cancellation or Nonrenewal:

For other than non-payment of premium, each insurance policy required by this exhibit shall be endorsed to state that coverage shall not be suspended, voided, cancelled, or reduced in coverage or in limits except after thirty (30) days prior written notice has been given to the Town. Ten (10) days prior written notice shall be given for non-payment of premium

J. Other Insurance Provisions:

The policies are to contain, or be endorsed to contain, the following provisions:

1) **Liability Coverage**

a) The Contractor's insurance coverage shall be primary insurance with respect to the Town. Any insurance or self-insurance maintained by the Town shall be excess of the Contractor's insurance and shall not contribute with it.

b) Coverage shall state that the Contractor's insurance shall apply separately to each insured against whom a claim is made or suit is brought.

c) Any failure to comply with the claim reporting provisions of the policy shall not affect coverage provided to the Town.

K. Verification of Coverage:

The Contractor shall provide the Town with certificates of insurance, declaration pages, policy endorsements or provisions confirming compliance with this exhibit before work commences. The certificates and endorsements for each insurance policy are to be signed by a person authorized by the insurer to bind coverage on its behalf. Renewal of expiring certificates shall be

filed thirty (30) days prior to expiration. The Town reserves the right to require complete, certified copies of all required policies, at any time.

All insurance documents required by this exhibit should be mailed to: Town of Darien, Administrative Officer, 2 Renshaw Road, Darien, CT 06820.

L. Failure to Purchase or Maintain Insurance:

If the Town or the Contractor is damaged by failure of the Contractor to purchase or maintain insurance required by this exhibit, the Contractor shall bear all reasonable costs including, but not limited to, attorney's fees and costs of litigation, properly attributable thereto.

SECTION 01 11 00

CONTROL OF WORK AND MATERIALS

PART 1 – GENERAL

Not Used.

PART 2 – PRODUCTS

Not Used.

PART 3 - EXECUTION

3.01 HAULING, HANDLING AND STORAGE OF MATERIALS:

A. Construction shall include all installation of materials as described in the plans and specifications which includes unloading, temporary storage, and protection of all delivered equipment on site until installed in final location shall be included in bid price.

1. The Contractor shall, at his own expense, handle and haul all materials furnished by him and shall remove any of his surplus materials at the completion of the work.

2. The Contractor shall provide suitable and adequate storage for equipment and materials furnished by him that are liable to injury and shall be responsible for any loss of or damage to any equipment or materials by theft, breakage, or otherwise.

3. All excavated materials and equipment to be incorporated in the Work shall be placed so as not to injure any part of the Work or existing facilities and so that free access can be had at all times to all parts of the Work and to all public utility installations in the vicinity of the work. Materials and equipment shall be kept neatly piled and compactly stored in such location as will cause a minimum of inconvenience to public travel and adjoining owners, tenants and occupants.

4. The Contractor shall be responsible for all damages to the work under construction during its progress and until final completion and acceptance even though partial payments have been made under the Contract.

3.02 OPEN EXCAVATIONS (if required by work):

A. All open excavations shall be adequately safeguarded by providing temporary barricades, caution signs, lights and other means to prevent accidents to persons, and damage to property. The Contractor shall, at his own expense, provide suitable and safe means for completely covering all open excavations and for accommodating travel when work is not in progress.

B. The length of open trench will be controlled by the particular surrounding conditions but shall always be confined to the limits prescribed by the Owner's Representative.

C. If the excavation becomes a hazard, or if it excessively restricts traffic at any point, then special construction procedures shall be taken, such as limiting the length of trench and prohibiting stocking excavated material in the street.

D. All excavations shall be completely closed at the end of each workday. Backfilling or use of steel plates of adequate strength to carry traffic shall be used.

3.03 MAINTENANCE OF TRAFFIC:

A. Contractor shall separate construction traffic as required from daily public traffic of the pathways and park areas unless permission to close the access is received in writing from the proper authority, all excavated materials and equipment shall be placed so that vehicular and pedestrian traffic may be safely maintained at all times.

B. Nothing contained herein shall be construed as relieving the Contractor of any of his responsibilities for protection of persons and property under the terms of the Contract.

3.04 CARE AND PROTECTION OF PROPERTY:

The Contractor shall be responsible for the preservation of all public and private property, and shall use every precaution necessary to prevent damage thereto. If any direct or indirect damage is done to public or private property by or on account of any act, omission, neglect, or misconduct in the execution of the work on the part of the Contractor, such property shall be promptly restored by the Contractor, at his expense, to a condition similar or equal to that existing before the damage was done, to the satisfaction of the Owner's Representative.

3.05 PROTECTION AND RELOCATION OF EXISTING STRUCTURES AND UTILITIES:

A. All existing buildings, utilities, pipes, poles, wires, fences, curbings, property line markers and other structures which the Owner's Representative decides must be preserved in place without being temporarily or permanently relocated, shall be carefully supported and protected from damage by the contractor. Should such property be damaged, it shall be restored by the Contractor, at no additional cost to the Owner.

B. The Contractor shall determine the location of all underground structures and utilities (including existing water services, drain lines, electrical lines, and sewers). Services to buildings shall be maintained, and all costs or charges resulting from damage thereto shall be paid by Contractor.

C. When fences interfere with the Contractor's operations, he shall remove and (unless otherwise specified) promptly restore them as directed by the Owner's Representative.

D. On paved surfaces the Contractor shall not use or operate tractors, bulldozers, or other power-operated equipment with treads or wheels which are shaped so as to cut or otherwise damage such surfaces.

E. All property damaged by the Contractor's operations shall be restored to a condition at least equal to that in which it was found immediately before work was begun. Suitable materials and methods shall be used for such restoration.

F. Restoration of existing property and structures shall be carried out as promptly as practicable and shall not be left until the end of the construction period.

3.06 REJECTED MATERIALS AND DEFECTIVE WORK:

A. Materials furnished by the Contractor and condemned by the Owner's Representative as unsuitable or not in conformity with the specifications shall forthwith be removed from the work by the Contractor, and shall not be made use of elsewhere in the work.

B. Any errors, defects or omissions in the execution of the work or in the materials furnished by the Contractor, even though they may have been passed or overlooked or have appeared after the completion of the work, discovered at any time before the final payment is made hereunder, shall be forthwith rectified and made good by and at the expense of the Contractor and in a manner satisfactory to the Owner's Representative.

C. The Contractor shall reimburse the Owner for any expense, losses or damages incurred in consequence of any defect, error, omission or act of the Contractor or his employees, as determined by the Owner's Representative, occurring previous to the final payment.

3.07 SANITARY REGULATIONS:

Sanitary conveniences for the use of all persons employed on the work, properly screened from public observation, shall be provided in sufficient numbers in such manner and at such locations as may be approved. The contents shall be removed and disposed of in a satisfactory manner as the occasion requires. The Contractor shall rigorously prohibit the committing of nuisances within, on or about the work. Any employees found violating these provisions shall be discharged and not again employed on the work without the written consent of the Owner's Representative. The sanitary conveniences specified above shall be the obligation and responsibility of the Contractor.

3.08 SAFETY AND HEALTH REGULATIONS:

This project is subject to the Safety and Health regulations of the U.S. Department of Labor set forth in 29 CFR, Part 1926, and to the Connecticut Department of Labor Division of Occupational Safety and Health (CONN-OSHA). Contractors shall be familiar with the requirements of these regulations.

3.09 SITE INVESTIGATION:

The Contractor acknowledges that he has satisfied himself as to the conditions existing at the site of the work, the type of equipment required to perform this work, the quality and quantity of the materials furnished insofar as this information is reasonably ascertainable from an inspection of the site, as well as from information presented by the drawings and specifications made a part of this contract. Any failure of the Contractor to acquaint himself with available information will not relieve him from the responsibility for estimating properly the difficulty or cost of successfully performing the work. The Owner assumes no responsibility for any conclusion or interpretation made by the Contractor on the basis of the information made available by the Owner.

3.10 ELECTRIC SERVICE:

A. The Contractor shall make all necessary applications and arrangements and pay for all fees and charges for electrical energy for power and light necessary for the proper completion of this contract during its entire progress. The Contractor shall provide and pay for all temporary wiring, switches, connections, and meters.

B. There shall be sufficient electric lighting so that all work may be done in a workmanlike manner where there is not sufficient daylight.

3.11 HAZARDOUS WASTE:

Should the Contractor, while performing work under this contract, uncover hazardous materials, as defined in Connecticut Remediation Standard Regulations, it shall immediately notify the Owner’s Representative. The Contractor is not, and has no authority to act as, a handler, generator, operator or disposer of hazardous or toxic substances found or identified at the site, and the Owner shall undertake all such functions.

END OF SECTION

SECTION 01 12 16

SCOPE AND SEQUENCE OF WORK

PART 1 – GENERAL

1.01 WORK INCLUDED:

A. **PEAR TREE BEACH PARK IMPROVEMENTS**, shall include all demolition and installation work as specified in the contract drawings. Award of contract is anticipated to be on/around **October 9th, 2025**, commencing with the submittal phase of materials to be installed under said contract thru **November 3rd, 2025.**

Contractor shall be solely responsible for the entire installation of the work, complete. This includes but not limited providing all labor, tools, demolition required to install all of equipment supplied under Contract and any and all other incidental demolition and installation work as identified in the project drawings.

1.02 RELATED WORK:

A. SECTION 01 11 00 – CONTROL OF WORK AND MATERIALS

PART 2 - PRODUCTS

Not used.

PART 3 - EXECUTION

3.01 GENERAL:

A. The Contractor shall be responsible for scheduling its activities and the activities of any subcontractors involved, to meet the completion date, or milestones, established for the contract. Scheduling of the work shall be coordinated with the Owner and Owner's Representative.

B. The Construction Sequence Requirements shall be used by Contactor to form a complete schedule for the project, which shall be coordinated with the Owner and Owner's Representative. Prior to performing any work at the site, the Contractor shall submit a detailed plan to the Owner's Representative for review. The plan shall describe the proposed sequence, methods, and timing of the work.

3.02 CONSTRUCTION SEQUENCING REQUIREMENTS:

A. Construction shall commence promptly on or about **November 3, 2025** and be substantially complete by **May 1, 2026.**

B. **Dredging shall be completed and substantially complete prior to January 31st, 2026**

C. In-water Prohibited Periods – February 1st thru May 15th. and July 1st thru August 30th.

3.03 DREDGING REQUIREMENTS:

A. All dredging material shall be disposed of off-site per requirements of permits. All material must be transported via barges or dump scows. No material shall be dewatered or transported via land.

B. A pre- and post-dredge survey shall be submitted for review/approval by Owner's Representative per specifications.

END OF SECTION

SECTION 01 14 00

SPECIAL PROVISIONS

PART 1 - GENERAL

Not used.

PART 2 - PRODUCTS

Not used.

PART 3 - EXECUTION

3.01 WATER FOR CONSTRUCTION PURPOSES:

The Contractor may be allowed to use water for construction purposes. The express approval of the Owner shall be obtained before water is used. Waste of water by the Contractor shall be sufficient cause for withdrawing the privilege of unrestricted use. Should the contractor waste or misuse the water provided the Town of Darien, at their discretion, may charge for the water wasted at the current usage rates.

3.02 TEMPORARY RESTROOMS:

Contractor may provide temporary restrooms on-site within staging/storage area in a discreet location. **Facility must be locked daily when not in use, and is not permitted for use by the public without approval from the Owner.**

3.03 DIMENSIONS OF EXISTING STRUCTURES/SITE FEATURES:

Where the dimensions and locations of existing structures/site features are of critical importance in the installation or connections of new work, the Contractor shall verify such dimensions and locations in the field before the fabrication of any material or equipment that is dependent on the correctness of such information.

3.04 OCCUPYING PRIVATE PROPERTY:

The Contractor shall not enter upon nor occupy with men, equipment or materials any property outside of the Owner's property, except with the written consent of the property owner or property owner's agent. All access to site must be thru main park entrance, unless written approval in writing by Owner or adjacent landowners is granted.

3.05 EXISTING UTILITY LOCATIONS – CONTRACTOR'S RESPONSIBILITY:

The location of existing underground services and utilities shown on the drawings is based on available records. It is not warranted that all existing utilities and services are

shown, or that shown locations are correct. The Contractor shall be responsible for having the utility companies locate their respective utilities on the ground prior to excavating.

B. To satisfy the requirements of Connecticut law, the Contractor shall, at least 72 hours, exclusive of Saturdays, Sundays and holidays, prior to excavation in the proximity of telephone, gas, cable television and electric utilities, notify the utilities concerned by calling "CALL BEFORE YOU DIG" at telephone number: 1-800-922-4455.

C. The Contractor shall coordinate all work involving utilities and shall satisfy itself as to the existing conditions of the areas in which it is to perform its work. It shall conduct and arrange its work so as not to impede or interfere with the work of other contractors working in the same or adjacent areas.

3.06 COORDINATION OF WORK:

The Contractor shall be responsible for coordinating his own work as well as that of any subcontractors. He shall be responsible for notification of the Owner's Representative when each phase of work is expected to begin and the approximate completion date.

3.07 TIME FOR COMPLETION OF CONTRACT:

The time for completion of this contract is stipulated in the Form of/for General Bid. The Bidder shall base his bid on completing the proposed work by the completion date stipulated in Section 01 12 16, SCOPE AND SEQUENCE OF WORK.

3.08 CONTRACTOR'S REPRESENTATIVE:

The Contractor shall designate a representative who will be available to respond to emergency calls by the Owner at any time day and night and on weekends and holidays should such a situation arise.

3.09 HOURS OF CONSTRUCTION ACTIVITY:

The Contractor shall conduct all construction activity between **7:00 a.m. and 7:00 p.m., Monday through Saturday**. No construction work shall be allowed on Sundays, Holidays or restricted days as noted on the phasing plan without written authorization from the Owner.

END OF SECTION

SECTION 01 14 19.16

DUST CONTROL

PART 1 - GENERAL

1.01 DESCRIPTION:

A. This Section specifies requirements for controlling dust generated during work of this Contract. Work activities requiring special attention to dust control include earthwork demolition, stockpiling, compacting, loading and removal of demolition debris from the site, and earthwork.

B. The Contractor is responsible for control of dust at all times during work of this Contract, 24 hours per day, 7 days per week, including non-working hours, weekends, and holidays.

1.02 BASIS OF PAYMENT

A. The lump sum price for **Pear Tree Beach Park Improvements** shall constitute full compensation for furnishing all labor, materials, tools and equipment and constructing the project, complete as specified herein this.

PART 2 - PRODUCTS

2.01 DUST SUPPRESSION AGENTS:

A. Dust suppression wetting agents shall be water soluble, non-toxic, non-reactive, non-volatile, and non-foaming.

B. Soil stabilizer shall be a sprayable organic or inorganic tackifier.

2.02 BARRIERS, SCREENS, AND COVERS:

A. Wind screens shall be a durable fabric mesh of 50 percent porosity, attached to demolition site fence.

B. Wind barriers shall be solid wood fences, solid durable fabric attached to temporary site fence, or other solid barriers intended to block the passage of wind.

C. Covers for stockpiles shall be plastic tarps. Contaminated soil covers shall be 20-mil. polyethylene sheeting or 10-mil. nylon reinforced polyethylene sheeting. The stockpile shall be placed on 40 mil. polyethylene sheeting.

2.03 CALCIUM CHLORIDE:

A. Calcium chloride shall conform to the requirements of AASHTO-M 144, Type I or Type II and Specification for Calcium Chloride, ASTM D98. The calcium chloride shall be packaged in moisture proof bags or in airtight drums with the manufacturer, name of product, net weight, and percentage of calcium chloride guaranteed by the manufacturer legibly marked on each container.

B. Calcium chloride failing to meet the requirements of the aforementioned specifications or that which has become caked or sticky in shipment, may be rejected by the Owner's Representative.

2.04 WATER:

A. Water shall not be brackish and shall be free from oil, acid, and injurious alkali or vegetable matter.

PART 3 - EXECUTION

3.01 CONSTRUCTION SITE DUST CONTROL – GENERAL:

A. Wet suppression shall be used to provide temporary control of dust. Several applications per day may be necessary to control dust depending upon meteorological conditions and work activity. The Contractor shall apply wet suppression on a routine basis as necessary or required by the Owner's Representative, to control dust. At a minimum, wet suppression shall be applied to demolition debris, excavated material, aggregate piles, and exposed soils and dirt.

1. Wet suppression consists of the application of water or a wetting agent in solution with water. Ensure wetting agent is not used on plantable soils.

2. Wet suppression equipment shall consist of sprinkler pipelines, tanks, tank trucks, or other devices capable of providing regulated flow, uniform spray, and positive shut-off.

3. Water may be sprinkler applied with equipment including a tank with gauge-equipped pressure pump and a nozzle-equipped spray bar.

4. Water shall be dispersed through the nozzle under a minimum pressure of 20 pounds per square inch, gauge pressure.

5. The Contractor shall provide the necessary means to retain on-site all water runoff generated by dust control and dispose of such water in accordance with the requirements of the appropriate regulatory agencies. The Contractor shall be responsible for providing water, a means of disposal, necessary permits, and all appurtenances required to control dust.

B. Calcium chloride shall be used to control dust instead of wet suppression when freezing conditions exist. Calcium chloride shall be uniformly applied by a mechanical spreader at 1 ½ pounds per square yard, unless otherwise required by the Owner's Representative. Ensure vegetation or soil to be used for vegetation is not treated.

C. The use of petroleum products for dust suppression is prohibited in this Contract.

D. Provide wind screens and wind barriers in locations where they would be effective in minimizing wind erosion and spread of dust. Locations shall be submitted as part of the Contractor's Dust Control Plan. The Contractor shall keep wind screens and barriers in good repair for the life of the Contract.

E. The Contractor is responsible for daily clean-up of paved areas affected by the work of this Contract. A wet spray power vacuum street sweeper shall be used on paved areas. Dry power sweeping is prohibited.

3.02 CONTROL OF EARTHWORK DUST:

A. During batch drop operations (i.e., earthwork with front-end loader, clamshell bucket, or backhoe) the free drop height of excavated or aggregate material shall be reduced as much as practical to minimize the generation of dust.

B. To prevent spills during transport, freeboard space shall be maintained between the material load and the top of the truck cargo bed rail.

3.03 CONTROL OF STOCKPILE DUST:

A. The Contractor shall use the following methods to control dust and wind erosion of active and inactive stockpiles:

1. Wet suppression without wetting agent during active stockpile load-in, load-out, and maintenance activities.

2. Soil stabilizers applied to the surface of inactive stockpiles.

3. Polyethylene tarps on stockpiles shall be placed both below and on top of stockpiles, and secured with sandbags or an equivalent method to prevent the cover from being dislodged by the wind. The Contractor shall repair or replace covers whenever damaged or dislodged, at no additional cost to the Owner.

4. The tarps shall be bermed 12-inches high at all edges to prevent any infiltration of storm water or exfiltration of leachate.

B. The methods to be used shall be submitted to the Owner's Representative as part of the Dust Control Plan.

3.04 DEMOLITION DUST CONTROL MEASURES:

A. The Contractor shall use water sprinkling, temporary enclosures, and other suitable methods to limit dust and dirt rising and scattering in the air to the lowest practical level. Sufficient water shall be supplied for the cutting operations, demolition-related debris, and site compacting to meet Federal, State, and local air-quality regulations and to minimize dust during demolition.

B. Closed chutes shall be used for the handling of debris. Dropping or throwing of debris is prohibited.

C. Debris shall not be stockpiled. Debris shall be removed promptly from the site.

D. During transport of debris, the truck cargo area shall be securely covered.

END OF SECTION

SECTION 01 22 05

MEASUREMENT AND PAYMENT

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General Requirement Articles, General and Special Conditions, and Specifications and Permits apply to work of this section.

1.2 SCHEDULE OF VALUES

A. Coordination: Coordinate preparation of the Schedule of Values with preparation of Contractor's Construction Schedule.

1. Correlate line items in the Schedule of Values with other required administrative forms and schedules, including Application for Payment forms with Continuation Sheets Submittals Schedule and Contractor's Construction Schedule.

2. Submit the Schedule of Values to Owner’s Representative at earliest possible date but no later than seven days before the date scheduled for submittal of initial Applications for Payment.

3. Subschedules: Where the Work is separated into phases requiring separately phased payments, provide subschedules showing values correlated with each phase of payment.

B. Format and Content:

1. Provide at least one line item for each Schedule of Values

2. Identification: Include the name of the Project on the Schedule of Values.

3. Provide a breakdown of the Contract Sum in enough detail to facilitate continued evaluation of Applications for Payment and progress reports. Coordinate with the Project Manual table of contents. Provide several line items for principal subcontract amounts, where appropriate.

4. Round amounts to nearest whole dollar; total shall equal the Contract Sum.

5. For unit-price items, payment shall be based on the actual amount of work accepted and for the actual amount of materials in place, as shown by the final measurements. All units of measurement shall be standard United States convention as applied to the specific items of work by tradition and interpreted by the Owner’s Representative.

6. Provide a separate line item in the Schedule of Values for each part of the Work where Applications for Payment may include materials or equipment purchased or fabricated and stored, but not yet installed.
7. Provide separate line items in the Schedule of Values for initial cost of materials, for each subsequent stage of completion, and for total installed value of that part of the Work.
8. Allowances: Provide a separate line item in the Schedule of Values for each allowance. Show line-item value of unit-cost allowances, as a product of the unit cost, multiplied by measured quantity. Use information indicated in the Contract Documents to determine quantities.
9. Each item in the Schedule of Values and Applications for Payment shall be complete. Include total cost and proportionate share of general overhead and profit for each item.
    a. Temporary facilities and other major cost items that are not direct cost of actual work-in-place may be shown either as separate line items in the Schedule of Values or distributed as general overhead expense, at Contractor's option.
10. Schedule Updating: Update and resubmit the Schedule of Values before the next Applications for Payment when Change Orders or Construction Change Directives result in a change in the Contract Sum.

1.3 UNIT PRICE BID ITEMS

A. Lump Sum include:

1. Payment shall be made to the Contractor in accordance with accepted Progress Schedule and Schedule of Values on the basis of actual work completed.

B. Unit Prices include:

1. Defined work for each Unit Price Item which will provide a functionally complete Project when combined with all Unit Price Items. If there are specific work items which the Contractor believes are not identified in any Unit Price Item, but is required to provide a functionally complete Project, then the identified specific work items shall be included in the appropriate Unit Price Item.

2. Payment shall be based on the actual amount of work accepted and for the actual amount of materials removed, as shown by the final measurements.

3. All units of measurement shall be standard United States convention as applied to the specific items of work by tradition and interpreted by the Engineer.

4. After the work is completed and before final payment is made therefore, the Engineer will make final measurements to determine the quantities of various items of work accepted as the basis for final settlement.

1.4 SCOPE OF PAYMENT

A. The quantities to be measured under the various bid items will be those quantities of work completed in accordance with the Contract Drawings and Specifications. The methods of measurement will be as stated hereinafter for the individual bid items.

B. The unit or lump sum payment for all items in the bid proposal shall be full compensation for the work specified and shall include the cost of furnishing all supervision, materials, labor, tools, equipment, obtaining any/all additional permits and approvals, testing and surveys as required to perform all work specified in accordance with the Contract, and all work and expenses incidental to and necessary to complete the work in accordance with the drawings and specifications. Payment for Lump Sum Work covers all Work necessary to furnish, install and/or complete the following items. The methods of payment will be as stated hereinafter for the individual bid items.

C. Progress payment requests shall be submitted on a monthly basis.

D. Payment for equipment, materials and labor for items not included on the Bid or described in Article PAYMENT, herein, shall be considered incidental and no separate payment will be made.

E. In accordance with permits, dredging shall occur by mechanical means in the specific areas within Green Harbor as shown on the Contract Drawings.

1.5 ROCK EXCAVATION AND DISPOSAL:

A. Rock excavated and disposed of off-site by the Contractor shall be measured by the cubic yard.

B. Payment for this item includes rock excavation and disposal; furnishing and installing gravel borrow in its place, and providing all required documentation.

C. Only boulders and concrete structures greater than one cubic yard shall be included for measurement and payment.

D. Where rock is encountered, it shall be uncovered but not excavated until the Engineer has made measurements, unless, in the opinion of the Engineer, satisfactory measurements can be made in some other manner.

1.6 EARTHWORK:

A. Unless designated otherwise, earthwork shall not be separately measured for payment, but shall be considered incidental to construction of the project.

B. ADDITIONAL EARTHWORK BELOW NORMAL GRADE:

Additional earthwork necessary for excavation below the grade indicated on the drawings, if ordered by the Engineer, shall be measured per cubic yard and paid at a unit price. Payment shall cover both earth excavation and backfill with excavated material.

C. ADDITIONAL CRUSHED STONE:
Additional crushed stone shall be measured per cubic yard installed, as ordered by the Engineer, and shall be paid at a unit price.

1.7 SUPPORT OF EXCAVATION:

A. Unless otherwise indicated, the work of this section shall not be separately measured for payment, but shall be considered incidental to the project.

B. No payment shall be made under this item for trench boxes, sheeting or steel plates used at the Contractor's option in the course of the work.

1.8 DUST CONTROL (CALCIUM CHLORIDE):

A. Unless otherwise indicated, the work of this section shall not be separately measured for payment, but shall be considered incidental to the project.

1.9 ENVIRONMENTAL PROTECTION:

A. Unless otherwise indicated, the work of this section shall not be separately measured for payment, but shall be considered incidental to the project.

1.10 DEWATERING:

A. Unless otherwise indicated, the work of this section shall not be separately measured for payment, but shall be considered incidental to the project.

1.11 FIELD CONCRETE:

A. Unless otherwise indicated, the work of this section shall not be separately measured for payment, but shall be considered incidental to the project.

1.12 MOBILIZATION/DEMOBILIZATION

A Unless otherwise indicated, the work of this section shall not be separately measured for payment, but shall be considered incidental to the project.

1.13 WORK COVERED BY CONTRACT PRICE FOR DREDGING AND MARINE CONSTRUCTION:

A. MOBILIZATION & DEMOBILIZATION

This item includes all work associated with project preparations, submittals, procurement and assembly of all equipment, materials, supplies and labor, movement of equipment, accomplishing the work required by the Permits with respect to the protection of the environment, and bonds required for the dredging, transport, disposal, temporary facilities (if required) and completion of work not otherwise included in other bid items and upon completion of work as specified and/or directed, clean up of all work areas, removal of all equipment, materials and supplies from the work area upon project completion.

All costs in connection to all preparatory work for the project including materials and equipment to the project site, coordination and submittals as required, but not limited to obtaining any necessary permits and approvals for the work specified in accordance with the Contract; full reimbursement for the premiums actually paid for the payment and performance bonds and any other work that is necessary in advance of actual construction operations. Complete mobilization to the project site by the Contractor and all equipment necessary to complete the scheduled work as outlined in the Contract Drawings and specifications to the satisfaction of the Owner's Representative. Upon completion of the said work, demobilization shall include the complete removal of all equipment, plant and excess materials and clean-up of the site. It shall also include any restoration of structures damaged by the Contractor's operations to the satisfaction of the Owner's Representative. All work performed under this bid item will be measured and paid for on a LUMP SUM unit cost basis.

There will only be one mobilization and one demobilization paid. If for any other reason, the Contractor must shut down and remove his plant from the site, then re-mobilize, the Owner's Representative will not be responsible for payment of any additional costs associated with such work. If in the sole opinion of the Engineer, the Contractor's bid price for Mobilization appears unbalanced, the Owner's Representative may request that the Contractor provide a detailed breakdown of all mobilization costs. If the Contractor cannot justify mobilization costs based on standard cost accounting procedures, the Owner's Representative will only be obligated to make a mobilization payment equal to the accepted detailed costs, plus an amount of 20% for the Contractor's overhead and profit, with the remaining costs being paid at the conclusion of the project. The maximum allowable payment for mobilization shall be 60% of the Contractor's accepted Bid Item for Mobilization/Demobilization or as substantiated by accounting data as set forth herein. The remaining 40% or any remaining contract fund owing under the Contractor Bid Item for Mobilization/Demobilization shall be paid for Demobilization, and shall be paid upon complete demobilization from the site, which shall include all cleanup and restoration as set forth herein to the satisfaction of the Owner's Representative and in accordance with the Contract Documents. Payment for this item shall not exceed 25% of the total bid of this contract.

B. MECHANICAL DREDGING & DISPOSAL

This item includes the dredging and removal of sediments by mechanical methods to the maintenance limits/depths as shown on the Contract Drawings and authorized by permits including overdredge and sideslopes, installation, maintenance, and removal of silt curtains (if required), survey(s), field engineering, dredge positioning, calibration, anchoring, environmental protection, towing, equipment tracking, logging of dump scows, sediment disposal and all other incidentals related to dredging and disposal operations.

Material dredged by mechanical methods from within maintenance depths/areas shown on the Contract Drawings and as authorized by permits that is towed and disposed shall be measured and paid based upon the CUBIC YARDS (CY) removed by computing the volume between the bottom surface shown by soundings of the Owner's Representative Pre-Dredge Survey made before dredging, and the bottom surface shown by soundings of the Owner's Representative Engineer Post- Dredge Survey made as soon as practicable after the entire work specified has been completed within the limits of the project grade, less any deductions that may be required for dredging below the allowable overdredge depth.

a. Pre and Post-dredge payment surveys will be performed by the Owner's Representative shall be performed with Single Beam Echo-Sounder (SBES) survey system. SBES surveys for the project shall meet or exceed the most current U.S. Army Corps of Engineers (USACE) guidance. Data will be gathered using standard USACE procedures for Dredge Measurement & Payment Surveys for Maintenance work as established in Table 3-1 of the USACE manual. All surveys conducted by the Project Engineer will be performed with a 200 KHz single beam acoustic survey system (or approved equal). During survey events the proper survey settings shall be selected by confirming acoustic depths with a number of manual soundings performed as indicated in the USACE Hydrographic Survey manual. Measurement and payment will be based on the 200 KHz acoustic soundings.

b. The maps and/or drawings already prepared are believed to represent accurately conditions existing on the date shown on the contract drawing(s). Determination of quantities removed and the deductions made therefrom to determine quantities by place measurement to be paid in the area specified, after having once been made, will not be reopened except on evidence of collusion, fraud, or obvious error.

C. DEBRIS REMOVAL AND DISPOSAL

This item includes the collection, separation, screening, cleaning (including collection and disposal of resulting wastes from cleaning activity), storage and handling, and the removal from the site and proper disposal of debris recovered from the bottom and all floating debris which may include, but not be limited to, stone, concrete, timbers, fishing gear/lines and miscellaneous debris encountered in sediments.

All labor, equipment and materials required for the collection, separation, screening, cleaning (including collection and disposal of resulting wastes from cleaning activity),

storage and handling, and the removal from the site and proper for the proper offsite and upland disposal of any stone, concrete, timber, fishing gear and miscellaneous debris encountered shall be measured per TON disposed as per certified weight slips.

END OF SECTION

SECTION 01 33 23

SUBMITTALS

PART 1 - GENERAL

1.01 WORK INCLUDED:

A. The Contractor shall provide the Owner's Representative with submittals as required by the contract documents.

1.02 RELATED WORK:

A. Divisions 1 – 48 of these specifications that require submittals.

PART 2 - PRODUCTS

Not used.

PART 3 - EXECUTION

3.01 GENERAL:

A. As required by the General Conditions, Contractor shall submit a schedule of shop and working drawing submittals. (Refer to EXHIBIT 2 of SECTION 01 33 23 SUBMITTALS for a Preliminary Submittal Log).

B. The Contractor shall submit the shop and working drawing submittals either electronically or hard copy.

3.02 ELECTRONIC SUBMITTALS:

A. In accordance with the accepted schedule, the Contractor shall submit promptly to the **Owner's Representative by email (biggsd@wseinc.com)** a copy in Portable Document Format (PDF) of shop or working drawings required as noted in the specifications, of equipment, details and materials for this Contract.

B. Each electronic copy of the shop or working drawing shall be accompanied by the standard shop drawing transmittal form, included as Exhibit 1 of this section, on which is a list of the drawings, descriptions and numbers and the names of the Owner, Project, and Contractor.

C. The Contractor shall receive a shop drawing memorandum with the Owner's Representative approval or comments via email.

3.03 HARD COPY SUBMITTALS:

A. If deemed necessary, in accordance with the accepted schedule, the Contractor shall submit promptly to the Owner's Representative, by mail to (Weston & Sampson Engineers, Inc., One Winners Circle, Suite 130, Albany, New York 12205), one (1) copy each of shop or working drawings required as noted in the specifications, of equipment, details and materials for this Contract.

B. Each shipment of drawings shall be accompanied by the Owner's Representative (if applicable) standard shop drawing transmittal form on which is a list of the drawings, descriptions and numbers and the names of the Owner, Project, and Contractor.

3.04 SHOP AND WORKING DRAWINGS:

A. Shop and working drawings shall show the principal dimensions, weight, structural and operating features, space required, clearances, type and/or brand of finish of shop coat, grease fittings, etc., depending on the subject of the drawings. When it is customary to do so, when the dimensions are of particular importance, or when so specified, the drawings shall be certified by the manufacturer or fabricator as correct for this Contract.

B. All shop and working drawings shall be submitted to the Engineer by and/or through the Contractor, who shall be responsible for obtaining shop and working drawings from his subcontractors and returning reviewed drawings to them. All shop and working drawings shall be prepared on standard size, 24-inch by 36-inch sheets, except those, which are made by changing existing standard shop or working drawings. All drawings shall be clearly marked with the names of the Owner, Project, and Contractor to which the drawing applies, and shall be suitably numbered. Each shipment of drawings shall be accompanied by the Owner's Representative (if applicable) standard shop drawing transmittal form on which is a list of the drawings, descriptions and numbers and the names mentioned above.

C. Only drawings that have been prepared, checked and corrected by the fabricator should be submitted to the Contractor by his subcontractors and vendors. Prior to submitting drawings to the Owner's Representative, the Contractor shall check thoroughly all such drawings to satisfy himself that the subject matter thereof conforms to the Contract Documents in all respects. Shop drawings shall be reviewed and marked with the date, checker's name and indication of the Contractor's approval, and only then shall be submitted to the Owner's Representative. Shop drawings unsatisfactory to the Contractor shall be returned directly to their source for correction, without submittal to the Owner's Representative. Shop drawings submitted to the Owner's Representative without the Contractor's approval stamp and signature will be rejected. Any deviation from the Contract Documents indicated on the shop drawings must be identified on the drawings and in a separate submittal to the Owner's Representative, as

required under subsection 6.17 Shop Drawings and Samples; D. Submittal Procedures, Paragraph 3 of the 1996 General Conditions.

D. The Contractor shall be responsible for the prompt submittal and resubmittal, as necessary, of all shop and working drawings so that there will be no delay in the work due to the absence of such drawings.

E. The Owner's Representative will review the shop and working drawings as to their general conformance with the design concept of the project and general compliance with the information given in the Contract Documents. Corrections of comments made on the drawings during the review do not relieve the Contractor from compliance with requirements of the Contract Documents. The Contractor is responsible for: confirming and correlating all quantities and dimensions; selecting fabrication processes and techniques of construction; coordinating his work with that of all other trades; and performing his work in a safe and satisfactory manner. The review of the shop drawings is general and shall not relieve the Contractor of the responsibility for details of design, dimensions, code compliance, etc., necessary for interfacing with other components, proper fitting and construction of the work required by the Contract and for achieving the specified performance. The Owner's Representative will review submittals two times: once upon original submission and a second time if the Owner's Representative requires a revision or corrections. The Contractor shall reimburse the Owner amounts charged to the Owner by the Owner's Representative for performing any review of a submittal for the third time or greater.

F. With few exceptions, shop drawings will be reviewed and returned to the Contractor within 30 days of submittal.

G. No material or equipment shall be purchased or fabricated especially for this Contract nor shall the Contractor proceed with any portion of the work, the design and details of which are dependent upon the design and details of equipment or other features for which review is required, until the required shop and working drawings have been submitted and reviewed by the Owner's Representative as to their general conformance and compliance with the project and its Contract Documents. All materials and work involved in the construction shall then be as represented by said drawings.

H. Two copies of the shop and working drawings and/or catalog cuts will be returned to the Contractor. The Contractor shall furnish additional copies of such drawings or catalog cuts when he needs more than two copies or when so requested.

3.05 SAMPLES:

A. Samples specified in individual Sections include, but are not necessarily limited to, physical examples of the work such as sections of manufactured or fabricated work, small cuts or containers of materials, complete units of repetitively-used products, color/texture/pattern swatches and range sets, specimens for

coordination of visual effect, graphic symbols, and units of work to be used by the Owner's Representative or Owner for independent inspection and testing, as applicable to the work.

B. The number of samples submitted shall be as specified. Submittal and processing of samples shall follow the procedures outlined for shop and working drawings unless the specifications call for a field submittal or mock-up.

C. Acceptance of samples will be acknowledged via a copy of the transmittal noting status. When samples are not acceptable, prompt resubmittal will be required.

3.06 OPERATING AND MAINTENANCE MANUALS AND SPARE PARTS LISTS:

A. Where reference is made in technical specification sections to operating and maintenance manuals and/or spare parts lists, the Contractor shall submit four copies to the Engineer for review in accordance with the instructions furnished under "Shop and Working Drawings." If the submittal is complete and does not require any changes, an acknowledgement (copy of transmittal) will be returned noting status. If the submittal is incomplete or does require changes, corrections, additions, etc., two copies of the submittal will be returned with a copy of transmittal noting status. Four copies of the final operating and maintenance manuals and/or spare parts list shall be delivered to the Owner's Representative prior to or with the equipment when it is delivered to the job site. For systems requiring field adjustment and balancing, such as heating and ventilating, the Contractor shall submit separate test results and adjustment data on completion of the work, to be incorporated into the system manual.

B. The information included in the manual shall be as described in the specification sections, but as a minimum shall contain clear and concise instructions for operating, adjusting, lubricating and maintaining the equipment, an exploded assembly drawing identifying each part by number and a listing of all parts of the equipment, with part numbers and descriptions required for ordering spare parts. Spare parts lists shall include recommended quantity and price.

C. Operating and maintenance manuals shall be in durable loose-leaf binders, on 8½-inch by 11-inch paper, with diagrams and illustrations either on 8½-inch by 11 inch or multiple foldouts. The instructions shall be annotated to indicate only the specific equipment furnished. Reference to other sizes or models of similar requirement shall be deleted or neatly lined out.

END OF SECTION

EXHIBIT 1 TO SECTION 01 33 23 SUBMITTALS

SHOP DRAWING TRANSMITTAL FORM

Shop Drawing Transmittal

Weston & Sampson

Instruction for Preparing Transmittal

No action will be taken on any item unless accompanied by this form.
TRANSMITTAL NOS. to be consecutive (1, 2, 3, etc.).
Each resubmittal of same item shall use same number with suffix letter (A, B, etc.).
SPEC. SECT. NO: Only one spec. section no. to each transmittal.
DESCRIPTION: Complete identification of document or group of documents.
SOURCE: Originator of document(s) being submitted.

DRAWING NO: Identification of document(s).
CONTRACT DRAWING REFERENCE: Contract drawing number(s) showing details of document(s).
SPECIAL INSTRUCTIONS: Special cases and emergencies, changes in distribution and special handling requests, etc. should be entered here.
SIGNATURE OF CONTRACTOR: Signature of individual who reviews and approves material prior to submittal to engineer.

THIS SECTION TO BE COMPLETED BY CONTRACTOR

TRANSM. NO.	SPEC. SECT. NO.	DATE	CONTRACTORS JOB NO.	W&S JOB NO.

PROJECT NAME & CONTRACT NO.	LOCATION

TO	FROM
Weston & Sampson Engineers, Inc. 1 Winners Circle, Suite 130 Albany, New York 12205	

						BY W&S	
ITEM NO.	DESCRIPTION	SOURCE	DRAWING NO. CATALOG NO. BROUCHURE, ETC	NO. OF COPIES	CONTRACT DRAWING REF.	ACTION CODE	REVIEWED BY
1							
2							
3							
4							

THIS CERTIFIES THAT ALL ITEMS SUBMITTED HEREWITH HAVE BEEN CHECKED BY THE CONTRACTOR, ARE IN CONFORMANCE WITH THE REQUIREMENTS OF THE CONTRACT DOCUMENTS, EXCEPT AS NOTED, AND ARE APPROVED BY THE CONTRACTOR FOR THIS PROJECT.	SIGNATURE & TITLE	

THIS SECTION TO BE COMPLETED BY W&S

ACTION CODE:
1. NO EXCEPTIONS TAKEN
2. MAKE CORRECTIONS NOTED
3. AMEND AND RESUBMIT
4. REJECTED- SEE REMARKS
5. ACKNOWLEDGEMENT
6. SUBMITTAL NOT REQUIRED, RETURNED WITHOUT REVIEW

a. INSTALLATION SHALL PROCEED ONLY WHEN ACTION CODE IS 1 OR 2
b. ACTION CODED 3 SHALL BE RESUBMITTED WITHIN TIME LIMIT SET IN CONTRACT
c. REVIEW DOES NOT RELIEVE CONTRACTOR FROM RESPONSIBILITY OF COMPLIANCE WITH ALL REQUIREMENTS OF THE CONTRACT DOCUMENTS

Weston & Sampson

EXHIBIT 2 TO SECTION 01 33 23 SUBMITTALS

SUBMITTAL / SHOP DRAWING LOG

PRELIMINARY SUBMITTAL LOG

ITEM NO.	DESCRIPTION	TYPE
A	Project Schedule	
B	Insurance	
1	Silt Fence / Hay Bale Barrier	Product Data
2	Asphalt Mix & Materials	Product Data
3	Aggregate Subbase Sieve Analysis	Product Data
4	Geotextile Fabrics	Product Data
5	Fine / Coarse Aggregate Sieve Analysis	Product Data
6	Beach Sand Sieve Analysis & Contaminate Data	Product Data
7	Concrete Storm Sewer Structures	Product Data / Shop Drawings
8	Storm Sewer Pipe & Fittings	Product Data
9	Water Service Pipe & Fittings	Product Data
10	Hose Bib Assembly	Product Data / Shop Drawings
11	Concrete Mix	Product Data
12	Gravel Pave Surfacing	Product Data
13	Dune Fencing	Product Data
14.a	Plant Schedule	Product Data / Nursery Tagging
14.b	Plant Warranty	Product Data
14.c	Tree Stakes	Product Data
15	Shredded Hardwood Mulch	Product Data
16	Plant Fertilizer	Product Data
17	Lawn Seed Mix	Product Data
18	Lawn Fertilizer	Product Data
19	Topsoil	Product Data
20	Soil Amendments	Product Data
21.a	Sign Post Assembly	Product Data
21.b	Parking Signage	Product Data
22	Asphalt Pavement Striping Paint	Product Data
23	Steel Bollards	Product Data / Shop Drawings
24	Electric Lawn Box	Product Data
25	Concrete Electric Handhole Structure	Product Data
26	Electrical Conduit	Product Data

Note: Contractor is required to provide submittal/shop drawings for any materials intended to be installed/used on project. The preliminary submittal log is intended to be a guide for the Contractor.

SECTION 01 35 29

HEALTH AND SAFETY PLAN

PART 1 - GENERAL

1.01 WORK INCLUDED:

A. Prior to the start of work on the site, Contractor shall prepare and submit a site-specific health and safety plan in accordance with paragraph 1.04 below.

1.02 REFERENCES:

A. OSHA 29 CFR 1910.120

1.03 PREPARATION OF A SITE-SPECIFIC HEALTH AND SAFETY PLAN:

A. Prior to the start of work on the Site, and no later than seven (7) calendar days after the date of the Notice to Proceed, Contractor shall prepare and submit an initial Site-specific Health and Safety Plan which includes consideration of all known and potential hazards at the Site. Work may not proceed at the project Site until the Contractor's Health and Safety Plan has been received by Engineer.

B. The Health and Safety Plan shall be submitted to the Engineer for review, before any work can be initiated. The Contractor is responsible for its workers' and Subcontractors' health and safety. Therefore, the Engineer will only review the Contractor's Health and Safety Plan for relevant content. The Contractor shall implement, maintain, and enforce these procedures during all phases of the Work associated with the description of work described in this Section.

C. The Health and Safety Plan shall include Site access provisions that effectively limit access to work areas to only those persons in full compliance with the requirements of the Occupational Safety and Health Administration (OSHA) 29 Code of Federal Regulations (CFR) 1910.120.

D. The Contractor shall be cognizant of the minimum health and safety plan standards set forth in 29 CFR 1910.120 and 29 CFR 1926. The Health and Safety Plan shall include, but not be limited to, the minimum requirements specified in Part 2 of this Section.

PART 2 – PRODUCTS

2.01 HEALTH AND SAFETY PLAN:

A. The health and safety plan shall include, but not necessarily be limited to the following:

1. Identification of Contractor's Site Safety Officer.

2. Identification of Hazards and Risks Associated with Project.

3. Contractor's Standard Operating Procedures, Including Personnel Training and Field Orientation.

4. Respiratory Protection Training Requirements.

5. Levels of Protection and Selection of Equipment Procedures.

6. Type of Medical Surveillance Program.

7. Personal Hygiene Requirements and Guidelines.

8. Zone Delineation of the Project Site.

9. Site Security and Entry Control Procedures.

10. Field Monitoring of Site Contaminants.

11. Contingency and Emergency Procedures.

12. Listing of Emergency Contacts.

PART 3 - EXECUTION

3.01 PERSONAL PROTECTIVE EQUIPMENT:

A. The personal protective equipment required to provide the appropriate level of dermal and respiratory protection shall be determined based on the results of continuous air monitoring performed by the Contractor and the standards set forth in the Contractor's health and safety plan. The Engineer may conduct duplicate air monitoring for quality control purposes. Modified Level D protection shall be the minimum requirement for all on-site personnel.

END OF SECTION

SECTION 01 45 16.13

CONTRACTOR QUALITY CONTROL

PART 1 - GENERAL

1.01 GENERAL PROVISIONS:

Attention is directed to the General Conditions of the Contract, all Divisions of the Specifications and the Drawings, all of which apply to this section.

1.02. WORK INCLUDED:

A. The scope of the work under this Specification section, without limiting the generality thereof, includes the furnishing of all labor, materials, equipment, services, and incidentals necessary to complete all of the work in accordance with the Contract Documents, which are intended to describe and provide for a finished piece of work.

B. The work includes the following, without limiting the generality thereof:

1. The making available to the Owner's testing laboratory any samples or specimens which the laboratory may require to perform quality control testing on concrete, fill materials, or other material as the Owner may elect.

2. The coordinating and scheduling of work and the giving of timely notice to afford the Owner's testing laboratory the opportunity to take samples and make observations or tests.

3. Provide safe access to the site or area for the Owner’s Representative to collect data, samples, and the like.

1.03. TESTING LABORATORY:

A. The Owner will select, engage, and pay for the services of an independent testing laboratory to perform structural tests on concrete, soil testing, compaction testing and such other materials as the Owner’s Representative may deem appropriate.

B. Retesting of materials which fail the original test shall be paid for by the Contractor.

PART 2 – PRODUCTS

Not used.

PART 3 – EXECUTION

Not used.

END OF SECTION

SECTION 01 56 26

TEMPORARY CHAIN LINK FENCE

PART 1 - GENERAL

1.01 WORK INCLUDED:

A. The Contractor shall provide all labor, materials and appurtenances necessary for the installation, maintenance and dismantling of 8-foot temporary fencing.

B. The Contractor shall be responsible for securing the site from trespassers. Existing fencing exists on portions of the site as shown on the Contract Drawings; it will be at the discretion of the Contractor to determine whether the existing fence is suitable for site safety and security. The Contractor shall install temporary fencing across lengths of damaged/unsuitable fencing to secure the site and prevent trespassers.

1.02 SUBMITTALS: IN ACCORDANCE WITH REQUIREMENTS OF GENERAL SPECIFICATIONS, SUBMIT THE FOLLOWING:

A. Manufacturers literature of the materials specified herein shall be submitted to the Engineer for review.

B. Shop drawings of the temporary chain link fence and gates shall be submitted to the Engineers for review.

1. Shop drawings shall indicate layout of temporary fencing, location and size of gates, existing pavement and roads, and other site specific conditions. Prepare drawing after site observation and verification of existing conditions.

PART 2 - PRODUCTS

2.01 TEMPORARY CHAIN LINK FENCING

A. Unless otherwise indicated, type of 8-foot temporary chain link fencing shall be Contractor's option. Following types are acceptable:

1. New materials or previously used salvaged chain link fencing in good condition.

2. Posts: Galvanized steel pipe of diameter to provide rigidity. Post shall be suitable for setting in concrete footings, driving into ground, anchoring with base plates, or inserting in precast concrete blocks.

3. Fabric: Woven galvanized steel wire mesh. Provide in continuous lengths to be wire tied to fence posts or prefabricated into modular pipe-framed fence panels.

B. Gates: Provide gates of the quantity and size indicated on the Contract Drawings or required for functional access to Site.

1. Fabricate of same material as used for fencing.

2. Vehicle gates:

a. Minimum width: 20 feet to allow access for emergency vehicles.
b. Capable of manual operation by one person.

PART 3 - EXECUTION

3.01 INSTALLATION

A. The fence and gates shall be erected by skilled mechanics in accordance with the recommendations of the manufacturer and these specifications. These specifications shall take precedence over the recommendations of the manufacturer if any discrepancy exists between them.

B. Posts

1. Maximum post spacing shall be 10-feet. Post spacing shall be uniform and posts shall be plumb.

2. Drive posts, set in holes and backfill, or anchor in precast concrete blocks.

3. For soft and unstable ground conditions, cast concrete plug around post.

4. Posts over pavement: Use steel post plates or precast concrete blocks.

5. Gate posts: Use bracing or concrete footings to provide rigidity for accommodating size of gate.

6. Temporary terminal posts shall be securely connected to existing fence posts to prevent site access/trespassing.

C. Securely attach wire fabric to posts. Maximum area of unbraced fence fabric shall not exceed 1,500 square feet.

D. Install with required hardware.

E. Fabric shall be stretched taut, with the bottom edge following the existing grade, and shall be a continuous mesh between terminal posts. Each span of fabric shall be attached independently at terminal posts. Where terminal posts do not have provisions for weaving fabric to posts, stretcher bars shall be placed through the end weave of the fabric and secured to the post with bar bands spaced not more than 15-inches apart on the post. Temporary terminal posts shall be secured to existing fence posts to prevent Site access/trespassing.

F. Fabric shall be attached with ties to line posts at intervals of not more than 14-inches (and to the top railing and braces at intervals not exceeding 24-inches).

G. The bottom tension wire shall be interlaced in the weave of the fabric, pulled taut and fastened to terminal posts.

3.02 MAINTENANCE AND REMOVAL

A. Maintain fencing in good condition. If damaged, immediately repair.

B. Remove temporary fencing upon completion of Work or when no longer required for security or control. Backfill holes and compact. Holes in pavement shall be surfaced to match existing paving. Repair damage caused by installation of temporary fencing.

END OF SECTION

SECTION 01 60 00

PLANT AND EQUIPMENT

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General Requirement Articles, General and Special Conditions and, Specifications and Permits apply to work of this section.

1.2 SUBMITTALS

A. The submittal requirements of this Specification shall be submitted in accordance with Section 01 33 00, Submittal Procedures and Section 35 30 01, Dredging, Dewatering, Handling, Transportation and Off-Site Disposal of Dredged Material.

B. Equipment and Materials List.

Submit a list of the dredge plant and associated equipment the Contractor intends to employ in the performance of the work of this Contract. Also, submit copies of all applicable inspections and certifications for the equipment to be utilized by the Contractor for the project. A valid crane operator's license must be submitted with equipment list/ certifications.

1.3 PLANT AND EQUIPMENT

A. Sufficient Capacity

The Contractor shall keep on the job sufficient plant and equipment to meet the requirements of the work. The plant and equipment shall be in satisfactory operating condition and be capable of safely and efficiently performing the Work. If the Contractor's plant and equipment is not sufficient and/or cannot remove any and all dredge materials from the project site whatsoever, the Contractor shall secure alternative equipment that will perform and provide to the Owner the final designed dredge prisms and depths as set forth herein by the specifications and Contract Drawings. The Contractor expressly agrees that any and all additional plant and equipment, including any and all mobilization, labor, overhead costs incurred as a result thereto, are included in the set unit price for the work as provided by the Contractor and that no additional compensation whatsoever will be paid by the

Owner for additional and or substituted equipment necessary for the Contractors performance and delivery of the project. The plant and equipment shall be subject to inspection by the Engineer at all times.

B. Minimum Capacity

The proposed plant and equipment identified on Contractor's Equipment List submitted with his/her bid proposal, is the minimum which the Contractor shall place and keep on the job unless otherwise determined by the Engineer. The listing of plant and equipment is not to be construed as an agreement on the part of the Owner that the equipment is adequate to perform the required Work. This list shall encompass only equipment proposed for the specific work within these specification in order to complete the work.

C. Reduction in Capacity

No reduction in the capacity of the plant and equipment employed on the Work site shall be made except by written permission of the Engineer. The measure of the capacity of the plant and equipment shall be its actual performance on the Work covered by this Contract.

D. Inspections and Certifications

Prior to commencement of work at the site, the Contractor shall submit to the Engineer for review, copies of all applicable inspections and certifications of plant and equipment as required by Federal, State and local laws and regulations. Such inspections and certifications shall be current and maintained in force for the duration of this contract. Each item of floating plant and equipment shall have on board a used oil management plan which details the intended disposal method for used oil. All equipment used in the prosecution of the work that uses fuel, oil or hydraulic fluid shall be inspected daily for leakage.

1.4 LICENSE REQUIREMENTS

Each vessel exceeding 26 feet in length, excluding sheer, which is used for pushing, hauling alongside, or any other method of towing, and not required by law to have a valid Certificate of Inspection by the U.S. Coast Guard, shall be under the actual direction and control of a person licensed for towing in the geographic area of the work by the U.S. Coast Guard. Licensed persons shall not perform command or other duties in excess of 12 hours in any consecutive 24-hour period except in an emergency.

1.5 PERMIT REQUIREMENTS

The Contractor's plant and equipment employed on the work shall meet the requirements of all applicable permits, certifications, and performance standards issued for the project as specified in these specifications.

1.6 HEIGHT LIMITATIONS

Height limitations for equipment shall conform to the Federal Aviation Administration (FAA) requirements, as applicable. The Contractor is responsible for coordinating these height limitations prior to commencing with the work. The Contractor shall be responsible for obtaining any/all FAA authorizations, as applicable, for compliance with all permit requirements.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION (NOT USED)

END OF SECTION

SECTION 01 71 23

FIELD ENGINEERING

PART 1 – GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General Requirement Articles, General and Special Conditions, and Specifications and Permits apply to work of this section.

1.2 SUMMARY

A. Engineering Services

The Contractor shall provide and pay for field engineering services required to perform all construction and dredge related activities, which may include, but not be limited, to the following:

1. Survey work required in execution of the project, except for surveys performed by the Engineer as indicated in these specifications.

2. Civil, geotechnical, structural, or any other professional engineering, laboratory or testing services, if so required to execute Contractor's construction methods.

3. Equipment positioning work required in the execution of the project, including dredge positioning, scow disposal positioning, barge and anchor positioning, and scow positioning.

B. Existing Control Points

The Engineer will furnish one (1) control point to the Contractor prior to the start of work. The Contractor shall be responsible for supplying additional control points as required in the performance of the work. In the instances where data is provided in differing vertical datum, it shall be the responsibility of the Contractor to ensure that the proper offsets are applied to the data to ensure that the project datum is utilized. All measured field locations shall be converted to Mean Low Water (MLW) prior to submittal. The Contractor shall then base all elevations when performing surveys on MLW.

C. Survey Datum

The project datum for this project shall be Mean Low Water (MLW). In the instances where data is provided based upon a different defined datum, it shall be the responsibility of the Contractor to ensure that the proper offsets are applied to ensure that work is performed in accordance with the project datum of MLW. All measured field locations shall be converted to MLW prior to submittal. The Contractor shall,

and the Engineer will then base all elevations/soundings when performing surveys on MLW.

All horizontal positions shall be reported in the NAD83 (2011) State Plane Connecticut Mainland coordinate grid system, in U.S. Survey feet. All coordinates and elevations shall be recorded to the nearest hundredth (100^{th}) of a foot. Soundings shall be rounded to one decimal place on plans.

1.3 SUBMITTALS

A. The following shall be submitted in accordance with Section 01 33 00, Submittal Procedures:

1. Field Data

The Contractor shall submit sufficient field data in a digital format with ASCII files containing Easting, Northing, and Elevations consistent with the datums established for the project along with any field survey notes. The field data submittal shall have enough detail to allow the Engineer to reproduce the Contractor's survey plot by referring only to this field data.

2. Survey Data

Submit all quality control survey data and plots. Plots shall include cross-sectional data that shows the latest survey, previous surveys, and design templates. Plots shall be at a sufficient density to indicate the general shape of the bottom along with a schedule for correcting deficiencies. Plots shall be submitted no more than 1 day after completion of field work.

3. Survey Personnel

The Contractor shall furnish a complete listing of the personnel who will perform the survey work required by the contract. The listing shall include a brief summary of the hydrographic survey

experience of each person. The list shall be submitted prior to the Pre-construction meeting. The survey personnel shall include, at a minimum, a licensed Professional Engineer (PE), licensed Professional Land Surveyor (PLS), or a THSOA Certified Hydrographer (CH) who shall be responsible for overseeing all surveys. The state of licensure shall be the state of Connecticut.

4. Charts

   Current and tide charts for the area(s) being dredged shall be submitted by the Contractor.

5. Site Specific Survey Plan and Quality Assurance/Quality Control (QA/QC) Document

   Submit survey reports and plans as specified below. Field surveys shall not begin until these plans are approved. No dredging shall be performed until the Contractor can confirm compliance with the requirements cited under Section 1.7 (Contractor Surveys), and the Owner, Engineer, and Contractor agree on pre-dredge survey quantities.

6. Survey Vessel Calibration Report

   After confirmation of vessel calibration, the Contractor shall submit a survey vessel calibration report that includes the results of all QA/QC testing.

7. Dredge Positioning Plan

   Submit a Dredge Positioning Plan as specified below.

8. Dredge Positioning Calibration Report

   After confirmation of dredge positioning system calibration, the Contractor shall submit a Dredge Positioning Calibration Report that includes the results of all QA/QC testing. No dredging shall be performed until the Contractor can confirm dredge positioning performance.

9. Scow Positioning Plan

   Submit a Scow Positioning Plan as specified below. This shall include positioning systems that will be utilized at the Contractor-selected disposal site.

10. Scow Positioning Calibration Report

After confirmation of scow positioning system calibration, the Contractor shall submit a Scow Positioning Calibration Report that includes the results of all QA/QC testing. No dredging shall be performed until the Contractor can confirm scow positioning performance.

1.4 EXAMINATION

A. Examination of Site and Verification of Conditions

1. Before starting operations, the Contractor shall examine site to become acquainted with conditions to be encountered.

2. The Contractor shall verify exact locations of all above and below ground and submerged utilities including sewers, water mains, gas mains, telephone/ communications lines, above or below ground and submerged electrical wires, other utilities, conduits and structures which may interfere with work.

B. Utility Company Contacts

Utility companies, appurtenances, and municipal and private utilities may be present in the work areas. It is the Contractor's sole responsibility to conduct its own due diligence concerning the presence of utilities within/in close proximity to the work area, and to protect all utilities from damage (of any kind) as a result of any of the Contractor's activities. The Contractor is responsible to contact "DIGSAFE" prior to dredging or excavation of any kind and to implement all necessary and appropriate safeguards to prevent damage or disturbance to buried utilities and appurtenances. The Contractor shall not assume that by contacting "DIGSAFE" prior to the start of work that it exonerates him/her from the responsibility of verifying any/all utilities within the project site/vicinity that could be impacted by dredging operations.

1.5 GENERAL SITE USE AND ACCESS

A. The Contractor shall confine construction operations to within the waterway limits indicated on the Contract Drawings and/or within limits approved by the Owner.

B. The Contractor shall place construction tools, equipment, materials, and supplies, so as to cause least possible damage to property and interference with traffic.

1.6 LAYOUT OF WORK

A. The Engineer will furnish one (1) control point to the Contractor prior to the start of construction. The Contractor shall supply any/all additional control points if deemed necessary for his/her proposed means and methods and as may be required in the performance of the dredging. Any new control produced for the project must be submitted to the Engineer on a benchmark sheet and stamped by PE (elevations only) or PLS licensed in the state of Connecticut.

B. From the control points that have been established for the project, the Contractor shall lay out the dredging work by establishing all lines and grades at the site necessary to control work and shall be responsible for all measurements that may be required for the execution of the work as prescribed in the specifications and/or shown on the Contract Drawings. All field notes, sketches, recordings, and computations made by the Contractor shall be available at all times during the progress of the work for ready examination by the Engineer.

C. The Contractor shall furnish, at his/her own expense, all such stakes, spikes, steel pins, templates, platforms, equipment, tools and material and all labor as may be required in laying out any part of the work from the control points provided by the Owner or Engineer. It shall be the responsibility of the Contractor to maintain and preserve all stakes and other markers established until authorized to remove them. If the control point(s) provided at the site by the Owner or Engineer are destroyed by or through the activities of the Contractor (prior to their authorized removal), said point shall be replaced by the Owner or the Engineer. The expense of replacement will be deducted from any amount due, or which may become due to the Contractor. The Engineer may require Work be suspended at any time when horizontal and vertical control points established at the site by the Contractor are not reasonably adequate to allow for the periodic checking the Work. Such suspension will be withdrawn upon proper replacement of the control points.

D. Prior to the commencement of work, the Contractor shall submit details of his/her proposed dredge positioning system for the Engineer's review. All dredge control and positioning for this project shall be accomplished by means of a dredge mounted global positioning system (GPS) controlled positioning system. The dredge positioning shall consist of, as a minimum, a differential GPS positioning system, an on-board computer with Microsoft Windows 10 or higher, an azimuth determination system (GPS or electronic compass), a bucket depth sensing device, and positioning system software. The Contractor shall provide confirmation that adequate control during construction is provided so that required depths are achieved, but excess dredging beyond authorized depths/limits is

avoided/minimized.

The dredge operator shall have a full "heads up" computer monitor display within easy view for control of Work. The software shall be "DredgePack®" package as manufactured by Hypack® or approved equal. Positioning systems shall be capable of producing mean horizontal deviations of 2.0 feet or less and maximum vertical deviation of 0.20 feet. The dredge operator's display shall have an outline of the project area and the limits of dredge areas. The dredge areas shall be sectioned into individual cuts which represent the real swing width of the dredge. The true horizontal position of the dredge bucket shall be visible in real time on the display, and the depth of the bucket shall also be displayed. The on-board computer shall have the ability to store real-time dredge positions. This data shall be made available to the Engineer from time to time on digital format and may be requested from time to time.

The Contractor shall provide a Dredge Positioning Calibration Report prior to the commencement of dredging. The Contractor shall demonstrate to the Engineer that the positioning system has been properly calibrated and shall proof all azimuth and offsets by checking against the stationary position of the dredge utilizing conventional land survey methods. If during dredging operations, the system should malfunction, dredging operations shall cease until such a time that the system is repaired and back in proper operation.

The Contractor shall have an individual on site at least four (4) hours per day, who has at least five (5) years of experience in the setup, operation, calibration, and maintenance of on-board marine electronic position systems. This individual shall have a working knowledge of electronic positioning systems and accepted survey procedures and practices. Appropriate documentation (i.e., resume) shall be provided to the Engineer to confirm that the selected individual responsible for dredge positioning meets the minimum requirements stated herein.

No dredging work will be allowed to commence until the Contractor's dredge positioning system is approved by the Engineer, operational, calibrated and properly functioning.

E. Contractor shall set a minimum of one standard tide board within clear site of the dredge operator throughout the duration of construction. Tide board elevations will be set to proper elevations by surveying using only previously established project vertical control. All tide boards will be set to the correct reference datum for this project, MLW. Tide boards shall be maintained for the duration of the dredging project. The Contractor, at his/her discretion, may also use digital tide recorder; however, use of a digital tide recorder shall not replace the tide board. Current and tide charts for the area(s) being dredged for the duration of the project shall be

submitted by the Contractor and shall be available on site.

F. Prior to the commencement of dredged material disposal with scows, the Contractor shall submit details of their proposed Scow Positioning Plan for the Engineer's review. All scow control and positioning for this project shall be accomplished by means of scow mounted GPS controlled positioning system. The scow positioning shall consist of, as a minimum, a differential GPS, an on-board computer with Microsoft Windows 10 or higher, an azimuth determination system (GPS or electronic compass), a scow draft sensing device, and positioning system software. The Contractor shall provide confirmation that they provide adequate control during scow dumping operations so that there is a controlled release of the sediments at the specified locations.

The Contractor shall provide, in the Scow Positioning Plan, the means and methods that ensure that the disposal of sediments is done in a controlled manner.

1.7 CONTRACTOR SURVEYS

A. Personnel

The Contractor survey work to be performed under this contract shall be accomplished by, reviewed, and approved by a PE or PLS registered in the state of Connecticut, or CH familiar with and having a minimum of five (5) years of professional experience with hydrographic surveys.

B. Site Specific Survey Plan and QA/QC Document

To ensure that the method of surveying is acceptable, the Contractor shall submit a detailed, Site Specific Survey Plan and QA/QC document providing a description of proposed survey method(s). This plan will include a description of all equipment, personnel, and specific methods that will be employed to ensure surveys are of the highest quality. Prior to the start of any Work at the site, the Contractor shall prepare a plan describing the method(s) to be used:

1. to complete the layout and sequencing of the work
2. to conduct hydrographic surveys
3. to confirm data quality for all submitted data

C. Quality Control Surveys

The Contractor shall examine his/her dredging operations by conducting hydrographic surveys on a weekly basis, at a minimum, for all work. Surveys shall be performed upon completion of separable portions of the work, if applicable, and upon completion of the entire work. The

Contractor shall prepare survey maps based on the results of these surveys. These maps shall be used to satisfy the Contractor of the effectiveness of dredging operations. Particular attention shall be directed to attainment of contract depth and the reduction of dredging beyond the allowable over-dredge template as shown on the Contract Drawings. The Contractor shall utilize the surveys to compare actual progress and in-place quantities dredged with scheduled progress. Contractor surveys will not be used for final payment or acceptance.

D. Method of Surveying

1. Bathymetric Surveys

Pre- or post-dredge verification surveys performed by the Contractor shall be performed by a Connecticut Registered Professional Engineer (PE), Professional Land Surveyor (PLS) or THSOA Certified Hydrographer (CH).

Verification surveys shall be performed by an individual with at least five (5) years of experience in hydrographic surveying in a vessel properly outfitted for hydrographic surveying. Data will be gathered using standard USACE procedures for Dredge Measurement & Payment Surveys for New Work or Rock Cuts as established in Table 3-1 of the USACE manual.

All verification surveys shall be performed with a 200kHz Single Beam acoustic survey system (or approved equal). Sounding lines shall be made perpendicular to slopes where available. During survey events the proper survey settings shall be selected by confirming acoustic depths with a number of manual soundings performed as indicated in the USACE Hydrographic Survey Manual. Minimal equipment shall include Differential GPS-sub meter positioning system, on-board computer, digital survey grade fathometer with 200kHz transducer and survey software such as Hypack® .

Within 24 hours, the Contractor shall submit each verification survey to the Engineer for review, along with a plan and schedule for correcting any unsatisfactory work. The submittal package shall include at a minimum, copies of the fathometer charts, a plot of the soundings, and all digital data reduced to ASCII format.

Final grades for Contractor payment shall be determined by comparing the pre- dredge and the post-dredge surveys as performed by the Engineer. Payment quantities will be based on the 200kHz acoustic soundings.

For each verification survey performed by the Contractor, the following QA/QC checks will be performed:

a. Control points used for the surveys shall be occupied and the positions recorded to confirm that the positioning system shall be capable of meeting the requirements as described by the USACE hydrographic survey manual. Positions and elevations will be recorded using real-time kinematic (RTK) level DGPS equipment.

b. Sound velocity profiles shall be performed at a minimum before and after survey events. In areas of potential variable sound velocity additional profiles may be required.

c. At the start of each day's soundings, following any lengthy breaks and at the end of the day's soundings, a bar check shall be taken. A record showing the results of the bar checks shall be provided with the field notes to the Engineer.

d. Due to the potential for fluidized mud, during each bar check, a manual sounding at the transducer shall be taken and compared to the measurements of the sonar as an overall blunder check.

After completion of the Contractor's verification survey, the results will be plotted and reviewed by the Contractor to ensure that all Work was completed in accordance with Contract specification and drawings. After review, the data will be submitted to the Engineer in digital ASCII format and as a PDF drawing. If deficiencies are noted, re-survey of area(s) after correction of deficiencies will be required to assure that correction has been achieved. Upon completion of the project, sufficient surveys will have been performed and plots submitted to assure that the proper depth has been achieved throughout the entire project.

2. Vessel Calibration

Prior to the review of any verification surveys by the Engineer, the Contractor shall provide the results of all vessel calibrations to the Engineer. This shall include the results of: a bar check, RTK GPS performance, and sound velocity profiles.

1.8 QUANTITY SURVEYS

A. Contractor Quantity Surveys

The Contractor shall perform independent surveys in order to estimate dredge quantities. The data derived from Contractor survey(s) shall only be used for estimating purposes and shall not be considered the Survey of Record. The bathymetric survey data will be used to develop digital terrain

models that will be used for volumetric calculations. All Contractor payment will be based on the survey(s) performed by the Owner's Engineer.

B. Payment Quantity Surveys

The Owner's Engineer will conduct the original/initial baseline (pre-dredge) and final (post-dredge) survey(s) for the project and make all payment quantity computations based on these surveys. The surveys will be performed at no expense to the Contractor, except as noted in Section 1.9.B (Final Examination and Acceptance). All payment surveys will be performed using 200kHz Single Beam survey equipment. The Contractor shall give a minimum of three (3) days' notice before completion of work requiring a post-dredge survey. A minimum of two (2) days (48 hours) will be required for the Owner's Engineer to complete post-dredge survey(s) at the site and another 2 days (48 hours) for calculation of quantities removed and verification of completion of work.

Submission of all Contractor QC survey data, including plots, is required prior to performance of final examination and acceptance surveys by the Owner's Representative. The results of QC surveys should be utilized by the Contractor to ensure that work was performed in accordance with contract requirements. Final acceptance by the Engineer will be in accordance with Section 01 22 05, Measurement and Payment of these specifications.

The Contractor or his authorized representative will be notified when hydrographic surveys are to be performed by the Owner's Engineer, and he/she will be permitted to accompany the survey party. When the area is found to be in a satisfactory condition, it will be accepted finally. Should more than one (1) hydrographic post-construction surveys by the Owner's Engineer be necessary by reason of work for the removal of shoals disclosed at a prior survey, the cost of such second and any subsequent sounding or sweeping operations will be charged against the Contractor at the rate of $2,000.00 dollars per day for each day in which the Engineer's plant is engaged in hydrographic survey and/ or is enroute to or from the site or held at or near the said site for such operations.

The Engineer will not release any survey data or volume calculations prior to receiving a copy of the Contractors hydrographic survey base file as well as volume calculations for original/initial baseline (pre-dredge) and final (post-dredge) surveys.

C. Contractor Partial Payment Surveys

The Contractor shall conduct the surveys for any periods for which

progress payments are requested. The Contractor will make the computations based on these surveys. All surveys accomplished by the Contractor shall be conducted under the observation of the Engineer, unless the Engineer waives this requirement for each specific instance.

D. Survey Submittal

Promptly upon completing a survey, the Contractor shall furnish the originals of all plans, calculations, and all other records relating to the survey to the Engineer, who shall use them to determine the amount of progress payments. The Contractor shall retain copies of all such material furnished to the Engineer.

1.9 FINAL EXAMINATION AND ACCEPTANCE

A. Verification of Substantial Completion

Prior to final examination survey by the Owner's Engineer, the Contractor shall submit to the Engineer a full coverage Contractor examination survey demonstrating achievement of contract depth throughout the work area(s). The final examination survey will be used to confirm that the navigable depth has been attained throughout the project area by comparing the minimum value surface to the design template. The Contractor shall provide a minimum of 24-hour notice to the Engineer of the pending submittal. After examination of the Contractor's submittal, the Engineer may conduct an independent survey of the work area(s) for the purpose of confirmation of substantial completion of the work. Based on review of the Contractor's survey, the Engineer will make an assessment as to substantial completion of the work.

Results of the survey and the assessment relative to substantial completion will be made available to the Contractor within 24-hours of receipt of the Contractor's examination survey submittal. Verification of substantial completion of the Contractor's survey by the Engineer does not constitute the final examination survey as detailed in Paragraph B – Final Examination below.

B. Final Examination

As soon as practical after the completion of review of the Contractor's final examination survey that indicates substantial completion, the Owner's Engineer (or third party surveyor) will perform the final examination survey. Examinations by the Engineer will be made at the expense of the Owner. Should any shoals or other lack of contract depth (including the presence of debris above contract depth) be disclosed by this examination, the Contractor shall remove the debris or shoals (by dredging), at no

additional cost, or by otherwise removing the shoals or debris, as directed by the Engineer. The Contractor, or an authorized representative, will be notified if and when additional soundings are to be made by the Engineer. One individual will be allowed to accompany the survey party during the final examination survey(s). When the area is found to be satisfactorily cleared, it will be accepted finally. Should more than one final examination survey of an area be required, the cost of all additional surveys of that area will be deducted from amounts due or to become due the Contractor. These survey costs will be based upon a rate of $3,500.00 per day for each day in which the Engineer survey plant is engaged in surveying operations.

The Contractor shall allow sufficient time for the confirmation of dredging by the Engineer and any associated clean-up of areas to be performed within the established environmental windows for dredging activities. If it is determined that the Contractor has not satisfactorily completed/performed dredging to the required limits/depth shown on the Contract Drawings and the established dredge window closes, then Contractor will be responsible for returning the following season to complete all required dredging, at his own expense.

C. Final Acceptance

Final acceptance of the whole or any part of the Work, and the deductions or corrections of deductions made thereon will not be reopened after having once been made, except on evidence of collusion, fraud, or obvious error.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION (NOT USED)

END OF SECTION

SECTION 01 74 13

CLEANING UP

PART 1 - GENERAL

1.01 DESCRIPTION:

The Contractor must employ at all times during the progress of his work adequate cleanup measures and safety precautions to prevent injuries to persons or damage to property. The Contractor shall immediately, upon request by the Owner's Representative provide adequate material, equipment and labor to cleanup and make safe any and all areas deemed necessary by the Owner's Representative.

1.02 BASIS OF PAYMENT

The price for the contract shall constitute full compensation for furnishing all labor, materials, tools and equipment and constructing the project, complete as specified herein this section which shall be performed under the contract.

1.03 RELATED WORK

A. General Requirements in their entirety.

PART 2 - PRODUCTS

Not Used.

PART 3 - EXECUTION

2.01 DAILY CLEANUP:

A. The Contractor shall clean up, at least daily, all refuse, rubbish, scrap and surplus material, debris and unneeded construction equipment resulting from the construction operations and sweep the area. The site of the work and the adjacent areas affected thereby shall at all times present a neat, orderly and workmanlike appearance.

B. Upon written notification by the Owner's Representative, the Contractor shall within 24 hours clean up those areas, which in the Owner's Representative's opinion are in violation of this section and the above referenced sections of the specifications.

C. If in the opinion of the Owner's Representative, the referenced areas are not satisfactorily cleaned up, all other work on the project shall stop until the cleanup is satisfactory.

2.02 MATERIAL OR DEBRIS IN DRAINAGE FACILITIES:

A. Where material or debris has washed or flowed into or has been placed in existing watercourses, ditches, gutters, drains, pipes, structures, such material or debris shall be entirely removed and satisfactorily disposed of during progress of the work, and the ditches, channels, drains, pipes, structures, and work shall, upon completion of the work, be left in a clean and neat condition.

2.03 REMOVAL OF TEMPORARY EQUIPMENT:

A. On or before completion of the work, the Contractor shall, unless otherwise specifically directed or permitted in writing, shall remove all temporary works, tools and machinery or other construction equipment furnished by him; shall remove all rubbish from any grounds which he has occupied; shall remove silt fences and hay bales used for trapping sediment; and shall leave the roads and all parts of the property and adjacent property affected by his operations in a neat and satisfactory condition.

2.04 RESTORATION OF DAMAGED PROPERTY:

A. The Contractor shall restore or replace, when and as directed, any property damaged by his work, equipment or employees, to a condition at least equal to that existing immediately prior to the beginning of operations. To this end the Contractor shall do as required all necessary site and landscaping work. Materials, equipment, and methods for such restoration shall be as approved by the Owner's Representative.

2.05 FINAL CLEANUP:

A. Before acceptance by the Owner, the Contractor shall perform a final cleanup to bring the construction site to its original or specified condition. This cleanup shall include removing all trash and debris off the premises. Before acceptance, the Owner's Representative shall approve the condition of the site.

END OF SECTION

SECTION 01 78 00

PROJECT CLOSEOUT

PART 1 - GENERAL

1.01 WORK INCLUDED:

A. This Section covers administrative and procedural requirements for closing out the project, including, but not limited to:

1. Project as-built documents

2. Checkout and Certification

3. Final Cleaning

4. Substantial Completion

5. Final Completion

6. Correction/Warranty Period

B. Closeout checklist to be completed by the Owner's Representative.

1.02 RELATED WORK:

A. General Requirements in their entirety.

B. Section 01 74 13, CLEANING UP

C. Technical Specifications within the Project Drawings.

1.03 AS-BUILT DOCUMENTS:

A. Contractor shall maintain on site, separate from the documents used for construction, one set of the documents listed below, and as construction progresses, shall legibly record on these documents all changes made during construction.

1. Contract Drawings.

2. Specifications.

3. Addenda.

4. Change Orders and other Modifications to the Contract.

5. Reviewed shop drawings, product data, and samples.

6. Written interpretations and clarifications.

7. Field Orders.

8. Field test reports properly verified.

B. The completed set of as-built documents shall be submitted to the Owner's Representative with the final Application for Payment.

1.04 CHECKOUT AND CERTIFICATIONS:

A. Prior to checkout and certifications, the following tasks shall be completed:

1. Construction shall be complete. For this purpose, completion of construction is defined as follows:

a. The Contractor has completed construction and erection of the work in conformance with the Contract Drawings and Specifications.

2. All shop drawings shall have final approval.

3. All shop tests shall be complete and approved test results submitted to the Owner's Representative.

1.05 FINAL CLEANING:

A. Complete the following cleaning operations before requesting inspection for Certification of Substantial Completion.

1. Clean the site, including landscape development areas of rubbish, litter and other foreign substances. Sweep paved areas broom clean; remove stains, spills and other foreign deposits. Rake grounds that are neither paved nor planted, to smooth, even textured surfaces.

2. Remove waste and surplus materials, rubbish, fencing equipment, temporary utilities and construction facilities from the site, unless otherwise required by the Owner's Representative.

3. Comply with requirements of Section 01 74 13 CLEANING UP.

1.07 SUBSTANTIAL COMPLETION:

A. Substantial Completion is officially defined in the General and Supplementary Conditions. The date of substantial completion will be certified by the Owner's Representative. This date will not be certified until the following requirements have been satisfied by the Contractor:

1. All Contract requirements are coordinated into a fully operational system. All individual units of equipment and treatment are fully operative and performing at specified efficiencies. Where efficiencies are not specified, performance shall meet acceptable standards for the particular unit.

2. All field tests have been satisfactorily completed and reports forwarded to the Owner's Representative.

3. All final training has been completed by the manufacturers' representatives.

4. All spare parts and lubricants have been satisfactorily delivered to the Owner. Spare parts are for the exclusive use of the Owner when the facility has been turned over. Contractor is responsible for all maintenance and repair materials required until the facility is accepted by the Owner.

1.08 CLOSEOUT PROCEDURES:

A. Submit written certification that Contract Documents have been reviewed, Work has been inspected, and is complete in accordance with Contract Documents and ready for Owner's Representative and Owner's inspection.

B. Accompany Owner's Representative and Owner on inspection to verify conformance with the Contract Documents. Prepare a punch list of work items that have been determined by inspection to not conform to Contract Documents. Punch list items shall include work items that are missing, incomplete, damaged, incorrect items, or improperly installed or constructed. The Contractor shall correct the punch list deficiencies by re-work, modifications, or replacement, as appropriate, until the items conform to the Contract Documents. The initial punch list shall be produced by the Contractor, with copies to the Owner's Representative and Owner. When the Contractor has reduced the number of deficient items to a reasonable level, the Owner's Representative will develop a definitive punch list for the use of the Contractor.

C. Provide submittals to Owner's Representative that are required by governing or other authorities.

D. Submit final Application for Payment identifying total adjusted Contract Sum, previous payments, and sum remaining due. The Contractor shall submit the following documents with or prior to Final Application for Payment: Set of as-built documents, Contract Completion and Acceptance Certificate, Consent of Surety to Final Payment, Release and Waiver of Liens and Claims, Affidavit of Payment of Debts and Claims, and remaining releases, waivers, warranties/guarantees, and all other data required by the Contract Documents.

1.09 FINAL COMPLETION:

A. Prior to final completion, the following tasks shall be completed:

1. All items in the punch list shall be completed.

2. All Contract closeout documentation shall be submitted to and accepted by the Owner's Representative.

1.10 CORRECTION/WARRANTY PERIOD:

A. During the correction period, the Contractor shall correct all deficiencies in equipment and materials.

B. During the warranty period, the Contractor shall perform all corrective work on warranty deficiencies.

C. Corrective work will be identified by the Owner's Representative or Owner, as appropriate. The Contractor will be notified of the item(s) requiring corrective work.

D. The Contractor shall begin work on all corrective work within ten days of being notified of the deficiency by the Owner's Representative and shall then work continuously until the deficiency is corrected. Upon completion of the corrective work, the Contractor shall submit a letter report to the Owner's Representative describing the deficiency and the corrective action that was taken.

E. The Contractor shall coordinate all corrective work with the Owner's Representative and/or the Owner.

PART 2 – PRODUCTS

Not Used.

PART 3 – EXECUTION

Not Used.

END OF SECTION

SECTION 01 78 39

PROJECT AS-BUILT RECORD DRAWINGS

PART 1 - GENERAL

1.01 WORK INCLUDED:

This Section covers the Contractors As-Built Record drawings for the project. The As-Built Record drawings for the project shall include, but are not limited to:

A. The Contractors construction coordination drawings for all the project disciplines. The Contractors construction coordination drawings for the project disciplines shall be submitted to the Engineer prior to Construction of the said discipline.

B. Draft Record Documents Review

Upon completion of the project construction the Contractor shall submit a complete copy of 24- by 36-inch Record Drawings to the Owner and the Engineer for review. The Owner and the Engineer shall jointly review the Record Drawings and provide comments to the Contractor. The Contractor shall modify the Record Drawings as necessary based on the comments provided by the Owner and the Engineer.

C. Final Record Documents

Upon incorporation and acceptance of the Draft Record Drawings comments from the Owner and the Engineer, the Contractor shall submit the Final Record Drawings and documentation. The Contactor shall submit two sets of 24- by 36-inch Record Drawings to the Owner and an additional two sets of 24- by 36-inch Record Drawings to the Engineer for their records. The Contractor shall also submit to the Engineer a minimum 20 gigabyte flash drive with the electronic Record Drawing files. The electronic Record Drawing files shall be obtained from the Owner (the Engineer shall provide on behalf of the Owner if the Engineer was the project designer) and developed in AutoCAD 2010/Revit 2017 (or later) and the submittal shall include the Final AutoCAD DWG/Revit RVT file documents, drawing line types, blocks, etc. The actual version of AutoCAD/Revit shall be coordinated with the Engineer.

D. Post-Construction Survey

The Contractor shall perform a post-construction survey of the entire project area to horizontal and vertical accuracy levels of A-2 & T-2 for landside construction, and comply with requirements of 01 78 39 – Field Engineering for pre- and post-dredging surveys and 35 24 00 – Dredging, Dewatering, Handling, Transportation and Off-site Disposal of Dredged Materialas. The topographic survey shall be

performed by or under the supervision of and certified, signed and sealed by a Registered Land Surveyor in the State of Connecticut. Survey to include percentage of driveway slopes, building and impervious coverage calculations, wetlands and watercourse boundaries. The Contractor shall also submit to the Engineer a minimum 20 gigabyte flash drive with the electronic post-construction survey files. The Contractor shall send the electronic post-construction survey files to the Engineer which shall be developed in AutoCAD 2010/ Revit 2017 (or later) and the submittal shall include the Final AutoCAD DWG / Revit RVT file documents, drawing line types, blocks, etc. The actual version of AutoCAD / Revit shall be coordinated with the Engineer. The Contractor shall notify the Owner and Engineer at least 48-hours in advance of each survey.

1.02 RELATED WORK:

A. General Requirements in their entirety.

B. Division 02 through Division 35.

1.03 AS-BUILT DOCUMENTS:

A. Contractor shall maintain on site, separate from the documents used for construction, one complete set of the documents listed below, and as construction progresses, shall legibly record on these documents all changes made during construction.

1. Contract Drawings.
2. Specifications.
3. Addenda.
4. Change Orders and other Modifications to the Contract.
5. Reviewed shop drawings, product data, and samples.
6. Written interpretations and clarifications.
7. Field Orders.
8. Field test reports properly verified.

B. The completed set of documents shall include but are not limited to:

1. Significant deviations of any nature made during construction.

C. The completed set of as-built documents shall be submitted to the Engineer with the final Application for Payment.

PART 2 - MATERIALS

Not Used

PART 3 - EXECUTION

Not Used

END OF SECTION

SECTION 02 10 00

TREE PROTECTION AND TRIMMING

PART 1 – GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and general provisions of Contract, including General and Supplementary Conditions, apply to this Section.

1.02 WORK INCLUDED

A. This section includes the protection and trimming of trees that are to remain but interfere with, or are affected by, execution of the Work, whether temporary or new construction.

1.03 QUALITY ASSURANCE

A. Tree Pruning Standards: Comply with the National Arborist Association's "Pruning Standards for Shade Trees" except where more stringent requirements are indicated.

PART 2 - PRODUCTS

2.01 MATERIALS

A. Drainage Fill: Selected crushed stone, or crushed or uncrushed gravel, washed, ASTM D448, size 24, with 90 to 100 percent passing a 2½ inch (63-mm) sieve and not more than 10 percent passing a 3/4 inch (19-mm) sieve.

B. Topsoil: As per Specification Section 32 91 13: Soil Preparation and Soil Mixes.

C. Filter Fabric: Standard non-woven, pervious, geotextile fabric of polypropylene, nylon, or polyester fibers.

PART 3 - EXECUTION

3.01 PREPARATION

A. Temporary Protection: Provide temporary fencing, barricades, or other suitable guards located outside the drip line (outer perimeter of branches) to protect remaining trees and other plants from damage.

B. Protect tree root systems from damage due to noxious materials caused by run-off or spillage while mixing, placing, or storing construction materials. Protect root systems from flooding, eroding, or excessive wetting caused by dewatering operations.

C. Do not store construction materials, debris, or excavated material within the drip line of remaining trees. Do not permit vehicles or foot traffic within the drip line and prevent soil compaction over root systems.

D. Do not allow fires.

3.02 EXCAVATION

A. Install shoring or other protecting support systems to minimize sloping or benching of excavations.

B. Where excavation for new construction is required within tree drip lines, hand excavate to minimize damage to root systems. Use narrow-tine spading forks and comb soil to expose roots.

1. Relocate roots in backfill areas wherever possible. If encountering large, main lateral roots, expose beyond excavation limits as required to bend and relocate without breaking. If encountered immediately adjacent to location of new construction and relocation is not practical, cut roots approximately 3 inches (75 mm) back from new construction.

2. Do not allow exposed roots to dry out before placing permanent backfill. Provide temporary earth cover or pack with peat moss and wrap with burlap. Water and maintain in a moist condition and temporarily support and protect roots from damage until they are permanently relocated and covered with earth.

3. Root Pruning: Do not cut main lateral roots to tap roots; cut only smaller roots that interfere with installation of new work. Cut roots with sharp pruning instruments; do not break or chop.

3.03 GRADING

A. Grade Lowering: Where new finish grade is indicated below existing grade around trees, slope grade beyond tree drip line. Maintain existing grades within tree drip lines.

1. Root Pruning: Prune tree roots exposed during grade lowering. Do not cut main lateral roots to tap roots; cut only smaller roots. Cut roots cleanly with sharp pruning instruments; do not break or chop.

B. Minor Fill: Where existing grade is 6 inches (150 mm) or less below elevation of finish grade shown, fill with topsoil. Place topsoil in a single uncompacted layer and hand grade to required finish elevations.

C. Moderate Fill: Where existing grade is more than 6 inches (150 mm) but less than 12 inches (300 mm) below finish grade elevation, place a layer of drainage fill, filter fabric, and a final layer of topsoil on existing grade.

1. Carefully place drainage fill against tree trunk approximately 2 inches (50 mm) above finish grade elevation and extend not less than 18 inches (450 mm) from tree trunk on all sides. For balance of area within drip line perimeter, place drainage fill to an elevation 6 inches (150 mm) below grade.

2. Place filter fabric with overlapping edges of 6 inches (150 mm) minimum.

3. Place fill layer of topsoil to finish grade. Do not compact drainage fill or topsoil. Hand grade to required finish elevations.

3.04 TREE PRUNING

A. If required, prune remaining trees to compensate for root loss caused by damaging or cutting root system as directed by the Owner’s Representative in accordance with accepted horticultural practices.

B. Cut branches with sharp pruning instruments; do not break or chop.

3.05 TREE REPAIR AND REPLACEMENT

A. Promptly repair trees damaged by construction operations to prevent progressive deterioration.

1. Provide new trees of size and species selected by the Owner’s Representative when trees over 6 inches (150 mm) in caliper, measured 12 inches (300 mm) above grade, are required to be replaced, due to abuse/damage/neglect of contractor.

3.06 DISPOSAL OF WASTE MATERIALS

A. Burning on Owner's Property: Burning is not permitted on Owner's property.

B. Disposal: Remove excess excavated material, displaced trees, and excess chips from Owner's property.

END OF SECTION

SECTION 02 41 13

SELECTIVE SITE DEMOLITION

PART 1 - GENERAL

1.01 SCOPE OF WORK:

A. Work under this Section shall consist of the careful removal, storage for reuse, transportation off-site, or demolition, of all structures and site features encountered or noted to be removed or abandoned to a minimum of three feet below finished grade, and the removal and disposal of all materials not called for to be reused or salvaged, in accordance with the contract drawings, these specifications, and Owner's Representative's requirements. Provide all labor, equipment, materials and transportation necessary to complete the work.

B. Items plan referenced to be removed and stored shall be carefully removed and stored on site in a manner and location designated by the Owner's Representative for reinstallation later as shown on the plans or as indicated by the Owner's Representative.

C. Items plan referenced, or as indicated by the Owner's Representative to be removed and disposed of shall be removed from the site and properly and legally disposed of by the Contractor.

D. Items indicated on the contract drawings or in the specifications to be removed and salvaged, or other items required to be removed by the Owner's Representative, shall be transported to a municipal storage facility, located within the Town confines, and unloaded and stacked as required by the Owner's Representative.

E. Items indicated on the contract drawings or in the specification to be removed and reset shall be carefully removed and reset in the same location as existing according to the specification and details.

F. The following scope describes the general work/demolition requirements of this Section.

1. Cement concrete and bituminous concrete pavements and walls.

2. Curbing and storm piping/structures.

3. Fencing, bollards and footings complete.

4. Timber piles and docks.

5. Other features as indicated on the drawings.

1.02 PROTECTION:

A. The Contractor shall assume complete responsibility and liability for the safety and structural integrity of all work and utilities to remain during demolition.

B. Provide safeguards including, but not limited to, warning signs, barricades, temporary fences, warning lights and other items required for protection of personnel and the general public during performance of all work.

C. All features related to protection shall be maintained until that work has been completed to the point when such safeguards are no longer required.

1.03 SPECIAL REQUIREMENTS:

A. The Contractor shall salvage items labeled to be demolished and transport these to the Owner's specified location unless these are called for to be reused or required by the Owner's Representative to be disposed of.

B. Install erosion controls to protect adjacent areas from eroded materials likely to enter wetlands, resource areas, or drainage ways/systems, downstream of areas disturbed by work activities.

C. Where items to be demolished are located within or adjacent to pavements to remain, the Contractor shall make provisions to protect that pavement to remain. Cut concrete pavement back to score line and cut bituminous concrete pavement back far enough so as not to allow disturbance to base course materials. Pavements damaged as a result of Contractor activities shall be replaced to the extent determined by the Owner's Representative at no additional cost to the Owner.

PART 2 - PRODUCTS

2.01 BACKFILL:

A. The Contractor shall provide suitable backfill as specified under Section 32 91 13 of these Specifications, to fill voids left by removal or abandonment of site features, and shall provide all pipe cap ends, mortar, brick and other material needed to cap off or plug pipes of various sizes and kinds.

B. Suitable materials shall be used as base course fill and topsoil to the depth as specified herein. Restore disturbed areas with similar materials blended to match the line and grades of adjacent surfaces.

2.02 TEMPORARY FENCE:

A. The work shall include temporary installation of chain link fence around the perimeter of the work limits, and as required by the Owner's Representative, and as Contractor sees fit to protect work.

B. Temporary fence shall consist of 8-foot-high chain link fence anchored into a base that is both stable and movable to allow access and adjustment as needed. Reclaimed existing fence fabric and materials may be used with the approval of the Owner's Representative. The Contractor shall submit a shop drawing to the Owner's Representative for approval prior to installation.

PART 3 - EXECUTION

3.01 SALVAGEABLE MATERIAL:

A. Frames, grates and other salvageable material shall be carefully removed to minimize damage and stored for later reuse, transport, or removal from site.

3.02 ABANDONED STRUCTURES:

A. All inlets and outlets shall be plugged with at least eight (8) inches of brick and mortar masonry. Upper portions of masonry structures shall be removed to a depth of three feet. The bottoms of all structures shall be broken to allow drainage, and the structure shall be filled with suitable backfill material placed in six (6) inch layers and thoroughly compacted at each level.

B. The Owner's Representative shall review work related to abandoned structures before backfilling. Those items not reviewed before backfilling shall be uncovered and backfill procedures observed, at no expense to the Owner.

3.03 ABANDONED PIPES OR CONDUITS:

A. Plug previously abandoned drainpipes encountered with masonry brick at least eight (8) inches in thickness.

B. Abandon discontinued water supplies that are encountered during the execution of this contract in accordance with Owner requirements.

C. Electrical conduits encountered and previously abandoned shall be capped or plugged.

END OF SECTION

SECTION 03200

CONCRETE REINFORCEMENT

PART 1 - GENERAL

1.01 WORK INCLUDED:

This section of the specification covers the furnishing and installation of reinforcement for cast-in-place concrete.

1.02 RELATED WORK:

A. Section 03 11 00, CONCRETE FORMWORK

B. Section 03 30 00, CAST-IN-PLACE CONCRETE

1.03 SYSTEM DESCRIPTION:

Materials and construction shall conform to ACI 3l8 and ACI 350 unless otherwise noted on the design drawings or modified herein.

1.04 SUBMITTALS: IN ACCORDANCE WITH REQUIREMENTS OF GENERAL SPECIFICATIONS, SUBMIT THE FOLLOWING:

A. The Contractor shall furnish the Owner’s Representative with complete checked, reinforcing steel shop drawings and bar lists. Shop drawing shall include grade of steel used as well as splice lengths.

B. Mill test reports shall accompany drawings. Fabrication shall not commence until the drawings and mill test reports have been released by the Owner’s Representative.

C. When fiber reinforcement is used, Contractor shall submit manufacturer's data confirming that material meets the specification.

1.05 REFERENCES:

A. The following standards form a part of these specifications:

American Concrete Institute (ACI)

ACI	318	Building Code Requirements for Structural Concrete
ACI	347	Recommended Practice for Concrete Formwork

ACI 350 Code Requirements for Environmental Engineering Concrete Structures

ACI SP-66 ACI Detailing Manual

American Society for Testing and Materials (ASTM)

ASTM A185 Standard Specification for Welded Steel Wire Fabric for Concrete Reinforcement

ASTM A497 Specification for Welded Deformed Steel Wire Fabric for Concrete Reinforcement

ASTM A6l5 Deformed Billet-Steel Bars for Concrete Reinforcement

ASTM A775 Epoxy-coated Reinforcing Steel Bars

ASTM A884 Epoxy-coated Welded Wire Fabric

American Welding Society (AWS)

AWS 12.1 Recommended Practices for Welding Reinforcing Steel, Metal Inserts and Connections in Reinforced Concrete Construction

PART 2 - PRODUCTS

2.01 MATERIALS:

A. Steel reinforcing bars shall conform to ASTM A6l5, Grade 60, and A775 if epoxy-coated bars are specified.

B. Welded steel wire fabric shall conform to ASTM A185 or ASTM A497 and ASTM A884 if epoxy-coated fabric is specified. Gauge and spacing of wires shall be as indicated on the drawings.

C. Reinforcing steel shall be detailed in accordance with ACI SP-66 modified as applicable to conform to ACI 350.

D. Reinforcement shall be accurately formed to the dimensions indicated on the drawings. Bars shall be shipped to the site with bars of the same size and shape, fastened in bundles with securely wired-on metal identification tags listing both size and mark.

E. Any bar showing cracks after bending shall be discarded.

F. Steel failing to meet the requirements of this specification or the drawings will be rejected and shall be removed from the site immediately.

2.02 FIBER REINFORCEMENT:

When called for on the drawings, concrete engineered reinforcing fibers shall be polypropylene, collated, fibrillated fibers from Fibermesh Co., 4019 Industry Drive, Chattanooga, TN; Forta Corporation, One Hundred Forta Drive, Grove City, PA; or approved equal. Only fibers designed and manufactured specifically for use in concrete from virgin polypropylene and so certified by the manufacturer shall be acceptable.

PART 3 - EXECUTION

3.01 STEEL INSTALLATION:

A. Before being placed in position, reinforcement shall be thoroughly cleaned of loose mill and rust scale, dirt, and other coatings (including ice), that reduce or destroy bond. When there is a delay in depositing concrete after reinforcement is in place, bars shall be reinspected and cleaned as necessary.

B. After forms have been oiled, but before concrete is placed, all steel shall be securely wired in the exact position called for, and shall be maintained in that position until all concrete is placed and compacted. Chair bars and supports shall be provided in a number and arrangement satisfactory to the Owner's Representative.

C. Concrete blocks having a minimum bearing area of 2-inches by 2-inches and equal in quality to that specified for the slab, shall be used for supporting reinforcing bars for slabs on grade. Wood blocks, stones, brick chips, etc., shall not be used to support reinforcement.

D. Metal supports shall be of types that will not penetrate the surface of formwork or slab and which will not show through or stain surfaces that are to be exposed to view, painted or unpainted.

E. Welding of reinforcing bars will be permitted only where permission of the Owner's Representative has been obtained in advance. Such welding shall be performed only under conditions established by the Owner's Representative, and in accordance with AWS 12.1.

F. Reinforcement, which is to be exposed for a considerable length of time after having been placed, shall be painted with a heavy coat of cement grout, if required by the Owner's Representative.

3.02 FIBER INSTALLATION:

A. Fibermesh fibers shall be used in concrete as indicated on the drawings or as specified and in strict accordance with the manufacturer's recommendations as to type and amount. The fiber manufacturer or approved distributor shall provide the services of a qualified employee for pre-job meeting and initial job start up.

END OF SECTION

SECTION 03 30 00

CAST-IN-PLACE CONCRETE

PART 1 - GENERAL

1.01 WORK INCLUDED:

This Section covers all concrete and all related items necessary to place and finish the concrete work.

1.02 RELATED WORK:

A. Section 03 11 00, CONCRETE FORMWORK

B. Section 03 20 00, CONCRETE REINFORCEMENT

C. Section 07 90 00, JOINT PROTECTION

D. Section 31 23 00, EARTHWORK

E. Items furnished under other Sections and installed under this Section include, but are not limited to:

1. Items embedded in concrete, including anchors, sleeves, floor drains, castings, frames for hatches, angles, nosings, and other miscellaneous metals.

1.03 REFERENCES:

A. The following standards form a part of these specifications:

American Concrete Institute (ACI)

ACI	30l	Specifications for Structural Concrete
ACI	302	Recommended Practice for Concrete Floor and Slab Construction
ACI	304	Recommended Practice for Measuring, Mixing, Transporting, and Replacing Concrete
ACI	305	Recommended Practice for Hot Weather Concreting
ACI	306	Recommended Practice for Cold Weather Concreting
ACI	318	Building Code Requirements for Structural Concrete

ACI	347	Recommended Practice for Concrete Formwork
ACI	350	Code Requirements for Environmental Engineering Concrete Structures

American Society for Testing and Materials (ASTM)

ASTM	C33	Concrete Aggregates
ASTM	C39	Compressive Strength of Cylindrical Concrete Specimens
ASTM	C42	Obtaining and Testing Drilled Cores and Sawed Beams of Concrete
ASTM	C87	Effect of Organic Impurities in Fine Aggregate on Strength of Mortar
ASTM	C94	Ready-Mixed Concrete
ASTM	C143	Standard Method for Slumps of Portland Cement Concrete
ASTM	C150	Portland Cement
ASTM	C171	Sheet Materials for Curing Concrete
ASTM	C231	Air Content of Freshly Mixed Concrete by the Pressure Method
ASTM	C260	Air-Entraining Admixtures for Concrete
ASTM	C309	Liquid Membrane-Forming Compounds for Curing Concrete
ASTM	C494	Chemical Admixtures for Concrete
ASTM	D1751	Preformed Expansion Joint Fillers for Concrete Paving and Structural Construction (Nonextruding and Resilient Bituminous Types)
ASTM	D1752	Preformed Sponge Rubber and Cork Expansion Joint Fillers for Concrete Paving and Structural Construction

1.04 SUBMITTALS: IN ACCORDANCE WITH REQUIREMENTS OF GENERAL SPECIFICATIONS, SUBMIT THE FOLLOWING:

A. Shop drawings of the materials specified herein shall be submitted to the Owner's Representative for review.

B. Statement of materials constituting the design of mixes which satisfy the specified strength for each size aggregate as required by ASTM C94 shall be submitted to the Owner's Representative within one week following award of the contract.

C. Provide one copy of the "Certificate of Delivery" for each load of concrete as it arrives on the site, under the provisions of ASTM C94.

PART 2 - PRODUCTS

2.01 CONCRETE:

A. Concrete conforming to the requirements listed below shall be used where indicated on the drawings. Unless otherwise indicated, concrete used as fill under foundations, and elsewhere approved by the Owner's Representative, shall be the 3,000 psi mix.

TABLE

Minimum Comp. Strength at 28 days (psi)	Maximum Water/Cement ratio (gallons per bag of cement)*	Cement Factor: 94 lb. Bags per cubic yard minimum**
3000	0.59 (6.9)	5.5
4000	0.48 (5.6)	6.5
5000	0.40 (4.7)	7.4

* Based on air-entrained concrete. If non-air-entrained concrete is called for, the listed maximum water/cement ratios may be increased slightly, as approved by the Owner's Representative. The water is the total water in the mix, including free water on the aggregate.

** These are minimum amounts; increase as necessary to meet mix requirements.

B. Concrete shall conform to ASTM C94. One copy of the Certificate of Delivery required by ASTM C94 shall be delivered to the Owner's Representative immediately upon arrival of each load of concrete at the site. The Contractor shall be responsible for the design of the concrete mixtures.

C. Standard compression tests of all proposed mixes shall be made by the testing laboratory or other satisfactory evidence shall be presented that the design mixes will attain the minimum strengths listed on the design drawings or called for herein, within the limitations of the ACI Code. No concrete shall be delivered to the job site until the Owner's Representative has approved the design mixes.

D. All concrete (unless otherwise directed) shall contain an air-entraining agent. Air entrained concrete shall have an air content by volume of 3 to 6 percent for l-l/2-inch aggregate and 4 to 8 percent for 3/4-inch aggregate. The air content shall be the responsibility of the testing laboratory and in accordance with ASTM C23l.

E. All concrete shall contain a mid-range water reducer to minimize cement and water content of the mix, at the specified slump, in accordance with ASTM C494.

F. Slump for all concrete shall be from 3-inch to 4-inch, except for concrete using a superplasticizer, when the maximum slump shall be 8-inches. Any concrete having a slump greater than 4-inches (8-inches with superplasticizer) shall be promptly removed from the site.

G. No calcium chloride or admixtures containing calcium chloride shall be added to the concrete. No admixture other than those specified shall be used in concrete without the specific written permission of the Owner's Representative in each case.

H. No additional water, except for the amount indicated by the design mix shall be added to the concrete without the prior permission of the Owner's Representative.

2.02 CEMENT:

A. The cement shall be an approved brand of American manufactured Portland Cement, Type IIA conforming to ASTM Cl50. The brand name and type of cement proposed for use shall be submitted to the Owner's Representative for approval immediately following award of contract. Only one color of cement, all of the same manufacture, shall be used for the work.

B. When the use of high-early-strength Portland cement (Type IIIA) is permitted by the Owner's Representative the same strength requirements shall apply, but the indicated strengths shall be attained in 7 days instead of 28 days.

2.03 ADMIXTURES:

A. Air entraining agent shall be in accordance with ASTM C260.

B. Water reducing agent shall be a mid-range water reducer meeting ASTM C494, Type A.

C. Water reducing agent-retarder shall be in accordance with ASTM C494, Type D.

D. Superplasticizer agent shall be in accordance with ASTM C494, Type F or Type G and contain no more than 0.1% chloride ions. Product may be plant added or field added based on the best application considering distance, temperature and time.

2.04 AGGREGATES:

A. Except as otherwise noted, aggregate shall conform to the requirements of ASTM C33.

B. Fine aggregate shall consist of washed inert natural sand conforming to the requirements of ASTM C33.

C. Coarse aggregate shall consist of well-graded crushed stone or washed gravel conforming to the requirements of ASTM C33.

D. The following designated sizes of aggregate shall be the maximum employed in concrete.

1. 2-inch for mass concrete
2. 1½-inch for reinforced sections 18-inch and over in thickness
3. 3/4-inch for reinforced and unreinforced sections less than 18-inch thickness.

2.05 WATER:

A. Water for concrete shall be potable, free from injurious amounts of oil, acid, alkali, organic matter and other deleterious substances.

2.06 GROUT:

A. Grout shall be mixed in the proportions of one part Portland Cement to 2 parts sand, by volume. Only sufficient water shall be used to enable grout to barely hold its shape when squeezed into a ball in the hand. Aggregate for grout shall conform to the requirements of the reference specification for concrete. Prior approval of the Owner's Representative shall be obtained for the use of proprietary grouts, and the instructions of the Owner's Representative shall be followed in their use.

2.07 CURING MATERIALS:

A. Curing compound shall be a curing/hardener compound such as Acurion by AntiHydro, Sikaguard Cure/Hard by Sika, Super Diamond Clear by Euclid or approved equal.

B. Curing paper shall be a fiber-reinforced laminated Kraft bituminous product conforming to the requirements of ASTM Cl7l.

2.08 JOINT FILLER:

A. Preformed joint filler strip shall conform to ASTM Dl75l or Dl752, having a thickness as indicated on the drawings.

B. Fillers shall be provided in pieces of the full thickness required. Use of multiple layers of thin pieces to make-up the full thickness will not be permitted.

2.09 JOINT SEALANT:

A. Joint sealant for construction and control joints shall be a two-part polysulfide base sealant conforming to Thiokol's Building Trade Performance Specification, Class A (self-leveling), Type II (hardness: 35-45 Shore A).

PART 3 - EXECUTION

3.01 GENERAL:

A. Under no circumstances shall concrete that has set or partially set before placing be used; and no re-tempering of concrete or grout will be permitted.

3.02 PREPARATION:

A. Before placing concrete, forms and the space to be occupied by the concrete shall be thoroughly cleaned, and reinforcing steel and embedded metal shall be free from dirt, oil, mill scale, loose rust, paint or other material which would tend to reduce the bond.

B. Unless otherwise indicated, a moisture barrier shall be used under all slabs placed on the ground in accordance with ACI 302.1R. The moisture barrier shall be fungi-resistant and shall have a vapor permeance rating not exceeding 0.01 perms (Perms [grains/ft^2*hr*in. Hg]) per ASTM F1249 or ASTM E96) and 10 mils thickness (49 lbs/MSF). The moisture barrier shall be a high-performance underslab vapor retarder made from polyethylene resins that exceed ASTM E1745, Class A. Sheets shall be lapped 6-inches at joints and sealed with 2-inch wide tape or as recommended by the manufacturer. The vapor barrier should have all laps, seams, penetrations and terminations sealed and should carry across footings.

C. When no moisture barrier is used, the earth, concrete, masonry, or other water-permeable material against which concrete is to be placed shall be thoroughly saturated with water immediately before concrete is placed. No concrete shall be placed until the consolidation of the ground and the arrangement and details of forms and reinforcing have been inspected and approved by the Owner’s Representative.

D. When joining fresh concrete to concrete which has attained full set, the latter shall be cleaned by chipping and washing off all dirt and scum and laitance. It then shall be moistened prior to placing new concrete.

E. Concrete surfaces that act as a seat for structural members (other than those resting on grout) shall be troweled to an extremely flat and level surface. If necessary, such surfaces shall be ground off to achieve the required flatness and level.

F. Fill concrete on top of concrete shall be placed in the locations indicated on the drawings or designated by the Owner's Representative. Before fill concrete is placed, the following procedures shall be used to prepare surfaces; all dirt, scum and laitance shall be removed by chipping and washing. The clean, roughened base surface shall be saturated with water, but shall have no free water on the surface. A coat of 1:2 cement-sand grout, approximately 1/8-inch thick, shall be well scrubbed into the thoroughly dampened concrete base. The concrete fill shall be placed immediately, before grout has dried or set. Fill concrete shall be brought to the lines and grades shown on the drawings or approved by the Owner's Representative.

G. Concrete for thrust and anchor blocks shall be placed against undisturbed earth and wooden side forms shall be used to provide satisfactory lines and dimensions. Felt roofing paper shall be placed to protect joints. No concrete shall be placed so as to cover joints, bolts or nuts, or to interfere with the removal of the joints. Minimum bearing areas and dimensions shall be as shown on the drawings.

3.03 MIXING:

A. Concrete shall be ready-mixed, or transit-mixed, as produced by equipment acceptable to the Owner's Representative. No hand-mixing will be permitted. Adding water in controlled amounts during the mixing cycle shall be done only with the express approval of, and in the presence of the Owner's Representative.

B. Ready-mix or transit-mixed concrete shall be transported to the site in watertight agitator or mixer trucks loaded not in excess of rated capacities for the respective conditions as stated on the nameplate. Discharge at the site shall be within 1-1/2 hours after cement was first introduced into the mix. Central mixed concrete shall be plant-mixed a minimum of 1-1/2 minutes per batch and then shall be truck-mixed or agitated a minimum of 8 minutes. Agitation shall begin immediately after the pre-mixed concrete is placed in the truck and shall continue without interruption until discharge. Transit-mixed concrete shall be mixed at mixing speed for at least 10 minutes immediately after charging the truck, followed by agitation without interruption until discharged.

C. All central plant and rolling stock equipment and methods shall conform to the latest Truck Mixer and Agitator Standards of the Truck Mixer Manufacturers' Bureau of the National Ready-Mixed Concrete Association, as well as ACI 304 and ASTM C94.

D. Attention is called to the importance of dispatching trucks from the batching plant so that they shall arrive at the site of the work just before the concrete is required, thus avoiding excessive mixing of concrete while waiting or delays in placing successive layers of concrete in the forms.

3.04 INSTALLATION/APPLICATION/ERECTION:

A. Placing:

1. No concrete shall be placed by pumping methods without the prior written approval of the Owner's Representative. Should the Contractor be allowed to place concrete by pumping methods, procedures, mix design of concrete, and all other precautions shall be in accordance with ACI 304.2R and as approved by the Owner's Representative.
2. Concrete shall be placed in alternate areas, as defined by the construction and control joints indicated on the design drawings. A minimum of 3 days shall elapse between placement of adjacent sections.
3. Segregation of the concrete shall be prevented during handling; should any segregation occur, the concrete shall be remixed before it is placed. Concrete shall be placed in the forms in horizontal layers not over l to 2 feet thick. Concrete shall not be allowed to drop freely more than 4 feet. If the free drop to the point of placement must exceed 4 feet, the Contractor shall obtain the approval of the Owner's Representative for the proposed method of depositing the concrete. The concrete shall not be required to flow over distances greater than 3 feet in any direction in the forms or on the ground, unless otherwise permitted by the Owner's Representative.
4. Unless otherwise noted, the work begun on any day shall be completed in daylight of the same day.
5. "Cold Joints" are to be avoided, but if they occur, they are to be treated as bonded construction joints.
6. Chutes for conveying concrete shall be of U-shaped design and sized to insure a continuous flow of concrete. Flat (coal) chutes shall not be employed. Chutes shall be metal or metal-lined, and each section shall have approximately the same slope. The slope shall not be less than 25 nor more than 45 degrees and shall be such as to prevent segregation of the ingredients. The discharge end of the chute shall be provided with a baffle plate or spout

to prevent segregation. If the discharge end of the chute is more than 5 feet above the surface of the concrete in the forms, a spout shall be used and the lower end maintained as near the surface of deposit as practicable. When the operation is intermittent, the chute shall discharge into a hopper. Chutes shall be thoroughly cleaned before and after each run, and the debris and any water shall be discharged outside the forms. Concrete shall not be allowed to flow horizontally more than 5 feet.

7. Concrete during and immediately after depositing shall be thoroughly compacted by means of suitable tools. Internal type mechanical vibrators shall be employed to produce the required quality of finish. Vibration shall be done by experienced operators under close supervision and shall be carried on long enough to produce homogeneity and optimum consolidation without permitting segregation of the solid constituents or "pumping" or migration of air. All vibrators shall be supplemented by proper wooden spade puddling adjacent to forms to remove included bubbles and honeycomb. This is essential for the top lifts of walls. All vibrators shall travel at least 10,000 rpm and be of adequate capacity. At least one vibrator shall be used for every 10 cubic yards of concrete per hour. In addition, one spare vibrator in operating condition shall be on the site.
8. Concrete slabs on the ground shall be well-tamped into place and foundation material shall be wet, tamped, and rolled until thoroughly compacted prior to placing concrete.
9. Concrete shall be deposited continuously in layers of such thickness that no concrete will be deposited on concrete that has hardened sufficiently to cause the formation of seams and planes of weakness within the section. If a section cannot be placed continuously, construction joints may be located at points as provided for in the drawings or approved by the Owner’s Representative.
10. Chutes, hoppers, spouts, adjacent work, etc., shall be thoroughly cleaned before and after each run, and the water and debris shall not be discharged inside the form.

B. Concrete Placing During Cold Weather:

1. Concrete shall not be placed on frozen ground, and no frozen material or material containing ice shall be used. Materials for concrete shall be heated when concrete is mixed, placed, or cured when the mean daily temperature is below 40°F, or is expected to fall to below 40°F, within 72 hours, and the concrete after placing shall be protected by covering, heat, or both. No accelerant shall be used to prevent freezing.

2. The temperature of concrete surfaces shall not be permitted to drop below 50ºF. for at least 7 days after placement of the concrete.
3. All details of Contractor's handling and protecting of concrete during freezing weather shall be subject to the approval of the Owner's Representative. All procedures shall be in accordance with provisions of ACI 306.

C. Concrete Placing During Hot Weather:

1. Concrete just placed shall be protected from the direct rays of the sun and the forms and reinforcement just prior to placing shall be sprinkled with cold water. The Contractor shall make every effort to minimize delays that will result in excessive mixing of the concrete after arrival on the job.
2. During periods of excessively hot weather (90°F, or above) ingredients in the concrete shall be cooled insofar as possible and cold mixing water shall be used to maintain the temperature of the concrete at permissible levels all in accordance with the provisions of ACI 305. Any concrete with a temperature above 90°F, when ready for placement will not be acceptable, and will be rejected.
3. Temperature records shall be maintained throughout the period of hot weather giving air temperature, general weather conditions (calm, windy, clear, cloudy, etc.) and relative humidity. The record shall include checks on temperature of concrete as delivered and after placing in forms. Data should be correlated with the progress of the work so that conditions surrounding the construction of any part of the structure can be ascertained.

D. Pipes and Embedded Metals:

1. Special care shall be taken to bring the concrete into solid contact with pipes and iron work embedded in the walls and floors, particularly underneath and around all pipes where a head of water exists, making watertight joints.
2. In general, such embedded items are not shown on the structural design drawings. Design drawings of the other trades shall be consulted for their location and details.
3. Anchor bolt location, size and details shall be verified with the equipment manufacturer's certified drawings before installation.
4. Anchor bolts, reglets, sleeves, edge angles and similar embedded items will be provided, delivered to the site under other Sections of the specification, for installation under this Section.
5. Where edge angles, etc., have nuts welded on to receive machine screws, the threads of the nuts shall be protected from concrete, and the concrete shall

be excluded from the space to be occupied by the screw, by the use of wood plugs or other effective means.

6. Inserts required for hanging mechanical and electrical items will be provided and installed in the forms under the mechanical and electrical Sections of the specification.
7. Should the Contractor be allowed to leave openings in the concrete for pipes or ironwork, to await the arrival of items that would delay the prosecution of the work, the openings shall be subject to the approval of the Owner's Representative. Appropriate construction joints shall be provided. In filling any such openings with concrete, a mixture of l: l-l/2 : 3 shall be used and a watertight bond shall be secured between the old and new concrete.
8. In bolting miscellaneous items to concrete after the concrete has set, expansion bolts of an approved pattern and type shall be used. The Contractor shall submit to the Owner's Representative, for approval, the types of expansion bolts. Expansion bolts shall not be used until they are approved.

E. Curing:

1. Concrete curing shall be performed as specified in ACI 30l and as stated herein. All curing procedures shall have prior approval of the Owner's Representative.
2. Concrete Floors

   Concrete floors which are to receive paint, concrete fill, mortar setting beds, grout fill, or any other subsequent finish shall be cured by one of the following procedures immediately after completion of placement and finishing:

   a. Ponding or continuous sprinkling.
   b. Application of absorptive mats or fabric kept continuously wet.
   c. Application of sand kept continuously wet.
   d. Application of waterproof sheet materials conforming to ASTM Cl7l.
   e. Application of curing compounds conforming to ASTM C309, if it can be demonstrated to the Owner's Representative's satisfaction that the compound is applicable and that it will not prevent bonding of the subsequent finish to be received. Compound shall be placed at a rate of 200 square feet per gallon, in two applications perpendicular to each other.
3. Curing procedure shall be continued for at least 7 days.

a. Moisture loss from surface placed against metal or wood forms shall be minimized by keeping forms wet until removal.

b. Curing shall be continued for at least 7 days. When forms are removed during the curing period, surfaces shall be cured by spraying or by the use of a curing compound as previously specified.

c. Surfaces shall be protected from traffic or damage until surfaces have hardened sufficiently. If necessary, 1/2-inch thick plywood sheets shall be used to protect the exposed surface.

F. Bracing and Supports:

1. All concrete members shall be adequately and safely supported and braced until the permanent supports and braces are installed.
2. Backfilling against exterior walls shall not be done until supporting slabs are in place and have attained 70 percent of design strength, otherwise walls shall be braced against earth lateral pressure, using a system approved by the Owner's Representative.
3. Backfilling against retaining walls shall not commence until the wall concrete has reached its 28-day strength.

G. Removing Forms and Supports:

1. Removal of forms shall take place in accordance with ACI 347, Section 3.6. Except as otherwise specifically authorized by the Owner's Representative, forms shall not be removed until the concrete has aged for the following number of day-degrees or attained 50 percent strength. (Day-degrees equals the total of number of days times the average daily air temperature at the surface of concrete. For example, 5 days at a daily average temperature of 60°F. equals 300 day-degrees.)

Location	Day-Degrees
Beams and Slabs	500
Walls and Vertical Surfaces	200

2. Shores under beams and slabs shall not be removed until the concrete has attained at least 70 percent of the specified cylinder strength and also sufficient strength to support safely its own weight and the construction loads upon it.

H. Patching:

1. Defective concrete and honeycombed areas as determined by the Owner's Representative shall be chipped down reasonably square and at least one-inch deep to sound concrete by means of hand chisels or pneumatic chipping hammers. Irregular voids or surface stones need not be removed if they are sound, free of laitance, and firmly imbedded in the parent concrete, subject to Owner's Representative 's final inspection. If honeycomb exists around reinforcement, chip to provide a clear space at least 1-inch wide all around the steel. For areas less than 1-1/2 inches deep, the patch may be made following the procedure for filling form tie holes, described in the subsection below, using adequately dry (non-trowelable) mixtures to avoid sagging. Thicker repairs will require build-up in 1-inch layers on successive days. Unless otherwise indicated, thicker repairs shall be made with Vertipatch mortar mixture blended with Acryl-Set, both by Master Builders, Inc., Cleveland, Ohio, or approved equal.
2. For concrete areas exposed to serious abrasion and/or impact forces, the Owner's Representative may order the use of grout with a non-shrink metallic aggregate (Embeco by Master Builders, Inc.; Ironite by Fox Industries, Madison, IL; or approved equal) as an additive in the proportions listed below:

	Small Patches		Large Formed Patches	
Material	Volumes	Weights	Volumes	Weights
Cement	1.0	1.0	1.0	1.0
Metal Aggregate	0.15	0.25	0.2	0.33
Sand	1.5	1.5	1.5	1.0
Pea Gravel	--	--	1.5	1.5

I. Finishing of Formed Surfaces:

1. All concrete that is to be left exposed to view shall be scraped to remove projecting imperfections left by voids in the forms.
2. In addition to scraping, exterior exposed concrete shall be covered with a cement-base plaster mix. The mix shall consist of Thoroseal Plastic Mix and Acryl 60, as manufactured by Standard Drywall Products, Miami, FL, or approved equal. It shall be mixed and applied in accordance with the manufacturer's recommendations.
3. In addition to scraping, interior concrete surfaces which will be exposed to view and concrete surfaces which are to be prepared and painted as specified

in Section 09900, PAINTING, shall receive a smooth rubbed finish, in accordance with ACI 301 and as described below.

4. To permit satisfactory finishing, forms shall be removed from the vertical faces of the concrete as early as is possible without damaging the surface. Immediately after stripping forms, any fins or projections left by the forms shall be chipped off, and the surfaces rubbed smooth.
5. Form tie holes and other voids and faults shall be patched. Voids shall be cleaned out, roughened, thoroughly wetted, coated with neat cement paste, and filled with mortar of cement and sand in the same proportions, materials, and color as used in the concrete. The surface of the patch shall be flush with the surrounding surface after finishing operations are complete. Surface shall be kept continuously damp until patches are firm enough to be rubbed without damage.
6. Rubbing shall be performed while the surface is wet using a carborundum or cement sand brick, to achieve a smooth uniform, even textured finish. Patched and chipped areas shall be blended to match as closely as possible the appearance of the rest of the surface. No cement wash or plastering will be permitted, and no mortar shall be used except as required above.
7. Where finishing is performed before the end of the curing period, concrete shall under no circumstances be permitted to dry out, and shall be kept continuously moist from time of placing until end of curing period, or until curing membrane is applied.

J. Testing:

1. The Contractor shall provide all field testing and inspection services, and shall pay for all such services. The Owner's Representative shall approve the testing laboratory and shall inform the Contractor when samples are to be taken for testing. The Contractor shall forward all test results to the Owner's Representative as soon as they are available.
    a. The Testing Laboratory shall conform to the requirements of ASTM E-329. The State Board of Building Regulations and Standards shall license them.
2. At least one slump test shall be performed from each truckload of concrete. The sample for slump shall be taken from the middle third of a truckload. Air content tests shall be made at the discretion of the Owner's Representative. If the measured slump or air content falls outside the specified limits, a check test shall be made immediately on another portion of the same sample. In the event of a second failure, the concrete shall be considered to have failed the requirements of the specification and shall be immediately removed from the jobsite to be discarded.

3. The Contractor shall advise the Owner's Representative of his readiness to proceed with concrete placement at least one working day prior to each placement. The Owner's Representative will inspect the preparations for concrete, including the preparation of previously placed concrete, the reinforcing, and the alignment and tightness of formwork. No placement shall be made without the prior approval of the Owner's Representative.
4. A minimum of four standard compression test cylinders shall be made and tested for **each 100 cubic yards or fraction thereof** for each type and design strength of concrete from each day's placement of concrete. One cylinder shall be tested at 7 days and two cylinders at 28 days. The fourth cylinder from each set shall be kept until the 28 day test report on the second and third cylinders in the same set has been received. The Owner's Representative reserves the right to require test cylinders to be made for each truckload of concrete if the nature of the project or project experience indicates such additional tests are required for proper control of concrete quality; such tests will be at the Owner's expense.
5. The strength level shall be considered satisfactory so long as the averages of all sets of three consecutive strength test results equal or exceed the specified strength f'c, and no individual strength test (average of two cylinders) result falls below the specified strength f'c by more than 500 psi.
6. In the event the average compressive strength of the two 28 day cylinders do not achieve the required level, the Owner's Representative may elect to test the fourth cylinder immediately or test it after 56 days.

K. Failure to Meet Requirements:

1. The Owner's Representative shall have the right to reject concrete represented by low strength tests or to agree to further testing of the concrete. Rejected concrete shall be promptly removed and replaced with concrete conforming to the specification. The decision of the Owner's Representative as to whether substandard concrete is to be accepted or rejected or additional tests shall be conducted shall be final. All direct and indirect costs associated with further curing and testing of the concrete shall be at the Contractor's expense. All costs associated with removing rejected concrete, placing new concrete, and conducting tests on new concrete shall be at the Contractor's expense.
2. If the Owner's Representative agrees to consider further curing and/or testing of the concrete before making a final decision, the Contractor shall submit a detailed plan to the Owner's Representative, including proposed criteria for acceptance of the concrete. The plan may include additional

curing of the concrete, drilling and testing of cores, load testing of the structure, or a combination.

3. If additional curing is permitted before further inspection and testing, the Contractor shall provide any necessary materials and labor to further cure the suspect concrete.
4. If drilling and testing of cores is permitted, the Contractor shall be responsible for obtaining the cores, including provision of ladders, scaffolding, and such incidental equipment as may be required. If additional curing is permitted, cores shall be drilled after the curing period, and shall be in accordance with ASTM Methods C39 and C42. The Contractor shall repair all core holes to the satisfaction of the Owner's Representative.
5. The burden of proof, including, but not limited to the work of cutting and testing the cores, inspection, evaluation, engineering, repair of the holes, or removal and replacement of the concrete in question, and all associated costs therefor, shall be at the expense of the Contractor.
6. If load testing of the concrete is permitted, and if not otherwise indicated, slabs or beams under load test shall be loaded with their own weights plus a superimposed load of 2 times the design live load. The load shall be applied uniformly over the portion being tested in the approved manner and left in position for 24 hours. The structure shall be considered satisfactory if deflection "D" in feet, at end of 24-hour period, does not exceed the following value:

   D equals 0.001 (L x L)/t

   in which "L" is span in feet, "t" is depth of slab, or beam in inches. If deflection exceeds "D" in the above formula, the concrete shall be considered faulty unless within 24 hours after removal of the load, the slab, or beam under test recovers at least 75 percent of the observed deflection.
7. If the suspect concrete still fails to meet specification requirements, the Owner's Representative shall have the right to reject the concrete, have it removed and replaced, in accordance with paragraph 5 above, or to require mechanical strengthening of the concrete to satisfy project requirements. The Contractor shall submit a removal and replacement plan for review by the Owner's Representative.

L. Test for Watertightness:

1. All concrete shall be watertight against leakage or groundwater infiltration. Special care shall be taken in the construction joints and any noticeable leakage or seepage causing wet spots on the concrete walls or slabs shall be repaired by and at the expense of the Contractor and by methods approved by the Owner's Representative.

2. All liquid holding concrete structures shall be tested for leakage before backfilling and after the concrete has attained the specified minimum 28-day design strength, as indicated by test cylinders.
3. The structure shall be filled with water to the overflow level, allowed to stand for at least 24-hours, and refilled to overflow to begin the test. After 72 hours, the liquid loss per 24 hour period shall be determined, either by measuring the amount required to refill the tank to overflow, by measuring the drop in water level, or by an equivalent procedure approved by the Owner's Representative. Evaporative losses shall be calculated and deducted from the measured loss to determine net liquid loss (leakage). If the leakage per 24-hour period exceeds the allowable, the structure shall be repaired and retested until the leakage falls within the allowable limit.
4. For structures designed to hold water, one twentieth of one percent leakage will be allowed during a 24-hour period. No leakage (zero leakage) will be permitted for structures designed to hold liquid chemicals or fuels.
5. The Contractor shall pay all costs (including water) incurred in the testing for watertightness.
6. The Owner's Representative shall be given a minimum notice of 48 hours prior to commencement of the leakage test.

END OF SECTION

SECTION 12 93 00

SITE FURNISHINGS

PART 1 - GENERAL

1.01 WORK INCLUDED:

A. Furnish and install site furnishings in the locations shown or as described herein, complete with anchorages and associated site work.

1.02 RELATED SECTIONS:

A. Section 03 30 00, CAST-IN-PLACE CONCRETE

B. Section 31 00 00, EARTHWORK

1.03 SUBMITTALS: IN ACCORDANCE WITH SECTION 01 33 23 SUBMITTALS, SUBMIT THE FOLLOWING:

A. Catalog information on site furnishings.

PART 2 - PRODUCTS

2.01 SITE FURNISHINGS:

A. STAINLESS STELL GRILL

1. Model ASW-24 (3 units) as manufactured by Pilot Rock Inc. Grill color shall be an all-black color. All steel members shall be coated with zinc rich epoxy then finished with polyester powder coating.

2. Approved equal.

PART 3 - EXECUTION

3.01 Equipment shall be permanently installed in concrete anchorages unless otherwise indicated by manufacturer specifications. See Section 03 30 00, Cast in Place Concrete.

3.02 Site furnishings shall be installed in accordance with manufacturer's installation instructions, and as shown on the plans.

END OF SECTION

SECTION 31 00 00

EARTHWORK

PART 1 - GENERAL

1.01 WORK INCLUDED:

The Contractor shall make excavations of normal depth in earth for trenches and structures, shall backfill and compact such excavations to the extent necessary, shall furnish the necessary material and construct embankments and fills, and shall make miscellaneous earth excavations and do miscellaneous grading.

1.02 RELATED WORK:

A. Section 00 31 43, PERMITS

B. Section 01 11 00, CONTROL OF WORK AND MATERIALS

C. Section 01 57 19, ENVIRONMENTAL PROTECTION

D. Section 31 05 19.13, GEOTEXTILE FABRICS

E. Section 31 11 00, CLEARING AND GRUBBING

F. Section 31 23 16.26, ROCK EXCAVATION AND DISPOSAL

G. Section 31 23 19, DEWATERING

H. Section 31 50 00, SUPPORT OF EXCAVATION

I. Section 31 52 00, COFFERDAM

J. Section 32 12 00, PAVING

K. Section 31 05 13.13, LOAM BORROW

1.03 REFERENCES:

American Society for Testing and Materials (ASTM)

ASTM	C131	Test Method for Resistance to Degradation of Small Size Coarse Aggregate by Abrasion and Impact in the Los Angeles Machine.
ASTM	C136	Method for Sieve Analysis of Fine and Coarse Aggregates.
ASTM	C330	Specification for Lightweight Aggregate for Structural Concrete.

ASTM D1556 Test Method for Density of Soil in Place by the Sand Cone Method.

ASTM D1557 Test Methods for Moisture-density Relations of Soils and Soil Aggregate Mixtures Using Ten-pound (10 Lb.) Hammer and Eighteen-inch (18") Drop.

ASTM D2922 Test Methods for Density of Soil and Soil-aggregate in Place by Nuclear Methods (Shallow Depth).

Connecticut Department of Transportation Standard Specification for Highways and Bridges (Form 819).

1.04 SUBMITTALS: IN ACCORDANCE WITH REQUIREMENTS OF GENERAL SPECIFICATIONS, SUBMIT THE FOLLOWING:

Samples of all materials proposed for the project shall be submitted to the Engineer for review. Size of the samples shall be as approved by the Engineer.

1.05 PROTECTION OF EXISTING PROPERTY:

A. The work shall be executed in such manner as to prevent any damage to facilities at the site and adjacent property and existing improvements, such as but not limited to streets, curbs, paving, service utility lines, structures, monuments, bench marks, observation wells, and other public or private property. Protect existing improvements from damage caused by settlement, lateral movements, undermining, washout and other hazards created by earthwork operations.

B. In case of any damage or injury caused in the performance of the work, the Contractor shall, at its own expense, make good such damage or injury to the satisfaction of, and without cost to, the Owner. Existing roads, sidewalks, and curbs damaged during the project work shall be repaired or replaced to at least the condition that existed at the start of operations. The Contractor shall replace, at its own cost, existing benchmarks, observation wells, monuments, and other reference points which are disturbed or destroyed.

C. Buried drainage structures and pipes, observation wells and piezometers, including those which project less than eighteen inches (18") above grade, which are subject to damage from construction equipment shall be clearly marked to indicate the hazard. Markers shall indicate limits of danger areas, by means which will be clearly visible to operators of trucks and other construction equipment, and shall be maintained at all times until completion of project.

1.06 DRAINAGE:

A. The Contractor shall provide, at its own expense, adequate drainage facilities to complete all work items in an acceptable manner. Drainage shall be done in a manner so that runoff will not adversely affect construction procedures nor cause excessive disturbance of underlying natural ground or abutting properties.

1.07 FROST PROTECTION AND SNOW REMOVAL:

A. The Contractor shall, at its own expense, keep earthwork operations clear and free of accumulations of snow as required to carry out the work.

B. The Contractor shall protect the subgrade beneath new structures and pipes from frost penetration when freezing temperatures are expected.

PART 2 - PRODUCTS

2.01 MATERIAL:

A. GRAVEL BORROW:

Gravel Borrow shall satisfy the requirements listed in CONN DOT Article M. 02.01-2, Grading A.

B. SAND BORROW:

Sand borrow shall satisfy the requirements listed for fine aggregate in CONN DOT Article M.03.01-2.

C. CRUSHED STONE:

Crushed stone shall satisfy the requirements listed in CONN DOT Article M02.02-1 meeting the gradation requirements in Article M.02.06, Grading “C”.

D. BACKFILL MATERIALS:

1. Class B Backfill:

Class B backfill shall be granular, well graded friable soil; free of rubbish, ice, snow, tree stumps, roots, clay and organic matter; with 30 percent or less passing the No. 200 sieve; no stone greater than two-third (2/3) loose lift thickness, or six inches, whichever is smaller.

2. Select Backfill:

Select backfill shall be granular, well graded friable soil, free of rubbish, ice, snow, tree stumps, roots, clay and organic matter, and other deleterious or organic material; graded within the following limits:

Sieve Size	Percent Finer by Weight
3"	100
No. 10	30-95
No. 40	10-70
No. 200	0-10

E. PROCESSED AGGREGATE BASE:

1. Processed aggregate base shall satisfy the requirements listed in CTDOT Article M.05.01.

PART 3 - EXECUTION

3.01 DISTURBANCE OF EXCAVATED AND FILLED AREAS DURING CONSTRUCTION:

A. Contractor shall take the necessary steps to avoid disturbance of subgrade during excavation and filling operations, including restricting the use of certain types of construction equipment and their movement over sensitive or unstable materials, dewatering and other acceptable control measures.

B. All excavated or filled areas disturbed during construction, all loose or saturated soil, and other areas that will not meet compaction requirements as specified herein shall be removed and replaced with a minimum 12-inch layer of compacted crushed stone wrapped all around in non-woven filter fabric. Costs of removal and replacement shall be borne by the Contractor.

C. The Contractor shall place a minimum of 12-inch layer of special bedding materials and crushed stone wrapped in filter fabric over the natural underlying soil to stabilize areas which may become disturbed as a result of rain, surface water runoff or groundwater seepage pressures, all at no additional cost to the Owner. The Contractor also has the option of drying materials in-place and compacting to specified densities.

3.02 EXCAVATION:

A. GENERAL:

1. The Contractor shall perform all work of any nature and description required to accomplish the work as shown on the Drawings and as specified.

2. Excavations, unless otherwise required by the Engineer, shall be carried only to the depths and limits shown on the Drawings. If unauthorized excavation is carried out below required subgrade and/or beyond minimum lateral limits shown on Drawings, it shall be backfilled with gravel borrow and compacted at the Contractor's expense as specified below, except as otherwise indicated. Excavations shall be kept in dry and good conditions at all times, and all voids shall be filled to the satisfaction of the Engineer.

3. In all excavation areas, the Contractor shall strip the surficial topsoil layer and underlying subsoil layer separate from underlying soils. In paved areas, the Contractor shall first cut pavement as specified in paragraph 3.02 B.1 of this specification, strip pavement and pavement subbase separately from underlying soils. All excavated materials shall be stockpiled separately from each other within the limits of work.

4. The Contractor shall follow a construction procedure, which permits visual identification of stable natural ground. Where groundwater is encountered, the size of the open excavation shall be limited to that which can be handled by the Contractor's chosen method of dewatering and which will allow visual observation of the bottom and backfill in the dry.

5. The Contractor shall excavate unsuitable materials to stable natural ground where encountered at proposed excavation subgrade, as required by the Engineer. Unsuitable material includes topsoil, loam, peat, other organic materials, snow, ice, and trash. Unless specified elsewhere or otherwise required by the Engineer, areas where unsuitable materials have been excavated to stable ground shall be backfilled with compacted special bedding materials or crushed stone wrapped all around in non-woven filter fabric.

B. TRENCHES:

1. Prior to excavation, trenches in pavement shall have the traveled way surface cut in a straight line by a concrete saw or equivalent method, to the full depth of pavement. Excavation shall only be between these cuts. Excavation support shall be provided as required to avoid undermining of pavement. Cutting operations shall not be done by ripping equipment.

2. The Contractor shall satisfy all dewatering requirements specified in Section 31 23 19 DEWATERING, before performing trench excavations.

3. Trenches shall be excavated to such depths as will permit the pipe to be laid at the elevations, slopes, and depths of cover indicated on the Drawings. Trench widths shall be as shown on the Drawings or as specified.

4. Where pipe is to be laid in bedding material, the trench may be excavated by machinery to, or just below, the designated subgrade provided that the material remaining in the bottom of the trench is not disturbed.

5. If pipe is to be laid in embankments or other recently filled areas, the fill material shall first be placed to a height of at least 12-inches above the top of the pipe before excavation.

6. Pipe trenches shall be made as narrow as practicable and shall not be widened by scraping or loosening materials from the sides. Every effort shall be made to keep the sides of the trenches firm and undisturbed until backfilling has been completed.

7. If, in the opinion of the Engineer, the subgrade, during trench excavation, has been disturbed as a result of rain, surface water runoff or groundwater seepage pressures, the Contractor shall remove such disturbed subgrade to a minimum of 12 inches and replace with crushed stone wrapped in filter fabric. Cost of removal and replacement shall be borne by the Contractor.

C. BUILDING AND FOUNDATION EXCAVATION:

1. Excavations shall not be wider than required to set, brace, and remove forms for concrete, or perform other necessary work.

2. After the excavation has been made, and before forms are set for footings, mats, slabs, or other structures, and before reinforcing is placed, all loose or disturbed material shall be removed from the subgrade. The bearing surface shall then be compacted to meet the requirements of this specification.

3. If, in the opinion of the Engineer, the existing material at subgrade elevation is unsuitable for structural support, the Contractor shall excavate and dispose of the unsuitable material to the required width and depth as required by the Engineer. If, in the opinion of the Engineer, filter fabric is required; the Contractor shall place filter fabric, approved by the Engineer, as per manufacturer's recommendations. Crushed stone shall then be placed in lifts and compacted to required densities. Backfill shall be placed to the bottom of the proposed excavation.

D. EXCAVATION NEAR EXISTING STRUCTURES:

1. Attention is directed to the fact that there are pipes, manholes, drains, and other utilities in certain locations. An attempt has been made to locate all utilities on the drawings, but the completeness or accuracy of the given information is not guaranteed.

2. As the excavation approaches pipes, conduits, or other underground structures, digging by machinery shall be discontinued and excavation shall be done by means of hand tools, as required. Such manual excavation, when incidental to normal excavation, shall be included in the work to be done under items involving normal excavation.

3. Where determination of the exact location of a pipe or other underground structure is necessary for properly performing the work, the Contractor shall excavate test pits to determine the locations.

3.03 BACKFILL PLACEMENT AND COMPACTION:

A. GENERAL:

1. Prior to backfilling, the Contractor shall compact the exposed natural subgrade to the densities as specified herein.

2. After approval of subgrade by the Engineer, the Contractor shall backfill areas to required contours and elevations with specified materials.

3. The Contractor shall place and compact materials to the specified density in continuous horizontal layers, not to exceed nine (9) inches in uncompacted lifts. The degree of compaction shall be based on maximum dry density as determined by ASTM Test D1557. The minimum degree of compaction for fill placed shall be as follows:

Location	Percent of Maximum Density
Below pipe centerline	95
Above pipe centerline	92
Below pavement (upper 3 ft.)	95
Embankments	95
Below pipe in embankments	95
Adjacent to structures	92
Below structures	95

4. The Engineer reserves the right to test backfill for conformance to the specifications and Contractor shall assist as required to obtain the information. Compaction testing will be performed by the Engineer or by an inspection laboratory designated by the Engineer, engaged and paid for by the Owner. If test results indicate work does not conform to specification requirements, the Contractor shall remove or correct the defective Work by recompacting where appropriate or replacing as necessary and approved by the Engineer, to bring the work into compliance, at no additional cost to the Owner. All backfilled materials under structures and buildings shall be field tested for compliance with the requirements of this specification.

5. Where horizontal layers meet a rising slope, the Contractor shall key each layer by benching into the slope.

6. If the material removed from the excavation is suitable for backfill with the exception that it contains stones larger than permitted, the Contractor has the option

to remove the oversized stones and use the material for backfill or to provide replacement backfill at no additional cost to the Owner.

7. The Contractor shall remove loam and topsoil, loose vegetation, stumps, large roots, etc., from areas upon which embankments will be built or areas where material will be placed for grading. The subgrade shall be shaped as indicated on the Drawings and shall be prepared by forking, furrowing, or plowing so that the first layer of the fill material placed on the subgrade will be well bonded to the subgrade.

B. TRENCHES:

1. Bedding as detailed and specified shall be furnished and installed beneath the pipeline prior to placement of the pipeline. A minimum bedding thickness shall be maintained between the pipe and undisturbed material, as shown on the Drawings.

2. As soon as practicable after pipes have been laid, backfilling shall be started.

3. Unless otherwise indicated on the Drawings, select backfill shall be placed by hand shovel in 6-inch thick lifts up to a minimum level of 12-inches above the top of pipe. This area of backfill is considered the zone around the pipe and shall be thoroughly compacted before the remainder of the trench is backfilled. Compaction of each lift in the zone around the pipe shall be done by use of power-driven tampers weighing at least 20 pounds or by vibratory compactors. Care shall be taken that material close to the bank, as well as in all other portions of the trench, is thoroughly compacted to densities required.

4. Class B backfill shall be placed from the top of the select backfill to the specified material at grade (loam, pavement subbase, etc.). Fill compaction shall meet the density requirements of this specification.

5. Water Jetting:

   a. Water jetting may be used when the backfill material contains less than 10 percent passing the number 200 sieve, but shall be used only if approved by the Engineer.

   b. Contractor shall submit a detailed plan describing the procedures it intends to use for water jetting to the Engineer for approval prior to any water jetting taking place.

   c. Compaction of backfill placed by water jetting shall conform to the requirements of this specification.

6. If the materials above the trench bottom are unsuitable for backfill, the Contractor shall furnish and place backfill materials meeting the requirements for trench backfill, as shown on the drawings or specified herein.

7. Should the Engineer order crushed stone for utility supports or for other purposes, the Contractor shall furnish and install the crushed stone as required.

8. In shoulders of streets and roads, the top 12-inch layer of trench backfill shall consist of crushed or uncrushed gravel, satisfying the requirements listed in CONN DOT standard specification M02.04.

9. Subbase shall consist of bank or crushed gravel meeting the requirements of CONN DOT standard specification M.02.02.

C. BACKFILLING UNDER BUILDINGS AND FOUNDATIONS:

Material to be used as structural fill under structures shall be special bedding material or gravel borrow, as shown on the Drawings or as required by the Engineer. Where gravel borrow fill is required to support proposed footings, walls, slabs, and other structures, the material shall be placed in a manner accepted by the Engineer. Compaction of each lift shall meet the density requirements of this specification.

D. BACKFILLING ADJACENT TO STRUCTURES:

1. The Contractor shall not place backfill against or on structures until they have attained sufficient strength to support the loads to which they will be subjected. Excavated material approved by the Engineer may be used in backfilling around structures. Backfill material shall be thoroughly compacted to meet the requirements of this specification.

2. Contractor shall use extra care when compacting adjacent to pipes and drainage structures. Backfill and compaction shall proceed along sides of drainage structures so that the difference in top of fill level on any side of the structure shall not exceed two feet (2') at any stage of construction.

3. Where backfill is to be placed on only one side of a structural wall, only hand-operated roller or plate compactors shall be used within a lateral distance of five feet (5') of the wall for walls less than fifteen feet (15') high and within ten feet (10') of the wall for walls more than fifteen feet (15') high.

3.04 DISPOSAL OF SURPLUS MATERIALS:

A. No excavated material shall be removed from the site of the work or disposed of by the Contractor unless approved by the Engineer.

B. Surplus excavated materials, which are acceptable to the Engineer, shall be used to backfill normal excavations in rock or to replace other materials unacceptable for use as

backfill. Upon written approval of the Engineer, surplus excavated materials shall be neatly deposited and graded so as to make or widen fills, flatten side slopes, or fill depressions; or shall be neatly deposited for other purposes as indicated by the Owner, within its jurisdictional limits; all at no additional cost to the Owner.

C. Surplus excavated material not needed as specified above shall be hauled away and disposed of by the Contractor at no additional cost to the Owner, at appropriate locations, and in accordance with arrangements made by it. Disposal of all rubble shall be in accordance with all applicable local, state and federal regulations.

END OF SECTION

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SECTION 31 01 01

SITE RESTORATION

PART 1 – GENERAL

1.01 QUALITY ASSURANCE

A. Provide prepackaged seed readily available to the public with quality and purity equal to product of O.M. Scotts and Son, Marysville, OH 43041. On-the-job or made-to-order mixes will not be accepted.

1.02 DELIVERY STORAGE AND HANDLING

A. Deliver fertilizer in manufacturer's standard size bags or cartons showing weight, analysis, and the name of the manufacturer. Store as approved by Owner's Representative.

B. Store all seed at the site in a cool dry place as approved by the Owner's Representative. Replace any seed damaged during storage.

1.03 SCHEDULING

A. Time For Seeding: Optimum period to sow permanent grass seed is generally between April 1st and May 15th or between August 15th and October 1st. Schedule application for when weather conditions permit or as directed by Owner's Representative.

1. Provide temporary seed and mulch when final grading is complete while waiting for optimal seeding period.

2. Provide temporary seed and mulch for temporary cover on disturbed ground not to be worked on for more than 7 days.

3. Provide temporary seed and mulch on disturbed earth prior to temporary shutdown of construction.

PART 2 – PRODUCTS

2.01 TOPSOIL

A. Provide topsoil conforming to the following:

1. Original loam topsoil, well drained homogeneous texture and of uniform grade, without the admixture of subsoil material and entirely free of dense material, hardpan, sod, or any other objectionable foreign material.

2. Containing not less than 4 percent nor more than 20 percent organic matter in that portion of a sample passing a 1/4 inch sieve when determined by the wet combustion method on a sample dried at 105 degrees C.

3. Containing a pH value within the range of 4.5 to 7 on that portion of the sample that passes a 1/4 inch sieve.

4. Containing the following gradations:

SIEVE DESIGNATION	PERCENT PASSING
1 inch	100
1/4 inch	97 - 100
No. 200	20 - 65 (of the 1/4 inch sieve)

2.02 FERTILIZER

A. Fertilizer: Mixed commercial fertilizers shall contain total nitrogen, available phosphoric acid and soluble potash in the ratio of 10-6-4 (50% N/UF). 50% of total nitrogen shall be derived from ureaform furnishing a minimum of 3.5% water insoluble nitrogen (3.5% WIN). The balance of the nitrogen shall be present as methylene urea, water-soluble urea, nitrate and ammoniacal compounds.

B. Other fertilizers meeting CTDOT requirements and specifications may be used.

2.03 SEED

A. Furnish fresh, clean, new-crop seed mixed in the proportions specified for species and variety and conforming to Federal and State Standards.

B. Acceptable material in a seed mixture other than pure live seed consists of nonviable seed, chaff, hulls, live seed of crop plants and inert matter. The percentage of weed seed shall not exceed 0.1 percent by weight.

C. All seed will be rejected if the label indicates any noxious weed seeds.

D. Provide seed mixture per Specification 32 92 00 Lawns.

2.04 MULCH

A. Hydroseed Application: Do all slurry preparation at the job site:

1. Water, mulch, fertilizer, binder and other ingredients shall be added to the tank simultaneously so that the finished load is a homogenous mix of the specified ingredients.

2. Seed shall be added last and shall be discharged within 2 hours. Loads held over 2 hours will be recharged with ½ the seed rate before application.

3. Once fully loaded, the complete slurry shall be agitated for 3-5 minutes to allow for uniform mixing.

B. HydroSeeding Application: One Step Hydroseed

Lbs/Ac	Material
2,000 lbs	100% Cellulose or Wood Fiber
80 lbs	Fertilizer (3.04 Fertilizer 10-6-4)
16 lbs	Seed as per section (2.02 Seed)

PART 3 – EXECUTION

3.01 GRADING

A. Rough Grading: Trim and grade lawn areas within the Contract Limit to a level of 4 inches below the finish grades indicated unless otherwise specified herein or where greater depths are indicated. Provide smooth uniform transition to adjacent areas.

B. Finish Grading: Finish surfaces free from irregular surface changes, and as follows:

1. Grassed Areas: Finish areas to receive topsoil to within 1 inch above or below the required subgrade surface elevations.

3.02 SPREADING TOPSOIL

A. Perform topsoil spreading operations only during dry weather.

B. To insure a proper bond with the topsoil, harrow or otherwise loosen the subgrade to a depth of 3 inches before spreading topsoil.

C. Spread topsoil directly upon prepared subgrade to a minimum depth measuring 4 inches after natural settlement in areas to be seeded. Smooth out unsightly variations, bumps, ridges, and depressions that will hold water. Remove stones, litter, or other objectionable material. Finished surfaces shall conform to the contour lines and elevations indicated on the drawings or fixed by the Owner's Representative.

3.03 PREPARATION FOR SEEDING

A. Seed Bed: Scarify soil to a depth of 2 inches in compacted areas. Smooth out unsightly variations, bumps, ridges, and depressions that will hold water. Remove stones, litter, or other objectionable material.

3.04 FERTILIZING

A. Apply 10-6-4 fertilizer evenly at the rate of 40 pounds per 1000 sq ft.

3.05 SEEDING

A. Assume all risks when seed is sowed before approval of seed analysis.

B. Do not seed when the wind velocity exceeds 5 miles per hour.

C. Application Rate: 8 pounds per 1000 sq ft.

D. Dry Application: Sow seed evenly by hand or seed spreader on dry or moderately dry soil.

E. Wet Application: Refer to Hydroseeding Application.

3.06 MULCHING

A. Dry Application: Within 3 days after seeding, cover the seeded areas with a uniform blanket of straw mulch at the rate of 50 pounds per 1000 sq ft of seeded area.

B. Wet Application: All hydroseed applications are to be applied in a sweeping motion to form a uniform application and form a mat at the specified rates.

1. Unused Loads: If mixture remains in tank for more than 8 hours it shall be removed from the job site at contractor’s expense.

2. Reseeding: After “Final Acceptance”, reseeding will be done at the request of the owner and shall be considered extra.

3.07 LAWN ESTABLISHMENT

A. Maintain the grass at heights between 2-1/2 inches and 3-1/2 inches until final acceptance of the lawn.

B. Water and protect all seeded areas until final acceptance of the lawn.

3.08 FINAL ACCEPTANCE

A. Final acceptance of seeded areas will be granted when a uniform stand of acceptable grass is obtained, with a minimum of 95 percent coverage. Portions of the seeded areas may be accepted at various times at the discretion of the Owner's Representative.

B. Unacceptable seeded areas, dry application: Reseed as specified and fertilized at one-half the specified rate.

C. Once accepted, the Owner will assume all maintenance responsibilities.

END OF SECTION

SECTION 31 05 19

GEOTEXTILE FABRICS

PART 1 - GENERAL

1.01 WORK INCLUDED:

This Section covers furnishing of all labor, materials, and equipment necessary to install specified geotextile fabrics in locations shown on the drawings and as required by the Owner's Representative.

1.02 SUBMITTALS: IN ACCORDANCE WITH REQUIREMENTS OF GENERAL SPECIFICATIONS, SUBMIT THE FOLLOWING:

Shop drawings or working drawings and material specifications shall be submitted to the Owner's Representative for review for each type of geotextile fabric furnished. General installation practices and installation schedule shall be included.

PART 2 - PRODUCTS

2.01 EROSION CONTROL FABRIC:

A. Erosion Control Fabric shall be of the best quality proven design and construction and shall be entirely suitable in every respect for the intended service.

B. Erosion Control fabric shall be Tencate Miramesh as manufactured by Tencate Geosynthetics, Pendergrass, GA; Enkamat Soil Erosion Matting as manufactured by Bonar, Asheville, N.C.; Tenax Radix Erosion Control Netting as manufactured by Tenax Corp., Baltimore, MD or approved equal.

2.02 SOIL REINFORCEMENT FABRIC:

A. The soil reinforcement fabric shall be an integrally formed structure with aperture geometry and rib thickness sufficient to permit mechanical interlock with the surrounding particle media. The soil reinforcement fabric shall have flexural rigidity and high tensile modulus with continuity of tensile strength through all ribs and junctions of the structure. The fabric shall be composed of polypropylene stabilized with carbon black to resist ultraviolet degradation and be resistant to biological and chemical degradation due to all naturally occurring organisms or reagents normally encountered in natural soil environments.

B. The soil reinforcement fabric shall be a Tensar SS-2 (BX1200) Geogrid, by Contech Construction Products Inc., Marlboro, MA; Tencate Mirafi 500X fabric, by Tencate Geosynthetics, Pendergrass, GA; or approved equal.

2.03 FILTER/DRAINAGE FABRIC:

A. The filter/drainage fabric shall be composed of continuous-filament fibers bonded together to form a sheet. The fabric shall be an average of 20 mils thick and possess the characteristics of Tencate Mirafi 140N.

B. The filter/drainage fabric shall be Tencate Mirafi 140N as manufactured by Tencate Geosynthetics, Pendergrass, GA; Foss-65 by Foss Manufacturing Co., Hampton, NH; US 120NW, as manufactured by US Fabrics, Cincinnati, OH, or approved equal.

PART 3 - EXECUTION

3.01 INSTALLATION:

A. GENERAL:

Installation of geotextile fabrics shall be strictly in accordance with manufacturer's instructions and specific layout plans and details reviewed by the Owner's Representative.

B. EROSION CONTROL FABRIC:

Erosion control fabric shall be placed over the prepared surface in drainage swales and other locations as required by the Owner's Representative. The fabric shall be unrolled, placed in the direction of water flow, overlapped, pinned down with wood stakes, and seeded. All installation work shall be in accordance with manufacturer's recommendations or as required by the Owner's Representative.

C. SOIL REINFORCEMENT FABRIC:

The soil reinforcement fabric shall be installed on the prepared subgrade prior to placement of the gravel base and bituminous concrete pavement. The fabric in place shall be beneath the entire proposed paved area. Each width of fabric shall be overlapped by the subsequent width a minimum of two feet. The Contractor shall follow the manufacturer's installation recommendations.

D. FILTER/DRAINAGE FABRIC:

1. The filter/drainage fabric shall be installed in the final graded trench bottom prior to placement of the crushed stone bedding and at other locations shown on the drawings or designated by the Owner's Representative. The drainage fabric in place shall cover the entire trench bottom and trench sides as shown on the drawings. Each width of drainage fabric shall be overlapped in accordance with manufacturer's recommendations, but not less than 2 feet, to prevent intrusion of soil fines into the bedding.

3.02 FINAL INSPECTION AND ACCEPTANCE:

A. The Contractor shall, at his expense, have a manufacturer's representative inspect the work at completion of the installation. Any work found to be unsatisfactory shall be corrected at the Contractor's expense.

B. The Owner’s Representative, at the Contractor's expense, reserves the right to have a manufacturer's representative inspect the installation process at any time during construction.

END OF SECTION

SECTION 31 11 00

CLEARING AND GRUBBING

PART 1 – GENERAL

1.01 RELATED DOCUMENTS: Drawings and general provisions of Contract, including General and Supplementary Conditions, apply to this Section.

1.02 WORK INCLUDED: Under this section the Contractor shall perform all clearing and grubbing required within the area to be occupied by the work as specified and as indicated.

PART 2 – PRODUCTS

Not Used.

PART 3 – EXECUTION

3.01 Areas to be cleared and grubbed as shown on the plans, shall be cleared of all trees, stumps, roots, brush, weeds, shrubs and all other objectionable materials except those trees and shrubs as are specified or as required to be left in place. All such materials removed in the clearing of the area shall be completely removed from the site of the work. Trees and shrubs within the area which are to be left in place shall be adequately protected from damage. Excavated or piled materials shall not be deposited around them unless they are properly protected.

3.02 Except in areas to be excavated, stump holes and other holes from which obstructions are removed shall be backfilled with suitable material and compacted.

3.03 Cleared materials and debris shall be removed from the site and disposed of at locations off the project site. The Contractor shall make all necessary arrangements for obtaining suitable disposal locations and the cost involved shall be included in the amount bid.

END OF SECTION

SECTION 31 23 19

DEWATERING

PART 1 - GENERAL

1.01 WORK INCLUDED:

This section specifies designing, furnishing, installing, maintaining, operating and removing temporary dewatering systems as required to lower and control water levels and hydrostatic pressures during construction; disposing of pumped water; constructing, maintaining, observing and, except where indicated or required to remain in place, removing of equipment and instrumentation for control of the system.

1.02 RELATED WORK:

A. Section 31 23 00, EARTHWORK

B. Section 31 25 10, ENVIRONMENTAL PROTECTION

C. Section 31 50 00, SUPPORT OF EXCAVATION

1.03 SYSTEM DESCRIPTION:

A. Dewatering includes lowering the water table and intercepting seepage which would otherwise emerge from the slopes or bottom of the excavation; increasing the stability of excavated slopes; preventing loss of material from beneath the slopes or bottom of the excavation; reducing lateral loads on sheeting and bracing; improving the excavation and hauling characteristics of sandy soil; preventing rupture or heaving of the bottom of any excavation; and disposing of pumped water.

B. Normal dewatering is defined as using conventional pumps installed in open excavations, ditches, or sumps. Special dewatering is defined as using single or two stage wellpoints, deep wells, or eductor and ejector systems installed in drilled holes or jetted in place.

1.04 QUALITY ASSURANCE:

A. The Contractor is responsible for the adequacy of the dewatering systems. He shall retain the services of a Professional Engineer registered in the state where the project is located, experienced in dewatering systems, to independently evaluate the boring logs and any other soils information available to determine those areas that will require special dewatering techniques and to design the required system. The Contractor's Professional Engineer shall provide sufficient on-site inspection and supervision to assure that the dewatering is carried out in accordance with his design.

B. The dewatering systems shall be capable of effectively reducing the hydrostatic pressure and lowering the groundwater levels to a minimum of 2 feet below excavation bottom, unless otherwise directed by the Owner's Representative, so that all excavation bottoms are firm and dry.

C. The dewatering system shall be capable of maintaining a dry and stable subgrade until the structures, pipes and appurtenances to be built therein have been completed to the extent that they will not be floated or otherwise damaged.

D. The dewatering system and excavation support shall be designed so that lowering of the groundwater level within the work area does not adversely affect structures, utilities or wells outside of the work area.

E. Where special dewatering is used, the Contractor shall obtain at his expense the services of a registered professional engineer to investigate, design and monitor the dewatering system. The Contractor shall also furnish materials and install at least two observation wells at each excavation area. The location of the wells shall be determined in the field by the Contractor's Engineer.

1.05 SUBMITTALS: IN ACCORDANCE WITH REQUIREMENTS OF GENERAL SPECIFICATIONS, SUBMIT THE FOLLOWING:

A. At least two weeks prior to installing his dewatering system, Contractor shall submit the attached Certificate of Design completed and signed by Contractor, identifying the engineer responsible for design of the dewatering system. He shall also submit a schedule showing the timing of installation and operation of the dewatering system.

B. The Contractor shall submit to the Owner's Representative for record purposes only, the following items bearing the Contractor's Engineer's stamp and signature, and identifying the codes and specifications followed in the design.

1. Plans and description of the dewatering system, including the number, location and depth of wells, wellpoints or sumps; designs of filters to prevent pumping of fine soil; method and location for filtering and disposal of pumped water; and flow capacity of proposed system.
2. Locations of observation wells.

C. The Contractor shall submit records of pump operation and groundwater elevations as required by the Owner's Representative.

PART 2 - PRODUCTS:

Not Used.

PART 3 - EXECUTION

3.01 DEWATERING OPERATIONS:

A. All water pumped or drained from the work shall be disposed of in a manner which will not result in undue interference with other work or damage to adjacent properties, pavements and other surfaces, buildings, structures and utilities. Suitable temporary pipes, flumes or channels shall be provided for water that may flow along or across the site of the work. All disposal of pumped water shall conform to the provisions of Section 31 25 01 ENVIRONMENTAL PROTECTION.

B. Dewatering facilities shall be located where they will not interfere with utilities and construction work to be done by others.

C. Dewatering procedures to be used shall be as described below:

1. Crushed stone shall encapsulate the suction end of the pump to aid in minimizing the amount of silt discharged.
2. For dewatering operations with relatively minor flows, pump discharges shall be directed into haybale sedimentation traps lined with filter fabric. Water is to be filtered through the haybales and filter fabric prior to being allowed to seep out into its natural water course.
3. For dewatering operations with larger flows, pump discharges shall be into a steel dewatering basin. Steel baffle plates shall be used to slow water velocities to increase the contact time and allow adequate settlement of sediment prior to discharge into waterways.
4. Where indicated on the contract drawings or in conditions of excess silt suspended in the discharge water, silt control bags are to be utilized in catchbasins.

D. The Contractor shall be responsible for repair of any damage caused by his dewatering operations, at no cost to the Owner.

3.02 SPECIAL DEWATERING:

A. If conventional dewatering methods are inadequate to ensure dry and stable conditions for structural foundations, the Contractor shall be required to use special dewatering as necessary.

B. Special dewatering techniques may consist of one or two stage wellpoint systems, deep wells, or eductor and ejector type systems. The Contractor shall utilize a system which provides proper construction conditions and prevents settlement at time of installation and upon backfilling.

C. In areas requiring special dewatering, the Contractor shall lower the groundwater level to a minimum of 2 feet below the bottom of the final excavation grade prior to any installation and maintain that groundwater level until the excavation has been backfilled.

The groundwater levels shall be monitored by the Contractor's Engineer to ensure conformance with the requirements of these specifications. Construction will not be allowed until the Owner’s Representative is satisfied that the above provisions are met.

3.03 NOISE LEVEL REQUIREMENTS:

A. All primary dewatering equipment shall be electrically operated and shall run on commercial power. Standby equipment shall be independent of commercial power and shall provide dewatering upon primary pump or power failure.

B. All operations by the Contractor must meet local noise ordinances, as applicable.

END OF SECTION

CERTIFICATE OF DESIGN

Re: Contract Between:

OWNER: _____
(Name)

and
CONTRACTOR: _____
(Name)

on
CONTRACT: _____
(Number)

Date: _____

Title: _____

Contractor hereby certifies that _____:
(Engineer)

1. Is licensed or registered to perform professional engineering work in the state of _____;
(Location of Project)

2. Is qualified to design the _____
(Item)
specified in Section _____ of subject contract;

3. Has designed _____ before;
(Item)

4. Has prepared the design in full compliance with the applications and requirements of Section _____ of subject contract including all applicable laws, regulations, rules, and codes; and

5. The work has been signed and sealed pursuant to applicable state law.

FOR: _____
(Contractor)

BY: _____
(Signature)

_____
(Name and Title)

Dated: _____

SECTION 31 25 01

ENVIRONMENTAL PROTECTION

PART 1 – GENERAL

1.01 DESCRIPTION:

A. The work covered by this section of the specifications consists of furnishing all labor, materials, tools and equipment and performing all work required for the prevention of environmental pollution during and as a result of construction operations under this contract.

B. The requirements set forth in this section of the specifications apply to cross-country areas, river and stream crossings, and construction in and adjacent to wetlands, unless otherwise specifically stated.

C. All work under this Contract shall be in accordance with the requirements of the Inland Environmental Protection Commission and any conditional requirements applied, all of which are attached to Section 00 31 43, PERMIT APPLICATION.

D. Prior to commencement of work, the Contractor shall meet with representatives of the Owner's Representative to develop mutual understandings relative to compliance of the environmental protection program.

1.02 RELATED WORK:

A. Section 00 31 43, PERMIT APPLICATION

B. Section 01 33 23, SUBMITTALS

C. Section 01 14 19.16, DUST CONTROL

D. Section 31 11 00, CLEARING AND GRUBBING

E. Section 31 23 00, EARTHWORK

F. Section 31 23 19, DEWATERING

G. Section 31 50 00, SUPPORT OF EXCAVATION

1.03 SUBMITTALS:

A. The Contractor shall submit for approval details and literature fully describing environmental protection methods to be employed in carrying out construction activities within 100 feet of wetlands or across areas designated as wetlands.

1.04 QUALITY ASSURANCE

A. All Erosion/Sediment Control activities and water quality objectives performed by the contractor shall be in compliance with the following standards of practice:

1. CTDEEP's "Connecticut Guidelines for Soil Erosion and Sediment Control" (DEP Bulletin 34), latest edition.

2. CTDEEP's "CT Guidelines on Erosion and Sediment Control – Errata Sheet", latest edition.

3. USDA Soil Conservation Service "Guidelines for Urban Erosion and Sediment Control, latest revision.

4. Other applicable federal, state and local regulations.

B. Local Guidelines for Erosion and Sediment Control.

1. CTDOT & CTDEEP Specifications.

C. Contractor is responsible for all monitoring, reporting, and repair of erosion control measures as required by the Contract Documents throughout the duration of construction. Contractor shall provide a qualified inspector performing all Erosion & Sediment Control inspections.

D. Directives of Owner, Owner's Representative, and/or regulatory personnel of authority having jurisdiction requiring further control measures as warranted.

PART 2 - PRODUCTS

2.01 SILT FENCE:

A. The silt fence shall consist of a 3-foot wide continuous length sediment control fabric, stitched to a mesh backing, and stapled to preweathered oak posts installed as shown on the drawings. The oak posts shall be 1-1/4-inches by 1-1/4-inches (Minimum Dimension) by 48-inches and shall be tapered. The bottom edge of the silt fence shall be buried as shown on the drawings.

B. The silt fence shall be DOT Silt Fence PPDM3611, as manufactured by U.S. Silt & Site Supply/Getsco, Concord, NH, or approved equal.

C. Silt fence properties:

Physical Properties	Test Method	Minimum Value
Grab Strength, lbs.	ASTM-D-4632	124
Grab Elongation, %	ASTM-D-4632	15
Mullen burst, psi	ASTM-D-3786	300

Puncture, lbs.	ASTM-D-4833	65
Trapezoidal Tear, lbs.	ASTM-D-4833	65
UV Resistance2, %3	ASTM-D-4355	80@500 hrs.
AOS, US Sieve No.	ASTM-D-4751	30
Flow Rate, gal/min/sq ft	ASTM-D-4491	10
Permittivity, (1/sec) gal/min/sq ft	ASTM-D-4491	0.05 sec^{-1}

2.02 STRAW BALES:

A. Straw bales shall consist of certified seed free stems of agricultural grain and cereal crops and shall be free of grasses and legumes. Standard bales shall be 14-inches high, 18- inches wide and 36- to 40-inches long tied with polypropylene twine and weigh within 5 percent of 7 lbs. per cubic ft.

2.03 SILT CURTAIN:

A. If deemed necessary, the silt curtain shall be a Type-1-Silt-Barrier consisting of 18-ounce vinyl fabric skirt with a 6-inch marine quality floatation device. The skirt shall be ballasted to hang vertical in the water column by a minimum 3/16-inch galvanized chain. If necessary, join adjacent ends of the silt curtain by connecting the reinforcing grommets and shackling ballast lines.

2.04 MULCHES

A. Mulches shall be suitable material acceptable to the Owner's Representative and reasonably clean and free of noxious weeds and deleterious materials. The following materials are acceptable:

Application Rates

Mulch Material	Quality Standards	Per 1000 SF	Per Acre	Depth
Wood Chips or Shavings	Green or air-dried. Free of objectionable coarse material	500-900 lbs.	10-20 tons	2 - 7"
Straw	Air-dried; free of undesirable seeds & coarse materials	90-100 lbs. 2-3 bales	2 tons 100-120 bales	90%
Excelsior Wood Fiber Mats	Interlocking web of excelsior fibers with Photodegradable plastic netting	48" x 100" 2 sided plastic, 48"x 180"1 sided plastic	----------	----------

2.05 GRASS

A. Grass shall be quick growing species suitable to the area and as a temporary cover which will not compete with the grasses sown later for permanent cover.

B. Seed Mixtures

1. Temporary Seeding

Type	Lbs./Acre	Lbs./1000 SF
Ryegrass (Annual or Perennial)	80	1.9
Certified "Aroostook" Winter Rye	100	2.5

Use winter rye if seeding in October/November.

2.06 SOIL AMENDMENTS

A. Fertilizer and soil conditioners shall be a standard commercial grade acceptable to the Owner's Representative.

1. Lime: pH of 6.

2. Fertilizer: Meeting CTDOT specifications or as approved. 1-2-1 N.P.P. ratio.

2.07 JUTE MESH

A. Jute mesh and appurtenances shall comply with CTDOT Standard Drawings, latest revision.

2.08 CHEMICAL BINDER

A. Non-toxic conforming to CTDOT Specifications.

2.09 RIP-RAP

A. Per CTDOT Specification Section 7.03 and M12.02.

2.10 FILTER STONE

A. Sound durable stone per CTDOT and CTDEEP, size(s) per plans.

2.11 TURF REINFORCEMENT MATTING

A. VMAX Model SC250 UV-stable polypropylene permanent matting as manufactured by RollMax Rolled Erosion Control or approved equivalent.

1. 70% Straw Fiber / 30% Coconut Fiber.

2. Thread: Polypropylene UV Stable.

3. Thickness: 0.62 in.

4. Resiliency: 95.2%.

5. Density: 0.891 g/cm^3.

6. UV Stability: 100%.

7. Light Penetration: 4.1%.

8. Porosity: 99%.

9. Tensile Strength: 709 lbs/ft.

10. Elongation: MD=23.9% / TD=36.9%.

PART 3- EXECUTION

3.01 NOTIFICATION AND STOPPAGE OF WORK:

A. The Owner's Representative will notify the Contractor in writing of any non-compliance with the requirements of the Environmental Protection Commission. The Contractor shall, after receipt of such notice, immediately take corrective action. Such notice, when delivered to the Contractor or his authorized representative at the site of the work, shall be deemed sufficient for the purpose. If the Contractor fails to act promptly, the Owner may order stoppage of all or part of the work through the Owner's Representative until satisfactory corrective action has been taken. No claim for an extension of time or for excess costs or damage incurred by the Contractor as a result of time lost due to any stop work orders shall be made unless it was later determined that the Contractor was in compliance.

3.02 AREA OF CONSTRUCTION ACTIVITY:

A. Insofar as possible, the Contractor shall confine his construction activities to those areas defined by the plans and specifications. All land resources within the project boundaries and outside the limits of permanent work performed under this contract shall be preserved in their present condition or be restored to a condition after completion of construction at least equal to that which existed prior to work under this contract.

3.03 PROTECTION OF WATER RESOURCES:

A. The Contractor shall not pollute streams, lakes or reservoirs with fuels, oils, bitumens, calcium chloride, acids or other harmful materials. It is the Contractor's responsibility

to comply with all applicable Federal, State, County and Municipal laws regarding pollution of rivers and streams.

B. Special measures should be taken to insure against spillage of any pollutants into public waters.

3.04 CONSTRUCTION IN AREAS DESIGNATED AS WETLANDS ON THE DRAWINGS:

A. Insofar as possible, the Contractor shall make every effort to minimize disturbance within areas designated as wetlands that are to remain.

B. The Contractor shall perform his work in such a way that these areas to remain are left in the condition existing prior to construction.

C. The elevations of areas designated as wetlands to remain shall not be unduly disturbed by the Contractor's operations. If such disturbance does occur, the Contractor shall take all measures necessary to return these areas to the elevations which existed prior to construction.

D. In areas designated as wetlands, the Contractor shall carefully remove and stockpile the top 24 inches of soil. Upon review, if stockpiled topsoil does not include invasive species, this topsoil material may be used as top layer for backfill of excavated areas. The finished elevation of excavation shall be restored to the preconstruction elevations wherever disturbed by the Contractor's operation.

E. As necessary, the Contractor shall use a trench box, sheeting or bracing to support the excavation in areas designated as wetlands.

F. Excavated materials shall not be permanently placed or temporarily stored in areas designated as wetlands. Temporary storage areas for excavated material shall be as required by the Owner’s Representative.

3.05 PROTECTING AND MINIMIZING EXPOSED AREAS:

A. The Contractor shall limit the area of land which is exposed and free from vegetation during construction. In areas where the period of exposure will be greater than two (2) months, temporary vegetation, mulching or other protective measures shall be provided as specified.

B. The Contractor shall take account of the conditions of the soil where temporary cover crop will be used to ensure that materials used for temporary vegetation are adaptive to the sediment control. Materials to be used for temporary vegetation shall be approved by the Owner’s Representative.

3.06 LOCATION OF STORAGE AREAS:

A. The location of the Contractor's storage areas for equipment and/or materials shall be upon cleared portions of the job site or areas to be cleared as a part of this project, and shall require written approval of the Owner's Representative. Plans showing storage facilities for equipment and materials shall be submitted for approval of the Owner's Representative.

B. No excavated materials or materials used in backfill operations shall be deposited within a minimum distance of one hundred (100) feet of any watercourse or any drainage facility. Adequate measures for erosion and sediment control such as the placement of baled straw around the downstream perimeter of stockpiles shall be employed to protect any downstream areas from siltation.

C. There shall be no storage of equipment or materials in areas designated as wetlands.

D. The Owner's Representative may designate a particular area or areas where the Contractor may store materials used in his operations.

E. Storage areas shall be restored to pre-construction conditions with the planting of native species of trees and shrubs.

3.07 PROTECTION OF LANDSCAPE:

A. The Contractor shall not deface, injure, or destroy trees or shrubs nor remove or cut them without written authority from the Owner. No ropes, cables, or guys shall be fastened to or attached to any existing nearby trees for anchorages unless specifically authorized by the Owner's Representative. Excavating machinery and cranes shall be of suitable type and be operated with care to prevent injury to trees which are not to be removed, particularly overhanging branches and limbs. The Contractor shall, in any event, be responsible for any damage resulting from such use.

B. Branches, limbs, and roots shall not be cut except by permission of the Owner's Representative. All cutting shall be smoothly and neatly done without splitting or crushing. When there is unavoidable injury to branches, limbs and trunks of trees, the injured portions shall be neatly trimmed and covered with an application of grafting wax or tree healing paint as directed.

C. Where, in the opinion of the Owner's Representative, trees may possibly be defaced, bruised, injured, or otherwise damaged by the Contractor's equipment or by his blasting or other operations, the Owner's Representative may require the Contractor to adequately protect such trees by placing boards, planks, poles or fencing around them. Any trees or landscape feature scarred or damaged by the Contractor's equipment or operations shall be restored as nearly as possible to its original condition at the expense of the Contractor. The Owner's Representative will decide what method of restoration shall be used, and whether damaged trees shall be treated and healed or removed and disposed of under the provisions of Section 31 11 00, CLEARING AND GRUBBING.

D. Cultivated hedges, shrubs, and plants which could be injured by the Contractor's operations shall be protected by suitable means or shall be dug up, balled and temporarily replanted and maintained. After construction operations have been substantially completed, they shall be replanted in their original positions and cared for until growth is re-established. If cultivated hedges, shrubs, and plants are injured to such a degree as to affect their growth or diminish their beauty or usefulness, they shall be replaced by items of a kind and quality at least equal to that existing at the start of the work.

3.08 CLEARING AND GRUBBING:

A. The Contractor shall clear and grub only on the Owner's land or the Owner's easements, and only the area required for construction operations, as approved by the Owner's Representative.

B. The Contractor shall not remove trees in the Owner's temporary easements without permission of the Owner's Representative.

3.09 DISCHARGE OF DEWATERING OPERATIONS:

A. Any water that is pumped and discharged from the trench and/or excavation as part of the Contractor's water handling shall be filtered by an approved method prior to its discharge into a receiving water or drainage system.

B. Under no circumstances shall the Contractor discharge water to the areas designated as wetlands. When constructing in a wetlands area, the Contractor shall discharge water from dewatering operations directly to the nearest drainage system, stream, or waterway after filtering by an approved method.

C. The pumped water shall be filtered through filter fabric and baled straw, a vegetative filter strip or a vegetated channel to trap sediment occurring as a result of the construction operations. The vegetated channel shall be constructed such that the discharge flow rate shall not exceed a velocity of more than 1 foot per second. Accumulated sediment shall be cleared from the channel periodically.

3.10 DUST CONTROL:

A. During the progress of the work, the Contractor shall conduct his operations and maintain the area of his activities, including sweeping and sprinkling of streets as necessary, to minimize creation and dispersion of dust. If the Owner's Representative decides it is necessary to use calcium chloride for more effective dust control, the Contractor shall furnish and spread the material, as directed. Calcium chloride shall be as specified under Section 01 14 19.16, DUST CONTROL.

B. Calcium Chloride shall not be used for dust control within a drainage basin or in the vicinity of any source of potable water.

3.11 SEPARATION AND REPLACEMENT OF TOPSOIL:

A. Topsoil shall be carefully removed from cross-country areas where excavations are to be made, and separately stored to be used again as required. The topsoil shall be stored in an area acceptable to the Owner's Representative and adequate measures shall be employed to prevent erosion of said material.

3.12 BALED STRAW:

A. To trap sediment and to prevent sediment from clogging drainage systems, baled straw shall be used where shown on the drawings. Care shall be taken to keep the bales from breaking apart. The bales should be securely staked to prevent overturning, flotation, or displacement. All deposited sediment shall be removed periodically. Hay bales shall not be placed within a waterway during construction of the pipeline crossing.

3.13 ERECTION AND MAINTENANCE OF SILT FENCE:

A. Where indicated on the drawings or where required by the Owner's Representative, the Contractor shall erect and maintain a temporary silt fence. In areas designated as wetlands, the Contractor shall line the limits of the construction easement with a silt fence. The silt fence shall be used specifically to contain sediment from runoff water and to minimize environmental damage caused by construction.

3.14 CATCH BASIN PROTECTION:

A. Catch basin protection shall be used for every catch basin, shown on the plans or as required by the Owner's Representative, to trap sediment and prevent it from clogging drainage systems and entering wetlands. Siltation fabric shall be securely installed under the catch basin grate. Care shall be taken to keep the siltation fabric from breaking apart or clogging. All deposited sediment shall be removed periodically and at times prior to predicted precipitation to allow free drainage flow. Prior to working in areas where catch basins are to be protected, each catch basin sump shall be cleaned of all debris and protected. The Contractor shall properly dispose of all debris at no additional cost to the Owner.

END OF SECTION

SECTION 31 35 00

SEDIMENT REMOVAL

PART 1 - GENERAL

1.01 WORK INCLUDED:

A. This Section includes furnishing of all labor, materials, and equipment necessary to remove sediment from the Long Island Sound as shown on the Contract Drawings and properly dispose of excavated material offsite as shown on the drawings and as directed by the Owner's Representative.

B. The Contractor shall sequence work in an upgradient to downgradient direction including upland to sound work, minimizing the potential for downgradient impacts to the sound. The Contractor shall sequence work to avoid sedimentation from upland bank grading activities depositing within the sediment removal area. The Contractor is required to achieve the grades on the Contract Drawings and shall protect the sediment removal area post-removal. If additional sediment removal is required after the achievement of grades, the Contractor shall remove sediment at no additional cost to the Owner.

C. Prior to work related to the sediment removal area, all related environmental protection controls as provided on the drawings shall be installed including dual turbidity curtains.

D. The sediment removal is proposed to be performed under low water conditions "in the wet" (i.e., no pumping of water from the work area). Because the work will be performed close to the shoreline with multiple water quality control measures (turbidity curtains, booms) used, removal "in the wet" shall be performed without surrounding impacts to the sound. Once the turbidity curtains and absorbent booms are installed, the sediment removal shall occur by mechanical excavation under low water conditions.

E. Following removal of sediment, the excavation area in the sound will be restored by the Contractor per the Contract Drawings.

1.02 SUBMITTALS: IN ACCORDANCE WITH REQUIREMENTS OF GENERAL SPECIFICATIONS, SUBMIT THE FOLLOWING:

A. The Contactor shall prepare Sediment Removal Plan detailing the approach to remove, dewater and handle surplus sediment. General sediment removal practices and schedule shall be included within the submittal documentation.

B. Equipment to be used for shore-based dredging including specialty long-reach excavators to access the sediment removal areas. Contractor shall include qualifications of operator to use long-reach excavator with references and summary of a minimum of three (3) recent projects dredging sediment with a long-reach excavator.

C. Cut sheet for erosion controls upland of the sediment removal area and turbidity controls are required in the Sediment Removal Plan. Material specifications and quality control documentation shall be submitted to the Owner's Representative for review for the removal. If swamp matting or other shore protections are planned, cut sheets for these products shall be included in the Sediment Removal Plan.

D. Contractor to determine and detail in the Sediment Removal Plan best practice for sediment removal, dewatering and management of liquids and solid wastes. Geotechnical suitable sediment shall be used in the upland limits of work as backfill.

E. The Contractor to determine waste characterization and receiving facility requirements for the removed sediment and dewatered liquids. The Contractor shall reference the EMMP as provided per Section 02 61 16, TRANSPORTATION AND DISPOSAL OF IMPACTED MATERIAL and detail which receiving facilities will accept surplus sediment.

PART 2 - PRODUCTS

2.01 GENERAL

A. All materials or equipment delivered to the Site shall be unloaded, temporarily stored, and transferred to the work area in a manner which shall not interfere with operation of others at the Site, or employee's access and safety.

B. Damaged or deteriorated materials shall not be used and shall be promptly removed from the premises.

C. All materials and equipment shall comply, at a minimum, with all sections of this specification, applicable federal, state, and local codes, and industry standards.

2.02 EQUIPMENT & SUPPLIES

A. Long-reach excavator(s) shall be provided to access sediment removal areas.

B. Swamp Matting may be provided to stabilize bank soils during the sediment removal. If the Contractor does not utilize matting, any tracking or rutting of the slopes shall be graded as part of the Contract at no additional cost to the Owner.

C. Plastic Sheeting ("Poly") and Bags (where applicable) - shall be polyethylene or equivalent with a thickness of at least 6 mil for all applications.

D. Containers and pumps – dewatering pumps and storage containers to be provided and maintained throughout the sediment removal work.

E. Warning Signs and Labels - shall comply with all federal, state, and local codes and regulations.

F. Containers and Transportation - shall be suitable for loading, transport, and unloading of impacted water and sediment. Transportation methods shall comply with any and all federal, state, and local hazardous or special waste regulations for transport, and disposal if such codes are enforced in states in which the waste will be stored, transported, or disposed.

PART 3 - EXECUTION

3.01 SITE PREPARATION:

A. Prior to the removal of sediment, the Contractor shall prepare the Site. Dual turbidity curtains and erosion controls shall be placed as environmental controls prior to any land disturbance per Section 31 25 00. The Contractor may elect to construct dewatering cell(s) for to process removed sediment or utilize other dewatering technologies, as approved by the Owner's Representative. The Contractor shall collect and dispose offsite dewatered liquids. As necessary, swamp matting shall be placed on the beach for equipment to traverse the Site and perform the removal work.

B. Sediment removal shall be performed during low water conditions.

3.02 SEDIMENT REMOVAL:

A. Preparation for removal activities will include mobilizing appropriate construction/installation equipment to the project area, and Site Preparation activities described in Section 3.01 above.

B. The sediment removal is proposed to be performed under low water conditions "in the wet". The Contractor shall handle dewatering fluids from the dredged sediment per Section 31 23 19, Dewatering. The sediment removal will occur by mechanical excavation using a long-reach bucket under low water conditions.

C. The sediment removal schedule should contemplate lost time due to site related issues, including; potential weather interruptions, weekends, potential equipment or receiving facility issues.

D. The Contractor shall not cross-contaminate adjacent environmental media. Contractor-contaminated environmental media shall be remediated at no cost to the Owner or Owner's Representative.

E. Sediment shall be dewatered in the dewatering cell per Section 3.03 below. Geotechnically suitable sediment shall be re-used in the project upland area after drained of all free liquids.

F. If sediment is not geotechnically suitable for re-use, once dewatered sediment can legally be transported over the road (e.g. passed paint filter test), the Contractor shall load the dewatered sediment for off-Site recycling or disposal per applicable federal,

state and local regulations. The Contractor is responsible for waste characterization as required by the receiving facility as specified in Section 02 61 13, EXCAVATION AND STOCKPILING OF IMPACTED MATERIAL.

3.03 DEWATERING:

A. The Contractor shall manage dewatering fluids from sediment removal in accordance with Section 31 23 19, DEWATERING.

3.04 SOUND MONITORING

A. The Contractor shall monitor the sound for turbidity and sheen over the duration of the remediation project. Monitoring will occur outside the dual-turbidity curtains and downstream of the work area.

B. The Contractor shall provide the Owner and Owner's Representative turbidity data and immediately report any evidence of impacts outside the limits of work from the sediment dredging.

C. The Contractor shall deploy additional erosion and sedimentation controls (such as shut down of work, booms, or curtains, or deploying additional absorbent booms) should the monitoring data indicate that elevated turbidity or downstream migration of sheen is occurring.

3.05 FINAL INSPECTION AND ACCEPTANCE:

A. Quality control during sediment removal shall consist of a Contractor-supplied technician measuring and documenting the surface location of the sediment removal. This technician shall confirm that impacted sediment is removed within a desired grid of confirmation points. If removal does not remove the impacted sediment additional sediment removal will be performed at the Owner's Representative's discretion. All sediment removal shall be observed by the Owner's Representative, who will receive and maintain all documents and records.

PART 4 – MEASUREMENT AND PAYMENT

4.01 MEASUREMENT AND PAYMENT

A. The lump sum price for work included in this section of the specifications shall constitute full compensation for furnishing all labor, materials, tools and equipment and constructing the project, complete, as shown on the drawings and called for in the specifications.

END OF SECTION

SECTION 31 50 00

SUPPORT OF EXCAVATION

PART 1 - GENERAL

1.01 WORK INCLUDED:

A. This section of the specification covers wood sheeting and bracing for support of excavations. The requirements of this section shall also apply, as appropriate, to other methods of excavation support and underpinning which the Contractor elects to use to complete the work.

B. The Contractor shall furnish and place timber sheeting of the kinds and dimensions required, complying with these specifications, where indicated on the drawings or required by the Owner's Representative.

1.02 RELATED WORK:

A. Section 31 23 00, EARTHWORK

B. Section 31 23 19, DEWATERING

1.03 QUALITY ASSURANCE:

A. This project is subject to the Safety and Health regulations of the U.S. Department of Labor set forth in 29 CFR, Part 1926, and to the Connecticut Occupational Safety and Health Act (Chapter 571 of the Connecticut General Statutes). Contractors shall be familiar with the requirements of these regulations.

B. The excavation support system shall be of sufficient strength and be provided with adequate bracing to support all loads to which it will be subjected. The excavation support system shall be designed to prevent any movement of earth that would diminish the width of the excavation or damage or endanger adjacent structures.

PART 2 - PRODUCTS

2.01 MATERIALS:

A. Timber sheeting shall be sound spruce, pine, or hemlock, planed on one side and either tongue and grooved or splined. Timber sheeting shall not be less than nominal 2-inches thick.

B. Timber and steel used for bracing shall be of such size and strength as required in the excavation support design. Timber or steel used for bracing shall be new or undamaged used material which does not contain splices, cutouts, patches, or other alterations which would impair its integrity or strength.

PART 3 - EXECUTION

3.01 INSTALLATION:

A. Work shall not be started until all materials and equipment necessary for their construction are either on the site of the work or satisfactorily available for immediate use as required.

B. The sheeting shall be securely and satisfactorily braced to withstand all pressures to which it may be subjected and be sufficiently tight to minimize lowering of the groundwater level outside the excavation, as required in Section 31 23 19, DEWATERING.

C. The sheeting shall be driven by approved means to the design elevation. No sheeting may be left so as to create a possible hazard to safety of the public or a hindrance to traffic of any kind.

D. If boulders or very dense soils are encountered, making it impractical to drive a section to the desired depth, the section shall, as required, be cut off.

E. The sheeting shall be left in place where indicated on the drawings or required by the Owner's Representative in writing. At all other locations, the sheeting may be left in place or salvaged at the option of the Contractor. Steel or wood sheeting permanently left in place shall be cut off at a depth of not less than two feet below finish grade unless otherwise required.

F. All cut-off will become the property of the Contractor and shall be removed by him from the site.

G. Responsibility for the satisfactory construction and maintenance of the excavation support system, complete in place, shall rest with the Contractor. Any work done, including incidental construction, which is not acceptable for the intended purpose shall be either repaired or removed and reconstructed by the Contractor at his expense.

H. The Contractor shall be solely responsible for repairing all damage associated with installation, performance, and removal of the excavation support system.

END OF SECTION

SECTION 31 62 19

TIMBER PILES

PART 1 - GENERAL

1.01 WORK INCLUDED:

A. This section includes all materials, labor, services, tools, and equipment required for furnishing, unloading, handling, driving, re-insalling and cutting-off of all timber piles at the locations shown on the drawings.

B. The Contractor shall provide 10-ton timber piles with the required strength, appearance, and durability specified herein.

1.02 RELATED WORK:

A. Section 03 30 00, CAST-IN-PLACE CONCRETE

1.03 REFERENCES:

The following standards form a part of this specification and indicate minimum standards required:

ASTM International (ASTM)

ASTM D25 Standard Specification for Round Timber Piles

1.04 SUBMITTALS: IN ACCORDANCE WITH REQUIREMENTS OF GENERAL SPECIFICATIONS, SUBMIT THE FOLLOWING:

A. The Contractor shall provide the following items to the Engineer for its review within ten (10) days after the award of the contract and at least ten (10) days before the desired start of pile driving.

1. Proposed pile type and size.

2. Schedule of length of piles, designating site area in which each length is to be used.

3. Details of proposed pile installation procedures, including hammer size and type, cap block arrangement, cushion details and other pertinent data.

4. Manufacturer's literature on the hammer.

B. The Contractor shall also provide the following items prior to delivery of the piles to the site:

Certification by the pile manufacturer that all wood piles are in conformance with ASTM D25.

C. Contractor shall submit the pile driving records for each pile within two (2) days after the final driving of each pile.

1.05 SITE AND SUBSURFACE CONDITIONS:

A. Records of the borings made at the work site are included with these specifications. These records pertain to conditions at the boring locations at the time the borings were performed.

B. This subsurface data is provided solely for the purpose of furnishing the Contractor with all information available to the Owner. It is not intended as a substitute for personal investigation, interpretations, or judgments of the Contractor. The Contractor agrees that it will not place reliance thereon in the preparation of its bid, or in the event that it does rely thereon that it will do so entirely at its own risk.

C. Neither the Owner nor the Engineer assumes any responsibility for any misunderstanding, error in accuracy in depth or character of the pilings to be made, or the nature or amount of work required.

PART 2 - PRODUCTS

2.01 TIMBER PILES:

A. TYPE:

Piles shall be species e to include southern yellow pine, oak, Douglas fir, greenheart, or other wood of similar strength and physical characteristics approved by the Owner.

B. QUALITY:

1. Timber piles shall conform to the provisions of the Standard for Round Timber Piles, ASTM D25 and have a minimum allowable compressive stress of 800 pounds per square inch (psi).

2. Piles shall be reused from site or shall be cut from sound and live trees.

3. Piles shall be free from any defects which will impair their strength or usefulness for the purpose intended or that will prevent proper driving.

4. Piles shall be clean-peeled so that all of the outer bark and at least 80% of the inner bark, well distributed over the outer surface of the pile, is removed.

C. DIMENSIONS:

1. Pile Tip: The pile tip shall have a minimum circumference of 25-inches or as measured in the field.

2. Pile Length: the Contractor shall determine pile lengths, subject to the approval of the Engineer. Splicing of pile sections will not be allowed.

3. Pile Butt: The pile butt circumference shall conform to the requirements given in Tables 1 and 2 of ASTM D25.

D. TREATMENT:

Piles shall not be treated with creosote or other chemicals.

E. PILE TIP PROTECTION:

Pile tips shall be fitted with cast iron or pressed steel shoes prior to driving. The protective shoes shall be blunt ended, with or without fins.

PART 3 - EXECUTION

3.01 INSPECTION AND TESTING:

A. The Owner reserves the right to inspect the piles before or after shipment to the site, or both.

B. Full-time inspection of pile driving operations will be provided by a qualified geotechnical engineer, engaged and paid for by the Owner. No piles shall be driven except in the presence of an owner's representative.

C. Approvals given by the Owner's Representative, Engineer, or by inspection agencies shall not relieve the Contractor of its responsibility for performing the work in accordance with the drawings and specifications.

D. The Contractor agrees to accept as final the results of any inspection and tests secured by the Owner's Representative.

3.02 PILE INSTALLATION:

A. GENERAL:

1. Each pile shall be driven continuously from the start of driving until the required final resistance to penetration is attained.

2. Prior to commencement of pile driving, the Contractor shall mark each pile at 10-foot intervals to 30 feet above the bottom of the pile and at 1-foot intervals to the

top of the pile. This requirement will also apply to followers, if followers are used. Piles shall be marked with non-toxic paint.

B. HAMMER:

1. Piles shall be driven with an approved single acting, double acting, differential acting air or steam hammer or hydraulic hammer delivering a minimum rated energy per blow of 7,000 foot-pounds. To avoid damage to the pile, the size of the hammer shall be such that the driving energy in foot-pounds per blow shall not numerically exceed the point diameter of the pile in inches multiplied by 1,500.

2. When the penetration resistance is being measured, the hammer shall be operated at a speed not less than 95% of the blows per minute for which the hammer is rated by the manufacturer.

C. DRIVING:

1. The pile tip shall be driven into the gravel and sand or till which underlie the compressible organic muck and silt at the site.

2. The Contractor may be allowed to use followers when permitted in writing by the Engineer. The followers shall be designed to transmit full energy to the pile being driven.

3. Any sudden decrease in driving resistance shall be investigated with regard to the possibility of breakage of the pile. If such sudden decrease in driving resistance cannot be correlated to boring data, and if the pile cannot be removed for inspection, it shall be considered adequate reason for rejection of the pile.

4. Piles shall be driven to a final penetration resistance of four blows per one inch for the final 6 inches of penetration below the bottom of the organic muck. To avoid overdriving the piles, any one of the following criteria may take precedence over the four blows per inch requirement:

    a. The total driving energy in foot-pounds for six inches of penetration shall be numerically not greater than the point diameter in inches time 32,000.

    b. For the last inch of penetration, the energy in foot-pounds shall not exceed numerically the point diameter in inches multiplied by 6,000.

    c. In the case of abrupt high resistance to penetration, driving shall be stopped immediately.

    d. Pile penetration of 15 feet into the sand and gravel or till shall be considered adequate penetration. The Engineer will identify the top of the sand and gravel or till strata based on blowcounts during driving and on data from nearby borings.

D. LOCATION TOLERANCE:

Piles shall be driven battered as shown on the drawings. The maximum allowable deviation of any single pile from the location shown shall be six inches.

E. OBSTRUCTIONS:

If obstructions are encountered in the soil overlying the gravel and sand stratum, which will not permit the piles to be driven in the location and to the depth specified, one of the two following procedures shall be carried out as required by the Engineer.

1. The original location shall be abandoned and one or more new piles driven as required by the Engineer.

2. The obstruction shall be removed by the Contractor and a new pile driven in the original location.

F. DEFECTIVE PILES:

The procedure followed in driving the piles shall not subject them to excessive and undue abuse which could cause splitting, splintering, or brooming of the wood. Manipulation of piles to force them into proper position will not be permitted. Any pile damaged by reason of internal defects, by improper handling or driving, or by being driven out of its proper location shall be corrected at the Contractor's expense by one of the following methods approved by the Engineer for the piles in question.

1. The pile shall be withdrawn and replaced by a new and, if necessary, longer pile.

2. A second pile shall be driven adjacent to the defective pile.

G. CUTTING OFF PILES:

The tops of piles shall be sawed off to a true horizontal plane at the elevations shown on the Drawings, with a tolerance $\pm$ ½-inch.

H. Piles which are buoyant shall be ballasted to prevent pullout. Ballasting shall be performed immediately and prior to release of pile from the pile driver. Contractor shall provide calculations verifying that sufficient ballasting will be used.

END OF SECTION

SECTION 32 11 00

SIDEWALK CONSTRUCTION AND REPLACEMENT

PART 1 - GENERAL

1.01 WORK INCLUDED:

The Contractor shall furnish all labor, materials, equipment and incidentals required to restore gravel sidewalks and/or construct new or replacement bituminous or cement concrete sidewalks where directed or where existing sidewalks are disturbed by the Contractor, as shown on the drawings and described herein. The Contractor shall also furnish all materials and install wheelchair ramps where shown on the drawings or as required by the Engineer.

1.02 RELATED WORK:

A. Section 31 23 00, EARTHWORK

B. Section 03 30 00, CAST-IN-PLACE CONCRETE

1.03 REFERENCES

The following standards form a part of these specifications, as referenced:

State of Connecticut Department of Transportation (CT DOT)
Form 819 Standard Specifications for Roads, Bridges and Incidental Construction

1.04 SUBMITTALS

A. The Contractor shall submit six (6) sets of shop drawings and/or materials specifications for each component of the work to be performed under this section of the Specifications.

1.05 SYSTEM DESCRIPTION:

A. CONCRETE SIDEWALKS AND WHEELCHAIR RAMPS:

1. Concrete sidewalks shall be constructed in accordance with the requirements of Sections 9.21 Concrete Sidewalks, of the latest edition of the State of Connecticut Department of Transportation (CT DOT) Form 819 Standard Specifications for Roads, Bridges and Incidental Construction, and all amendments thereto and shall meet the minimum requirements as indicated on the.

B. Water boxes, manhole frames, and all other castings shall be carefully set to the proposed finished grade.

D. Sidewalks shall not be less than 48 inches in width, excluding curbing. An unobstructed path of travel shall be provided which is at least 36 inches clear, excluding curbing.

PART 2 - PRODUCTS

2.01 CONCRETE SIDEWALKS AND WHEELCHAIR RAMPS:

A. Concrete sidewalks and wheelchair ramps shall be constructed with Class PCC04462 Concrete and shall conform to the requirements of Section M.03.01.

B. Air-entraining Portland cement concrete shall conform to the requirements of Article M.03.01.

C. Gravel or reclaimed miscellaneous aggregate for the base course shall conform to the requirements of Section M.02.01 for Granular Fill.

B. Concrete sidewalk construction adjacent to a traffic control foundation shall conform to the requirements of Article M.03.01 for Class PCC03342 concrete.

PART 3 - EXECUTION:

3.01 CEMENT CONCRETE SIDEWALKS AND WHEELCHAIR RAMPS:

A. Concrete for sidewalks and wheelchair ramps shall be a minimum of 5 inches thick. At driveways, the sidewalks shall be 8 inches thick. Concrete shall be proportioned, mixed placed, etc. in accordance with the provisions of Section 6.01 for Class “C” concrete, except as modified herein.

B. The subgrade for the walk or driveway shall be shaped to a true surface conforming to the proposed slope of the walk, thoroughly rolled at optimum moisture content and tamped with a power roller weighing not less than one ton and not more than 5 tons. All depressions occurring shall be filled with suitable material and again rolled or tamped until the surface is smooth and hard.

C. After the subgrade has been prepared as hereinbefore specified, a subbase of gravel borrow at optimum moisture content shall be placed, thoroughly rolled by a power roller, and tamped. The gravel borrow shall be a minimum of 8 inches in thickness.

D. The forms for sidewalks shall be smooth, free from warp, strong enough to resist springing out of shape, and deep enough to conform to the thickness of the proposed walk. All mortar or dirt shall be completely removed from forms that have been previously used. The forms shall be well staked, thoroughly braced, and set to the established lines with their upper edge conforming to the grade of the finished walk. The finished walk shall have sufficient pitch from the outside to the edge of the walk to provide for surface drainage. This pitch shall be 1/4 of an inch per foot unless otherwise required by the Engineer. Before the concrete is placed, the subbase for sidewalks shall be thoroughly dampened until it is moist throughout but without puddles of water.

E. Concrete shall be conveyed from the place of mixing to the place of deposit in such a manner that no mortar will be lost, and the composition of the mix shall be uniform, showing neither excess nor lack of mortar in any one place. The consistency shall be such that water will float to the surface under heavy tamping. The concrete shall be placed as close to its final position as practicable and thoroughly consolidated, with precautions taken not to overwork it while it is still plastic. The concrete shall be thoroughly spaded along the forms or screeds to eliminate voids and honeycombs at the edges. Retempering of concrete will not be permitted.

F. Concrete shall not contain less than 5 nor more than 7 percent entrained air at the time the concrete is deposited in the forms.

G. Concrete shall be placed in alternate slabs not exceeding 25 feet in length. Slabs shall be separated by transverse preformed expansion joint filler 1/2 inch thick. The surface of all concrete sidewalks shall be uniformly scored into block units of not more than 40 square feet. The depth of the scoring shall be at least one quarter of the thickness of the sidewalk.

H. When concrete sidewalks are constructed adjacent to curbing, building foundations, retaining walls, light pole bases or fixed structures, ½ inch thick premolded joint filler shall be used between the newly constructed sidewalk and the structure.

I. Finishing of the concrete surface shall be done by experienced and competent cement finishers as soon as is practicable. Finishing shall be delayed until all bled water and water sheen has left the surface and the concrete has begun to stiffen. The concrete surface shall be finished as directed with a steel trowel or wood float to give a smooth, uniform and attractive surface finish and uniformly scored into block units or areas of not more than 36 square feet. Following this, the Contractor shall draw a nylon push broom lightly over the surface to produce a non-slip surface. Application of neat cement to the surface to hasten hardening is prohibited.

J. The Contractor shall protect the newly placed concrete surface against vandalism and marking or defacing and must stand ready to replace any blocks which, in the opinion of the Engineer, are excessively marked or defaced, at no additional cost to the Owner. When completed the walks shall be kept moist and protected from traffic and weather for at least 3 days.

K. Adequate protection shall be provided where temperatures of 40ºF or lower occur during placing of concrete and during the early curing period. The minimum temperature of fresh concrete after placing and for the first 3 days shall be maintained above 55ºF. In addition to the above requirements, an additional 3 days of protection from freezing shall be maintained.

END OF SECTION

SECTION 32 12 00

PAVING

PART 1 - GENERAL

1.01 WORK INCLUDED:

The Contractor shall furnish all labor, materials and equipment and shall replace the pavements as indicated on the drawings and as herein specified.

Due to the significant variations in asphalt prices this contract includes a price adjustment as described in Appendix D ASPHALT ADJUSTMENT COST.

1.02 RELATED WORK:

A. Section 00 31 43, PERMITS

B. Section 01 14 19.16, DUST CONTROL

C. Section 31 00 00, EARTHWORK

D. Section 33 39 13, PRECAST MANHOLES AND CATCH BASINS

1.03 SYSTEM DESCRIPTION:

A. GENERAL

The types of pavement systems to be utilized on this project are as follows:

TYPE 1. PERMANENT TRENCH PAVEMENT
TYPE 2. TEMPORARY TRENCH PAVEMENT
TYPE 3. VEHICULAR BITUMINOUS CONCRETE PAVEMENT

PAVEMENT SCHEDULE

B. TYPE 1. PERMANENT TRENCH PAVEMENT

Areas shall be paved with binder course pavement, 6 inches thick and wearing course pavement, 3-inches thick. Permanent trench binder course and trench wearing course pavement shall be installed only with the approval of the Engineer. Permanent trench pavement on State Road shall comply with CTDOT standards for thickness, material type, base, and construction.

C. TYPE 2. TEMPORARY TRENCH PAVEMENT

Areas shall be paved with temporary trench binder course pavement, 4-inches thick, as soon as practicable after installation of individual pipeline segments. Temporary pavement shall be maintained a minimum of 90 days prior to installation of permanent pavement. This may require that the temporary pavement be maintained until the following year, at which time the permanent pavement shall be installed. Temporary trench pavement on State Road shall comply with CTDOT standards for thickness, material type, base, and construction.

D. TYPE 3. VEHICULAR BITUMINOUS CONCRETE PAVEMENT

Driveways and parking areas shall be paved with permanent curb to curb binder course pavement, HMA S0.5, 2-1/2 inches thick, and permanent curb to curb wearing course pavement, HMA S0.375, 1-1/2 inches thick as shown on to the Drawings and as specified herein. Pavement on State Road shall comply with CTDOT standards for thickness, material type, base, and construction.

1.04 REFERENCES

The following standards form a part of these specifications and indicate the minimum standards required:

American Society for Testing and Materials (ASTM)

ASTM D1557 Test for Moisture-Density Relations of Soils and Soil-Aggregate Mixtures Using 10 Pound Rammer and 18-Inch Drop

State of Connecticut Department of Transportation (CT DOT)

Form 819 Standard Specifications for Roads, Bridges and Incidental Construction

4.06 Bituminous Concrete (Recycle or Crushed Glass Option)

1.05 SUBMITTALS: IN ACCORDANCE WITH REQUIREMENTS OF GENERAL SPECIFICATIONS, SUBMIT THE FOLLOWING:

Six sets of complete job mix formula shall be submitted to the Engineer at least two weeks before any of the work of this section is to begin.

PART 2 - PRODUCTS

2.01 PROCESSED AGGREGATE BASE:

A. Processed aggregate base shall consist of inert material that is hard durable stone and coarse sand, free from loam and clay, surface coatings and deleterious materials.

B. Gradation requirements for gravel base shall be as specified in Article M.05.01 Processed Aggregate Base and Pavement Surface Treatment.

2.02 GRAVEL BORROW (SUBBASE):

A. Gravel borrow subbase shall consist of inert material that is hard durable stone and coarse sand, free from loam and clay, surface coatings and deleterious materials.

B. Gradation requirements for gravel borrow subbase shall be as specified in Earthwork Specification 31 00 00, Section 2.01(A).

2.03 BITUMINOUS CONCRETE PAVEMENT:

A. Bituminous concrete pavements shall consist of HMA S0.5 and HMA S.0.375.

B. Bituminous concrete mixtures shall be within the composition limits of base courses, binder courses, wearing courses and surface treatment, in accordance with Article M.04.02 Mix Design and Job Mix Formula.

C. The joint sealant shall be a hot poured rubberized emulsified asphalt sealant, meeting the requirements of Article M.04.01 Joint Seal Material.

D. The tack coat shall be an asphalt emulsion, RS-1, conforming to Article M.04.01 Bituminous Concrete Materials.

2.04 PAVEMENT MARKINGS:

A. Pavement markings shall conform to the requirements of Section 12.09 Painted Pavement Markings.

B. The mixture of the marking material shall be within the composition limits for reflectorized pavement markings as described in the DOT Specifications as follows:

1. Fifteen-minute dry paint – M.07.20.

2. Hot applied fast-drying paint – M.07.21.

C. Application of the glass beads to be used as reflector material on the striping shall conform to Section 12.09 Painted Pavement Markings and Article M.07.30 Glass Beads.

PART 3 - EXECUTION

3.01 GENERAL:

Paving courses required for the project shall be as shown on the drawings and as specified herein. Pavement thicknesses specified are measured in compacted inches. If a pavement course thickness exceeds 2-1/2 compacted inches, the course shall be installed in multiple lifts with each lift not exceeding 2-1/2 compacted inches in thickness.

3.02 PROCESSED AGGREGATE BASE / GRAVEL BORROW:

A. The gravel base and gravel borrow subbase to be placed under pavement shall consist of gravel evenly spread and thoroughly compacted. Depths of the gravel base and gravel borrow subbase shall be as shown on the drawings..

B. The gravel base and gravel borrow subbase shall be spread in layers not more than 4-inches thick, compacted measure. All layers shall be compacted to not less than 95 percent of the maximum dry density of the material as determined by ASTM D1557 Method C at optimum moisture content.

3.03 TEMPORARY BITUMINOUS PAVEMENT:

A. Where specified and required by the Engineer and after placement of the gravel base, the Contractor shall place temporary bituminous pavement above the trench, between the edges of the existing pavement. It shall consist of HMA S0.5 or HMA S.0.375 Bituminous Concrete Pavement, 4-inches thick, as shown on the drawings and described herein. Temporary trench pavement shall comply with CTDOT standards for thickness, material type, base, and construction

B. The temporary pavement shall be repaired as necessary to maintain the surface of the pavement until replaced by permanent pavement. When so required by the Engineer, the Contractor shall remove the temporary pavement and install or regrade the base for installation of permanent pavement.

3.04 PERMANENT BITUMINOUS PAVEMENT:

A. The bituminous paving mixture, equipment, methods of mixing and placing, and the precautions to be observed as to weather, condition of base, etc., shall be in accordance with Section 4.06 Bituminous Concrete. Permanent trench pavement shall comply with CTDOT standards for thickness, material type, base, and construction

B. BINDER COURSE (HMA S0.5) PAVEMENT:

1. Immediately prior to installing the binder course, the trimmed edges shall be made stable and unyielding, free of loose or broken pieces and all edges shall be thoroughly broomed clean. Contact surfaces of trench sides, curbing, manholes, catch basins, or other appurtenant structures in the pavement shall be painted thoroughly with a uniform coating of asphalt emulsion (tack coat), just before any mixture is placed against them.

2. The binder course shall be repaired as necessary to maintain the surface of the pavement until placement of the permanent overlay. If required, the Contractor shall place a leveling course before placing the permanent overlay.

C. WEARING COURSE (HMA S0.375) PAVEMENT:

1. The wearing course shall be placed over the trench or full width as shown on the drawings or as specified.

2. Prior to placement of the wearing course, the entire surface over which the wearing course is to be placed, including against curbs, gutters and castings, shall be broom cleaned and tack coated.

3. Wearing course pavement placed over trenches may be feathered to meet existing paved surfaces, if approved by the Engineer.

4. Prior to placing full width wearing course, keyways shall be cut in all intersecting streets.

3.07 PAVEMENT PLACEMENT:

A. Unless otherwise permitted by the Engineer for particular conditions, only machine methods of placing the pavement shall be used. The equipment for spreading and finishing shall be mechanical, self-powered pavers, capable of spreading and finishing the mixture true to line, grade, width and crown. The mixtures shall be placed and compacted only at such times as to permit proper inspection and checking by the Engineer.

B. After the paving mixtures have been properly spread, initial and intermediate compaction shall be obtained by the use of steel wheel rollers having a weight of not less than 10 tons. Vibratory roller, if used, shall be of a self-propelled type specifically designed for the compaction of bituminous concrete. It shall be equipped with a spread control device and set to prevent the roller from traveling in excess of 2 1/2 mph (220 fpm) while operating in vibratory mode, and 5 mph (440 fpm) while operating in the static mode.

C. Final rolling of the wearing course or surface treatment pavement shall be performed by a steel wheel roller weighing not less than 10 tons at a mix temperature and time sufficient to allow for final smoothing of the surface and thorough compaction.

D. Immediately after placement of wearing course or surface treatment pavement, all joints between the existing and new wearing course or surface treatment pavements shall be sealed with joint sealant.

E. All edges to be neatly tamped.

F. When required by the Engineer, the Contractor shall furnish and install additional paving to provide satisfactory transition for driveways and walkways impacted by a new curb-to-curb pavement installation. The transition installation will be considered incidental to the curb-to-curb pavement installation.

3.08 ADDITIONAL PAVING:

A. If the Engineer determines that the existing bituminous concrete pavement on (local or state) streets is thicker than the permanent pavement specified herein, the Contractor may be required to install additional HMA S0.5 bituminous concrete to obtain the depth of the existing pavement.

B. If for the installation of full width paving, the Engineer determines that the existing road surface requires additional leveling pavement, then the Contractor shall install additional HMA S0.375) bituminous concrete to bring the section to proper line and cross section. Additional paving required to restore the proper line and cross section of binder course installed by the Contractor which has become rough and uneven shall be furnished and installed at the expense of the Contractor.

3.09 VEHICULAR PAVMENT:

A. Vehicular pavement shall consist of a 2-1/2 inch binder course and a 1-1/2 inch wearing course on a 6-inch processed aggregate bases on 8-inch gravel subbase. All thicknesses are compacted thicknesses. Pavement on State Road shall comply with CTDOT standards for thickness, material type, base, and construction.

B. Adjacent concrete work, slate work, sidewalks, structures, etc., shall be protected from stain and damage during the entire operation. Damaged or stained areas shall be replaced or repaired to equal their original condition.

C. All joints between binder and wearing course shall be staggered a minimum of 6-inches.

D. After final rolling, no vehicular traffic of any kind shall be permitted on the pavement until it has cooled and hardened sufficiently to prevent distortion and loss of fines, and in no case in less than 6 hours.

E. Smoothness of all areas of the finished surface shall not vary more than 1/4-inch when tested with a 10 foot straight-edge, applied both parallel to and at right angles to the centerline of the paved area. At building entrances, curbs, and other locations where an essentially flush transition is required, pavement elevation tolerance shall not exceed plus

or minus 1/8-inch. Irregularities exceeding these amounts, or which retain water on the surface, shall be corrected by removing the defective work and replacing or repairing it to the satisfaction of the Engineer.

F. Parking lot line painting shall be in accordance with CTDOT Section 12.09.

3.10 RAISING AND ADJUSTING CASTINGS:

A. In areas of permanent wearing course paving, existing municipally-owned catch basin and manhole castings and valve boxes shall be raised to the proper grade where required by the Engineer.

B. Castings owned by private utilities shall be raised by their own forces. The Contractor shall be responsible for coordinating this work.

C. The method of adjusting these castings shall be as follows: Cut around catch basin or manhole castings a minimum of 8-inches from casting. Excavate and if required rebuild up to 12-inches of masonry below the bottom of the casting. Backfill with suitable material and compact to bottom of casting. Place high, early strength cement or bituminous concrete collar, as required by the Engineer, to approximately 1½-inches below the raised casting grade. Masonry work shall conform to Section 33 39 13, PRECAST MANHOLES AND CATCH BASINS.

D. In some areas, raising of castings may not be required. Where required by the Engineer, castings not to be raised shall have at least 12-inches of bituminous concrete pavement chipped and removed around the casting. New bituminous concrete pavement shall be placed and compacted around such castings to approximately 1-1/2-inches below the top of the casting. The overlay course shall then be sloped down to the level of the casting.

E. The method of raising valve boxes shall be as follows: Cut around valve box a minimum of 8-inches from valve box. Excavate as required and raise the valve box. Pour high early strength cement or bituminous concrete collar, as required by the Engineer, to approximately 1-1/2-inches below the top of the valve box.

F. Castings, which need to be raised or adjusted to complete permanent curb to curb paving, shall be done immediately prior to paving.

3.11 PAVEMENT MARKINGS:

A. The Contractor shall replace all pavement markings removed or covered-over in carrying out the work, and as required by the Engineer, no sooner than 48 hours after completion of permanent pavement. The markings shall be 4-inches wide, white or yellow, single or double lines as required.

B. When required by the Engineer, the Contractor shall provide painted or plastic temporary markings on temporary pavement at no additional cost to the Owner.

3.12 PAVEMENT REPAIR:

A. If required in the contract or if permanent pavement becomes rough or uneven, permanent pavement patches and trenches shall be repaired and brought to grade utilizing "infrared" paving methods following completion of the construction.

B. The Contractor performing the work shall use care to avoid overheating the pavement being repaired.

C. Pavement repair shall extend a minimum of 6-inches beyond all edges of the pavement patch to assure adequate bonding at the pavement joints.

END OF SECTION

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SECTION 32 14 13

PRECAST CONCRETE UNIT PAVING

PART 1 – GENERAL

1.01 WORK INCLUDED:

Install precast concrete until paving in areas shown in plan documents.

1.02 REFERENCES:

The following standards form a part of these specifications, as referenced:

American Concrete Institute (ACI)

ACI	212.3R	Report on Chemical Admixtures for Concrete

ASTM International (ASTM)

ASTM	C33/C33M	Standard Specification for Concrete Aggregates.
ASTM	C136/C136M	Standard Test Method for Sieve Analysis of Fine and Coarse Aggregates
ASTM	C140/C140M	Standard Test Methods for Sampling and Testing Concrete Masonry Units and Related Units
ASTM	C144	Standard Specification for Aggregate for Masonry Mortar
ASTM	C936/C936M	Standard Specification for Solid Concrete Interlocking Paving Units
ASTM	C979/C979M	Standard Specification for Pigments for Integrally Colored Concrete
ASTM	D698	Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 Ft-Lbf/Ft^3)

1.03 QUALITY ASSURANCE:

A. Installation shall be by a contractor and crew with at least one year of experience in placing interlocking concrete pavers on projects of similar nature.

1.04 SUBMITTALS – IN ACCORDANCE WITH SECTION 01 33 23 SUBMITTALS, SUBMIT THE FOLLOWING:

A. Shop or product drawings and product data.

1. Pavers.
2. Joint Sand.

B. Full size samples of concrete paving units to indicate color and shape selections.

C. Sieve analyses for grading of bedding and joint sand.

D. Test results from an independent testing laboratory for compliance of paving unit requirements to ASTM C936 or other applicable requirements.

E. The layout, pattern, and relationship of paving joints to fixtures and project formed details.

1.05 DELIVERY, STORAGE, AND HANDLING:

A. Concrete pavers shall be delivered to the site in steel banded, plastic banded, or plastic wrapped cubes capable of transfer by forklift or clamp lift. The pavers shall be unloaded at the job site in such a manner that no damage occurs to the product.

B. Bedding and joint sand shall be covered with a secure waterproof covering to prevent exposure to rainfall or removal by wind.

C. Delivery and paving schedules shall be coordinated to minimize interference with normal use of buildings adjacent to paving.

1.06 ENVIRONMENTAL CONDITIONS:

A. Sand or pavers shall not be installed during heavy rain or snowfall.

B. Sand and pavers shall not be installed over frozen base materials.

C. Frozen sand shall not be installed.

PART 2 – PRODUCTS

2.01 CONCRETE PAVERS:

A. Concrete Pavers: Techo-Bloc Blu 80 Smooth;, or approved equivalent.

1. Pattern: Modular 01
2. Color: Champlain Gray

3. Texture: Smooth
4. Model/ Size: 80 mm

B. Pavers shall meet the minimum material and physical properties set forth in ASTM C936, Standard Specification for Interlocking Concrete Paving Units. Efflorescence shall not be a cause for rejection.

C. Pigment in concrete pavers shall conform to ASTM C979. ACI Report No. 212.3R provides guidance on the use of pigments.

2.02 BEDDING AND JOINT SAND:

A. Bedding and joint sand shall be clean, non-plastic, and free from deleterious or foreign matter. The sand shall be natural or manufactured from crushed rock. Limestone screenings or stone dust that do not conform to the grading requirements in Table 1 shall not be used.

B. The bedding sand shall conform to the grading requirements of ASTM C33 as shown in Table 1.

TABLE 1
BEDDING SAND GRADING REQUIREMENTS

ASTM C33	
Sieve Size	Percent Passing
No. 4	95 to 100
No. 8	85 to 100
No. 16	50 to 85
No. 30	25 to 60
No. 50	10 to 30
No. 100	2 to 10

C. The joint sand shall conform to the grading requirements of ASTM C144 as shown in Table 2 below:

TABLE 2
JOINT SAND GRADING REQUIREMENTS

ASTM C144		
	Natural Sand	Manufactured Sand
Sieve Size	Percent Passing	Percent Passing

No. 4	100	100
No. 8	95 - 100	95 to 100
No. 16	70 - 100	70 to 100
No. 30	40 - 75	40 to 75
No. 50	10 - 35	20 to 40
No. 100	2 - 15	10 to 25
No. 200	0	0 to 10

PART 3 – EXECUTION

3.01 SITE PREPARATION:

A. **Complete all underground utility work, curbing, foundations, and wall construction prior to commencement of subbase construction.**

B. Compact the existing subgrade prior to placement of subbase material to at least 95% Standard Proctor Density per ASTM D698.

C. Under no circumstances shall further pavement construction proceed until the subgrade has been inspected and approved by the **Landscape Architect/Engineer**.

3.02 SUBBASE AND BASE INSTALLATION:

A. Place subbase materials in uniform lifts not exceeding 4-inch, loose thickness and compacted to at least 100 percent Standard Proctor Maximum Dry Density as per ASTM 698.

B. The upper surface of the subbase shall be sufficiently well graded and compacted to prevent infiltration of the bedding sand into the base both during construction and throughout its service life. Segregated areas of the granular base shall be blended by the application of crushed fines that have been watered and compacted into the surface.

C. Before commencing the placing of the concrete slab and, sand bedding course and the placement of the interlocking concrete pavers, the base shall be inspected by the **Landscape Architect/Engineer** to insure surface is clean and built in conformance with details. The Contractor shall verify elevation difference between concrete slab and adjacent finish concrete surface to ensure concrete paver can be installed flush with bordering concrete pavement.

3.03 PAVER INSTALLATION:

A. The sand shall be spread evenly over the concrete base and base course and screeded to a nominal 1-inch (25 mm) thickness, not exceeding 1-½-inch thickness. The screeded sand should not be disturbed. Sufficient sand shall be placed to stay

ahead of the laid pavers. Bedding sand shall not be used to fill depressions in the base surface.

B. Pavers shall be free of foreign material before installation.

C. Pavers shall be inspected for color distribution and all chipped, damaged, or discolored pavers shall be replaced.

D. The pavers shall be laid in the layout pattern as indicated on plans.

E. Joints between the pavers on average shall be 1/16-inch wide, hand tight.

F. Gaps at the edges of the paved area shall be filled with cut pavers or edge units.

G. Pavers to be placed along the edge shall be cut with a double blade paver splitter or masonry saw.

H. The paver surface shall be swept clean of all debris before compacting, to avoid damage from point loads.

I. A low amplitude, high frequency plate compactor shall be used to compact the pavers into the sand. Use Table 3 below to select size of compaction equipment:

TABLE 3
PAVER THICKNESS AND REQUIRED MINIMUM COMPACTIVE EFFORT

Paver Thickness	Compactive Effort
3-1/8-inches	5,000 lbs.

J. The pavers shall be compacted, and dry joint sand shall be swept into the joints until the joints are full. This will require at least two or three passes with the compactor. Do not compact within 3 ft. of the unrestrained edges of the paving units.

K. All work to within 3 ft. of the laying face must be left fully compacted with sand-filled joints at the completion of each day.

L. Excess joint sand shall be swept off when the job is complete.

M. The surface elevation of pavers shall be no more than 3-inches above adjacent area.

3.04 FIELD QUALITY CONTROL:

A. Final elevations shall be checked for conformance to the drawings after removal of excess joint sand.

B. Remove and reset any pavers not conforming to the elevations shown and all other requirements previously specified herein.

END OF SECTION

SECTION 32 16 00

CURBING

PART 1 - GENERAL

1.01 WORK INCLUDED:

A. This section covers furnishing and installation of curbing, where required, as shown on the Drawings and herein specified.

B. This section also covers resetting of stone curbing removed during construction.

1.02 RELATED WORK:

A. Required earthwork is specified under Section 31 23 00 EARTHWORK.

B. Section 32 12 00, PAVING.

C. Section 32 11 00, SIDEWALK CONSTRUCTION AND REPLACEMENT

1.03 REFERENCES:

The following standards form a part of these specifications, as referenced:

State of Connecticut Department of Transportation (CT DOT)

Form 819 Standard Specifications for Roads, Bridges and Incidental Construction

1.04 SUBMITTALS: IN ACCORDANCE WITH REQUIREMENTS OF GENERAL SPECIFICATIONS, SUBMIT THE FOLLOWING:

Six sets of shop drawings, showing dimensions of typical curb sections, shall be submitted to the Engineer for review.

PART 2 - PRODUCTS

2.01 CONCRETE CURBING:

A. Cast-in-place or slip formed curbing shall be Class C concrete conforming to the requirements of Article M.03.01. Joint filler shall conform to the requirements of Article M.03.01. The concrete for precast concrete curbing shall have a minimum 28-day compressive strength of 4,000 psi and shall contain 5 to 7% entrained air unless otherwise approved by the Engineer.

2.02 DOWELED CONCRETE CURBING:

A. The concrete and joint filler shall conform to the requirements of Article M.03.01. Reinforcement bars shall conform to the requirements of Article M.06.01.

2.03 PRECAST PARKING LOT CURB:

A. Precast parking lot curb shall be formed with concrete rated at 3500 psi at 28 days.

B. The manufacturer shall maintain at the manufacturing site a record of material used and their sources, and a copy of concrete mix designs.

C. Precast parking lot curb shall be the Standard Precast Bumper Curb as manufactured by Durastone Co., Lincoln, RI, or approved equal.

PART 3 - EXECUTION

3.01 CONCRETE CURBING:

A. Construction methods for concrete curbing shall conform to the requirements of Article 6.01.03 for concrete for structures. In addition, the following paragraphs apply.

B. Excavation shall be made to the required depth, and the base upon which the curbing is to be set shall be compacted to a firm, even surface.

B. The concrete shall contain not less than 5 nor more than 7 percent entrained air at the time the concrete is deposited within the forms. Concrete shall be placed only on a moist base. Concrete shall not be placed on a soft, muddy, or frozen base.

C. Slip form equipment may be used if the resulting product conforms with the plans. Precast concrete curbing may be used if the resulting product conforms with the plans except for the length of each curb unit. Precast concrete curbing units may be constructed in six foot or longer lengths for straight sections.

D. Where slip form equipment or Precast concrete curbing is not used, the concrete shall be placed in forms, struck off with a template, compacted by approved means, and finished to a smooth, even surface. Vibration will not be required.

E. The concrete curbing shall be constructed in sections having a uniform length of approximately 10 feet, unless otherwise required, so arranged that a joint in the curbing shall come opposite a joint in the adjoining concrete pavement slab and be similar to it. The length of these sections may be varied slightly where necessary for closures, but no section less than 6 feet in length will be permitted. These sections shall be separated by an approved method at the time of placing the concrete.

F. Where forms are used, they shall be so constructed that the form for exposed faces may be removed before the concrete has taken final set in order to permit correction of surface irregularities.

G. Concrete curbing, except precast curbing, shall be cured and protected in conformity with the requirements of Article 4.01.03 for concrete pavement. Precast curbing shall not be shipped to the project until the 28-day compressive strength is acquired. Precast curbing that has been damaged shall be removed for the project at the Contractor's expense.

H. After the concrete has set sufficiently, the grading shall be completed to the lines shown on the plans, or as ordered, by refilling to the required elevation with approved material which shall be placed in layers not over 6-inches in depth and compacted until firm and solid.

3.02 DOWELED CONCRETE CURBING:

A. Construction methods for the doweled concrete curbing shall conform to the requirements of Article 6.01.03 for concrete for structures, as supplemented as follows.

A. The forms shall be adequate to produce the required section.

B. The reinforcement shall be placed as indicated on the plans, or as ordered. The dowels shall be set along the edge of the concrete pavement slab or concrete gutter as soon as practicable. The surface of the pavement slab or gutter in the area to be occupied by the curbing shall be given a rough finish to aid in bonding the curbing to it. The longitudinal steel shall be securely tied to the dowels just before the forms are placed.

C. The concrete shall contain not less than 5 nor more than 7 percent entrained air at the time the concrete is deposited within the forms. The concrete shall then be struck off with a template, compacted by approved means, and finished to a smooth, even surface. Vibration will not be required.

D. The doweled concrete curbing shall be constructed in sections so arranged that a joint in the curbing shall come over each joint in the pavement or gutter slabs, and be similar to it. Separations of 1/8-inch shall be provided over planes of weakness in the pavement or gutter slabs by an approved method.

E. Expansion joint filler of the type indicated on the plans, cut to conform to the cross-section of the doweled curbing, shall be inserted in the joint in the curbing, directly over the expansion joint in the concrete pavement or gutter at the time the curbing is placed.

F. Doweled concrete curbing shall be cured and protected as described in Article 4.01.03 for Concrete Pavement.

3.03 PRECAST PARKING LOT CURBING:

A. Precast parking lot curbing shall be furnished and installed as indicated on the drawings.

B. Any units, which are cracked, chipped, spalled, or otherwise damaged, shall be removed and replaced with units meeting the specified requirements.

C. Precast curbing shall not be shipped to the site until the 28-day compressive strength is acquired.

END OF SECTION

SECTION 32 71 00

CONSTRUCTED WETLANDS

PART 1 GENERAL

1.01 WORK INCLUDED

This Section consists of providing all plants, labor, equipment, materials, tools, and required professional services in connection with the construction, replication, and restoration of existing wetland areas.

1.02 RELATED WORK:

A. Section 32 90 00 – Plants

1.03 QUALITY ASSURANCE

A. This contract requires construction adjacent to environmentally sensitive resource areas, such as floodplains and wetlands. Contractor shall comply with all applicable Federal, State, and local statutes, regulations, and ordinances.

B. The Contract Drawings show the extent of wetlands to be constructed, protected and/or mitigated. Work within existing wetlands shall comply with the requirements of applicable/issued permit documentation.

1.04 SUBMITTALS

A. Shop Drawings
   1. Identify primary contact for wetlands installation.

B. Product data. Unless otherwise indicated, submit the following for each type of product provided under work of this Section:

C. Operations & Maintenance Plan.

D. Reports for Field Quality Control: Submit test reports and inspection reports to Owner's Representative.

1.05 QUALITY ASSURANCE

A. Furnish, and install a biologically and hydrologically functional system, reviewed and approved by Landscape Architect.

1.6 OPERATIONS AND MAINTENANCE

A. Develop an Operation and Maintenance Plan:
   1. Include procedures and schedule for operations and maintenance.

2. Identify procedures for reporting results of Operations and Maintenance.
3. Identify procedures for implementing corrective action as required.
4. Update plan as necessary to reflect specific system characteristics installed during actual operation.

B. Maintenance: Identify procedures to accomplish the following:
1. Vegetation: Inspection periodically to verify water levels are appropriate to plant age and type. Inspection periodically to verify that invasive species are not present.
2. Herbicides: Not permitted.

FIELD QUALITY CONTROL

A. General: Comply with requirements of agencies having jurisdiction and as specified herein.
1. Provide site inspection of system immediately after storm event that may be severe enough to affect the system; provide inspection services for minimum 12 months after Final Completion.
2. Provide site inspection of system seasonally, and not less than once every three months; provide inspection services for minimum 36 months after Final Completion.

PART 2 – PRODUCTS

2.01 PLANTINGS:

A. The wetlands restoration areas shall be vegetated with indigenous wetland species. Individual species to be planted are indicated on the final design plans.

B. Propagules shall be nursery or plantation stock and shall be supplied from a bonded source. Nursery stock shall conform to the requirements and recommendations of American National Standards Institute (ANSI) Z60.1.

C. Propagules shall be dug and prepared for shipment in a manner that will not cause significant damage to stems, roots, shape and future growth and development after planting.

D. Planting stock shall be well-branched and well-formed, sound, vigorous, healthy, and free from disease, sun-scald, windburn, abrasion and harmful insect eggs and shall have healthy normal and unbroken root systems.

E. Plants shall have been grown under climactic conditions similar to those in the vicinity of the site. Plants budding into leaf or having soft growth shall be sprayed with an antidesiccant at the nursery prior to delivery.

F. Emergent propagules shall be rootstock.

PART 3 EXECUTION

3.01 GENERAL:

A. American Association of Nurserymen, Inc., American Standard for Nursery Stock (latest edition) for each species. For hand dug plants, a suitable burlap or other wrap or container shall be provided to keep the rootball intact.

3.02 PLANTING SCHEDULE:

A. All emergent propagules shall be planted in the wetlands restoration areas in accordance with a planting plan and schedule as indicated on the Final Plans. Plantings shall be planted randomly under the direction of the Landscape Architect. No machinery or vehicles shall be allowed within the wetland areas. Soil disturbances shall be kept to the minimum necessary to accommodate planting.

B. Pits for planting shall be dug to produce vertical sides and flat bottoms. The depth of pits shall be 6-inches deeper than the root ball. The diameter of the pits shall allow a minimum distance between the roots and the sides of the hole of 6-inches. The bottom 4-inches of the pit shall be loosened with a shovel prior to planting.

3.03 PROTECTION:

A. Provide mechanical protection as needed to prevent animals from damaging newly established plants. Preventive methods may include planting through chicken wire fence fastened over the surface of the substrate to prevent animals from excavating tubers and rhizomes.

3.04 REPLANTING OF WETLANDS VEGETATION:

A. Wetland plantings shall be performed as designated on the Contract plans.

B. All plants selected for replanting shall be of the size specified on the Contract Drawings.

C. All planting shall be supervised by a licensed nurseryman, qualified to do this work. At least four weeks prior to any wetland planting, the Contractor shall submit details of proposed planting methods, plant layout, and personnel qualifications for approval by the Engineer.

D. Wetland planting materials, operations, maintenance, inspection, and preliminary acceptance shall be as specified. Warranty and final inspection of all wetland plantings shall be a minimum of one year from the date of preliminary acceptance.

E. Maintenance shall be provided until final acceptance. Final acceptance shall be obtained as stipulated in the attached Order of Conditions.

END OF SECTION

SECTION 32 91 13

SOIL PREPARATION AND SOIL MIXES

PART 1 – GENERAL

1.01 DESCRIPTION

A. Work Included in this Contract:

1. Screening, spreading and amending native topsoil as required from on-site stockpiles.

2. Furnishing topsoil from an off-site source, screening, and spreading, if needed.

3. Seed bed preparation.

1.02 QUALITY ASSURANCE

A. Reference Standards: CTDOT Specifications.

1.03 SUBMITTALS

A. Certificates: Manufacturers' or suppliers' certification that content of materials meets specification requirements.

1. Fertilizer.

2. Lime (if required).

3. Off-site topsoil.

4. Compost.

B. Test Reports: Supply Soil Testing Reports for topsoil to be used for turf areas.

1.05 DELIVERY, STORAGE AND HANDLING

A. Fertilizer and lime: Deliver to site in unopened, undamaged containers.

B. Store fertilizer and lime materials so they are protected from all forms of moisture such as rain, snow, surface drainage, ground water, condensation, etc.

C. Do not use wet, mildewed or caked material.

1.06 PROJECT CONDITIONS

A. Environmental requirements: Do not prepare or place frozen soils or soils in a muddy condition. Do not spread topsoil on frozen or muddy subsoil.

B. Protection: Protect other parts of this Contract from damage.

PART 2 – PRODUCTS

2.01 MATERIAL-TOPSOIL

A. Topsoil:

1. General Lawn Areas: The surface layer of dark colored humus soil, free from refuse, any material toxic to plant growth, subsoil, woody vegetation, stumps, roots, brush, stones, clay lumps or similar objects larger in greatest dimension than specified below. Sod and herbaceous growth such as grass and weeds shall be thoroughly broken up and mixed with the soil. Screen topsoil to meet the following gradation:

SIEVE SIZES	PERCENT PASSING BY WEIGHT
2 inch	100
1 inch	85 to 100
1/4 inch	65 to 100
No. 200 Mesh	20 to 50

2. Topsoil shall be tested and amendments shall be added to meet the following qualities:

a. pH: between 5.5 and 7.6.

b. Organic content: Not less than 2% or more than 8%.

c. Gradation:
70 – 85% Sand: with 50% of content being medium or coarse.
10 – 15% Silt
B – 10% Clay

B. Common Fill/ Borrow:

1. Common Fill shall be well-graded, natural inorganic soil containing no stone greater than 6 inches maximum dimension and less than approximately 20 percent fines. The materials shall be free of trash, ice, snow, tree stumps, roots and other organic and deleterious materials. It shall be free of plastic clays, of all materials subject to decay or other materials that will corrode piping or

metals. Common Fill shall have a maximum dry density of not less than 110 pounds per cubic foot. It shall be of such a nature and character that it can be compacted to the specified densities. Topsoil shall not be considered Common Fill.

C. Refer to Specification 32 91 14 – Beach Sand Preparation.

2.02 AMENDMENTS

A. Compost shall contain organic matter or material of a generally humus nature capable of sustaining the growth of vegetation, with no "foreign" matter (i.e. glass, plastic, etc.) or material toxic to plant growth. It shall be free from stones, lumps or similar objects larger than two inches in greatest diameter, roots, and brush. Composts that have been derived from organic wastes such as food and agriculture residues, animal manures and sewage sludge that meet the above requirements and are approved by the State of Connecticut are acceptable compost sources.

Compost for USE ON TURF shall have the following properties:

Parameters	Range
pH	5.5 - 8.5
Moisture content	35% - 55%
Particle Size	<1/2"
C:N ratio	15 - 30:1

B. Water:

1. Water used during the installation, “grow-in”, and Maintenance period shall be provided and paid for by the Contractor. The Contractor shall be responsible for appropriate water application. Water utilized shall be suitable for irrigation and free from ingredients harmful to plant life.

PART 3 – EXECUTION

3.01 INSPECTION

A. Examine areas to receive soil/sand preparation to assure work of other trades has been completed.

B. Remove jute mesh, staples, hay bales and other erosion control measures in the line of work.

C. Completely disc subsoil/sand that has become compacted and re-grade to required subgrade.

D. Verify that all subsoils are positively drained and free of ponded areas and debris.

E. Do not proceed with soil preparation until unsatisfactory conditions are corrected.

3.02 PREPARATION

A. If the subsoil has become overly compacted after discing, in the opinion of the Owner's Representative, just prior to placing the sand, the subsoil material shall be scarified to a minimum depth of 3 inches so as to ensure a proper bond between the subsoil material and the sand.

3.03 INSTALLATION

A. Sand:

1. Spread sand on all disturbed areas within Contract Limit Lines to a depth of 6 inches as shown on plans.

2. Fine rake sane to break up lumps and remove stones, debris, and foreign material one inch or larger in any dimension, and to establish a smooth uniform surface.

3. Final grades shall not vary more than one-tenth of a foot from elevations shown on Contract Drawings.

4. No unsightly variations, bumps, ridges, or other depressions which will hold water shall be acceptable.

B. Compaction:

1. Exercise extreme caution in all areas that is not overly compacted.

2. Areas that have become overly compacted, in the judgment of the Landscape Architect, shall be re-worked to achieve a satisfactory condition at no additional cost.

3.04 CLEAN-UP

A. Immediately clean up spills of soil/sand and conditioners on paved and finished surface areas.

B. Remove debris and excess materials from project site.

END OF SECTION

SECTION 32 91 14

BEACH SAND PREPARATION

PART 1 – GENERAL

1.01 DESCRIPTION

A. Work Included in this Contract:

1. The Contractor shall construct sand dunes, shall stabilize and install vegetation as identified in the contract documents, shall furnish all the necessary material to construct the sand beach.

1.02 RELATED WORK

A. Section 31 23 00, EARTHWORK

B. Section 31 25 00, SEDIMENT AND EROSION CONTROL

C. Section 31 25 01, ENVIRONMENTAL PROTECTION

D. Section 32 91 13, SOIL PREPARATION AND SOIL MIXES

E. Section 32 93 00, PLANTS

1.03 REFERENCES

American Society for Testing and Materials (ASTM)

ASTM	C131	Test Method for Resistance to Degradation of Small Size Coarse Aggregate by Abrasion and Impact in the Los Angeles Machine.
ASTM	C136	Method for Sieve Analysis of Fine and Coarse Aggregates.
ASTM	D1556	Test Method for Density of Soil in Place by the Sand Cone Method.
ASTM	D1557	Test Methods for Moisture-density Relations of Soils and Soil Aggregate Mixtures Using Ten-pound (10 Lb.) Hammer and Eighteen-inch (18") Drop.
ASTM	D2922	Test Methods for Density of Soil and Soil-aggregate in Place by Nuclear Methods (Shallow Depth).

1.04 SUBMITTALS: IN ACCORDANCE WITH REQUIREMETNS OF THE GENERAL

SPECIFICATIONS, SUBMIT THE FOLLOWING:

A. Samples and product data of all materials proposed for the project shall be submitted to the Owner's Representative for review. Size of the samples shall be as approved by the Owner's Representative.

B. Gradation and testing reports of the proposed sand material shall be submitted to the Owner's Representative for review and approval.

C. Delivery tickets submitted by each driver of deliveries shall be submitted to the Owner's Representative for review and approval.

1.05 PROTECTION OF EXISTING PROPERTY:

A. The work shall be executed in such manner as to prevent any damage to facilities at the site and adjacent property and existing improvements, such as but not limited to drives, gravel parking/roadways, service utility lines, structures, monuments, benchmarks, observation wells, and other public or private property. Protect existing improvements from damage caused by settlement, lateral movements, undermining, washout and other hazards created by earthwork operations.

B. In case of any damage or injury caused in the performance of the work, the Contractor shall, at its own expense, make good such damage or injury to the satisfaction of, and without cost to, the Owner. Existing drives and pathways damaged during the project work shall be repaired or replaced to at least the condition that existed at the start of operations. The Contractor shall replace, at his own cost, existing benchmarks, observation wells, monuments, and other reference points which are disturbed or destroyed.

1.06 DRAINAGE:

A. The Contractor shall provide, at its own expense, adequate drainage facilities to complete all work items in an acceptable manner. Drainage shall be done in a manner so that runoff will not adversely affect construction procedures nor cause excessive disturbance of underlying natural ground or abutting properties.

1.07 VEGETATION

A. Contractor shall provide vegetation and plantings as identified in the project documents.

1.08 DELIVERY & STORAGE

A. Material shall be delivered to Pear Tree Beach, Pear Tree Point Road, Darien, Connecticut, 06820. A delivery ticket submitted by the driver of each truck will be

used to keep track of delivery quantities. The Owner reserves the right to suspend delivery due to rain or high moisture content of the sand.

1.09 QUALITY ASSURANCE

A. The sand shall match the color, quality, and texture of the existing sand located within the project area (Pear Tree Beach Park). Contractor shall inspect the existing sand at the project area prior to submitting material for review. The Owner reserves the right to reject submitted product if it does not match the color, quality, and texture of the existing sand.

PART 2 – PRODUCTS

2.01 BEACH SAND

A. Sand shall be processed or unprocessed bank run sand or beach sand free of roots, organic matter, clay, gravel, frozen lumps, trash, or other debris. The sand shall not have more than 10% mica or other flakes, and shall be free of friable particles.

B. Particles shall be smooth, round surfaces suitable for the beach, angular to sub-round.

C. Contractor shall provide documentation that the sand is free of contaminates: PCB's, dioxins, hydrocarbons, or other toxic chemicals.

D. Sand shall conform to the following gradation requirements:

SIEVE SIZES	PERCENT PASSING BY WEIGHT
#3/8	100
#4	80 - 100
#10	50 - 80
#40	20 - 50
#100	0 - 20
#200	0 - 2

E. If washed sand is supplied, it shall be stockpiled at least twenty-four (24) hours at the Contractor's facility, or a pre-determined site accessible for inspection by the Town and separate from other materials that do not meet the specifications. The location shall be coordinated by the Contractor.

PART 3 – EXECUTION

3.01 INSPECTION

A. Examine areas to receive sand preparation to assure work of other trades has been

completed.

B. Remove jute mesh, staples, hay bales and other erosion control measures in the line of work.

C. Completely disc subsoil that has become compacted and re-grade to required subgrade.

D. Verify that all subsoils are positively drained and free of ponded areas and debris.

E. Do not proceed with soil preparation until unsatisfactory conditions are corrected.

3.02 PREPARATION

A. Refer to Engineer drawings for specified excavation, embedment depths, stabilization, and compaction for each application type and comply with requirements.

B. Excavate to depths shown on drawings allowing for specified number of below grade structural reinforcement devices on top of specified depth of compacted granular base or compacted native mineral layer. Prepare a stable, reasonably level base and proof compact to specified density.

3.03 DISPOSAL OF SURPLUS MATERIALS:

A. No excavated material shall be removed from the site of the work or disposed of by the Contractor unless approved by the Engineer.

B. Surplus excavated material not needed as specified above shall be hauled away and disposed of by the Contractor at no additional cost to the Owner, at appropriate locations, and in accordance with arrangements made by him. Disposal of all rubble shall be in accordance with all applicable local, state and federal regulations.

3.04 CLEAN-UP

A. Immediately clean up spills of sand on paved and finished surface areas.

B. Remove debris and excess materials from project site.

END OF SECTION

SECTION 32 93 00

PLANTS

PART 1 – GENERAL

1.01 REFERENCES

A. Plant Nomenclature: Conform to the latest edition of "Standardized Plant Names" as adopted by the American Joint Committee of Horticultural Nomenclature.

B. Size and Grading Standards: Conform to the current edition of "American Standard for Nursery Stock" - Sponsor - the American Association of Nurserymen Inc., unless otherwise specified.

1.02 SUBMITTALS

A. List of Plants: Before plant material is shipped to the project site, submit a complete itemized list of all plants including the source of supply.

B. Product Data: Furnish the following with each planting material delivery.

1. Invoice indicating sizes and variety of plant material.

2. Certificates of inspection required by State and Federal agencies.

3. Labels for each plant or bundles of plants indicating name and size.

C. Quality Control Submittals:

1. Worker's Qualifications Data: Names and addresses of 5 similar projects that each person has worked on during the past 2 years.

1.03 QUALITY ASSURANCE

A. Worker's Qualifications: The persons performing the planting and their supervisor shall be personally experienced in the planting and caring of plant material and shall have been regularly employed by a company engaged in the planting and caring of plant material for a minimum of 2 years.

B. Caliper trees up to 4 inches in caliber at a point 6 inches above ground and trees over 4 inches in caliber 12 inches above ground.

C. Do not use woody plant material from regions outside of **EcoRegion 59** or plant materials south of latitude 39 degrees unless such material has been lined out in

nurseries located north of latitude 39 degrees for at least 2 growing seasons. Latitude 39 degrees is approximately a line from Annapolis, MD to Cincinnati, OH.

1.04 DELIVERY, STORAGE AND HANDLING

A. Schedule with the Owner's Representative/ Landscape Architect at least seven (7) days in advance of tagging for all plant material at nurseries for review/ approval. **No plant material shall be shipped/delivered without approval from Owner's Representative/Landscape Architect.**

B. Notify the Owner & Owner's Representative 48 hours in advance of delivery of plant material.

C. Protect plants against climatic and mechanical injuries.

D. Deliver fertilizer in manufacturer's standard sized bags showing weight, analysis, and manufacturer's name. Store under a waterproof cover or in a dry place as designated by the Owner.

1.05 PROJECT CONDITIONS

A. Water will be furnished by the Owner from existing facilities as directed. Furnish hoses and connections required to adequately water plants.

1.06 SCHEDULING

A. Plant deciduous, woody plants between October 1 and May 15 whenever temperature is above 32 degrees F and soil is in workable condition, unless otherwise approved in writing.

B. Plant evergreens between August 15 and September 15 or during April or May before start of new growth.

1.07 PLANTING GUARANTEE

A. The guarantee shall cover all newly planted material and extend for a period of one year from the date of physical completion. Physical completion for the Work of this Section is the date or dates when all the planting operations, or seasonal portions of the planting operations, or replacement planting operations have been completed and are accepted by the Owner's Representative.

PART 2 – PRODUCTS

2.01 PLANTS

A. Shrubs and Trees:

1. Nursery grown stock unless otherwise indicated in the itemized plant list.

2. Acclimated plants true to genus and species.

3. Well developed root and branch systems. Do not prune branches before delivery.

4. Free of disease, insect eggs, bark abrasions, and disfiguring knots.

5. Buds intact and reasonably closed at time of planting.

6. Balled and burlapped from soil which will hold a natural ball. Manufactured balls are unacceptable.

7. Conform to size indicated or larger, or within the minimum maximum size when so indicated. Larger plants cut back to specified dimensions will not be accepted.

B. Trees:

1. Single erect leader from ground to top, surrounded with uniformly arranged branches.

2. Free from frost cracks, broken bark, and dead or broken branches.

3. Transplanted, or root pruned 360 degrees at least once during the previous 3 years.

C. Perennials and Herbaceous Plants:

1. Conform to size indicated or larger, or within the minimum maximum size when so indicated.

2. Free from disease, pests, and fungus.

3. Nursery grown stock unless otherwise indicated in the itemized plant list.

2.02 PLANTING SOIL

A. Topsoil for Planting Soil: Use approved topsoil stripped and stockpiled on the Site.

B. Soil Amendments (For every 4 cu yd of topsoil):

1. Peat Moss: 7-1/2 cu ft bale or 15 bushels (loose measure).

2. Fertilizer: 5 lb.

3. Bonemeal: 80 lb.

C. In the presence of the Owner's Representative, place the soil amendments over the topsoil piles and turn over the combined elements a minimum of 3 times until thoroughly mixed.

2.03 FERTILIZER

A. Bonemeal: Commercial, steamed finely ground material containing not less than 1.0 percent nitrogen and 11 percent phosphoric acid.

B. Commercial Fertilizer (10-6-4): Containing not less than 10 percent nitrogen, 6 percent available phosphoric acid and 4 percent water soluble potash.

2.04 MULCH

A. Peat Moss: Finely granulated material, passing a 1/2 inch sieve, free of sticks, woody roots, stones and other objectionable material, and of such physical condition that it can be readily incorporated with the topsoil. Furnish material conforming to the following criteria:

1. pH value: 3.0 to 5.0.

2. Moisture: Not less than 25 percent nor more than 50 percent.

3. Organic Material: Not less than 47 percent (90 percent dry basis).

B. Shredded Wood: Wood fiber produced from either hardwood or softwood trees, free of tannic acid, leaves, young green growth, wood shavings, sawdust or other objectionable foreign material.

2.05 MISCELLANEOUS MATERIALS

A. Stakes, Deadmen and Guy Stakes: Sound, durable White or Red Cedar, or other approved wood, free of insect or fungus infestation.

B. Guy Wire or Cable: No. 12 galvanized iron wire or cable.

C. Tree Wrapping: 4 inch wide strips of jute burlap or waterproof paper 30-30-30 Krinklecraft by Eaton Brothers Corp., P.O. Box 60, Hamburg, NY 14075, (800) 433-3244.

D. Protective Hose: 2-ply garden hose cut to required lengths to protect tree trunk's from damage by wires.

E. Tree Wound Paint: Antiseptic, waterproof, adhesive, elastic tree wound paint containing no kerosene, coal tar, creosote, or other material harmful to cambium or living tissue.

F. Anti-desiccants: Wilt-Pruf by Wilt-Pruf Products, Inc., P.O. Box 469, Essex, CT 06426, (203) 767-7033.

PART 3 – EXECUTION

3.01 INSPECTION

A. Plants to be approved at the nursery by Owner's Representative prior to being shipped to the site.

B. Do not install any plant material until after inspection and approval in writing of plant shipments. Secure written approval of any substitutions before planting. Remove rejected material from planting areas.

3.02 PREPARATION

A. Planting Layout:

1. Stake out tree locations and planting areas.

2. Obtain layout approval from the Owner's Representative prior to excavations of plant pits and beds.

B. Plant Pit Dimensions: Minimum width 12 inches, measured at the ground surface.

1. Balled and Burlapped Plants:

a. Pit Depth: Not to exceed the ball depth.

b. Pit Width: Measured at the ground surface, 3 times the width of the ball or as indicated.

2. Container Grown Plants: 2 times the diameter of the container measured at the ground surface.

3. Ground Cover Beds: Excavate entire bed to a depth of 4 inches.

C. Excavation: Excavate pits to the dimensions specified. Dispose of excavated material of the site unless otherwise directed.

3.03 PLANTING

A. Setting Plants:

1. Backfill pits with planting soil and firm to the level upon which plants were previously growing. Set plants plumb. Plant budded or grafted plants 2 inches below bud or graft line. Complete backfilling with planting soil and settle continually with water.

2. Balled Plants: Set plants in position and backfill 1/3 depth of ball. Remove burlap from top and adjust to eliminate air pockets. Complete backfill and settle with water.

3. Bare-root Plants: Set plant in position and place planting soil around roots settling with water. Use care to avoid bruising or breaking roots when firming soil. Prune bruised or broken roots.

B. Anti-Desiccant: Apply anti-desiccant spray to broadleaved ericaceous plants planted in the Fall season, as directed.

C. Surface Finish: Form saucer as indicated on Drawings or as directed. Grade soil to form a basin on lower side of slope plantings, which will catch and retain water. Top dress basins with fertilizer spread evenly at the rate of 1-1/2 pounds per square yard of plant pit surface. Break saucers and basins before ground freezes.

D. Mulching:

1. Spread mulch over finished surface of each plant, plant bed and hedge trench in the following amounts:

a. Shredded Wood: 2 inches.

2. Water plants thoroughly after mulching.

E. Pruning: Prune immediately after planting using sharp tools approved by the Owner's Representative. Remove approximately 1/3 of the wood of deciduous plants, maintaining the natural habit of the plant. Cut no leaders. Paint pruning cuts 3 inches in diameter or over with tree wound paint.

F. Guying: Guy deciduous trees 4 inches and over in caliber; trees over 6 feet high with 3 or more stems; and evergreens 6 feet or over in height, with 3 guys immediately after planting. Attach guys to stakes and trees as indicated. Connect multi-stem trees with protected connecting wires maintaining each stems relationship to one another.

G. Establishment of Planting: Maintain plantings immediately following planting operations and continue throughout the guarantee period. Establishment of plantings shall consist of keeping plants in healthy, growing conditions by watering, weeding, cultivating, pruning, spraying, tightening of guys, remulching and by any other necessary operations of establishment. Water all plants at least once a week between April 1 and October 31 with approximately 5 gallons per square yard (1 inch layer of water) per watering unless otherwise directed. Provide additional watering during periods of dry weather when required or when directed. Treat plants with good horticultural preventative or remedial measures to control insects, diseases or rodents.

3.04 INSPECTIONS AND REPLACEMENTS

A. The following inspections apply only to this Section:

1. Physical Completion Inspection and Replacements: Notify the Owner's Representative in writing at least ten days prior to requested date of physical completion inspection. Remove and replace dead, unhealthy or badly impaired plants according to the original specification, if so directed. Replace plants during the next planting season if this inspection is not within a planting season.

2. End of Guarantee Inspection and Replacements: Remove stakes, guy wires and tree wrapping at the end of the one year guarantee period unless otherwise directed. Remove and replace dead, unhealthy or impaired plants according to original specification, as directed. Replace plantings during the next planting season if end of guarantee period is not within a planting season.

END OF SECTION

SECTION 33 39 13

PRECAST MANHOLES AND CATCH BASINS

PART 1 - GENERAL

1.01 WORK INCLUDED:

This Section covers all precast manholes and catch basins complete, including, but not limited to, bases, walls, cones, mortar, inverts, frames and covers.

1.02 RELATED WORK:

A. Section 31 00 00, EARTHWORK

B. Section 32 12 00, PAVING

C. Section 03 30 00, CAST-IN-PLACE CONCRETE

1.03 SYSTEM DESCRIPTION:

A. Precast sections shall conform in shape, size, dimensions, materials, and other respects to the details indicated on the drawings or as ordered by the Engineer.

B. All manholes and catch basins shall have concrete bases. Concrete bases shall be precast unless otherwise specified. Invert channels shall be formed of brick and mortar upon the base.

C. Catch basins shall have a 3-foot deep sump and designed to resist buoyancy unless otherwise specified.

D. Riser and cone sections shall be precast concrete.

1.04 REFERENCES:

A. The following standards form a part of this specification as referenced:

American Society for Testing and Materials (ASTM)

ASTM A48	Gray Iron Castings
ASTM C32	Sewer and Manhole Brick
ASTM C144	Aggregate for Masonry Mortar
ASTM C207	Hydrated Lime for Masonry Purposes

ASTM C478 Precast Reinforced Concrete Manhole Sections

ASTM C923 Specification for Resilient Connectors Between Reinforced Concrete Manhole Structures and Pipes

ASTM C1244 Standard Test Method for Concrete Sewer Manholes by the Negative Air Pressure (Vacuum) Test.

American Association of State Highway and Transportation Officials (AASHTO)

AASHTO M198Joints for Circular Concrete Sewer and Culvert Pipe Using Flexible Watertight Gaskets

Occupational Safety and Health Administration

OSHA 29 CFR 1910.27 Fall Prevention Protection

Form 819 – State of Connecticut, Department of Transportation, Standard Specifications for Roads, Bridges and Incidental Construction 2004, including Supplemental Specifications

1.05 SUBMITTALS: IN ACCORDANCE WITH REQUIREMENTS OF GENERAL SPECIFICATIONS, SUBMIT THE FOLLOWING:

A. Six sets of manufacturer literature of the materials of this section shall be submitted to the Engineer for review.

B. Tests reports as required shall be submitted to the Engineer.

PART 2 - PRODUCTS

2.01 PRECAST CONCRETE SECTIONS:

A. All precast concrete sections shall conform to ASTM C478 with the following exceptions and additional requirements:

1. The wall thickness of precast sections shall be as designated on the drawings, meeting the following minimum requirements:

Section Diameter (Inches)	Minimum Wall Thickness (Inches)
48	5
60	6
72	7
84	8

2. Type II cement shall be used except as otherwise approved.

3. Sections shall be steam cured and shall not be shipped until at least five days after having been cast.

4. Minimum compressive strength of concrete shall be 4000 psi at 28 days.

5. No more than two lift holes may be cast or drilled in each section.

6. The date of manufacture and the name or trademark of the manufacturer shall be clearly marked on the inside of each precast section.

7. Acceptance of the sections will be on the basis of material tests and inspection of the completed product.

8. Circumferential steel reinforcement in walls and bases shall be a minimum of 0.12 sq. in./lin. ft. for 4-foot diameter sections and 0.15 sq. in./lin. ft. for 5- and 6-foot diameter sections. Reinforcing shall extend into tongue and groove.

B. Conical reducing sections shall have a wall thickness not less than 5-inches at the bottom and wall thickness of 8-inches at the top. Conical sections shall taper from a minimum of 48-inches diameter to 24 or 30-inches diameter at the top, as shown on the drawings.

C. Except where insufficient depth of cover dictates the use of a shorter base, bases shall be a minimum of 4 feet in height.

D. Slab top sections and flat riser sections (Grade Rings) shall conform to the contract drawings, with particular attention focused upon the reinforcing steel and be designed to meet or exceed an H-20 Loading requirement.

E. The tops of the bases shall be suitably shaped by means of accurate ring forms to receive the riser sections.

F. Precast sections shall be manufactured to contain wall openings of the minimum size to receive the ends of the pipes, such openings being accurately set to conform with line and grade of the sewer or drain. Subsequent cutting or tampering in the field, for the purpose of creating new openings or altering existing openings, will not be permitted except as directed by the Engineer.

G. "Drop-over" manholes shall be placed where indicated on the drawings. The Contractor shall accurately measure the diameter of the existing outlet pipe and inform the manufacturer of its size, so that the "Drop-over" type opening can be cut into the precast manhole base. The bottom shall be cast in place by the Contractor. The invert channel shall be formed of brick and mortar, as specified in this specifications section. The sub-base shall be a compacted, level foundation of crushed stone, at least 6-inches thick,

as specified in Section 31 23 00 EARTHWORK, but shall vary to the depth necessary to reach sound undisturbed earth.

H. The exterior surfaces of all precast manhole bases, walls, and cones shall be given a minimum of one shop coat of bituminous dampproofing.

I. The Engineer reserves the right to reject any unsatisfactory precast section and the rejected unit shall be tagged and removed from the job site immediately.

J. The Engineer may also require the testing of concrete sections as outlined under Physical Requirements in ASTM C478 with the Contractor bearing all testing costs.

K. Precast Concrete Sections shall meet the minimum requirements as indicated on the Town of Greenwich, Standard Construction Details included in the plans.

2.03 FRAMES, GRATES, COVERS AND STEPS:

A. Castings shall be of good quality, strong, tough, even-grained cast iron, smooth, free from scale, lumps, blisters, sandholes, and defects of every nature which would render them unfit for the service for which they are intended. Contact surfaces of covers and frame seats shall be machined to prevent rocking of covers.

B. All castings shall be thoroughly cleaned and may be subject to a careful hammer inspection at the Engineer's discretion.

C. All castings (frames, grates, covers, steps, etc.) shall meet the minimum requirements as indicated on the plans.

D. Grates for Drain Basins within exposed aggregate concrete shall be bronze, 15-inch square, light-duty as manufactured by Nyloplast.

E. Grates for Drain Basins in non-concrete areas shall 15-inch round, light-duty as manufactured by Nyloplast.

2.04 SEWER MANHOLE ACCESSORIES:

A. Gasket materials shall be top grade (100% solids, vulcanized) butyl rubber and shall meet or exceed AASHTO M-198.

B. Couplings at the manhole-pipe interface shall be made with a rubber seal system (with or without stainless steel straps) meeting the requirements of ASTM C923 and recommended for this type of connection.

C. Stubs installed as specified and indicated on the drawings shall be short pieces of the same class pipe as that entering the manhole and shall have either stoppers or end caps as shown on the drawings. Stoppers or end caps shall be especially designed for that application.

2.05 DRAIN BASINS

A. Drain Basins shall be manufactured by Nyloplast, or approved equal.

B. Drain Basins shall have sumps for capture of debris and sediment.

PART 3 - EXECUTION

3.01 INSTALLATION:

A. PRECAST SECTIONS:

1. Precast bases shall be supported on a compacted level foundation of crushed stone, as specified in Section 31 23 00 EARTHWORK, at least 6-inches thick, but shall vary to the depth necessary to reach sound undisturbed earth.

2. Precast reinforced concrete sections shall be set vertical and with sections in true alignment.

3. Butyl rubber joint sealant shall be installed between each concrete section. Catch basin sections do not require joint sealant if so indicated on the drawings.

4. All holes in sections used for handling the sections shall be thoroughly plugged with mortar. Mortar shall be one part cement to 1-1/2 parts sand, mixed slightly damp to the touch (just short of "balling"), hammered into the holes until it is dense and an excess of paste appears on the surface, and then finished smooth and flush with the adjoining surfaces.

B. BRICK WORK:

1. Bricks shall be moistened by suitable means, as directed, until they are neither so dry as to absorb water from the mortar nor so wet as to be slippery when laid.

2. Each brick shall be laid as a header in a full bed and joint of mortar without requiring subsequent grouting, flushing or filling, and shall be thoroughly bonded as directed.

3. The brick inverts shall conform accurately to the size of the adjoining pipes. Side inverts shall be curved and main inverts (where direction changes) shall be laid out in smooth curves of the longest possible radius which is tangent to the centerlines of adjoining pipe.

C. CASTINGS:

1. Cast iron frames, grates and covers shall be as specified. The frames and covers shall be set by the Contractor to conform accurately to the grade of the finished pavement, existing ground surface, or as indicated on the drawings. Frames shall be adjusted to meet the street surface.

2. Cast iron manhole frames and covers not located in paved areas shall be set 6-inches above finished grade, at a height as directed by the Engineer, or as indicated on the drawings. The top of the cone shall be built up with a minimum of 1 course and a maximum of 5 courses of brick and mortar used as headers for adjustment to final grade.

3. Frames shall be set concentric with the top of the concrete section and in a full bed of mortar so that the space between the top of the concrete section or brick headers and the bottom flange of the frame shall be completely filled and made watertight. A thick ring of mortar extending to the outer edge of the concrete shall be placed all around the bottom flange. The mortar shall be smoothly finished to be flush with the top of the flange and have a slight slope to shed water away from the frame.

4. Covers and/or grates shall be left in place in the frames, for safety reasons, except while work is being performed.

D. ACCESSORIES:

1. Accessories shall be installed in accordance with manufacturer's instructions.

2. Stubs shall be set accurately to the dimensions indicated on the drawings. Stubs shall be sealed with suitable watertight plugs.

3.02 LEAKAGE TESTS:

A. Leakage tests shall be made by the Contractor and observed by the Engineer on each manhole. The test shall be by vacuum or by water exfiltration as described below:

B. VACUUM TEST:

1. The vacuum test shall be conducted in accordance with ASTM C1244. Test results will be judged by the length of time it takes for the applied vacuum to drop from 10 inches of mercury to 9 inches. If the time is less than that listed in Table 1 of ASTM C1244, the manhole will have failed the test. Test times from Table 1 are excerpted below.

TABLE 1

Minimum Test Times for Various Manhole Diameters

Depth (Feet)	Diameter (Inches) 48	60	72
		Times (Seconds)	
0-12	30	39	49
12-16	40	52	67
16-20	50	65	81
20-24	59	78	97
26-30	74	98	121

2. If the manhole fails the initial test, the Contractor shall locate the leaks and make proper repairs. Leaks may be filled with a wet slurry of accepted quick setting material. If the manhole should again fail the vacuum test, additional repairs shall be made, and the manhole water tested as specified below.

C. WATER EXFILTRATION TEST:

1. After the manhole has been assembled in place, all lifting holes shall be filled and pointed with an approved non-shrinking mortar. All pipes and other openings into the manhole shall be suitably plugged and the plugs braced to prevent blow out. The test shall be made prior to placing the shelf and invert. If the groundwater table has been allowed to rise above the bottom of the manhole, it shall be lowered for the duration of the test.

2. The manhole shall be filled with water to the top of the cone section. If the excavation has not been backfilled and observation indicates no visible leakage, that is, no water visibly moving down the surface of the manhole, the manhole may be considered to be satisfactorily water-tight. If the test, as described above, is unsatisfactory as determined by the Engineer or if the manhole excavation has been backfilled, the test shall be continued. A period of time may be permitted if the Contractor so wishes, to allow for absorption by the manhole. At the end of this period, the manhole shall be refilled to the top of the cone, if necessary, and a measuring time of at least 8 hours begun. At the end of the test period, the manhole shall be refilled to the top of the cone, measuring the volume of water added. This amount shall be extrapolated to a 24-hour loss rate and the leakage determined on the basis of depth. The leakage for each manhole shall not exceed one gallon per vertical foot for a 24-hour period. If the manhole fails this requirement, but the leakage does not exceed 3 gallons per vertical foot per day, repairs by approved methods may be made as directed by the Engineer to bring the leakage within the allowable rate of one gallon per foot per day. Leakage due to a defective section or joint or exceeding the 3 gallon per vertical foot per day, shall be cause for rejection of the manhole. It shall be the Contractor's responsibility to uncover the rejected manhole as necessary and to disassemble,

reconstruct or replace it as directed by the Engineer. The manhole shall then be retested and, if satisfactory, interior joints shall be filled and pointed.

3. No adjustment in the leakage allowance will be made for unknown causes such as leaking plugs, absorption, etc. It shall be assumed that all loss of water during the test is a result of leaks through joints or through the concrete. Furthermore, the Contractor shall take any steps necessary to assure the Engineer that the water table is below the bottom of the manhole throughout the test.

4. If the groundwater table is above the highest joint in the manhole, and there is no leakage into the manhole, as determined by the Engineer, such a test can serve to evaluate water-tightness of the manhole. However, if the Engineer is not satisfied with the results, the Contractor shall lower the water table and carry out the test as described hereinbefore.

3.03 CLEANING:

All new manholes shall be thoroughly cleaned of all silt, debris and foreign matter of any kind, prior to final inspection.

END OF SECTION

SECTION 33 41 00

STORM UTILITY DRAINAGE PIPING DEVICES

PART 1 - GENERAL

1.1 WORK INCLUDED

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section consists of exterior storm sewer piping devices and includes:
   1. Backwater Check Valves

1.3 SUBMITTALS

A. Product Data: For each type of product indicated.

B. Shop Drawings:
   1. Backwater Check Valve

C. Manufacturer Certification: All pipe furnished shall be accompanied by the manufacturer's certification.

D. Cut sheets for Contractor layout and staking locations.

PART 2 - PRODUCTS

2.1 BACKWATER CHECK VALVES

A. Checkmate Ultraflex Elastomeric Check Valve as manufactured by Tideflex Technologies, a division of Red Valve Company, Carnegie, PA 15106 or approved equivalent.

   1. Size to match drain in which valve is to be installed.

B. Check Valves are to be all rubber and the flow operated check type with slip-in cuff connection. The entire valve shall be ply reinforced throughout the body, saddle and bill, which is

cured and vulcanized into a one-piece unibody construction. A separate valve body or pipe used as the housing is not acceptable. The valve shall be manufactured with no metal, mechanical hinges or fasteners, which would be used to secure any component of the valve to a valve housing. The port area of the saddle shall contour into a circumferential sealing area (the "bill") that is concentric with the pipe which shall allow passage of flow in one direction while preventing reverse flow. The entire valve shall fit within the pipe inside diameter. The saddle area of the valve must be flat, not conical, and integral with the rubber body above centerline in order to not produce any areas or voids that can collect or trap debris. The valve must be easily installed in pipes with poor end condition without the need to modify or utilize the headwall or structure to seal and anchor the valve. Once installed, the valve shall not protrude beyond the face of the structure or end of the pipe.

C. The valve shall incorporate multiple concave grooves molded integrally into the flat saddle wall thickness extending longitudinally a minimum of 80% of the length of the saddle to reduce opening resistance and reduce headloss.

D. The valve shall incorporate a custom shaped notch in the end of the bill to reduce cracking pressure. The notch shall be at the invert/bottom of the bill and symmetrical about the valve centerline. The longitudinal length of the notch shall be no greater than half the length of the bill.

E. The outside diameter of the upstream and downstream sections of the valve must be circumferentially in contact with the inside diameter of the pipe.

F. Slip-in style valves will be furnished with a set of stainless steel expansion clamps. The clamps, which will secure the valve in place, shall be installed in the upstream or downstream cuff of the valve, depending on installation orientation, and shall expand outwards by means of a turnbuckle. Each band shall be pre-drilled allowing for the valve to be pinned and secured into position in accordance with the manufacturer's installation instructions.

G. Manufacturer must have flow test data from an accredited hydraulics laboratory to confirm pressure drop and hydraulic data.

H. Company name, plant location, valve size patent number, and serial number shall be bonded to the check valve.

PART 3 - EXECUTION

3.1 BACKWATER VALVE INSTALLATION

A. Install horizontal-type backwater valves in piping where indicated.

END OF SECTION

SECTION 33 41 13.22

CORRUGATED POLYETHYLENE [HDPE] DRAINAGE PIPE

PART 1 – GENERAL

1.01 WORK INCLUDED:

A. This section includes furnishing all materials, labor and equipment and installing corrugated polyethylene [HDPE] drainage pipe and fittings as shown on the drawings and as specified herein.

1.02 RELATED WORK:

A. Section 31 23 00 – EARTHWORK

B. Section 31 50 00 – SUPPORT OF EXCAVATION

1.03 REFERENCES:

A. The following standards form a part of this specification, as referenced:

American Society for Testing and Materials (ASTM

ASTM D2321	Standard for Underground Installation of Thermoplastic Pipe for Sewers and Other Gravity Flow Applications
ASTM F405	Standard Specification for Corrugated Polyethylene Pipe and Fittings
ASTM F667	Standard Specification for Large Diameter Corrugated Polyethylene Pipe and fittings

American Association Of State Highway and Transportation Officials

AASHTO M294	Standard Specification for Corrugated Polyethylene Pipe
AASHTO MP6	Standard Specification for Corrugated Polyethylene Pipe 42” and 48” Diameter

1.04 SUBMITTALS: IN ACCORDANCE WITH REQUIREMENTS OF GENERAL SPECIFICATIONS, SUBMIT THE FOLLOWING:

A. Six sets of manufacturer’s literature on the materials of this Section shall be submitted to the Engineer for review.

B. Manufacturer’s certification that the product was manufactured, tested, and supplied in accordance with this specification shall be furnished.

1.05 DELIVERY, STORAGE AND HANDLING:

A. Pipe shall be packaged to withstand shipment without damage and handled carefully on the jobsite. Pipe shall be stored so that it is not exposed to sunlight.

PART 2 – PRODUCTS

2.01 MATERIALS:

A. This Section applies to corrugated polyethylene pipe with an integrally formed smooth interior.

B. The nominal size for the pipe and fittings is based on the nominal inside diameter of the pipe.

C. The pipe and fittings shall be free of foreign inclusions and visible defects. Fittings may be either molded or fabricated. Fittings supplied by manufacturers other than the supplier of the pipe shall not be permitted without the approval of the Engineer. The ends of the pipe shall be cut squarely and cleanly so as not to adversely affect joining.

2.02 MANUFACTURERS:

A. Pipe and fittings shall be manufactured by Ipex, Inc.; Plexco, Division of Chevron Chemical Co.; J-M Pipe Co.; Advanced Drainage Systems, Inc. (ADS) or approved equal.

PART 3 – EXECUTION

3.01 INSTALLATION:

A. Pipe interiors, fitting interiors, and joint surfaces shall be thoroughly cleaned before installation. Pipes and fittings shall be maintained clean.

B. Pipes shall be installed in the locations and to the required lines and grades shown on the drawings and provided in these Specifications, using an approved method of control.

C. Excavations shall be maintained free of water during the progress of the Work. No pipes shall be laid in water, nor shall there by any joints made up in water.

D. If any defective pipe is discovered after being placed, removal and replacement with sound pipe will be required at no additional cost to the Owner.

END OF SECTION

SECTION 33 44 19.13

STORMWATER TREATMENT SYSTEM

PART 1 - GENERAL

1.01 WORK INCLUDED:

A. The Contractor shall furnish all labor, materials, equipment and incidentals required and install all precast concrete storm-water treatment systems and appurtenances in accordance with the Drawings and these specifications.

1.02 RELATED WORK:

A. Section 03 05 00, FIELD CONCRETE

B. Section 31 00 00, EARTHWORK

C. Section 32 12 00, PAVING

1.03 QUALITY CONTROL INSPECTION:

A. The quality of materials, the process of manufacture, and the finished sections shall be subject to inspection by the Engineer. Such inspection may be made at the place of manufacture, or on the work site after delivery, or at both places, and the sections shall be subject to rejection at any time if material conditions fail to meet any of the specification requirements, even though sample sections may have been accepted as satisfactory at the place of manufacture. Sections rejected after delivery to the site shall be marked for identification and shall be removed from the site at once. All sections which have been damaged beyond repair during delivery will be rejected and, if already installed, shall be repaired to the Engineer’s acceptance level, if permitted, or removed and replaced, entirely at the Contractor's expense.

B. All sections shall be inspected for general appearance, dimensions, soundness, etc. The surface shall be dense, close textured and free of blisters, cracks, roughness and exposure of reinforcement.

C. Imperfections may be repaired, subject to the acceptance of the Engineer, after demonstration by the manufacturer that strong and permanent repairs result. Repairs shall be carefully inspected before final acceptance. Cement mortar used for repairs shall have a minimum compressive strength of 4,000 psi when tested in accordance with ASTM C-109. Epoxy mortar may be utilized for repairs.

1.04 SUBMITTALS: IN ACCORDANCE WITH REQUIREMENTS OF SECTION 01 33 23 SUBMITTALS, SUBMIT THE FOLLOWING:

A. Shop Drawings

Structural design calculations and shop drawings, which shall be certified by a Professional Engineer retained by the system manufacturer or Contractor and licensed in the state where the system is to be installed.

B. Affidavit on patent infringement

The Contractor shall submit to the Engineer, prior to installation of the stormwater treatment system, an affidavit regarding patent infringement rights stating that any suit or claim against the Owner due to alleged infringement rights shall be defended by the Contractor who will bear all the costs, expenses and attorney's fees incurred thereof.

C. Performance Documentation

The following documentation must be submitted by the Contractor and approved by the Engineer prior to the manufacture and delivery of any materials.

1. Laboratory Data

The stormwater treatment system supplier shall provide documentation of Total Suspended Solids (TSS) removal efficiency from laboratory testing conducted on the supplier’s full-scale system. The documentation shall include:

a. TSS removal efficiency versus operating rate for the full operating range of the stormwater treatment system for a uniform 50-micron particle size.
b. TSS removal calculations for each system specified herein. The calculations must demonstrate that the system(s) is capable of achieving a net annual TSS removal efficiency as required by local regulations and as based upon a uniform 50-micron particle size and the best available rainfall data for the project site location.

2. Field Test Data

The stormwater treatment system supplier shall provide documentation of TSS removal efficiency from field testing conducted on an installed system. The documentation shall be in accordance with the following:

a. The testing and documentation shall have been conducted by an independent third party.
b. The testing and documentation shall include at least 10 storms.
c. The testing and documentation must show TSS removal results that meet or exceed the performance requirements for the system(s) specified herein.

3. Manufacturing Experience

The stormwater treatment supplier shall provide evidence of at least 5 years of successful product design and use. The supplier shall provide an installation list of projects, model sizes installed and installation dates where the same type systems as specified herein have been designed and produced by the supplier.

D. Operation and Maintenance Manuals

Furnish four copies of the operation and maintenance manuals for the stormwater treatment systems.

PART 2 - PRODUCTS

2.01 MATERIALS AND DESIGN:

A. Concrete for precast storm-water treatment systems shall conform to ASTM C 857 and C 858 and meet the following additional requirements:

1. The wall thickness shall not be less than 6-inches (152 mm) or as shown on the dimensional drawings. In all cases the top slab and wall thickness shall be no less than the minimum thickness necessary to sustain HS20-44 loading requirements as determined by a Licensed Professional Engineer.

2. Sections shall have tongue and groove or ship-lap joints with a butyl mastic sealant conforming to ASTM C 990.

3. Cement shall be Type II Portland cement conforming to ASTM C 150.

4. All sections shall be cured by an approved method. Sections shall not be shipped until the concrete has attained a compressive strength of 4,000 psi (28 MPa) or until 5 days after fabrication and/or repair, whichever is the longer.

5. Pipe openings shall be sized to accept pipes of the specified size(s) and material(s), and shall be sealed by the Contractor with a rubber seal system meeting the requirements of ASTM C923.

B. Internal aluminum plate components shall be ¼-inch (6 mm) thick aluminum alloy 5052-H32 in accordance with ASTM B 209.

C. Internal aluminum angle components shall be ¼-inch (6 mm) thick aluminum alloy 6063 in accordance with ASTM B 308.

D. Brick or masonry used to build the manhole frame to grade shall conform to ASTM C 32 or ASTM C 139 and shall be installed in conformance with all local requirements.

E. Casting for manhole frames and covers shall be in accordance with ASTM A48, CLASS 30B and AASHTO M105.

F. A bitumen sealant in conformance with ASTM C 990 shall be utilized in affixing the aluminum swirl chamber to the concrete vault.

2.02 PERFORMANCE:

A. Unless otherwise indicated, all equipment used shall provide the results listed in the schedule below. Proposed equipment shall be submitted in writing to the Engineer, along with sufficient data supported by certified tests that the system can meet the end results shown in the table and this specification section:

Table 2.02

Location	**Design Treatment (Water Quality Flow)** (cfs) (2)	**Design Flow Bypass** (cfs) (2)
WQS-6	**3.1**	**13.2**

(1) Structure shall be a model and manufacturer from the current CT DOT list of qualified hydrodynamic separators.
(2) The systems shall be capable of treating/bypassing the specified flow rates.

D. Each stormwater treatment system shall include a circular aluminum "swirl chamber" (or "grit chamber") with a tangential inlet to induce a swirling flow pattern that will accumulate and store settle-able solids in a manner and a location that will prevent re-suspension of previously captured particulates.

E. Each stormwater treatment system shall be of a hydraulic design that includes flow controls designed and certified by a professional engineer using accepted principles of fluid mechanics that raise the water surface inside the tank to a pre-determined level in order to prevent the re-entrainment of trapped floating contaminants.

D. Each stormwater treatment system shall be capable of removing 80% of the net annual Total Suspended Solids (TSS) load based on a uniform 50-micron particle size. Annual TSS removal efficiency models shall be based on documented removal efficiency performance from full scale laboratory tests. Annual TSS removal efficiency models shall only be considered valid if they are corroborated by independent third-party field testing. Said field testing shall include influent and effluent composite samples from a minimum of ten storms at one location. Individual stormwater treatment systems shall have the Design Treatment Capacity (Water Quality Flow) listed in Table 2.02, and shall not resuspend trapped sediments or re-entrain floating contaminants at flow rates up to and including the specified Design Flow Bypass.

E. Individual stormwater treatment systems shall be designed such that the pump-out volume is less than ½ of the total system volume. The systems shall be designed to not allow surcharge of the upstream piping network during dry weather conditions.

F. A feature shall be incorporated into the design of the stormwater treatment system to prevent the introduction of trapped oil and floatable contaminants to the downstream piping during routine maintenance and to ensure that no oil escapes the system during the ensuing rain event. Direct access shall be provided to the sediment and floatable contaminant

storage chambers to facilitate maintenance. There shall be no appurtenances or restrictions within these chambers.

G. The stormwater treatment system manufacturer shall furnish documentation which supports all product performance claims and features, storage capacities and maintenance requirements.

H. Stormwater treatment systems shall be completely housed within one structure.

2.03 MANUFACTURER:

A. Each stormwater treatment system shall be of a type that has been installed and used successfully for a minimum of 5 years. The manufacturer of said system shall have been regularly engaged in the engineering design and production of systems for the physical treatment of stormwater runoff during the aforementioned period.

B. Each stormwater treatment system shall be a Contech CDS™ System as manufactured by Contech Construction Products Inc., 9025 Centre Pointe Drive - Suite 400, West Chester, Ohio 45069, or shall be of a model and manufacturer on the Connecticut Department of Transportation list of approved hydrodynamic separators.

PART 3 - EXECUTION

3.01 INSTALLATION:

A. Each stormwater treatment system shall be constructed according to the sizes shown on the Drawings and as specified herein. Install at elevations and locations shown on the Drawings or as otherwise required by the Engineer.

B. Place the precast base unit on a granular subbase of minimum thickness of six inches after compaction or of greater thickness and compaction if specified elsewhere. The granular subbase shall be checked for level prior to setting and the precast base section of the trap shall be checked for level at all four corners after it is set. If the slope from any corner to any other corner exceeds 0.5% the base section shall be removed and the granular subbase material re-leveled.

C. Prior to setting subsequent sections place bitumen sealant in conformance with ASTM C 990-91 along the construction joint in the section that is already in place.

D. After setting the base and wall or riser sections, install the circular swirl chamber wall by bolting the swirl chamber to the side walls at the three (3) tangent points and at the 3-inch wide inlet tab using HILTI brand concrete anchors or equivalent 1/2-inch diameter by 2-3/4-inch minimum length at heights of approximately 3-inches off the floor and at the mid-height of the completed trap (at locations of pre-drilled holes in aluminum components). Seal the bottom edge of the swirl chamber to the trap floor with the supplied aluminum angle flange. Adhere ¼-inch thick by 1-inch wide neoprene sponge material to the flange with half of its width on the horizontal leg of the flange and half of its width on the vertical leg. The aluminum angle flange shall be affixed to the floor with a minimum 3/8-inch diameter by 2-3/4-inch drop in wedge anchor at the location of the predrilled holes. Affix

the swirl chamber to the flange with hex head ¼-inch x 1-1/2-inch zinc coated self- tapping screws at the location of the predrilled holes. Seal the vault sidewalls to the outside of the swirl chamber from the floor to the same height as the inlet pipe invert using butyl mastic or approved equal.

E. Prior to setting the precast roof section, bitumen sealant equal to ASTM C 990 shall be placed along the top of the baffle wall, using more than one layer of mastic if necessary, to a thickness at least 1-inch greater than the nominal gap between the top of the baffle and the roof section. The nominal gap shall be determined either by field measurement or the shop drawings. After placement of the roof section has compressed the butyl mastic sealant in the gap, finish sealing the gap with an approved non-shrink grout on both sides of the gap using the butyl mastic as a backing material to which to apply the grout. Also apply non-shrink grout to the joints at the side edges of the baffle wall.

F. After setting the precast roof section of the storm-water treatment system, set precast concrete manhole riser sections, to the height required to bring the cast iron manhole covers to grade, so that the sections are vertical and in true alignment with a ¼-inch maximum tolerance allowed. Backfill in a careful manner, bringing the fill up in 6-inch lifts on all sides. If leaks appear, clean the inside joints and caulk with lead wool to the satisfaction of the Engineer. Precast sections shall be set in a manner that will result in a watertight joint. In all instances, installation of Storm-water Treatment Systems shall conform to ASTM specification C 891 “Standard Practice for Installation of Underground Precast Utility Structures”.

G. Holes made in the concrete sections for handling or other purposes shall be plugged with a non-shrink grout or by using grout in combination with concrete plugs.

H. Where holes must be cut in the precast sections to accommodate pipes, do all cutting before setting the sections in place to prevent any subsequent jarring which may loosen the mortar joints. The Contractor shall make all pipe connections.

END OF SECTION

SECTION 34 41 13

TRAFFIC SIGNS

PART 1 – GENERAL

1.01 SUBMITTALS

A. Shop Drawings: Show shop drawings, not necessarily to scale, but sufficient enough in detail to show color, wording, lettering size and style, overall sign size, construction details and installation details for each type of sign.

PART 2 – PRODUCTS

2.01 TRAFFIC SIGNS

A. All signs shall be compliant with the Manual on Uniform Traffic Control Devices (MUTCD), latest edition, unless otherwise noted.

B. Construction Materials: Comply with the applicable requirements of DOT Section 645.

C. Posts: Galvanized steel.

PART 3 – EXECUTION

3.01 INSTALLATION

A. Erect signs in their designated locations, as indicated and in accordance with the approved shop drawings and the applicable requirements of DOT Section 645.

B. Protect surfaces and finishes from abrasion and other damage during handling and installation.

C. Replace damaged or faulty signs.

END OF SECTION

SECTION 35 24 00

DREDGING, DEWATERING, HANDLING, TRANSPORTATION, AND OFF-SITE DISPOSAL OF DREDGED MATERIALS

PART 1 - GENERAL

1.01 WORK INCLUDED:

A. Maintenance dredging of sediment from the existing channel. The work under this section includes all the labor, equipment, materials, services and all other incidentals required for the mechanical dredging, dewatering, stockpiling, handling, tracking, transporting, and off-site disposal of dredge sediment.

B. All dewatered dredged materials are to be transported off-site in an acceptable manner that meets all pertinent local, state, and federal regulatory requirements.

C. The above stated quantities shall only be considered an estimate. The actual amount removed will be dependent on the amount of material the Contractor removes to the payment limit from within the established dredge areas as shown on the Contract Drawings. No payment will be made for any material removed from below 1-foot allowable O.D. depths or beyond the sideslopes shown on the Contract Drawings.

D. In general, sediments are anticipated to primarily consist of Medium and Fine Sands (Refer to Appendix). Minor variations in the subsurface materials are to be expected and, if encountered, shall not be considered as being materially different. Bidders are expected to examine the site of the work along with review the information provided in Contract Documents and decide for themselves the character of the materials.

E. The project site is an active waterfront. The Contractor shall be responsible for coordinating with the Owner to determine access to the site relative to uses/daily needs and shall be responsible for moving the dredge plant/equipment from site if so required. In addition, the areas are also subject to traffic from commercial boats, recreational craft, etc. and may cause minor delays to the dredging operations. No additional compensation shall be made for any required moves or minor delays.

F. The Work performed by the Contractor shall be subject to the following requirements:

1. Within five (5) days of the issuance of a Notice to Proceed (NTP), the Contractor will provide the Town and the Engineer with a construction schedule. The Contractor shall coordinate and finalize operations, sequencing, and schedule prior to the start of work with the Town and Owner's Representative.
2. Contractor's working hours shall be from 7am to 7pm, Monday thru Saturday, unless approved in writing from Owner's Representative. The Contractor shall adhere to all noise restrictions as set by the Owner and any relevant permit conditions.

3. All dredging and disposal activities shall commence on/after **November 3rd, 2025** and must be completed by no later than **January 31st, 2026**.
4. The Contractor is advised that completion of this project is essential to the Town's facility operations. Failure to complete this project in the timeframe specified herein will have a follow-on delay to such operations. In the event that all dredging and disposal activities are not completed on/before **January 31st, 2026**, the Contractor shall demobilize and then re-mobilize to the project site no sooner than **May 16, 2026** at no additional expense to the Owner and complete the dredging and disposal operations for the contract unit prices by no later than **June 30th, 2026**. The Contractor will be responsible for the removal of any sediment that has accumulated within the established dredge areas/depths upon the completion of dredging and disposal on **January 31st, 2026** and the re-commencement of operations on/after **May 16, 2026** at no additional cost to the Town. Should the Contractor be required to re-mobilize to the site to complete all required construction activities, they will be responsible for all costs and efforts associated with obtaining any/all permits that may expire prior to returning to the site, removal/reinstallation of floats, docks, and pilings as well as all associated activities and work elements required to complete dredging and the project in its' entirety. The Contractor shall be fully responsible and shall indemnify to the fullest extent of the law the Owner and Engineer for any fines, levy penalty charges incurred in prosecuting any portion of the work set forth herein.
5. At the end of each working day, the Contractor shall position the equipment and barges such that interference with vessel traffic is avoided at all times and as approved by the Owner and local Harbormaster. All equipment shall have sufficient lighting to allow for safe operations and navigation.
6. Upon request by the Owner or Engineer, the Contractor shall provide transportation to/from the operation and equipment as required.
7. Dredging operations shall cease immediately whenever violations of contract requirements are detected/observed. Contractor operations shall not resume until methods of compliance are approved.

1.02 RELATED SECTIONS:

A. Section 00 31 43 – PERMIT APPLICATIONS

B. Section 01 33 23 – SUBMITTALS

C. Section 01 14 19.16 – DUST CONTROL

D. Section 01 60 00 – PLANT AND EQUIPMENT

E. Section 01 70 23 – FIELD ENGINEERING

F. Section 31 25 01 – ENVIRONMENTAL PROTECTION

G. US Army Corps of Engineers General Permit File No. NAE-2020-02349 issued on 05/01/2025.

H. Connecticut Department of Energy and Environmental Protection License - Certificate of Permission No. 202207720-COP issued on 10/20/2022.

I. Summary of Dredge Material Pre-Characterization Sampling Results dated 7/22/21

1.03 SUBMITTALS: IN ACCORDANCE WITH REQUIREMENTS OF GENERAL SPECIFICATIONS, SUBMIT THE FOLLOWING:

A. Submit to the Engineer, for review, and in accordance with the requirements of the General Permits/Certificate of Permissions, the information required for review no less than 21 days prior to construction, per requirements of approvals.

B. Submit a Sediment Management and Dewatering Plan (SMDP) in accordance with the conditions of the permits and as depicted by Contract Drawings. The plan shall be submitted to the Owner and Engineer for review at least 14 days prior to submission. This Plan is intended to document the site and/or location that will be dredged, utilized for dewatering, the proposal for barge transportation, unloading, stockpiling and/or storage of dredge material, dewatering methods, name and location of a certified upland disposal facility, and documentation of facility acceptance. The Contractor shall remain responsible for the adequacy of and safety of the means, methods, and sequencing of construction. The plan shall include, but not be limited to the following items:

1. Detailed sequence of work. Please include the start date and anticipated substantial completion date. Include specific sequencing sections for the following work:

    a. Sediment removal using mechanical methodologies;

    b. Transportation of sediments; and

    c. Dewatering/decanting of sediment.

2. Details of equipment and procedures that the Contractor will utilize including plans and descriptions indicating location, depth and sequence of dredge cuts, bucket size/specifications, scow capacity, numbers, types, and sizes of equipment proposed to perform all work described in this specification section, including but not limited to, cut sheets and vessel/equipment certifications. The Contractor shall certify/affirm that he/she has reviewed any and all survey information regarding the project site as provided by Contract Documents and Construction Drawings and that all equipment selected for the proposed project is capable of performing all of the required dredging and disposal operations as specified herein.

3. General description of operations and maintenance of dredging and dewatering equipment. A detailed description of proposed dredging means and methods shall be provided indicating procedure(s) for both dredging activities within the dredge

template and for reasonably clearing side slopes to ensure no sloughing occurs which may impact future waterway use.

4. Dredge positioning plan that details the proposed method for maintaining horizontal and vertical control of dredge cuts, including proposed method for avoiding over-dredging below allowable depths as authorized by permits and shown on the Contract Drawings.

5. Debris management plan that describe in detail the Contractor's proposed method and equipment to be used for material screening and removal of artificial obstructions. Identify methods and locations for solid waste disposal of dredged debris and other solid waste generated by the Contractor's activities. The plan should identify a methodology and equipment for containing, recovering, and/or securing floating debris that is not captured during dredging operations. The Contractor shall identify any subcontractors responsible for the transportation and disposal of solid waste. Licenses or permits shall be submitted for solid waste disposal sites that are not commercial operating facilities. Evidence of the disposal facility's acceptance of the solid waste shall be attached to this plan during construction. The Contractor shall submit to the Engineer completed copies of all Bills of Lading indicating the total amount of debris in tons which was transported and accepted at the disposal facilities.

6. All pertinent information relating to the transport of dredged material. The information, at a minimum, shall include:

   a. Name and address of all transporters.

   b. Name, identification number, and date of last certification of each plant and piece of equipment (including, but not limited to, dredge, deck barge, hopper, scow, etc.) certified to be utilized within the USACE's Dredge Quality Management (DQM) system for transport of dredge sediments and as described in detail in the federal permit that has been issued by the USACE for the project. All equipment must meet USACE DQM requirements for the water transportation of dredge material to the Contractor's proposed receiving site for upland disposal.

   c. Written description indicating layout and details of equipment (including scow ullage tables) and procedures for; water control, scow positioning and tracking to comply with the regulations and contract requirements, and the transport of the dredged material in accordance with all local, state and federal permits and applicable laws.

   d. Proof of permit, license, or authorization to transport dredge sediments in all affected states, as applicable.

   e. Dust control measures.

7. Measures that the Contractor will employ for protection of, or temporary or permanent relocation of, adjacent structures located in the vicinity of the dredge area. Proposed measures must include methods for dealing with debris that may be encountered.

8. Identify each waste stream and propose appropriate disposal/recycling facilities that will accept dredge sediments. The Contractor shall submit to the Engineer, approvals or letters of intent and facility information for each facility proposed, within 7 days of issuance of the Notice to Proceed. The Contractor shall submit the following information:

    a. General Information
        i. Facility Name/ Address
        ii. Name & Title of Contact Person
        iii. Telephone Number of Contact Person
        iv. Permit Number

    b. The facility shall specify the volume of material that can be accepted from the Site on a weekly and a total basis.

    c. The facility shall provide written confirmation that they are permitted to accept and will accept the dredged material of the general quality and quantity described by these Specifications.

    d. The facility shall provide a listing of all current and valid permits, licenses, letters of approval, and other authorizations to operate that they hold, pertaining to the receipt and management of the soils or materials specified in this Contract.

    e. The Contractor shall submit a complete list of the disposal facility's permitted allowable contaminant levels and physical characteristic requirements for contaminated material, and list any required regulatory approvals for individual waste streams

9. Documentation of an emergency service agreement between the Contractor and a certified emergency response contractor.

C. The following shall be submitted to the Engineer prior to sediment removal and dewatering:

    1. Material data sheets for any additives used in the sediment dredging and dewatering drying activities (as applicable and acceptable to Federal, State and Local Regulations).

D. The Contractor shall maintain daily logs and reports covering the work to be performed for this Contract and as required by permits. The format shall be developed by the Contractor to include daily logs, weekly reports, and a phase out report. The Contractor

shall provide the Engineer with copies of all logs and reports on a weekly basis in a Microsoft Word document or Excel spreadsheet format. The Contractor shall be responsible for submitting daily dredging reports to the Engineer indicating all operational time and down time for all equipment and personnel. The Contractor's daily report shall include information of sufficient detail to track daily production of dredging and disposal activities. This shall include the location of areas dredged, character of the materials removed, weather/environmental conditions, the estimated volumes of material dredged, a comprehensive list of attendant plant, a comprehensive list of employees actively engaged in work on the project, an estimate of work supplies used such as fuel and other wear items, and a detailed list of the distribution of work. The details for the distribution of work shall include an accounting of delays considered non-effective time separated by type such as mechanical delays, anchor handling, waiting on disposal site, etc. Contractor quality control documents shall be submitted in accordance with Section 01 45 16.13, Contractor Quality Control and Section 01 33 23 Submittal Procedures

E. Contractor shall submit a certified pre-dredge and post-dredge as-built bathymetric survey of project areas for review/acceptance by Engineer and Owner's Representative.

1.04 REFERENCES:

A. All applicable Federal, State, and local regulations. It is the Contractor's responsibility to know, understand, and abide by all such regulations and common practices. In the event of a conflict, the most stringent regulations shall govern.

1.05 PERMIT REQUIREMENTS:

A. The Contractor shall comply with all local, State, and Federal permits required for the transport and disposal of dredged material. The Contractor shall adhere to all permit requirements.

B. The Contractor shall document that the disposal facilities proposed have all current certifications and permits as required by Federal, State, and local regulatory agencies to receive and dispose of the excavated material.

1.06 QUALITY ASSURANCE AND CONTROL:

A. Water Quality Testing:

1. The work shall conform to applicable local, state, and federal regulatory agencies governing the handling of impacted sediments.

B. The Contractor shall perform the following:

1. Completed the 40-hour OSHA health and safety training course, with current 8-hour OSHA refresher training.

2. Develop and implement site-specific emergency response and health and safety protocols and procedures.

3. Performance of characterization sampling required for the disposal of excavated materials to meet all State and Federal regulations and disposal requirements. Characterization sampling may only occur with the observation of Owner's Representative.

4. Prepare the necessary documents to transport and dispose of dredged material and submit the executed transportation and disposal documents to the appropriate Federal, State and Local agencies with copies of all documents submitted to the Owner's Representative in the required time frame for submittal.

5. Advise the Engineer and Owner's Representative at least three working days in advance of the schedule for off-site disposal/recycling

6. Contractor shall ensure compliance with all references/permit conditions, and ensure that the work shall conform to local, State and Federal regulatory agencies governing the handling of contaminated and hazardous materials.

7. Keep records, including daily logs and photographs, of all waste streams, weights, stockpiles, and surplus excavated materials for the purposes of tracking points of origin.

8. Develop and implement dust, air emissions, and odor control measures, which will adequately protect workers and residents in the nearby community and prevent off-site migration of dust and odors. Refer to Sections 01 14 19.16 – DUST CONTROL.

1.07 SURVEY BENCHMARKS, LINES AND GRADES

A. Survey benchmarks, lines and grades shall be made in accordance with the provisions cited in Section 01 71 23, Field Engineering.

1.08 PROJECT CONDITIONS

A. Information and data furnished or referred to below are furnished for information only and it is expressly understood that neither the Owner or Engineer will not be responsible for any interpretations or conclusions drawn therefore by the Contractor.

B. Weather Conditions: Complete weather records and reports may be obtained from the U.S. Weather Bureau. The Contractor shall satisfy himself as to the hazards likely to arise from weather conditions during the period of dredging, transporting and disposal activities. The project site of work is exposed, and suspension of work may at times be necessary during extreme storm periods. Tides and currents may have an effect on dredging operations. The Contractor shall familiarize himself on the nature of tides and currents within Darien Harbor and the Goodwives River and include any tidal-based operations in the Work Plan.

C. Conditions of Dredge Areas: The best information available as to the present conditions of the project site is shown on the Contract Drawings, described by the specifications provided herein and additional information provided in Appendices.

D. Debris and Artificial Obstructions within Dredge Areas: The Contractor shall assume that a wide variety of bottom debris may be encountered as the project site such as, but not limited to, cable, rope, netting, miscellaneous metal, canisters, miscellaneous plastic, miscellaneous wood, large stones, abandoned moorings/blocks, abandoned pilings, and other timber debris. The acceptance criteria for debris at the Contractor-selected disposal facility shall be confirmed by the Contractor, and all debris that cannot be accepted shall be removed from the dredge area and contained within the work site, separated, and stockpiled for offsite disposal at a suitable location. Disposal in accordance with local, Federal, and State laws and regulations shall be the responsibility of the Contractor. In preparing the bid, the Contractor shall take into account the density and hardness of the material and the need to produce a clear dredge footprint at the end of the project. The Contractor shall be prepared to excavate the full range of material types that could be encountered within the area without prejudice to the amounts of any particular type of material that is encountered. Failure of the Contractor to anticipate or be prepared for the varying subsurface conditions that exist, shall not be cause for a claim of change in conditions of any kind or entitle the Contractor to any additional compensation beyond the as stated unit price for the work to be performed.

E. The Contractor shall immediately report any possible obstructions to the Engineer for direction. The Owner has no knowledge of existing wrecks, wreckage, or other artificial obstructions of such size or character as to require the use of special equipment for its removal. However, special or additional plant or equipment may be required for economical removal of any submerged obstructions and other items, such as boulders. Care must be taken when removing debris adjacent to existing structures as to minimize any possible impact. During dredging operations, the Contractor shall remove all debris encountered.

F. Existing Utilities: Prior to commencement of Work, the Contractor shall coordinate with the applicable utility companies to identify and mark the exact locations of existing utilities and establish in detail the proposed method of protecting the existing utilities. Existing utility lines that are to be retained, shall be protected from damage during dredging, and if damaged, shall be satisfactorily repaired by the Contractor at no additional cost to the Owner. No dredging or spudding shall occur within an area identified as having active utilities. It is the full responsibility of the Contractor to take all precautions, as deemed necessary, to confirm, identify, and avoid any/all potential impacts to utilities.

G. The proposed dredging will consist of maintenance dredging with the upland disposal of sediments at the Contactor-selected authorized facility. Maintenance material is defined as the sediments which have accumulated within areas to be dredged under the Contract since the last event conducted. Maintenance material may consist of mixed fines (silts and clays) and/or granular material (sands and gravels) and may also contain shell hash. Maintenance material may also include accumulated sediment that sloughs off the side slopes from the indicated zones of maintenance material. Some of the dredging within

previously dredged areas may be "similar to new (improvement) dredging" as this can occur when previous dredging conducted missed areas, caused irregular shapes on the bottom, used an inadequate survey for project limits or other such causes. Minor variations in subsurface materials are expected and, if encountered, shall not be considered as being materially different. Bidders are expected to examine the site of the work along with the information provided in Attachment A and decide for themselves the character of the maintenance material to be dredged.

H. Vessel Traffic: The project site consists of an active harbor and waterfront for commercial, recreational and transient vessels. The Contractor shall be responsible for coordinating with the local Harbormaster to determine access to the site relative to uses/daily needs and shall be responsible for moving dredge plant and barge from site, if so required. The Contractor shall plan dredging and disposal operations understanding that other work may be on-going concurrently with the Owner's project and within the waterway. No additional compensation shall be made for any required moves or minor delays imposed on the Contractor by daily vessel use and/or construction activities within the harbor.

I. Navigation Aids: The Contractor shall not relocate or move any aids to navigation that have been established by the U.S. Coast Guard (USCG). If it becomes necessary to have any aid to navigation moved by the Contractor in order to complete dredging operations under this contract, the Contractor shall notify the Commander ATON, Office of Aids to Navigation, in writing with a copy to the local Harbormaster, or an authorized representative, not less than 30 days prior to such need for movement. The Contractor shall notify the USCG of the approximate time the navigation aid may be relocated to its original position.

J. Notice To Mariners: Should the Contractor, during dredging operations, encounter any objects on the channel bottom which could be a hazard to navigation, he/she shall immediately notify the Engineer and local Harbormaster as to the location of said object and any other pertinent information necessary for the Engineer to put out a Notice to Mariners.

K. Bridge-to-Bridge Radio Communication: The Contractor is required to monitor both Channels 13 and 16. Channel 13: The master, operator, or designated pilot of the vessel must maintain a listening watch on the designated bridge-to-bridge frequency while underway on the navigable waters of the United States. The designated frequency is VHF-FM Channel 13. The person maintaining the watch also must be able to communicate in English.

Channel 16: In addition to the Channel 13 watch, vessels must keep a continuous watch on VHF-FM Channel 16 (International Distress and Calling Channel) while underway, except when transmitting or receiving traffic on other VHF-FM channels (e.g., vessels may switch to other channels to pass traffic, listen to weather reports, etc.) or when participating in and monitoring a VTS channel. While not required to have a VHF-FM radio onboard (Voluntary Ship Stations), vessels not subject to the bridge-to-bridge regulations must maintain a watch on Channel 16 whenever the radio, if onboard, is operating (i.e., energized) and is not being used to communicate on other channels.

L. Notification of the USCG: Prior to commencement of work on this Contract, the Contractor shall notify the First Coast Guard District (Local Notice to Mariners Office) at d01-smb-lnm@uscg.mil of the intended location of operations and estimated duration and request publication of the project in the Local Notice to Mariners. This notification must be given in sufficient time so that it appears in the Notice to Mariners at least ten (10) days prior to the commencement of work. The Contractor shall also notify Mr. Mark Cutter (Aids to Navigation Office) at (617) 849-2346 or mark.e.cutter@uscg.mil at least ten (10) working days in advance of the intended start date and to discuss the need to temporarily relocate or remove any Aids to Navigation for the duration of the dredge operations, as applicable.

M. The permittee shall also notify the U.S. Coast Guard, Sector Long Island Sound, at (800) 774-8724 (phone) or D01-SMB-LISCCenter@uscg.mil (email) at least 10 working days in advance of the intended start date with the location and estimated duration of the dredging and disposal operations.

1.09 CODES

A. Comply with all applicable permits, codes, ordinances, rules, regulations and laws of all local, municipal, and state authorities having jurisdiction over the work, without additional cost to the Town.

1.10 CONTRACTOR'S RESPONSIBILITY

A. The Contractor shall be responsible for ensuring strict compliance with all of requirements cited in the Agreement with the Owner and all Federal, State, and municipal laws that may apply to operations under the Contract; and it is understood and agreed that the Contractor assumes full responsibility for the safety of employees, plant, and materials, and for any damage or injury done by or to them from any source or cause, except damage caused to the plant or equipment by acts of the Owner, its officers, agents or employees, in which event such damages will be the responsibility of the Town in accordance with applicable Federal laws. For the purpose of this clause, the terms "officers, agents or employees" of the Owner shall not include persons who are employed by the Contractor and whose services have been furnished to the Town pursuant to this or any other contract. The Owner will not be responsible for the dredge and attendant plant, any property aboard the dredge and attendant plant, or any accidental damage thereto during the period of the contract. The Contractor shall release the Owner and its officers and agents from all responsibility for damages to existing structures, facilities, submerged and aerial crossings, bridges, moored vessels, or other damages ordinarily covered by fire and marine insurance.

1. Warranty: The Contractor warrants to the Owner the quiet and peaceable use of the aforesaid property, and in case of any disturbance, by suit or otherwise, will defend the same free of charge to the Owner in or before the proper State or United States courts.

2. Delays: If the Contractor refuses or fails to make delivery of the project within the time specified or any extension thereof, as provided in specifications, or to maintain the property in serviceable condition and diligently and competently to

conduct the specified operations, the Owner may, by written notice terminate the right of the Contractor to proceed with delivery or with further performance under the contract or such parts or parts thereof affected by the contract or otherwise and the Contractor shall be liable to the Owner for any excess cost occasioned thereby.

3. Disclaimer: The Contractor shall hold and save harmless the Owner, its officers and employees, from all claims that may arise resulting from the Contractor's negligence in connection with the work to be performed under the contract, or from noncompliance by the Contractor with the provisions of the contract, contract drawings, and specifications and/or the instructions of the Engineer.

PART 2 – PRODUCTS

2.01 GENERAL

A. All personnel shall wear personal protective equipment and protective clothing consistent with the levels of protection required for this work as indicated in the site-specific Health & Safety Plan in accordance with Section 01 35 29 – HEALTH AND SAFETY PLAN.

B. Containers used for storing/hauling dredged material shall be constructed of steel, in good condition and designed for the intended purpose of safe, secure storage of materials during loading and transport to an approved disposal facility.

2.02 MECHANICAL DREDGE

A. All dredging shall be performed under this contract using a water-based operation consisting of a mechanical dredge equipped with a clamshell bucket. Should an environmental bucket be required by permits, the Contractor may request agency approval of the bucket; however, no guarantee is made that such a request will be approved.

B. A physical barricade must be positioned to prevent personnel from entering the counterweight swing (tail swing) area of the dredge.

C. A substantial and durable rating chart containing legible letters and figures shall be provided with each dredge and securely mounted onto the dredge cab in a location allowing easy reading by the operator while seated in the control station.

D. Certification records, which include the date of inspection, signature of the person performing the inspection, and the serial number or other identifier of the dredge that was inspected shall always be available for review.

E. Written reports listing the load test procedures used along with any repairs or alterations performed on the dredge shall be available for review.

F. The Contractor shall certify that all dredge operators have been trained in proper use of all safety devices.

2.03 DREDGING PLANT

A. All dredging under this contract shall be performed using a mechanical-type dredge with a clamshell bucket.

B. Contractor shall demonstrate that the dredge operator has sufficient control over bucket depth in the water and bucket closure so that sediment re-suspension from bucket contact with the bottom and due to bucket over-filling can be minimized. If a silt curtain is used by the Contractor to minimize turbidity, it shall be bottom-weighted and of suitable material/grade appropriate with the velocity of the current at the site and be placed at a location that does not bottom out during low tide.

C. The plant and equipment list, submitted with the Contractor's bid proposal, shall be the minimum which the Contractor shall place and keep on the job unless otherwise determined by the Owner/Engineer. The listing of plant and equipment is not to be construed as an agreement on the part of the Town that the equipment is adequate to perform the work. Dredging shall be accomplished with approved modern equipment. All equipment shall be kept in good working condition. Equipment shall be suitable for the proposed work, and of a design, size and capacity to effectively perform and complete all the work within the environmental windows applicable to the project (see Section 01 60 00, Plant and Equipment).

D. Plant and equipment employed on the work shall be in satisfactory operating condition and capable of safely and efficiently performing the work under exposed environmental conditions and as set forth in the specification and shall be subject to inspection by the Engineer at all times. No reduction in the capacity of the plant employed on the work shall be made except by written permission of the Engineer. The measure of the "Capacity of Plant" shall be its actual performance on the work to which these specifications apply.

If the Contractor's plant and equipment is not sufficient or cannot remove any materials described in the Contract Documents, the Contractor shall secure alternative equipment that will perform and provide to the Owner the final designed dredge prisms and depths as set forth herein. The Contractor expressly agrees that any and all additional plant and equipment, including any and all mobilization, labor, overhead costs incurred as a result thereto, are included in the set unit price for the work as provided by the Contractor and that no additional compensation whatsoever will be paid by the Owner for additional and or substituted equipment necessary for the Contractor's performance and delivery of the project.

2.04 CRANES

A. Cranes must be equipped with:

1. Load indicating devices (LIDs) and a boom angle or radius indicator, or load moment indicating devices (LMIs). Anti-two block prevention devices.

2. Boom hoist hydraulic relief valve, disconnect, or shutoff (stops hoist when boom reaches a predetermined high angle).

3. Boom length indicator (for telescoping booms).

4. Device to prevent uncontrolled lowering of a telescoping hydraulic boom.

5. Device to prevent uncontrolled retraction of a telescoping hydraulic boom.

6. If the crane system to be utilized by the Contractor does not include the aforementioned devices identified under items 1 and 5 above, he/she shall provide the appropriate documentation, inspection(s) and certification(s) to the Engineer as required to fully demonstrate that their equipment is capable of being operated safely and that all applicable OSHA and industry safety standards will be met.

B. The Contractor shall notify the Owner and it's Engineer 15 days in advance of any cranes entering the activity so that necessary quality assurance spot checks can be coordinated. Contractor's operator shall remain with the crane during the spot check.

C. The Contractor shall comply with the crane manufacturer's specifications and limitations for erection and operation of cranes and hoists used in support of the work. Erection shall be performed under the supervision of a designated person (as defined in ASME B30.5). All testing shall be performed in accordance with the manufacturer's recommended procedures.

D. The Contractor shall comply with ASME B30.5 for mobile and locomotive cranes, ASME B30.22 for articulating boom cranes and ASME B30.8 for floating cranes and floating derricks.

E. The Contractor is under the complete and full obligation to comply with all Owner's safety requirements and all other applicable industry safety regulations.

F. Each load shall be rigged/attached independently to the hook/master-link in such a fashion that the load cannot slide or otherwise become detached. Christmas-tree lifting (multiple rigged materials) is not allowed.

G. Under no circumstance shall a Contractor make a lift at or above 90% of the cranes rated capacity in any configuration.

H. When operating in the vicinity of overhead transmission lines, operators and riggers shall be alert to this special hazard and shall follow the requirements of USACE Engineering Manual (EM) 385-1-1 section 11 and ASME B30.5 or ASME B30.22 (latest editions) as applicable.

I. Crane suspended personnel work platforms (baskets) shall not be used unless the Contractor proves that using any other access to the work location would provide a

greater hazard to the workers or is impossible. Personnel shall not be lifted with a line hoist or friction crane.

J. A fire extinguisher having a minimum rating of 10BC and a minimum nominal capacity of 5 lbs. of extinguishing agent shall be available at all operator stations or crane cabs. Portable fire extinguishers shall be inspected, maintained, and recharged as specified in NFPA 10, Standard for Portable Fire Extinguishers.

K. All employees shall be kept clear of loads about to be lifted and of suspended loads.

L. A weight handling equipment operator shall not leave their position at the controls while a load is suspended.

M. Only Contractor crane operators who have met the requirements of 29 CFR 1910.94, 29 CFR 1910.120, 29 CFR 1926.65, 29 CFR 1926.500, USACE EM 385-1-1, ASME B30.5, and ASME B30.22 and other local and state requirements shall be authorized to operate the crane.

N. The Contractor shall use cribbing when performing lifts on outriggers.

O. The crane hook/block must be positioned directly over the load. Side loading of the crane is prohibited.

P. A physical barricade must be positioned to prevent personnel from entering the counterweight swing (tail swing) area of the crane.

Q. A substantial and durable rating chart containing legible letters and figures shall be provided with each crane and securely mounted onto the crane cab in a location allowing easy reading by the operator while seated in the control station.

R. Certification records, which include the date of inspection, signature of the person performing the inspection, and the serial number or other identifier of the crane that was inspected shall always be available for review by the Town or its Engineer.

S. Written reports listing the load test procedures used along with any repairs or alterations performed on the crane shall be available for review by the Owner or its Engineer.

T. The Contractor shall certify that all crane operators have been trained in proper use of all safety devices (e.g., anti-two block devices).

2.04 SCOWS AND ASSOCIATED EQUIPMENT FOR THE TRANSPORATION OF DREDGE MATERIAL

A. A scow tracking system shall be provided and used in accordance with USACE permit requirements.

B. The Contractor shall comply with all applicable USCG ABS Load Line Regulations and Policies as per 46 CFR parts 42-47, 46 USC Chapter 51 as applicable.

C. All tow boats used for towing to the Contractor-selected disposal facility shall be equipped with differential global positioning system (DGPS) and track recording navigational equipment or approved equivalent electronic navigation equipment, radar, corrected compass, marine radio, and depth sounding equipment which is to be maintained in operating condition during each tow. The tow boats utilized by the Contractor for this purpose shall be of a size adequate for towing and shall have necessary reserve power for maneuvering with scows and under emergency conditions as well as for control of scows at the disposal and offloading sites.

D. Water and dredged materials shall not be permitted to overflow or spill out of scows when transporting dredged material. Failure to repair leaks or change the method of operation which is resulting in overflow or spillage will result in suspension of disposal operations and require prompt repair or change of operation to prevent overflow or spillage as a prerequisite to the resumption of disposal.

E. The Contractor shall provide and maintain markings on all scows clearly indicating the draft of the scow and shall provide scow cards for each scow used on the contract work. The scow cards shall show dimensions and volumes of individual pockets of scows and total volumes for varying depths below coaming or top of pockets. The Contractor shall also provide draft verses displacement curves (ullage) for all scows. This is to enable the Engineer to make a determination of scow volume and corresponding drafts under partial and full load conditions. These measurements are to be made at the time of initial use of each scow. This information will then be furnished to Engineer to estimate scow volume from draft of scows for each scow being towed to the Contractor-selected disposal facility. The scow volume estimates are not intended to be used in determining quantities dredged.

F. Due to the fine nature of some of the dredged material, the Contractor shall achieve proper closure and water tightness of pocket doors to eliminate seepage or leakage of material. The use of plastic material to cover cracks in scow pockets will not be allowed.

PART 3 – EXECUTION

3.01 GENERAL:

A. Prior to dredging, control measures shall be implemented per section 31 25 01 – ENVIRONMENTAL PROTECTION. Dust control measures may be required throughout the course of the Project.

B. Based upon all analytical results, the Contractor shall transport and dispose/recycle the dredged material as specified in Paragraphs 3.12 and 3.13 of this Section.

C. The Contractor shall remove any debris material in dredged materials as necessary, via screening or other suitable means and methods, to meet acceptance criteria for the selected disposal/re-use facility.

3.02 SITE MAINTENANCE:

A. The Contractor shall make all efforts to reduce environmental impact to the site during construction efforts. The Contractor shall be responsible for repair of any damage caused by his operations, at no cost to the Owner.

B. The Contractor shall during the progress of work maintain the work site so as to minimize the creation and dispersion of dust.

C. Provide suitable access where required for accommodation of travel, and to provide access to all phases of construction.

D. The Contractor is responsible for managing boat, pedestrian and vehicular traffic surrounding the Project area.

3.03 COMMENCEMENT OF WORK:

A. The start of sediment dredging shall not commence until the Sediment Management and Dewatering Plan has been submitted and reviewed by the Engineer and all Engineer's comments satisfactorily addressed.

B. The start of sediment dredging shall not commence until the Contractor has prepared the notification procedure per the USACE have been submitted and reviewed by the Engineer and all Engineer's comments satisfactorily addressed.

C. The proposed Contractor’s sequence of operations shall be presented, discussed, and agreed upon at the Pre-Construction Meeting.

3.04 SIGNAL LIGHTS

A. The Contractor shall display lights and conduct operations in accordance with the General Regulations of the USACE and USCG governing lights and day signals to be displayed by towing vessels with tows on which no signals can be displayed, vessels working on wrecks, dredges, and vessels engaged in laying cables and day signals to be displayed by vessels of more than 65-feet in length moored or anchored in a fairway or channel, and the passing by other vessels of floating plant working in navigable channels, as set forth in Commandant USGS Instruction M16672.2, Navigation Rules: International-Inland (Comdtinst M16672.2), or 33 CFR 81 Appendix A (International) and 33 CFR 84 through 33 CFR 89 (Inland) as applicable. (DAEN-PRP-1984 JUL).

3.05 FUEL USAGE

A. The Contractor shall furnish the Engineer a report, to be received on or before the last day of the calendar month, listing the totals of fuels consumed by the dredging plant and supporting vessels. The report shall list the quantities of different fuels separately. The report shall cover the period from the 25th of the preceding month to the 25th of the current month. This information may be included in the Contractor's Daily Report of

Operations.

3.06 ENVIRONMENTAL LITIGATION: (1974 NOV OCE)

A. If the performance of all or any part of the work is suspended, delayed, or interrupted due to an order of a court of competent jurisdiction as a result of environmental litigation, as defined below, the Engineer, at the request of the Contractor, shall determine whether the order is due in any part to the acts or omissions of the Contractor or a Subcontractor at any tier not required by the terms of this contract. If it is determined that the order is not due in any part to acts or omissions of the Contractor or a Subcontractor at any tier other than as required by the terms of this contract, such suspension, delay, or interruption shall be considered as if ordered by the Engineer in the administration of this Contract. The period of such suspension, delay or interruption shall be considered unreasonable, and an adjustment shall be made for any increase in the cost of performance of this contract (excluding profit) as provided in that clause, subject to all the provisions thereof.

B. The term "environmental litigation", as used herein, means a lawsuit alleging that the work will have an adverse effect on the environment or that the Town has not duly considered, either substantively or procedurally, the effect of the work on the environment.

3.07 LICENSE REQUIREMENTS

A. Each vessel exceeding 26 feet in length, excluding sheer, which is used for pushing, hauling alongside, or any other method of towing, and not required by law to have a valid Certificate of Inspection by the USCGS, shall be under the actual direction and control of a person licensed for towing in the geographic area of the work by the USCGS. Licensed persons shall not perform command or other duties in excess of 12 hours in any consecutive 24-hour period except in an emergency.

3.08 COMMUNICATIONS

A. The Contractor is responsible and required to provide any and all equipment necessary to maintain 24-hour oral communication between the dredge crew and the Engineer. Cell phones and/or portable 2-way marine radios are acceptable, and their use on-site shall meet Town’s requirements/approval. The Contractor is responsible for any and all circumstances not conforming to the plans and specifications resulting from the inadequate operation of the equipment.

3.09 CONTINUITY OF WORK

A. No payment will be made for work done in any area designated by the Engineer until the full depth required under the contract is secured in the whole of such area, unless prevented by ledge rock, nor will payment be made for excavation in any area not adjacent to and in prolongation of areas where full depth has been secured except by decision of the Engineer. Should any such non-adjacent area be excavated to full depth during the operations carried on under the contract, payment for all work therein may be

deferred until the required depth has been made in the area intervening.

3.10 DEBRIS MANAGEMENT

A. The Contractor's dredging operation shall allow for separation of debris which is unsuitable for disposal. The Contractor's proposed methodology shall be capable of removing debris collected. Additionally, at a minimum, the Contractor must contain floating debris and dispose of at an approved facility.

B. Debris removed from the bottom during dredging operations shall be collected and removed from the site. Containers for the temporary storage of the collected debris shall be maintained on the dredge or support barge.

3.11 DREDGING AND REMOVAL METHODOLOGY:

A. Contractor shall use mechanical dredging methodologies for sediment removal. Equipment used shall be of suitable size and power to collect soft sediment. No other construction method shall be used unless approved by the Engineer.

3.12 MISPLACED MATERIAL

A. Should the Contractor during the progress of the work, lose, dump, throw overboard, sink, or misplace any material, plant machinery, or appliance, which in the opinion of the Engineer may be dangerous to or obstruct navigation, the Contractor shall recover and remove the same with the utmost dispatch. The Contractor shall give immediate notice, with description and location of such obstructions, to the Engineer, and when required, shall mark or buoy such obstructions until the same are removed. Should the Contractor refuse, neglect, or delay compliance with the above requirements, such obstructions may be removed by the Town, and the cost of such removal may be deducted from any money due or to become due to the Contractor. The liability of the Contractor of the removal of a vessel wrecked or sunk without fault or negligence shall be limited to that provided in Section 15, 19, and 20 of the River and Harbor Act of March 3, 1899 (33 U.S.C. 410 et seq.).

B. Any material that is deposited elsewhere other than in places designated or approved by the Engineer and as authorized by permits, will not be paid for; and the Contractor may be required to remove such misplaced material and deposit it where directed at their expense. Misplaced excavated material may constitute a violation of applicable Federal, State, and Local statutes, and the Contractor shall be liable for any civil and/or criminal penalties imposed by these statutes.

3.13 SHOALING

A. If, before the Contract is completed, shoaling occurs within work areas prior to acceptance, re-dredging shall occur at no cost to the Owner.

3.14 DESIGN DEPTH, OVERDEPTH, SIDE SLOPES AND EXCESSIVE DREDGING

A. Design Depth: The material removed from within the specified basin and channel areas and depths shall be to the design ("dredge") depth shown on the Contract Drawings. The specified dredge depth shall be obtained by the Contractor within 100% of the limits of all areas for work to be accepted as complete. The Contractor is responsible for re-dredging as required to remediate areas within limits that are determined by the Engineer as not cleared to the required dredge depth based upon review of the post-dredge survey performed by the Owner's Engineer in excess of the allowable, at no additional cost to the Owner. The Contractor will be paid for the dredge volume removed as calculated based upon the pre- and post-dredge bathymetric surveys performed by the Owner's Engineer.

B. Allowable Overdepth: A 1-foot allowable overdredge depth (O.D.) is authorized for this project. The Contractor shall control and monitor dredging operations carefully to limit any excess dredging and ensure compliance with environmental permits. The Contractor shall conduct dredging to design elevations in such a manner as to minimize overdepth dredging and minimize volume of overdepth material required for disposal. Allowable overdepth dredging will be permitted to the indicated depths shown on the Contract Drawings, and only in areas that require dredging to achieve the design dredge depths. The removal of material through contour dredging and within the overdepth limits from areas where no dredging is required to meet the specified dredge depth is considered excess dredging and will not be paid for. Allowable overdepth on side slopes will be allowed as shown and specified on the Contract Drawings. Material removed to the overdepth shown on the drawings, for specific areas to be dredged, and within the dredging limits will be measured and paid for at full contract price in the same manner as specified above for material removed to the design depth. No payment will be made for any material removed from a depth greater than the 1-foot allowable overdredge depth or beyond the sideslopes as shown on the Contract Drawings.

C. Side slopes:

1. Adjacent to Structures: Side slopes located within 25 feet of any existing structure, must be removed by dredging the space below the pay slope plane at the bottom of the slope for upslope material capable of falling into the cut, e.g., box cut method. Dredge cuts of the space below the pay slope plane at the bottom of the slope shall not exceed the allowable overdepths as shown on the Contract Drawings. All side slopes are designed at a 3-foot horizontal and 1-foot vertical (3H:1V) slope as indicated on the drawings. The Contractor shall use an appropriate methodology to ensure that all side slopes are reasonably clear to minimize any residual sloughing into areas which may have the potential to impact future waterway use and access.. The Contractor shall submit proposed means and methods for dredging to clear side slopes as part of the work plan for the Engineer's review and approval prior to start of work.

2. Not Adjacent to Structures: For dredging performed from 25 feet or beyond of existing structures, side slopes have been designed at a 3-foot horizontal and 1-foot

vertical (3H:1V) slope as shown on the Contract Drawings. The Contractor shall use an appropriate methodology to ensure that all side slopes are reasonably clear to minimize/avoid residual sloughing into berth areas which may have the potential to impact future waterway use and access. It may be necessary to dredge upslope material which has fallen into the cut, after the original pass, but remains above the required dredge depth.

3. The final project slopes shall be in general conformance with the Contract Drawings. Material actually removed to provide final project slopes as shown on the Drawings, but not in excess of the amount originally lying above the side slopes, will be paid for. This includes material whether dredged in the original position or by dredging the space below the pay slope plane at the bottom of the slope for upslope material capable of falling into the cut. The above information is not to be taken as a guarantee that all slopes will stand on the slopes shown on the Drawings. The Contractor shall make their own determination as to what the angle of repose will be on all side slopes.

D. Excessive Dredging: Payment will not be made for material taken from beyond the dredge prism, limits, and overdredge (O.D.) as shown on the Contract Drawings and authorized by permits. If limits are dredged by the Contractor and determined to be excessive beyond the limits as extended in the provisions of paragraphs A through C above, the Owner reserves the right to deduct this volume from the total amount dredged as excessive overdepth dredging, or excessive side slope dredging for which payment will not be made. Excessive dredging is defined as any material determined to have been removed from 1 foot beyond the allowable overdredge through the post-dredge survey(s) performed by the Owner's Engineer.

3.15 PRE- AND POST-DREDGE SURVEY

A. Prior to the start of dredging and at the completion of work (or any section thereof), the Owner's Engineer will conduct a pre- and post-dredge survey, respectively. These surveys will be used to determine the final payment volume removed and disposed by the Contractor as determined by computing the volume between the bottom surface shown by soundings of the pre-dredge survey made immediately before dredging, and the material surface shown by the soundings of the post-dredge survey made as soon as practicable after the removal of the material (as described in Section 01 71 23, Field Engineering). Surveys will utilize automated survey positioning systems and standards established by the USACE's Hydrographic Surveys Manual EM-1110-2-1003 (dated November 2013).

3.16 WORK IN THE VICINITY OF PROTECTED HABITAT, STRUCTURES AND UTILITY CROSSINGS

A. The Contractor shall exercise caution when working in the vicinity of protected habitat, structures, and utility crossings. The Contractor shall constantly monitor operations, and the position of the dredge cut, as well as the natural caving of side slopes. Repair of any damage resulting from excessive or improper excavation in the bottom or side slopes of

the dredge cut shall be the responsibility of the Contractor. Where dredging to the required elevation might endanger any structure, the Engineer may reduce the required excavation in the vicinity of such structure.

B. The Contractor shall provide dimensions over all utility crossings as applicable. The Contractor shall submit for approval by the Engineer a detailed plan of operation at each pipeline or utility crossing. The plan shall contain emergency measures to be taken in the event of an accident. The Contractor shall notify the Town of pipelines or utilities at least 3 calendar days prior to operating within 150 feet of a pipeline or utility. The Town or Engineer will not be responsible for any damage to structures or utilities due to the Contractor's deviation from the approved plan.

C. Any unidentified pipelines or structures, which may be found within the limits of work shall not be disturbed nor shall dredging or the disposal of dredged material be performed at these locations unless, and until, approved by the Engineer.

D. The Contractor shall take extreme care when conducting work around existing structures located within/close proximity of the dredge areas that will not be/cannot be removed. Any damage to existing structures will be at the sole expense of the Contractor.

E. The Contractor will be responsible for the protection of existing structures throughout the duration of Work and as follows:

1. Contractor shall conduct the dredging operation such that it does not undermine, weaken or otherwise impair existing structures located in or near the areas to be dredged. The Contractor shall investigate the existing structures at the site and plan the dredging work accordingly. The Contractor shall take care to ensure the integrity and freedom from damage of all existing waterfront infrastructure, vessels, and other facilities adjoining or near the site. The Contractor shall be held responsible for any damage to the existing facilities resulting from dredging and shall notify the Engineer immediately upon occurrence and suspend operations until further instructions are received. Any/all damage(s) caused by the Contractor’s operations to any existing property shall be replaced or repaired in kind to the satisfaction of the Town and Engineer, and at no cost to the Owner.

2. At all times, the Contractor shall be solely and completely responsible for the condition of the job site, including safety of persons, vessels, docks, and all property, and for all necessary independent engineering reviews of these conditions.

3. If required, the Contractor shall erect and maintain temporary lights, navigation lights, barricades, warning signs, buoys and guards necessary to protect from injury in accordance with applicable rules and regulations.

4. The Contractor shall ensure that no dredged material is dropped or splashed on any vessel and/or adjacent facilities such that the facilities remain in the same condition as they were at the start of work. Contractor shall visually inspect the above

facilities at the end of each workday. Any and all cleaning will be performed in accordance with the applicable permit conditions and in a manner that keeps turbidity and other discharges back into the water with applicable local, state and federal water quality standards. Any material which is dropped or splashed on adjacent vessels or facilities must immediately be brought to the attention of the Engineer for direction.

5. The Contractor shall not tie, moor, connect or make contact with any of the Town's facilities, including all piles, cleats, gangways, floats etc., with any of the Contractor's equipment without authorization from the Town. The Contractor's equipment, vessels, barges, scows, etc., shall be kept clear of all existing facilities throughout the entire duration of construction.

3.17 WATER QUALITY

A. The Contractor is responsible for meeting all water quality standards and requirements as stated in the permits issued for the project and in accordance with all local, state, and federal regulations throughout the duration of construction. Should turbidity levels resulting from the Contractor's dredging operations exceed acceptable standards/conditions, the Contractor will be required to implement corrective measures.

3.18 NON-COMPLIANCE

A. The Engineer will notify the Contractor in writing of any non-compliance with the foregoing provisions. Such notice, when delivered to the Contractor or an authorized representative at the site of the work, shall be deemed sufficient for the purpose. Within 24 hours after the receipt of such notice, the Contractor shall mail, or personally deliver to the Engineer, a complete proposal of the prompt correction of the non-compliance. The Engineer will review the proposal and return it to the Contractor approved, subject to such changes or conditions as he finds necessary to assure correction of non-compliance. Immediately upon receipt of such approval, the Contractor shall begin the corrective work and shall carry it to completion. If the Contractor fails or refuses to submit a proposal or to proceed with the corrective work, the Engineer may suspend all or any part of the work until satisfactory corrective action has been taken. No part of the time lost due to any such suspension shall be made the subject of a claim for extension of time, nor for excess costs or damages by the Contractor. If so elected, the Engineer may cause the corrective work to be accomplished by others, in which event the cost thereof shall be chargeable against any monies otherwise due the Contractor from the Town.

3.19 INSPECTION

A. Inspection: The work will be conducted under the general direction of the Engineer and will be subject to inspection by an appointed inspector(s) to ensure strict compliance with the specifications. The Engineer will direct the maintenance of the navigation system, gages, ranges, location marks, and limit marks in proper order. Portable lighting shall be provided upon request of the Engineer for more detailed inspection of potential trouble

areas.

B. The Engineer will direct suspension of operations at any unit of work where the Contractor upon request does not correct:

1. A safety hazard, which is so grave as to endanger life, limb, or property or cause serious damage to the work. This includes but is not limited to a failure on the part of the Contractor (a.) to have a full-time quality control person present and fully alert and awake at all times operations are in progress or (b.) provide and maintain the required marine band radio for use by Engineer at all times while operations are in progress and/or (c.) provide and maintain the approved lighting for safe night operations are all basis for Engineer to direct suspension of work.

C. The Engineer will direct the maintenance of the gauges, ranges, location marks and limit marks in proper order and position; but the presence of the Engineer shall not relieve the Contractor of responsibility for the proper execution of the work in accordance with the specifications. The Contractor shall be required:

1. To furnish, on the request of the Engineer, the use of such boats, boatmen, laborers, and material forming a part of the ordinary and usual equipment and crew of the dredging plant as may be reasonably necessary in inspecting and supervising the work. However, the Contractor will not be required to furnish such facilities for the surveys prescribed.

2. To furnish, on the request of the Engineer, suitable transportation from all points on shore designated by the Engineer to and from the various pieces of plant, and to and from the disposal site.

3. Should the Contractor refuse, neglect, or delay compliance with these requirements, the specific facilities may be furnished and maintained by the Engineer, and the cost thereof will be deducted from any amounts due or to become due the Contractor.

3.20 SEDIMENT DISPOSAL CHARACTERIZATION SAMPLING:

A. The Contractor shall be responsible for any/all additional dredge sediment characterization required to obtain acceptance by the facility(ies) selected for disposal. Sediment grain size and chemical analyses previously conducted on dredge sediments are provided in Appendices.

1. All disposal characterization sampling and analysis performed by the Contractor shall be at no additional cost to the Owner.

2. The Contractor shall be responsible for sampling and characterizing dredged material as necessary to obtaining approvals from the disposal/recycling facility(ies). The Contractor shall provide the Engineer and Owner with a minimum of 2 days' notice prior to sampling and shall not sample unless Engineer's approval is received and the Engineer is present to witness the collection of the samples.

a. The Contractor shall perform all sampling and analysis of dredged material as required by potential receiving facilities and this Section.

b. The Contractor shall collect additional samples to perform additional testing of the dredged material as required by the disposal/recycling facility(ies) at no additional cost to the Owner.

3. The Contractor shall submit the name and location of the licensed facility accepting the dredged material for recycling/disposal in accordance with permit conditions.

4. The Engineer may stop the Contractor's work in a particular location at any time in order to have samples taken and analyzed. If necessary, the Contractor shall assist the Engineer in collecting samples. The work shall not resume in that area until authorized by the Engineer. Stoppage of work for this reason, or until laboratory results are delivered to the Engineer, shall not be a cause for the Contractor to request additional compensation or an extension of time to the Contract or to other intermediate Contract deadlines.

3.21 DEWATERING/DECANTING OF DREDGED MATERIALS:

A. Dredged materials shall be dewatered/decanted at the Project site prior to transport.

B. Dewatering fluids shall be managed to prevent uncontrolled discharge in the Work Area and in accordance with all local, state and federal permits and applicable laws. The Contractor shall make any necessary adjustments to control errant effluent.

3.22 HANDLING OF DREDGE AND DEWATERING FLUIDS:

A. All dredged water shall be returned to the waterway in a manner that will not result in undue interference with other work or damage. The return water will naturally flow back into the harbor.

B. The Hauler(s)/Transporter(s) shall be licensed in all states affected by transport, and shall submit proof of permit, license, or authorization to transport dredge material, when applicable, in all affected states.

C. The Contractor shall be responsible for ensuring that free liquid is properly transported. "Wet materials" shall not be transported. The Contractor shall dewater "wet materials", and properly dispose of free liquid in accordance with local, State, and Federal regulations and at no additional cost to the Owner. The Contractor shall also dispose of any free liquids that may result during transportation in accordance with local, State, and Federal regulations and at no additional cost to the Owner.

3.23 WEIGHT AND MEASUREMENT:

A. The tare and gross weight for every container/barge transporting dredged materials and/or debris for off-site disposal shall be measured to determine the net weight.

B. The Contractor shall provide certified tare and gross weight slips for each load received at the accepted facility and these shall be attached to each returned Bill of Ladings within 21 days of obtaining final signatures.

3.24 WASTE PROFILES AND MANIFESTS:

A. The Contractor shall prepare and submit to the Engineer for review all waste profile applications and questionnaires, and coordinate with disposal facilities and all Federal and State Environmental Agencies.

B. The Contractor shall also provide certified tare and gross weight slips for each load received at the designated facility which shall be attached to each returned transportation documents within 21 days of obtaining final signatures.

C. The Owner will be designated as generator and will sign all manifests and waste profile application or questionnaires.

D. The Contractor shall submit to the Engineer, prior to receiving progress payment, documentation certifying that all materials were transported to, accepted, and disposed of, at the selected disposal facility(ies). The documentation shall include the following, as a minimum.

1. Documentation shall be provided for each load from the Site to the disposal facility, including all manifests and any other transfer documentation as applicable.

2. All documentation for each load shall be tracked by the original manifest document number that was assigned by the Engineer at the Site.

E. All ORIGINAL signatures (including signatures of Owner and disposal facility's representative) associated with shipment of any material from the Site under a Bill of Lading within 21 days of obtaining the final signatures.

3.25 FINAL INSPECTION:

A. Upon completion of the sediment removal the Contractor shall inform the Engineer and Owner in writing that the subgrade is available for inspection.

B. The Contractor shall provide the Engineer an acceptable means to facilitate inspection of the dredged area. The contractor shall provide samples of the subgrade as requested by the Engineer for inspection.

C. Definition of Post Dredging: Area shall be deemed dredged by the Engineer if the Contractor has removed soft sediment from dredged area based on the provided as-built survey.

D. Final examination and acceptance of Work shall be made in accordance with the provisions cited in Section 01 71 23, Field Engineering.

3.26 LOGS, REPORTS, AND RECORDKEEPING:

A. The Contractor shall maintain daily logs and reports covering the work to be performed for this Contract. The format shall be developed by the Contractor to include daily logs, weekly reports, and a phase out report. Contractor shall provide Engineer with copies of all logs and reports on a weekly basis in a Microsoft Word document or Excel spreadsheet format, with items appended as described below.

B. Daily Logs shall include, at a minimum, the following:

1. Date
2. Area (Site specific) of work being performed
3. Equipment being utilized by employees
4. Volume of wet sediment pumped
5. Any pertinent notes related to operations and maintenance
6. Project manager's signature and date

C. Weekly Reports shall include, at a minimum, the following:

1. A summary of the work performed during the week
2. Copies of the daily logs

D. Phase Out Report shall include, at a minimum, the following:

1. Summary of work performed under the Contract
2. Copies of all material shipping records and physical testing
3. Project manager's signature and date

END OF SECTION

TOWN OF DARIEN
PLANNING & ZONING COMMISSION

JEREMY B. GINSBERG, AICP
DIRECTOR OF LAND USE

FRED W. DONEIT, AICP, GISP
ASSISTANT DIRECTOR OF PLANNING

TOWN HALL, 2 RENSHAW ROAD
DARIEN, CONNECTICUT 06820-5397
TELEPHONE (203) 656-7351
www.darienct.gov

STEPHEN P. OLVANY
CHAIRMAN

ADAM BALGACH
VICE CHAIRMAN

MICHAEL NEDDER
SECRETARY

GEORGE A. REILLY

AMY BARSANTI

JAMIE ZIONIC

February 5, 2025

Daniel Biggs, RLA, ISA, CERP
Weston & Sampson, Inc.
One Winners Circle, Suite 130
Albany, NY 12205

VIA E-MAIL AND
VIA CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Re: *Coastal Site Plan Review #384, Flood Damage Prevention Application #391-A*
Land Filling, Excavation & Regrading Application #581 (PL-24-169)
Town of Darien, Pear Tree Point Beach, 139 Pear Tree Point Road

Dear Mr. Biggs:

This letter is to confirm that at its meeting of Tuesday, February 4, 2025, the Darien Planning and Zoning Commission, by a vote of 5-0, granted with stipulations and modifications your application to reconstruct, fill, regrade, and reduce the area of the existing parking lot; convert part of the parking lot to sand/beach area; replace the existing drainage system with new catch basins and storm sewer piping, to assist in mitigating ponding of the parking lot; dredge the harbor channel; reconstruct the existing boat ramp to address access issues; install new landscaping and fencing; construct a new paver plaza picnic area; make ADA improvements around the existing buildings and pathways; restore the living shoreline and wetlands on the site; and to perform related site development activities within regulated areas. The enclosed Adopted Resolution outlines the conditions of approval.

We have taken the liberty of filing the necessary "Special Permit" form and "Notice of Drainage Maintenance Plan" form in the Darien Land Records to finalize this approval. Note Condition 'K' of the resolution relative to a final as-built and certifications to be provided to the Planning & Zoning Department prior to the issuance of a Certificate of Approval/Completion for the improvements.

Sincerely,

Fred W. Doneit, AICP, GISP
Assistant Director

Enclosures

Cc: Jon E. Zagrodzky, First Selectman
Jennifer Charneski, Town Administrator
Jennifer Fava, Director of Parks & Recreation
Edward L. Gentile, Jr., Director DPW
Mike Vitti, Building Official
Bob Buch, Fire Marshal
Jeremiah P. Marron, Jr., Chief of Police
Braden Lynn, CT DEEP

Pzc\letters\decision\139 Pear Tree Point Road 2025

PLANNING AND ZONING COMMISSION
ADOPTED RESOLUTION
February 4, 2025

Application Number: Coastal Site Plan Review #384
Flood Damage Prevention Application #391-A
Land Filling & Regrading Application #581/Site Plan (PL-24-169)

Street Address: 139 Pear Tree Point Road
Assessor's Map #60 Lot #43, #44, #45

Name and Address of Property Owner(s) and Applicant(s):
Town of Darien
Park and Recreation Department
c/o 2 Renshaw Road
Darien, CT 06820

Name and Address of Applicant's Representative:
Daniel Biggs, RLA, ISA, CERP
Weston & Sampson
One Winners Circle, Suite 130
Albany, NY 12205

Activity Being Applied For: Proposal to reconstruct, fill, regrade, and reduce the area of the existing parking lot; convert part of the parking lot to sand/beach area; replace the existing drainage system with new catch basins and storm sewer piping, to assist in mitigating ponding of the parking lot; dredge the harbor channel; reconstruct the existing boat ramp to address access issues; install new landscaping and fencing; construct a new paver plaza picnic area; make ADA improvements around the existing buildings and pathways; restore the living shoreline and wetlands on the site; and to perform related site development activities within regulated areas.

Property Location: The 7.9+/- acre subject property is located on the west side of Pear Tree Point Road, approximately 700 feet south of its intersection with Crane Road.

Zone: R-1

Date of Public Hearing: January 21, 2025
Deliberations Held: January 28, 2025

Time and Place: 7:00 P.M. Room 206 Town Hall

Publication of Hearing Notices
Dates: January 9 & 16, 2025
Newspaper: Darien Times

Date of Action: February 4, 2025
Action: GRANTED WITH STIPULATIONS AND MODIFICATIONS

Scheduled Date of Publication of Action:
February 13, 2025
Newspaper: Darien Times

The Commission has conducted its review and findings on the bases that:

- the proposed use and activities must comply with all applicable provisions of Sections 406, 810, 820, 850 and 1000 of the Darien Zoning Regulations for the Commission to approve this project.

- the size, nature, and intensity of the proposed use and activities are described in detail in the application, the submitted plans, and the statements of the applicant's representative whose testimony is contained in the record of the public hearing, all of which material is incorporated by reference.

- each member of the Commission voting on this matter is personally acquainted with the site and its immediate environs.

Following careful review of the submitted application materials and related analyses, the Commission finds:

1. The proposal is to reconstruct, fill, regrade, and reduce the area of the existing parking lot; convert part of the parking lot to sand/beach area; replace the existing drainage system with new catch basins and storm sewer piping, to assist in mitigating ponding of the parking lot; dredge the harbor channel; reconstruct the existing boat ramp to address access issues; install new landscaping and fencing; construct a new paver plaza picnic area; make ADA improvements around the existing buildings and pathways; restore the living shoreline and wetlands on the site; and to perform related site development activities within regulated areas. It is noted that there are no changes proposed to the existing bathhouse building as part of this application.

2. The Commission finds that the various aspects of the proposal establishes it as a "coastal resiliency" project, which will ensure that the property is responsive to sea level change. The submitted Coastal Area Management Report indicates that sea levels along the Darien shorelines have risen by approximately five inches over the past 34 years.

PARKING

3. As part of this application, the applicant proposes to reduce the number of on-site parking spaces from approximately 220 spaces to approximately 203 spaces. The Commission recognizes that on the busiest days, the beach parking lot may reach full capacity. However, a slight reduction of twenty (20) spaces (10%) to enhance drainage and reduce flooding on rainy days could ultimately lead to more efficient use of the parking spaces. Overall, there is a reduction in impervious surface on the property, which is in the range of 10,000 square feet (nearly a ¼ of an acre), according to the submitted Coastal Area Management Report.

4. It is noted that there is currently no parking lot lighting, and the Commission acknowledges that no new lighting is proposed herein. Any request for parking lot lighting in the future will require an amendment of this approval.

5. During the public hearing, the issue of boat trailers was discussed. The Commission leaves it up to the Parks and Recreation Department as to how and whether boat trailer parking may be designated or signed on the property.

LANSCAPING/PLANTINGS

6. Overall, relatively minimal landscaping exists within the project area, with the exception of the plantings along Pear Tree Point Road and the trees adjacent to the parking and picnic areas.

7. As part of this application, a number of new plantings (trees, groundcover, seagrass, and/or vegetated buffer areas) are proposed--within some islands in the parking lot; along Pear Tree Point Road, along the west side of the beach; along the south side of the beach; and within a tidal wetlands area to be restored near the existing bathhouse building. There is a net increase of twenty trees; over 1,200 salt-tolerant plugs within the restored wetland area below Mean High Water; and over 700 plugs in the vegetated buffer area. These are as shown on the submitted Site Planting Plan, Sheet C104. The Commission acknowledges that no existing trees are to be removed as part of this proposal.

8. The applicant proposes the construction of a slotted ornamental fence, four feet in height along the road frontage with Pear Tree Point Road from the general location of the guard house/entrance to the site in a southerly direction to inhibit unauthorized access to the site and to further mitigate sand migration off the site.

PICNIC AREA

9. The Commission acknowledges that the picnic area in the southeastern corner of the parking lot is proposed to be reconstructed with picnic tables, shade trees, outdoor grills, and bike racks. The area consists of sand and a paver surface for pedestrian accessibility. The Commission acknowledges that the dumpster area in this area is not to be constructed at this time.

BOAT RAMP

10. The boat ramp in the north-eastern corner of the parking lot is proposed to be reconstructed due to the slope of the ramp being too shallow to allow watercraft to launch effectively into the waterway. As part of this project, the boat ramp is proposed to be reconstructed at an improved slope, and not extend any further into the waterway than the existing ramp.

HARBOR CHANNEL DREDGING

11. The maintenance dredging of the harbor channel was previously authorized by CT DEEP and has accumulated sediment over the last several years. In order to provide a safe navigable waterway, maintenance dredging of the channel is proposed within the previously permitted limits, and will not encroach upon previously undisturbed subtidal habitat or be completed during periods of shellfish or finfish spawning when drifting sediment could impair reproductive success per CT DEEP requirements. As a result, the dredging activity presents no degradation to natural erosion patterns and was authorized by CT DEEP. The Commission acknowledges that this dredging work is outside the jurisdiction of the Commission, but is an integral part of the work proposed by the town.

STORMWATER MANAGEMENT

12. The new drainage system will include new catch basins throughout the parking lot, with appropriate deep sump and debris traps over the outlet pipes. The proposed associated grading will ensure that water from the parking lot is directed to the new catch basins. A check valve will be installed on the main line connecting the parking lot to the existing drainage structures in the roadway to mitigate stormwater backup of the system and reduce/minimize ponding within the lot, which has been an ongoing issue with the current stormwater system.

13. A Drainage Report by Weston & Sampson dated December 6, 2024, was submitted for the record as part of the application. An Operation and Maintenance Plan for stormwater structures and features has been provided as Appendix H within that December 6 report.

14. The application was reviewed by peer review engineer Joe Canas of Tighe & Bond. He submitted a memo dated January 2, 2025 with comments on the application. The applicant responded to this memo, and Mr. Canas followed up with a January 21, 2025 three-page memo noting that "all outstanding comments have been addressed."

15. A waiver of Section 880 of the Regulations has been requested by the applicant since the property is in the lower 1/3 of the watershed and directly adjacent to the Darien River/Long Island Sound. The Commission finds that due to the property's location directly adjacent to Long Island Sound, there is no requirement or need to detain water and manage stormwater quantity as part of this project.

16. The Commission finds that if implemented properly, the proposed site development activities will have no adverse stormwater impacts to adjoining property owners or any downstream drainage systems.

COMMENTS RECEIVED FROM PUBLIC

17. The Commission received public comments on this application. Numerous issues were discussed, including, but not limited to: ongoing maintenance of the newly proposed drainage system; maintaining water views from the parking lot; proposed plantings; sand replenishment; picnic area grills; boat trailer parking; and sand migration. One of the comments was related to the necessity of a new proposed dumpster. During the public hearing, Jennifer Fava, Director of Parks and Recreation, noted that there is no concessionaire currently operating on the property or scheduled to operate during the upcoming summer, and because of that, typical residential sized garbage cans would be sufficient in lieu of a proposed dumpster. Thus, it was agreed that a dumpster could be removed from the plans. If, in the future, a dumpster is desired, such a request will need to come before the Planning & Zoning Commission.

PROPOSED WORK WITHIN THE FLOOD ZONE

18. The proposed work will be within Flood Zone AE 13'. The applicant has noted that the purpose of the project is NOT to eliminate "sunny day flooding", as due to the recurring tides, that cannot be eliminated. Rather, the goal of filling and raising the parking lot and installing associated drainage/stormwater management, is to reduce the amount and number of "sunny day flooding" days, such that the Town can get more use of the beach property.

19. The proposed work will not result in an increase of flood heights and the proposal meets or exceeds Section 825 of the Darien Zoning Regulations.

20. The Commission believes that the proposed activities as shown on the plan, to be implemented with the conditions listed below, will have no adverse impact on flooding, and therefore, this proposal is consistent with the need to minimize flood damage.

PROPOSED WORK WITHIN CAM AREA

21. A Coastal Area Management Report, prepared by Weston & Sampson, dated December 6, 2024 was submitted for the record.

22. A mitigation plan has been proposed by the applicant to protect resources, promote positive water quality and improve the overall conservation values of the regulated areas and property.

23. The Commission finds that the proposed development, if properly implemented and protected, is not contrary to the goals, objectives and policies of the Coastal Area Management Program and will not result in any significant, long-term negative impacts on coastal resources.

24. The Commission finds that the proposed activity as shown on the site development plan is consistent with the goals and policies in Section 22a-92 of the Connecticut General Statutes. The Commission notes that building locations are limited because virtually the entire site is located within the 100-foot critical CAM review area.

25. The Commission finds that the potential adverse impacts of the proposed activity on coastal resources are acceptable.

LAND FILLING & REGRADING SPECIAL PERMIT FINDINGS

26. In order to improve site drainage to the added catch basins it was necessary to create high points throughout the parking lot. This will result in an approximate volume of 3,005 cubic yards of fill within the FEMA flood zone.

27. During construction, there is the potential for adverse impacts related to erosion and sedimentation. To mitigate this, sediment & erosion controls are proposed on the site throughout the construction period. These controls include installation of silt fencing down gradient of all construction activities, inlet protection for all existing and proposed area drains, and a stone construction entrance.

28. With proper implementation of the site development plan and temporary and permanent sediment and erosion control measures, it is anticipated that the proposed development will not have adverse impacts on neighboring properties, coastal resources, or downstream drainage systems.

29. The application has been reviewed by the Commission and is in general compliance with the intent and purposes of Sections 850 and 1000.

30. The proposal conforms to the standards for approval as specified in Section 1005 (a) through (g) of the Darien Zoning Regulations.

NOW THEREFORE BE IT RESOLVED that Coastal Site Plan Review #384, Flood Damage Prevention Application #391-A, and Land Filling & Regrading Application #581/Site Plan (PL-24-169) are hereby granted subject to the foregoing and following stipulations, modifications and understandings:

A. Site development activity shall be in accordance with the following plans submitted to and reviewed by the Commission, *as required to be revised herein*:
CIVIL ENGINEERING PLANS & LANDSCAPE PLANS
Plans generally entitled 'Pear Tree Beach Park Improvements 139 Pear Tree Point Road, by Weston & Sampson, dated December 6, 2024.
- Cover Sheet, Sheet G000
- Existing Conditions, Sheet C101
- Site Layout, Sheet C102
- Site Grading and Utility Plan, Sheet C103 (note: this page has been superseded)
- Site Planting Plan, Sheet C104
- Erosion and Sediment Control Plan, Sheet C105
- Bathymetric Plans, Sheet C106
- Typical Sections, Sheet C301
- Erosion and Sediment Control Details, Sheet C501
- Paving & Curbing Details, Sheet C502
- Fencing & Signage Details, Sheet C503
- Boat Launch Details, Sheet C504
- Utility Details, Sheet 505
- Planting and Landscaping Details, Sheet C506

All details regarding flood compliance shall be submitted as part of the Zoning and Building Permits and shall be reviewed by Planning & Zoning staff.

NOTE: Plans shall be revised to:
1. Remove the Dumpster, its associated enclosure, and associated plantings around the enclosure.
2. Add curb cuts from beach to parking lot to allow for better machinery access to the beach.
3. Modify planting plan as necessary (and field adjust the plantings as needed) to allow room for machines and other maintenance equipment to maneuver between the proposed trees to be planted on the beach.
4. The Parks and Recreation Department is authorized to install up to six grills on the property in or near the proposed paver plaza area in the southeast corner of the property.

SEDIMENT & EROSION CONTROLS

B. During construction, the applicant shall install the proposed erosion controls as shown on the plans noted in Condition 'A', above, and also utilize any sediment and erosion control measures as may be necessary due to site conditions. These sediment and erosion controls shall be installed and maintained to minimize any adverse impacts during construction and until the area

has been revegetated or restabilized. Temporary stabilization may include seeding, sodding, mulching, erosion control blankets, etc. The Planning and Zoning Department shall be notified prior to the commencement of work and immediately after the sedimentation and erosion controls are in place. The staff will inspect the erosion controls to make sure that they are sufficient and are as per the approved plans. All erosion control measures must be maintained until the disturbed areas are stabilized.

C. Any excess storage/stockpiles shall be removed and stored/disposed of offsite. No stockpiling or drying of dredged material is being approved by the Commission herein.

D. As noted in Section 856 of the Darien Zoning Regulations, no processing, sorting, crushing, mixing, fabrication of rock or gravel or construction debris or other similar activities shall be engaged in or be operated on the site.

LANDSCAPING / BUFFER PLANTINGS

E. As shown on Sheet C104—Site Planting Plan--no trees greater than 8" DBH are proposed to be removed as part of this project. Numerous trees and plantings are proposed to be added as part of this application. It is incumbent upon the Parks and Recreation Department to maintain the plantings. The Commission acknowledges that the application aims to maintain water views from vehicles in the parking spaces closest to the water. Thus, the Commission allows the Parks and Recreation Department to "limb" trees and manage other plantings along the edge of the parking lot to maintain such views.

F. All landscaping shown on the landscape plans shall be maintained in a vigorous growing condition throughout the duration of the use of the subject property. Any plants not so maintained shall be replaced with new plants at the beginning of the next immediately following growing season.

G. Access to the beach areas by maintenance equipment and town authorized vehicles, shall be ensured through gaps in curbing and/or landscaped islands that abut the sandy beach areas.

STORMWATER MANAGEMENT

H. The applicant must make sure that at all times during the redevelopment of the site, the stormwater runoff is properly managed to avoid impacts to the neighbors, Pear Tree Point Road, and the Darien River/Long Island Sound. This shall include, but not be limited to sedimentation prevention and control, temporary artificial and/or vegetative cover to minimize erosion of exposed soils, and result in the speedy restabilization of all disturbed areas.

I. Because of the property's location directly adjacent to the Darien River/Long Island Sound, the Commission hereby waives the requirement for treatment of stormwater quantity under Section 880 of the Zoning Regulations. The Commission does hereby require that stormwater quality be addressed through the proposed stormwater infiltration units.

J. An Operation and Maintenance Plan, within Appendix H of the December 6, 2024 Drainage Report from Weston & Sampson, was submitted to the Planning and Zoning Office as part of this application. The Drainage Maintenance Program requires the property owner and/or Parks

and Recreation Department to maintain the on-site drainage facilities according to that Plan00 to minimize any potential impacts to the Darien River/Long Island Sound or nearby properties. A Notice of Drainage Maintenance Plan shall be filed in the Darien Land Records within 60 days of this approval.

CONSTRUCTION ACTIVITIES

K. The town and its contractor(s) shall establish clearly defined days and hours of operation. These shall include a prohibition of any on-site work before 7 a.m. or after 7 p.m., or on Sundays.

PERMITS REQUIRED

L. The granting of this approval does not relieve the applicant of the responsibility of complying with all other applicable rules, regulations and codes of the Town, State, or other regulating agencies. This includes, but is not limited to the State of CT DEEP permit for work below Mean High Water (License 200207720-COP is referenced on the cover sheet of the submitted plans). Prior to the start of work, revised plans pursuant to Condition A, shall be submitted to the Planning & Zoning Office.

REQUIRED AS-BUILT SURVEY AND CERTIFICATIONS

M. Prior to the request for the Certificate of Approval for this project, the applicant shall submit the following:
   1. Verification in writing and/or photographs from the professional designer of the drainage system that certifies that all aspects of the stormwater management system have been completed in compliance with the approved plans referred to in Condition 'A'.
   2. Verification that the planting/landscaping has been installed in accordance with the approved plans as required to be revised herein.
   3. A final "as-built" survey shall be prepared by a licensed land surveyor demonstrating that all work has been properly completed in accordance with the approved plans. The as-built survey shall show final grades with one foot contours, as well as all utilities or buried infrastructure installed as part of this application including, but not limited to the location and elevation of all HVAC units and propane tanks. The as-built survey shall include measurements from known, permanent, and visible surface features so that buried infrastructure can be located in the field in the future.

N. In evaluating this application, the Planning and Zoning Commission has relied on information provided by the applicant. If such information subsequently proves to be false, deceptive, incomplete and/or inaccurate, the Commission reserves the right, after notice and hearing, to modify, suspend, or revoke the permit as it deems appropriate.

O. This permit shall be subject to the provisions of Sections 815, 829f, 858 and 1009 of the Darien Zoning Regulations, including but not limited to, implementation of the approved plan by October 20, 2027, and consistent with the expiration of CT DEEP approvals for dredging, construction of the boat ramp, and restoration of tidal wetlands. This may be extended as per Sections 829f, 858, and 1009.

All provisions and details of the plan, as granted herein, shall be binding conditions of this action and such approval shall become final upon compliance with these conditions and the signing of the final documents by the Chairman. A Special Permit form and Notice of Drainage Maintenance Plan form shall be filed in the Darien Land Records within 60 days of this approval.

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

May 1, 2025

Regulatory Division
File Number: NAE-2020-02349

Town of Darien, Connecticut
c/o Jennifer Fava
2 Renshaw Road
Darien, Connecticut 06820
jfava@darienct.gov

Dear Applicant:

We have reviewed your application to replace 45 piles in-kind and in-place, reconstruct an existing boat ramp, place fill material over approximately 1,350 square feet of beach area below the high tide line, and conduct maintenance dredging to -6 feet mean low water plus 1-foot overdepth over a total area of approximately 51,050 square feet. Approximately 3,330 cubic yards of material will be dredged and disposed of in an upland location. The work is shown on the enclosed plans titled "PEAR TREE POINT PARK IMPROVEMENTS, TOWN OF DARIEN, COUNTY OF FAIRFIELD, STATE OF CONNECTICUT", on 10 sheets, with sheets 1-7 dated "04/14/2025" and sheets 14-16 dated "05/27/2022".

Based on the information you have provided, we verify that the activity is authorized under General Permit #2, #5, and #7 of the enclosed December 15, 2021, Federal permit known as the Connecticut General Permits (GPs). This verification is subject to the attached special conditions on 4 sheets entitled, "Regulatory Special Conditions for the Town of Darien, Connecticut - Pear Tree Park, Darien, Connecticut, NAE-2020-02349".

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/.

If you have any questions, contact Christopher L. Veinotte, of my staff, at (978) 318-8495 or christopher.l.veinotte@usace.army.mil.

Sincerely,

Kevin R Kotelly

Kevin R. Kotelly, P.E.
Chief, CT & RI Section

Enclosures

cc:
Susan Jacobson, CT DEEP, susan.jacobson@ct.gov
Daniel Biggs, Weston & Sampson Engineers, Inc., biggsd@wseinc.com

Regulatory Special Conditions for the
Town of Darien, Connecticut - Pear Tree Park, Darien, Connecticut, NAE-2020-02349

1. Except where stated otherwise, reports, drawings, correspondence and any other submittals required by this permit shall be marked with the words "Permit No. NAE-2020-02349" and submitted via: a) Regulatory Division, Corps of Engineers, New England District, 696 Virginia Road, Concord, MA 01742-2751; b) EMAIL: cenae-r-ct@usace.army.mil; or c) FAX: (978) 318-8303. Documents which are not marked and addressed in this manner may not reach their intended destination and do not comply with the requirements of this permit. Requirements for immediate notification to the Corps of Engineers shall be done by telephone to (978) 318-8338.

2. The permittee understands and agrees that, if future operations by the United States require the removal, relocation, or other alteration, of the structure or work herein authorized, or if, in the opinion of the Secretary of the Army or his authorized representative, said structure or work shall cause unreasonable obstruction to the free navigation of the navigable waters, the permittee will be required, upon due notice from the Corps of Engineers, to remove, relocate, or alter the structural work or obstructions caused thereby, without expense to the United States. No claim shall be made against the United States on account of any such removal or alteration.

3. 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 within or adjacent to the activity authorized herein.

4. All construction shall be completed in accordance with the limits of construction and construction sequences detailed on the enclosed plan drawings, titled "PEAR TREE POINT PARK IMPROVEMENTS, TOWN OF DARIEN, COUNTY OF FAIRFIELD, STATE OF CONNECTICUT", on 10 sheets, with sheets 1-7 dated "04/14/2025" and sheets 14-16 dated "05/27/2022". If you change the plans or construction methods for work within or adjacent to Darien Cove, please contact us immediately to discuss modification of this authorization. The Corps of Engineers must approve any changes before you undertake them.

5. The permittee shall ensure that no authorized work occurs February 1st through June 30th, inclusive of any year, to minimize adverse impact to fishery resources at the project site. Work performed "in-the-dry" is not subject to this time of year restriction.

6. In-water controls shall be installed and removed during the same time of year work window, July 1st through January 31st, inclusive of any year, when practicable. Controls should be removed upon completion of work, but not until all exposed soil and other fills, as well as any work waterward of Ordinary High Water or the High Tide Line, are permanently stabilized. Sediment and debris collected by these devices should be removed and placed at an upland location in a manner that will prevent its later erosion into a waterway or wetland.

7. The permittee shall complete and return the enclosed Work Start Notification Form to this office at least two weeks before the anticipated starting dates.

8. Tidal submerged aquatic vegetation (SAV) shall be identified in the field prior to the start of work and equipment shall not anchor in or impact tidal SAV.

9. A "soft start" is recommended 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.

    a. 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.

    b. 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.

10. The lowermost part of the floats shall be at least 18 inches above the substrate at all times.

11. At least 10 days prior to the initial dredge/disposal action, or any time dredging/disposal resumes after ceasing for 30 days or more, the permittee or their representative shall submit the enclosed Dredge and Disposal Request Form. Dredging/disposal shall not begin or resume until this office issues a Dredge and Disposal Approval Letter. Submittal of the Dredge and Disposal Request Form is not a guarantee that an approval letter will be issued. The letter will include the approved start and end dates. The permittee shall contact us as early as possible to request an extension if you anticipate not completing dredge or disposal operations before the approved end date.

12. The permittee shall notify the First Coast Guard District (Local Notice to Mariners Office) at d01-smb-lnm@uscg.mil and Mr. Mark Cutter (Aids to Navigation Office) at (617) 849-2346 or mark.e.cutter@uscg.mil, at least 10 working days in advance of the intended start date to discuss the need to temporarily relocate or remove Aids to Navigation for the duration of the dredge operations.

13. The permittee shall also notify the U.S. Coast Guard, Sector Long Island Sound, at (800) 774-8724 (phone) or D01-SMB-LISCCenter@uscg.mil (email) at least 10 working days in advance of the intended start date with the location and estimated duration of the dredging and disposal operations.

14. National Dredging Quality Management (DQM) Program Requirements:

    a. Transportation of dredged material requires monitoring by the contractor, which must be performed using the DQM system. Submit all questions regarding DQM certification to this office's DQM contact. This office's DQM contact for this permit is Christopher Veinotte. All submittals and coordination related to this permit sent to

the DQM contact shall be marked with the words "Permit No. NAE-2020-02349" and will be emailed to christopher.l.veinotte@usacearmy.mil and cenae-r-ct@usace.army.mil. Documents which are not marked or transmitted in this manner may not reach their intended destination and do not comply with the requirements of this authorization.

b. The permittee is required to follow the DQM specifications, including the DQM information transfer protocol, located at https://dqm.usace.army.mil. This office must have certified each disposal vessel used for this project within a year of the disposal activity and you must send the DQM certification to this office, New England District with the Dredge and Disposal Request Form. You are responsible for ensuring that the DQM system is operational throughout the project and that project data are submitted to the National DQM support Center in accordance with the specifications provided at the aforementioned website. Disposal may not take place if any component of the DQM system is inoperable unless otherwise authorized by the DQM contact (see contact information above). An alternative recording of the absent data stream must be maintained if the DQM-certified telemetry ceases operation during a disposal trip. The breakdown of any DQM-certified telemetry must be reported to the DQM contact and repaired within 48 hours to keep the scow fully compliant with permit conditions. Unless weather, safety, or sea conditions prevent it, the hull doors must be fully closed on split hull scows before the vessel leaves the disposal site.

c. The DQM system must be capable of providing the information necessary for the Scow Monitoring Profile Specification. You must provide this office with a: i) "Weekly Summary Report Form" at the end of each week for the duration of the project; and ii) "Seasonal/Final Completion of Dredging with Open-Water Disposal Report Form" upon completion of dredging and disposal for the season and project. These will be provided to you with the Dredge and Disposal Approval Letter that authorizes the initiation or continuation of disposal operations. You must make the data collected by the DQM system available to this office upon request.

15. If any material is released beyond the limits specified in this permit, the vessel Captain of the disposal vessel, the permittee's representative, or the permittee shall notify this office immediately at (978) 318-8336. Leave a voice message with the relevant information if no one answers. Information provided shall include disposal coordinates, permit number, volume disposed, date and time of disposal, circumstances of incident, disposal vessel name, name of caller, and phone number of caller. In addition, a detailed written report shall be provided to this office, New England District within 48 hours following any such incident.

16. Transportation of dredged material shall only be allowed when weather and sea conditions will not interfere with safe transit and will not create risk of spillage, leakage, or other loss of dredged material during transit. This permit does not authorize leakage or spillage out of barges or dump scows of water and/or dredged material while en route to the Clean Earth facility in Jersey City, New Jersey. Leakage or spillage may be determined to be

unpermitted dumping. Failure to repair leaks or change the method of operation that results in leakage or spillage will result in suspension of dredging operation and may result in requirements for assessing and mitigating the effects of such leakage/spillage and may be subject to enforcement actions.

17. A pre- and post-dredge survey shall be submitted by the permittee to this office within 60 days of the completion of dredging. The survey must have the authorized and actual dredged areas outlined and must show a calculation of the volume of material removed, based on the pre- and post-dredge surveys.

18. The permittee shall complete and return the enclosed Compliance Certification Form to this office upon completion of the activity.

GRID 18T
2018
PERMITTING DOCUMENTS
NOT FOR CONSTRUCTION

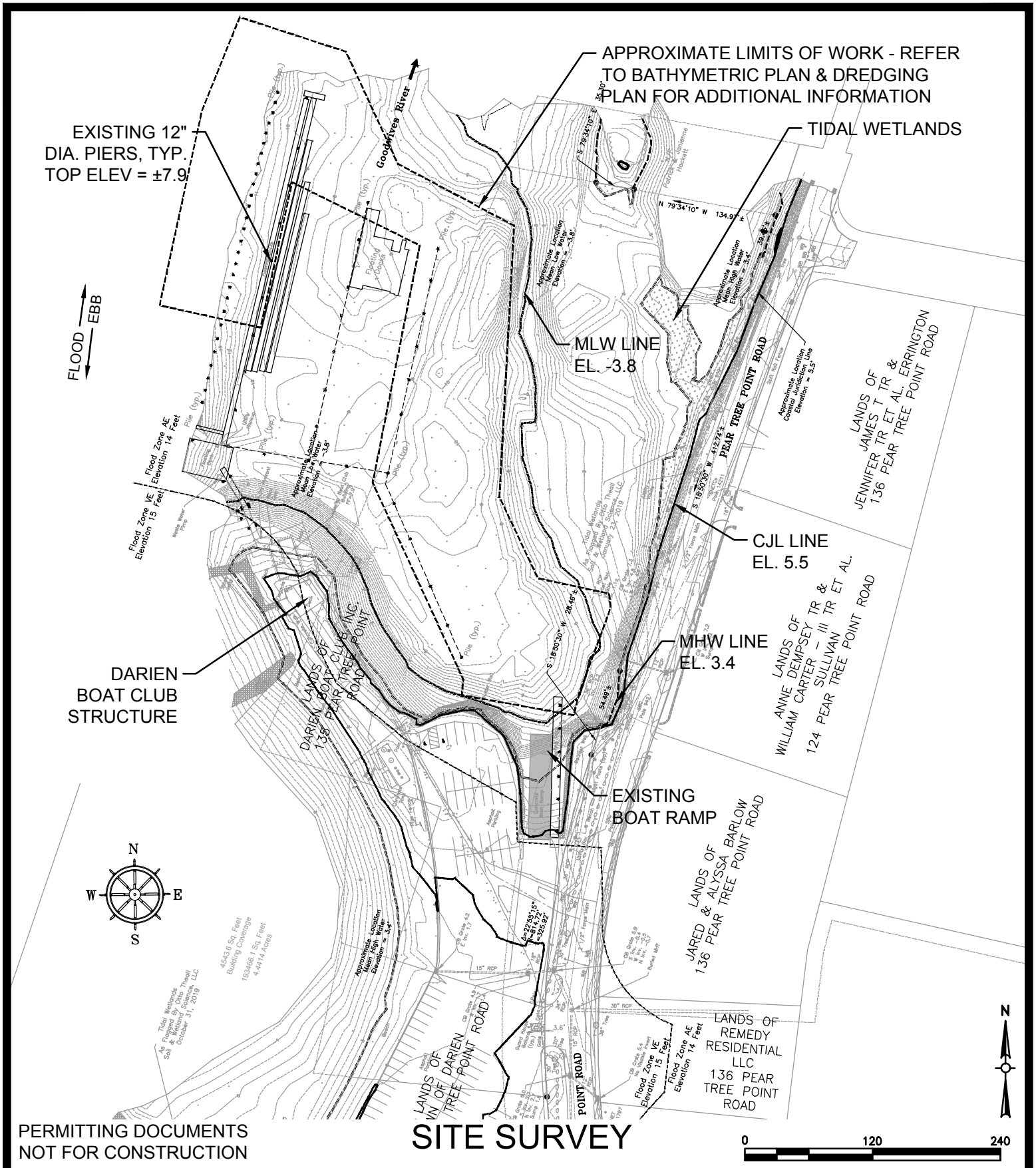
VICINITY PLAN

AGENT: WESTON & SAMPSON ENGINEERS, INC.

VERT. DATUM: NAVD88
HORIZ. DATUM: NAD83

PEAR TREE POINT PARK IMPROVEMENTS
TOWN OF DARIEN
COUNTY OF FAIRFIELD
STATE OF CONNECTICUT
APPLICATION BY: TOWN OF DARIEN
APPLICATION NUMBER: _____

DATE: 04/14/2025



PERMITTING DOCUMENTS
NOT FOR CONSTRUCTION

SITE SURVEY

STATE OF CONNECTICUT
JOSEPH S. PERUGINI
No. 24027
LICENSED PROFESSIONAL ENGINEER

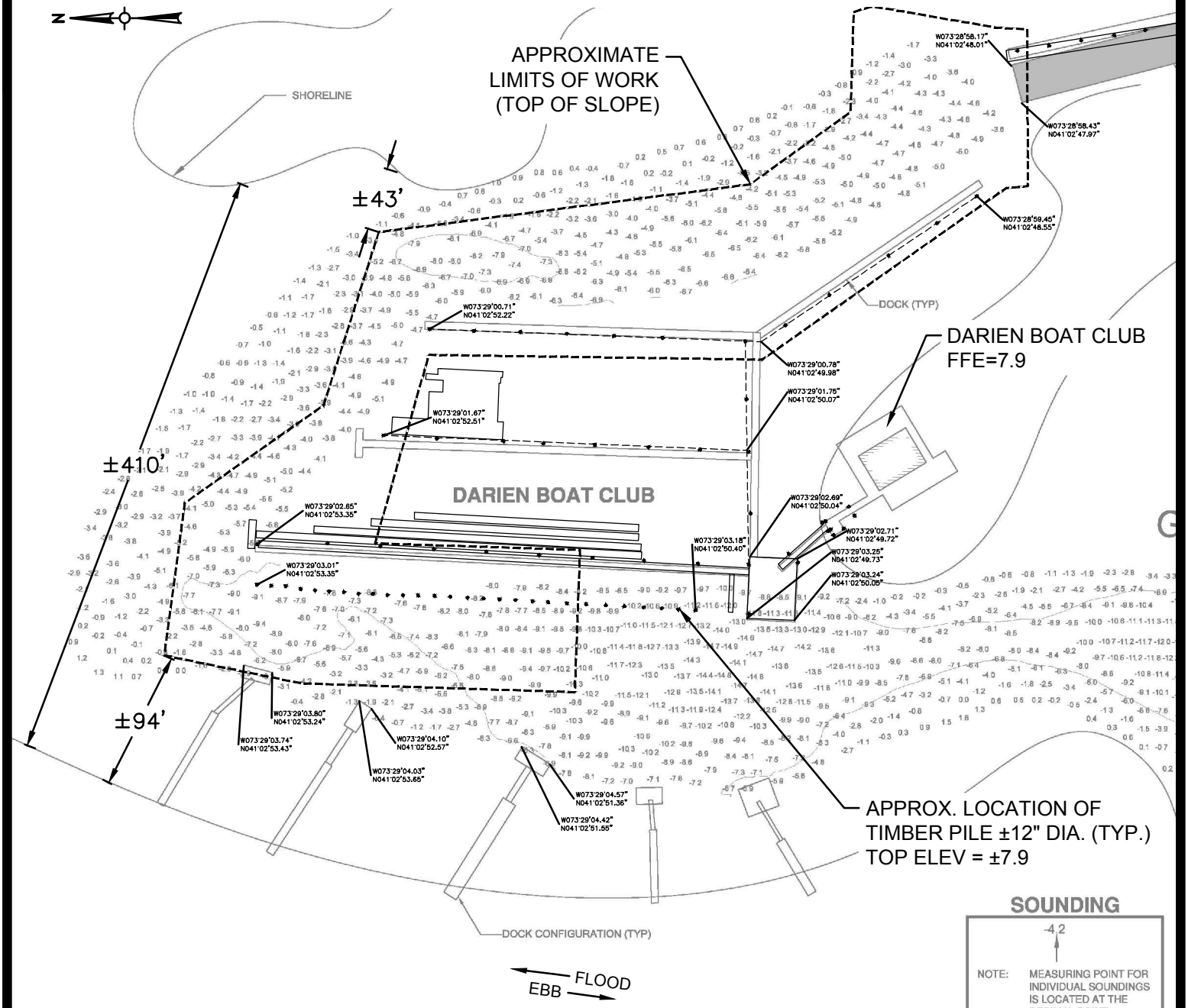
AGENT: WESTON & SAMPSON ENGINEERS, INC.

Weston & Sampson

VERT. DATUM: NAVD88
HORIZ. DATUM: NAD83

PEAR TREE POINT PARK IMPROVEMENTS
TOWN OF DARIEN
COUNTY OF FAIRFIELD
STATE OF CONNECTICUT
APPLICATION BY: TOWN OF DARIEN
APPLICATION NUMBER: _____

DATE: 04/14/2025

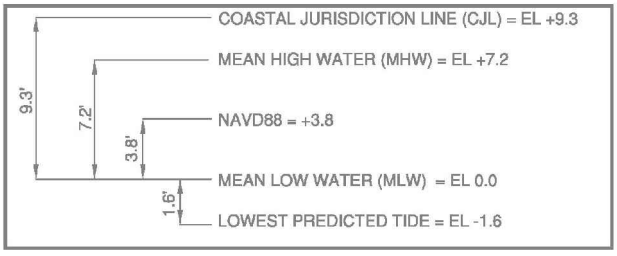


SOUNDING

-4.2

NOTE: MEASURING POINT FOR INDIVIDUAL SOUNDINGS IS LOCATED AT THE DECIMAL POINT

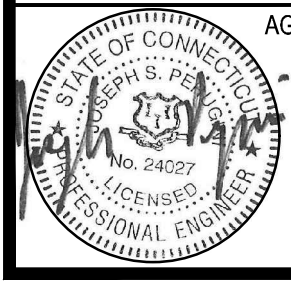
TIDAL DATUM PLANE



PERMITTING DOCUMENTS
NOT FOR CONSTRUCTION

BATHYMETRIC SURVEY

0 100 200



AGENT: WESTON & SAMPSON ENGINEERS, INC.

Weston & Sampson℠

VERT. DATUM: NAVD88
HORIZ. DATUM: NAD83

PEAR TREE POINT PARK IMPROVEMENTS
TOWN OF DARIEN
COUNTY OF FAIRFIELD
STATE OF CONNECTICUT
APPLICATION BY: TOWN OF DARIEN
APPLICATION NUMBER: _____

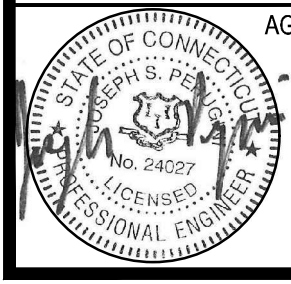
DATE: 04/14/2025

NOTES:

1. MAPPING DERIVED FROM SURVEY TITLED "HYDROGRAPHIC SURVEY - NAVIGATION CHANNEL, DARIEN HARBOR, DARIEN, CONNECTICUT" PREPARED BY COASTLINE CONSULTING & DEVELOPMENT DATED OCTOBER 30, 2018.
2. THE HYDROGRAPHIC SOUNDINGS DEPICTED ON THIS SURVEY (TIMOTHY MCCARTHY, CERTIFIED HYDROGRAPHER CERTIFICATE NO. 296) PERFORMED ON 10/30/2018 REPRESENT THE RESULTS OF A HYDROGRAPHIC SURVEY AND CAN ONLY BE CONSIDERED TO INDICATE CONDITIONS EXISTING AT THAT TIME.
3. THE HYDROGRAPHIC SURVEY DATA WAS COLLECTED USING AN RTK GNSS SURVEY SYSTEM IN TANDEM WITH A TELEDYNE ODOM MB1 MULTI BEAM TRANSDUCER.
4. VERTICAL AND HORIZONTAL CONTROL FOR THE SITE IS BASED ON AN UPLAND BENCHMARK LOCATED EAST OF THE UTILITY SHED BUILDING ON THE NOROTON YACHT CLUB PROPERTY. THE BENCHMARK IS A PIECE OF STEEL REBAR POUNDED IN THE GROUND AND CAPPED WITH A BLUE PLASTIC CAP THAT READS COASTLINE CONSULTING & DEVELOPMENT, LLC, THE BENCHMARK HAS A HORIZONTAL LOCATION OF N578095.202 / E796813.646, CONNECTICUT STATE PLANE COORDINATE SYSTEM (NAD83). THE ELEVATION OF THIS BENCHMARK IS 10.54 FEET, MEAN LOW WATER DATUM.
5. THE TECHNIQUES UTILIZED TO PERFORM THIS SURVEY MEET OR EXCEED THOSE STANDARDS DESCRIBED FOR A CLASS 1 GENERAL CONDITION SURVEY IN SOFT BOTTOM CONDITIONS WITHIN THE U.S. ARMY CORPS OF ENGINEERS HYDROGRAPHIC SURVEY MANUAL (EM-1110-2-1003).
6. THE SOUNDING INFORMATION SHOWN ON THIS MAP IS REPRESENTATIVE OF A LARGER DATA SET AND SHOULD NOT BE USED TO DETERMINE VOLUMES. THE LARGER DATA SET CAN BE MADE AVAILABLE UPON REQUEST FROM THE PREPARER OF THIS MAP.
7. SHORELINE AND ONSHORE FEATURES ARE APPROXIMATE.
8. ELEVATIONS ARE REFERENCED TO THE MEAN LOW WATER TIDAL DATUM.
9. THIS MAP IS FOR PLANNING PURPOSES ONLY. NOT ALL IMPROVEMENTS AND FEATURES HAVE BEEN DEPICTED.
10. SITE MAY BE SUBJECT TO AND/OR TOGETHER WITH CERTAIN LITTORAL, RIPARIAN, OR OTHER RIGHTS AS PER THE RECORD MAY APPEAR.
11. ANY UNDERGROUND AND/OR UNDERWATER UTILITY, STRUCTURE, AND FACILITY LOCATIONS DEPICTED AND/OR NOTED HEREON MAY HAVE BEEN COMPILED, IN PART, FROM RECORD MAPPING SUPPLIED BY THE RESPECTIVE UTILITY COMPANIES OR GOVERNMENTAL AGENCIES, FROM PAROLE TESTIMONY AND FROM OTHER SOURCES. THESE LOCATIONS MUST BE CONSIDERED AS APPROXIMATE IN NATURE. ADDITIONALLY, OTHER SUCH FEATURES MAY EXIST ON THE SITE, THE LOCATIONS OF WHICH ARE UNKNOWN TO COASTLINE CONSULTING & DEVELOPMENT, LLC. THE SIZE, LOCATION AND EXISTENCE OF ALL SUCH FEATURES MUST BE FIELD DETERMINED AND VERIFIED BY THE APPROPRIATE AUTHORITIES PRIOR TO ANY CONSTRUCTION. CALL BEFORE YOU DIG: 1-800-922-4455.
12. REFERENCE IS MADE TO THE FOLLOWING:
    - 12.1. A GOOGLE EARTH AERIAL OF THE PROJECT SITE.
    - 12.2. DEP PERMIT NO. 199903533-SJ, IMPROVEMENT DREDGING PROJECT, DARIEN HARBOR, DATED JULY 2000.

PERMITTING DOCUMENTS
NOT FOR CONSTRUCTION

BATHYMETRIC NOTES



AGENT: WESTON & SAMPSON ENGINEERS, INC.

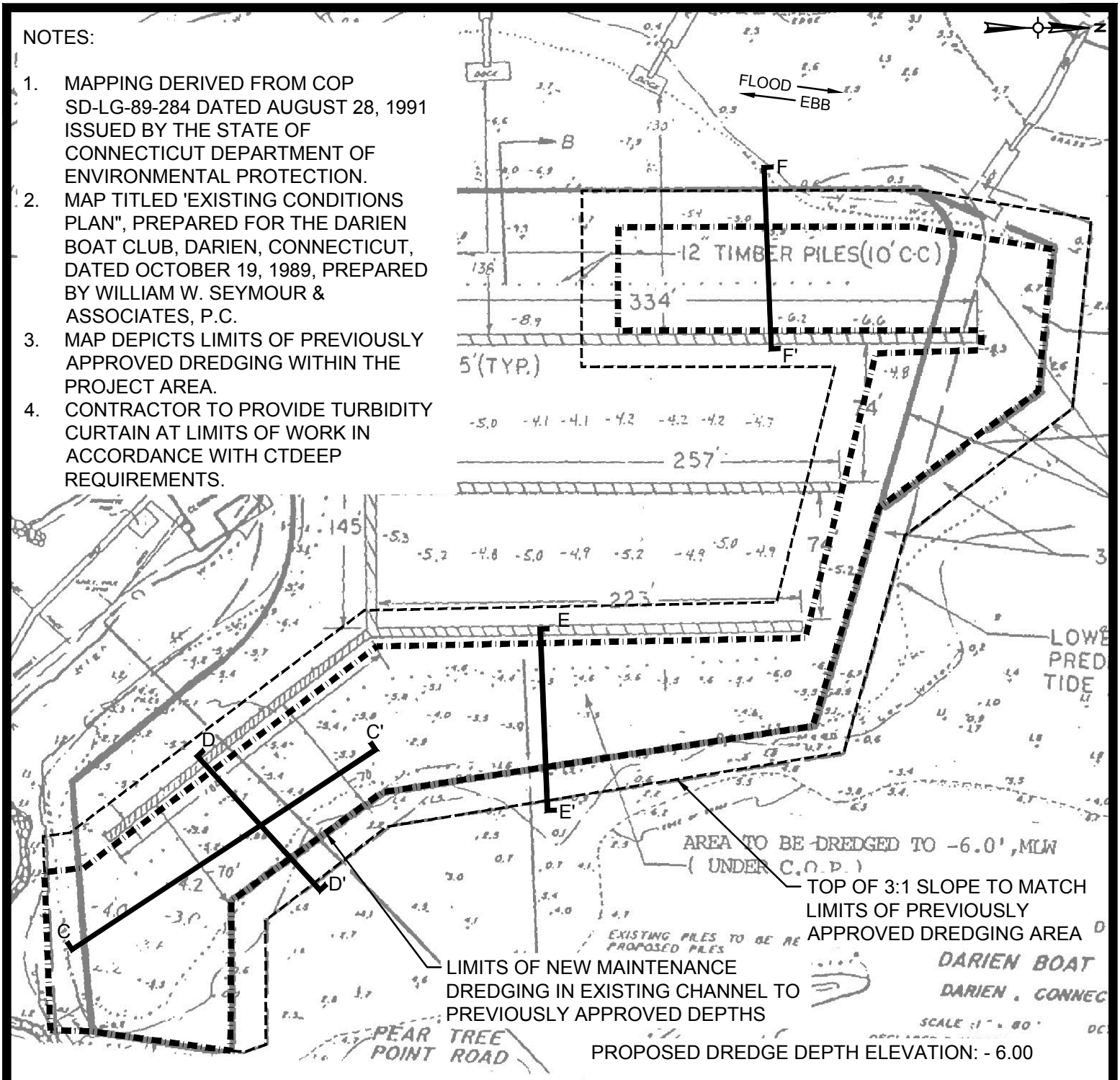
VERT. DATUM: NAVD88
HORIZ. DATUM: NAD83

PEAR TREE POINT PARK IMPROVEMENTS
TOWN OF DARIEN
COUNTY OF FAIRFIELD
STATE OF CONNECTICUT
APPLICATION BY: TOWN OF DARIEN
APPLICATION NUMBER: _____

DATE: 04/14/2025

NOTES:

1. MAPPING DERIVED FROM COP SD-LG-89-284 DATED AUGUST 28, 1991 ISSUED BY THE STATE OF CONNECTICUT DEPARTMENT OF ENVIRONMENTAL PROTECTION.
2. MAP TITLED 'EXISTING CONDITIONS PLAN", PREPARED FOR THE DARIEN BOAT CLUB, DARIEN, CONNECTICUT, DATED OCTOBER 19, 1989, PREPARED BY WILLIAM W. SEYMOUR & ASSOCIATES, P.C.
3. MAP DEPICTS LIMITS OF PREVIOUSLY APPROVED DREDGING WITHIN THE PROJECT AREA.
4. CONTRACTOR TO PROVIDE TURBIDITY CURTAIN AT LIMITS OF WORK IN ACCORDANCE WITH CTDEEP REQUIREMENTS.



PROPOSED DREDGE DEPTH ELEVATION: - 6.00

DREDGE VOLUME (BASE): ±1293 CY

DREDGE VOLUME (WITH 12" OVERDREDGE): ±3133 CY

AREA OF DREDGE FOOTPRINT: ±51,048 SF

PERMITTING DOCUMENTS
NOT FOR CONSTRUCTION

DREDGING PLAN

NOT TO SCALE

STATE OF CONNECTICUT
JOSEPH S. PERUGINI
No. 24027
LICENSED PROFESSIONAL ENGINEER

AGENT: WESTON & SAMPSON ENGINEERS, INC.

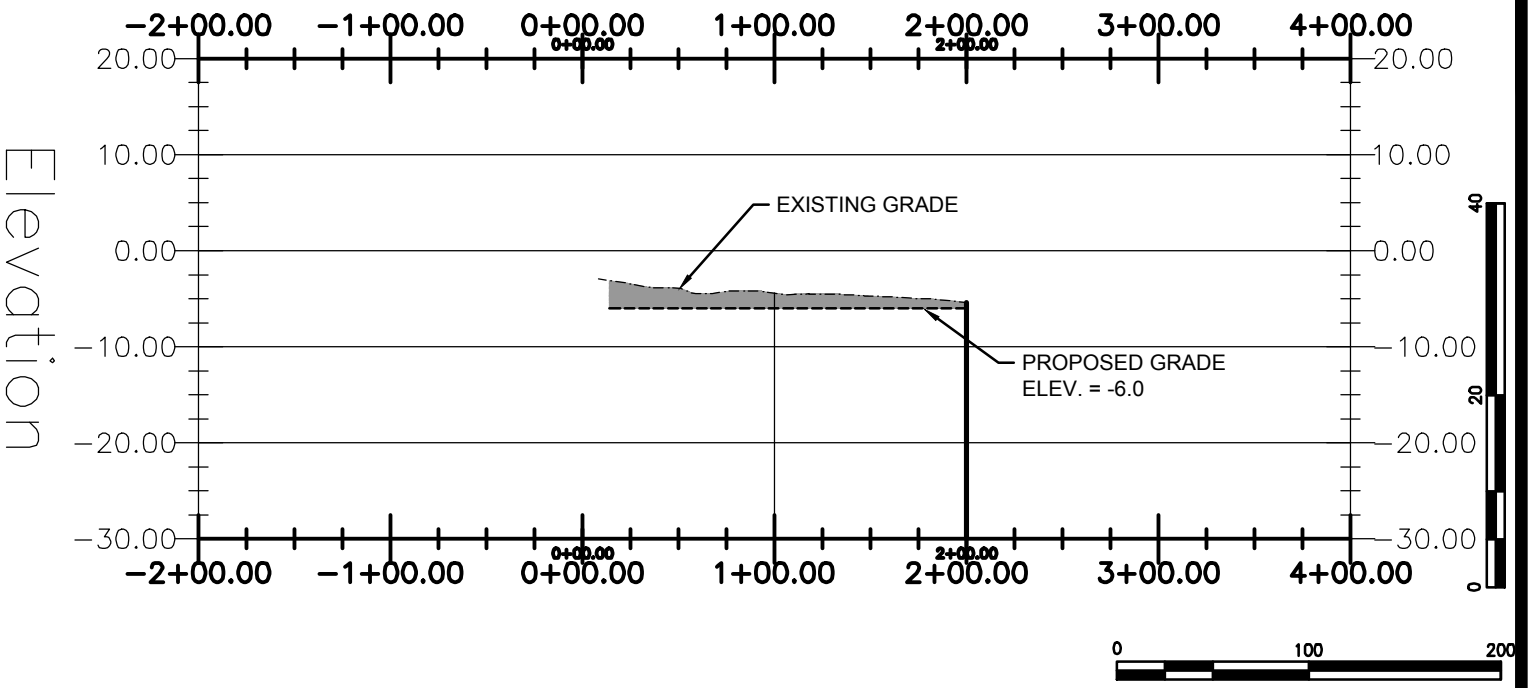
Weston & Sampson℠

VERT. DATUM: NAVD88
HORIZ. DATUM: NAD83

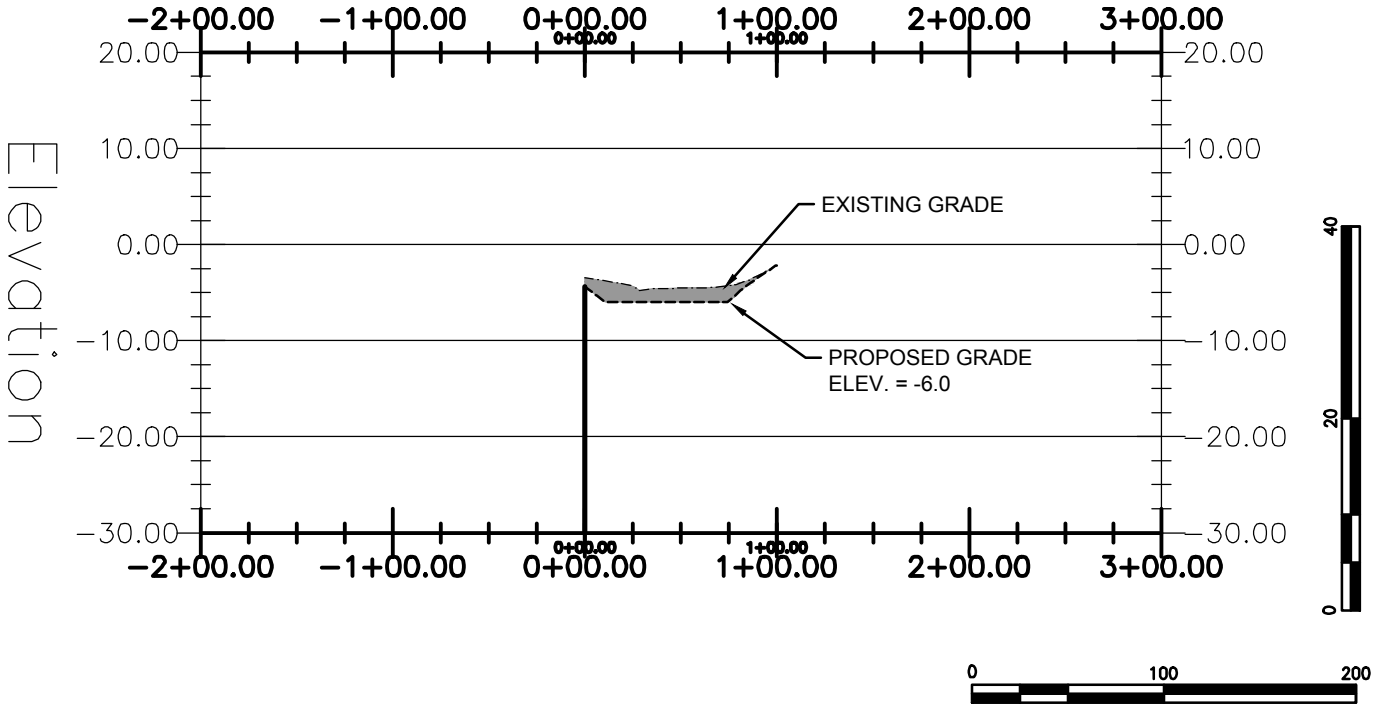
PEAR TREE POINT PARK IMPROVEMENTS
TOWN OF DARIEN
COUNTY OF FAIRFIELD
STATE OF CONNECTICUT
APPLICATION BY: TOWN OF DARIEN
APPLICATION NUMBER: _____

DATE: 04/14/2025

SECTION C - C'

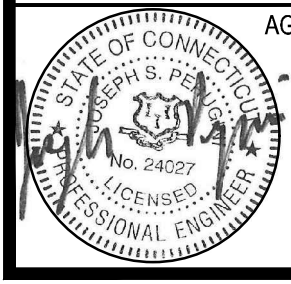


SECTION D - D'



PERMITTING DOCUMENTS
NOT FOR CONSTRUCTION

DREDGING SECTIONS



AGENT: WESTON & SAMPSON ENGINEERS, INC.

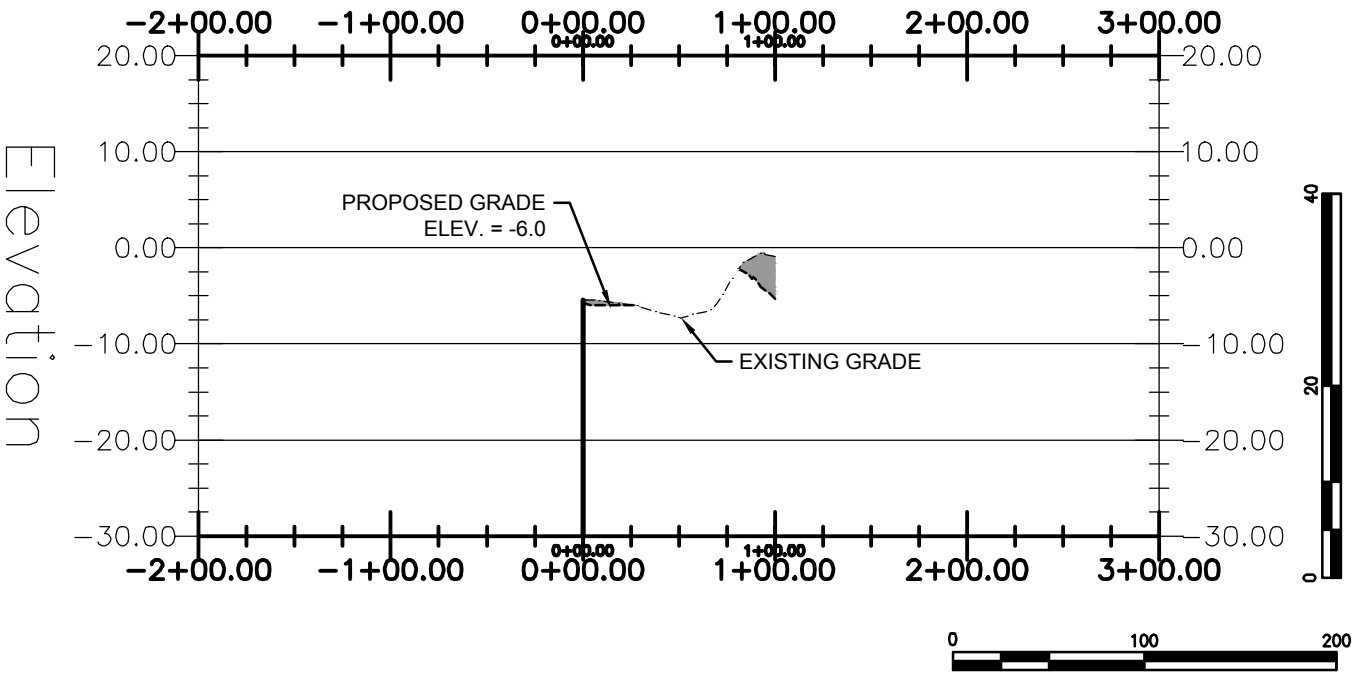
Weston & Sampson℠

VERT. DATUM: NAVD88
HORIZ. DATUM: NAD83

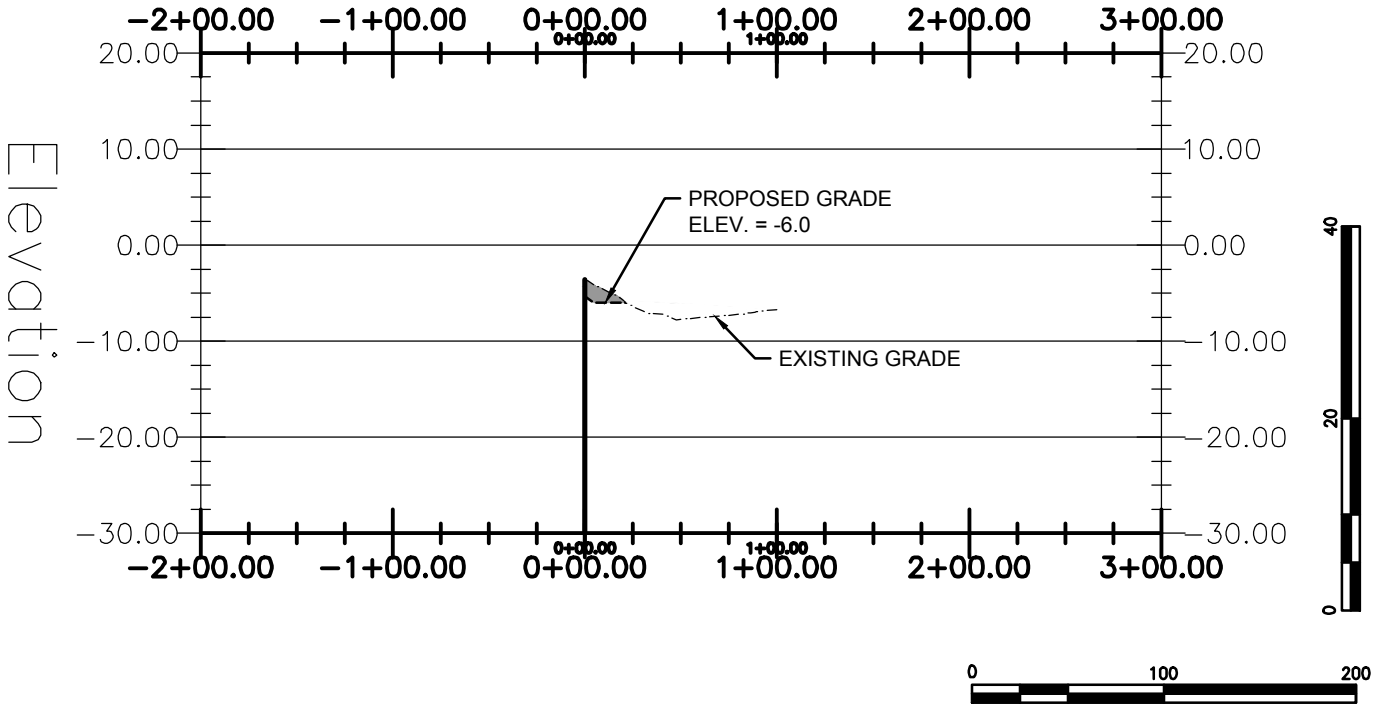
PEAR TREE POINT PARK IMPROVEMENTS
TOWN OF DARIEN
COUNTY OF FAIRFIELD
STATE OF CONNECTICUT
APPLICATION BY: TOWN OF DARIEN
APPLICATION NUMBER: _____

DATE: 04/14/2025

SECTION E - E'

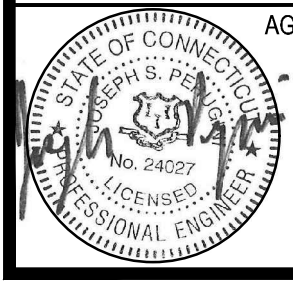


SECTION F - F'



PERMITTING DOCUMENTS
NOT FOR CONSTRUCTION

DREDGING SECTIONS



AGENT: WESTON & SAMPSON ENGINEERS, INC.

Weston & Sampson℠

VERT. DATUM: NAVD88
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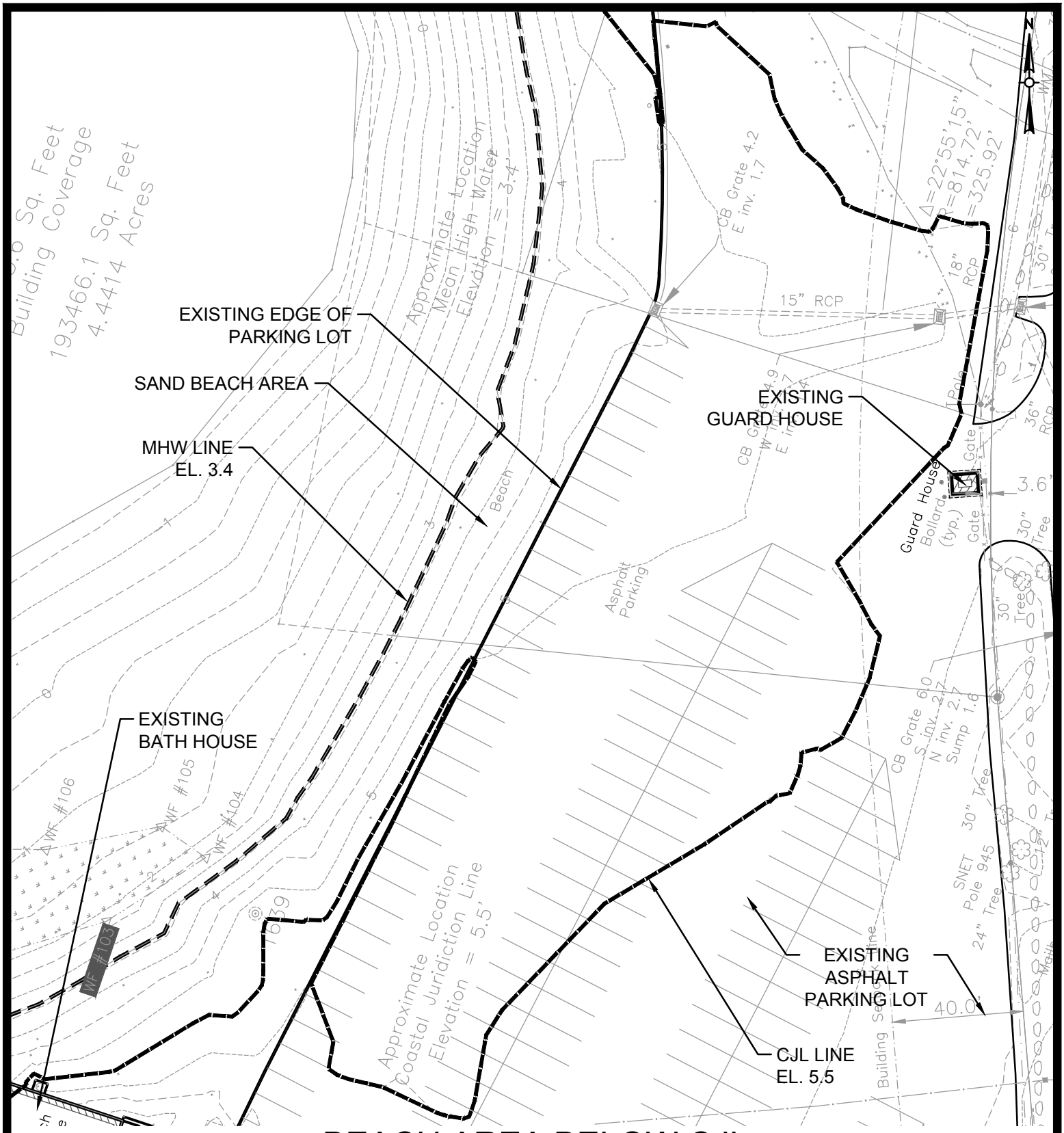
PEAR TREE POINT PARK IMPROVEMENTS
TOWN OF DARIEN
COUNTY OF FAIRFIELD
STATE OF CONNECTICUT
APPLICATION BY: TOWN OF DARIEN
APPLICATION NUMBER: _____

DATE: 04/14/2025



PERMITTING DOCUMENTS
NOT FOR CONSTRUCTION

BEACH AREA BELOW CJL
EXISTING SITE PLAN

STATE OF CONNECTICUT
JOSEPH S. PERUGINI
No. 24027
LICENSED PROFESSIONAL ENGINEER

AGENT: WESTON & SAMPSON ENGINEERS, INC.

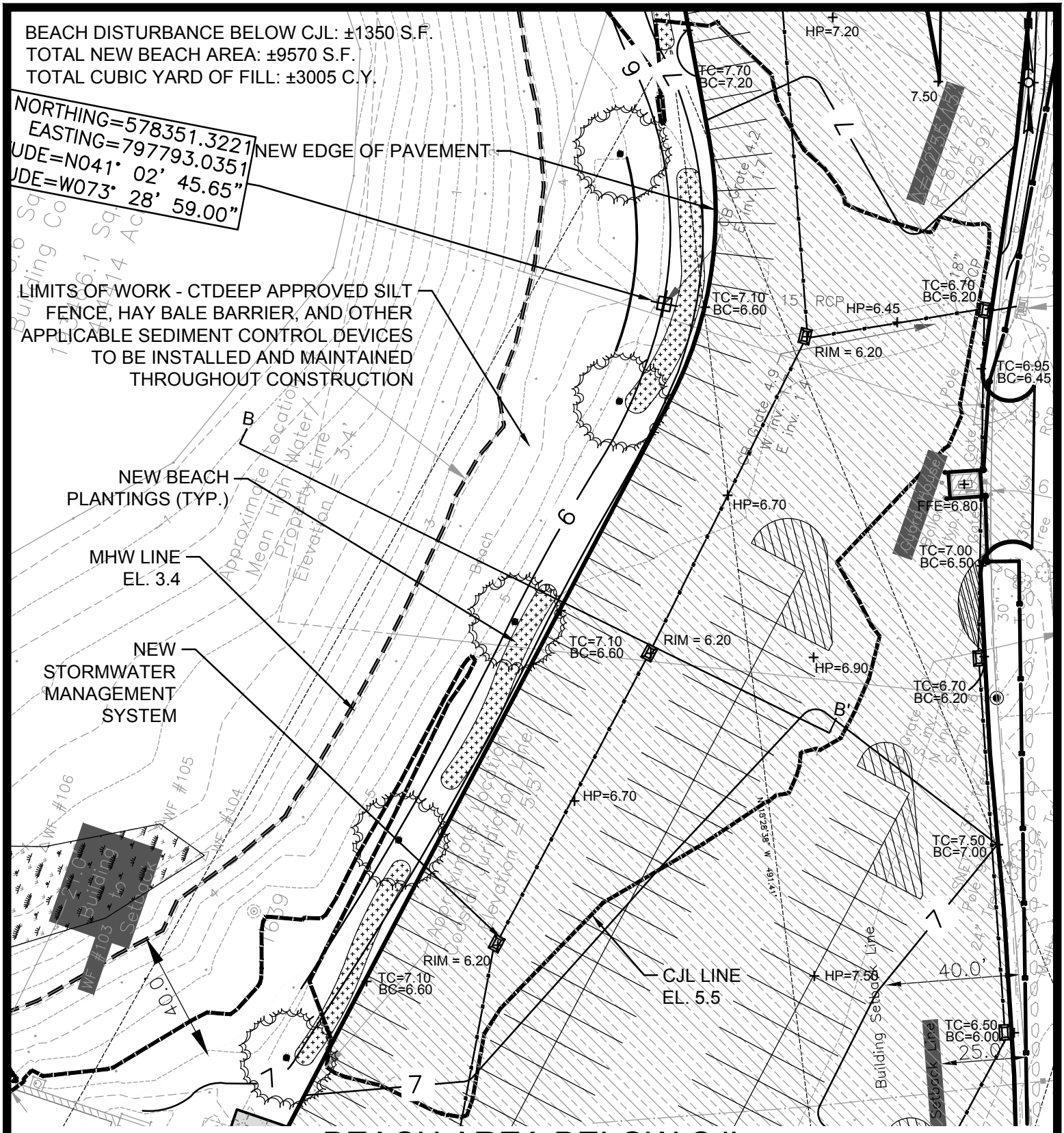
Weston & Sampson

DATUM: NAVD88

ADJACENT PROPERTY OWNERS:
1. DARIEN BOAT CLUB
2. JANET PRINDLE SEIDLER TR., ET AL

PEAR TREE POINT PARK IMPROVEMENTS
TOWN OF DARIEN
COUNTY OF FAIRFIELD
STATE OF CONNECTICUT
APPLICATION BY: TOWN OF DARIEN
APPLICATION NUMBER: _____

DATE: 05/27/2022



PERMITTING DOCUMENTS
NOT FOR CONSTRUCTION

BEACH AREA BELOW CJL
PROPOSED SITE PLAN

0 40 80

STATE OF CONNECTICUT
JOSEPH S. PERUGINI
No. 24027
LICENSED PROFESSIONAL ENGINEER

AGENT: WESTON & SAMPSON ENGINEERS, INC.

Weston & Sampson

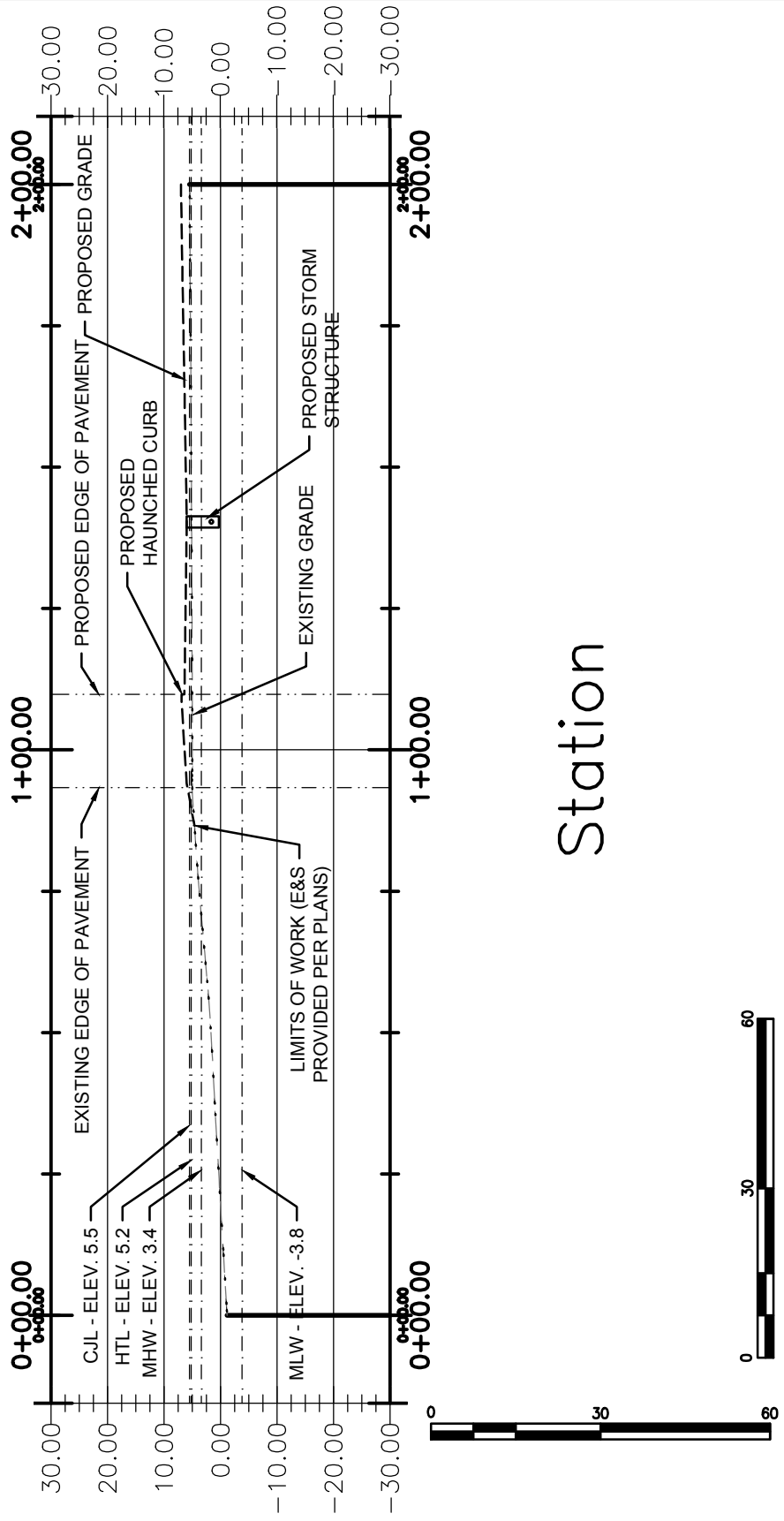
DATUM: NAVD88

ADJACENT PROPERTY OWNERS:
1. DARIEN BOAT CLUB
2. JANET PRINDLE SEIDLER TR., ET AL

PEAR TREE POINT PARK IMPROVEMENTS
TOWN OF DARIEN
COUNTY OF FAIRFIELD
STATE OF CONNECTICUT
APPLICATION BY: TOWN OF DARIEN
APPLICATION NUMBER: _____

DATE: 05/27/2022

WEST BEACH SECTION
B - B'



PERMITTING DOCUMENTS
NOT FOR CONSTRUCTION

STATE OF CONNECTICUT
JOSEPH S. PERUGINI
No. 24027
LICENSED PROFESSIONAL ENGINEER

AGENT: WESTON & SAMPSON ENGINEERS, INC.

Weston & Sampson

DATUM: NAVD88

ADJACENT PROPERTY OWNERS:
1. DARIEN BOAT CLUB
2. JANET PRINDLE SEIDLER TR., ET AL

PEAR TREE POINT PARK IMPROVEMENTS
TOWN OF DARIEN
COUNTY OF FAIRFIELD
STATE OF CONNECTICUT
APPLICATION BY: TOWN OF DARIEN
APPLICATION NUMBER: _____

DATE: 05/27/2022

Work-Start Notification Form

File Number: NAE-2020-02349 **State: Connecticut**

Permittee: Jennifer Fava, Town of Darien, CT
Date Verification Issued: 5/1/2025
Project Manager: Christopher Veinotte

At least two weeks prior to commencing the activity authorized by this permit, sign this certification and return it to the following address:

US ARMY CORPS OF ENGINEERS
New England District
Attn: CT & RI Section
696 Virginia Road
Concord, MA 01752
or
cenae-r-ct@usace.army.mil
978-318-8338

Please note that your permitted activity is subject to a compliance inspection by a U. S. Army Corps of Engineers (USACE) representative. Failure to comply with any terms or conditions of this authorization may result in the USACE suspending, modifying or revoking the authorization and/or issuing a Class I administrative penalty, or initiating other appropriate legal action.

The people (e.g. contractor) listed below will do the work, and they understand the permit's conditions and limitations.

Contractor Name/Contractor Firm: _____
Business Address: _____
_____
Contractor Phone and Email: _____

Proposed Construction Dates: Start: _____ Finish: _____

_____ **_____**
Signature of Permittee **Date**

U.S. Army Corps of Engineers (USACE)

CERTIFICATION OF COMPLIANCE WITH DEPARTMENT OF THE ARMY PERMIT

For use of this form, see Section 404 of the Clean Water Act, Section 10 of the Rivers and Harbors Act of 1899, and Section 103 of the Marine Protection, Research, and Sanctuaries Act; the proponent agency is CECW-COR.

Form Approved - OMB No. 0710-0003 Expires 2027-10-31

The Agency Disclosure Notice (ADN)

The Public reporting burden for this collection of information, 0710-0003, is estimated to average 10 minutes per response, including time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding the burden estimate or burden reduction suggestions to the Department of Defense, Washington Headquarters Services, at whs.mc-alex.esd.mbx.dd-dod-information-collections@mail.mil. Respondents should be aware that notwithstanding any other provision of law, no person shall be subject to any penalty for failing to comply with a collection of information if it does not display a currently valid OMB control number.

PURPOSE: This form is used by recipients of U.S. Army Corps of Engineer Regulatory permits to certify compliance with the permit terms and conditions.

Your permitted activity is subject to a compliance inspection by a U.S. Army Corps of Engineers representative. If you fail to comply with this permit, you are subject to permit suspension, modification, or revocation.

Upon completion of the activity authorized by this permit and any mitigation required by the permit, sign this certification and return it to the U.S. Army Corps of Engineers, New England District, Regulatory Office.

The certification can be submitted by email at cenae-r-ct@usace.army.mil or by mail at the below address:

U.S. Army Corps of Engineers
New England District Office
Street Address: 696 Virginia Road
City: Concord State: MA Zip Code: 01742

COMPLETED BY THE CORPS

Corps Action Number: NAE-2020-02349

Permit Type: General Permit

General Permit Number and Name (*if applicable*):

Name of Permittee: Jennifer Fava, Town of Darien, CT

Project Name: Town of Darien, CT - Pear Tree Park

Project Location (*physical address*): 93 Pear Tree Point
Darien, Connecticut 06820

PERMITTEE'S CERTIFICATION

Date Work Started: _____

Date Work Completed: _____

Enclose photographs showing the completed project (*if available*).

I _____ hereby certify that the work authorized by the above referenced permit has been completed in accordance with all of the permit terms and conditions, and that any required compensatory mitigation has been completed in accordance with the permit conditions.

Name	Date	Signature

Connecticut Department of
ENERGY &
ENVIRONMENTAL
PROTECTION

Bureau of Water Protection and Land Reuse
Land & Water Resources Division

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

Connecticut Department of Energy and Environmental Protection License*

Certificate of Permission

Licensee(s):	Town of Darien
Licensee Address(s):	2 Renshaw Road Darien CT 06820
License Number(s):	202207720-COP
Municipality:	Darien
Project Description:	Retention of parking lot and boat club building, reconstruction of the parking lot and boat ramp, and dredging for municipal and marine commercial use
Project Address/Location:	93-199 Pear Tree Point Road
Waters:	Darien River / Pear Tree Point Cove
Authorizing CT Statute(s) and/or Federal Law:	CGS Section 22a-28 to 35; CGS Section 22a-359 to 363g; CGS Section 22a-90 to 112; Section 401 CWA (33 USC 1341)
Applicable Regulations of CT State Agencies:	22a-30-1 to 17, 22a-426-1 to 9
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:	26 plan sheets titled *Pear Tree Point Park Improvements*, dated October 7, 2022, and prepared by Weston & Sampson.
License Enclosures:	LWRD Dredging and General Conditions; Site Plan Set; LWRD Dredging Report; Land Record Filing; LWRD Work Commencement Form; LWRD Compliance Certification 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 # 202207720-COP and as depicted on any site plan sheets / sets cited herein:

1. Retention of the existing parking lot.
2. Retention of the existing Darien Boat Club Building located in the most northern point of the site.
3. Reconstruction and modification of the parking lot which includes:
    a. Installation of erosion and sedimentation controls,
    b. Removal of approximately 97,825 square feet existing asphalt,
    c. Placement of 3,005 cy of additional material,
    d. Installation of approximately 88,255 square feet new asphalt,
    e. Placement of approximately 355 cy of sand over a 9,570 square foot area along the edge of the new parking lot creating additional beach area,
    f. Installation of plantings along the edge of the parking lot, and
    g. Removal of erosion and sedimentation controls.
4. Reconstruction of the boat ramp which includes:
    a. Installation of erosion and sedimentation controls,
    b. Removal of wood floating dock,
    c. Removal of existing boat ramp,
    d. Installation on new boat ramp,
    e. Reinstallation of wood floating dock, and
    f. Removal of erosion and sedimentation controls.
5. Dredging of approximately 1,293 cy yards of material, up to 3,133 cy including a -1' overdredge over an area of 51,048 square feet to a depth of -6.00 MLW for upland disposal in accordance with Terms and Conditions, Paragraph 4., below.
6. Installation of approximately 1,245 tidal wetland plantings within the existing 3,746 sf tidal wetland area.

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. **Handling of Material**. The Licensee shall dispose of the approximately 3,133 cubic yards of material in accordance with all applicable requirements of Chapter 446k Water Pollution

Control, Chapter 445 Hazardous Waste, and Chapter 446d Solid Waste of the Connecticut General Statutes.

3. **Time-of-Year Restrictions.** Unconfined in-water excavation, dredging, filling or removal of debris or other material is prohibited between February1st and May 15th in order to protect Winter Flounder, and between July 1st and August 30st in order to protect spawning shellfish, inclusive, of any year unless, otherwise authorized in writing by the Commissioner.
4. **Dredge Material Dewatering.** Handling and management of dredged material shall not cause discharge of sediment to tidal waters or wetlands. Dewatering areas shall not be located below the coastal jurisdiction.

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

October 20, 2022
Date

Brian P. Thompson
Division Director
Land & Water Resources Division

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

LWRD Dredging and General Conditions

1. **Time-of-Year Restriction.** Unless otherwise noted in the License, unconfined in-water excavation, dredging, filling or removal of debris or other material is prohibited, inclusive, in any year from June 1 through September 30 in order to protect spawning shellfish in the area unless otherwise authorized in writing by the Commissioner.

2. **Dredging Report.** Not later than two (2) weeks subsequent to the completion of any dredging activity authorized herein, the Licensee shall submit to DEEP.LWRDRegulatory@ct.gov a completed Dredging Report. A separate form shall be submitted by the Licensee for each distinct dredging activity conducted pursuant to this license.

3. **Bottom Disturbance.** Dragging the bottom with a spoil barge, scow, vessel, beam or similar equipment outside of any authorized area is prohibited.

4. **Material Handling.** Sidecasting or in-water rehandling of dredged or excavated material is prohibited.

5. **Barge Control.** Spoil scows or barges shall be loaded and navigated in a manner which prevents uncontrollable motion or spillage and washout of dredged or excavated materials.

6. **Sale of Sediment.** Sediment dredged pursuant to the license shall not be sold nor shall any fee for its use be charged without the express prior written authorization of the Commissioner and payment of a $4.00 per yard royalty to the state of Connecticut Department of Energy & Environmental Protection, pursuant to CGS section 22a-361(e).

7. **Sediment Disposal.** The Licensee shall dispose of aquatic sediments in accordance with the terms and conditions of the license.

8. **Submission of As-Dredged Plans**. On or before ninety (90) days after completion of the work authorized herein, the Licensee shall submit to DEEP.LWRDRegulatory@ct.gov an "as-dredged" survey of the work area showing contours, bathymetries, tidal datums and structures, as applicable. Such survey shall be the original one and be signed and sealed by an engineer, surveyor or architect, as applicable, who is licensed in the State of Connecticut.

Open Water Disposal, if authorized in Project Description

1. **Material Disposal.** The Licensee shall dispose of dredged or excavated material in accordance with the requirements of the United States Army Corps of Engineers-New England District, except that if the authorized disposal site is modified, the Licensee shall submit a request for modification of the location to the Commissioner and shall not dispose of the material until such location modification has been approved in writing by the Commissioner.

2. **Disposal Site / Use Modification.** The Commissioner may modify the authorized disposal site and direct dredged sediment to an alternate site for use as cap material, provided that no modification will take effect if such modification imposes uncompensated additional costs solely attributable to such modification on the Licensee.

3. **Disposal Monitoring.** The Licensee shall not dispose of dredged or excavated material unless said disposal is supervised and witnessed by an on-board inspector or documented by an automated disposal monitoring program approved by the United States Army Corps of Engineers-New England District.

4. **Barge Navigation.** Spoil scows or barges used by the Licensee for disposal of dredged or excavated material shall travel to and from the authorized disposal site utilizing sea lanes defined by the United States Army Corps of Engineers-New England District.

5. **Point Dumping.** The Licensee shall point-dump dredged or excavated materials at a specified buoy or set of coordinates identified by United States Army Corps of Engineers-New England District within the authorized disposal site.

LWRD General Conditions

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

7. **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.

8. **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.

9. **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.

10. **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.

11. 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.

12. 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.

13. 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.

14. 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.

15. 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.

16. 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

17. **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.

18. **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."

19. **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.

20. **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.

21. **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.

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

23. **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.

24. **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.

25. **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.

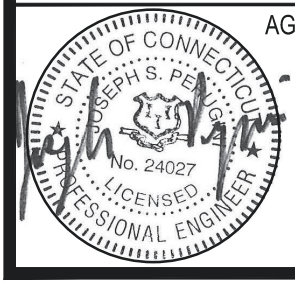
GENERAL NOTES:

1. THE CONTRACTOR SHALL CONSULT ALL OF THE DRAWINGS AND SPECIFICATIONS FOR COORDINATION REQUIREMENTS BEFORE COMMENCING CONSTRUCTION AND COORDINATE WITH OTHERS AS REQUIRED.
2. THE CONTRACTOR SHALL VERIFY ALL EXISTING INFORMATION ON SITE. ANY DISCREPANCIES BETWEEN PLANS AND ACTUAL CONDITIONS SHALL BE IMMEDIATELY COMMUNICATED TO THE OWNER'S REPRESENTATIVE. ANY FAILURE TO VERIFY THE GRADES PRIOR TO CONSTRUCTION SHALL BE AT THE RISK AND COST OF THE CONTRACTOR.
3. THE CONTRACTOR SHALL PROVIDE STAKE LAYOUT OF PROPOSED IMPROVEMENTS FOR OWNER'S REPRESENTATIVE REVIEW AND APPROVAL BEFORE COMMENCING WITH ANY GROUND DISTURBANCE.
4. THE CONTRACTOR SHALL VERIFY PROPOSED GRADES PRIOR TO CONSTRUCTION AND REPORT ANY DISCREPANCIES TO THE OWNER'S REPRESENTATIVE.
5. THE CONTRACTOR SHALL BE RESPONSIBLE FOR SECURING ALL PERMITS FOR THE WORK FROM ANY UTILITY COMPANIES OR OTHER GOVERNING BODIES HAVING JURISDICTION OVER THE WORK OUTLINED IN THESE DRAWINGS.
6. THE CONTRACTOR SHALL ESTABLISH PERMANENT SECONDARY BENCHMARKS PRIOR TO THE START OF CONSTRUCTION. ALL SECONDARY BENCHMARKS SHALL BE SO LOCATED THAT THEY WILL NOT BE DISTURBED BY CONSTRUCTION.
7. THE CONTRACTOR SHALL MAINTAIN ALL POINTS OF CONSTRUCTION INGRESS AND EGRESS TO PREVENT TRACKING OR MOVEMENT OF SEDIMENT OR DEBRIS ONTO ROADWAYS.
8. THE CONTRACTOR SHALL PROVIDE DUST AND EROSION/SEDIMENT CONTROL AS PER SPECIFICATIONS AND/OR AS APPROVED BY OWNER'S REPRESENTATIVE.
9. PRIOR TO GROUND DISTURBANCE, THE CONTRACTOR SHALL INSTALL AND REGULARLY MAINTAIN, AS REQUIRED, ANY AND ALL SILTATION CONTROL MEASURES AND MONITOR THE CONTROL DEVICES AT LEAST ONCE A WEEK TO ENSURE THEIR EFFECTIVENESS.
10. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING TEMPORARY MEANS OF CONVEYANCE FOR STORM SEWER SYSTEM DISRUPTED DURING CONSTRUCTION, UNTIL SUCH A TIME THAT THE NEW STORM SEWER SYSTEM IS COMPLETE. ALL STORM WATER SHALL BE DISCHARGED OUTSIDE THE CONSTRUCTION AREA IN AN ACCEPTABLE LOCATION THAT WILL NOT ALLOW SEDIMENT TRANSFER TO WETLANDS OR WATER BODIES OR CAUSE PONDING AND/OR FLOODING. THE CONTRACTOR SHALL STABILIZE DISTURBED SLOPES IMMEDIATELY TO PREVENT EROSION FROM OCCURRING WITH AN APPROPRIATE EROSION CONTROL MEASURE. SEE SPECIFICATIONS. IF SLOPE EROSION IS OBSERVED, REPAIR IMMEDIATELY.
11. ALL FILL SLOPES 3:1 OR GREATER SHALL RECEIVE BIODEGRADABLE FABRIC OR APPROVED EQUAL FOR EROSION CONTROL, UNLESS OTHERWISE SHOWN OR DIRECTED BY OWNER'S REPRESENTATIVE.
12. ANY AREA OUTSIDE THE LIMIT OF WORK THAT IS DISTURBED SHALL BE RESTORED TO ITS ORIGINAL CONDITION AT NO COST TO THE OWNER.
13. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REPAIRING ALL AREAS DISTURBED AND/OR DAMAGED FROM CONSTRUCTION ACTIVITIES INCLUDING, BUT NOT LIMITED TO, LAWNS, WALKS, PAVEMENTS, ETC.. IT IS EXPECTED THAT THE CONTRACTOR SHALL MAKE PHOTO LOGS OF ALL EXISTING SITE CONDITIONS PRIOR TO CONSTRUCTION FOR HIS/HER RECORDS.
14. CONSTRUCTION AND/OR DISTURBANCE SHALL NOT EXTEND BEYOND OWNER'S PROPERTY WITHOUT WRITTEN PERMISSION/PERMIT(S)/FROM ADJACENT LANDOWNERS.
15. THE CONTRACTOR SHALL LOCATE AND MARK UNDERGROUND FACILITIES AND MAINTAIN MARKING DURING CONSTRUCTION.

SHEET LIST	
SHEET #	SHEET TITLE
1	TITLE SHEET
2	VICINITY MAP
3	TAX MAP
4	SITE SURVEY
5	DARIEN BOAT CLUB EXISTING GENERAL PLAN
6	BOAT RAMP EXISTING SITE PLAN
7	BOAT RAMP PROPOSED SITE PLAN
8	BOAT RAMP SECTION
9	BOAT RAMP DETAILS
10	BOAT RAMP DETAILS
11	BOAT RAMP DETAILS
12	BOAT RAMP DETAILS
13	BOAT RAMP DETAILS
14	BEACH AREA BELOW CJL EXISTING SITE PLAN
15	BEACH AREA BELOW CJL PROPOSED SITE PLAN
16	WEST BEACH SECTION
17	HAUNCHED CURB DETAIL
18	TIDAL WETLANDS EXISTING SITE PLAN
19	TIDAL WETLANDS PROPOSED SITE PLAN
20	WETLAND RESTORATION GENERAL NOTES
21	BEACH NOURISHMENT PLAN
22	BATHYMETRIC SURVEY
23	BATHYMETRIC NOTES
24	DREDGING PLAN
25	DREDGING SECTIONS
26	DREDGING SECTIONS

PERMITTING DOCUMENTS
NOT FOR CONSTRUCTION

TITLE SHEET



AGENT: WESTON & SAMPSON ENGINEERS, INC.

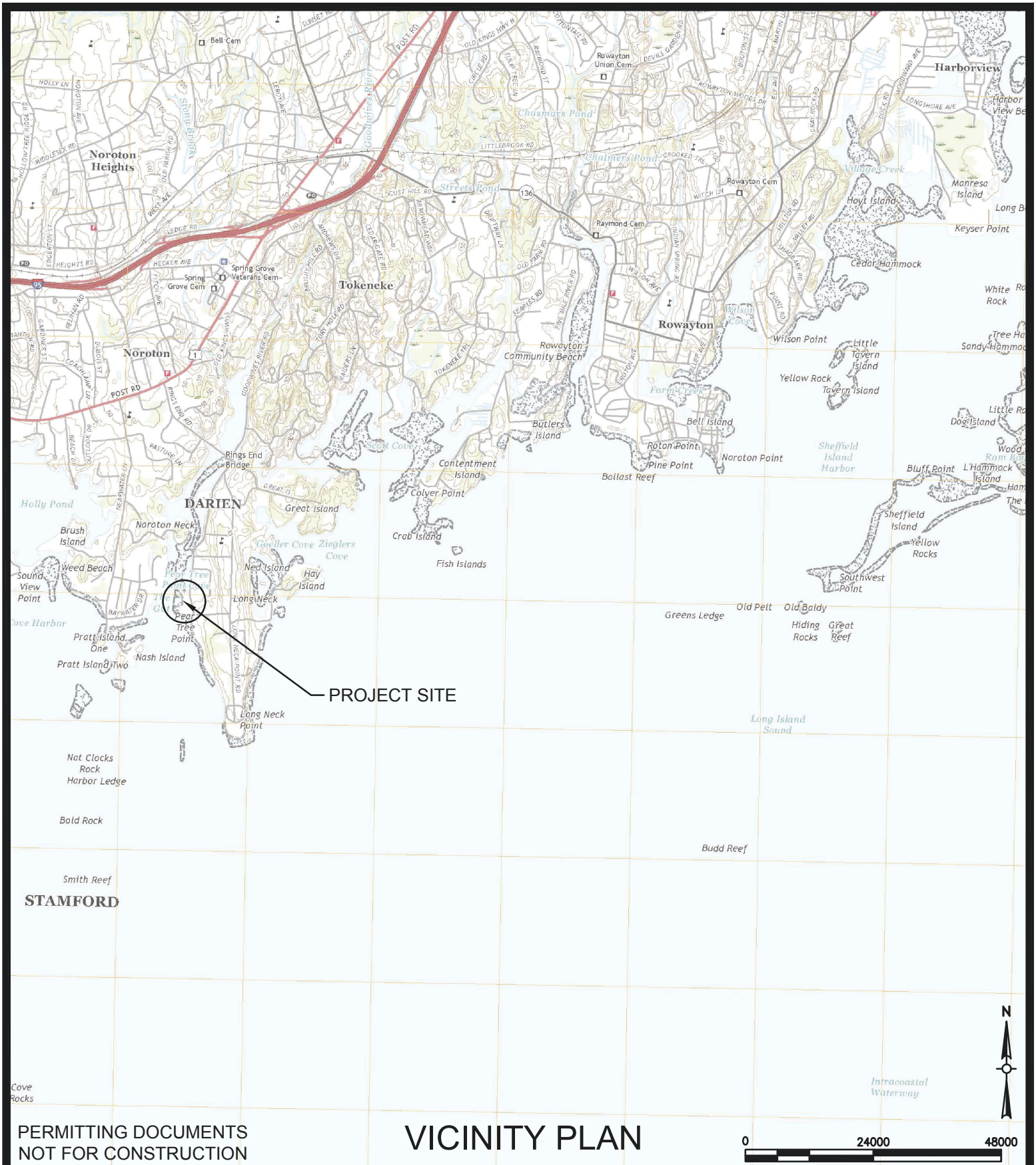
Weston & Sampson℠

DATUM: NAVD88

ADJACENT PROPERTY OWNERS:
1. DARIEN BOAT CLUB
2. JANET PRINDLE SEIDLER TR., ET AL

PEAR TREE POINT PARK IMPROVEMENTS
TOWN OF DARIEN
COUNTY OF FAIRFIELD
STATE OF CONNECTICUT
APPLICATION BY: TOWN OF DARIEN
APPLICATION NUMBER: 202207720

DATE: 10/07/2022



PERMITTING DOCUMENTS
NOT FOR CONSTRUCTION

VICINITY PLAN

STATE OF CONNECTICUT
JOSEPH S. PERUGINI
No. 24027
LICENSED
PROFESSIONAL ENGINEER

AGENT: WESTON & SAMPSON ENGINEERS, INC.

Weston & Sampson℠

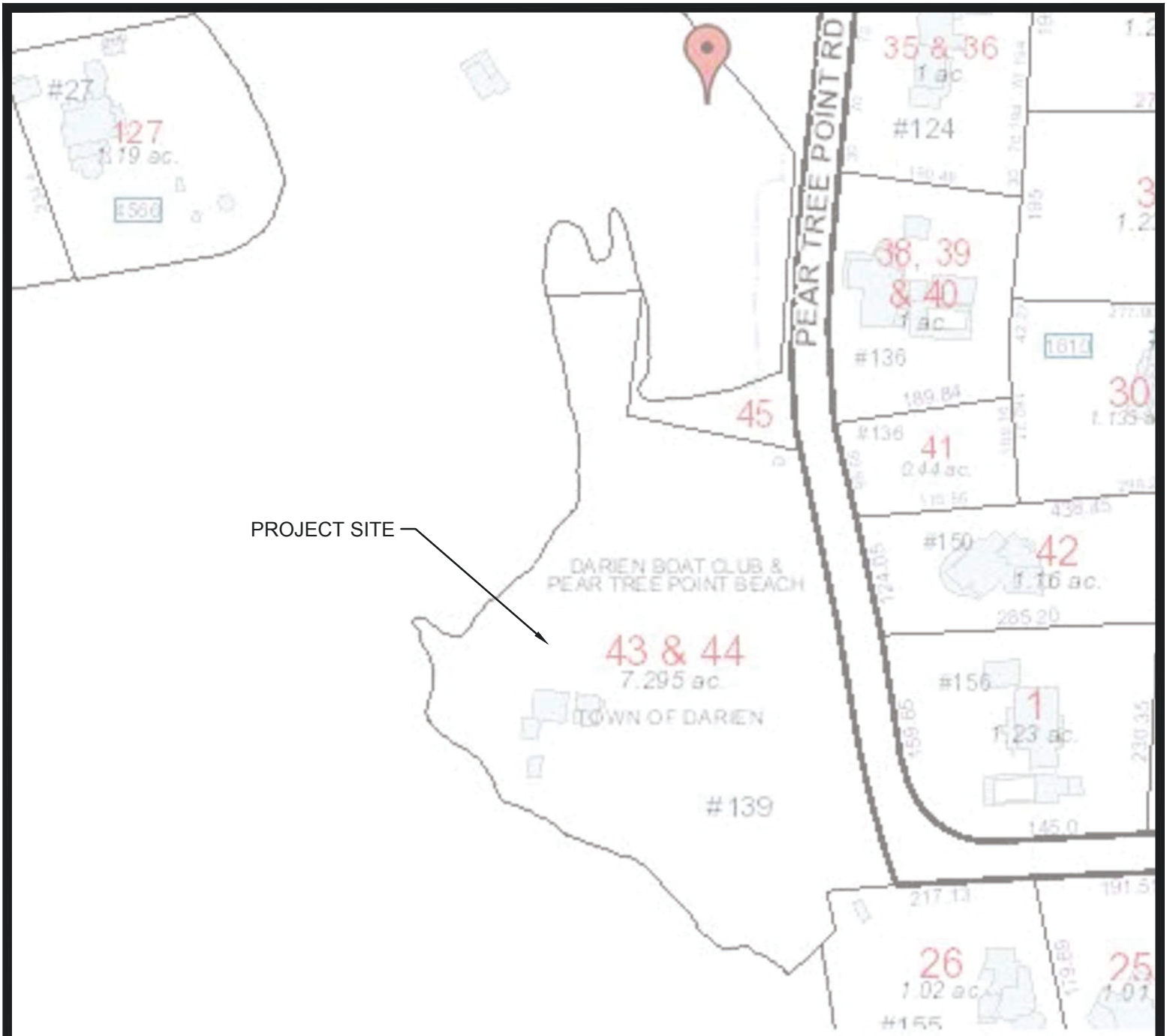
DATUM: NAVD88

ADJACENT PROPERTY OWNERS:

1. DARIEN BOAT CLUB
2. JANET PRINDLE SEIDLER TR., ET AL

PEAR TREE POINT PARK IMPROVEMENTS
TOWN OF DARIEN
COUNTY OF FAIRFIELD
STATE OF CONNECTICUT
APPLICATION BY: TOWN OF DARIEN
APPLICATION NUMBER: 202207720

DATE: 10/07/2022



PERMITTING DOCUMENTS
NOT FOR CONSTRUCTION

TAX ASSESSOR MAP

NOT TO SCALE

STATE OF CONNECTICUT
JOSEPH S. PERUGINI
No. 24027
LICENSED
PROFESSIONAL ENGINEER

AGENT: WESTON & SAMPSON ENGINEERS, INC.

Weston & Sampson

DATUM: NAVD88

ADJACENT PROPERTY OWNERS:

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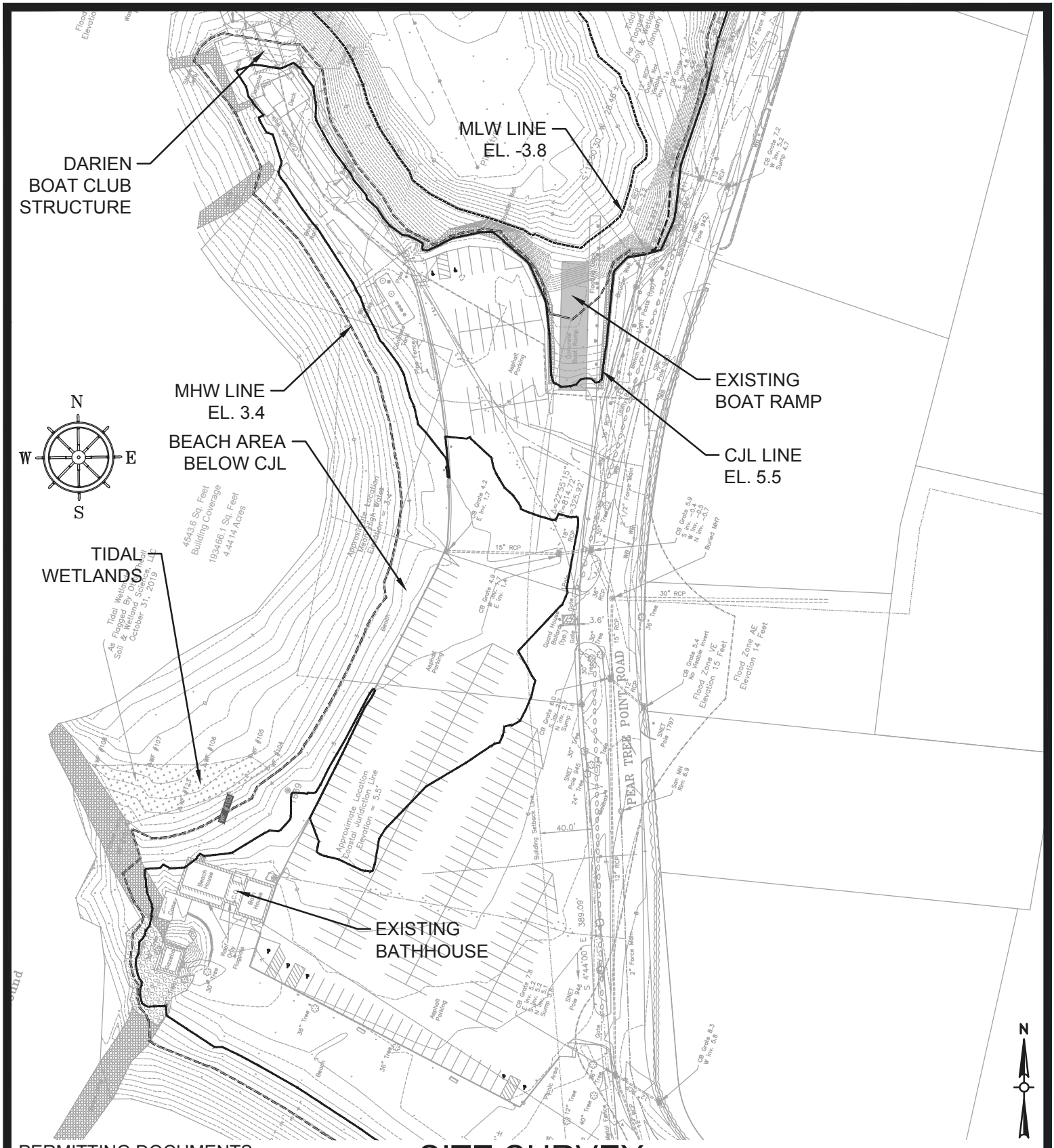
PEAR TREE POINT PARK IMPROVEMENTS
TOWN OF DARIEN
COUNTY OF FAIRFIELD
STATE OF CONNECTICUT
APPLICATION BY: TOWN OF DARIEN
APPLICATION NUMBER: 202207720

DATE: 10/07/2022



PERMITTING DOCUMENTS
NOT FOR CONSTRUCTION

SITE SURVEY

STATE OF CONNECTICUT
JOSEPH S. PERUGINI
No. 24027
LICENSED
PROFESSIONAL ENGINEER

AGENT: WESTON & SAMPSON ENGINEERS, INC.

Weston & Sampson℠

DATUM: NAVD88

ADJACENT PROPERTY OWNERS:

1. DARIEN BOAT CLUB
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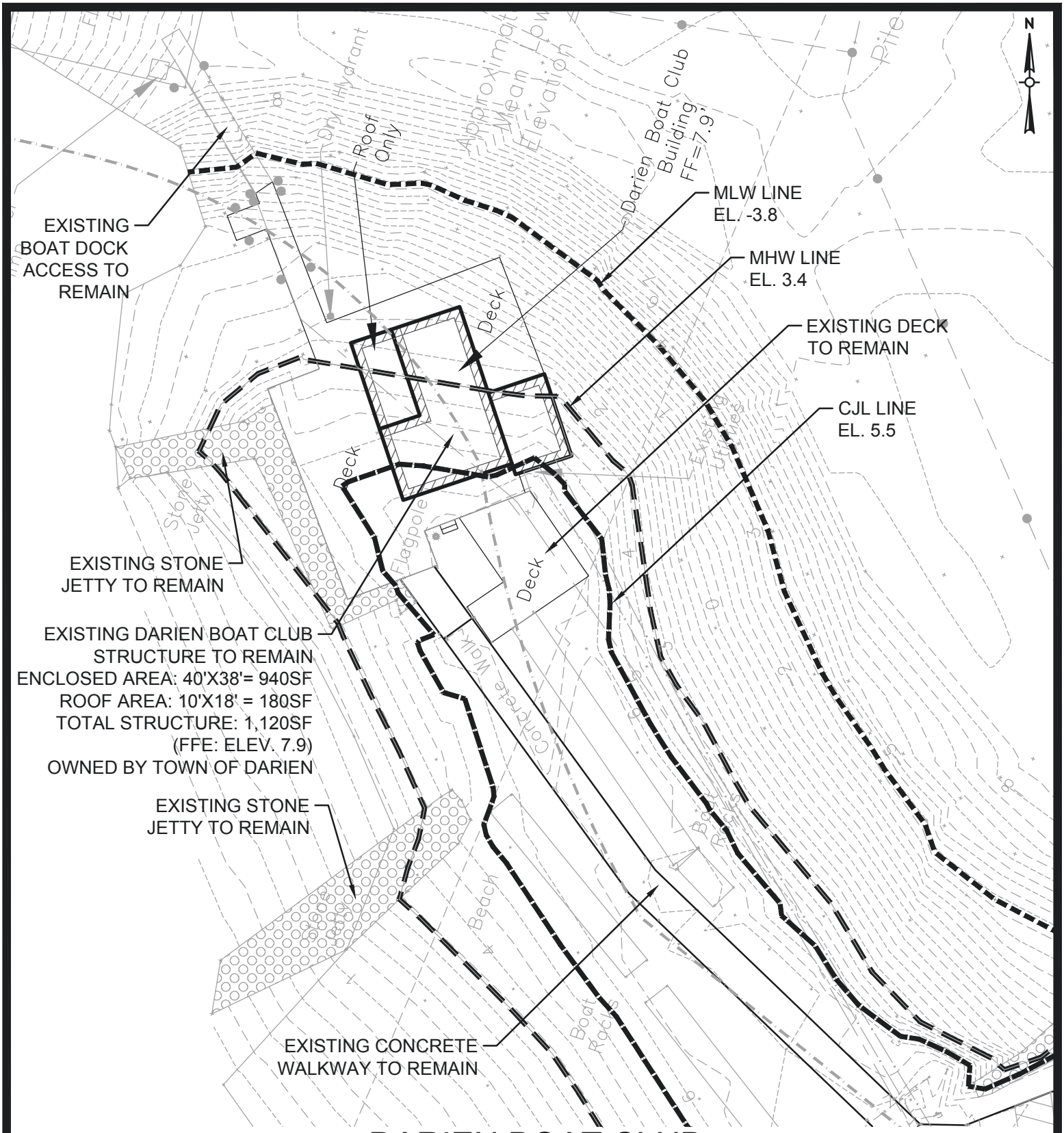
PEAR TREE POINT PARK IMPROVEMENTS
TOWN OF DARIEN
COUNTY OF FAIRFIELD
STATE OF CONNECTICUT
APPLICATION BY: TOWN OF DARIEN
APPLICATION NUMBER: 202207720

DATE: 10/07/2022



DARIEN BOAT CLUB
EXISTING GENERAL PLAN

0 30 60

PERMITTING DOCUMENTS
NOT FOR CONSTRUCTION

STATE OF CONNECTICUT
JOSEPH S. PERUGINI
No. 24027
LICENSED PROFESSIONAL ENGINEER

AGENT: WESTON & SAMPSON ENGINEERS, INC.

Weston & Sampson

DATUM: NAVD88

ADJACENT PROPERTY OWNERS:
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PEAR TREE POINT PARK IMPROVEMENTS
TOWN OF DARIEN
COUNTY OF FAIRFIELD
STATE OF CONNECTICUT
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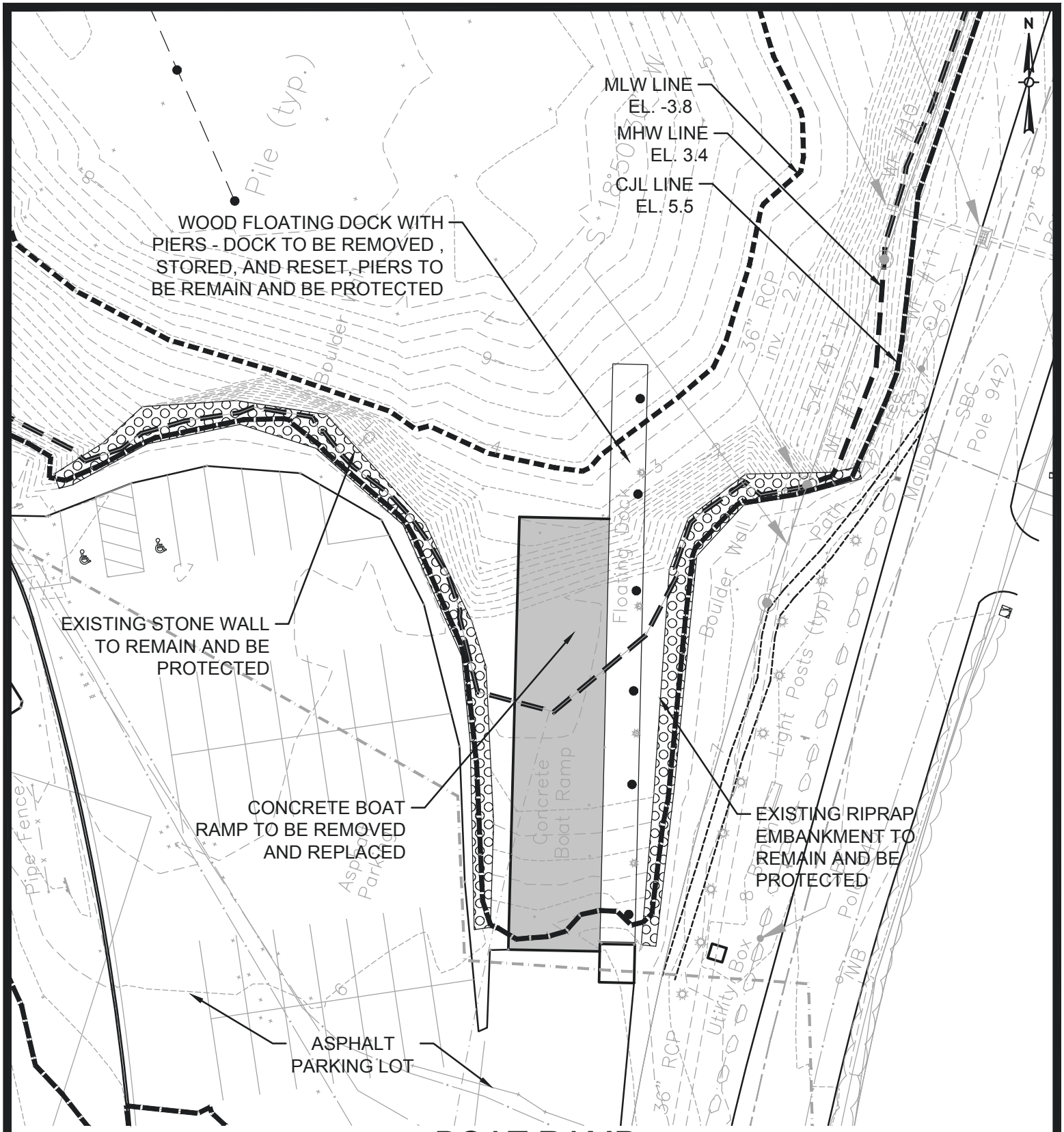
DATE: 10/07/2022



PERMITTING DOCUMENTS
NOT FOR CONSTRUCTION

BOAT RAMP
EXISTING SITE PLAN

0 30 60

STATE OF CONNECTICUT
JOSEPH S. PERUGINI
No. 24027
LICENSED
PROFESSIONAL ENGINEER

AGENT: WESTON & SAMPSON ENGINEERS, INC.

Weston & Sampson℠

DATUM: NAVD88

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PEAR TREE POINT PARK IMPROVEMENTS
TOWN OF DARIEN
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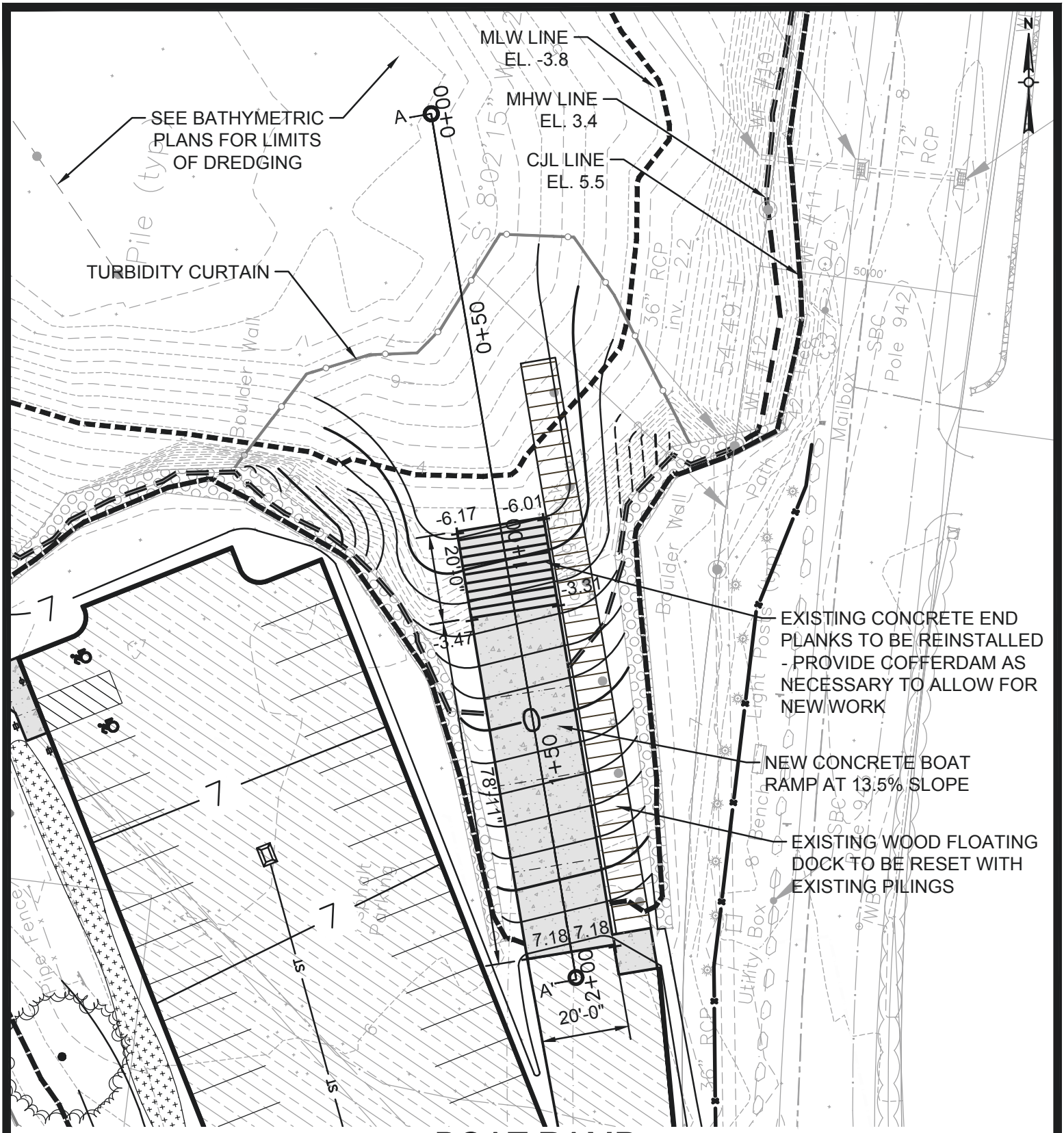

BOAT RAMP
PROPOSED SITE PLAN

PERMITTING DOCUMENTS
NOT FOR CONSTRUCTION

0 30 60

STATE OF CONNECTICUT
JOSEPH S. PERUGINI
No. 24027
LICENSED
PROFESSIONAL ENGINEER

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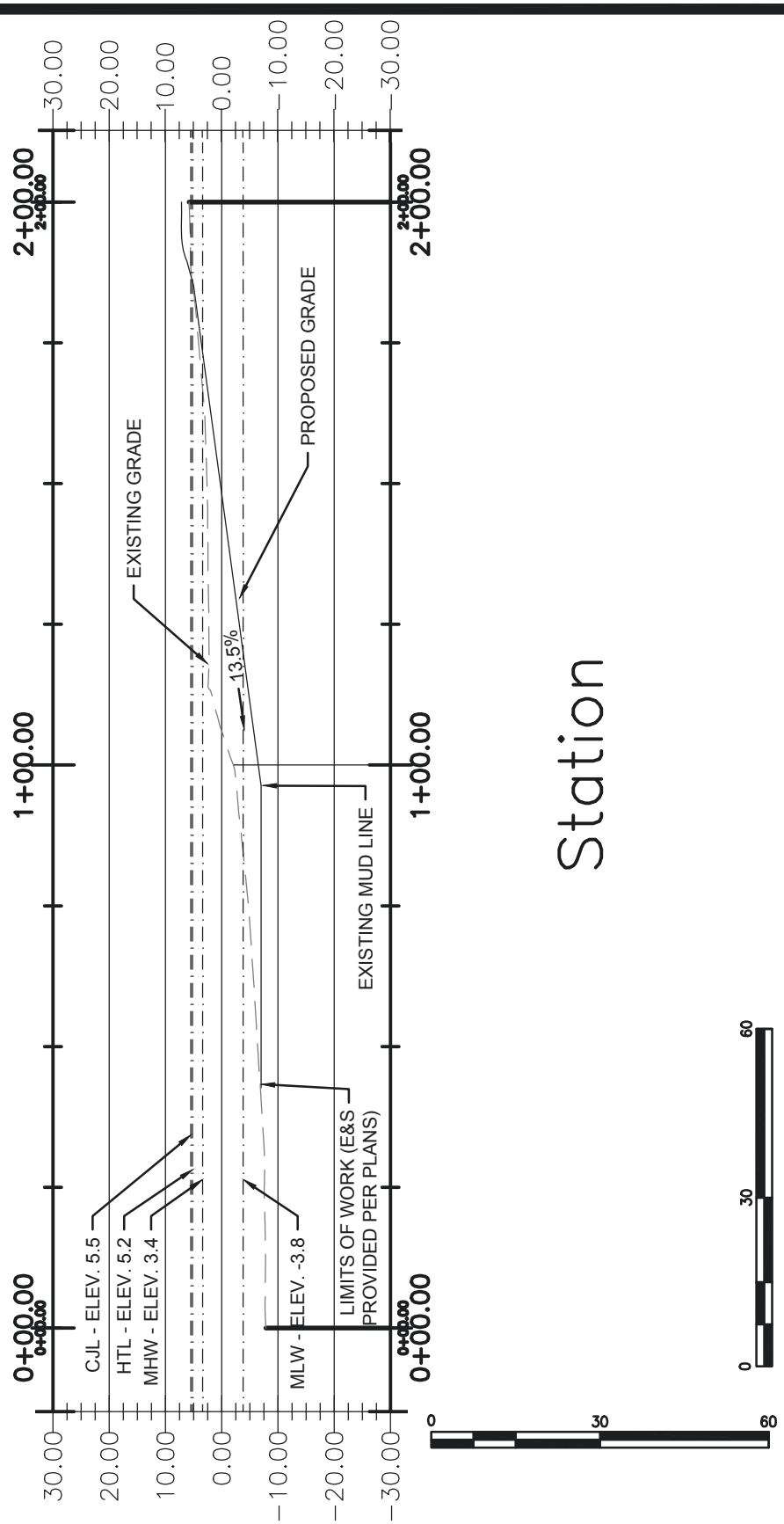
PEAR TREE POINT PARK IMPROVEMENTS
TOWN OF DARIEN
COUNTY OF FAIRFIELD
STATE OF CONNECTICUT
APPLICATION BY: TOWN OF DARIEN
APPLICATION NUMBER: 202207720

DATE: 10/07/2022

BOAT RAMP
SECTION A - A'



PERMITTING DOCUMENTS
NOT FOR CONSTRUCTION

STATE OF CONNECTICUT
JOSEPH S. PERUGINI
No. 24027
LICENSED
PROFESSIONAL ENGINEER

AGENT: WESTON & SAMPSON ENGINEERS, INC.

Weston & Sampson℠

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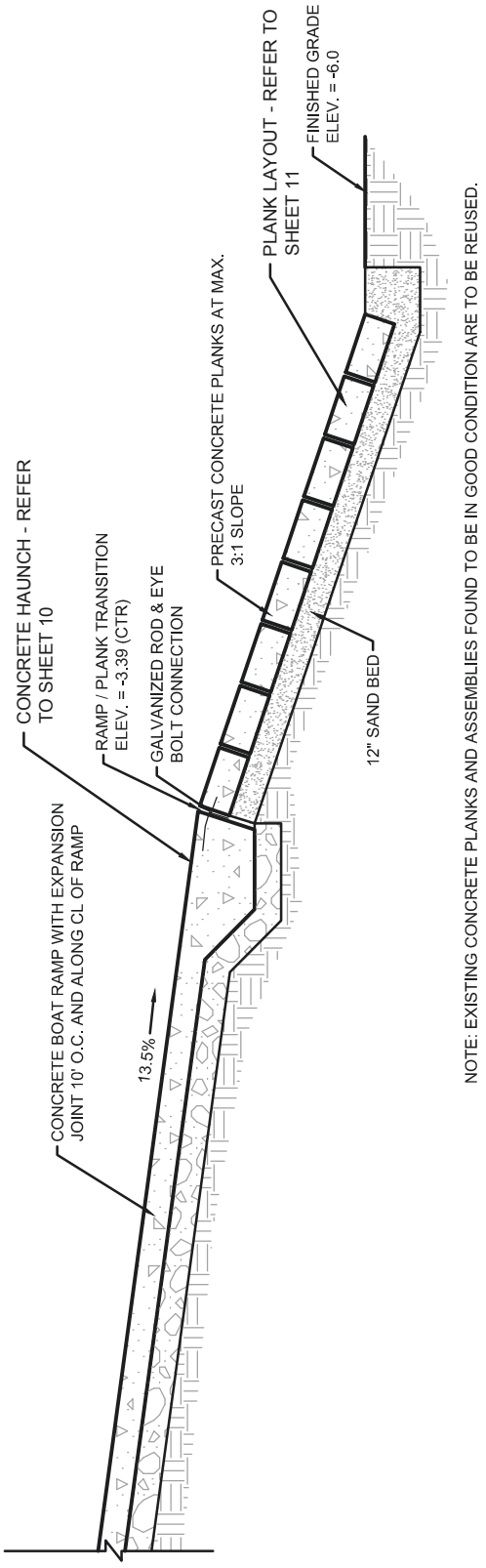

NOTE: EXISTING CONCRETE PLANKS AND ASSEMBLIES FOUND TO BE IN GOOD CONDITION ARE TO BE REUSED.

NOTE: PROVIDE COFFERDAM AND DEWATERING MEASURES AS NECESSARY TO ALLOW FOR NEW WORK.

BOAT LAUNCH - TYPICAL RAMP AND PLANK DETAIL

PERMITTING DOCUMENTS
NOT FOR CONSTRUCTION

BOAT RAMP DETAILS

NOT TO SCALE

STATE OF CONNECTICUT
JOSEPH S. PERUGINI
No. 24027
LICENSED PROFESSIONAL ENGINEER

AGENT: WESTON & SAMPSON ENGINEERS, INC.

Weston & Sampson℠

DATUM: NAVD88

ADJACENT PROPERTY OWNERS:
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PEAR TREE POINT PARK IMPROVEMENTS
TOWN OF DARIEN
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STATE OF CONNECTICUT
APPLICATION BY: TOWN OF DARIEN
APPLICATION NUMBER: 202207720

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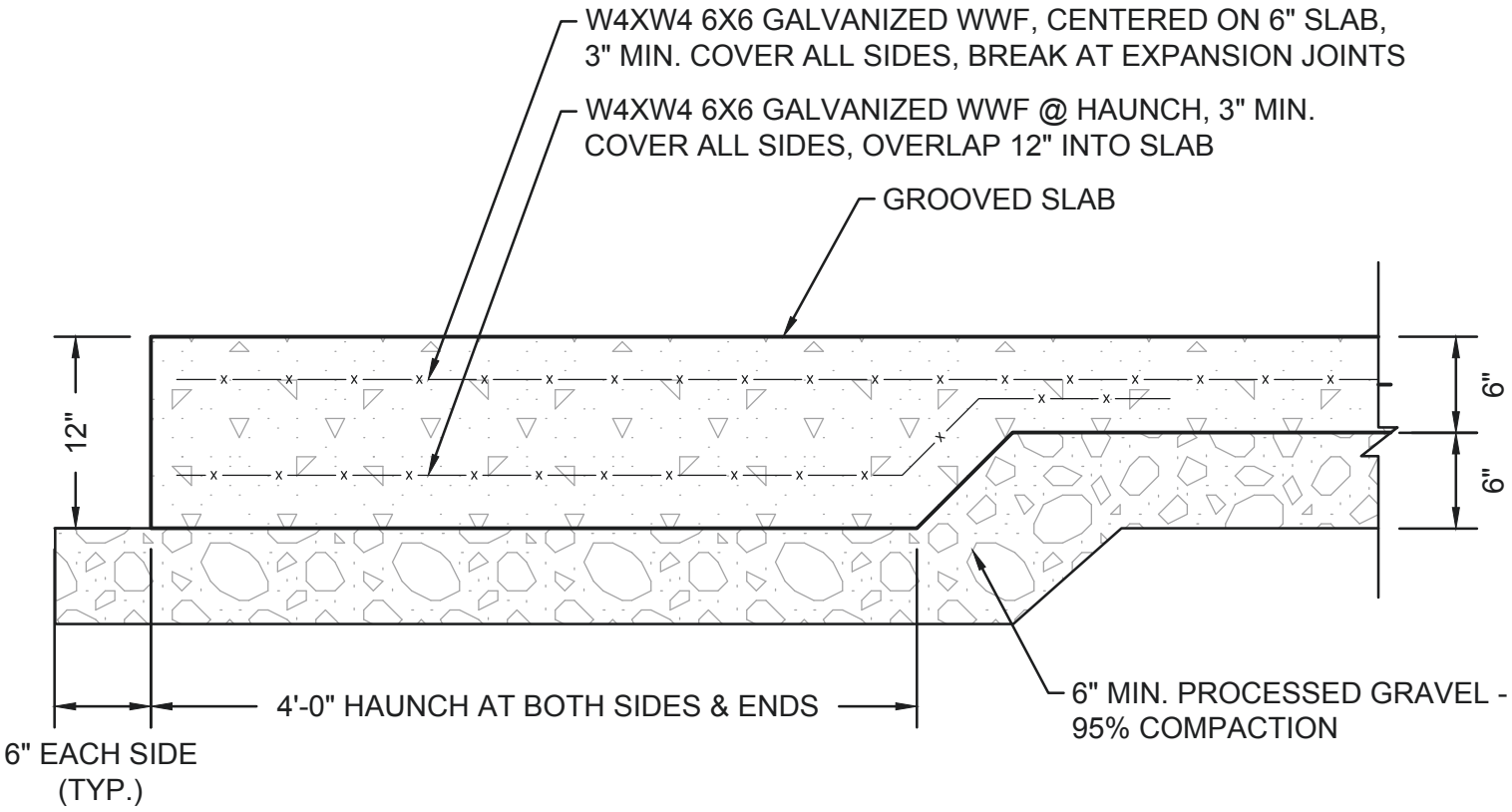

BOAT LAUNCH - TYPICAL CONCRETE SLAB DETAIL

PERMITTING DOCUMENTS
NOT FOR CONSTRUCTION

BOAT RAMP DETAILS

NOT TO SCALE

STATE OF CONNECTICUT
JOSEPH S. PERUGINI
No. 24027
LICENSED
PROFESSIONAL ENGINEER

AGENT: WESTON & SAMPSON ENGINEERS, INC.

Weston & Sampson℠

DATUM: NAVD88

ADJACENT PROPERTY OWNERS:
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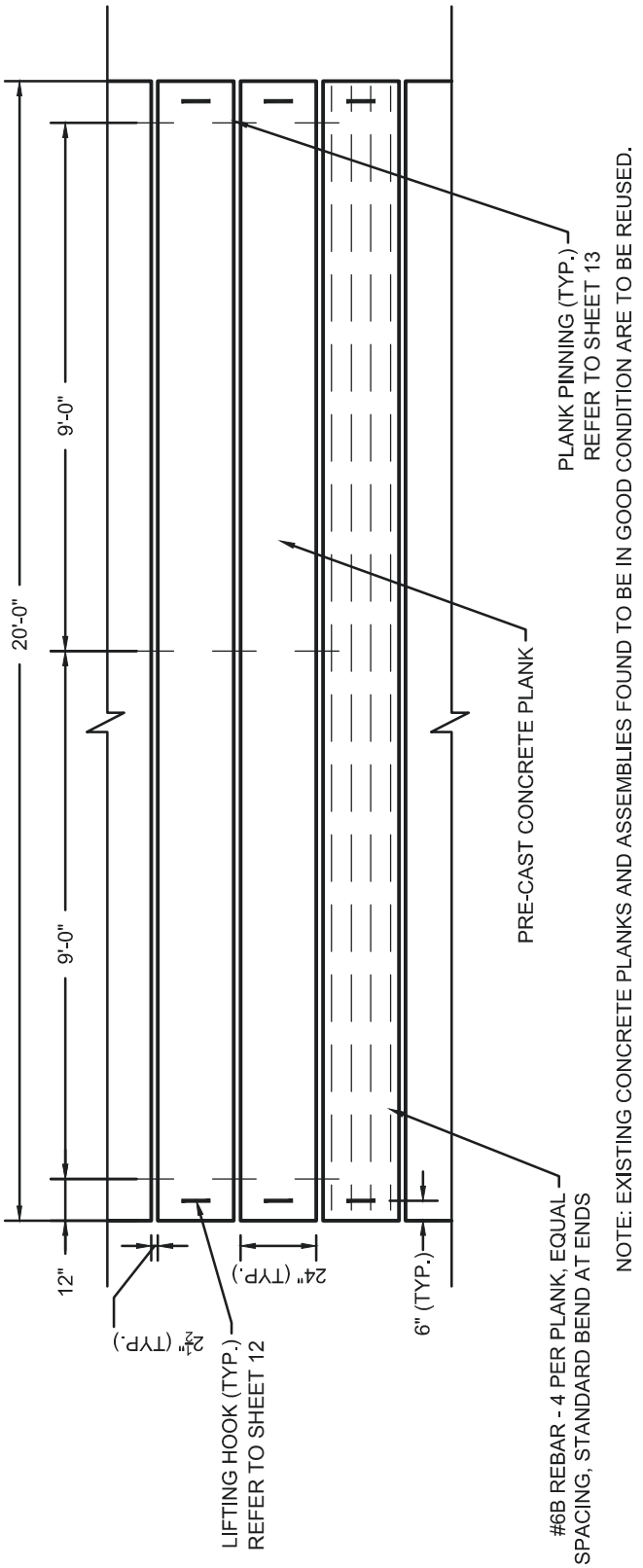
TOWN OF DARIEN
COUNTY OF FAIRFIELD
STATE OF CONNECTICUT
APPLICATION BY: TOWN OF DARIEN
APPLICATION NUMBER: 202207720

DATE: 10/07/2022



BOAT LAUNCH - TYPICAL PLANK LAYOUT DETAIL

PERMITTING DOCUMENTS
NOT FOR CONSTRUCTION

BOAT RAMP DETAILS

NOT TO SCALE

STATE OF CONNECTICUT
JOSEPH S. PERUGINI
No. 24027
LICENSED PROFESSIONAL ENGINEER

AGENT: WESTON & SAMPSON ENGINEERS, INC.

Weston & Sampson℠

DATUM: NAVD88

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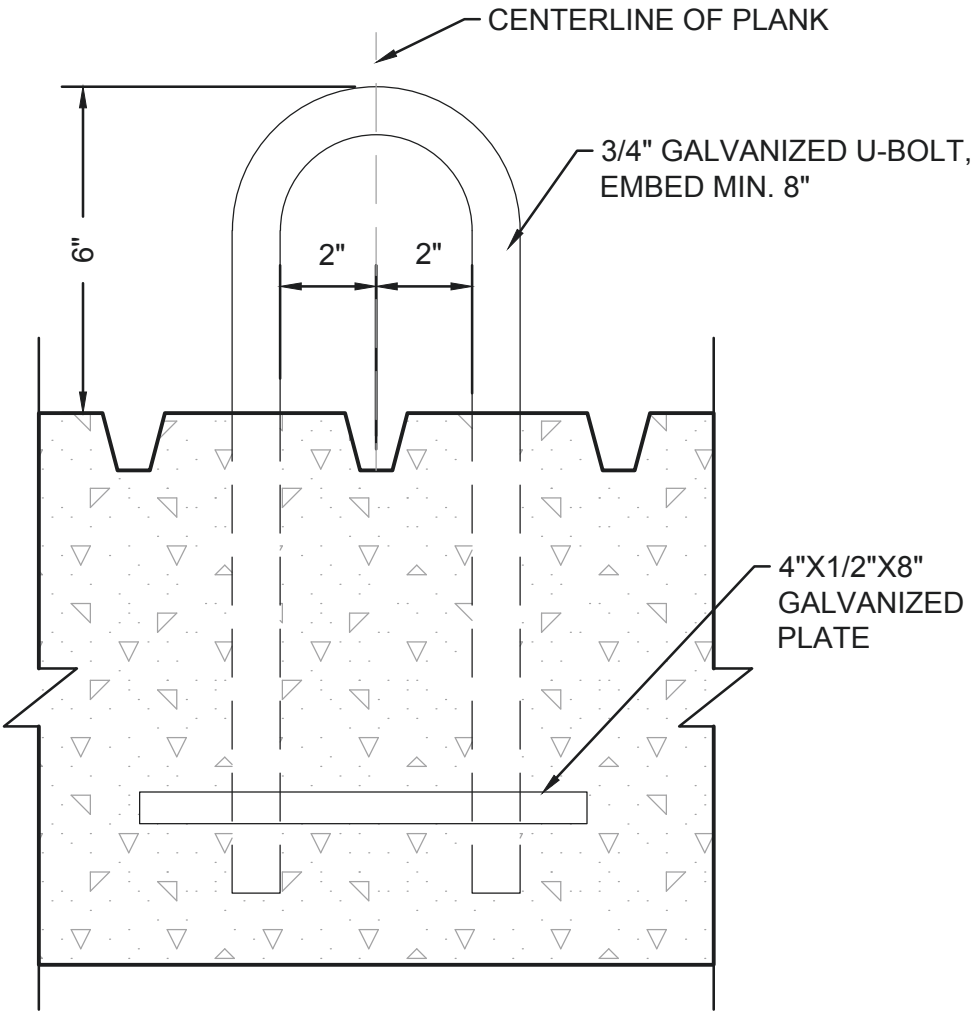
COUNTY OF FAIRFIELD
STATE OF CONNECTICUT
APPLICATION BY: TOWN OF DARIEN
APPLICATION NUMBER: 202207720

DATE: 10/07/2022



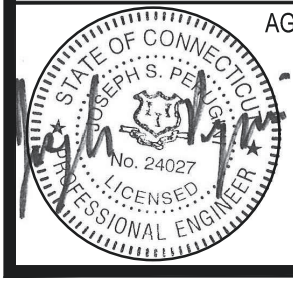
NOTE: EXISTING CONCRETE PLANKS AND ASSEMBLIES FOUND TO BE IN GOOD CONDITION ARE TO BE REUSED.

BOAT LAUNCH - TYPICAL LIFTING HOOK DETAIL

PERMITTING DOCUMENTS
NOT FOR CONSTRUCTION

BOAT RAMP DETAILS

NOT TO SCALE



AGENT: WESTON & SAMPSON ENGINEERS, INC.

DATUM: NAVD88

ADJACENT PROPERTY OWNERS:
1. DARIEN BOAT CLUB
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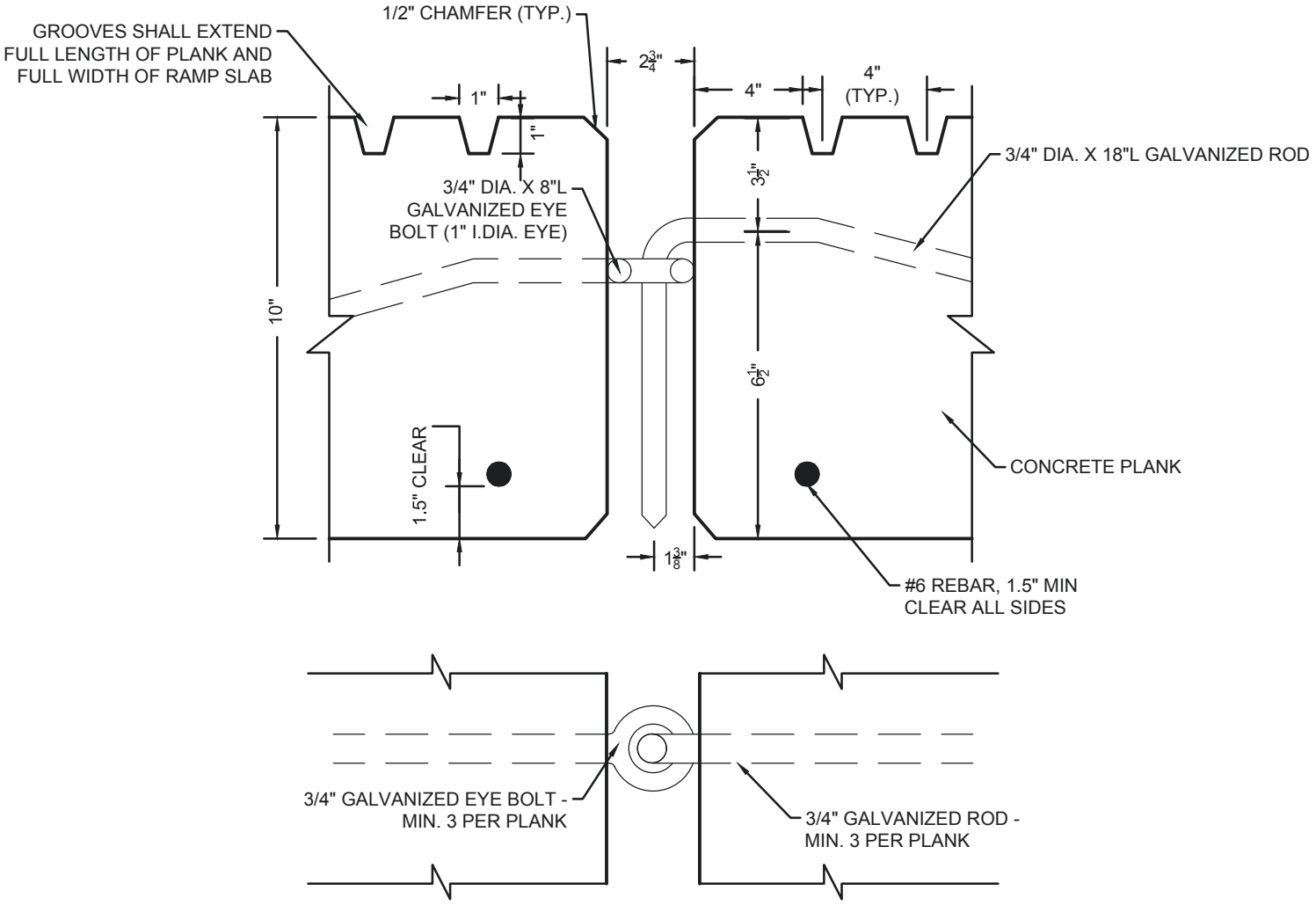
PEAR TREE POINT PARK IMPROVEMENTS
TOWN OF DARIEN
COUNTY OF FAIRFIELD
STATE OF CONNECTICUT
APPLICATION BY: TOWN OF DARIEN
APPLICATION NUMBER: 202207720

DATE: 10/07/2022



NOTE: EXISTING CONCRETE PLANKS AND ASSEMBLIES FOUND TO BE IN GOOD CONDITION ARE TO BE REUSED.

BOAT LAUNCH - TYPICAL PLANK PIN DETAIL

PERMITTING DOCUMENTS
NOT FOR CONSTRUCTION

BOAT RAMP DETAILS

NOT TO SCALE

STATE OF CONNECTICUT
JOSEPH S. PERUGINI
No. 24027
LICENSED PROFESSIONAL ENGINEER

AGENT: WESTON & SAMPSON ENGINEERS, INC.

Weston & Sampson℠

DATUM: NAVD88

ADJACENT PROPERTY OWNERS:
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PEAR TREE POINT PARK IMPROVEMENTS
TOWN OF DARIEN
COUNTY OF FAIRFIELD
STATE OF CONNECTICUT
APPLICATION BY: TOWN OF DARIEN
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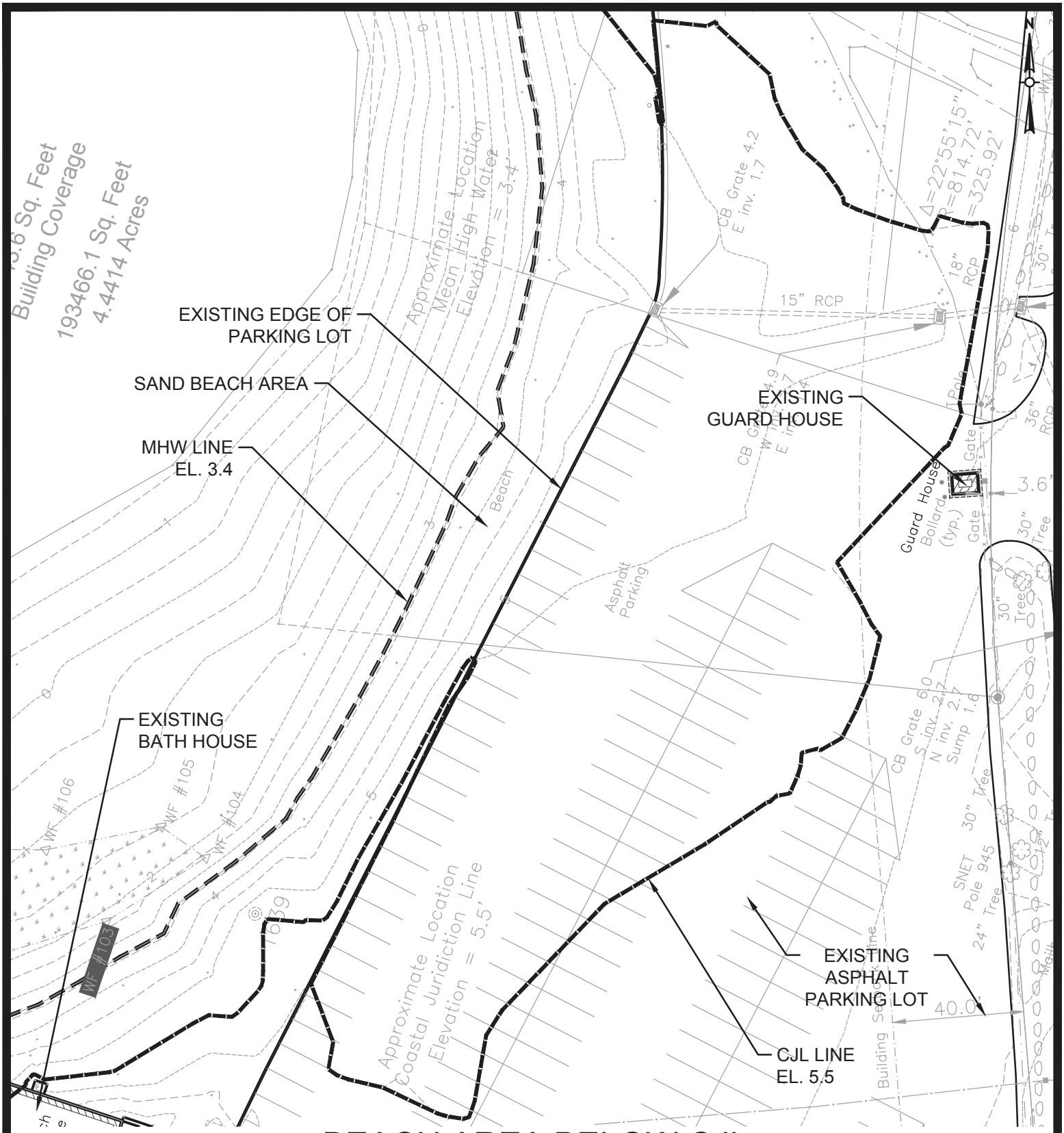

PERMITTING DOCUMENTS
NOT FOR CONSTRUCTION

BEACH AREA BELOW CJL
EXISTING SITE PLAN

0 40 80

STATE OF CONNECTICUT
JOSEPH S. PERUGINI
No. 24027
LICENSED PROFESSIONAL ENGINEER

AGENT: WESTON & SAMPSON ENGINEERS, INC.

Weston & Sampson

DATUM: NAVD88

ADJACENT PROPERTY OWNERS:
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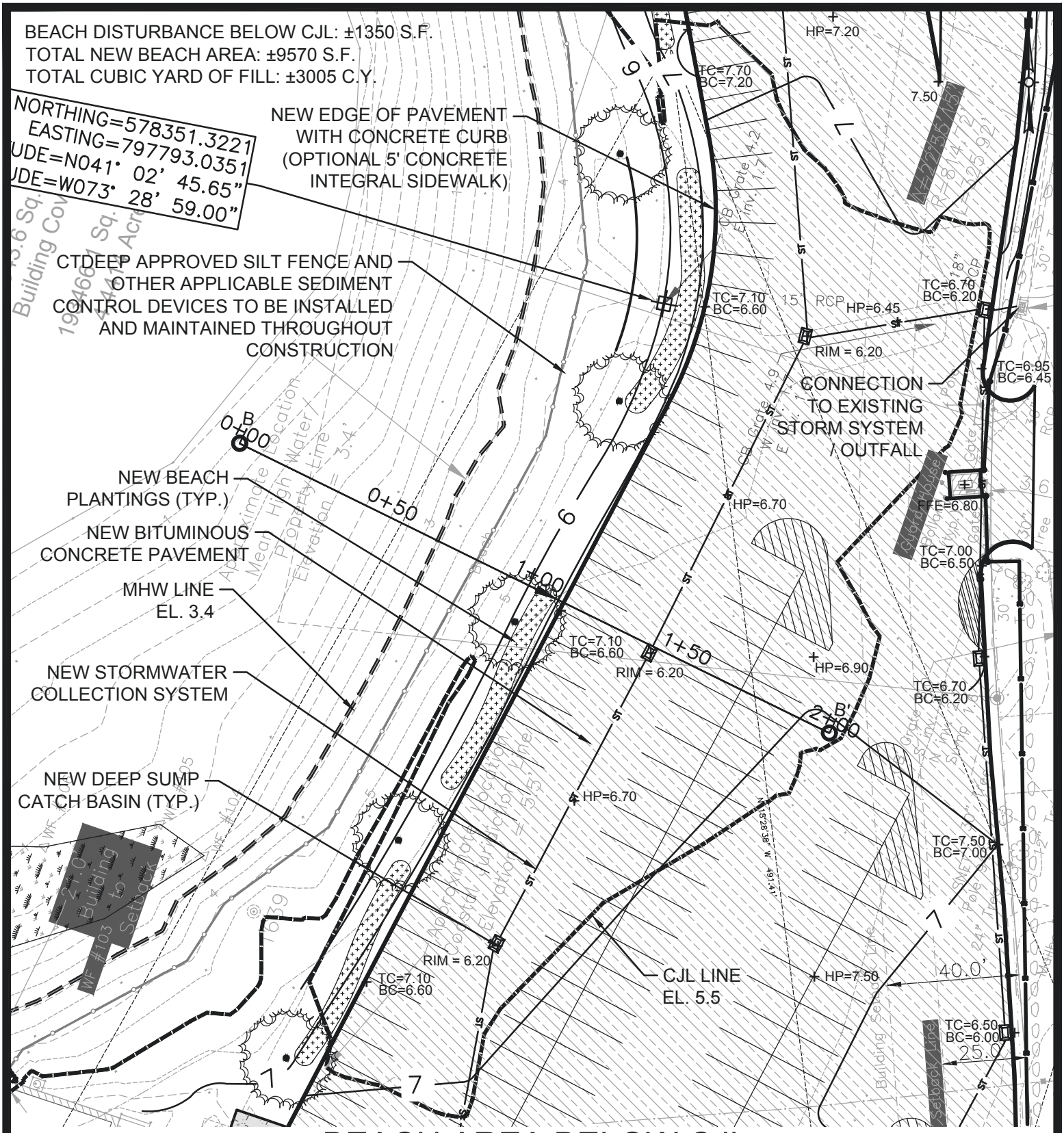

BEACH AREA BELOW CJL
PROPOSED SITE PLAN

PERMITTING DOCUMENTS
NOT FOR CONSTRUCTION

0 40 80

STATE OF CONNECTICUT
JOSEPH S. PERUGINI
No. 24027
LICENSED PROFESSIONAL ENGINEER

AGENT: WESTON & SAMPSON ENGINEERS, INC.

Weston & Sampson

DATUM: NAVD88

ADJACENT PROPERTY OWNERS:
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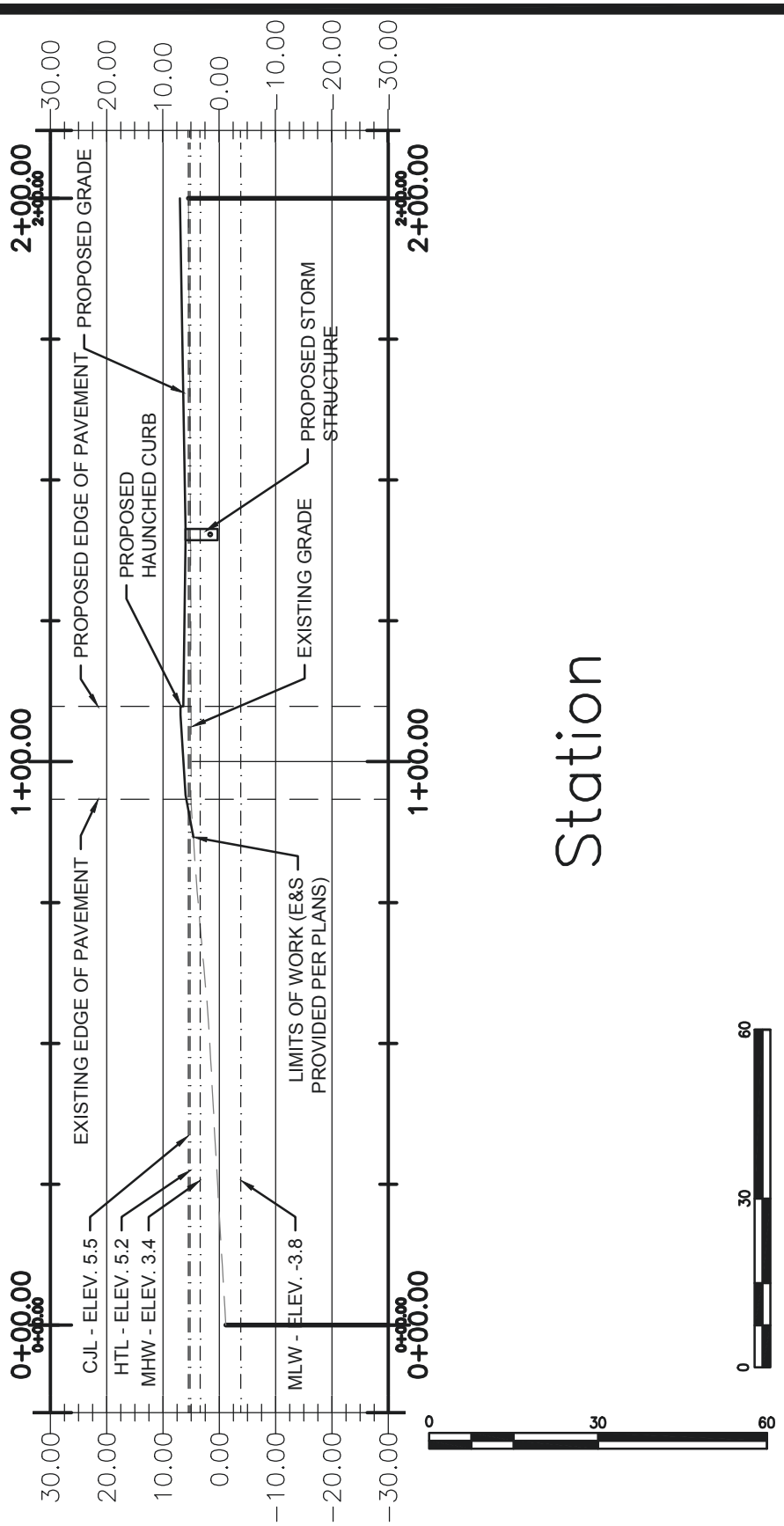
PEAR TREE POINT PARK IMPROVEMENTS
TOWN OF DARIEN
COUNTY OF FAIRFIELD
STATE OF CONNECTICUT
APPLICATION BY: TOWN OF DARIEN
APPLICATION NUMBER: 202207720

DATE: 10/07/2022

WEST BEACH SECTION
B - B'



PERMITTING DOCUMENTS
NOT FOR CONSTRUCTION

STATE OF CONNECTICUT
JOSEPH S. PERUGINI
No. 24027
LICENSED PROFESSIONAL ENGINEER

AGENT: WESTON & SAMPSON ENGINEERS, INC.

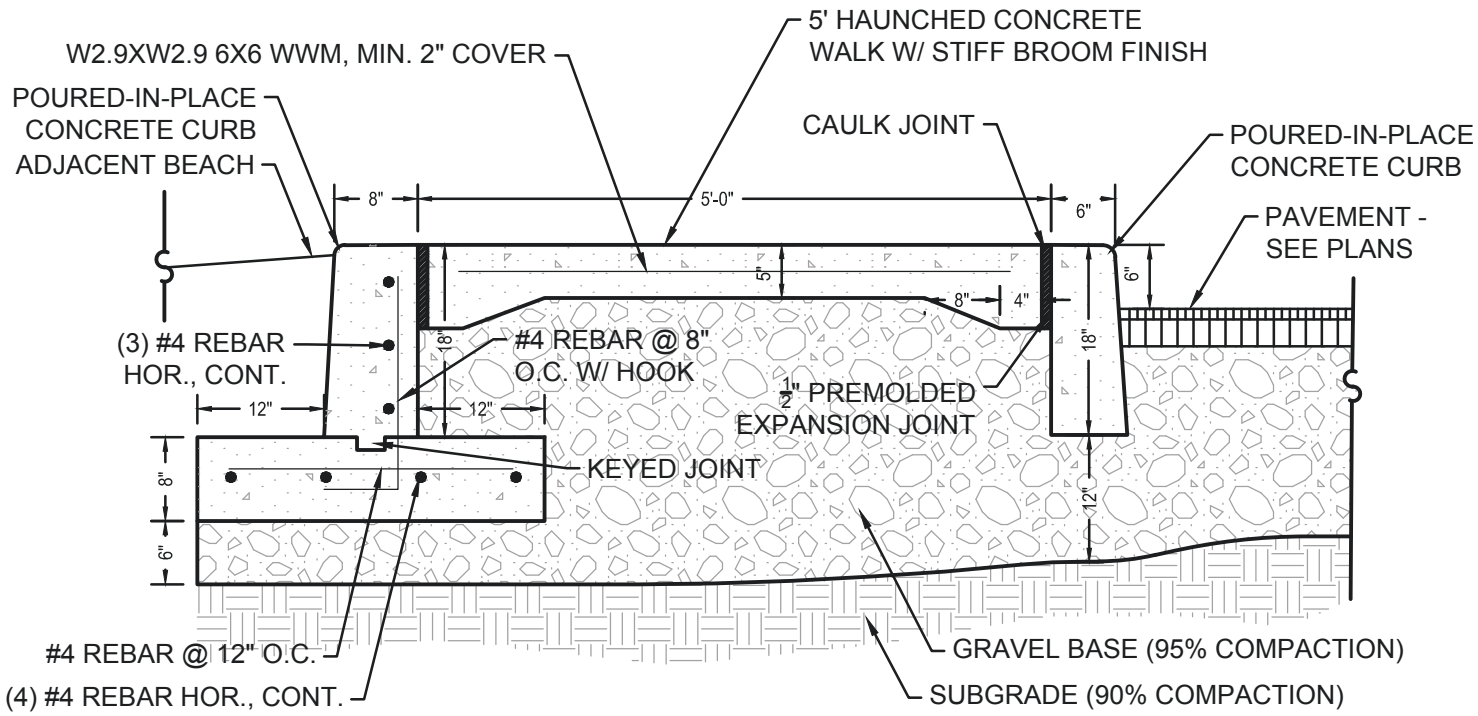
Weston & Sampson℠

DATUM: NAVD88

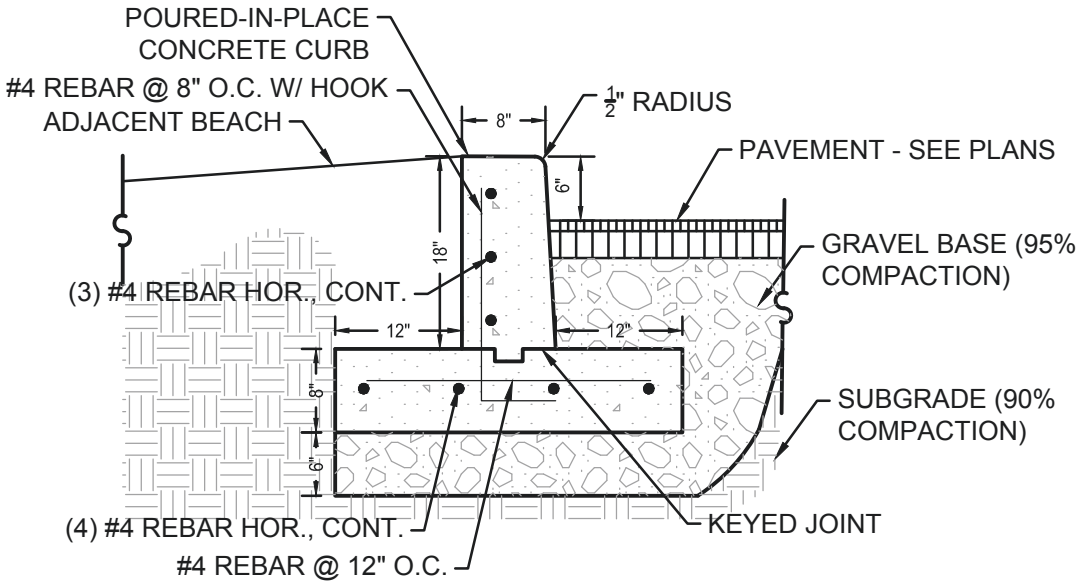
ADJACENT PROPERTY OWNERS:
1. DARIEN BOAT CLUB
2. JANET PRINDLE SEIDLER TR., ET AL

PEAR TREE POINT PARK IMPROVEMENTS
TOWN OF DARIEN
COUNTY OF FAIRFIELD
STATE OF CONNECTICUT
APPLICATION BY: TOWN OF DARIEN
APPLICATION NUMBER: 202207720

DATE: 10/07/2022



HAUNCHED CURB W/ OPTIONAL SIDEWALK DETAIL



HAUNCHED CURB DETAIL

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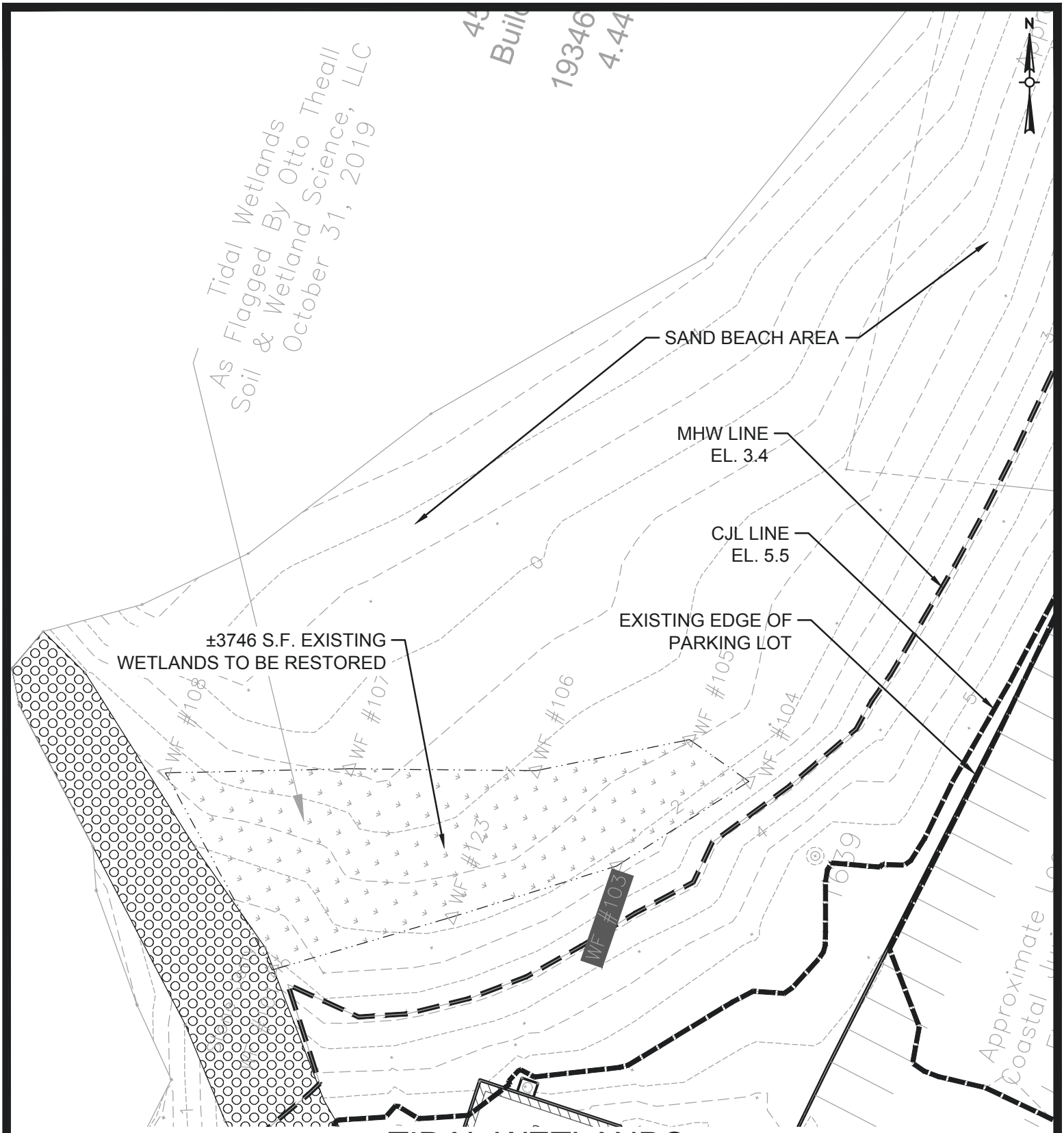

TIDAL WETLANDS
EXISTING SITE PLAN

PERMITTING DOCUMENTS
NOT FOR CONSTRUCTION

0 30 60

STATE OF CONNECTICUT
JOSEPH S. PERUGINI
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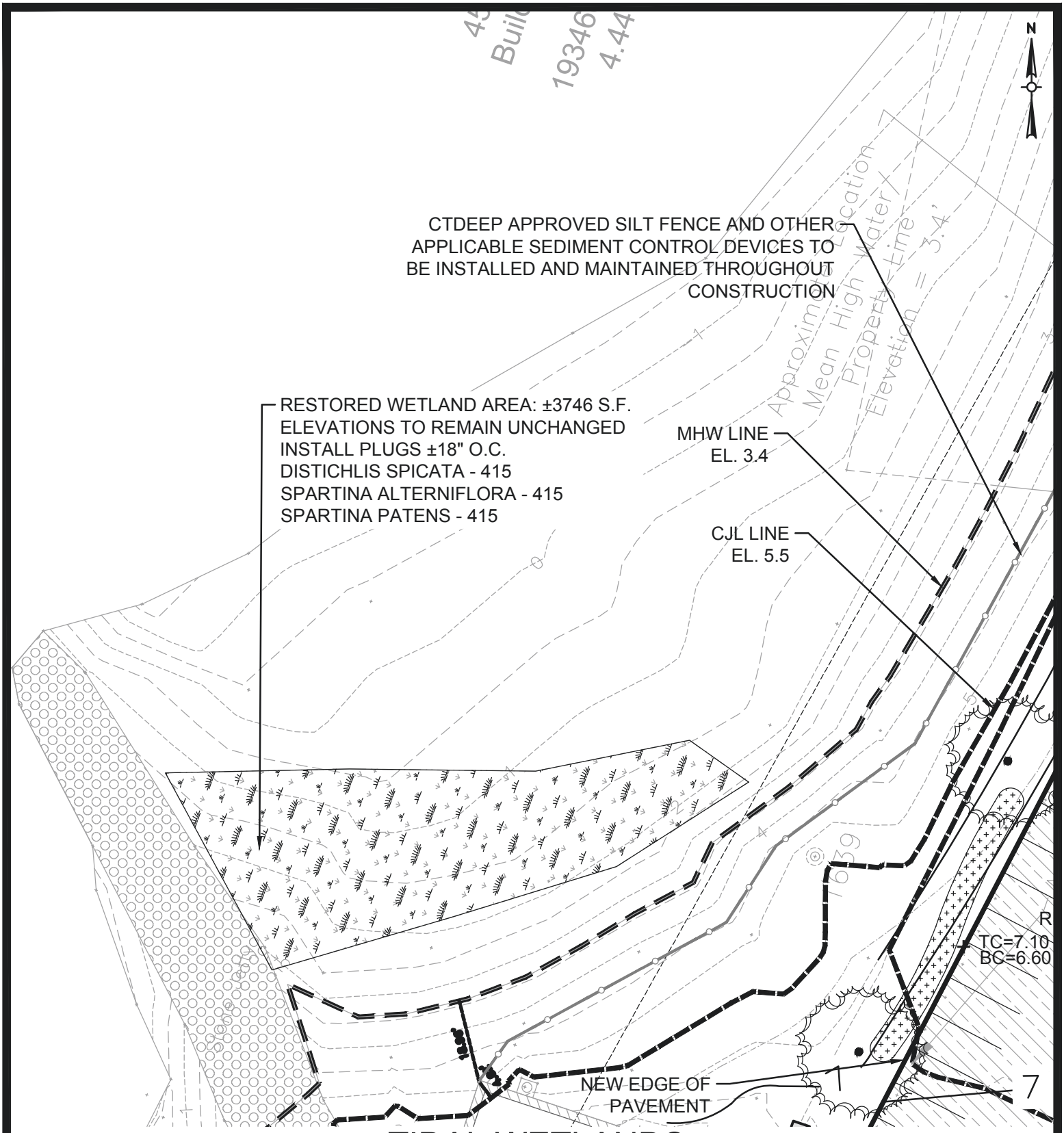

PERMITTING DOCUMENTS
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TIDAL WETLANDS PROPOSED SITE PLAN

0 30 60

STATE OF CONNECTICUT
JOSEPH S. PERUGINI
No. 24027
LICENSED PROFESSIONAL ENGINEER

AGENT: WESTON & SAMPSON ENGINEERS, INC.

Weston & Sampson

DATUM: NAVD88

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APPLICATION BY: TOWN OF DARIEN
APPLICATION NUMBER: 202207720

DATE: 10/07/2022

WETLAND PREPARATION NOTES:

1. THIS WORK SHALL BE LIMITED TO INDIVIDUALS, PARTNERSHIPS AND CORPORATIONS WHO ARE ACTIVELY ENGAGED IN THE FIELD OF ARBORICULTURE, AND WHO DEMONSTRATE COMPETENCE, EXPERIENCE AND FINANCIAL CAPABILITY TO CARRY OUT THE TERMS OF THIS PROJECT. ELIGIBLE CONTRACTORS MUST DERIVE A MAJORITY OF THEIR INCOME FROM ARBORICULTURAL WORK. THE OWNER MAY REQUIRE PROOF OF THESE QUALIFICATIONS.

2. ALL WORK SHALL BE CONDUCTED BY QUALIFIED AND TRAINED PERSONNEL UNDER THE DIRECT SUPERVISION OF A CERTIFIED ARBORIST IN THE CONTRACTOR'S EMPLOY.

3. THE CONTRACTOR SHALL PROTECT ALL EXISTING TREES, SHRUBS, LAWNS AND OTHER SITE FEATURES DESIGNATED TO REMAIN. DAMAGE NO PLANT TO REMAIN BY BURNING, PUMPING WATER, CUTTING OF LIVE ROOTS OR BRANCHES, OR ANY OTHER MEANS.

4. PRIOR TO COMMENCING WORK, THE CONTRACTOR SHALL SUBMIT A PLAN TO THE OWNER FOR LEGAL DISPOSAL OF REMOVED MATERIALS, IN CONFORMANCE WITH STATE AND FEDERAL REGULATIONS.

5. THE CONTRACTOR SHALL BE RESPONSIBLE FOR HAVING A CLEAR UNDERSTANDING OF THE EXISTING SITE CONDITIONS AND SHALL BE RESPONSIBLE FOR FULLY CARRYING OUT THE WORK OF THIS SECTION, REGARDLESS OF ACTUAL SITE CONDITIONS ENCOUNTERED.

6. BASED ON THE SITE CONFERENCE, THE CONTRACTOR SHALL SUBMIT A SCHEDULE OF WORK FOR THE OWNER'S REVIEW AND APPROVAL PRIOR TO BEGINNING WORK. UNLESS OTHERWISE AUTHORIZED BY THE OWNER, FAILURE OF THE CONTRACTOR TO COMPLY WITH THE APPROVED REMOVAL SCHEDULE SHALL BE SUFFICIENT CAUSE TO GIVE NOTICE THAT THE CONTRACTOR IS IN DEFAULT OF THE CONTRACT.

7. THE CONTRACTOR SHALL BE FULLY AND SOLELY RESPONSIBLE FOR ANY DAMAGE TO EQUIPMENT OR VEHICLES LEFT AT THE SITE OF THE WORK. ALL NECESSARY PERMITS SHALL BE OBTAINED BY THE CONTRACTOR.

8. EQUIPMENT NECESSARY FOR THIS CONTRACT SHALL BE PROPERLY MAINTAINED AND IN GOOD OPERATING CONDITION TO THE OWNER'S SATISFACTION. THE CONTRACTOR SHALL PROMPTLY REMOVE AND REPLACE ANY EQUIPMENT WHICH THE OWNER DEEMS TO BE IN UNSATISFACTORY CONDITION OR OTHERWISE UNSUITABLE.

9. THE CONTRACTOR SHALL FURNISH ALL LABOR, MATERIALS, EQUIPMENT AND TRANSPORTATION REQUIRED TO COMPLETE ALL ASPECTS OF THE SELECTIVE CLEARING AND INVASIVE SPECIES WORK IN ACCORDANCE WITH ALL LOCAL, STATE, AND FEDERAL REGULATIONS IN FORCE AT THE TIME OF THIS CONTRACT AND IN ACCORDANCE WITH SELECTIVE CLEARING AND INVASIVE SPECIES REMOVAL AS SPECIFIED HEREIN.

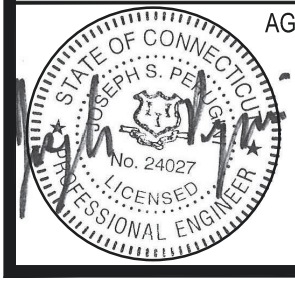
10. MANUAL REMOVAL IS REQUIRED. TREATMENTS MUST BE REPEATED YEARLY. CUT STEMS BELOW THE LOWEST LEAF, LEAVING A 6 INCHES OR SHORTER STUMP IN JULY ONLY - OTHER TIMES MAY INCREASE STAND DENSITY. REMOVE MATERIAL FROM THE SITE AND COMPOST OR ALLOW TO DECAY ON UPLAND AREAS. AFTER STANDS ARE CUT, PLACE HEAVY-DUTY BLACK PLASTIC TARPS OR OTHER MATS OVER THE TREATED AREA. ANCHOR THE TARP OVER THE CUT AREA USING SAND BAGS OR ROCKS. LEAVE IN PLACE FOR FULL GROWING SEASON. PROVIDE A COFFER DAM OR OTHER SYSTEM TO ENSURE TREATED AREA IS NOT DISTURBED AND TRAP/WEIGHTS ARE NOT REMOVED OR DAMAGED FROM TIDAL ACTIVITY.

11. CONTRACTOR SHALL RECEIVE APPROVAL FROM ENGINEER PRIOR TO USE OF ANY METHOD OF INVASIVE WETLAND PLANT REMOVAL. FOR ANY METHOD, BE SURE THE PLANT IS DEAD BEFORE PLACING IN COMPOST/MULCH PILE. THREE CONSECUTIVE REMOVAL AND TREATMENT EFFORTS ARE REQUIRED.

PERMITTING DOCUMENTS
NOT FOR CONSTRUCTION

WETLAND RESTORATION GENERAL NOTES

NOT TO SCALE



AGENT: WESTON & SAMPSON ENGINEERS, INC.

Weston & Sampson℠

DATUM: NAVD88

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APPLICATION BY: TOWN OF DARIEN
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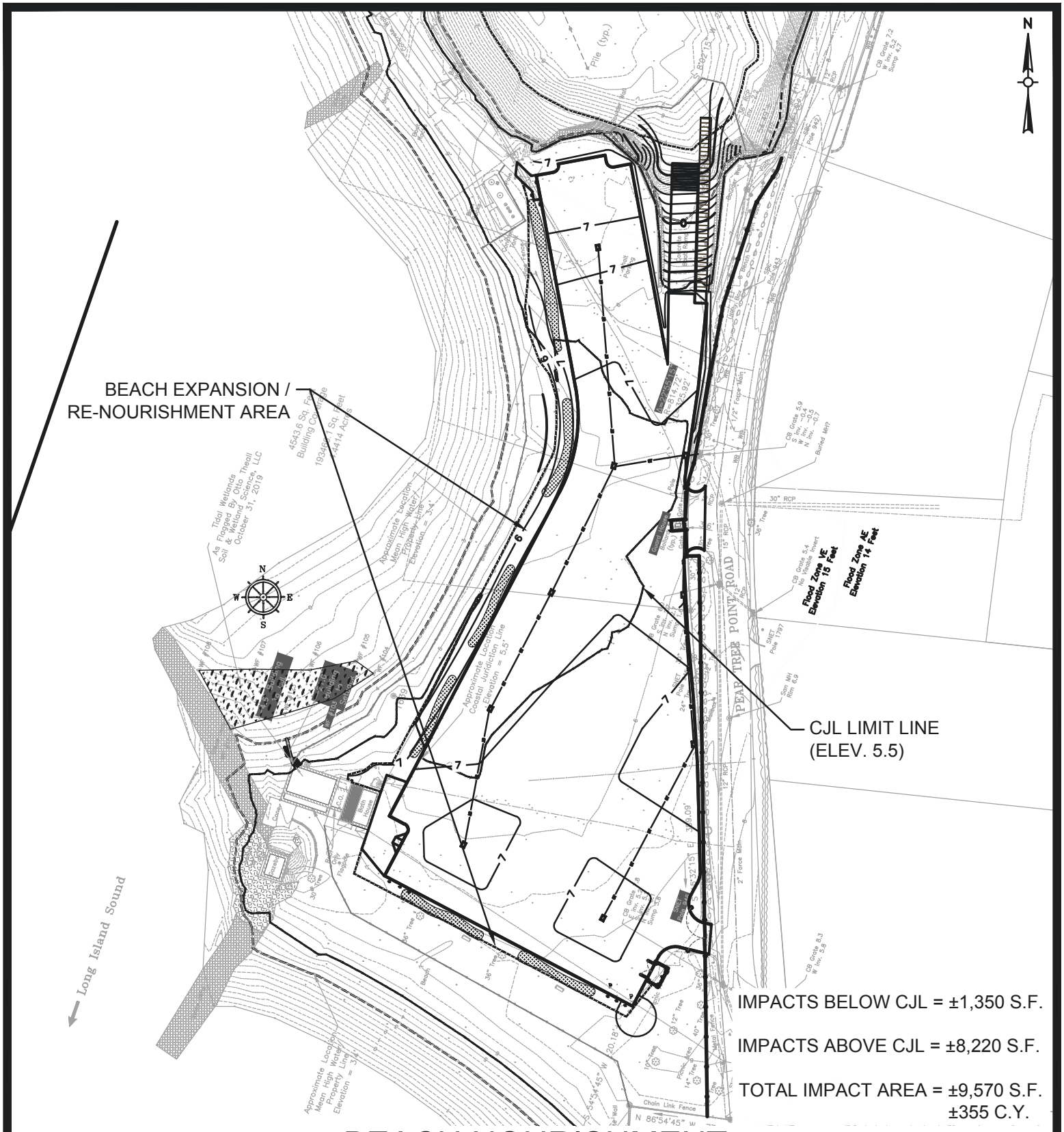
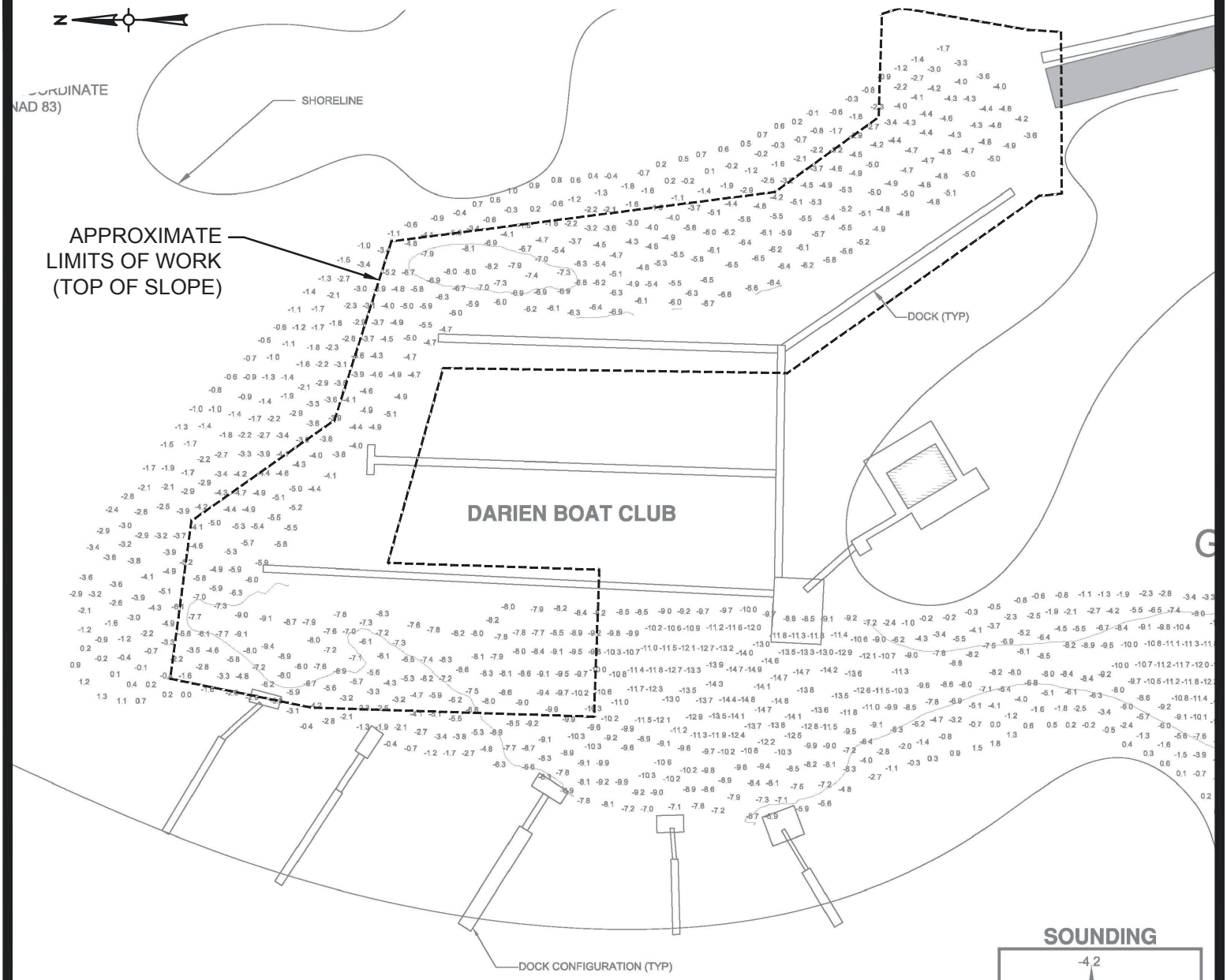

N
BEACH EXPANSION / RE-NOURISHMENT AREA
CJL LIMIT LINE (ELEV. 5.5)
PEAR TREE POINT ROAD
Long Island Sound
Flood Zone VE Elevation 15 Feet
Flood Zone AE Elevation 14 Feet
Chain Link Fence
N 86°54'45" W
S 34°54'45" W
20.18'
Pile (typ.)
30" RCP
12" RCP
15" RCP
2" Force Main
1 1/2" Force Main
Bench
Tree
Pole
Manhole
Catch Basin
Gate
Fence
Wall
Rock
Boulder
Tidal Wetlands As Flagged By Otto Theall Soil & Wetland Sciences, LLC October 31, 2019
4543.6 Sq. Feet Building Coverage
19345.7 Sq. Feet 0.4414 Acres
Approximate Location Mean High Water Property Line Elevation = 3.4
Approximate Location Coastal Jurisdiction Line Elevation = 5.5'
Approximate Location Mean High Water Property Line Elevation = 3.4'
Sewer MH #107
Sewer MH #106
Sewer MH #105
Sewer MH #104
Bath House
Pool Equip.
Pool Pump
Concrete
Asphalt
Gravel
Lawn
Shed
Deck
Patio
Walk
Curb
Sign
Utility Pole
Guy Wire
Overhead Wires
Underground Electric
Underground Telephone
Underground Gas
Underground Water
Underground Sewer
Underground Drain
Underground Cable TV
Underground Fiber Optic
Underground Utilities
Storm MH
Sanitary MH
Drain MH
Electric MH
Telephone MH
Gas Valve
Water Valve
Hydrant
Light
Flag
Bollard
Bench
Picnic Table
Trash Can
Grill
Fire Pit
Playground
Basketball Court
Tennis Court
Baseball Field
Soccer Field
Football Field
Golf Course
Golf Green
Golf Tee
Golf Bunker
Golf Fairway
Golf Rough
Golf Cart Path
Golf Sprinkler
Golf Irrigation
Golf Drainage
Golf Utilities
Golf Buildings
Golf Structures
Golf Signs
Golf Flags
Golf Pins
Golf Holes
Golf Tees
Golf Greens
Golf Fairways
Golf Roughs
Golf Bunkers
Golf Cart Paths
Golf Sprinklers

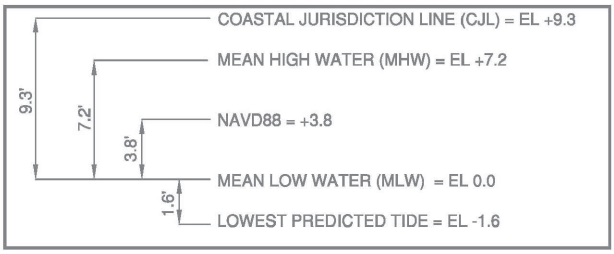


SOUNDING

-4.2

NOTE: MEASURING POINT FOR INDIVIDUAL SOUNDINGS IS LOCATED AT THE DECIMAL POINT

TIDAL DATUM PLANE



PERMITTING DOCUMENTS
NOT FOR CONSTRUCTION

BATHYMETRIC SURVEY

0 100 200

STATE OF CONNECTICUT
JOSEPH S. PERUGINI
No. 24027
LICENSED PROFESSIONAL ENGINEER

AGENT: WESTON & SAMPSON ENGINEERS, INC.

Weston & Sampson℠

DATUM: NAVD88

ADJACENT PROPERTY OWNERS:
1. DARIEN BOAT CLUB
2. JANET PRINDLE SEIDLER TR., ET AL

PEAR TREE POINT PARK IMPROVEMENTS
TOWN OF DARIEN
COUNTY OF FAIRFIELD
STATE OF CONNECTICUT
APPLICATION BY: TOWN OF DARIEN
APPLICATION NUMBER: 202207720

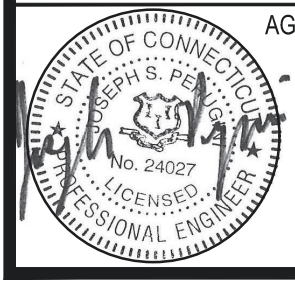
DATE: 10/07/2022

NOTES:

1. MAPPING DERIVED FROM SURVEY TITLED "HYDROGRAPHIC SURVEY - NAVIGATION CHANNEL, DARIEN HARBOR, DARIEN, CONNECTICUT" PREPARED BY COASTLINE CONSULTING & DEVELOPMENT DATED OCTOBER 30, 2018.
2. THE HYDROGRAPHIC SOUNDINGS DEPICTED ON THIS SURVEY (TIMOTHY MCCARTHY, CERTIFIED HYDROGRAPHER CERTIFICATE NO. 296) PERFORMED ON 10/30/2018 REPRESENT THE RESULTS OF A HYDROGRAPHIC SURVEY AND CAN ONLY BE CONSIDERED TO INDICATE CONDITIONS EXISTING AT THAT TIME.
3. THE HYDROGRAPHIC SURVEY DATA WAS COLLECTED USING AN RTK GNSS SURVEY SYSTEM IN TANDEM WITH A TELEDYNE ODOM MB1 MULTI BEAM TRANSDUCER.
4. VERTICAL AND HORIZONTAL CONTROL FOR THE SITE IS BASED ON AN UPLAND BENCHMARK LOCATED EAST OF THE UTILITY SHED BUILDING ON THE NOROTON YACHT CLUB PROPERTY. THE BENCHMARK IS A PIECE OF STEEL REBAR POUNDED IN THE GROUND AND CAPPED WITH A BLUE PLASTIC CAP THAT READS COASTLINE CONSULTING & DEVELOPMENT, LLC, THE BENCHMARK HAS A HORIZONTAL LOCATION OF N578095.202 / E796813.646, CONNECTICUT STATE PLANE COORDINATE SYSTEM (NAD83). THE ELEVATION OF THIS BENCHMARK IS 10.54 FEET, MEAN LOW WATER DATUM.
5. THE TECHNIQUES UTILIZED TO PERFORM THIS SURVEY MEET OR EXCEED THOSE STANDARDS DESCRIBED FOR A CLASS 1 GENERAL CONDITION SURVEY IN SOFT BOTTOM CONDITIONS WITHIN THE U.S. ARMY CORPS OF ENGINEERS HYDROGRAPHIC SURVEY MANUAL (EM-1110-2-1003).
6. THE SOUNDING INFORMATION SHOWN ON THIS MAP IS REPRESENTATIVE OF A LARGER DATA SET AND SHOULD NOT BE USED TO DETERMINE VOLUMES. THE LARGER DATA SET CAN BE MADE AVAILABLE UPON REQUEST FROM THE PREPARER OF THIS MAP.
7. SHORELINE AND ONSHORE FEATURES ARE APPROXIMATE.
8. ELEVATIONS ARE REFERENCED TO THE MEAN LOW WATER TIDAL DATUM.
9. THIS MAP IS FOR PLANNING PURPOSES ONLY. NOT ALL IMPROVEMENTS AND FEATURES HAVE BEEN DEPICTED.
10. SITE MAY BE SUBJECT TO AND/OR TOGETHER WITH CERTAIN LITTORAL, RIPARIAN, OR OTHER RIGHTS AS PER THE RECORD MAY APPEAR.
11. ANY UNDERGROUND AND/OR UNDERWATER UTILITY, STRUCTURE, AND FACILITY LOCATIONS DEPICTED AND/OR NOTED HEREON MAY HAVE BEEN COMPILED, IN PART, FROM RECORD MAPPING SUPPLIED BY THE RESPECTIVE UTILITY COMPANIES OR GOVERNMENTAL AGENCIES, FROM PAROLE TESTIMONY AND FROM OTHER SOURCES. THESE LOCATIONS MUST BE CONSIDERED AS APPROXIMATE IN NATURE. ADDITIONALLY, OTHER SUCH FEATURES MAY EXIST ON THE SITE, THE LOCATIONS OF WHICH ARE UNKNOWN TO COASTLINE CONSULTING & DEVELOPMENT, LLC. THE SIZE, LOCATION AND EXISTENCE OF ALL SUCH FEATURES MUST BE FIELD DETERMINED AND VERIFIED BY THE APPROPRIATE AUTHORITIES PRIOR TO ANY CONSTRUCTION. CALL BEFORE YOU DIG: 1-800-922-4455.
12. REFERENCE IS MADE TO THE FOLLOWING:
    - 12.1. A GOOGLE EARTH AERIAL OF THE PROJECT SITE.
    - 12.2. DEP PERMIT NO. 199903533-SJ, IMPROVEMENT DREDGING PROJECT, DARIEN HARBOR, DATED JULY 2000.

PERMITTING DOCUMENTS
NOT FOR CONSTRUCTION

BATHYMETRIC NOTES



AGENT: WESTON & SAMPSON ENGINEERS, INC.

DATUM: NAVD88

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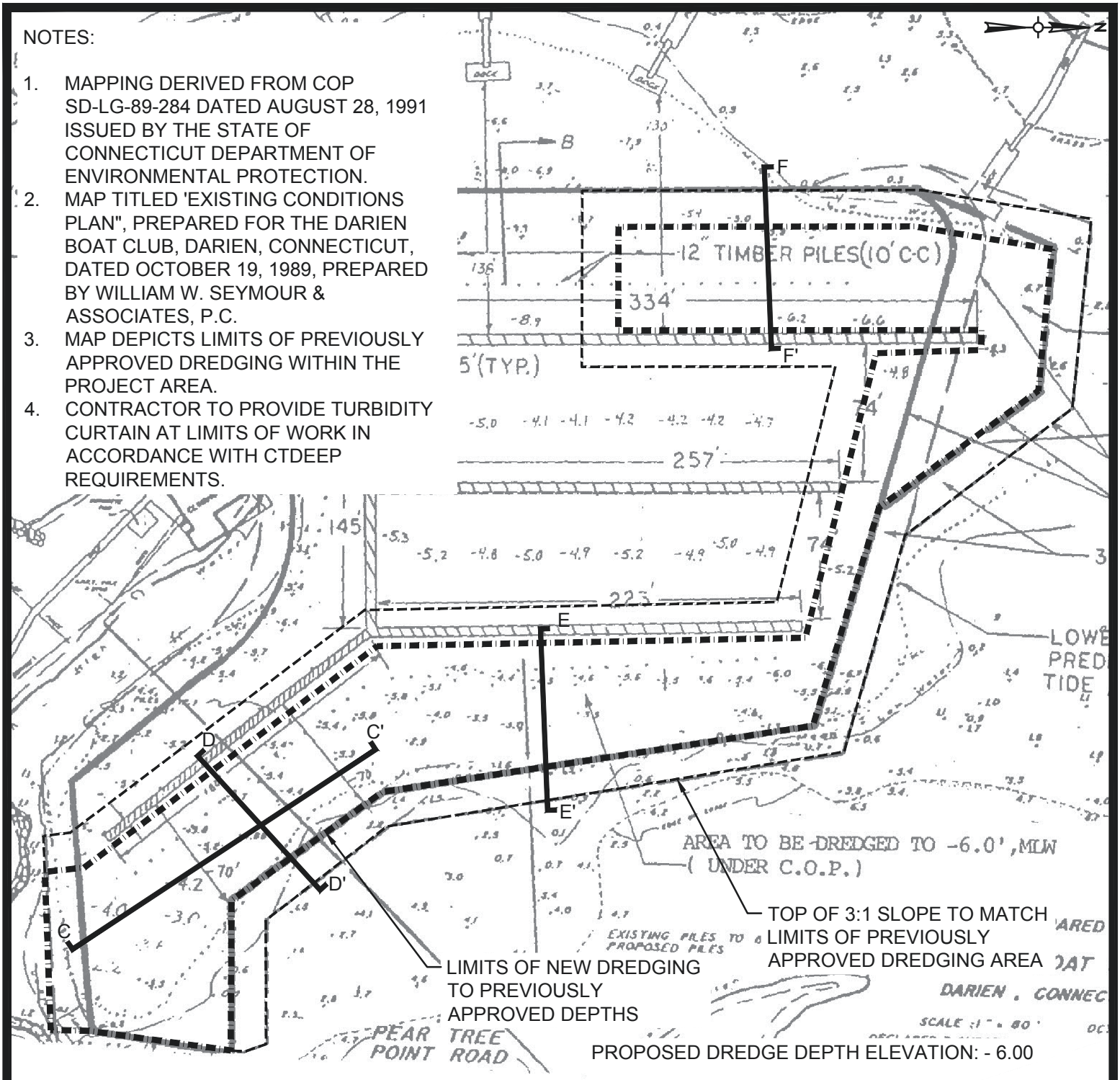
COUNTY OF FAIRFIELD
STATE OF CONNECTICUT
APPLICATION BY: TOWN OF DARIEN
APPLICATION NUMBER: 202207720

DATE: 10/07/2022

NOTES:

1. MAPPING DERIVED FROM COP SD-LG-89-284 DATED AUGUST 28, 1991 ISSUED BY THE STATE OF CONNECTICUT DEPARTMENT OF ENVIRONMENTAL PROTECTION.
2. MAP TITLED 'EXISTING CONDITIONS PLAN", PREPARED FOR THE DARIEN BOAT CLUB, DARIEN, CONNECTICUT, DATED OCTOBER 19, 1989, PREPARED BY WILLIAM W. SEYMOUR & ASSOCIATES, P.C.
3. MAP DEPICTS LIMITS OF PREVIOUSLY APPROVED DREDGING WITHIN THE PROJECT AREA.
4. CONTRACTOR TO PROVIDE TURBIDITY CURTAIN AT LIMITS OF WORK IN ACCORDANCE WITH CTDEEP REQUIREMENTS.



LIMITS OF NEW DREDGING TO PREVIOUSLY APPROVED DEPTHS

TOP OF 3:1 SLOPE TO MATCH LIMITS OF PREVIOUSLY APPROVED DREDGING AREA

PROPOSED DREDGE DEPTH ELEVATION: - 6.00

DREDGE VOLUME (BASE): ±1293 CY

DREDGE VOLUME (WITH 12" OVERDREDGE): ±3133 CY

AREA OF DREDGE FOOTPRINT: ±51,048 SF

PERMITTING DOCUMENTS
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DREDGING PLAN

NOT TO SCALE

STATE OF CONNECTICUT
JOSEPH S. PERUGINI
No. 24027
LICENSED PROFESSIONAL ENGINEER

AGENT: WESTON & SAMPSON ENGINEERS, INC.

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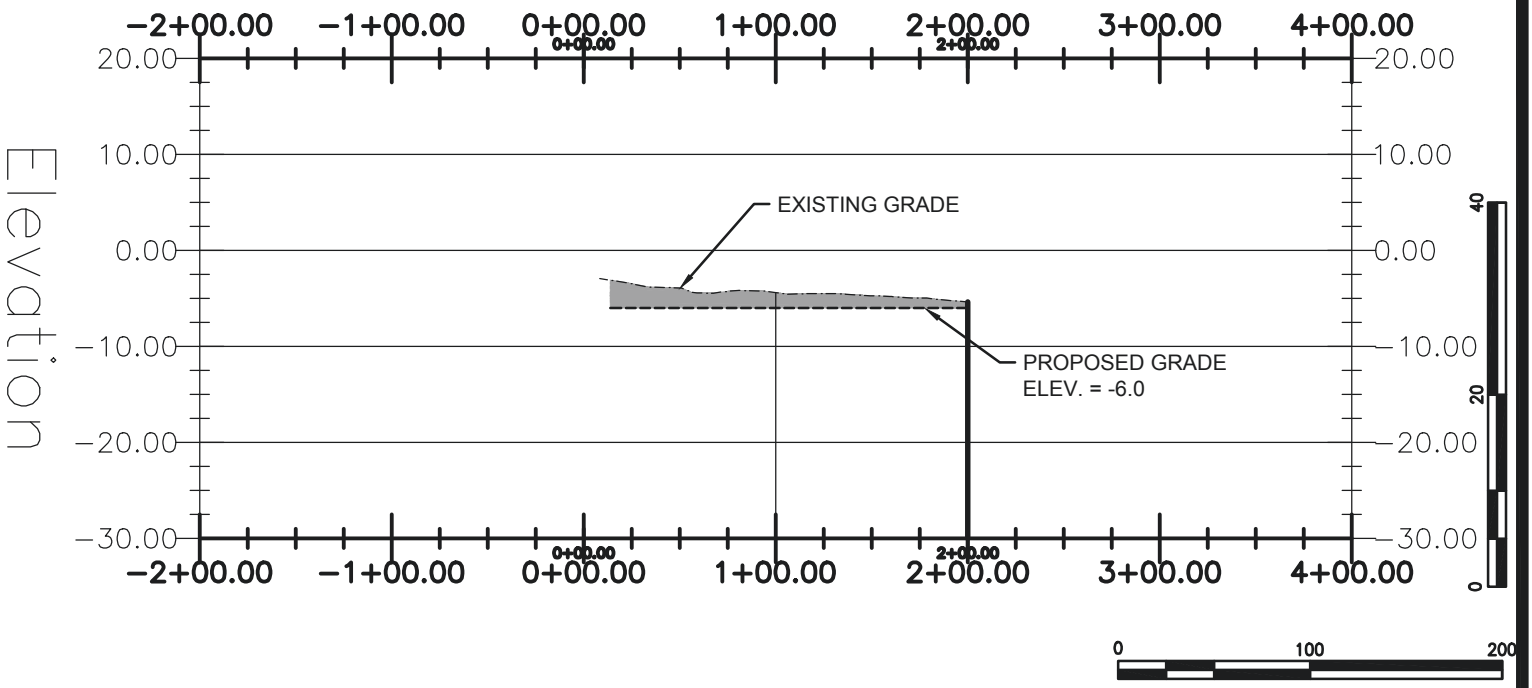
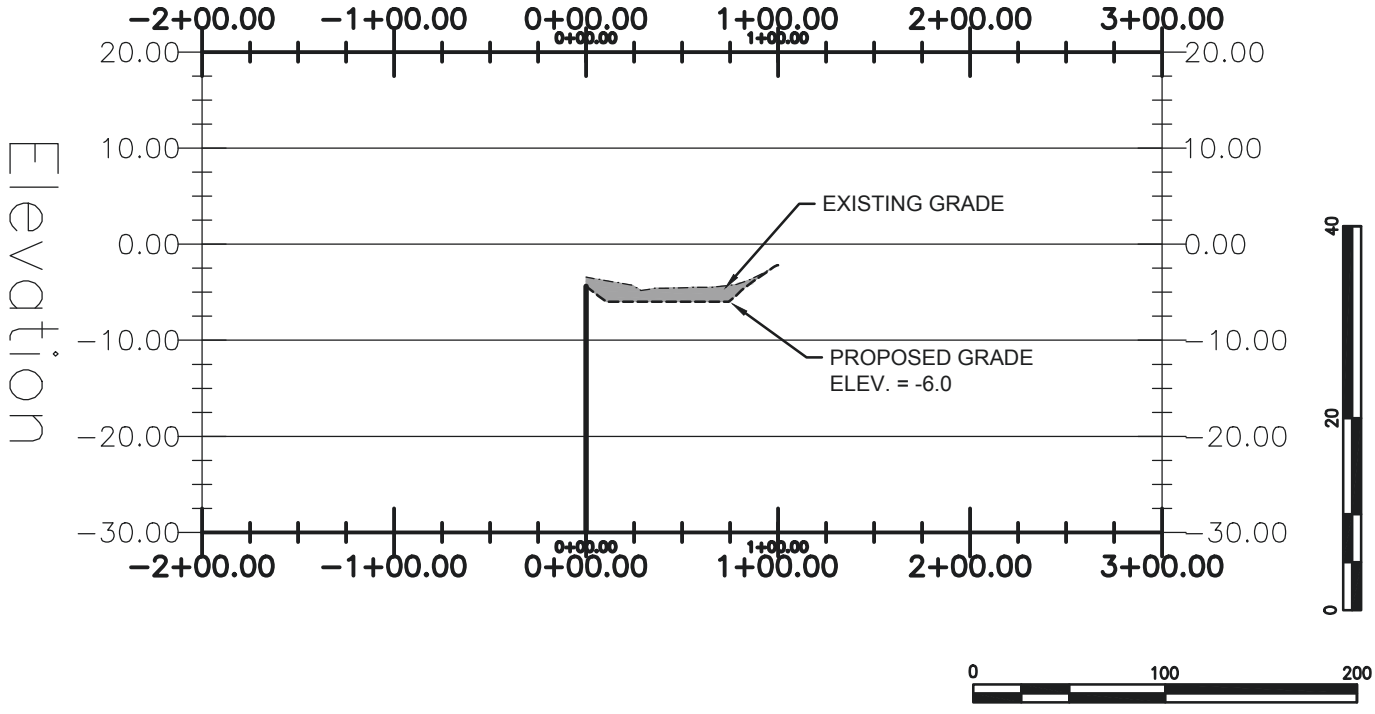
SECTION C - C'



SECTION D - D'



PERMITTING DOCUMENTS
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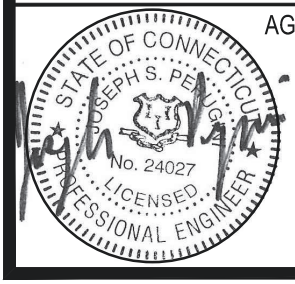
DREDGING SECTIONS



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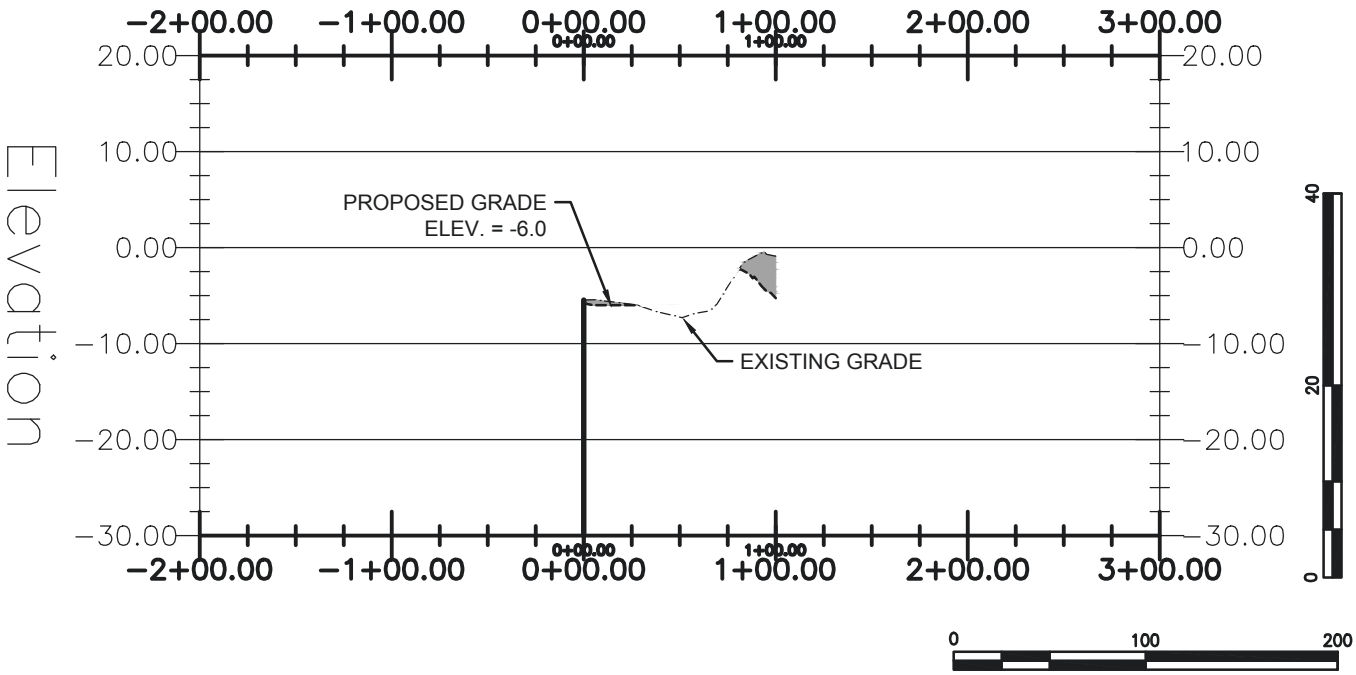
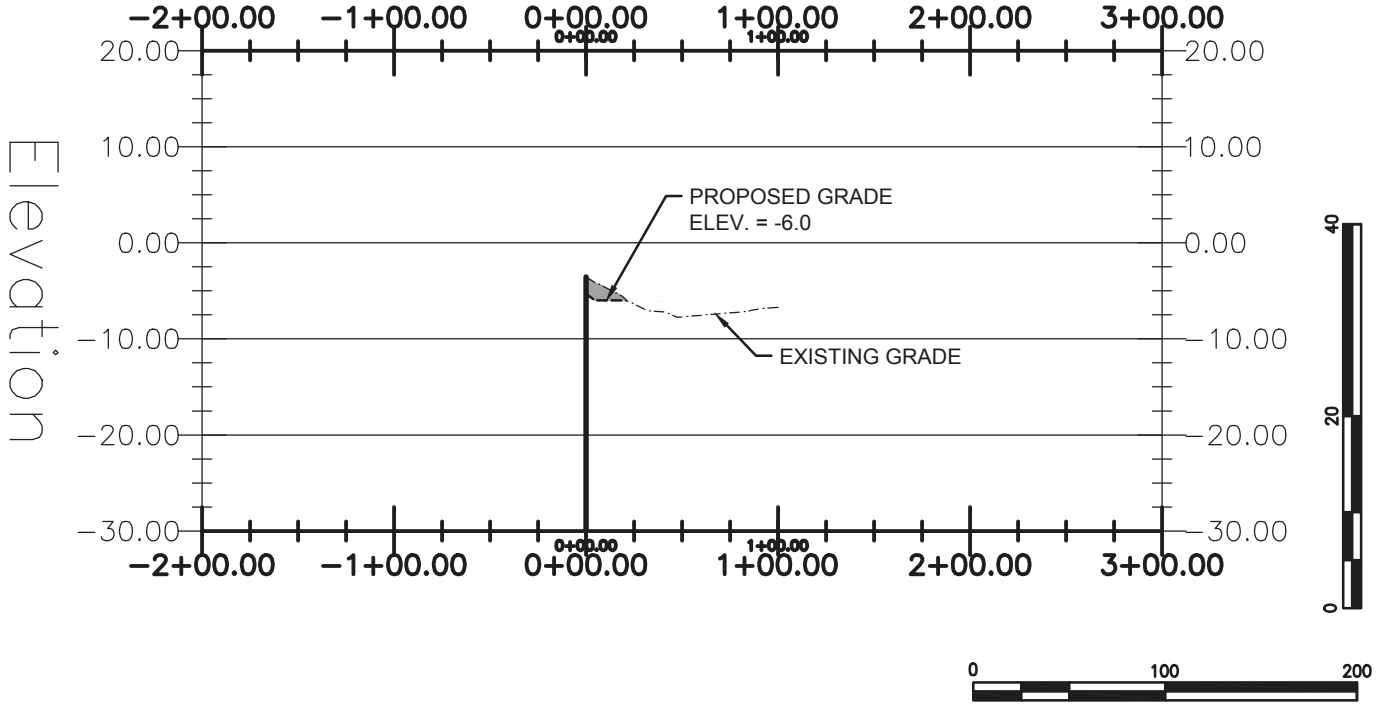
SECTION E - E'



SECTION F - F'



PERMITTING DOCUMENTS
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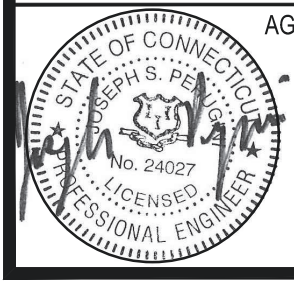
DREDGING SECTIONS



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Connecticut Department of
ENERGY &
ENVIRONMENTAL
PROTECTION

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

LWRD DREDGING REPORT

(To be completed by Licensee)

License No(s).: _____202207720-COP_____
Licensee Name: _____Town of Darien_____
Address of Dredging Activity: ___93-199 Pear Tree Point Rd_____
_____

Dredging Contractor Information:
Name: _____
Mailing Address: _____
Business Phone: _____
Contact Person: _____
E-mail: _____

Dates Dredged: _____
Total Volume Dredged during this period: _____
Disposal Volume(s) and Location(s): _____
_____

**If any portion of the dredged materials was used in a beneficial manner, please identify the beneficial use type (i.e. beach nourishment, habitat restoration, landfill cap, construction materials…), volume of dredged material utilized and the location of beneficial usage.

_____
_____
_____
_____

Document Certification:
"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."

_____ _____
Signature of Licensee Date

If you have any questions pertaining to this form, please contact the Land & Water Resources Division at 860-424-3034.
Return to:
DEEP.LWRDRegulatory@ct.gov or
Land & Water Resources Division
State of Connecticut Department of Energy & Environmental Protection
79 Elm Street
Hartford, CT 06106-5127

Connecticut Department of
ENERGY &
ENVIRONMENTAL
PROTECTION

Bureau of Water Protection & Land Reuse
Land & Water Resources Division

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

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.

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: _Town of Darien_____

   DEEP License Number(s):____202207720-COP_____

   Municipality in which project is occurring:_____Darien_____

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

Connecticut Department of
ENERGY &
ENVIRONMENTAL
PROTECTION

Bureau of Water Protection & Land Reuse
Land & Water Resources Division

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

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: ___Town of Darien_____
Municipality in which the project is occurring: _Darien_____
DEEP License No(s):_____202207720-COP_____

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)

712 Brook Street, Suite 103, Rocky Hill, Connecticut 06067
Tel: 860.513.1473

September 22, 2021

Pamela Gery, CPRP
Town of Darien Parks & Recreation
2 Renshaw Road
Darien, CT 06820

Re: **Pear Tree Park Improvements Project**
Town of Darien, Connecticut
Summary of Dredge Material Pre-Characterization Sampling Results

Dear Ms. Gery:

Weston & Sampson Engineers, Inc. (Weston & Sampson) has prepared this letter report for the Town of Darien, Connecticut (Town) regarding pre-characterization sediment sample results for proposed dredging activities at Pear Tree Park (the "Site", Figure 1). The sampling and analysis has been conducted in accordance with the New England District United States Army Corps of Engineers (NAE), which developed a site-specific Sampling and Analysis Plan (SAP, Appendix A).

Summary of Sampling Activities

Weston & Sampson subcontracted with TG&B Marine Services, Inc. (TG&B) of Monument Beach, Massachusetts, to collect sediment samples on April 28, 2021. TG&B located and sounded the fifteen sample locations using a Global Positioning System (GPS) and collected sediment cores by push core and vibracore methods. Two sample stations, PTP-3 and PTP-10, required relocation as the proposed locations were blocked by docked boats; the field condition modified the sample locations of PTP-3 by 27 feet, and PTP-10 by 45 feet (Figure 2). Target depth and percent recovered were accomplished at all locations, except for station PTP-8 for target depth only. At PTP-8, refusal was encountered prior to reaching target depth on six attempts; however, the sediment core with the deepest penetration achieved acceptable percent recovered and was retained.

In accordance with the SAP, sediment core sleeves were capped after collection, measured, and placed in an upright position for at least fifteen minutes to allow fine-grained material to settle. After settling, sediment cores were measured, logged, screened, and photographed (Appendix B). One geophysical sample was collected from each sediment core. Two distinct sediment strata were present within sediment core PTP-8 and Weston & Sampson collected a geophysical sample from each distinct sediment strata, totaling two from this core location. Weston & Sampson also collected additional sediment samples from each core to be placed on hold for later chemical analysis.

Sediment Sample Analysis

Sediment samples were received by Alpha Analytical, Inc. (Alpha) of Westborough, Massachusetts, on April 29, 2021, on ice and under chain-of-custody protocol. Alpha has a Laboratory Quality Assurance Plan (LQAP) on file with NAE for all chemical analyses performed. Alpha performed grain size analysis, for which results were received on May 25, 2021 (Appendix C). The grain size results were provided to NAE on June 4, 2021. NAE responded on June 25, 2021, with compositing instructions for the chemical analyses, which were provided to Alpha by Weston & Sampson. The compositing instructions were as listed in the table on the next page:

Composite Sample	Constituent Samples
PTP-A	PTP-1 PTP-2 PTP-3
PTP-B	PTP-4 PTP-5 PTP-6
PTP-C	PTP-7 PTP-8 (0.0-1.2 FT) PTP-9
PTP-D	PTP-10 PTP-13
PTP-E	PTP-11 PTP-12
PTP-F	PTP-14 PTP-15

Composite samples were analyzed by methods specified in the Regional Implementation Manual (RIM) RIM for total solids, total organic carbon (TOC), total moisture, total metals, polyaromatic hydrocarbons (PAHs), polychlorinated biphenyl (PCB) congeners, and organochloride pesticides (Appendix D). Detectable concentration of select metals, PAHs, PCBs, and select pesticides were present. For reference, the target reporting limits specified in the SAP, are provided as a column of Table 1.

As listed above, reporting limits listed on Table 1 are provided per the NAE request. The reporting limits for pesticides typically exceeded the target reporting limits due to a combination of sample dilution and elevated total moisture content in the samples. The reporting limits for metals typically exceeded the target reporting limits due to elevated total moisture content; however, all metals were detected and reported at concentrations above the target reporting limits. The case narrative from the laboratory report noted that numerous results exceeded the target reporting limits. These reporting limits are the requested laboratory detection limits for each analyte. Reporting limits differ from regulatory standards and receiving facility acceptance criteria, which are generally significantly higher.

Weston & Sampson is providing the attached sampling results and analytical package to NAE for review and disposal determination. This NAE review will be used for the proposed dredged material characterization. If you have any questions, please reach out to Daniel Biggs by email at biggsd@wseinc.com.

Very truly yours,
Weston & Sampson Engineers, Inc.

Daniel P. Biggs, RLA, ISA, CERP
Associate | Regional Manager

Filepath:\\wse03.local\WSE\Projects\CT\Darien CT\2190362_Pear Tree Park Improvement Project\Environmental\Letter Report\Sediment Results Letter Report - Darien CT 09.22.21.docx

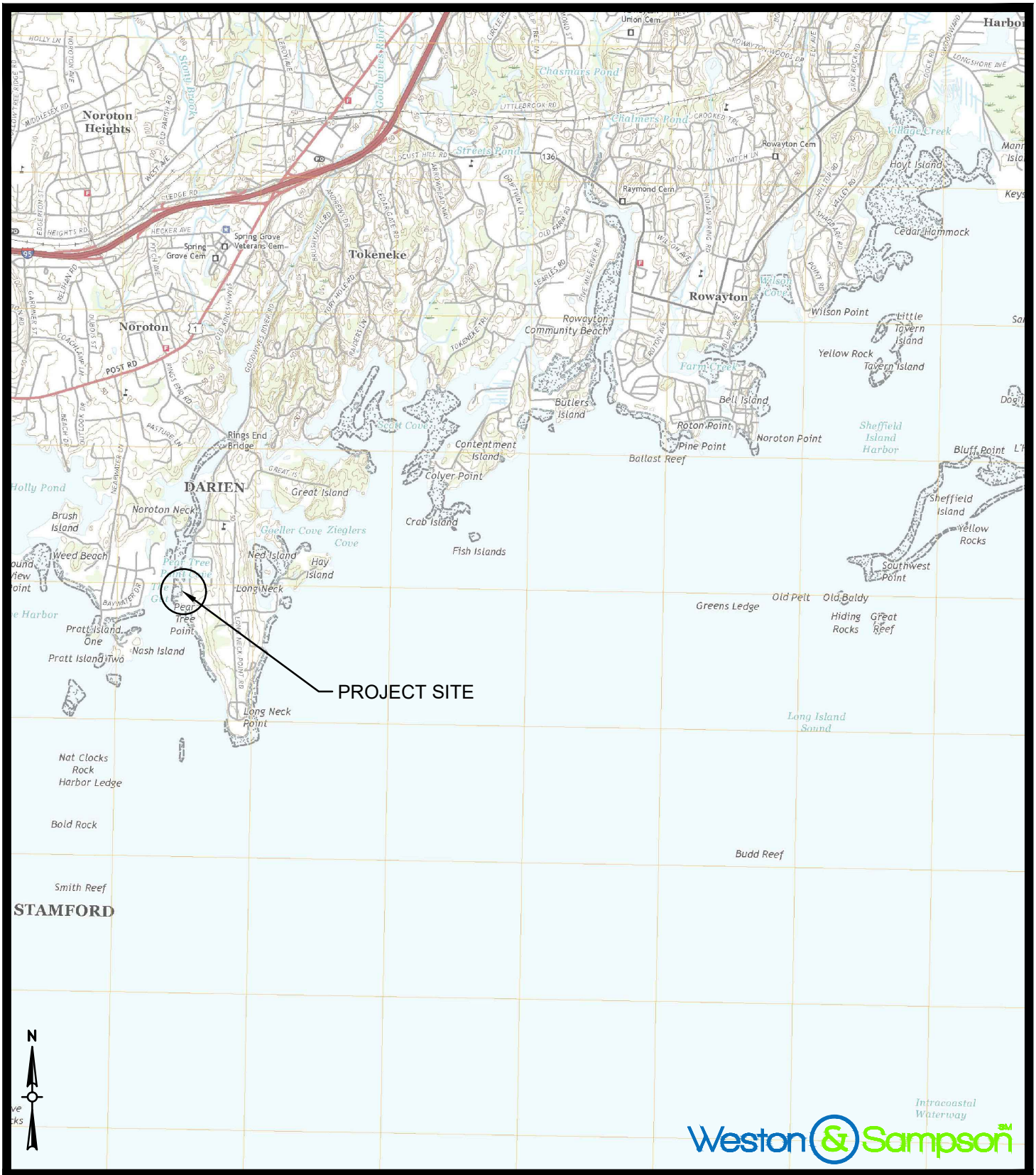

FIGURE 1
PEAR TREE POINT PARK IMPROVEMENTS
DARIEN, CT

VICINITY MAP

SCALE: 1"=24000'

0 24000 48000

\\wse03.local\WSE\Projects\CT\Darien CT\2190362_Pear Tree Park Improvement Project\Environmental\CAD\DWG\Figure 1 - Vicinity Map.dwg

Rev: 1.7 Date: 08/12/2019

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LEGEND:

- PROPOSED SEDIMENT SAMPLE LOCATION
- SEDIMENT DREDGE CELL
- PTP-1 SEDIMENT SAMPLE LOCATION

NOTES:

1. MAP TITLED "HYDROGRAPHIC SURVEY", PREPARED FOR THE DARIEN HARBOR, DARIEN, CONNECTICUT, DATED OCTOBER 30, 2018, PREPARED BY COASTAL CONSULTING & DEVELOPMENT.
2. MAP DEPICTS LIMITS OF PREVIOUSLY APPROVED DREDGING WITHIN THE PROJECT AREA.
3. PROPOSED SEDIMENT SAMPLE LOCATIONS FROM "FINAL SAMPLING AND ANALYSIS PLAN FOR PEAR TREE PARK, DARIEN, CT, FILE NUMBER NAE-2020-02349", PREPARED BY THE NEW ENGLAND DISTRICT U.S. ARMY CORPS OF ENGINEERS, DATED MARCH 30, 2021.
4. SEDIMENT SAMPLE LOCATIONS WERE SURVEYED USING GLOBAL POSITIONING SYSTEM BY TG&B MARINE SERVICES, INC., ON APRIL 28, 2021.

PTP-1
PTP-2
PTP-3
PTP-4
PTP-5
PTP-6
PTP-7
PTP-8
PTP-9
PTP-10
PTP-11
PTP-12
PTP-13
PTP-14
PTP-15

DARIEN BOAT CLUB BUILDING

GOODWIVES RIVER

ORTHING=578351.3221
EASTING=797793.0351
UDE=N041° 02' 45.67"
UDE=W073° 28' 58.98"

BEACH

LIMITS OF NEW DREDGING TO PREVIOUSLY APPROVED DEPTHS

TOP OF 3:1 SLOPE TO MATCH LIMITS OF PREVIOUSLY APPROVED DREDGING AREA

COASTAL JURISDICTION LINE

PEAR TREE POINT ROAD

GOODWIVES RIVER

Weston & Sampson

FIGURE 2
PEAR TREE POINT PARK IMPROVEMENTS
DARIEN, CT

SAMPLE LOCATION PLAN

SCALE: 1"=80'

0 80 160

P:\CT\Darien CT\2190362_Pear Tree Park Improvement Project\Environmental\CAD\DWG\Figure 2 - Dredging Plan.dwg

Rev: 1.7 Date: 08/12/2019

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TABLE 1
Summary of Sediment Analytical Results
Pear Tree Point Beach
Darien, Connecticut
September 2021

SAMPLE NAME	Units	Target Reporting Limits[2]	PTP-A	PTP-B	PTP-C	PTP-D	PTP-E	PTP-F
SAMPLE DATE			4/28/2021	4/28/2021	4/28/2021	4/28/2021	4/28/2021	4/28/2021
SAMPLE ID			L2140615-01	L2140615-02	L2140615-03	L2140615-04	L2140615-05	L2140615-06
PARAMETER								
Total Metals								
Arsenic	mg/kg	0.4	**2.11**	**6.03**	**4.72**	**7.37**	**7.70**	**2.96**
Cadmium	mg/kg	0.07	**0.166**	**0.596**	**0.263**	**0.780**	**0.626**	**0.453**
Chromium	mg/kg	0.5	**16.3**	**51.9**	**29.5**	**68.7**	**70.0**	**26.0**
Copper	mg/kg	0.5	**27.0**	**87.6**	**35.2**	**118**	**126**	**55.0**
Lead	mg/kg	0.5	**17.6**	**64.7**	**23.4**	**80.2**	**71.6**	**34.0**
Mercury	mg/kg	0.02	**0.0600**	**0.323**	**0.153**	**0.385**	**0.243**	**0.150**
Nickel	mg/kg	0.5	**7.69**	**17.3**	**20.5**	**24.3**	**26.2**	**9.46**
Zinc	mg/kg	1.0	**40.9**	**144**	**64.0**	**166**	**177**	**72.8**
Polyaromatic Hydrocarbons								
Naphthalene	ug/kg	10	**7.36**	**23.9**	**9.49**	**29.7**	**16.9**	**12.6**
Acenaphthylene	ug/kg	10	**8.99**	**55.8**	**16.2**	**78.8**	**43.2**	**36.4**
Acenaphthene	ug/kg	10	**2.27 J**	**13.7**	**3.19 J**	**19.4**	**12.1**	**9.90**
Fluorene	ug/kg	10	**6.74**	**25.1**	**6.31**	**33.7**	**20.7**	**16.2**
Phenanthrene	ug/kg	10	**42.0**	**180**	**47.7**	**226**	**153**	**97.9**
Anthracene	ug/kg	10	**9.13**	**54.0**	**15.0**	**71.3**	**45.8**	**32.0**
Fluoranthene	ug/kg	10	**110**	**774**	**197**	**855**	**566**	**375**
Pyrene	ug/kg	10	**125**	**721**	**192**	**819**	**516**	**343**
Benz(a)anthracene	ug/kg	10	**49.6**	**366**	**82.4**	**386**	**236**	**170**
Chrysene	ug/kg	10	**63.9**	**414**	**112**	**442**	**307**	**171**
Benzo(b)fluoranthene	ug/kg	10	**93.7**	**626**	**145**	**605**	**399**	**241**
Benzo(k)fluoranthene	ug/kg	10	**55.1**	**308**	**108**	**345**	**246**	**168**
Benzo(a)pyrene	ug/kg	10	**67.8**	**429**	**118**	**450**	**314**	**180**
Indeno(1,2,3-cd)Pyrene	ug/kg	10	**54.2**	**348**	**98.1**	**350**	**242**	**152**
Dibenz(a,h)anthracene	ug/kg	10	**17.2**	**112**	**30.3**	**113**	**88.9**	**48.9**
Benzo(ghi)perylene	ug/kg	10	**60.4**	**362**	**107**	**391**	**266**	**168**
Polychlorinated Biphenyl Congeners								
Cl2-BZ#8	ug/kg	1	< 0.373	< 0.746	< 0.535	< 0.691	< 0.807	< 0.428
Cl3-BZ#18	ug/kg	1	< 0.373	< 0.746	**0.154 J**	< 0.691	< 0.807	**0.543**
Cl3-BZ#28	ug/kg	1	**0.210 J**	< 0.746	**0.202 J**	**0.650 J**	**0.472 J**	**0.470**
Cl4-BZ#44	ug/kg	1	< 0.373	**0.573 J**	< 0.535	**0.592 J**	< 0.807	**0.787**
Cl4-BZ#49	ug/kg	1	**0.142 J**	**0.423 J**	**0.197 J**	**0.672 J**	**0.288 J**	**0.813**
Cl4-BZ#52	ug/kg	1	**0.584**	**2.31**	**0.848**	**3.15**	**1.87**	**3.32**
Cl4-BZ#66	ug/kg	1	**0.231 J**	**1.03**	**0.349 J**	**1.20**	**0.511 J**	**0.721**
Cl5-BZ#87	ug/kg	1	**0.100 J**	**0.758**	**0.276 J**	**0.739**	**0.262 J**	**0.811**
Cl5-BZ#101	ug/kg	1	**0.311 J**	**1.79**	**0.648**	**2.37**	**0.780 J**	**2.46**
Cl5-BZ#105	ug/kg	1	< 0.373	**1.56**	**0.368 J**	**0.995**	**0.314 J**	**0.570**
Cl5-BZ#118	ug/kg	1	**0.380**	**2.04**	**0.728**	**2.24**	**0.919**	**2.17**
Cl6-BZ#128	ug/kg	1	**0.159 J**	**0.796**	**0.424 J**	**0.970**	**0.496 J**	**0.764**
Cl6-BZ#138	ug/kg	1	**0.561**	**2.66**	**1.04**	**3.19**	**1.46**	**2.62**
Cl6-BZ#153	ug/kg	1	**0.517**	**2.42**	**0.861**	**2.67**	**1.18**	**2.15**
Cl7-BZ#170	ug/kg	1	**0.186 J**	**0.922**	< 0.535	**0.914**	< 0.807	**0.590**
Cl7-BZ#180	ug/kg	1	**0.250 J**	**1.30**	**0.312 J**	**1.25**	**0.659 J**	**0.874**
Cl7-BZ#183	ug/kg	1	**0.107 J**	**0.349 J**	**0.205 J**	**0.408 J**	**0.327 J**	**0.256 J**
Cl7-BZ#184	ug/kg	1	< 0.373	< 0.746	< 0.535	< 0.691	< 0.807	< 0.428
Cl7-BZ#187	ug/kg	1	**0.234 J**	**1.26**	**0.344 J**	**1.74**	**0.643 J**	**1.10**
Cl8-BZ#195	ug/kg	1	< 0.373	< 0.746	< 0.535	< 0.691	< 0.807	< 0.428
Cl9-BZ#206	ug/kg	1	< 0.373	**0.460 J**	< 0.535	**0.303 J**	< 0.807	**0.310 J**
Cl10-BZ#209	ug/kg	1	< 0.373	< 0.746	< 0.535	< 0.691	< 0.807	< 0.428
Total PCBs[3]	ug/kg	NE	**7.246**	**37.322**	**12.556**	**44.468**	**18.608**	**38.898**

Created by: CB
Reviewed by: DK

TABLE 1
Summary of Sediment Analytical Results
Pear Tree Point Beach
Darien, Connecticut
September 2021

SAMPLE NAME	Units	Target Reporting Limits[2]	PTP-A	PTP-B	PTP-C	PTP-D	PTP-E	PTP-F
SAMPLE DATE			4/28/2021	4/28/2021	4/28/2021	4/28/2021	4/28/2021	4/28/2021
SAMPLE ID			L2140615-01	L2140615-02	L2140615-03	L2140615-04	L2140615-05	L2140615-06
Organochloride Pesticides								
Alpha-BHC	ug/kg	NE	< 0.932	< 1.87	< 1.34	**162**	< 2.02	< 1.07
Beta-BHC	ug/kg	NE	< 0.932	< 1.87	< 1.34	< 1.73	< 2.02	< 1.07
Gamma-BHC	ug/kg	1	< 0.932	< 1.87	< 1.34	< 1.73	< 2.02	< 1.07
Delta-BHC	ug/kg	NE	< 0.932	< 1.87	< 1.34	< 1.73	< 2.02	< 1.07
Hexachlorobenzene	ug/kg	1	< 1.86	< 3.73	< 2.67	< 3.46	< 4.03	< 2.14
Heptachlor	ug/kg	1	< 0.932	< 1.87	< 1.34	< 1.73	< 2.02	< 1.07
Heptachlor epoxide	ug/kg	1	< 1.86	< 3.73	< 2.67	< 3.46	< 4.03	< 2.14
Aldrin	ug/kg	1	< 0.932	< 1.87	< 1.34	< 1.73	< 2.02	< 1.07
Dieldrin	ug/kg	1	< 0.932	< 1.87	< 1.34	< 1.73	**1.79 J**	< 1.07
Endrin	ug/kg	NE	< 0.932	< 1.87	< 1.34	< 1.73	< 2.02	< 1.07
cis-Chlordane	ug/kg	1	< 0.932	**5.72**	**4.05**	**9.86**	**11.9**	**2.77**
trans-Chlordane	ug/kg	1	< 0.932	**5.48**	**3.31**	**10.5**	**11.0**	**3.34**
Oxychlordane	ug/kg	1	< 1.86	< 3.73	< 2.67	< 3.46	< 4.03	< 2.14
Endosulfan I (Alpha-Endosulfan)	ug/kg	1	< 0.932	< 1.87	< 1.34	< 1.73	< 2.02	< 1.07
Endosulfan II (Beta-Endosulfan)	ug/kg	1	< 0.932	< 1.87	< 1.34	< 1.73	< 2.02	< 1.07
Endosulfan sulfate	ug/kg	NE	< 0.932	< 1.87	< 1.34	< 1.73	< 2.02	< 1.07
4,4'-DDE	ug/kg	1	**1.27**	**8.47**	**2.76**	**8.78**	**3.86**	**4.70**
4,4'-DDD	ug/kg	1	< 0.932	**11.4**	**4.16**	**8.90**	**2.56**	**3.34**
4,4'-DDT	ug/kg	1	< 0.932	**3.02**	**0.917 J**	**3.10**	**1.90 J**	**2.15**
cis-Nonachlor	ug/kg	1	< 0.932	< 1.87	< 1.34	< 1.73	< 2.02	< 1.07
trans-Nonachlor	ug/kg	1	< 0.932	**3.31**	**1.86**	**3.68**	**5.50**	**1.42**
Methoxychlor	ug/kg	1	< 0.932	< 1.87	< 1.34	< 1.73	< 2.02	< 1.07
Toxaphene	ug/kg	25	< 46.8	< 93.7	< 67.1	< 86.8	< 101	< 53.7
General Chemistry								
Total Solids	%	NE	**70.8**	**34.5**	**47.7**	**36.6**	**32.3**	**61.3**
Total Organic Carbon (Rep1)	%	0.1	**0.726**	**4.12**	**2.92**	**3.39**	**3.44**	**2.30**
Total Organic Carbon (Rep2)	%	0.1	**0.738**	**4.01**	**2.40**	**3.22**	**3.19**	**2.11**
Total Organic Carbon (Average)	%	0.1	**0.732**	**4.06**	**2.66**	**3.31**	**3.32**	**2.20**
Total Moisture	%	1.0	**29.2**	**65.5**	**52.3**	**63.4**	**67.7**	**38.7**

\\wse03.local\WSE\Projects\CT\Darien CT\2190362_Pear Tree Park Improvement Project\Environmental\Letter Report\T1 - Summary of Sediment Analysis Results.xlsx

NOTES
1. Analytical methods are specified in the laboratory report and were compliant with the Regional Implementation Manual (RIM).
2. Reporting Limits shown are as specified in the Sampling and Analysis Plan issued on March 30, 2021.
3. Total PCBs are calculated by the equation specified in the Sampling and Analysis Plan issued on March 30, 2021.

ABBREVIATIONS
mg/kg = milligrams per kilogram
ug/kg = micrograms per kilogram
< # = analyte was not detected above the specified reporting limit
BOLD = analyte detected
NE = not established in the Sampling and Analysis Plan

DATA QUALIFIERS
J = estimated value

Created by: CB
Reviewed by: DK

CENAE–PDE 30 March 2021

FINAL Sampling and Analysis Plan for Pear Tree Park, Darien, CT, File Number NAE-2020-02349.

1. **Project Description:** The applicant is proposing to mechanically dredge approximately 3,330 cubic yards (CY) of fine-grained material from shoaled areas totaling 2.20 acres in the vicinity of the Pear Tree Park public access channel located at 93-199 Pear Tree Point Road in Darien, CT (Figure 1). The area will be dredged to a depth of -5 feet at mean lower low water (MLLW) plus one foot of allowable overdepth (Figure 2). The applicant proposes to dispose of the dredged material at the Western Long Island Sound Disposal Site (WLDS).

This sampling and analysis plan (SAP) has been developed by the New England District U.S. Army Corps of Engineers (NAE) to gather information to support a suitability determination for the proposed action. The sampling and analysis effort shall include a single phase of testing for grain size and bulk sediment chemistry. The results of the analysis will be evaluated against the most recent NAE data set for the WLDS reference area. If additional evaluations are required, NAE will provide the applicant with a supplemental SAP for elutriate and biological testing. All sampling and analysis activities described in this plan shall follow the requirements set forth in the "*Regional Implementation Manual for the Evaluation of Dredged Material Proposed for Disposal in New England Waters*" (RIM) dated May 6, 2004. A copy of the RIM may be downloaded from the NAE website: http://www.nae.usace.army.mil/Missions/Regulatory/Dredged Material Program/RegionalImplementationManual.aspx

2. **Conceptual Site Model:** NAE reviewed historic testing data, water quality data, spill records, and adjacent land use information to develop a conceptual site model (CSM) for the proposed project. The CSM was used to characterize the system and identify potential sources of contamination, site-specific contaminants of concern, exposure pathways, and biological receptors in order to inform this sampling and analysis plan.

Project Setting: The Pear Tree Park public access channel is located within Pear Tree Point Cove, along the eastern shoreline of the Goodwives River, in the town of Darien, Connecticut. The channel facilitates navigation between the Town boat ramp and deeper water at the mouth of the Goodwives River to provide access to Long Island Sound (Figure 1). The proposed project area is directly adjacent to the Darien Boat Club at 93-199 Pear Tree Point Road. The Darien Boat Club maintains of a series of floating docks with 250 boat slips, and a fuel dock located in Pear Tree Point Cove. There are also several private docks located along the western side of the channel in the main portion of the Goodwives River. The Noroton Yacht Club and Pear Tree Point Public Beach are located to the south of the project at the mouth of the River. Other adjacent land use consists primarily of residential development.

Water Quality: Water quality in Pear Tree Point Cove is dictated by tidal exchange with Long Island Sound with freshwater input from the Goodwives River and two outfalls located just north of the Town boat ramp. The State of Connecticut classifies the waters of the Pear Tree Point Cove as SA (CTDEEP, 2018). Class SA waters are designated as suitable habitat for marine fish, shellfish and wildlife habitat, recreation and all other legitimate uses including navigation (GSC 22a-426). Shellfish harvesting is prohibited in the project area (CT DOAG, 2019).

Dredge History and Existing Testing Data: The project area was last dredged in 2001 when approximately 13,000 CY of material was mechanically removed to a depth of -6 feet (relative to Mean Low Water) and placed at WLDS. Sampling and testing performed in 2010 documented that this material was predominately sand with less than 25% fine grained material (passing the No. 200 sieve) by weight. A review of the associated chemistry data found that all analyte concentrations were below the National Oceanic and Atmospheric Administration (NOAA) effects range low (ERL) screening values for marine sediment. A suitability determination prepared by NAE in 2011 found the sediments from an adjacent area in Pear Tree Point Cove to be suitable for unconfined open water disposal at WLDS.

Spill Data: Based on information provided by the applicant and a review of the Connecticut Department of Energy and Environmental Protection (CTDEEP) Document Online Search Portal (https://filings.deep.ct.gov/DEEPDocumentSearchPortal/), NAE determined that there have been no major spills within the proposed project footprint. In 2001 the Darien Fire Marshall reported a sheen on the water in the vicinity of Darien Harbor that was suspected to be petroleum from a bilge off a diesel engine. The sheen was initially found on Pear Tree Beach and seen throughout the Darien channel. No response actions were taken due to the outgoing tide and wind greatly dissipating the sheen. There are two reinforced concrete pipe (RCP) outfalls adjacent to the project site in the southeast corner of the area (Figure 3).

Risk Ranking: Following this tier one review of the site characteristics and the available historical data, the proposed project was given a **low-moderate** risk ranking according to the following matrix (adapted from USACE 2014):

Table 1: Project Risk Ranking

Rank	Guidelines
Low	Few or no sources of contamination. Data available to verify no significant potential for adverse biological effects.
Low-Moderate	Few or no sources of contamination but existing data is insufficient to confirm ranking.
Moderate	Contamination sources exist within the vicinity of the project with the potential to produce chemical concentrations that may cause adverse biological effects.
High	Known sources of contamination within the project area and historical data exists that has previously failed biological testing.

3. **Sample Collection:** The applicant shall collect sediment cores from fifteen locations within the proposed dredge area as specified in Table 2 (also see Figure 3). These locations were selected based on information from the CSM described above, the low-moderate risk ranking for the project, and shoaled areas identified in the project conditions survey submitted by the applicant. All core samples shall be collected to the proposed dredge depth plus the overdredge amount. Estimated core lengths based on the bathymetry provided by the applicant are provided in Table 2, but the required core length shall be determined at the time of the sampling effort using measured water depths at each location corrected to MLLW. In order to ensure that the core samples adequately represent the dredge interval at each location, all cores to be used for this project shall have a recovered length that is within 75% of the core penetration depth. In addition, any cores that display signs of significant disturbance such as compaction or wash out shall be disregarded. If the cores from any location do not meet the acceptability criteria after six attempts, then the best core from that location will be retained for description and analysis.

Upon collection all cores shall be measured and maintained in an upright position for a minimum of 15 minutes to allow any fine-grained material to settle. After a core has settled, it shall be re-measured before any overlying water is drained. All cores shall be split lengthwise, photographed with a stadia rod for scale, and described in accordance with ASTM D 2488 (Standard Practice for Description and Identification of Soils). Samples shall be collected from the dredge interval (dredge depth + overdepth) within each core for grain size and bulk chemical analysis as described in the sections below. If the dredge interval within a core is homogenous, then the entire length may be composited as a single sample. If any core shows significant stratification or obvious signs of contamination, then subsamples shall be collected from each layer and the applicant shall consult NAE for guidance prior to the start of analysis. All sediments held for testing shall be stored in accordance with the requirements in Table 3 (from Table 8-9 in *Evaluation of Dredged Material Proposed for Ocean Disposal, Testing Manual, 1991*). Sample chain of custody forms shall be maintained by the Applicant and submitted to NAE with the data package

described in section 5 of this SAP.

Vessel positioning shall be achieved using a Global Positioning System (GPS) that has been calibrated on site using a known reference point. The required horizontal accuracy at each sample location shall be 10 feet or less. Water depths at each location are to be determined with an accuracy of ±0.1 foot (relative to MLLW). All sample data including date, time, latitude, longitude, GPS accuracy, measured water depth, tidal correction, core penetration, recovery, and sample interval(s) shall be recorded in a sampling log (Figure 4 or equivalent) and provided to NAE with the Applicant's core descriptions and photographs. All coordinate data shall be reported in geographic NAD 83 decimal degree format. All depth data shall be reported in tenths of feet.

4. **Sample Analysis:** Each core or core layer from the dredge area shall be individually analyzed for grain size and the results reported to NAE before any compositing is performed. NAE will provide the Applicant with a compositing plan for bulk chemical analysis based on sample proximity, physical characteristics recorded during the core description process, and the results of grain size analysis. Testing parameters, analytical methods, and reporting limits to be used are outlined in Table 4 (extracted from Tables 1, 2, and 3 of the RIM). The listed analytical methods are recommended but can be replaced by other methods that will give the required reporting limits. Additional guidance on the physical and chemical analysis of sediments can be found in chapter 5 of the RIM.

All laboratories used for this project must have an approved Laboratory Quality Assurance Plan (LQAP) on file with NAE. Any data produced from a lab without an approved LQAP will not be accepted. The RIM, a list of laboratories with approved LQAPs, and the reporting format and requirements for electronic submission of data are available for download through the NAE website: http://www.nae.usace.army.mil/Missions/Regulatory/Dredged-Material-Program/

5. **Reporting requirements:** All sediment testing data is required to be submitted electronically in the electronic data deliverable (EDD) format available on the NAE website (http://www.nae.usace.army.mil/Missions/Disposal-Area-Monitoring-System-DAMOS/Electronic-Data-Deliverables.aspx). Hard copy data submission is also required but may be substituted with a printer friendly, easy-to-read format (e.g., PDF, MS Word). Any analytes not detected shall be reported as half the method detection limit (MDL) and qualified with a "U". RIM quality control summary tables are required to be submitted with each project dataset. These tables are found in Appendix II of the RIM.

6. **Contact Information:** Questions about this plan should be directed to Gabriella Saloio (phone: 978-318-8138 e-mail: gabriella.j.saloio@usace.army.mil).

Gabriella Saloio

Gabriella Saloio
Biologist
Environmental Resources and
Marine Operations Section
USACE-New England District

Table 2: Sediment Sample Locations and Estimated Core Lengths

Station	Longitude	Latitude	Survey Depth (ft MLLW)	Project Depth (ft MLLW)	Overdepth (ft MLLW)	Estimated Core length (ft)
PTP-1	-73.4844045	41.0478727	-4.05	-5	1	1.94
PTP-2	-73.4844115	41.0479671	-1.91	-5	1	4.08
PTP-3	-73.4843133	41.0482220	-3.42	-5	1	2.57
PTP-4	-73.4839067	41.0482673	-3.54	-5	1	2.45
PTP-5	-73.4838000	41.0480250	-3.78	-5	1	2.21
PTP-6	-73.4835770	41.0478700	-4.58	-5	1	1.41
PTP-7	-73.4832663	41.0478688	-2.49	-5	1	3.50
PTP-8	-73.4832373	41.0476620	-0.46	-5	1	5.53
PTP-9	-73.4833007	41.0474906	-4.36	-5	1	1.63
PTP-10	-73.4831846	41.0472011	-4.69	-5	1	1.30
PTP-11	-73.4832832	41.0469932	-4.97	-5	1	1.02
PTP-12	-73.4830329	41.0469232	-4.63	-5	1	1.36
PTP-13	-73.4829000	41.0469982	-2.10	-5	1	3.89
PTP-14	-73.4828918	41.0467261	-2.51	-5	1	3.48
PTP-15	-73.4831229	41.0467404	-4.26	-5	1	1.73

TABLE 3: RECOMMENDED PROCEDURES FOR SAMPLE COLLECTION, PRESERVATION, AND STORAGE[a]

Analyses	Collection Method	Sample Volume	Container	Preservation Technique	Storage Conditions	Holding Time[b]
Sediment						
Chemical/Physical Analyses						
Metals	Grab/corer	200 mL	Precleaned polyethylene jar[c]	Refrigerate. Dry ice[b] or freezer storage is recommended for extended holding times.	≤ 4° C[c]	Hg - 28 days Others - 6 Months[d]
Organic Compounds	Grab/corer	475 mL	Solvent-rinsed glass jar with Teflon lid[c]	Refrigerate. Dry ice[b] or freezer storage is recommended for extended holding times.	≤ 4° C/dark[d]	14 days[e]
Particle Size	Grab/corer	75 mL	Whirl-pac bag[b]	Refrigerate	≤ 4° C	Undetermined
Total Organic Carbon	Grab/corer	3 L	Heat treated glass vial with Teflon lined lid[c]	Refrigerate. Dry ice[c] or freezer storage is recommended for extended holding times.	≤ 4° C[c]	14 days

[a] *This table contains only a summary of collection, preservation, and storage procedures for samples. The cited references should be consulted for a more detailed description of these procedures.*

[b] *These holding times are for sediment, water, and tissue based on guidance that is sometimes administrative rather than technical in nature. There are no promulgated, scientifically based holding time criteria for sediments, tissues, or elutriates. References should be consulted if holding times for sample extracts are desired. Holding times are from the time of sample collection.*

[c] *NOAA (1989)*

[d] *Tetra Tech (1986a)*

[e] *Sample may be held for up to one year if* ≤ -20° C

Table 4: Bulk Sediment Testing Parameters

Parameter	Analytical Method	Reporting Limit (ppm)
Metals		
Arsenic	6010B, 6020, 7060, 7061	0.4
Cadmium	6010B, 6020, 7130, 7131	0.07
Chromium	6010B, 6020, 7190, 7191	0.5
Copper	6010B, 6020, 7210	0.5
Lead	6010B, 6020, 7420, 7421	0.5
Mercury	7471	0.02
Nickel	6010B, 6020, 7520	0.5
Zinc	6010B, 6020, 7950	1.0
PCBs (total by NOAA summation of congeners)		
See next page	8082A	0.001
Pesticides	NOAA (1993), 8081B	0.001
Aldrin	Heptachlor epoxide	
cis- & trans-Chlordane	Hexachlorobenzene	
4,4'-DDT, DDD, DDE	gamma-BHC (Lindane)	
Dieldrin	Methoxychlor	
α & β Endosulfan	cis- & trans-Nonachlor	
Endrin	Oxychlordane	
Heptachlor	Toxaphene	0.025
Polycyclic Aromatic Hydrocarbons (PAH's)	8270C-SIM	0.01
Acenaphthene	Chrysene	
Acenaphthylene	Dibenzo(a,h)anthracene	
Anthracene	Fluoranthene	
Benzo(a)anthracene	Fluorene	
Benzo(a)pyrene	Indeno(1, 2, 3-cd)pyrene	
Benzo(b)fluoranthene	Naphthalene	
Benzo(k)fluoranthene	Phenanthrene	
Benzo(g, h, i)perylene	Pyrene	
Total Organic Carbon	Plumb (1981), APHA (1995)	0.1%
Percent Moisture	Plumb (1981), EPA (1992), PSEP (1986)	1.0%
Grain Size	Wet Sieve (#4, 10, 40, 200)	

Table 4: Bulk Sediment Testing Parameters (continued)

Analytical Method: NOAA (1993), 8082A

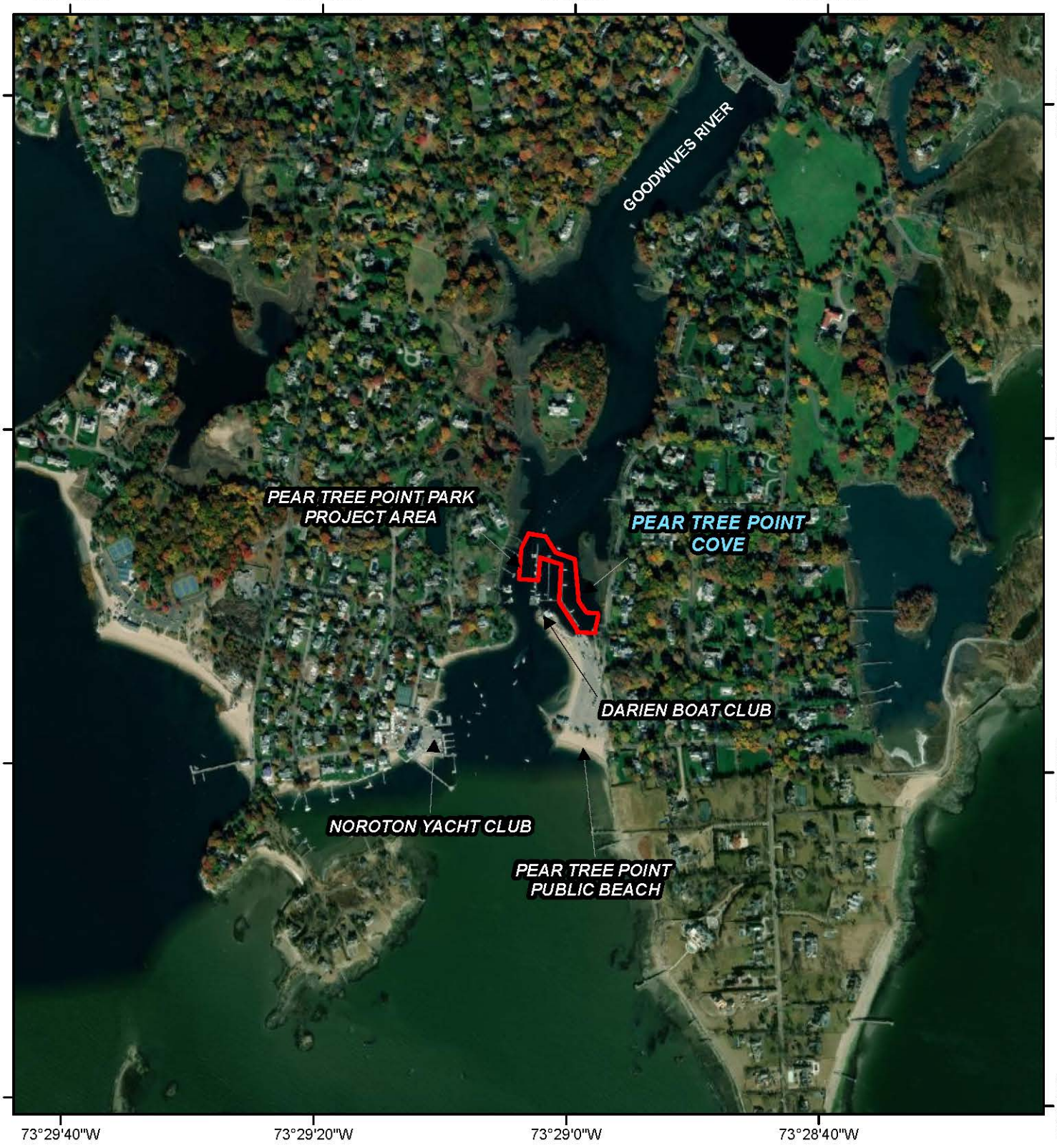
Reporting Limit: 1 ppb

Congeners:

8*	2,4' diCB
18*	2,2',5 triCB
28*	2,4,4' triCB
44*	2,2',3,5' tetraCB
49	2,2',4',5 tetraCB
52*	2,2',5,5' tetraCB
66*	2,3',4,4' tetraCB
87	2,2',3,4,5' pentaCB
101*	2,2',4,5,5' pentaCB
105*	2,3,3',4,4' pentaCB
118*	2,3',4,4',5 pentaCB
128*	2,3,3',4,4' hexaCB
138*	2,2',3,4,4',5' hexaCB
153*	2,2',4,4',5,5' hexaCB
170*	2,2',3,3',4,4',5 heptaCB
180*	2,2',3,4,4',5,5' heptaCB
183	2,2',3,4,4',5',6 heptaCB
184	2,2',3,4,4',6,6' heptaCB
187*	2,2',3,4',5,5',6 heptaCB
195*	2,2',3,3',4,4',5,6 octaCB
206*	2,2',3,3',4,4',5,5',6 nonaCB
209*	2,2',3,3',4,4',5,5',6,6' decaCB

* denotes a congener to be used in estimating Total PCB. To calculate Total PCB, sum the concentrations of all eighteen congeners marked with a "*" and multiply by 2.

The specified methods are recommendations only. Other acceptable methodologies capable of meeting the Reporting Limits can be used. Sample preparation methodologies (e.g. extraction and cleanup) and sample size may need to be modified to achieve the required Reporting Limits



US Army Corps
of Engineers
New England District

FIGURE 1:
PEAR TREE PARK
2021 SAP SAMPLE LOCATIONS

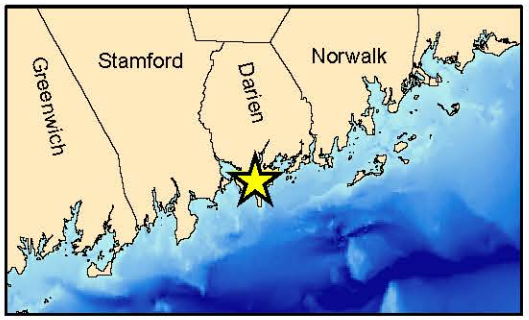
N
W E
S

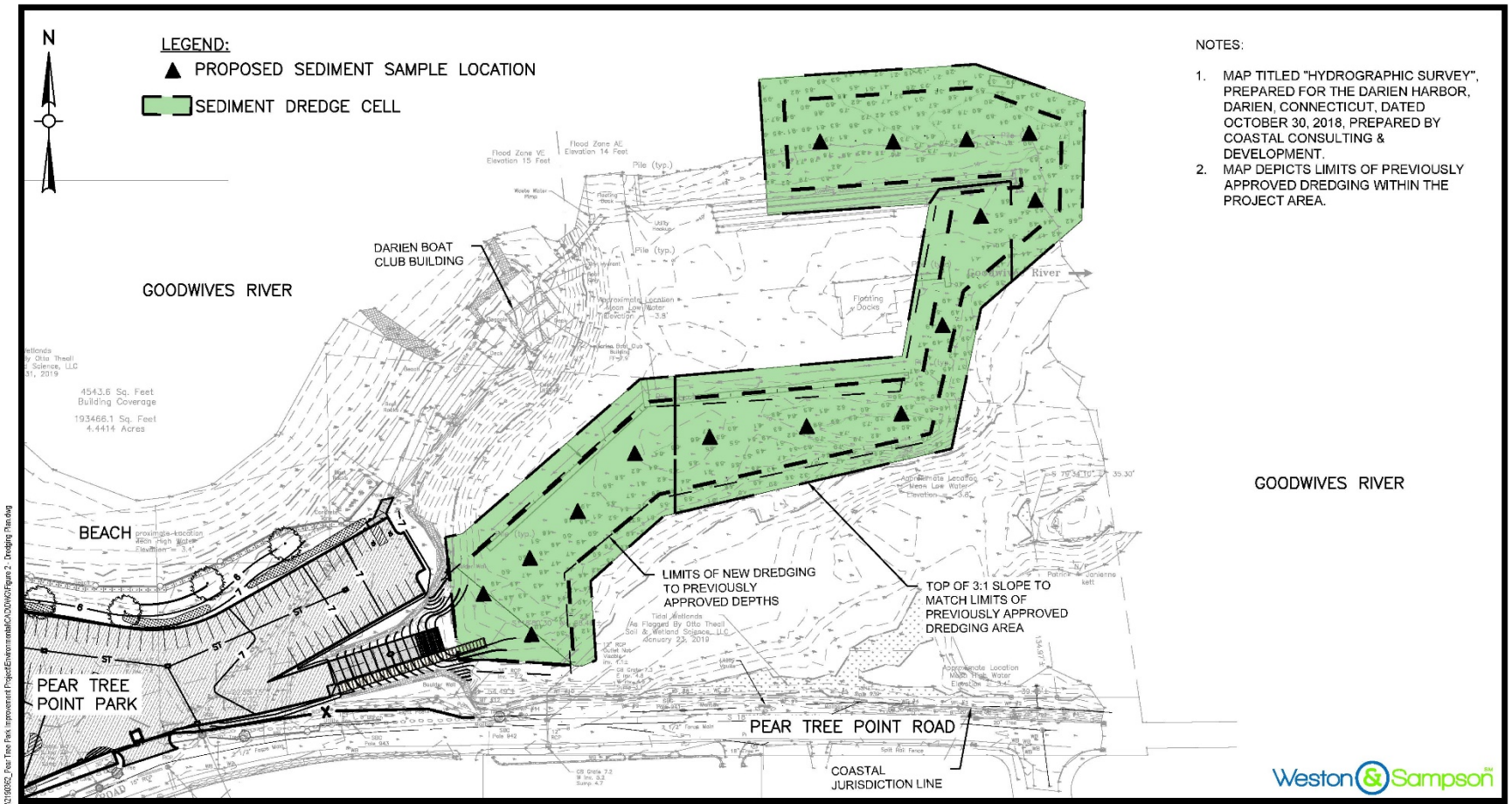
0 1,000 2,000 Feet
0 200 400 600 Meters

1:10,000

2021 ESRI WORLD IMAGERY

GCSNAD1983





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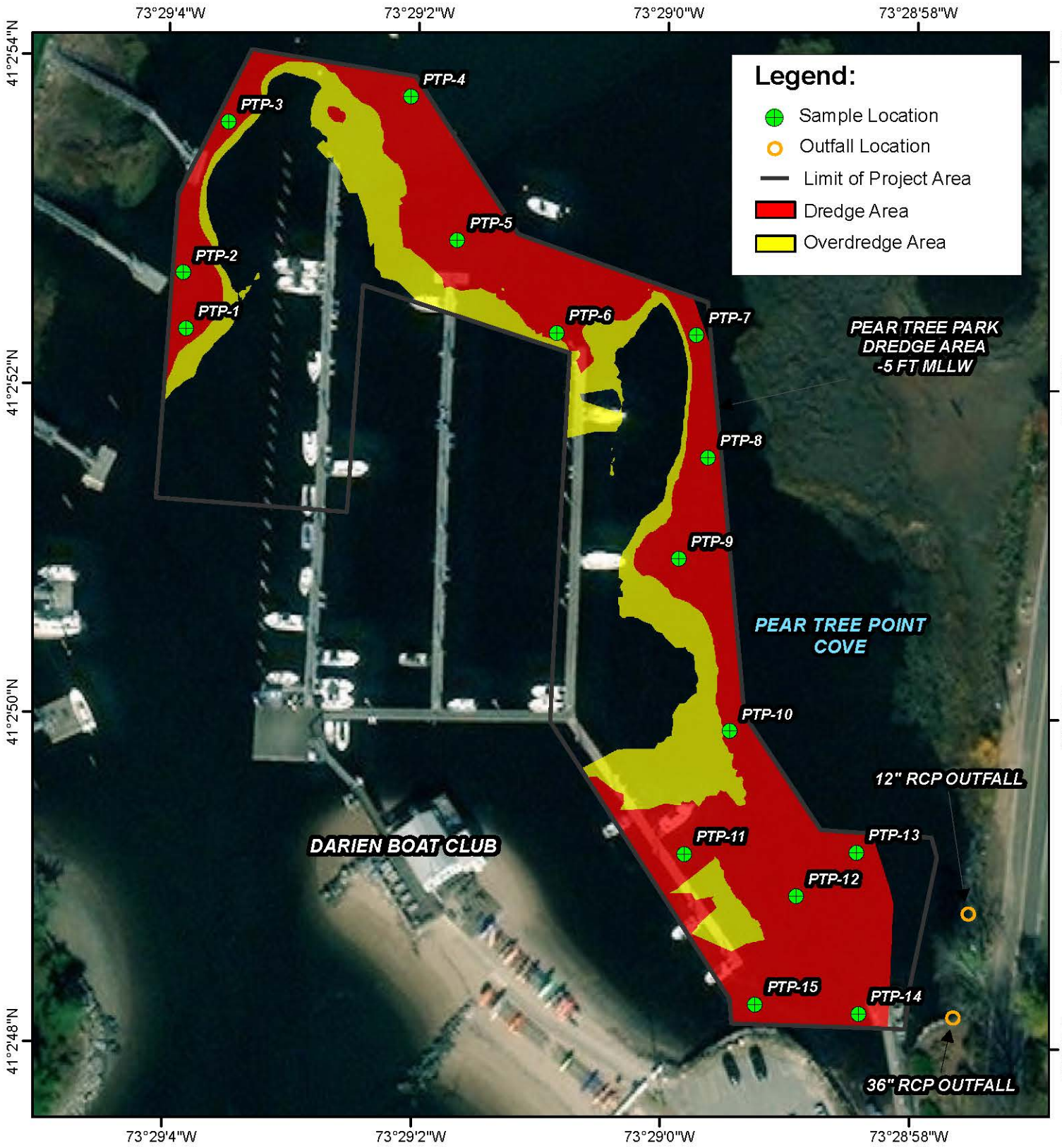

US Army Corps
of Engineers
New England District

FIGURE 3:
PEAR TREE PARK
2021 SAP SAMPLE LOCATIONS

N
W E
S

0 100 200 Feet
0 10 20 30 40 Meters

1:1,000

2021 ESRI WORLD IMAGERY

GCSNAD1983

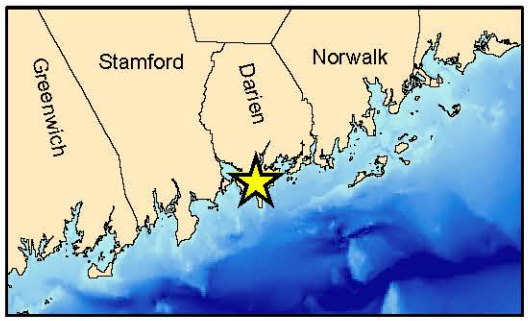

FIGURE 4: EXAMPLE CORE LOG DATA SHEET

PROJECT: _____ DATE: _____

SAMPLING PERSONNEL: _____

SEA STATE: _____ WEATHER CODE: _____

LOCATION METHOD: _____

SAMPLE ID: _____ SAMPLER TYPE: _____

TIME: _____

SOUNDING: _____ CORRECTED DEPTH: _____

COORDINATES: N _____ E _____

PENETRATION/RECOVERY: _____ NO. OF ATTEMPTS: _____

MATERIAL DESCRIPTION: _____

CORE PHOTO:	NOTES:
Insert core photograph with scale	*Insert field notes and ASTM description of core*

SEDIMENT CORING LOG

PROJECT: Pear Tree Park
DATE: 4/28/2021
SAMPLING PERSONNEL: Chris Berthiaume
SEA STATE: calm
WEATHER CODE: ~60F, partly sunny, wind ~5mph E
LOCATION METHOD: GPS
CONTRACTOR: Weston & Sampson
SAMPLE ID: PTP-1
SAMPLER TYPE: 3" acetate liner
TIME: 1503
SOUNDING: 10.9
CORRECTED DEPTH: -4.6
COORDINATES: N: 41.0478733
E: -73.484415
PENETRATION/RECOVERY: 1.4/1.4 1.4 at 1610
NO. OF ATTEMPTS: 6
MATERIAL DESCRIPTION:
WATER DEPTH ABOVE SEDIMENT (IN FT): 10.9
CHECKED BY: Chris Berthiaume
DATE: 5/26/2021

CORE PHOTO:

SAMPLE				
No.	Depth	Min/ft.	Recovery	RQD(%)
2	1.4		1.4	100%

SAMPLE DESCRIPTION AND NOTES:

PID

depth	reading	comment
0.3	0.0 ppm	
0.8	0.0 ppm	
1.2	0.0 ppm	

0.0 - 1.4 - medium dense, saturated, brown fine Sandy CLAY with little fine to medium Gravel, little shells, trace Silt.

Sample	Purpose
PTP-1	Grain size
PTP-1 (0.0-0.7ft)	hold for chemical analyses
PTP-1 (0.7-1.4ft)	hold for chemical analyses

SEDIMENT CORE NO.
PTP-1
WESTON & SAMPSON
ENGINEERS, INC.

SEDIMENT CORING LOG

PROJECT: Pear Tree Park
DATE: 4/28/2021
SAMPLING PERSONNEL: Chris Berthiaume
SEA STATE: calm
WEATHER CODE: ~60F, partly sunny, wind ~5mph E
LOCATION METHOD: GPS
CONTRACTOR: Weston & Sampson
SAMPLE ID: PTP-2
SAMPLER TYPE: 3" acetate liner
TIME: 1420
SOUNDING: 9.5
CORRECTED DEPTH: -2.6
COORDINATES: N: 41.0479667
E: -73.4844217
PENETRATION/RECOVERY: 3.4/2.6 2.7 at 1605
NO. OF ATTEMPTS: 2
MATERIAL DESCRIPTION:
WATER DEPTH ABOVE SEDIMENT (IN FT): 9.5
CHECKED BY: Chris Berthiaume
DATE: 5/26/2021

CORE PHOTO:

SAMPLE				
No.	Depth	Min/ft.	Recovery	RQD(%)
1	3.4		2.6	76%

SAMPLE DESCRIPTION AND NOTES:

PID

depth	reading	comment
0.3	0.0 ppm	
0.9	0.0 ppm	
1.7	0.0 ppm	
2.5	0.0 ppm	

0.0 - 2.7 - medium dense, saturated, brown fine to coarse SAND with little Silt and little fine to medium Gravel.

Sample	Purpose
PTP-2	Grain size
PTP-2 (0.0-0.9ft)	hold for chemical analyses
PTP-2 (0.9-1.8ft)	hold for chemical analyses
PTP-2 (1.8-2.7ft)	hold for chemical analyses

SEDIMENT CORE NO.
PTP-2
WESTON & SAMPSON
ENGINEERS, INC.

SEDIMENT CORING LOG

PROJECT: Pear Tree Park
DATE: 4/28/2021
SAMPLING PERSONNEL: Chris Berthiaume
SEA STATE: calm
WEATHER CODE: ~60F, partly sunny, wind ~5mph E
LOCATION METHOD: GPS
CONTRACTOR: Weston & Sampson
SAMPLE ID: PTP-3
SAMPLER TYPE: 3" acetate liner
TIME: 1410
SOUNDING: 11.6
CORRECTED DEPTH: -4.2
COORDINATES: N: 41.0481483
E: -73.48434
PENETRATION/RECOVERY: 1.8/1.6 1.5 at 1600
NO. OF ATTEMPTS: 1
MATERIAL DESCRIPTION:
WATER DEPTH ABOVE SEDIMENT (IN FT): 11.6
CHECKED BY: Chris Berthiaume
DATE: 5/26/2021

CORE PHOTO:

SAMPLE				
No.	Depth	Min/ft.	Recovery	RQD(%)
1	1.8		1.6	89%

SAMPLE DESCRIPTION AND NOTES:

PID

depth	reading	comment
0.3	27 ppm	rotten egg odor
0.8	25 ppm	rotten egg odor
1.3	40 ppm	rotten egg odor

0.0 - 1.5 - loose, saturated, black fine Sandy organic CLAY with some oyster shells and rotten egg odor and live oysters 0.0-0.3 feet bgs

Relocated because idle boat at sample location

Note: Grain size pulled before photo by mistake.

Sample	Purpose
PTP-3	Grain size
PTP-3 (0.0-0.7ft)	hold for chemical analyses
PTP-3 (0.7-1.5ft)	hold for chemical analyses

SEDIMENT CORE NO.
PTP-3
WESTON & SAMPSON
ENGINEERS, INC.

SEDIMENT CORING LOG

PROJECT: Pear Tree Park
DATE: 4/28/2021
SAMPLING PERSONNEL: Chris Berthiaume
SEA STATE: calm
WEATHER CODE: ~60F, partly sunny, wind ~5mph E
LOCATION METHOD: GPS
CONTRACTOR: Weston & Sampson
SAMPLE ID: PTP-4
SAMPLER TYPE: 3" acetate liner
TIME: 1400
SOUNDING: 10.6
CORRECTED DEPTH: -3.0
COORDINATES: N: 41.0482667
E: -73.48392
PENETRATION/RECOVERY: 3.0/3.0 2.9 at 1555
NO. OF ATTEMPTS: 1
MATERIAL DESCRIPTION:
WATER DEPTH ABOVE SEDIMENT (IN FT): 10.6
CHECKED BY: Chris Berthiaume
DATE: 5/26/2021

CORE PHOTO:

SAMPLE				
No.	Depth	Min/ft.	Recovery	RQD(%)
1	3.0		3.0	100%

SAMPLE DESCRIPTION AND NOTES:

PID

depth	reading	comment
0.2	121 ppm	rotten egg odor
0.8	77 ppm	rotten egg odor
1.5	106 ppm	rotten egg odor
2.1	86 ppm	rotten egg odor
2.7	53 ppm	rotten egg odor

0.0 - 2.9 - Loose, saturated, black organic CLAY with little shells and leaves, and rotten egg odor.

Sample	Purpose
PTP-4	Grain size
PTP-4 (0.0-1.0ft)	hold for chemical analyses
PTP-4 (1.0-2.0ft)	hold for chemical analyses
PTP-4 (2.0-2.9ft)	hold for chemical analyses

SEDIMENT CORE NO.
PTP-4
WESTON & SAMPSON
ENGINEERS, INC.

SEDIMENT CORING LOG

PROJECT: Pear Tree Park
DATE: 4/28/2021
SAMPLING PERSONNEL: Chris Berthiaume
SEA STATE: calm
WEATHER CODE: ~60F, partly sunny, wind ~5mph E
LOCATION METHOD: GPS
CONTRACTOR: Weston & Sampson
SAMPLE ID: PTP-5
SAMPLER TYPE: 3" acetate liner
TIME: 1335
SOUNDING: 11.7
CORRECTED DEPTH: -3.6
COORDINATES: N: 41.0480167
E: -73.4838117
PENETRATION/RECOVERY: 3.1/3.0 2.9 at 1535
NO. OF ATTEMPTS: 1
MATERIAL DESCRIPTION:
WATER DEPTH ABOVE SEDIMENT (IN FT): 11.7
CHECKED BY: Chris Berthiaume
DATE: 5/26/2021

CORE PHOTO:

SAMPLE				
No.	Depth	Min/ft.	Recovery	RQD(%)
1	3.1		3.0	97%

SAMPLE DESCRIPTION AND NOTES:

PID

depth	reading	comment
0.6	15 ppm	rotten egg odor
1.3	96 ppm	rotten egg odor
2	7.4 ppm	rotten egg odor
2.6	0.0 ppm	

0.0 - 2.9 - Loose, saturated, black organic CLAY with little shells and leaves, and rotten egg odor.

Note: only needed sample from 0.0-2.4'

Sample	Purpose
PTP-5	Grain size
PTP-5 (0.0-0.9ft)	hold for chemical analyses
PTP-5 (0.9-1.9ft)	hold for chemical analyses
PTP-5 (1.9-2.9ft)	hold for chemical analyses

SEDIMENT CORE NO.
PTP-5
WESTON & SAMPSON
ENGINEERS, INC.

SEDIMENT CORING LOG

PROJECT: Pear Tree Park
DATE: 4/28/2021
SAMPLING PERSONNEL: Chris Berthiaume
SEA STATE: calm
WEATHER CODE: ~60F, partly sunny, wind ~5mph E
LOCATION METHOD: GPS
CONTRACTOR: Weston & Sampson
SAMPLE ID: PTP-6
SAMPLER TYPE: 3" acetate liner
TIME: 1330
SOUNDING: 11.7
CORRECTED DEPTH: -3.6
COORDINATES: N: 41.0478483
E: -73.483585
PENETRATION/RECOVERY: 3.0/3.0 2.8 at 1520
NO. OF ATTEMPTS: 3
MATERIAL DESCRIPTION:
WATER DEPTH ABOVE SEDIMENT (IN FT): 11.7
CHECKED BY: Chris Berthiaume
DATE: 5/26/2021

CORE PHOTO:

SAMPLE				
No.	Depth	Min/ft.	Recovery	RQD(%)
3	3.0		3.0	100%

SAMPLE DESCRIPTION AND NOTES:

PID

depth	reading	comment
0.5	110 ppm	rotten egg odor
1.3	182 ppm	rotten egg odor
2.1	75 ppm	rotten egg odor
2.5	29 ppm	rotten egg odor

0.0 - 2.8 - Loose, saturated, black organic CLAY with little shells and leaves, and rotten egg odor.

Sample	Purpose
PTP-6	Grain size
PTP-6 (0.0-0.9ft)	hold for chemical analyses
PTP-6 (0.9-1.9ft)	hold for chemical analyses
PTP-6 (1.9-2.8ft)	hold for chemical analyses

SEDIMENT CORE NO.
PTP-6
WESTON & SAMPSON
ENGINEERS, INC.

SEDIMENT CORING LOG

PROJECT: Pear Tree Park
DATE: 4/28/2021
SAMPLING PERSONNEL: Chris Berthiaume
SEA STATE: calm
WEATHER CODE: ~60F, partly sunny, wind ~5mph E
LOCATION METHOD: GPS
CONTRACTOR: Weston & Sampson
SAMPLE ID: PTP-7
SAMPLER TYPE: 3" acetate liner
TIME: 1300
SOUNDING: 9.5
CORRECTED DEPTH: -1.3
COORDINATES: N: 41.0478700
E: -73.4832667
PENETRATION/RECOVERY: 4.7/3.9 3.7 at 1500
NO. OF ATTEMPTS: 1
MATERIAL DESCRIPTION:
WATER DEPTH ABOVE SEDIMENT (IN FT): 9.5
CHECKED BY: Chris Berthiaume
DATE: 5/26/2021

CORE PHOTO:

SAMPLE				
No.	Depth	Min/ft.	Recovery	RQD(%)
1	4.7		3.9	83%

SAMPLE DESCRIPTION AND NOTES:

PID

depth	reading	comment
0.3	0.0 ppm	
1.3	0.0 ppm	
2.3	3.2 ppm	
3.3	0.0 ppm	

0.0 - 3.7 - Loose, saturated, dark brown Silty CLAY with some organics and trace shells.

Sample	Purpose
PTP-7	Grain size
PTP-7 (0.0-1.2ft)	hold for chemical analyses
PTP-7 (1.2-2.4ft)	hold for chemical analyses
PTP-7 (2.4-3.7ft)	hold for chemical analyses

SEDIMENT CORE NO.
PTP-7
WESTON & SAMPSON
ENGINEERS, INC.

SEDIMENT CORING LOG

PROJECT: Pear Tree Park
DATE: 4/28/2021
SAMPLING PERSONNEL: Chris Berthiaume
SEA STATE: calm
WEATHER CODE: ~60F, partly sunny, wind ~5mph E
LOCATION METHOD: GPS
CONTRACTOR: Weston & Sampson
SAMPLE ID: PTP-8
SAMPLER TYPE: 3" acetate liner
TIME: 1235
SOUNDING: 8.0
CORRECTED DEPTH: 0.1
COORDINATES: N: 41.0476433
E: -73.4832883
PENETRATION/RECOVERY: 4.1/3.3 3.5 at 1425
NO. OF ATTEMPTS: 6
MATERIAL DESCRIPTION:
WATER DEPTH ABOVE SEDIMENT (IN FT): 8
CHECKED BY: Chris Berthiaume
DATE: 5/26/2021

CORE PHOTO:

SAMPLE				
No.	Depth	Min/ft.	Recovery	RQD(%)
3	4.1		3.3	80%

SAMPLE DESCRIPTION AND NOTES:

PID

depth	reading	comment
0.4	63 ppm	rotten egg odor
1.3	108 ppm	rotten egg odor
2.2	84 ppm	rotten egg odor
3.1	0.0 ppm	

0.0 - 1.2 - Loose, saturated, dark gray organic CLAY with little shells

1.2-3.5 - Loose, saturated, fine to course SAND with little Silt and organics (grass)

Called Helen from USACE to confirm additional sediment sample at 1445

Sample	Purpose
PTP-8 (0.0-1.2ft)	Grain size
PTP-8 (1.2-3.5ft)	Grain size
PTP-8 (0.0-1.2ft)	hold for chemical analyses
PTP-8 (1.2-2.4ft)	hold for chemical analyses
PTP-8 (2.4-3.5ft)	hold for chemical analyses

SEDIMENT CORE NO.
PTP-8
WESTON & SAMPSON
ENGINEERS, INC.

SEDIMENT CORING LOG

PROJECT: Pear Tree Park
DATE: 4/28/2021
SAMPLING PERSONNEL: Chris Berthiaume
SEA STATE: calm
WEATHER CODE: ~60F, partly sunny, wind ~5mph E
LOCATION METHOD: GPS
CONTRACTOR: Weston & Sampson
SAMPLE ID: PTP-9
SAMPLER TYPE: 3" acetate liner
TIME: 1200
SOUNDING: 11.8
CORRECTED DEPTH: -4.1
COORDINATES: N: 41.0475000
E: -73.483325
PENETRATION/RECOVERY: 1.9/1.9 1.7 at 1415
NO. OF ATTEMPTS: 1
MATERIAL DESCRIPTION:
WATER DEPTH ABOVE SEDIMENT (IN FT): 11.8
CHECKED BY: Chris Berthiaume
DATE: 5/26/2021

CORE PHOTO:

SAMPLE				
No.	Depth	Min/ft.	Recovery	RQD(%)
1	1.9		1.9	100%

SAMPLE DESCRIPTION AND NOTES:

PID

depth	reading	comment
0.2	0.0 ppm	
0.6	0.0 ppm	
1.1	0.0 ppm	
1.6	0.0 ppm	

0.0 - 1.7 - Loose, saturated, dark gray organic CLAY with little leaves and shells

Sample	Purpose
PTP-9	Grain size
PTP-9 (0.0-0.9ft)	hold for chemical analyses
PTP-9 (0.9-1.7ft)	hold for chemical analyses

SEDIMENT CORE NO.
PTP-9
WESTON & SAMPSON
ENGINEERS, INC.

SEDIMENT CORING LOG

PROJECT: Pear Tree Park
DATE: 4/28/2021
SAMPLING PERSONNEL: Chris Berthiaume
SEA STATE: calm
WEATHER CODE: ~60F, partly sunny, wind ~5mph E
LOCATION METHOD: GPS
CONTRACTOR: Weston & Sampson
SAMPLE ID: PTP-10
SAMPLER TYPE: 3" acetate liner
TIME: 1035
SOUNDING: 12.0
CORRECTED DEPTH: -4.7
COORDINATES: N: 41.0472217
E: -73.4833433
PENETRATION/RECOVERY: 1.3/1.3 0.9 at 1415
NO. OF ATTEMPTS: 2
MATERIAL DESCRIPTION:
WATER DEPTH ABOVE SEDIMENT (IN FT): 12
CHECKED BY: Chris Berthiaume
DATE: 5/26/2021

CORE PHOTO:

SAMPLE				
No.	Depth	Min/ft.	Recovery	RQD(%)
2	1.3		1.3	100%

SAMPLE DESCRIPTION AND NOTES:

PID

depth	reading	comment
0.2	104 ppm	rotten egg odor
0.7	9.5 ppm	rotten egg odor

0.0 - 0.9 - Loose, saturated, black organic CLAY with little shells and rotten egg odor

Sample	Purpose
PTP-10	Grain size
DUP-GS	Grain size duplicate of PTP-10
PTP-10 (0.0-0.4ft)	hold for chemical analyses
PTP-10 (0.4-0.9ft)	hold for chemical analyses

SEDIMENT CORE NO.
PTP-10
WESTON & SAMPSON
ENGINEERS, INC.

SEDIMENT CORING LOG

PROJECT: Pear Tree Park
DATE: 4/28/2021
SAMPLING PERSONNEL: Chris Berthiaume
SEA STATE: calm
WEATHER CODE: ~60F, partly sunny, wind ~5mph E
LOCATION METHOD: GPS
CONTRACTOR: Weston & Sampson
SAMPLE ID: PTP-11
SAMPLER TYPE: 3" acetate liner
TIME: 1120
SOUNDING: 11.2
CORRECTED DEPTH: -4.5
COORDINATES: N: 41.0469917
E: -73.4832867
PENETRATION/RECOVERY: 1.8/1.8 1.8 at 1310
NO. OF ATTEMPTS: 1
MATERIAL DESCRIPTION:
WATER DEPTH ABOVE SEDIMENT (IN FT): 11.2
CHECKED BY: Chris Berthiaume
DATE: 5/26/2021

CORE PHOTO:

SAMPLE				
No.	Depth	Min/ft.	Recovery	RQD(%)
1	1.8		1.8	100%

SAMPLE DESCRIPTION AND NOTES:

PID

depth	reading	comment
0.2	45 ppm	rotten egg odor
0.8	88 ppm	rotten egg odor
1.4	117 ppm	rotten egg odor

0.0 - 1.8 - Loose, saturated, black organic CLAY with little shells and rotten egg odor

Sample ends at 1.5 feet

Sample	Purpose
PTP-11	Grain size
PTP-11 (0.0-0.7ft)	hold for chemical analyses
PTP-11 (0.7-1.4ft)	hold for chemical analyses

SEDIMENT CORE NO.
PTP-11
WESTON & SAMPSON
ENGINEERS, INC.

SEDIMENT CORING LOG

PROJECT: Pear Tree Park
DATE: 4/28/2021
SAMPLING PERSONNEL: Chris Berthiaume
SEA STATE: calm
WEATHER CODE: ~60F, partly sunny, wind ~5mph E
LOCATION METHOD: GPS
CONTRACTOR: Weston & Sampson
SAMPLE ID: PTP-12
SAMPLER TYPE: 3" acetate liner
TIME: 1110
SOUNDING: 10.2
CORRECTED DEPTH: -3.8
COORDINATES: N: 41.0469317
E: -73.48303
PENETRATION/RECOVERY: 2.1/2.1 2.1 at 1255
NO. OF ATTEMPTS: 1
MATERIAL DESCRIPTION:
WATER DEPTH ABOVE SEDIMENT (IN FT): 10.2
CHECKED BY: Chris Berthiaume
DATE: 5/26/2021

CORE PHOTO:

SAMPLE				
No.	Depth	Min/ft.	Recovery	RQD(%)
1	2.1		2.1	100%

SAMPLE DESCRIPTION AND NOTES:

PID

depth	reading	comment
0.3	83 ppm	rotten egg odor
0.9	260 ppm	rotten egg odor
1.5	102 ppm	light rotten egg odor
2.0	12 ppm	light rotten egg odor

0.0 - 1.0 - Loose, saturated, black organic CLAY with little shells and rotten egg odor

1.0-2.1 - Loose, saturated, dark gray organic CLAY with little shells and light rotten egg odor

Sample	Purpose
PTP-12	Grain size
PTP-12 (0.0-0.7ft)	hold for chemical analyses
PTP-12 (0.7-1.4ft)	hold for chemical analyses
PTP-12 (1.4-2.1ft)	hold for chemical analyses

SEDIMENT CORE NO.
PTP-12
WESTON & SAMPSON
ENGINEERS, INC.

SEDIMENT CORING LOG

PROJECT: Pear Tree Park
DATE: 4/28/2021
SAMPLING PERSONNEL: Chris Berthiaume
SEA STATE: calm
WEATHER CODE: ~60F, partly sunny, wind ~5mph E
LOCATION METHOD: GPS
CONTRACTOR: Weston & Sampson
SAMPLE ID: PTP-13
SAMPLER TYPE: 3" acetate liner
TIME: 1100
SOUNDING: 7.2
CORRECTED DEPTH: -1.4
COORDINATES: N: 41.0470183
E: -73.482915
PENETRATION/RECOVERY: 4.6/4.6 4.6 at 1215
NO. OF ATTEMPTS: 1
MATERIAL DESCRIPTION:
WATER DEPTH ABOVE SEDIMENT (IN FT): 7.2
CHECKED BY: Chris Berthiaume
DATE: 5/26/2021

CORE PHOTO:

SAMPLE				
No.	Depth	Min/ft.	Recovery	RQD(%)
1	4.6		4.6	100%

SAMPLE DESCRIPTION AND NOTES:

PID

depth	reading	comment
0.2	78 ppm	rotten egg odor
1.2	110 ppm	rotten egg odor
2.3	0.0 ppm	
3.4	0.0 ppm	
4.5	0.0 ppm	

0.0 - 1.6 - Loose, saturated, black CLAY with some organics and little shells and rotten egg odor

1.6 - 4.6 - Loose, saturated, dark gray CLAY with some organics and little shells

Sample	Purpose
PTP-13	Grain size
PTP-13 (0.0-1.6ft)	hold for chemical analyses
PTP-13 (1.6-3.2ft)	hold for chemical analyses
PTP-13 (3.2-4.7ft)	hold for chemical analyses

SEDIMENT CORE NO.
PTP-13
WESTON & SAMPSON
ENGINEERS, INC.

SEDIMENT CORING LOG

PROJECT: Pear Tree Park
DATE: 4/28/2021
SAMPLING PERSONNEL: Chris Berthiaume
SEA STATE: calm
WEATHER CODE: ~60F, partly sunny, wind ~5mph E
LOCATION METHOD: GPS
CONTRACTOR: Weston & Sampson
SAMPLE ID: PTP-14
SAMPLER TYPE: 3" acetate liner
TIME: 1045
SOUNDING: 6.9
CORRECTED DEPTH: -1.6
COORDINATES: N: 41.0467333
E: -73.4828917
PENETRATION/RECOVERY: 4.4/4.4 4.3 at 1125
NO. OF ATTEMPTS: 1
MATERIAL DESCRIPTION:
WATER DEPTH ABOVE SEDIMENT (IN FT): 6.9
CHECKED BY: Chris Berthiaume
DATE: 5/26/2021

CORE PHOTO:

SAMPLE				
No.	Depth	Min/ft.	Recovery	RQD(%)
1	4.4		4.4	100%

SAMPLE DESCRIPTION AND NOTES:

PID

depth	reading	comment
0.0	5 ppm	rotten egg odor
0.5	13 ppm	rotten egg odor
1.0	0.0 ppm	
2.0	0.0 ppm	
3.0	0.0 ppm	
4.0	0.0 ppm	
4.3	0.0 ppm	

0.0 - 4.3 - Loose, saturated, dark gray CLAY with some organics (grasses, roots), little fine Sand, little Silt, and little shells

Sample	Purpose
PTP-14	Grain size
PTP-14 (0.0-1.4ft)	hold for chemical analyses
PTP-14 (1.4-2.8ft)	hold for chemical analyses
PTP-14 (2.8-4.3ft)	hold for chemical analyses

SEDIMENT CORE NO.
PTP-14
WESTON & SAMPSON
ENGINEERS, INC.

SEDIMENT CORING LOG

PROJECT: Pear Tree Park
DATE: 4/28/2021
SAMPLING PERSONNEL: Chris Berthiaume
SEA STATE: calm
WEATHER CODE: ~60F, partly sunny, wind ~5mph E
LOCATION METHOD: GPS
CONTRACTOR: Weston & Sampson
SAMPLE ID: PTP-15
SAMPLER TYPE: 3" acetate liner
TIME: 1035
SOUNDING: 6.0
CORRECTED DEPTH: -1.3
COORDINATES: N: 41.0467417
E: -73.4831233
PENETRATION/RECOVERY: 4.7/3.8 3.7 at 1050
NO. OF ATTEMPTS: 1
MATERIAL DESCRIPTION:
WATER DEPTH ABOVE SEDIMENT (IN FT): 6
CHECKED BY: Chris Berthiaume
DATE: 5/26/2021

CORE PHOTO:

SAMPLE				
No.	Depth	Min/ft.	Recovery	RQD(%)
1	4.7		3.8	81%

SAMPLE DESCRIPTION AND NOTES:

PID

depth	reading	comment
0.2	142 ppm	rotten egg odor
1.0	158 ppm	rotten egg odor
2.0	148 ppm	rotten egg odor
3.0	103 ppm	rotten egg odor
3.7	126 ppm	rotten egg odor

0.0-3.7 - Loose, saturated, dark gray Silty fine SAND with little organics (leaves), little Clay, little shells, and little fine Gravel, and rotten egg odor.

Sample	Purpose
PTP-15	Grain size
PTP-15 (0.0-1.3ft)	hold for chemical analyses
PTP-15 (1.3-2.6ft)	hold for chemical analyses
PTP-15 (2.6-3.7ft)	hold for chemical analyses

SEDIMENT CORE NO.
PTP-15
WESTON & SAMPSON
ENGINEERS, INC.

ANALYTICAL REPORT

Lab Number:	L2122223
Client:	Weston & Sampson Engineers, Inc. 712 Brook Street Suite 103 Rocky Hill, CT 06067
ATTN:	Christopher Berthiaume
Phone:	(860) 513-1473
Project Name:	PEAR TREE POINT
Project Number:	2190362
Report Date:	05/25/21

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Certifications & Approvals: MA (M-MA086), NH NELAP (2064), CT (PH-0574), IL (200077), ME (MA00086), MD (348), NJ (MA935), NY (11148), NC (25700/666), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #P330-17-00196).

Eight Walkup Drive, Westborough, MA 01581-1019
508-898-9220 (Fax) 508-898-9193 800-624-9220 - www.alphalab.com

Project Name: PEAR TREE POINT
Project Number: 2190362

Lab Number: L2122223
Report Date: 05/25/21

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2122223-01	PTP-1	SEDIMENT	DARIEN, CT	04/28/21 16:50	04/29/21
L2122223-02	PTP-2	SEDIMENT	DARIEN, CT	04/28/21 16:40	04/29/21
L2122223-03	PTP-3	SEDIMENT	DARIEN, CT	04/28/21 16:35	04/29/21
L2122223-04	PTP-4	SEDIMENT	DARIEN, CT	04/28/21 16:10	04/29/21
L2122223-05	PTP-5	SEDIMENT	DARIEN, CT	04/28/21 15:35	04/29/21
L2122223-06	PTP-6	SEDIMENT	DARIEN, CT	04/28/21 15:25	04/29/21
L2122223-07	PTP-7	SEDIMENT	DARIEN, CT	04/28/21 15:05	04/29/21
L2122223-08	PTP-8 (0.0-1.2FT)	SEDIMENT	DARIEN, CT	04/28/21 14:35	04/29/21
L2122223-09	PTP-8 (1.2-3.5FT)	SEDIMENT	DARIEN, CT	04/28/21 14:37	04/29/21
L2122223-10	PTP-9	SEDIMENT	DARIEN, CT	04/28/21 14:15	04/29/21
L2122223-11	PTP-10	SEDIMENT	DARIEN, CT	04/28/21 13:30	04/29/21
L2122223-12	PTP-11	SEDIMENT	DARIEN, CT	04/28/21 13:10	04/29/21
L2122223-13	PTP-12	SEDIMENT	DARIEN, CT	04/28/21 12:50	04/29/21
L2122223-14	PTP-13	SEDIMENT	DARIEN, CT	04/28/21 12:20	04/29/21
L2122223-15	PTP-14	SEDIMENT	DARIEN, CT	04/28/21 11:30	04/29/21
L2122223-16	PTP-15	SEDIMENT	DARIEN, CT	04/28/21 11:00	04/29/21

Project Name:	PEAR TREE POINT	**Lab Number:**	L2122223
Project Number:	2190362	**Report Date:**	05/25/21

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively.

When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances, the specific failure is not narrated but noted in the associated QC Outlier Summary Report, located directly after the Case Narrative. QC information is also incorporated in the Data Usability Assessment table (Format 11) of our Data Merger tool, where it can be reviewed in conjunction with the sample result, associated regulatory criteria and any associated data usability implications.

Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

HOLD POLICY - For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Alpha Project Manager and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Project Management at 800-624-9220 with any questions.

Project Name: PEAR TREE POINT
Project Number: 2190362
Lab Number: L2122223
Report Date: 05/25/21

Case Narrative (continued)

Report Submission

All non-detect (ND) or estimated concentrations (J-qualified) have been quantitated to the limit noted in the MDL column.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature: Elizabeth Porta

Title: Technical Director/Representative Date: 05/25/21

INORGANICS
&
MISCELLANEOUS

Project Name: PEAR TREE POINT
Project Number: 2190362
Lab Number: L2122223
Report Date: 05/25/21

SAMPLE RESULTS

Lab ID: L2122223-01
Client ID: PTP-1
Sample Location: DARIEN, CT
Sample Depth:
Matrix: Sediment

Date Collected: 04/28/21 16:50
Date Received: 04/29/21
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
RIM Grain Size Analysis - Mansfield Lab										
% Total Gravel	17.7		%	0.100	NA	1	-	05/19/21 14:14	12,D6913/D7928	SM
% Coarse Sand	7.80		%	0.100	NA	1	-	05/19/21 14:14	12,D6913/D7928	SM
% Medium Sand	32.4		%	0.100	NA	1	-	05/19/21 14:14	12,D6913/D7928	SM
% Fine Sand	33.9		%	0.100	NA	1	-	05/19/21 14:14	12,D6913/D7928	SM
% Total Fines	8.20		%	0.100	NA	1	-	05/19/21 14:14	12,D6913/D7928	SM

Project Name: PEAR TREE POINT
Project Number: 2190362
Lab Number: L2122223
Report Date: 05/25/21

SAMPLE RESULTS

Lab ID: L2122223-02
Client ID: PTP-2
Sample Location: DARIEN, CT
Sample Depth:
Matrix: Sediment

Date Collected: 04/28/21 16:40
Date Received: 04/29/21
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
RIM Grain Size Analysis - Mansfield Lab										
% Total Gravel	12.8		%	0.100	NA	1	-	05/19/21 14:14	12,D6913/D7928	SM
% Coarse Sand	7.50		%	0.100	NA	1	-	05/19/21 14:14	12,D6913/D7928	SM
% Medium Sand	47.2		%	0.100	NA	1	-	05/19/21 14:14	12,D6913/D7928	SM
% Fine Sand	23.5		%	0.100	NA	1	-	05/19/21 14:14	12,D6913/D7928	SM
% Total Fines	9.00		%	0.100	NA	1	-	05/19/21 14:14	12,D6913/D7928	SM

Project Name: PEAR TREE POINT
Project Number: 2190362
Lab Number: L2122223
Report Date: 05/25/21

SAMPLE RESULTS

Lab ID: L2122223-03
Client ID: PTP-3
Sample Location: DARIEN, CT
Sample Depth:
Matrix: Sediment

Date Collected: 04/28/21 16:35
Date Received: 04/29/21
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
RIM Grain Size Analysis - Mansfield Lab										
% Total Gravel	5.40		%	0.100	NA	1	-	05/19/21 14:14	12,D6913/D7928	SM
% Coarse Sand	7.20		%	0.100	NA	1	-	05/19/21 14:14	12,D6913/D7928	SM
% Medium Sand	40.8		%	0.100	NA	1	-	05/19/21 14:14	12,D6913/D7928	SM
% Fine Sand	22.2		%	0.100	NA	1	-	05/19/21 14:14	12,D6913/D7928	SM
% Total Fines	24.4		%	0.100	NA	1	-	05/19/21 14:14	12,D6913/D7928	SM

Project Name: PEAR TREE POINT
Project Number: 2190362
Lab Number: L2122223
Report Date: 05/25/21

SAMPLE RESULTS

Lab ID: L2122223-04
Client ID: PTP-4
Sample Location: DARIEN, CT
Sample Depth:
Matrix: Sediment

Date Collected: 04/28/21 16:10
Date Received: 04/29/21
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
RIM Grain Size Analysis - Mansfield Lab										
% Total Gravel	4.70		%	0.100	NA	1	-	05/19/21 14:14	12,D6913/D7928	SM
% Coarse Sand	7.60		%	0.100	NA	1	-	05/19/21 14:14	12,D6913/D7928	SM
% Medium Sand	10.0		%	0.100	NA	1	-	05/19/21 14:14	12,D6913/D7928	SM
% Fine Sand	12.4		%	0.100	NA	1	-	05/19/21 14:14	12,D6913/D7928	SM
% Total Fines	65.3		%	0.100	NA	1	-	05/19/21 14:14	12,D6913/D7928	SM

Project Name: PEAR TREE POINT
Project Number: 2190362
Lab Number: L2122223
Report Date: 05/25/21

SAMPLE RESULTS

Lab ID: L2122223-05
Client ID: PTP-5
Sample Location: DARIEN, CT
Sample Depth:
Matrix: Sediment

Date Collected: 04/28/21 15:35
Date Received: 04/29/21
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
RIM Grain Size Analysis - Mansfield Lab										
% Total Gravel	0.600		%	0.100	NA	1	-	05/19/21 14:14	12,D6913/D7928	SM
% Coarse Sand	2.00		%	0.100	NA	1	-	05/19/21 14:14	12,D6913/D7928	SM
% Medium Sand	4.90		%	0.100	NA	1	-	05/19/21 14:14	12,D6913/D7928	SM
% Fine Sand	5.40		%	0.100	NA	1	-	05/19/21 14:14	12,D6913/D7928	SM
% Total Fines	87.1		%	0.100	NA	1	-	05/19/21 14:14	12,D6913/D7928	SM

Project Name: PEAR TREE POINT
Project Number: 2190362
Lab Number: L2122223
Report Date: 05/25/21

SAMPLE RESULTS

Lab ID: L2122223-06
Client ID: PTP-6
Sample Location: DARIEN, CT
Sample Depth:
Matrix: Sediment

Date Collected: 04/28/21 15:25
Date Received: 04/29/21
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
RIM Grain Size Analysis - Mansfield Lab										
% Total Gravel	1.00		%	0.100	NA	1	-	05/19/21 14:14	12,D6913/D7928	SM
% Coarse Sand	3.00		%	0.100	NA	1	-	05/19/21 14:14	12,D6913/D7928	SM
% Medium Sand	6.50		%	0.100	NA	1	-	05/19/21 14:14	12,D6913/D7928	SM
% Fine Sand	4.40		%	0.100	NA	1	-	05/19/21 14:14	12,D6913/D7928	SM
% Total Fines	85.1		%	0.100	NA	1	-	05/19/21 14:14	12,D6913/D7928	SM

Project Name: PEAR TREE POINT
Project Number: 2190362
Lab Number: L2122223
Report Date: 05/25/21

SAMPLE RESULTS

Lab ID: L2122223-07
Client ID: PTP-7
Sample Location: DARIEN, CT
Sample Depth:
Matrix: Sediment

Date Collected: 04/28/21 15:05
Date Received: 04/29/21
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
RIM Grain Size Analysis - Mansfield Lab										
% Total Gravel	3.40		%	0.100	NA	1	-	05/19/21 14:14	12,D6913/D7928	SM
% Coarse Sand	6.60		%	0.100	NA	1	-	05/19/21 14:14	12,D6913/D7928	SM
% Medium Sand	9.70		%	0.100	NA	1	-	05/19/21 14:14	12,D6913/D7928	SM
% Fine Sand	19.5		%	0.100	NA	1	-	05/19/21 14:14	12,D6913/D7928	SM
% Total Fines	60.8		%	0.100	NA	1	-	05/19/21 14:14	12,D6913/D7928	SM

Project Name: PEAR TREE POINT
Project Number: 2190362
Lab Number: L2122223
Report Date: 05/25/21

SAMPLE RESULTS

Lab ID: L2122223-08
Client ID: PTP-8 (0.0-1.2FT)
Sample Location: DARIEN, CT
Sample Depth:
Matrix: Sediment

Date Collected: 04/28/21 14:35
Date Received: 04/29/21
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
RIM Grain Size Analysis - Mansfield Lab										
% Total Gravel	14.7		%	0.100	NA	1	-	05/19/21 14:14	12,D6913/D7928	SM
% Coarse Sand	7.70		%	0.100	NA	1	-	05/19/21 14:14	12,D6913/D7928	SM
% Medium Sand	12.1		%	0.100	NA	1	-	05/19/21 14:14	12,D6913/D7928	SM
% Fine Sand	10.7		%	0.100	NA	1	-	05/19/21 14:14	12,D6913/D7928	SM
% Total Fines	54.8		%	0.100	NA	1	-	05/19/21 14:14	12,D6913/D7928	SM

Project Name: PEAR TREE POINT
Project Number: 2190362
Lab Number: L2122223
Report Date: 05/25/21

SAMPLE RESULTS

Lab ID: L2122223-09
Client ID: PTP-8 (1.2-3.5FT)
Sample Location: DARIEN, CT
Sample Depth:
Matrix: Sediment

Date Collected: 04/28/21 14:37
Date Received: 04/29/21
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
RIM Grain Size Analysis - Mansfield Lab										
% Total Gravel	4.50		%	0.100	NA	1	-	05/19/21 14:14	12,D6913/D7928	SM
% Coarse Sand	16.3		%	0.100	NA	1	-	05/19/21 14:14	12,D6913/D7928	SM
% Medium Sand	59.0		%	0.100	NA	1	-	05/19/21 14:14	12,D6913/D7928	SM
% Fine Sand	16.4		%	0.100	NA	1	-	05/19/21 14:14	12,D6913/D7928	SM
% Total Fines	3.80		%	0.100	NA	1	-	05/19/21 14:14	12,D6913/D7928	SM

Project Name: PEAR TREE POINT
Project Number: 2190362
Lab Number: L2122223
Report Date: 05/25/21

SAMPLE RESULTS

Lab ID: L2122223-10
Client ID: PTP-9
Sample Location: DARIEN, CT
Sample Depth:
Matrix: Sediment

Date Collected: 04/28/21 14:15
Date Received: 04/29/21
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
RIM Grain Size Analysis - Mansfield Lab										
% Total Gravel	16.7		%	0.100	NA	1	-	05/19/21 14:14	12,D6913/D7928	SM
% Coarse Sand	17.0		%	0.100	NA	1	-	05/19/21 14:14	12,D6913/D7928	SM
% Medium Sand	12.0		%	0.100	NA	1	-	05/19/21 14:14	12,D6913/D7928	SM
% Fine Sand	6.90		%	0.100	NA	1	-	05/19/21 14:14	12,D6913/D7928	SM
% Total Fines	47.4		%	0.100	NA	1	-	05/19/21 14:14	12,D6913/D7928	SM

Project Name: PEAR TREE POINT
Project Number: 2190362
Lab Number: L2122223
Report Date: 05/25/21

SAMPLE RESULTS

Lab ID: L2122223-11
Client ID: PTP-10
Sample Location: DARIEN, CT
Sample Depth:
Matrix: Sediment

Date Collected: 04/28/21 13:30
Date Received: 04/29/21
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
RIM Grain Size Analysis - Mansfield Lab										
% Total Gravel	12.0		%	0.100	NA	1	-	05/19/21 14:14	12,D6913/D7928	SM
% Coarse Sand	11.7		%	0.100	NA	1	-	05/19/21 14:14	12,D6913/D7928	SM
% Medium Sand	9.40		%	0.100	NA	1	-	05/19/21 14:14	12,D6913/D7928	SM
% Fine Sand	4.00		%	0.100	NA	1	-	05/19/21 14:14	12,D6913/D7928	SM
% Total Fines	62.9		%	0.100	NA	1	-	05/19/21 14:14	12,D6913/D7928	SM

Project Name: PEAR TREE POINT
Project Number: 2190362
Lab Number: L2122223
Report Date: 05/25/21

SAMPLE RESULTS

Lab ID: L2122223-12
Client ID: PTP-11
Sample Location: DARIEN, CT
Sample Depth:
Matrix: Sediment

Date Collected: 04/28/21 13:10
Date Received: 04/29/21
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
RIM Grain Size Analysis - Mansfield Lab										
% Total Gravel	4.10		%	0.100	NA	1	-	05/19/21 14:14	12,D6913/D7928	SM
% Coarse Sand	10.7		%	0.100	NA	1	-	05/19/21 14:14	12,D6913/D7928	SM
% Medium Sand	11.1		%	0.100	NA	1	-	05/19/21 14:14	12,D6913/D7928	SM
% Fine Sand	3.50		%	0.100	NA	1	-	05/19/21 14:14	12,D6913/D7928	SM
% Total Fines	70.6		%	0.100	NA	1	-	05/19/21 14:14	12,D6913/D7928	SM

Project Name: PEAR TREE POINT
Project Number: 2190362
Lab Number: L2122223
Report Date: 05/25/21

SAMPLE RESULTS

Lab ID: L2122223-13
Client ID: PTP-12
Sample Location: DARIEN, CT
Sample Depth:
Matrix: Sediment

Date Collected: 04/28/21 12:50
Date Received: 04/29/21
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
RIM Grain Size Analysis - Mansfield Lab										
% Total Gravel	3.40		%	0.100	NA	1	-	05/19/21 14:14	12,D6913/D7928	SM
% Coarse Sand	9.70		%	0.100	NA	1	-	05/19/21 14:14	12,D6913/D7928	SM
% Medium Sand	15.3		%	0.100	NA	1	-	05/19/21 14:14	12,D6913/D7928	SM
% Fine Sand	6.40		%	0.100	NA	1	-	05/19/21 14:14	12,D6913/D7928	SM
% Total Fines	65.2		%	0.100	NA	1	-	05/19/21 14:14	12,D6913/D7928	SM

Project Name: PEAR TREE POINT
Project Number: 2190362
Lab Number: L2122223
Report Date: 05/25/21

SAMPLE RESULTS

Lab ID: L2122223-14
Client ID: PTP-13
Sample Location: DARIEN, CT
Sample Depth:
Matrix: Sediment

Date Collected: 04/28/21 12:20
Date Received: 04/29/21
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
RIM Grain Size Analysis - Mansfield Lab										
% Total Gravel	7.50		%	0.100	NA	1	-	05/19/21 14:14	12,D6913/D7928	SM
% Coarse Sand	14.3		%	0.100	NA	1	-	05/19/21 14:14	12,D6913/D7928	SM
% Medium Sand	18.2		%	0.100	NA	1	-	05/19/21 14:14	12,D6913/D7928	SM
% Fine Sand	8.20		%	0.100	NA	1	-	05/19/21 14:14	12,D6913/D7928	SM
% Total Fines	51.8		%	0.100	NA	1	-	05/19/21 14:14	12,D6913/D7928	SM

Project Name: PEAR TREE POINT
Project Number: 2190362
Lab Number: L2122223
Report Date: 05/25/21

SAMPLE RESULTS

Lab ID: L2122223-15
Client ID: PTP-14
Sample Location: DARIEN, CT
Sample Depth:
Matrix: Sediment

Date Collected: 04/28/21 11:30
Date Received: 04/29/21
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
RIM Grain Size Analysis - Mansfield Lab										
% Total Gravel	0.800		%	0.100	NA	1	-	05/19/21 14:14	12,D6913/D7928	SM
% Coarse Sand	4.60		%	0.100	NA	1	-	05/19/21 14:14	12,D6913/D7928	SM
% Medium Sand	27.0		%	0.100	NA	1	-	05/19/21 14:14	12,D6913/D7928	SM
% Fine Sand	37.0		%	0.100	NA	1	-	05/19/21 14:14	12,D6913/D7928	SM
% Total Fines	30.6		%	0.100	NA	1	-	05/19/21 14:14	12,D6913/D7928	SM

Project Name: PEAR TREE POINT
Project Number: 2190362
Lab Number: L2122223
Report Date: 05/25/21

SAMPLE RESULTS

Lab ID: L2122223-16
Client ID: PTP-15
Sample Location: DARIEN, CT
Sample Depth:
Matrix: Sediment

Date Collected: 04/28/21 11:00
Date Received: 04/29/21
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
RIM Grain Size Analysis - Mansfield Lab										
% Total Gravel	0.900		%	0.100	NA	1	-	05/19/21 14:14	12,D6913/D7928	SM
% Coarse Sand	1.80		%	0.100	NA	1	-	05/19/21 14:14	12,D6913/D7928	SM
% Medium Sand	30.9		%	0.100	NA	1	-	05/19/21 14:14	12,D6913/D7928	SM
% Fine Sand	50.7		%	0.100	NA	1	-	05/19/21 14:14	12,D6913/D7928	SM
% Total Fines	15.7		%	0.100	NA	1	-	05/19/21 14:14	12,D6913/D7928	SM

Lab Duplicate Analysis

Batch Quality Control

Project Name: PEAR TREE POINT

Project Number: 2190362

Lab Number: L2122223

Report Date: 05/25/21

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
RIM Grain Size Analysis - Mansfield Lab Associated sample(s): 01-16 QC Batch ID: WG1501060-1 QC Sample: L2122223-11 Client ID: PTP-10						
% Total Gravel	12.0	9.40	%	24		25
% Coarse Sand	11.7	11.5	%	2		25
% Medium Sand	9.40	7.80	%	19		25
% Fine Sand	4.00	4.40	%	10		25
% Total Fines	62.9	66.9	%	6		25

Project Name: PEAR TREE POINT
Project Number: 2190362

Lab Number: L2122223
Report Date: 05/25/21

Sample Receipt and Container Information

Were project specific reporting limits specified? YES

Cooler Information

Cooler	Custody Seal
A	Absent
B	Absent

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2122223-01A	Plastic 8oz unpreserved for Grain Size	B	NA		3.4	Y	Absent		A2-RIMHYDRO-CSAND(),A2-RIMHYDRO-MSAND(),A2-RIMHYDRO-TFINE(),A2-RIMHYDRO-TGRAVEL(),A2-RIMHYDRO-FSAND()
L2122223-02A	Plastic 8oz unpreserved for Grain Size	B	NA		3.4	Y	Absent		A2-RIMHYDRO-CSAND(),A2-RIMHYDRO-MSAND(),A2-RIMHYDRO-TFINE(),A2-RIMHYDRO-TGRAVEL(),A2-RIMHYDRO-FSAND()
L2122223-03A	Plastic 8oz unpreserved for Grain Size	B	NA		3.4	Y	Absent		A2-RIMHYDRO-CSAND(),A2-RIMHYDRO-MSAND(),A2-RIMHYDRO-TFINE(),A2-RIMHYDRO-TGRAVEL(),A2-RIMHYDRO-FSAND()
L2122223-04A	Plastic 8oz unpreserved for Grain Size	B	NA		3.4	Y	Absent		A2-RIMHYDRO-CSAND(),A2-RIMHYDRO-MSAND(),A2-RIMHYDRO-TFINE(),A2-RIMHYDRO-TGRAVEL(),A2-RIMHYDRO-FSAND()
L2122223-05A	Plastic 8oz unpreserved for Grain Size	B	NA		3.4	Y	Absent		A2-RIMHYDRO-CSAND(),A2-RIMHYDRO-MSAND(),A2-RIMHYDRO-TFINE(),A2-RIMHYDRO-TGRAVEL(),A2-RIMHYDRO-FSAND()
L2122223-06A	Plastic 8oz unpreserved for Grain Size	B	NA		3.4	Y	Absent		A2-RIMHYDRO-CSAND(),A2-RIMHYDRO-MSAND(),A2-RIMHYDRO-TFINE(),A2-RIMHYDRO-TGRAVEL(),A2-RIMHYDRO-FSAND()
L2122223-07A	Plastic 8oz unpreserved for Grain Size	B	NA		3.4	Y	Absent		A2-RIMHYDRO-CSAND(),A2-RIMHYDRO-MSAND(),A2-RIMHYDRO-TFINE(),A2-RIMHYDRO-TGRAVEL(),A2-RIMHYDRO-FSAND()
L2122223-08A	Plastic 8oz unpreserved for Grain Size	A	NA		2.7	Y	Absent		A2-RIMHYDRO-CSAND(),A2-RIMHYDRO-MSAND(),A2-RIMHYDRO-TFINE(),A2-RIMHYDRO-TGRAVEL(),A2-RIMHYDRO-FSAND()
L2122223-09A	Plastic 8oz unpreserved for Grain Size	A	NA		2.7	Y	Absent		A2-RIMHYDRO-CSAND(),A2-RIMHYDRO-MSAND(),A2-RIMHYDRO-TFINE(),A2-RIMHYDRO-TGRAVEL(),A2-RIMHYDRO-FSAND()

*Values in parentheses indicate holding time in days

Project Name: PEAR TREE POINT
Project Number: 2190362

Lab Number: L2122223
Report Date: 05/25/21

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2122223-10A	Plastic 8oz unpreserved for Grain Size	A	NA		2.7	Y	Absent		A2-RIMHYDRO-CSAND(),A2-RIMHYDRO-MSAND(),A2-RIMHYDRO-TFINE(),A2-RIMHYDRO-TGRAVEL(),A2-RIMHYDRO-FSAND()
L2122223-11A	Plastic 8oz unpreserved for Grain Size	A	NA		2.7	Y	Absent		A2-RIMHYDRO-CSAND(),A2-RIMHYDRO-MSAND(),A2-RIMHYDRO-TFINE(),A2-RIMHYDRO-TGRAVEL(),A2-RIMHYDRO-FSAND()
L2122223-11A1	Plastic 8oz unpreserved for Grain Size	A	NA		2.7	Y	Absent		A2-RIMHYDRO-CSAND(),A2-RIMHYDRO-MSAND(),A2-RIMHYDRO-TFINE(),A2-RIMHYDRO-TGRAVEL(),A2-RIMHYDRO-FSAND()
L2122223-12A	Plastic 8oz unpreserved for Grain Size	A	NA		2.7	Y	Absent		A2-RIMHYDRO-CSAND(),A2-RIMHYDRO-MSAND(),A2-RIMHYDRO-TFINE(),A2-RIMHYDRO-TGRAVEL(),A2-RIMHYDRO-FSAND()
L2122223-13A	Plastic 8oz unpreserved for Grain Size	A	NA		2.7	Y	Absent		A2-RIMHYDRO-CSAND(),A2-RIMHYDRO-MSAND(),A2-RIMHYDRO-TFINE(),A2-RIMHYDRO-TGRAVEL(),A2-RIMHYDRO-FSAND()
L2122223-14A	Plastic 8oz unpreserved for Grain Size	A	NA		2.7	Y	Absent		A2-RIMHYDRO-CSAND(),A2-RIMHYDRO-MSAND(),A2-RIMHYDRO-TFINE(),A2-RIMHYDRO-TGRAVEL(),A2-RIMHYDRO-FSAND()
L2122223-15A	Plastic 8oz unpreserved for Grain Size	A	NA		2.7	Y	Absent		A2-RIMHYDRO-CSAND(),A2-RIMHYDRO-MSAND(),A2-RIMHYDRO-TFINE(),A2-RIMHYDRO-TGRAVEL(),A2-RIMHYDRO-FSAND()
L2122223-16A	Plastic 8oz unpreserved for Grain Size	A	NA		2.7	Y	Absent		A2-RIMHYDRO-CSAND(),A2-RIMHYDRO-MSAND(),A2-RIMHYDRO-TFINE(),A2-RIMHYDRO-TGRAVEL(),A2-RIMHYDRO-FSAND()

*Values in parentheses indicate holding time in days

Project Name:	PEAR TREE POINT	**Lab Number:**	L2122223
Project Number:	2190362	**Report Date:**	05/25/21

GLOSSARY

Acronyms

DL - Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the limit of quantitation (LOQ). The DL includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)

EDL - Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).

EMPC - Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration.

EPA - Environmental Protection Agency.

LCS - Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.

LCSD - Laboratory Control Sample Duplicate: Refer to LCS.

LFB - Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.

LOD - Limit of Detection: This value represents the level to which a target analyte can reliably be detected for a specific analyte in a specific matrix by a specific method. The LOD includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)

LOQ - Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)

Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)

MDL - Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.

MS - Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available. For Method 332.0, the spike recovery is calculated using the native concentration, including estimated values.

MSD - Matrix Spike Sample Duplicate: Refer to MS.

NA - Not Applicable.

NC - Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.

NDPA/DPA - N-Nitrosodiphenylamine/Diphenylamine.

NI - Not Ignitable.

NP - Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.

NR - No Results: Term is utilized when 'No Target Compounds Requested' is reported for the analysis of Volatile or Semivolatile Organic TIC only requests.

RL - Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.

RPD - Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.

SRM - Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.

STLP - Semi-dynamic Tank Leaching Procedure per EPA Method 1315.

TEF - Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.

TEQ - Toxic Equivalent: The measure of a sample's toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.

TIC - Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

Report Format: DU Report with 'J' Qualifiers

Project Name:	PEAR TREE POINT	**Lab Number:**	L2122223
Project Number:	2190362	**Report Date:**	05/25/21

Footnotes

1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Difference: With respect to Total Oxidizable Precursor (TOP) Assay analysis, the difference is defined as the Post-Treatment value minus the Pre-Treatment value.

Final pH: As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

Frozen Date/Time: With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

Initial pH: As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

PAH Total: With respect to Alkylated PAH analyses, the 'PAHs, Total' result is defined as the summation of results for all or a subset of the following compounds: Naphthalene, C1-C4 Naphthalenes, 2-Methylnaphthalene, 1-Methylnaphthalene, Biphenyl, Acenaphthylene, Acenaphthene, Fluorene, C1-C3 Fluorenes, Phenanthrene, C1-C4 Phenanthrenes/Anthracenes, Anthracene, Fluoranthene, Pyrene, C1-C4 Fluoranthenes/Pyrenes, Benz(a)anthracene, Chrysene, C1-C4 Chrysenes, Benzo(b)fluoranthene, Benzo(j)+(k)fluoranthene, Benzo(e)pyrene, Benzo(a)pyrene, Perylene, Indeno(1,2,3-cd)pyrene, Dibenz(ah)+(ac)anthracene, Benzo(g,h,i)perylene. If a 'Total' result is requested, the results of its individual components will also be reported.

PFAS Total: With respect to PFAS analyses, the 'PFAS, Total (5)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA and PFOS. In addition, the 'PFAS, Total (6)' result is defined as the summation of results at or above the RL for: PFHpA, PFHxS, PFOA, PFNA, PFDA and PFOS. (Note: 'PFAS, Total (6)' is applicable to MassDEP DW compliance analysis only.). If a 'Total' result is requested, the results of its individual components will also be reported.

The target compound Chlordane (CAS No. 57-74-9) is reported for GC ECD analyses. Per EPA,this compound "refers to a mixture of chlordane isomers, other chlorinated hydrocarbons and numerous other components." (Reference: USEPA Toxicological Review of Chlordane, In Support of Summary Information on the Integrated Risk Information System (IRIS), December 1997.)

Total: With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

Data Qualifiers

A - Spectra identified as "Aldol Condensates" are byproducts of the extraction/concentration procedures when acetone is introduced in the process.

B - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).

C - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.

D - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.

E - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.

F - The ratio of quantifier ion response to qualifier ion response falls outside of the laboratory criteria. Results are considered to be an estimated maximum concentration.

G - The concentration may be biased high due to matrix interferences (i.e, co-elution) with non-target compound(s). The result should be considered estimated.

H - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.

I - The lower value for the two columns has been reported due to obvious interference.

J - Estimated value. The Target analyte concentration is below the quantitation limit (RL), but above the Method Detection Limit (MDL) or Estimated Detection Limit (EDL) for SPME-related analyses. This represents an estimated concentration for Tentatively Identified Compounds (TICs).

M - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.

ND - Not detected at the method detection limit (MDL) for the sample, or estimated detection limit (EDL) for SPME-related analyses.

Report Format: DU Report with 'J' Qualifiers

Project Name:	PEAR TREE POINT	**Lab Number:**	L2122223
Project Number:	2190362	**Report Date:**	05/25/21

Data Qualifiers

NJ - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.

P - The RPD between the results for the two columns exceeds the method-specified criteria.

Q - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)

R - Analytical results are from sample re-analysis.

RE - Analytical results are from sample re-extraction.

S - Analytical results are from modified screening analysis.

REFERENCES

12 Annual Book of ASTM Standards. (American Society for Testing and Materials) ASTM International.

LIMITATION OF LIABILITIES

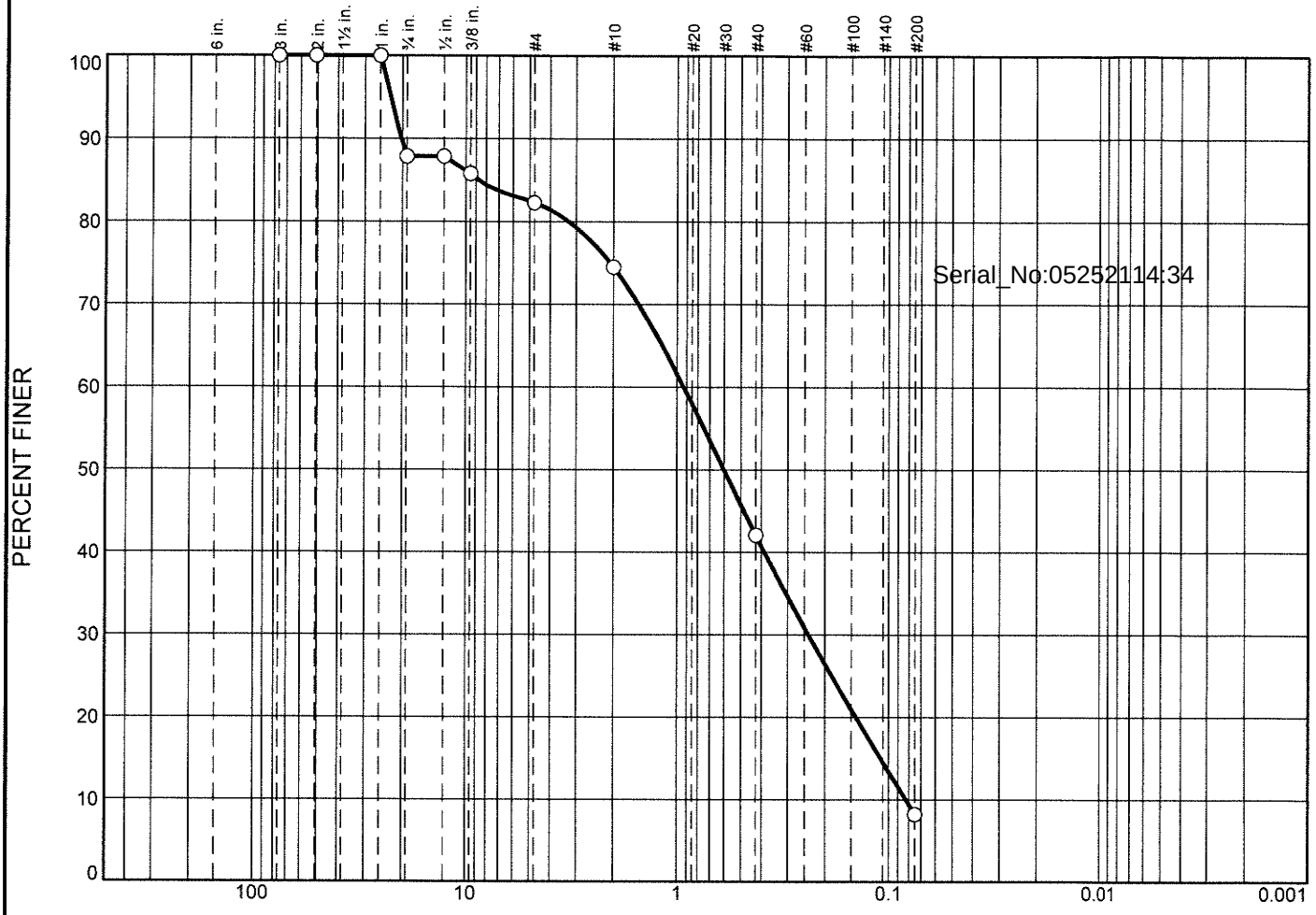
Alpha Analytical performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Alpha Analytical shall be to re-perform the work at it's own expense. In no event shall Alpha Analytical be held liable for any incidental, consequential or special damages, including but not limited to, damages in any way connected with the use of, interpretation of, information or analysis provided by Alpha Analytical.

We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding time and splitting of samples in the field.

ASTM D6913/D7928

GRAIN SIZE ANALYSIS

Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	12.1	5.6	7.8	32.4	33.9	8.2	

	LL	PL	D_{85}	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_c	C_u
○			8.7152	0.9306	0.6009	0.2394	0.1089	0.0828	0.74	11.25

	Material Description	USCS	AASHTO
○			

Project No. **Client:**

Project:

○ **Source of Sample:** PTP-1 **Sample Number:** L2122223-01

Remarks:

Alpha Analytical

Mansfield, MA

Figure

GRAIN SIZE DISTRIBUTION TEST DATA

5/25/2021

Location: PTP-1

Sample Number: L2122223-01

Sieve Test Data

Post #200 Wash Test Weights (grams): **Dry Sample and Tare =** 144.65
Tare Wt. = 0.00
Minus #200 from wash = 0.0%

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
144.65	0.00	3'	0.00	0.00	100.0
		2"	0.00	0.00	100.0
		1"	0.00	0.00	100.0
		0.75"	17.55	0.00	87.9
		0.50"	0.00	0.00	87.9
		0.375"	3.00	0.00	85.8
		#4	5.08	0.00	82.3
		#10	11.24	0.00	74.5
		#40	46.90	0.00	42.1
		#200	49.00	0.00	8.2

Serial_No:05252114:34

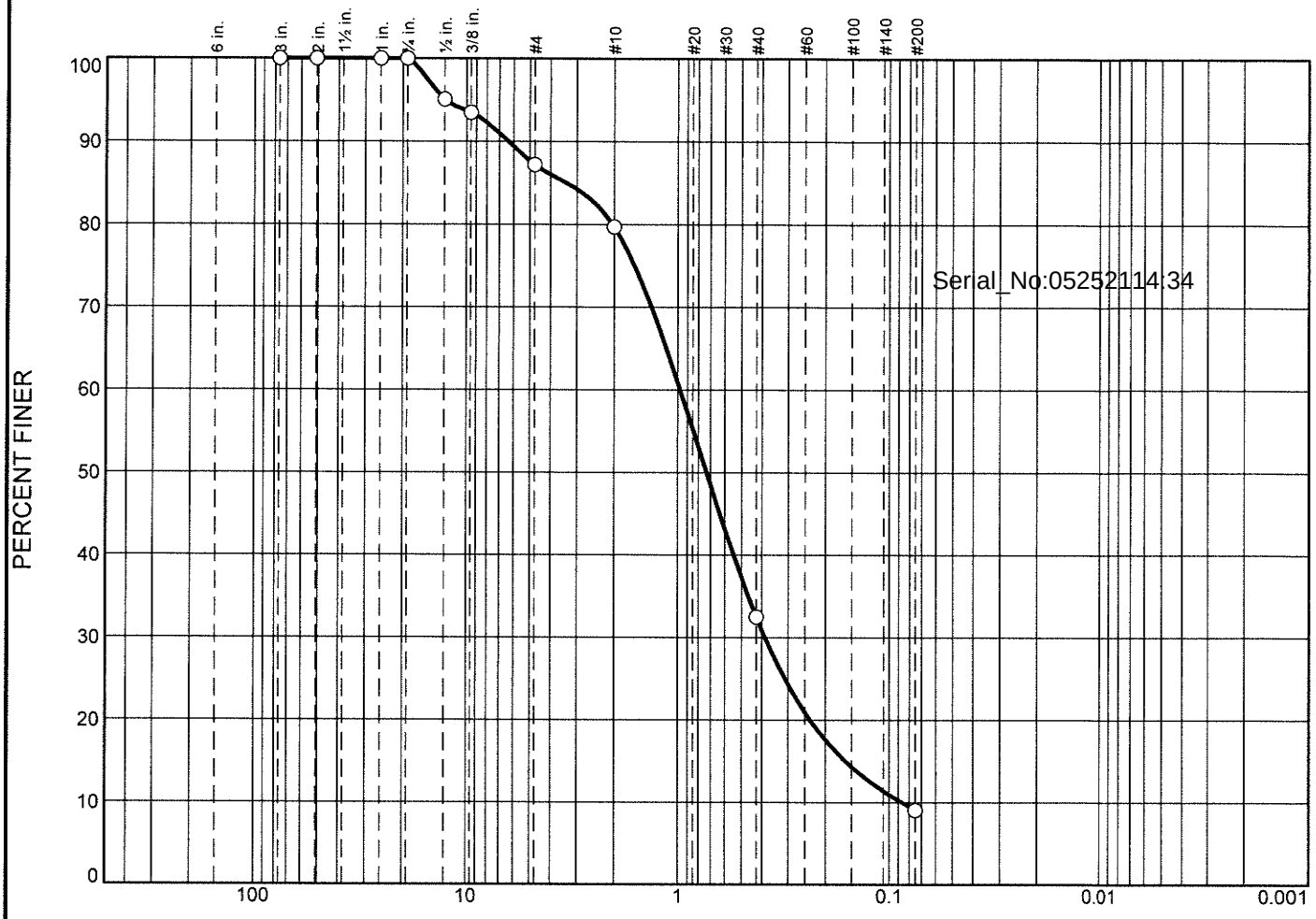
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	12.1	5.6	17.7	7.8	32.4	33.9	74.1			8.2

D_5	D_{10}	D_{15}	D_{20}	D_{30}	D_{40}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
	0.0828	0.1089	0.1426	0.2394	0.3866	0.6009	0.9306	3.2627	8.7152	20.2908	22.6573

Fineness Modulus	C_u	C_c
2.97	11.25	0.74

Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	12.8	7.5	47.2	23.5	9.0	

	LL	PL	D_{85}	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_c	C_u
○			3.3649	0.9743	0.7308	0.3866	0.1605	0.0869	1.77	11.22

	Material Description	USCS	AASHTO
○			

Project No. **Client:**

Project:

○ **Source of Sample:** PTP-2 **Sample Number:** L2122223-02

Remarks:

Alpha Analytical

Mansfield, MA

Figure

GRAIN SIZE DISTRIBUTION TEST DATA

5/25/2021

Location: PTP-2

Sample Number: L2122223-02

Sieve Test Data

Post #200 Wash Test Weights (grams): **Dry Sample and Tare =** 126.52
Tare Wt. = 0.00
Minus #200 from wash = 0.0%

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
126.52	0.00	3'	0.00	0.00	100.0
		2"	0.00	0.00	100.0
		1"	0.00	0.00	100.0
		0.75"	0.00	0.00	100.0
		0.50"	6.22	0.00	95.1
		0.375"	2.02	0.00	93.5
		#4	7.94	0.00	87.2
		#10	9.53	0.00	79.7
		#40	59.68	0.00	32.5
		#200	29.69	0.00	9.0

Serial_No:05252114:34

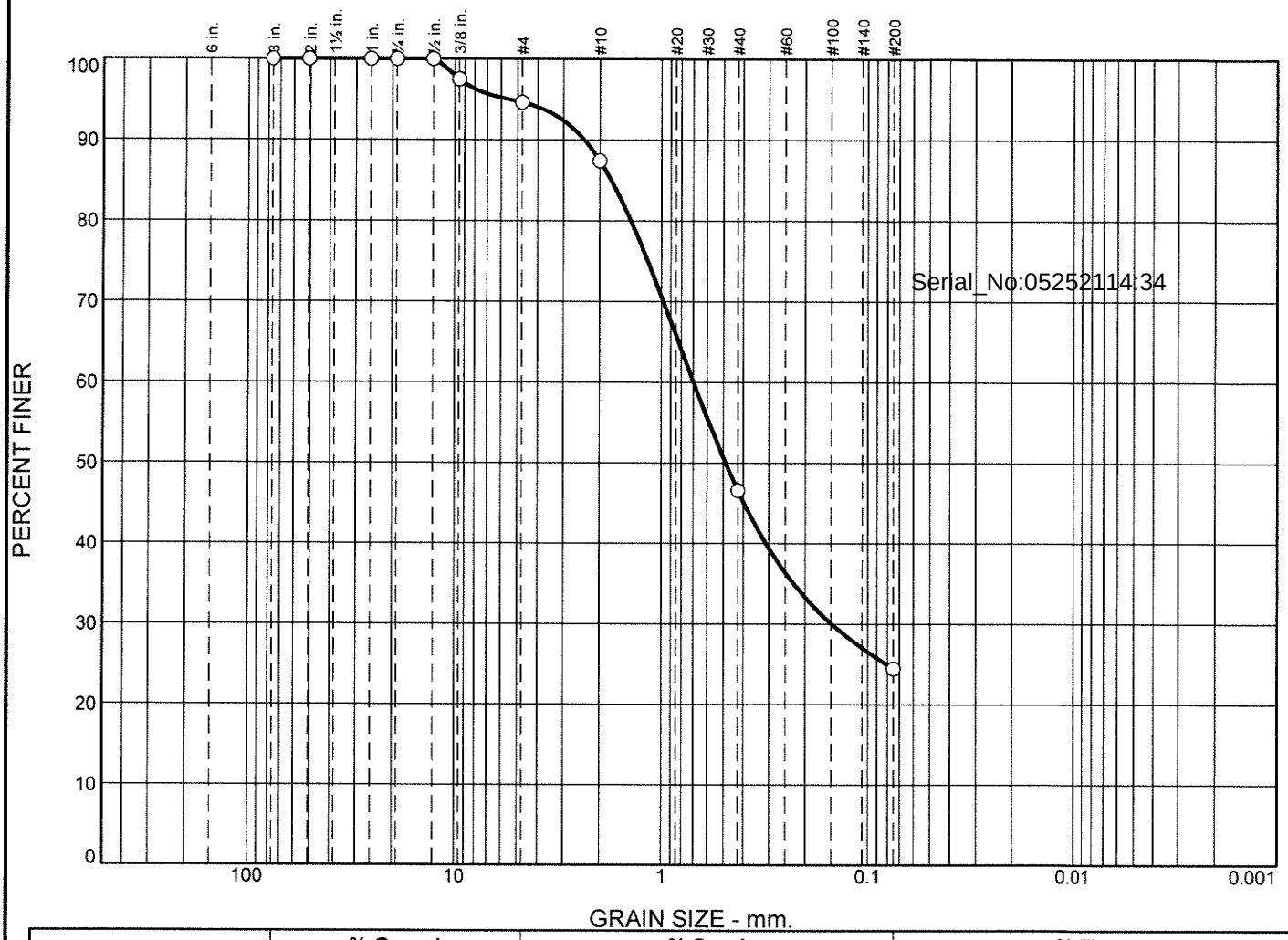
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	12.8	12.8	7.5	47.2	23.5	78.2			9.0

D_5	D_{10}	D_{15}	D_{20}	D_{30}	D_{40}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
	0.0869	0.1605	0.2360	0.3866	0.5445	0.7308	0.9743	2.0384	3.3649	6.3533	12.5866

Fineness Modulus	C_u	C_c
2.89	11.22	1.77

Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	5.4	7.2	40.8	22.2	24.4	

	LL	PL	D_{85}	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_c	C_u
○			1.7577	0.6970	0.4878	0.1485				

	Material Description	USCS	AASHTO
○			

Project No. **Client:**

Project:

○ **Source of Sample:** PTP-3 **Sample Number:** L2122223-03

Remarks:

Alpha Analytical

Mansfield, MA

Figure

GRAIN SIZE DISTRIBUTION TEST DATA

5/25/2021

Location: PTP-3

Sample Number: L2122223-03

Sieve Test Data

Post #200 Wash Test Weights (grams): **Dry Sample and Tare =** 89.38
Tare Wt. = 0.00
Minus #200 from wash = 0.0%

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
89.38	0.00	3'	0.00	0.00	100.0
		2"	0.00	0.00	100.0
		1"	0.00	0.00	100.0
		0.75"	0.00	0.00	100.0
		0.50"	0.00	0.00	100.0
		0.375"	2.25	0.00	97.5
		#4	2.54	0.00	94.6
		#10	6.45	0.00	87.4
		#40	36.52	0.00	46.6
		#200	19.77	0.00	24.4

Serial_No:05252114:34

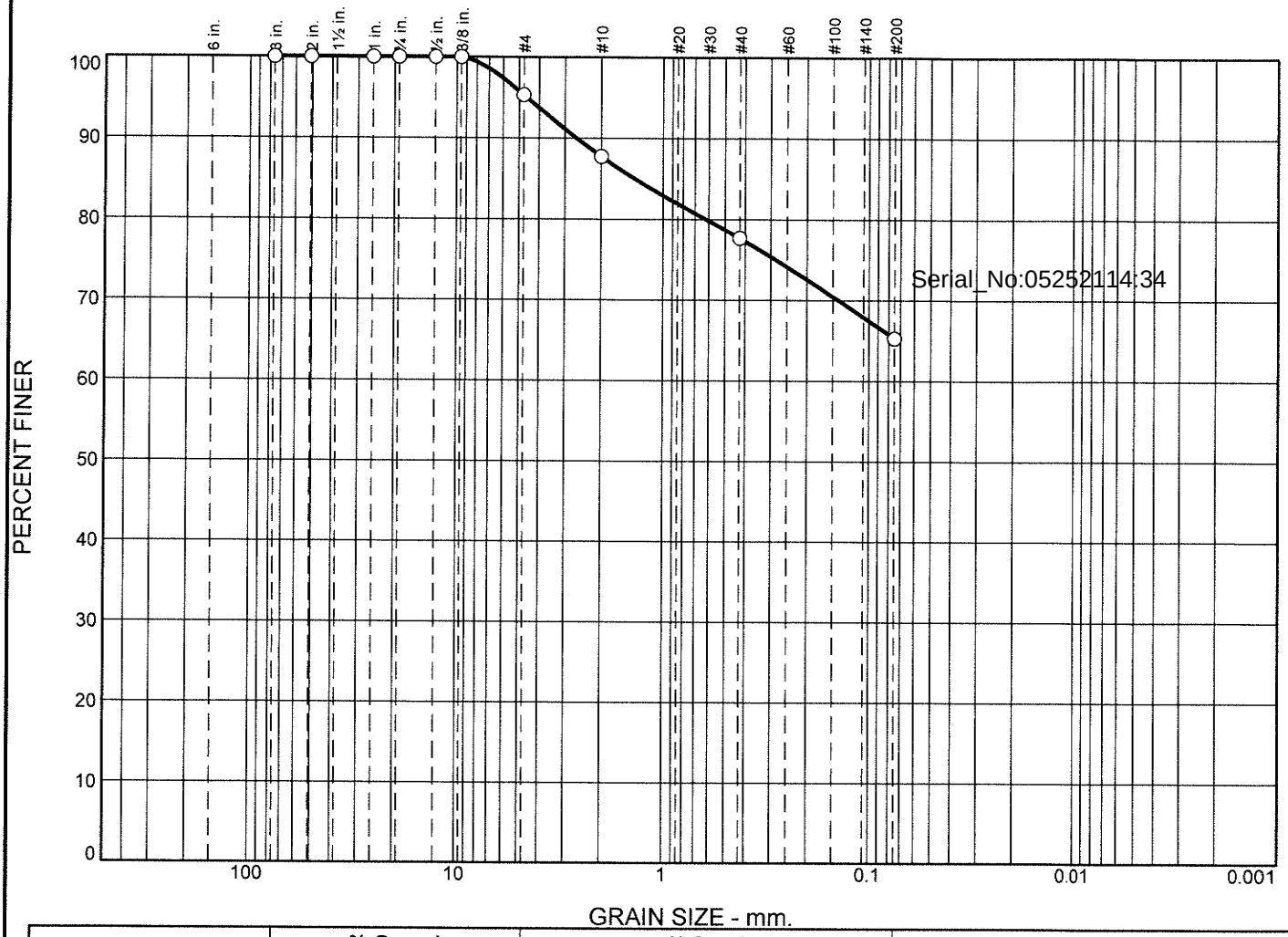
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	5.4	5.4	7.2	40.8	22.2	70.2			24.4

D_5	D_{10}	D_{15}	D_{20}	D_{30}	D_{40}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
				0.1485	0.3105	0.4878	0.6970	1.4108	1.7577	2.3794	5.4960

Fineness Modulus
2.18

Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	4.7	7.6	10.0	12.4	65.3	

	LL	PL	D_{85}	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_c	C_u
○			1.3754							

	Material Description	USCS	AASHTO
○			

Project No. **Client:**

Project:

○ **Source of Sample:** PTP-4 **Sample Number:** L2122223-04

Remarks:

Alpha Analytical

Mansfield, MA

Figure

GRAIN SIZE DISTRIBUTION TEST DATA

5/25/2021

Location: PTP-4

Sample Number: L2122223-04

Sieve Test Data

Post #200 Wash Test Weights (grams): **Dry Sample and Tare =** 46.78
Tare Wt. = 0.00
Minus #200 from wash = 0.0%

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
46.78	0.00	3'	0.00	0.00	100.0
		2"	0.00	0.00	100.0
		1"	0.00	0.00	100.0
		0.75"	0.00	0.00	100.0
		0.50"	0.00	0.00	100.0
		0.375"	0.00	0.00	100.0
		#4	2.19	0.00	95.3
		#10	3.55	0.00	87.7
		#40	4.70	0.00	77.7
		#200	5.79	0.00	65.3

Serial_No:05252114:34

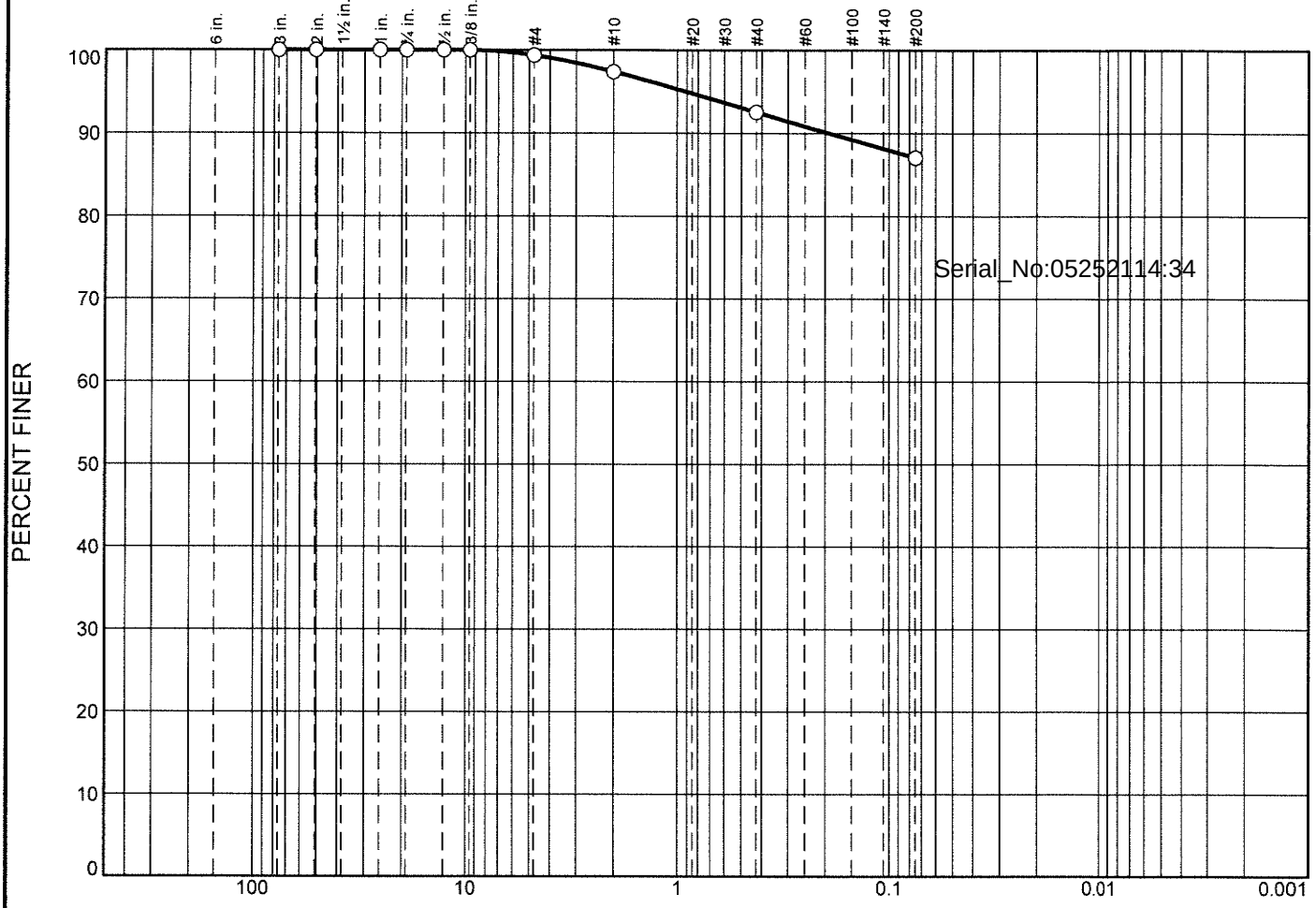
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	4.7	4.7	7.6	10.0	12.4	30.0			65.3

D_5	D_{10}	D_{15}	D_{20}	D_{30}	D_{40}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
								0.6193	1.3754	2.6341	4.5886

Fineness Modulus
1.06

Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	0.6	2.0	4.9	5.4	87.1	

	LL	PL	D_{85}	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_c	C_u
○										

	Material Description	USCS	AASHTO
○			

Project No. **Client:**

Project:

○ **Source of Sample:** PTP-5 **Sample Number:** L2122223-05

Remarks:

Alpha Analytical

Mansfield, MA

Figure

GRAIN SIZE DISTRIBUTION TEST DATA

5/25/2021

Location: PTP-5

Sample Number: L2122223-05

Sieve Test Data

Post #200 Wash Test Weights (grams): **Dry Sample and Tare =** 43.52
Tare Wt. = 0.00
Minus #200 from wash = 0.0%

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
43.52	0.00	3'	0.00	0.00	100.0
		2"	0.00	0.00	100.0
		1"	0.00	0.00	100.0
		0.75"	0.00	0.00	100.0
		0.50"	0.00	0.00	100.0
		0.375"	0.00	0.00	100.0
		#4	0.27	0.00	99.4
		#10	0.86	0.00	97.4
		#40	2.12	0.00	92.5
		#200	2.38	0.00	87.1

Serial_No:05252114:34

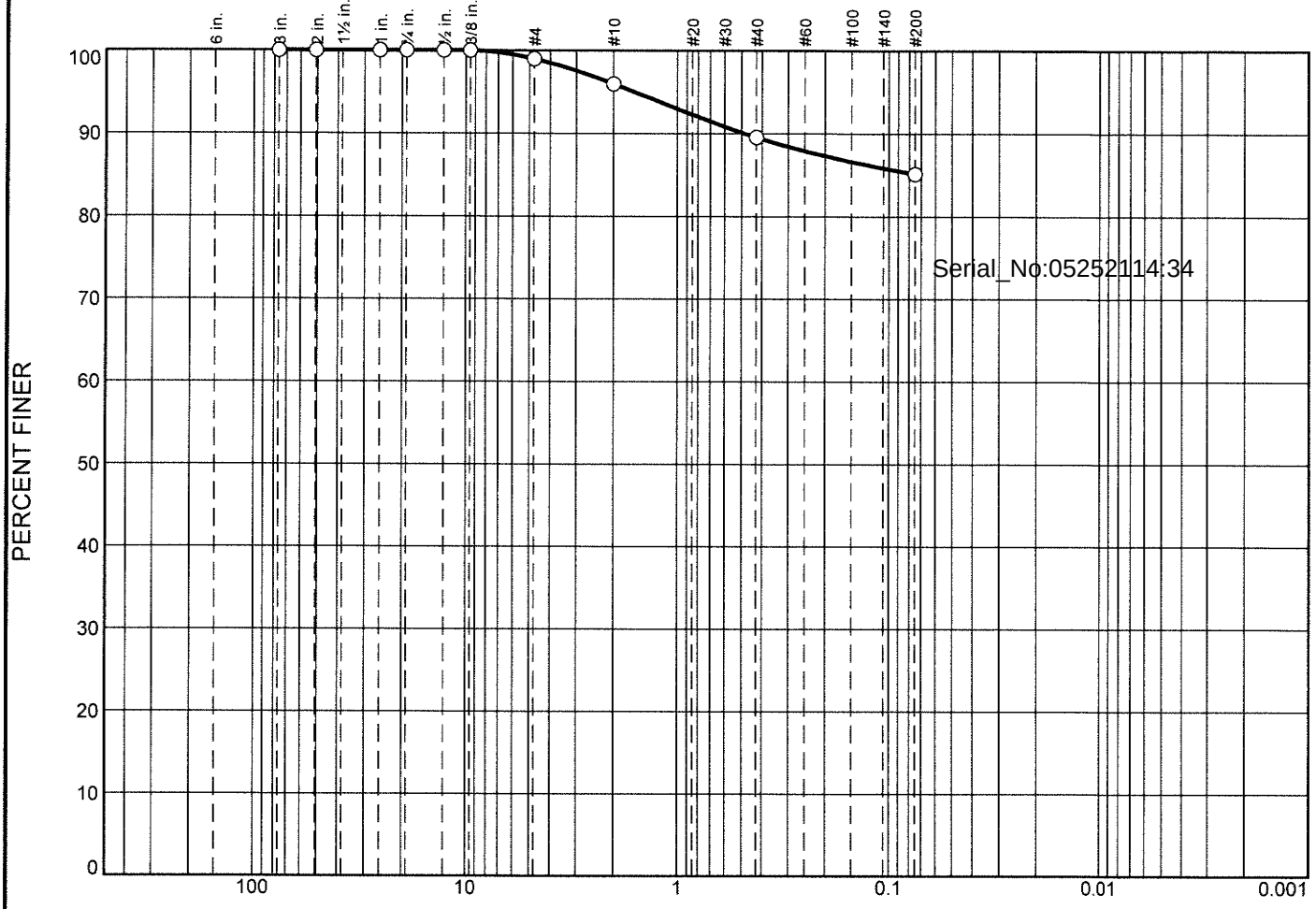
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.6	0.6	2.0	4.9	5.4	12.3			87.1

D_5	D_{10}	D_{15}	D_{20}	D_{30}	D_{40}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
										0.1924	0.9058

Fineness Modulus
0.33

Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	1.0	3.0	6.5	4.4	85.1	

	LL	PL	D_{85}	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_c	C_u
○										

	Material Description	USCS	AASHTO
○			

Project No. **Client:**

Project:

○ **Source of Sample:** PTP-6 **Sample Number:** L2122223-06

Remarks:

Alpha Analytical

Mansfield, MA

Figure

GRAIN SIZE DISTRIBUTION TEST DATA

5/25/2021

Location: PTP-6

Sample Number: L2122223-06

Sieve Test Data

Post #200 Wash Test Weights (grams): **Dry Sample and Tare =** 39.50
Tare Wt. = 0.00
Minus #200 from wash = 0.0%

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
39.50	0.00	3'	0.00	0.00	100.0
		2"	0.00	0.00	100.0
		1"	0.00	0.00	100.0
		0.75"	0.00	0.00	100.0
		0.50"	0.00	0.00	100.0
		0.375"	0.00	0.00	100.0
		#4	0.40	0.00	99.0
		#10	1.19	0.00	96.0
		#40	2.54	0.00	89.5
		#200	1.74	0.00	85.1

Serial_No:05252114:34

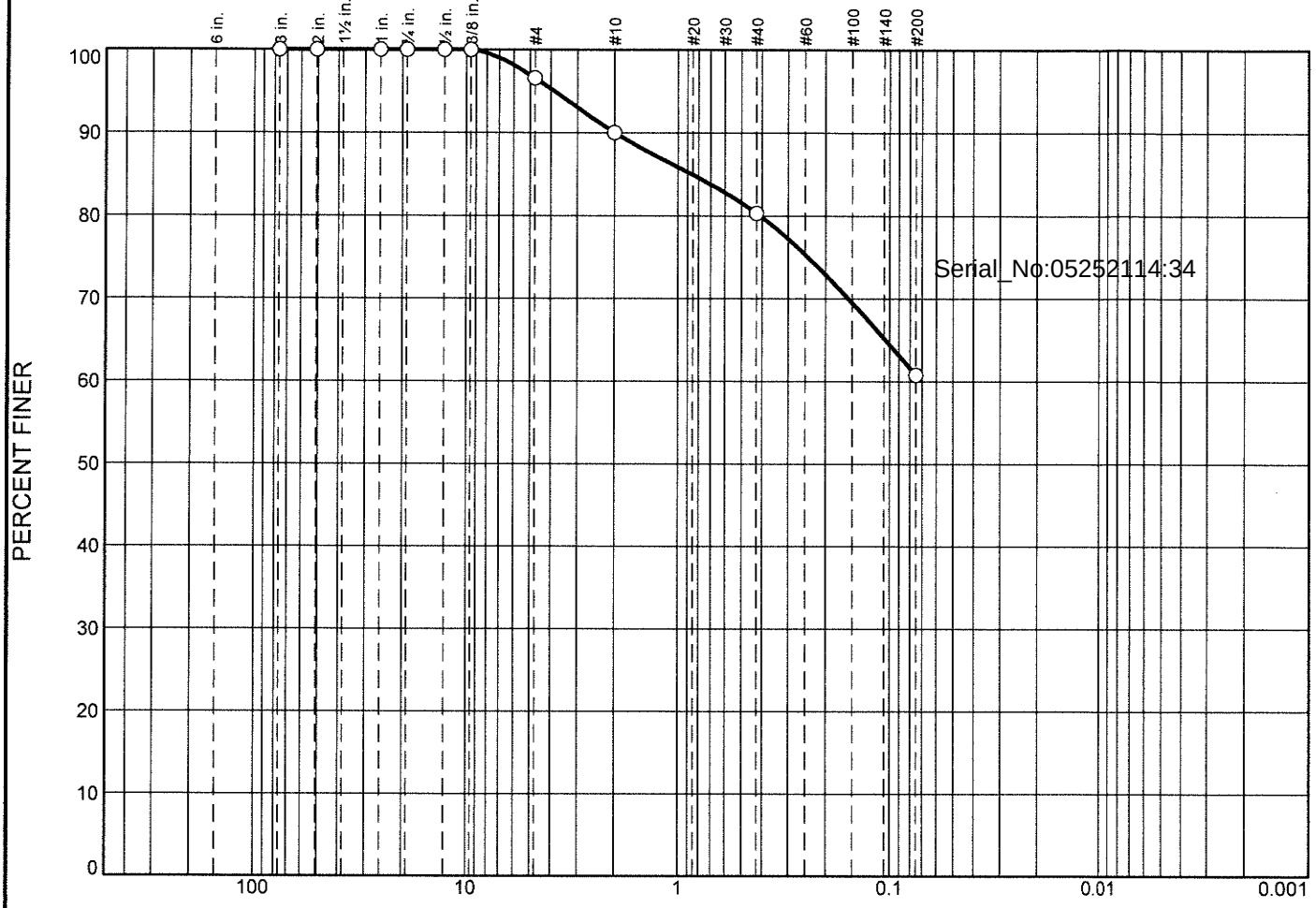
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	1.0	1.0	3.0	6.5	4.4	13.9			85.1

D_5	D_{10}	D_{15}	D_{20}	D_{30}	D_{40}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
										0.4822	1.5881

Fineness Modulus
0.45

Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	3.4	6.6	9.7	19.5	60.8	

	LL	PL	D_{85}	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_c	C_u
○			0.8590							

Material Description	USCS	AASHTO
○		

Project No. **Client:**

Project:

○ **Source of Sample:** PTP-7 **Sample Number:** L2122223-07

Remarks:

Alpha Analytical

Mansfield, MA

Figure

GRAIN SIZE DISTRIBUTION TEST DATA

5/25/2021

Location: PTP-7

Sample Number: L2122223-07

Sieve Test Data

Post #200 Wash Test Weights (grams): **Dry Sample and Tare =** 80.46
Tare Wt. = 0.00
Minus #200 from wash = 0.0%

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
80.46	0.00	3'	0.00	0.00	100.0
		2"	0.00	0.00	100.0
		1"	0.00	0.00	100.0
		0.75"	0.00	0.00	100.0
		0.50"	0.00	0.00	100.0
		0.375"	0.00	0.00	100.0
		#4	2.74	0.00	96.6
		#10	5.28	0.00	90.0
		#40	7.82	0.00	80.3
		#200	15.70	0.00	60.8

Serial_No:05252114:34

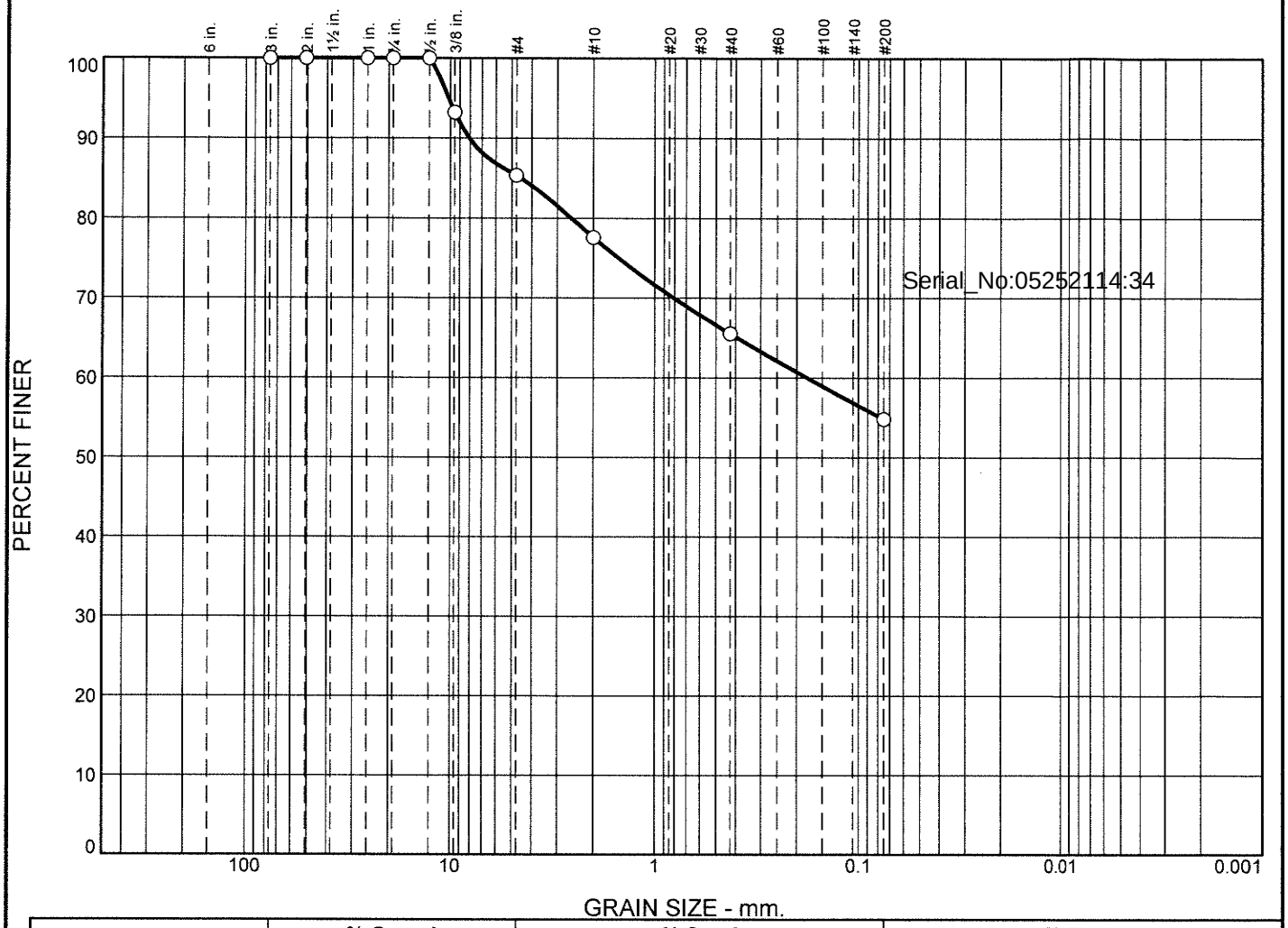
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	3.4	3.4	6.6	9.7	19.5	35.8			60.8

D_5	D_{10}	D_{15}	D_{20}	D_{30}	D_{40}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
								0.4091	0.8590	1.9906	3.8438

Fineness Modulus
0.96

Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	14.7	7.7	12.1	10.7	54.8	

	LL	PL	D_{85}	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_C	C_u
○			4.5222	0.1779						

	Material Description	USCS	AASHTO
○			

Project No. **Client:**

Project:

○ **Source of Sample:** PTP-8 (0.0-1.2FT) **Sample Number:** L2122223-08

Remarks:

Alpha Analytical

Mansfield, MA

Figure

GRAIN SIZE DISTRIBUTION TEST DATA

5/25/2021

Location: PTP-8 (0.0-1.2FT)

Sample Number: L2122223-08

Sieve Test Data

Post #200 Wash Test Weights (grams): **Dry Sample and Tare =** 57.36
Tare Wt. = 0.00
Minus #200 from wash = 0.0%

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
57.36	0.00	3'	0.00	0.00	100.0
		2"	0.00	0.00	100.0
		1"	0.00	0.00	100.0
		0.75"	0.00	0.00	100.0
		0.50"	0.00	0.00	100.0
		0.375"	3.89	0.00	93.2
		#4	4.52	0.00	85.3
		#10	4.44	0.00	77.6
		#40	6.92	0.00	65.5
		#200	6.15	0.00	54.8

Serial_No:05252114:34

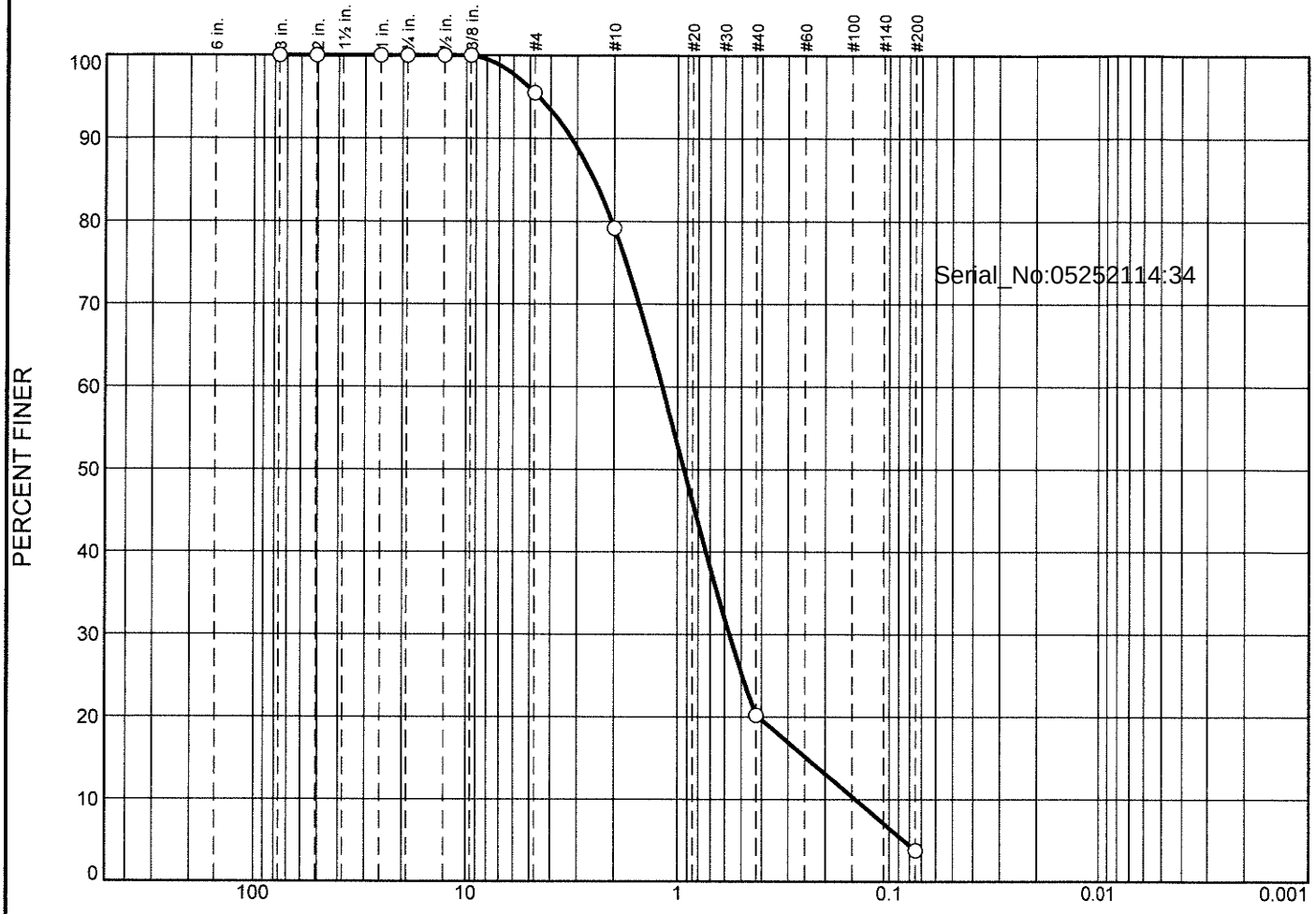
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	14.7	14.7	7.7	12.1	10.7	30.5			54.8

D_5	D_{10}	D_{15}	D_{20}	D_{30}	D_{40}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
							0.1779	2.5631	4.5222	8.0760	10.2152

Fineness Modulus
1.79

Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	4.5	16.3	59.0	16.4	3.8	

	LL	PL	D_{85}	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_C	C_U
○			2.4886	1.1824	0.9318	0.5695	0.2450	0.1446	1.90	8.18

	Material Description	USCS	AASHTO
○		SW	

Project No. **Client:**

Project:

○ **Source of Sample:** PTP-8 (1.2-3.5FT) **Sample Number:** L2122223-09

Alpha Analytical

Mansfield, MA

Remarks:

Figure

GRAIN SIZE DISTRIBUTION TEST DATA

5/25/2021

Location: PTP-8 (1.2-3.5FT)
Sample Number: L2122223-09
USCS Classification: SW

Sieve Test Data

Post #200 Wash Test Weights (grams): **Dry Sample and Tare =** 127.03
Tare Wt. = 0.00
Minus #200 from wash = 0.0%

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
127.03	0.00	3'	0.00	0.00	100.0
		2"	0.00	0.00	100.0
		1"	0.00	0.00	100.0
		0.75"	0.00	0.00	100.0
		0.50"	0.00	0.00	100.0
		0.375"	0.00	0.00	100.0
		#4	5.70	0.00	95.5
		#10	20.72	0.00	79.2
		#40	74.92	0.00	20.2
		#200	20.90	0.00	3.8

Serial_No:05252114:34

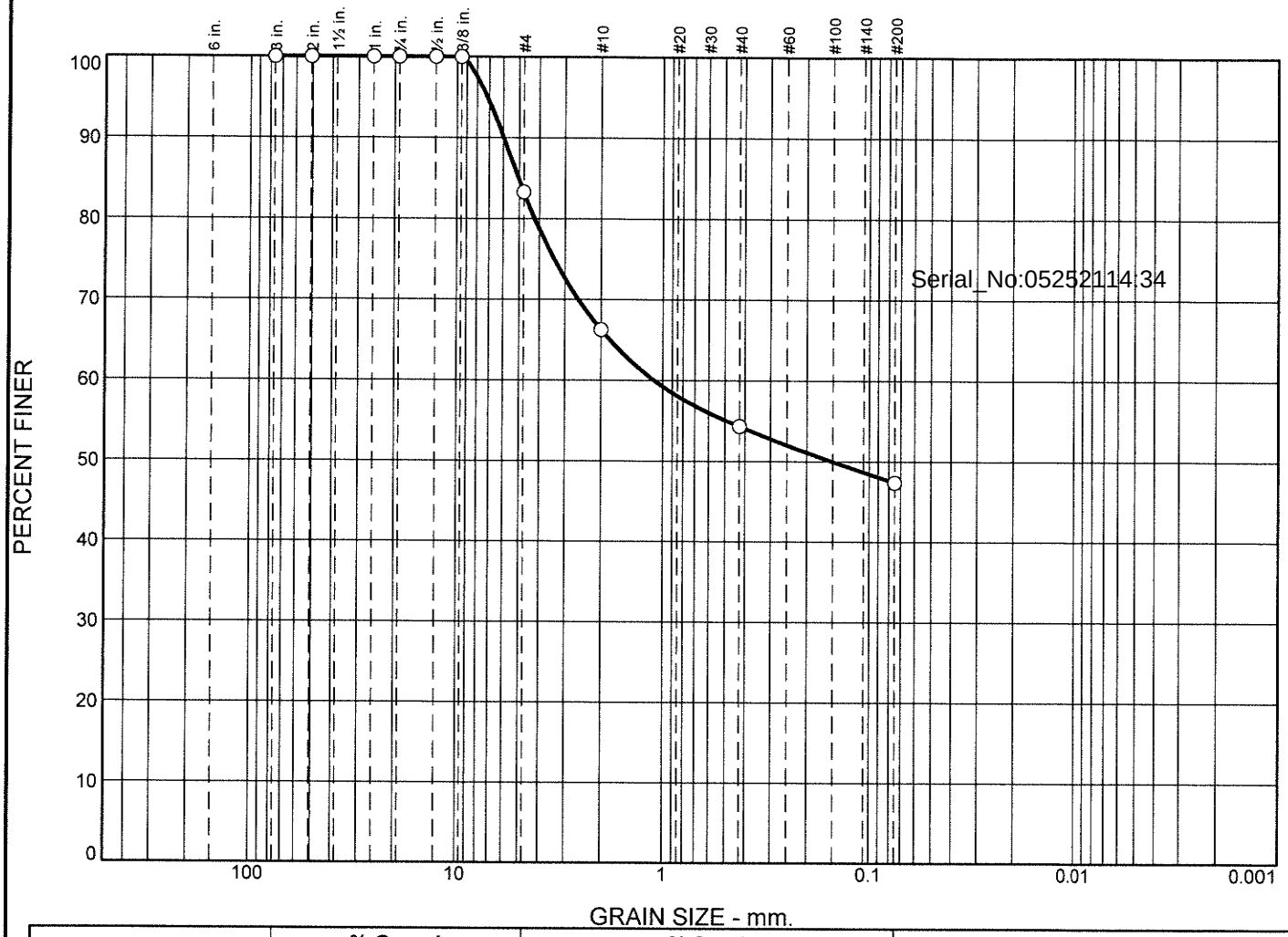
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	4.5	4.5	16.3	59.0	16.4	91.7			3.8

D_5	D_{10}	D_{15}	D_{20}	D_{30}	D_{40}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.0854	0.1446	0.2450	0.4151	0.5695	0.7343	0.9318	1.1824	2.0549	2.4886	3.1865	4.5371

Fineness Modulus	C_u	C_c
3.02	8.18	1.90

Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	16.7	17.0	12.0	6.9	47.4	

	LL	PL	D_{85}	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_c	C_u
○			5.0445	1.1021	0.1511					

Material Description	USCS	AASHTO
○		

Project No. **Client:**

Project:

○ **Source of Sample:** PTP-9 **Sample Number:** L2122223-10

Alpha Analytical

Mansfield, MA

Remarks:

Figure

GRAIN SIZE DISTRIBUTION TEST DATA

5/25/2021

Location: PTP-9

Sample Number: L2122223-10

Sieve Test Data

Post #200 Wash Test Weights (grams): **Dry Sample and Tare =** 54.14
Tare Wt. = 0.00
Minus #200 from wash = 0.0%

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
54.14	0.00	3'	0.00	0.00	100.0
		2"	0.00	0.00	100.0
		1"	0.00	0.00	100.0
		0.75"	0.00	0.00	100.0
		0.50"	0.00	0.00	100.0
		0.375"	0.00	0.00	100.0
		#4	9.06	0.00	83.3
		#10	9.20	0.00	66.3
		#40	6.47	0.00	54.3
		#200	3.77	0.00	47.4

Serial_No:05252114:34

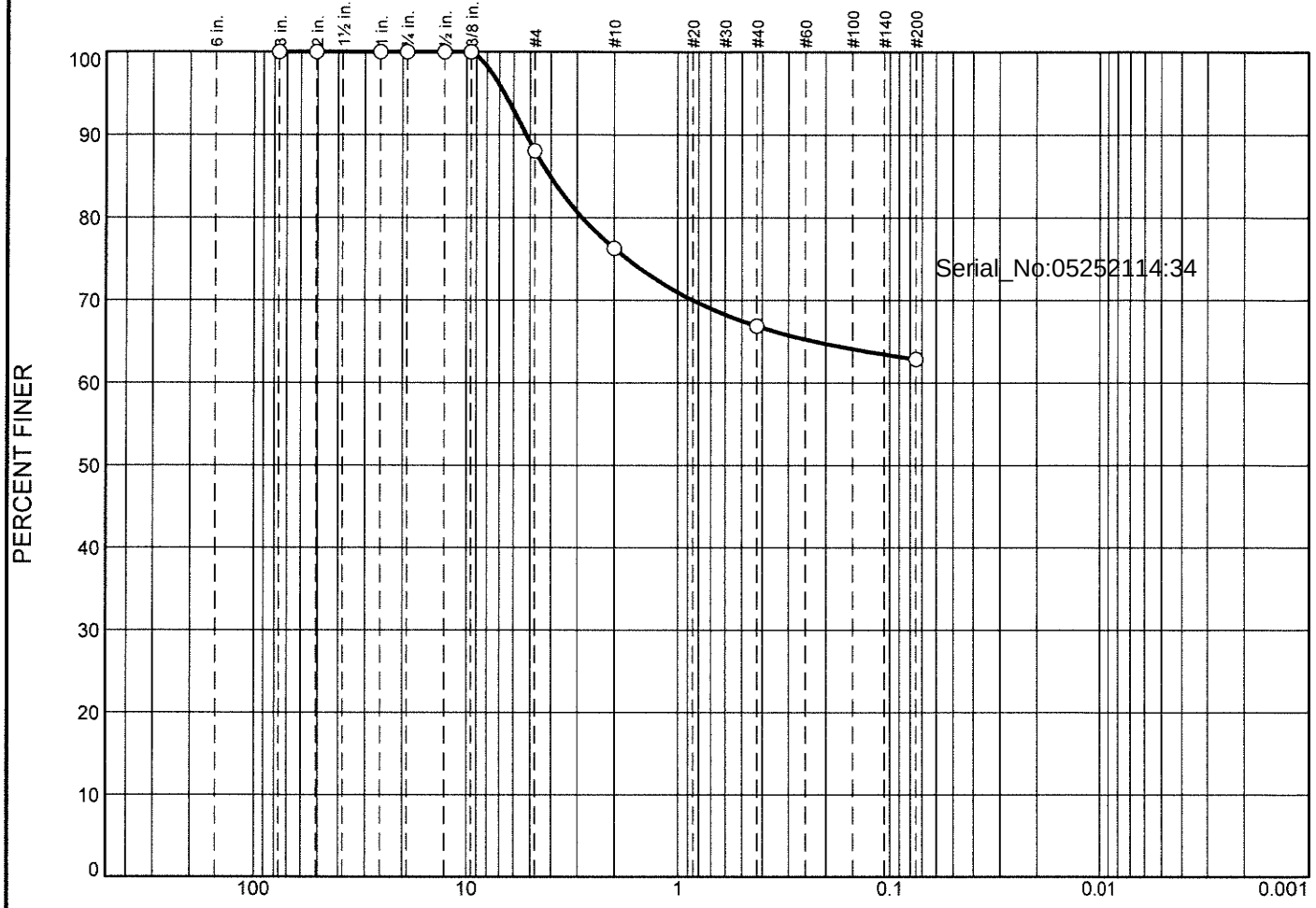
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	16.7	16.7	17.0	12.0	6.9	35.9			47.4

D_5	D_{10}	D_{15}	D_{20}	D_{30}	D_{40}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
						0.1511	1.1021	4.2038	5.0445	5.9620	7.1335

Fineness Modulus
2.29

Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	12.0	11.7	9.4	4.0	62.9	

	LL	PL	D_{85}	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_c	C_u
○			4.0224							

	Material Description	USCS	AASHTO
○			

Project No. **Client:**

Project:

○ **Source of Sample:** PTP-10 **Sample Number:** L2122223-11

Remarks:

Alpha Analytical

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Figure

GRAIN SIZE DISTRIBUTION TEST DATA

5/25/2021

Location: PTP-10

Sample Number: L2122223-11

Sieve Test Data

Post #200 Wash Test Weights (grams): **Dry Sample and Tare =** 25.10
Tare Wt. = 0.00
Minus #200 from wash = 0.0%

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
25.10	0.00	3'	0.00	0.00	100.0
		2"	0.00	0.00	100.0
		1"	0.00	0.00	100.0
		0.75"	0.00	0.00	100.0
		0.50"	0.00	0.00	100.0
		0.375"	0.00	0.00	100.0
		#4	3.00	0.00	88.0
		#10	2.95	0.00	76.3
		#40	2.36	0.00	66.9
		#200	1.01	0.00	62.9

Serial_No:05252114:34

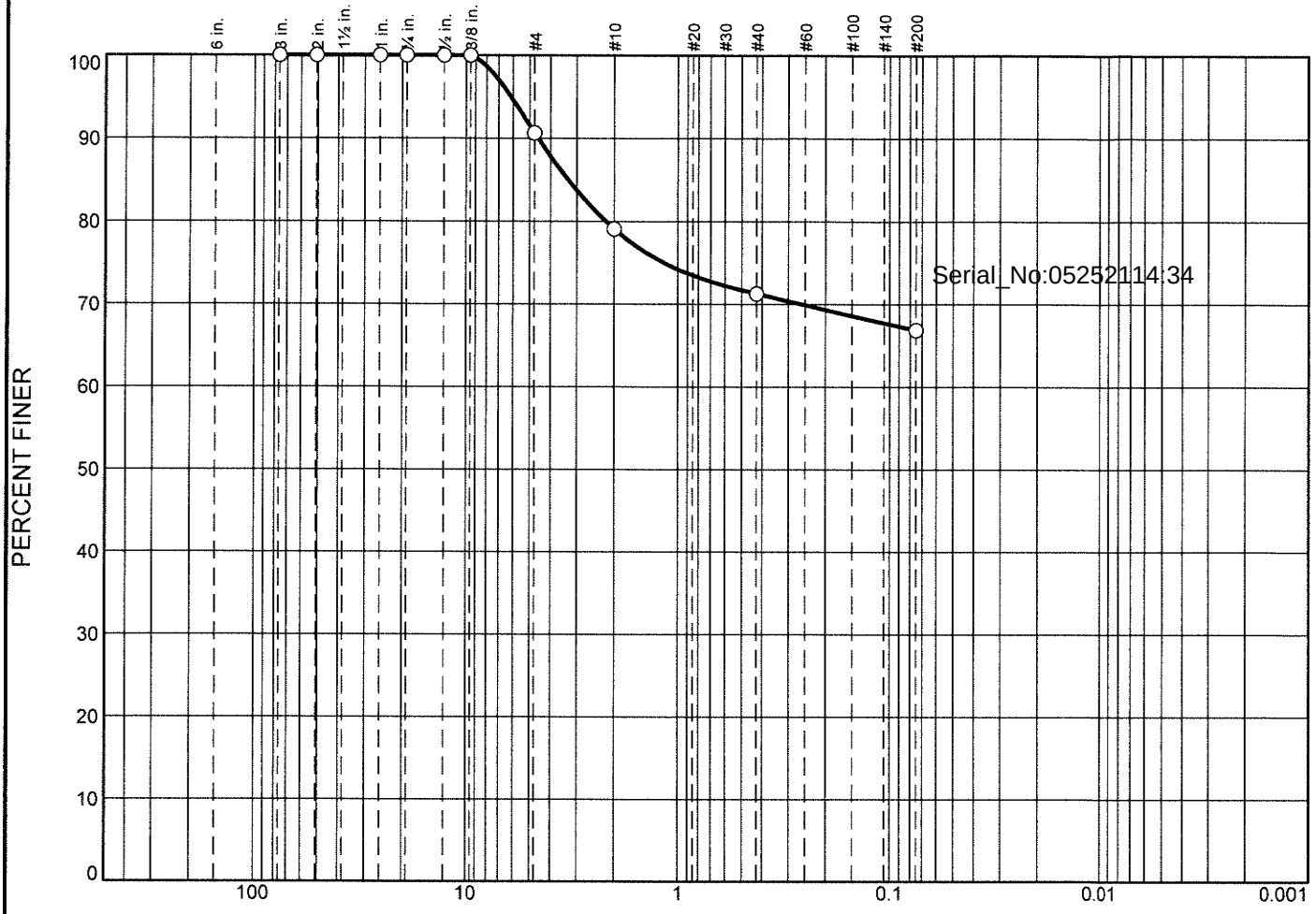
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	12.0	12.0	11.7	9.4	4.0	25.1			62.9

D_5	D_{10}	D_{15}	D_{20}	D_{30}	D_{40}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
								2.8394	4.0224	5.2227	6.6253

Fineness Modulus
1.64

Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	9.4	11.5	7.8	4.4	66.9	

	LL	PL	D_{85}	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_c	C_u
○			3.2954							

	Material Description	USCS	AASHTO
○			

Project No. **Client:**

Project:

○ **Source of Sample:** PTP-10 **Sample Number:** WG1501060-1

Remarks:

Alpha Analytical

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Figure

GRAIN SIZE DISTRIBUTION TEST DATA

5/25/2021

Location: PTP-10

Sample Number: WG1501060-1

Sieve Test Data

Post #200 Wash Test Weights (grams): **Dry Sample and Tare =** 25.11
Tare Wt. = 0.00
Minus #200 from wash = 0.0%

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
25.11	0.00	3'	0.00	0.00	100.0
		2"	0.00	0.00	100.0
		1"	0.00	0.00	100.0
		0.75"	0.00	0.00	100.0
		0.50"	0.00	0.00	100.0
		0.375"	0.00	0.00	100.0
		#4	2.35	0.00	90.6
		#10	2.90	0.00	79.1
		#40	1.96	0.00	71.3
		#200	1.10	0.00	66.9

Serial_No:05252114:34

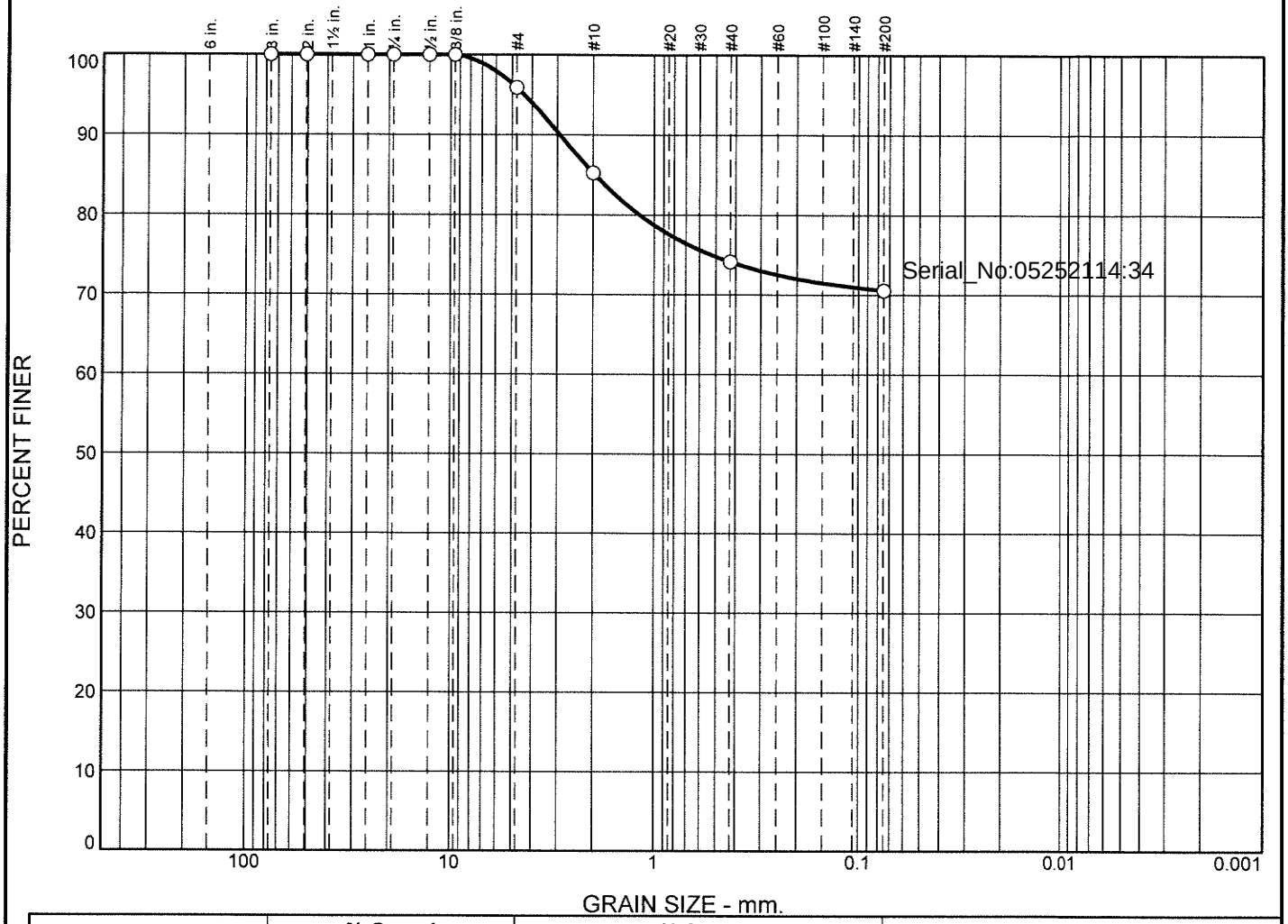
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	9.4	9.4	11.5	7.8	4.4	23.7			66.9

D_5	D_{10}	D_{15}	D_{20}	D_{30}	D_{40}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
								2.1888	3.2954	4.5715	6.1329

Fineness Modulus
1.42

Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	4.1	10.7	11.1	3.5	70.6	

	LL	PL	D_{85}	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_c	C_u
○			1.9597							

	Material Description	USCS	AASHTO
○			

Project No. **Client:**

Project:

○ **Source of Sample:** PTP-11 **Sample Number:** L2122223-12

Remarks:

Alpha Analytical

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Figure

GRAIN SIZE DISTRIBUTION TEST DATA

5/25/2021

Location: PTP-11

Sample Number: L2122223-12

Sieve Test Data

Post #200 Wash Test Weights (grams): **Dry Sample and Tare =** 46.20
Tare Wt. = 0.00
Minus #200 from wash = 0.0%

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
46.20	0.00	3'	0.00	0.00	100.0
		2"	0.00	0.00	100.0
		1"	0.00	0.00	100.0
		0.75"	0.00	0.00	100.0
		0.50"	0.00	0.00	100.0
		0.375"	0.00	0.00	100.0
		#4	1.90	0.00	95.9
		#10	4.92	0.00	85.2
		#40	5.13	0.00	74.1
		#200	1.65	0.00	70.6

Serial_No:05252114:34

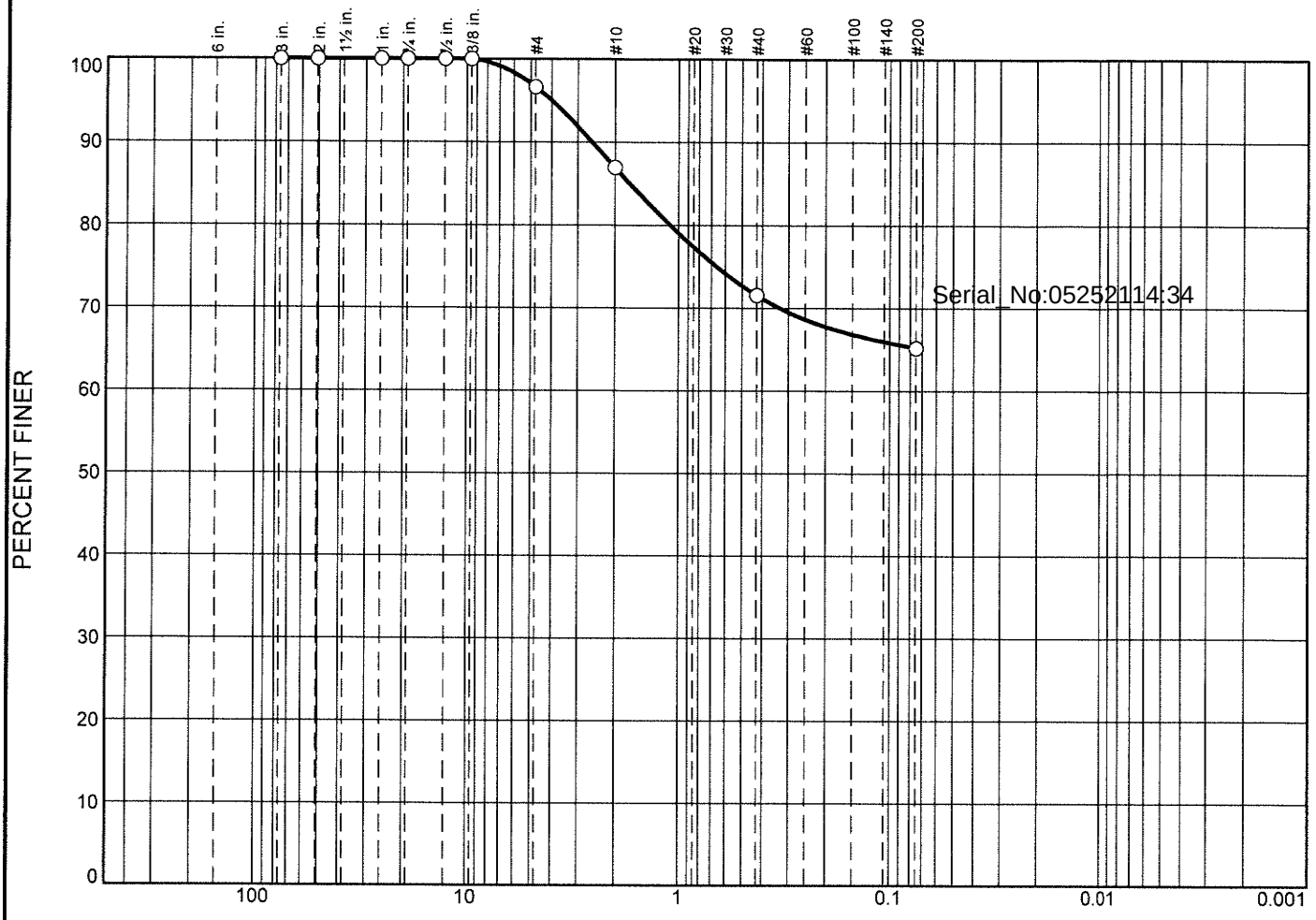
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	4.1	4.1	10.7	11.1	3.5	25.3			70.6

D_5	D_{10}	D_{15}	D_{20}	D_{30}	D_{40}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
								1.1807	1.9597	2.9132	4.3692

Fineness Modulus
1.17

Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	3.4	9.7	15.3	6.4	65.2	

	LL	PL	D_{85}	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_c	C_u
○			1.7029							

Material Description	USCS	AASHTO
○		

Project No. **Client:**

Project:

○ **Source of Sample:** PTP-12 **Sample Number:** L2122223-13

Alpha Analytical

Mansfield, MA

Remarks:

Figure

GRAIN SIZE DISTRIBUTION TEST DATA

5/25/2021

Location: PTP-12

Sample Number: L2122223-13

Sieve Test Data

Post #200 Wash Test Weights (grams): **Dry Sample and Tare =** 50.52
Tare Wt. = 0.00
Minus #200 from wash = 0.0%

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
50.52	0.00	3'	0.00	0.00	100.0
		2"	0.00	0.00	100.0
		1"	0.00	0.00	100.0
		0.75"	0.00	0.00	100.0
		0.50"	0.00	0.00	100.0
		0.375"	0.00	0.00	100.0
		#4	1.70	0.00	96.6
		#10	4.90	0.00	86.9
		#40	7.77	0.00	71.6
		#200	3.21	0.00	65.2

Serial_No:05252114:34

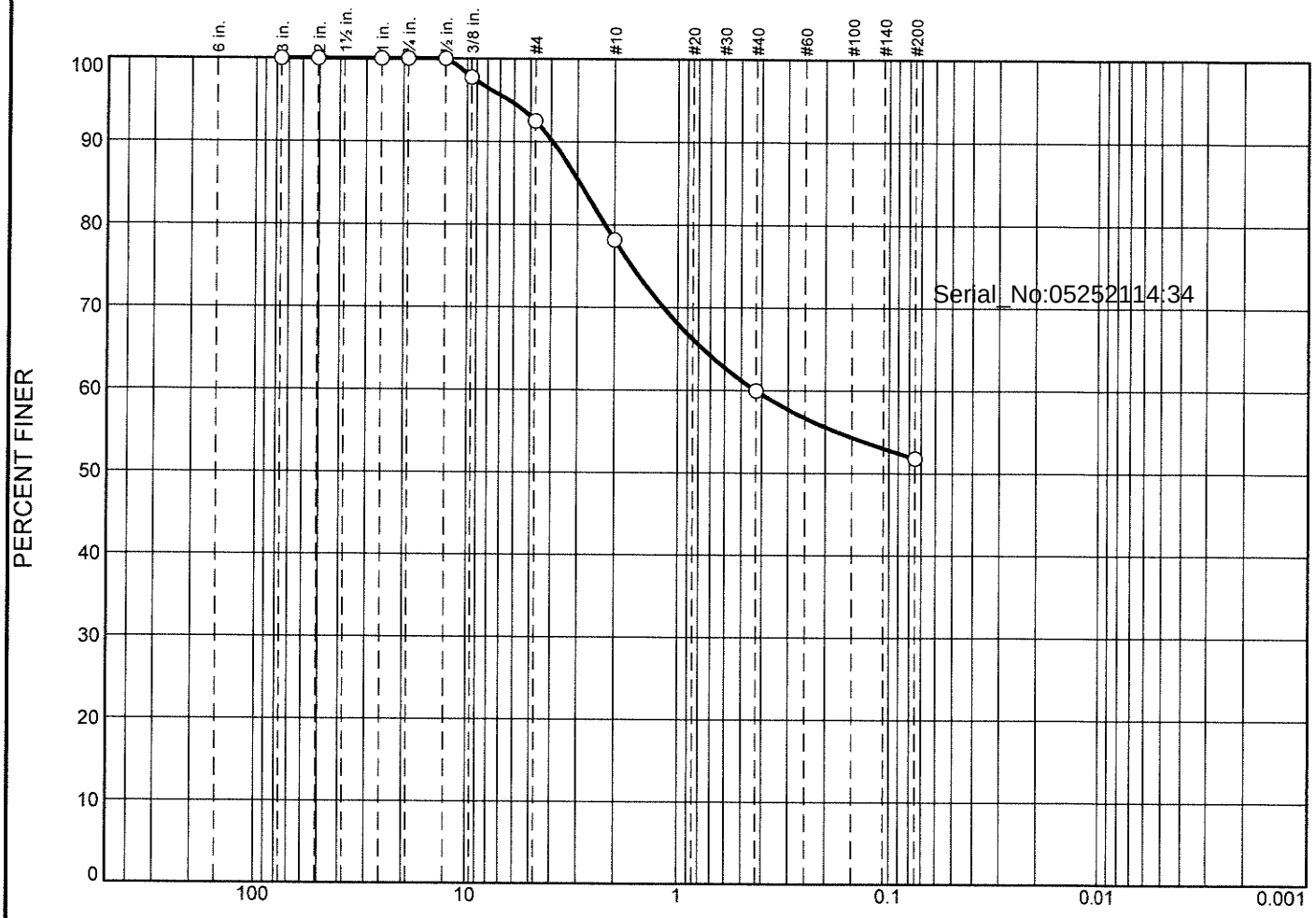
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	3.4	3.4	9.7	15.3	6.4	31.4			65.2

D_5	D_{10}	D_{15}	D_{20}	D_{30}	D_{40}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
								1.0960	1.7029	2.5681	3.9879

Fineness Modulus
1.23

Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	7.5	14.3	18.2	8.2	51.8	

	LL	PL	D_{85}	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_c	C_u
○			2.9155	0.4263						

	Material Description	USCS	AASHTO
○			

Project No. **Client:**

Project:

○ **Source of Sample:** PTP-13 **Sample Number:** L2122223-14

Remarks:

Alpha Analytical

Mansfield, MA

Figure

GRAIN SIZE DISTRIBUTION TEST DATA

5/25/2021

Location: PTP-13

Sample Number: L2122223-14

Sieve Test Data

Post #200 Wash Test Weights (grams): **Dry Sample and Tare =** 62.09
Tare Wt. = 0.00
Minus #200 from wash = 0.0%

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
62.09	0.00	3'	0.00	0.00	100.0
		2"	0.00	0.00	100.0
		1"	0.00	0.00	100.0
		0.75"	0.00	0.00	100.0
		0.50"	0.00	0.00	100.0
		0.375"	1.39	0.00	97.8
		#4	3.27	0.00	92.5
		#10	8.90	0.00	78.2
		#40	11.29	0.00	60.0
		#200	5.08	0.00	51.8

Serial_No:05252114:34

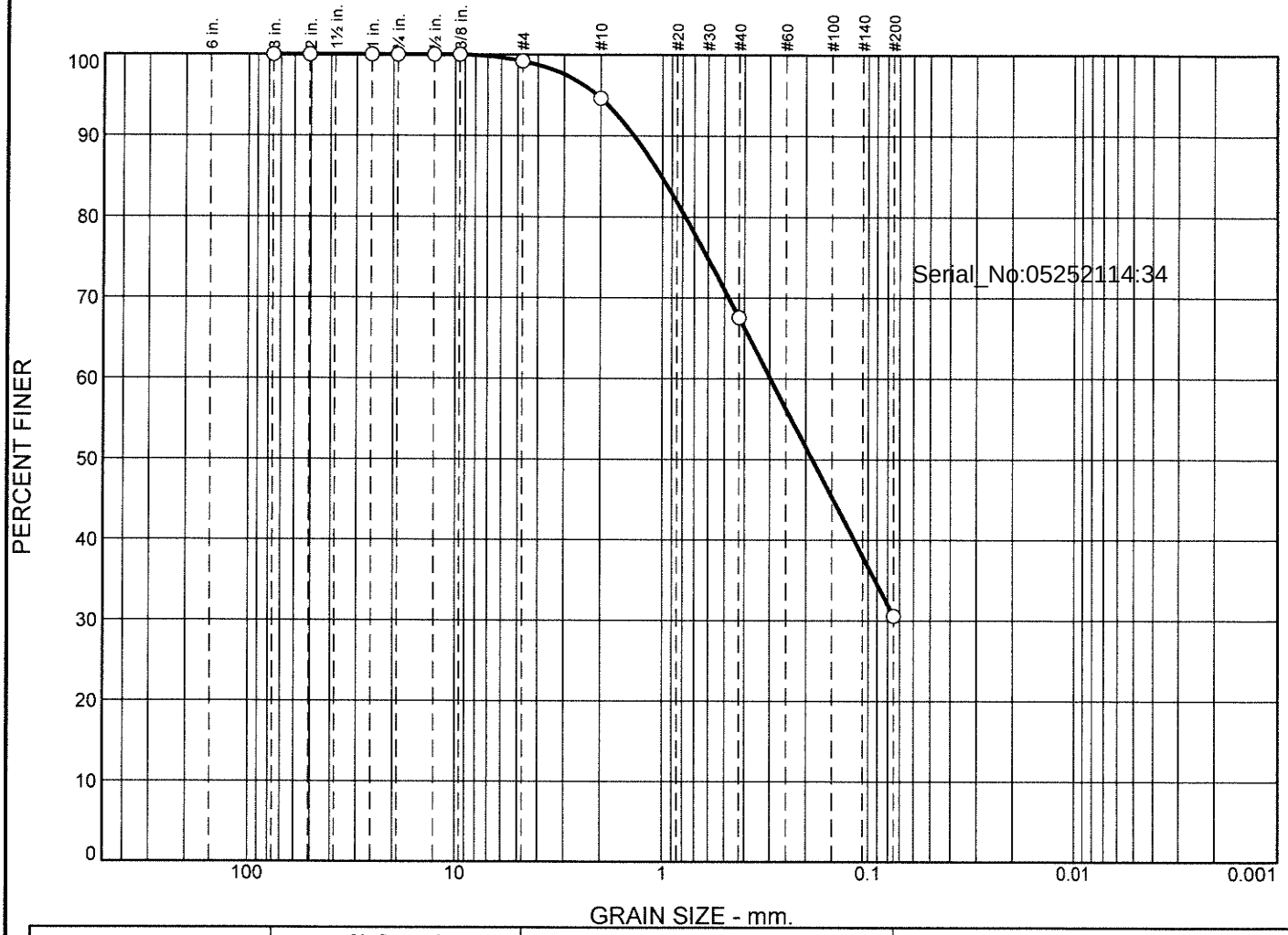
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	7.5	7.5	14.3	18.2	8.2	40.7			51.8

D_5	D_{10}	D_{15}	D_{20}	D_{30}	D_{40}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
							0.4263	2.2183	2.9155	3.9297	6.3518

Fineness Modulus
1.84

Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	0.8	4.6	27.0	37.0	30.6	

	LL	PL	D_{85}	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_c	C_u
○			1.0127	0.2978	0.1863					

	Material Description	USCS	AASHTO
○			

Project No. **Client:**

Project:

○ **Source of Sample:** PTP-14 **Sample Number:** L2122223-15

Remarks:

Alpha Analytical

Mansfield, MA

Figure

GRAIN SIZE DISTRIBUTION TEST DATA

5/25/2021

Location: PTP-14

Sample Number: L2122223-15

Sieve Test Data

Post #200 Wash Test Weights (grams): **Dry Sample and Tare =** 68.86
Tare Wt. = 0.00
Minus #200 from wash = 0.0%

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
68.86	0.00	3'	0.00	0.00	100.0
		2"	0.00	0.00	100.0
		1"	0.00	0.00	100.0
		0.75"	0.00	0.00	100.0
		0.50"	0.00	0.00	100.0
		0.375"	0.00	0.00	100.0
		#4	0.56	0.00	99.2
		#10	3.13	0.00	94.6
		#40	18.64	0.00	67.6
		#200	25.47	0.00	30.6

Serial_No:05252114:34

Fractional Components

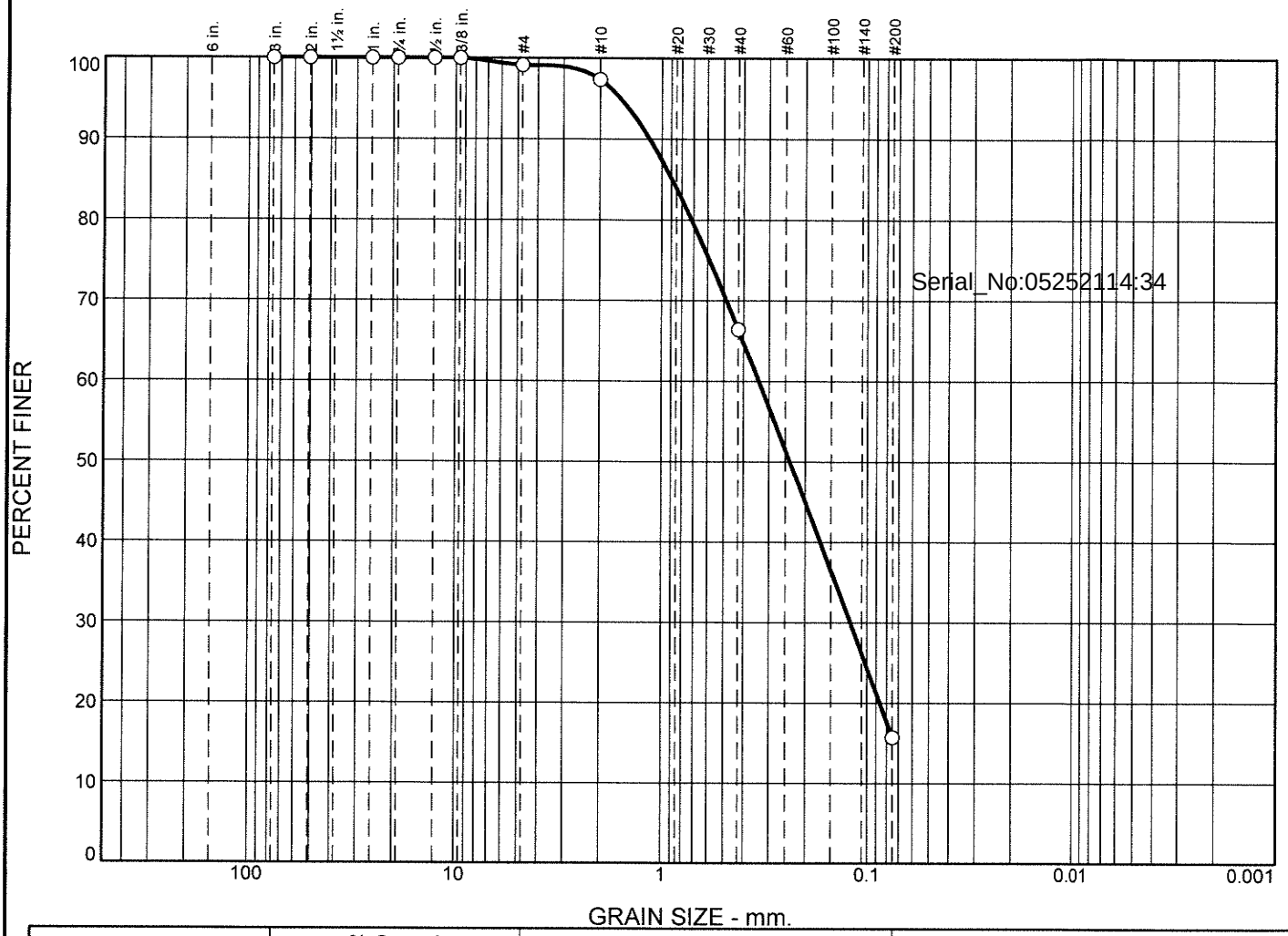
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.8	0.8	4.6	27.0	37.0	68.6			30.6

D_5	D_{10}	D_{15}	D_{20}	D_{30}	D_{40}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
					0.1166	0.1863	0.2978	0.7748	1.0127	1.3769	2.0756

Fineness Modulus
1.37

Alpha Analytical

Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	0.9	1.8	30.9	50.7	15.7	

	LL	PL	D_{85}	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_c	C_u
○			0.8924	0.3373	0.2375	0.1206				

Material Description	USCS	AASHTO
○		

Project No. **Client:**

Project:

○ **Source of Sample:** PTP-15 **Sample Number:** L2122223-16

Remarks:

Alpha Analytical

Mansfield, MA

Figure

GRAIN SIZE DISTRIBUTION TEST DATA

5/25/2021

Location: PTP-15

Sample Number: L2122223-16

Sieve Test Data

Post #200 Wash Test Weights (grams): **Dry Sample and Tare =** 125.48
Tare Wt. = 0.00
Minus #200 from wash = 0.0%

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
125.48	0.00	3'	0.00	0.00	100.0
		2"	0.00	0.00	100.0
		1"	0.00	0.00	100.0
		0.75"	0.00	0.00	100.0
		0.50"	0.00	0.00	100.0
		0.375"	0.00	0.00	100.0
		#4	1.10	0.00	99.1
		#10	2.24	0.00	97.3
		#40	38.81	0.00	66.4
		#200	63.61	0.00	15.7

Serial_No:05252114:34

Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.9	0.9	1.8	30.9	50.7	83.4			15.7

D_5	D_{10}	D_{15}	D_{20}	D_{30}	D_{40}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
			0.0865	0.1206	0.1687	0.2375	0.3373	0.7171	0.8924	1.1469	1.5867

Fineness Modulus
1.43

Certification Information

The following analytes are not included in our Primary NELAP Scope of Accreditation:

Westborough Facility
EPA 624/624.1: m/p-xylene, o-xylene, Naphthalene
EPA 625/625.1: alpha-Terpineol
EPA 8260C/8260D: NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.
EPA 8270D/8270E: NPW: Dimethylnaphthalene,1,4-Diphenylhydrazine, alpha-Terpineol; SCM: Dimethylnaphthalene,1,4-Diphenylhydrazine.
SM4500: NPW: Amenable Cyanide; SCM: Total Phosphorus, TKN, NO2, NO3.

Mansfield Facility
SM 2540D: TSS
EPA 8082A: NPW: PCB: 1, 5, 31, 87,101, 110, 141, 151, 153, 180, 183, 187.
EPA TO-15: Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene, 3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.
Biological Tissue Matrix: EPA 3050B

The following analytes are included in our Massachusetts DEP Scope of Accreditation

Westborough Facility:

Drinking Water
EPA 300.0: Chloride, Nitrate-N, Fluoride, Sulfate; **EPA 353.2**: Nitrate-N, Nitrite-N; **SM4500NO3-F**: Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE, EPA 180.1, SM2130B, SM4500Cl-D, SM2320B, SM2540C, SM4500H-B, SM4500NO2-B**
EPA 332: Perchlorate; **EPA 524.2:** THMs and VOCs; **EPA 504.1:** EDB, DBCP.
Microbiology: **SM9215B; SM9223-P/A, SM9223B-Colilert-QT,SM9222D**.

Non-Potable Water
SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH: Ammonia-N and Kjeldahl-N, **EPA 350.1**: Ammonia-N, **LACHAT 10-107-06-1-B**: Ammonia-N, **EPA 351.1, SM4500NO3-F, EPA 353.2**: Nitrate-N, **SM4500P-E, SM4500P-B, E, SM4500SO4-E, SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D, EPA 300: Chloride, Sulfate, Nitrate.**
EPA 624.1: Volatile Halocarbons & Aromatics,
EPA 608.3: Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs
EPA 625.1: SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045**: PCB-Oil.
Microbiology: **SM9223B-Colilert-QT; Enterolert-QT, SM9221E, EPA 1600, EPA 1603, SM9222D.**

Mansfield Facility:

Drinking Water
EPA 200.7: Al, Ba, Cd, Cr, Cu, Fe, Mn, Ni, Na, Ag, Ca, Zn. **EPA 200.8:** Al, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn. **EPA 245.1** Hg.
EPA 522, EPA 537.1.

Non-Potable Water
EPA 200.7: Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.
EPA 200.8: Al, Sb, As, Be, Cd, Cr, Cu, Fe, Pb, Mn, Ni, K, Se, Ag, Na, TL, Zn.
EPA 245.1 Hg.
SM2340B

For a complete listing of analytes and methods, please contact your Alpha Project Manager.

MANSFIELD CHAIN OF CUSTODY

PAGE 1 OF 2

ALPHA ANALYTICAL — World Class Chemistry

Westborough, MA TEL: 508-898-9220 FAX: 508-898-9193
Mansfield, MA TEL: 508-822-9300 FAX: 508-822-3288

Date Rec'd in Lab: 4/29/21

ALPHA Job #: L2122223

Client Information

Client: Weston & Sampson
Address: 55 Walkers Brook Drive, Suite 100
Reading, MA 01867
Phone: 800-SAMPSON
Fax:
Email: KurkjianD@wseinc.com

☐ These samples have been Previously analyzed by Alpha

Project Information

Project Name: Pear Tree Point
Project Location: Darine, CT
Project #: 2190362
Project Manager: Daron Kurkjian
ALPHA Quote #:

Turn-Around Time

☒ Standard ☐ Rush (ONLY IF PRE-APPROVED)

Due Date: Time:

Report Information — Data Deliverables

☐ FAX ☒ EMAIL
☒ ADEx ☒ Add'l Deliverables

Billing Information

☐ Same as Client info PO #:
EnviroData

Regulatory Requirements/Report Limits

State/Fed Program: US Army Corps of Engineers RIM
Criteria: See SAP

Other Project Specific Requirements/Comments/Detection Limits:
Berthiaume.C@wseinc.com

☐ MS/MSD (at unit cost) will be omitted unless you check here

ANALYSIS

SAMPLE HANDLING
Filtration
☐ Done
☒ Not Needed
☐ Lab to do
Preservation
☐ Lab to do
(Please specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	Grain Size	HOLD	Sample Specific Comments	TOTAL # BOTTLES
22223-01	PTP-1	4/28/21	1650	Sed	CB	☒	☐		1
02	PTP-2		1640			☒	☐		1
03	PTP-3		1635			☒	☐		1
04	PTP-4		1610			☒	☐		1
05	PTP-5		1535			☒	☐		1
06	PTP-6		1525			☒	☐		1
07	PTP-7		1505			☒	☐		1
08	PTP-8 (0.0-1.2 FT)		1435			☒	☐		1
09	PTP-8 (1.2-3.5FT)		1437			☒	☐		1
10	PTP-9		1415			☒	☐		1

Container Type	PL	-	-	-	-	-	-	-	-	-	-	-	
Preservative	N	-	-	-	-	-	-	-	-	-	-	-	

Relinquished By:	Date/Time	Received By:	Date/Time
	4/29/21		4/29/21 1226
	4/29/21 1500		4/29/21 1825
	4/29/21 2nd		4/29/21 2000
Joseph C. Berardino	4/29/21 2124	Joseph C. Berardino	4/29/21 2124

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Payment Terms.

FORM NO: 101-09(I-NJ) (rev. 5-JAN-12)

MANSFIELD CHAIN OF CUSTODY

PAGE 2 OF 2

ALPHA ANALYTICAL — World Class Chemistry

Westborough, MA TEL: 508-898-9220 FAX: 508-898-9193
Mansfield, MA TEL: 508-822-9300 FAX: 508-822-3288

Date Rec'd in Lab: 4/29/21

ALPHA Job #: L2122223

Client Information

Client: Weston & Sampson
Address: 55 Walkers Brook Drive, Suite 100
Reading, MA 01867
Phone: 800-SAMPSON
Fax:
Email: KurkjianD@wseinc.com

☐ These samples have been Previously analyzed by Alpha

Project Information

Project Name: Pear Tree Point
Project Location: Darine, CT
Project #: 2190362
Project Manager: Daron Kurkjian
ALPHA Quote #:

Turn-Around Time

☒ Standard ☐ Rush (ONLY IF PRE-APPROVED)

Due Date: Time:

Report Information — Data Deliverables

☐ FAX ☒ EMAIL
☒ ADEx ☒ Add'l Deliverables

Billing Information

☐ Same as Client info PO #:
EnviroData

Regulatory Requirements/Report Limits

State/Fed Program: US Army Corps of Engineers RIM *
Criteria: See SAP

Other Project Specific Requirements/Comments/Detection Limits:
BerthiaumeC@wseinc.com

☐ MS/MSD (at unit cost) will be omitted unless you check here

ANALYSIS

SAMPLE HANDLING
Filtration
☐ Done
☒ Not Needed
☐ Lab to do
Preservation
☐ Lab to do
(Please specify below)

Sample Specific Comments

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	Grain Size	HOLD											TOTAL # BOTTLES
11	PTP-10	4/28/21	1330	Sed	CB	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	1
12	PTP-11		1310			☒	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	1
13	PTP-12		1250			☒	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	1
14	PTP-13		1220			☒	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	1
15	PTP-14		1130			☒	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	1
16	PTP-15		1100			☒	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	1
	~~PTP-~~ CB					☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	
11 17 (DS)	DUP-GS	4/28/21	—	Sed	CB	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	1
						☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	
						☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	

Container Type	PL	-	-	-	-	-	-	-	-	-	-	-
Preservative	N	-	-	-	-	-	-	-	-	-	-	-

Relinquished By:	Date/Time	Received By:	Date/Time
Kelly Scarfo	4/29/21 1820	Kelly Scarfo	4/29/21 1332
Joseph C. Bergida	4/29/21 2124	Catherine Gardner	4/29/21 1820
		Joseph C. Bergida	4/29/21 2000

4/29/21 2124

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Payment Terms.

FORM NO: 101-09(I-NJ) (rev. 6-JAN-12)

ANALYTICAL REPORT

Lab Number:	L2140615
Client:	Weston & Sampson Engineers, Inc. 712 Brook Street Suite 103 Rocky Hill, CT 06067
ATTN:	Christopher Berthiaume
Phone:	(860) 513-1473
Project Name:	PEAR TREE POINT
Project Number:	2190362
Report Date:	09/08/21

The original project report/data package is held by Alpha Analytical. This report/data package is paginated and should be reproduced only in its entirety. Alpha Analytical holds no responsibility for results and/or data that are not consistent with the original.

Certifications & Approvals: MA (M-MA086), NH NELAP (2064), CT (PH-0574), IL (200077), ME (MA00086), MD (348), NJ (MA935), NY (11148), NC (25700/666), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #P330-17-00196).

Eight Walkup Drive, Westborough, MA 01581-1019
508-898-9220 (Fax) 508-898-9193 800-624-9220 - www.alphalab.com

Project Name: PEAR TREE POINT
Project Number: 2190362

Lab Number: L2140615
Report Date: 09/08/21

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2140615-01	PTP-A	SEDIMENT	DARINE, CT	04/28/21 00:00	04/29/21
L2140615-02	PTP-B	SEDIMENT	DARINE, CT	04/28/21 00:00	04/29/21
L2140615-03	PTP-C	SEDIMENT	DARINE, CT	04/28/21 00:00	04/29/21
L2140615-04	PTP-D	SEDIMENT	DARINE, CT	04/28/21 00:00	04/29/21
L2140615-05	PTP-E	SEDIMENT	DARINE, CT	04/28/21 00:00	04/29/21
L2140615-06	PTP-F	SEDIMENT	DARINE, CT	04/28/21 00:00	04/29/21

Project Name:	PEAR TREE POINT	**Lab Number:**	L2140615
Project Number:	2190362	**Report Date:**	09/08/21

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively.

When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances, the specific failure is not narrated but noted in the associated QC Outlier Summary Report, located directly after the Case Narrative. QC information is also incorporated in the Data Usability Assessment table (Format 11) of our Data Merger tool, where it can be reviewed in conjunction with the sample result, associated regulatory criteria and any associated data usability implications.

Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

HOLD POLICY - For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Alpha Project Manager and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Project Management at 800-624-9220 with any questions.

Project Name:	PEAR TREE POINT	**Lab Number:**	L2140615
Project Number:	2190362	**Report Date:**	09/08/21

Case Narrative (continued)

Report Submission

All non-detect (ND) or estimated concentrations (J-qualified) have been quantitated to the limit noted in the MDL column.

L2140615: Samples were frozen upon receipt in order to arrest the holding time.

Semivolatile Organics

The WG1536095-8 Laboratory Duplicate RPD, performed on L2140615-02, is outside the RIM acceptance criteria for Cl5-BZ#118 (36%). The elevated RPD has been attributed to the non-homogeneous nature of the native sample.

Pesticides

L2140615-02 through -06: The samples have elevated detection limits, above the RIM RLs, due to the dilution required by the sample matrix, and the high moisture content.

The WG1536093-4D/-5D MS/MSD recoveries and RPDs, performed on L2140615-02, are outside the RIM acceptance criteria for oxychlordane (182% and 48% RPD) and endosulfan sulfate (31% RPD). The associated LCS/LCSD meet for these compounds, therefore no further action was required.

The WG1536093-8D Laboratory Duplicate RPD for 4,4'-DDT (37%), performed on L2140615-02, is outside the RIM acceptance criteria. The elevated RPD has been attributed to the non-homogeneous nature of the native sample.

The WG1536093-10D Standard Reference Material is outside the RIM QC limits for hexachlorobenzene (0%) and trans-nonachlor (320%). The associated LCS/LCSD and MS/MSD meet for these compounds, therefore no further action was required.

WG1536093-10D: The surrogate recovery is outside the acceptance criteria for BZ198 (192%-Column B only); however, the sample was not re-extracted due to obvious matrix interference, and the criteria were met on Column A.

Total Metals

Project Name:	PEAR TREE POINT	**Lab Number:**	L2140615
Project Number:	2190362	**Report Date:**	09/08/21

Case Narrative (continued)

L2140615-01 through -06: The samples have elevated detection limits for zinc, above the RIM RL. The RIM RL for zinc cannot be met by the lab.
L2140615-02 through -06: The samples have elevated detection limits, above the RIM RLs, due to the high moisture content.
The WG1540782-3/-4 MS/MSD recoveries, performed on L2140615-02, are outside the RIM acceptance criteria for chromium (127%-MSD only), copper (127%/162%) and zinc (128%/158%). The associated LCS meets the criteria and a post digestion spike was performed and was within acceptance criteria.
The WG1540782-5 Laboratory Duplicate RPD for cadmium (23%), performed on L2140615-02, is outside the RIM acceptance criteria. The elevated RPD has been attributed to the non-homogeneous nature of the native sample.

Total Organic Carbon
The WG1539917-4/-5 MS/MSD recoveries (Rep1 - 174%/168%) / (Rep2 - 178% - MS only) performed on L2140615-02, are outside the 75-125% RIM acceptance criteria, possibly due to sample matrix. The associated SRM recoveries are within criteria, indicating the sample batch was in control, and all sample results were accepted.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature: Elizabeth Porta

Title: Technical Director/Representative Date: 09/08/21

ORGANICS

SEMIVOLATILES

Project Name: PEAR TREE POINT
Project Number: 2190362
Lab Number: L2140615
Report Date: 09/08/21

SAMPLE RESULTS

Lab ID: L2140615-01
Client ID: PTP-A
Sample Location: DARINE, CT

Date Collected: 04/28/21 00:00
Date Received: 04/29/21
Field Prep: Not Specified

Sample Depth:
Matrix: Sediment
Analytical Method: 105,8270D-SIM/680(M)
Analytical Date: 09/03/21 09:27
Analyst: GP
Percent Solids: 71%

Extraction Method: EPA 3570
Extraction Date: 08/17/21 20:14
Cleanup Method: EPA 3630
Cleanup Date: 08/19/21

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
RIM PAHs/PCB Congeners by GC/MS - Mansfield Lab						
Naphthalene	7.36		ug/kg	3.73	0.615	1
Acenaphthylene	8.99		ug/kg	3.73	0.440	1
Acenaphthene	2.27	J	ug/kg	3.73	0.716	1
Fluorene	6.74		ug/kg	3.73	0.399	1
Phenanthrene	42.0		ug/kg	3.73	0.783	1
Anthracene	9.13		ug/kg	3.73	0.477	1
Fluoranthene	110		ug/kg	3.73	0.704	1
Pyrene	125		ug/kg	3.73	1.04	1
Benz(a)anthracene	49.6		ug/kg	3.73	0.894	1
Chrysene	63.9		ug/kg	3.73	0.868	1
Benzo(b)fluoranthene	93.7		ug/kg	3.73	1.24	1
Benzo(k)fluoranthene	55.1		ug/kg	3.73	0.570	1
Benzo(a)pyrene	67.8		ug/kg	3.73	1.66	1
Indeno(1,2,3-cd)Pyrene	54.2		ug/kg	3.73	0.935	1
Dibenz(a,h)anthracene	17.2		ug/kg	3.73	0.462	1
Benzo(ghi)perylene	60.4		ug/kg	3.73	0.399	1
Cl2-BZ#8	ND		ug/kg	0.373	0.074	1
Cl3-BZ#18	ND		ug/kg	0.373	0.054	1
Cl3-BZ#28	0.210	J	ug/kg	0.373	0.091	1
Cl4-BZ#44	ND		ug/kg	0.373	0.102	1
Cl4-BZ#49	0.142	J	ug/kg	0.373	0.100	1
Cl4-BZ#52	0.584		ug/kg	0.373	0.057	1
Cl4-BZ#66	0.231	J	ug/kg	0.373	0.053	1
Cl5-BZ#87	0.10	J	ug/kg	0.373	0.043	1
Cl5-BZ#101	0.311	J	ug/kg	0.373	0.087	1
Cl5-BZ#105	ND		ug/kg	0.373	0.078	1
Cl5-BZ#118	0.380		ug/kg	0.373	0.082	1
Cl6-BZ#128	0.159	J	ug/kg	0.373	0.097	1

Project Name: PEAR TREE POINT
Project Number: 2190362
Lab Number: L2140615
Report Date: 09/08/21

SAMPLE RESULTS

Lab ID: L2140615-01
Client ID: PTP-A
Sample Location: DARINE, CT
Date Collected: 04/28/21 00:00
Date Received: 04/29/21
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
RIM PAHs/PCB Congeners by GC/MS - Mansfield Lab						
Cl6-BZ#138	0.561		ug/kg	0.373	0.062	1
Cl6-BZ#153	0.517		ug/kg	0.373	0.130	1
Cl7-BZ#170	0.186	J	ug/kg	0.373	0.048	1
Cl7-BZ#180	0.250	J	ug/kg	0.373	0.049	1
Cl7-BZ#183	0.107	J	ug/kg	0.373	0.026	1
Cl7-BZ#184	ND		ug/kg	0.373	0.054	1
Cl7-BZ#187	0.234	J	ug/kg	0.373	0.070	1
Cl8-BZ#195	ND		ug/kg	0.373	0.092	1
Cl9-BZ#206	ND		ug/kg	0.373	0.094	1
Cl10-BZ#209	ND		ug/kg	0.373	0.107	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2-Methylnaphthalene-d10	82		30-150
Pyrene-d10	91		30-150
Benzo(b)fluoranthene-d12	84		30-150
DBOB	97		30-150
BZ 198	95		30-150

Project Name: PEAR TREE POINT
Project Number: 2190362
Lab Number: L2140615
Report Date: 09/08/21

SAMPLE RESULTS

Lab ID: L2140615-02
Client ID: PTP-B
Sample Location: DARINE, CT

Date Collected: 04/28/21 00:00
Date Received: 04/29/21
Field Prep: Not Specified

Sample Depth:
Matrix: Sediment
Analytical Method: 105,8270D-SIM/680(M)
Analytical Date: 09/03/21 09:59
Analyst: GP
Percent Solids: 35%

Extraction Method: EPA 3570
Extraction Date: 08/17/21 20:14
Cleanup Method: EPA 3630
Cleanup Date: 08/19/21

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
RIM PAHs/PCB Congeners by GC/MS - Mansfield Lab						
Naphthalene	23.9		ug/kg	7.46	1.23	1
Acenaphthylene	55.8		ug/kg	7.46	0.881	1
Acenaphthene	13.7		ug/kg	7.46	1.43	1
Fluorene	25.1		ug/kg	7.46	0.799	1
Phenanthrene	180		ug/kg	7.46	1.57	1
Anthracene	54.0		ug/kg	7.46	0.956	1
Fluoranthene	774		ug/kg	7.46	1.41	1
Pyrene	721		ug/kg	7.46	2.08	1
Benz(a)anthracene	366		ug/kg	7.46	1.79	1
Chrysene	414		ug/kg	7.46	1.74	1
Benzo(b)fluoranthene	626		ug/kg	7.46	2.49	1
Benzo(k)fluoranthene	308		ug/kg	7.46	1.14	1
Benzo(a)pyrene	429		ug/kg	7.46	3.33	1
Indeno(1,2,3-cd)Pyrene	348		ug/kg	7.46	1.87	1
Dibenz(a,h)anthracene	112		ug/kg	7.46	0.926	1
Benzo(ghi)perylene	362		ug/kg	7.46	0.799	1
Cl2-BZ#8	ND		ug/kg	0.746	0.148	1
Cl3-BZ#18	ND		ug/kg	0.746	0.108	1
Cl3-BZ#28	ND		ug/kg	0.746	0.183	1
Cl4-BZ#44	0.573	J	ug/kg	0.746	0.204	1
Cl4-BZ#49	0.423	J	ug/kg	0.746	0.199	1
Cl4-BZ#52	2.31		ug/kg	0.746	0.113	1
Cl4-BZ#66	1.03		ug/kg	0.746	0.107	1
Cl5-BZ#87	0.758		ug/kg	0.746	0.087	1
Cl5-BZ#101	1.79		ug/kg	0.746	0.174	1
Cl5-BZ#105	1.56		ug/kg	0.746	0.156	1
Cl5-BZ#118	2.04		ug/kg	0.746	0.165	1
Cl6-BZ#128	0.796		ug/kg	0.746	0.195	1

Project Name: PEAR TREE POINT **Lab Number:** L2140615

Project Number: 2190362 **Report Date:** 09/08/21

SAMPLE RESULTS

Lab ID: L2140615-02 Date Collected: 04/28/21 00:00

Client ID: PTP-B Date Received: 04/29/21

Sample Location: DARINE, CT Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
RIM PAHs/PCB Congeners by GC/MS - Mansfield Lab						
Cl6-BZ#138	2.66		ug/kg	0.746	0.125	1
Cl6-BZ#153	2.42		ug/kg	0.746	0.260	1
Cl7-BZ#170	0.922		ug/kg	0.746	0.096	1
Cl7-BZ#180	1.30		ug/kg	0.746	0.098	1
Cl7-BZ#183	0.349	J	ug/kg	0.746	0.053	1
Cl7-BZ#184	ND		ug/kg	0.746	0.108	1
Cl7-BZ#187	1.26		ug/kg	0.746	0.140	1
Cl8-BZ#195	ND		ug/kg	0.746	0.184	1
Cl9-BZ#206	0.460	J	ug/kg	0.746	0.187	1
Cl10-BZ#209	ND		ug/kg	0.746	0.215	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2-Methylnaphthalene-d10	73		30-150
Pyrene-d10	79		30-150
Benzo(b)fluoranthene-d12	66		30-150
DBOB	85		30-150
BZ 198	70		30-150

Project Name: PEAR TREE POINT
Project Number: 2190362
Lab Number: L2140615
Report Date: 09/08/21

SAMPLE RESULTS

Lab ID: L2140615-03
Client ID: PTP-C
Sample Location: DARINE, CT

Date Collected: 04/28/21 00:00
Date Received: 04/29/21
Field Prep: Not Specified

Sample Depth:
Matrix: Sediment
Analytical Method: 105,8270D-SIM/680(M)
Analytical Date: 09/03/21 10:31
Analyst: GP
Percent Solids: 48%

Extraction Method: EPA 3570
Extraction Date: 08/17/21 20:14
Cleanup Method: EPA 3630
Cleanup Date: 08/19/21

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
RIM PAHs/PCB Congeners by GC/MS - Mansfield Lab						
Naphthalene	9.49		ug/kg	5.35	0.882	1
Acenaphthylene	16.2		ug/kg	5.35	0.631	1
Acenaphthene	3.19	J	ug/kg	5.35	1.03	1
Fluorene	6.31		ug/kg	5.35	0.572	1
Phenanthrene	47.7		ug/kg	5.35	1.12	1
Anthracene	15.0		ug/kg	5.35	0.684	1
Fluoranthene	197		ug/kg	5.35	1.01	1
Pyrene	192		ug/kg	5.35	1.49	1
Benz(a)anthracene	82.4		ug/kg	5.35	1.28	1
Chrysene	112		ug/kg	5.35	1.25	1
Benzo(b)fluoranthene	145		ug/kg	5.35	1.78	1
Benzo(k)fluoranthene	108		ug/kg	5.35	0.818	1
Benzo(a)pyrene	118		ug/kg	5.35	2.38	1
Indeno(1,2,3-cd)Pyrene	98.1		ug/kg	5.35	1.34	1
Dibenz(a,h)anthracene	30.3		ug/kg	5.35	0.663	1
Benzo(ghi)perylene	107		ug/kg	5.35	0.572	1
Cl2-BZ#8	ND		ug/kg	0.535	0.106	1
Cl3-BZ#18	0.154	J	ug/kg	0.535	0.077	1
Cl3-BZ#28	0.202	J	ug/kg	0.535	0.131	1
Cl4-BZ#44	ND		ug/kg	0.535	0.146	1
Cl4-BZ#49	0.197	J	ug/kg	0.535	0.143	1
Cl4-BZ#52	0.848		ug/kg	0.535	0.081	1
Cl4-BZ#66	0.349	J	ug/kg	0.535	0.077	1
Cl5-BZ#87	0.276	J	ug/kg	0.535	0.062	1
Cl5-BZ#101	0.648		ug/kg	0.535	0.125	1
Cl5-BZ#105	0.368	J	ug/kg	0.535	0.112	1
Cl5-BZ#118	0.728		ug/kg	0.535	0.118	1
Cl6-BZ#128	0.424	J	ug/kg	0.535	0.140	1

Project Name: PEAR TREE POINT
Project Number: 2190362
Lab Number: L2140615
Report Date: 09/08/21

SAMPLE RESULTS

Lab ID: L2140615-03
Client ID: PTP-C
Sample Location: DARINE, CT
Date Collected: 04/28/21 00:00
Date Received: 04/29/21
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
RIM PAHs/PCB Congeners by GC/MS - Mansfield Lab						
Cl6-BZ#138	1.04		ug/kg	0.535	0.089	1
Cl6-BZ#153	0.861		ug/kg	0.535	0.186	1
Cl7-BZ#170	ND		ug/kg	0.535	0.068	1
Cl7-BZ#180	0.312	J	ug/kg	0.535	0.070	1
Cl7-BZ#183	0.205	J	ug/kg	0.535	0.038	1
Cl7-BZ#184	ND		ug/kg	0.535	0.077	1
Cl7-BZ#187	0.344	J	ug/kg	0.535	0.100	1
Cl8-BZ#195	ND		ug/kg	0.535	0.132	1
Cl9-BZ#206	ND		ug/kg	0.535	0.134	1
Cl10-BZ#209	ND		ug/kg	0.535	0.154	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2-Methylnaphthalene-d10	62		30-150
Pyrene-d10	73		30-150
Benzo(b)fluoranthene-d12	68		30-150
DBOB	74		30-150
BZ 198	73		30-150

Project Name: PEAR TREE POINT
Project Number: 2190362
Lab Number: L2140615
Report Date: 09/08/21

SAMPLE RESULTS

Lab ID: L2140615-04
Client ID: PTP-D
Sample Location: DARINE, CT

Date Collected: 04/28/21 00:00
Date Received: 04/29/21
Field Prep: Not Specified

Sample Depth:
Matrix: Sediment
Analytical Method: 105,8270D-SIM/680(M)
Analytical Date: 09/03/21 11:03
Analyst: GP
Percent Solids: 37%

Extraction Method: EPA 3570
Extraction Date: 08/17/21 20:14
Cleanup Method: EPA 3630
Cleanup Date: 08/19/21

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
RIM PAHs/PCB Congeners by GC/MS - Mansfield Lab						
Naphthalene	29.7		ug/kg	6.91	1.14	1
Acenaphthylene	78.8		ug/kg	6.91	0.816	1
Acenaphthene	19.4		ug/kg	6.91	1.33	1
Fluorene	33.7		ug/kg	6.91	0.740	1
Phenanthrene	226		ug/kg	6.91	1.45	1
Anthracene	71.3		ug/kg	6.91	0.885	1
Fluoranthene	855		ug/kg	6.91	1.31	1
Pyrene	819		ug/kg	6.91	1.92	1
Benz(a)anthracene	386		ug/kg	6.91	1.66	1
Chrysene	442		ug/kg	6.91	1.61	1
Benzo(b)fluoranthene	605		ug/kg	6.91	2.30	1
Benzo(k)fluoranthene	345		ug/kg	6.91	1.06	1
Benzo(a)pyrene	450		ug/kg	6.91	3.08	1
Indeno(1,2,3-cd)Pyrene	350		ug/kg	6.91	1.74	1
Dibenz(a,h)anthracene	113		ug/kg	6.91	0.857	1
Benzo(ghi)perylene	391		ug/kg	6.91	0.740	1
Cl2-BZ#8	ND		ug/kg	0.691	0.137	1
Cl3-BZ#18	ND		ug/kg	0.691	0.100	1
Cl3-BZ#28	0.650	J	ug/kg	0.691	0.169	1
Cl4-BZ#44	0.592	J	ug/kg	0.691	0.189	1
Cl4-BZ#49	0.672	J	ug/kg	0.691	0.184	1
Cl4-BZ#52	3.15		ug/kg	0.691	0.105	1
Cl4-BZ#66	1.20		ug/kg	0.691	0.099	1
Cl5-BZ#87	0.739		ug/kg	0.691	0.080	1
Cl5-BZ#101	2.37		ug/kg	0.691	0.161	1
Cl5-BZ#105	0.995		ug/kg	0.691	0.144	1
Cl5-BZ#118	2.24		ug/kg	0.691	0.153	1
Cl6-BZ#128	0.970		ug/kg	0.691	0.180	1

Project Name: PEAR TREE POINT
Project Number: 2190362
Lab Number: L2140615
Report Date: 09/08/21

SAMPLE RESULTS

Lab ID: L2140615-04
Client ID: PTP-D
Sample Location: DARINE, CT
Date Collected: 04/28/21 00:00
Date Received: 04/29/21
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
RIM PAHs/PCB Congeners by GC/MS - Mansfield Lab						
Cl6-BZ#138	3.19		ug/kg	0.691	0.115	1
Cl6-BZ#153	2.67		ug/kg	0.691	0.240	1
Cl7-BZ#170	0.914		ug/kg	0.691	0.089	1
Cl7-BZ#180	1.25		ug/kg	0.691	0.091	1
Cl7-BZ#183	0.408	J	ug/kg	0.691	0.049	1
Cl7-BZ#184	ND		ug/kg	0.691	0.100	1
Cl7-BZ#187	1.74		ug/kg	0.691	0.130	1
Cl8-BZ#195	ND		ug/kg	0.691	0.170	1
Cl9-BZ#206	0.303	J	ug/kg	0.691	0.174	1
Cl10-BZ#209	ND		ug/kg	0.691	0.199	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2-Methylnaphthalene-d10	75		30-150
Pyrene-d10	85		30-150
Benzo(b)fluoranthene-d12	77		30-150
DBOB	87		30-150
BZ 198	85		30-150

Project Name: PEAR TREE POINT
Project Number: 2190362
Lab Number: L2140615
Report Date: 09/08/21

SAMPLE RESULTS

Lab ID: L2140615-05
Client ID: PTP-E
Sample Location: DARINE, CT

Date Collected: 04/28/21 00:00
Date Received: 04/29/21
Field Prep: Not Specified

Sample Depth:
Matrix: Sediment
Analytical Method: 105,8270D-SIM/680(M)
Analytical Date: 09/03/21 11:35
Analyst: GP
Percent Solids: 32%

Extraction Method: EPA 3570
Extraction Date: 08/17/21 20:14
Cleanup Method: EPA 3630
Cleanup Date: 08/19/21

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
RIM PAHs/PCB Congeners by GC/MS - Mansfield Lab						
Naphthalene	16.9		ug/kg	8.07	1.33	1
Acenaphthylene	43.2		ug/kg	8.07	0.952	1
Acenaphthene	12.1		ug/kg	8.07	1.55	1
Fluorene	20.7		ug/kg	8.07	0.863	1
Phenanthrene	153		ug/kg	8.07	1.69	1
Anthracene	45.8		ug/kg	8.07	1.03	1
Fluoranthene	566		ug/kg	8.07	1.52	1
Pyrene	516		ug/kg	8.07	2.24	1
Benz(a)anthracene	236		ug/kg	8.07	1.94	1
Chrysene	307		ug/kg	8.07	1.88	1
Benzo(b)fluoranthene	399		ug/kg	8.07	2.69	1
Benzo(k)fluoranthene	246		ug/kg	8.07	1.23	1
Benzo(a)pyrene	314		ug/kg	8.07	3.60	1
Indeno(1,2,3-cd)Pyrene	242		ug/kg	8.07	2.02	1
Dibenz(a,h)anthracene	88.9		ug/kg	8.07	1.00	1
Benzo(ghi)perylene	266		ug/kg	8.07	0.863	1
Cl2-BZ#8	ND		ug/kg	0.807	0.160	1
Cl3-BZ#18	ND		ug/kg	0.807	0.116	1
Cl3-BZ#28	0.472	J	ug/kg	0.807	0.198	1
Cl4-BZ#44	ND		ug/kg	0.807	0.220	1
Cl4-BZ#49	0.288	J	ug/kg	0.807	0.215	1
Cl4-BZ#52	1.87		ug/kg	0.807	0.123	1
Cl4-BZ#66	0.511	J	ug/kg	0.807	0.115	1
Cl5-BZ#87	0.262	J	ug/kg	0.807	0.094	1
Cl5-BZ#101	0.780	J	ug/kg	0.807	0.188	1
Cl5-BZ#105	0.314	J	ug/kg	0.807	0.169	1
Cl5-BZ#118	0.919		ug/kg	0.807	0.178	1
Cl6-BZ#128	0.496	J	ug/kg	0.807	0.210	1

Project Name: PEAR TREE POINT
Project Number: 2190362
Lab Number: L2140615
Report Date: 09/08/21

SAMPLE RESULTS

Lab ID: L2140615-05
Client ID: PTP-E
Sample Location: DARINE, CT
Date Collected: 04/28/21 00:00
Date Received: 04/29/21
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
RIM PAHs/PCB Congeners by GC/MS - Mansfield Lab						
Cl6-BZ#138	1.46		ug/kg	0.807	0.135	1
Cl6-BZ#153	1.18		ug/kg	0.807	0.281	1
Cl7-BZ#170	ND		ug/kg	0.807	0.103	1
Cl7-BZ#180	0.659	J	ug/kg	0.807	0.106	1
Cl7-BZ#183	0.327	J	ug/kg	0.807	0.057	1
Cl7-BZ#184	ND		ug/kg	0.807	0.116	1
Cl7-BZ#187	0.643	J	ug/kg	0.807	0.152	1
Cl8-BZ#195	ND		ug/kg	0.807	0.198	1
Cl9-BZ#206	ND		ug/kg	0.807	0.202	1
Cl10-BZ#209	ND		ug/kg	0.807	0.232	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2-Methylnaphthalene-d10	64		30-150
Pyrene-d10	67		30-150
Benzo(b)fluoranthene-d12	54		30-150
DBOB	77		30-150
BZ 198	74		30-150

Project Name: PEAR TREE POINT
Project Number: 2190362
Lab Number: L2140615
Report Date: 09/08/21

SAMPLE RESULTS

Lab ID: L2140615-06
Client ID: PTP-F
Sample Location: DARINE, CT

Date Collected: 04/28/21 00:00
Date Received: 04/29/21
Field Prep: Not Specified

Sample Depth:
Matrix: Sediment
Analytical Method: 105,8270D-SIM/680(M)
Analytical Date: 09/03/21 12:08
Analyst: GP
Percent Solids: 61%

Extraction Method: EPA 3570
Extraction Date: 08/17/21 20:14
Cleanup Method: EPA 3630
Cleanup Date: 08/19/21

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
RIM PAHs/PCB Congeners by GC/MS - Mansfield Lab						
Naphthalene	12.6		ug/kg	4.28	0.706	1
Acenaphthylene	36.4		ug/kg	4.28	0.504	1
Acenaphthene	9.90		ug/kg	4.28	0.821	1
Fluorene	16.2		ug/kg	4.28	0.458	1
Phenanthrene	97.9		ug/kg	4.28	0.898	1
Anthracene	32.0		ug/kg	4.28	0.547	1
Fluoranthene	375		ug/kg	4.28	0.808	1
Pyrene	343		ug/kg	4.28	1.19	1
Benz(a)anthracene	170		ug/kg	4.28	1.03	1
Chrysene	171		ug/kg	4.28	0.996	1
Benzo(b)fluoranthene	241		ug/kg	4.28	1.42	1
Benzo(k)fluoranthene	168		ug/kg	4.28	0.654	1
Benzo(a)pyrene	180		ug/kg	4.28	1.91	1
Indeno(1,2,3-cd)Pyrene	152		ug/kg	4.28	1.07	1
Dibenz(a,h)anthracene	48.9		ug/kg	4.28	0.530	1
Benzo(ghi)perylene	168		ug/kg	4.28	0.458	1
Cl2-BZ#8	ND		ug/kg	0.428	0.085	1
Cl3-BZ#18	0.543		ug/kg	0.428	0.062	1
Cl3-BZ#28	0.470		ug/kg	0.428	0.105	1
Cl4-BZ#44	0.787		ug/kg	0.428	0.117	1
Cl4-BZ#49	0.813		ug/kg	0.428	0.114	1
Cl4-BZ#52	3.32		ug/kg	0.428	0.065	1
Cl4-BZ#66	0.721		ug/kg	0.428	0.061	1
Cl5-BZ#87	0.811		ug/kg	0.428	0.050	1
Cl5-BZ#101	2.46		ug/kg	0.428	0.100	1
Cl5-BZ#105	0.570		ug/kg	0.428	0.089	1
Cl5-BZ#118	2.17		ug/kg	0.428	0.095	1
Cl6-BZ#128	0.764		ug/kg	0.428	0.112	1

Project Name: PEAR TREE POINT **Lab Number:** L2140615

Project Number: 2190362 **Report Date:** 09/08/21

SAMPLE RESULTS

Lab ID: L2140615-06 Date Collected: 04/28/21 00:00

Client ID: PTP-F Date Received: 04/29/21

Sample Location: DARINE, CT Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
RIM PAHs/PCB Congeners by GC/MS - Mansfield Lab						
Cl6-BZ#138	2.62		ug/kg	0.428	0.071	1
Cl6-BZ#153	2.15		ug/kg	0.428	0.149	1
Cl7-BZ#170	0.590		ug/kg	0.428	0.055	1
Cl7-BZ#180	0.874		ug/kg	0.428	0.056	1
Cl7-BZ#183	0.256	J	ug/kg	0.428	0.030	1
Cl7-BZ#184	ND		ug/kg	0.428	0.062	1
Cl7-BZ#187	1.10		ug/kg	0.428	0.080	1
Cl8-BZ#195	ND		ug/kg	0.428	0.105	1
Cl9-BZ#206	0.310	J	ug/kg	0.428	0.107	1
Cl10-BZ#209	ND		ug/kg	0.428	0.123	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2-Methylnaphthalene-d10	70		30-150
Pyrene-d10	80		30-150
Benzo(b)fluoranthene-d12	78		30-150
DBOB	88		30-150
BZ 198	98		30-150

Project Name: PEAR TREE POINT
Project Number: 2190362
Lab Number: L2140615
Report Date: 09/08/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 105,8270D-SIM/680(M)
Analytical Date: 09/02/21 10:25
Analyst: GP

Extraction Method: EPA 3570
Extraction Date: 08/17/21 20:11
Cleanup Method: EPA 3630
Cleanup Date: 08/19/21

Parameter	Result	Qualifier	Units	RL	MDL
RIM PAHs/PCB Congeners by GC/MS - Mansfield Lab for sample(s): 01-06 Batch: WG1536095-1					
Naphthalene	1.53	J	ug/kg	2.67	0.440
Acenaphthylene	ND		ug/kg	2.67	0.315
Acenaphthene	ND		ug/kg	2.67	0.512
Fluorene	ND		ug/kg	2.67	0.285
Phenanthrene	ND		ug/kg	2.67	0.560
Anthracene	ND		ug/kg	2.67	0.341
Fluoranthene	ND		ug/kg	2.67	0.504
Pyrene	ND		ug/kg	2.67	0.741
Benz(a)anthracene	ND		ug/kg	2.67	0.640
Chrysene	ND		ug/kg	2.67	0.621
Benzo(b)fluoranthene	ND		ug/kg	2.67	0.888
Benzo(k)fluoranthene	ND		ug/kg	2.67	0.408
Benzo(a)pyrene	ND		ug/kg	2.67	1.19
Indeno(1,2,3-cd)Pyrene	ND		ug/kg	2.67	0.669
Dibenz(a,h)anthracene	ND		ug/kg	2.67	0.331
Benzo(ghi)perylene	ND		ug/kg	2.67	0.285
Cl2-BZ#8	ND		ug/kg	0.267	0.053
Cl3-BZ#18	ND		ug/kg	0.267	0.038
Cl3-BZ#28	ND		ug/kg	0.267	0.065
Cl4-BZ#44	ND		ug/kg	0.267	0.073
Cl4-BZ#49	ND		ug/kg	0.267	0.071
Cl4-BZ#52	ND		ug/kg	0.267	0.041
Cl4-BZ#66	ND		ug/kg	0.267	0.038
Cl5-BZ#87	ND		ug/kg	0.267	0.031
Cl5-BZ#101	ND		ug/kg	0.267	0.062
Cl5-BZ#105	ND		ug/kg	0.267	0.056
Cl5-BZ#118	ND		ug/kg	0.267	0.059
Cl6-BZ#128	ND		ug/kg	0.267	0.070
Cl6-BZ#138	ND		ug/kg	0.267	0.045

Project Name: PEAR TREE POINT
Project Number: 2190362
Lab Number: L2140615
Report Date: 09/08/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 105,8270D-SIM/680(M)
Analytical Date: 09/02/21 10:25
Analyst: GP

Extraction Method: EPA 3570
Extraction Date: 08/17/21 20:11
Cleanup Method: EPA 3630
Cleanup Date: 08/19/21

Parameter	Result	Qualifier	Units	RL	MDL
RIM PAHs/PCB Congeners by GC/MS - Mansfield Lab for sample(s): 01-06 Batch: WG1536095-1					
Cl6-BZ#153	ND		ug/kg	0.267	0.093
Cl7-BZ#170	ND		ug/kg	0.267	0.034
Cl7-BZ#180	ND		ug/kg	0.267	0.035
Cl7-BZ#183	ND		ug/kg	0.267	0.019
Cl7-BZ#184	ND		ug/kg	0.267	0.038
Cl7-BZ#187	ND		ug/kg	0.267	0.050
Cl8-BZ#195	ND		ug/kg	0.267	0.066
Cl9-BZ#206	ND		ug/kg	0.267	0.067
Cl10-BZ#209	ND		ug/kg	0.267	0.077

Surrogate	%Recovery	Qualifier	Acceptance Criteria
2-Methylnaphthalene-d10	94		30-150
Pyrene-d10	103		30-150
Benzo(b)fluoranthene-d12	104		30-150
DBOB	96		30-150
BZ 198	93		30-150

Lab Control Sample Analysis

Batch Quality Control

Project Name: PEAR TREE POINT

Project Number: 2190362

Lab Number: L2140615

Report Date: 09/08/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
RIM PAHs/PCB Congeners by GC/MS - Mansfield Lab Associated sample(s): 01-06 Batch: WG1536095-2 WG1536095-3								
Naphthalene	94		96		50-120	2		30
Acenaphthylene	91		95		50-120	4		30
Acenaphthene	90		93		50-120	3		30
Fluorene	91		94		50-120	3		30
Phenanthrene	86		88		50-120	2		30
Anthracene	91		94		50-120	3		30
Fluoranthene	90		92		50-120	2		30
Pyrene	93		97		50-120	4		30
Benz(a)anthracene	97		97		50-120	0		30
Chrysene	90		94		50-120	4		30
Benzo(b)fluoranthene	113		102		50-120	10		30
Benzo(k)fluoranthene	93		103		50-120	10		30
Benzo(a)pyrene	101		103		50-120	2		30
Indeno(1,2,3-cd)Pyrene	88		93		50-120	6		30
Dibenz(a,h)anthracene	98		100		50-120	2		30
Benzo(ghi)perylene	104		107		50-120	3		30
Cl2-BZ#8	97		103		50-120	6		30
Cl3-BZ#18	90		97		50-120	7		30
Cl3-BZ#28	92		99		50-120	7		30
Cl4-BZ#44	94		99		50-120	5		30
Cl4-BZ#49	89		100		50-120	12		30
Cl4-BZ#52	88		95		50-120	8		30
Cl4-BZ#66	94		100		50-120	6		30

Lab Control Sample Analysis

Batch Quality Control

Project Name: PEAR TREE POINT
Project Number: 2190362

Lab Number: L2140615
Report Date: 09/08/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
RIM PAHs/PCB Congeners by GC/MS - Mansfield Lab Associated sample(s): 01-06 Batch: WG1536095-2 WG1536095-3								
Cl5-BZ#87	90		97		50-120	7		30
Cl5-BZ#101	98		104		50-120	6		30
Cl5-BZ#105	95		102		50-120	7		30
Cl5-BZ#118	89		96		50-120	8		30
Cl6-BZ#128	97		102		50-120	5		30
Cl6-BZ#138	97		103		50-120	6		30
Cl6-BZ#153	97		102		50-120	5		30
Cl7-BZ#170	100		104		50-120	4		30
Cl7-BZ#180	91		97		50-120	6		30
Cl7-BZ#183	94		100		50-120	6		30
Cl7-BZ#184	97		102		50-120	5		30
Cl7-BZ#187	98		102		50-120	4		30
Cl8-BZ#195	101		108		50-120	7		30
Cl9-BZ#206	82		97		50-120	17		30
Cl10-BZ#209	75		87		50-120	15		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
2-Methylnaphthalene-d10	93		93		30-150
Pyrene-d10	101		100		30-150
Benzo(b)fluoranthene-d12	105		103		30-150
DBOB	100		98		30-150
BZ 198	98		98		30-150

Matrix Spike Analysis

Batch Quality Control

Project Name: PEAR TREE POINT
Project Number: 2190362
Lab Number: L2140615
Report Date: 09/08/21

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
RIM PAHs/PCB Congeners by GC/MS - Mansfield Lab Associated sample(s): 01-06 QC Batch ID: WG1536095-4 WG1536095-5 QC Sample: L2140615-02 Client ID: PTP-B												
Naphthalene	23.9	476	423	84		396	80		50-120	7		30
Acenaphthylene	55.8	476	463	86		422	79		50-120	9		30
Acenaphthene	13.7	476	406	82		372	77		50-120	9		30
Fluorene	25.1	476	422	83		386	78		50-120	9		30
Phenanthrene	180	476	592	87		568	84		50-120	4		30
Anthracene	54.0	476	428	79		386	72		50-120	10		30
Fluoranthene	774	476	1160	81		1090	68		50-120	6		30
Pyrene	721	476	1100	80		1040	69		50-120	6		30
Benz(a)anthracene	366	476	773	86		700	72		50-120	10		30
Chrysene	414	476	731	67		670	55		50-120	9		30
Benzo(b)fluoranthene	626	476	1010	81		920	63		50-120	9		30
Benzo(k)fluoranthene	308	476	634	69		552	53		50-120	14		30
Benzo(a)pyrene	429	476	755	69		681	54		50-120	10		30
Indeno(1,2,3-cd)Pyrene	348	476	670	68		610	56		50-120	9		30
Dibenz(a,h)anthracene	112	476	459	73		380	58		50-120	19		30
Benzo(ghi)perylene	362	476	723	76		629	58		50-120	14		30
Cl2-BZ#8	ND	95.2	83.5	88		84.4	91		50-120	1		30
Cl3-BZ#18	ND	95.2	74.6	78		76.1	82		50-120	2		30
Cl3-BZ#28	ND	95.2	78.2	82		80.2	86		50-120	3		30
Cl4-BZ#44	0.573J	95.2	74.8	79		78.0	84		50-120	4		30
Cl4-BZ#49	0.423J	95.2	67.8	71		70.7	76		50-120	4		30
Cl4-BZ#52	2.31	95.2	81.2	83		84.2	88		50-120	4		30
Cl4-BZ#66	1.03	95.2	77.0	80		79.8	85		50-120	4		30

Matrix Spike Analysis

Batch Quality Control

Project Name: PEAR TREE POINT
Project Number: 2190362
Lab Number: L2140615
Report Date: 09/08/21

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
RIM PAHs/PCB Congeners by GC/MS - Mansfield Lab Associated sample(s): 01-06 QC Batch ID: WG1536095-4 WG1536095-5 QC Sample: L2140615-02 Client ID: PTP-B												
Cl5-BZ#87	0.758	95.2	73.9	77		76.0	81		50-120	3		30
Cl5-BZ#101	1.79	95.2	79.4	82		81.4	86		50-120	2		30
Cl5-BZ#105	1.56	95.2	66.4	68		67.5	71		50-120	2		30
Cl5-BZ#118	2.04	95.2	72.8	74		76.2	80		50-120	5		30
Cl6-BZ#128	0.796	95.2	80.9	84		84.5	90		50-120	4		30
Cl6-BZ#138	2.66	95.2	81.2	83		84.3	88		50-120	4		30
Cl6-BZ#153	2.42	95.2	80.6	82		84.0	88		50-120	4		30
Cl7-BZ#170	0.922	95.2	82.7	86		86.9	93		50-120	5		30
Cl7-BZ#180	1.30	95.2	75.3	78		78.9	84		50-120	5		30
Cl7-BZ#183	0.349J	95.2	69.7	73		73.8	80		50-120	6		30
Cl7-BZ#184	ND	95.2	77.4	81		80.4	87		50-120	4		30
Cl7-BZ#187	1.26	95.2	90.9	94		94.5	100		50-120	4		30
Cl8-BZ#195	ND	95.2	83.1	87		90.8	98		50-120	9		30
Cl9-BZ#206	0.460J	95.2	68.3	72		72.9	79		50-120	7		30
Cl10-BZ#209	ND	95.2	57.0	60		61.4	66		50-120	7		30

Surrogate	MS % Recovery	MS Qualifier	MSD % Recovery	MSD Qualifier	Acceptance Criteria
2-Methylnaphthalene-d10	74		71		30-150
BZ 198	87		77		30-150
Benzo(b)fluoranthene-d12	64		55		30-150
DBOB	83		84		30-150
Pyrene-d10	76		69		30-150

Lab Duplicate Analysis
Batch Quality Control

Project Name: PEAR TREE POINT
Project Number: 2190362

Lab Number: L2140615
Report Date: 09/08/21

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
RIM PAHs/PCB Congeners by GC/MS - Mansfield Lab Associated sample(s): 01-06 QC Batch ID: WG1536095-8 QC Sample: L2140615-02 Client ID: PTP-B						
Naphthalene	23.9	23.3	ug/kg	3		30
Acenaphthylene	55.8	63.9	ug/kg	14		30
Acenaphthene	13.7	14.4	ug/kg	5		30
Fluorene	25.1	27.6	ug/kg	9		30
Phenanthrene	180	190	ug/kg	5		30
Anthracene	54.0	55.9	ug/kg	3		30
Fluoranthene	774	736	ug/kg	5		30
Pyrene	721	678	ug/kg	6		30
Benz(a)anthracene	366	338	ug/kg	8		30
Chrysene	414	389	ug/kg	6		30
Benzo(b)fluoranthene	626	567	ug/kg	10		30
Benzo(k)fluoranthene	308	325	ug/kg	5		30
Benzo(a)pyrene	429	405	ug/kg	6		30
Indeno(1,2,3-cd)Pyrene	348	324	ug/kg	7		30
Dibenz(a,h)anthracene	112	112	ug/kg	0		30
Benzo(ghi)perylene	362	361	ug/kg	0		30
Cl2-BZ#8	ND	ND	ug/kg	NC		30
Cl3-BZ#18	ND	ND	ug/kg	NC		30
Cl3-BZ#28	ND	0.676J	ug/kg	NC		30
Cl4-BZ#44	0.573J	0.542J	ug/kg	NC		30
Cl4-BZ#49	0.423J	0.536J	ug/kg	NC		30

Lab Duplicate Analysis
Batch Quality Control

Project Name: PEAR TREE POINT
Project Number: 2190362

Lab Number: L2140615
Report Date: 09/08/21

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
RIM PAHs/PCB Congeners by GC/MS - Mansfield Lab Associated sample(s): 01-06 QC Batch ID: WG1536095-8 QC Sample: L2140615-02 Client ID: PTP-B						
Cl4-BZ#52	2.31	2.28	ug/kg	1		30
Cl4-BZ#66	1.03	0.808	ug/kg	24		30
Cl5-BZ#87	0.758	0.362J	ug/kg	NC		30
Cl5-BZ#101	1.79	1.57	ug/kg	13		30
Cl5-BZ#105	1.56	ND	ug/kg	NC		30
Cl5-BZ#118	2.04	1.42	ug/kg	**36**	Q	30
Cl6-BZ#128	0.796	0.580J	ug/kg	NC		30
Cl6-BZ#138	2.66	2.03	ug/kg	27		30
Cl6-BZ#153	2.42	1.89	ug/kg	25		30
Cl7-BZ#170	0.922	0.818	ug/kg	12		30
Cl7-BZ#180	1.30	1.07	ug/kg	19		30
Cl7-BZ#183	0.349J	0.244J	ug/kg	NC		30
Cl7-BZ#184	ND	ND	ug/kg	NC		30
Cl7-BZ#187	1.26	1.08	ug/kg	15		30
Cl8-BZ#195	ND	ND	ug/kg	NC		30
Cl9-BZ#206	0.460J	0.451J	ug/kg	NC		30
Cl10-BZ#209	ND	ND	ug/kg	NC		30

Surrogate	%Recovery	Qualifier	%Recovery	Qualifier	Acceptance Criteria
2-Methylnaphthalene-d10	73		70		30-150

Lab Duplicate Analysis
Batch Quality Control

Project Name: PEAR TREE POINT
Project Number: 2190362

Lab Number: L2140615
Report Date: 09/08/21

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits

RIM PAHs/PCB Congeners by GC/MS - Mansfield Lab Associated sample(s): 01-06 QC Batch ID: WG1536095-8 QC Sample: L2140615-02 Client ID: PTP-B

Surrogate	%Recovery	Qualifier	%Recovery	Qualifier	Acceptance Criteria
Pyrene-d10	79		71		30-150
Benzo(b)fluoranthene-d12	66		54		30-150
DBOB	85		78		30-150
BZ 198	70		81		30-150

Project Name: PEAR TREE POINT **Lab Number:** L2140615

Project Number: 2190362 **Report Date:** 09/08/21

S.R.M. Standard Quality Control

Standard Reference Material (SRM): WG1536095-10

Parameter	% Recovery	Qual	QC Criteria
Phenanthrene	71		40-140
Fluoranthene	76		40-140
Pyrene	72		40-140
Benz(a)anthracene	72		40-140
Chrysene	84		40-140
Benzo(b)fluoranthene	90		40-140
Benzo(k)fluoranthene	114		40-140
Benzo(a)pyrene	59		40-140
Indeno(1,2,3-cd)Pyrene	67		40-140
Dibenz(a,h)anthracene	128		40-140
Benzo(ghi)perylene	76		40-140
Cl2-BZ#8	90		40-140
Cl3-BZ#18	100		40-140
Cl3-BZ#28	68		40-140
Cl4-BZ#44	70		40-140
Cl4-BZ#49	82		40-140
Cl4-BZ#52	123		40-140
Cl4-BZ#66	65		40-140
Cl5-BZ#87	72		40-140
Cl5-BZ#101	84		40-140
Cl5-BZ#105	83		40-140
Cl5-BZ#118	80		40-140
Cl6-BZ#128	140		40-140
Cl6-BZ#138	91		40-140
Cl6-BZ#153	63		40-140
Cl7-BZ#170	76		40-140
Cl7-BZ#180	76		40-140
Cl7-BZ#183	76		40-140
Cl7-BZ#187	93		40-140
Cl9-BZ#206	71		40-140
Cl10-BZ#209	78		40-140
2-Methylnaphthalene-d10 (Surrogate)	73		30-150
Pyrene-d10 (Surrogate)	90		30-150
Benzo(b)fluoranthene-d12 (Surrogate)	84		30-150
DBOB (Surrogate)	86		30-150
BZ 198 (Surrogate)	84		30-150

PESTICIDES

Project Name: PEAR TREE POINT
Project Number: 2190362
Lab Number: L2140615
Report Date: 09/08/21

SAMPLE RESULTS

Lab ID: L2140615-01 D
Client ID: PTP-A
Sample Location: DARINE, CT

Date Collected: 04/28/21 00:00
Date Received: 04/29/21
Field Prep: Not Specified

Sample Depth:
Matrix: Sediment
Analytical Method: 1,8081B
Analytical Date: 08/24/21 00:40
Analyst: DP
Percent Solids: 71%

Extraction Method: EPA 3570
Extraction Date: 08/17/21 20:13
Cleanup Method: EPA 3630
Cleanup Date: 08/19/21

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
RIM Organochlorine Pesticides - Mansfield Lab							
Alpha-BHC	ND		ug/kg	0.932	0.142	5	A
Hexachlorobenzene	ND		ug/kg	1.86	1.25	5	A
Beta-BHC	ND		ug/kg	0.932	0.097	5	A
gamma-BHC	ND		ug/kg	0.932	0.210	5	A
Delta-BHC	ND		ug/kg	0.932	0.111	5	A
Heptachlor	ND		ug/kg	0.932	0.146	5	A
Aldrin	ND		ug/kg	0.932	0.233	5	A
Heptachlor epoxide	ND		ug/kg	1.86	0.300	5	B
Oxychlordane	ND		ug/kg	1.86	0.289	5	B
trans-Chlordane	ND		ug/kg	0.932	0.142	5	A
Endosulfan I	ND		ug/kg	0.932	0.128	5	A
cis-Chlordane	ND		ug/kg	0.932	0.503	5	A
trans-Nonachlor	ND		ug/kg	0.932	0.062	5	A
4,4'-DDE	1.27		ug/kg	0.932	0.043	5	B
Dieldrin	ND		ug/kg	0.932	0.140	5	A
Endrin	ND		ug/kg	0.932	0.076	5	A
Endosulfan II	ND		ug/kg	0.932	0.066	5	A
4,4'-DDD	ND		ug/kg	0.932	0.070	5	A
cis-Nonachlor	ND		ug/kg	0.932	0.068	5	A
Endosulfan sulfate	ND		ug/kg	0.932	0.038	5	A
4,4'-DDT	ND		ug/kg	0.932	0.092	5	A
Methoxychlor	ND		ug/kg	0.932	0.332	5	A
Toxaphene	ND		ug/kg	46.8	6.06	5	A

Project Name: PEAR TREE POINT **Lab Number:** L2140615

Project Number: 2190362 **Report Date:** 09/08/21

SAMPLE RESULTS

Lab ID: L2140615-01 D
Client ID: PTP-A
Sample Location: DARINE, CT

Date Collected: 04/28/21 00:00
Date Received: 04/29/21
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
RIM Organochlorine Pesticides - Mansfield Lab							

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
DBOB	90		30-150	A
BZ 198	79		30-150	A
DBOB	76		30-150	B
BZ 198	79		30-150	B

Project Name: PEAR TREE POINT
Project Number: 2190362
Lab Number: L2140615
Report Date: 09/08/21

SAMPLE RESULTS

Lab ID: L2140615-02 D
Client ID: PTP-B
Sample Location: DARINE, CT

Date Collected: 04/28/21 00:00
Date Received: 04/29/21
Field Prep: Not Specified

Sample Depth:
Matrix: Sediment
Analytical Method: 1,8081B
Analytical Date: 08/24/21 01:14
Analyst: DP
Percent Solids: 35%

Extraction Method: EPA 3570
Extraction Date: 08/17/21 20:13
Cleanup Method: EPA 3630
Cleanup Date: 08/19/21

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
RIM Organochlorine Pesticides - Mansfield Lab							
Alpha-BHC	ND		ug/kg	1.87	0.284	5	A
Hexachlorobenzene	ND		ug/kg	3.73	2.51	5	A
Beta-BHC	ND		ug/kg	1.87	0.194	5	A
gamma-BHC	ND		ug/kg	1.87	0.422	5	A
Delta-BHC	ND		ug/kg	1.87	0.222	5	A
Heptachlor	ND		ug/kg	1.87	0.292	5	A
Aldrin	ND		ug/kg	1.87	0.467	5	A
Heptachlor epoxide	ND		ug/kg	3.73	0.601	5	B
Oxychlordane	ND		ug/kg	3.73	0.578	5	B
trans-Chlordane	5.48	IP	ug/kg	1.87	0.284	5	A
Endosulfan I	ND		ug/kg	1.87	0.257	5	A
cis-Chlordane	5.72		ug/kg	1.87	1.01	5	B
trans-Nonachlor	3.31		ug/kg	1.87	0.124	5	A
4,4'-DDE	8.47		ug/kg	1.87	0.085	5	B
Dieldrin	ND		ug/kg	1.87	0.281	5	A
Endrin	ND		ug/kg	1.87	0.153	5	A
Endosulfan II	ND		ug/kg	1.87	0.132	5	A
4,4'-DDD	11.4	P	ug/kg	1.87	0.140	5	B
cis-Nonachlor	ND		ug/kg	1.87	0.136	5	A
Endosulfan sulfate	ND		ug/kg	1.87	0.077	5	A
4,4'-DDT	3.02		ug/kg	1.87	0.184	5	A
Methoxychlor	ND		ug/kg	1.87	0.664	5	A
Toxaphene	ND		ug/kg	93.7	12.1	5	A

Project Name: PEAR TREE POINT **Lab Number:** L2140615

Project Number: 2190362 **Report Date:** 09/08/21

SAMPLE RESULTS

Lab ID: L2140615-02 D Date Collected: 04/28/21 00:00

Client ID: PTP-B Date Received: 04/29/21

Sample Location: DARINE, CT Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
RIM Organochlorine Pesticides - Mansfield Lab							

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
DBOB	83		30-150	A
BZ 198	62		30-150	A
DBOB	60		30-150	B
BZ 198	55		30-150	B

Project Name: PEAR TREE POINT
Project Number: 2190362
Lab Number: L2140615
Report Date: 09/08/21

SAMPLE RESULTS

Lab ID: L2140615-03 D
Client ID: PTP-C
Sample Location: DARINE, CT

Date Collected: 04/28/21 00:00
Date Received: 04/29/21
Field Prep: Not Specified

Sample Depth:
Matrix: Sediment
Analytical Method: 1,8081B
Analytical Date: 08/24/21 15:14
Analyst: DP
Percent Solids: 48%

Extraction Method: EPA 3570
Extraction Date: 08/17/21 20:13
Cleanup Method: EPA 3630
Cleanup Date: 08/19/21

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
RIM Organochlorine Pesticides - Mansfield Lab							
Alpha-BHC	ND		ug/kg	1.34	0.203	5	A
Hexachlorobenzene	ND		ug/kg	2.67	1.80	5	A
Beta-BHC	ND		ug/kg	1.34	0.139	5	A
gamma-BHC	ND		ug/kg	1.34	0.302	5	A
Delta-BHC	ND		ug/kg	1.34	0.159	5	A
Heptachlor	ND		ug/kg	1.34	0.209	5	A
Aldrin	ND		ug/kg	1.34	0.334	5	A
Heptachlor epoxide	ND		ug/kg	2.67	0.430	5	B
Oxychlordane	ND		ug/kg	2.67	0.414	5	B
trans-Chlordane	3.31	IP	ug/kg	1.34	0.203	5	A
Endosulfan I	ND		ug/kg	1.34	0.184	5	A
cis-Chlordane	4.05		ug/kg	1.34	0.722	5	B
trans-Nonachlor	1.86		ug/kg	1.34	0.089	5	A
4,4'-DDE	2.76		ug/kg	1.34	0.061	5	A
Dieldrin	ND		ug/kg	1.34	0.201	5	A
Endrin	ND		ug/kg	1.34	0.110	5	A
Endosulfan II	ND		ug/kg	1.34	0.095	5	A
4,4'-DDD	4.16	P	ug/kg	1.34	0.100	5	B
cis-Nonachlor	ND		ug/kg	1.34	0.097	5	A
Endosulfan sulfate	ND		ug/kg	1.34	0.055	5	A
4,4'-DDT	0.917	JIP	ug/kg	1.34	0.132	5	A
Methoxychlor	ND		ug/kg	1.34	0.476	5	A
Toxaphene	ND		ug/kg	67.1	8.69	5	A

Project Name: PEAR TREE POINT **Lab Number:** L2140615

Project Number: 2190362 **Report Date:** 09/08/21

SAMPLE RESULTS

Lab ID: L2140615-03 D
Client ID: PTP-C
Sample Location: DARINE, CT

Date Collected: 04/28/21 00:00
Date Received: 04/29/21
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
RIM Organochlorine Pesticides - Mansfield Lab							

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
DBOB	97		30-150	A
BZ 198	86		30-150	A
DBOB	72		30-150	B
BZ 198	89		30-150	B

Project Name: PEAR TREE POINT
Project Number: 2190362
Lab Number: L2140615
Report Date: 09/08/21

SAMPLE RESULTS

Lab ID: L2140615-04 D
Client ID: PTP-D
Sample Location: DARINE, CT

Date Collected: 04/28/21 00:00
Date Received: 04/29/21
Field Prep: Not Specified

Sample Depth:
Matrix: Sediment
Analytical Method: 1,8081B
Analytical Date: 08/24/21 15:48
Analyst: DP
Percent Solids: 37%

Extraction Method: EPA 3570
Extraction Date: 08/17/21 20:13
Cleanup Method: EPA 3630
Cleanup Date: 08/19/21

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
RIM Organochlorine Pesticides - Mansfield Lab							
Alpha-BHC	162	P	ug/kg	1.73	0.263	5	B
Hexachlorobenzene	ND		ug/kg	3.46	2.33	5	A
Beta-BHC	ND		ug/kg	1.73	0.180	5	A
gamma-BHC	ND		ug/kg	1.73	0.390	5	A
Delta-BHC	ND		ug/kg	1.73	0.206	5	A
Heptachlor	ND		ug/kg	1.73	0.271	5	A
Aldrin	ND		ug/kg	1.73	0.432	5	A
Heptachlor epoxide	ND		ug/kg	3.46	0.556	5	B
Oxychlordane	ND		ug/kg	3.46	0.536	5	B
trans-Chlordane	10.5	IP	ug/kg	1.73	0.263	5	A
Endosulfan I	ND		ug/kg	1.73	0.238	5	A
cis-Chlordane	9.86	P	ug/kg	1.73	0.933	5	B
trans-Nonachlor	3.68		ug/kg	1.73	0.115	5	A
4,4'-DDE	8.78		ug/kg	1.73	0.079	5	B
Dieldrin	ND		ug/kg	1.73	0.260	5	A
Endrin	ND		ug/kg	1.73	0.142	5	A
Endosulfan II	ND		ug/kg	1.73	0.123	5	A
4,4'-DDD	8.90	P	ug/kg	1.73	0.130	5	B
cis-Nonachlor	ND		ug/kg	1.73	0.125	5	A
Endosulfan sulfate	ND		ug/kg	1.73	0.071	5	A
4,4'-DDT	3.10	I	ug/kg	1.73	0.170	5	A
Methoxychlor	ND		ug/kg	1.73	0.615	5	A
Toxaphene	ND		ug/kg	86.8	11.2	5	A

Project Name: PEAR TREE POINT
Lab Number: L2140615
Project Number: 2190362
Report Date: 09/08/21

SAMPLE RESULTS

Lab ID: L2140615-04 D
Client ID: PTP-D
Sample Location: DARINE, CT

Date Collected: 04/28/21 00:00
Date Received: 04/29/21
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
RIM Organochlorine Pesticides - Mansfield Lab							

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
DBOB	98		30-150	A
BZ 198	85		30-150	A
DBOB	74		30-150	B
BZ 198	91		30-150	B

Project Name: PEAR TREE POINT
Project Number: 2190362
Lab Number: L2140615
Report Date: 09/08/21

SAMPLE RESULTS

Lab ID: L2140615-05 D
Client ID: PTP-E
Sample Location: DARINE, CT

Date Collected: 04/28/21 00:00
Date Received: 04/29/21
Field Prep: Not Specified

Sample Depth:
Matrix: Sediment
Analytical Method: 1,8081B
Analytical Date: 08/24/21 16:22
Analyst: DP
Percent Solids: 32%

Extraction Method: EPA 3570
Extraction Date: 08/17/21 20:13
Cleanup Method: EPA 3630
Cleanup Date: 08/19/21

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
RIM Organochlorine Pesticides - Mansfield Lab							
Alpha-BHC	ND		ug/kg	2.02	0.306	5	A
Hexachlorobenzene	ND		ug/kg	4.03	2.71	5	A
Beta-BHC	ND		ug/kg	2.02	0.210	5	A
gamma-BHC	ND		ug/kg	2.02	0.456	5	A
Delta-BHC	ND		ug/kg	2.02	0.240	5	A
Heptachlor	ND		ug/kg	2.02	0.316	5	A
Aldrin	ND		ug/kg	2.02	0.504	5	A
Heptachlor epoxide	ND		ug/kg	4.03	0.649	5	B
Oxychlordane	ND		ug/kg	4.03	0.625	5	B
trans-Chlordane	11.0	I	ug/kg	2.02	0.306	5	A
Endosulfan I	ND		ug/kg	2.02	0.278	5	A
cis-Chlordane	11.9		ug/kg	2.02	1.09	5	B
trans-Nonachlor	5.50		ug/kg	2.02	0.134	5	A
4,4'-DDE	3.86		ug/kg	2.02	0.092	5	A
Dieldrin	1.79	JP	ug/kg	2.02	0.304	5	B
Endrin	ND		ug/kg	2.02	0.165	5	A
Endosulfan II	ND		ug/kg	2.02	0.143	5	A
4,4'-DDD	2.56		ug/kg	2.02	0.151	5	B
cis-Nonachlor	ND		ug/kg	2.02	0.146	5	A
Endosulfan sulfate	ND		ug/kg	2.02	0.083	5	A
4,4'-DDT	1.90	JI	ug/kg	2.02	0.199	5	A
Methoxychlor	ND		ug/kg	2.02	0.718	5	A
Toxaphene	ND		ug/kg	101	13.1	5	A

Project Name: PEAR TREE POINT **Lab Number:** L2140615

Project Number: 2190362 **Report Date:** 09/08/21

SAMPLE RESULTS

Lab ID: L2140615-05 D
Client ID: PTP-E
Sample Location: DARINE, CT

Date Collected: 04/28/21 00:00
Date Received: 04/29/21
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
RIM Organochlorine Pesticides - Mansfield Lab							

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
DBOB	70		30-150	A
BZ 198	74		30-150	A
DBOB	72		30-150	B
BZ 198	85		30-150	B

Project Name: PEAR TREE POINT
Project Number: 2190362
Lab Number: L2140615
Report Date: 09/08/21

SAMPLE RESULTS

Lab ID: L2140615-06 D
Client ID: PTP-F
Sample Location: DARINE, CT

Date Collected: 04/28/21 00:00
Date Received: 04/29/21
Field Prep: Not Specified

Sample Depth:
Matrix: Sediment
Analytical Method: 1,8081B
Analytical Date: 08/24/21 16:56
Analyst: DP
Percent Solids: 61%

Extraction Method: EPA 3570
Extraction Date: 08/17/21 20:13
Cleanup Method: EPA 3630
Cleanup Date: 08/19/21

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
RIM Organochlorine Pesticides - Mansfield Lab							
Alpha-BHC	ND		ug/kg	1.07	0.162	5	A
Hexachlorobenzene	ND		ug/kg	2.14	1.44	5	A
Beta-BHC	ND		ug/kg	1.07	0.111	5	A
gamma-BHC	ND		ug/kg	1.07	0.242	5	A
Delta-BHC	ND		ug/kg	1.07	0.127	5	A
Heptachlor	ND		ug/kg	1.07	0.167	5	A
Aldrin	ND		ug/kg	1.07	0.267	5	A
Heptachlor epoxide	ND		ug/kg	2.14	0.344	5	B
Oxychlordane	ND		ug/kg	2.14	0.331	5	B
trans-Chlordane	3.34	IP	ug/kg	1.07	0.162	5	A
Endosulfan I	ND		ug/kg	1.07	0.147	5	A
cis-Chlordane	2.77		ug/kg	1.07	0.577	5	B
trans-Nonachlor	1.42		ug/kg	1.07	0.071	5	A
4,4'-DDE	4.70		ug/kg	1.07	0.049	5	A
Dieldrin	ND		ug/kg	1.07	0.161	5	A
Endrin	ND		ug/kg	1.07	0.088	5	A
Endosulfan II	ND		ug/kg	1.07	0.076	5	A
4,4'-DDD	3.34	P	ug/kg	1.07	0.080	5	B
cis-Nonachlor	ND		ug/kg	1.07	0.078	5	A
Endosulfan sulfate	ND		ug/kg	1.07	0.044	5	A
4,4'-DDT	2.15	I	ug/kg	1.07	0.105	5	A
Methoxychlor	ND		ug/kg	1.07	0.380	5	A
Toxaphene	ND		ug/kg	53.7	6.95	5	A

Project Name: PEAR TREE POINT **Lab Number:** L2140615

Project Number: 2190362 **Report Date:** 09/08/21

SAMPLE RESULTS

Lab ID: L2140615-06 D
Client ID: PTP-F
Sample Location: DARINE, CT

Date Collected: 04/28/21 00:00
Date Received: 04/29/21
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
RIM Organochlorine Pesticides - Mansfield Lab							

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
DBOB	107		30-150	A
BZ 198	90		30-150	A
DBOB	82		30-150	B
BZ 198	96		30-150	B

Project Name: PEAR TREE POINT
Project Number: 2190362
Lab Number: L2140615
Report Date: 09/08/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8081B
Analytical Date: 08/21/21 12:56
Analyst: DP

Extraction Method: EPA 3570
Extraction Date: 08/17/21 20:11
Cleanup Method: EPA 3630
Cleanup Date: 08/19/21

Parameter	Result	Qualifier	Units	RL	MDL	Column
RIM Organochlorine Pesticides - Mansfield Lab for sample(s): 01-06 Batch: WG1536093-1						
Alpha-BHC	ND		ug/kg	0.133	0.020	A
Hexachlorobenzene	ND		ug/kg	0.267	0.179	A
Beta-BHC	ND		ug/kg	0.133	0.014	A
gamma-BHC	ND		ug/kg	0.133	0.030	A
Delta-BHC	ND		ug/kg	0.133	0.016	A
Heptachlor	ND		ug/kg	0.133	0.021	A
Aldrin	ND		ug/kg	0.133	0.033	A
trans-Chlordane	ND		ug/kg	0.133	0.020	A
Endosulfan I	ND		ug/kg	0.133	0.018	A
cis-Chlordane	ND		ug/kg	0.133	0.072	A
trans-Nonachlor	ND		ug/kg	0.133	0.009	A
4,4'-DDE	ND		ug/kg	0.133	0.006	A
Dieldrin	ND		ug/kg	0.133	0.020	A
Endrin	ND		ug/kg	0.133	0.011	A
Endosulfan II	ND		ug/kg	0.133	0.009	A
4,4'-DDD	ND		ug/kg	0.133	0.010	A
cis-Nonachlor	ND		ug/kg	0.133	0.010	A
Endosulfan sulfate	ND		ug/kg	0.133	0.005	A
4,4'-DDT	ND		ug/kg	0.133	0.013	A
Methoxychlor	ND		ug/kg	0.133	0.048	A
Toxaphene	ND		ug/kg	6.69	0.867	A
Heptachlor epoxide	ND		ug/kg	0.267	0.043	B
Oxychlordane	ND		ug/kg	0.267	0.041	B

Project Name: PEAR TREE POINT
Project Number: 2190362
Lab Number: L2140615
Report Date: 09/08/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8081B
Analytical Date: 08/21/21 12:56
Analyst: DP

Extraction Method: EPA 3570
Extraction Date: 08/17/21 20:11
Cleanup Method: EPA 3630
Cleanup Date: 08/19/21

Parameter	Result	Qualifier	Units	RL	MDL	Column
RIM Organochlorine Pesticides - Mansfield Lab for sample(s): 01-06 Batch: WG1536093-1						

Surrogate	%Recovery	Qualifier	Acceptance Criteria	Column
DBOB	61		30-150	A
BZ 198	66		30-150	A
DBOB	63		30-150	B
BZ 198	67		30-150	B

Lab Control Sample Analysis

Batch Quality Control

Project Name: PEAR TREE POINT

Project Number: 2190362

Lab Number: L2140615

Report Date: 09/08/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits	Column
RIM Organochlorine Pesticides - Mansfield Lab Associated sample(s): 01-06 Batch: WG1536093-2 WG1536093-3									
Alpha-BHC	72		83		50-120	14		30	A
Hexachlorobenzene	66		79		50-120	18		30	A
Beta-BHC	68		81		50-120	17		30	A
gamma-BHC	61		69		50-120	12		30	A
Delta-BHC	56		65		50-120	15		30	A
Heptachlor	72		81		50-120	12		30	A
Aldrin	68		76		50-120	11		30	A
trans-Chlordane	74		84		50-120	13		30	A
Endosulfan I	71		80		50-120	12		30	A
cis-Chlordane	70		80		50-120	13		30	A
trans-Nonachlor	74		84		50-120	13		30	A
4,4'-DDE	77		88		50-120	13		30	A
Dieldrin	75		87		50-120	15		30	A
Endrin	71		82		50-120	14		30	A
4,4'-DDD	76		86		50-120	12		30	A
cis-Nonachlor	64		74		50-120	14		30	A
Endosulfan sulfate	69		80		50-120	15		30	A
4,4'-DDT	70		78		50-120	11		30	A
Methoxychlor	68		76		50-120	11		30	A

Lab Control Sample Analysis

Batch Quality Control

Project Name: PEAR TREE POINT

Project Number: 2190362

Lab Number: L2140615

Report Date: 09/08/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
RIM Organochlorine Pesticides - Mansfield Lab Associated sample(s): 01-06 Batch: WG1536093-2 WG1536093-3								

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria	Column
DBOB	66		74		30-150	A
BZ 198	69		75		30-150	A
DBOB	66		65		30-150	B
BZ 198	73		78		30-150	B

Lab Control Sample Analysis

Batch Quality Control

Project Name: PEAR TREE POINT

Project Number: 2190362

Lab Number: L2140615

Report Date: 09/08/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits	Column
RIM Organochlorine Pesticides - Mansfield Lab Associated sample(s): 01-06 Batch: WG1536093-2 WG1536093-3									
Heptachlor epoxide	73		77		50-120	5		30	B
Oxychlordane	83		92		50-120	10		30	B
Endosulfan II	71		85		50-120	18		30	B

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria	Column
DBOB	66		74		30-150	A
BZ 198	69		75		30-150	A
DBOB	66		65		30-150	B
BZ 198	73		78		30-150	B

Matrix Spike Analysis

Batch Quality Control

Project Name: PEAR TREE POINT

Project Number: 2190362

Lab Number: L2140615

Report Date: 09/08/21

Parameter	*Native Sample*	*MS Added*	*MS Found*	*MS %Recovery*	*Qual*	*MSD Found*	*MSD %Recovery*	*Qual*	*Recovery Limits*	*RPD*	*Qual*	*RPD Limits*	*Column*
RIM Organochlorine Pesticides - Mansfield Lab Associated sample(s): 01-06 QC Batch ID: WG1536093-4 WG1536093-5 QC Sample: L2140615-02 Client ID: PTP-B													
Alpha-BHC	ND	95.2	81.2	85		85.6	92		50-120	5		30	A
Hexachlorobenzene	ND	95.2	79.0	83		85.0	92		50-120	7		30	A
Beta-BHC	ND	95.2	80.1IP	84		86.5IP	93		50-120	8		30	B
gamma-BHC	ND	95.2	75.3	79		84.5	91		50-120	12		30	A
Delta-BHC	ND	95.2	67.4	71		78.4	84		50-120	15		30	A
Heptachlor	ND	95.2	80.2	84		92.9	100		50-120	15		30	A
Aldrin	ND	95.2	75.4	79		65.9	71		50-120	13		30	A
Heptachlor epoxide	ND	95.2	88.4	93		100	108		50-120	12		30	B
Oxychlordane	ND	95.2	104	109		169	**182**	Q	50-120	**48**	Q	30	B
trans-Chlordane	5.48IP	95.2	86.1	85		102	104		50-120	17		30	A
Endosulfan I	ND	95.2	84.2	88		93.2	100		50-120	10		30	A
cis-Chlordane	5.72	95.2	86.4	85		97.9	99		50-120	12		30	B
trans-Nonachlor	3.31	95.2	85.5	86		98.4	102		50-120	14		30	A
4,4'-DDE	8.47	95.2	87.5	83		102	101		50-120	15		30	B
Dieldrin	ND	95.2	79.1	83		94.2	101		50-120	17		30	A
Endrin	ND	95.2	77.4	81		96.0	103		50-120	21		30	A
Endosulfan II	ND	95.2	77.5	81		84.1	91		50-120	8		30	B
cis-Nonachlor	ND	95.2	74.8	79		81.9	88		50-120	9		30	A
Endosulfan sulfate	ND	95.2	81.3	85		111	120		50-120	**31**	Q	30	A
4,4'-DDT	3.02	95.2	78.3	79		94.8	99		50-120	19		30	A
Methoxychlor	ND	95.2	77.2	81		97.5	105		50-120	23		30	A

Matrix Spike Analysis

Batch Quality Control

Project Name: PEAR TREE POINT

Project Number: 2190362

Lab Number: L2140615

Report Date: 09/08/21

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
RIM Organochlorine Pesticides - Mansfield Lab Associated sample(s): 01-06 QC Batch ID: WG1536093-4 WG1536093-5 QC Sample: L2140615-02 Client ID: PTP-B												

Surrogate	MS % Recovery	MS Qualifier	MSD % Recovery	MSD Qualifier	Acceptance Criteria	Column
BZ 198	78		80		30-150	A
DBOB	76		93		30-150	A
BZ 198	75		89		30-150	B
DBOB	78		71		30-150	B

Lab Duplicate Analysis
Batch Quality Control

Project Name: PEAR TREE POINT
Project Number: 2190362

Lab Number: L2140615
Report Date: 09/08/21

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits	
RIM Organochlorine Pesticides - Mansfield Lab Associated sample(s): 01-06 QC Batch ID: WG1536093-8 QC Sample: L2140615-02 Client ID: PTP-B							
Alpha-BHC	ND	ND	ug/kg	NC		30	A
Hexachlorobenzene	ND	ND	ug/kg	NC		30	A
Beta-BHC	ND	ND	ug/kg	NC		30	A
gamma-BHC	ND	ND	ug/kg	NC		30	A
Delta-BHC	ND	ND	ug/kg	NC		30	A
Heptachlor	ND	ND	ug/kg	NC		30	A
Aldrin	ND	ND	ug/kg	NC		30	A
Heptachlor epoxide	ND	ND	ug/kg	NC		30	B
Oxychlordane	ND	ND	ug/kg	NC		30	B
trans-Chlordane	5.48IP	5.97IP	ug/kg	9		30	A
Endosulfan I	ND	ND	ug/kg	NC		30	A
cis-Chlordane	5.72	5.90	ug/kg	3		30	B
trans-Nonachlor	3.31	3.24	ug/kg	2		30	A
4,4'-DDE	8.47	8.31	ug/kg	2		30	B
Dieldrin	ND	ND	ug/kg	NC		30	A
Endrin	ND	ND	ug/kg	NC		30	A
Endosulfan II	ND	ND	ug/kg	NC		30	A
4,4'-DDD	11.4P	11.5P	ug/kg	1		30	B
cis-Nonachlor	ND	ND	ug/kg	NC		30	A
Endosulfan sulfate	ND	ND	ug/kg	NC		30	A
4,4'-DDT	3.02	4.40	ug/kg	**37**	Q	30	A

Lab Duplicate Analysis
Batch Quality Control

Project Name: PEAR TREE POINT
Project Number: 2190362

Lab Number: L2140615
Report Date: 09/08/21

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits	
RIM Organochlorine Pesticides - Mansfield Lab Associated sample(s): 01-06 QC Batch ID: WG1536093-8 QC Sample: L2140615-02 Client ID: PTP-B							
Methoxychlor	ND	ND	ug/kg	NC		30	A
Toxaphene	ND	ND	ug/kg	NC		30	A

Surrogate	%Recovery	Qualifier	%Recovery	Qualifier	Acceptance Criteria	Column
DBOB	83		88		30-150	A
BZ 198	62		72		30-150	A
DBOB	60		58		30-150	B
BZ 198	55		71		30-150	B

Project Name: PEAR TREE POINT
Project Number: 2190362
Lab Number: L2140615
Report Date: 09/08/21

S.R.M. Standard Quality Control

Standard Reference Material (SRM): WG1536093-10

Parameter	% Recovery	Qual	QC Criteria
Hexachlorobenzene	0	Q	40-140
cis-Chlordane	133		40-140
trans-Nonachlor	320	Q	40-140
DBOB (Surrogate)	45		30-150
DBOB (Surrogate)	75		30-150
BZ 198 (Surrogate)	89		30-150
BZ 198 (Surrogate)	192	Q	30-150

METALS

Project Name: PEAR TREE POINT
Lab Number: L2140615
Project Number: 2190362
Report Date: 09/08/21

SAMPLE RESULTS

Lab ID: L2140615-01
Client ID: PTP-A
Sample Location: DARINE, CT
Date Collected: 04/28/21 00:00
Date Received: 04/29/21
Field Prep: Not Specified

Sample Depth:
Matrix: Sediment
Percent Solids: 71%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Arsenic, Total	2.11		mg/kg	0.133	0.018	2	09/01/21 14:58	09/02/21 14:54	EPA 3050B	1,6020B	CD
Cadmium, Total	0.166		mg/kg	0.053	0.007	2	09/01/21 14:58	09/02/21 14:54	EPA 3050B	1,6020B	CD
Chromium, Total	16.3		mg/kg	0.532	0.124	2	09/01/21 14:58	09/02/21 14:54	EPA 3050B	1,6020B	CD
Copper, Total	27.0		mg/kg	0.532	0.052	2	09/01/21 14:58	09/02/21 14:54	EPA 3050B	1,6020B	CD
Lead, Total	17.6		mg/kg	0.160	0.039	2	09/01/21 14:58	09/02/21 14:54	EPA 3050B	1,6020B	CD
Mercury, Total	0.060		mg/kg	0.016	0.002	5	08/02/21 22:06	08/27/21 10:25	EPA 7474	1,7474	CD
Nickel, Total	7.69		mg/kg	0.266	0.071	2	09/01/21 14:58	09/02/21 14:54	EPA 3050B	1,6020B	CD
Zinc, Total	40.9		mg/kg	2.66	0.691	2	09/01/21 14:58	09/02/21 14:54	EPA 3050B	1,6020B	CD

Project Name: PEAR TREE POINT
Lab Number: L2140615
Project Number: 2190362
Report Date: 09/08/21

SAMPLE RESULTS

Lab ID: L2140615-02
Client ID: PTP-B
Sample Location: DARINE, CT
Date Collected: 04/28/21 00:00
Date Received: 04/29/21
Field Prep: Not Specified

Sample Depth:
Matrix: Sediment
Percent Solids: 35%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Arsenic, Total	6.03		mg/kg	0.276	0.037	2	09/01/21 14:58	09/03/21 12:53	EPA 3050B	1,6020B	CD
Cadmium, Total	0.596		mg/kg	0.111	0.015	2	09/01/21 14:58	09/03/21 12:53	EPA 3050B	1,6020B	CD
Chromium, Total	51.9		mg/kg	1.11	0.259	2	09/01/21 14:58	09/03/21 12:53	EPA 3050B	1,6020B	CD
Copper, Total	87.6		mg/kg	1.11	0.107	2	09/01/21 14:58	09/03/21 12:53	EPA 3050B	1,6020B	CD
Lead, Total	64.7		mg/kg	0.332	0.081	2	09/01/21 14:58	09/03/21 12:53	EPA 3050B	1,6020B	CD
Mercury, Total	0.323		mg/kg	0.033	0.004	5	08/02/21 22:06	08/27/21 10:15	EPA 7474	1,7474	CD
Nickel, Total	17.3		mg/kg	0.553	0.148	2	09/01/21 14:58	09/03/21 12:53	EPA 3050B	1,6020B	CD
Zinc, Total	144		mg/kg	5.53	1.44	2	09/01/21 14:58	09/03/21 12:53	EPA 3050B	1,6020B	CD

Project Name: PEAR TREE POINT
Lab Number: L2140615
Project Number: 2190362
Report Date: 09/08/21

SAMPLE RESULTS

Lab ID: L2140615-03
Client ID: PTP-C
Sample Location: DARINE, CT
Date Collected: 04/28/21 00:00
Date Received: 04/29/21
Field Prep: Not Specified

Sample Depth:
Matrix: Sediment
Percent Solids: 48%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Arsenic, Total	4.72		mg/kg	0.203	0.027	2	09/01/21 14:58	09/02/21 14:59	EPA 3050B	1,6020B	CD
Cadmium, Total	0.263		mg/kg	0.081	0.011	2	09/01/21 14:58	09/02/21 14:59	EPA 3050B	1,6020B	CD
Chromium, Total	29.5		mg/kg	0.813	0.190	2	09/01/21 14:58	09/02/21 14:59	EPA 3050B	1,6020B	CD
Copper, Total	35.2		mg/kg	0.813	0.079	2	09/01/21 14:58	09/02/21 14:59	EPA 3050B	1,6020B	CD
Lead, Total	23.4		mg/kg	0.244	0.059	2	09/01/21 14:58	09/02/21 14:59	EPA 3050B	1,6020B	CD
Mercury, Total	0.153		mg/kg	0.025	0.003	5	08/02/21 22:06	08/27/21 10:27	EPA 7474	1,7474	CD
Nickel, Total	20.5		mg/kg	0.407	0.109	2	09/01/21 14:58	09/02/21 14:59	EPA 3050B	1,6020B	CD
Zinc, Total	64.0		mg/kg	4.07	1.06	2	09/01/21 14:58	09/02/21 14:59	EPA 3050B	1,6020B	CD

Project Name: PEAR TREE POINT
Lab Number: L2140615
Project Number: 2190362
Report Date: 09/08/21

SAMPLE RESULTS

Lab ID: L2140615-04
Client ID: PTP-D
Sample Location: DARINE, CT
Date Collected: 04/28/21 00:00
Date Received: 04/29/21
Field Prep: Not Specified

Sample Depth:
Matrix: Sediment
Percent Solids: 37%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Arsenic, Total	7.37		mg/kg	0.269	0.036	2	09/01/21 14:58	09/02/21 15:04	EPA 3050B	1,6020B	CD
Cadmium, Total	0.780		mg/kg	0.107	0.014	2	09/01/21 14:58	09/02/21 15:04	EPA 3050B	1,6020B	CD
Chromium, Total	68.7		mg/kg	1.07	0.252	2	09/01/21 14:58	09/02/21 15:04	EPA 3050B	1,6020B	CD
Copper, Total	118		mg/kg	1.07	0.104	2	09/01/21 14:58	09/02/21 15:04	EPA 3050B	1,6020B	CD
Lead, Total	80.2		mg/kg	0.322	0.079	2	09/01/21 14:58	09/02/21 15:04	EPA 3050B	1,6020B	CD
Mercury, Total	0.385		mg/kg	0.030	0.004	5	08/02/21 22:06	08/27/21 10:30	EPA 7474	1,7474	CD
Nickel, Total	24.3		mg/kg	0.537	0.144	2	09/01/21 14:58	09/02/21 15:04	EPA 3050B	1,6020B	CD
Zinc, Total	166		mg/kg	5.37	1.40	2	09/01/21 14:58	09/02/21 15:04	EPA 3050B	1,6020B	CD

Project Name: PEAR TREE POINT
Lab Number: L2140615
Project Number: 2190362
Report Date: 09/08/21

SAMPLE RESULTS

Lab ID: L2140615-05
Client ID: PTP-E
Sample Location: DARINE, CT
Date Collected: 04/28/21 00:00
Date Received: 04/29/21
Field Prep: Not Specified

Sample Depth:
Matrix: Sediment
Percent Solids: 32%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Arsenic, Total	7.70		mg/kg	0.306	0.040	2	09/01/21 14:58	09/02/21 15:09	EPA 3050B	1,6020B	CD
Cadmium, Total	0.626		mg/kg	0.122	0.016	2	09/01/21 14:58	09/02/21 15:09	EPA 3050B	1,6020B	CD
Chromium, Total	70.0		mg/kg	1.22	0.286	2	09/01/21 14:58	09/02/21 15:09	EPA 3050B	1,6020B	CD
Copper, Total	126		mg/kg	1.22	0.119	2	09/01/21 14:58	09/02/21 15:09	EPA 3050B	1,6020B	CD
Lead, Total	71.6		mg/kg	0.367	0.089	2	09/01/21 14:58	09/02/21 15:09	EPA 3050B	1,6020B	CD
Mercury, Total	0.243		mg/kg	0.038	0.005	5	08/02/21 22:06	08/27/21 10:32	EPA 7474	1,7474	CD
Nickel, Total	26.2		mg/kg	0.612	0.163	2	09/01/21 14:58	09/02/21 15:09	EPA 3050B	1,6020B	CD
Zinc, Total	177		mg/kg	6.12	1.59	2	09/01/21 14:58	09/02/21 15:09	EPA 3050B	1,6020B	CD

Project Name: PEAR TREE POINT
Lab Number: L2140615
Project Number: 2190362
Report Date: 09/08/21

SAMPLE RESULTS

Lab ID: L2140615-06
Client ID: PTP-F
Sample Location: DARINE, CT
Date Collected: 04/28/21 00:00
Date Received: 04/29/21
Field Prep: Not Specified

Sample Depth:
Matrix: Sediment
Percent Solids: 61%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Arsenic, Total	2.96		mg/kg	0.162	0.021	2	09/01/21 14:58	09/02/21 15:14	EPA 3050B	1,6020B	CD
Cadmium, Total	0.453		mg/kg	0.065	0.009	2	09/01/21 14:58	09/02/21 15:14	EPA 3050B	1,6020B	CD
Chromium, Total	26.0		mg/kg	0.649	0.152	2	09/01/21 14:58	09/02/21 15:14	EPA 3050B	1,6020B	CD
Copper, Total	55.0		mg/kg	0.649	0.063	2	09/01/21 14:58	09/02/21 15:14	EPA 3050B	1,6020B	CD
Lead, Total	34.0		mg/kg	0.195	0.047	2	09/01/21 14:58	09/02/21 15:14	EPA 3050B	1,6020B	CD
Mercury, Total	0.150		mg/kg	0.020	0.003	5	08/02/21 22:06	08/27/21 10:39	EPA 7474	1,7474	CD
Nickel, Total	9.46		mg/kg	0.324	0.087	2	09/01/21 14:58	09/02/21 15:14	EPA 3050B	1,6020B	CD
Zinc, Total	72.8		mg/kg	3.24	0.844	2	09/01/21 14:58	09/02/21 15:14	EPA 3050B	1,6020B	CD

Project Name: PEAR TREE POINT
Project Number: 2190362
Lab Number: L2140615
Report Date: 09/08/21

Method Blank Analysis
Batch Quality Control

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 01-06 Batch: WG1530503-1										
Mercury, Total	ND		mg/kg	0.013	0.002	5	08/02/21 22:06	08/27/21 10:10	1,7474	CD

Prep Information

Digestion Method: EPA 7474

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 01-06 Batch: WG1540782-1										
Arsenic, Total	ND		mg/kg	0.050	0.007	1	09/01/21 14:58	09/02/21 13:30	1,6020B	CD
Cadmium, Total	ND		mg/kg	0.020	0.003	1	09/01/21 14:58	09/02/21 13:30	1,6020B	CD
Chromium, Total	ND		mg/kg	0.200	0.047	1	09/01/21 14:58	09/02/21 13:30	1,6020B	CD
Copper, Total	ND		mg/kg	0.200	0.019	1	09/01/21 14:58	09/02/21 13:30	1,6020B	CD
Lead, Total	ND		mg/kg	0.060	0.015	1	09/01/21 14:58	09/02/21 13:30	1,6020B	CD
Nickel, Total	ND		mg/kg	0.100	0.027	1	09/01/21 14:58	09/02/21 13:30	1,6020B	CD
Zinc, Total	ND		mg/kg	1.00	0.260	1	09/01/21 14:58	09/02/21 13:30	1,6020B	CD

Prep Information

Digestion Method: EPA 3050B

Lab Control Sample Analysis

Batch Quality Control

Project Name: PEAR TREE POINT

Project Number: 2190362

Lab Number: L2140615

Report Date: 09/08/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01-06 Batch: WG1530503-2 SRM Lot Number: D109-540								
Mercury, Total	122		-		60-140	-		20
Total Metals - Mansfield Lab Associated sample(s): 01-06 Batch: WG1540782-2 SRM Lot Number: D109-540								
Arsenic, Total	101		-		70-130	-		20
Cadmium, Total	96		-		75-125	-		20
Chromium, Total	92		-		70-130	-		20
Copper, Total	96		-		75-125	-		20
Lead, Total	96		-		72-128	-		20
Nickel, Total	94		-		70-130	-		20
Zinc, Total	96		-		70-130	-		20

Matrix Spike Analysis
Batch Quality Control

Project Name: PEAR TREE POINT
Project Number: 2190362

Lab Number: L2140615
Report Date: 09/08/21

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01-06 QC Batch ID: WG1530503-3 WG1530503-4 QC Sample: L2140615-02 Client ID: PTP-B												
Mercury, Total	0.323	1.65	1.78	88		2.07	104		80-120	15		20
Total Metals - Mansfield Lab Associated sample(s): 01-06 QC Batch ID: WG1540782-3 WG1540782-4 QC Sample: L2140615-02 Client ID: PTP-B												
Arsenic, Total	6.03	27.3	34.1	103		35.4	107		75-125	4		20
Cadmium, Total	0.596	12	12.0	95		12.3	97		75-125	2		20
Chromium, Total	51.9	45.5	105	117		110	**127**	Q	75-125	5		20
Copper, Total	87.6	56.8	160	**127**	Q	180	**162**	Q	75-125	12		20
Lead, Total	64.7	120	186	101		198	110		75-125	6		20
Nickel, Total	17.3	114	125	95		129	98		75-125	3		20
Zinc, Total	144	114	289	**128**	Q	325	**158**	Q	75-125	12		20

Lab Duplicate Analysis
Batch Quality Control

Project Name: PEAR TREE POINT
Project Number: 2190362

Lab Number: L2140615
Report Date: 09/08/21

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01-06 QC Batch ID: WG1530503-5 QC Sample: L2140615-02 Client ID: PTP-B						
Mercury, Total	0.323	0.356	mg/kg	10		20
Total Metals - Mansfield Lab Associated sample(s): 01-06 QC Batch ID: WG1540782-5 QC Sample: L2140615-02 Client ID: PTP-B						
Arsenic, Total	6.03	6.88	mg/kg	13		20
Cadmium, Total	0.596	0.752	mg/kg	**23**	Q	20
Chromium, Total	51.9	55.8	mg/kg	7		20
Copper, Total	87.6	99.0	mg/kg	12		20
Lead, Total	64.7	72.6	mg/kg	12		20
Nickel, Total	17.3	20.0	mg/kg	14		20
Zinc, Total	144	166	mg/kg	14		20

INORGANICS
&
MISCELLANEOUS

Project Name: PEAR TREE POINT
Project Number: 2190362
Lab Number: L2140615
Report Date: 09/08/21

SAMPLE RESULTS

Lab ID: L2140615-01
Client ID: PTP-A
Sample Location: DARINE, CT
Sample Depth:
Matrix: Sediment

Date Collected: 04/28/21 00:00
Date Received: 04/29/21
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
RIM Total Organic Carbon - Mansfield Lab										
Total Organic Carbon (Rep1)	0.726		%	0.010	0.010	1	-	08/26/21 10:27	1,9060A	SP
Total Organic Carbon (Rep2)	0.738		%	0.010	0.010	1	-	08/26/21 10:27	1,9060A	SP
Total Organic Carbon (Average)	0.732		%	0.010	0.010	1	-	08/26/21 10:27	1,9060A	SP
General Chemistry - Mansfield Lab										
Solids, Total	70.8		%	0.100	0.100	1	-	08/03/21 15:20	121,2540G	ES
Moisture	29.2		%	0.100	0.100	1	-	08/03/21 15:20	121,2540G	ES

Project Name: PEAR TREE POINT
Project Number: 2190362
Lab Number: L2140615
Report Date: 09/08/21

SAMPLE RESULTS

Lab ID: L2140615-02
Client ID: PTP-B
Sample Location: DARINE, CT
Sample Depth:
Matrix: Sediment

Date Collected: 04/28/21 00:00
Date Received: 04/29/21
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
RIM Total Organic Carbon - Mansfield Lab										
Total Organic Carbon (Rep1)	4.12		%	0.010	0.010	1	-	08/26/21 10:27	1,9060A	SP
Total Organic Carbon (Rep2)	4.01		%	0.010	0.010	1	-	08/26/21 10:27	1,9060A	SP
Total Organic Carbon (Average)	4.06		%	0.010	0.010	1	-	08/26/21 10:27	1,9060A	SP
General Chemistry - Mansfield Lab										
Solids, Total	34.5		%	0.100	0.100	1	-	08/03/21 15:20	121,2540G	ES
Moisture	65.5		%	0.100	0.100	1	-	08/03/21 15:20	121,2540G	ES

Project Name: PEAR TREE POINT
Project Number: 2190362
Lab Number: L2140615
Report Date: 09/08/21

SAMPLE RESULTS

Lab ID: L2140615-03
Client ID: PTP-C
Sample Location: DARINE, CT
Sample Depth:
Matrix: Sediment

Date Collected: 04/28/21 00:00
Date Received: 04/29/21
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
RIM Total Organic Carbon - Mansfield Lab										
Total Organic Carbon (Rep1)	2.92		%	0.010	0.010	1	-	08/27/21 09:35	1,9060A	SP
Total Organic Carbon (Rep2)	2.40		%	0.010	0.010	1	-	08/27/21 09:35	1,9060A	SP
Total Organic Carbon (Average)	2.66		%	0.010	0.010	1	-	08/27/21 09:35	1,9060A	SP
General Chemistry - Mansfield Lab										
Solids, Total	47.7		%	0.100	0.100	1	-	08/03/21 15:20	121,2540G	ES
Moisture	52.3		%	0.100	0.100	1	-	08/03/21 15:20	121,2540G	ES

Project Name: PEAR TREE POINT
Project Number: 2190362
Lab Number: L2140615
Report Date: 09/08/21

SAMPLE RESULTS

Lab ID: L2140615-04
Client ID: PTP-D
Sample Location: DARINE, CT
Sample Depth:
Matrix: Sediment

Date Collected: 04/28/21 00:00
Date Received: 04/29/21
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
RIM Total Organic Carbon - Mansfield Lab										
Total Organic Carbon (Rep1)	3.39		%	0.010	0.010	1	-	08/27/21 09:35	1,9060A	SP
Total Organic Carbon (Rep2)	3.22		%	0.010	0.010	1	-	08/27/21 09:35	1,9060A	SP
Total Organic Carbon (Average)	3.31		%	0.010	0.010	1	-	08/27/21 09:35	1,9060A	SP
General Chemistry - Mansfield Lab										
Solids, Total	36.6		%	0.100	0.100	1	-	08/03/21 15:20	121,2540G	ES
Moisture	63.4		%	0.100	0.100	1	-	08/03/21 15:20	121,2540G	ES

Project Name: PEAR TREE POINT
Project Number: 2190362
Lab Number: L2140615
Report Date: 09/08/21

SAMPLE RESULTS

Lab ID: L2140615-05
Client ID: PTP-E
Sample Location: DARINE, CT
Sample Depth:
Matrix: Sediment

Date Collected: 04/28/21 00:00
Date Received: 04/29/21
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
RIM Total Organic Carbon - Mansfield Lab										
Total Organic Carbon (Rep1)	3.44		%	0.010	0.010	1	-	08/27/21 09:35	1,9060A	SP
Total Organic Carbon (Rep2)	3.19		%	0.010	0.010	1	-	08/27/21 09:35	1,9060A	SP
Total Organic Carbon (Average)	3.32		%	0.010	0.010	1	-	08/27/21 09:35	1,9060A	SP
General Chemistry - Mansfield Lab										
Solids, Total	32.3		%	0.100	0.100	1	-	08/03/21 15:20	121,2540G	ES
Moisture	67.7		%	0.100	0.100	1	-	08/03/21 15:20	121,2540G	ES

Project Name: PEAR TREE POINT
Project Number: 2190362
Lab Number: L2140615
Report Date: 09/08/21

SAMPLE RESULTS

Lab ID: L2140615-06
Client ID: PTP-F
Sample Location: DARINE, CT
Sample Depth:
Matrix: Sediment

Date Collected: 04/28/21 00:00
Date Received: 04/29/21
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
RIM Total Organic Carbon - Mansfield Lab										
Total Organic Carbon (Rep1)	2.30		%	0.010	0.010	1	-	08/27/21 09:35	1,9060A	SP
Total Organic Carbon (Rep2)	2.11		%	0.010	0.010	1	-	08/27/21 09:35	1,9060A	SP
Total Organic Carbon (Average)	2.20		%	0.010	0.010	1	-	08/27/21 09:35	1,9060A	SP
General Chemistry - Mansfield Lab										
Solids, Total	61.3		%	0.100	0.100	1	-	08/03/21 15:20	121,2540G	ES
Moisture	38.7		%	0.100	0.100	1	-	08/03/21 15:20	121,2540G	ES

Project Name: PEAR TREE POINT
Project Number: 2190362
Lab Number: L2140615
Report Date: 09/08/21

Method Blank Analysis
Batch Quality Control

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
RIM Total Organic Carbon - Mansfield Lab for sample(s): 01-02 Batch: WG1539917-1										
Total Organic Carbon (Rep1)	ND		%	0.010	0.010	1	-	08/26/21 10:27	1,9060A	SP
Total Organic Carbon (Rep2)	ND		%	0.010	0.010	1	-	08/26/21 10:27	1,9060A	SP
Total Organic Carbon (Average)	ND		%	0.010	0.010	1	-	08/26/21 10:27	1,9060A	SP
RIM Total Organic Carbon - Mansfield Lab for sample(s): 03-06 Batch: WG1540063-1										
Total Organic Carbon (Rep1)	ND		%	0.010	0.010	1	-	08/27/21 09:35	1,9060A	SP
Total Organic Carbon (Rep2)	ND		%	0.010	0.010	1	-	08/27/21 09:35	1,9060A	SP
Total Organic Carbon (Average)	ND		%	0.010	0.010	1	-	08/27/21 09:35	1,9060A	SP

Lab Control Sample Analysis

Batch Quality Control

Project Name: PEAR TREE POINT

Project Number: 2190362

Lab Number: L2140615

Report Date: 09/08/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
RIM Total Organic Carbon - Mansfield Lab Associated sample(s): 01-02 Batch: WG1539917-2								
Total Organic Carbon (Rep1)	114		-		75-125	-		30
Total Organic Carbon (Rep2)	104		-		75-125	-		30
Total Organic Carbon (Average)	109		-		75-125	-		30
RIM Total Organic Carbon - Mansfield Lab Associated sample(s): 03-06 Batch: WG1540063-2								
Total Organic Carbon (Rep1)	110		-		75-125	-		30
Total Organic Carbon (Rep2)	107		-		75-125	-		30
Total Organic Carbon (Average)	109		-		75-125	-		30

Matrix Spike Analysis
Batch Quality Control

Project Name: PEAR TREE POINT
Project Number: 2190362

Lab Number: L2140615
Report Date: 09/08/21

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
RIM Total Organic Carbon - Mansfield Lab Associated sample(s): 01-02 QC Batch ID: WG1539917-4 WG1539917-5 QC Sample: L2140615-02 Client ID: PTP-B												
Total Organic Carbon (Rep1)	4.12	1.29	6.36	**174**	Q	6.17	**168**	Q	75-125	3		30
Total Organic Carbon (Rep2)	4.01	0.973	5.74	**178**	Q	5.44	106		75-125	5		30

Lab Duplicate Analysis

Batch Quality Control

Project Name: PEAR TREE POINT

Project Number: 2190362

Lab Number: L2140615

Report Date: 09/08/21

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Mansfield Lab Associated sample(s): 01-06 QC Batch ID: WG1531031-1 QC Sample: L2140615-02 Client ID: PTP-B						
Solids, Total	34.5	34.6	%	0		10
RIM Total Organic Carbon - Mansfield Lab Associated sample(s): 01-02 QC Batch ID: WG1539917-3 QC Sample: L2140615-02 Client ID: PTP-B						
Total Organic Carbon (Rep1)	4.12	4.30	%	4		30
Total Organic Carbon (Rep2)	4.01	4.41	%	10		30
Total Organic Carbon (Average)	4.06	4.35	%	7		30

Project Name: PEAR TREE POINT
Project Number: 2190362

Lab Number: L2140615
Report Date: 09/08/21

Sample Receipt and Container Information

Were project specific reporting limits specified? YES

Cooler Information

Cooler	Custody Seal
A	Absent
B	Absent

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2140615-01A	Glass 500ml unpreserved split	A	NA		2.7	Y	Absent		A2-RIM-PAH/PCBCONG(14),A2-PB-6020T(180),A2-ZN-6020T(180),A2-NI-6020T(180),A2-MOISTURE-2540(7),A2-HG-7474T(28),A2-CR-6020T(180),A2-RIMTOC-9060-2REPS(28),A2-AS-6020T(180),A2-HGPREP-AF(28),A2-CD-6020T(180),A2-PREP-3050:2T(180),A2-RIM-PEST-8081(14),A2-CU-6020T(180)
L2140615-01B	Plastic 2oz unpreserved for TS split	A	NA		2.7	Y	Absent		A2-TS(7)
L2140615-02A	Glass 500ml unpreserved split	A	NA		2.7	Y	Absent		A2-PB-6020T(180),A2-RIM-PAH/PCBCONG(14),A2-NI-6020T(180),A2-ZN-6020T(180),A2-MOISTURE-2540(7),A2-HG-7474T(28),A2-RIMTOC-9060-2REPS(28),A2-CR-6020T(180),A2-AS-6020T(180),A2-HGPREP-AF(28),A2-CD-6020T(180),A2-PREP-3050:2T(180),A2-RIM-PEST-8081(14),A2-CU-6020T(180)
L2140615-02A1	Glass 500ml unpreserved split	A	NA		2.7	Y	Absent		A2-PB-6020T(180),A2-RIM-PAH/PCBCONG(14),A2-NI-6020T(180),A2-ZN-6020T(180),A2-MOISTURE-2540(7),A2-HG-7474T(28),A2-RIMTOC-9060-2REPS(28),A2-CR-6020T(180),A2-AS-6020T(180),A2-HGPREP-AF(28),A2-CD-6020T(180),A2-PREP-3050:2T(180),A2-RIM-PEST-8081(14),A2-CU-6020T(180)
L2140615-02B	Plastic 2oz unpreserved for TS split	A	NA		2.7	Y	Absent		A2-TS(7)
L2140615-03A	Glass 500ml unpreserved split	A	NA		2.7	Y	Absent		A2-RIM-PAH/PCBCONG(14),A2-PB-6020T(180),A2-MOISTURE-2540(7),A2-NI-6020T(180),A2-ZN-6020T(180),A2-HG-7474T(28),A2-RIMTOC-9060-2REPS(28),A2-CR-6020T(180),A2-AS-6020T(180),A2-HGPREP-AF(28),A2-CD-6020T(180),A2-PREP-3050:2T(180),A2-RIM-PEST-8081(14),A2-CU-6020T(180)
L2140615-03B	Plastic 2oz unpreserved for TS split	A	NA		2.7	Y	Absent		A2-TS(7)

*Values in parentheses indicate holding time in days

Project Name: PEAR TREE POINT
Project Number: 2190362

Lab Number: L2140615
Report Date: 09/08/21

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2140615-04A	Glass 500ml unpreserved split	B	NA		3.4	Y	Absent		A2-PB-6020T(180),A2-RIM-PAH/PCBCONG(14),A2-MOISTURE-2540(7),A2-ZN-6020T(180),A2-NI-6020T(180),A2-HG-7474T(28),A2-RIMTOC-9060-2REPS(28),A2-CR-6020T(180),A2-AS-6020T(180),A2-HGPREP-AF(28),A2-CD-6020T(180),A2-PREP-3050:2T(180),A2-CU-6020T(180),A2-RIM-PEST-8081(14)
L2140615-04B	Plastic 2oz unpreserved for TS split	B	NA		3.4	Y	Absent		A2-TS(7)
L2140615-05A	Glass 500ml unpreserved split	B	NA		3.4	Y	Absent		A2-PB-6020T(180),A2-RIM-PAH/PCBCONG(14),A2-MOISTURE-2540(7),A2-ZN-6020T(180),A2-NI-6020T(180),A2-HG-7474T(28),A2-RIMTOC-9060-2REPS(28),A2-CR-6020T(180),A2-AS-6020T(180),A2-CD-6020T(180),A2-HGPREP-AF(28),A2-PREP-3050:2T(180),A2-RIM-PEST-8081(14),A2-CU-6020T(180)
L2140615-05B	Plastic 2oz unpreserved for TS split	B	NA		3.4	Y	Absent		A2-TS(7)
L2140615-06A	Glass 500ml unpreserved split	B	NA		3.4	Y	Absent		A2-PB-6020T(180),A2-RIM-PAH/PCBCONG(14),A2-NI-6020T(180),A2-ZN-6020T(180),A2-MOISTURE-2540(7),A2-HG-7474T(28),A2-CR-6020T(180),A2-RIMTOC-9060-2REPS(28),A2-AS-6020T(180),A2-CD-6020T(180),A2-HGPREP-AF(28),A2-PREP-3050:2T(180),A2-CU-6020T(180),A2-RIM-PEST-8081(14)
L2140615-06B	Plastic 2oz unpreserved for TS split	B	NA		3.4	Y	Absent		A2-TS(7)
L2140615-06X	Glass 500ml unpreserved split	B	NA		3.4	Y	Absent		A2-PB-6020T(180),A2-RIM-PAH/PCBCONG(14),A2-NI-6020T(180),A2-ZN-6020T(180),A2-MOISTURE-2540(7),A2-HG-7474T(28),A2-CR-6020T(180),A2-RIMTOC-9060-2REPS(28),A2-AS-6020T(180),A2-CD-6020T(180),A2-HGPREP-AF(28),A2-PREP-3050:2T(180),A2-CU-6020T(180),A2-RIM-PEST-8081(14)

*Values in parentheses indicate holding time in days

Project Name:	PEAR TREE POINT	**Lab Number:**	L2140615
Project Number:	2190362	**Report Date:**	09/08/21

GLOSSARY

Acronyms

DL	- Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the limit of quantitation (LOQ). The DL includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
EDL	- Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).
EMPC	- Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration.
EPA	- Environmental Protection Agency.
LCS	- Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LCSD	- Laboratory Control Sample Duplicate: Refer to LCS.
LFB	- Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LOD	- Limit of Detection: This value represents the level to which a target analyte can reliably be detected for a specific analyte in a specific matrix by a specific method. The LOD includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
LOQ	- Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.) Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
MDL	- Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
MS	- Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available. For Method 332.0, the spike recovery is calculated using the native concentration, including estimated values.
MSD	- Matrix Spike Sample Duplicate: Refer to MS.
NA	- Not Applicable.
NC	- Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.
NDPA/DPA	- N-Nitrosodiphenylamine/Diphenylamine.
NI	- Not Ignitable.
NP	- Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.
NR	- No Results: Term is utilized when 'No Target Compounds Requested' is reported for the analysis of Volatile or Semivolatile Organic TIC only requests.
RL	- Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
RPD	- Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.
SRM	- Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.
STLP	- Semi-dynamic Tank Leaching Procedure per EPA Method 1315.
TEF	- Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.
TEQ	- Toxic Equivalent: The measure of a sample's toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.
TIC	- Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

Report Format: DU Report with 'J' Qualifiers

Project Name:	PEAR TREE POINT	**Lab Number:**	L2140615
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Footnotes

1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Difference: With respect to Total Oxidizable Precursor (TOP) Assay analysis, the difference is defined as the Post-Treatment value minus the Pre-Treatment value.

Final pH: As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

Frozen Date/Time: With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

Initial pH: As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

PAH Total: With respect to Alkylated PAH analyses, the 'PAHs, Total' result is defined as the summation of results for all or a subset of the following compounds: Naphthalene, C1-C4 Naphthalenes, 2-Methylnaphthalene, 1-Methylnaphthalene, Biphenyl, Acenaphthylene, Acenaphthene, Fluorene, C1-C3 Fluorenes, Phenanthrene, C1-C4 Phenanthrenes/Anthracenes, Anthracene, Fluoranthene, Pyrene, C1-C4 Fluoranthenes/Pyrenes, Benz(a)anthracene, Chrysene, C1-C4 Chrysenes, Benzo(b)fluoranthene, Benzo(j)+(k)fluoranthene, Benzo(e)pyrene, Benzo(a)pyrene, Perylene, Indeno(1,2,3-cd)pyrene, Dibenz(ah)+(ac)anthracene, Benzo(g,h,i)perylene. If a 'Total' result is requested, the results of its individual components will also be reported.

PFAS Total: With respect to PFAS analyses, the 'PFAS, Total (5)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA and PFOS. In addition, the 'PFAS, Total (6)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA, PFDA and PFOS. For MassDEP DW compliance analysis only, the 'PFAS, Total (6)' result is defined as the summation of results at or above the RL. Note: If a 'Total' result is requested, the results of its individual components will also be reported.

The target compound Chlordane (CAS No. 57-74-9) is reported for GC ECD analyses. Per EPA,this compound "refers to a mixture of chlordane isomers, other chlorinated hydrocarbons and numerous other components." (Reference: USEPA Toxicological Review of Chlordane, In Support of Summary Information on the Integrated Risk Information System (IRIS), December 1997.)

Total: With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

Data Qualifiers

A - Spectra identified as "Aldol Condensates" are byproducts of the extraction/concentration procedures when acetone is introduced in the process.

B - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).

C - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.

D - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.

E - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.

F - The ratio of quantifier ion response to qualifier ion response falls outside of the laboratory criteria. Results are considered to be an estimated maximum concentration.

G - The concentration may be biased high due to matrix interferences (i.e, co-elution) with non-target compound(s). The result should be considered estimated.

H - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.

I - The lower value for the two columns has been reported due to obvious interference.

J - Estimated value. The Target analyte concentration is below the quantitation limit (RL), but above the Method Detection Limit (MDL) or Estimated Detection Limit (EDL) for SPME-related analyses. This represents an estimated concentration for Tentatively Identified Compounds (TICs).

M - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.

ND - Not detected at the method detection limit (MDL) for the sample, or estimated detection limit (EDL) for SPME-related analyses.

Report Format: DU Report with 'J' Qualifiers

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Data Qualifiers

NJ - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.

P - The RPD between the results for the two columns exceeds the method-specified criteria.

Q - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)

R - Analytical results are from sample re-analysis.

RE - Analytical results are from sample re-extraction.

S - Analytical results are from modified screening analysis.

Report Format: DU Report with 'J' Qualifiers

Project Name:	PEAR TREE POINT	**Lab Number:**	L2140615
Project Number:	2190362	**Report Date:**	09/08/21

REFERENCES

1 Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - VI, 2018.

105 Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - IIIA, 1997 in conjunction with NOAA Technical Memorandum NMFS-NWFSC-59: Extraction, Cleanup and GC/MS Analysis of Sediments and Tissues for Organic Contaminants, March 2004 and the Determination of Pesticides and PCBs in Water and Oil/Sediment by GC/MS: Method 680, EPA 01A0005295, November 1985.

121 Standard Methods for the Examination of Water and Wastewater. APHA-AWWA-WEF. Standard Methods Online.

LIMITATION OF LIABILITIES

Alpha Analytical performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Alpha Analytical shall be to re-perform the work at it's own expense. In no event shall Alpha Analytical be held liable for any incidental, consequential or special damages, including but not limited to, damages in any way connected with the use of, interpretation of, information or analysis provided by Alpha Analytical.

We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding time and splitting of samples in the field.

Certification Information

The following analytes are not included in our Primary NELAP Scope of Accreditation:

Westborough Facility
EPA 624/624.1: m/p-xylene, o-xylene, Naphthalene
EPA 625/625.1: alpha-Terpineol
EPA 8260C/8260D: NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.
EPA 8270D/8270E: NPW: Dimethylnaphthalene,1,4-Diphenylhydrazine, alpha-Terpineol; SCM: Dimethylnaphthalene,1,4-Diphenylhydrazine.
SM4500: NPW: Amenable Cyanide; SCM: Total Phosphorus, TKN, NO2, NO3.

Mansfield Facility
SM 2540D: TSS
EPA 8082A: NPW: PCB: 1, 5, 31, 87,101, 110, 141, 151, 153, 180, 183, 187.
EPA TO-15: Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene, 3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.
Biological Tissue Matrix: EPA 3050B

The following analytes are included in our Massachusetts DEP Scope of Accreditation

Westborough Facility:

Drinking Water
EPA 300.0: Chloride, Nitrate-N, Fluoride, Sulfate; **EPA 353.2**: Nitrate-N, Nitrite-N; **SM4500NO3-F**: Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE, EPA 180.1, SM2130B, SM4500Cl-D, SM2320B, SM2540C, SM4500H-B, SM4500NO2-B**
EPA 332: Perchlorate; **EPA 524.2:** THMs and VOCs; **EPA 504.1:** EDB, DBCP.
Microbiology: **SM9215B; SM9223-P/A, SM9223B-Colilert-QT,SM9222D**.

Non-Potable Water
SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH: Ammonia-N and Kjeldahl-N, **EPA 350.1**: Ammonia-N, **LACHAT 10-107-06-1-B**: Ammonia-N, **EPA 351.1, SM4500NO3-F, EPA 353.2**: Nitrate-N, **SM4500P-E, SM4500P-B, E, SM4500SO4-E, SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D, EPA 300: Chloride, Sulfate, Nitrate.**
EPA 624.1: Volatile Halocarbons & Aromatics,
EPA 608.3: Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs
EPA 625.1: SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045**: PCB-Oil.
Microbiology: **SM9223B-Colilert-QT; Enterolert-QT, SM9221E, EPA 1600, EPA 1603, SM9222D.**

Mansfield Facility:

Drinking Water
EPA 200.7: Al, Ba, Cd, Cr, Cu, Fe, Mn, Ni, Na, Ag, Ca, Zn. **EPA 200.8:** Al, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn. **EPA 245.1** Hg.
EPA 522, EPA 537.1.

Non-Potable Water
EPA 200.7: Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.
EPA 200.8: Al, Sb, As, Be, Cd, Cr, Cu, Fe, Pb, Mn, Ni, K, Se, Ag, Na, TL, Zn.
EPA 245.1 Hg.
SM2340B

For a complete listing of analytes and methods, please contact your Alpha Project Manager.

Table II-1: Completeness Checklist

Quality Assurance/Quality Control Questions	Yes/No? Comments?
1. Was the report signed by the responsible applicant approved representative?	Yes
2. Were the methods for sampling, chemical and biological testing described in the Sampling and Analysis Plan (SAP) and the Laboratory QA Plan (LQAP) followed?	Yes
3. If not, were deviations documented?	N/A
4. Was the SAP approved by the New England District?	
5. Did the applicant use a laboratory with a LQAP on file at the New England District?	Yes
6. Did the samples adequately represent the physical/chemical variability in the dredging area?	
7. Were the correct stations sampled (include the precision of the navigation method used)?	
8. Were the preservation and storage requirements in Chapter 8 of the EPA/Corps QA/QC Manual (EPA/USACE 1995) and EPA (2001d) followed?	Yes
9. Were the samples properly labeled?	Yes
10. Were all the requested data included?	Yes
11. Were the reporting limits met?	No, Pesticides and Metals, see Case Narrative
12. Were the chain-of-custody forms properly processed?	Yes
13. Were the method blanks run and were the concentration below the acceptance criteria?	Yes
14. Was the MDL study performed on each matrix (with this data submission) or within the last 12 months?	Yes
15. Were the SRM/CRM analyses within acceptance criteria?	No, Pesticides, see Case Narrative
16. Were the matrix spike/matrix spike duplicates run at the required frequency and was the percent recovery/RPD within the acceptance criteria?	No, Pesticides, Metals and TOC, see Case Narrative
17. Were the duplicate samples analyzed and were the RPDs within the required acceptance criteria?	No, PCBs, Pesticides and Metals, see Case Narrative
18. For each analytical fraction of organic compounds, were recoveries for the internal standard within the acceptance criteria?	Yes
19. Were surrogate recoveries within the required acceptance criteria?	No, Pesticides for SRM

Table II-1 (*Continued*): Completeness Checklist

Quality Assurance/Quality Control Questions	Yes/No? Comments?
20. Were corrective action forms provided for all non-conforming data?	N/A
21. Were all the species-specific test conditions in Appendix V met?	
22. Were the test-specific age requirements met for each test species?	
23. Was the bulk physical/chemical testing performed on the sediments/composites that were biologically tested?	
24. Were the mortality acceptance criteria met for the water column and sediment toxicity tests?	
25. Were the test performance requirements in Table 11.3 of EPA (1994a) met?	

Table II-2: Quality Control Summary for Analyses of Polyaromatic Hydrocarbons (PAHs) and other base-neutrals in Sediment and Tissue Matrices

Method Reference Number: 8270D

Quality Control (QC) Element	Acceptance Criteria*	Criteria Met? Yes/No	List results outside criteria (Cross-reference results table in data report)	Location of Results (Retained at Lab or in Data Package)
Initial Calibration	Must be performed prior to the analysis of any QC sample or field sample (<20 % RSD for each compound)	Yes		Retained at Lab
Calculation of Method Detection Limits (MDLs)	For each matrix, analyzed once per 12 month period (see Section 5.2 for MDL procedure)	Yes		Retained at Lab and On file at USACoE-NED
Calibration Verification (Second Source)	Once, after initial calibration (80 to 120% recovery of each compound)	Yes		Retained at Lab
Continuing Calibration	At the beginning of every 12 hour shift (± 15 % D)	Yes		Retained at Lab
Standard Reference Materials	Within the limits provided by vendor	Yes		In Data Package
Method Blank	No target analytes > RL	Yes		In Data Package
Matrix Spike/Matrix Spike Duplicate (MS/MSD)	One set (MS/MSD) per group of field samples. Must contain all target analytes. (Recovery Limits 50 to 120%; RPD <30%)	Yes		In Data Package
Analytical Replicates	Analyze one sample in duplicate for each group of field samples (RPD < 30%)	Yes		In Data Package
Surrogate Recoveries	Calculate % recovery (30 to 150% recovery)	Yes		In Data Package
Internal Standard Areas	Within 50 to 200% of internal standards in continuing calibration check	Yes		Retained at Lab

* The Quality Control Acceptance Criteria are general guidelines. If alternate criteria are used, they must be documented in this table.

Table II-3: Quality Control Summary for the Analyses of Pesticides in Sediment, Tissue, and Water Matrices

Method Reference Number: 8081B

Quality Control (QC) Element	Acceptance Criteria*	Criteria Met? Yes/No	List results outside criteria (Cross-reference results table in data report)	Location of Results (Retained at Lab or in Data Package)
Initial Calibration	Must be performed prior to the analysis of any QC sample or field sample (<20 % RSD for each compound)	Yes		Retained at Lab
Calculation of Method Detection Limits (MDLs)	For each matrix, analyzed once per 12 month period (see Section 5.2 for MDL procedure)	Yes		Retained at Lab and On file at USACoE-NED
Calibration Verification (Second Source)	Once, after initial calibration (80 to 120% recovery of each compound)	Yes		Retained at Lab
Continuing Calibration	Every 20 injections (± 15 % D)	No, within SOP limits	CCV associated with batch QC: column: alpha-BHC @ 22%, gamma-BHC @ 18%, delta-BHC @ 16%, heptachlor @ 18%, Aldrin @ 16% CCV associated with L2140615-01 and 02 Column A: heptachlor @ 16% Column B: alpha-BHC @ 25%, gamma-BHC @ 21%, delta-BHC @ 20%, heptachlor @ 19%, Aldrin @ 18% CCV associated with L2140615-03 through -06: alpha-BHC @ 22%, gamma-BHC @ 20%, delta-BHC @ 21%, heptachlor @ 20%	Retained at Lab
Standard Reference Materials	Within the limits provided by vendor	No, LCS/LCSD and MS/MSD meet criteria	Hexachlorobenzene @ 0%, trans-Nonachlor @ 320%	In Data Package
Method Blank	No target analytes > RL	Yes		In Data Package
Matrix Spike/Matrix Spike Duplicate (MS/MSD)	One set (MS/MSD) per group of field samples. Must contain all target analytes. (Recovery Limits 50 to	No, LCS/LCSD meet criteria	L2140615-02MSD: Oxychlordane (182%) L2140615-02MS/MSD %RPD: Oxychlordane (48%), Endosulfan sulfate (31%)	In Data Package

	120%; RPD <30%)			
Analytical Replicates	Analyze one sample in duplicate for each group of field samples (RPD < 30%)	No, sample homogeneity	L2140615-02Dup: 4,4'-DDT @ 37%	In Data Package
Surrogate Recoveries	Calculate % recovery (30 to 150% recovery)	No, matrix interference, Column A meets criteria	SRM: BZ198 on Column B @ 192%	In Data Package

* The Quality Control Acceptance Criteria are general guidelines. If alternate criteria are used, they must be documented in this table.

Table II-4: Quality Control Summary for Analyses of Polychlorinated Biphenyls (PCB Congeners) in Sediment, Tissue, and Water Matrices

Method Reference Number: 8270D

Quality Control (QC) Element	Acceptance Criteria*	Criteria Met? Yes/No	List results outside criteria (Cross-reference results table in data report)	Location of Results (Retained at Lab or in Data Package)
Initial Calibration	Must be performed prior to the analysis of any QC sample or field sample (<20 % RSD for each compound)	Yes		Retained at Lab
Calculation of Method Detection Limits (MDLs)	For each matrix, analyzed once per 12 month period (see Section 5.2 for MDL procedure)	Yes		Retained at Lab and On file at USACoE-NED
Calibration Verification (Second Source)	Once, after initial calibration (80 to 120% recovery of each compound)	Yes		Retained at Lab
Continuing Calibration	Every 20 injections (± 15 % D)	Yes		Retained at Lab
Standard Reference Materials	Within the limits provided by vendor	Yes		In Data Package
Method Blank	No target analytes > RL	Yes		In Data Package
Matrix Spike/Matrix Spike Duplicate (MS/MSD)	One set (MS/MSD) per group of field samples. Must contain all target analytes. (Recovery Limits 50 to 120%; RPD <30%)	Yes		In Data Package
Analytical Replicates	Analyze one sample in duplicate for each group of field samples (RPD < 30%)	No, sample homogeneity	WG1536095-8 (L2140615-06 Dup): Cl5-BZ#118 (36%)	In Data Package
Surrogate Recoveries	Calculate % recovery (30 to 150% recovery)	Yes		In Data Package

* The Quality Control Acceptance Criteria are general guidelines. If alternate criteria are used, they must be documented in this table.

Table II-5: Quality Control Summary for Analyses of Metals in Sediments, Tissue, and Water Matrices

Method Reference Numbers: Various Reference Numbers

Quality Control (QC) Element	Acceptance Criteria*	Criteria Met? Yes/No	List results outside criteria (Cross-reference results table in data report)	Location of Results (Retained at Lab or in Data Package)
Linear Range Determination for ICP	Performed Quarterly	Yes	Annual	Retained at Lab
Initial Calibration for AA, Hg	Performed Daily (Correlation Coefficient ≥0.995)	Yes		Retained at Lab
Calculation of Method Detection Limits (MDLs)	For each matrix, analyzed once per 12 month period (see Section 5.2 for MDL procedure)	Yes		Retained at Lab and On file at USACoE-NED
Initial Calibration Verification/ Continuing Calibration Verification	Hg: 80 to 120% recovery Other metals: 90 to 110% recovery	Yes		Retained at Lab
Initial Calibration Blank/ Continuing Calibration Blank	No target analytes > Instrument Detection Limit (IDL)	No	Results >3x IDL noted, on file at lab	Retained at Lab
Standard Reference Materials	Within the limits provided by vendor	Yes		In Data Package
Method Blank	No target analytes > RL	Yes		In Data Package
Sample Spike/ Sample Duplicate	One set per group of field samples. Must contain all target analytes. Recovery Limits (75 to 125%; RPD < 20% or < 35%)	No, LCS and post spike meet criteria	L2140612-02 MSD: Cr (127%) L2140615-02 MS/MSD: Cu (127%/162%), Zn (128%/158%)	In Data Package
Analytical Replicates	Analyze one sample in duplicate for each group of field samples (RPD < 30%)	No, sample homogeneity	L2140615-02 Dup: Cd (23%)	In Data Package

* The Quality Control Acceptance Criteria are general guidelines. If alternate criteria are used, they must be documented in this table.

Table II-6: Quality Control Summary for Analyses of other Organic Chemicals not listed in Sediment, Tissue, and Water Matrices

Method Reference Numbers:

Quality Control (QC) Element	Acceptance Criteria*	Criteria Met? Yes/No	List results outside criteria (Cross-reference results table in data report)	Location of Results (Retained at Lab or in Data Package)
Initial Calibration	Must be performed prior to the analysis of any QC sample or field sample (<20 % RSD for each compound)			Retained at Lab
Calculation of Method Detection Limits (MDLs)	For each matrix, analyzed once per 12 month period (see Section 5.2 for MDL procedure)			In Data Package
Calibration Verification (Second Source)	Once, after initial calibration (80 to 120% recovery of each compound)			Retained at Lab
Continuing Calibration	At the beginning of every 12 hour shift (± 15 % D)			Retained at Lab
Standard Reference Materials	Within the limits provided by vendor			In Data Package
Method Blank	No target analytes > RL			In Data Package
Matrix Spike/Matrix Spike Duplicate (MS/MSD)	One set (MS/MSD) per group of field samples. Must contain all target analytes. (Recovery Limits 50 to 120%; RPD <30%)			In Data Package
Analytical Replicates	Analyze one sample in duplicate for each group of field samples (RPD < 30%)			In Data Package
Surrogate Recoveries	Calculate % recovery (30 to 150% recovery)			In Data Package
Internal Standard Areas (if applicable)	Within 50 to 200% of internal standards in continuing calibration check			In Data Package

* The Quality Control Acceptance Criteria are general guidelines. If alternate criteria are used, they must be documented in this table.

Table II-7: Quality Control Summary for Analyses of Sediment Grain Size and Total Organic Carbon

Method Reference Numbers:

Quality Control (QC) Element	Acceptance Criteria*	Criteria Met? Yes/No	List results outside criteria (Cross-reference results table in data report)	Location of Results (Retained at Lab or in Data Package)
Grain Size: Analytical Replicates	Analyze one sample in duplicate for each group of field samples (RPD < 25%)			In Data Package
Total Organic Carbon: Standard Reference Materials	Within the limits provided by vendor	Yes		In Data Package
Total Organic Carbon: Analytical Replicates	Analyze one sample in duplicate for each group of field samples (RPD <30%)	Yes		In Data Package

* The Quality Control Acceptance Criteria are general guidelines. If alternate criteria are used, they must be documented in this table.

Table II-8: Quality Control Summary for Biological Toxicity Testing only

Method Reference Numbers:

Quality Control (QC) Element	Acceptance Criteria*	Criteria Met? Yes/No	List results outside criteria (Cross-reference results table in data report)	Location of Results (Retained at Lab or in Data Package)
Test condition requirements for each species: Temperature, Salinity, pH, D.O., Ammonia (Total, Un-ionized)	Test conditions within the requirements specified for each species			In Data Package
Test species age	Age/health within guidelines for each species (Appendix V)			In Data Package
Bulk physical/chemical analyses (If required by the Sampling plan)	Required? If so, performed? Yes or No			In Data Package
Water column toxicity test: Control mortality Control abnormality	 < 10% mean < 30% mussel/oyster; < 40% clam larvae, < 30% sea urchin larvae			In Data Package
Sediment toxicity test: Control mortality Compliance with applicable test acceptability requirements in Table 11.3 (EPA 1994a)	 < 10% mean (no chamber >20%) See EPA (1994a) Section 9; Table 11.3			In Data Package

* The Quality Control Acceptance Criteria are general guidelines. If alternate criteria are used, they must be documented in this table.

Reference:

Regional Implementation Manual for the Evaluation of Dredged Material Proposed for Disposal in New England Waters, U.S. EPA and U.S. Army Corps of Engineers, New England District, April 2004.

L2140615 kb 7/30/21

MANSFIELD CHAIN OF CUSTODY

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ALPHA ANALYTICAL

Westborough, MA TEL: 508-898-9220 FAX: 508-898-9193
Mansfield, MA TEL: 508-822-9300 FAX: 508-822-3288

Date Rec'd in Lab: 4/29/21

ALPHA Job #: L2122263

Client Information

Client: Weston & Sampson
Address: 55 Walkers Brook Drive, Suite 100
Reading, MA 01867
Phone: 800-SAMPSON
Fax:
Email: KurkjianD@wseinc.com

☐ These samples have been Previously analyzed by Alpha

Project Information

Project Name: Pear Tree Point
Project Location: Darine, CT
Project #: 2190362
Project Manager: Daron Kurkjian
ALPHA Quote #:

Turn-Around Time

☒ Standard ☐ Rush (ONLY IF PRE-APPROVED)
Due Date: Time:

Report Information Data Deliverables

☐ FAX ☒ EMAIL
☒ ADEx ☒ Add'l Deliverables

Billing Information

☐ Same as Client info PO #:
EnviroData

Regulatory Requirements/Report Limits

State/Fed Program: US Army Corps of Engineers RIM
Criteria: see SAP

Other Project Specific Requirements/Comments/Detection Limits:
Berthiaume@wseinc.com

☐ MS/MSD (at unit cost) will be omitted unless you check here

40615

ANALYSIS

SAMPLE HANDLING
Filtration
☐ Done
☒ Not Needed
☐ Lab to do
Preservation
☐ Lab to do
(Please specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	Grain Size	HOLD	RIM Metals, Pah/PCB Cong, Pest,Moisture,TOC	Sample Specific Comments	TOTAL # BOTTLES
.01 L2122263-01	PTP-1 (0.0-0.7FT)	4/28/21	1652	Sed	CB	☐	☒	X		1
.01 02	PTP-1 (0.7-1.4FT)		1654			☐	☒	☐		1
.01 03	PTP-2 (0.0-0.9FT)		1642			☐	☒	☐		1
.01 04	PTP-2 (0.9-1.8 FT)		1644			☐	☒	☐		1
.01 05	PTP-2 (1.8-2.7FT)		1646			☐	☒	☐		1
.01 06	PTP-3 (0.0-0.7 FT)		1636			☐	☒	☐		1
.01 07	PTP-3 (0.7-1.5 FT)		1638			☐	☒	☐		1
.02 08	PTP-4 (0.0-1.0FT)		1612			☐	☒	X		1
.02 09	PTP-4 (1.0-2.0FT)		1614			☐	☒	☐		1
.02 10	PTP-4 (2.0-2.9FT)		1616			☐	☒	☐		1
	Container Type						A			
	Preservative						N			

Relinquished By:	Date/Time	Received By:	Date/Time
		Kelly Souke	4/29/21
Kelly Souke	4/29/21 1220	Catherine Gandey	4/29/21 1820
Joseph E. Bizzozero	4/29/21 2124	Joseph E. Bizzozero	4/29/21 2000

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Payment Terms.

FORM NO: 101-06(I)-ALL (rev. 5-JAN-15)

MANSFIELD CHAIN OF CUSTODY

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ALPHA ANALYTICAL

Westborough, MA TEL: 508-898-9220 FAX: 508-898-9193
Mansfield, MA TEL: 508-822-9300 FAX: 508-822-3288

Client Information

Client: Weston & Sampson
Address: 55 Walkers Brook Drive, Suite 100
Reading, MA 01867
Phone: 800-SAMPSON
Fax:
Email: KurkjianD@wseinc.com
☐ These samples have been Previously analyzed by Alpha

Project Information

Project Name: Pear Tree Point
Project Location: Darine, CT
Project #: 2190362
Project Manager: Daron Kurkjian
ALPHA Quote #:

Turn-Around Time

☒ Standard ☐ Rush (ONLY IF PRE-APPROVED)
Due Date: Time:

Other Project Specific Requirements/Comments/Detection Limits:
BethmaurerC@wseinc.com
☐ MS/MSD (at unit cost) will be omitted unless you check here

Date Rec'd in Lab: 4/29/21

ALPHA Job #: L2122203

Report Information ☐ FAX ☒ ADEx
Data Deliverables ☒ EMAIL ☒ Add'l Deliverables
Billing Information ☐ Same as Client info PO #: EnviroData

Regulatory Requirements/Report Limits
State/Fed Program: US Army Corps of Engineers RIM
Criteria: See SAP

ANALYSIS

SAMPLE HANDLING
Filtration: ☐ Done ☒ Not Needed ☐ Lab to do
Preservation: ☐ Lab to do
(Please specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	Grain Size	HOLD	RIM Metals, Pah/PCB Cong, Pest,Moisture,TOC	Sample Specific Comments	TOTAL # BOTTLES
.02 11	PTP-5 (0.0-0.9 FT)	4/28/21	1536	Sed	CB	☐	☒	X		1
.02 12	PTP-5 (0.9-1.9 FT)		1538			☐	☒	☐		1
.02 13	PTP-5 (1.9-2.9 FT)		1540			☐	☒	☐		1
.02 14	PTP-6 (0.0-0.9 FT)		1526			☐	☒	☐		1
.02 15	PTP-6 (0.9-1.9 FT)		1528			☐	☒	☐		1
.02 16	PTP-6 (1.9-2.8 FT)		1530			☐	☒	☐		1
.03 17	PTP-7 (0.0-1.2 FT)		1506			☐	☒	X		1
.03 18	PTP-7 (1.2-2.4 FT)		1508			☐	☒	☐		1
.03 19	PTP-7 (2.4-3.7 FT)		1510			☐	☒	☐		1
.03 20	PTP-8 (0.0-1.2 FT)		1440			☐	☒	☐		1

Container Type			A							
Preservative			N							

Relinquished By:	Date/Time	Received By:	Date/Time
Kelly Sorota	4/29/21 1530	Kelly Sorota	4/29/21 1320
Joseph C. Bizzozero	4/29/21 2124	Catherine Gordon	4/29/21 1820
		Joseph C. Bizzozero	4/29/21 2000
			4/29/21 2124

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Payment Terms.

FORM NO. 101-03(I-NJ) (rev. 5-JAN-12)

MANSFIELD CHAIN OF CUSTODY

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ALPHA ANALYTICAL — Mansfield Chemistry

Westborough, MA TEL: 508-898-9220 FAX: 508-898-9193
Mansfield, MA TEL: 508-822-9300 FAX: 508-822-3288

Date Rec'd in Lab: 4/29/21

ALPHA Job #: L2122203

Client Information

Client: Weston & Sampson
Address: 55 Walkers Brook Drive, Suite 100
Reading, MA 01867
Phone: 800-SAMPSON
Fax:
Email: KurkjianD@wseinc.com

☐ These samples have been Previously analyzed by Alpha

Project Information

Project Name: Pear Tree Point
Project Location: Darine, CT
Project #: 2190362
Project Manager: Daron Kurkjian
ALPHA Quote #:

Turn-Around Time

☒ Standard ☐ Rush (ONLY IF PRE-APPROVED)

Due Date: Time:

Other Project Specific Requirements/Comments/Detection Limits:
berthiaume@wseinc.com

☐ MS/MSD (at unit cost) will be omitted unless you check here

Report Information — Data Deliverables

☐ FAX ☒ EMAIL
☒ ADEx ☒ Add'l Deliverables

Billing Information

☐ Same as Client info PO #:
Enviro Data

Regulatory Requirements/Report Limits

State/Fed Program: US Army Corps of Engineers RIM X
Criteria: see SAP

ANALYSIS

SAMPLE HANDLING
Filtration
☐ Done
☒ Not Needed
☐ Lab to do
Preservation
☐ Lab to do
(Please specify below)

TOTAL # BOTTLES

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	Grain Size	HOLD	RIM Metals, Pah/PCB Cong, Pest,Moisture,TOC	Sample Specific Comments	TOTAL # BOTTLES
21	PTP-8 (1.2-2.4 FT)	4/28/21	1442	Sed	CB	☐	☒	☐		1
22	PTP-8 (2.4-3.5FT)		1444			☐	☒	☐		1
.03 23	PTP-9 (0.0-0.9 FT)		1416			☐	☒	☒		1
.03 24	PTP-9 (0.9-1.7FT)		1418			☐	☒	☐		1
.04 25	PTP-10 (0.0-0.4 FT)		1332			☐	☒	☒		1
.04 26	PTP-10 (0.4-0.9 FT)		1334			☐	☒	☐		1
.05 27	PTP-11 (0.0-0.7 FT)		1312			☐	☒	☒		1
.05 28	PTP-11 (0.7-1.4 FT)		1314			☐	☒	☐		1
.05 29	PTP-12 (0.0-0.7 FT)		1252			☐	☒	☐		1
.05 30	PTP-12 (0.7-1.4 FT)		1254			☐	☒	☐		1

Container Type	-	A	-	-	-	-	-	-	-	-	-	-	-	-	
Preservative	-	N	-	-	-	-	-	-	-	-	-	-	-	-	

PTP-8 (1.2-2.4 FT)
PTP-8 (2.4-3.5 FT)
PTP-9 (0.0-0.9 FT)

Relinquished By:	Date/Time	Received By:	Date/Time
	4/29/21 1700	Catherine Gardner	4/29/21 1820
	4/29/21 2000	Joseph C. Bergeron	4/29/21 2000
Joseph C. Bergeron	4/29/21 2124		4/29/21 2124

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Payment Terms.

FORM NO. 101-01(A) (rev. 5-JAN 12)

MANSFIELD CHAIN OF CUSTODY

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ALPHA ANALYTICAL

Westborough, MA TEL: 508-898-9220 FAX: 508-898-9193
Mansfield, MA TEL: 508-822-9300 FAX: 508-822-3288

Date Rec'd in Lab: 4/29/21

ALPHA Job #: L2122203

Client Information

Client: Weston & Sampson
Address: 55 Walkers Brook Drive, Suite 100
Reading, MA 01867
Phone: 800-SAMPSON
Fax:
Email: KurkjianD@wseinc.com

☐ These samples have been Previously analyzed by Alpha

Project Information

Project Name: Pear Tree Point
Project Location: Darine, CT
Project #: 2190362
Project Manager: Daron Kurkjian
ALPHA Quote #:

Turn-Around Time

☒ Standard ☐ Rush (ONLY IF PRE-APPROVED)

Due Date: Time:

Report Information — Data Deliverables

☐ FAX ☒ EMAIL
☒ ADEx ☒ Add'l Deliverables

Billing Information

☐ Same as Client info PO #:
Enviro Data

Regulatory Requirements/Report Limits

State/Fed Program: R
Criteria: see SAP
US Army Corps of Engineers RIM

Other Project Specific Requirements/Comments/Detection Limits:
Bethiaume@wseinc.com

☐ MS/MSD (at unit cost) will be omitted unless you check here

ANALYSIS

SAMPLE HANDLING
Filtration
☐ Done
☒ Not Needed
☐ Lab to do
Preservation
☐ Lab to do
(Please specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	Grain Size	HOLD	RIM Metals, Pah/PCB Cong, Pest,Moisture,TOC	Sample Specific Comments	TOTAL # BOTTLES
.05 31	PTP-12 (1.4-2.1 FT)	4/28/21	1256	Sed	CB	☐	☒	X		1
.04 32	PTP-13 (0.0-1.6 FT)		1222			☐	☒	X		1
.04 33	PTP-13 (1.6-3.2 FT)		1224			☐	☒	☐		1
.04 34	PTP-13 (3.2-4.7 FT)		1226			☐	☒	☐		1
.06 35	PTP-14 (0.0-1.4 FT)		1132			☐	☒	X		1
.06 36	PTP-14 (1.4-2.8 FT)		1134			☐	☒	☐		1
.06 37	PTP-14 (2.8-4.3 FT)		1136			☐	☒	☐		1
.06 38	PTP-15 (0.0-1.3 FT)		1102			☐	☒	☐		1
.06 39	PTP-15 (1.3-2.6 FT)		1104			☐	☒	☐		1
.06 40	PTP-15 (2.6-3.7 FT)		1106			☐	☒	☐		1
							Container Type	A		
							Preservative	N		

Relinquished By:	Date/Time	Received By:	Date/Time
Kelly Smith	4/29/21 1520	Kelly Smith	4/29/21 1320
		Catherine Vandyke	4/29/21 1520
Joseph C. Bizzigotti	4/29/21 2124	Joseph C. Bizzigotti	4/29/21 2000

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Payment Terms.

4/29/21 2124

FORM NO: 101-02[illegible]
rev. 9-Jan-13