STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

2800 BERLIN TURNPIKE, P.O. BOX 317546
NEWINGTON, CONNECTICUT 06131-7546
Phone: (860) 594-2946

December 18, 2023

Ms. Penelope Howell-Heller, Chair
East Lyme Conservation of Natural Resources Commission
Town of East Lyme
P.O. Box 519
108 Pennsylvania Ave
Niantic, CT 06357-1510
kgalbo@eltownhall.com

Subject: State Project No. 0104-0175
Replacement of Bridge No. 02713
Route 156 over Four Mile River & Thin Layer Deposition Mitigation
Old Lyme and East Lyme, CT
Notice of Permit Application

Dear Ms. Howell-Heller,

The State of Connecticut Department of Transportation (the Department) has applied for a Structures, Dredging, and fill and Tidal Wetlands permit pursuant to Connecticut General Statutes 22a-32 and 22a-361 from the Connecticut Department of Energy and Environmental Protection.

The project proposes to replace Bridge No. 02713 which carries Route 156 over the Four Mile River . The four existing 60-inch culverts will be replaced with a 28-foot wide, 7-foot high precast concrete arch supported on concrete footings founded on bedrock or on steel H-piles. Concrete wingwalls, riprap scour countermeasures and two drainage outlets will be installed. Compensatory mitigation will be constructed in the form of Thin-Layer Deposition within a degraded area of tidal wetlands within Rocky Neck State Park along Bride Brook. The proposed activity will take place where Route 156 crosses the Four Mile River, approximately 400 feet east of the intersection of Route 156 and Four Mile River Road. The Mitigation Activities will take place within Rocky Neck State Park adjacent to the existing parking area and viewing platform. The proposed activity will potentially affect coastal and aquatic resources, tidal wetlands, inland wetlands and surface water associated with the Four Mile River as well as coastal and aquatic resources and tidal wetlands associated with Bride Brook and Bride Brook Marsh. You are being notified because your property is within 500 feet of the project.

In accordance with the requirements of the permit application, please find attached a copy of the Structures, Dredging, and Fill and Tidal Wetlands permit application for your use. If you have any questions or require additional information, please contact Ms. Amanda Saul, of my staff, at Amanda.Saul@ct.gov

Very truly yours,

Kevin Carifa

Digitally signed by Kevin Carifa
DN: C=US, E=kevin.carifa@ct.gov, O="Connecticut Department of Transportation ", CN="Kevin Carifa "
Date: 2023.12.18 14:32:20-05'00'

Kevin F. Carifa

Transportation Assistant Planning Director
Bureau of Policy and Planning

Enclosures: Structures, Dredging, and Fill and Tidal Wetlands permit application
cc: CTDEEP LWRD

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

2800 BERLIN TURNPIKE, P.O. BOX 317546
NEWINGTON, CONNECTICUT 06131-7546
Phone: (860) 594-2946

December 18, 2023

The Honorable Daniel R. Cunningham
First Selectman
Town of East Lyme
P.O. Box 519
Niantic, CT 06357
dcunningham@eltownhall.com

Subject: State Project No. 0104-0175
Replacement of Bridge No. 02713
Route 156 over Four Mile River & Thin Layer Deposition Mitigation
Old Lyme and East Lyme, CT
Notice of Permit Application

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The project proposes to replace Bridge No. 02713 which carries Route 156 over the Four Mile River. The four existing 60-inch culverts will be replaced with a 28-foot wide, 7-foot high precast concrete arch supported on concrete footings founded on bedrock or on steel H-piles. Concrete wingwalls, riprap scour countermeasures and two drainage outlets will be installed. Compensatory mitigation will be constructed in the form of Thin-Layer Deposition within a degraded area of tidal wetlands within Rocky Neck State Park along Bride Brook. The proposed activity will take place where Route 156 crosses the Four Mile River, approximately 400 feet east of the intersection of Route 156 and Four Mile River Road. The Mitigation Activities will take place within Rocky Neck State Park adjacent to the existing parking area and viewing platform. The proposed activity will potentially affect coastal and aquatic resources, tidal wetlands, inland wetlands and surface water associated with the Four Mile River as well as coastal and aquatic resources and tidal wetlands associated with Bride Brook and Bride Brook Marsh. You are being notified because your property is within 500 feet of the project.

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Very truly yours,

Kevin Carifa

Digitally signed by Kevin Carifa
DN: C=US, E=kevin.carifa@ct.gov, O="Connecticut Department of Transportation ", CN="Kevin Carifa "
Date: 2023.12.18 14:32:08-05'00'

Kevin F. Carifa
Transportation Planning Director

Bureau of Policy and Planning

Enclosures: Structures, Dredging, and Fill and Tidal Wetlands permit application
cc: CTDEEP LWRD

INTERDEPARTMENTAL MESSAGE **STATE OF CONNECTICUT**

To	NAME, TITLE Central Permit Processing Unit, 1st Floor	DATE December 18, 2023
	AGENCY, ADDRESS Department of Energy and Environmental Protection, 79 Elm Street, Hartford, CT 06106	
From	NAME, TITLE Kevin Carifa Digitally signed by Kevin Carifa DN: C=US, E=kevin.carifa@ct.gov, O="Connecticut Department of Transportation", CN="Kevin Carifa" Date: 2023.12.18 14:31:29-05'00' Kevin F. Carifa, Transportation Planning Director	TELEPHONE 860-594-2946
	AGENCY, ADDRESS Department of Transportation, 2800 Berlin Turnpike, Newington, CT 06131-7546	

Subject: **State Project No. 0104-0175**
Replacement of Bridge No. 02713
Route 156 over Four Mile River & Thin Layer Deposition Mitigation
Towns of Old Lyme & East Lyme

Attached is an original copy of the DEEP Land & Water Resources Division (LWRD) Transmittal Form associated with the above referenced project. The permits applications being submitted with this Transmittal Form include: Structures, Dredging & Fill; Tidal Wetlands; Section 401 Water Quality Certification; Flood Management Certification.

The project proponent hereby certifies that all information contained herein is true, accurate, and complete to the best of my knowledge and belief. The project proponent hereby requests that the certifying authority review and take action on this CWA 401 certification request within the applicable reasonable period of time.

For planning purposes, please be aware the project's Final Design Plan (FDP) milestone date is January 17, 2024. In order for the project to meet its bid, advertise and contract award dates, final permits should be issued by the FDP date. Meeting this date will ensure that the project's funds are expended within Federal and State contracting timeframes and the appropriate species and wildlife time of year restrictions can be incorporated as planned in the project schedule. Please consider this project's FDP relative to other pending permits under review. The respective LWRD supervisor has access to schedule updates from the DOT.

For this project, DEEP Fisheries has advised in-water work, including the installation and removal of cofferdams, is prohibited from March 15 through May 30, inclusive , which differs from the standard condition in LWRD licenses. Please consider a special condition in the license that reflects the related correspondence in Attachment 23 of the application.

Any questions pertaining to this application may be directed to Amanda M. Saul, Transportation Supervising Planner, of my staff at amanda.saul@ct.gov or 860-594-2939.

Attachments

Connecticut Department of Energy & Environmental Protection
Bureau of Water Protection & Land Reuse
Land & Water Resources Division

CPPU USE ONLY
App #s: _____
_____
_____ -DIV
_____ -FM/E
Doc #: _____
Check #: _____

LWRD License Application Transmittal Form

The Land & Water Resources Division (LWRD) License Application* consists of this Transmittal Form and the program-specific form. All application forms can be found on the Department of Energy & Environmental Protection (DEEP) website at Land Use Permits and General Permits (ct.gov). Submit application forms per instructions provided in Part VII of this transmittal form.

Part I: License Type and Fee Information

The table below lists various License types issued by DEEP LWRD. If more than one license is necessary for a project, complete only one Transmittal Form. Complete as many Program Forms as applicable for the project. Check the boxes below that correspond with the LWRD license(s) being requested.

Type of License	Program Form	Fee	DEEP USE ONLY
Licenses for Activities in Aquifer Protection Areas			
☐ **Aquifer Protection Area Registration** Check one: ☐ New ☐ Modification[1] of # _____ (no fee) ☐ Renewal of # _____	A	$625	[#996]
☐ **Aquifer Protection Area Permit** Check one: ☐ New ☐ Modification[1] of # _____(no fee) ☐ Renewal of # _____ [1] Note that if you are seeking a *modification*, you should consult the Aquifer Protection Program at 860-424-3019 prior to application submittal to determine whether a registration form is necessary.	B	$1,250	[#995]
Licenses for Activities in Tidal Waters			
☐ **Structures, Dredging & Fill[2]**	C	$660	[#439]
☐ **Structures, Dredging & Fill[2] and Tidal Wetlands (TW)**	C	$660	[#1058]
☐ **Structures, Dredging & Fill[2] and Section 401 Water Quality Certificate (WQC)[3]**	C	$660	[#1769]
☒ **Structures, Dredging & Fill[2]; TW; and Section 401 WQC[3]**	C	$660	[#1772]
☐ **Certificate of Permission (if applicable, WQC will be included)** [2] For projects larger than 825 square feet, provide Attachment A with an additional fee. Refer to the instructions (page 4) for fee calculations. [3] For activities requiring a Sec.404 Permit from United States Army Corps of Engineers (USACE).	D	$375	[#410]
General Permit Registration for Coastal Maintenance			
☐ **Marina and Mooring Field Reconfiguration**	E	$700	[#992]
☐ **Remedial Activities Required by Order**	F	$700	[#427]
☐ **Residential Modification to FEMA Standards**	G	$100	[#423]
☐ **Reconstruction of Permitted Structures**	H	$300	[#1741]
General Permit Registration for Minor Coastal Structures			
☐ **4/40 Docks/Access Stairs**	I	$700	[#426]
☐ **Non-Harbor Moorings**	J	$250	[#422]
General Permit Registration for Dolphin Cove			
☐ **Structures, Fill, Obstructions, or Encroachments in Dolphin Cove Lagoon, Stamford**	K	$100	[#420]

Part I: License Type and Fee Information (continued)

Type of License	Program Form	Fee	DEEP USE ONLY
For Federal Agency Activities Only:			
☐ **Section 401 Water Quality Certificate (Tidal)**	C	None	[#1186]
Licenses for Activities in Non-Tidal Waters			
☐ **Section 401 Water Quality Certificate (Individual)**[3]	L	None	[#1195]
☐ **Pre-Construction Notification, USACE General Permits for CT**[3]	L	None	[#1188]
☐ **Inland Wetlands and Watercourses**[4]	L	None	[#365]
☐ **Inland Wetlands and Watercourses**[4] **and WQC**[3]	L	None	[#2225]
[3] For activities requiring a Sec.404 Permit from USACE.			
[4] For State Agency Activities OR Activities Conducted on State Owned/Controlled Lands.			
For State Agency Activity Conducted on State Owned/Controlled Lands Only: **General Permit Registration for Water Resources Construction Activities**			
☐ **Activities 1-4: Maintenance Plans**	M	$2,500	[#2243]
☐ **Activities 5-7: Infrastructure and Public Works Projects**	N	$2,500	[#2244]
☐ **Activity 8: Activities Authorized Under a Corps General Permit** **(Must be submitted after receiving PCN approvals and Flood Management, if applicable.)**	O	$1,250	[#2245]
☐ **Activity 9: Conservation Activities**	O	$1,250	[#2246]
Additional Licenses for Activities **These licenses may be combined with Tidal or Non-Tidal Waters licenses.**			
Water Diversion – Non-consumptive			
☐ Watershed < 0.5 sq. mi.	L	$2,050	[#457]
☐ Watershed ≥ 0.5 sq. mi and < 2.0 sq. mi.	L	$4,000	[#456]
☐ Watershed ≥ 2.0 sq. mi.	L	$6,250	[#455]
For State Agency Activity/Activities Receiving Funding Through a State Agency:			
☒ **Flood Management Certification**	P	None	[#1185]
☐ **Flood Management Certification with Exemption Request**	P	None	[#1185]
Fee from Attachment A, if applicable			
Total	None		

*For processing purposes, the terms Application and Applicant are synonymous with the terms Registration and Registrant.

In addition to applicable boxes above, check here if your application is:

- ☐ eligible for a municipal 50% discount;
- ☐ for work in tidal waters and being submitted pursuant to CGS section 22a-361(a)(2)(d) to address a violation; or
- ☒ receiving state funding including federal funding administered by the state (to help determine need for Flood Management Certification); or
- ☒ being submitted by a state agency, therefore the fee will be paid by Inter-Agency Transfer of Funds. State Agencies should submit the registration or application package without the registration/application fee.

Part II: Project and Site Information

1a. Project: Provide a brief description of project/activity/work: **Bridge No. 02713 is located along Route 156 at the border of Old Lyme and East Lyme. The bridge was originally constructed in 1982. The existing structure consists of four 60-inch round asphalt coated corrugated metal pipes (ACCMPs) which are 52-feet 8-inches in length with cast-in-place reinforced concrete headwalls, wingwalls and cutoff walls that are flared and tapered. The existing structure supports two lanes of traffic. The proposed structure consists of a precast 28-foot wide by 7-foot high 3-sided arch structure with reinforced concrete headwalls, footings and wingwalls. The replacement of Bridge No. 02713 also includes horizontal roadway realignment to the north and the vertical profile being raised to pass the 100-year storm. The watercourse channel will be reconstructed and the embankments will be covered with 12 inches of natural streambed material over 18 inches of intermediate riprap over 6 inches of granular fill. Riprap will be placed at the northeast and southeast embankments for stormwater outlet protection.**

A mitigation site is proposed along Bride Brook in Rocky Neck State Park. This location is in the town of East Lyme. The mitigation area is approximately 10,000 square feet. The mitigation plan will restore an area of degraded marsh using a procedure called Thin Layer Deposition (TLD). This will be done in the winter months when plants are dormant and activity levels from visitors and wildlife is low. Spartina alternaflora will be planted to establish tidal vegetation.

1b. Site Name and Location

Name of Site: State Project No. 104-175, Bridge No. 02713

Address of Site: Route 156 over Four Mile River (Bridge) and Rocky Neck State Park (Mitigation) City/Town: Old Lyme/East Lyme State: CT Zip Code: 06371/06333

Parcel Location/Tax Assessor's Reference: Map _____ Block _____ Lot _____

GPS Coordinates/Latitude and Longitude: Provide the exact location of proposed activity, in degrees/minutes/seconds or in decimal degrees: Latitude: 41.3099(Bridge), 41.3034 (Mitigation) Longitude: -72.2541 (Bridge), -72.2422 (Mitigation)

Parcel/Easement size: If the project is located on a parcel, indicate parcel acreage: N/A acres

If the project is located on a utility/transportation right-of-way or easement, indicate dimensions or acres: See Permit Plans

Part III: Applicant Information

- *If an applicant is a corporation, limited liability company, limited partnership, limited liability partnership, or a statutory trust, they must be registered with the Secretary of State. If applicable, the applicant's name shall be stated **exactly** as it is registered with the Secretary of State. Please note, for those entities registered with the Secretary of State, the registered name will be the name used by DEEP. This information can be accessed at the Secretary of State's database (CONCORD) at portal.ct.gov/SOTS.*
- *If an applicant is an individual, provide the legal name (include suffix) in the following format: First Name; Middle Initial; Last Name; Suffix (Jr, Sr., II, III, etc.).*
- *Once an authorization has been received, if there are any changes or corrections to your company/facility or individual mailing or billing address or contact information, please complete and submit the Request to Change Company/Individual Information to the address indicated on the form.*

1. Applicant/Registrant* Information

Name: Connecticut Department of Transportation

Mailing Address: 2800 Berlin Turnpike

City/Town: Newington State: CT Zip Code: 06111

Business Phone: _____ Ext.: _____

Contact Person: Kevin Carifa Phone: (860)594-2946 Ext: _____

E-mail Address†: kevin.carifa@ct.gov

†Email is Required. By providing this e-mail address you are agreeing to receive official correspondence from DEEP, at this electronic address, concerning the subject application. Please remember to check your security settings to be sure you can receive e-mails from "ct.gov" addresses. Also, please notify DEEP if your e-mail address changes.

☐ **If co-applicant(s), check this box and attach co-applicant information as Attachment B following this form.**

a) Applicant Type (check one):

☐ individual ☐ federal agency ☒ state agency ☐ municipality ☐ tribal

☐ business entity (if a business entity, complete i through iii below):

i) business type: ☐ corporation ☐ limited liability company ☐ limited partnership
☐ limited liability partnership ☐ statutory trust ☐ Other: _____

ii) provide Secretary of the State business ID #:_____
This information can be accessed at database (CONCORD): portal.ct.gov/SOTS

iii) ☐ check here if your business is **NOT** registered with the Secretary of State's Office.

*For processing purposes, the terms Application and Applicant are synonymous with the terms Registration and Registrant.

Part III: Applicant Information (continued)

b) Applicant's interest in property at which the proposed activity is located:

☒ site owner ☐ option holder ☐ lessee ☐ facility owner

☐ easement holder ☐ operator ☐ other (specify): _____

2. List billing contact, if different than the applicant:

Name: _____

Mailing Address: _____

City/Town: _____ State: _____ Zip Code: _____

Business Phone: _____ Ext.: _____

Contact Person: _____ Title: _____

E-mail: _____

3. Primary contact for departmental correspondence and inquiries if different than applicant:

Name: _____

Mailing Address: _____

City/Town: _____ State: _____ Zip Code: _____

Business Phone: _____ Ext.: _____

Contact Person: _____ Title: _____

E-mail: _____

4. Site/Property Owner*, if different than applicant:

Name: _____

Mailing Address: _____

City/Town: _____ State: _____ Zip Code: _____

Business Phone: _____ Ext.: _____

Contact Person: _____ Title: _____

E-mail: _____

***If the applicant is not the owner, submit written permission from the owner as Attachment C**

5. Facility Owner, if different than applicant:

Name: _____

Mailing Address: _____

City/Town: _____ State: _____ Zip Code: _____

Business Phone: _____ Ext.: _____

Contact Person: _____ Title: _____

E-mail: _____

6. Facility Operator, if different than applicant:

Name: _____

Mailing Address: _____

City/Town: _____ State: _____ Zip Code: _____

Business Phone: _____ Ext.: _____

Contact Person: _____ Title: _____

E-mail: _____

Part III: Applicant Information (continued)

7. Attorney or other representative, if applicable.

Firm Name: _____

Mailing Address: _____

City/Town: _____ State: _____ Zip Code: _____

Business Phone: _____ Ext.: _____

Attorney: _____ Title: _____

E-mail: _____

8. Engineer(s), surveyor(s) and/or other consultant(s) employed or retained to assist in preparing the application and designing or constructing the activity.

Name: BL Companies

Mailing Address: 100 Constitution Plaza, 10th Floor

City/Town: Hartford State: CT Zip Code: 06103

Business Phone: (860)760-1930 Ext.: _____

Contact Person: David M. Cicia Title: Principal Engineer

E-mail: dcicia@blcompanies.com

Service Provided: Consultant Liaison Engineer, Permitting

Part IV: Pre-Application Coordination

If pre-application coordination occurred, provide DEEP LWRD staff contact information:

Staff Name: Jeff Caiola Date: 7/8/2021 & 2/7/2022

Part V: Supporting Documents

As applicable, check the box by the attachments listed to indicate that they have been submitted. When submitting any supporting documents, please label the documents as indicated in this part (e.g., Attachment A, etc.) and be sure to include the applicant's name as indicated on this application form. Attach the materials below following this transmittal form.

- ☐ Attachment A Structures, Dredging and Fill fee calculation worksheet (if applicable)
- ☐ Attachment B Co-applicant information sheet (if applicable)
- ☐ Attachment C Written permission from land owner (if applicant is not the owner)
- ☐ Attachment D Additional signature sheet (if applicable)

Part VI: Applicant Certification

The applicant(s) *and* any individual(s) responsible for actually preparing the application must sign this section. An application will be considered insufficient unless *all* required signatures are provided.

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

I understand that a false statement in the submitted information may be punishable as a criminal offense, in accordance with section 22a-6 of the General Statutes, pursuant to section 53a-157b of the General Statutes, and in accordance with any other applicable statute.

I certify that the LWRD application is on complete and accurate forms as prescribed by the commissioner without alteration of the text.

I certify that I have complied with all notice requirements, if applicable, as listed in Section 22a-6g of the General Statutes."

Kimberly Lesay Digitally signed by Kimberly Lesay DN: cn=Kimberly Lesay, o=Connecticut Department of Transportation, ou=Bureau Chief of Policy & Planning, email=kimberly.lesay@ct.gov, c=US Date: 2023.12.19 10:35:43 -05'00'	December 18, 2023
Signature of Applicant	Date
Kimberly C. Lesay	Bureau Chief, Policy & Planning
Name of Applicant (print or type)	Title (if applicable)
	10/18/2023
Signature of Preparer (if different than above)	Date
David M. Cicia	Principal Engineer
Name of Preparer (print or type)	Title (if applicable)

☐ Check here if additional signatures are required. If so, please reproduce this sheet and attach signed copies to this sheet as Attachment D. You must include signatures of any person preparing any report or parts thereof required in this application (i.e., professional engineers, surveyors, soil scientists, consultants, etc.).

Part VII: Application Submission

Instructions for submitting an application to DEEP LWRD:

1. Please submit a hardcopy of **only** this completed License Application Transmittal Form and fee, to:

   CENTRAL PERMIT PROCESSING UNIT
   DEPARTMENT OF ENERGY & ENVIRONMENTAL PROTECTION
   79 ELM STREET
   HARTFORD, CT 06106-5127

   Applications will not be processed without the fee. Fee shall be non-refundable and shall be paid by check or money order to the Connecticut Department of Energy & Environmental Protection. State Agencies should submit the applicable registration/application package ***without*** the application fee and check the box in Part I to indicate the fee will be paid by Inter-Agency Transfer of Funds.

2. Upon receipt of the Transmittal Form and fee, the Central Permit Processing Unit (CPPU) will e-mail a confirmation receipt letter to you containing the DEEP assigned application number.

3. Upon receipt of the email from CPPU, electronically submit the full application package with the remaining required forms:
   a. Send an empty/blank email to DEEP.LWRDRegulatorySubmittals@ct.gov
   b. An automated email response will contain instructions for uploading this Transmittal Form and applicable Program Forms, management plans, or additional supporting documents of your application to the LWRD File Transfer Protocol (FTP) website.
   c. Follow directions contained in the email for uploading the application sections.

If you are not capable of submitting the application electronically or if you have other questions or concerns regarding

application submittals, please contact LWRD staff at 860-424-3019.

Connecticut Department of
Energy & Environmental Protection
Bureau of Water Protection & Land Reuse
Land & Water Resources Division

LWRD License Application Form C

Check Application Type:

- ☐ **Structures, Dredging & Fill (SDF)**
- ☐ **Structures, Dredging & Fill & Tidal Wetlands (TW)**
- ☐ **Structures, Dredging & Fill & Section 401 Water Quality Certificate (WQC)**
- ☒ **Structures, Dredging & Fill; TW; Section 401 WQC**
- ☐ **Section 401 Water Quality Certificate** **(Tidal Waters, Federal Agency Activity only)**

All sections of the LWRD application, when applicable, must be posted to the DEEP LWRD FTP site as instructed on Part VII of the LWRD Transmittal Form. See LWRD Application Instructions for general guidance.

Application Number (as assigned in CPPU e-mail): 202309531

Applicant Name (same name used on Part III of the LWRD Transmittal Form): Connecticut Department of Transportation

Part I: Pre-Submission Consultations

The application process requires preliminary coordination and input from other agencies/groups depending on the activity and the location. Consultations with other agencies must occur prior to application submission. Please allow 6-8 weeks for the necessary coordination. For this application, the applicant should start with these consultations, as applicable (See Part VI for further guidance).

Attachments:

20	NDDB	24	Bureau of Aquaculture
21	Wildlife- osprey	25	Harbor Management Commission
22	Dredging Projects	26	Shellfish Commission
23	Fisheries	27	USACE

Part II: Notifications

1. **PUBLIC NOTICE OF APPLICATION – Attachment 1**
   One notice for any combination of these programs is acceptable. Please refer to the *Public Notice Requirements for Permit Applications* (DEEP-INST-005A). The public notice of application must be published prior to submitting an application, as required in CGS section 22a-6g. Refer to the LWRD Application Instructions for public notice language. A copy of the published notice of application and the completed Certification of Notice Form (DEEP-APP-005A) must be included as Attachment 1 to this application. Your application will not be processed if Attachment 1 is not included.

2. **ADJACENT PARCEL OWNER NOTIFICATION – Attachment 3**
   (REQUIRED for Structures, Dredging and Fill & Tidal Wetland applications only)
   The "*Certification of Notice Form - Notice of Application*" (Attachment 3) has to be mailed to any land owner of record for any property that is located five hundred (500) feet or less from the property line where the activity is proposed. See Part VI for further guidance.

3. **MUNICIPAL NOTIFICATION OF TIDAL WETLAND APPLICATION – Attachment 4**
   (REQUIRED for Tidal Wetland applications only)
   The applicant shall mail or e-mail a copy of the application to the chief administrative officer and the chairmen of the conservation and shellfish commissions. See Part VI for further guidance.

Part III: Site and Resource Information

1. SITE ADDRESS

Street: Route 156 (Bridge); Rocky Neck State Park (Mitigation) City/Town: Old Lyme & East Lyme

State: CT Zip Code: 06371 & 06333

2. MUNICIPAL ZONING

Is the proposed work consistent with municipal zoning requirements?

☐ Yes ☐ No If no, explain: Not applicable to state projects

3. WATERBODY/WATERCOURSES/WETLANDS

List names of all waters impacted by the proposed activity: Four Mile River and adjacent tidal and inland wetlands (Bridge). Degraded tidal marsh along Bride Brook (Mitigation).

4. INDIAN LANDS

Is the activity that is the subject of this application located on federally recognized Indian lands? ☐ Yes ☒ No

5. AQUIFER PROTECTION AREAS

Is the site located within a mapped Level A or Level B Aquifer Protection Area, as defined in CGS section 22a-354a through 22a-354bb?

☐ Yes ☒ No If yes, check one: ☐ Level A or ☐ Level B

If Level A, are any of the regulated activities, as defined in RCSA section 22a-354i-1(34), conducted on this site? ☐ Yes ☐ No

If yes, and your business is **not** already registered with the Aquifer Protection Program, contact the aquifer protection agent or DEEP to take appropriate action. For more information on the Aquifer Protection Area Program, contact the program at 860-424-3019 or visit the website at www.ct.gov/deep/aquiferprotection. See LWRD Application Instructions for further guidance.

6. CONSERVATION OR PRESERVATION RESTRICTIONS

Will the activity which is the subject of this application be located within a conservation or preservation restriction area? ☐ Yes ☒ No

If yes, provide proof of written notice of this application to the holder of such restriction, and/or or a letter from the holder of such restriction verifying that this application is in compliance with the terms of the restriction, as Attachment 8.

7. LICENSE HISTORY

Indicate the number and date of issuance of any previous state permits or certificates issued by DEEP or USACE which authorized work at the site, and the names to whom they were issued.

License/Permit/COP Authorization Number and Name of Agency	*Date Issued*	*Name of Permittee/ Certificate Holder*	*Brief Description of Work Authorized*

Part III: Site and Resource Information (continued)

8. SOIL AND/OR GROUNDWATER REMEDIATION

Does the site work include soil and/or groundwater remediation? ☐ Yes ☒ No

If yes, please provide reference documentation including a) plan views of the site showing the area of contamination and b) a summary of remediation with chemical analysis, clean-up status, and remediation program identification, as Attachment 9.

9. ENFORCEMENT HISTORY

Is this application associated with a formal or informal enforcement action that is pending with DEEP?

☐ Yes ☒ No

If yes, please provide the enforcement action reference number and name of the DEEP staff contact:

Enforcement Action #: _____

DEEP Division/Program: _____

DEEP Staff Contact: _____

If the property was the subject of any historical enforcement actions known to the applicant, explain:

_____

10. Regulatory Limit – See Reference Guide for Regulatory Jurisdiction for further explanation if necessary. Indicate the landward extent of the State's regulatory jurisdiction by checking one box:

☐ **Coastal Jurisdiction Line** (CJL)– for CJL information, refer to the Coastal Jurisdiction Fact Sheet and Chart.

☐ **Mean High Water** (MHW) – for projects located upstream of a tide gate, dam or weir (structure must be shown on project plans).

☒ **Tidal Wetland Boundary** – To be used if tidal wetlands are located landward of CJL or MHW. Include one foot above local extreme high water, if applicable.

11. Tidal Elevations

Provide site elevations for CJL, MHW, Mean Low Water (MLW) and the High Tide Line (HTL)* in NAVD88. For general elevation reference and conversion, please refer to USACE Tidal Flood Profiles; CO-OPS Map - NOAA Tides & Currents; or, Online VDatum: Vertical Datums Transformation

CJL = 2.60 ft (Bridge); 2.30 ft (Mitigation) MHW = 0.92 ft (Bridge); 1.00 ft (Mitigation) MLW = -1.80 ft (Bridge); -2.10 ft (Mitigation) HTL = 2.83 ft (Bridge); 2.80 ft (Mitigation)

*The HTL is necessary for USACE jurisdiction and required as part of the USACE application.

Part III: Site and Resource Information (continued)

12. Coastal Resource Impact Table

Check the applicable boxes below to identify coastal resources to be impacted by the proposed activity at the project site. Describe the impacts, as applicable. For definitions, refer to the Connecticut Coastal Management Manual.

Resource Type	square feet			Describe Impacts
	Permanent impact	Temporary impact	Mitigation	
☐ Beaches/Dunes below HTL below CJL	NA			
☒ Tidal Wetlands	1,500 s.f.	2,600 s.f.	10,000 s.f.	**Identify if existing vegetation is salt, brackish or freshwater wetland.** Wetlands at the bridge and mitigation sites are brackish. Tidal wetland vegetation at the sites includes Phragmites in the southeast quadrant, cattails, lawn grasses, sedges, Spartina patens, bulrush, and aster. Wetlands at the bridge site will be permanently impacted by the removal of the existing pipes, construction of the new bridge, and placement of riprap for scour protection and natural streambed material for channel reconstruction. Removing the culverts and installing a bridge will benefit the surrounding wetlands by creating an open channel bottom. Temporary impacts will be from the temporary work areas, temporary drainage outlet, temporary water handling, and temporary utility relocation. The mitigation site will be permanently impacted by the thin-layer deposition of sediment. The mitigation is a positive benefit, including the removal of an area of Phragmites. Impacts are limited and mitigated through the use of BMPs, erosion & sediment controls, project oversight, and use of native planting and stabilization plans at both the bridge and mitigation sites.
☐ Nearshore waters	NA			

Resource Type	Describe Impacts (temporary and permanent)
☒ Benthic Habitat	The benthic zone in the vicinity of the bridge supports populations of several fish species as well as blue crab. Of concern is a run of anadromous alewife. During construction at the bridge site, water pumped from the temporary work areas behind the water-handling-cofferdams will be directed into dewatering basins prior to being returned to the watercourse. Aquatic life will have free passage through the site during all phases of construction. The placement of earth fill and natural streambed material, concrete and riprap will result in permanent wetland and watercourse impacts. The proposed work at the bridge will improve the benthic habitat by removing the existing culverts and providing a natural streambed below the bridge. Due to the culverts being removed, the size of the benthic habitat will be increased.

	The benthic habitat at the mitigation site will be impacted from the fill material brought on-site, but an improved salt marsh will be developed. The benthic habitat within drainage channels along the mitigation site will be re-established as part of construction.
☐ Intertidal Flats	
☐ Submerged Aquatic Vegetation (SAV)	
☐ Rocky Shorefront	**Include rocky intertidal areas.**
☒ Finfish	Four Mile River is likely host to a number of fish speciess including Mummichog, Atlantic Silverside, Stickleback, Killfish, and Sheepshead Minnow. DEEP Fisheries has requested that no in water work occur from March 15 to May 30 to accommodate the run of anadromous Alewife at that time. A minimum waterway opening, measured from the front face of the abutment to the front face of the temporary water-handling-cofferdam, is specified for each stage of construction and will provide adequate passage for finfish through the site during all phases of construction. Coordination with NOAA will ensure that protective measures are in place to minimize impacts to finfish. Permanent and temporary impacts to finfish are discussed in the EFH assessment (see Attachment 43). The proposed project will benefit fish species within the area of both the bridge and mitigation sites.
☒ Wildlife	Hawks and various songbirds were present during site visits. With the stream environment and tidal wetlands, the project area provides moderate wildlife habitat. This type of habitat can be expected to attract great blue heron, egrets, and gulls. Any construction activities will only be a temporary impact and will not adversely affect wildlife in this area. The June 2023 NDDB map shows this project site is within an area that may contain State and Federal listed species of concern, however is not within an area of critical habitat. Coordination with NDDB has been completed and no impacts to the species of concern are anticipated. There is an osprey platform in the vicinity of the mitigation site, but due to the TOY restrictions (work being completed during the winter months), no impacts are anticipated. Restoration of the salt marsh could potentially benefit the saltmarsh sharp-tailed sparrow.
☒ Shellfish Areas	**Maps available at The Aquaculture Mapping Atlas.** Shellfishing is prohibited; no state or town managed shellfish beds are in this area. No recreational or natural shellfish beds are in the project area. No shellfish were observed at the bridge or mitigation site. See Attachment 43 for Aquaculture Maps. No eelgrass beds are present.
☒ Coastal Hazard Area	**Discuss FEMA compliance.** The FEMA 100-year floodplain elevation is 9.3 feet at the bridge site. The proposed roadway low point is raised from 6.80 feet to to 11.45 feet to protect the roadway and traveling public during extreme flooding events. The FEMA 100-year floodplain elevation is 9.0 feet at the mitigation site. The entire mitigation area is inundated during a flood event. The proposed project deposits an insignificant amount of fill in comparison to the extent of the floodplain and will not cause any additional flooding. Restoring the saltmarsh will protect the shoreline during flooding events.
☐ Bluffs/Escarpments	**Describe impacts associated with flood and erosion control structures.**
☐ Islands	**If new access is proposed, describe how island resources will be impacted.**
☒ Coastal Flooding	**Describe how tide gates/fill/seawall height increases will impact flooding.** At the bridge site, the 50-year storm currently overtops the existing culvert and roadway. Raising the profile of the roadway by over 4.5 feet and increasing the hydraulic opening of the proposed structure from approximately 80 square feet to

	approximately 200 square feet will create a hydraulically adequate structure that will pass the 100-year design storm. There are no changes to the coastal flooding effects or inundation around the bridge site. The fill proposed at the mitigation site will not have any impact to coastal flooding. This is due to the small volume of material proposed for deposit (250 CY) versus the inudation of flood waters along the Connecticut coastline. Restoring the salt marsh to support healthy vegetation will improve shoreline stabilization during flood events.
☐ Water Circulation Patterns	**Describe impacts from groins/abutments/jetties.**
☒ Drainage Patterns	**Describe impacts from impervious surfaces/outfalls/weep holes and stormwater modifications.** At the bridge site, there is an existing 18-inch RCP that outlets through the existing northwest wingwall. The outlet conveys stormflow from outside the project area. This outlet will be removed and a proposed 18-inch RCP will be placed at the southwest embankment with no change in outlet flow. Due to the shift in the roadway alignment, six catch basins (three in each shoulder of the roadway) will be installed to the east of the bridge. A proposed 18-inch RCP will be placed at the southeast embankment to discharge the water from these six catch basins. Addition of the new drainage system will not impact drainage patterns. Man-made ditches are present along the edges of the mitigation site. These ditches will be re-established during construction to maintain existing drainage patterns.
☒ Visual Quality	**Only applies to public views of statewide scenic significance.** There are no visual viewing features at the bridge site. There is an observation deck adjacent to the proposed mitigation area. The mitigation site and the increased wildlife habitat created will enhance the quality of the scenery provided by the observation deck.
☒ Water Quality	**Discuss sediment and erosion controls, water handling, and stormwater treatment.** At the bridge site, sedimentation and erosion controls will be implemented to prevent construction debris from entering the watercourse. Water pumped from the temporary work areas behind the water-handling-cofferdams will be directed into dewatering basins prior to being returned to the watercourse. Stormwater from the proposed drainage system will outlet onto intermediate riprap, reducing stormwater velocity and the potential of erosion along the downstream embankments. At the mitigation area, restoring salt marsh benefits water quality by stopping erosion and providing attenuation of pollutants, enhancing plant diversity and wildlife habitat. Healthy salt marsh allows for more vegetation growth and aides in sediment and toxicant removal. Healthy marsh also provides protection against storm events and reduces the threat of erosion.

Part IV: Project Information

Please note: Upon adoption of the Long Island Sound Blue Plan, the policies of the Blue Plan will be factors for consideration for projects in the Blue Plan Policy Area boundary. The Policy Area boundary can be found on the Blue Plan Map Viewer, while the policies are located in Chapter 4 of the Blue Plan document.

1. Describe, briefly, the existing structures within state regulatory jurisdiction, and their conditions and uses at the site of the proposed work. **Provide photographs showing resources and existing site conditions as Attachment 10.**
   Bridge No. 02713 supports Route 156 over Four Mile River in the towns of Old Lyme and East Lyme. The existing structure consists of four 60-inch round asphalt coated corrugated metal pipes (ACCMPs) which are 52-feet 8-inches in length with cast-in-place reinforced concrete headwalls, wingwalls and cutoff walls that are flared and tapered. The existing ACCMPs are in poor condition and need to be replaced due to the laminated rust and random perforations along each pipe. The structure is hydraulically inadequate; the roadway overtops during the 50-year storm event. The existing roadway, a two lane undivided minor arterial, is functionally obsolete due to not meeting design standards for minimum roadway radius and superelevation rate. An existing 18-inch RCP outlets through the existing northwest wingwall. The RCP is in fair condition and collects surface runoff from the project site and surrounding area. The runoff conveyed originates to the south and west of the existing structure. The estimated Average Daily Traffic (ADT) is 2,600 vehicles per day (2015 CTDOT Traffic Log).

   There are no existing structures at the mitigation site. There is a viewing platform adjacent to the site, as well as picnic tables, grills and a parking area. The site exhibits degraded tidal wetlands characterized by saltwater pools where heathy vegetation once grew.

2. a. Describe the proposed regulated work and activities in a detailed narrative, including the number and dimensions of structures and the volume and area of fill or excavations. See LWRD Application Instructions for required information.

   Please see the attached sheets.

   b. Describe the construction activities involved for the project in detail, including methods, sequencing, equipment, and any alternative construction methods that might be employed. For coastal dredging projects, identify the type of equipment with bucket and barge capacity and, for upland disposal, provide containment facility details (See Reference for Coastal/Tidal Dredging).

   Please see the attached sheets.

   c. Describe any erosion and sedimentation or turbidity control installation and maintenance schedule and plans in detail. Such plans should be prepared in accordance with the 2002 Connecticut Guidelines for Soil Erosion and Sediment Control, as revised, established pursuant to CGS section 22a- 328.

   E&S / Turbidity Controls are depicted on project plans in Attachment 14.

   d. Anticipated date of project initiation: April 2024
   Indicate the length of time needed to complete the project and identify any anticipated time restrictions:
   The project is anticipated to be completed in November 2025.

LWRD License Application Form C
Part IV, 2a: Project Information – Proposed Regulated Work

Applicant: Connecticut Department of Transportation
Project: State Project No. 104-175
Replacement of Bridge No. 02713, Route 156 over Four Mile River
Thin Layer Deposition Mitigation, Rocky Neck State Park
Towns of Old Lyme & East Lyme

Bridge Site

The proposed structure consists of a 28-foot wide by 7-foot high 3-sided precast concrete arch structure with precast concrete headwalls, CIP concrete footings and CIP concrete wingwalls. The arch footings will either be founded on steel piles or bedrock, depending on the depth to bedrock. Wingwall footings will be either pile supported or on spread footings.

A three-tube curb mounted bridge rail will be utilized on both sides of the bridge. The arch will be topped with membrane waterproofing, pervious structure backfill, and full depth roadway pavement.

The horizontal alignment of the proposed roadway will be shifted approximately 35 feet north of the existing alignment to provide a larger radius curve at the bridge. The proposed roadway alignment will raise the vertical profile by 4.5 feet at the bridge in order to pass the 100-year storm.

The existing 18-inch RCP that outlets through the existing northwest wingwall will be removed and an 18-inch RCP will be placed such that the pipe outlets on the southwest embankment. A concrete culvert end will be placed at the end of the 18-inch RCP and an intermediate riprap apron will be placed for outlet protection. There is no existing drainage system to the east of the bridge. Three catch basins will be installed in the northeast shoulder and three catch basins will be installed in the southeast shoulder. This stormwater drainage system will be routed to an 18-inch RCP that will outlet at the southeast embankment. A concrete culvert end and an intermediate riprap apron will be placed for outlet protection. See PMT-02.

Approximately 120 ft of channel will be reconstructed upstream, downstream, and through the proposed bridge opening. The proposed channel will be covered with 12 inches of natural streambed material. The channel over the abutment footings and wingwall footings will be covered with 12 inches of natural streambed material, 18 to 24 inches of intermediate riprap and 6 inches of granular fill. Portions of the proposed sheet piling, being used for the temporary water-handling-cofferdams, will be cut off one foot below the proposed channel invert and left in place for scour protection. The only sheet piling left in place will be below the bridge structure. See PMT-05.

Permanent tidal wetland and inland wetland impacts at this site are due to the placement of the proposed concrete abutments, cuts and fills associated with relocating the roadway alignment, natural streambed material, intermediate riprap and granular fill material. See PMT-03.

Temporary tidal wetland and inland wetland impacts at this site are from the temporary work areas and temporary utility relocations required to complete the work. Permanent watercourse impacts at this site will include the removal of the four existing 60-inch ACCMPs, portions of sheeting left in place, and the grading of the new channel, including placement of natural streambed material, intermediate riprap and granular fill material. See PMT-03.

Temporary watercourse impacts will include the placement of water-handling-cofferdams to allow the contractor to work in the dry. See PMT-06 & PMT-07.

An excavator or backhoe will be used to remove the existing soil and structure. Dump trucks will be used to remove the existing soil from the site. Temporary water-handling-cofferdams will be placed in each stage of construction such that the contractor will be able to construct the footings and wingwalls in the dry. A concrete truck will be used to bring the concrete for the footing and wall pours. A crane will be used to set the precast concrete arches into place. An excavator will be used to place the granular fill, intermediate riprap and natural streambed material in the watercourse and on the embankments. Paving equipment will be used to place the final roadway material.

There will be 170 C.Y. of concrete, 154 C.Y. of natural streambed material, 172 C.Y. of intermediate riprap and 104 C.Y. of granular fill material within the limits of the CJL. The tidal wetland limits are the coastal jurisdiction limit in all but the southwest quadrant. The tidal wetland limit includes area 1-foot above the local extreme high tide as these areas are capable of supporting tidal vegetation.

The construction activities will result in 6,400 square feet (0.147 acres) of permanent wetland and watercourse impacts. There will be 1,200 square feet (0.028 acres) of permanent inland wetland impacts, 1,500 square feet (0.034 acres) of permanent tidal wetland impacts and 3,700 square feet (0.085 acres) of permanent watercourse impacts.

There will be 6,300 square feet (0.145 acres) of temporary wetland and watercourse impacts. There will be 1,900 square feet (0.044 acres) of temporary inland wetland impacts, 2,600 square feet (0.060 acres) of tidal wetland impacts and 1,800 square feet (0.041 acres) of temporary watercourse impacts. The total (permanent plus temporary) wetland and watercourse impacts will be 12,700 square feet (0.292 acres).

There will be 1,540 cubic yards of excavation in the floodplain required for the removal of the four existing 60-inch ACCMPs, the removal of the existing concrete headwall and endwall, the removal of the existing 18-inch RCP that outlets through the existing southwest wingwall, the excavation required for the placement of the concrete abutments and wingwalls and the excavation required for the placement of the granular fill, intermediate riprap and natural channel bottom material.

There will be 3,350 cubic yards of fill in the floodplain required for placement of the proposed concrete abutments and wingwalls, the placement of a proposed stormwater drainage system, the placement of fill and bituminous concrete for the proposed roadway, the placement of granular fill, intermediate riprap and natural streambed material in the channel and on the embankments.

This will result in a net fill of 1,810 cubic yards to the floodplain. See PMT-04.

Stage construction will be used to maintain traffic, remove the existing structure and construct the proposed structure. The existing 60-inch ACCMPs and the existing concrete headwall and endwall will be removed with an excavator or backhoe. A dump truck will be used to remove the excavated material from the site. Concrete mixing trucks will be used to deliver and pour the concrete for the footings and wingwalls.

Mitigation Site

The proposed mitigation site is located at the southern end of Rocky Neck State Park, adjacent to the northern most parking lot for public beach access. The site area is approximately 10,000 square

feet (0.230 acres) and is one of several wetland cells, defined by manmade drainage ditches, within the area. The adjacent parking area provides direct access to the mitigation site, which allows for conventional construction methods to be employed. The parking area also allows for an on-site staging area.

Mitigation will be completed using Thin Layer Deposition (TLD). This method will add sediment to restore the marsh to a vertical elevation of one foot above sea level to then be able to support healthy marsh vegetation. Disposed nutrient-rich dredge material, tested and evaluated for organic content, pH, sulfides and a range of potential contaminants, will be used as sediment. *Spartina alterniflora* will be planted to enhance restoration. Monitoring of the mitigation site will be conducted twice per year for five years to ensure success of the proposed mitigation.

LWRD License Application Form C
Part IV, 2b: Project Information

Applicant: Connecticut Department of Transportation
Project: State Project No. 104-175
Replacement of Bridge No. 02713, Route 156 over Four Mile River
Thin Layer Deposition Mitigation, Rocky Neck State Park
Towns of Old Lyme & East Lyme

Bridge Site

Stage construction will be used to maintain traffic, relocate utilities, remove the existing structure and construct the proposed structure. The existing 60-inch ACCMPs and the existing concrete headwall and endwall will be removed with an excavator or backhoe. A dump truck will be used to remove the excavated material from the site. Concrete mixing trucks will be used to deliver and pour the concrete for the footings and wingwalls. The existing overhead utilities will be relocated to the south during the initial stage of construction. The utility relocation will provide the required horizontal and vertical clearances to allow the bridge replacement to proceed.

The handling of water will be as follows in each stage of construction:

Stage 1A: The northeast portion of the existing structure will be removed and the proposed abutment footings and wingwalls will be constructed. Temporary water-handling-cofferdams will be used so that the contractor can work in the dry. An 8-foot minimum hydraulic opening will be used during this stage to allow the continuous passage of water. See PMT-06.

Stage 1B: The northwest portion of the existing structure will be removed and the proposed abutment footings and wingwalls will be constructed. Temporary water-handling-cofferdams will be used so that the contractor can work in the dry. A 7-foot minimum hydraulic opening will be used during this stage to allow the continuous passage of water. See PMT-06.

Stage 1C: The northern portion of the concrete arch will be placed on the concrete footing during this stage. The temporary water-handling-cofferdams will maintain a 17-foot minimum hydraulic opening. The proposed concrete arch will require the use of a delivery truck and crane to place. See PMT-07.

Stage 2A: The remaining portion of the two western-most existing 60-inch ACCMPs will be removed in this stage. A temporary water-handling-cofferdam will be constructed at the southwest embankment to allow the southwest wingwall and footing to be constructed. Water will be directed through the two remaining 60-inch existing ACCMPs. A 7-foot minimum hydraulic opening will be maintained during this stage. See PMT-07.

Stage 2B: The remaining portion of the two eastern-most existing 60-inch ACCMPs will be removed during this stage. A temporary water-handling-cofferdam will be constructed at the southeast embankment to allow the southeast wingwall and footing to be constructed. An 8-foot minimum hydraulic opening will be maintained during this stage. See PMT-07.

Stage 2C: The sheet piling around the eastern footing will be cut off and riprap and streambed material will be placed in the channel. The southern portion of the concrete arch will be placed on the concrete footing during this stage. The temporary water-handling-cofferdams will maintain an

8-foot minimum hydraulic opening. The proposed concrete arch will require the use of a delivery truck and crane to place. See PMT-07.

Stage 2D: The sheet piling around the western footing will be cut off and riprap and streambed material will be placed in the channel. The temporary water-handling-cofferdams will maintain a 15.6-foot minimum hydraulic opening. See PMT-07.

Mitigation Site

Restoration activities at the mitigation site will utilize conventional construction methods for material placement. Low ground pressure earth moving equipment will be used to spread material. HDPE matting will be used to minimize substrate compaction. HDPE matting will also be used outside the mitigation area to prevent as much ground disturbance as possible. Source material will be trucked into the marsh and dumped into the desired area. GPS controlled equipment will be used to grade material to approximately 3-inches above the finished grade to offset settling and compaction. Concerns with marsh compaction are offset by overfilling and planting. Deeper holes can be dewatered and initially filled with sand prior to final material placement and planting.

The mitigation area will be completed in one stage. Fiber rolls will be used to maintain the outline of the restoration area and control turbidity. Field surveys will be conducted during construction and planting to ensure target elevations are achieved. Invasive species will be removed prior to construction and will be targeted during the monitoring period. Construction will be overseen by CTDOT OEP inspectors to ensure a successful mitigation site.

3. For **new** structures, activities or encroachments, discuss project alternatives which were considered and indicate why they were rejected. After all measures to eliminate or minimize adverse resource impacts have been incorporated in the proposed project, describe why any adverse impacts that remain should be deemed acceptable by the Land & Water Resources Division. For projects involving stormwater management, low-impact development practices should be incorporated to the greatest extent practicable. Explain any reasons for not using a low-impact development practice. See LWRD Application Instructions for further guidance.

   The four existing 60-inch ACCMPs will be replaced with a three-sided concrete rigid frame founded on concrete footings. A mitigation area is proposed to compensate for the unavoidable wetland and watercourse impacts at the bridge site. Impacts have been coordinated with DEEP and USACE through project coordination meetings (see Attachment 27).

   The project has been analyzed through the Department's MS4 Permit Program to document the use of low-impact development to the maximum extent practicable (MEP).

   During the design process, potential atlernatives considered were a concrete invert, a slip lining, a centrifugally cast cementitious lining and twin concrete box culverts. The linings were not used as they reduced the waterway opening of the existing pipes and didn't address the functional inadequacy of the roadway. The box culvert was not used as it was deemed more desirable to use a structure that could provide a natural channel bottom.

   A proposed roadway alignment following the existing alignment was considered as a way to minimize project impacts. However, the alignment would not conform to design standards for minimum radius and superelevation rate and was replaced with the current design.

Part IV: Project Information (continued)

4. The proposed work is associated with which of the following uses? (Check all that apply)

- ☐ Marine commercial/industrial use including aquaculture
- ☐ Flood and erosion control
- ☐ Residential boating access
  - ☐ Shared residential boating access
- ☐ Public access
- ☒ Infrastructure improvement
- ☐ Other – explain: _____

5. If the site is a marina or yacht club, provide the following:

a. Number of boat slips and moorings: _____ (should be consistent with plans submitted as Attachment 14)

b. Type of marine sanitation service provided at the facility. _____

c. ☐ Check here to confirm that at least one plan view notes the location of upland support including adequate parking, a marina office, and restrooms.

d. Check the applicable services provided:

☐ boat repair/maintenance	☐ winter storage
☐ gas/fuel hook-up	☐ electric hook-up
☐ fishing amenities	☐ boating and/or equipment sales

6. If local/municipal review has or will require a Coastal Site Plan Review for activities at this site, please explain the associated upland work. Not applicable for state projects.

7. If a new or expanded flood and erosion control structure (e.g. seawall) is proposed, it would provide for the protection of:

☐ an infrastructural facility	☐ cemetery or burial grounds
☐ a water-dependent use	☐ a pre-1995 commercial or residential structure

Please make sure Item 3., above, documents that there are no feasible, less environmentally damaging alternatives and include Attachment 18, Engineering Report Cover Sheet. Also, the municipality must forward the related Coastal Site Plan Review to LWRD. See LWRD Application Instructions for further guidance.

8. Identify and evaluate any potential beneficial or adverse impacts to:

a. Navigation (include federal and local navigation channels and distance to nearby docks):

The Coast Guard has stated Four Mile River at this site is a non-navigable waterway. However, replacment of the four ACCMPs with a span structure provides a recreational benefit for small watercraft (kayaks and canoes). No impacts to navigation are anticipated at the mitigation site.

b. Public access to, and public use of, public trust lands and waters waterward of Mean High Water:

Public access to the site may be temporarily limited during construction; however the proposed bridge will provide a wider and taller waterway opening for conveying Four Mile River and will allow for recreational watercraft to traverse the site. There will be no public access to the mitigation area during construction, but restoring the tidal salt marsh will visually enhance the area and benefit public use.

Part V: Engineering Support Documentation and Certification

Certain types of projects require documentation of engineering design. If you answer yes to one of the questions below, you must submit a completed ***Engineering Report Cover Sheet*** (DEEP-LWRD-APP-001R) as Attachment 18 along with the relevant engineering report(s).

1. Does the proposed activity include engineered structures such as bridges, culverts, stormwater management systems, detention basins, and/or flood & erosion control structures?

   ☒ Yes ☐ No

2. Is the proposed activity located in a FEMA-designated Riverine or Coastal Floodplain?

   ☒ Yes ☐ No

   If yes, provide documentation in the Engineering Report which demonstrates that the project is in compliance with FEMA's National Flood Insurance Program requirements and the local flood ordinance for the municipality.

   NOTE – Only the following activities in the Coastal Floodplain require engineering: buildings, flood and erosion control structures; public access facilities; and, tide regulating structures. See Engineering Report Cover Sheet for further guidance.

3. Is the proposed activity located in a FEMA-designated Floodway ☒ Yes ☐ No

   If yes, the Engineering Report must include a statement signed by a registered professional engineer that there is no-rise. This documentation must be supported by technical data that is derived from a standard step-backwater computer model utilizing source data from the Flood Insurance Rate Map (FIRM) or Flood Boundary and Floodway Map (FBFM). If a No-rise Certification form is available through the municipality, please include it in the Engineering Report. For further information on No-Rise Certification, see No-Rise Certification for Floodways | FEMA.gov

The *Engineering Report Cover Sheet* shall be signed and sealed by a Professional Engineer licensed in the State of Connecticut. Supporting documentation as identified in the checklist may consist of engineering studies and other documentation, as appropriate, in order to describe the hydrologic and hydraulic effects of the proposed actions.

Part VI: Supporting Documents

The following attachments correspond to Form C. **If the Attachment name is followed by "REQUIRED", the attachment must be submitted with every application.** When submitting any supporting documents, please label the documents as indicated in this part (e.g., Attachment 1, etc.) and be sure to include the same applicant name used on Page 1 of this application form. Please check the box next to the attachments listed to indicate that they have been submitted, and provide the applicable attachments following this form. NOTE: Attachment numbering is NOT consecutive as the attachments relate to multiple LWRD program applications.

Attachment ID	Attachment Description
☒ **Attachment 1**	**Public Notice of Application REQUIRED** A copy of the published notice of permit application, as described in the instructions, attached to a completed "*Certification of Notice Form- Notice of Application*" (DEEP-APP-005A)
☒ **Attachment 3**	**Adjacent Parcel Notification REQUIRED** *(Structures, Dredging and Fill & Tidal Wetland applications only)* Any land owner of record for any property that is located five hundred (500) feet or less from the property line where the activity is proposed has to be mailed the "Certification of Notice Form - Notice of Application" (Attachment 1). As Attachment 3, provide the names and mailing addresses for these individuals and a certified mail receipt to document that a copy of the Notice of Application was sent to each. If the proposed work is entirely waterward of Mean High Water, but within the apparent riparian/littoral area of a shoreline property, that property should be used to compile the list of the names and addresses of all land owners of record located within five hundred feet from the property lines. Include any known claimants of water rights adjacent to the project and owners or lessees of shellfish grounds or franchises within the work area.

Part VI: Supporting Documents (continued)

☒ **Attachment 4** **Application Copy to Municipality**

(REQUIRED for Tidal Wetland applications only)
In accordance with CGS section 22a-32, the applicant shall mail or e-mail a copy of the application to the chief administrative officer and the chairmen of the conservation and shellfish commissions of the town or towns where the proposed work is located. Provide documentation such as a return receipt email or certified mail receipt to prove that such notification was completed. The applicant is also responsible for providing a copy of any substantive revisions made during the application review process.

☒ **Attachment 7** **Executive Summary REQUIRED**

Summarize the information contained in the complete application which must include a description of the proposed regulated activities and a synopsis of the environmental and engineering analyses of the impact of such activities. Include a list of the titles of all plans, drawings, reports, studies, appendices, or other documentation which are attached as part of the application.

☐ **Attachment 8** **Conservation or Preservation Restriction Information, if applicable.**

☐ **Attachment 9** **Remediation Documentation**, if applicable.

☒ **Attachment 10** **Photographs showing existing conditions of the site REQUIRED**

☒ **Attachment 14** **Project Plans,** use *Project Plan Checklist* for requirements **REQUIRED**

☐ **Attachment 18** ***Engineering Report Cover Sheet*** (DEEP-LWRD-APP-001R)

☒ **Attachment 20** **Natural Diversity Data Base (NDDB)**
Completed NDDB Determination #: **202109559**
If the proposed activity is within an NDDB area, complete and submit a *Request for NDDB State Listed Species Review Form* (DEEP-APP-007) to the address specified on the form, **prior** to submitting this application. For NDDB maps and more information, visit the DEEP website at www.ct.gov/deep/nddbrequest or call the NDDB staff at 860-424-3011.

Please note NDDB review generally takes 4 to 6 weeks and may require the applicant to produce additional documentation, such as ecological surveys, which must be completed prior to submitting this permit application. A copy of the NDDB Final Determination response letter that has not expired ***must*** be submitted as Attachment 20. Include a copy of any mitigation measures or management plan developed for this activity and approved by NDDB. Please DO NOT include a copy of the NDDB Review Request/Application. Be aware that you must renew your NDDB Determination if it expires before project work commences.

☒ **Attachment 21** **DEEP Wildlife Division – Osprey Consultation**

If the proposed activity will occur within 300 feet of an osprey platform, please note that work will be prohibited between May 1st and July 31st unless a DEEP waiver is obtained. If this seasonal prohibition conflicts with the proposed work schedule, please contact the DEEP Wildlife Division's Wildlife Diversity Program staff at deep.wildlife@ct.gov or 860-424-3011 for technical assistance before submitting your application. If you are seeking a seasonal prohibition waiver, documentation of the waiver issued by Wildlife Diversity Program staff must be submitted as Attachment 21. For known nesting locations, reference the Osprey Map at:

https://www.google.com/maps/d/viewer?mid=1GyxnB-UAGxmselecH9Zj4UdH1ug&usp=sharing or https://www.ctaudubon.org/citizen-science.

Part VI: Supporting Documents (continued)

☐ **Attachment 22** Dredging **Consultation Form**
*(**REQUIRED** for dredging activities only.)*
If dredging is proposed, please refer to Reference for Coastal/Tidal Dredging and submit a completed *Dredging Consultation Form*.

☒ **Attachment 23** **Fisheries Consultation Form**
If your project involves one or more of the following activities, check the applicable box(es) below and submit a completed *Fisheries Consultation Form* (DEEP-FISH-APP-007).

- ☐ new public/fishing access;
- ☐ beach nourishment;
- ☐ new docks and marinas on the Connecticut River;
- ☐ coastal/tidal dredging projects;
- ☒ culverts and bridges; and
- ☐ activities within the Blue Plan Policy Area boundary.

Note: Fisheries consultation is **not required** for docks and marinas on Long Island Sound and for disposal only of dredge sediment at one of the open water sites (generally NY dredge projects).

☒ **Attachment 24** **Department of Agriculture/Bureau of Aquaculture Consultation**
If your project falls within one the categories below, check the box and submit a completed *Department of Agriculture/Bureau of Aquaculture Consultation Form*.

- ☒ any project in a municipality directly on Long Island Sound
- ☐ any project on the Connecticut River in Old Saybrook or Lyme
- ☐ any project on the Housatonic River in Stratford or Milford
- ☐ any project on the Thames River in New London, Waterford, Montville, Ledyard or Groton
- ☐ dredging projects only in Lyme, Essex, Orange, Derby/Ansonia, Norwich or Preston

☒ **Attachment 25** **Harbor Management Consultation Form**
If your town has a Harbor Management Commission, submit a completed *Harbor Management Commission Consultation Form*.

☒ **Attachment 26** **Shellfish Commission Consultation Form**
If your town has a Shellfish Commission, submit a completed *Shellfish Commission Consultation Form*.

☒ **Attachment 27** **USACE Consultation Form**
This consultation form is required to be submitted as part of an application for a Structures, Dredging & Fill license (Connecticut General Statutes (CGS) Section 22a-361) and/or Tidal Wetlands license (CGS Section 22a-32).

☐ **Attachment 41** ***Applicant Compliance Information Form*** (DEEP-APP-002) **REQUIRED**.

☐ **Attachment 42** ***Applicant Background Information Form*** (DEEP-APP-008) **REQUIRED**.

☒ **Attachment 43** **Other Information:** Any other applicable information the applicant deems relevant or is required by DEEP.

Attachment 1

Public Notice of Application

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Public Notices

d01060879

Notice of Permit Application

Towns: Old Lyme & East Lyme

Notice is hereby given that the Connecticut Department of Transportation (the "applicant") of 2800 Berlin Turnpike, Newington, CT, 06111 will submit to the Department of Energy & Environmental Protection an application under Connecticut General Statutes Sections 22a-32 and 22a-361 and Section 401 of the Federal Clean Water Act, 33 U.S.C. 1341.

Specifically, the applicant proposes to replace Bridge No. 02713 as it is currently in poor condition. The four existing 60-inch culverts will be replaced with a 28-foot wide, 7-foot high, three-sided precast concrete arch supported on concrete footings founded on bedrock or on steel H-piles. Concrete wingwalls, riprap scour countermeasures and two drainage outlets will be installed. Mitigation will be constructed in the form of Thin-Layer Deposition within a degraded area of tidal wetlands within Rocky Neck State Park along Bride Brook. The proposed activity will take place where Route 156 crosses Four Mile River, approximately 400 feet from the intersection of Route 156 and Four Mile River Road. The Mitigation activities will take place within Rocky Neck State Park adjacent to the parking area and existing viewing platform. The proposed activity will potentially affect coastal and aquatic resources, tidal wetlands, inland wetlands and surface water associated with Four Mile River as well as coastal and aquatic resources and tidal wetlands associated with Bride Brook and Bride Brook Marsh.

Interested persons may obtain copies of the application from Kevin Carifa, who may be written at Connecticut Department of Transportation, 2800 Berlin Turnpike, Newington, CT, 06111, reached at phone number 860-594-2946, or emailed at Kevin.Carifa@ct.gov.

The application will be available for inspection at the Department of Energy & Environmental Protection, Land & Water Resources Division, 79 Elm Street, Hartford, CT 06106-5127, telephone 860-424-3019 from 8:30 to 4:30 Monday through Friday. Please call in advance to schedule a review of the application.

d01059787

Town of Groton,
Fire Districts, Subdivisions and Special Tax Districts
located in the Town of Groton

Tax Collector's Notice of Taxes Due

All property owners in the Town of Groton are hereby notified that taxes on land, buildings, and personal property including motor vehicles will be due and payable July 1, 2023, based on the Town of Groton abstract of October 1, 2022.

The Town of Groton and the Groton Sewer District real estate and personal property tax bills over $100 may be paid in full or in two installments. The first installment will become due July 1, 2023. The second installment will become due January 1, 2024. Real estate and personal property taxes under $100, motor vehicle taxes, and all other fire district/political subdivision taxes will become due in full July 1, 2023.

These taxes shall be payable without penalty on or before August 1, 2023. All taxes paid after that date will become delinquent and due immediately and subject to interest at the rate of one and one half percent (1.5%) per month or fraction thereof from the due date. Failure to send out or receive any such bill or statement shall not invalidate the tax or interest.

Public Notices

d01060556

TOWN OF MONTVILLE
NOTICE OF PUBLIC HEARING

The Montville PZC will hold a public hearing on June 27, 2023 at 6 pm at Council Chambers, Town Hall, 310 Norwich-New London Tpke, Uncasville, CT for the following application: 23SP1 – 486 Fitch Hill Rd, Uncasville, CT – Applicant/Owner: N Silver Brook Holdings, LLC – Agent: Harry Heller, Esq. for Special Permit for Boarding Stable Addition. At this public hearing, persons may be heard & written communications will be received. Meeting materials are on the Town of Montville Website at https://www.townofmontville.org/form-repository/23-sp-1-486-fitch-hill-rd-expand-existing-stables/
Dated at Montville, CT this 7th day of June, 2023. Sara Lundy, Chairperson

d01061073

Town of Preston
Inland Wetlands & Watercourses Commission
NOTICE OF DECISION

At its Regular Meeting held on Tuesday, June 20, 2023 the Inland Wetlands & Watercourses Commission rendered the following decision:

Re: IW Application #2023-08, Ronald Greene, Applicant/Owner for property located at 70 Lakeview Drive; Construction within the wetlands buffer zone. APPROVED WITH CONDITION.

John Moulson, Chairman

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Garage Sales/Flea Markets

Garage Sales/Flea Markets

NEW LONDON ST. JAMES CHURCH GIGANTIC TAG SALE
To Benefit The Food Pantry
76 Federal St., Sat, June 24th. 9:30am - 2:30pm.
RAIN OR SHINE!!!
HH, Furniture, Baby Items & Much More!
Something For Everyone! –

WATERFORD
MILLSTONE POINT ASSOCIATION
HUGE NEIGHBORHOOD YARD SALE
Sat, June 24th. 8-2pm. (Rain Date: June 25th)
SOMETHING FOR EVERYONE!
Rope Ferry Rd. to Gardiners Wood Rd.
At End Take Right to sales on Millstone Rd. E., Windward Way, Lanyard Lane, Race Rock Rd., and Gun Shot Rd. –

GROTON CITY 4 FAMILY YARD SALE
Sat, June 24th. 9-2pm
Forest Street
Antiques, Collectibles, Unique Children's Items & Delightful Treasures –

MYSTIC MOVING SALE
Thurs & Fri, June 22nd & 23rd 12-3pm. 3030 Gold Star Hwy
Early 1900's School House Wood Stove, X-Cond $250
3/4 Antique Bed $50
Cedar Wardrobe $75
& Much More! –

NIANTIC MULTI FAMILY YARD SALE
Sat, June 24th 9-12:30pm.
38 Shore Rd.
HH, Jewelry, Clothing, Furniture, Storage Tubs, A/C's, Fans & More
NO EARLY BIRDS!! –

OLD LYME ESTATE SALE
Sat, June 24th. 9-1pm
67 Still Lane
HH, Furniture, Antiques, Collectibles & Much More! –

STONINGTON LORD'S POINT TAG SALE at the COMMUNITY HOUSE
Sat, June 24th. 8-1pm
Corner of James & Ashworth Street's
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Connecticut Department of
Energy & Environmental Protection

Certification of Notice Form - Notice of Application

DEEP USE ONLY
Division
Application No.

I , **Connecticut Department of Transportation**, certify that
(Name of Applicant)

the attached notice represents a true copy of the notice that appeared in **The Day**
(Name of Newspaper)

on **June 23, 2023**
(Date)

I also certify that I have provided a copy of said notice to the chief elected municipal official listed below as required by section 22a-6g CGS.

Kevin A Seary	**East Lyme First Selectman**	
Name of Official	*Title of Official*	
P.O. Box 519		
Address		
Niantic	**CT**	**06357**
City/Town	*State*	*Zip Code*
Kevin Carifa Digitally signed by Kevin Carifa DN: C=US, E=kevin.carifa@ct.gov, O="Connecticut Department of Transportation ", CN="Kevin Carifa " Date: 2023.12.18 14:31:39-05'00'	**12/18/2023**	
Signature of Applicant	*Date*	
Kevin F. Carifa	**Transportation Planning Diurector**	
Name of Applicant (print or type)	*Title (if applicable)*	

Connecticut Department of
Energy & Environmental Protection

Certification of Notice Form - Notice of Application

DEEP USE ONLY
Division
Application No.

I , **Connecticut Department of Transportation**, certify that
(Name of Applicant)

the attached notice represents a true copy of the notice that appeared in **The Day**
(Name of Newspaper)

on **June 23, 2023**
(Date)

I also certify that I have provided a copy of said notice to the chief elected municipal official listed below as required by section 22a-6g CGS.

Timothy Griswold	**Old Lyme First Selectman**	
Name of Official	*Title of Official*	
52 Lyme Street		
Address		
Old Lyme	**CT**	**06371**
City/Town	*State*	*Zip Code*
Kevin Carifa Digitally signed by Kevin Carifa DN: C=US, E=kevin.carifa@ct.gov, O="Connecticut Department of Transportation ", CN="Kevin Carifa " Date: 2023.12.18 14:31:49-05'00'	**12/18/2023**	
Signature of Applicant	*Date*	
Kevin F. Carifa	**Transportation Planning Diurector**	
Name of Applicant (print or type)	*Title (if applicable)*	

Attachment 3

Adjacent Parcel Notification

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

2800 BERLIN TURNPIKE, P.O. BOX 317546
NEWINGTON, CONNECTICUT 06131-7546
Phone: (860) 594-2946

December 18, 2023

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

Subject: State Project No. 0104-0175
Replacement of Bridge No. 02713
Route 156 over Four Mile River & Thin Layer Deposition Mitigation
Towns of Old Lyme and East Lyme
Certification of Abutter Notices

To Whom It May Concern:

The State of Connecticut Department of Transportation (the Department) is applying for a Structures, Dredging, and Fill and Tidal Wetlands permit pursuant to Connecticut General Statutes 22a-32 and 22a-361from the Connecticut Department of Energy and Environmental Protection

In accordance with Section 22a-6g of the Connecticut General Statutes, as revised, this letter serves as certification that all abutting property owners within 500 feet of the project limits have been provided a copy of the legal notice which appeared in the The Day on June 23, 2023 . A copy of the letter sent to the abutting property owners can be found in Attachment 3 of the Structures, Dredging & Fill, Tidal Wetlands and Section 401 Water Quality Certification application for the subject project. If you have any questions or require additional information, please contact Ms. Amanda Saul, of my staff, at Amanda.Saul@ct.gov.

Very truly yours,

Kevin Carifa

Digitally signed by Kevin Carifa
DN: C=US, E=kevin.carifa@ct.gov, O="Connecticut Department of Transportation ", CN="Kevin Carifa "
Date: 2023.12.18 14:31:58-05'00'

Kevin F. Carifa
Transportation Planning Director
Bureau of Policy and Planning

Enclosure:

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

2800 BERLIN TURNPIKE, P.O. BOX 317546
NEWINGTON, CONNECTICUT 06131-7546
Phone: (860) 594-2946

October 4, 2023

Subject: State Project No. 0104-0175
Replacement of Bridge No. 02713
Route 156 over Four Mile River & Thin Layer Deposition Mitigation
Old Lyme and East Lyme, CT
Notice of Permit Application

To Whom It May Concern:

The Connecticut Department of Transportation (the Department) is applying for a Structures, Dredging and Fill and Tidal Wetlands permit and 401 Water Quality Certification pursuant to Section 22a-32 and Section 22a-361 of the Connecticut General Statutes for a permit to conduct regulated activities in tidal wetlands and to conduct work in tidal, coastal or navigable waters of the State and under 33 U.S.C. 1341 (401 Water Quality Certification) to conduct an activity that may result in a discharge to certain waters of the State from the Connecticut Department of Energy and Environmental Protection.

The project proposes to replace Bridge No. 02713 which carries Route 156 over the Four Mile River . The four existing 60-inch culverts will be replaced with a 28-foot wide, 7-foot high precast concrete arch supported on concrete footings founded on bedrock or on steel H-piles. Concrete wingwalls, riprap scour countermeasures and two drainage outlets will be installed. Compensatory mitigation will be constructed in the form of Thin-Layer Deposition within a degraded area of tidal wetlands within Rocky Neck State Park along Bride Brook. The proposed activity will take place where Route 156 crosses the Four Mile River, approximately 400 feet east of the intersection of Route 156 and Four Mile River Road. The Mitigation Activities will take place within Rocky Neck State Park adjacent to the existing parking area and viewing platform. The proposed activity will potentially affect coastal and aquatic resources, tidal wetlands, inland wetlands and surface water associated with the Four Mile River as well as coastal and aquatic resources and tidal wetlands associated with Bride Brook and Bride Brook Marsh. You are being notified because your property is within 500 feet of the project.

In accordance with Section 22a-6g of the Connecticut General Statutes, as revised, the Department hereby gives notice of the filing with the Connecticut Department of Energy and Environmental Protection for regulated activities to be conducted in conjunction with the subject project. A copy of said notice is attached. If you have any questions or require additional information, please contact Ms. Amanda Saul, of my staff, at Amanda.Saul@ct.gov.

Very truly yours,

Kevin Carifa

Digitally signed by Kevin Carifa
DN: C=US, E=kevin.carifa@ct.gov, O="Department of Transportation ", OU="Office of Environmental Planning ", CN=Kevin Carifa
Date: 2023.10.04 12:04:27-04'00'

Kevin F. Carifa
Transportation Planning Director
Bureau of Policy and Planning

Enclosure: Public Notice

State Project 104-175, Bridge No. 02713
Route 156 (West Main Street) over Four Mile River in East Lyme & Old Lyme
List of Property Owners within 500 feet of the Bridge

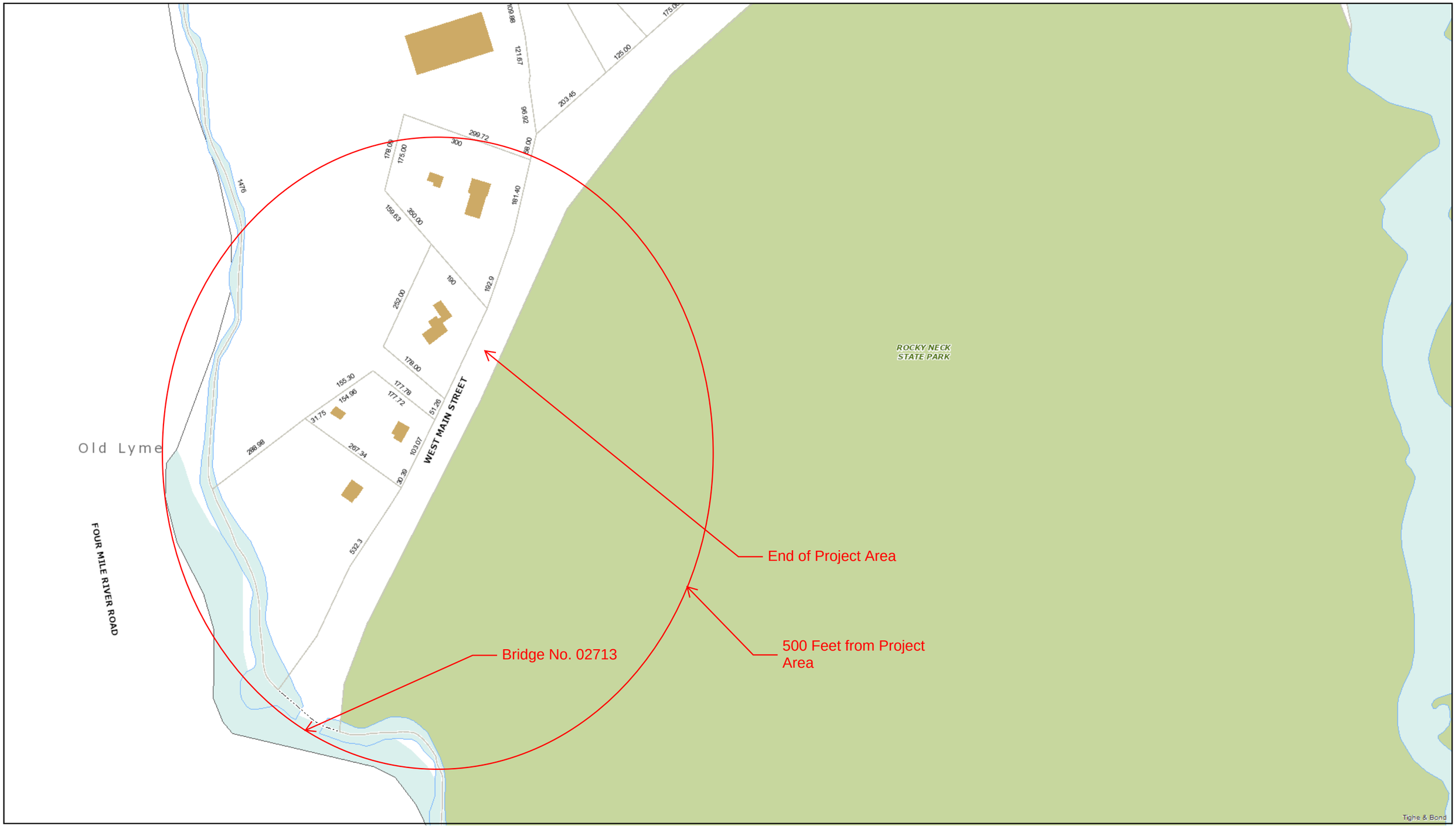
Name	Parcel ID	Physical Address	Mailing Address
Jeanne K. Clark	20-3	8 Four Mile River Road, Old Lyme, CT 06371	448 Shore Road Old Lyme, CT 06371
Richard D. Burr	20-51	11 Four Mile River Road Old Lyme, CT 06371	11 Four Mile River Road Old Lyme, CT 06371
Connecticut Light & Power Company	20-52	9 Four Mile River Road Old Lyme, CT 06371	PO Box 270 Hartford, CT 06141
Timothy W. & Cheryl L. Fredericksen	20-53	7 Four Mile River Road Old Lyme, CT 06371	7 Four Mile River Road Old Lyme, CT 06371
Ian Hubbard	20-54	5 Four Mile River Rd Old Lyme, CT 06371	5 Four Mile River Rd Old Lyme, CT 06371
William R. Matthews III	20-2	6 Four Mile River Rd Old Lyme, CT 06371	6 Four Mile River Rd Old Lyme, CT 06371
Lisa & Douglas (Surv) Mentlick	15-17	3 Four Mile River Rd Old Lyme, CT 06371	3 Four Mile River Rd Old Lyme, CT 06371
Jeffrey A. Mullen	15-16	2 Four Mile River Rd Old Lyme, CT 06371	2 Four Mile River Rd Old Lyme, CT 06371
Andrea S. Kelly & Corey J. Morelli	15-19	463 Shore Rd Old Lyme, CT 06371	463 Shore Rd Old Lyme, CT 06371
Kimberly A. Birk	15-20	459 Shore Rd Old Lyme, CT 06371	459 Shore Rd Old Lyme, CT 06371
M. Brett Painting Company	15-18	458 Shore Rd Old Lyme, CT 06371	458 Shore Rd Old Lyme, CT 06371
Carleton J. Birk & Rhonda L. Baker	15-21	455 Shore Rd Old Lyme, CT 06371	455 Shore Rd Old Lyme, CT 06371
Stanley & Susan Martin	15-22	453 Shore Road Old Lyme, CT 06371	453 Shore Road Old Lyme, CT 06371
Michael & Mark K. Barnes	15-23	451 Shore Road Old Lyme, CT 06371	451 Shore Road Old Lyme, CT 06371
James A. & Lori A. Corey	15-15	450 Shore Rd Old Lyme, CT 06371	450 Shore Rd Old Lyme, CT 06371
Jeanne K. Clark	15-14	448 Shore Road Old Lyme, CT 06371	448 Shore Road Old Lyme, CT 06371
Kathy K. Clark	15-14-1	446-1 Shore Road Old Lyme, CT 06371	446-1 Shore Road Old Lyme, CT 06371
Matthew V. Sapere	15-24	10 River Road Old Lyme, CT 06371	PO Box 195 Old Lyme, CT 06371
Claudia Jean Smith	06.0 1	289 W Main St East Lyme, CT 06357	289 W Main St East Lyme, CT 06357
William & Susan L. Wilczek	06.0 2	283 W Main St East Lyme, CT 06357	283 W Main St East Lyme, CT 06357
Armand Mazzulli Jr.	06.0 3	281 W Main St East Lyme, CT 06357	281 W Main St East Lyme, CT 06357
Thomas Whitman	06.0 4	279 W Main St East Lyme, CT 06357	279 W Main St East Lyme, CT 06357
Town of East Lyme	06.0 5	277 W Main St East Lyme, CT 06357	108 Pennsylvania Ave East Lyme, CT 06357
State of Connecticut	09.0 38	244 W Main St East Lyme, CT 06357	State Office Building Hartford CT 06106

MAP FOR REFERENCE ONLY
NOT A LEGAL DOCUMENT

Town of Old Lyme, CT makes no claims and no warranties, expressed or implied, concerning the validity or accuracy of the GIS data presented on this map.

Geometry updated 6/24/2021
Data updated on a daily basis

Print map scale is approximate. Critical layout or measurement activities should not be done using this resource.



The information depicted on this map is for planning purposes only.
It is not adequate for legal boundary definition, regulatory
interpretation, or parcel-level analyses.

5/5/2022 12:05:49
Scale: 1"=200'
Scale is approximate

Attachment 4

Application Copy to Municipality

Attachment 7

Executive Summary

LWRD
Attachment 7: Executive Summary

Applicant: Connecticut Department of Transportation
Project: State Project No. 104-175
Replacement of Bridge No. 02713, Route 156 over Four Mile River
Thin Layer Deposition Mitigation, Rocky Neck State Park
Old Lyme and East Lyme, CT

Bridge Site

Bridge No. 02713 supports Route 156 over Four Mile River in the towns of Old Lyme and East Lyme. The existing structure consists of four 60-inch round asphalt coated corrugated metal pipes (ACCMPs) which are 52-feet 8-inches in length with cast-in-place reinforced concrete headwalls, wingwalls and cutoff walls that are flared and tapered. The existing ACCMPs are in poor condition and need to be replaced due to the laminated rust and random perforations along each pipe.

Four Mile River is a sinuous 40 ft wide watercourse that flows from north to south through Bridge No. 02713. The channel bottom is lined primarily with gravel and sand. Larger stones are present along the channel edges upstream and downstream. Based on field investigation, the river appears to be horizontally and vertically stable upstream and downstream of the bridge. Long Island Sound is located approximately 4,000 ft south (downstream) of the bridge.

The existing roadway has two 12-foot travel lanes with 6-foot shoulders. The exiting roadway has metal beam rail on both sides of the roadway. There is no curbing along the edge of the shoulders. The roadway, a two lane undivided minor arterial, is functionally obsolete due to not meeting design standards for minimum roadway radius and superelevation rate.

On the north fascia of the bridge, there are two utilities supported by the existing bridge (telecommunications duct bank and a sewer force main). To the south of the bridge, there are overhead utilities that run adjacent to the roadway. An existing 18-inch RCP outlets through the existing northwest wingwall. The RCP is in fair condition and collects surface runoff from the project site and surrounding area. The runoff conveyed originates to the south and west of the existing structure. The estimated Average Daily Traffic (ADT) is 2,600 vehicles per day (2015 CTDOT Traffic Log).

Bridge No. 02713 is located in a FEMA Floodplain (Zone AE) with a delineated Floodway. The drainage area for this site is 6.2 square miles. As published in the ConnDOT Drainage Manual, the bridge is classified as an intermediate structure. The existing structure is hydraulically inadequate; the roadway overtops during the 50-year storm event.

The proposed project will replace the existing bridge with a 28-foot wide by 7-foot high 3-sided precast concrete arch structure with precast concrete headwalls, CIP concrete footings and CIP concrete wingwalls. The arch footings will either be founded on steel piles or driven into bedrock, depending on the depth to bedrock. Wingwall footings will either be pile supported or on spread footings.

The horizontal alignment of the proposed roadway will be shifted approximately 35 feet north of the existing alignment to provide a larger radius curve at the bridge. The proposed roadway alignment will raise the vertical profile by 4.5 feet at the bridge in order to pass the 100-year storm.

The existing 18-inch RCP drainage pipe that outlets through the existing southwest wingwall will be removed and replaced with an 18-inch RCP that will outlet to a riprap apron located just south of the existing southeast wingwall. Five new catch basins will be placed at the east approach and an 18-inch RCP will outlet to a riprap apron located just south of the existing southeast wingwall.

Temporary water handling cofferdam will be constructed in stages to provide a temporary work area for the Contractor to work in the dry. The channel will be reconstructed with 12 inches of natural streambed material placed on 18 to 24 inches of intermediate riprap placed on 6 inches of granular fill. The length of channel reconstruction is approximately 120 feet.

There will be 170 C.Y. of concrete, 154 C.Y. of natural streambed material, 172 C.Y. of intermediate riprap and 104 C.Y. of granular fill material within the limits of the CJL. The tidal wetland limits are the coastal jurisdiction limit in all but the southwest quadrant. The tidal wetland limit includes area 1-foot above the local extreme high tide as these area are capable of supporting tidal vegetation.

The construction activities will result in 6,400 square feet (0.147 acres) of permanent wetland and watercourse impacts. There will be 1,200 square feet (0.028 acres) of permanent inland wetland impacts, 1,500 square feet (0.034 acres) of permanent tidal wetland impacts and 3,700 square feet (0.085 acres) of permanent watercourse impacts.

There will be 6,300 square feet (0.145 acres) of temporary wetland and watercourse impacts. There will be 1,900 square feet (0.044 acres) of temporary inland wetland impacts, 2,600 square feet (0.060 acres) of tidal wetland impacts and 1,800 square feet (0.041 acres) of temporary watercourse impacts. The total (permanent plus temporary) wetland and watercourse impacts will be 12,700 square feet (0.292 acres).

There will be 1,540 cubic yards of excavation in the floodplain required for the removal of the existing structure, the shift in roadway alignment, the excavation for the proposed substructure and the placement of granular fill, intermediate riprap and natural stream bottom material. There will be 3,350 cubic yards of fill in the flood plain required for the placement earth fill for the proposed roadway, concrete for the proposed substructure and superstructure, concrete for the proposed drainage and granular fill, intermediate riprap and natural channel bottom material. This will result in a net fill of 1,810 cubic yards in the floodplain.

Construction is anticipated to start in April 2024 and finish in November 2025. There will be one winter shutdown for this project.

Mitigation Site

A mitigation plan has been developed to offset the impacts to the wetlands at the bridge site. The proposed mitigation site is located at the southern end of Rocky Neck State Park, adjacent to the northern most parking lot for public beach access. The site area is approximately 10,000 square feet (0.230 acres) and is one of several wetland cells, defined by manmade drainage ditches, within

the area. The adjacent parking area provides direct access to the mitigation site, which allows for conventional construction methods to be employed. The parking area also allows for an on-site staging area.

There are no existing structures at the mitigation site. There is a viewing platform adjacent to the site, as well as picnic tables, grills, and a parking area. The site exhibits degraded tidal wetlands characterized by saltwater pools where heathy vegetation once grew. The average depth of these pools is approximately 6 to 7 inches of water based on preliminary site visits.

Mitigation will be completed using Thin Layer Deposition (TLD). This method will add sediment to restore the marsh vertical elevation to one foot above sea level to then be able to support healthy marsh vegetation. Approximately 250 cubic yards of sediment will be added to the area. Disposed nutrient-rich dredge material, tested, and evaluated for organic content, pH, sulfides, and a range of potential contaminants, will be used as the sediment. Standard construction vehicles will be used and will travel on HDPE construction mats to minimize ground disturbance. *Spartina alterniflora* will be planted to enhance restoration. Construction, as requested by DEEP Fisheries, will occur during winter months when plants are dormant and activity levels from visitors, fish and wildlife are low. Monitoring of the mitigation site will be conducted twice per year for five years to ensure success of the proposed mitigation.

DEEP JURISDICTIONAL LIMITS

Inland Wetland Impacts (square feet)

Bridge Site – Permanent	Concrete, Fill, Riprap	1,200
Bridge Site – Temporary	Temporary Work Area & Access	1,900
Total		3,100

Tidal Wetland Impacts (Tidal Wetland Limit to MHW) (square feet)

Bridge Site – Permanent	Concrete, Fill, Riprap	1,500
Bridge Site – Temporary	Temporary Work Area & Access	2,600
Total		4,100

Watercourse Impacts (Waterward of MHW) (square feet)

Bridge Site – Permanent	Sheeting, Riprap, Streambed	3,700
Mitigation Site – Permanent	TLD Fill	10,000
Bridge Site – Temporary	Temporary Work Area & Access	1,800
Total		15,500

USACE JURISDICTIONAL LIMITS

Inland Wetland Impacts (square feet)

Bridge Site – Permanent	Concrete, Fill, Riprap	1,800
Bridge Site – Temporary	Temporary Work Area & Access	2,900
Total		4,700

Tidal Wetland Impacts (Tidal Wetland Limit to MHW) (square feet)

Bridge Site – Permanent	Concrete, Fill, Riprap	900
Bridge Site – Temporary	Temporary Work Area & Access	1,600
Total		2,500

Watercourse Impacts (Waterward of MHW) (square feet)

Bridge Site – Permanent	Sheeting, Riprap, Streambed	3,700
Mitigation Site – Permanent	TLD Fill	10,000
Bridge Site – Temporary	Temporary Work Area & Access	1,800
Total		15,500

DEEP & USACE Floodplain Cut and Fill (cubic yards)

Bridge Site – Excavation	Concrete, Roadway Fill	(1,540)
Bridge Site – Fill	Concrete, Fill, Riprap, Streambed	3,350
Mitigation Site – Fill	TLD Sediment	250
Total		2,060

List of Drawings

- PMT-01 Title Sheet
- PMT-02 General Site Plan
- PMT-03 Wetland/Watercourse Impact Plan
- PMT-04 100-Year Flood Impact Plan
- PMT-05 Elevation and Section Plan
- PMT-06 Water Handling Plan Stage 1A & 1B
- PMT-07 Water Handling Plan Stage 1C, 2A, 2B, 2C, 2D
- PMT-08 Permit Planting Plan
- PMT-09 Thin Layer Deposition Existing Conditions
- PMT-10 Thin Layer Deposition Grading Plan
- PMT-11 Thin Layer Deposition Planting Plan
- PMT-12 Thin Layer Deposition Cross Sections
- PMT-13 Thin Layer Deposition Details
- PMT-14 Thin Layer Deposition Fiber Roll Details

Attachment 10

Photographs of Existing Conditions

Photo No. 1- Aerial

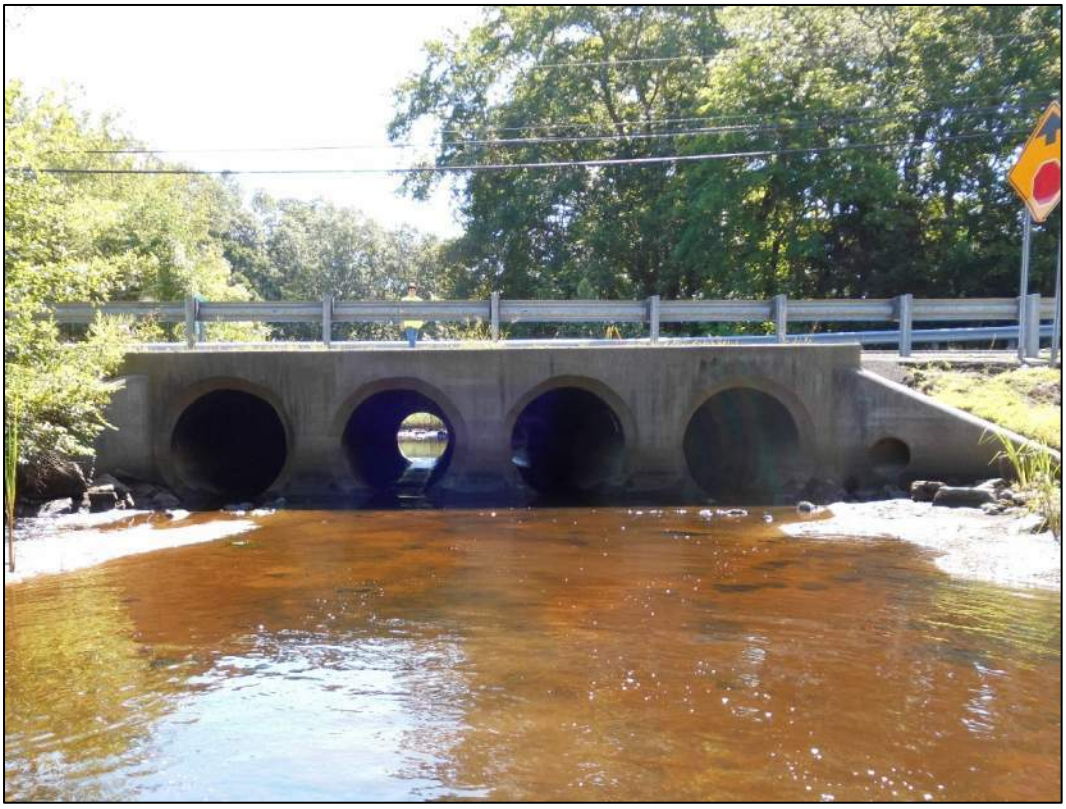


Photo No. 2 – West Elevation

Photo No. 3 – East Elevation

Photo No. 4 – Bridge from North Approach

Photo No. 5 – Bridge from South Approach

Photo No. 6 – Upstream from Bridge

Photo No. 7 – Downstream from Bridge

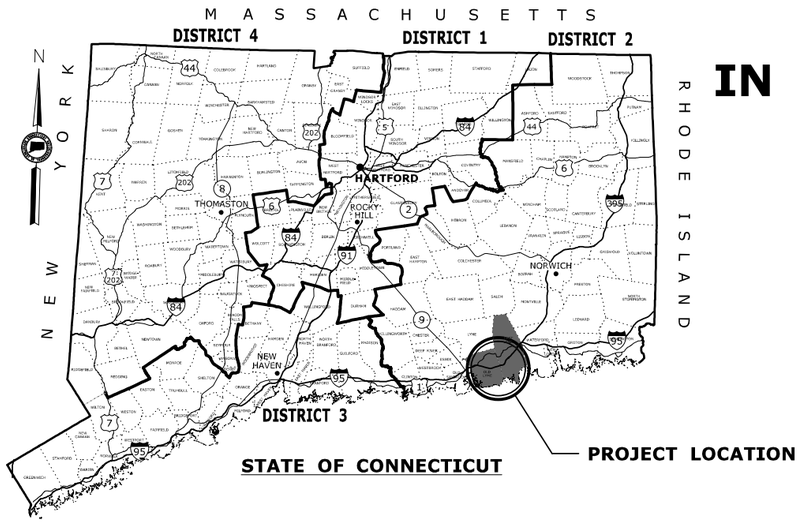
Photo No. 8 – Erosion at Southwest Embankment

Photo No. 9 – View of the Mitigation Area Further Along the Viewing Platform

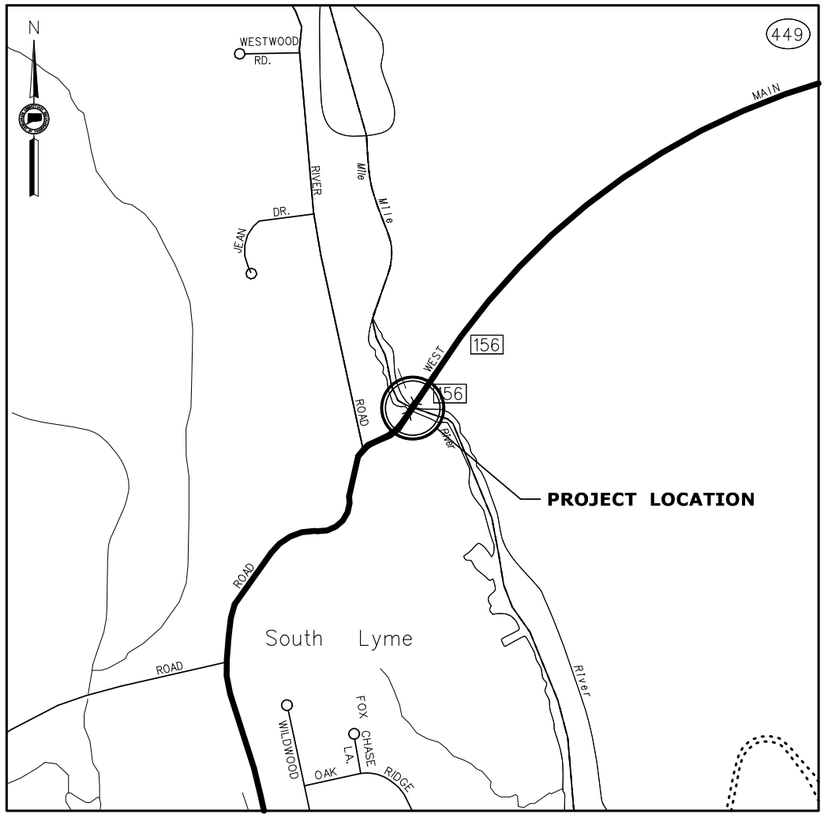
Attachment 14

Environmental Permit Plans

ENVIRONMENTAL PERMIT PLANS
STATE PROJECT NO. 0104-0175
REPLACEMENT OF BRIDGE NO. 02713
ROUTE 156 OVER FOUR MILE RIVER
IN THE TOWNS OF OLD LYME & EAST LYME



STATE OF CONNECTICUT



LOCATION PLAN

SCALE: 1" = 500'

GENERAL NOTES

1. THESE PLANS ARE NOT FOR CONSTRUCTION AND ARE ONLY FOR ENVIRONMENTAL PERMITTING PURPOSES. THESE PLANS HOLD AUTHORITY FOR ALL ACTIVITIES CONCERNING THE REGULATED AREA. FOR DETAILED PLANIMETRIC INFORMATION AND PAYMENT REFER TO THE APPLICABLE CONTRACT DOCUMENTS.
2. THE DEPARTMENT OF TRANSPORTATION WILL ONLY SUBMIT REVISIONS TO DEEP AND USACE FOR CHANGES TO THE DESIGN THAT WILL AFFECT REGULATED AREAS.
3. FOR A DESCRIPTION OF THE WATERCOURSES, WETLANDS AND WETLAND SOILS SEE RELEVANT SECTIONS OF THE PERMIT APPLICATION.
4. 400 FOOT GRID BASED ON CONNECTICUT COORDINATE SYSTEM N.A.D. 1983 (2011) VERTICAL DATUM BASED ON NAVD OF 1988.
5. ALL CONSTRUCTION ACTIVITIES WILL BE CONDUCTED IN ACCORDANCE WITH THE DEPARTMENT'S STANDARD SPECIFICATIONS FOR ROADS, BRIDGES, FACILITIES, AND INCIDENTAL CONSTRUCTION, FORM 818, SECTION 1.10 AND WILL ALSO FOLLOW REQUIRED BEST MANAGEMENT PRACTICES (BMPs) AND SEDIMENT AND EROSION CONTROL MEASURES IN ACCORDANCE WITH THE 2002 EROSION & SEDIMENTATION CONTROL GUIDELINES AND THE 2004 STORMWATER QUALITY MANUAL.
6. SURVEYED BY CTDOT DISTRICT 2 SURVEYS.

LIST OF DRAWINGS

DRAWING TITLE	DRAWING NO.	DRAWING TITLE	DRAWING NO.
TITLE SHEET	PMT-01	THIN LAYER DEPOSITION EXISTING CONDITIONS	PMT-09
GENERAL SITE PLAN	PMT-02	THIN LAYER DEPOSITION GRADING PLAN	PMT-10
WETLAND/WATERCOURSE IMPACT PLAN	PMT-03	THIN LAYER DEPOSITION PLANTING PLAN	PMT-11
100-YEAR FLOOD IMPACT PLAN	PMT-04	THIN LAYER DEPOSITION CROSS SECTIONS	PMT-12
ELEVATION AND SECTION PLAN	PMT-05	THIN LAYER DEPOSITION DETAILS	PMT-13
WATER HANDLING PLAN STAGE 1A & 1B	PMT-06	THIN LAYER DEPOSITION FIBER ROLL DETAILS	PMT-14
WATER HANDLING PLAN STAGE 1C, 2A, 2B, 2C, 2D	PMT-07		
PERMIT PLANTING PLAN	PMT-08		

DESIGNED BY:
PRIME AE GROUP, INC.
100 GREAT MEADOW ROAD, 6TH FLOOR
WETHERSFIELD, CT 06109

STATE OF CONNECTICUT — No. 24840 — LICENSED PROFESSIONAL ENGINEER

PLAN DATE: DECEMBER 4, 2023

REV.	DATE	REVISION DESCRIPTION	SHEET NO.
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THE INFORMATION, INCLUDING ESTIMATED QUANTITIES OF WORK, SHOWN ON THESE SHEETS IS BASED ON LIMITED INVESTIGATIONS BY THE STATE AND IS IN NO WAY WARRANTED TO INDICATE THE CONDITIONS OF ACTUAL QUANTITIES OF WORK WHICH WILL BE REQUIRED.

Plotted Date: 7/7/2023

DESIGNER/DRAFTER: **N. ROSSI**
CHECKED BY: **B. CHAMBERLIN**
SCALE AS NOTED

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

Filename: ...\200_EPP_MSH_0104_0175_(2713)-Title Sheet.dgn

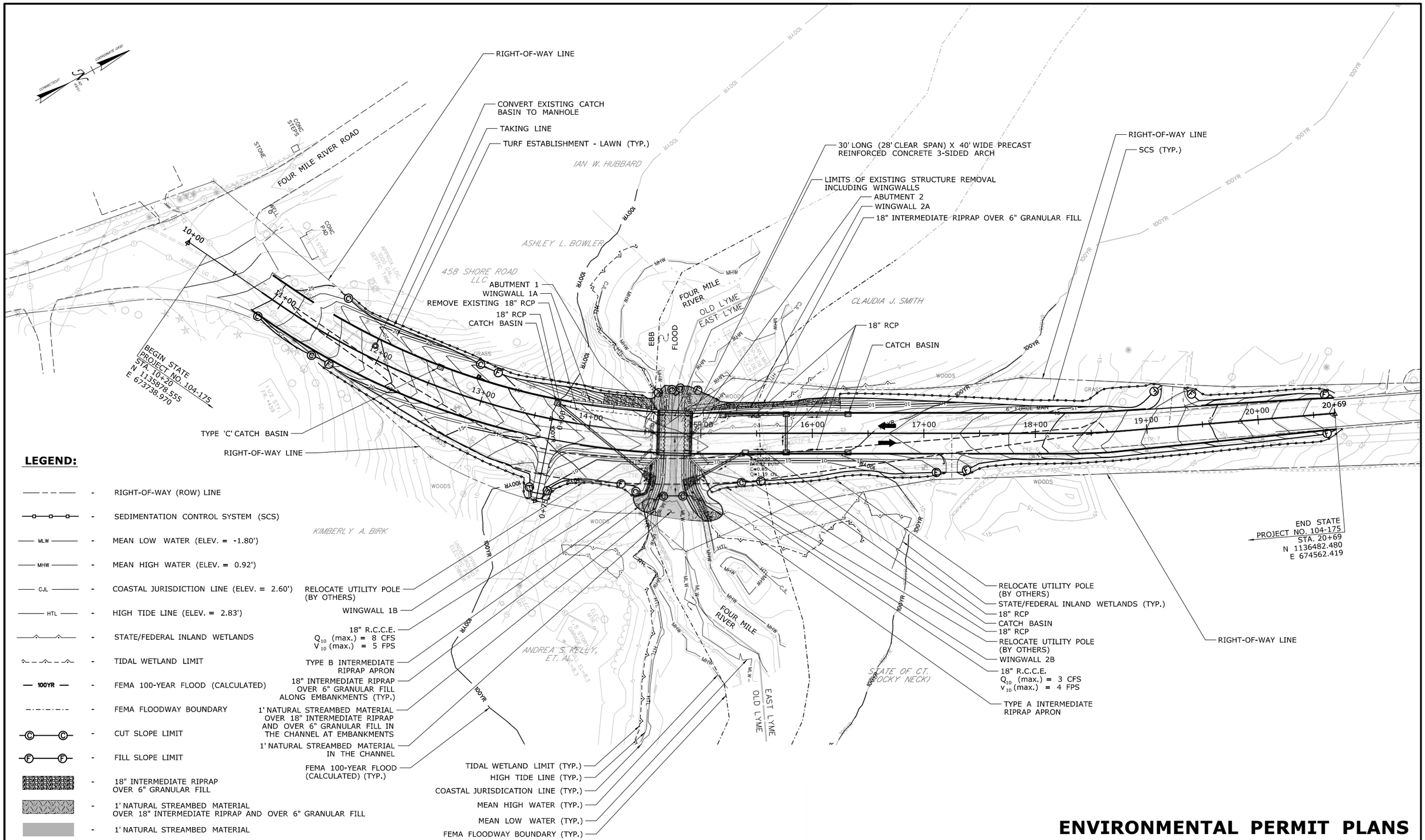
SIGNATURE/ BLOCK:

PROJECT TITLE:
REPLACEMENT OF BRIDGE NO. 02713, ROUTE 156 OVER FOUR MILE RIVER

TOWN: **OLD LYME EAST LYME**

DRAWING TITLE: **TITLE SHEET**

PROJECT NO. **104-175**
DRAWING NO. **PMT-01**
SHEET NO.



LEGEND:

- RIGHT-OF-WAY (ROW) LINE
- SEDIMENTATION CONTROL SYSTEM (SCS)
- MEAN LOW WATER (ELEV. = -1.80')
- MEAN HIGH WATER (ELEV. = 0.92')
- COASTAL JURISDICTION LINE (ELEV. = 2.60')
- HIGH TIDE LINE (ELEV. = 2.83')
- STATE/FEDERAL INLAND WETLANDS
- TIDAL WETLAND LIMIT
- FEMA 100-YEAR FLOOD (CALCULATED)
- FEMA FLOODWAY BOUNDARY
- CUT SLOPE LIMIT
- FILL SLOPE LIMIT
- 18" INTERMEDIATE RIPRAP OVER 6" GRANULAR FILL
- 1' NATURAL STREAMBED MATERIAL OVER 18" INTERMEDIATE RIPRAP AND OVER 6" GRANULAR FILL
- 1' NATURAL STREAMBED MATERIAL
- SHEET PILE COFFERDAM LEFT-IN-PLACE (CUT 1' BELOW CHANNEL INVERT)

ENVIRONMENTAL PERMIT PLANS

PLAN DATE: JULY 05, 2023

REV.	DATE	REVISION DESCRIPTION	SHEET NO.
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Plotted Date: 7/7/2023

DESIGNER/DRAFTER: N. ROSSI
CHECKED BY: B. CHAMBERLIN
SCALE 1" = 40'
40 20 0 40

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

Filename: ...\201_EPP_MSH_0104_0175_(2713)-General Site Plan.dgn

SIGNATURE/ BLOCK:

PROJECT TITLE:
REPLACEMENT OF BRIDGE NO. 02713, ROUTE 156 OVER FOUR MILE RIVER

TOWN: **OLD LYME EAST LYME**

DRAWING TITLE: **GENERAL SITE PLAN**

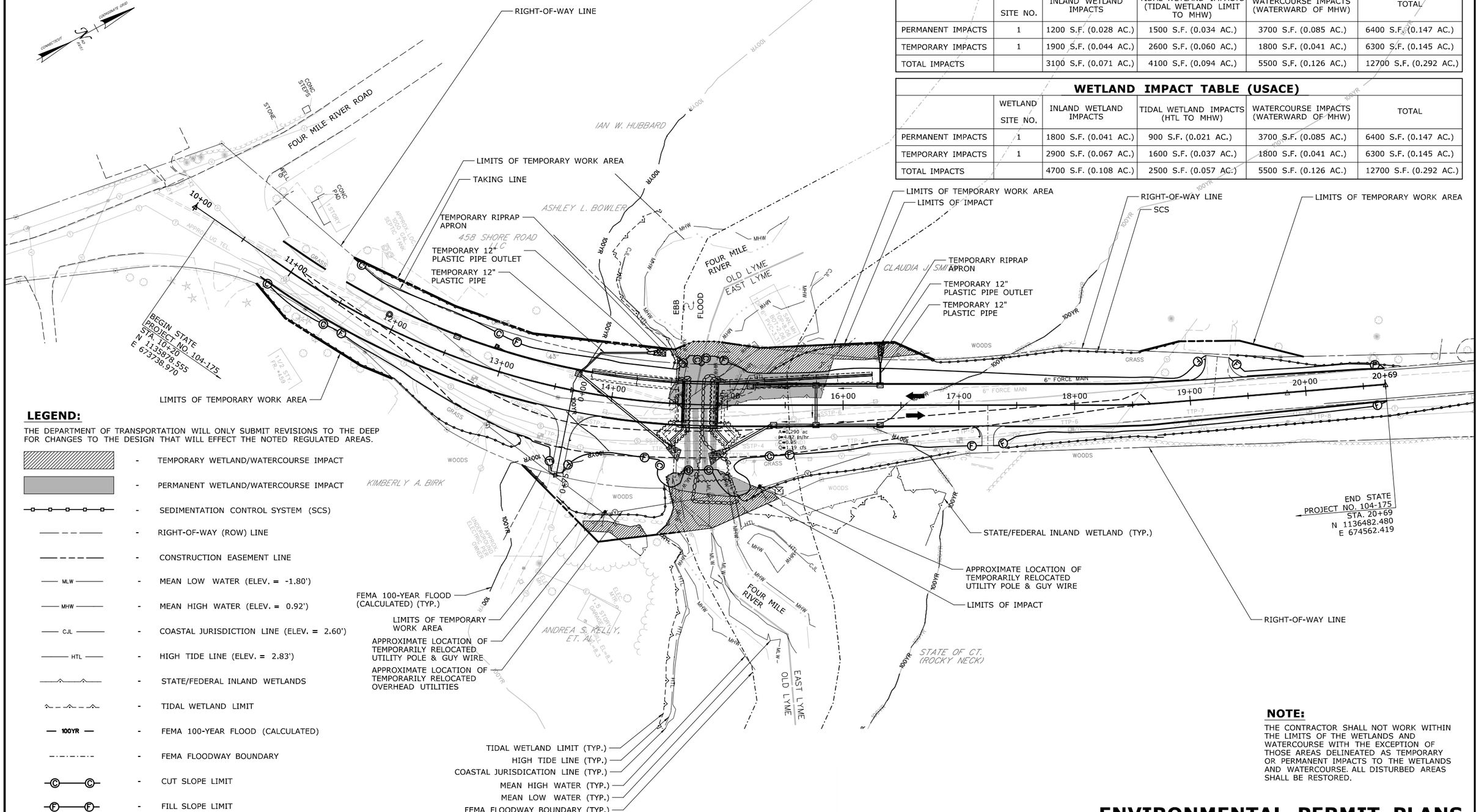
PROJECT NO. **104-175**
DRAWING NO. **PMT-02**
SHEET NO.

WETLAND IMPACT TABLE (DEEP)

	WETLAND SITE NO.	INLAND WETLAND IMPACTS	TIDAL WETLAND IMPACTS (TIDAL WETLAND LIMIT TO MHW)	WATERCOURSE IMPACTS (WATERWARD OF MHW)	TOTAL
PERMANENT IMPACTS	1	1200 S.F. (0.028 AC.)	1500 S.F. (0.034 AC.)	3700 S.F. (0.085 AC.)	6400 S.F. (0.147 AC.)
TEMPORARY IMPACTS	1	1900 S.F. (0.044 AC.)	2600 S.F. (0.060 AC.)	1800 S.F. (0.041 AC.)	6300 S.F. (0.145 AC.)
TOTAL IMPACTS		3100 S.F. (0.071 AC.)	4100 S.F. (0.094 AC.)	5500 S.F. (0.126 AC.)	12700 S.F. (0.292 AC.)

WETLAND IMPACT TABLE (USACE)

	WETLAND SITE NO.	INLAND WETLAND IMPACTS	TIDAL WETLAND IMPACTS (HTL TO MHW)	WATERCOURSE IMPACTS (WATERWARD OF MHW)	TOTAL
PERMANENT IMPACTS	1	1800 S.F. (0.041 AC.)	900 S.F. (0.021 AC.)	3700 S.F. (0.085 AC.)	6400 S.F. (0.147 AC.)
TEMPORARY IMPACTS	1	2900 S.F. (0.067 AC.)	1600 S.F. (0.037 AC.)	1800 S.F. (0.041 AC.)	6300 S.F. (0.145 AC.)
TOTAL IMPACTS		4700 S.F. (0.108 AC.)	2500 S.F. (0.057 AC.)	5500 S.F. (0.126 AC.)	12700 S.F. (0.292 AC.)



LEGEND:

THE DEPARTMENT OF TRANSPORTATION WILL ONLY SUBMIT REVISIONS TO THE DEEP FOR CHANGES TO THE DESIGN THAT WILL EFFECT THE NOTED REGULATED AREAS.

- TEMPORARY WETLAND/WATERCOURSE IMPACT
- PERMANENT WETLAND/WATERCOURSE IMPACT
- SEDIMENTATION CONTROL SYSTEM (SCS)
- RIGHT-OF-WAY (ROW) LINE
- CONSTRUCTION EASEMENT LINE
- MLW — MEAN LOW WATER (ELEV. = -1.80')
- MHW — MEAN HIGH WATER (ELEV. = 0.92')
- CJL — COASTAL JURISDICTION LINE (ELEV. = 2.60')
- HTL — HIGH TIDE LINE (ELEV. = 2.83')
- STATE/FEDERAL INLAND WETLANDS
- TIDAL WETLAND LIMIT
- 100YR — FEMA 100-YEAR FLOOD (CALCULATED)
- FEMA FLOODWAY BOUNDARY
- CUT SLOPE LIMIT
- FILL SLOPE LIMIT
- SHEET PILE COFFERDAM LEFT-IN-PLACE (CUT 1' BELOW CHANNEL INVERT)

NOTE:

THE CONTRACTOR SHALL NOT WORK WITHIN THE LIMITS OF THE WETLANDS AND WATERCOURSE WITH THE EXCEPTION OF THOSE AREAS DELINEATED AS TEMPORARY OR PERMANENT IMPACTS TO THE WETLANDS AND WATERCOURSE. ALL DISTURBED AREAS SHALL BE RESTORED.

ENVIRONMENTAL PERMIT PLANS

PLAN DATE: JULY 05, 2023

REV.	DATE	REVISION DESCRIPTION	SHEET NO.
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Plotted Date: 7/7/2023

DESIGNER/DRAFTER: N. ROSSI
CHECKED BY: B. CHAMBERLIN
SCALE 1" = 40'
40 20 0 40

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

Filename: ...\202_EPP_MSH_0104_0175_(2713)-Wetland Impacts.dgn

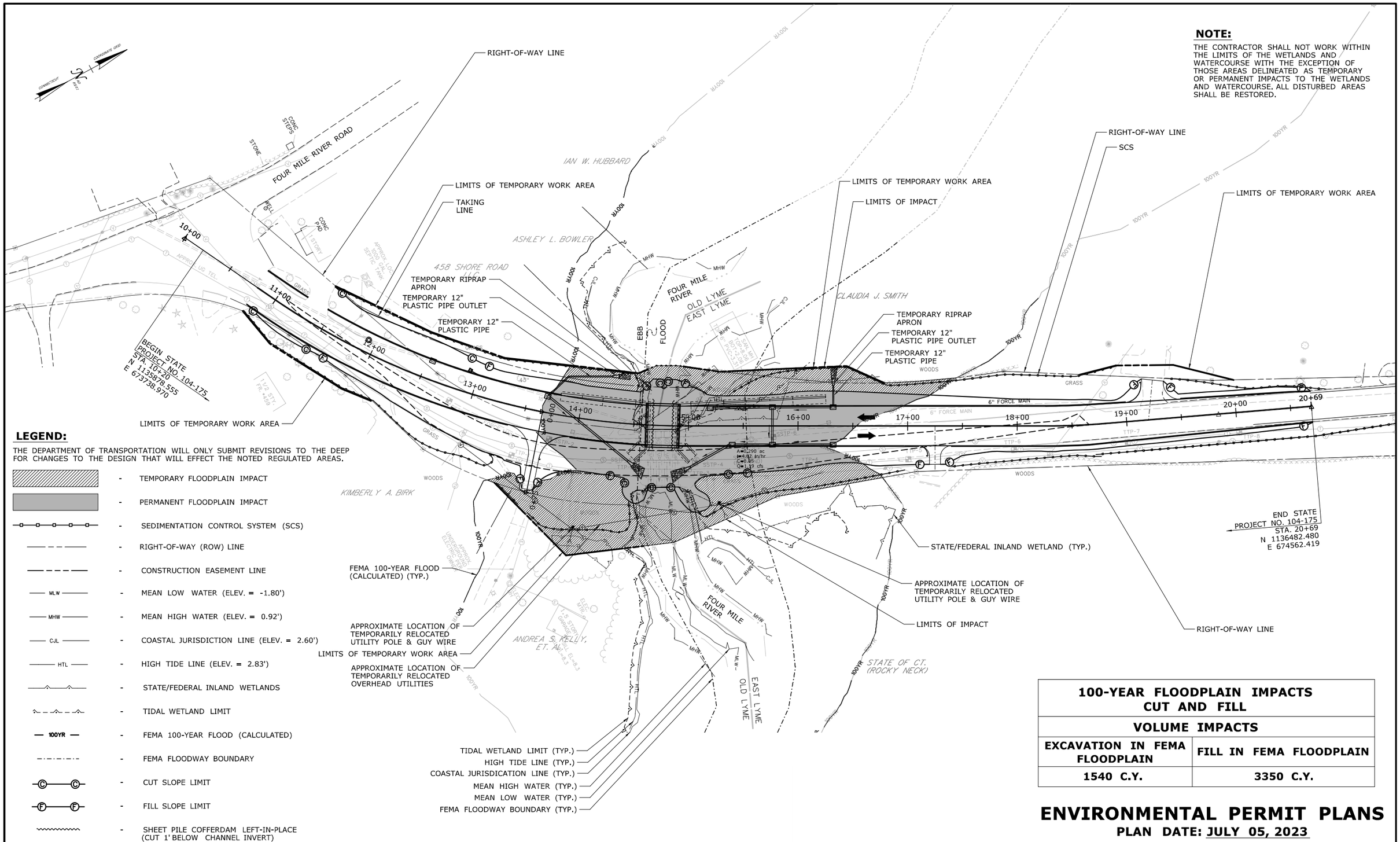
SIGNATURE/ BLOCK:

PROJECT TITLE:
REPLACEMENT OF BRIDGE NO. 02713, ROUTE 156 OVER FOUR MILE RIVER

TOWN: **OLD LYME EAST LYME**

DRAWING TITLE: **WETLAND/WATERCOURSE IMPACT PLAN**

PROJECT NO. **104-175**
DRAWING NO. **PMT-03**
SHEET NO.



LEGEND:

THE DEPARTMENT OF TRANSPORTATION WILL ONLY SUBMIT REVISIONS TO THE DEEP FOR CHANGES TO THE DESIGN THAT WILL EFFECT THE NOTED REGULATED AREAS.

- TEMPORARY FLOODPLAIN IMPACT
- PERMANENT FLOODPLAIN IMPACT
- SEDIMENTATION CONTROL SYSTEM (SCS)
- RIGHT-OF-WAY (ROW) LINE
- CONSTRUCTION EASEMENT LINE
- MEAN LOW WATER (ELEV. = -1.80')
- MEAN HIGH WATER (ELEV. = 0.92')
- COASTAL JURISDICTION LINE (ELEV. = 2.60')
- HIGH TIDE LINE (ELEV. = 2.83')
- STATE/FEDERAL INLAND WETLANDS
- TIDAL WETLAND LIMIT
- FEMA 100-YEAR FLOOD (CALCULATED)
- FEMA FLOODWAY BOUNDARY
- CUT SLOPE LIMIT
- FILL SLOPE LIMIT
- SHEET PILE COFFERDAM LEFT-IN-PLACE (CUT 1' BELOW CHANNEL INVERT)

100-YEAR FLOODPLAIN IMPACTS CUT AND FILL	
VOLUME IMPACTS	
EXCAVATION IN FEMA FLOODPLAIN	**FILL IN FEMA FLOODPLAIN**
1540 C.Y.	**3350 C.Y.**

ENVIRONMENTAL PERMIT PLANS

PLAN DATE: JULY 05, 2023

REV.	DATE	REVISION DESCRIPTION	SHEET NO.
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Plotted Date: 7/7/2023

DESIGNER/DRAFTER: N. ROSSI
CHECKED BY: B. CHAMBERLIN
SCALE 1" = 40'
40 20 0 40

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

Filename: ...\203-EPP-MSH-0104-0175-(2713)-100 Year Flood Impacts.dgn

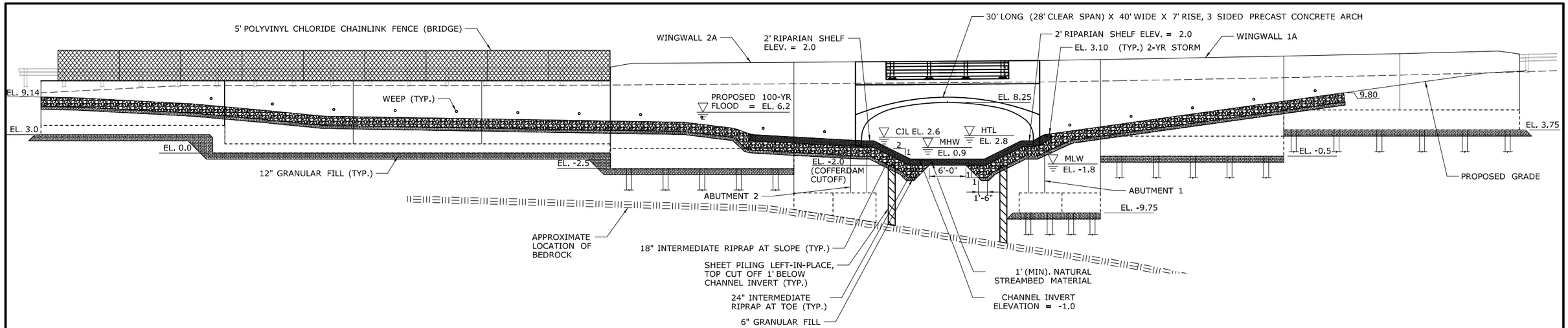
SIGNATURE/ BLOCK:

PROJECT TITLE:
REPLACEMENT OF BRIDGE NO. 02713, ROUTE 156 OVER FOUR MILE RIVER

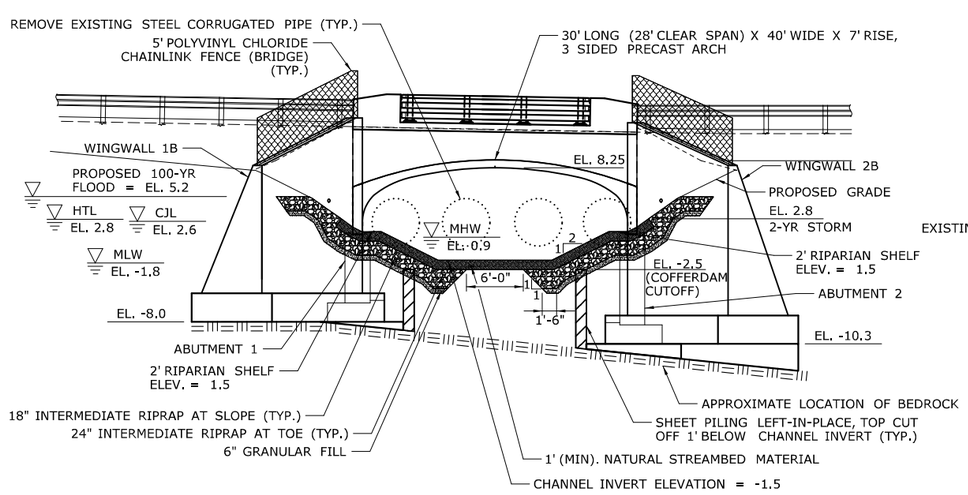
TOWN: **OLD LYME EAST LYME**

DRAWING TITLE: **100-YEAR FLOOD IMPACT PLAN**

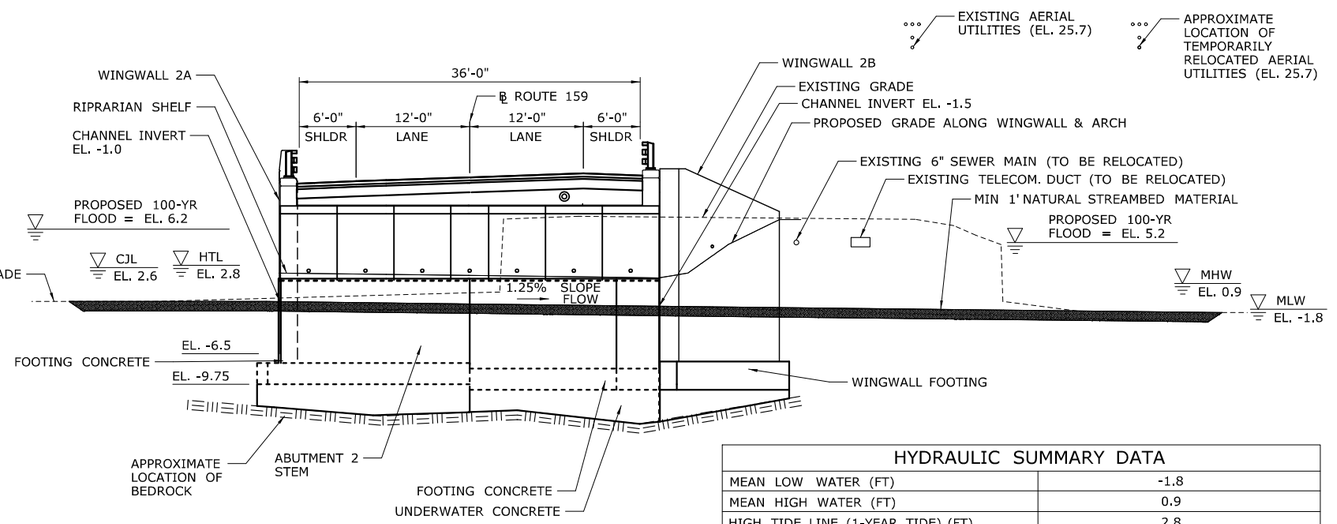
PROJECT NO. **104-175**
DRAWING NO. **PMT-04**
SHEET NO.



UPSTREAM (WEST) ELEVATION



DOWNSTREAM (EAST) ELEVATION



ARCH SECTION LOOKING NORTH

NATIVE STREAMBED MATERIAL NOTES:

1. NATIVE STREAMBED MATERIAL EXCAVATED DURING THE CONSTRUCTION OF ARCH AND WINGWALLS AND REMOVAL OF EXISTING CULVERT SHALL BE STOCKPILED AND THEN REPLACED WITHIN THE PROPOSED CHANNEL TO THE DEPTH SHOWN ON THE PLANS OR AS DIRECTED BY THE ENGINEER IN ACCORDANCE WITH THE SPECIAL PROVISION "EXCAVATION AND REUSE OF EXISTING CHANNEL BOTTOM MATERIAL".
2. ADDITIONAL STREAMBED MATERIAL, IF REQUIRED, SHALL BE IN ACCORDANCE WITH SPECIAL PROVISION "SUPPLEMENTAL STREAMBED CHANNEL MATERIAL".
3. THE STOCKPILE SHALL BE LOCATED OUTSIDE THE WETLAND LIMITS AND PROTECTED WITH SEDIMENTATION CONTROL SYSTEM.
4. ANY SUBGRADE EXCAVATION MATERIAL IS TO BE INSPECTED BY OEP PRIOR TO REUSE AS "EXCAVATION AND REUSE OF EXISTING CHANNEL BOTTOM MATERIAL"

HYDRAULIC SUMMARY DATA		
MEAN LOW WATER (FT)	-1.8	
MEAN HIGH WATER (FT)	0.9	
HIGH TIDE LINE (1-YEAR TIDE) (FT)	2.8	
10-YEAR TIDE (FT)	5.2	
100-YEAR TIDE (FT)	9.3	
DESIGN FREQUENCY/EVENT	TIDAL: 10-YEAR	RIVERINE: 100-YEAR
DESIGN DISCHARGE (CFS)	1,070	
DESIGN WATER SURFACE ELEVATION - EBB DIRECTION (FT)	6.2	
DESIGN WATER SURFACE ELEVATION - FLOOD DIRECTION (FT)	9.3 (FEMA 100-YEAR)	
MAXIMUM SCOUR ELEVATION (FT)	-21.9	
FRQUENCY/ EVENT	TIDAL: 10-YEAR	RIVERINE: 500-YEAR
DISCHARGE (CFS)	1,380	
WORST CASE SCOUR SUB-STRUCTURE UNIT	ARCH FOOTING #2	

ENVIRONMENTAL PERMIT PLANS

PLAN DATE: JULY 05, 2023

REV.	DATE	REVISION DESCRIPTION	SHEET NO.
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Plotted Date: 7/7/2023

DESIGNER/DRAFTER: N. ROSSI
CHECKED BY: B. CHAMBERLIN
SCALE: 1/8" = 1'-0"

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

Filename: ...\204_EPP_MSH_0104_0175_(2713)-Elevation & Section Plan.dgn

SIGNATURE/ BLOCK:

PROJECT TITLE:
REPLACEMENT OF BRIDGE NO. 02713, ROUTE 156 OVER FOUR MILE RIVER

TOWN: **OLD LYME EAST LYME**

DRAWING TITLE: **ELEVATION AND SECTION PLAN**

PROJECT NO. **104-175**
DRAWING NO. **PMT-05**
SHEET NO.

WATER HANDLING NOTES:

1. THE CONTRACTOR SHALL MAINTAIN WATER THROUGH THE TEMPORARY WATER HANDLING SYSTEM AS REQUIRED DURING CONSTRUCTION OF THE NEW STRUCTURE.

2. A DEWATERING BASIN SHALL BE ESTABLISHED OUTSIDE OF THE WETLAND LIMITS.

3. TEMPORARY WATER-HANDLING-COFFERDAM SHALL CONSIST OF AN APPROVED SYSTEM THAT THE CONTRACTOR ELECTS TO USE WHICH WILL SAFELY CONVEY WATER FLOWS THROUGH THE CONSTRUCTION AREA, SHALL BE ABLE TO SUPPORT CONSTRUCTION ACTIVITY AND SHALL CONFORM TO PERMITS.

   ANY WATER HANDLING SCHEME DEPICTED WITHIN THE DEPARTMENT'S 'HANDLING WATER TYPICAL SCHEMATICS' MAY BE UTILIZED UNLESS SPECIFICALLY PROHIBITED. A MEANS AND METHOD FOR WATER HANDLING SYSTEM SHALL BE SUBMITTED BY THE CONTRACTOR TO THE ENGINEER FOR APPROVAL.

4. WATER HANDLING MEASURES SHALL NOT EXCEED IMPACT AREAS SHOWN ON THE WETLAND AND FLOODPLAIN IMPACT SHEETS OF THE PERMIT PLANS.

5. ANY STORM DRAINAGE DISCHARGING INTO A CONFINED WORK AREA FROM EXISTING OR PROPOSED STORM DRAINAGE PIPES SHALL BE DIVERTED OR PUMPED OUTSIDE THE CONFINED AREAS. PUMPS/PIPES SHALL BE SIZED BY THE CONTRACTOR TO HANDLE THE EXPECTED FLOWS AND BE DISCHARGED TO A STABLE LOCATION. THE CONTRACTOR SHALL SUBMIT THE MEANS AND METHODS OF HANDLING STORM DRAINAGE TO THE ENGINEER FOR APPROVAL AND IS INCLUDED AS PART OF WATER HANDLING.

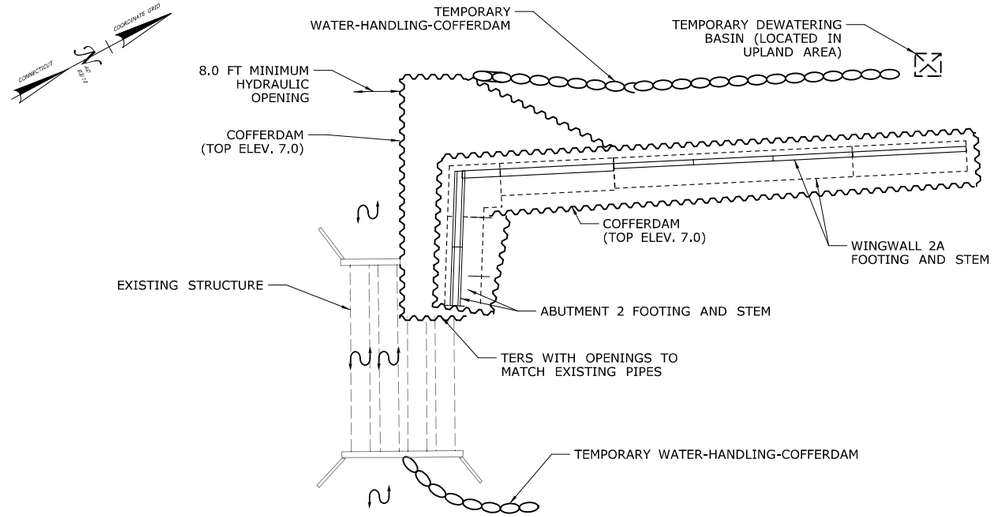
TIME-OF-YEAR BMP NOTE:

IN-WATER WORK, INCLUDING INSTALLATION AND REMOVAL OF COFFERDAMS, IS PROHIBITED FROM MARCH 15 THROUGH MAY 30, INCLUSIVE.

IF PILE DRIVING IS OCCURRING, A "SOFT START" IS REQUIRED TO ALLOW ANIMALS AN OPPORTUNITY TO LEAVE THE PROJECT VICINITY BEFORE SOUND PRESSURE LEVELS INCREASE. IN ADDITION TO USING A SOFT START AT THE BEGINNING OF THE WORK DAY FOR PILE DRIVING, ONE MUST ALSO BE USED AT ANY TIME FOLLOWING CESSATION OF PILE DRIVING FOR A PERIOD OF 30 MINUTES OR LONGER.

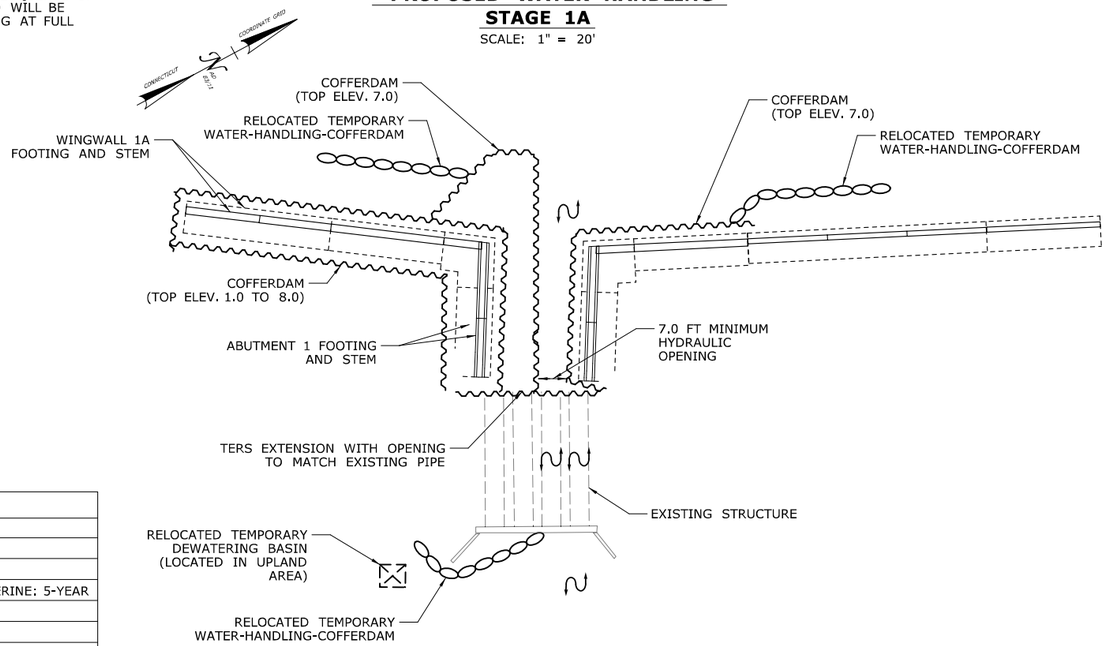
FOR IMPACT PILE DRIVING: PILE DRIVING WILL COMMENCE WITH AN INITIAL SET OF THREE STRIKES BY THE HAMMER AT 40% ENERGY, FOLLOWED BY A ONE MINUTE WAIT PERIOD, THEN TWO SUBSEQUENT THREE-STRIKE SETS AT 40% ENERGY, WITH ONE-MINUTE WAITING PERIODS, BEFORE INITITATING CONTINUOUS IMPACT DRIVING.

FOR VIBRATORY PILE INSTALLATION: PILE DRIVING WILL BE INITIATED FOR 15 SECONDS AT REDUCED ENERGY FOLLOWED BY A ONE-MINUTE WAITING PERIOD. THIS SEQUENCE OF 15 SECONDS OF REDUCED ENGERGY DRIVING, ONE-MINUTE WAITING PERIOD WILL BE REPEATED TWO ADDITIONAL TIMES, FOLLOWED IMMEDIATELY BY PILE-DRIVING AT FULL RATE AND ENERGY.



PROPOSED WATER HANDLING STAGE 1A

SCALE: 1" = 20'



PROPOSED WATER HANDLING STAGE 1B

SCALE: 1" = 20'

TEMPORARY HYDRAULIC DATA		
MEAN LOW WATER (FT)	-1.8	
MEAN HIGH WATER (FT)	0.9	
HIGH TIDE LINE (1-YEAR TIDE) (FT)	2.8	
TEMPORARY DESIGN FREQUENCY	TIDAL: HTL	RIVERINE: 5-YEAR
DESIGN DISCHARGE (CFS)	370	
STAGE 1A TEMPORARY WATER SURFACE ELEVATION (FT)	6.1	
STAGE 1B TEMPORARY WATER SURFACE ELEVATION (FT)	6.7	
STAGE 1C TEMPORARY WATER SURFACE ELEVATION (FT)	4.7	
STAGE 2A TEMPORARY WATER SURFACE ELEVATION (FT)	6.6	
STAGE 2B TEMPORARY WATER SURFACE ELEVATION (FT)	5.7	
STAGE 2C TEMPORARY WATER SURFACE ELEVATION (FT)	6.3	
STAGE 2D TEMPORARY WATER SURFACE ELEVATION (FT)	4.3	

SUGGESTED SEQUENCE OF CONSTRUCTION:

STAGE 1A:

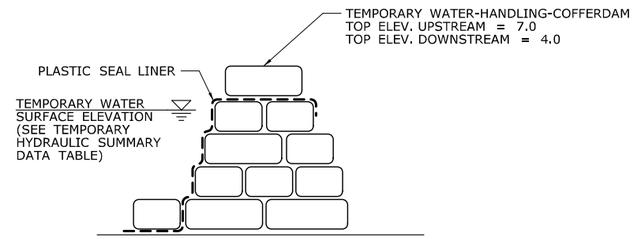
1. INSTALL SEDIMENTATION CONTROL SYSTEM, REMOVE INVASIVE SPECIES AND CLEAR AND GRUB.
2. PARTIALLY INSTALL COFFERDAM UP TO THE EXISTING STRUCTURE. INSTALL COFFERDAM THROUGH THE CENTERLINE OF THE EXISTING STRUCTURE.
3. INSTALL TEMPORARY WATER-HANDLING-COFFERDAMS AND DETWATERING BASIN.
4. INSTALL TEMPORARY EARTH RETAINING SYSTEM (TERS).
5. PARTIALLY REMOVE EXISTING STRUCTURE.
6. COMPLETE COFFERDAM INSTALLATION.
7. CONSTRUCT PORTION OF ABUTMENT 2 AND WINGWALL 2A.
8. PARTIALLY REMOVE COFFERDAM AROUND WINGWALL 2A AND INSTALL RIPRAP AND STREAMBED MATERIAL WITHIN THE CHANNEL AND ALONG THE WINGWALL.

STAGE 1B:

9. PARTIALLY REMOVE COFFERDAM TO ALLOW WATER TO FLOW THROUGH PIPES AS SHOWN. INSTALL COFFERDAMS TO SURROUND THE EXISTING STRUCTURE.
10. RELOCATE TEMPORARY WATER-HANDLING-COFFERDAMS AND DEWATERING BASIN.
11. INSTALL TEMPORARY EARTH RETAINING SYSTEM EXTENSION.
12. PARTIALLY REMOVE EXISTING STRUCTURE.
13. COMPLETE COFFERDAM INSTALLATION.
14. CONSTRUCT PORTION OF ABUTMENT 1 AND WINGWALL 1A.
15. PARTIALLY REMOVE COFFERDAM ALONG WINGWALL 1A AND INSTALL RIPRAP AND STREAMBED MATERIAL IN THE CHANNEL AND ALONG THE WINGWALL.

STAGE 1C, 2A, 2B, 2C, 2D:

SEE PMT-07 FOR STAGES 1C, 2A, 2B, 2C & 2D.



WATER-HANDLING-COFFERDAM SANDBAGS

(NOT TO SCALE)

ENVIRONMENTAL PERMIT PLANS

PLAN DATE: JULY 05, 2023

REV.	DATE	REVISION DESCRIPTION	SHEET NO.
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-

THE INFORMATION, INCLUDING ESTIMATED QUANTITIES OF WORK, SHOWN ON THESE SHEETS IS BASED ON LIMITED INVESTIGATIONS BY THE STATE AND IS IN NO WAY WARRANTED TO INDICATE THE CONDITIONS OF ACTUAL QUANTITIES OF WORK WHICH WILL BE REQUIRED.

Plotted Date: 7/7/2023

DESIGNER/DRAFTER: **N. ROSSI**
CHECKED BY: **B. CHAMBERLIN**
SCALE AS NOTED

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

Filename: ...\205_FPP_MSH_0104_0175_(2713)-Water Handling Plan.dgn

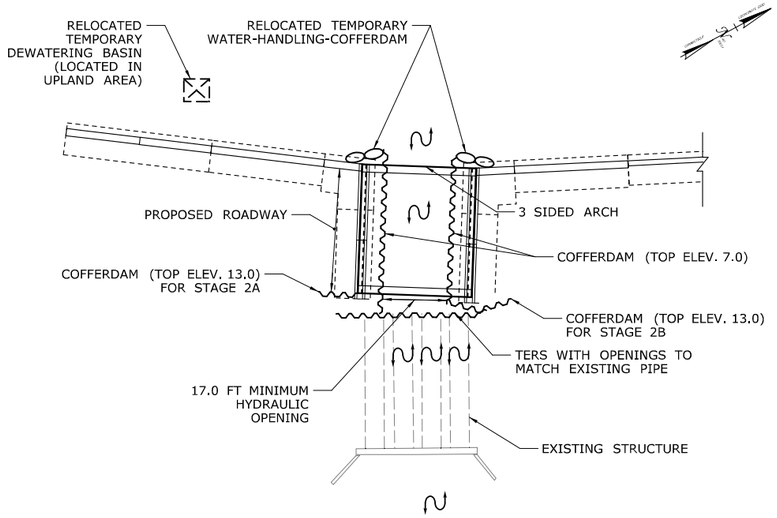
SIGNATURE/ BLOCK:

PROJECT TITLE:
REPLACEMENT OF BRIDGE NO. 02713, ROUTE 156 OVER FOUR MILE RIVER

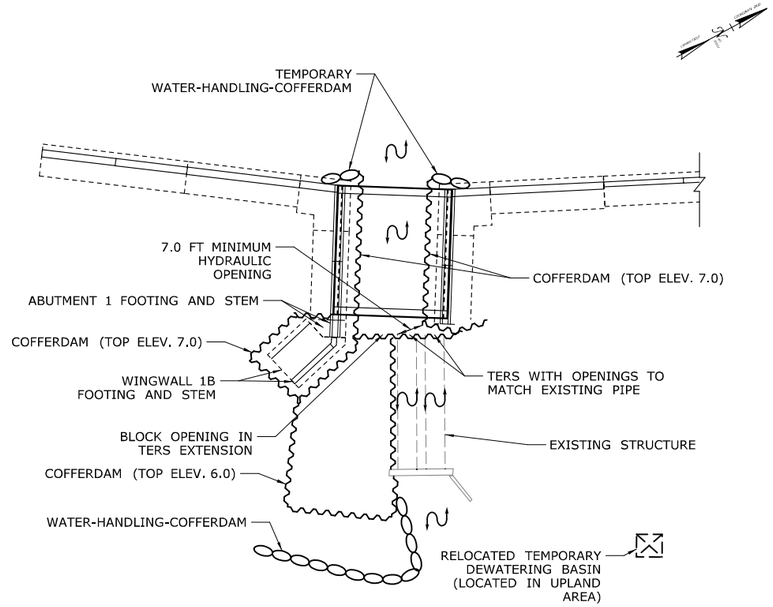
TOWN: **OLD LYME**
EAST LYME

DRAWING TITLE:
WATER HANDLING PLAN STAGE 1A & 1B

PROJECT NO. **104-175**
DRAWING NO. **PMT-06**
SHEET NO.



PROPOSED WATER HANDLING
STAGE 1C
SCALE: 1" = 20'



PROPOSED WATER HANDLING
STAGE 2A
SCALE: 1" = 20'

SUGGESTED SEQUENCE OF CONSTRUCTION:

STAGE 1A & 1B:

SEE PMT-06 FOR STAGES 1A AND 1B.

STAGE 1C:

16. RELOCATE TEMPORARY WATER-HANDLING-COFFERDAMS AND REMOVE PORTIONS OF COFFERDAMS. REMAINING COFFERDAMS AS SHOWN.
17. CONSTRUCT ARCH (STAGE 1 PORTION).
18. INSTALL PORTIONS OF COFFERDAM FOR STAGE 2A & 2B COFFERDAMS.

STAGE 2A:

19. BLOCK OPENING IN TEMPORARY EARTH RETAINING SYSTEM AS SHOWN.
20. INSTALL COFFERDAM THROUGH THE CENTERLINE OF THE EXISTING STRUCTURE AND AROUND THE REMAINING PORTION OF THE EXISTING STRUCTURE. INSTALL TEMPORARY WATER-HANDLING-COFFERDAMS AND DEWATERING BASIN.
21. PARTIALLY REMOVE EXISTING STRUCTURE AND INSTALL REMAINING COFFERDAM AROUND WINGWALL 1B.
22. INSTALL RIPRAP AND STREAMBED MATERIAL.
23. COMPLETE ABUTMENT 1 CONSTRUCTION AND CONSTRUCT WINGWALL 1B.

STAGE 2B:

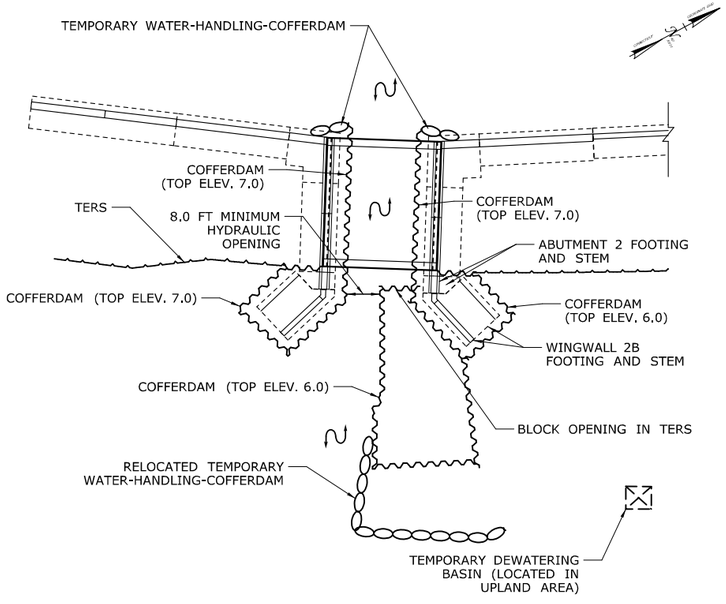
24. PARTIALLY REMOVE COFFERDAM AS SHOWN, REMOVE TEMPORARY WATER-HANDLING-COFFERDAM, PARTIALLY REMOVE TEMPORARY EARTH RETAINING SYSTEM, AND BLOCK OPENING IN TEMPORARY EARTH RETAINING STYSTEM.
25. INSTALL COFFERDAM SURROUNDING THE EXISTING STRUCTURE AND REMOVE REMAINING EXISTING STRUCTURE.
26. INSTALL RIPRAP AND STREAMBED MATERIAL.
27. INSTALL COFFERDAM.
28. COMPLETE ABUTMENT 2 CONSTRUCTION AND CONSTRUCT WINGWALL 2B.

STAGE 2C:

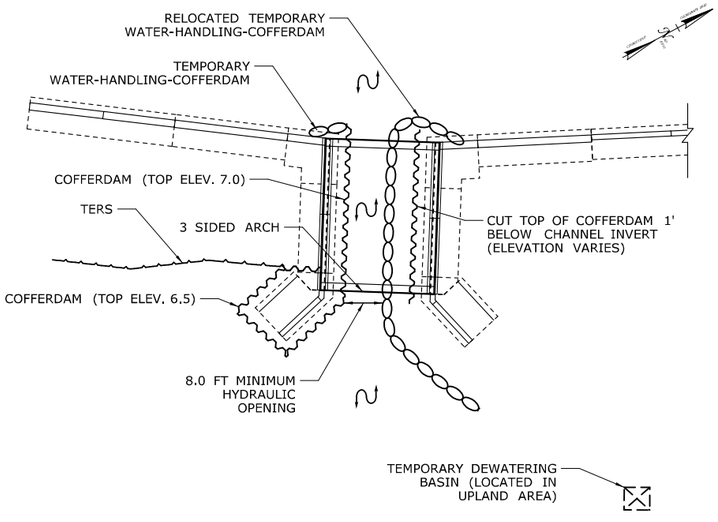
29. REMOVE COFFERDAMS WITHIN CHANNEL AND TEMPORARY EARTH RETAINING SYSTEM AND RELOCATE TEMPORARY WATER-HANDLING-COFFERDAM.
30. COMPLETE ARCH CONSTRUCTION (STAGE 2).
31. REMOVE COFFERDAM AT WINGWALL 2B.
32. CUT LEFT-IN-PLACE COFFERDAM AS SHOWN AND COMPLETE RIPRAP AND STREAMBED INSTALLATION.

STAGE 2D:

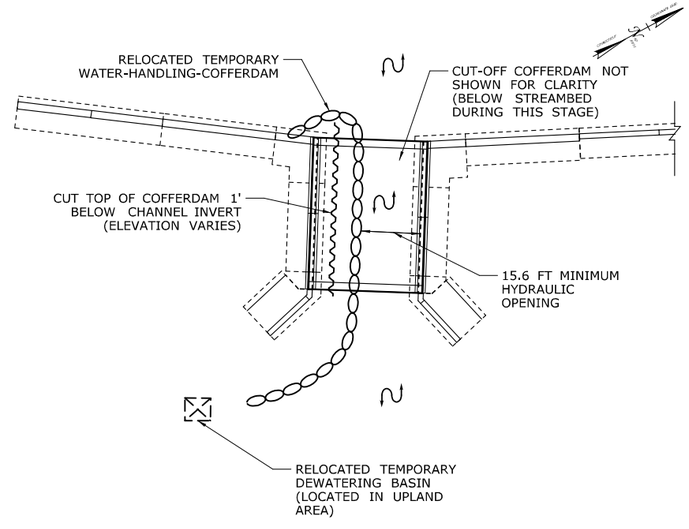
33. RELOCATE TEMPORARY WATER-HANDLING-COFFERDAM AND DEWATERING BASIN.
34. REMOVE COFFERDAM AT WINGWALL 1B.
35. CUT LEFT-IN-PLACE COFFERDAM AS SHOWN AND COMPLETE RIPRAP AND STREAMBED INSTALLATION.
36. REMOVE TEMPORARY WATER-HANDLING-COFFERDAM AND DEWATERING BASIN.
37. INSTALL TURF ESTABLISHMENT - LAWN SEEDING AND PLANTINGS.
38. REMOVE SEDIMENTATION CONTROL SYSTEM AFTER TURF HAS ESTABLISHED.



PROPOSED WATER HANDLING
STAGE 2B
SCALE: 1" = 20'



PROPOSED WATER HANDLING
STAGE 2C
SCALE: 1" = 20'



PROPOSED WATER HANDLING
STAGE 2D
SCALE: 1" = 20'

ENVIRONMENTAL PERMIT PLANS

PLAN DATE: JULY 05, 2023

REV.	DATE	REVISION DESCRIPTION	SHEET NO.
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-

THE INFORMATION, INCLUDING ESTIMATED QUANTITIES OF WORK, SHOWN ON THESE SHEETS IS BASED ON LIMITED INVESTIGATIONS BY THE STATE AND IS IN NO WAY WARRANTED TO INDICATE THE CONDITIONS OF ACTUAL QUANTITIES OF WORK WHICH WILL BE REQUIRED.

Plotted Date: 7/7/2023

DESIGNER/DRAFTER: N. ROSSI
CHECKED BY: B. CHAMBERLIN
SCALE AS NOTED

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

Filename: ...\206_EPP_MSH_0104_0175_(2713)-Water Handling Plan_2.dgn

SIGNATURE/ BLOCK:

PROJECT TITLE:
REPLACEMENT OF BRIDGE NO. 02713, ROUTE 156 OVER FOUR MILE RIVER

TOWN: OLD LYME / EAST LYME

DRAWING TITLE: WATER HANDLING PLAN STAGE 1C, 2A, 2B, 2C, 2D

PROJECT NO. 104-175
DRAWING NO. PMT-07
SHEET NO.

PERMIT PLANTING ITEMS

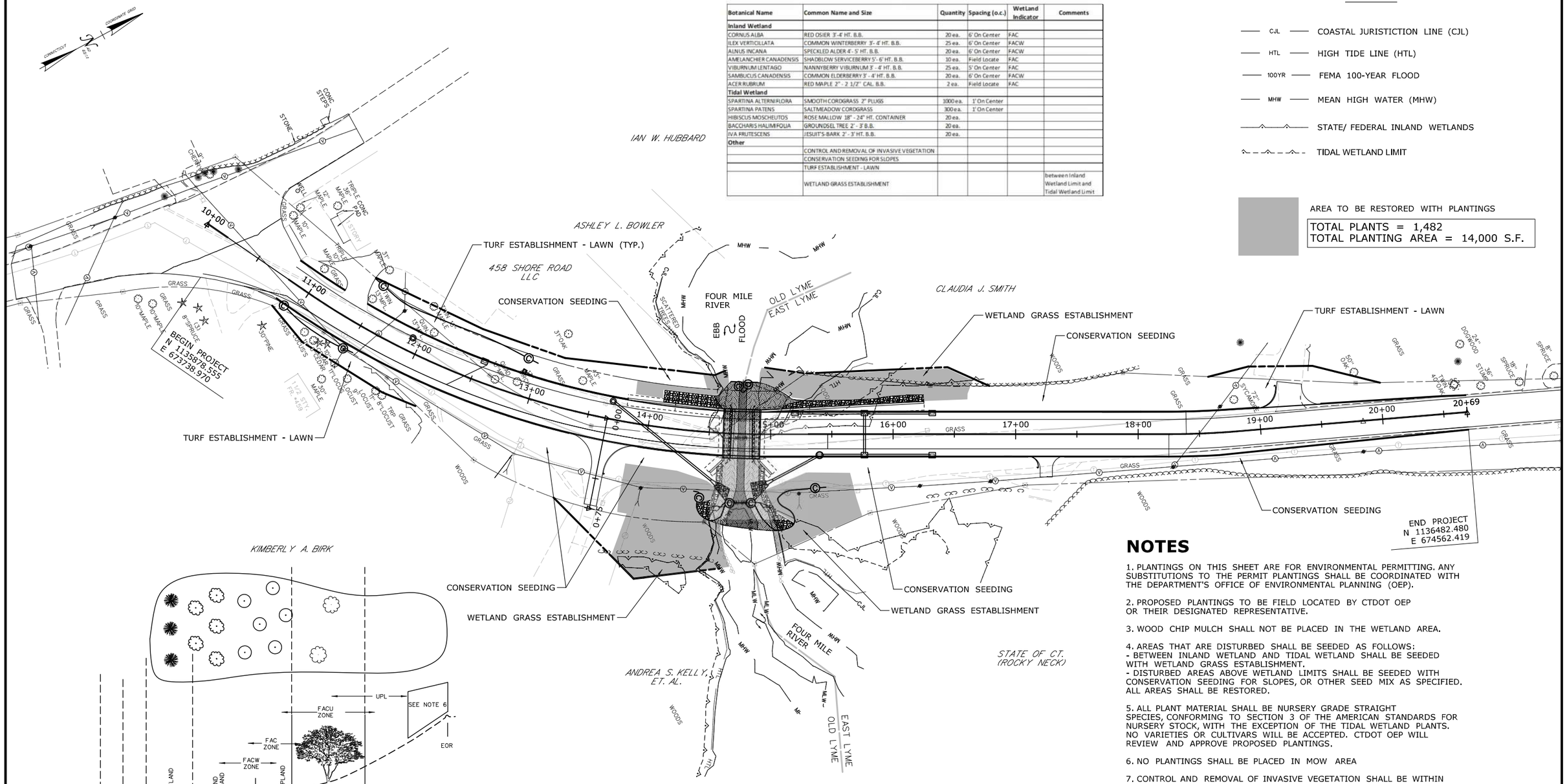
Botanical Name	Common Name and Size	Quantity	Spacing (o.c.)	WetLand Indicator	Comments
Inland Wetland					
CORNUS ALBA	RED OSIER 3'-4' HT. B.B.	20 ea.	6' On Center	FAC	
ILEX VERTICILLATA	COMMON WINTERBERRY 3'- 4' HT. B.B.	25 ea.	6' On Center	FACW	
ALNUS INCANA	SPECKLED ALDER 4'- 5' HT. B.B.	20 ea.	6' On Center	FACW	
AMELANCHIER CANADENSIS	SHADBLOW SERVICEBERRY 5'- 6' HT. B.B.	10 ea.	Field Locate	FAC	
VIBURNUM LENTAGO	NANNYBERRY VIBURNUM 3' - 4' HT. B.B.	25 ea.	5' On Center	FAC	
SAMBUCUS CANADENSIS	COMMON ELDERBERRY 3' - 4' HT. B.B.	20 ea.	6' On Center	FACW	
ACER RUBRUM	RED MAPLE 2" - 2 1/2" CAL. B.B.	2 ea.	Field Locate	FAC	
Tidal Wetland					
SPARTINA ALTERNIFLORA	SMOOTH CORDGRASS 2" PLUGS	1000 ea.	1' On Center		
SPARTINA PATENS	SALTMEADOW CORDGRASS	300 ea.	1' On Center		
HIBISCUS MOSCHEUTOS	ROSE MALLOW 18" - 24" HT. CONTAINER	20 ea.			
BACCHARIS HALIMIFOLIA	GROUNDSEL TREE 2' - 3' B.B.	20 ea.			
IVA FRUTESCENS	JESUIT'S-BARK 2' - 3' HT. B.B.	20 ea.			
Other					
	CONTROL AND REMOVAL OF INVASIVE VEGETATION				
	CONSERVATION SEEDING FOR SLOPES				
	TURF ESTABLISHMENT - LAWN				
	WETLAND GRASS ESTABLISHMENT				between Inland Wetland Limit and Tidal Wetland Limit

LEGEND

- CJL — COASTAL JURISTICTION LINE (CJL)
- HTL — HIGH TIDE LINE (HTL)
- 100YR — FEMA 100-YEAR FLOOD
- MHW — MEAN HIGH WATER (MHW)
- STATE/ FEDERAL INLAND WETLANDS
- TIDAL WETLAND LIMIT

AREA TO BE RESTORED WITH PLANTINGS

TOTAL PLANTS = 1,482
TOTAL PLANTING AREA = 14,000 S.F.



SCHEMATIC PLANTING

NOTES

1. PLANTINGS ON THIS SHEET ARE FOR ENVIRONMENTAL PERMITTING. ANY SUBSTITUTIONS TO THE PERMIT PLANTINGS SHALL BE COORDINATED WITH THE DEPARTMENT'S OFFICE OF ENVIRONMENTAL PLANNING (OEP).

2. PROPOSED PLANTINGS TO BE FIELD LOCATED BY CTDOT OEP OR THEIR DESIGNATED REPRESENTATIVE.

3. WOOD CHIP MULCH SHALL NOT BE PLACED IN THE WETLAND AREA.

4. AREAS THAT ARE DISTURBED SHALL BE SEEDED AS FOLLOWS:
- BETWEEN INLAND WETLAND AND TIDAL WETLAND SHALL BE SEEDED WITH WETLAND GRASS ESTABLISHMENT.
- DISTURBED AREAS ABOVE WETLAND LIMITS SHALL BE SEEDED WITH CONSERVATION SEEDING FOR SLOPES, OR OTHER SEED MIX AS SPECIFIED.
ALL AREAS SHALL BE RESTORED.

5. ALL PLANT MATERIAL SHALL BE NURSERY GRADE STRAIGHT SPECIES, CONFORMING TO SECTION 3 OF THE AMERICAN STANDARDS FOR NURSERY STOCK, WITH THE EXCEPTION OF THE TIDAL WETLAND PLANTS. NO VARIETIES OR CULTIVARS WILL BE ACCEPTED. CTDOT OEP WILL REVIEW AND APPROVE PROPOSED PLANTINGS.

6. NO PLANTINGS SHALL BE PLACED IN MOW AREA

7. CONTROL AND REMOVAL OF INVASIVE VEGETATION SHALL BE WITHIN PROJECT LIMITS FROM STA. 10+80 TO STA. 19+20.
AREA TO BE TREATED FOR INVASIVES SHALL BE PROPERLY PREPARED FOR FINAL PLANTING, SEEDING, AND RESTORATION.

ENVIRONMENTAL PERMIT PLANS

PLAN DATE: JUNE 29, 2023

REV.	DATE	REVISION DESCRIPTION	SHEET NO.

THE INFORMATION, INCLUDING ESTIMATED QUANTITIES OF WORK, SHOWN ON THESE SHEETS IS BASED ON LIMITED INVESTIGATIONS BY THE STATE AND IS IN NO WAY WARRANTED TO INDICATE THE CONDITIONS OF ACTUAL QUANTITIES OF WORK WHICH WILL BE REQUIRED.

Plotted Date: 6/29/2023

DESIGNER/DRAFTER: MR
CHECKED BY: MS
SCALE IN FEET 0 40 80
SCALE 1"=40'

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

Filename: ...\PMT-01.dgn

SIGNATURE/ BLOCK: OFFICE OF ENGINEERING
APPROVED BY:

PROJECT TITLE: REPLACEMENT OF BRIDGE NO 02713, ROUTE 156 OVER FOUR MILE RIVER

TOWN: OLD LYME EAST LYME

DRAWING TITLE: PERMIT PLANTING PLAN

PROJECT NO. 104-175
DRAWING NO. PMT-08
SHEET NO.

TIDAL ELEVATION TABLE

TIDAL TYPE	ELEVATION (FT)
HIGH TIDE LINE	2.8
COASTAL JURISDICTION LINE	2.3
MEAN HIGH WATER	1.0
MEAN LOW WATER	-2.1
MEAN LOW LOW WATER	-2.3

ENVIRONMENTAL PERMIT PLANS

PLAN DATE: JULY 05, 2023

REV.	DATE	REVISION DESCRIPTION	SHEET NO.

THE INFORMATION, INCLUDING ESTIMATED QUANTITIES OF WORK, SHOWN ON THESE SHEETS IS BASED ON LIMITED INVESTIGATIONS BY THE STATE AND IS IN NO WAY WARRANTED TO INDICATE THE CONDITIONS OF ACTUAL QUANTITIES OF WORK WHICH WILL BE REQUIRED.

Plotted Date: 8/3/2023

DESIGNER/DRAFTER: S.PELLEGRINI
CHECKED BY: W. WOLF
SCALE IN FEET 0 30 60
SCALE 1"=30'

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

Filename: ...\EX_0104-0175_TLD_ExistingConditions.dgn

SIGNATURE/ BLOCK:

DESIGNED BY: BL Companies
BL COMPANIES, INC.
355 RESEARCH PARKWAY
MERIDEN, CT 06450

PROJECT TITLE:
REPLACEMENT OF BRIDGE NO. 02713, ROUTE 156 OVER FOUR MILE RIVER

TOWN: **OLD LYME EAST LYME**

DRAWING TITLE: **THIN LAYER DEPOSITION EXISTING CONDITIONS**

PROJECT NO. 0104-0175
DRAWING NO. PMT-09
SHEET NO.

LEGEND

PROPOSED FIBER ROLLS

NOTES

1. ALL WORK WITHIN THE THIN LAYER DEPOSITION (TLD) AND TIDAL ENHANCEMENT AREAS IS RESTRICTED TO THE PERIOD OF DECEMBER 1 THROUGH FEBRUARY 15, INCLUSIVE.

2. THE CONTRACTOR SHALL COORDINATE AND COMPLETE ALL CONSTRUCTION ACTIVITIES AS OUTLINED BELOW DURING LOW TIDE.

3. PRIOR TO COMMENCEMENT OF ANY WORK ASSOCIATED WITH THE TLD AREA, THE CONTRACTOR SHALL SUBMIT TO THE OFFICE OF ENVIRONMENTAL PLANNING (OEP) FOR REVIEW AND ACCEPTANCE, A TIDAL MITIGATION PLAN THAT INCLUDES A CONSTRUCTION SCHEDULE AND OUTLINE OF CONSTRUCTION METHODOLOGIES FOR PERFORMING THE REQUIRED WORK, IN ACCORDANCE WITH ITEM NO. 0948015A TIDAL WETLAND CREATION (THIN LAYER DEPOSITION), AND IN ACCORDANCE WITH OTHER ITEMS LISTED BELOW.

4. PRIOR TO COMMENCEMENT OF WORK, THE CONTRACTOR SHALL STAKE THE CONSTRUCTION LIMITS AND ALL TIDAL ELEVATIONS, INCLUDING THE PROTECTIVE MATTING SYSTEM ACCESS ROAD.

5. TREE REMOVAL REQUIRED FOR TEMPORARY CONSTRUCTION ACCESS ROAD BETWEEN THE STAGING AREA AND TLD AREA SHALL BE DONE BY FLUSH CUTTING TO GROUND SURFACE. NO GRUBBING IS PERMITTED.

6. NO GROUND DISTURBANCE OR GRUBBING IS PERMITTED WITHIN THE TLD AREA IDENTIFIED FOR INVASIVE SPECIES REMOVAL AS SHOWN ON THE CONTRACT PLANS AND ENVIRONMENTAL PERMIT PLANS.

7. THE TLD WORK SHALL INCLUDE, BUT IS NOT LIMITED TO, THE INSTALLATION OF FIBER ROLLS OR ANY OTHER MEANS FOR THE PROTECTION OF THE OUTER PERIMETER OF THE TLD AREA, THE CONSTRUCTION AND REMOVAL OF PROTECTIVE MATTING SYSTEM ACCESS ROAD, TREATMENT OF INVASIVE SPECIES, PREPARING APPROPRIATE SITE GRADES, PLACING APPROVED TLD MATERIAL, INSTALLATION OF PLANTINGS, AND WETLAND CREATION SIGNS.

8. THE TLD AREA SHALL BE CONSTRUCTED FROM NORTH TO SOUTH.

9. THE CONTRACTOR SHALL UTILIZE CONVENTIONAL CONSTRUCTION EQUIPMENT EQUIPPED WITH EITHER LOW GROUND PRESSURE TREADS OR TIRES TO PLACE TLD MATERIALS.

10. THE FORMATION OF FINAL GRADE AND SUBSTRATE TO BE COMPLETED IN ACCORDANCE WITH ITEM NO. 0948015A TIDAL WETLAND CREATION (THIN LAYER DEPOSITION).

11. THE CONTRACTOR SHALL PLACE FIBER ROLLS AT THE LOCATIONS IDENTIFIED ON THE CONTRACT PLANS AND ENVIRONMENTAL PERMIT PLANS PRIOR TO AND IN CONJUNCTION WITH PLACEMENT OF THE TLD MATERIALS.

12. THE CONTRACTOR SHALL INSTALL STACKED FIBER ROLLS ON SUBSTRATE IN AREAS WITH WATER DEPTHS GREATER THAN 24" TO RETAIN DEPOSITION MATERIAL IN MITIGATION AREAS. SEE PMT-13 FOR DETAIL.

13. 14 DAYS IN ADVANCE OF THE INSTALLATION OF PROPOSED MITIGATION PLANTINGS, THE AREAS IDENTIFIED IN THE CONTRACT PLANS AND ENVIRONMENTAL PERMIT PLANS SHALL BE TREATED FOR INVASIVE SPECIES UNDER ITEM NO. 0952051A CONTROL AND REMOVAL OF INVASIVE VEGETATION. AFTER THE 14 DAYS, THE CONTRACTOR SHALL FLUSH CUT AND DISPOSE OF ALL INVASIVE SPECIES IN ACCORDANCE WITH THE SPECIFICATION. NO GROUND DISTURBANCE OR GRUBBING IS ALLOWED WITHIN THE INVASIVE SPECIES CONTROL AREA, WITH THE EXCEPTION OF INSTALLATION OF PROPOSED PLANTINGS.

14. SEE DRAWING NO. PMT-11 FOR PROPOSED PLANTINGS AND ADDITIONAL NOTES.

15. A WETLAND SCIENTIST FROM OEP WILL BE ON-SITE TO MONITOR AND DIRECT CONSTRUCTION OF THE TLD AREA. AT LEAST 10 DAYS PRIOR TO COMMENCEMENT OF CONSTRUCTION, THE CONTRACTOR SHALL ARRANGE FOR A MEETING WITH OEP WETLAND SCIENTIST, THROUGH THE ENGINEER TO REVIEW THE PLANNED WORK ACTIVITIES.

16. TEMPORARY PROTECTION MATTING SYSTEM ACCESS ROADS WITHIN THE TLD AREA ARE CONCEPTUAL ONLY. PRIOR TO COMMENCING ANY WORK, THE CONTRACTOR SHALL SUBMIT AN ACCESS PLAN TO OEP FOR REVIEW AND ACCEPTANCE PER ITEM NO. 0948015A TIDAL WETLAND CREATION (THIN LAYER DEPOSITION).

17. TEMPORARY PROTECTION MATTING SYSTEM ACCESS ROAD FROM THE STAGING AREA TO THE TLD AREA WAS DESIGNED TO AVOID IMPACTS TO ARCHAEOLOGICAL RESOURCES LOCATED WITHIN THE PROJECT AREA. ANY PROPOSED CHANGE IN THE LOCATION OF THE TEMPORARY CONSTRUCTION ACCESS WILL NEED TO BE SUBMITTED TO OEP, THROUGH THE ENGINEER, FOR REVIEW AND ACCEPTANCE. PRIOR TO THE PLACEMENT OF THE PROTECTIVE MATTING SYSTEM ACCESS ROAD, THE CONTRACTOR SHALL LAYDOWN GEOTEXTILE HIGH SURVIVABILITY AND GRANULAR FILL. NO GRANULAR FILL IS TO BE PLACED BENEATH THE GEOTEXTILE. REFER TO PMT-13.

18. NO HEAVY EQUIPMENT OPERATION OR STORAGE OR STAGING SHALL OCCUR EXCEPT UPON THE ADJOINING PAVED/GRAVEL SURFACES OR THE PROTECTIVE MATTING SYSTEM ACCESS ROAD.

19. TEMPORARY PROTECTIVE HIGH-VISIBILITY CONSTRUCTION FENCING SHALL BE PLACED ALONG THE FULL-LENGTH MARGINS OF THE TERRESTRIAL MATTING SYSTEM ACCESS ROAD.

20. THE TEMPORARY CONSTRUCTION ACCESS ROADS WITHIN THE TLD AREA SHALL BE LOCATED TO MINIMIZE IMPACTS TO EXISTING VEGETATION AND TO LIMIT COMPACTION OF EXISTING TIDAL WETLAND SUBSTRATE. THE TEMPORARY CONSTRUCTION ACCESS WITHIN THE TLD AREA SHALL BE REMOVED FROM NORTH TO SOUTH AS FINAL GRADE IS ESTABLISHED.

21. THE FINAL GRADE SHALL CONSIST OF TLD MATERIAL PER ITEM NO. 0948015A TIDAL WETLAND CREATION (THIN LAYER DEPOSITION) PLACED TO FINAL ELEVATION, AS IDENTIFIED ON THE CONTRACT PLANS AND ENVIRONMENTAL PERMIT PLANS.

22. CONTRACTOR SHALL TIE INTO EXISTING ADJACENT TIDAL WETLANDS AT A MAX SLOPE OF 3:1 WHEN PLACING THE TLD MATERIAL, AS SHOWN ON THE CONTRACT PLANS AND ENVIRONMENTAL PERMIT PLANS OR AS DIRECTED IN THE FIELD BY THE OEP WETLAND SCIENTIST.

23. AFTER FINAL GRADE IS ACHIEVED THROUGHOUT THE TLD AREA, A 14-DAY TIDAL FLUSH IS REQUIRED FOR THE OEP WETLAND SCIENTIST TO OBSERVE ANY SETTLING OF THE PLACED MATERIAL. IF DEEMED NECESSARY, THE CONTRACTOR SHALL PLACE ADDITIONAL TLD MATERIALS TO AN ELEVATION SATISFACTORY TO THE OEP WETLAND SCIENTIST.

24. EQUIPMENT SHALL NOT BE PERMITTED ON FINAL GRADE WITHIN THE TLD AREA, UNLESS ADDITIONAL TLD MATERIAL IS REQUIRED AFTER THE 14-DAY TIDAL FLUSH, OR AS DIRECTED BY THE OEP WETLAND SCIENTIST.

25. WETLAND MITIGATION SIGN NO. 31-5478 TO BE INSTALLED AT THE LOCATION AS DIRECTED BY THE OEP WETLAND SCIENTIST.

26. THE CONTRACTOR SHALL NOT, UNDER ANY CIRCUMSTANCES, DISCHARGE ANY SOIL, FILL OR DEBRIS INTO ANY PART OF THE ADJACENT WETLANDS OR WATERCOURSE THAT ARE NOT BEING DISTURBED BY CONSTRUCTION.

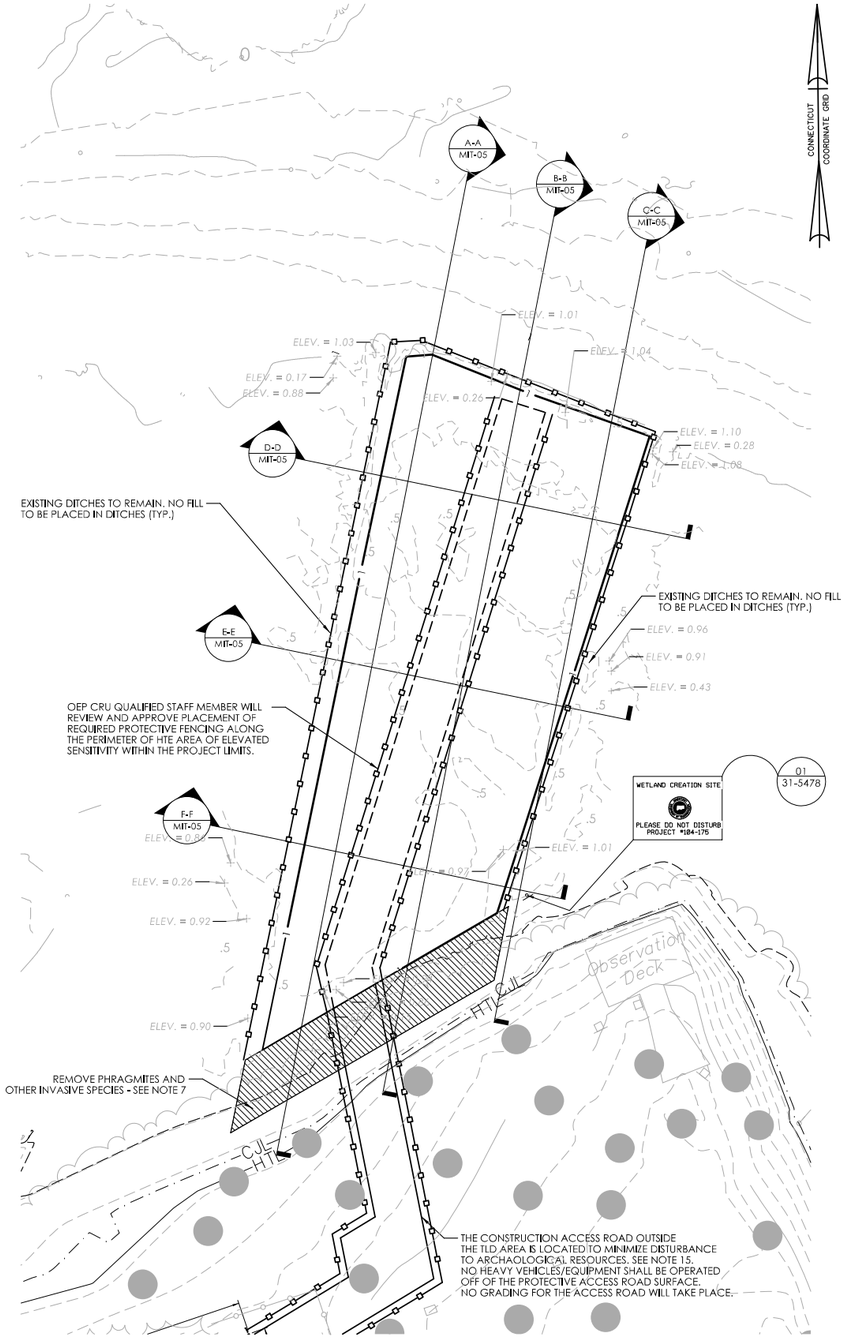
27. ALL DISTURBED AREAS OUTSIDE OF THE TLD AREA SHALL BE FULLY RESTORED TO THE ORIGINAL PRE-CONSTRUCTION CONDITIONS.

TIME-OF-YEAR BMP NOTE

ALL WORK BELOW THE HIGH TIDE LINE (ELEVATION 2.8') WITHIN THE THIN LAYER DEPOSITION AREA SHALL BE CONDUCTED ONLY BETWEEN DECEMBER 1st AND FEBRURARY 15th, INCLUSIVE.

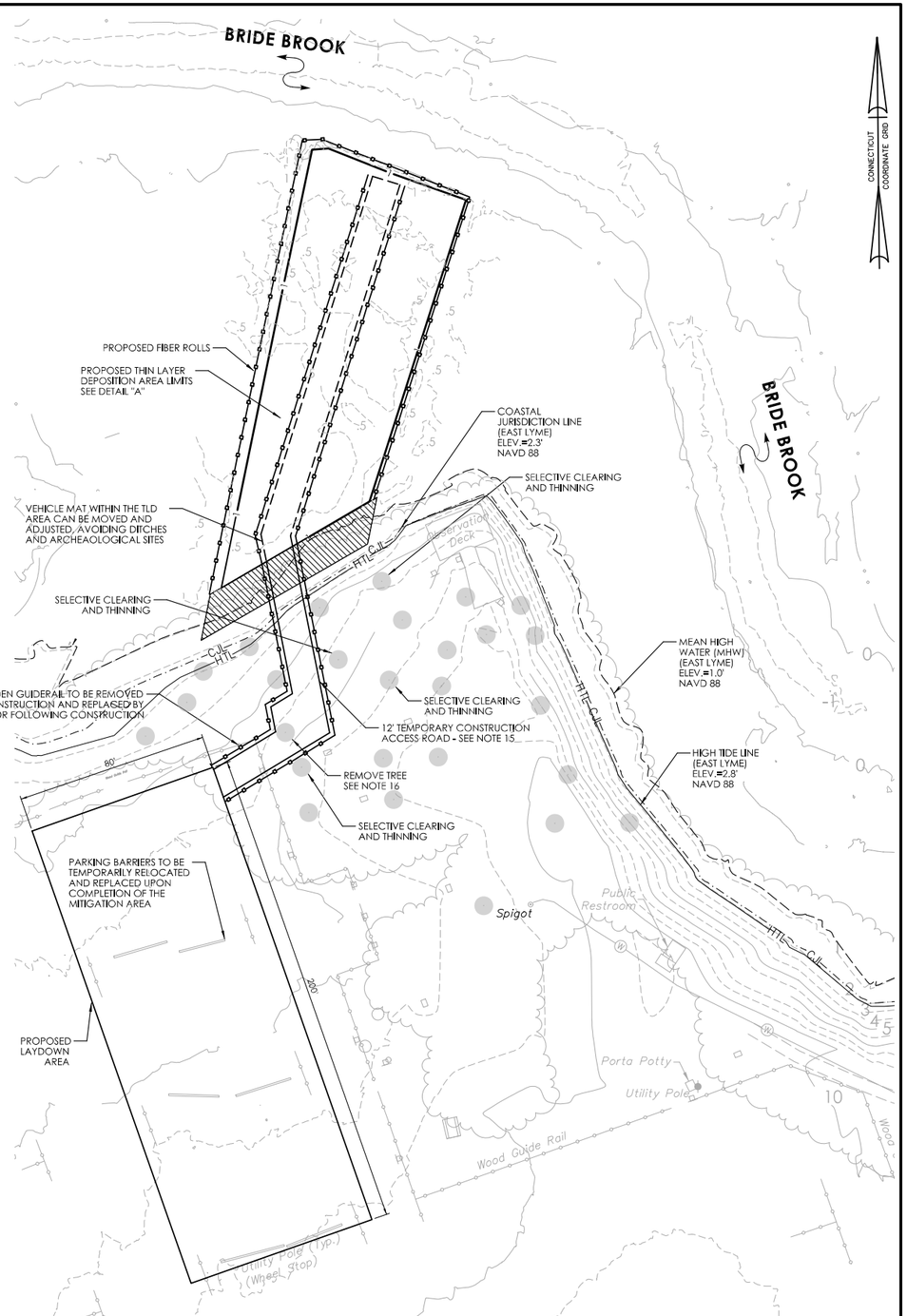
TIDAL ELEVATION TABLE

TIDAL TYPE	ELEVATION (FT)
HIGH TIDE LINE	2.8
COASTAL JURISDICTION LINE	2.3
MEAN HIGH WATER	1.0
MEAN LOW WATER	-2.1
MEAN LOW LOW WATER	-2.3



DETAIL "A"

SCALE: 1"=20'



PLAN

SCALE: 1"=30'

ENVIRONMENTAL PERMIT PLANS

PLAN DATE: DECEMBER 4, 2023

REV.	DATE	REVISION DESCRIPTION	SHEET NO.

THE INFORMATION, INCLUDING ESTIMATED QUANTITIES OF WORK, SHOWN ON THESE SHEETS IS BASED ON LIMITED INVESTIGATIONS BY THE STATE AND IS IN NO WAY WARRANTED TO INDICATE THE CONDITIONS OF ACTUAL QUANTITIES OF WORK WHICH WILL BE REQUIRED.

Plotted Date: 11/29/2023

DESIGNER/DRAFTER: S.PELLEGRINI
CHECKED BY: W. WOLF
SCALE AS NOTED

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

Filename: ...\ENVE_0104-0175_TLD_GradingPlan.dgn

SIGNATURE/BLOCK:

DESIGNED BY: BL COMPANIES, INC. 355 RESEARCH PARKWAY MERIDEN, CT 06450

PROJECT TITLE: REPLACEMENT OF BRIDGE NO. 02713, ROUTE 156 OVER FOUR MILE RIVER

TOWN: OLD LYME EAST LYME

DRAWING TITLE: THIN LAYER DEPOSITION GRADING PLAN

PROJECT NO. 0104-0175
DRAWING NO. PMT-10
SHEET NO.

LEGEND

PROPOSED FIBER ROLLS

PROPOSED MARSH RESTORATION

INVASIVE SPECIES CONTROL

NOTES

1. BEFORE ANY WORK IS TO PROCEED IN THE TIDAL CREATION OR TIDAL ENHANCEMENT AREAS, THE CONTRACTOR SHALL ARRANGE, THROUGH THE ENGINEER, FOR A MEETING WITH AN ENVIRONMENTAL INSPECTOR FROM THE CTDOT OFFICE OF ENVIRONMENTAL PLANNING (OEP). THIS MEETING WILL BE SCHEDULED AT LEAST 10-DAYS PRIOR TO COMMENCEMENT OF WORK ACTIVITY DESCRIBED IN THE SPECIAL PROVISION FOR "TIDAL CREATION".

2. REFER TO SHEET NO. MIT-03 FOR THE PROPOSED GRADING PLAN AND ADDITIONAL NOTES.

3. AFTER COMPLETION OF FINAL GRADE, A 7-14 DAY TIDAL FLOW CYCLE SHALL OCCUR PRIOR TO PLANTING. PLANTING IN THE TIDAL AREA SHALL BE DONE BETWEEN APRIL 15 AND JUNE 15.

4. PRIOR TO PLANTING, AN ENVIRONMENTAL INSPECTOR FROM OEP SHALL INSPECT THE TIDAL CREATION OR TIDAL ENHANCEMENT AREAS TO DETERMINE IF THE SITE IS SUITABLE FOR PLANTING.

5. MACHINERY WILL NOT BE ALLOWED WITHIN THE TIDAL AREA AT ANY TIME DURING OR AFTER PLANTING.

6. PLANTINGS ON THIS SHEET ARE FOR ENVIRONMENTAL PERMITTING. ANY SUBSTITUTIONS TO THE PERMIT PLANTINGS SHALL BE COORDINATED WITH OEP FOR REVIEW AND CONSIDERATION. FINAL REGULATORY APPROVAL WILL BE REQUIRED BEFORE ANY SUBSTITUTIONS ARE APPROVED.

7. WOOD CHIP MULCH WILL NOT BE ALLOWED WITHIN ANY TIDAL AREA.

8. ALL PLANT MATERIALS SHALL BE STRAIGHT SPECIES. NO VARIETIES OR CULTIVARS WILL BE ACCEPTED.

9. ALL SHRUBS SHALL BE NURSERY GRADE CONFORMING TO SECTION 3 OF THE AMERICAN STANDARDS FOR NURSERY STOCK, MEETING THE MINIMUM REQUIREMENTS FOR CONTAINER SIZE, ROOT MASS AND NUMBER OF CANES.

10. NO PLANTINGS OR SEEDINGS ARE TO BE PLACED IN MOWED OR MAINTAINED AREAS.

11. ALL PLANTINGS WITHIN THE TIDAL CREATION OR TIDAL ENHANCEMENT AREA ARE TO BE PAID UNDER ITEM NO. 0949875A - WETLAND PLANTINGS.

12. SEED THE ENTIRE DISTURBED SHORELINE AREA WITH NEW ENGLAND COASTAL SALT TOLERANT GRASS MIX.

13. SEED THE ENTIRE EMERGENT PLANTING AREAS, AS WELL AS ANY AREAS OF OTHER WETLAND PLANTINGS, WITH THE REQUIRED SEED MIX. HAND RAKE THE MIXTURE INTO THE TOPSOIL. ALTERNATIVELY, A COMBINATION OF HYDRO SEEDING AND HYDROMULCHING MAY BE USED TO OBTAIN THE SAME RESULT, SUBJECT TO CONSULTATION WITH THE ENGINEER, OEP, THE USACE AND/OR DEP.

14. AFTER THE PLANTING OF THE WOODY PLANTS IS COMPLETE, THE MITIGATION AREA SHALL BE WATERED UNTIL THE WATER PENETRATES TO A DEPTH OF 6 TO 8 INCHES.

15. THE CONTRACTOR SHALL GUARANTEE ALL PLANT MATERIAL FOR ONE (1) COMPLETE YEAR AFTER ALL PLANTS ARE INSTALLED AND ACCEPTED.

16. WOODEN STAKES AND BIODEGRADABLE STRING LINES TO BE INSTALLED IN 6' CELLS TO PREVENT GEESE PREDATION (SEE DETAIL). TO BE REMOVED AFTER VEGETATION IS WELL ESTABLISHED.

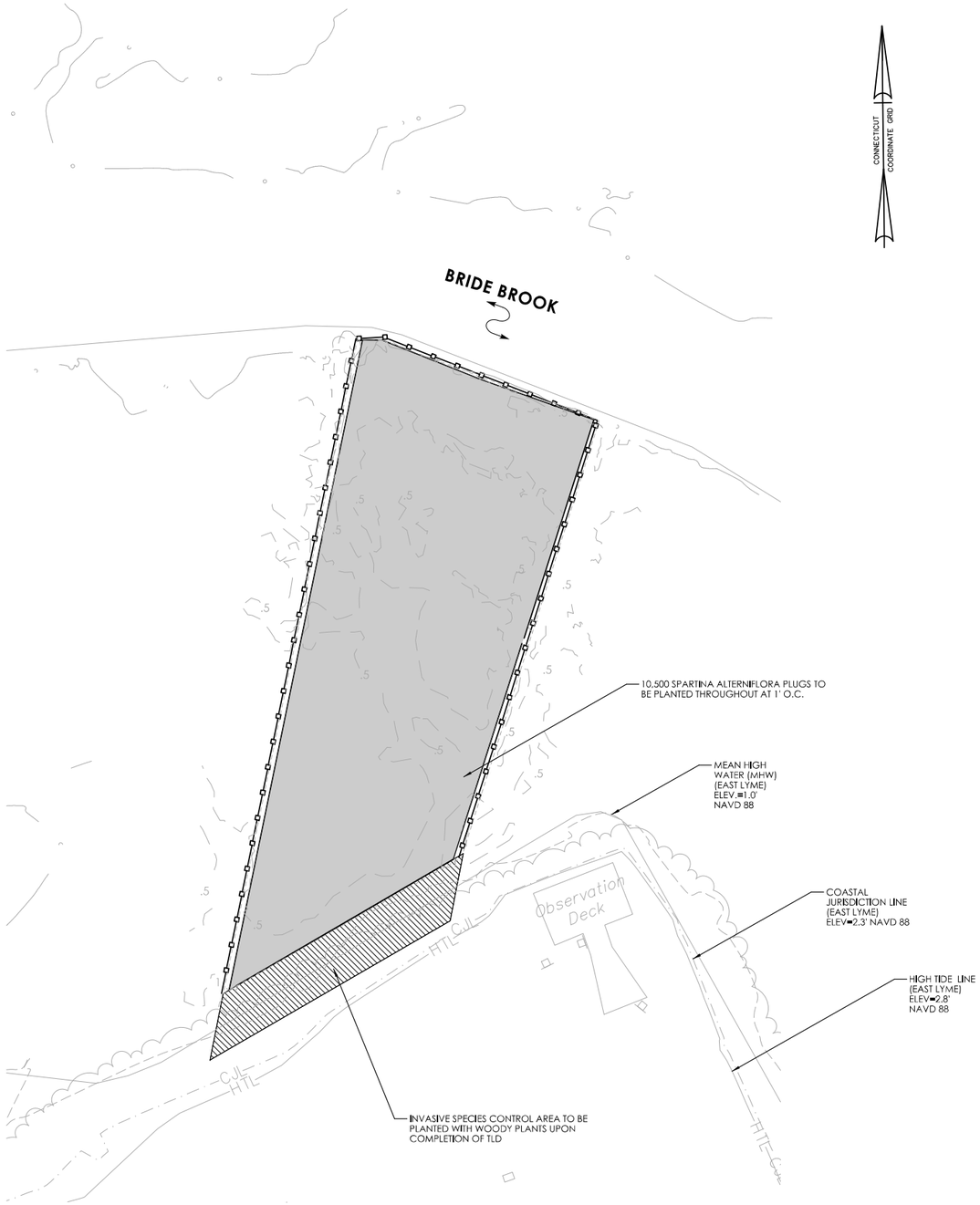
17. WOODEN STAKES AND BIODEGRADABLE STRING LINES TO BE INSTALLED IN 6' CELLS TO PREVENT GEESE PREDATION (SEE DETAIL). TO BE REMOVED AFTER VEGETATION IS WELL ESTABLISHED.

TIDAL MITIGATION LANDSCAPE PLANT SCHEDULE

KEY	QUANTITY	BOTANICAL NAME	COMMON NAME	ROOT	SIZE	COMMENTS
	10,500	*SPARTINA ALTERNIFLORA*	SMOOTH CORDGRASS	PLUG	2" PLUG	UNIFORM, WELL DEVELOPED. 1' O.C. SPACING.
	12	*BACCHARIS HALIMIFOLIA*	GROUNDSEL TREE	B.B.	24"-36" HT.	5' O.C.
	12	*HIBISCUS MOSCHEUTOS*	CRIMSONEYED ROSEMALLOW	B.B.	18"-24" HT.	5' O.C.
	10	*IVA FRUTESCENS*	HIGH TIDE BUSH	B.B.	24"-36" HT.	5' O.C.
			SHORELINE GRASS ESTABLISHMENT			

TIDAL ELEVATION TABLE

TIDAL TYPE	ELEVATION (FT)
HIGH TIDE LINE	2.8
COASTAL JURISDICTION LINE	2.3
MEAN HIGH WATER	1.0
MEAN LOW WATER	-2.1
MEAN LOW LOW WATER	-2.3



PLAN

SCALE: 1" = 20'

ENVIRONMENTAL PERMIT PLANS

PLAN DATE: JULY 05, 2023

REV.	DATE	REVISION DESCRIPTION	SHEET NO.

THE INFORMATION, INCLUDING ESTIMATED QUANTITIES OF WORK, SHOWN ON THESE SHEETS IS BASED ON LIMITED INVESTIGATIONS BY THE STATE AND IS IN NO WAY WARRANTED TO INDICATE THE CONDITIONS OF ACTUAL QUANTITIES OF WORK WHICH WILL BE REQUIRED.

Plotted Date: 8/3/2023

DESIGNER/DRAFTER: S.PELLEGRINI

CHECKED BY: W. WOLF

SCALE IN FEET 0 20 40

SCALE 1"=20'

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

Filename: ...\ENVE_0104-0175_TLD_PlantingPlan.dgn

SIGNATURE/BLOCK:

DESIGNED BY: BL Companies
BL COMPANIES, INC.
355 RESEARCH PARKWAY
MERIDEN, CT 06450

PROJECT TITLE:
REPLACEMENT OF BRIDGE NO. 02713, ROUTE 156 OVER FOUR MILE RIVER

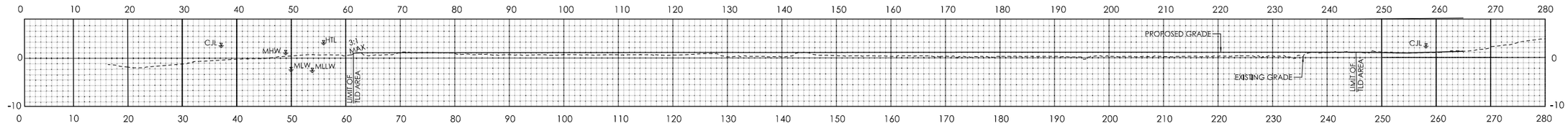
TOWN: **OLD LYME EAST LYME**

DRAWING TITLE: **THIN LAYER DEPOSITION PLANTING PLAN**

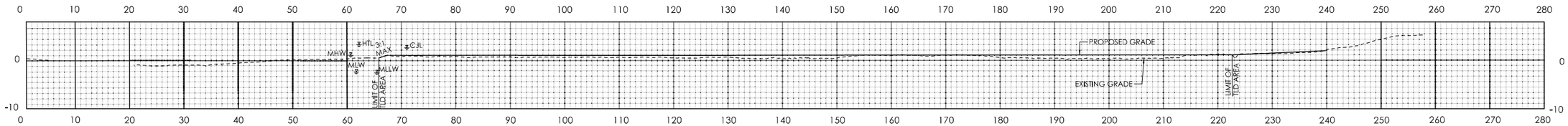
PROJECT NO. **0104-0175**

DRAWING NO. **PMT-11**

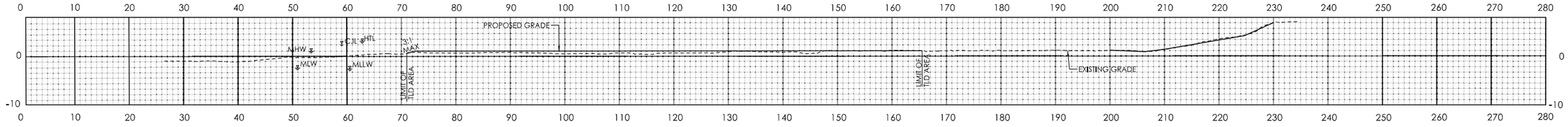
SHEET NO.



SECTION A-A



SECTION B-B



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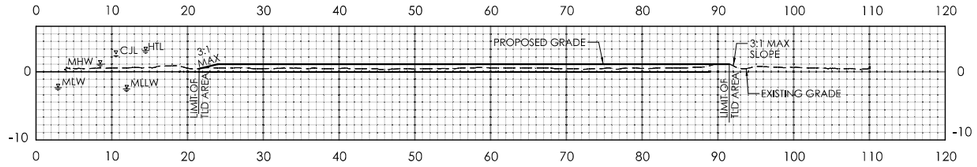

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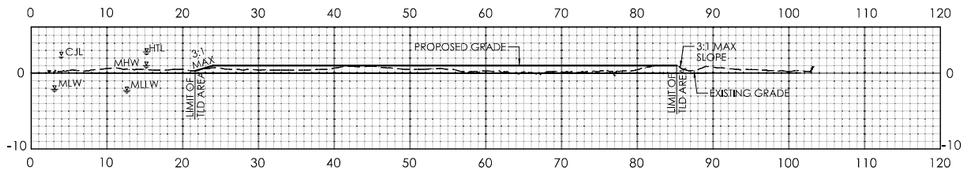

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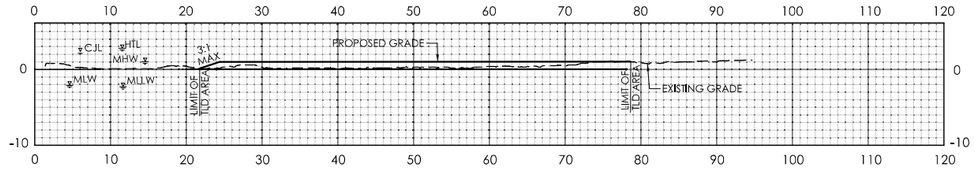


SECTION F-F

ENVIRONMENTAL PERMIT PLANS

PLAN DATE: JULY 05, 2023

REV.	DATE	REVISION DESCRIPTION	SHEET NO.

THE INFORMATION, INCLUDING ESTIMATED QUANTITIES OF WORK, SHOWN ON THESE SHEETS IS BASED ON LIMITED INVESTIGATIONS BY THE STATE AND IS IN NO WAY WARRANTED TO INDICATE THE CONDITIONS OF ACTUAL QUANTITIES OF WORK WHICH WILL BE REQUIRED.

Plotted Date: 8/3/2023

DESIGNER/DRAFTER: S.PELLEGRINI

CHECKED BY: W. WOLF

SCALE IN FEET 0 10 20

SCALE 1"=10'

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

Filename: ...\ENVE_0104-017501_CrossSections.dgn

SIGNATURE/ BLOCK:

DESIGNED BY: BL COMPANIES, INC. 355 RESEARCH PARKWAY MERIDEN, CT 06450

PROJECT TITLE:
REPLACEMENT OF
BRIDGE NO. 02713, ROUTE 156
OVER FOUR MILE RIVER

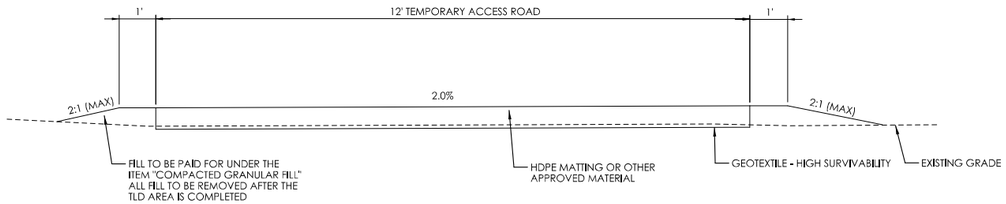
TOWN: OLD LYME
EAST LYME

DRAWING TITLE: THIN LAYER DEPOSITION CROSS SECTIONS

PROJECT NO. 0104-0175

DRAWING NO. PMT-12

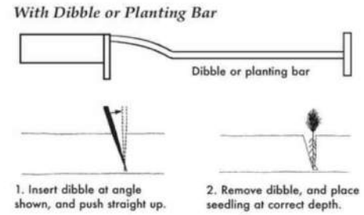
SHEET NO.



TEMPORARY ACCESS ROAD

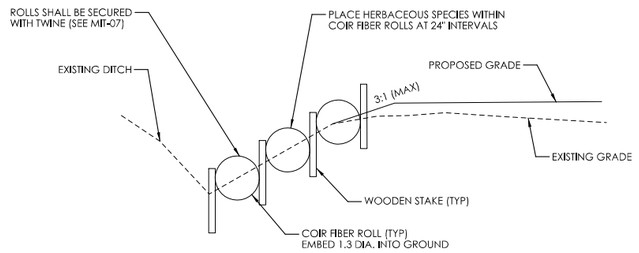
SCALE: N.T.S.

The following illustration shows the proper hand planting technique:



PLUG PLANTING DETAIL

SCALE: N.T.S.



TYPICAL TLD TIE-IN SECTION

SCALE: N.T.S.

ENVIRONMENTAL PERMIT PLANS

PLAN DATE: JULY 05, 2023

REV.	DATE	REVISION DESCRIPTION	SHEET NO.

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Plotted Date: 8/3/2023

DESIGNER/DRAFTER: S.PELLEGRINI

CHECKED BY: W. WOLF

SCALE AS NOTED

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

Filename: ...\MDS_0104-0175_TLD_Details.dgn

SIGNATURE/ BLOCK:

DESIGNED BY: BL Companies
BL COMPANIES, INC.
355 RESEARCH PARKWAY
MERIDEN, CT 06450

PROJECT TITLE:
REPLACEMENT OF
BRIDGE NO. 02713, ROUTE 156
OVER FOUR MILE RIVER

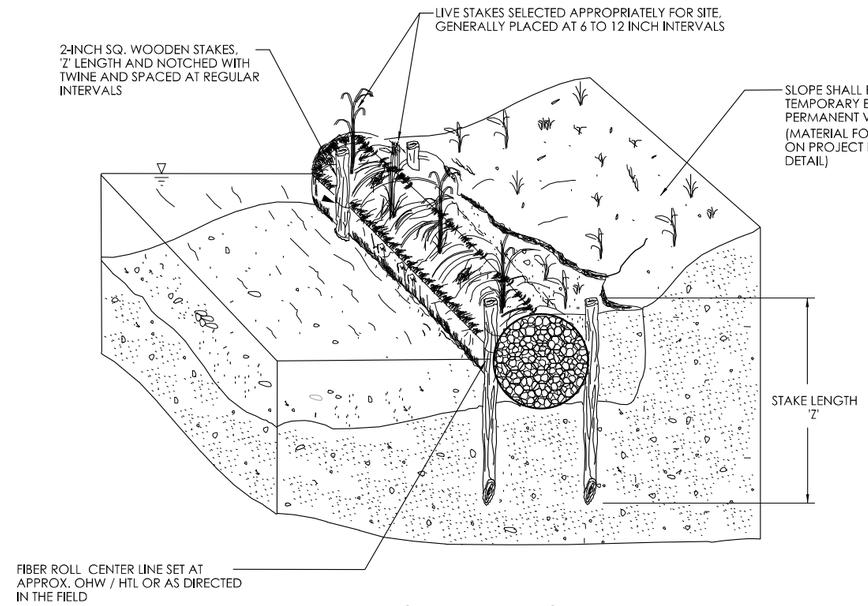
TOWN: OLD LYME
EAST LYME

DRAWING TITLE: THIN LAYER DEPOSITION DETAILS

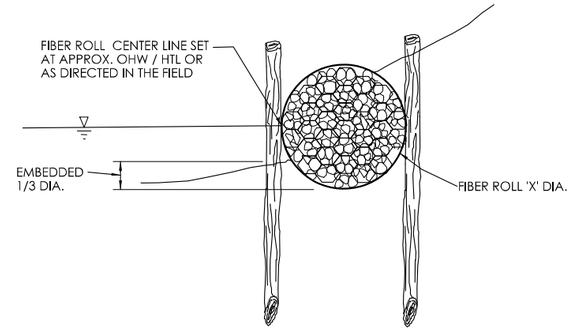
PROJECT NO. 0104-0175

DRAWING NO. PMT-13

SHEET NO.



VEGETATED FIBER ROLL
N.T.S.

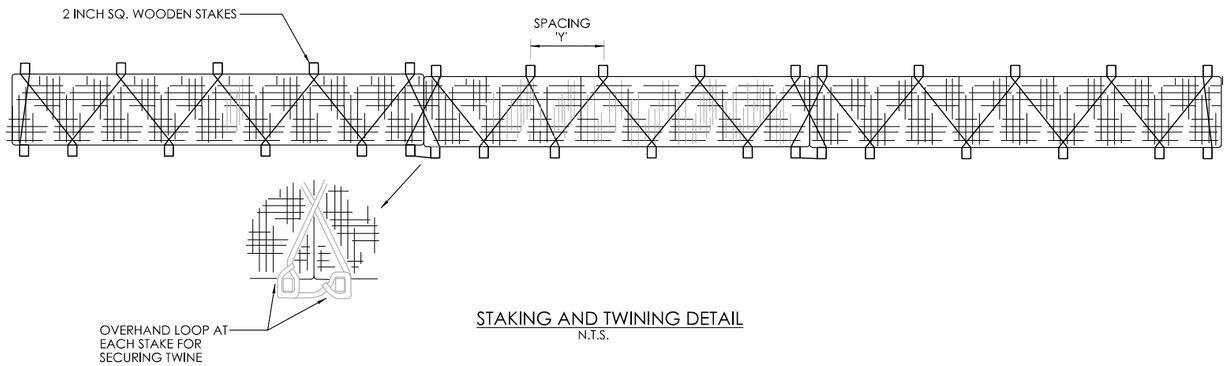


FIBER ROLL SECTION
N.T.S.

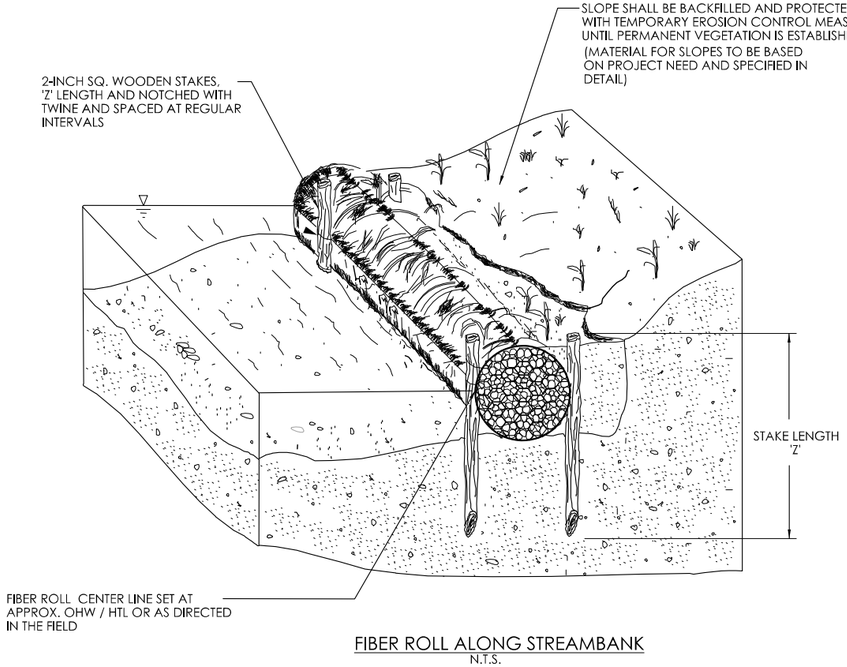
DIAMETER OF ROLL 'X'	WOODEN STAKE LENGTH 'Z'	STAKE SPACING 'Y'
20 INCHES	4 FT. MINIMUM	EVERY 2 FT.
16 INCHES	3 FT. MINIMUM	EVERY 2.5 FT.
12 INCHES	3 FT. MINIMUM	EVERY 3 FT.

TABLE FOR ANCHORING

NOTE:
PLACEMENT OF THE FIBER ROLLS SHALL BE DIRECTED IN THE FIELD BY THE ENGINEER OR THEIR AUTHORIZED DELEGATE. SEE SPECIAL PROVISION "FIBER ROLL."



STAKING AND TWINING DETAIL
N.T.S.



FIBER ROLL ALONG STREAMBANK
N.T.S.

ENVIRONMENTAL PERMIT PLANS

PLAN DATE: JULY 05, 2023

REV.	DATE	REVISION DESCRIPTION	SHEET NO.

THE INFORMATION, INCLUDING ESTIMATED QUANTITIES OF WORK, SHOWN ON THESE SHEETS IS BASED ON LIMITED INVESTIGATIONS BY THE STATE AND IS IN NO WAY WARRANTED TO INDICATE THE CONDITIONS OF ACTUAL QUANTITIES OF WORK WHICH WILL BE REQUIRED.

Plotted Date: 8/3/2023

DESIGNER/DRAFTER: S.PELLEGRINI
CHECKED BY: W. WOLF
SCALE AS NOTED

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

Filename: ...\MDS_0104-0175_TLD_FiberRollDetails.dgn

SIGNATURE/ BLOCK:

DESIGNED BY: BL COMPANIES, INC. 355 RESEARCH PARKWAY MERIDEN, CT 06450

PROJECT TITLE:
REPLACEMENT OF BRIDGE NO. 02713, ROUTE 156 OVER FOUR MILE RIVER

TOWN: **OLD LYME EAST LYME**

DRAWING TITLE: **THIN LAYER DEPOSITION FIBER ROLL DETAILS**

PROJECT NO. **0104-0175**
DRAWING NO. **PMT-14**
SHEET NO.

Attachment 15

Wetland Report

ENVIRONMENTAL REPORT
STATE PROJECT NO. 0104-0175
Replacement of Bridge No. 02713, Route 156 over Four Mile River
Thin Layer Deposition, Rocky Neck State Park along Bride Brook
Old Lyme & East Lyme, CT

Introduction

This Environmental Report was prepared for the Connecticut Department of Transportation (CTDOT) on May 15, 2023.

This project involves the replacement of Bridge No. 02713, State Route 156 (Shore Road & West Main Street) over Four Mile River in the towns of Old Lyme and East Lyme, CT. Due to the impacts associated with the bridge site, mitigation is proposed within Rocky Neck State Park in East Lyme. The mitigation consists of the restoration of a degraded marsh using Thin Layer Deposition.

The existing Bridge No. 02713 was constructed in 1982 and is in serious condition. The four existing 60-inch culverts all exhibit severe laminated rust and numerous perforations. The existing structure is hydraulically inadequate; the roadway overtops during the 50-year storm event. Additionally, the horizontal alignment does not meet design standards. The purpose of this project is to replace the existing structure with a bridge that is hydraulically adequate and has improved horizontal geometry and structural strength.

Delineation Methodology: Inland wetlands were delineated by identifying soil types defined by Connecticut General Statute Section 22a-38(2). Watercourses were identified as defined in Connecticut General Statute Section 22a-38(16). Federal wetlands were delineated in accordance with the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region (version 2.0). State of Connecticut wetlands include any area that has poorly drained, very poorly drained, alluvial, or floodplain soil types. Federal wetlands are defined as areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions.

Delineation Results: Wetland and upland units were located both upstream and downstream of Bridge No. 02713 and are labeled as the northeast, northwest, southeast and southwest quadrants, respective of Bridge No. 02713's location. Within the project area, inland wetlands are present in all quadrants except the southwest quadrant. Tidal wetlands are present in all quadrants except the southeast quadrant, which is not capable of supporting tidal vegetation.

The Mean High Water (MHW) elevation is 0.92 feet at the project location and is the waterward limit of federal and state regulated wetlands.

The project is located within both tidal and inland wetlands. Four Mile River flows into Long Island Sound approximately 1,500 feet downstream of the bridge site. Bridge Brook flows into Long Island Sound approximately 800 feet downstream of the mitigation site.

Within the project area, inland and tidal wetlands were flagged with pink and blue flagging tape, respectively. Flag numbers are not included on the permit plans. Wetland and upland units are upstream of Bridge No. 02713 and are labeled as the northeast and northwest quadrants for this report.

1) Wetlands; Upstream of Bridge No. 02713

Tidal Wetlands – This "upstream wetlands" section is at the culvert "inlet" area of Four Mile River. It is part of the floodplain of Four Mile River and is tidally influenced, both north and south of the river.

Northwest Tidal Quadrant – Vegetation in the northwest quadrant adjacent to Four Mile River contained sparse *Phragmites australis*[*] (common reed), *Typha* (cattails), and lawn grasses. Grasses included fescue, orchardgrass, and bluegrass. Tidal wetlands were not observed to be filled in this quadrant.

Southwest Tidal Quadrant – Vegetation in the southwest quadrant adjacent to the Four Mile River included common reed*, *Spartina patens* (saltmeadow cordgrass), *Typha angustifolia* (narrowleaf cattail) and *Carex spp.* (sedges).

The Four Mile River watercourse is identified by the U.S. Fish & Wildlife Service (USFWS) using the Cowardin Classification System as Riverine, Unknown Perennial, Unconsolidated Bottom, Permanently Flooded (R5UBH). Estuarine wetlands occur in these quadrants and are designated as Estuarine, Subtidal, Unconsolidated Bottom, Subtidal (E1UBL).

Inland Wetlands – This "upstream freshwater wetlands" section is located at the culvert "inlet" area of Four Mile River. It is west of the bridge and north of Four Mile River and was designated as Federal and State regulated inland wetlands. No inland wetlands were observed south of Four Mile River (inlet side).

North of Four Mile River and west of Shore Road, the inland wetlands are identified as Palustrine, Forested, Broad-Leaved Deciduous, Seasonally Flooded/Saturated (PFO1E). Wetland vegetation in the northwest quadrant included *Acer rubrum* (red maple), *Alnus serrulate* (smooth alder), *Clethra alnifolia* (sweet pepperbush), *Rosa multiflora** (multiflora rose), *Vitis labrusca* (fox grape), *Symplocarpus foetidus* (skunk cabbage), *Carex intumenscens* (bladder sedge), *Oncoclea sensibilis* (sensitive fern), and other sedges.

[*] Invasive to Connecticut

Upland Vegetative Community

Upland vegetation in the northwest quadrant consists of red maple, *Fraximus americana* (white ash), multiflora rose*, *Solidago rugosa* (wrinkleleaf goldenrod), *Dioscorea villosa* (wild yam), *Parthenocissus quinquefolia* (Virginia creeper), *Maianthemum canadense* (Canada mayflower), and *Celastrus orbiculatus** (oriental bittersweet).

Upland vegetation in the southwest quadrant consists of *Sisyrinchium rosulatum* (annual blue eyed grass) and *Festuca rubra* (creeping red fescue). The southwest quadrant is filled and regraded and is now lawn.

2) Wetlands; Downstream of Bridge No. 02713

Wetland and upland units are downstream of Bridge No. 02713 and are labeled as the northeast and southeast quadrants for this report.

Tidal Wetlands – This "downstream wetlands" section is at the culvert "outlet" area of Four Mile River. It is part of the floodplain of Four Mile River and is tidally influenced in most areas. Tidal vegetation exists, and this land can also support tidal wetlands at higher elevations in the southeastern area; however, there are no tidal wetlands within the southeast quadrant in the immediate vicinity of the bridge. There are tidal wetlands on northern bank within the project area to the northeast.

Southeast Tidal Quadrant – Due to the steep slope in the immediate vicinity of the bridge and the narrow channel of Four Mile River, this area is not tidally influenced but the watercourse is subject to tidal action. Vegetation in the southeast quadrant adjacent to Four Mile River includes red maple, black cherry, black birch, *Phragmites australis** and *Carex spp.* (sedges).

Northeast Tidal Quadrant – The vegetation in the northeast quadrant adjacent to Four Mile River included *Spartina patens*, *Phragmites australis**, *Scirpoides holoschoenus* (bulrush), *Asteraceae* (aster), and *Carex spp.* (sedges). This is a well-developed and mostly natural tidal wetland area.

The wetland along Four Mile River channel is identified by the U.S. Fish & Wildlife Service (USFWS) using the Cowardin Classification System as Riverine, Unknown Perennial, Unconsolidated Bottom. (R5UBH).

The southeast quadrant wetland is classified as Estuarine, Subtidal, Unconsolidated Bottom (E1UBL) with a subtidal water regime.

Inland Wetlands – There are two "downstream freshwater wetlands" located at the culvert "outlet" area of Four Mile River. Both were designated as Federal and State regulated inland wetlands.

Southeastern Wetlands – This inland wetland is located south of Four Mile River. The wetland area is partially filled and covered with woodchips. Vegetation included red maple, multiflora rose*, *Toxicodendron radicans* (poison ivy), skunk cabbage, *Parthenocissus quinquefolia*

* Invasive to Connecticut

(Virginia creeper), sensitive fern, *Smilax rotundifolia* (common greenbrier), and *Rubus flagellaris* (northern dewberry).

The freshwater wetland is classified by the Cowardin Classification System as Palustrine Emergent (PEM).

Northeastern Wetlands – This inland wetland is located to the north of Four Mile River. Wetland vegetation included red maple, *Alnus serrulata* (smooth alder), *Ilex verticillate* (winterberry), *Clethra alnifolia* (summersweet), common greenbrier, multiflora rose*, *Lindera benzoin* (spicebush), skunk cabbage, *Glyceria striata* (fowl mannagrass), *Carex lurida* (shallow sedge), and fox grape.

The freshwater (inland) wetlands here are identified under the Cowardin Classification System as Palustrine Forested, Broad-leaved Deciduous (PFO1E).

Upland Vegetative Community
Vegetation within the southeastern quadrant upland area, including around the wetland pocket, included red maple, multiflora rose*, *Fraxinus americana* (white ash), greenbriar, Virginia creeper, *Thalictrum pubescens* (tall meadow rue), *Celastrus orbiculatus** (oriental bittersweet), and *Picea rubens* (red spruce).

Vegetation within the northeastern quadrant upland area included red maple, multiflora rose*, spicebush, *Maianthemum canadense* (false lily), Virginia creeper, *Quercus veluntina* (black oak), and *Berberis thunbergia** (Japanese barberry).

Watercourse Assessment

Four Mile River is a perennial, sinuous, 40-foot-wide watercourse that flows from north to south through Bridge No. 02713. At the bridge, the river has a watershed area of 6.2 square miles. The channel bottom is lined primarily with cobbles over sand. There is no vegetation along the channel bottom. Based on field investigation, the river appears to be horizontally and vertically stable upstream and downstream of the bridge. Just upstream of the bridge, there is a small pond with a surface area of 0.2 acres. The drainage area to the bridge is 6.2 square miles. The surface water quality is Class SB. The banks of all four quadrants are well vegetated with trees and grasses.

Soils Data

Bridge No. 02713
The on-site soils in the upland areas were Hinckley and Sudbury. The soils in the delineated freshwater wetland areas were identified as Ridgebury, Leicester and Whitman complex. The soils in the tidal wetlands were Ipswich.

The on-site soils in the upland areas were Udorthents-Urban land complex. The soils in the tidal wetlands were Ipswich.

The NRCS Web Soil Survey with soil descriptions is included in Appendix B.

* Invasive to Connecticut

At the bridge site, Ridgebury Complex soils occupy 30% of the freshwater wetland area. Ipswich tidal soils occupy 5% of the area. Hinckley occupies 20% of the upland soil area; Sudbury 15% of the upland area. Water occupies 30% of the project area. At the mitigation site at Rocky Neck State Park, Udorthents Complex soils occupy approximately 40% of the project area. Ipswich tidal soils occupy approximately 60% of the project area.

Looking northeast toward tidal and freshwater wetlands

Existing Conditions

Bridge No. 02713 is located along Route 156 at the town boundary of Old Lyme and East Lyme, approximately 1-mile south of I-95 Interchange 71. Route 156 is a two-lane undivided urban collector with a posted speed limit of 35 mph. The existing roadway has a curb-to-curb width of 36 feet and consists of two 12-foot travel lanes with 6-foot shoulders. The existing mainline roadway has a 10-inch subbase course beneath a 7-inch bituminous concrete overlay. The bridge is located on a horizontal curve and is at the low point of a vertical sag curve section of the roadway. Metal beam guiderail exists along both sides of the roadway on the outside edge of shoulder. The guiderail lengths vary for both ends of the subject bridge.

The proposed mitigation site is located at the southern end of Rocky Neck State Park, adjacent to the northernmost parking lot for beach access. The selected site exhibits degraded tidal wetlands characterized by saltwater pools where healthy vegetation once grew. There are no structures within the site. Adjacent to the site is the parking lot, a picnic area, and viewing platform.

State and federal tidal and inland wetlands are located within the project area. Four Mile River flows south into Long Island Sound, approximately 1,500 feet downstream of the bridge.

The site lies within the Four Mile River subregional basin (2207) and is not located within a public water supply watershed. Four Mile River is known to support a fish population, and fish passage suitability is of concern for the bridge site. The CTDEEP Aquifer Protection Area Maps indicate that the project site is not within an Aquifer Protection Area. The site is located within a Coastal Area Management Zone (CAM). According to the Federal Emergency Management Agency's Flood Insurance Rate Map, number 09011C047J (Panel 467 of 554), for New London County,

Connecticut, (effective August 5, 2013), the site is located within a mapped FEMA Zone AE floodplain and floodway.

Coordination with CTDEEP Natural Diversity Database (NDDB Determination No. 202109559) indicates the project area is within a known habitat for endangered, threatened, or special concern species (map dated June 2023). The NOAA Section 7 Mapper indicated no critical habitat at the project site. The NOAA EFH Mapper indicates that the project areas are within Essential Fish Habitat (EFH) areas. Coordination with CTDEEP Fisheries has determined that the bridge site supports fish populations, including the anadromous alewife. Tidal and freshwater wetlands are associated with the tidally influenced Four Mile River and are present in all four quadrants of the bridge. Additionally, CTDEEP Rocky Neck State Park property is present in the southeastern quadrant of the bridge.

Looking south (downstream) at tidal wetlands

Looking north (upstream) at tidal wetlands

Functions & Values

Functions and value assessments follow the U.S. Army Corps of Engineers, *The Highway Methodology Workbook Supplement, Wetlands Functions and Values, A Descriptive Approach*. Additional details can be found in that publication, publicly available online.

A Function and Value Assessment was made for every Tidal and Inland Wetland within the project area. The principal functions of the wetlands within the impact areas of the project are:

Tidal Wetlands – Bridge Site
Tidal Wetlands in the northwest, northeast, and southeast quadrants (marked as #1, #2 and #3 on the site sketch in Appendix A).

- Floodflow Alteration
- Nutrient Removal
- Production Export
- Sediment/Shoreline Stabilization
- Wildlife Habitat
- Visual Quality/Aesthetics

Inland Wetlands – Bridge Site
Upstream Inland Wetlands in the northeast, southeast, and southwest quadrants (marked as #1A and #4 on the site sketch in Appendix A).

- Wildlife Habitat

Tidal Wetlands – Mitigation Site

This site is within Rock Neck State Park in East Lyme and is noted as "Mitigation Area" on the Location Map in Appendix A.

- Fish and Shellfish Habitat
- Wildlife Habitat
- Recreation
- Education & Scientific Value
- Uniqueness and Heritage
- Visual Quality/Aesthetics

The tidal wetlands at the bridge site area and the mitigation area provide habitat for a somewhat diverse assemblage of upland and aquatic species. Hawks and various songbirds were present during site visits. With the stream environment and tidal wetlands, the project area provides moderate wildlife habitat. This type of habitat can be expected to attract great blue heron, egrets, and gulls. Mussels, oysters, and clams do not appear to be found at the site, and the entire watercourse is prohibited from the taking of shellfish as shown on the "Connecticut Shellfish Online 2018 Draft - CT Shellfish Classification Map". No viable shell fishing areas are located close by. To protect the downstream fish habitat, proper erosion controls will be installed and maintained throughout the duration of the project.

The proposed work will impact the wetland functions and values. At the bridge site, the wetlands will benefit from the creation of an open channel bottom. This will increase the value of the wetlands for floodflow alteration and wildlife habitat. At the mitigation site, the wetlands will be impacted by the thin-layer deposition of sediments. This will increase the value of the wetlands for sediment and toxicant removal, shoreline stabilization, wildlife habitat and visual quality.

The inland wetlands at the bridge site provide habitat for rabbits, squirrels, racoons, chipmunks, hawks, frogs, possible turtles, and various songbirds.

The fish community identified within Four Mile River by CTDEEP Fisheries include Mummichog, Atlantic Silverside, Stickleback, Killifish, Sheepshead Minnow, and Alewife.

The project is located within mapped areas by the National Marine Fisheries Service (NMFS) of the National Oceanic and Atmospheric Administration (NOAA).

The project is located within mapped areas for NMFS ESA listed species and Essential Fish Habitat.

Freshwater wetlands in northeast quadrant

Proposed Conditions

This project involves the replacement of Bridge No. 02713, Route 156 (Shore Road & West Main Street) over Four Mile River in the towns of Old Lyme and East Lyme, CT.

The proposed activities include:

- Removal of the old bridge structure.

- Replacement of the existing bridge with the proposed structure consisting of a precast 28-foot long by 7-foot high 3-sided arch structure with reinforced concrete headwalls, footings and wingwalls. The arch footings will be founded on bedrock or steel H-piles. The wingwalls will either be founded on steel H-piles or spread footings.

- Installation of a three-tube curb mounted bridge rail. The arch will be topped with membrane waterproofing, pervious structure backfill, and the full depth roadway pavement structure.

- The replacement of Bridge No. 02713 also includes vertical and horizonal roadway realignment. The proposed roadway realignment at the project site will raise the vertical profile 4.5 feet at the bridge site to pass the 100-year storm without pressure flow. The proposed centerline of roadway will be shifted approximately 35 feet north of the existing centerline of roadway to provide a smoother horizontal curve for traffic.

- The proposed bridge replacement will be constructed in two stages. Traffic will be maintained with a two-way traffic pattern during construction, while providing access for pedestrian/bicycle traffic.

- The channel will be stabilized with a 12-inch layer of natural streambed material on an 18-inch layer of intermediate riprap on a 6-inch layer of granular fill. The 2H:1V embankments will be stabilized with an 18-inch layer of intermediate riprap on a 6-inch layer of granular fill. The depth of the intermediate riprap will be increased to 24 inches at the toe of the embankment slopes to provide additional protection. Approximately 160 feet of the watercourse will be reconstructed.

- In each stage, a temporary water-handling-cofferdam will be used during the removal of the existing bridge and the construction of the new bridge to prevent sediment and debris from entering the watercourse.

- A minimum hydraulic opening is specified in each stage of the proposed water handling plan in order to provide sufficient hydraulic capacity during construction. Aquatic life will have free passage through the site during all phases of construction.

- Water pumped from the temporary water-handling-cofferdam will be directed into dewatering basins before being returned to the watercourse.

- Aerial utilities will be relocated south of the existing roadway to accommodate the raise in roadway profile and crane placement for construction of the proposed bridge structure.

- The underground telecommunications and sanitary sewer utilities will be protected during construction and relocated under the proposed roadway (crossing overtop the proposed bridge structure) during stages of construction.

- Intermediate riprap aprons will be placed at the outlets of the 18-inch reinforced concrete pipes to minimize the erosion on the southern embankments and improve the quality of the water that outlets from those pipes.

Impacts & Mitigation

Permanent tidal and inland wetland impacts at this site are due to the placement of the proposed concrete abutments, cuts and fills associated with the roadway raise and realignment, and the installation of natural streambed material, intermediate riprap, and granular fill material associated with replacement of the existing structure and reconstruction of 160 feet of natural stream channel.

Temporary tidal and inland wetland impacts at this site are from the temporary work areas, temporary utility relocation, and water handling necessary to complete the work.

Wetland impacts under **CT DEEP** jurisdictional limits are as follows:

- Permanent tidal wetlands impacts will be 1,500 s.f. (0.034 ac.). Temporary tidal wetland impacts will 2,600 s.f. (0.060 ac.). The total tidal wetland impacts will be 4,100 s.f. (0.094 ac.).

- Permanent inland wetland impacts will be 1,200 s.f. (0.028 ac.). Temporary inland wetland impacts will be 1,900 s.f. (0.044 ac). The total inland wetland impacts will be 3,100 s.f. (0.071 ac.).

Wetland impacts under **USACE** jurisdictional limits are as follows:

- Permanent tidal wetlands impacts will be 900 s.f. (0.021 ac.). Temporary tidal wetland impacts will 1,600 s.f. (0.037 ac.). The total tidal wetland impacts will be 2,500 s.f. (0.057 ac.).
- Permanent inland wetland impacts will be 1,800 s.f. (0.041 ac.). Temporary inland wetland impacts will be 2,900 s.f. (0.067 ac.). The total inland wetland impacts will be 4,700 s.f. (0.108 ac.).

Permanent watercourse impacts at this site will include the removal of the four existing 60-inch ACCMPs and the placement of natural streambed material, intermediate riprap, and granular fill material.

Temporary watercourse impacts will include the placement of water-handling-cofferdams to allow the Contractor to work in the dry.

Watercourse impacts will be the same for both CT DEEP and USACE jurisdictional limits:

- Permanent watercourse impacts will be 3,700 s.f. (0.085 ac.). Temporary watercourse impacts will be 1,800 s.f. (0.041 ac.). The total watercourse impacts will be 5,500 s.f. (0.126 ac.).

The total impacts to this site are as follows:

- Total permanent impacts will be 6,400 s.f. (0.147 ac.). Total temporary impacts will be 6,300 s.f. (0.145 ac.). The total of both permanent and temporary impacts at this site is 12,700 s.f. (0.292 ac.).

WETLAND IMPACT TABLE (DEEP)

	WETLAND SITE NO.	INLAND WETLAND IMPACTS	TIDAL WETLAND IMPACTS (TIDAL WETLAND LIMIT TO MHW)	WATERCOURSE IMPACTS (WATERWARD OF MHW)	TOTAL
PERMANENT IMPACTS	1	1200 S.F. (0.028 AC.)	1500 S.F. (0.034 AC.)	3700 S.F. (0.085 AC.)	6400 S.F. (0.147 AC.)
TEMPORARY IMPACTS	1	1900 S.F. (0.044 AC.)	2600 S.F. (0.060 AC.)	1800 S.F. (0.041 AC.)	6300 S.F. (0.145 AC.)
TOTAL IMPACTS		3100 S.F. (0.071 AC.)	4100 S.F. (0.094 AC.)	5500 S.F. (0.126 AC.)	12700 S.F. (0.292 AC.)

WETLAND IMPACT TABLE (USACE)

	WETLAND SITE NO.	INLAND WETLAND IMPACTS	TIDAL WETLAND IMPACTS (HTL TO MHW)	WATERCOURSE IMPACTS (WATERWARD OF MHW)	TOTAL
PERMANENT IMPACTS	1	1800 S.F. (0.041 AC.)	900 S.F. (0.021 AC.)	3700 S.F. (0.085 AC.)	6400 S.F. (0.147 AC.)
TEMPORARY IMPACTS	1	2900 S.F. (0.067 AC.)	1600 S.F. (0.037 AC.)	1800 S.F. (0.041 AC.)	6300 S.F. (0.145 AC.)
TOTAL IMPACTS		4700 S.F. (0.108 AC.)	2500 S.F. (0.057 AC.)	5500 S.F. (0.126 AC.)	12700 S.F. (0.292 AC.)

The following permits are anticipated to be required:

- USACE Pre-Construction Notification (PCN)
- CT DEEP Structures, Dredging, and Fill & Tidal Wetlands and Section 401 Water Quality Certificate
- CT DEEP Flood Management Certification
- CT DEEP General Permit Registration for Water Resource Construction Activities
- CT DEEP General Permit for the Discharge of Stormwater and Dewatering Wastewaters from Construction Activities

Construction is anticipated to last approximately 20 months from April 2025 to November 2026.

Tidal wetlands on south side of bridge

Alternatives

The decision to replace the existing bridge with a three-sided concrete rigid frame was selected as it provides a hydraulically adequate structure and satisfies the underclearance and freeboard requirements contained in the CTDOT Drainage Manual. The selected bridge design was the most cost effective of the hydraulically adequate alternatives. The road will be shifted approximately 35 feet horizontally at the western approach to meet the design standards for minimum curve radius and superelevation rate.

The structure alternatives that were considered during the preliminary design of this bridge included: 1) the placement of a concrete invert, 2) slip lining each pipe, 3) a centrifugally cast cementitious lining, 4) precast concrete twin box culverts and 5) using a geosynthetic reinforced soil integrated bridge system (GRS-IBS).

The placement of a concrete invert or lining the culverts were not chosen as they reduced the waterway opening of the existing pipes and didn't address the functional inadequacy of the roadway. The box culvert was not chosen as, once it was decided to raise the roadway for hydraulic reasons, it was deemed more desirable to use a structure that could provide a natural channel bottom. The GRS-IBS alternative was not chosen as this cost was 33% higher than the selected alternative without providing any additional benefits. The expected cost over a 75-year life cycle is also approximately 30% higher.

A proposed roadway alignment following the existing alignment was considered as a way to minimize project impacts. However, the alignment would not conform to design standards for minimum radius and superelevation rate and was replaced with the current design.

During construction, impacts will be minimized through the use of Best Management Practices (BMPs) stipulated in the Department's Standard Specifications for Roads, Bridges, and Incidental Construction, Form 818, Section 1.10, Environmental Compliance, Best Management Practices, and the implementation of an erosion and sediment control plan consistent with the 2002 CT Guidelines for Soil Erosion and Sediment Control.

District inspection personnel, as well as staff from the Office of Environmental Planning, will oversee construction during the construction activity. The following are site specific measures utilized to positively influence water quality and quantity:

- The channel will be stabilized with a 12-inch layer of natural streambed material on an 18-inch layer of intermediate riprap on a 6-inch layer of granular fill. The 2H:1V embankments will be stabilized with an 18-inch layer of intermediate riprap on a 6-inch layer of granular fill. The depth of the intermediate riprap will be increased to 24 inches at the toe of the embankment slopes to provide additional protection. Approximately 160 feet of the watercourse will be reconstructed.

- Removal of the existing culverts and placement of a clear span structure allows the formation of a natural channel through the proposed bridge opening.

- In each stage, a temporary water-handling-cofferdam will be used during the removal of the existing bridge and the construction of the new bridge to prevent sediment and debris from entering the watercourse.

- A minimum hydraulic opening is specified in each stage of the proposed water handling plan in order to provide sufficient hydraulic capacity during construction. Aquatic life will have free passage through the site during all phases of construction.

- Water pumped from the temporary water-handling-cofferdam will be directed into dewatering basins before being returned to the watercourse.

- The four existing 60-inch corrugated metal pipes will be replaced with a 28-foot wide three-sided rigid concrete arch which will improve the flow of water through the structure. The proposed structure will be hydraulically adequate.

- Intermediate riprap aprons will be placed at the outlets of the 18-inch reinforced concrete pipes to minimize the erosion on the southern embankments and improve the quality of the water that outlets from those pipes.

- Areas have been identified on the permit planting plan for control and removal of invasive species.

- All disturbed areas within the project limits will be stabilized and restored with native seeding and plantings.

Mitigation

The Department of Transportation is proposing an off-site mitigation area within Rocky Neck State Park to satisfy CTDEEP mitigation requirements for impacts at the bridge site. Ideally, impacts to tidal and inland wetlands are mitigated at the project site. However, due to insufficient area at the bridge site, an off-site option was required. In-Lieu Fee (ILF) will be used to offset USACE mitigation requirements.

A preliminary investigation of the wetlands along Bride Brook revealed several areas of degraded vegetation. The mitigation site is presently characterized by saltwater pools where healthy vegetation once grew. The area of the proposed site is approximately 10,000 square feet. The average depth of these pools is approximately 6 to 7 inches of water based on a preliminary site visit. The mitigation proposed will restore the tidal pools to a healthy marsh using Thin Layer Deposition (TLD). There is a known osprey nest location at RNSP.

The mitigation work will be done during the winter months when plants are dormant and activity levels from visitors are low. There will also be less fisheries and wildlife activity during the winter months. Construction is expected to start in April 2024 and finish in November 2025. The Mitigation Plan is included in the permit application materials.

Invasive Species

Invasive species will be controlled during construction using the Department's Control and Removal of Invasive Vegetation specification within the project limits. Invasive species that may be controlled include: Phragmites and multiflora rose.

Native seeding and native plantings are proposed for all disturbed areas within the project limits. The proposed control methods and the subsequent native plantings should provide for native plant community establishment within the project limits.

Summary

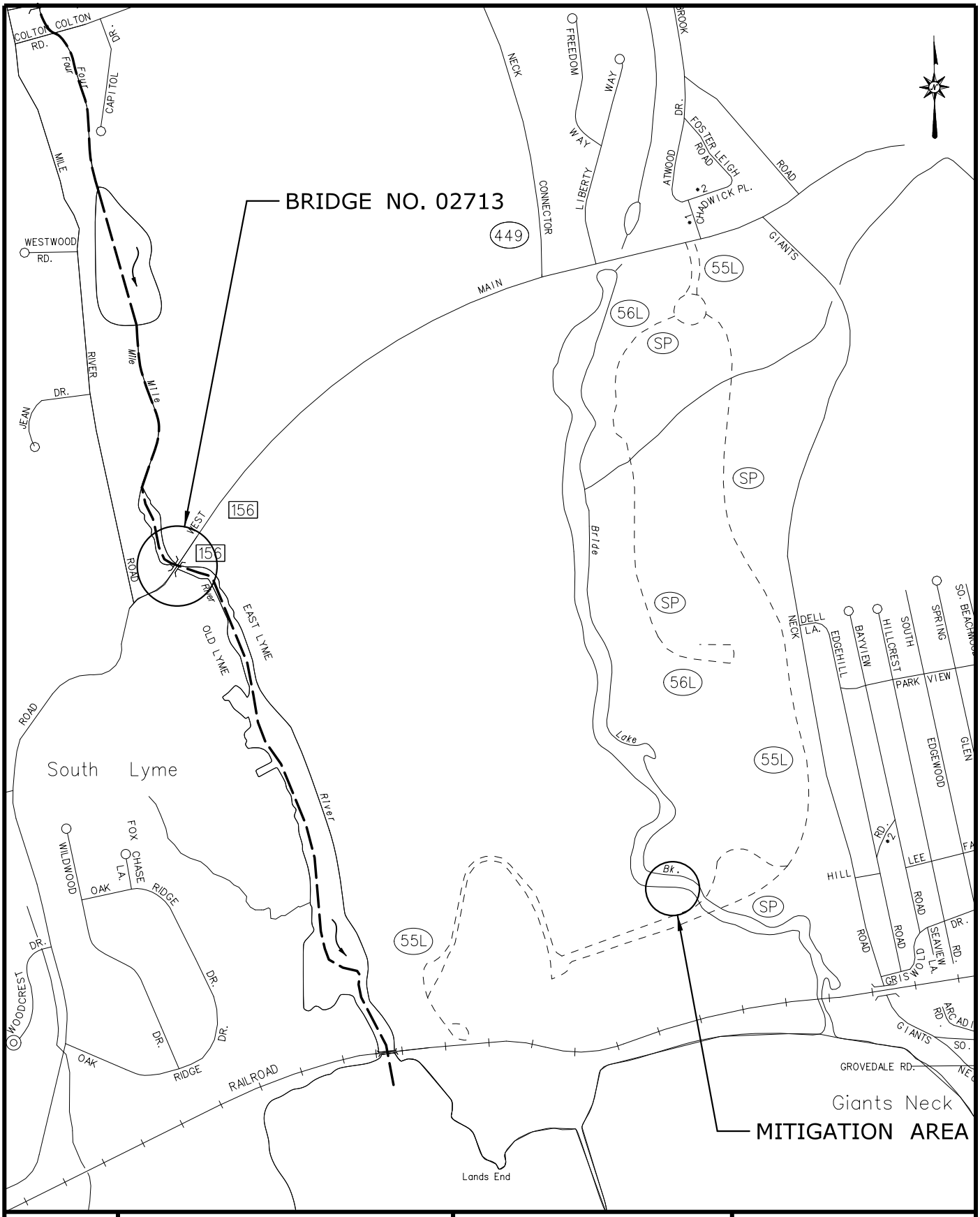
The functions and values provided by the freshwater wetlands, tidal wetlands, and the Four Mile River watercourse will not be significantly impacted by the proposed activities. Impacts are present but are limited and are mitigated using BMPs, sediment controls, oversight, implementation of a native planting plan, and, most importantly, the off-site wetland mitigation project at Rocky Neck State Park.

Prepared by: SES, Inc./BL Companies

Appendix A: Location Map
Appendix B: Soils Map & Report from USDA Web Soil Survey
Appendix C: Aerial Photograph with Sketch of Wetland Classifications
Appendix D: USACE Data Sheets & Wetland Function-Value Evaluation Forms
Appendix E: Site Photographs

Appendix A

Location Map



BL Companies	ROUTE 156 OVER FOUR MILE RIVER OLD LYME AND EAST LYME, CT	LOCATION MAP	BR. NO.: 02713 PROJ. NO.: 104-175 SCALE: 1" = 1,000'

Appendix B

Soils Map & Report from USDA Web Soil Survey

Bridge Site

Custom Soil Resource Report
Soil Map

Map Scale: 1:2,510 if printed on A landscape (11" x 8.5") sheet.

N

Meters
0 35 70 140 210

Feet
0 100 200 400 600

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 18N WGS84

MAP LEGEND

Area of Interest (AOI)

Area of Interest (AOI)

Soils

Soil Map Unit Polygons

Soil Map Unit Lines

Soil Map Unit Points

Special Point Features

Blowout

Borrow Pit

Clay Spot

Closed Depression

Gravel Pit

Gravelly Spot

Landfill

Lava Flow

Marsh or swamp

Mine or Quarry

Miscellaneous Water

Perennial Water

Rock Outcrop

Saline Spot

Sandy Spot

Severely Eroded Spot

Sinkhole

Slide or Slip

Sodic Spot

Spoil Area

Stony Spot

Very Stony Spot

Wet Spot

Other

Special Line Features

Water Features

Streams and Canals

Transportation

Rails

Interstate Highways

US Routes

Major Roads

Local Roads

Background

Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:12,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: State of Connecticut, Eastern Part
Survey Area Data: Version 1, Sep 15, 2023

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jun 14, 2022—Oct 6, 2022

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
3	Ridgebury, Leicester, and Whitman soils, 0 to 8 percent slopes, extremely stony	1.7	6.0%
23A	Sudbury sandy loam, 0 to 5 percent slopes	3.3	11.5%
38C	Hinckley loamy sand, 3 to 15 percent slopes	12.9	45.7%
60D	Canton and Charlton soils, 15 to 25 percent slopes	1.1	4.0%
62C	Canton and Charlton fine sandy loams, 3 to 15 percent slopes, extremely stony	1.5	5.2%
62D	Canton and Charlton fine sandy loams, 15 to 35 percent slopes, extremely stony	0.0	0.0%
75E	Hollis-Chatfield-Rock outcrop complex, 15 to 45 percent slopes	0.1	0.3%
96	Ipswich mucky peat, 0 to 2 percent slopes, very frequently flooded	0.8	2.7%
306	Udorthents-Urban land complex	0.3	1.2%
703B	Haven silt loam, 3 to 8 percent slopes	4.2	14.7%
W	Water	2.4	8.5%
Totals for Area of Interest		**28.3**	**100.0%**

Soil Information for All Uses

Soil Reports

The Soil Reports section includes various formatted tabular and narrative reports (tables) containing data for each selected soil map unit and each component of each unit. No aggregation of data has occurred as is done in reports in the Soil Properties and Qualities and Suitabilities and Limitations sections.

The reports contain soil interpretive information as well as basic soil properties and qualities. A description of each report (table) is included.

AOI Inventory

This folder contains a collection of tabular reports that present a variety of soil information. Included are various map unit description reports, special soil interpretation reports, and data summary reports.

Map Unit Description (Brief, Generated)

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions in this report, along with the maps, provide information on the composition of map units and properties of their components.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

The Map Unit Description (Brief, Generated) report displays a generated description of the major soils that occur in a map unit. Descriptions of non-soil (miscellaneous areas) and minor map unit components are not included. This description is generated from the underlying soil attribute data.

Additional information about the map units described in this report is available in other Soil Data Mart reports, which give properties of the soils and the limitations, capabilities, and potentials for many uses. Also, the narratives that accompany the Soil Data Mart reports define some of the properties included in the map unit descriptions.

Report—Map Unit Description (Brief, Generated)

State of Connecticut, Eastern Part

Map Unit: 60B—Canton and Charlton fine sandy loams, 3 to 8 percent slopes

Component: Canton (50%)

The Canton component makes up 50 percent of the map unit. Slopes are 3 to 8 percent. This component is on moraines on glaciated uplands. The parent material consists of coarse-loamy over sandy melt-out till derived from gneiss, granite, and/or schist. Depth to a root restrictive layer, strongly contrasting textural stratification, is 19 to 39 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches (or restricted depth) is very low. Shrink-swell potential is low. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 6 percent. This component is in the F144AY034CT Well Drained Till Uplands ecological site. Nonirrigated land capability classification is 2s. This soil does not meet hydric criteria.

Component: Charlton (35%)

The Charlton component makes up 35 percent of the map unit. Slopes are 3 to 8 percent. This component is on hills on glaciated uplands. The parent material consists of coarse-loamy melt-out till derived from granite, gneiss, and/or schist. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches (or restricted depth) is moderate. Shrink-swell potential is low. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 8 percent. This component is in the F144AY034CT Well Drained Till Uplands ecological site. Nonirrigated land capability classification is 2e. This soil does not meet hydric criteria.

Component: Sutton (5%)

Generated brief soil descriptions are created for major soil components. The Sutton soil is a minor component.

Component: Chatfield (5%)

Generated brief soil descriptions are created for major soil components. The Chatfield soil is a minor component.

Component: Leicester (5%)

Generated brief soil descriptions are created for major soil components. The Leicester soil is a minor component.

Map Unit: 73E—Charlton-Chatfield complex, 15 to 45 percent slopes, very rocky

Component: Charlton (45%)

The Charlton component makes up 45 percent of the map unit. Slopes are 15 to 45 percent. This component is on hills, uplands. The parent material consists of coarse-loamy melt-out till derived from granite and/or schist and/or gneiss. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches (or restricted depth) is moderate. Shrink-swell potential is low. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 4 percent. This component is in the F144AY034CT Well Drained Till Uplands ecological site. Nonirrigated land capability classification is 7s. This soil does not meet hydric criteria.

Component: Chatfield (30%)

The Chatfield component makes up 30 percent of the map unit. Slopes are 15 to 45 percent. This component is on bedrock controlled hills, bedrock controlled ridges, uplands. The parent material consists of coarse-loamy melt-out till derived from granite and/or schist and/or gneiss. Depth to a root restrictive layer, bedrock, lithic, is 20 to 40 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is low. Available water to a depth of 60 inches (or restricted depth) is low. Shrink-swell potential is low. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 75 percent. Below this thin organic horizon the organic matter content is about 4 percent. This component is in the F144AY034CT Well Drained Till Uplands ecological site. Nonirrigated land capability classification is 7s. This soil does not meet hydric criteria.

Component: Rock outcrop (10%)

Generated brief soil descriptions are created for major soil components. The Rock outcrop soil is a minor component.

Component: Sutton, very stony (5%)

Generated brief soil descriptions are created for major soil components. The Sutton, very stony soil is a minor component.

Component: Leicester (5%)

Generated brief soil descriptions are created for major soil components. The Leicester soil is a minor component.

Component: Hollis (3%)

Generated brief soil descriptions are created for major soil components. The Hollis soil is a minor component.

Component: Unnamed, red parent material (1%)

Generated brief soil descriptions are created for major soil components. The Unnamed, red parent material soil is a minor component.

Component: Unnamed, sandy subsoil (1%)

Generated brief soil descriptions are created for major soil components. The Unnamed, sandy subsoil soil is a minor component.

Map Unit: 75C—Hollis-Chatfield-Rock outcrop complex, 3 to 15 percent slopes

Component: Hollis (35%)

The Hollis component makes up 35 percent of the map unit. Slopes are 3 to 15 percent. This component is on bedrock controlled hills, bedrock controlled ridges, uplands. The parent material consists of loamy melt-out till derived from granite and/or schist and/or gneiss. Depth to a root restrictive layer, bedrock, lithic, is 10 to 20 inches. The natural drainage class is somewhat excessively drained. Water movement in the most restrictive layer is low. Available water to a depth of 60 inches (or restricted depth) is very low. Shrink-swell potential is low. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 40 percent. Below this thin organic horizon the organic matter content is about 3 percent. This component is in the F144AY033MA Shallow Dry Till Uplands ecological site. Nonirrigated land capability classification is 6s. This soil does not meet hydric criteria.

Component: Chatfield (30%)

The Chatfield component makes up 30 percent of the map unit. Slopes are 3 to 15 percent. This component is on bedrock controlled hills, bedrock controlled ridges, uplands. The parent material consists of coarse-loamy melt-out till derived from granite and/or schist and/or gneiss. Depth to a root restrictive layer, bedrock, lithic, is 20 to 40 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is low. Available water to a depth of 60 inches (or restricted depth) is low. Shrink-swell potential is low. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 75 percent. Below this thin organic horizon the organic matter content is about 4 percent. This component is in the F144AY034CT Well Drained Till Uplands ecological site. Nonirrigated land capability classification is 6s. This soil does not meet hydric criteria.

Component: Rock outcrop (15%)

Generated brief soil descriptions are created for major soil components. The Rock outcrop is a miscellaneous area.

Component: Charlton (7%)

Generated brief soil descriptions are created for major soil components. The Charlton soil is a minor component.

Component: Sutton, very stony (5%)

Generated brief soil descriptions are created for major soil components. The Sutton, very stony soil is a minor component.

Component: Leicester (5%)

Generated brief soil descriptions are created for major soil components. The Leicester soil is a minor component.

Component: Brimfield (1%)

Generated brief soil descriptions are created for major soil components. The Brimfield soil is a minor component.

Component: Unnamed, red parent material (1%)

Generated brief soil descriptions are created for major soil components. The Unnamed, red parent material soil is a minor component.

Component: Unnamed, sandy subsoil (1%)

Generated brief soil descriptions are created for major soil components. The Unnamed, sandy subsoil soil is a minor component.

Map Unit: 75E—Hollis-Chatfield-Rock outcrop complex, 15 to 45 percent slopes

Component: Hollis (35%)

The Hollis component makes up 35 percent of the map unit. Slopes are 15 to 45 percent. This component is on bedrock controlled hills, bedrock controlled ridges, uplands. The parent material consists of loamy melt-out till derived from granite and/or schist and/or gneiss. Depth to a root restrictive layer, bedrock, lithic, is 10 to 20 inches. The natural drainage class is somewhat excessively drained. Water movement in the most restrictive layer is low. Available water to a depth of 60 inches (or restricted depth) is very low. Shrink-swell potential is low. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 40 percent. Below this thin organic horizon the organic matter content is about 3 percent. This component is in the F144AY033MA Shallow Dry Till Uplands ecological site. Nonirrigated land capability classification is 7s. This soil does not meet hydric criteria.

Component: Chatfield (30%)

The Chatfield component makes up 30 percent of the map unit. Slopes are 15 to 45 percent. This component is on bedrock controlled hills, bedrock controlled ridges, uplands. The parent material consists of coarse-loamy melt-out till derived from granite and/or schist and/or gneiss. Depth to a root restrictive layer, bedrock, lithic, is 20 to 40 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is low. Available water to a depth of 60 inches (or restricted depth) is low. Shrink-swell potential is low. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 75 percent. Below this thin organic horizon the organic matter content is about 4 percent. This component is in the F144AY034CT Well Drained Till Uplands ecological site. Nonirrigated land capability classification is 7s. This soil does not meet hydric criteria.

Component: Rock outcrop (15%)

Generated brief soil descriptions are created for major soil components. The Rock outcrop is a miscellaneous area.

Component: Charlton (7%)

Generated brief soil descriptions are created for major soil components. The Charlton soil is a minor component.

Component: Leicester (5%)

Generated brief soil descriptions are created for major soil components. The Leicester soil is a minor component.

Component: Sutton, very stony (5%)

Generated brief soil descriptions are created for major soil components. The Sutton, very stony soil is a minor component.

Component: Unnamed, red parent material (1%)

Generated brief soil descriptions are created for major soil components. The Unnamed, red parent material soil is a minor component.

Component: Unnamed, sandy subsoil (1%)

Generated brief soil descriptions are created for major soil components. The Unnamed, sandy subsoil soil is a minor component.

Component: Brimfield (1%)

Generated brief soil descriptions are created for major soil components. The Brimfield soil is a minor component.

Map Unit: 76E—Rock outcrop-Hollis complex, 3 to 45 percent slopes

Component: Rock outcrop (55%)

Generated brief soil descriptions are created for major soil components. The Rock outcrop is a miscellaneous area.

Component: Hollis (25%)

The Hollis component makes up 25 percent of the map unit. Slopes are 3 to 45 percent. This component is on bedrock controlled hills, bedrock controlled ridges, uplands. The parent material consists of loamy melt-out till derived from granite and/or schist and/or gneiss. Depth to a root restrictive layer, bedrock, lithic, is 10 to 20 inches. The natural drainage class is somewhat excessively drained. Water movement in the most restrictive layer is low. Available water to a depth of 60 inches (or restricted depth) is very low. Shrink-swell potential is low. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 40 percent. Below this thin organic horizon the organic matter content is about 3 percent. This component is in the F144AY033MA Shallow Dry Till Uplands ecological site. Nonirrigated land capability classification is 7s. This soil does not meet hydric criteria.

Component: Chatfield (10%)

Generated brief soil descriptions are created for major soil components. The Chatfield soil is a minor component.

Component: Charlton (6%)

Generated brief soil descriptions are created for major soil components. The Charlton soil is a minor component.

Component: Leicester (2%)

Generated brief soil descriptions are created for major soil components. The Leicester soil is a minor component.

Component: Sutton, very stony (1%)

Generated brief soil descriptions are created for major soil components. The Sutton, very stony soil is a minor component.

Component: Brimfield (1%)

Generated brief soil descriptions are created for major soil components. The Brimfield soil is a minor component.

Map Unit: 96—Ipswich mucky peat, 0 to 2 percent slopes, very frequently flooded

Component: Ipswich (90%)

The Ipswich component makes up 90 percent of the map unit. Slopes are 0 to 2 percent. This component is on tidal marshes on coastal plains. The parent material consists of partially- decomposed herbaceous organic material. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is very poorly drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches (or restricted depth) is very high. Shrink-swell potential is low. This soil is very frequently flooded. It is not ponded. A seasonal zone of water saturation is at 0 inches during January, February, March, April, May, June, July, August, September, October, November, December. Organic matter content in the surface horizon is about 64 percent. This component is in the R144AY002CT Tidal Salt High Marsh mesic very frequently flooded, Tidal Salt Low Marsh mesic very frequently flooded ecological site. Nonirrigated land capability classification is 8w. This soil meets hydric criteria. The soil has a moderately saline horizon within 30 inches of the soil surface. The soil has a maximum sodium adsorption ratio of 1 within 30 inches of the soil surface.

Component: Pawcatuck (5%)

Generated brief soil descriptions are created for major soil components. The Pawcatuck soil is a minor component.

Component: Westbrook (5%)

Generated brief soil descriptions are created for major soil components. The Westbrook soil is a minor component.

Map Unit: 306—Udorthents-Urban land complex

Component: Udorthents (50%)

The Udorthents component makes up 50 percent of the map unit. Slopes are 0 to 25 percent. This component is on fills. The parent material consists of human-transported material. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is low. Available water to a depth of 60 inches (or restricted depth) is moderate. Shrink-swell potential is low. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 4 percent. Nonirrigated land capability classification is 4e. This soil does not meet hydric criteria.

Component: Urban land (39%)

Generated brief soil descriptions are created for major soil components. The Urban land is a miscellaneous area.

Component: Udorthents, wet substratum (9%)

Generated brief soil descriptions are created for major soil components. The Udorthents, wet substratum soil is a minor component.

Component: Rock outcrop (2%)

Generated brief soil descriptions are created for major soil components. The Rock outcrop soil is a minor component.

Map Unit: W—Water

Component: Water (100%)

Generated brief soil descriptions are created for major soil components. The Water is a miscellaneous area.

Mitigation Site

Custom Soil Resource Report
Soil Map

Map Scale: 1:2,910 if printed on A landscape (11" x 8.5") sheet.

N

Meters
0 40 80 160 240

Feet
0 100 200 400 600

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 18N WGS84

MAP LEGEND

Area of Interest (AOI)

Area of Interest (AOI)

Soils

Soil Map Unit Polygons

Soil Map Unit Lines

Soil Map Unit Points

Special Point Features

Blowout

Borrow Pit

Clay Spot

Closed Depression

Gravel Pit

Gravelly Spot

Landfill

Lava Flow

Marsh or swamp

Mine or Quarry

Miscellaneous Water

Perennial Water

Rock Outcrop

Saline Spot

Sandy Spot

Severely Eroded Spot

Sinkhole

Slide or Slip

Sodic Spot

Spoil Area

Stony Spot

Very Stony Spot

Wet Spot

Other

Special Line Features

Water Features

Streams and Canals

Transportation

Rails

Interstate Highways

US Routes

Major Roads

Local Roads

Background

Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:12,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: State of Connecticut, Eastern Part
Survey Area Data: Version 1, Sep 15, 2023

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jun 14, 2022—Oct 6, 2022

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
60B	Canton and Charlton fine sandy loams, 3 to 8 percent slopes	2.1	4.9%
73E	Charlton-Chatfield complex, 15 to 45 percent slopes, very rocky	0.7	1.6%
75C	Hollis-Chatfield-Rock outcrop complex, 3 to 15 percent slopes	0.7	1.6%
75E	Hollis-Chatfield-Rock outcrop complex, 15 to 45 percent slopes	3.1	7.1%
76E	Rock outcrop-Hollis complex, 3 to 45 percent slopes	1.0	2.2%
96	Ipswich mucky peat, 0 to 2 percent slopes, very frequently flooded	16.9	38.8%
306	Udorthents-Urban land complex	16.6	38.2%
W	Water	2.5	5.6%
Totals for Area of Interest		**43.6**	**100.0%**

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the

Soil Information for All Uses

Soil Reports

The Soil Reports section includes various formatted tabular and narrative reports (tables) containing data for each selected soil map unit and each component of each unit. No aggregation of data has occurred as is done in reports in the Soil Properties and Qualities and Suitabilities and Limitations sections.

The reports contain soil interpretive information as well as basic soil properties and qualities. A description of each report (table) is included.

AOI Inventory

This folder contains a collection of tabular reports that present a variety of soil information. Included are various map unit description reports, special soil interpretation reports, and data summary reports.

Map Unit Description (Brief, Generated) (Mitigation Area)

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions in this report, along with the maps, provide information on the composition of map units and properties of their components.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

The Map Unit Description (Brief, Generated) report displays a generated description of the major soils that occur in a map unit. Descriptions of non-soil (miscellaneous

areas) and minor map unit components are not included. This description is generated from the underlying soil attribute data.

Additional information about the map units described in this report is available in other Soil Data Mart reports, which give properties of the soils and the limitations, capabilities, and potentials for many uses. Also, the narratives that accompany the Soil Data Mart reports define some of the properties included in the map unit descriptions.

Report—Map Unit Description (Brief, Generated) (Mitigation Area)

State of Connecticut, Eastern Part

Map Unit: 60B—Canton and Charlton fine sandy loams, 3 to 8 percent slopes

Component: Canton (50%)

The Canton component makes up 50 percent of the map unit. Slopes are 3 to 8 percent. This component is on moraines on glaciated uplands. The parent material consists of coarse-loamy over sandy melt-out till derived from gneiss, granite, and/or schist. Depth to a root restrictive layer, strongly contrasting textural stratification, is 19 to 39 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches (or restricted depth) is very low. Shrink-swell potential is low. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 6 percent. This component is in the F144AY034CT Well Drained Till Uplands ecological site. Nonirrigated land capability classification is 2s. This soil does not meet hydric criteria.

Component: Charlton (35%)

The Charlton component makes up 35 percent of the map unit. Slopes are 3 to 8 percent. This component is on hills on glaciated uplands. The parent material consists of coarse-loamy melt-out till derived from granite, gneiss, and/or schist. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches (or restricted depth) is moderate. Shrink-swell potential is low. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 8 percent. This component is in the F144AY034CT Well Drained Till Uplands ecological site. Nonirrigated land capability classification is 2e. This soil does not meet hydric criteria.

Component: Sutton (5%)

Generated brief soil descriptions are created for major soil components. The Sutton soil is a minor component.

Component: Chatfield (5%)

Generated brief soil descriptions are created for major soil components. The Chatfield soil is a minor component.

Component: Leicester (5%)

Generated brief soil descriptions are created for major soil components. The Leicester soil is a minor component.

Map Unit: 73E—Charlton-Chatfield complex, 15 to 45 percent slopes, very rocky

Component: Charlton (45%)

The Charlton component makes up 45 percent of the map unit. Slopes are 15 to 45 percent. This component is on hills, uplands. The parent material consists of coarse-loamy melt-out till derived from granite and/or schist and/or gneiss. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches (or restricted depth) is moderate. Shrink-swell potential is low. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 4 percent. This component is in the F144AY034CT Well Drained Till Uplands ecological site. Nonirrigated land capability classification is 7s. This soil does not meet hydric criteria.

Component: Chatfield (30%)

The Chatfield component makes up 30 percent of the map unit. Slopes are 15 to 45 percent. This component is on bedrock controlled hills, bedrock controlled ridges, uplands. The parent material consists of coarse-loamy melt-out till derived from granite and/or schist and/or gneiss. Depth to a root restrictive layer, bedrock, lithic, is 20 to 40 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is low. Available water to a depth of 60 inches (or restricted depth) is low. Shrink-swell potential is low. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 75 percent. Below this thin organic horizon the organic matter content is about 4 percent. This component is in the F144AY034CT Well Drained Till Uplands ecological site. Nonirrigated land capability classification is 7s. This soil does not meet hydric criteria.

Component: Rock outcrop (10%)

Generated brief soil descriptions are created for major soil components. The Rock outcrop soil is a minor component.

Component: Sutton, very stony (5%)

Generated brief soil descriptions are created for major soil components. The Sutton, very stony soil is a minor component.

Component: Leicester (5%)

Generated brief soil descriptions are created for major soil components. The Leicester soil is a minor component.

Component: Hollis (3%)

Generated brief soil descriptions are created for major soil components. The Hollis soil is a minor component.

Component: Unnamed, red parent material (1%)

Generated brief soil descriptions are created for major soil components. The Unnamed, red parent material soil is a minor component.

Component: Unnamed, sandy subsoil (1%)

Generated brief soil descriptions are created for major soil components. The Unnamed, sandy subsoil soil is a minor component.

Map Unit: 75C—Hollis-Chatfield-Rock outcrop complex, 3 to 15 percent slopes

Component: Hollis (35%)

The Hollis component makes up 35 percent of the map unit. Slopes are 3 to 15 percent. This component is on bedrock controlled hills, bedrock controlled ridges, uplands. The parent material consists of loamy melt-out till derived from granite and/or schist and/or gneiss. Depth to a root restrictive layer, bedrock, lithic, is 10 to 20 inches. The natural drainage class is somewhat excessively drained. Water movement in the most restrictive layer is low. Available water to a depth of 60 inches (or restricted depth) is very low. Shrink-swell potential is low. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 40 percent. Below this thin organic horizon the organic matter content is about 3 percent. This component is in the F144AY033MA Shallow Dry Till Uplands ecological site. Nonirrigated land capability classification is 6s. This soil does not meet hydric criteria.

Component: Chatfield (30%)

The Chatfield component makes up 30 percent of the map unit. Slopes are 3 to 15 percent. This component is on bedrock controlled hills, bedrock controlled ridges, uplands. The parent material consists of coarse-loamy melt-out till derived from granite and/or schist and/or gneiss. Depth to a root restrictive layer, bedrock, lithic, is 20 to 40 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is low. Available water to a depth of 60 inches (or restricted depth) is low. Shrink-swell potential is low. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 75 percent. Below this thin organic horizon the organic matter content is about 4 percent. This component is in the

F144AY034CT Well Drained Till Uplands ecological site. Nonirrigated land capability classification is 6s. This soil does not meet hydric criteria.

Component: Rock outcrop (15%)

Generated brief soil descriptions are created for major soil components. The Rock outcrop is a miscellaneous area.

Component: Charlton (7%)

Generated brief soil descriptions are created for major soil components. The Charlton soil is a minor component.

Component: Sutton, very stony (5%)

Generated brief soil descriptions are created for major soil components. The Sutton, very stony soil is a minor component.

Component: Leicester (5%)

Generated brief soil descriptions are created for major soil components. The Leicester soil is a minor component.

Component: Brimfield (1%)

Generated brief soil descriptions are created for major soil components. The Brimfield soil is a minor component.

Component: Unnamed, red parent material (1%)

Generated brief soil descriptions are created for major soil components. The Unnamed, red parent material soil is a minor component.

Component: Unnamed, sandy subsoil (1%)

Generated brief soil descriptions are created for major soil components. The Unnamed, sandy subsoil soil is a minor component.

Map Unit: 75E—Hollis-Chatfield-Rock outcrop complex, 15 to 45 percent slopes

Component: Hollis (35%)

The Hollis component makes up 35 percent of the map unit. Slopes are 15 to 45 percent. This component is on bedrock controlled hills, bedrock controlled ridges, uplands. The parent material consists of loamy melt-out till derived from granite and/or schist and/or gneiss. Depth to a root restrictive layer, bedrock, lithic, is 10 to 20 inches. The natural drainage class is somewhat excessively drained. Water movement in the most restrictive layer is low. Available water to a depth of 60 inches (or restricted depth) is very low. Shrink-swell potential is low. This soil is not

flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 40 percent. Below this thin organic horizon the organic matter content is about 3 percent. This component is in the F144AY033MA Shallow Dry Till Uplands ecological site. Nonirrigated land capability classification is 7s. This soil does not meet hydric criteria.

Component: Chatfield (30%)

The Chatfield component makes up 30 percent of the map unit. Slopes are 15 to 45 percent. This component is on bedrock controlled hills, bedrock controlled ridges, uplands. The parent material consists of coarse-loamy melt-out till derived from granite and/or schist and/or gneiss. Depth to a root restrictive layer, bedrock, lithic, is 20 to 40 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is low. Available water to a depth of 60 inches (or restricted depth) is low. Shrink-swell potential is low. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 75 percent. Below this thin organic horizon the organic matter content is about 4 percent. This component is in the F144AY034CT Well Drained Till Uplands ecological site. Nonirrigated land capability classification is 7s. This soil does not meet hydric criteria.

Component: Rock outcrop (15%)

Generated brief soil descriptions are created for major soil components. The Rock outcrop is a miscellaneous area.

Component: Charlton (7%)

Generated brief soil descriptions are created for major soil components. The Charlton soil is a minor component.

Component: Leicester (5%)

Generated brief soil descriptions are created for major soil components. The Leicester soil is a minor component.

Component: Sutton, very stony (5%)

Generated brief soil descriptions are created for major soil components. The Sutton, very stony soil is a minor component.

Component: Unnamed, red parent material (1%)

Generated brief soil descriptions are created for major soil components. The Unnamed, red parent material soil is a minor component.

Component: Unnamed, sandy subsoil (1%)

Generated brief soil descriptions are created for major soil components. The Unnamed, sandy subsoil soil is a minor component.

Component: Brimfield (1%)

Generated brief soil descriptions are created for major soil components. The Brimfield soil is a minor component.

Map Unit: 76E—Rock outcrop-Hollis complex, 3 to 45 percent slopes

Component: Rock outcrop (55%)

Generated brief soil descriptions are created for major soil components. The Rock outcrop is a miscellaneous area.

Component: Hollis (25%)

The Hollis component makes up 25 percent of the map unit. Slopes are 3 to 45 percent. This component is on bedrock controlled hills, bedrock controlled ridges, uplands. The parent material consists of loamy melt-out till derived from granite and/or schist and/or gneiss. Depth to a root restrictive layer, bedrock, lithic, is 10 to 20 inches. The natural drainage class is somewhat excessively drained. Water movement in the most restrictive layer is low. Available water to a depth of 60 inches (or restricted depth) is very low. Shrink-swell potential is low. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 40 percent. Below this thin organic horizon the organic matter content is about 3 percent. This component is in the F144AY033MA Shallow Dry Till Uplands ecological site. Nonirrigated land capability classification is 7s. This soil does not meet hydric criteria.

Component: Chatfield (10%)

Generated brief soil descriptions are created for major soil components. The Chatfield soil is a minor component.

Component: Charlton (6%)

Generated brief soil descriptions are created for major soil components. The Charlton soil is a minor component.

Component: Leicester (2%)

Generated brief soil descriptions are created for major soil components. The Leicester soil is a minor component.

Component: Sutton, very stony (1%)

Generated brief soil descriptions are created for major soil components. The Sutton, very stony soil is a minor component.

Component: Brimfield (1%)

Generated brief soil descriptions are created for major soil components. The Brimfield soil is a minor component.

Map Unit: 96—Ipswich mucky peat, 0 to 2 percent slopes, very frequently flooded

Component: Ipswich (90%)

The Ipswich component makes up 90 percent of the map unit. Slopes are 0 to 2 percent. This component is on tidal marshes on coastal plains. The parent material consists of partially- decomposed herbaceous organic material. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is very poorly drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches (or restricted depth) is very high. Shrink-swell potential is low. This soil is very frequently flooded. It is not ponded. A seasonal zone of water saturation is at 0 inches during January, February, March, April, May, June, July, August, September, October, November, December. Organic matter content in the surface horizon is about 64 percent. This component is in the R144AY002CT Tidal Salt High Marsh mesic very frequently flooded, Tidal Salt Low Marsh mesic very frequently flooded ecological site. Nonirrigated land capability classification is 8w. This soil meets hydric criteria. The soil has a moderately saline horizon within 30 inches of the soil surface. The soil has a maximum sodium adsorption ratio of 1 within 30 inches of the soil surface.

Component: Pawcatuck (5%)

Generated brief soil descriptions are created for major soil components. The Pawcatuck soil is a minor component.

Component: Westbrook (5%)

Generated brief soil descriptions are created for major soil components. The Westbrook soil is a minor component.

Map Unit: 306—Udorthents-Urban land complex

Component: Udorthents (50%)

The Udorthents component makes up 50 percent of the map unit. Slopes are 0 to 25 percent. This component is on fills. The parent material consists of human-transported material. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is low. Available water to a depth of 60 inches (or restricted depth) is moderate. Shrink-swell potential is low. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 4 percent. Nonirrigated land capability classification is 4e. This soil does not meet hydric criteria.

Component: Urban land (39%)

Generated brief soil descriptions are created for major soil components. The Urban land is a miscellaneous area.

Component: Udorthents, wet substratum (9%)

Generated brief soil descriptions are created for major soil components. The Udorthents, wet substratum soil is a minor component.

Component: Rock outcrop (2%)

Generated brief soil descriptions are created for major soil components. The Rock outcrop soil is a minor component.

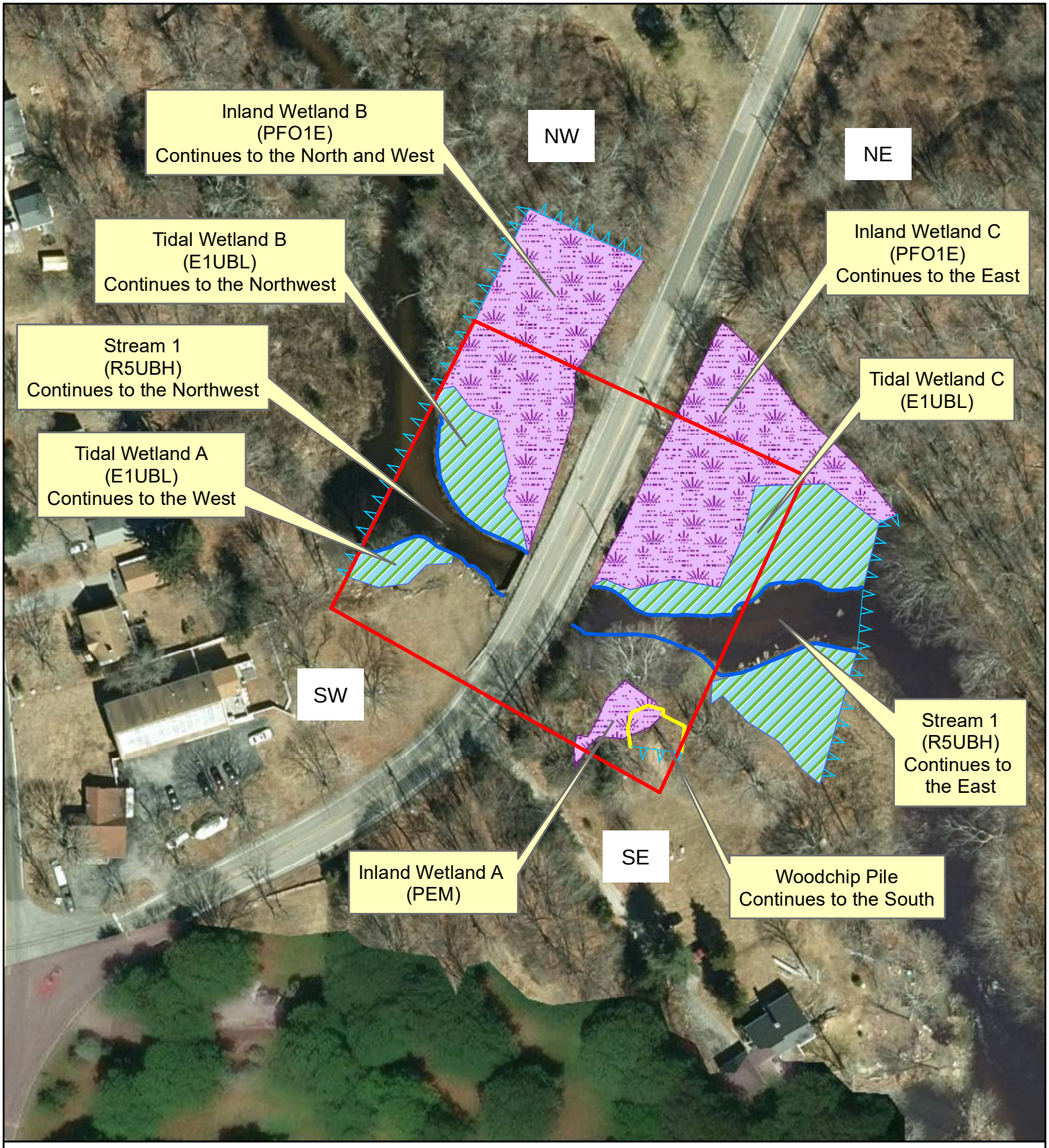
Map Unit: W—Water

Component: Water (100%)

Generated brief soil descriptions are created for major soil components. The Water is a miscellaneous area.

Appendix C

Aerial Photograph with Sketch of
Wetland Classifications



CTDOT BRIDGE NO. 02713 - WETLAND CLASSIFICATION MAP

GRAPHIC SCALE
0 50 100 150 200
Feet

Legend

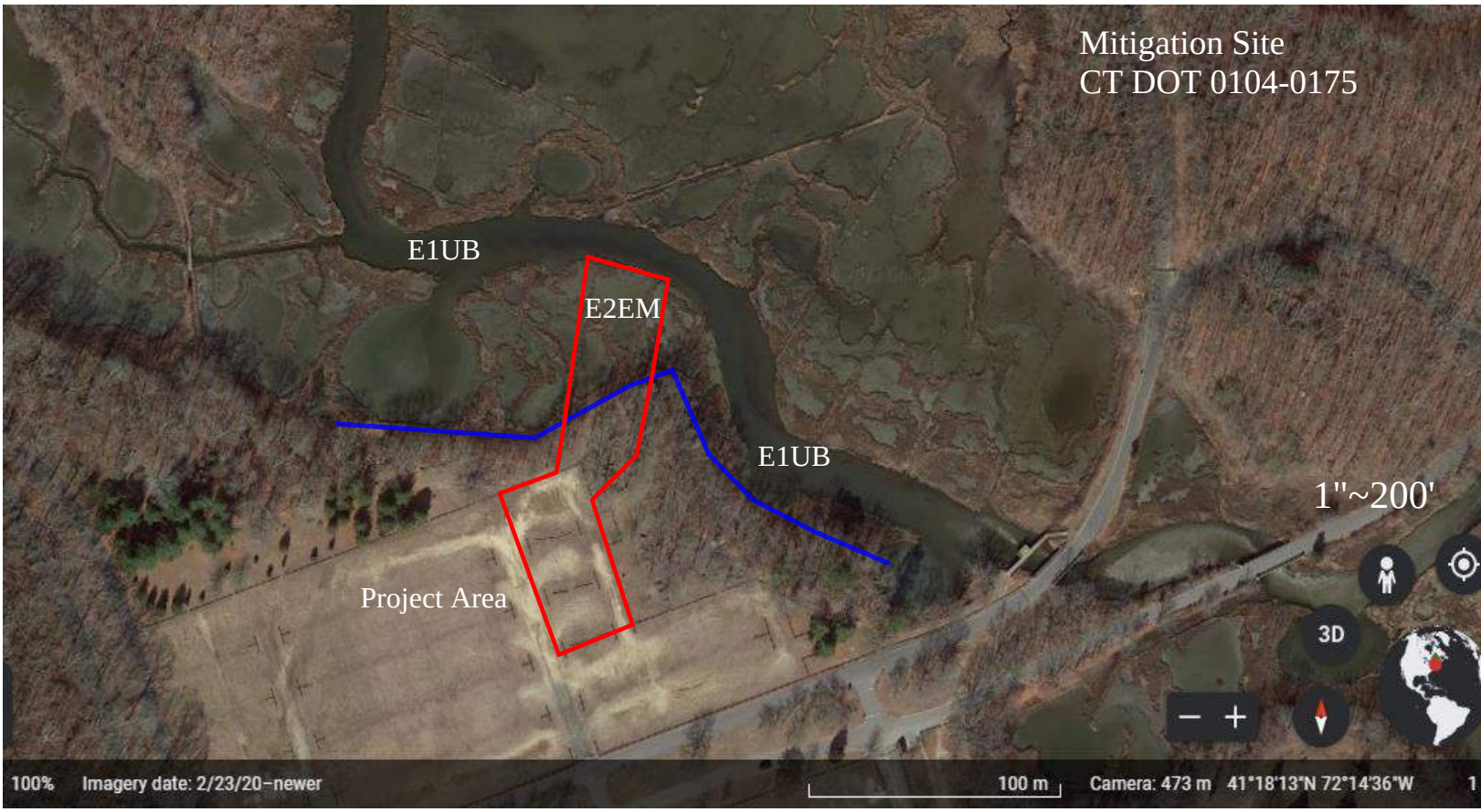
- Project Area
- Delineated Tidal Wetland Areas
- Delineated Inland Wetland Areas
- Delineated Streams
- Woodchip Area
- Continuous Feature

Old Lyme, Connecticut

DRAWN BY: HMD	PROJECT NO: 15C5403
CHECKED BY: SMS	
SCALE: 1:1,200	Appendix C.

BL Companies
Architecture Engineering Environmental Land Surveying
355 Research Parkway
Meriden, CT 06450
(203) 630 - 1406

Document Path: G:\JOBS15\15C\15C5403\BRIDGES-STATE\Old Lyme_02713\GIS\MXD\BL Wetland Mapping - July 2023\Appendix C. Wetland Location Map.mxd


Mitigation Site
CT DOT 0104-0175
E1UB
E2EM
E1UB
Project Area
1"~200'
3D
100%
Imagery date: 2/23/20–newer
100 m
Camera: 473 m 41°18'13"N 72°14'36"W

Appendix D

USACE Data Sheets & Wetland Function-Value Evaluation Forms

Wetland Function-Value Evaluation Form

Total area of wetland 1.0 ac. Human made? no Is wetland part of a wildlife corridor? no or a "habitat island"? no

Adjacent land use vacant tidal land, rural residential, open space Distance to nearest roadway or other development 30 feet

Dominant wetland systems present R5UB, E1UB Contiguous undeveloped buffer zone present to the south

Is the wetland a separate hydraulic system? No If not, where does the wetland lie in the drainage basin? lower; close to LIS

How many tributaries contribute to the wetland? 9 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. _____

Latitude 41.309938, 41.30983 Longitude -72.254287, -72.25410

Prepared by: MC/DF Date 07-20-2021

Wetland Impact:
Type permanent Area see table

Evaluation based on:
Office _____ Field X

Corps manual wetland delineation completed? Y x N _____

Function/Value	Suitability Y / N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	N	---		---
Floodflow Alteration	Y	3,5-6,11,15-18	x	principal function, wide floodplain, water holding capacity is good
Fish and Shellfish Habitat	N	---		
Sediment/Toxicant Retention	N	---		
Nutrient Removal	Y	2,3,4,5,6,7,8,10,11,13,14	x	principal function
Production Export	N	2,4,6,7,10		principal function
Sediment/Shoreline Stabilization	Y	7,9,12,15	x	principal function
Wildlife Habitat	Y	1,2,5-9,13,16,17,19,21	x	
Recreation	N	---		
Educational/Scientific Value	N	---		
Uniqueness/Heritage	N	---		
Visual Quality/Aesthetics	Y	1-3, 7-8	x	principal function
ES Endangered Species Habitat	N	None, NDDB		
Other				

Notes:

* Refer to backup list of numbered considerations.

#1A Inland ~25 ft in both directions of Route 156;
200 ft south of Route 156

Wetland Function-Value Evaluation Form

Total area of wetland 1.02 ac Human made? no Is wetland part of a wildlife corridor? no or a "habitat island"? no

Adjacent land use wooded, rural residential Distance to nearest roadway or other development 15 ft

Dominant wetland systems present PFO1, PEM Contiguous undeveloped buffer zone present yes

Is the wetland a separate hydraulic system? no If not, where does the wetland lie in the drainage basin? Lower area of Four Mile River

How many tributaries contribute to the wetland? 3 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. #1A Inland Wetlands

Latitude 41.310219, 41.309284 Longitude 72.154160, 72.154160

Prepared by: MC, DF Date 7-21-2021

Wetland Impact:
Type permanent Area see table

Evaluation based on:
Office ____ Field x

Corps manual wetland delineation completed? Y x N ____

Function/Value	Suitability Y / N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	N	4,7		
Floodflow Alteration	N	8,13,15,17		
Fish and Shellfish Habitat	N	4,6,10,14,16		
Sediment/Toxicant Retention	N	4,8,9,		
Nutrient Removal	N	2,3,5,8,14		
Production Export	N	4,7		
Sediment/Shoreline Stabilization	N	4,7		
Wildlife Habitat	Y	1,2,5-8,13,17,18,19	x	principal function; wildlife present
Recreation	N	5,6		
Educational/Scientific Value	N	2,5		
Uniqueness/Heritage	N	--- none		
Visual Quality/Aesthetics	N	7,8,10,11		
ES Endangered Species Habitat		none NBBD		
Other				

Notes: Two identical wetlands present to north and south of Rt 156. Road bissects these wetland areas.

* Refer to backup list of numbered considerations.

Wetland Function-Value Evaluation Form

Total area of wetland 10,000 sf Human made? no Is wetland part of a wildlife corridor? yes or a "habitat island"? no

Adjacent land use park and parking area Distance to nearest roadway or other development 480'

Dominant wetland systems present E2EM1N Contiguous undeveloped buffer zone present yes

Is the wetland a separate hydraulic system? no If not, where does the wetland lie in the drainage basin? lower end

How many tributaries contribute to the wetland? 2 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. #A

Latitude 41.30267 Longitude 72.24106

Prepared by: MC/DF Date 5/3/2022

Wetland Impact:
Type mitigation Area 10,000 sq. ft.

Evaluation based on:
Office ____ Field X

Corps manual wetland delineation completed? Y____ N____

mitigation area

Function/Value	Suitability Y / N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	N	4,7,12,15		
Floodflow Alteration	N	5,6,8,9,10		
Fish and Shellfish Habitat	Y	1,4,5,7,9,10,12,	X	considerations 1-6; principal
Sediment/Toxicant Retention	N	4,8,9		
Nutrient Removal	N	2,3,5		
Production Export	N	4,6		
Sediment/Shoreline Stabilization	N	3,4		
Wildlife Habitat	Y	3,6,8,11,17,20,21	X	principal
Recreation	Y	1,4,5,7,10,11,12	X	principal
Educational/Scientific Value	Y	4,5,6,7,8,12	X	principal
Uniqueness/Heritage	Y	8,9,12,13,14,16	X	principal
Visual Quality/Aesthetics	Y	2,5,9,10,11,12	X	principal
ES Endangered Species Habitat	N	None, NDDB		
Other				

Notes:

* Refer to backup list of numbered considerations.

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: 15C5403 - CTDOT No. 02713 City/County: Old Lyme / New London Sampling Date: 2023-06-20

Applicant/Owner: CTDOT State: Connecticut Sampling Point: SP1

Investigator(s): Sagan M. Simko, CPSS, PWS & Hayley De Marchis Section, Township, Range: _____

Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave Slope (%): 1

Subregion (LRR or MLRA): R 144A Lat: 41.31009623 Long: -72.2536154 Datum: NAD83_2011

Soil Map Unit Name: 3 - Ridgebury, Leicester, and Whitman soils, 0 to 8 percent slopes, extremely stony NWI classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✔ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✔ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✔	No _____	**Is the Sampled Area within a Wetland?** **Yes** ✔ **No** _____
Hydric Soil Present?	Yes ✔	No _____	
Wetland Hydrology Present?	Yes ✔	No _____	If yes, optional Wetland Site ID: _____

Remarks: (Explain alternative procedures here or in a separate report.)

SP1 is located within a wetland area, north of Four Mile River and east of Shore Road.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ✔ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Vis ble on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ✔ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ✔ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No ✔	Depth (inches): _____
Water Table Present?	Yes _____	No ✔	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes ✔	No _____	Depth (inches): 1

Wetland Hydrology Present? **Yes** ✔ **No** _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Hydrologic indicators have been met.

VEGETATION – Use scientific names of plants.

Sampling Point: SP1

Tree Stratum (Plot size: 30 ft r)	Absolute % Cover	Dominant Species?	Indicator Status
1. Acer rubrum	50	✔	FAC
2. Alnus serrulata	40	✔	OBL
3. Ilex verticillata	10		FACW
4.			
5.			
6.			
7.			
	100	= Total Cover	

Sapling/Shrub Stratum (Plot size: 15 ft r)			
1. Clethra alnifolia	30	✔	FAC
2. Smilax rotundifolia	20	✔	FAC
3. Rosa multiflora	10		FACU
4. Lindera benzoin	10		FACW
5.			
6.			
7.			
	70	= Total Cover	

Herb Stratum (Plot size: 5 ft r)			
1. Symplocarpus foetidus	80	✔	OBL
2. Glyceria striata	30	✔	OBL
3. Carex lurida	10		OBL
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	120	= Total Cover	

Woody Vine Stratum (Plot size: 30 ft r)			
1. Vitis labrusca	20	✔	FACU
2.			
3.			
4.			
	20	= Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 6 (A)

Total Number of Dominant Species Across All Strata: 7 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 85.71 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	160	x 1 =	160
FACW species	20	x 2 =	40
FAC species	100	x 3 =	300
FACU species	30	x 4 =	120
UPL species	0	x 5 =	0
Column Totals:	310 (A)		620 (B)

Prevalence Index = B/A = 2.00

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

✔ 2 - Dominance Test is >50%

✔ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** ✔ **No** ___

Remarks: (Include photo numbers here or on a separate sheet.)

Hydrophytic vegetation indicators have been met.

SOIL Sampling Point: SP1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0 - 6	10YR 2/1	100					Muck	
6 - 8	10YR 3/2	100					Mucky Sand	
8 - 22	10YR 4/3	100					Loamy Sand	
-								
-								
-								
-								
-								
-								
-								
-								
-								

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ✔ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ✔ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) (**LRR R, MLRA 149B**)
- ___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- ___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- ___ Loamy Mucky Mineral (F1) (**LRR K, L**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ✔ **No** _____

Remarks:

Hydric soil indicators have been met.

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: 15C5403 - CTDOT No. 02713 City/County: Old Lyme / New London Sampling Date: 2023-06-20

Applicant/Owner: CTDOT State: Connecticut Sampling Point: SP2

Investigator(s): Sagan M. Simko, CPSS, PWS & Hayley De Marchis Section, Township, Range: _____

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): None Slope (%): _____

Subregion (LRR or MLRA): R 144A Lat: 41.31029679 Long: -72.25334327 Datum: NAD83_2011

Soil Map Unit Name: 23A - Sudbury sandy loam, 0 to 5 percent slopes NWI classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✔ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✔ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No ✔	**Is the Sampled Area within a Wetland?** Yes _____ No ✔
Hydric Soil Present?	Yes _____	No ✔	
Wetland Hydrology Present?	Yes _____	No ✔	If yes, optional Wetland Site ID: _____

Remarks: (Explain alternative procedures here or in a separate report.)

SP2 is a non-wetland point, located in the upland area north of Four Mile River and east of Shore Road.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Vis ble on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No ✔	Depth (inches): _____
Water Table Present?	Yes _____	No ✔	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No ✔	Depth (inches): _____

Wetland Hydrology Present? Yes _____ No ✔

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Hydrologic indicators have not been met.

VEGETATION – Use scientific names of plants. Sampling Point: SP2

Tree Stratum (Plot size: 30 ft r)	Absolute % Cover	Dominant Species?	Indicator Status
1. Acer rubrum	100	✔	FAC
2.			
3.			
4.			
5.			
6.			
7.			
	100 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft r)			
1. Lindera benzoin	20	✔	FACW
2. Rosa multiflora	10	✔	FACU
3.			
4.			
5.			
6.			
7.			
	30 = Total Cover		
Herb Stratum (Plot size: 5 ft r)			
1. Maianthemum canadense	20	✔	FACU
2. Parthenocissus quinquefolia	20	✔	FACU
3. Quercus velutina	10		NI
4. Berberis thunbergii	10		FACU
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	60 = Total Cover		
Woody Vine Stratum (Plot size: 30 ft r)			
1.			
2.			
3.			
4.			
	0 = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 40.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	20	x 2 =	40
FAC species	100	x 3 =	300
FACU species	60	x 4 =	240
UPL species	0	x 5 =	0
Column Totals:	180 (A)		580 (B)

Prevalence Index = B/A = 3.22

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ____ No ✔

Remarks: (Include photo numbers here or on a separate sheet.)

Hydrophytic vegetation indicators have not been met.

SOIL

Sampling Point: SP2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0 - 2	10YR 3/2	100					Sandy Loam	
2 - 4	10YR 4/3	100					Sandy Loam	
4 - 18	10YR 4/4	100					Sandy Loam	
-								
-								
-								
-								
-								
-								
-								
-								
-								

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) (**LRR R, MLRA 149B**)
- ___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- ___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- ___ Loamy Mucky Mineral (F1) (**LRR K, L**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** _____ **No** ✔

Remarks:

Hydric soil indicators have not been met.

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: 15C5403 - CTDOT No. 02713 City/County: Old Lyme / New London Sampling Date: 2023-07-13

Applicant/Owner: CTDOT State: Connecticut Sampling Point: SP3

Investigator(s): Sagan M. Simko, CPSS, PWS & Hayley De Marchis Section, Township, Range: _____

Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave Slope (%): 2

Subregion (LRR or MLRA): R 144A Lat: 41.309609 Long: -72.253908 Datum: NAD83_2011

Soil Map Unit Name: 38C - Hinckley loamy sand, 3 to 15 percent slopes NWI classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✔ No _____ (If no, explain in Remarks.)

Are Vegetation ✔, Soil ✔, or Hydrology ✔ significantly disturbed? Are "Normal Circumstances" present? Yes _____ No ✔

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✔	No _____	**Is the Sampled Area within a Wetland?** **Yes** ✔ **No** _____
Hydric Soil Present?	Yes ✔	No _____	
Wetland Hydrology Present?	Yes ✔	No _____	If yes, optional Wetland Site ID: _____

Remarks: (Explain alternative procedures here or in a separate report.)

SP3 is located within a wetland area, south of Four Mile River and east of Shore Road. This is a disturbed PFO/PEM wetland area as it appears to have been partially filled and overlain with a woodchip pile.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ✔ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Vis ble on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ✔ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No ✔	Depth (inches): _____
Water Table Present?	Yes ✔	No _____	Depth (inches): 12
Saturation Present? (includes capillary fringe)	Yes ✔	No _____	Depth (inches): 1

Wetland Hydrology Present? **Yes** ✔ **No** _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Hydrologic indicators have been met.

VEGETATION – Use scientific names of plants. Sampling Point: SP3

Tree Stratum (Plot size: 30 ft r)	Absolute % Cover	Dominant Species?	Indicator Status
1. Acer rubrum	80	✔	FAC
2.			
3.			
4.			
5.			
6.			
7.			
	80 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft r)			
1. Rosa multiflora	20	✔	FACU
2.			
3.			
4.			
5.			
6.			
7.			
	20 = Total Cover		
Herb Stratum (Plot size: 5 ft r)			
1. Toxicodendron radicans	80	✔	FAC
2. Symplocarpus foetidus	30		OBL
3. Parthenocissus quinquefolia	20		FACU
4. Onoclea sensibilis	20		FACW
5. Smilax rotundifolia	10		FAC
6. Rubus flagellaris	10		FACU
7.			
8.			
9.			
10.			
11.			
12.			
	170 = Total Cover		
Woody Vine Stratum (Plot size: 30 ft r)			
1.			
2.			
3.			
4.			
	0 = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 66.67 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	30	x 1 =	30
FACW species	20	x 2 =	40
FAC species	170	x 3 =	510
FACU species	50	x 4 =	200
UPL species	0	x 5 =	0
Column Totals:	270 (A)		780 (B)

Prevalence Index = B/A = 2.89

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

✔ 2 - Dominance Test is >50%

✔ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** ✔ **No** ___

Remarks: (Include photo numbers here or on a separate sheet.)

Hydrophytic vegetation indicators have been met.

SOIL

Sampling Point: SP3

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0 - 2	10YR 2/1	100					Muck	Fibric organic material
2 - 6	10YR 3/1	100					Muck	Fibric organic material
6 - 20	10YR 4/1	100					Muck	Hemic organic material
-								
-								
-								
-								
-								
-								
-								
-								
-								

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ✔ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) (**LRR R, MLRA 149B**)
- ___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- ___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- ___ Loamy Mucky Mineral (F1) (**LRR K, L**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ✔ **No** _____

Remarks:

Hydric soil indicators have been met.

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: 15C5403 - CTDOT No. 02713 City/County: Old Lyme / New London Sampling Date: 2023-06-20

Applicant/Owner: CTDOT State: Connecticut Sampling Point: SP4

Investigator(s): Sagan M. Simko, CPSS, PWS & Hayley De Marchis Section, Township, Range: _____

Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): Convex Slope (%): 3

Subregion (LRR or MLRA): R 144A Lat: 41.309672 Long: -72.253834 Datum: NAD83_2011

Soil Map Unit Name: W - Water NWI classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✔ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✔ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No ✔	**Is the Sampled Area within a Wetland?** Yes _____ No ✔
Hydric Soil Present?	Yes _____	No ✔	
Wetland Hydrology Present?	Yes _____	No ✔	If yes, optional Wetland Site ID: _____

Remarks: (Explain alternative procedures here or in a separate report.)

SP3 is a non-wetland point, located in an upland area south of Four Mile River and east of Shore Road.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Vis ble on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No ✔	Depth (inches): _____
Water Table Present?	Yes _____	No ✔	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No ✔	Depth (inches): _____

Wetland Hydrology Present? Yes _____ No ✔

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Hydrologic indicators have not been met.

VEGETATION – Use scientific names of plants.

Sampling Point: SP4

Tree Stratum (Plot size: 30 ft r)	Absolute % Cover	Dominant Species?	Indicator Status
1. Acer rubrum	100	✔	FAC
2. Fraxinus americana	20		FACU
3.			
4.			
5.			
6.			
7.			
	120	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15 ft r)			
1. Rosa multiflora	70	✔	FACU
2. Smilax rotundifolia	40	✔	FAC
3. Acer rubrum	20		FAC
4.			
5.			
6.			
7.			
	130	= Total Cover	
Herb Stratum (Plot size: 5 ft r)			
1. Parthenocissus quinquefolia	20	✔	FACU
2. Thalictrum pubescens	20	✔	FACW
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	40	= Total Cover	
Woody Vine Stratum (Plot size: 30 ft r)			
1. Celastrus orbiculatus	30	✔	FACU
2.			
3.			
4.			
	30	= Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	20	x 2 =	40
FAC species	160	x 3 =	480
FACU species	140	x 4 =	560
UPL species	0	x 5 =	0
Column Totals:	320 (A)		1080 (B)

Prevalence Index = B/A = 3.38

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ____ No ✔

Remarks: (Include photo numbers here or on a separate sheet.)

No hydrophytic vegetation indicators have been met.

SOIL

Sampling Point: SP4

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0 - 18	10YR 3/2	100					Silt Loam	
-								
-								
-								
-								
-								
-								
-								
-								
-								
-								
-								

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) (**LRR R, MLRA 149B**)
- ___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- ___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- ___ Loamy Mucky Mineral (F1) (**LRR K, L**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** _____ **No** ✔

Remarks:

Hydric soil indicators have not been met.

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: 15C5403 - CTDOT No. 02713 City/County: Old Lyme / New London Sampling Date: 2023-06-20

Applicant/Owner: CTDOT State: Connecticut Sampling Point: SP5

Investigator(s): Sagan M. Simko, CPSS, PWS & Hayley De Marchis Section, Township, Range: _____

Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): Convex Slope (%): 2

Subregion (LRR or MLRA): R 144A Lat: 41.30961314 Long: -72.25408077 Datum: NAD83_2011

Soil Map Unit Name: 38C - Hinckley loamy sand, 3 to 15 percent slopes NWI classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✔ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✔ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No ✔	**Is the Sampled Area within a Wetland?** Yes _____ No ✔
Hydric Soil Present?	Yes _____	No ✔	
Wetland Hydrology Present?	Yes _____	No ✔	If yes, optional Wetland Site ID: _____

Remarks: (Explain alternative procedures here or in a separate report.)

SP5 is a non-wetland point, located in an upland area south of Four Mile River and east of Shore Road.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Vis ble on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No ✔	Depth (inches): _____
Water Table Present?	Yes _____	No ✔	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No ✔	Depth (inches): _____

Wetland Hydrology Present? Yes _____ No ✔

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Hydrologic indicators have not been met.

VEGETATION – Use scientific names of plants. Sampling Point: SP5

Tree Stratum (Plot size: 30 ft r)	Absolute % Cover	Dominant Species?	Indicator Status
1. Acer rubrum	80	✔	FAC
2. Picea rubens	60	✔	FACU
3.			
4.			
5.			
6.			
7.			
	140	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15 ft r)			
1. Rosa multiflora	40	✔	FACU
2.			
3.			
4.			
5.			
6.			
7.			
	40	= Total Cover	
Herb Stratum (Plot size: 5 ft r)			
1. Parthenocissus quinquefolia	30	✔	FACU
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	30	= Total Cover	
Woody Vine Stratum (Plot size: 30 ft r)			
1. Smilax rotundifolia	20	✔	FAC
2.			
3.			
4.			
	20	= Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 40.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	100	x 3 =	300
FACU species	130	x 4 =	520
UPL species	0	x 5 =	0
Column Totals:	230 (A)		820 (B)

Prevalence Index = B/A = 3.57

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ___ No ✔

Remarks: (Include photo numbers here or on a separate sheet.)

Hydrophytic vegetation indicators have not been met.

SOIL

Sampling Point: SP5

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0 - 18	10YR 5/3	100					Loamy Sand	
-								
-								
-								
-								
-								
-								
-								
-								
-								
-								
-								

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) (**LRR R, MLRA 149B**)
- ___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- ___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- ___ Loamy Mucky Mineral (F1) (**LRR K, L**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** _____ **No** ✔

Remarks:

Hydric soil indicators have not been met.

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: 15C5403 - CTDOT No. 02713 City/County: Old Lyme / New London Sampling Date: 2023-06-20

Applicant/Owner: CTDOT State: Connecticut Sampling Point: SP6

Investigator(s): Sagan M. Simko, CPSS, PWS & Hayley De Marchis Section, Township, Range: _____

Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave Slope (%): 1

Subregion (LRR or MLRA): R 144A Lat: 41.3102428 Long: -72.25417876 Datum: NAD83_2011

Soil Map Unit Name: 3 - Ridgebury, Leicester, and Whitman soils, 0 to 8 percent slopes, extremely stony NWI classification: PFO1E

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✔ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✔ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✔	No _____	**Is the Sampled Area within a Wetland?** **Yes ✔** **No _____**
Hydric Soil Present?	Yes ✔	No _____	
Wetland Hydrology Present?	Yes ✔	No _____	If yes, optional Wetland Site ID: _____

Remarks: (Explain alternative procedures here or in a separate report.)

SP6 is a wetland point, located north of Four Mile River and west of Shore Road.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ✔ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Vis ble on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ✔ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ✔ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No ✔	Depth (inches): _____
Water Table Present?	Yes _____	No ✔	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes ✔	No _____	Depth (inches): 1

Wetland Hydrology Present? **Yes ✔** **No _____**

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Hydrologic indicators have been met.

VEGETATION – Use scientific names of plants. Sampling Point: SP6

Tree Stratum (Plot size: 30 ft r)	Absolute % Cover	Dominant Species?	Indicator Status
1. Alnus serrulata	50	✔	OBL
2. Acer rubrum	30	✔	FAC
3.			
4.			
5.			
6.			
7.			
	80	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15 ft r)			
1. Alnus serrulata	30	✔	OBL
2. Clethra alnifolia	30	✔	FAC
3. Rosa multiflora	20	✔	FACU
4.			
5.			
6.			
7.			
	80	= Total Cover	
Herb Stratum (Plot size: 5 ft r)			
1. Symplocarpus foetidus	80	✔	OBL
2. Carex intumescens	30	✔	FACW
3. Onoclea sensibilis	20		FACW
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	130	= Total Cover	
Woody Vine Stratum (Plot size: 30 ft r)			
1. Vitis labrusca	10	✔	FACU
2.			
3.			
4.			
	10	= Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 6 (A)

Total Number of Dominant Species Across All Strata: 8 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 75.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	160	x 1 =	160
FACW species	50	x 2 =	100
FAC species	60	x 3 =	180
FACU species	30	x 4 =	120
UPL species	0	x 5 =	0
Column Totals:	300 (A)		560 (B)

Prevalence Index = B/A = 1.87

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

✔ 2 - Dominance Test is >50%

✔ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** ✔ **No** ___

Remarks: (Include photo numbers here or on a separate sheet.)

Hydrophytic vegetation indicators have been met.

SOIL

Sampling Point: SP6

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0 - 22	10YR 2/1	100					Muck	Hemic organic material
-								
-								
-								
-								
-								
-								
-								
-								
-								
-								
-								

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ✔ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) (**LRR R, MLRA 149B**)
- ___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- ___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- ___ Loamy Mucky Mineral (F1) (**LRR K, L**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ✔ **No** _____

Remarks:

Hydric soil indicators have been met.

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: 15C5403 - CTDOT No. 02713 City/County: Old Lyme / New London Sampling Date: 2023-06-20

Applicant/Owner: CTDOT State: Connecticut Sampling Point: SP7

Investigator(s): Sagan M. Simko, CPSS, PWS & Hayley De Marchis Section, Township, Range: _____

Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): Concave Slope (%): 2

Subregion (LRR or MLRA): R 144A Lat: 41.31034969 Long: -72.25392328 Datum: NAD83_2011

Soil Map Unit Name: 3 - Ridgebury, Leicester, and Whitman soils, 0 to 8 percent slopes, extremely stony NWI classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✔ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✔ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No ✔	**Is the Sampled Area within a Wetland?** Yes _____ No ✔
Hydric Soil Present?	Yes _____	No ✔	
Wetland Hydrology Present?	Yes _____	No ✔	If yes, optional Wetland Site ID: _____

Remarks: (Explain alternative procedures here or in a separate report.)

SP7 is a non-wetland point, located in an upland area north of Four Mile River and west of Shore Road.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Vis ble on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No ✔	Depth (inches): _____
Water Table Present?	Yes _____	No ✔	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No ✔	Depth (inches): _____

Wetland Hydrology Present? Yes _____ No ✔

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

No hydrologic indicators were met.

VEGETATION – Use scientific names of plants. Sampling Point: SP7

Tree Stratum (Plot size: 30 ft r)	Absolute % Cover	Dominant Species?	Indicator Status
1. Acer rubrum	50	✔	FAC
2. Fraxinus americana	30	✔	FACU
3.			
4.			
5.			
6.			
7.			
	80	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15 ft r)			
1. Rosa multiflora	50	✔	FACU
2.			
3.			
4.			
5.			
6.			
7.			
	50	= Total Cover	
Herb Stratum (Plot size: 5 ft r)			
1. Solidago rugosa	30	✔	FAC
2. Dioscorea villosa	30	✔	FAC
3. Parthenocissus quinquefolia	30	✔	FACU
4. Maianthemum canadense	30	✔	FACU
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	120	= Total Cover	
Woody Vine Stratum (Plot size: 30 ft r)			
1. Celastrus orbiculatus	10	✔	FACU
2.			
3.			
4.			
	10	= Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 8 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 37.50 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	110	x 3 =	330
FACU species	150	x 4 =	600
UPL species	0	x 5 =	0
Column Totals:	260 (A)		930 (B)

Prevalence Index = B/A = 3.58

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ___ No ✔

Remarks: (Include photo numbers here or on a separate sheet.)

No hydrophytic vegetation indicators have been met.

SOIL

Sampling Point: SP7

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0 - 6	10YR 3/2	100					Loamy Sand	
6 - 18	10YR 3/3	100					Loamy Sand	
-								
-								
-								
-								
-								
-								
-								
-								
-								
-								

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) (**LRR R, MLRA 149B**)
- ___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- ___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- ___ Loamy Mucky Mineral (F1) (**LRR K, L**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** _____ **No** ✔

Remarks:

Hydric soil indicators have not been met.

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: 15C5403 - CTDOT No. 02713 City/County: Old Lyme / New London Sampling Date: 2023-06-20

Applicant/Owner: CTDOT State: Connecticut Sampling Point: SP8

Investigator(s): Sagan M. Simko, CPSS, PWS & Hayley De Marchis Section, Township, Range: _____

Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): Concave Slope (%): 2

Subregion (LRR or MLRA): R 144A Lat: 41.30985686 Long: -72.25432404 Datum: NAD83_2011

Soil Map Unit Name: W - Water NWI classification: R5UBH

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✔ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✔ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No ✔	**Is the Sampled Area within a Wetland?** Yes _____ No ✔
Hydric Soil Present?	Yes _____	No ✔	
Wetland Hydrology Present?	Yes _____	No ✔	If yes, optional Wetland Site ID: _____

Remarks: (Explain alternative procedures here or in a separate report.)

SP8 is a non-wetland point, located in an upland area south of Four Mile River and west of Shore Road.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Vis ble on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No ✔	Depth (inches): _____
Water Table Present?	Yes _____	No ✔	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No ✔	Depth (inches): _____

Wetland Hydrology Present? Yes _____ No ✔

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Hydrologic indicators have not been met.

VEGETATION – Use scientific names of plants.

Sampling Point: SP8

Tree Stratum (Plot size: 30 ft r)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft r)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	0 = Total Cover		
Herb Stratum (Plot size: 5 ft r)			
1. Sisyrinchium rosulatum	80	✔	NI
2. Festuca rubra	20	✔	FACU
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	100 = Total Cover		
Woody Vine Stratum (Plot size: 30 ft r)			
1.			
2.			
3.			
4.			
	0 = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	0	x 3 =	0
FACU species	20	x 4 =	80
UPL species	0	x 5 =	0
Column Totals:	20 (A)		80 (B)

Prevalence Index = B/A = 4.00

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ____ No ✔

Remarks: (Include photo numbers here or on a separate sheet.)

Hydrophytic vegetation indicators have not been met.

SOIL

Sampling Point: SP8

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0 - 12	10YR 3/2	100					Loamy Sand	
-								
-								
-								
-								
-								
-								
-								
-								
-								
-								
-								

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) (**LRR R, MLRA 149B**)
- ___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- ___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- ___ Loamy Mucky Mineral (F1) (**LRR K, L**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: Rock

Depth (inches): 12

Hydric Soil Present? **Yes** _____ **No** ✔

Remarks:

Hydric soil indicators have not been met.

Appendix E

Site Photographs

Bridge site

Looking east

Looking south into tidal wetlands

Looking southeast into tidal wetlands

Looking southeast into tidal wetlands

Looking southwest into tidal wetlands

Looking north into tidal wetlands and uplands

Looking northeast into upland/freshwater wetlands boundary

Looking northeast into upland/freshwater wetlands boundary

Mitigation site

Looking towards the Mitigation Site from the Viewing Platform

Attachment 20

Natural Diversity Database Review

Connecticut Department of
ENERGY &
ENVIRONMENTAL
PROTECTION

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

June 14, 2022

Michael Salter
State of Connecticut- DOT
2800 Berlin Tpke
Newington, CT 06111
MICHAEL.SALTER@CT.GOV

NDDB DETERMINATION NUMBER: 202109559

Project: DOT PROJECT# 104-175, Culvert replacement, RTE 156 over Four Mile River, with Mitigation at Rocky Neck State Park, Bride Brook Marsh, EAST LYME, CT

Expiration: June 14, 2024

Dear Michael Salter,

I have reviewed Natural Diversity Database (NDDB) maps and files regarding this project. According to our records, there are State-listed species (RCSA Sec. 26-306) that may be influenced by activities within the proposed project area. Project activities with species concerns are divided below.

Project: Culvert Replacement Rte 156 over Four Mile River

Shortnose sturgeon (*Acipenser brevirostrum*)- Federally and State Endangered
Atlantic sturgeon (*Acipenser oxyrinchus oxyrinchus*)- Federally and State Endangered
DEEP Fisheries Biologists review permit applications submitted to DEEP regulatory programs to determine whether projects might adversely affect listed species. Please complete the DEEP Fisheries consultation form and submit to:
Deep.inland.fisheries@ct.gov

Spotted turtle (*Clemmys guttata*)- State Special Concern
Individuals of this species are associated with wetlands and are vernal pool obligates. Over the course of a season and lifetime, individuals will travel large distances (up to 1km) over upland forest and fields between multiple wetlands. They overwinter burrowed into the mud in wetlands between Nov 1- March 15. They do not begin to reproduce until 7-10 years old and adults can live at least 30 years. This species is threatened most by any activities that reduce adult survivorship including road kills, commercial and casual collection, increased predation in areas around commercial and residential development, mortality and injury from agricultural equipment or other mechanical equipment.

Your area of work is unlikely to serve as habitat for spotted turtle overwintering. Apply protection measures for encounters that may happen during the active season.

- Between March 16- October 31:
    - The work crew must be made aware of the species description and possible presence
    - The immediate area where heavy equipment will be used should be searched for turtles before starting work using mechanical equipment

- Any turtles found should be moved out of the way. This animal is protected by law and should never be taken off site.
- Work conducted during early morning and evening hours should occur with special care not to harm basking individuals.

Project: Marsh Restoration through Sediment Deposit, Rocky Neck State Park, Bride Brook Marsh

New England blazing star (*Liatris scariosa var. novae-angliae*) -Species of Special Concern

New England blazing star (*Liatris scariosa var. novae-angliae*) has been documented adjacent to the proposed work area. We have determined that the project activities will not have adverse impacts on the state listed New England Blazing Star population as the work will occur on the other side of the road and thus the plant will not be in the actual work area.

Seaside goldenrod stem borer (*Papaipema duovata*)- State Threatened
This species is found in saltmashes and bay shores. Host plant is seaside goldenrod (*Solidago sempervivens*). Activities to create or enhance marsh habitat will ultimately benefit this species.

- To minimize any potential impacts on this species avoid trampling or crushing seaside goldenrod with access ramps and traffic.

Spotted turtle (*Clemmys guttata*)- State Special Concern
Individuals of this species are associated with wetlands and are vernal pool obligates. Over the course of a season and lifetime, individuals will travel large distances (up to 1km) over upland forest and fields between multiple wetlands. They overwinter burrowed into the mud in wetlands between Nov 1- March 15. They do not begin to reproduce until 7-10 years old and adults can live at least 30 years. This species is threatened most by any activities that reduce adult survivorship including road kills, commercial and casual collection, increased predation in areas around commercial and residential development, mortality and injury from agricultural equipment or other mechanical equipment.

In your location, this species will preferentially use marsh channels/ditches with low salinity that are surrounded by high salt marsh vegetation. Any overwintering of this species would be limited to the bottoms and sides of these wetland channels with very low salinity. During the active season, they are most likely to be using ditches/channels to move around the marsh, but may occasionally cross marsh vegetation areas. Care should be taken to avoid mortality from heavy equipment.

- Between November 1- March 15: To prevent impact to dormant turtles, do not use heavy equipment that will disturb sides and bottoms of marsh channels in *low salinity areas*.
- Between March 16- October 31:
    - The work crew must be made aware of the species description and possible presence
    - The immediate area where heavy equipment will be used should be searched for turtles before starting work using mechanical equipment
    - Any turtles found should be moved out of the way. This animal is protected by law and should never be taken off site.
    - Work conducted during early morning and evening hours should occur with special care not to harm basking individuals.

Saltmarsh sharp-tailed sparrow (*Ammodramus caudacutus*)- Species of Special Concern

This tidal-marsh specialist breeds in Connecticut tidal-marsh habitat from mid-May through early August. Connecticut possesses a globally significant proportion of the breeding population of this species. Connecticut populations have experienced a significant decline in nesting success due to increased rates of nest flooding. It is important to note that although saltmarsh sparrow nest in the middle of marshes, once fledged, they females and young preferentially use marsh margins including areas of bare ground interspersed with taller vegetation for foraging, cover from predation, and reduced flooding risk.

This marsh no longer supports a breeding population for this species, and I do not expect negative impacts from your work. Activities to create or enhance marsh habitat will ultimately benefit this species.

This is determination is valid for two years. Please submit an updated NDDB Request for Review if the scope of the proposed work changes or if work has not begun by expiration date.

Please contact me if you have any questions (shannon.kearney@ct.gov). Thank you for consulting with the Natural Diversity Database and continuing to work with us to protect State-listed species.

Sincerely,

/s/ Shannon B. Kearney
Wildlife Biologist

Salter, Michael J

From: Kearney, Shannon
Sent: Friday, June 17, 2022 8:41 AM
To: Salter, Michael J; DEEP Nddbrequest
Cc: Gould, Marilyn R.; Blum, Robin
Subject: Re: NDDB 202109559 DOT PROJECT# 104-175, Culvert replacement, RTE 156 over Four Mile River, with Mitigation at Rocky Neck State Park, Bride Brook Marsh, EAST LYME, CT

Hi Mike,
Salinity ranges for ditches occupied by spotted turtle in a publication ranged from 0-23ppt (Bottini 2005). The author suggested that spotted turtle tolerate "at least" 13ppt. The ranges you supply are well above this level, and I have consulted with researchers in MA who have conducted saltmarsh restoration with spotted turtle presence, and have observed overwintering mortality in the years when multiple Noreasters pushed the salt water farther into the marsh to areas where spotted turtles normally overwinter. They normally observe levels lower than 10ppt where successful overwintering occurs. Based on this information, I feel that these levels, up to 30ppt, would preclude overwintering by spotted turtle, and it would be preferable to conduct ditch work in the winter, as you have planned, to avoid encounter with active spotted turtles.

Thanks,
-Shannon

Shannon B. Kearney
Wildlife Division
Connecticut Department of Energy and Environmental Protection
PO Box 1550, Burlington, CT 06013
P: 860.424.3170 | E: shannon.kearney@ct.gov

From: Salter, Michael J <Michael.Salter@ct.gov>
Sent: Wednesday, June 15, 2022 7:39 AM
To: DEEP Nddbrequest <DEEP.Nddbrequest@ct.gov>
Cc: Gould, Marilyn R. <Marilyn.Gould@ct.gov>; Kearney, Shannon <Shannon.Kearney@ct.gov>
Subject: RE: NDDB 202109559 DOT PROJECT# 104-175, Culvert replacement, RTE 156 over Four Mile River, with Mitigation at Rocky Neck State Park, Bride Brook Marsh, EAST LYME, CT

Good morning Dawn,

Thank you for getting the letter to us. I was wondering if we could get some clarification on the spotted turtle protection measures at the mitigation site?

The mitigation site is bounded on two sides by existing ditches, which will be maintained/re-established during construction. There will be placement of material along the ditches as well as re-establishment of the edges of the ditches with staked coir fiber rolls. This work is scheduled to occur (December 1 through February 15, as required by DEEP Fisheries) within the listed time-of-year restriction (November 1 through March 15). The NDDB Letter states “To prevent impact to dormant turtles, do not use heavy equipment that will disturb sides and bottoms of marsh channels in

low salinity areas." The Office of Environmental Planning has taken salinity readings within the mitigation area and ditches at both high tide and low tide. The low tide salinity ranges from 11-24ppt and the high tide salinity ranges from 23-30ppt. Given the salinity range, across the tide cycle, would this be considered a low salinity area which would be conducive to overwintering spotted turtles?

The project will utilize HDPE matting within the salt marsh and low ground pressure equipment, but does require the use of this equipment during the time-of-year restriction in order to re-establish those ditches. I have attached the most recent mitigation plans, which include an aerial of the mitigation area (MIT-02), sections which show the ditches (MIT-05, Sections D-d, E-E & F-F) and the coir fiber roll details for the ditches (MIT-06 Typical TLD Tie-In Section & MIT-07). Please let me know if you would like to discuss further.

Thank you,
Mike

From: McKay, Dawn <Dawn.McKay@ct.gov> **On Behalf Of** DEEP Nddbrequest
Sent: Tuesday, June 14, 2022 1:14 PM
To: Salter, Michael J <Michael.Salter@ct.gov>
Subject: Fw: NDDB 202109559 DOT PROJECT# 104-175, Culvert replacement, RTE 156 over Four Mile River, with Mitigation at Rocky Neck State Park, Bride Brook Marsh, EAST LYME, CT

Michael,
I have attached our NDDB letter for this project.
Take care,
Dawn

Dawn M. McKay
Wildlife Division
Bureau of Natural Resources
Connecticut Department of Energy and Environmental Protection
79 Elm Street, Hartford, CT 06106-5127
P: 860.424.3592 | E: dawn.mckay@ct.gov

From: Salter, Michael J <Michael.Salter@ct.gov>
Sent: Monday, June 13, 2022 7:22 AM
To: DEEP Nddbrequest <DEEP.Nddbrequest@ct.gov>
Cc: McKay, Dawn <Dawn.McKay@ct.gov>
Subject: RE: NDDB Renewal Request for CT DOT Project No. 0053-0190, Putnam Bridge Trail in Wethersfield and Glastonbury

Thank you Dawn. By chance, would you happen to have an update on the NDDB Letter for DOT Project No. 104-175? The project involves replacement of Bridge No. 02713 carrying Route 156 over the Four Mile River and a TLD mitigation Site within Rocky Neck State Park.

Please let me know if you have any questions.

Thanks,
Mike

From: McKay, Dawn <Dawn.McKay@ct.gov> **On Behalf Of** DEEP Nddbrequest
Sent: Friday, June 10, 2022 6:59 PM
To: Salter, Michael J <Michael.Salter@ct.gov>
Cc: Coite, Jason M. <Jason.Coite@ct.gov>; Davis, Andrew H <Andrew.H.Davis@ct.gov>; DOT-EPC <DOT-EPC@ct.gov>

Subject: Re: NDDB Renewal Request for CT DOT Project No. 0053-0190, Putnam Bridge Trail in Wethersfield and Glastonbury

Michael,
Thank you for your patience. This one kept getting overlooked when I got pulled off on "priority" projects. I also added the northern leopard frog BMPs since they occur in the floodplain here.
Take care,
Dawn

Dawn M. McKay
Wildlife Division
Bureau of Natural Resources
Connecticut Department of Energy and Environmental Protection
79 Elm Street, Hartford, CT 06106-5127
P: 860.424.3592 | E: dawn.mckay@ct.gov

From: Salter, Michael J <Michael.Salter@ct.gov>
Sent: Wednesday, December 1, 2021 10:15 AM
To: DEEP Nddbrequest <DEEP.Nddbrequest@ct.gov>
Cc: Coite, Jason M. <Jason.Coite@ct.gov>; Davis, Andrew H <Andrew.H.Davis@ct.gov>; DOT-EPC <DOT-EPC@ct.gov>
Subject: NDDB Renewal Request for CT DOT Project No. 0053-0190, Putnam Bridge Trail in Wethersfield and Glastonbury

NDDB Staff,

Attached for your review is an NDDB Renewal Request for CT DOT Project No. 0053-0190, Putnam Bridge Trail in Wethersfield and Glastonbury.

DOT's office of Environmental Planning has pre-screened the project for listed species. Peregrine falcon is known to exist within the vicinity of the project. DOT's Section 1.10 Item with protection strategies for the species will be included in the project contract and is attached for your review.

The attached review request includes location maps, project plans, 2019 NDDB Determination Letter and Section 1.10 Specification.

Please let me know if you have any questions or need any additional information.

Thank you,
Mike

Michael J. Salter
Transportation Planner 2
Environmental Permitting Unit
Office of Environmental Planning
Bureau of Policy and Planning
Connecticut Department of Transportation
Michael.Salter@ct.gov
(860) 594-2933 (Office)
(860) 416-0119 (cell – telework)

Attachment 21

DEEP Wildlife
Division - Osprey
Consultation

SECTION 1.10 ENVIRONMENTAL COMPLIANCE

In Article 1.10.03-Water Pollution Control:
REQUIRED BEST MANAGEMENT PRACTICES

Add the following after Required Best Management Practices Number 13:

14. The osprey (*Pandion haliaetus*), a migratory bird species is known to nest within or adjacent to the Project area. The osprey is one of Connecticut's most identifiable birds, with a wingspan of nearly six feet. Adults are readily identifiable in flight by their white underbelly and long narrow wings. Adults also have a white head with a brown crown and brown stripe that extends through their yellow eye down the cheek. Young ospreys tend to have white tipped feathers throughout their body and have more of a brownish color eye. Ospreys, once near extirpation from Connecticut, have rebounded across the State and have adapted to life in urban settings. Ospreys feed almost exclusively on fish and can be seen all over the State hunting over major rivers and larger bodies of water most notably along Long Island Sound. Ospreys build large stick nests on natural or manmade platform structures constructed and erected throughout Connecticut's saltmarshes. The osprey nesting season in Connecticut occurs between April 15 and July 31. For this reason, the timing and nature of work planned in the immediate area of nesting ospreys must adhere to special conditions.

    Adult osprey are protective of their nests and may exhibit aggressive behavior if encroached upon. In order to protect this species and Project personnel, any construction activities, which are within 300 feet of an identified active nest, shall not be permitted during the nesting season (between April 15 and July 31). Active nests are nests with eggs, nonvolant chicks, or adult behavior indicating the presence of eggs or chicks (e.g. incubation behavior, feeding behavior). Any change in construction sequencing or timing affecting work within 300 feet of an active nest shall not be permitted between April 15 and July 31 without prior coordination and approval via CT DOT's Office of Environmental Planning (OEP). Construction activities shall be allowed within project areas that are outside the 300-foot buffer.

    The removal of an active nest (eggs or nonvolant chicks present) shall not be allowed. If an osprey nest is located on a CT DOT structure, the Contractor shall be authorized by the Engineer to remove it during the non-nesting season through direct coordination with the OEP. OEP will oversee the removal and notify the DEEP Wildlife Division.

    The approximate areas of the Project expected to be subject to these restrictions based on best available osprey activity information are attached. The Contractor shall provide, through the Engineer, at least a 10-day notice prior to the commencement of any construction activities and arrange for a member of OEP or their authorized delegate to be available to meet and identify the nest location as well as discuss proper protocols for maintaining environmental commitments made to protect this species and their habitat.

This species is protected by State and Federal laws, which prohibit killing, harming, taking, or keeping them in your possession. Workers shall be notified of the existence of ospreys in the area and be apprised of the laws protecting them. Photographs of, and the laws protecting, ospreys shall be posted in the Contractor's and CT DOT field offices (species ID sheets will be provided by OEP) if this species is known to inhabit the area.

Osprey *(Pandion haliaetus)*

Protective Legislation: *Federal* - Migratory Bird Treaty Act of 1918. *State* - Connecticut General Statutes Sec. 26-92

Length: 21-25 inches **Wingspan:** 54-72 inches

Habitat Type:

Coastline, coastal salt marshes, lakes and rivers. Nests on manmade osprey platforms, light poles, tops of bridges, high tension wire towers, and just about any place close to water that can support their large stick nest.

- Adult ospreys in flight have white underparts and long narrow wings with brown tips. They are mostly brown above with brownish on the wings and buff to brown speckling on the chest with a rounded tail with narrow brown bands.
- Adult ospreys have yellow eyes.
- Ospreys have full adult plumage after 18 months. Young ospreys are similar with browner streaking on their chest. Juveniles also tend to have brown eyes.
- Both sexes are similar, although the females are larger.

Characteristics:

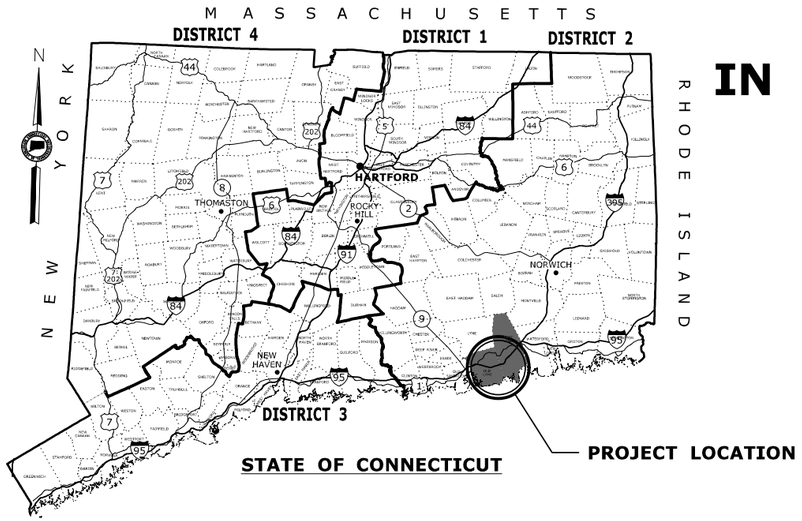
- **Typical Nesting Period**: April 15 through July 31.
- Diet consists of mainly fish.
- Pairs may use the same nest site for years.

It is required that there be no harassment, intentional or unintentional, to any ospreys under State and Federal law. If an active osprey nest is observed within or around the project area, the Office of Environmental Planning (OEP) must be notified at 860-594-2937 or 860-594-2938. If OEP staff cannot be reached at either of the above referenced phone numbers, the District Environmental Coordinator will need to be contacted to facilitate further coordination with OEP's Environmental Resource Compliance unit.

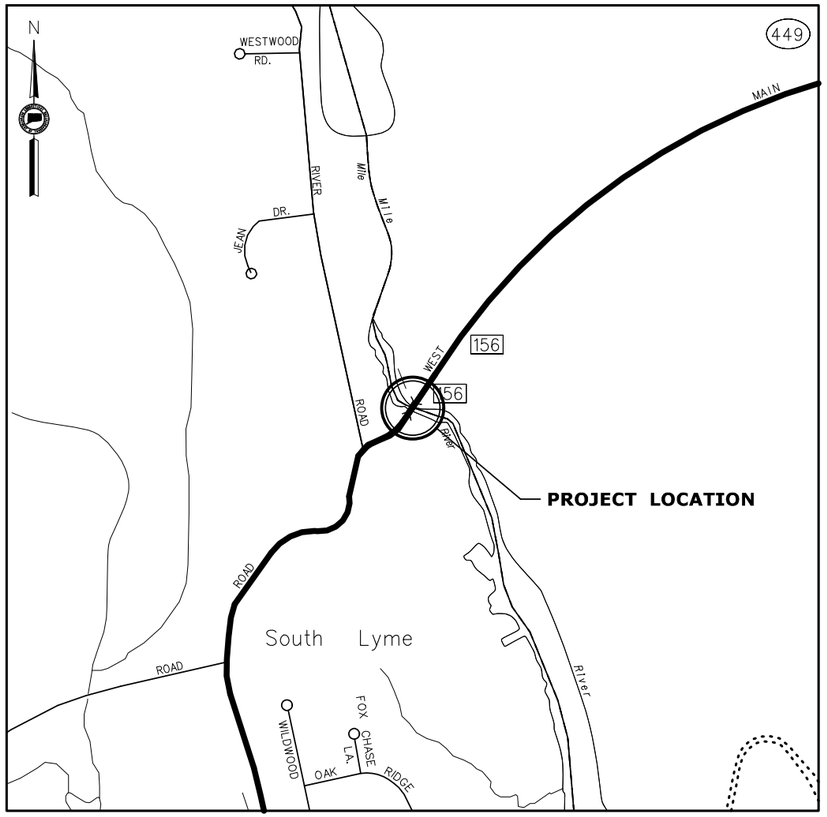
Attachment 23

Fisheries Coordination

ENVIRONMENTAL PERMIT PLANS
STATE PROJECT NO. 0104-0175
REPLACEMENT OF BRIDGE NO. 02713
ROUTE 156 OVER FOUR MILE RIVER
IN THE TOWNS OF OLD LYME & EAST LYME



STATE OF CONNECTICUT



LOCATION PLAN

SCALE: 1" = 500'

GENERAL NOTES

1. THESE PLANS ARE NOT FOR CONSTRUCTION AND ARE ONLY FOR ENVIRONMENTAL PERMITTING PURPOSES. THESE PLANS HOLD AUTHORITY FOR ALL ACTIVITIES CONCERNING THE REGULATED AREA. FOR DETAILED PLANIMETRIC INFORMATION AND PAYMENT REFER TO THE APPLICABLE CONTRACT DOCUMENTS.
2. THE DEPARTMENT OF TRANSPORTATION WILL ONLY SUBMIT REVISIONS TO DEEP AND USACE FOR CHANGES TO THE DESIGN THAT WILL AFFECT REGULATED AREAS.
3. FOR A DESCRIPTION OF THE WATERCOURSES, WETLANDS AND WETLAND SOILS SEE RELEVANT SECTIONS OF THE PERMIT APPLICATION.
4. 400 FOOT GRID BASED ON CONNECTICUT COORDINATE SYSTEM N.A.D. 1983 (2011) VERTICAL DATUM BASED ON NAVD OF 1988.
5. ALL CONSTRUCTION ACTIVITIES WILL BE CONDUCTED IN ACCORDANCE WITH THE DEPARTMENT'S STANDARD SPECIFICATIONS FOR ROADS, BRIDGES, FACILITIES, AND INCIDENTAL CONSTRUCTION, FORM 818, SECTION 1.10 AND WILL ALSO FOLLOW REQUIRED BEST MANAGEMENT PRACTICES (BMPs) AND SEDIMENT AND EROSION CONTROL MEASURES IN ACCORDANCE WITH THE 2002 EROSION & SEDIMENTATION CONTROL GUIDELINES AND THE 2004 STORMWATER QUALITY MANUAL.
6. SURVEYED BY CTDOT DISTRICT 2 SURVEYS.

Bruce H Williams
DEEP Fisheries Division - 12/04/23

LIST OF DRAWINGS

DRAWING TITLE	DRAWING NO.	DRAWING TITLE	DRAWING NO.
TITLE SHEET	PMT-01	THIN LAYER DEPOSITION EXISTING CONDITIONS	PMT-09
GENERAL SITE PLAN	PMT-02	THIN LAYER DEPOSITION GRADING PLAN	PMT-10
WETLAND/WATERCOURSE IMPACT PLAN	PMT-03	THIN LAYER DEPOSITION PLANTING PLAN	PMT-11
100-YEAR FLOOD IMPACT PLAN	PMT-04	THIN LAYER DEPOSITION CROSS SECTIONS	PMT-12
ELEVATION AND SECTION PLAN	PMT-05	THIN LAYER DEPOSITION DETAILS	PMT-13
WATER HANDLING PLAN STAGE 1A & 1B	PMT-06	THIN LAYER DEPOSITION FIBER ROLL DETAILS	PMT-14
WATER HANDLING PLAN STAGE 1C, 2A, 2B, 2C, 2D	PMT-07		
PERMIT PLANTING PLAN	PMT-08		

DESIGNED BY:
PRIME AE GROUP, INC.
100 GREAT MEADOW ROAD, 6TH FLOOR
WETHERSFIELD, CT 06109

PLAN DATE: DECEMBER 4, 2023

REV.	DATE	REVISION DESCRIPTION	SHEET NO.
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-	-	-	-

THE INFORMATION, INCLUDING ESTIMATED QUANTITIES OF WORK, SHOWN ON THESE SHEETS IS BASED ON LIMITED INVESTIGATIONS BY THE STATE AND IS IN NO WAY WARRANTED TO INDICATE THE CONDITIONS OF ACTUAL QUANTITIES OF WORK WHICH WILL BE REQUIRED.

Plotted Date: 7/7/2023

DESIGNER/DRAFTER: N. ROSSI
CHECKED BY: B. CHAMBERLIN
SCALE AS NOTED

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

Filename: ...\200_EPP_MSH_0104_0175_(2713)-Title Sheet.dgn

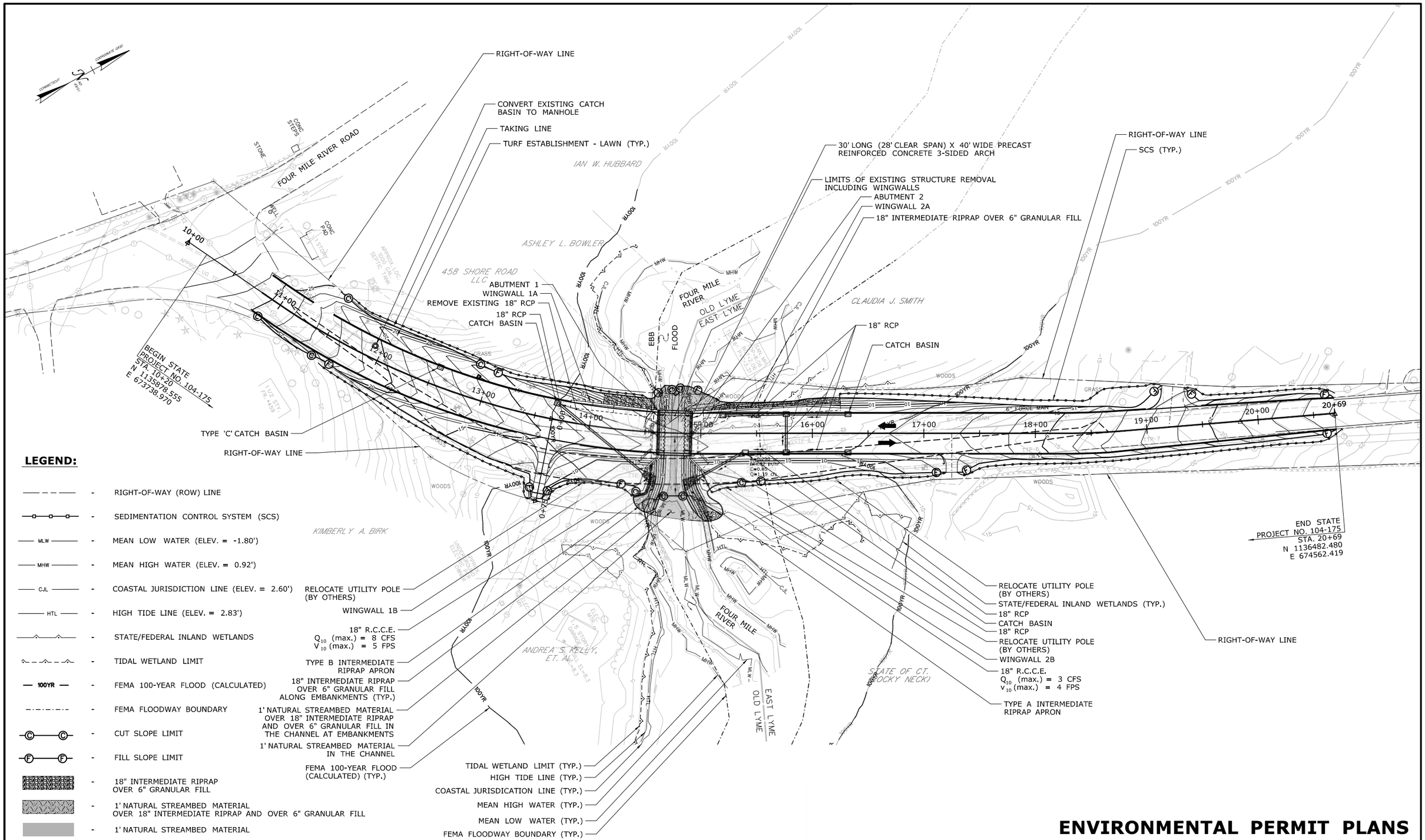
SIGNATURE/ BLOCK:

PROJECT TITLE: REPLACEMENT OF BRIDGE NO. 02713, ROUTE 156 OVER FOUR MILE RIVER

TOWN: OLD LYME, EAST LYME

DRAWING TITLE: TITLE SHEET

PROJECT NO. 104-175
DRAWING NO. PMT-01
SHEET NO.



LEGEND:

- RIGHT-OF-WAY (ROW) LINE
- SEDIMENTATION CONTROL SYSTEM (SCS)
- MEAN LOW WATER (ELEV. = -1.80')
- MEAN HIGH WATER (ELEV. = 0.92')
- COASTAL JURISDICTION LINE (ELEV. = 2.60')
- HIGH TIDE LINE (ELEV. = 2.83')
- STATE/FEDERAL INLAND WETLANDS
- TIDAL WETLAND LIMIT
- FEMA 100-YEAR FLOOD (CALCULATED)
- FEMA FLOODWAY BOUNDARY
- CUT SLOPE LIMIT
- FILL SLOPE LIMIT
- 18" INTERMEDIATE RIPRAP OVER 6" GRANULAR FILL
- 1' NATURAL STREAMBED MATERIAL OVER 18" INTERMEDIATE RIPRAP AND OVER 6" GRANULAR FILL
- 1' NATURAL STREAMBED MATERIAL
- SHEET PILE COFFERDAM LEFT-IN-PLACE (CUT 1' BELOW CHANNEL INVERT)

ENVIRONMENTAL PERMIT PLANS

PLAN DATE: JULY 05, 2023

REV.	DATE	REVISION DESCRIPTION	SHEET NO.
-	-	-	-
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THE INFORMATION, INCLUDING ESTIMATED QUANTITIES OF WORK, SHOWN ON THESE SHEETS IS BASED ON LIMITED INVESTIGATIONS BY THE STATE AND IS IN NO WAY WARRANTED TO INDICATE THE CONDITIONS OF ACTUAL QUANTITIES OF WORK WHICH WILL BE REQUIRED.

Plotted Date: 7/7/2023

DESIGNER/DRAFTER: N. ROSSI
CHECKED BY: B. CHAMBERLIN
SCALE 1" = 40'
40 20 0 40

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

Filename: ...\201_EPP_MSH_0104_0175_(2713)-General Site Plan.dgn

SIGNATURE/ BLOCK:

PROJECT TITLE:
REPLACEMENT OF BRIDGE NO. 02713, ROUTE 156 OVER FOUR MILE RIVER

TOWN: **OLD LYME EAST LYME**

DRAWING TITLE: **GENERAL SITE PLAN**

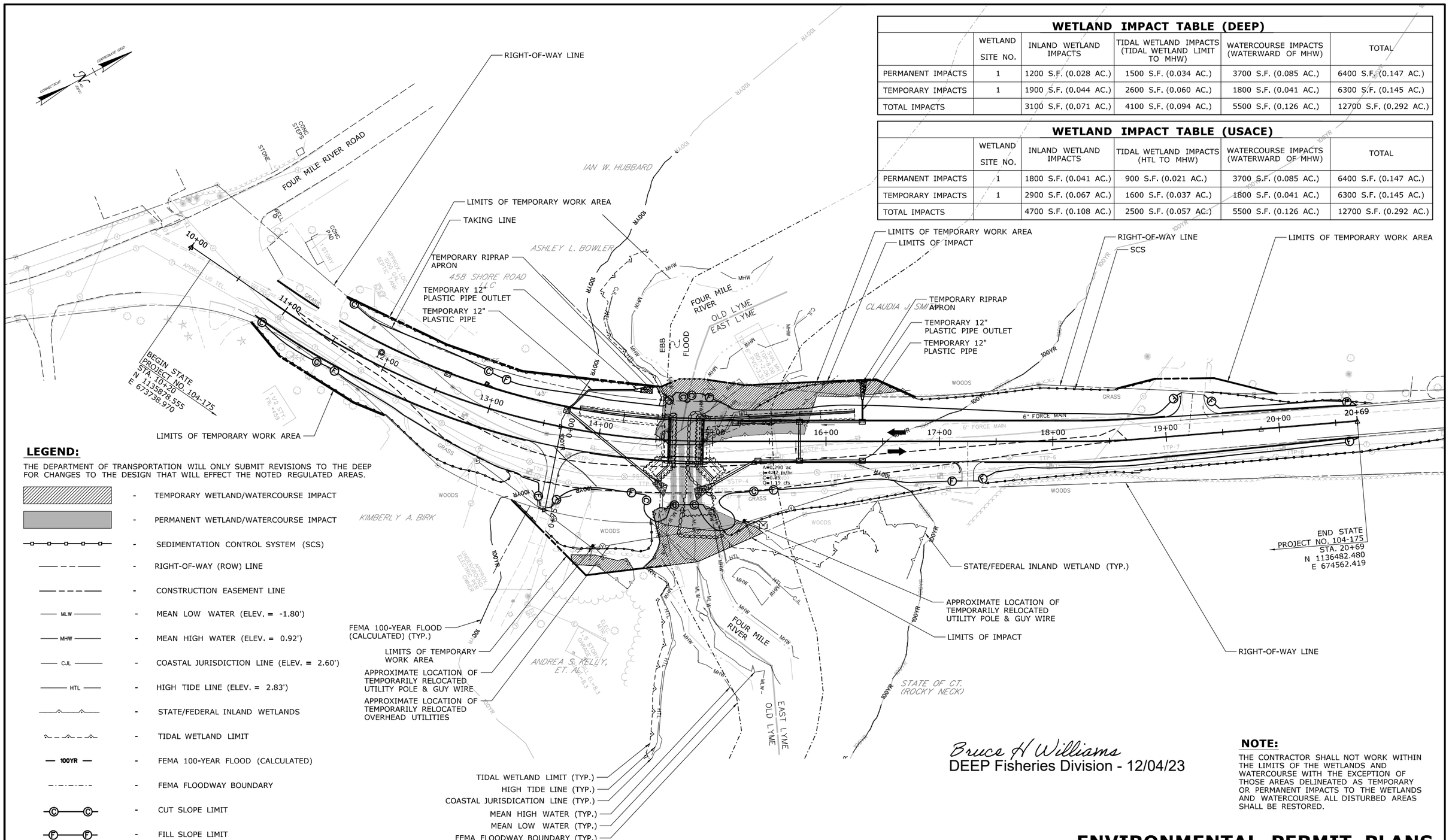
PROJECT NO. **104-175**
DRAWING NO. **PMT-02**
SHEET NO.

WETLAND IMPACT TABLE (DEEP)

	WETLAND SITE NO.	INLAND WETLAND IMPACTS	TIDAL WETLAND IMPACTS (TIDAL WETLAND LIMIT TO MHW)	WATERCOURSE IMPACTS (WATERWARD OF MHW)	TOTAL
PERMANENT IMPACTS	1	1200 S.F. (0.028 AC.)	1500 S.F. (0.034 AC.)	3700 S.F. (0.085 AC.)	6400 S.F. (0.147 AC.)
TEMPORARY IMPACTS	1	1900 S.F. (0.044 AC.)	2600 S.F. (0.060 AC.)	1800 S.F. (0.041 AC.)	6300 S.F. (0.145 AC.)
TOTAL IMPACTS		3100 S.F. (0.071 AC.)	4100 S.F. (0.094 AC.)	5500 S.F. (0.126 AC.)	12700 S.F. (0.292 AC.)

WETLAND IMPACT TABLE (USACE)

	WETLAND SITE NO.	INLAND WETLAND IMPACTS	TIDAL WETLAND IMPACTS (HTL TO MHW)	WATERCOURSE IMPACTS (WATERWARD OF MHW)	TOTAL
PERMANENT IMPACTS	1	1800 S.F. (0.041 AC.)	900 S.F. (0.021 AC.)	3700 S.F. (0.085 AC.)	6400 S.F. (0.147 AC.)
TEMPORARY IMPACTS	1	2900 S.F. (0.067 AC.)	1600 S.F. (0.037 AC.)	1800 S.F. (0.041 AC.)	6300 S.F. (0.145 AC.)
TOTAL IMPACTS		4700 S.F. (0.108 AC.)	2500 S.F. (0.057 AC.)	5500 S.F. (0.126 AC.)	12700 S.F. (0.292 AC.)



LEGEND:

THE DEPARTMENT OF TRANSPORTATION WILL ONLY SUBMIT REVISIONS TO THE DEEP FOR CHANGES TO THE DESIGN THAT WILL EFFECT THE NOTED REGULATED AREAS.

- TEMPORARY WETLAND/WATERCOURSE IMPACT
- PERMANENT WETLAND/WATERCOURSE IMPACT
- SEDIMENTATION CONTROL SYSTEM (SCS)
- RIGHT-OF-WAY (ROW) LINE
- CONSTRUCTION EASEMENT LINE
- MLW - MEAN LOW WATER (ELEV. = -1.80')
- MHW - MEAN HIGH WATER (ELEV. = 0.92')
- CJL - COASTAL JURISDICTION LINE (ELEV. = 2.60')
- HTL - HIGH TIDE LINE (ELEV. = 2.83')
- STATE/FEDERAL INLAND WETLANDS
- TIDAL WETLAND LIMIT
- 100YR - FEMA 100-YEAR FLOOD (CALCULATED)
- FEMA FLOODWAY BOUNDARY
- CUT SLOPE LIMIT
- FILL SLOPE LIMIT
- SHEET PILE COFFERDAM LEFT-IN-PLACE (CUT 1' BELOW CHANNEL INVERT)

Bruce H Williams
DEEP Fisheries Division - 12/04/23

NOTE:

THE CONTRACTOR SHALL NOT WORK WITHIN THE LIMITS OF THE WETLANDS AND WATERCOURSE WITH THE EXCEPTION OF THOSE AREAS DELINEATED AS TEMPORARY OR PERMANENT IMPACTS TO THE WETLANDS AND WATERCOURSE. ALL DISTURBED AREAS SHALL BE RESTORED.

ENVIRONMENTAL PERMIT PLANS

PLAN DATE: JULY 05, 2023

REV.	DATE	REVISION DESCRIPTION	SHEET NO.
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THE INFORMATION, INCLUDING ESTIMATED QUANTITIES OF WORK, SHOWN ON THESE SHEETS IS BASED ON LIMITED INVESTIGATIONS BY THE STATE AND IS IN NO WAY WARRANTED TO INDICATE THE CONDITIONS OF ACTUAL QUANTITIES OF WORK WHICH WILL BE REQUIRED.

Plotted Date: 7/7/2023

DESIGNER/DRAFTER: N. ROSSI
CHECKED BY: B. CHAMBERLIN
SCALE 1" = 40'
40 20 0 40

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

Filename: ...\202_EPP_MSH_0104_0175_(2713)-Wetland Impacts.dgn

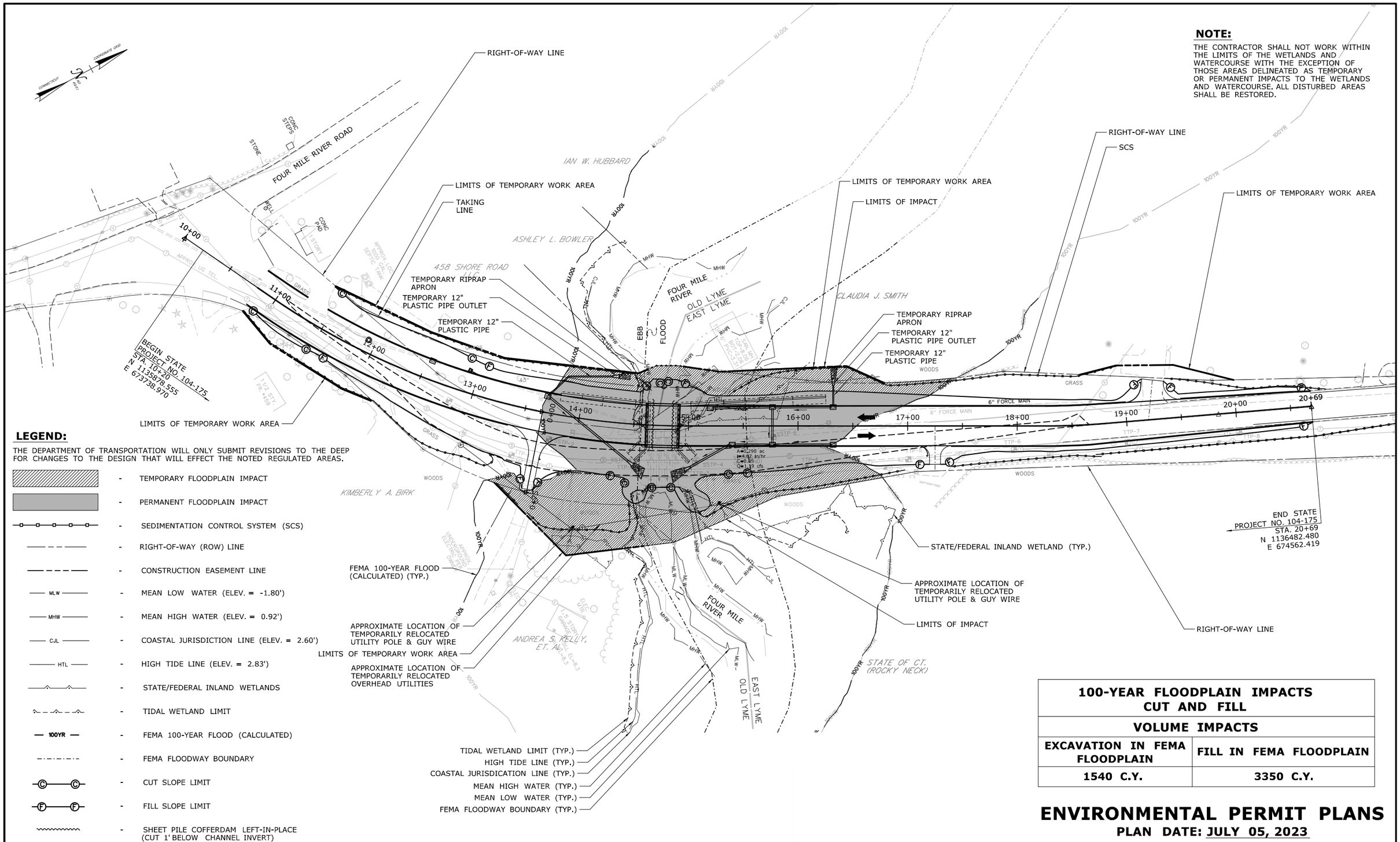
SIGNATURE/ BLOCK:

PROJECT TITLE:
REPLACEMENT OF BRIDGE NO. 02713, ROUTE 156 OVER FOUR MILE RIVER

TOWN: **OLD LYME EAST LYME**

DRAWING TITLE: **WETLAND/WATERCOURSE IMPACT PLAN**

PROJECT NO. **104-175**
DRAWING NO. **PMT-03**
SHEET NO.



LEGEND:

THE DEPARTMENT OF TRANSPORTATION WILL ONLY SUBMIT REVISIONS TO THE DEEP FOR CHANGES TO THE DESIGN THAT WILL EFFECT THE NOTED REGULATED AREAS.

- TEMPORARY FLOODPLAIN IMPACT
- PERMANENT FLOODPLAIN IMPACT
- SEDIMENTATION CONTROL SYSTEM (SCS)
- RIGHT-OF-WAY (ROW) LINE
- CONSTRUCTION EASEMENT LINE
- MEAN LOW WATER (ELEV. = -1.80')
- MEAN HIGH WATER (ELEV. = 0.92')
- COASTAL JURISDICTION LINE (ELEV. = 2.60')
- HIGH TIDE LINE (ELEV. = 2.83')
- STATE/FEDERAL INLAND WETLANDS
- TIDAL WETLAND LIMIT
- FEMA 100-YEAR FLOOD (CALCULATED)
- FEMA FLOODWAY BOUNDARY
- CUT SLOPE LIMIT
- FILL SLOPE LIMIT
- SHEET PILE COFFERDAM LEFT-IN-PLACE (CUT 1' BELOW CHANNEL INVERT)

100-YEAR FLOODPLAIN IMPACTS CUT AND FILL	
VOLUME IMPACTS	
EXCAVATION IN FEMA FLOODPLAIN	**FILL IN FEMA FLOODPLAIN**
1540 C.Y.	**3350 C.Y.**

ENVIRONMENTAL PERMIT PLANS

PLAN DATE: JULY 05, 2023

REV.	DATE	REVISION DESCRIPTION	SHEET NO.
-	-	-	-

THE INFORMATION, INCLUDING ESTIMATED QUANTITIES OF WORK, SHOWN ON THESE SHEETS IS BASED ON LIMITED INVESTIGATIONS BY THE STATE AND IS IN NO WAY WARRANTED TO INDICATE THE CONDITIONS OF ACTUAL QUANTITIES OF WORK WHICH WILL BE REQUIRED.

Plotted Date: 7/7/2023

DESIGNER/DRAFTER: N. ROSSI
CHECKED BY: B. CHAMBERLIN
SCALE 1" = 40'
40 20 0 40

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

Filename: ...\203-EPP-MSH-0104-0175-(2713)-100 Year Flood Impacts.dgn

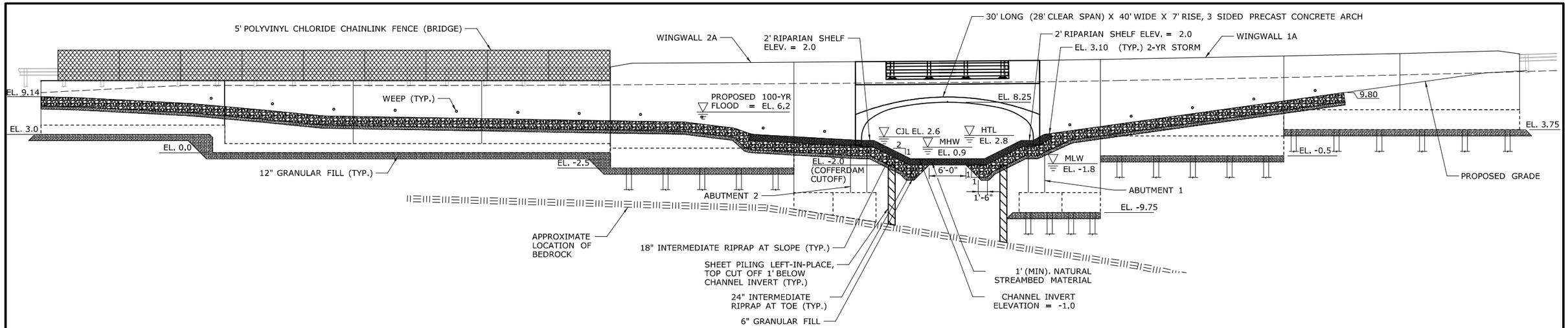
SIGNATURE/ BLOCK:

PROJECT TITLE:
REPLACEMENT OF BRIDGE NO. 02713, ROUTE 156 OVER FOUR MILE RIVER

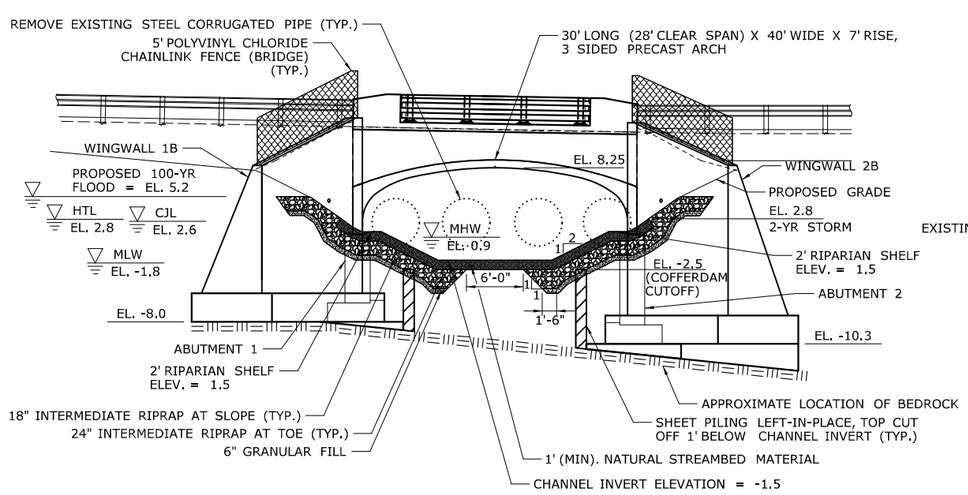
TOWN: **OLD LYME EAST LYME**

DRAWING TITLE: **100-YEAR FLOOD IMPACT PLAN**

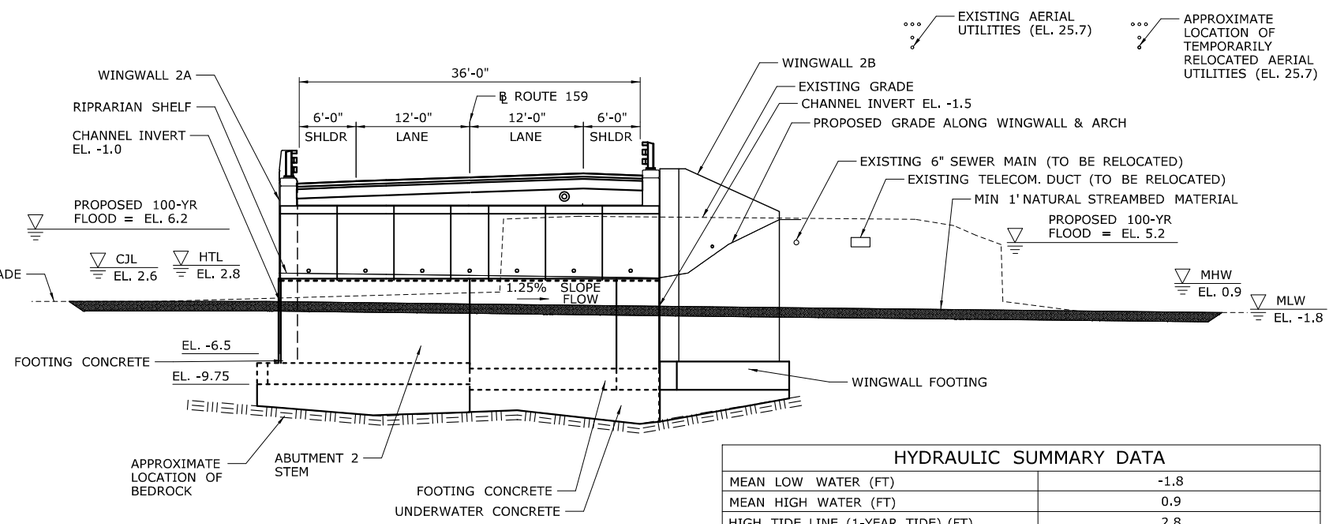
PROJECT NO. **104-175**
DRAWING NO. **PMT-04**
SHEET NO.



UPSTREAM (WEST) ELEVATION



DOWNSTREAM (EAST) ELEVATION



ARCH SECTION LOOKING NORTH

NATIVE STREAMBED MATERIAL NOTES:

1. NATIVE STREAMBED MATERIAL EXCAVATED DURING THE CONSTRUCTION OF ARCH AND WINGWALLS AND REMOVAL OF EXISTING CULVERT SHALL BE STOCKPILED AND THEN REPLACED WITHIN THE PROPOSED CHANNEL TO THE DEPTH SHOWN ON THE PLANS OR AS DIRECTED BY THE ENGINEER IN ACCORDANCE WITH THE SPECIAL PROVISION "EXCAVATION AND REUSE OF EXISTING CHANNEL BOTTOM MATERIAL".
2. ADDITIONAL STREAMBED MATERIAL, IF REQUIRED, SHALL BE IN ACCORDANCE WITH SPECIAL PROVISION "SUPPLEMENTAL STREAMBED CHANNEL MATERIAL".
3. THE STOCKPILE SHALL BE LOCATED OUTSIDE THE WETLAND LIMITS AND PROTECTED WITH SEDIMENTATION CONTROL SYSTEM.
4. ANY SUBGRADE EXCAVATION MATERIAL IS TO BE INSPECTED BY OEP PRIOR TO REUSE AS "EXCAVATION AND REUSE OF EXISTING CHANNEL BOTTOM MATERIAL"

HYDRAULIC SUMMARY DATA		
MEAN LOW WATER (FT)	-1.8	
MEAN HIGH WATER (FT)	0.9	
HIGH TIDE LINE (1-YEAR TIDE) (FT)	2.8	
10-YEAR TIDE (FT)	5.2	
100-YEAR TIDE (FT)	9.3	
DESIGN FREQUENCY/EVENT	TIDAL: 10-YEAR	RIVERINE: 100-YEAR
DESIGN DISCHARGE (CFS)	1,070	
DESIGN WATER SURFACE ELEVATION - EBB DIRECTION (FT)	6.2	
DESIGN WATER SURFACE ELEVATION - FLOOD DIRECTION (FT)	9.3 (FEMA 100-YEAR)	
MAXIMUM SCOUR ELEVATION (FT)	-21.9	
FRQUENCY/ EVENT	TIDAL: 10-YEAR	RIVERINE: 500-YEAR
DISCHARGE (CFS)	1,380	
WORST CASE SCOUR SUB-STRUCTURE UNIT	ARCH FOOTING #2	

Bruce H Williams
DEEP Fisheries Division - 12/04/23

ENVIRONMENTAL PERMIT PLANS

PLAN DATE: JULY 05, 2023

REV.	DATE	REVISION DESCRIPTION	SHEET NO.
-	-	-	-
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-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-

THE INFORMATION, INCLUDING ESTIMATED QUANTITIES OF WORK, SHOWN ON THESE SHEETS IS BASED ON LIMITED INVESTIGATIONS BY THE STATE AND IS IN NO WAY WARRANTED TO INDICATE THE CONDITIONS OF ACTUAL QUANTITIES OF WORK WHICH WILL BE REQUIRED.

Plotted Date: 7/7/2023

DESIGNER/DRAFTER: N. ROSSI
CHECKED BY: B. CHAMBERLIN
SCALE: 1/8" = 1'-0"

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

Filename: ...\204_EPP_MSH_0104_0175_(2713)-Elevation & Section Plan.dgn

SIGNATURE/ BLOCK:

PROJECT TITLE:
REPLACEMENT OF BRIDGE NO. 02713, ROUTE 156 OVER FOUR MILE RIVER

TOWN: **OLD LYME EAST LYME**

DRAWING TITLE: **ELEVATION AND SECTION PLAN**

PROJECT NO. **104-175**
DRAWING NO. **PMT-05**
SHEET NO.

WATER HANDLING NOTES:

1. THE CONTRACTOR SHALL MAINTAIN WATER THROUGH THE TEMPORARY WATER HANDLING SYSTEM AS REQUIRED DURING CONSTRUCTION OF THE NEW STRUCTURE.

2. A DEWATERING BASIN SHALL BE ESTABLISHED OUTSIDE OF THE WETLAND LIMITS.

3. TEMPORARY WATER-HANDLING-COFFERDAM SHALL CONSIST OF AN APPROVED SYSTEM THAT THE CONTRACTOR ELECTS TO USE WHICH WILL SAFELY CONVEY WATER FLOWS THROUGH THE CONSTRUCTION AREA, SHALL BE ABLE TO SUPPORT CONSTRUCTION ACTIVITY AND SHALL CONFORM TO PERMITS.

   ANY WATER HANDLING SCHEME DEPICTED WITHIN THE DEPARTMENT'S 'HANDLING WATER TYPICAL SCHEMATICS' MAY BE UTILIZED UNLESS SPECIFICALLY PROHIBITED. A MEANS AND METHOD FOR WATER HANDLING SYSTEM SHALL BE SUBMITTED BY THE CONTRACTOR TO THE ENGINEER FOR APPROVAL.

4. WATER HANDLING MEASURES SHALL NOT EXCEED IMPACT AREAS SHOWN ON THE WETLAND AND FLOODPLAIN IMPACT SHEETS OF THE PERMIT PLANS.

5. ANY STORM DRAINAGE DISCHARGING INTO A CONFINED WORK AREA FROM EXISTING OR PROPOSED STORM DRAINAGE PIPES SHALL BE DIVERTED OR PUMPED OUTSIDE THE CONFINED AREAS. PUMPS/PIPES SHALL BE SIZED BY THE CONTRACTOR TO HANDLE THE EXPECTED FLOWS AND BE DISCHARGED TO A STABLE LOCATION. THE CONTRACTOR SHALL SUBMIT THE MEANS AND METHODS OF HANDLING STORM DRAINAGE TO THE ENGINEER FOR APPROVAL AND IS INCLUDED AS PART OF WATER HANDLING.

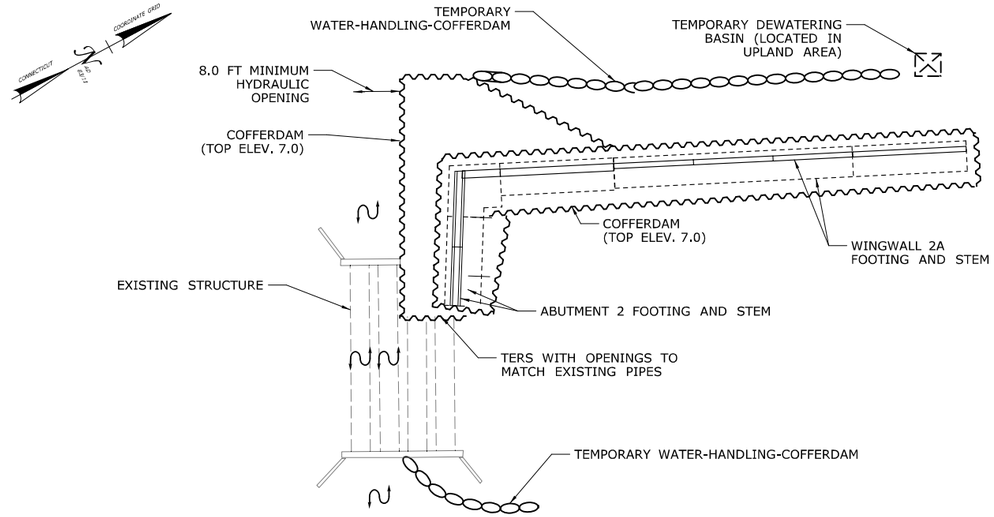
TIME-OF-YEAR BMP NOTE:

IN-WATER WORK, INCLUDING INSTALLATION AND REMOVAL OF COFFERDAMS, IS PROHIBITED FROM MARCH 15 THROUGH MAY 30, INCLUSIVE.

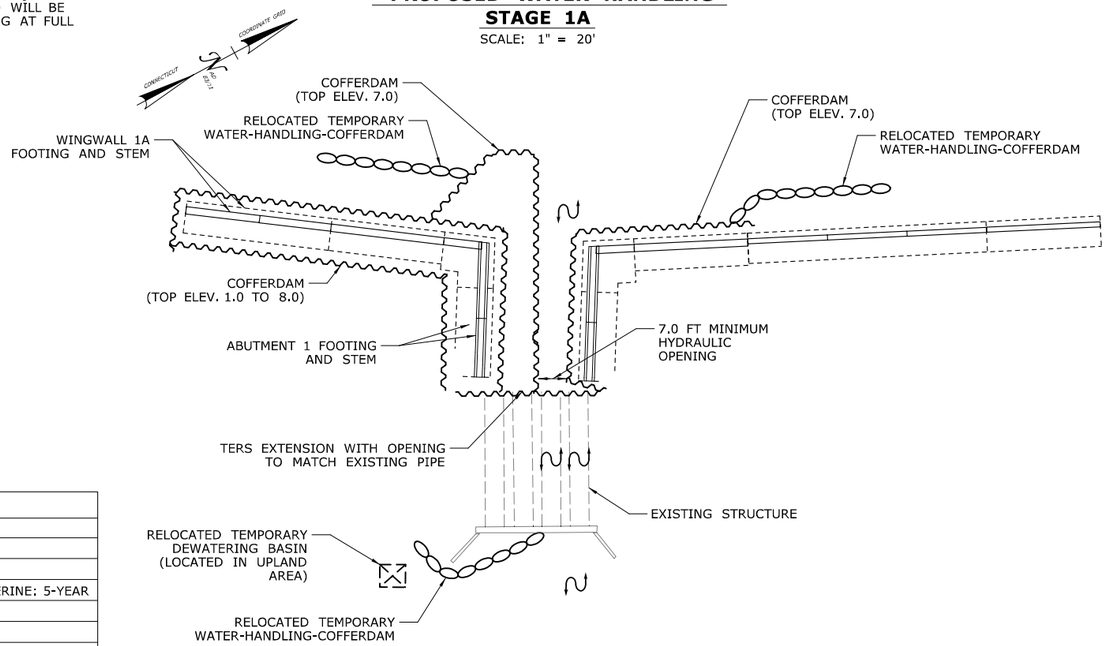
IF PILE DRIVING IS OCCURRING, A "SOFT START" IS REQUIRED TO ALLOW ANIMALS AN OPPORTUNITY TO LEAVE THE PROJECT VICINITY BEFORE SOUND PRESSURE LEVELS INCREASE. IN ADDITION TO USING A SOFT START AT THE BEGINNING OF THE WORK DAY FOR PILE DRIVING, ONE MUST ALSO BE USED AT ANY TIME FOLLOWING CESSATION OF PILE DRIVING FOR A PERIOD OF 30 MINUTES OR LONGER.

FOR IMPACT PILE DRIVING: PILE DRIVING WILL COMMENCE WITH AN INITIAL SET OF THREE STRIKES BY THE HAMMER AT 40% ENERGY, FOLLOWED BY A ONE MINUTE WAIT PERIOD, THEN TWO SUBSEQUENT THREE-STRIKE SETS AT 40% ENERGY, WITH ONE-MINUTE WAITING PERIODS, BEFORE INITITATING CONTINUOUS IMPACT DRIVING.

FOR VIBRATORY PILE INSTALLATION: PILE DRIVING WILL BE INITIATED FOR 15 SECONDS AT REDUCED ENERGY FOLLOWED BY A ONE-MINUTE WAITING PERIOD. THIS SEQUENCE OF 15 SECONDS OF REDUCED ENGERGY DRIVING, ONE-MINUTE WAITING PERIOD WILL BE REPEATED TWO ADDITIONAL TIMES, FOLLOWED IMMEDIATELY BY PILE-DRIVING AT FULL RATE AND ENERGY.



PROPOSED WATER HANDLING
STAGE 1A
SCALE: 1" = 20'



PROPOSED WATER HANDLING
STAGE 1B
SCALE: 1" = 20'

Bruce H Williams
DEEP Fisheries Division - 12/04/23

TEMPORARY HYDRAULIC DATA		
MEAN LOW WATER (FT)	-1.8	
MEAN HIGH WATER (FT)	0.9	
HIGH TIDE LINE (1-YEAR TIDE) (FT)	2.8	
TEMPORARY DESIGN FREQUENCY	TIDAL: HTL	RIVERINE: 5-YEAR
DESIGN DISCHARGE (CFS)	370	
STAGE 1A TEMPORARY WATER SURFACE ELEVATION (FT)	6.1	
STAGE 1B TEMPORARY WATER SURFACE ELEVATION (FT)	6.7	
STAGE 1C TEMPORARY WATER SURFACE ELEVATION (FT)	4.7	
STAGE 2A TEMPORARY WATER SURFACE ELEVATION (FT)	6.6	
STAGE 2B TEMPORARY WATER SURFACE ELEVATION (FT)	5.7	
STAGE 2C TEMPORARY WATER SURFACE ELEVATION (FT)	6.3	
STAGE 2D TEMPORARY WATER SURFACE ELEVATION (FT)	4.3	

SUGGESTED SEQUENCE OF CONSTRUCTION:

STAGE 1A:

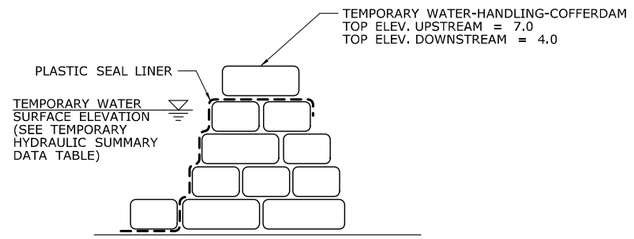
1. INSTALL SEDIMENTATION CONTROL SYSTEM, REMOVE INVASIVE SPECIES AND CLEAR AND GRUB.
2. PARTIALLY INSTALL COFFERDAM UP TO THE EXISTING STRUCTURE. INSTALL COFFERDAM THROUGH THE CENTERLINE OF THE EXISTING STRUCTURE.
3. INSTALL TEMPORARY WATER-HANDLING-COFFERDAMS AND DETWATERING BASIN.
4. INSTALL TEMPORARY EARTH RETAINING SYSTEM (TERS).
5. PARTIALLY REMOVE EXISTING STRUCTURE.
6. COMPLETE COFFERDAM INSTALLATION.
7. CONSTRUCT PORTION OF ABUTMENT 2 AND WINGWALL 2A.
8. PARTIALLY REMOVE COFFERDAM AROUND WINGWALL 2A AND INSTALL RIPRAP AND STREAMBED MATERIAL WITHIN THE CHANNEL AND ALONG THE WINGWALL.

STAGE 1B:

9. PARTIALLY REMOVE COFFERDAM TO ALLOW WATER TO FLOW THROUGH PIPES AS SHOWN. INSTALL COFFERDAMS TO SURROUND THE EXISTING STRUCTURE.
10. RELOCATE TEMPORARY WATER-HANDLING-COFFERDAMS AND DEWATERING BASIN.
11. INSTALL TEMPORARY EARTH RETAINING SYSTEM EXTENSION.
12. PARTIALLY REMOVE EXISTING STRUCTURE.
13. COMPLETE COFFERDAM INSTALLATION.
14. CONSTRUCT PORTION OF ABUTMENT 1 AND WINGWALL 1A.
15. PARTIALLY REMOVE COFFERDAM ALONG WINGWALL 1A AND INSTALL RIPRAP AND STREAMBED MATERIAL IN THE CHANNEL AND ALONG THE WINGWALL.

STAGE 1C, 2A, 2B, 2C, 2D:

SEE PMT-07 FOR STAGES 1C, 2A, 2B, 2C & 2D.



WATER-HANDLING-COFFERDAM
SANDBAGS
(NOT TO SCALE)

ENVIRONMENTAL PERMIT PLANS

PLAN DATE: JULY 05, 2023

REV.	DATE	REVISION DESCRIPTION	SHEET NO.
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Plotted Date: 7/7/2023

DESIGNER/DRAFTER: **N. ROSSI**
CHECKED BY: **B. CHAMBERLIN**
SCALE AS NOTED

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

Filename: ...\205_FPP_MSH_0104_0175_(2713)-Water Handling Plan.dgn

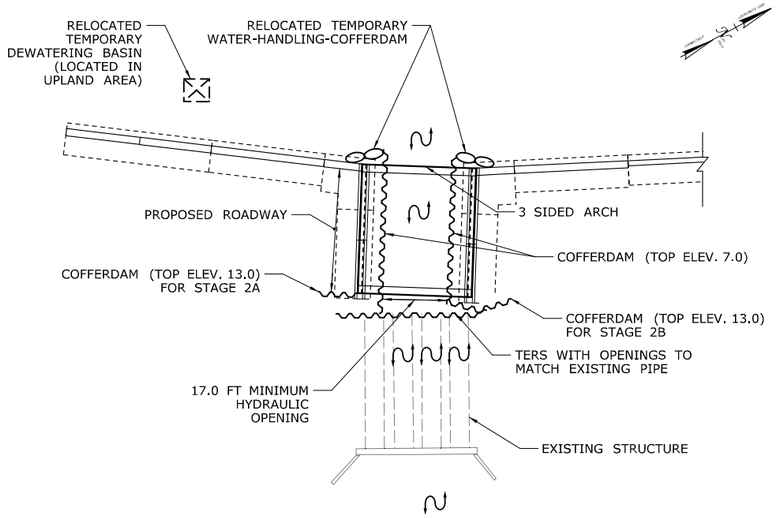
SIGNATURE/ BLOCK:

PROJECT TITLE:
REPLACEMENT OF BRIDGE NO. 02713, ROUTE 156 OVER FOUR MILE RIVER

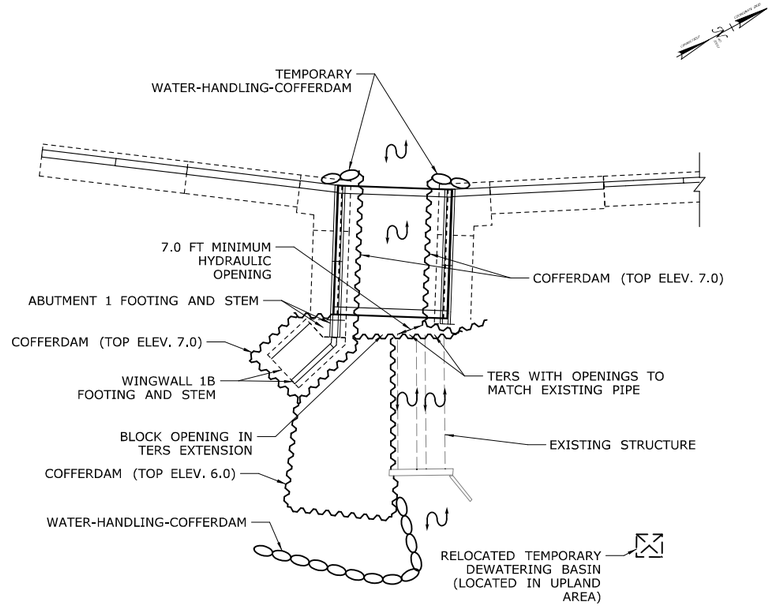
TOWN: **OLD LYME / EAST LYME**

DRAWING TITLE: **WATER HANDLING PLAN STAGE 1A & 1B**

PROJECT NO. **104-175**
DRAWING NO. **PMT-06**
SHEET NO.



PROPOSED WATER HANDLING
STAGE 1C
SCALE: 1" = 20'



PROPOSED WATER HANDLING
STAGE 2A
SCALE: 1" = 20'

SUGGESTED SEQUENCE OF CONSTRUCTION:

STAGE 1A & 1B:

SEE PMT-06 FOR STAGES 1A AND 1B.

STAGE 1C:

16. RELOCATE TEMPORARY WATER-HANDLING-COFFERDAMS AND REMOVE PORTIONS OF COFFERDAMS. REMAINING COFFERDAMS AS SHOWN.
17. CONSTRUCT ARCH (STAGE 1 PORTION).
18. INSTALL PORTIONS OF COFFERDAM FOR STAGE 2A & 2B COFFERDAMS.

STAGE 2A:

19. BLOCK OPENING IN TEMPORARY EARTH RETAINING SYSTEM AS SHOWN.
20. INSTALL COFFERDAM THROUGH THE CENTERLINE OF THE EXISTING STRUCTURE AND AROUND THE REMAINING PORTION OF THE EXISTING STRUCTURE. INSTALL TEMPORARY WATER-HANDLING-COFFERDAMS AND DEWATERING BASIN.
21. PARTIALLY REMOVE EXISTING STRUCTURE AND INSTALL REMAINING COFFERDAM AROUND WINGWALL 1B.
22. INSTALL RIPRAP AND STREAMBED MATERIAL.
23. COMPLETE ABUTMENT 1 CONSTRUCTION AND CONSTRUCT WINGWALL 1B.

STAGE 2B:

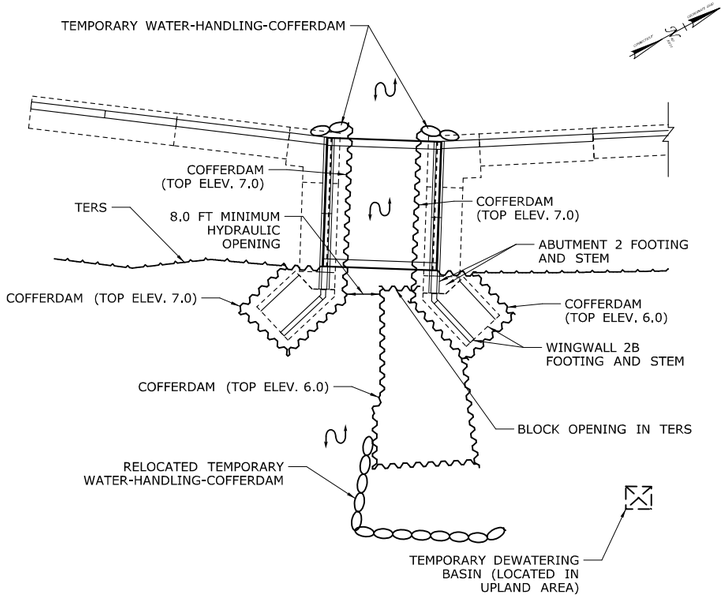
24. PARTIALLY REMOVE COFFERDAM AS SHOWN, REMOVE TEMPORARY WATER-HANDLING-COFFERDAM, PARTIALLY REMOVE TEMPORARY EARTH RETAINING SYSTEM, AND BLOCK OPENING IN TEMPORARY EARTH RETAINING STYSTEM.
25. INSTALL COFFERDAM SURROUNDING THE EXISTING STRUCTURE AND REMOVE REMAINING EXISTING STRUCTURE.
26. INSTALL RIPRAP AND STREAMBED MATERIAL.
27. INSTALL COFFERDAM.
28. COMPLETE ABUTMENT 2 CONSTRUCTION AND CONSTRUCT WINGWALL 2B.

STAGE 2C:

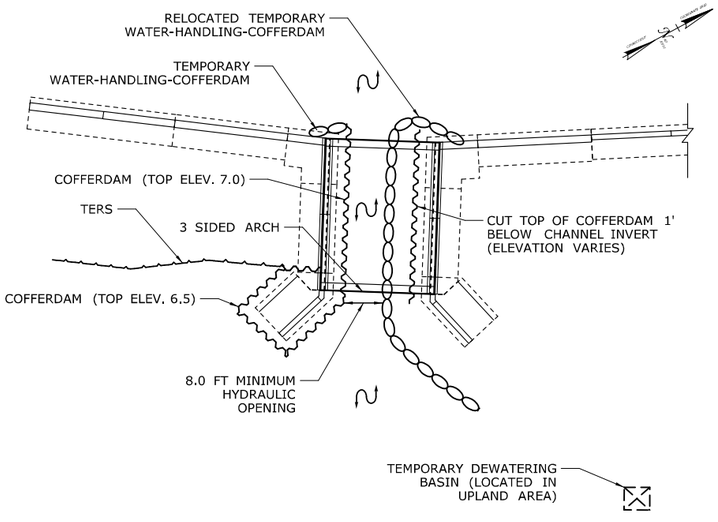
29. REMOVE COFFERDAMS WITHIN CHANNEL AND TEMPORARY EARTH RETAINING SYSTEM AND RELOCATE TEMPORARY WATER-HANDLING-COFFERDAM.
30. COMPLETE ARCH CONSTRUCTION (STAGE 2).
31. REMOVE COFFERDAM AT WINGWALL 2B.
32. CUT LEFT-IN-PLACE COFFERDAM AS SHOWN AND COMPLETE RIPRAP AND STREAMBED INSTALLATION.

STAGE 2D:

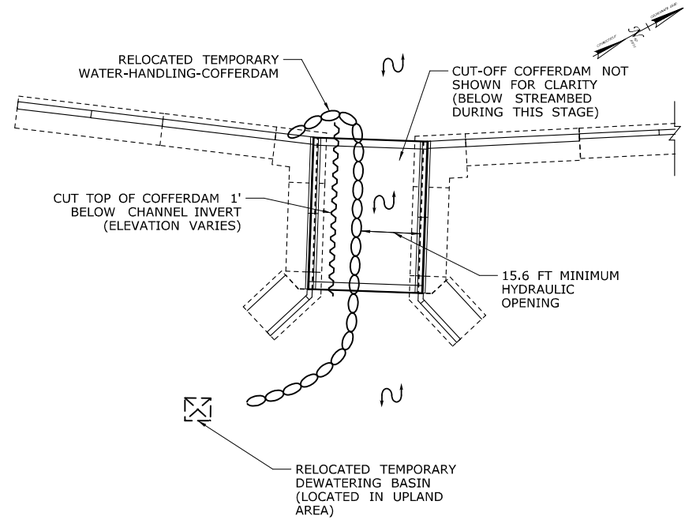
33. RELOCATE TEMPORARY WATER-HANDLING-COFFERDAM AND DEWATERING BASIN.
34. REMOVE COFFERDAM AT WINGWALL 1B.
35. CUT LEFT-IN-PLACE COFFERDAM AS SHOWN AND COMPLETE RIPRAP AND STREAMBED INSTALLATION.
36. REMOVE TEMPORARY WATER-HANDLING-COFFERDAM AND DEWATERING BASIN.
37. INSTALL TURF ESTABLISHMENT - LAWN SEEDING AND PLANTINGS.
38. REMOVE SEDIMENTATION CONTROL SYSTEM AFTER TURF HAS ESTABLISHED.



PROPOSED WATER HANDLING
STAGE 2B
SCALE: 1" = 20'



PROPOSED WATER HANDLING
STAGE 2C
SCALE: 1" = 20'



PROPOSED WATER HANDLING
STAGE 2D
SCALE: 1" = 20'

ENVIRONMENTAL PERMIT PLANS

PLAN DATE: JULY 05, 2023

REV.	DATE	REVISION DESCRIPTION	SHEET NO.
-	-	-	-
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THE INFORMATION, INCLUDING ESTIMATED QUANTITIES OF WORK, SHOWN ON THESE SHEETS IS BASED ON LIMITED INVESTIGATIONS BY THE STATE AND IS IN NO WAY WARRANTED TO INDICATE THE CONDITIONS OF ACTUAL QUANTITIES OF WORK WHICH WILL BE REQUIRED.

Plotted Date: 7/7/2023

DESIGNER/DRAFTER: N. ROSSI
CHECKED BY: B. CHAMBERLIN
SCALE AS NOTED

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

Filename: ...\206_EPP_MSH_0104_0175_(2713)-Water Handling Plan_2.dgn

SIGNATURE/ BLOCK:

PROJECT TITLE:
REPLACEMENT OF BRIDGE NO. 02713, ROUTE 156 OVER FOUR MILE RIVER

TOWN: OLD LYME / EAST LYME

DRAWING TITLE: WATER HANDLING PLAN STAGE 1C, 2A, 2B, 2C, 2D

PROJECT NO. 104-175
DRAWING NO. PMT-07
SHEET NO.

PERMIT PLANTING ITEMS

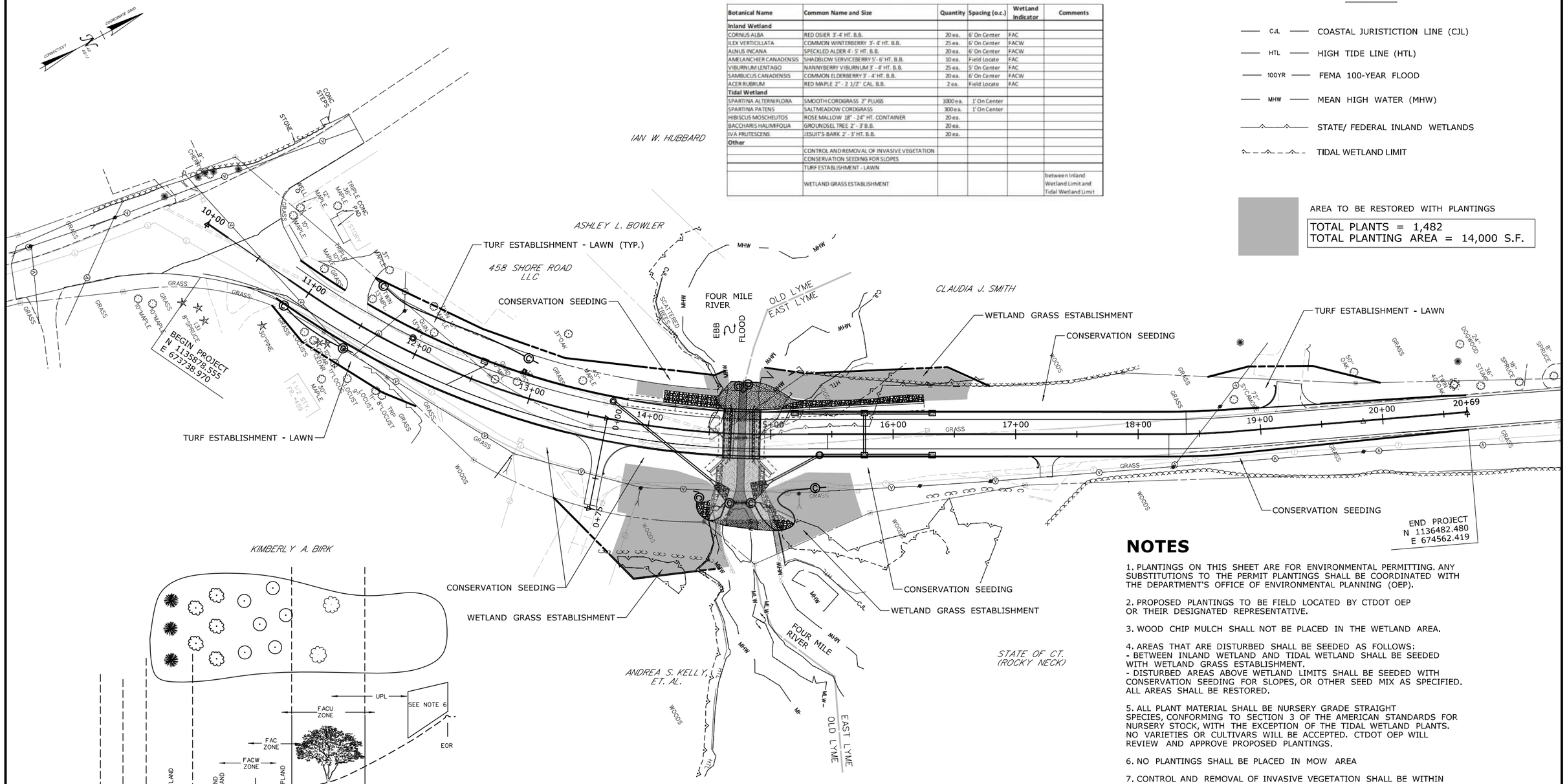
Botanical Name	Common Name and Size	Quantity	Spacing (o.c.)	WetLand Indicator	Comments
Inland Wetland					
CORNUS ALBA	RED OSIER 3'-4' HT. B.B.	20 ea.	6' On Center	FAC	
ILEX VERTICILLATA	COMMON WINTERBERRY 3'- 4' HT. B.B.	25 ea.	6' On Center	FACW	
ALNUS INCANA	SPECKLED ALDER 4'- 5' HT. B.B.	20 ea.	6' On Center	FACW	
AMELANCHIER CANADENSIS	SHADBLOW SERVICEBERRY 5'- 6' HT. B.B.	10 ea.	Field Locate	FAC	
VIBURNUM LENTAGO	NANNYBERRY VIBURNUM 3' - 4' HT. B.B.	25 ea.	5' On Center	FAC	
SAMBUCUS CANADENSIS	COMMON ELDERBERRY 3' - 4' HT. B.B.	20 ea.	6' On Center	FACW	
ACER RUBRUM	RED MAPLE 2" - 2 1/2" CAL. B.B.	2 ea.	Field Locate	FAC	
Tidal Wetland					
SPARTINA ALTERNIFLORA	SMOOTH CORDGRASS 2" PLUGS	1000 ea.	1' On Center		
SPARTINA PATENS	SALTMEADOW CORDGRASS	300 ea.	1' On Center		
HIBISCUS MOSCHEUTOS	ROSE MALLOW 18" - 24" HT. CONTAINER	20 ea.			
BACCHARIS HALIMIFOLIA	GROUNDSEL TREE 2' - 3' B.B.	20 ea.			
IVA FRUTESCENS	JESUIT'S-BARK 2' - 3' HT. B.B.	20 ea.			
Other					
	CONTROL AND REMOVAL OF INVASIVE VEGETATION				
	CONSERVATION SEEDING FOR SLOPES				
	TURF ESTABLISHMENT - LAWN				
	WETLAND GRASS ESTABLISHMENT				between Inland Wetland Limit and Tidal Wetland Limit

LEGEND

- CJL — COASTAL JURISTICTION LINE (CJL)
- HTL — HIGH TIDE LINE (HTL)
- 100YR — FEMA 100-YEAR FLOOD
- MHW — MEAN HIGH WATER (MHW)
- STATE/ FEDERAL INLAND WETLANDS
- TIDAL WETLAND LIMIT

AREA TO BE RESTORED WITH PLANTINGS

TOTAL PLANTS = 1,482
TOTAL PLANTING AREA = 14,000 S.F.



SCHEMATIC PLANTING

NOTES

1. PLANTINGS ON THIS SHEET ARE FOR ENVIRONMENTAL PERMITTING. ANY SUBSTITUTIONS TO THE PERMIT PLANTINGS SHALL BE COORDINATED WITH THE DEPARTMENT'S OFFICE OF ENVIRONMENTAL PLANNING (OEP).

2. PROPOSED PLANTINGS TO BE FIELD LOCATED BY CTDOT OEP OR THEIR DESIGNATED REPRESENTATIVE.

3. WOOD CHIP MULCH SHALL NOT BE PLACED IN THE WETLAND AREA.

4. AREAS THAT ARE DISTURBED SHALL BE SEEDED AS FOLLOWS:
- BETWEEN INLAND WETLAND AND TIDAL WETLAND SHALL BE SEEDED WITH WETLAND GRASS ESTABLISHMENT.
- DISTURBED AREAS ABOVE WETLAND LIMITS SHALL BE SEEDED WITH CONSERVATION SEEDING FOR SLOPES, OR OTHER SEED MIX AS SPECIFIED.
ALL AREAS SHALL BE RESTORED.

5. ALL PLANT MATERIAL SHALL BE NURSERY GRADE STRAIGHT SPECIES, CONFORMING TO SECTION 3 OF THE AMERICAN STANDARDS FOR NURSERY STOCK, WITH THE EXCEPTION OF THE TIDAL WETLAND PLANTS. NO VARIETIES OR CULTIVARS WILL BE ACCEPTED. CTDOT OEP WILL REVIEW AND APPROVE PROPOSED PLANTINGS.

6. NO PLANTINGS SHALL BE PLACED IN MOW AREA

7. CONTROL AND REMOVAL OF INVASIVE VEGETATION SHALL BE WITHIN PROJECT LIMITS FROM STA. 10+80 TO STA. 19+20.
AREA TO BE TREATED FOR INVASIVES SHALL BE PROPERLY PREPARED FOR FINAL PLANTING, SEEDING, AND RESTORATION.

ENVIRONMENTAL PERMIT PLANS

PLAN DATE: JUNE 29, 2023

REV.	DATE	REVISION DESCRIPTION	SHEET NO.

THE INFORMATION, INCLUDING ESTIMATED QUANTITIES OF WORK, SHOWN ON THESE SHEETS IS BASED ON LIMITED INVESTIGATIONS BY THE STATE AND IS IN NO WAY WARRANTED TO INDICATE THE CONDITIONS OF ACTUAL QUANTITIES OF WORK WHICH WILL BE REQUIRED.

Plotted Date: 6/29/2023

DESIGNER/DRAFTER: MR
CHECKED BY: MS
SCALE IN FEET 0 40 80
SCALE 1"=40'

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

Filename: ...\PMT-01.dgn

SIGNATURE/ BLOCK: OFFICE OF ENGINEERING
APPROVED BY:

PROJECT TITLE: REPLACEMENT OF BRIDGE NO 02713, ROUTE 156 OVER FOUR MILE RIVER

TOWN: OLD LYME EAST LYME

DRAWING TITLE: PERMIT PLANTING PLAN

PROJECT NO. 104-175
DRAWING NO. PMT-08
SHEET NO.

TIDAL ELEVATION TABLE

TIDAL TYPE	ELEVATION (FT)
HIGH TIDE LINE	2.8
COASTAL JURISDICTION LINE	2.3
MEAN HIGH WATER	1.0
MEAN LOW WATER	-2.1
MEAN LOW LOW WATER	-2.3

ENVIRONMENTAL PERMIT PLANS

PLAN DATE: JULY 05, 2023

REV.	DATE	REVISION DESCRIPTION	SHEET NO.

THE INFORMATION, INCLUDING ESTIMATED QUANTITIES OF WORK, SHOWN ON THESE SHEETS IS BASED ON LIMITED INVESTIGATIONS BY THE STATE AND IS IN NO WAY WARRANTED TO INDICATE THE CONDITIONS OF ACTUAL QUANTITIES OF WORK WHICH WILL BE REQUIRED.

Plotted Date: 8/3/2023

DESIGNER/DRAFTER: S.PELLEGRINI
CHECKED BY: W. WOLF
SCALE IN FEET 0 30 60
SCALE 1"=30'

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

Filename: ...\EX_0104-0175_TLD_ExistingConditions.dgn

SIGNATURE/ BLOCK:

DESIGNED BY: BL Companies
BL COMPANIES, INC.
355 RESEARCH PARKWAY
MERIDEN, CT 06450

PROJECT TITLE:
REPLACEMENT OF BRIDGE NO. 02713, ROUTE 156 OVER FOUR MILE RIVER

TOWN: **OLD LYME EAST LYME**

DRAWING TITLE: **THIN LAYER DEPOSITION EXISTING CONDITIONS**

PROJECT NO. 0104-0175
DRAWING NO. PMT-09
SHEET NO.

LEGEND

PROPOSED FIBER ROLLS

NOTES

1. ALL WORK WITHIN THE THIN LAYER DEPOSITION (TLD) AND TIDAL ENHANCEMENT AREAS IS RESTRICTED TO THE PERIOD OF DECEMBER 1 THROUGH FEBRUARY 15, INCLUSIVE.

2. THE CONTRACTOR SHALL COORDINATE AND COMPLETE ALL CONSTRUCTION ACTIVITIES AS OUTLINED BELOW DURING LOW TIDE.

3. PRIOR TO COMMENCEMENT OF ANY WORK ASSOCIATED WITH THE TLD AREA, THE CONTRACTOR SHALL SUBMIT TO THE OFFICE OF ENVIRONMENTAL PLANNING (OEP) FOR REVIEW AND ACCEPTANCE, A TIDAL MITIGATION PLAN THAT INCLUDES A CONSTRUCTION SCHEDULE AND OUTLINE OF CONSTRUCTION METHODOLOGIES FOR PERFORMING THE REQUIRED WORK, IN ACCORDANCE WITH ITEM NO. 0948015A TIDAL WETLAND CREATION (THIN LAYER DEPOSITION), AND IN ACCORDANCE WITH OTHER ITEMS LISTED BELOW.

4. PRIOR TO COMMENCEMENT OF WORK, THE CONTRACTOR SHALL STAKE THE CONSTRUCTION LIMITS AND ALL TIDAL ELEVATIONS, INCLUDING THE PROTECTIVE MATTING SYSTEM ACCESS ROAD.

5. TREE REMOVAL REQUIRED FOR TEMPORARY CONSTRUCTION ACCESS ROAD BETWEEN THE STAGING AREA AND TLD AREA SHALL BE DONE BY FLUSH CUTTING TO GROUND SURFACE. NO GRUBBING IS PERMITTED.

6. NO GROUND DISTURBANCE OR GRUBBING IS PERMITTED WITHIN THE TLD AREA IDENTIFIED FOR INVASIVE SPECIES REMOVAL AS SHOWN ON THE CONTRACT PLANS AND ENVIRONMENTAL PERMIT PLANS.

7. THE TLD WORK SHALL INCLUDE, BUT IS NOT LIMITED TO, THE INSTALLATION OF FIBER ROLLS OR ANY OTHER MEANS FOR THE PROTECTION OF THE OUTER PERIMETER OF THE TLD AREA, THE CONSTRUCTION AND REMOVAL OF PROTECTIVE MATTING SYSTEM ACCESS ROAD, TREATMENT OF INVASIVE SPECIES, PREPARING APPROPRIATE SITE GRADES, PLACING APPROVED TLD MATERIAL, INSTALLATION OF PLANTINGS, AND WETLAND CREATION SIGNS.

8. THE TLD AREA SHALL BE CONSTRUCTED FROM NORTH TO SOUTH.

9. THE CONTRACTOR SHALL UTILIZE CONVENTIONAL CONSTRUCTION EQUIPMENT EQUIPPED WITH EITHER LOW GROUND PRESSURE TREADS OR TIRES TO PLACE TLD MATERIALS.

10. THE FORMATION OF FINAL GRADE AND SUBSTRATE TO BE COMPLETED IN ACCORDANCE WITH ITEM NO. 0948015A TIDAL WETLAND CREATION (THIN LAYER DEPOSITION).

11. THE CONTRACTOR SHALL PLACE FIBER ROLLS AT THE LOCATIONS IDENTIFIED ON THE CONTRACT PLANS AND ENVIRONMENTAL PERMIT PLANS PRIOR TO AND IN CONJUNCTION WITH PLACEMENT OF THE TLD MATERIALS.

12. THE CONTRACTOR SHALL INSTALL STACKED FIBER ROLLS ON SUBSTRATE IN AREAS WITH WATER DEPTHS GREATER THAN 24" TO RETAIN DEPOSITION MATERIAL IN MITIGATION AREAS. SEE PMT-13 FOR DETAIL.

13. 14 DAYS IN ADVANCE OF THE INSTALLATION OF PROPOSED MITIGATION PLANTINGS, THE AREAS IDENTIFIED IN THE CONTRACT PLANS AND ENVIRONMENTAL PERMIT PLANS SHALL BE TREATED FOR INVASIVE SPECIES UNDER ITEM NO. 0952051A CONTROL AND REMOVAL OF INVASIVE VEGETATION. AFTER THE 14 DAYS, THE CONTRACTOR SHALL FLUSH CUT AND DISPOSE OF ALL INVASIVE SPECIES IN ACCORDANCE WITH THE SPECIFICATION. NO GROUND DISTURBANCE OR GRUBBING IS ALLOWED WITHIN THE INVASIVE SPECIES CONTROL AREA, WITH THE EXCEPTION OF INSTALLATION OF PROPOSED PLANTINGS.

14. SEE DRAWING NO. PMT-11 FOR PROPOSED PLANTINGS AND ADDITIONAL NOTES.

15. A WETLAND SCIENTIST FROM OEP WILL BE ON-SITE TO MONITOR AND DIRECT CONSTRUCTION OF THE TLD AREA. AT LEAST 10 DAYS PRIOR TO COMMENCEMENT OF CONSTRUCTION, THE CONTRACTOR SHALL ARRANGE FOR A MEETING WITH OEP WETLAND SCIENTIST, THROUGH THE ENGINEER TO REVIEW THE PLANNED WORK ACTIVITIES.

16. TEMPORARY PROTECTION MATTING SYSTEM ACCESS ROADS WITHIN THE TLD AREA ARE CONCEPTUAL ONLY. PRIOR TO COMMENCING ANY WORK, THE CONTRACTOR SHALL SUBMIT AN ACCESS PLAN TO OEP FOR REVIEW AND ACCEPTANCE PER ITEM NO. 0948015A TIDAL WETLAND CREATION (THIN LAYER DEPOSITION).

17. TEMPORARY PROTECTION MATTING SYSTEM ACCESS ROAD FROM THE STAGING AREA TO THE TLD AREA WAS DESIGNED TO AVOID IMPACTS TO ARCHAEOLOGICAL RESOURCES LOCATED WITHIN THE PROJECT AREA. ANY PROPOSED CHANGE IN THE LOCATION OF THE TEMPORARY CONSTRUCTION ACCESS WILL NEED TO BE SUBMITTED TO OEP, THROUGH THE ENGINEER, FOR REVIEW AND ACCEPTANCE. PRIOR TO THE PLACEMENT OF THE PROTECTIVE MATTING SYSTEM ACCESS ROAD, THE CONTRACTOR SHALL LAYDOWN GEOTEXTILE HIGH SURVIVABILITY AND GRANULAR FILL. NO GRANULAR FILL IS TO BE PLACED BENEATH THE GEOTEXTILE. REFER TO PMT-13.

18. NO HEAVY EQUIPMENT OPERATION OR STORAGE OR STAGING SHALL OCCUR EXCEPT UPON THE ADJOINING PAVED/GRAVEL SURFACES OR THE PROTECTIVE MATTING SYSTEM ACCESS ROAD.

19. TEMPORARY PROTECTIVE HIGH-VISIBILITY CONSTRUCTION FENCING SHALL BE PLACED ALONG THE FULL-LENGTH MARGINS OF THE TERRESTRIAL MATTING SYSTEM ACCESS ROAD.

20. THE TEMPORARY CONSTRUCTION ACCESS ROADS WITHIN THE TLD AREA SHALL BE LOCATED TO MINIMIZE IMPACTS TO EXISTING VEGETATION AND TO LIMIT COMPACTION OF EXISTING TIDAL WETLAND SUBSTRATE. THE TEMPORARY CONSTRUCTION ACCESS WITHIN THE TLD AREA SHALL BE REMOVED FROM NORTH TO SOUTH AS FINAL GRADE IS ESTABLISHED.

21. THE FINAL GRADE SHALL CONSIST OF TLD MATERIAL PER ITEM NO. 0948015A TIDAL WETLAND CREATION (THIN LAYER DEPOSITION) PLACED TO FINAL ELEVATION, AS IDENTIFIED ON THE CONTRACT PLANS AND ENVIRONMENTAL PERMIT PLANS.

22. CONTRACTOR SHALL TIE INTO EXISTING ADJACENT TIDAL WETLANDS AT A MAX SLOPE OF 3:1 WHEN PLACING THE TLD MATERIAL, AS SHOWN ON THE CONTRACT PLANS AND ENVIRONMENTAL PERMIT PLANS OR AS DIRECTED IN THE FIELD BY THE OEP WETLAND SCIENTIST.

23. AFTER FINAL GRADE IS ACHIEVED THROUGHOUT THE TLD AREA, A 14-DAY TIDAL FLUSH IS REQUIRED FOR THE OEP WETLAND SCIENTIST TO OBSERVE ANY SETTLING OF THE PLACED MATERIAL. IF DEEMED NECESSARY, THE CONTRACTOR SHALL PLACE ADDITIONAL TLD MATERIALS TO AN ELEVATION SATISFACTORY TO THE OEP WETLAND SCIENTIST.

24. EQUIPMENT SHALL NOT BE PERMITTED ON FINAL GRADE WITHIN THE TLD AREA, UNLESS ADDITIONAL TLD MATERIAL IS REQUIRED AFTER THE 14-DAY TIDAL FLUSH, OR AS DIRECTED BY THE OEP WETLAND SCIENTIST.

25. WETLAND MITIGATION SIGN NO. 31-5478 TO BE INSTALLED AT THE LOCATION AS DIRECTED BY THE OEP WETLAND SCIENTIST.

26. THE CONTRACTOR SHALL NOT, UNDER ANY CIRCUMSTANCES, DISCHARGE ANY SOIL, FILL OR DEBRIS INTO ANY PART OF THE ADJACENT WETLANDS OR WATERCOURSE THAT ARE NOT BEING DISTURBED BY CONSTRUCTION.

27. ALL DISTURBED AREAS OUTSIDE OF THE TLD AREA SHALL BE FULLY RESTORED TO THE ORIGINAL PRE-CONSTRUCTION CONDITIONS.

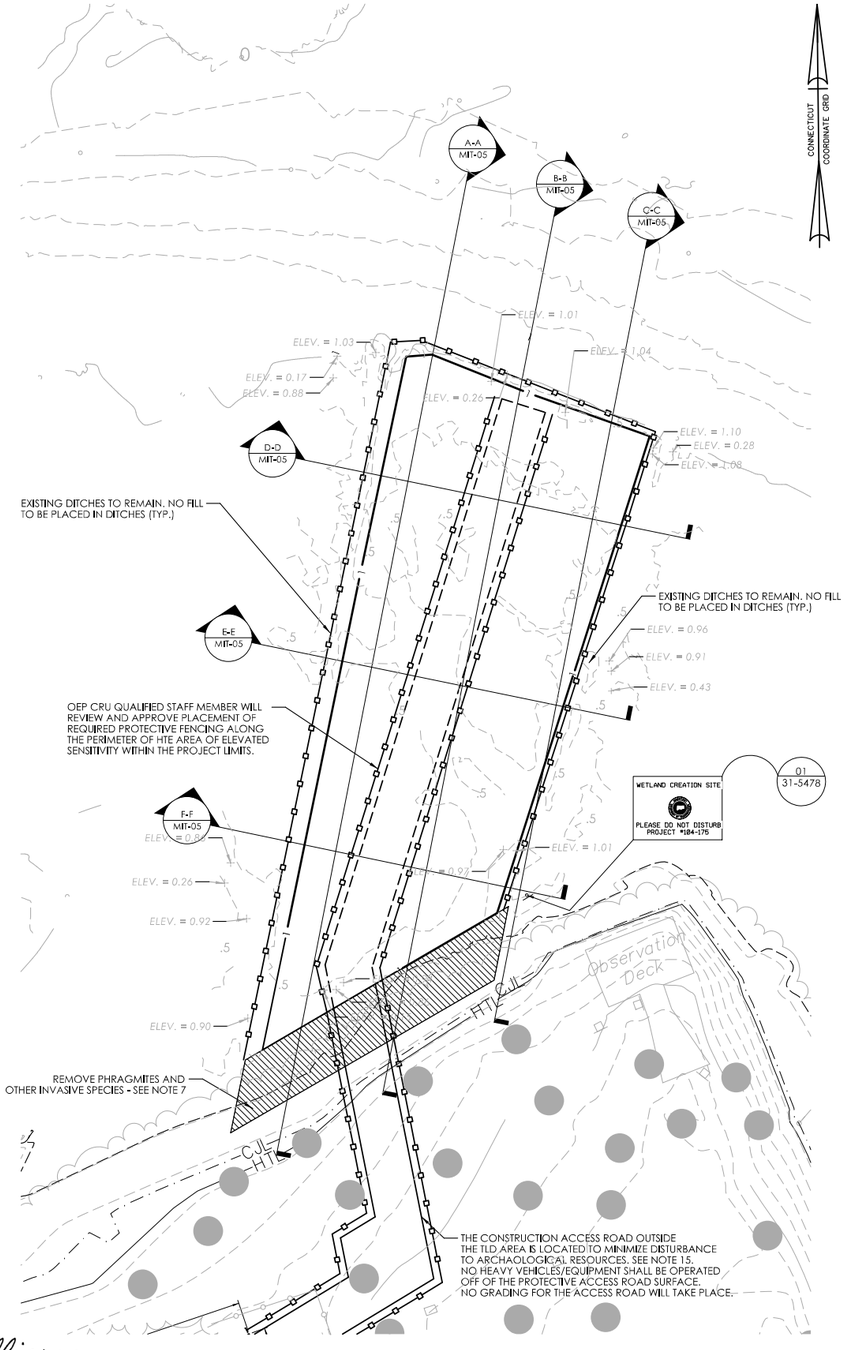
TIME-OF-YEAR BMP NOTE

ALL WORK BELOW THE HIGH TIDE LINE (ELEVATION 2.8') WITHIN THE THIN LAYER DEPOSITION AREA SHALL BE CONDUCTED ONLY BETWEEN DECEMBER 1st AND FEBRURARY 15th, INCLUSIVE.

TIDAL ELEVATION TABLE

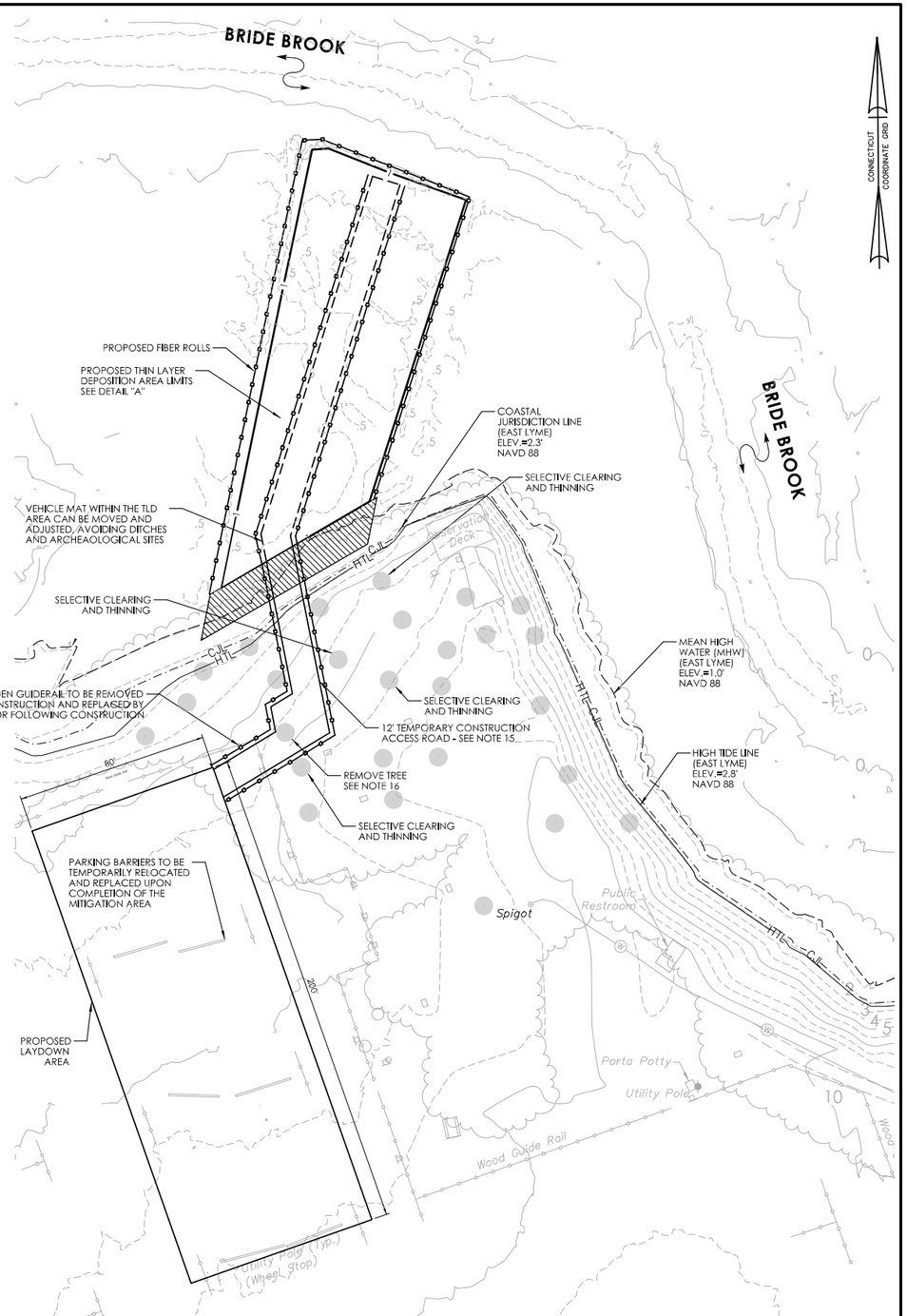
TIDAL TYPE	ELEVATION (FT)
HIGH TIDE LINE	2.8
COASTAL JURISDICTION LINE	2.3
MEAN HIGH WATER	1.0
MEAN LOW WATER	-2.1
MEAN LOW LOW WATER	-2.3

Bruce H Williams
DEEP Fisheries Division - 12/04/23



DETAIL "A"

SCALE: 1"=20'



PLAN

SCALE: 1"=30'

ENVIRONMENTAL PERMIT PLANS

PLAN DATE: DECEMBER 4, 2023

REV.	DATE	REVISION DESCRIPTION	SHEET NO.

THE INFORMATION, INCLUDING ESTIMATED QUANTITIES OF WORK, SHOWN ON THESE SHEETS IS BASED ON LIMITED INVESTIGATIONS BY THE STATE AND IS IN NO WAY WARRANTED TO INDICATE THE CONDITIONS OF ACTUAL QUANTITIES OF WORK WHICH WILL BE REQUIRED.

Plotted Date: 11/29/2023

DESIGNER/DRAFTER: S.PELLEGRINI
CHECKED BY: W. WOLF
SCALE AS NOTED

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

Filename: ...\ENVE_0104-0175_TLD_GradingPlan.dgn

SIGNATURE/BLOCK:

DESIGNED BY: BL COMPANIES, INC. 355 RESEARCH PARKWAY MERIDEN, CT 06450

PROJECT TITLE:
REPLACEMENT OF BRIDGE NO. 02713, ROUTE 156 OVER FOUR MILE RIVER

TOWN: **OLD LYME EAST LYME**

DRAWING TITLE: **THIN LAYER DEPOSITION GRADING PLAN**

PROJECT NO. **0104-0175**
DRAWING NO. **PMT-10**
SHEET NO.

LEGEND

PROPOSED FIBER ROLLS

PROPOSED MARSH RESTORATION

INVASIVE SPECIES CONTROL

NOTES

1. BEFORE ANY WORK IS TO PROCEED IN THE TIDAL CREATION OR TIDAL ENHANCEMENT AREAS, THE CONTRACTOR SHALL ARRANGE, THROUGH THE ENGINEER, FOR A MEETING WITH AN ENVIRONMENTAL INSPECTOR FROM THE CTDOT OFFICE OF ENVIRONMENTAL PLANNING (OEP). THIS MEETING WILL BE SCHEDULED AT LEAST 10-DAYS PRIOR TO COMMENCEMENT OF WORK ACTIVITY DESCRIBED IN THE SPECIAL PROVISION FOR "TIDAL CREATION".

2. REFER TO SHEET NO. MIT-03 FOR THE PROPOSED GRADING PLAN AND ADDITIONAL NOTES.

3. AFTER COMPLETION OF FINAL GRADE, A 7-14 DAY TIDAL FLOW CYCLE SHALL OCCUR PRIOR TO PLANTING. PLANTING IN THE TIDAL AREA SHALL BE DONE BETWEEN APRIL 15 AND JUNE 15.

4. PRIOR TO PLANTING, AN ENVIRONMENTAL INSPECTOR FROM OEP SHALL INSPECT THE TIDAL CREATION OR TIDAL ENHANCEMENT AREAS TO DETERMINE IF THE SITE IS SUITABLE FOR PLANTING.

5. MACHINERY WILL NOT BE ALLOWED WITHIN THE TIDAL AREA AT ANY TIME DURING OR AFTER PLANTING.

6. PLANTINGS ON THIS SHEET ARE FOR ENVIRONMENTAL PERMITTING. ANY SUBSTITUTIONS TO THE PERMIT PLANTINGS SHALL BE COORDINATED WITH OEP FOR REVIEW AND CONSIDERATION. FINAL REGULATORY APPROVAL WILL BE REQUIRED BEFORE ANY SUBSTITUTIONS ARE APPROVED.

7. WOOD CHIP MULCH WILL NOT BE ALLOWED WITHIN ANY TIDAL AREA.

8. ALL PLANT MATERIALS SHALL BE STRAIGHT SPECIES. NO VARIETIES OR CULTIVARS WILL BE ACCEPTED.

9. ALL SHRUBS SHALL BE NURSERY GRADE CONFORMING TO SECTION 3 OF THE AMERICAN STANDARDS FOR NURSERY STOCK, MEETING THE MINIMUM REQUIREMENTS FOR CONTAINER SIZE, ROOT MASS AND NUMBER OF CANES.

10. NO PLANTINGS OR SEEDINGS ARE TO BE PLACED IN MOWED OR MAINTAINED AREAS.

11. ALL PLANTINGS WITHIN THE TIDAL CREATION OR TIDAL ENHANCEMENT AREA ARE TO BE PAID UNDER ITEM NO. 0949875A - WETLAND PLANTINGS.

12. SEED THE ENTIRE DISTURBED SHORELINE AREA WITH NEW ENGLAND COASTAL SALT TOLERANT GRASS MIX.

13. SEED THE ENTIRE EMERGENT PLANTING AREAS, AS WELL AS ANY AREAS OF OTHER WETLAND PLANTINGS, WITH THE REQUIRED SEED MIX. HAND RAKE THE MIXTURE INTO THE TOPSOIL. ALTERNATIVELY, A COMBINATION OF HYDRO SEEDING AND HYDROMULCHING MAY BE USED TO OBTAIN THE SAME RESULT, SUBJECT TO CONSULTATION WITH THE ENGINEER, OEP, THE USACE AND/OR DEP.

14. AFTER THE PLANTING OF THE WOODY PLANTS IS COMPLETE, THE MITIGATION AREA SHALL BE WATERED UNTIL THE WATER PENETRATES TO A DEPTH OF 6 TO 8 INCHES.

15. THE CONTRACTOR SHALL GUARANTEE ALL PLANT MATERIAL FOR ONE (1) COMPLETE YEAR AFTER ALL PLANTS ARE INSTALLED AND ACCEPTED.

16. WOODEN STAKES AND BIODEGRADABLE STRING LINES TO BE INSTALLED IN 6' CELLS TO PREVENT GEESE PREDATION (SEE DETAIL). TO BE REMOVED AFTER VEGETATION IS WELL ESTABLISHED.

17. WOODEN STAKES AND BIODEGRADABLE STRING LINES TO BE INSTALLED IN 6' CELLS TO PREVENT GEESE PREDATION (SEE DETAIL). TO BE REMOVED AFTER VEGETATION IS WELL ESTABLISHED.

TIDAL MITIGATION LANDSCAPE PLANT SCHEDULE

KEY	QUANTITY	BOTANICAL NAME	COMMON NAME	ROOT	SIZE	COMMENTS
	10,500	*SPARTINA ALTERNIFLORA*	SMOOTH CORDGRASS	PLUG	2" PLUG	UNIFORM, WELL DEVELOPED. 1' O.C. SPACING.
	12	*BACCHARIS HALIMIFOLIA*	GROUNDSEL TREE	B.B.	24"-36" HT.	5' O.C.
	12	*HIBISCUS MOSCHEUTOS*	CRIMSONEYED ROSEMALLOW	B.B.	18"-24" HT.	5' O.C.
	10	*IVA FRUTESCENS*	HIGH TIDE BUSH	B.B.	24"-36" HT.	5' O.C.
			SHORELINE GRASS ESTABLISHMENT			

TIDAL ELEVATION TABLE

TIDAL TYPE	ELEVATION (FT)
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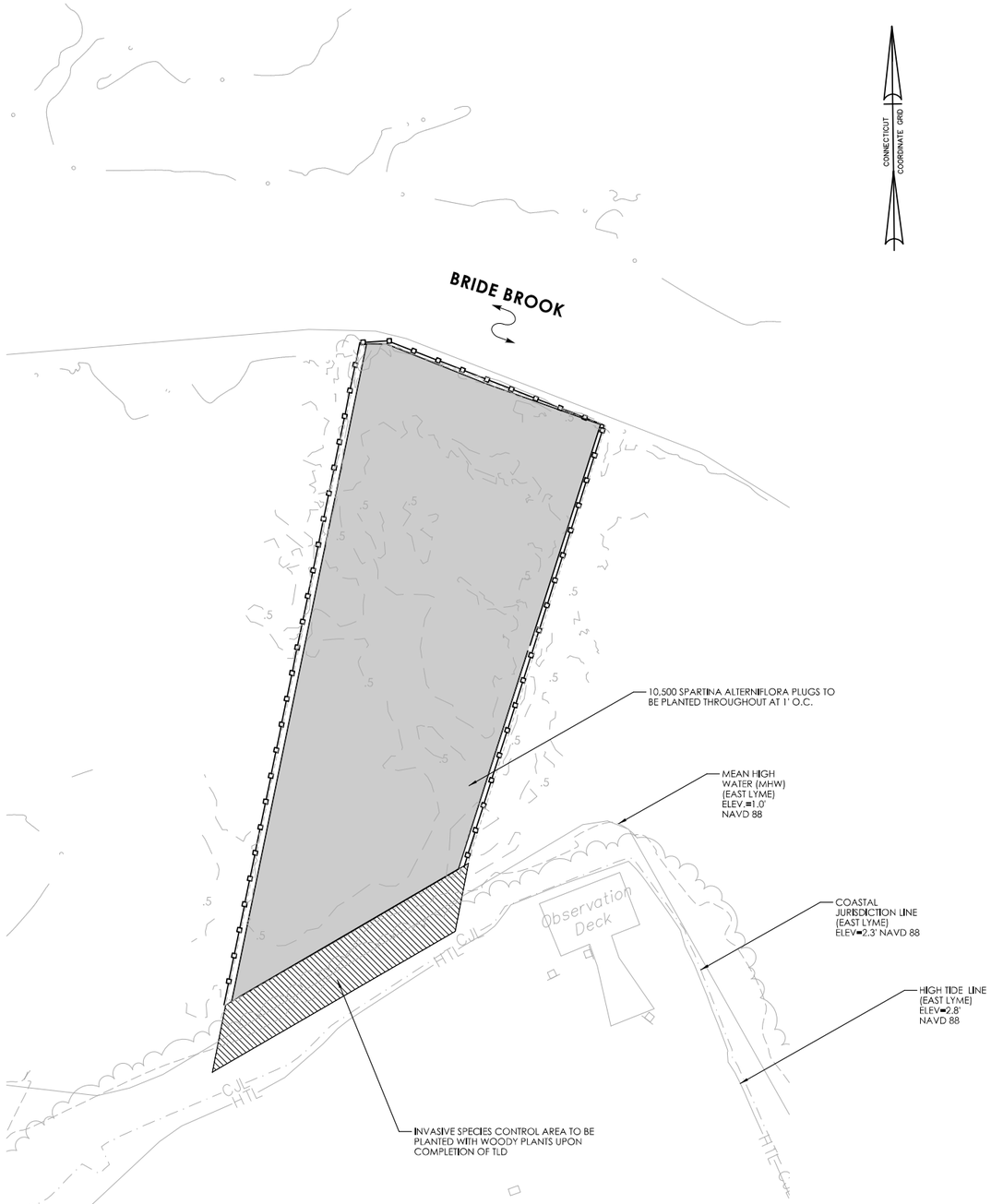


PLAN

SCALE: 1" = 20'

ENVIRONMENTAL PERMIT PLANS

PLAN DATE: JULY 05, 2023

REV.	DATE	REVISION DESCRIPTION	SHEET NO.

THE INFORMATION, INCLUDING ESTIMATED QUANTITIES OF WORK, SHOWN ON THESE SHEETS IS BASED ON LIMITED INVESTIGATIONS BY THE STATE AND IS IN NO WAY WARRANTED TO INDICATE THE CONDITIONS OF ACTUAL QUANTITIES OF WORK WHICH WILL BE REQUIRED.

Plotted Date: 8/3/2023

DESIGNER/DRAFTER: S.PELLEGRINI

CHECKED BY: W. WOLF

SCALE IN FEET 0 20 40

SCALE 1"=20'

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

Filename: ...\ENVE_0104-0175_TLD_PlantingPlan.dgn

SIGNATURE/BLOCK:

DESIGNED BY: BL Companies
BL COMPANIES, INC.
355 RESEARCH PARKWAY
MERIDEN, CT 06450

PROJECT TITLE:
REPLACEMENT OF BRIDGE NO. 02713, ROUTE 156 OVER FOUR MILE RIVER

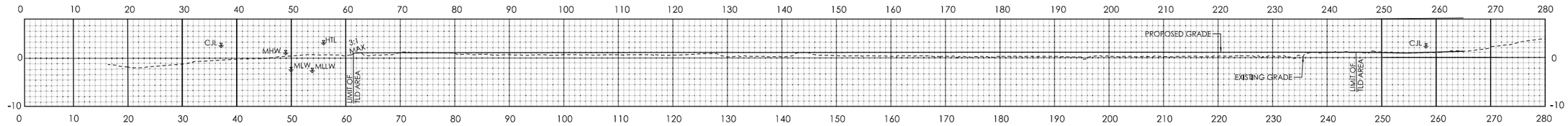
TOWN: **OLD LYME EAST LYME**

DRAWING TITLE: **THIN LAYER DEPOSITION PLANTING PLAN**

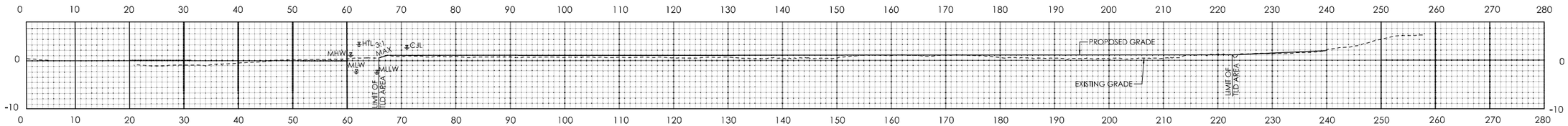
PROJECT NO. **0104-0175**

DRAWING NO. **PMT-11**

SHEET NO.



SECTION A-A



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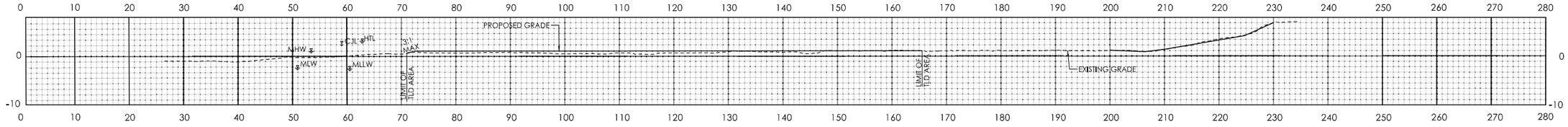

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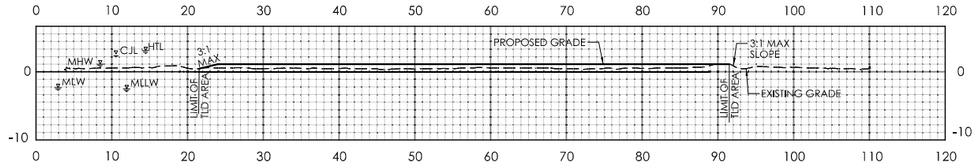

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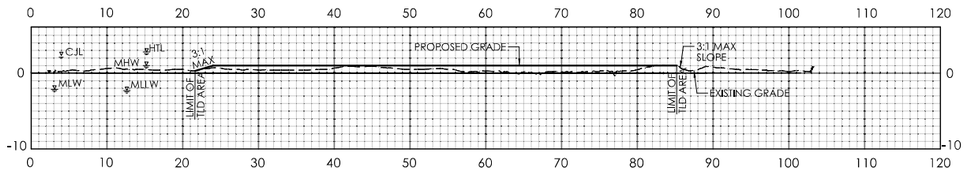

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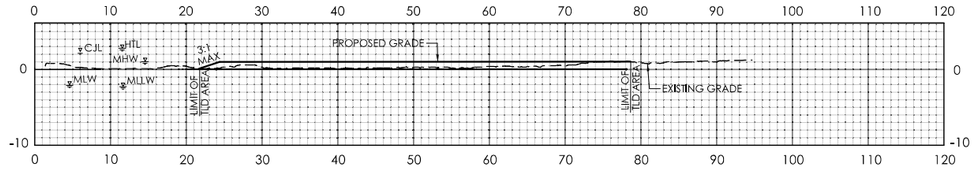


SECTION F-F

ENVIRONMENTAL PERMIT PLANS

PLAN DATE: JULY 05, 2023

REV.	DATE	REVISION DESCRIPTION	SHEET NO.

THE INFORMATION, INCLUDING ESTIMATED QUANTITIES OF WORK, SHOWN ON THESE SHEETS IS BASED ON LIMITED INVESTIGATIONS BY THE STATE AND IS IN NO WAY WARRANTED TO INDICATE THE CONDITIONS OF ACTUAL QUANTITIES OF WORK WHICH WILL BE REQUIRED.

Plotted Date: 8/3/2023

DESIGNER/DRAFTER: S.PELLEGRINI

CHECKED BY: W. WOLF

SCALE IN FEET 0 10 20

SCALE 1"=10'

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

Filename: ...\ENVE_0104-017501_CrossSections.dgn

SIGNATURE/ BLOCK:

DESIGNED BY: BL COMPANIES, INC. 355 RESEARCH PARKWAY MERIDEN, CT 06450

PROJECT TITLE:
REPLACEMENT OF
BRIDGE NO. 02713, ROUTE 156
OVER FOUR MILE RIVER

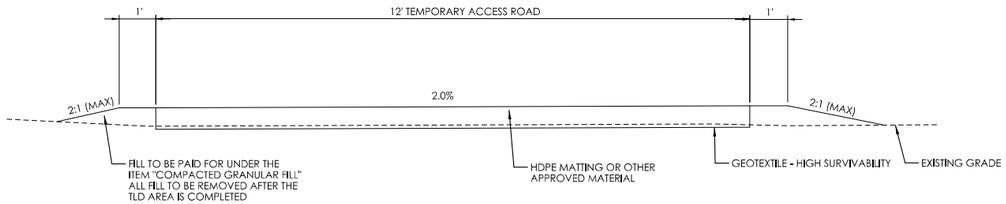
TOWN: OLD LYME
EAST LYME

DRAWING TITLE: THIN LAYER DEPOSITION CROSS SECTIONS

PROJECT NO. 0104-0175

DRAWING NO. PMT-12

SHEET NO.



TEMPORARY ACCESS ROAD

SCALE: N.T.S.

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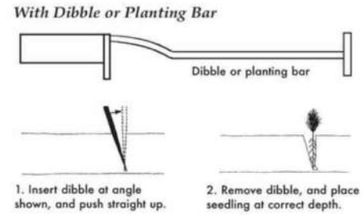

PLUG PLANTING DETAIL

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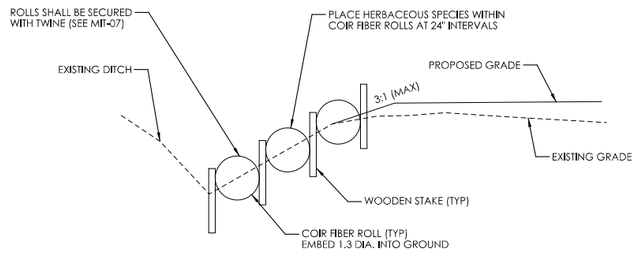

TYPICAL TLD TIE-IN SECTION

SCALE: N.T.S.

ENVIRONMENTAL PERMIT PLANS

PLAN DATE: JULY 05, 2023

REV.	DATE	REVISION DESCRIPTION	SHEET NO.

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Plotted Date: 8/3/2023

DESIGNER/DRAFTER: S.PELLEGRINI

CHECKED BY: W. WOLF

SCALE AS NOTED

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

Filename: ...\MDS_0104-0175_TLD_Details.dgn

SIGNATURE/ BLOCK:

DESIGNED BY: BL Companies
BL COMPANIES, INC.
355 RESEARCH PARKWAY
MERIDEN, CT 06450

PROJECT TITLE:
REPLACEMENT OF
BRIDGE NO. 02713, ROUTE 156
OVER FOUR MILE RIVER

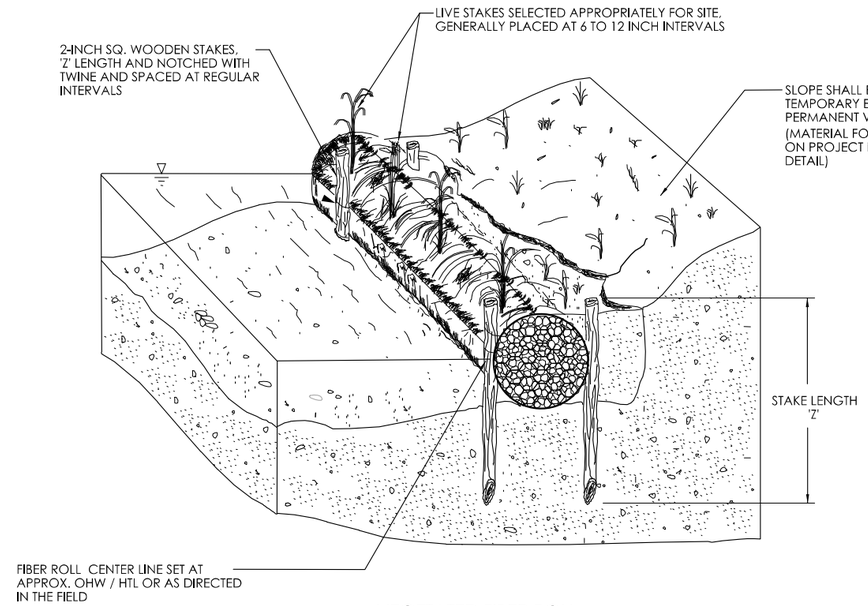
TOWN: OLD LYME
EAST LYME

DRAWING TITLE: THIN LAYER DEPOSITION DETAILS

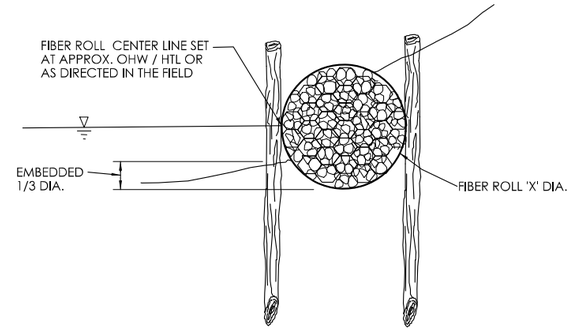
PROJECT NO. 0104-0175

DRAWING NO. PMT-13

SHEET NO.



VEGETATED FIBER ROLL
N.T.S.

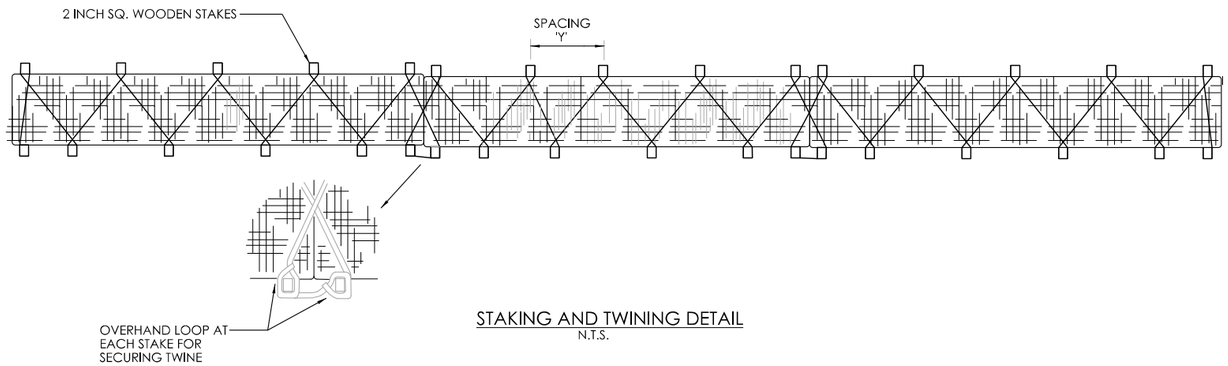


FIBER ROLL SECTION
N.T.S.

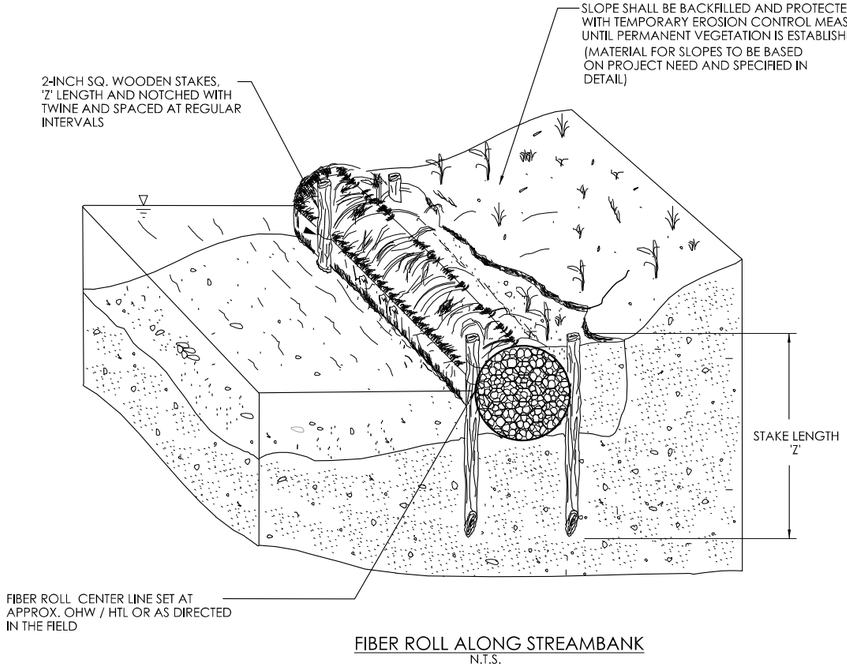
DIAMETER OF ROLL 'X'	WOODEN STAKE LENGTH 'Z'	STAKE SPACING 'Y'
20 INCHES	4 FT. MINIMUM	EVERY 2 FT.
16 INCHES	3 FT. MINIMUM	EVERY 2.5 FT.
12 INCHES	3 FT. MINIMUM	EVERY 3 FT.

TABLE FOR ANCHORING

NOTE:
PLACEMENT OF THE FIBER ROLLS SHALL BE DIRECTED IN THE FIELD BY THE ENGINEER OR THEIR AUTHORIZED DELEGATE. SEE SPECIAL PROVISION "FIBER ROLL."



STAKING AND TWINING DETAIL
N.T.S.



FIBER ROLL ALONG STREAMBANK
N.T.S.

ENVIRONMENTAL PERMIT PLANS

PLAN DATE: JULY 05, 2023

REV.	DATE	REVISION DESCRIPTION	SHEET NO.

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Plotted Date: 8/3/2023

DESIGNER/DRAFTER: S.PELLEGRINI
CHECKED BY: W. WOLF
SCALE AS NOTED

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

Filename: ...\MDS_0104-0175_TLD_FiberRollDetails.dgn

SIGNATURE/ BLOCK:

DESIGNED BY: BL COMPANIES, INC. 355 RESEARCH PARKWAY MERIDEN, CT 06450

PROJECT TITLE:
REPLACEMENT OF BRIDGE NO. 02713, ROUTE 156 OVER FOUR MILE RIVER

TOWN: **OLD LYME EAST LYME**

DRAWING TITLE: **THIN LAYER DEPOSITION FIBER ROLL DETAILS**

PROJECT NO. **0104-0175**
DRAWING NO. **PMT-14**
SHEET NO.

Attachment 24

Department of Agriculture /
Bureau of Aquaculture

Connecticut Department of
Energy & Environmental Protection
Bureau of Water Protection & Land Reuse
Land & Water Resources Division

LWRD License Application
Pre-Submission Consultation Form

State of CT, Department of Agriculture, Bureau of Aquaculture

A pre-submission consultation with Aquaculture is required for some of the LWRD license applications. Please refer to the application form for specific projects and locations which require consultation.

To the applicant- Prior to the submission of your license application to the Connecticut Department of Energy and Environmental Protection (DEEP) Land & Water Resources Division (LWRD), please complete Part I and submit this form to the Department of Agriculture, Bureau of Aquaculture ("DOA/BOA") by: hardcopy, P.O. Box 97, Milford, CT, 06460; facsimile, 203-783-9976; or e-mail, david.carey@ct.gov. Include a location map of your site and project plans. Once the DOA/BOA returns the completed form to you, please submit it along with your license application to DEEP.

Part I: *To be completed by APPLICANT*

1. Applicant/Registrant Information

Name: Connecticut Department of Transportation
Mailing Address: 2800 Berlin Turnpike
City/Town: Newington State: CT Zip Code: 06131
Business Phone: 860-594-2000 Ext.: _____
Contact Person: Jason Coite Title: Transportation Supervising Engineer
Business Phone: 860-594-3448 Ext.: _____
E-mail: jason.coite@ct.gov

2. Engineer/Surveyor/Agent Information (list as applicable)

Name: BL Companies Title: _____
Mailing Address: 100 Constitution Plaza, 10th Floor
City/Town: Hartford State: CT Zip Code: 06103
Business Phone: 860-249-2200 Ext.: _____
Contact Person: David Cicia Title: Principal Engineer
Business Phone: 860-760-1930 Ext.: _____
E-mail: dcicia@blcompanies.com
Service Provided: Liaison Engineering, Hydraulics, Permitting

3. Site Location:

Name of Site : CTDOT Project No. 104-175, Bridge No. 02713
Street Address: Route 156 (West Main Street) over Four Mile River & Bridge Brook Marsh within Rocky Neck State Park
City/Town: Old Lyme & East Lyme State: CT Zip Code: 06371 & 06333
Tax Assessor's Reference: Map _____ Block _____ Lot _____
Name of Waterbody: Four Mile River & Brides Brook

4. ☒ Confirm location map and site plans are attached.

Date of plans: July 30, 2021

Part I: *To be completed by APPLICANT (continued)*

5. Provide or attach a brief, but thorough description of the project.

DOT Project No. 104-175 will replace existing Bridge No. 02713. The bridge carries Route 156 over Four Mile River in the towns of Old Lyme & East Lyme. Four Mile River serves as a boundary between the two towns. The bridge is located approximately 1 mile south of I-95 and 0.1 miles from the intersection of Route 156 (West Main Street) and Four Mile River Road. Rocky Neck State Park is located immediately east of the bridge.

The existing structure consists of four 60-inch round CMPs which are 52-feet 8-inches in length with cast-in-place reinforced concrete headwalls, wingwalls and cutoff walls that are flared and tapered. The existing bridge span is 30 feet. The existing CMPs are in serious condition and are showing severe laminated rust and perforations along the invert of the pipes. The substructure is in good condition with only minor spalls and cracks.

The proposed project will replace the existing culverts with a 40-foot wide by 7-foot high, 3-sided precast concrete arch structure founded on cast-in-place (CIP) footings and wingwalls. The arch footings will be founded on bedrock or on steel piles. The wingwall footings will be either pile supported or on spread footings. The existing roadway and bridge will be shifted north approximately 30 feet and the vertical profile will be raised approximately 4.5 feet to address substandard geometry and hydraulic capacity.

The proposed project will utilize stage construction. Temporary water-handling-cofferdams will be used in each stage of construction to allow the Contractor to work in the dry. Water will be pumped to temporary dewatering basins before being returned to the watercourse.

The Department of Transportation is proposing an off-site mitigation area within Rocky Neck State Park to satisfy USACE and CTDEEP mitigation requirements for impacts at the bridge site. Ideally, impacts to tidal and inland wetlands are mitigated at the project site. However, due to insufficient area at the bridge site, an off-site option was required.

A preliminary investigation of Bride Brook within Rocky Neck State Park revealed several areas of degraded vegetation. The proposed mitigation site is within an area presently characterized by saltwater pools where healthy vegetation once grew. The average depth of these pools is approximately 6 to 7 inches of water based on a preliminary site visit. The area of mitigation is approximately 10,000 square feet. The mitigation plan will restore tidal pools and mudflats to a healthy marsh using Thin Layer Deposition (TLD). This would be done during the winter months when plants are dormant and activity levels from visitors and wildlife are low. The site will subsequently be revegetated with native salt marsh plants (spartina sp.) during the growing season following completion of the TLD.

Access to the proposed mitigation area will be made from the existing parking lot within Rocky Neck State Park. COnventioanl construction methods (vehicles transporting material into the marsh) is expected to complete TLD. Material will be contained during construction by use of coir logs, hay bales, or filter socks along the permimeter of the mitigation site.

Construction is anticipated to start in April 2024 and is anticipated to finish in November 2026.

Part II: *To be completed by DOA/BOA*

This consultation form is required to be submitted as part of an application for a Structures, Dredging & Fill license (Connecticut General Statutes (CGS) Section 22a-361) and/or Tidal Wetlands license (CGS Section 22a-32) and some of the General Permits to DEEP LWRD. The application has not yet been submitted to DEEP. Please review the enclosed materials and determine whether the project will significantly impact shellfish beds. You may also provide comments or recommendations regarding the proposal. Should you have any questions regarding this process, please call DEEP LWRD at 860-424-3019. **Please return the completed form to the applicant.**

CGS Section 22a-361(b) requires that the Commissioner of DEEP shall hold a public hearing on license applications submitted pursuant to CGS section 22a-361 provided that a petition requesting such hearing signed by 25 or more persons is received **and** if the project will significantly impact any shellfish area, as determined by the DOA/BOA.

DOA/BOA DETERMINATION:

Project located on (check one): ☐ natural bed ☐ state bed ☐ local bed ☒ none

☐ other, please specify: _____

If project is located upon a franchised or leased shellfish bed, please provide the owner or lessee's contact information below.

Check one of the following:

☒ I have determined that the work described in Part I of this form and attachments **WILL NOT** significantly impact any shellfish area.

☐ I have determined that the work described in Part I of this form and attachments **WILL** significantly impact any shellfish area and that a public hearing must be held if the DEEP issues a public notice for the project as currently designed and a qualified petition is received.

COMMENTS/RECOMMENDATIONS (or check here if attached: ☐):

_____

Old Lyme & East Lyme
CTDOT Project No. 104-175, Bridge No. 02713
Route 156 (West Main Street) over Four Mile River & Bridge Brook Marsh within Rocky Neck State Park

DAVID H. CAREY

Signature of Commission Representative

09/14/2021

Date

Print Name of Commission Representative

Aquaculture Director

Title

Attachment 25

Harbor Management Consultation Form

Connecticut Department of
Energy & Environmental Protection
Bureau of Water Protection & Land Reuse
Land & Water Resources Division

LWRD License Application
Pre-Submission Consultation Form

Harbor Management Commission

You need to complete and submit this form only if your town has a Harbor Management Commission.

To the applicant- Prior to the submission of your license application to the Connecticut Department of Energy and Environmental Protection (DEEP) Land & Water Resources Division (LWRD), please complete Part I, below, and submit this form to your local harbor management commission (contact the town for the appropriate contact person) with a location map of your site and project plans. Once the commission returns the completed form to you, please submit it along with your license application to DEEP.

Part I: *To be completed by APPLICANT*

1. Applicant/Registrant Information

Name: Connecticut Department of Transportation
Mailing Address: 2800 Berlin Turnpike
City/Town: Newington State: CT Zip Code: 06131
Business Phone: 860-594-3448 Ext.: _____
Contact Person: Jason Coite Title: _____
Business Phone: _____ Ext.: _____
E-mail: Jason.Coite@ct.gov

2. Engineer/Surveyor/Agent Information (list as applicable)

Name: David M. Cicia Title: Principal Engineer
Mailing Address: 100 Constitution Plaza, 10th Floor
City/Town: Hartford State: CT Zip Code: 06103
Business Phone: 860-760-1930 Ext.: _____
Contact Person: _____ Title: _____
Business Phone: _____ Ext.: _____
E-mail: dcicia@blcompanies.com
Service Provided: _____

3. Site Location:

Name of Site : DOT Project No. 104-175, Bridge No. 02713
Street Address: Route 156 over Four Mile River & Brides Brook Marsh within Rocky Neck State Park
City/Town: Old Lyme & East Lyme State: CT Zip Code: 06371 & 06333
Tax Assessor's Reference: Map _____ Block _____ Lot _____
Name of Waterbody: Four Mile River & Brides Brook

4. ☒ Confirm location map and site plans are attached.

Date of plans: July 30, 2021

5. Provide or attach a brief, but thorough description of the project.

DOT Project No. 104-175 will replace existing Bridge No. 02713. The bridge carries Route 156 over Four Mile River in the towns of Old Lyme & East Lyme. Four Mile River serves as a boundary between the two towns. The bridge is located approximately 1 mile south of I-95 and 0.1 miles from the intersection of Route 156 (West Main Street) and Four Mile River Road. Rocky Neck State Park is located immediately east of the bridge.

The existing structure consists of four 60-inch round CMPs which are 52-feet 8-inches in length with cast-in-place reinforced concrete headwalls, wingwalls and cutoff walls that are flared and tapered. The existing bridge span is 30 feet. The existing CMPs are in serious condition and are showing severe laminated rust and perforations along the invert of the pipes. The substructure is in good condition with only minor spalls and cracks.

The proposed project will replace the existing culverts with a 40-foot wide by 7-foot high, 3-sided precast concrete arch structure founded on cast-in-place (CIP) footings and wingwalls. The arch footings will be founded on bedrock or on steel piles. The wingwall footings will be either pile supported or on spread footings. The existing roadway and bridge will be shifted north approximately 30 feet and the vertical profile will be raised approximately 4.5 feet to address substandard geomerty and hydraulic capacity.

The proposed project will utilize stage construction. Temporary water-handling-cofferdams will be used in each stage of construction to allow the Contractor to work in the dry. Water will be pumped to temporary dewatering basins before being returned to the watercourse.

The Department of Transportation is proposing an off-site mitigation area within Rocky Neck State Park to satisfy USACE and CTDEEP mitigation requirements for impacts at the bridge site. Ideally, impacts to tidal and inland wetlands are mitigated at the project site. However, due to insufficient area at the bridge site, an off-site option was required.

A preliminary investigation of Bride Brook within Rocky Neck State Park revealed several areas of degraded vegetation. The proposed mitigation site is within an area presently characterized by saltwater pools where healthy vegetation once grew. The average depth of these pools is approximately 6 to 7 inches of water based on a preliminary site visit. The area of mitigation is approximately 10,000 square feet. The mitigation plan will restore tidal pools and mudflats to a healthy marsh using Thin Layer Deposition (TLD). This would be done during the winter months when plants are dormant and activity levels from visitors and wildlife are low. The site will subsequently be revegetated with native salt marsh plants (spartina sp.) during the growing season following completion of the TLD.

Access to the mitigation area will be made from the existing parking lot within Rocky Neck State Park. Conventional construction methods (vehicles transporting material into the marsh) is expected to complete TLD. Material will be contained during construction by use of coir logs, hay bales, or filter socks along the perimeter of the mitigation site.

The Four Mile River is tidally influenced by the Long Island Sound which is 0.80 miles downstream of the bridge. Brides Brook is tidally influenced by the Long Island Sound which is 0.46 miles downstream of the mitigation site.

Construction is anticipated to start in April 2024 and is anticipated to finish in November 2026.

Part II: *To be completed by HARBOR MANAGEMENT COMMISSION*

This consultation form is required to be submitted as part of an application for a Structures, Dredging & Fill license (Connecticut General Statutes (CGS) Section 22a-361) and/or Tidal Wetlands license (CGS Section 22a-32) to DEEP LWRD. The application has not yet been submitted to DEEP. Please review the enclosed materials and determine whether the project is consistent or inconsistent with your local Harbor Management Plan. You may also provide comments or recommendations regarding the proposal. The Harbor Management Commission may still provide written comments to the Commissioner during DEEP's public notice comment period. Should you have any questions regarding this process, please call LWRD at 860-424-3019. **Please return the completed form to the applicant within 60 days of receipt or consistency will be assumed. Do not send a copy of the form directly to DEEP as it is difficult to track without an application number.**

HARBOR MANAGEMENT COMMISSION DETERMINATION:

Check one of the following:

☒ The Commission has determined that the work as described in Part I of this form and attachments is **CONSISTENT** with the Harbor Management Plan.

☐ The Commission has determined that the work as described in Part I of this form and attachments is **INCONSISTENT** with the following section of the Harbor Management Plan: _____

COMMENTS/RECOMMENDATIONS (or check here if attached: ☐):

_____

Signature of Commission Representative	9-22-21 Date
STEPHEN DINSMORE Print Name of Commission Representative	CHAIRMAN - ELHMSFC Title

Salter, Michael J

To: Morneault, Susan L
Cc: Coite, Jason M.; Garcia Jr., Alvaro; Usher, Jennifer; Kittredge, Ken; Cicia, David
Subject: FW: Harbor Management Commission Consultation Form - CT DOT Project No. 0104-0175

Good morning Sue,

OEP sent the Old Lyme Harbor Management Commission Consultation to the Commission on September 15, 2021. No response from the Harbor Management Commission was received within 60 days and therefore consistency is assumed.

I have uploaded the document to the Permit Development Folder in Compass and provided the link below. Please let me know if you have any questions.

Thank you,
Mike

From: Salter, Michael J
Sent: Thursday, October 14, 2021 10:59 AM
To: johnmacdonald49@gmail.com
Cc: Coite, Jason M. <Jason.Coite@ct.gov>
Subject: RE: Harbor Management Commission Consultation Form - CT DOT Project No. 0104-0175

Goo morning John,

I wanted to follow up and confirm you received the email below regarding CT DOT's Harbor Management Commission Consultation submission.

Could you please let me know if you have any comments or need any additional information?

Thank you,
Mike

I am working remotely. The best way to contact me is via email.

Michael J. Salter
Transportation Planner
Bureau of Policy and Planning
Office of Environmental Planning
Environmental Permit Unit
Connecticut Department of Transportation
michael.salter@ct.gov
(860) 594-2933

From: Salter, Michael J
Sent: Wednesday, September 22, 2021 8:57 AM

Connecticut Department of
Energy & Environmental Protection
Bureau of Water Protection & Land Reuse
Land & Water Resources Division

LWRD License Application
Pre-Submission Consultation Form

Harbor Management Commission

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Part I: *To be completed by APPLICANT*

1. Applicant/Registrant Information

Name: Connecticut Department of Transportation
Mailing Address: 2800 Berlin Turnpike
City/Town: Newington State: CT Zip Code: 06131
Business Phone: 860-594-3448 Ext.: _____
Contact Person: Jason Coite Title: _____
Business Phone: _____ Ext.: _____
E-mail: Jason.Coite@ct.gov

2. Engineer/Surveyor/Agent Information (list as applicable)

Name: David M. Cicia Title: Principal Engineer
Mailing Address: 100 Constitution Plaza, 10th Floor
City/Town: Hartford State: CT Zip Code: 06103
Business Phone: _____ Ext.: _____
Contact Person: _____ Title: _____
Business Phone: (860) 760-1930 Ext.: _____
E-mail: dcicia@blcompanies.com
Service Provided: _____

3. Site Location:

Name of Site : State Project No. 104-175, Bridge No. 02713
Street Address: Route 156 over Four Mile River & Brides Brook Marsh within Rocky Neck State Park
City/Town: Old Lyme & East Lyme State: CT Zip Code: 06371 & 06333
Tax Assessor's Reference: Map _____ Block _____ Lot _____
Name of Waterbody: Four Mile River & Brides Brook

4. ☒ Confirm location map and site plans are attached.

Date of plans: July 30, 2021

5. Provide or attach a brief, but thorough description of the project.

DOT Project No. 104-175 will replace existing Bridge No. 02713. The bridge carries Route 156 over Four Mile River in the towns of Old Lyme & East Lyme. Four Mile River serves as a boundary between the two towns. The bridge is located approximately 1 mile south of I-95 and 0.1 miles from the intersection of Route 156 (West Main Street) and Four Mile River Road. Rocky Neck State Park is located immediately east of the bridge.

The existing structure consists of four 60-inch round CMPs which are 52-feet 8-inches in length with cast-in-place reinforced concrete headwalls, wingwalls and cutoff walls that are flared and tapered. The existing bridge span is 30 feet. The existing CMPs are in serious condition and are showing severe laminated rust and perforations along the invert of the pipes. The substructure is in good condition with only minor spalls and cracks.

The proposed project will replace the existing culverts with a 40-foot wide by 7-foot high, 3-sided precast concrete arch structure founded on cast-in-place (CIP) footings and wingwalls. The arch footings will be founded bedrock or on steel piles. The wingwall footings will be either pile supported or on spread footings. The existing roadway and bridge will be shifted north approximately 30 feet and the vertical profile will be raised approximately 4.5 feet to address substandard geometry and hydraulic capacity.

The proposed project will utilize stage construction. Temporary water-handling-cofferdams will be used in each stage of construction to allow the Contractor to work in the dry. Water will be pumped to temporary dewatering basins before being returned to the watercourse.

The Department of Transportation is proposing an off-site mitigation area in East Lyme within Rocky Neck State Park to satisfy USACE and CTDEEP mitigation requirements for impacts at the bridge site. Ideally, impacts to tidal and inland wetlands are mitigated at the project site. However, due to insufficient area at the bridge site, an off-site option was required.

A preliminary investigation of Bride Brook within Rocky Neck State Park revealed several areas of degraded vegetation. The proposed mitigation site is within an area presently characterized by saltwater pools where healthy vegetation once grew. The average depth of these pools is approximately 6 to 7 inches of water based on a preliminary site visit. The area of mitigation is approximately 10,000 square feet. The mitigation plan will restore tidal pools and mudflats to a healthy marsh using Thin Layer Deposition (TLD). This would be done during the winter months when plants are dormant and activity levels from visitors and wildlife are low. The site will subsequently be revegetated with native salt marsh plants (spartina sp.) during the growing season following completion of TLD.

Access to the mitigation area will be made from the existing parking lot within Rocky Neck State Park. Conventional construction methods (vehicles transporting material into the marsh) is expected to complete TLD. Material will be contained during construction by use of coir logs, hay bales, or filter socks along the perimeter of the mitigation site.

The Four Mile River is tidally influenced by the Long Island Sound which is 0.80 miles downstream of the bridge. Brides Brook is tidally influenced by the Long Island Sound which is 0.46 miles downstream of the mitigation site.

Construction is anticipated to start in April 2024 and is anticipated to finish in November 2026.

Part II: *To be completed by HARBOR MANAGEMENT COMMISSION*

This consultation form is required to be submitted as part of an application for a Structures, Dredging & Fill license (Connecticut General Statutes (CGS) Section 22a-361) and/or Tidal Wetlands license (CGS Section 22a-32) to DEEP LWRD. The application has not yet been submitted to DEEP. Please review the enclosed materials and determine whether the project is consistent or inconsistent with your local Harbor Management Plan. You may also provide comments or recommendations regarding the proposal. The Harbor Management Commission may still provide written comments to the Commissioner during DEEP's public notice comment period. Should you have any questions regarding this process, please call LWRD at 860-424-3019. **Please return the completed form to the applicant within 60 days of receipt or consistency will be assumed. Do not send a copy of the form directly to DEEP as it is difficult to track without an application number.**

HARBOR MANAGEMENT COMMISSION DETERMINATION:

Check one of the following:

☐ The Commission has determined that the work as described in Part I of this form and attachments is **CONSISTENT** with the Harbor Management Plan.

☐ The Commission has determined that the work as described in Part I of this form and attachments is **INCONSISTENT** with the following section of the Harbor Management Plan: _____

COMMENTS/RECOMMENDATIONS (or check here if attached: ☐):

Signature of Commission Representative	Date
Print Name of Commission Representative	Title

Attachment 26

Shellfish Commission Consultation Form

Connecticut Department of
Energy & Environmental Protection
Bureau of Water Protection & Land Reuse
Land & Water Resources Division

LWRD License Application
Pre-Submission Consultation Form
Shellfish Commission

You need to complete and submit this form only if your town has a Shellfish Commission.

To the applicant - Prior to the submission of your license application to the Connecticut Department of Energy and Environmental Protection (DEEP) Land & Water Resources Division (LWRD), please complete Part I, below, and submit this form to your local shellfish commission (contact the town for the appropriate contact person) with a location map of your site and project plans. Once the commission returns the completed form to you, please submit it along with your license application to DEEP.

Part I: *To be completed by APPLICANT*

1. Applicant/Registrant Information

Name: Connecticut Department of Transportation
Mailing Address: 2800 Berlin Turnpike
City/Town: Newington State: CT Zip Code: 06131
Business Phone: 860-594-3448 Ext.: _____
Contact Person: Jason Coite Title: _____
Business Phone: _____ Ext.: _____
E-mail: Jason.Coite@ct.gov

2. Engineer/Surveyor/Agent Information (list as applicable)

Name: David M. Cicia Title: Principal Engineer
Mailing Address: 100 Constitution Plaza, 10th Floor
City/Town: Hartford State: CT Zip Code: 06103
Business Phone: (860) 760-1930 Ext.: _____
Contact Person: _____ Title: _____
Business Phone: _____ Ext.: _____
E-mail: dcicia@blcompanies.com
Service Provided: Liaison Engineering, Hydraulics, Permitting

3. Site Location:

Name of Site : State Project 104-175, Bridge No. 02713
Street Address: Route 156 over Four Mile River & Brides Brook Marsh within Rocky Neck State Park
City/Town: Old Lyme & East Lyme State: CT Zip Code: 06371 & 06333
Tax Assessor's Reference: Map _____ Block _____ Lot _____
Name of Waterbody: Four Mile River & Brides Brook

4. ☒ Confirm location map and site plans are attached.

Date of plans: July 30, 2021

5. Provide or attach a brief, but thorough description of the project.

DOT Project No. 104-175 will replace existing Bridge No. 02713. The bridge carries Route 156 over Four Mile River in the towns of Old Lyme & East Lyme. Four Mile River serves as a boundary between the two towns. The bridge is located approximately 1 mile south of I-95 and 0.1 miles from the intersection of Route 156 (West Main Street) and Four Mile River Road. Rocky Neck State Park is located immediately east of the bridge.

The existing structure consists of four 60-inch round CMPs which are 52-feet 8-inches in length with cast-in-place reinforced concrete headwalls, wingwalls and cutoff walls that are flared and tapered. The existing bridge span is 30 feet. The existing CMPs are in serious condition and are showing severe laminated rust and perforations along the invert of the pipes. The substructure is in good condition with only minor spalls and cracks.

The proposed project will replace the existing culverts with a 40-foot wide by 7-foot high, 3-sided precast concrete arch structure with precast concrete arch founded on cast-in-place (CIP) footings and wingwalls. The arch footings will be founded on steel piles. The wingwall footings will be either pile supported or on spread footings. The existing roadway and bridge will be shifted north approximately 30 feet and the vertical profile will be raised approximately 4.5 feet to address substandard geometry and hydraulic capacity.

The proposed project will utilize stage construction. Temporary water-handling-cofferdams will be used in each stage of construction to allow the Contractor to work in the dry. Water will be pumped to temporary dewatering basins before being returned to the watercourse.

The Department of Transportation is proposing an off-site mitigation area within Rocky Neck State Park to satisfy USACE and CTDEEP mitigation requirements for impacts at the bridge site. Ideally, impacts to tidal and inland wetlands are mitigated at the project site. However, due to insufficient area at the bridge site, an off-site option was required.

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The Four Mile River is tidally influenced by the Long Island Sound which is 0.80 miles downstream of the bridge. Brides Brook is tidally influenced by the Long Island Sound which is 0.46 miles downstream of the mitigation site.

Construction is anticipated to start in April 2024 and is anticipated to finish in November 2026 with one winter shutdown.

Part II: *To be completed by SHELLFISH COMMISSION*

This consultation form is required to be submitted as part of an application for a Structures, Dredging & Fill license (Connecticut General Statutes (CGS) Section 22a-361) and/or Tidal Wetlands license (CGS Section 22a-32) to DEEP LWRD. The application has not yet been submitted to DEEP. Please review the enclosed materials and determine whether the project will significantly impact shellfish beds. You may also provide comments or recommendations regarding the proposal. Should you have any questions regarding this process, please call DEEP LWRD at 860-424-3019. **Please return the completed form to the applicant within 60 days of receipt or no adverse impact will be assumed. Do not send a copy of the form directly to DEEP as it is difficult to track without an application number.**

SHELLFISH COMMISSION DETERMINATION:

Project located on (check one): ☐ natural bed ☐ state bed ☐ local bed ☒ none
☐ other, please specify: _____

If project is located upon a franchised or leased shellfish bed, please provide the owner or lessee's contact information below.

Check one of the following:

☒ I have determined that the work described in Part I of this form and attachments **WILL NOT** adversely impact a shellfish area.

☐ I have determined that the work described in Part I of this form and attachments **WILL** adversely impact a shellfish area. A summary of the Shellfish Commission's project-specific concerns/comments is described below or attached.

COMMENTS/RECOMMENDATIONS (check the box if attached: ☐):

_____

Signature of Commission Representative	9-22-21 Date
STEPHEN DINSMORE Print Name of Commission Representative	CHAIRMAN - ELHMSFC Title

Connecticut Department of
Energy & Environmental Protection
Bureau of Water Protection & Land Reuse
Land & Water Resources Division

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Pre-Submission Consultation Form
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City/Town: Newington State: CT Zip Code: 06131
Business Phone: 860-594-3448 Ext.: _____
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Tax Assessor's Reference: Map _____ Block _____ Lot _____
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The existing structure consists of four 60-inch round CMPs which are 52-feet 8-inches in length with cast-in-place reinforced concrete headwalls, wingwalls and cutoff walls that are flared and tapered. The existing bridge span is 30 feet. The existing CMPs are in serious condition and are showing severe laminated rust and perforations along the invert of the pipes. The substructure is in good condition with only minor spalls and cracks.

The proposed project will replace the existing culverts with a 40-foot wide by 7-foot high, 3-sided precast concrete arch structure founded on cast-in-place (CIP) footings and wingwalls. The arch footings will be founded on bedrock or on steel piles. The wingwall footings will be either pile supported or on spread footings. The existing roadway and bridge will be shifted north approximately 30 feet and the vertical profile will be raised approximately 4.5 feet to address substandard geometry and hydraulic capacity

The proposed project will utilize stage construction. Temporary water-handling-cofferdams will be used in each stage of construction to allow the Contractor to work in the dry. Water will be pumped to temporary dewatering basins before being returned to the watercourse.

The Department of Transportation is proposing an off-site mitigation area in East Lyme within Rocky Neck State Park to satisfy USACE and CTDEEP mitigation requirements for impacts at the bridge site. Ideally, impacts to tidal and inland wetlands are mitigated at the project site. However, due to insufficient area at the bridge site, an off-site option was required.

A preliminary investigation of Bride Brook within Rocky Neck State Park revealed several areas of degraded vegetation. The proposed mitigation site is within an area presently characterized by saltwater pools where healthy vegetation once grew. The average depth of these pools is approximately 6 to 7 inches of water based on a preliminary site visit. The area of mitigation is approximately 10,000 square feet. The mitigation plan will restore tidal pools and mudflats to a healthy marsh using Thin Layer Deposition (TLD). This would be done during the winter months when plants are dormant and activity levels from visitors and wildlife are low. The site will subsequently be revegetated with native salt marsh plants (spartina sp.) during the growing season following completion of TLD.

Access to the mitigation area will be made from the existing parking lot within Rocky Neck State Park. Conventional construction methods (vehicles transporting material into the marsh) is expected to complete TLD. Material will be contained during construction by use of coir logs, hay bales, or filter socks along the perimeter of the mitigation site.

The Four Mile River is tidally influenced by the Long Island Sound which is 0.80 miles downstream of the bridge. Brides Brook is tidally influenced by the Long Island Sound which is 0.46 miles downstream of the mitigation site.

Construction is anticipated to start in April 2024 and is anticipated to finish in November 2026.

Part II: *To be completed by SHELLFISH COMMISSION*

This consultation form is required to be submitted as part of an application for a Structures, Dredging & Fill license (Connecticut General Statutes (CGS) Section 22a-361) and/or Tidal Wetlands license (CGS Section 22a-32) to DEEP LWRD. The application has not yet been submitted to DEEP. Please review the enclosed materials and determine whether the project will significantly impact shellfish beds. You may also provide comments or recommendations regarding the proposal. Should you have any questions regarding this process, please call DEEP LWRD at 860-424-3019. **Please return the completed form to the applicant within 60 days of receipt or no adverse impact will be assumed. Do not send a copy of the form directly to DEEP as it is difficult to track without an application number.**

SHELLFISH COMMISSION DETERMINATION:

Project located on (check one): ☐ natural bed ☐ state bed ☐ local bed ☒ none
☐ other, please specify: _____

If project is located upon a franchised or leased shellfish bed, please provide the owner or lessee's contact information below.

Check one of the following:

☒ I have determined that the work described in Part I of this form and attachments **WILL NOT** adversely impact a shellfish area.

☐ I have determined that the work described in Part I of this form and attachments **WILL** adversely impact a shellfish area. A summary of the Shellfish Commission's project-specific concerns/comments is described below or attached.

COMMENTS/RECOMMENDATIONS (check the box if attached: ☐):

NONE

Signature of Commission Representative

09/23/2021
Date

TODD J MACHNIK CHAIRMAN
Print Name of Commission Representative

OLD LYME SHELLFISH COMMISSION
Title

Attachment 27

USACE Consultation

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

Architecture Engineering Environmental Land Surveying
BL Companies
Consultant Liaison Services

REPORT OF MEETING

SUBJECT:	Thin Layer Deposition Mitigation Plan Check-In
DATE AND TIME:	July 8, 2021 @ 2:00 p.m.
MEETING LOCATION:	Video Conference
PROJECT NO.:	0104-0175
PROJECT DESCRIPTION:	Replacement of Bridge Nos. 02713 & 06896
TOWN/CITY:	Old Lyme / East Lyme

IN ATTENDANCE

NAME	REPRESENTING	PHONE	EMAIL
Louis Bacho	CTDOT CE Bridge	860-594-3212	louis.bacho@ct.gov
Susan Morneault	CTDOT CE Bridge	860-594-2447	susan.morneault@ct.gov
Jason Coite	CTDOT OEP	860-436-5600	jason.coite@ct.gov
Mike Salter	CTDOT OEP	860-594-2933	michael.salter@ct.gov
Amanda Saul	CTDOT OEP	860-594-2939	amanda.saul@ct.gov
Peter Olmstead	USACE	719-253-2457	peter.d.olmstead@usace.army.mil
Jeff Caiola	CTDEEP	860-424-4162	jeff.caiola@ct.gov
Harry Yamalis	CTDEEP	860-424-3620	harry.yamalis@ct.gov
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Jennifer Usher	BL Companies	860-760-1939	jusher@blcompanies.com
David Cicia	BL Companies	860-760-1930	dcicia@blcompanies.com
Wesley Wolf	BL Companies	717-651-9850	wwolf@blcompanies.com
Greg Gerrish	BL Companies	860-760-1923	ggerrish@blcompanies.com

TRANSACTIONS AND DETERMINATIONS

The Connecticut Department of Transportation Office of Environmental Planning (CTDOT OEP) and BL Companies (BLC) met with the Connecticut Department of Energy and Environmental Protection (CTDEEP) and U.S. Army Corps of Engineers (USACE) to provide updates on the Thin Layer Deposition (TLD) Mitigation Plan at Rocky Neck State Park (RNSP) required for wetland impacts to the subject project, Bridge No. 02713 (CTDOT Project No. 104-175).

Key points and discussions are summarized below:

- CTDOT OEP kicked off the meeting by noting the previous meeting's minutes had been distributed and followed up with an update since the May 24, 2021 meeting:
  - CTDEEP and USACE are in agreement with the proposed TLD site and size
  - CTDEEP Fisheries coordination has begun for the proposed RNSP mitigation site. To protect alewife, Fisheries recommends that all work in the marsh be restricted to the period from December 1 to February 15, inclusive.
  - BLC noted that topographic survey of the mitigation site is being finalized and that orthomosaic imagery and UAV video has been provided to CTDOT OEP.
  - BLC is working on an estimate of volume of material needed for the TLD restoration project.

- BLC has begun preliminary discussions with contractors that have performed TLD work. BLC will continue to discuss construction methodologies and the pros and cons of each. A more in depth, technical summary will be added to the living White Paper document prior to the next meeting.
- BLC will be taking soil samples of healthy and degraded marsh at RNSP in the coming weeks to establish a baseline for comparison to source material. CTDOT OEP noted that the samples should be tested for organic composition, pH, and grain size. Thriving healthy marsh will provide the characteristics that this restoration aims to match when complete. The Tidal Wetland Creation specification includes a mix for Westbrook Mucky Peat that will be compared to the healthy sample results. USACE noted that this healthy reference area will be the basis for design and literature can be used for further support.

- CTDEEP is inquiring about a long-term management plan for RNSP and will follow up with contacts within the organization.
- CTDEEP discussed research documents and protocols available for estimating settlement, overfill, and general TLD application which will benefit the estimation of needed source material volume. USACE and CTDOT OEP will request technical documents and protocols for TLD application.
  - *Following the meeting CTDEEP provided the requested documents.*
- Construction Means and Methods (M&M) will need to be developed for the proposed TLD. These will be provided to CTDOT Cultural Resources section to coordinate with the State Historic Preservation Office and Tribal Historic Preservation Office. M&M considerations should include:
  - What M&M are suitable for the time of year restrictions?
  - Wet versus dry application of source material
    - Overspray and containment
    - Turbidity
    - Mixing slurry on site
    - Shipping
    - Storage
    - Equipment within the marsh area
    - Releasing contaminants
    - Construction duration
    - Cost
    - Impacts to cultural resources
    - Control of material depth / compaction
    - Target elevation
- The method for determining overfill will be provided to USACE.
- M&M is needed for CTDOT OEP to coordinate with NOAA National Marine Fisheries for Essential Fish Habitat and Endangered Species.
  - *Following the meeting, a meeting was held with NMFS ESA and EFH staff. The project (both mitigation site and bridge) will be processed through the FHWA Programmatic Agreement NLAA Verification Form for ESA listed species. An individual EFH Consultation is required for the project.*
- The current project FDP is May 2023, with permits expected to be submitted to CTDEEP in April 2022.
- USACE minimized the need for a formal ICM presentation, noting that these ongoing meetings are similar to an ICM. It was agreed that the technical document would be forwarded to the EPA, whom has not attended a meeting to date, once the M&M section has been added.
- USACE noted that the USCG will likely not weigh in on the mitigation area.
- The USCG has determined that Bridge No. 02713 is not navigable. USACE noted that their navigable area is beyond that of the USCG and
- USACE will follow up with a determination as to whether the bridge falls under Section 10 jurisdiction.

The following **Action Items** were discussed:

- BLC will expand on the "Preliminary Investigation of Thin layer Deposition Mitigation" document to include a technical discussion of Means & Methods, including detailed pros and cons of each. This will be drafted to be provided to USACE and CTDEEP in 6 weeks' time.
- BLC will finalize the estimate of material volume needed for TLD
- CTDOT OEP to set a preliminary meeting with NOAA NMFS in the following week
- USACE will determine jurisdiction of Bridge No. 02713 for Section 10 purposes

We believe this report of meeting reasonably reflects the content and findings of the meeting. Unless notified in writing to the contrary within seven (7) days of receipt of this report, it will be presumed that those in attendance concur with the accuracy of this transcript and will serve as record.

Submitted by: Gregory Gerrish 2021.09.29 14:43:13-04'00' Date: _____

Gregory D. Gerrish

Approved by: Susan Morneault Digitally signed by Susan Morneault DN: C=US, E=susan.morneault@ct.gov, O=Department of Transportation, OU=Bridge Consultant Design, CN=Susan Morneault Date: 2021.09.30 14:07:56-04'00' Date: _____

Susan L. Morneault

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

Architecture Engineering Environmental Land Surveying
BL Companies
Consultant Liaison Services

REPORT OF MEETING

SUBJECT:	NOAA ESA & EFH Consultation Requirements
DATE AND TIME:	July 22, 2021 @ 11:00 a.m.
MEETING LOCATION:	Video Conference
PROJECT NO.:	0104-0175
PROJECT DESCRIPTION:	Replacement of Bridge No. 02713
TOWN:	Old Lyme and East Lyme

IN ATTENDANCE

NAME	REPRESENTING	PHONE	EMAIL
Louis Bacho	CTDOT CE Bridge	860-594-3212	louis.bacho@ct.gov
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Wesley Wolf	BL Companies	717-651-9850	wwolf@blcompanies.com
Greg Gerrish	BL Companies	860-760-1923	ggerrish@blcompanies.com

TRANSACTIONS AND DETERMINATIONS

The Connecticut Department of Transportation Office of Environmental Planning (CTDOT OEP) and BL Companies (BLC) met with the National Oceanographic and Atmospheric Association National Marine Fisheries Service (NOAA) to discuss requirements for processing Endangered Species Act (ESA) and Essential Fish Habitat (EFH) Consultations associated with CTDOT Project No. 104-175, replacement of Bridge No. 02713.

Key points and discussions are summarized below:

- CTDOT OEP provided an overview of the existing bridge (no. 02713) and proposed project at 02713. The existing structure, composed of four (4) 60-inch CMPs, is proposed to be replaced with a 28-foot clear span, 7-foot rise, 3-sided arch structure. The structure conveys Fourmile River under Route 156 in the towns of Old Lyme and East Lyme. The State project involves horizontal and vertical realignment, resulting in impacts to inland and tidal wetlands.
- Wetland mitigation is required and the State is pursuing Thin Layer Deposition (TLD) within Rocky Neck State Park (RNSP) along Bride Brook. The proposed mitigation site is approximately 10,000 square feet to mitigate for 2,700 square feet of tidal and inland wetlands impacts.
- NOAA will review the bridge construction site and mitigation site as one package.

- NOAA Section 7 Mapper tool for identifying Endangered Species (ESA) and Critical Habitat identified the same species for both sites: Atlantic and Shortnose Sturgeon, Sea Turtles, and Atlantic Large Whales. NOAA stated that the mapper tool provides conservative results and these species are not expected to be found at the project sites. CTDOT OEP coordination with the Connecticut Department of Energy and Environmental Protection (CTDEEP) Diadromous Fish Program indicated no record of sturgeon at either site. Critical Habitat was not identified by the mapper at either site. NOAA confirmed the VF form is sufficient to satisfy Section 7 project requirements.
- The NOAA Essential Fish Habitat (EFH) mapper identified several species. NOAA is concerned with Winter Flounder and diadromous species at these sites. CTDOT OEP coordination with CTDEEP determined that there is not suitable nursery habitat for flounder due to the narrow beach opening and shallow water at both the bridge and mitigation site, as well as salinity variability at the bridge site. CTDEEP's review indicated there are no records of Winter Flounder spawning at the sites. NOAA recommends turbidity controls at the sites during construction. CTDEEP Fisheries gave Time of Year restrictions for instream work at each site.
- Dredging material from Bride Brook for TLD is an option; however, it is preferable to utilize source material from active local dredge sites. Local marinas are being contacted. Environmental testing of the mitigation site is planned in the coming weeks and will be evaluated to determine a suitable source material composition. *At the time of this report, testing has been performed and results are pending.*
- A topographical survey of the mitigation site has been completed. Estimated source material amounts (200-300 cubic yards) are relatively low due the small scale of the required mitigation. Once the elevation variance across the site is determined, placement is planned to be reasonably uniform.
- The proposed mitigation site was identified through coordination with CTDEEP. Other viable sites for mitigation pose additional obstacles such as property acquisition and finding suitable tidal wetland areas for mitigation.
- CTDEEP has a separate mitigation project along Bride Brook of which the timing and impacts are unknown. The two projects are not being considered to be combined because of separate funding sources, schedules, permitting, and other factors.
- NOAA asked if water loggers are monitoring the area and are worth considering to determine long term tidal flushing. The presence of water loggers is unknown and CTDOT OEP offered that in their absence, there is an established healthy marsh upstream that will be used for reference to the mitigation site. Tidal wetlands extend upstream for a significant distance, indicating adequate tidal flushing at the proposed TLD site for the establishment and long term viability of marsh enhancements.
- NOAA stated that the project will require an Individual EFH Consultation, rather than Programmatic. The Individual EFH Consultation should focus on the resources expected to be present at the project locations. TLD has typically been used as a proactive approach and NOAA would like to have continued coordination with the CTDOT project team to discuss the specifics of the TLD since it is being used as mitigation.
- NOAA questioned whether there would be a long term monitoring component of the mitigation site and OEP confirmed that monitoring would take place and would be required by the State and Federal permitting.
- NOAA stated no concerns for water handling at the bridge site if it is done outside of time of year restrictions required by CTDEEP Fisheries.
- Construction is scheduled to begin in the Spring of 2024.

We believe this report of meeting reasonably reflects the content and findings of the meeting. Unless notified in writing to the contrary within seven (7) days of receipt of this report, it will be presumed that those in attendance concur with the accuracy of this transcript and will serve as record.

Submitted by: Gregory Gerrish 2021.08.27 14:32:49-04'00' Date: _____

Gregory D. Gerrish

Approved by: Susan Morneault Digitally signed by Susan Morneault DN: C=US, E=susan.morneault@ct.gov, O=Department of Transportation, OU=Bridge Consultant Design, CN=Susan Morneault Date: 2021.08.30 13:24:24-04'00' Date: _____

Susan L. Morneault

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

Architecture
Engineering
Environmental
Land Surveying
Companies
Consultant Liaison Services

REPORT OF MEETING

SUBJECT:	RNSP Mitigation – Progress Meeting with Regulators
DATE AND TIME:	Monday February 7, 2022 at 1:00pm
MEETING LOCATION:	MS Teams
PROJECT NO.:	0104-0175
PROJECT DESCRIPTION:	Thin Layer Deposition Mitigation
TOWN/CITY:	Rocky Neck State Park

IN ATTENDANCE

NAME	REPRESENTING	PHONE	EMAIL
Alvaro Garcia Jr.	CTDOT CE Bridge	860-594-3353	alvaro.garcia@ct.gov
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Michael J. Salter	CTDOT OEP EPU	860-594-2933	michael.salter@ct.gov
Amanda M. Saul	CTDOT OEP EPU	860-594-2939	amanda.saul@ct.gov
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Harry Yamalis	CTDEEP	860-424-3620	harry.yamalis@ct.gov
Roger Wolfe	CTDEEP	860-418-5987	roger.wolfe@ct.gov
DeAva Lambert	CTDEEP	860-424-3207	deava.lambert@ct.gov
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Stephanie Maurer	BL Companies	860-760-1970	smaurer@blcompanies.com

TRANSACTIONS AND DETERMINATIONS

The Connecticut Department of Transportation Office of Environmental Planning (CTDOT OEP) and BL Companies (BLC) met with the Connecticut Department of Energy and Environmental Protection (CTDEEP), U.S. Army Corps of Engineers (USACE) and Environmental Protection Agency (EPA) to provide updates on the Thin Layer Deposition (TLD) Mitigation Plan at Rocky Neck State Park (RNSP) required for wetland impacts to the subject project, Bridge No. 02713 (CTDOT Project No. 104-175).

Key points and discussions are summarized below:

1. CTDOT OEP and BLC kicked off the meeting by giving a project introduction, a summary of each bridge project followed by an explanation of the TLD mitigation proposed at Rocky Neck State Park.
    - Long term maintenance and site protection is being pursued.
    - DEEP has a project at RNSP, occurring at the same time, in a separate location.
    - UCONN currently has test plots at RNSP marked by grid plots.
        - Grid plots were not in place at the chosen site in the Fall.

2. Overall Status of the Mitigation Plan.
   BLC reviewed the preliminary survey and identified the location chosen for mitigation and the rationale behind it. The updated plans were briefly reviewed.
   - The site is appealing due to the existing ditches creating clear boundaries, as well as proximity to the beach parking area for the ease of access and material storage.
   - EPA appreciates that the location is not entirely exposed and accepted it as a good choice.
   - The depth of the fill material is expected to range between 6-inches and 2-feet.
   - A material source has been identified, likely a local creek, but is not guaranteed.
   - Water monitoring buoys have not been installed.
   - The planting plan is evolving due to the limitations placed by the Archaeological findings.
3. Long Term Maintenance and Site Protection (vs. In-Lieu Fee)
   - Pursuing Park Management Plan with DEEP, thus far unsuccessfully.
   - May need to begin to consider an in-lieu fee for USACE.
   - Per USACE – The 2008 mitigation rule requires site protection as an instrument. The rule opens the door for public lands, may be able to integrate the mitigation protection as part of a natural resource protection plan with the public land holder. May indicate that it applies to federal lands, but the regulations do not exclude state lands.
   - Per EPA – interprets that it does apply to state lands.
   - Per CTDEEP LWRD – A project utilizing Federal funds brought tidal waters back into the park years ago, if the project site is within this same area, it should be protected by the associated conservation easement. "RNSP is subject to an easement to assure perpetual conservation in favor of the National Park Service as a result of the acceptance of Federal Land and Water Conservation Funds many years ago."
   - Per EPA – order of preference generally leans toward permittee responsibility over the in-lieu fee so that the area being impacted is the area being mitigated.
   - If the case can be made that it is ecologically preferable, the TLD project should qualify as USACE mitigation and in-lieu fee may not be necessary.
   - The conservation easement, if viable, may restrict filling as an activity, but considering that this activity is restoring wetland rather than building something, it should not qualify as filling.
   - This conservation easement is held by the National Park Service and needs to be located and reviewed.
4. TLD Material Sources
   - Several material sources have been identified, but one from the Mystic Marina approximately 18 miles away has been considered the prime candidate for use at the RNSP site.
   - In-Situ testing should take place in the next month.
   - Dredging of the marina is proposed for November or December of this year.
   - Stockpiling is critical to the project and will likely be necessary for over a year.
   - Due to archaeological concerns the stockpile will need to be placed in a pre-disturbed area such as the parking lot.
   - Approximately 7 parking spaces are expected to be necessary to store 250 cubic yards of material.
   - Follow up with DEEP Parks is necessary and OEP support would be appreciated.
   - Material may need to be amended to restore the growing medium
     - BLC has avoided higher silt content sources and focused on high organic content.
     - The project has a specification that will be described in the mitigation plan to meet material parameters.
   - It was agreed that the application could be submitted with a framework of performance metrics rather than with a specific source material.
     - USACE noted that nationwide permits do allow for conceptual plans to be reviewed and finalized before construction begins. The same flexibility should be afforded with the state GP, but the application needs to show certainty of the benefit of the TLD work.
     - OEP will need the parameters acceptable to EPA and USACE prior to proceeding with the conceptual plan.
     - USACE provided the link for the New England District Compensatory Mitigation SOP dated December 2020.

5. Archaeological Site Assessment/ 106 Considerations
    - Sensitive items were found at depth, radiocarbon dating and the official report are expected soon.
    - Unwanted impacts will be avoided, findings are driving the access road location, invasive species handling and the planting plans.
    - FHWA is the lead funding agency for the project; there will be SHPO and THPO involvement.
        - USACE may need to reach out to THPO
        - An MOA is in place and Phase 3 needs to be completed at the bridge site. THPO should be included.
        - Coordination has been completed for the bridge sites, but not the mitigation site.
6. Known TOY's & anticipated permit/construction schedule
    - TLD Mitigation has not gone to ICM, it would be preferable to count these meetings and the corresponding ROMs as coordination.
    - Once TLD Plans are complete, at next status, DEEP and USACE can declare permit needs
        - Anticipating SDF/TW/401, FMC, USACE: GP19 for the bridge
        - Anticipating USACE: GP 10 for the mitigation, but will need further guidance
    - USACE will not require an Individual Permit.
    - The current project FDP is May 2023, with permits expected to be submitted to CTDEEP in April 2022.
    - The earliest construction is expected to take place is in 2024.
7. Status of resource coordination
    - OEP conducted a pre-meeting with EFH and ESA
        - VF is programmatic; Individual EFH is required
        - BLC and OEP to put together the individual EFH package
        - OEP has been checking salinity; no red flags
        - USACE trying to document uplift; initial habitat data is expected to document the baseline
    - NDDB application has been submitted and is pending with DEEP for mitigation and bridge sites.
        - Osprey platform is nearby, will coordinate with NDDB
    - USFWS Coordination
        - Northern Long Eared Bat will be processed under the 4d rule
        - No effect is anticipated for the Roseate Tern
        - USACE noted that the no effect determination should be signed by FHWA
8. Next status meeting
    - Include EPA, USACE and DEEP
    - Finalize mitigation location and sources
    - Follow up on EFH

The following **Action Items** were discussed:

- CTDEEP LWRD will try to locate the conservation easement in favor of the National Park Service
- BLC to follow up with DEEP Parks regarding potential storage of TLD materials
- OEP to follow up with USACE with habitat baseline data
- OEP to obtain FHWA support for the no effect letter
- BLC to wrap up the TLD plans once the archaeological report is in
- OEP will finish resource coordination (USFWS/NMFS/NDDB/Section 106)
- USACE to provide soil parameters acceptable to EPA and USACE.

We believe this report of meeting reasonably reflects the content and findings of the meeting. Unless notified in writing to the contrary within seven (7) days of receipt of this report, it will be presumed that those in attendance concur with the accuracy of this transcript and will serve as record.

Submitted by: Stephanie Maurer Digitally signed by Stephanie Maurer Date: 2022.03.23 14:44:38-04'00' Date: _____

Stephanie Maurer

Approved by: Susan Morneault Digitally signed by Susan Morneault Date: 2022.03.23 15:13:39-04'00' Date: _____

Susan Morneault

Attachment 43

Mitigation Report

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

NOVEMBER 2023

MITIGATION PLAN

Thin Layer Deposition at Rocky Neck State Park

State Project No. 0104-0175
F.A.P. No. 0156(011)
Bridge No. 02713
Route 156 over Four Mile River
East Lyme & Old Lyme, Connecticut

PREPARED BY
BL Companies
100 Constitution Plaza
10th Floor
Hartford, CT 06103

TABLE OF CONTENTS

APPENDICES

1.0 PROJECT DESCRIPTION

State Project No. 0104-0175 consists of the replacement of Bridge No. 02713, carrying State Route 156 over the Four Mile River in Old Lyme and East Lyme, CT. This mitigation plan addresses restoration of the permanently impacted wetlands resulting from the proposed bridge replacement.

The roadway over the existing bridge has a curb-to-curb width of 36 feet and consists of two 12-foot travel lanes with 6-foot shoulders. The bridge is composed of four 60-inch round corrugated metal pipes (CMPs), each 52-feet 8-inches long, with reinforced concrete headwalls and wingwalls.

The proposed scope of work consists of replacing the existing deteriorating bridge with a precast 28-foot wide by 8-foot tall 3-sided arch structure with reinforced concrete headwalls, footings and wingwalls. Additionally, the roadway will be shifted north approximately 30 feet and the vertical profile will be raised approximately 4.5 feet to address substandard geometry and hydraulic capacity. Unavoidable impacts to tidal wetlands are proposed because of the bridge replacement.

Wetland mitigation is required by the United States Army Corps of Engineers (USACE) and the Connecticut Department of Energy and Environmental Protection (CTDEEP) to offset the project's permanent impacts to inland and tidal wetlands. The CTDOT's Office of Environmental Planning (OEP) has been working closely with the CTDEEP and USACE to identify potential mitigation sites. Replacement of tidal marsh systems is often challenging in identifying suitable candidate sites that have a high success probability. The CTDOT OEP, CTDEEP and the USACE have agreed to approach mitigation strategy for this project as a tidal marsh restoration and utilize thin layer deposition (TLD) as the construction methodology.

2.0 IMPACT AREAS

At Bridge No. 02713, the Four Mile River is tidally influenced, and tidal vegetation exists in three of the four quadrants of the bridge, the southwest quadrant excluded. Vegetation in the southwest quadrant is comprised of inland wetland vegetation. Federal and State regulated inland wetlands have been observed and delineated in all but the southwest quadrant. The High Tide Line (HTL) is the landward limit of federally (USACE) regulated tidal wetlands. Located at elevation 2.83 feet, HTL (south of the river) is also considered local extreme high water, the state (CTDEEP) regulatory limit at the project site. North of the river, the land supports tidal wetlands at higher elevations and the state regulatory limit for tidal wetlands extends to one foot above local extreme high water. The Mean High Water (MHW) elevation is 0.92 feet and is the waterward limit of federal and state regulated wetlands.

The proposed project is anticipated to have permanent and temporary impacts to tidal and inland wetlands. Permanent impacts are a result of removing the existing bridge, construction of the new bridge, and horizontal and vertical realignment of the roadway. Additionally, reconstruction of the natural stream channel downstream of the bridge will require fill material to stabilize the channel and prevent scour, which will permanently impact the waterway, tidal

wetlands and inland wetlands. Temporary impacts are due to the installation of the temporary water handling system, required to convey flow during construction. The anticipated impacts are summarized in Table 1; all areas are approximate and based on the latest permit plans.

As agreed upon with the CTDEEP at a project meeting held on January 15, 2021, permanent impacts to tidal wetlands will be mitigated at a 3:1 ratio and permanent impacts to inland wetlands will be mitigated at a 2:1 ratio. Based on the anticipated impacts shown in Table 1, this requires a minimum of 6,900 square feet of mitigation (DEEP regulations used, USACE regulations would total 6,300 square feet).

Table 1

WETLAND IMPACT TABLE (DEEP)					
	WETLAND SITE NO.	INLAND WETLAND IMPACTS	TIDAL WETLAND IMPACTS (TIDAL WETLAND LIMIT TO MHW)	WATERCOURSE IMPACTS (WATERWARD OF MHW)	TOTAL
PERMANENT IMPACTS	1	1200 S.F. (0.028 AC.)	1500 S.F. (0.034 AC.)	3700 S.F. (0.085 AC.)	6400 S.F. (0.147 AC.)
TEMPORARY IMPACTS	1	1900 S.F. (0.044 AC.)	2600 S.F. (0.060 AC.)	1800 S.F. (0.041 AC.)	6300 S.F. (0.145 AC.)
TOTAL IMPACTS		3100 S.F. (0.071 AC.)	4100 S.F. (0.094 AC.)	5500 S.F. (0.126 AC.)	12700 S.F. (0.292 AC.)

WETLAND IMPACT TABLE (USACE)					
	WETLAND SITE NO.	INLAND WETLAND IMPACTS	TIDAL WETLAND IMPACTS (HTL TO MHW)	WATERCOURSE IMPACTS (WATERWARD OF MHW)	TOTAL
PERMANENT IMPACTS	1	1800 S.F. (0.041 AC.)	900 S.F. (0.021 AC.)	3700 S.F. (0.085 AC.)	6400 S.F. (0.147 AC.)
TEMPORARY IMPACTS	1	2900 S.F. (0.067 AC.)	1600 S.F. (0.037 AC.)	1800 S.F. (0.041 AC.)	6300 S.F. (0.145 AC.)
TOTAL IMPACTS		4700 S.F. (0.108 AC.)	2500 S.F. (0.057 AC.)	5500 S.F. (0.126 AC.)	12700 S.F. (0.292 AC.)

3.0 MITIGATION AREA

Ideally, impacts to tidal and inland wetlands are mitigated at the project site. However, sufficient area is not available without significant additional impact to privately-owned properties. Other mitigation sites along Four Mile River were considered to keep the restoration within the same subwatershed, but an accessible and adequate area of degraded tidal vegetation was not located. CTDEEP was consulted to determine if there was a potential mitigation site within the project-adjacent Rocky Neck State Park (RNSP), which is owned and maintained by CTDEEP. Through this coordination, a tidal marsh area situated within RNSP along Bride Brook was identified as a potential mitigation site.

A preliminary investigation of the tidal wetlands along Bride Brook revealed several areas of degraded marsh. The potential mitigation sites within Bride Brook exhibit similar degradation and suitability for compensatory mitigation, per the USACE guidance. As such, accessibility, constructability, and site area were important factors for site selection to minimize impacts to the state park and healthy tidal marsh.

Healthy tidal marsh within RNSP indicate there is sufficient tidal flushing and exchange to nourish a mitigation site. Salinity readings taken in the area ranged from 11 ppt (parts per thousand) to 30 ppt when taken at low and high tides, respectfully. These readings indicate adequate tidal exchange to support marsh restoration.

The proposed mitigation site is located at the southern end of Rocky Neck State Park, adjacent to the northern most parking lot for public beach access. The selected site exhibits degraded tidal wetlands characterized by saltwater pools where healthy vegetation once grew, as observed on historical aerial photographs of the area. The pools average approximately 6 to 7 inches of water depth, based on UAV and ground survey. The healthy tidal wetlands surrounding the pools exhibit substrate several inches above the existing water levels. The saltwater pools that have developed will require appropriate fill material to match an established target elevation.

The selected site area is approximately 10,000 square feet and is one of several wetland cells, defined by manmade drainage ditches, within a larger peninsular tidal wetland area encompassing roughly 1.25 acres (map and limits shown in Appendix A). The entire area includes similarly degraded tidal wetlands and potential for future additional mitigation. The adjacent parking area provides direct access to the mitigation site, which would allow for conventional construction methods to be employed. The parking lot also offers ample staging area for the wetland rehabilitation. Access to other potential mitigation sites along Bride Brook require temporary construction access, clearing, temporary or offsite staging, and are mostly inaccessible by land without imposing significant additional impacts to wetlands.

The manmade ditches will remain after construction to provide clear demarcation of the boundaries of the mitigation area as well as boundaries for post-construction monitoring. The limited open-water area the ditches provide (approximately 500 square feet) does not exacerbate issues with mosquitoes and filling the ditches would not measurably decrease mosquito presence in the area.

4.0 METHODOLOGIES

Traditional mitigation sites require some level of earth movement to facilitate hydrologic reconnection or retention to achieve the desired results. Thin Layer Deposition (TLD) of sediment supports tidal marsh resilience using disposed dredge material. Recently, innovative approaches to restore degraded or over inundated tidal marsh systems have been implemented; these efforts have resulted in tidal marsh recovery through the placement of nutrient rich dredge spoils.

Healthy marsh exposed to additional inundation due to increased water levels (resulting from sea-level rise or marsh subsidence) undergoes a landward shift within the intertidal zone, thereby high marsh plants are replaced by low marsh, and the low marsh degrades and converts to mudflats. Adding sediment to restore the marsh vertical elevation is expected to enhance marsh recovery and resilience. Additionally, observation of high marsh zone expansion and the repopulation of barren mudflats by low marsh plant species occurs rapidly due to the resident seedbank and rootstock.

Tidal marsh sustainability and integrity are determined, in large part, by vertical elevation relative to sea-level, since the plants and animals that comprise tidal marshes have tolerance limits to flooding frequency and duration. Slurry mixtures may be added to increase marsh elevations in areas within the system to optimize the local plant community's location to tidal hydrology. TLD application of sediment/soils slurry to degraded marsh systems in depths ranging from 0.4" to 19.5" or more has produced very good results and is considered one of the current best practices

to restore tidal marsh systems. Recovery of smooth cordgrass (*Spartina alterniflora*) has been documented in overburden applications of up to 9". This is essential for reestablishment of the marsh system along with supplemental vegetative plantings to enhance reestablishment of the marsh.

Criteria for marsh restoration methodology varies by type of marsh system, size, access, and availability of source material for the restoration substrate. A review of available literature of appropriate TLD application methods to restore degraded marsh systems was conducted, including the review of the January 2020 National Estuarine Research Reserve System (NERRS) document, "Guidance for Thin-Layer Sediment Placement as a Strategy to Enhance Tidal Marsh Resilience to Sea-Level Rise".

To aid in the selection of final elevations and the establishment of a healthy tidal marsh, two data loggers were installed within RNSP near the mitigation site in March 2022. The loggers provide water level and temperature measurements. One data logger is located along the edge of Bridge Brook. The second data logger is located near the south (upland) side of the mitigation area.

Follow up discussions with knowledgeable, experienced restoration contractors and other scientists engaged in tidal marsh restoration projects along the east coast, specifically in Rhode Island and Connecticut, were conducted to evaluate lessons learned. Scott Comings of The Nature Conservancy, Rhode Island who has completed TLD projects at the Sachuest Point National Wildlife Refuge and the Narrow River marsh restoration in Narragansett RI, Rob Deems of the U.S. Army Corps of Engineers, fisheries biologist with experience in the tristate region of NJ, PA and DE followed by conversations with other engineers conducting sediment removal and placement projects in CT, including Keith Neilson of Docko, Inc of Mystic, CT. Overall, there were mixed levels of success achieved using either traditional application of source material in the dry (ITD) or TLD spray methodology from active dredging operations.

Traditional application of source material using low ground pressure (LGP) earth moving equipment to spread ITD material was discussed to be most favorable for smaller projects (< 50 acres). The ability to control material in a smaller area was crucial for the ease of handling and placement. Placement of source material to construct access into the restoration area was accomplished by transporting source material in LGP marsh buggies or tracked dump trucks and earth movers or using light weight skid steer machines to construct an access road or utilizing HDPE matting to minimize substrate compaction. Source material is then trucked into the marsh and dumped into the desired placement cell. Global Positioning Satellite (GPS) controlled rubber tracked excavators and/or bulldozers are used to grade material to approximately 3" above the finished grade to offset settling and compaction. Concerns with marsh compaction are offset by overfilling and planting. Deep holes may be dewatered at low tide and filled to greater thicknesses using sand or additional source material and planted with plugs of *Spartina alterniflora*.

Marsh rebound following application methodology tended to vary depending on the depth of application. Positive vegetative response occurred at TLD applications of 6" and lower with very little positive vegetative recurrence when over 11" of material was applied over existing vegetation. A review of methodologies suggest that supplemental plantings will help to achieve

a more rapid recovery of the marsh, however predation by herbivores and waterfowl remains an issue for some areas, while anthropogenic impacts have been detrimental in locations with high accessibility. In addition, soil strength was found to increase more rapidly with the addition of plant material to help reestablish root layers.

The use of oyster shell bags, hay bales, biodegradable compost filter sock or coconut fiber (coir) logs helped to maintain the outline of the restoration areas and contain liquid sediment. The dispersion of liquid runoff into the surrounding waterways was of concern in smaller applications and a recognized expectation during large spray applications. Containment to prevent excessive input to the water column was somewhat successful using a combination of containment methods for wet application while ITD applications saw less impact to the water column using only one or two combined containment methods.

Application of material ITD has more advantages for smaller scale marsh restoration projects, especially when on-site source material is not readily available. The most limiting and critical factor to conventional method application is marsh compaction, which can be minimized to the maximum extent practicable using LGP equipment and appropriate matting, however these impacts are an important consideration to evaluating the different methods.

A healthy marsh segment within the adjacent tidal area was sampled to determine sediment content, plant density and to observe the initial hydroperiod during tidal cycles. The healthy marsh consisted of dense vegetation comprised of *Spartina alterniflora* in the low marsh areas which incurred saturation during high tide but was not submerged. Sediment was composed of silty sand and a consolidated muck comprised of root mass and silty sand. In addition, the surrounding vegetated marsh area within the TLD site was surveyed to determine appropriate elevation for optimal vegetative cover and water levels are being monitored to determine target elevation for the placement of TLD application and to maximize success of replanted *Spartina*.

Source Material

Source Material Section is DRAFT

The quantity and quality of source material is important in evaluating the overall use for TLD application. However, logistics such as handling and transport distances are also considered when determining the viability of using available source material. Low pH or high sulfide content has been shown to have deleterious effects on marsh substrate, vegetation and benthic fauna. The proposed source material may be selected from local marinas that conduct maintenance within boat docks, channels and bulkhead areas. Other potential source options may include beach replenishment material that is recovered from ocean substrate. It is important to consider potential contaminant sources so as not to import hydrocarbons, metals or semi-volatile compounds into a recovering marsh system. All source material will be utilized from previously permitted dredging activities, tested and evaluated for organic content, pH, sulfides and a range of potential contaminants that are commonly associated with dredge material within heavily traveled waterways and boat docking facilities.

Consideration to availability and transport cost considerations were utilized to narrow down the potential dredge source material to several facilities local to the TLD site. Potential sourcing sites have been reviewed to determine how often dredging is completed, how much material is

typically produced, is there material stockpiled, are we able to test any of the existing dredge material, how is dredge material typically disposed? There are several large dredging operations planned for most of the marinas listed below at regular intervals. Timing to secure potential dredge material from donor locations is dependent upon when the TLD construction will occur. Most of the marinas contacted have available material but none of the material is of known quantity or quality at this time. The preferred source material will consist of no more than 25% sand, not less than 25% organic material, and not more than 40% organic material within the final uppermost 2.75-6 in^3. Areas that require additional vertical elevation increases may be filled using a mixture composed of higher sand concentrations or sand only.

In addition, local area reviews will be conducted to determine if known contaminant sources are located within the watershed. A few local sources of potential source material have been evaluated and the Little Gull Marine facility located in Mystic, CT appears to have suitable substrate material. The following local facilities have been identified as potential source material resources in the event Little Gull Marine facility does not have adequate material:

River Landing Marina and Four Mile River Marina - Old Lyme, CT – 3.1 miles from site

Old Lyme Marina - Old Lyme, CT – 7.8 miles from site

Harbor One Marina - Old Saybrook, CT – 12.7 miles from site

Port Niantic Marina - Niantic, CT – 4.9 miles from site

The Point Marina - Waterford, CT – 6 miles from site

Three Bells Marina - Niantic, CT – 6 miles from site

Pine Island Marina - Groton, CT – 18 miles from site

Conversations with marina owners to identify dredging intervals and typical yields vary widely depending on where the marina is located. Many marinas have a 3, 5 or approximately 10-year dredge cycle that typically yields thousands of cubic yards of material. Most of the sites located within large river basins contain high amounts of silt and low sand, while those located in tidal basins tend to have a higher sand concentration. There tended to be vary degrees of impacted dredged material, typically with petroleum hydrocarbons while some of the sites did contain elevated levels of heavy metals.

Prior to any placement, sediment samples with be analyzed and results submitted to CTDOT's Environmental Compliance Unit for concurrence on suitability for use within the mitigation area. The donor material is proposed to be sampled and analyzed for the following criteria:

- ***Washed Sieve Analysis ASTM D-422/D1140***
  Sieve Size:
  No. 4
  No. 10
  No. 40
  No. 200

- ***Bulk Sediment Metals Appendix A***

Parameters:	Acceptable Limits/Background Limits
Arsenic, Total mg/kg	3.0 mg/kg
Antimony, Total mg/kg	ND
Barium, Total mg/kg	385 mg/kg
Beryllium, Total mg/kg	ND
Cadmium, Total mg/kg	ND
Chromium, Total mg/kg	31 mg/kg
Lead, Total mg/kg	18 mg/kg
Mercury, Total mg/kg	0.03 mg/kg
Selenium, Total mg/kg	ND
Silver, Total mg/kg	ND
Copper, Total mg/kg	17 mg/kg
Nickel, Total mg/kg	13 mg/kg
Zinc, Total mg/kg	44 mg/kg
Thallium Total mg/kg	ND
Vanadium-mg/kg	ND
Cyanide, Total SPLP-mg/L	ND

- ***Bulk Sediment App A Misc.***

Parameters:	
Chromium, Hexavalent mg/kg	ND
Cyanide, Total mg/kg	ND
TPH-mg/kg	

- ***Bulk Sediment TOC/Water***

Parameters:	
Total Water %	As reported

- ***Bulk Sediment TOC/ Water***

Parameters	
Total Organic Carbon %	As reported
Total Organic Carbon-duplicate	As reported

- ***EPA Method 8082 RCP***

- ***Bulk Sediment Pesticides Appendix A*** ND

- ***Bulk Sediment Herbicides Appendix A*** ND

- ***Bulk Sediment Volatile Organic Appendix A*** ND

- ***Bulk Sediment SVOC Appendix A*** ND for all listed SVOC's
  Parameters:
  Naphthalene ug/kg
  Acenaphthylene ug/kg

Fluorene ug/kg	ND
Phenanthrene ug/kg	ND
Anthracene ug/kg	ND
Fluoranthene ug/kg	ND
Pyrene ug/kg	ND
Benzo(a)anthracene ug/kg	ND
Benzo(b)fluoranthene ug/kg	ND
Benzo(k)fluoranthene ug/kg	ND
Benzo(a)pyrene ug/kg	ND
Phenol ug/kg	ND
Bis(2-Chloroethyl) Ether ug/kg	ND
2-Chlorophenol ug/kg	ND
Bis(2-chloroisopropyl) Ether ug/kg	ND
Hexachloroethane ug/kg	ND
2,4-Dichlorophenol ug/kg	ND
Hexachlorobenzene ug/kg	ND
Atrazine ug/kg	ND
Pentachlorophenol ug/kg	ND
Alachlor ug/kg	ND
Di-n-Butyl phthalate ug/kg	ND
Butylbenzylphthalate ug/kg	ND
Bis-(2-Ethylhexyl phthalate ug/kg	ND
Di-n-octylphthalate ug/kg	ND
Phenol-d6 %	ND
2-Fluorophenol %	ND
Nitrobenzene-d5 %	ND
2-Flurobiphenyl %	ND
2,4,6-Tribomophenol %	ND
p-Terphenyl-d14	ND

In addition to the above organic parameters testing, potential borrow source material will be tested for acid sulfate compounds to ensure soils are suitable for application to the mitigation. Literature reviews indicate that acid sulfate soils with redox potential ranges between -200 and 600 mV are able to be treated and utilized for land applications. Soils that contain low levels of acid sulfate may be treated prior to land application by applying and mixing calcium carbonate (CaCO3).

5.0 EROSION CONTROLS

Refer to the Mitigation Plan Set in Appendix A for the proposed erosion control layout, details and notes.

Part of the proposed erosion controls will be the use of fiber (coir) logs around the perimeter of the TLD site. The intent of the coir logs is to retain substrate during installation and not to act as a long-term barrier. Once vegetation is established, the substrate is expected to be retained by the vegetative root mass and function similar to the surrounding marsh sediment. After vegetation is established and the site stabilized, the coir logs will be removed.

6.0 INVASIVE SPECIES CONTROL

Invasive species control will be conducted following the CTDOT OEP invasive species control specification and the tidal wetland creation specification (see Appendices B and C). Prior to construction, an initial site review will identify invasive species present in proximity to the mitigation site. Five full growing seasons are anticipated to be required for this inspection. Source material will be inspected prior to TLD placement at the mitigation area to minimize the potential to introduce invasive species.

The mitigation site will be inspected at the beginning of construction and throughout the monitoring period to identify the presence and control of invasive species. Higher salinity levels will minimize the species that may occur in the TLD areas and control of invasive species will be performed using both physical removal and a herbicide containing Glyphosate or Imazapyr to be applied directly to the plant leaves and avoiding overspray onto native vegetation.

7.0 OFF-ROAD VEHICLE USE

The mitigation site is located within Rocky Neck State Park and there is no off-road vehicle traffic allowed within the park. The mitigation site is also within tidal marsh flat that is comprised of organic muck and sand. Access to this area is unlikely as vehicles will sink into the marsh.

8.0 PRESERVATION AND SITE PROTECTION

Rocky Neck State Park (RNSP) is located within a Connecticut State Park that is perpetually preserved. Express written permission is required from the Commissioner to impact any areas within the RNSP. Further the tidal marsh is protected by both federal U.S. Army Corps of Engineers Section 404 and Section 401 programs and Connecticut state statues that limit or prohibit development or impacts to wetland resources without first obtaining a permit. These restrictions are expected to provide adequate protection for the long-term preservation and protection of the TLD mitigation site.

A woody shrub buffer will be planted along the landward side of the TLD mitigation area. The shrubs will provide a physical barrier to access from the park to the TLD and screening from the park.

9.0 MONITORING PLAN

Monitoring of the mitigation site will be conducted following regulatory guidance issued by the USACE, recommendations made by NOAA, and general guidance used at other mitigation sites. Monitoring will be conducted at the beginning of the growing season and following the growing season for the first five (5) years following TLD. CTDOT OEP, or their representative, will be responsible for monitoring the site during the first five years. Annual reports will be submitted to

the CTDEEP. CTDOT's wetland plantings specification for mitigation planting requires all plantings to have a two-year replacement warranty. Any plants that are dead or lack sufficient vigor are to be replaced following the first two years after construction.

Monitoring will occur across the entire mitigation site, not within plots and will be conducted to assess the success or need for additional TLD adjustments at the site. Vegetative species inventories and growth, species density, species diversity, sediment deposits, marsh surface flooding, habitat utilization and spot elevations will all be utilized to evaluate the ongoing success of the mitigation site and documented in the monitoring report. Representative photo plots will be established within the mitigation site to visually document development.

The monitoring plan will include twice a year monitoring for five (5) years. A coverage rate of 85% of native plant species throughout the TLD site will be the target success benchmark, with a presence of 10% or less of invasive species in and immediately adjacent to the TLD site. Invasive species will be treated during each monitoring event and documented in the monitoring report. Monitoring reports will include photo documentation from GPS located benchmark locations, species lists, invasive species present and any action required to reduce or control the invasive species population's along with any additional remedial actions recommended or taken for mitigation success. Elevations within the mitigation area will be surveyed, using a method approved by OEP, in years 1, 3 and 5 of the monitoring period. Visual assessment of existing hydrology (water depth) in spring and summer and substrate/sediment stability will be included in the monitoring report.

Annual monitoring reports will be submitted to CTDEEP no later than December 15th of each monitoring year which will begin following the first full growing season after the completion of site construction and planting (after the 2-year plant warranty period). A copy of the monitoring reports will also be submitted to the NOAA National Marine Fisheries Service, Habitat and Ecosystem Services Division.

The CTDEEP has agreed to maintain control of the property and assume maintenance of the mitigation site following the 5-year monitoring period. Field adjustments may be required during the monitoring period to ensure site success and that the mitigation success criteria are met. Adjustments may include supplemental plantings, additional invasive vegetation control or other measures, as necessary.

10.0 CONTINGENCY

Unanticipated events that may occur at the project site may require alterations to the TLD or additional measures to be implemented at the site to ensure success. Contingencies will be developed to include locally relevant potential impacts (predation, excessive flooding, vegetation survival, etc.).

Field surveys will be conducted during construction and planting to ensure target elevations are achieved. Construction of the TLD site will be overseen by a CTDOT OEP Environmental inspector. OEP reserves the right, through their contract specifications, to make adjustments to grading or planting plans to ensure a successful mitigation site.

11.0 LONG TERM STEWARDSHIP

The RNSP is owned and maintained by CTDEEP and is preserved in perpetuity. The mitigation site is located within RNSP. Therefore, any impacts to the mitigation area would be denied by CTDEEP as part of the RNSP preservation stewardship. CTDEEP has ultimate authority to deny permits to conduct any type of encroachment or activity in the area.

The TLD site is located within RNSP and following the completion of the TLD construction and successful monitoring period, the TLD site will revert back to CTDEEP as part of the RNSP oversite of the Bride Brook marsh.

Changes to site hydrology is not anticipated as the adjacent land use will remain the same within the RNSP. Site hydrology is reliant upon daily tidal flushing to maintain vigor, the tidal flushing is not anticipated to change due to the location within RNSP.

12.0 FINANCIAL ASSURANCES

The CTDOT is a state funded agency with the resources to address the relatively minor costs that may be associated with the replacement or restoration of the mitigation area. The project will be funded utilizing state/federal transportation funds.

13.0 REFERENCES

1. Raposa, K., K. Wasson, J. Nelson, M. Fountain, J. West, C. Endris, and A. Woolfolk. 2020. "Guidance for Thin-Layer Sediment Placement as a Strategy to Enhance Tidal Marsh Resilience to Sea-Level Rise." Published in collaboration with the National Estuarine Research Reserve System Science Collaborative.

2. "Thin Layer Placement of Dredged Material" website at: https://tlp.el.erdc.dren.mil/searchable-resources/

3. Center for Ecosystem Restoration. 2015. Maidford saltmarsh restoration draft project description. Wickford, RI: Center for Ecosystem Restoration. Prepared for U.S. Fish and Wildlife Service (USFWS) Rhode Island National Wildlife Refuge Complex.

4. Dredging Today. 2016. Delaware Bay wetlands restored with dredge materials. https://www.dredgingtoday.com/2016/05/23/delaware-bay-wetlands-restored-with-dredge-materials/Blackwater NWR, MD High pressure discharge Marsh Target elevation Nemerson 2007.

5. U.S. Fish and Wildlife Service (USFWS). 2014a. Environmental assessment for the Narrow River Estuary resilience restoration program. Charlestown, RI: Rhode Island National Wildlife Refuge Complex.

6. Berkowitz, J. F., C. M. VanZomeren, and C. Piercy. 2017. Marsh restoration using thin layer sediment addition: Initial soil evaluation. Wetland Science and Practice 34(1).

7. Ford, M. A., D. R. Cahoon, J. C. Lynch. 1999. Restoring marsh elevation in a rapidly subsiding salt marsh by thin-layer deposition of dredged material. Ecological Engineering 12(3–4):189–205. https://doi.org/10.1016/S0925- 8574(98)00061-5.

8. Smith, J., and L. Niles. Are salt marsh pools suitable sites for restoration? Wetland Science and Practice 33(4).

9. Landin, M. C., J. W. Webb, and P. L. Knutson. 1989. Long term monitoring of eleven Corps of Engineers habitat development field sites built of dredged material, 1974-1987. D-89-1. Vicksburg, MS: U.S. Army Engineer Waterways Experiment Station.

10. Reimold, R. J., M. A. Hardisky, and P. C. Adams. 1978. The effects of smothering a 'Spartina Alternaflora' salt marsh with dredged material. WES-TR-D-78-38. Vicksburg, MS: U.S. Army Waterways Experiment Station.

APPENDIX A – MITIGATION PLAN SET

SUBSET 09 - OFF-SITE MITIGATION - BRIDGE NO. 02713

INDEX OF DRAWINGS

DRAWING NUMBER	DRAWING TITLE	DRAWING NUMBER	DRAWING TITLE
MIT-01	THIN LAYER DEPOSITION INDEX OF DRAWINGS		
MIT-02	THIN LAYER DEPOSITION EXISTING CONDITIONS		
MIT-03	THIN LAYER DEPOSITION GRADING PLAN		
MIT-04	THIN LAYER DEPOSITION PLANTING PLAN		
MIT-05	THIN LAYER DEPOSITION CROSS SECTIONS		
MIT-06	THIN LAYER DEPOSITION DETAILS		
MIT-07	THIN LAYER DEPOSITION FIBER ROLL DETAILS		

DESIGNED BY:

BL Companies

BL COMPANIES, INC.
355 RESEARCH PARKWAY
MERIDEN, CT 06450

REV.	DATE	REVISION DESCRIPTION	SHEET NO.

THE INFORMATION, INCLUDING ESTIMATED QUANTITIES OF WORK, SHOWN ON THESE SHEETS IS BASED ON LIMITED INVESTIGATIONS BY THE STATE AND IS IN NO WAY WARRANTED TO INDICATE THE CONDITIONS OF ACTUAL QUANTITIES OF WORK WHICH WILL BE REQUIRED.

Plotted Date: 10/26/2023

DESIGNER/DRAFTER: S.PELLEGRINI

CHECKED BY: W. WOLF

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

Filename: ...\INX_0104-0175_TLD_Index .dgn

SIGNATURE/ BLOCK:

PROJECT TITLE:
REPLACEMENT OF
BRIDGE NO. 02713, ROUTE 156
OVER FOUR MILE RIVER

TOWN:
OLD LYME
EAST LYME

DRAWING TITLE:
THIN LAYER DEPOSITION
INDEX OF DRAWINGS

PROJECT NO.
0104-0175

DRAWING NO.
MIT-01

SHEET NO.

TIDAL ELEVATION TABLE

TIDAL TYPE	ELEVATION (FT)
HIGH TIDE LINE	2.8
COASTAL JURISDICTION LINE	2.3
MEAN HIGH WATER	1.0
MEAN LOW WATER	-2.1
MEAN LOW LOW WATER	-2.3

REV.	DATE	REVISION DESCRIPTION	SHEET NO.

THE INFORMATION, INCLUDING ESTIMATED QUANTITIES OF WORK, SHOWN ON THESE SHEETS IS BASED ON LIMITED INVESTIGATIONS BY THE STATE AND IS IN NO WAY WARRANTED TO INDICATE THE CONDITIONS OF ACTUAL QUANTITIES OF WORK WHICH WILL BE REQUIRED.

Plotted Date: 10/26/2023

DESIGNER/DRAFTER: S.PELLEGRINI

CHECKED BY: W. WOLF

SCALE IN FEET 0 30 60

SCALE 1"=30'

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

Filename: ...\EX_0104-0175_TLD_ExistingConditions.dgn

SIGNATURE/ BLOCK:

PROJECT TITLE:
REPLACEMENT OF BRIDGE NO. 02713, ROUTE 156 OVER FOUR MILE RIVER

TOWN: **OLD LYME EAST LYME**

DRAWING TITLE: **THIN LAYER DEPOSITION EXISTING CONDITIONS**

PROJECT NO. 0104-0175

DRAWING NO. MIT-02

SHEET NO.

LEGEND

PROPOSED FIBER ROLLS

NOTES

1. ALL WORK WITHIN THE THIN LAYER DEPOSITION (TLD) AND TIDAL ENHANCEMENT AREAS IS RESTRICTED TO THE PERIOD OF DECEMBER 1 THROUGH FEBRUARY 15, INCLUSIVE.

2. THE CONTRACTOR SHALL COORDINATE AND COMPLETE ALL CONSTRUCTION ACTIVITIES AS OUTLINED BELOW DURING LOW TIDE.

3. PRIOR TO COMMENCEMENT OF ANY WORK ASSOCIATED WITH THE TLD AREA, THE CONTRACTOR SHALL SUBMIT TO THE OFFICE OF ENVIRONMENTAL PLANNING (OEP) FOR REVIEW AND ACCEPTANCE, A TIDAL MITIGATION PLAN THAT INCLUDES A CONSTRUCTION SCHEDULE AND OUTLINE OF CONSTRUCTION METHODOLOGIES FOR PERFORMING THE REQUIRED WORK, IN ACCORDANCE WITH ITEM NO. 0948015A TIDAL WETLAND CREATION (THIN LAYER DEPOSITION), AND IN ACCORDANCE WITH OTHER ITEMS LISTED BELOW.

4. PRIOR TO COMMENCEMENT OF WORK, THE CONTRACTOR SHALL STAKE THE CONSTRUCTION LIMITS AND ALL TIDAL ELEVATIONS, INCLUDING THE PROTECTIVE MATTING SYSTEM ACCESS ROAD.

5. TREE REMOVAL REQUIRED FOR TEMPORARY CONSTRUCTION ACCESS ROAD BETWEEN THE STAGING AREA AND TLD AREA SHALL BE DONE BY FLUSH CUTTING TO GROUND SURFACE. NO GRUBBING IS PERMITTED.

6. NO GROUND DISTURBANCE OR GRUBBING IS PERMITTED WITHIN THE TLD AREA IDENTIFIED FOR INVASIVE SPECIES REMOVAL AS SHOWN ON THE CONTRACT PLANS AND ENVIRONMENTAL PERMIT PLANS.

7. THE TLD WORK SHALL INCLUDE, BUT IS NOT LIMITED TO, THE INSTALLATION OF FIBER ROLLS OR ANY OTHER MEANS FOR THE PROTECTION OF THE OUTER PERIMETER OF THE TLD AREA, THE CONSTRUCTION AND REMOVAL OF PROTECTIVE MATTING SYSTEM ACCESS ROAD, TREATMENT OF INVASIVE SPECIES, PREPARING APPROPRIATE SITE GRADES, PLACING APPROVED TLD MATERIAL, INSTALLATION OF PLANTINGS, AND WETLAND CREATION SIGNS.

8. THE TLD AREA SHALL BE CONSTRUCTED FROM NORTH TO SOUTH.

9. THE CONTRACTOR SHALL UTILIZE CONVENTIONAL CONSTRUCTION EQUIPMENT EQUIPPED WITH EITHER LOW GROUND PRESSURE TREADS OR TIRES TO PLACE TLD MATERIALS.

10. THE FORMATION OF FINAL GRADE AND SUBSTRATE TO BE COMPLETED IN ACCORDANCE WITH ITEM NO. 0948015A TIDAL WETLAND CREATION (THIN LAYER DEPOSITION).

11. THE CONTRACTOR SHALL PLACE FIBER ROLLS AT THE LOCATIONS IDENTIFIED ON THE CONTRACT PLANS AND ENVIRONMENTAL PERMIT PLANS PRIOR TO AND IN CONJUNCTION WITH PLACEMENT OF THE TLD MATERIALS.

12. THE CONTRACTOR SHALL INSTALL STACKED FIBER ROLLS ON SUBSTRATE IN AREAS WITH WATER DEPTHS GREATER THAN 24" TO RETAIN DEPOSITION MATERIAL IN MITIGATION AREAS. SEE PMT-13 FOR DETAIL.

13. 14 DAYS IN ADVANCE OF THE INSTALLATION OF PROPOSED MITIGATION PLANTINGS, THE AREAS IDENTIFIED IN THE CONTRACT PLANS AND ENVIRONMENTAL PERMIT PLANS SHALL BE TREATED FOR INVASIVE SPECIES UNDER ITEM NO. 0952051A CONTROL AND REMOVAL OF INVASIVE VEGETATION. AFTER THE 14 DAYS, THE CONTRACTOR SHALL FLUSH CUT AND DISPOSE OF ALL INVASIVE SPECIES IN ACCORDANCE WITH THE SPECIFICATION. NO GROUND DISTURBANCE OR GRUBBING IS ALLOWED WITHIN THE INVASIVE SPECIES CONTROL AREA, WITH THE EXCEPTION OF INSTALLATION OF PROPOSED PLANTINGS.

14. SEE DRAWING NO. PMT-11 FOR PROPOSED PLANTINGS AND ADDITIONAL NOTES.

15. A WETLAND SCIENTIST FROM OEP WILL BE ON-SITE TO MONITOR AND DIRECT CONSTRUCTION OF THE TLD AREA. AT LEAST 10 DAYS PRIOR TO COMMENCEMENT OF CONSTRUCTION, THE CONTRACTOR SHALL ARRANGE FOR A MEETING WITH OEP WETLAND SCIENTIST, THROUGH THE ENGINEER TO REVIEW THE PLANNED WORK ACTIVITIES.

16. TEMPORARY PROTECTION MATTING SYSTEM ACCESS ROADS WITHIN THE TLD AREA ARE CONCEPTUAL ONLY. PRIOR TO COMMENCING ANY WORK, THE CONTRACTOR SHALL SUBMIT AN ACCESS PLAN TO OEP FOR REVIEW AND ACCEPTANCE PER ITEM NO. 0948015A TIDAL WETLAND CREATION (THIN LAYER DEPOSITION).

17. TEMPORARY PROTECTION MATTING SYSTEM ACCESS ROAD FROM THE STAGING AREA TO THE TLD AREA WAS DESIGNED TO AVOID IMPACTS TO ARCHAEOLOGICAL RESOURCES LOCATED WITHIN THE PROJECT AREA. ANY PROPOSED CHANGE IN THE LOCATION OF THE TEMPORARY CONSTRUCTION ACCESS WILL NEED TO BE SUBMITTED TO OEP, THROUGH THE ENGINEER, FOR REVIEW AND ACCEPTANCE. PRIOR TO THE PLACEMENT OF THE PROTECTIVE MATTING SYSTEM ACCESS ROAD, THE CONTRACTOR SHALL LAYDOWN GEOTEXTILE HIGH SURVIVABILITY AND GRANULAR FILL. NO GRANULAR FILL IS TO BE PLACED BENEATH THE GEOTEXTILE. REFER TO PMT-13.

18. NO HEAVY EQUIPMENT OPERATION OR STORAGE OR STAGING SHALL OCCUR EXCEPT UPON THE ADJOINING PAVED/GRAVEL SURFACES OR THE PROTECTIVE MATTING SYSTEM ACCESS ROAD.

19. TEMPORARY PROTECTIVE HIGH-VISIBILITY CONSTRUCTION FENCING SHALL BE PLACED ALONG THE FULL-LENGTH MARGINS OF THE TERRESTRIAL MATTING SYSTEM ACCESS ROAD.

20. THE TEMPORARY CONSTRUCTION ACCESS ROADS WITHIN THE TLD AREA SHALL BE LOCATED TO MINIMIZE IMPACTS TO EXISTING VEGETATION AND TO LIMIT COMPACTION OF EXISTING TIDAL WETLAND SUBSTRATE. THE TEMPORARY CONSTRUCTION ACCESS WITHIN THE TLD AREA SHALL BE REMOVED FROM NORTH TO SOUTH AS FINAL GRADE IS ESTABLISHED.

21. THE FINAL GRADE SHALL CONSIST OF TLD MATERIAL PER ITEM NO. 0948015A TIDAL WETLAND CREATION (THIN LAYER DEPOSITION) PLACED TO FINAL ELEVATION, AS IDENTIFIED ON THE CONTRACT PLANS AND ENVIRONMENTAL PERMIT PLANS.

22. CONTRACTOR SHALL TIE INTO EXISTING ADJACENT TIDAL WETLANDS AT A MAX SLOPE OF 5:1 WHEN PLACING THE TLD MATERIAL, AS SHOWN ON THE CONTRACT PLANS AND ENVIRONMENTAL PERMIT PLANS OR AS DIRECTED IN THE FIELD BY THE OEP WETLAND SCIENTIST.

23. AFTER FINAL GRADE IS ACHIEVED THROUGHOUT THE TLD AREA, A 14-DAY TIDAL FLUSH IS REQUIRED FOR THE OEP WETLAND SCIENTIST TO OBSERVE ANY SETTLING OF THE PLACED MATERIAL. IF DEEMED NECESSARY, THE CONTRACTOR SHALL PLACE ADDITIONAL TLD MATERIALS TO AN ELEVATION SATISFACTORY TO THE OEP WETLAND SCIENTIST.

24. EQUIPMENT SHALL NOT BE PERMITTED ON FINAL GRADE WITHIN THE TLD AREA, UNLESS ADDITIONAL TLD MATERIAL IS REQUIRED AFTER THE 14-DAY TIDAL FLUSH, OR AS DIRECTED BY THE OEP WETLAND SCIENTIST.

25. WETLAND MITIGATION SIGN NO. 31-5478 TO BE INSTALLED AT THE LOCATION AS DIRECTED BY THE OEP WETLAND SCIENTIST.

26. THE CONTRACTOR SHALL NOT, UNDER ANY CIRCUMSTANCES, DISCHARGE ANY SOIL, FILL OR DEBRIS INTO ANY PART OF THE ADJACENT WETLANDS OR WATERCOURSE THAT ARE NOT BEING DISTURBED BY CONSTRUCTION.

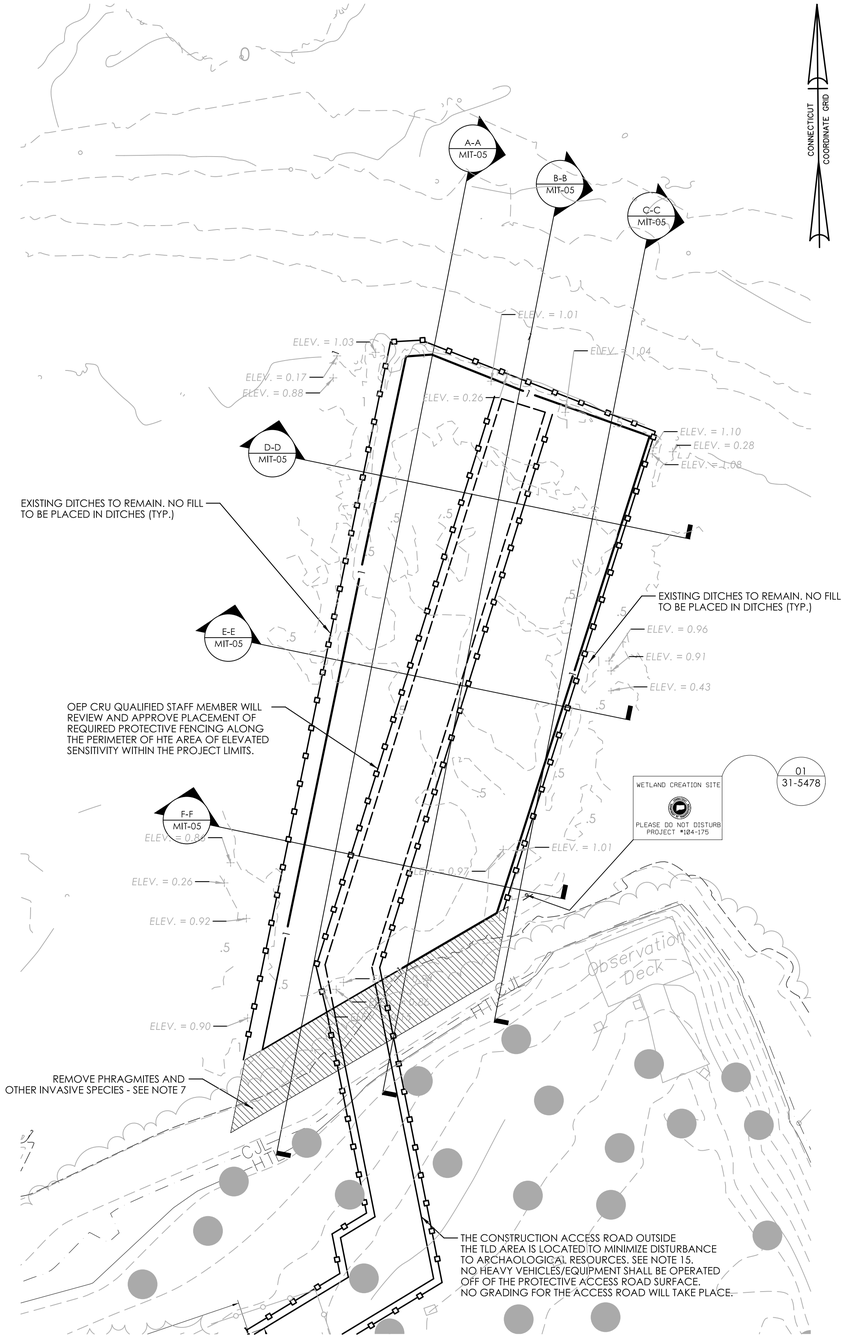
27. ALL DISTURBED AREAS OUTSIDE OF THE TLD AREA SHALL BE FULLY RESTORED TO THE ORIGINAL PRE-CONSTRUCTION CONDITIONS.

TIME-OF-YEAR BMP NOTE

ALL WORK BELOW THE HIGH TIDE LINE (ELEVATION 2.8') WITHIN THE THIN LAYER DEPOSITION AREA SHALL BE CONDUCTED ONLY BETWEEN DECEMBER 1st AND FEBRURARY 15th, INCLUSIVE.

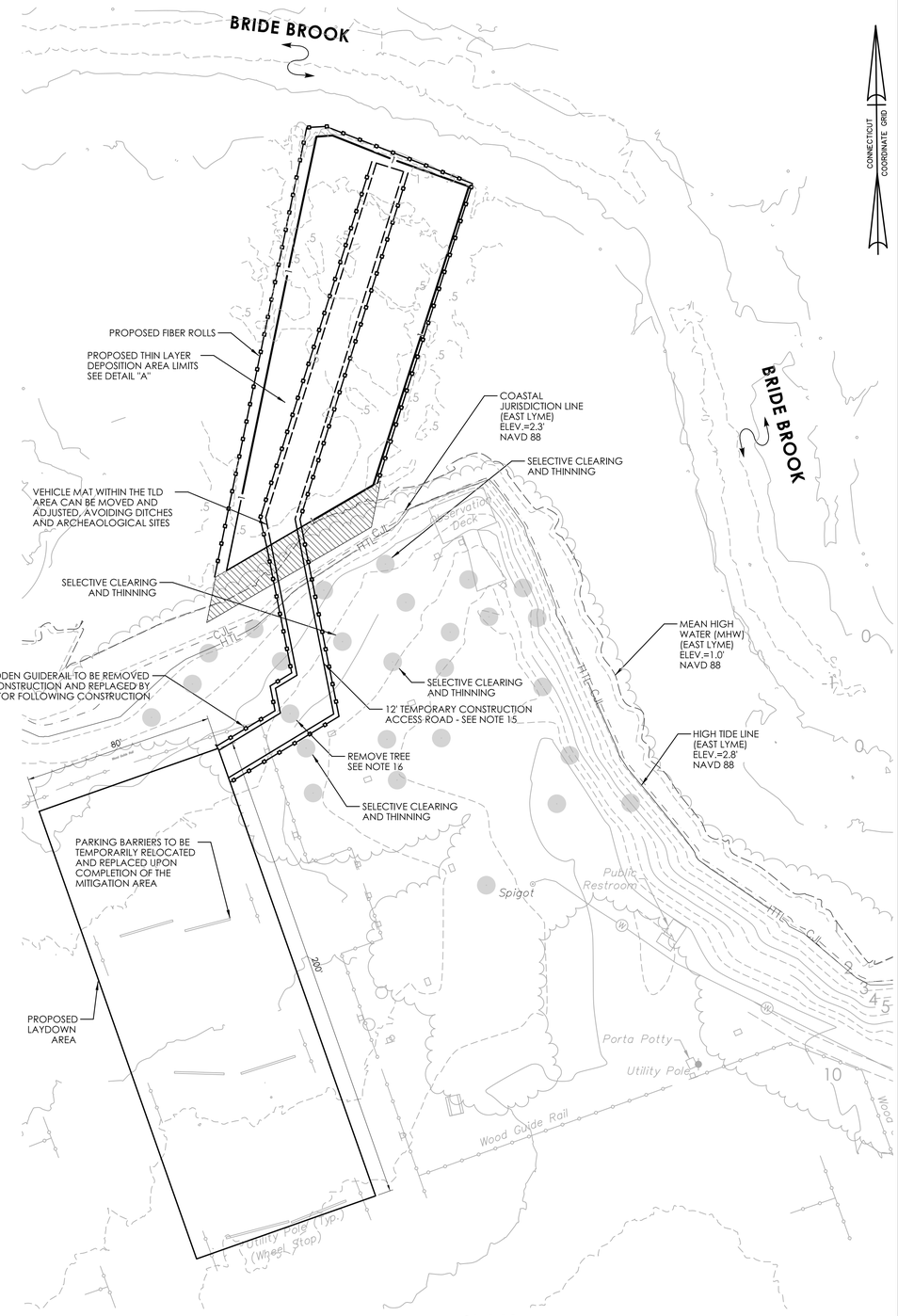
TIDAL ELEVATION TABLE

TIDAL TYPE	ELEVATION (FT)
HIGH TIDE LINE	2.8
COASTAL JURISDICTION LINE	2.3
MEAN HIGH WATER	1.0
MEAN LOW WATER	-2.1
MEAN LOW LOW WATER	-2.3



DETAIL "A"

SCALE: 1"=20'



PLAN

SCALE: 1"=30'

REV.	DATE	REVISION DESCRIPTION	SHEET NO.

THE INFORMATION, INCLUDING ESTIMATED QUANTITIES OF WORK, SHOWN ON THESE SHEETS IS BASED ON LIMITED INVESTIGATIONS BY THE STATE AND IS IN NO WAY WARRANTED TO INDICATE THE CONDITIONS OF ACTUAL QUANTITIES OF WORK WHICH WILL BE REQUIRED.

Plotted Date: 11/29/2023

DESIGNER/DRAFTER: S.PELLEGRINI
CHECKED BY: W. WOLF
SCALE AS NOTED

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

Filename: ...\ENVE_0104-0175_TLD_GradingPlan.dgn

SIGNATURE/ BLOCK:

PROJECT TITLE:
REPLACEMENT OF BRIDGE NO. 02713, ROUTE 156 OVER FOUR MILE RIVER

TOWN: OLD LYME EAST LYME

DRAWING TITLE: THIN LAYER DEPOSITION GRADING PLAN

PROJECT NO. 0104-0175
DRAWING NO. MIT-03
SHEET NO.

LEGEND

- PROPOSED FIBER ROLLS
- PROPOSED MARSH RESTORATION
- INVASIVE SPECIES CONTROL

NOTES

1. THE CONTRACTOR SHALL COORDINATE AND COMPLETE ALL WETLAND PLANTING ACTIVITIES AS OUTLINED BELOW DURING LOW TIDE.

2. PLANTING IN THE THIN LAYER DEPOSITION (TLD) AND TIDAL ENHANCEMENT AREAS SHALL BE DONE BETWEEN APRIL 15 AND JUNE 15.

3. BEFORE ANY WORK IS TO PROCEED IN THE TLD AREA OR TIDAL ENHANCEMENT AREA, THE CONTRACTOR SHALL ARRANGE, THROUGH THE ENGINEER, FOR A MEETING WITH AN ENVIRONMENTAL SCIENTIST FROM THE CTDOT OFFICE OF ENVIRONMENTAL PLANNING (OEP). THIS MEETING WILL BE SCHEDULED AT LEAST 10-DAYS PRIOR TO COMMENCEMENT OF WORK ACTIVITY DESCRIBED IN ITEM NO. 0948015A TIDAL WETLAND CREATION (THIN LAYER DEPOSITION).

4. REFER TO SHEET NO. PMT-10 FOR THE PROPOSED GRADING PLAN AND ADDITIONAL NOTES.

5. PRIOR TO PLANTING, AN ENVIRONMENTAL SCIENTIST FROM OEP SHALL INSPECT THE TLD AND TIDAL ENHANCEMENT AREAS TO DETERMINE IF THE SITE IS SUITABLE FOR PLANTING.

6. MACHINERY WILL NOT BE ALLOWED WITHIN THE TLD AND TIDAL ENHANCEMENT AREAS AT ANY TIME DURING OR AFTER PLANTING.

7. PLANTINGS ON THIS SHEET ARE TO BE PAID UNDER ITEM NO. 0949875A WETLAND PLANTINGS. ANY SUBSTITUTIONS TO THE WETLAND PLANTINGS SHALL BE SUBMITTED TO OEP FOR REVIEW AND ACCEPTANCE. FINAL REGULATORY APPROVAL WILL BE REQUIRED BEFORE ANY SUBSTITUTIONS ARE ACCEPTED.

8. ALL WETLAND PLANTINGS, UPON ACCEPTANCE, SHALL BE INSPECTED BY OEP'S ENVIRONMENTAL SCIENTIST PRIOR TO DELIVERY TO THE SITE.

9. ALL PLANT MATERIALS SHALL BE STRAIGHT SPECIES. NO VARIETIES OR CULTIVARS WILL BE ACCEPTED.

10. ALL PLANT MATERIAL SHALL BE NURSERY GRADE CONFORMING TO SECTION 3 OF THE AMERICAN STANDARD FOR NURSERY STOCK, MEETING THE MINIMUM REQUIREMENTS FOR CONTAINER SIZE, ROOT MASS AND NUMBER OF CANES.

11. WOOD CHIP MULCH WILL NOT BE ALLOWED WITHIN THE TLD AND TIDAL ENHANCEMENT AREAS.

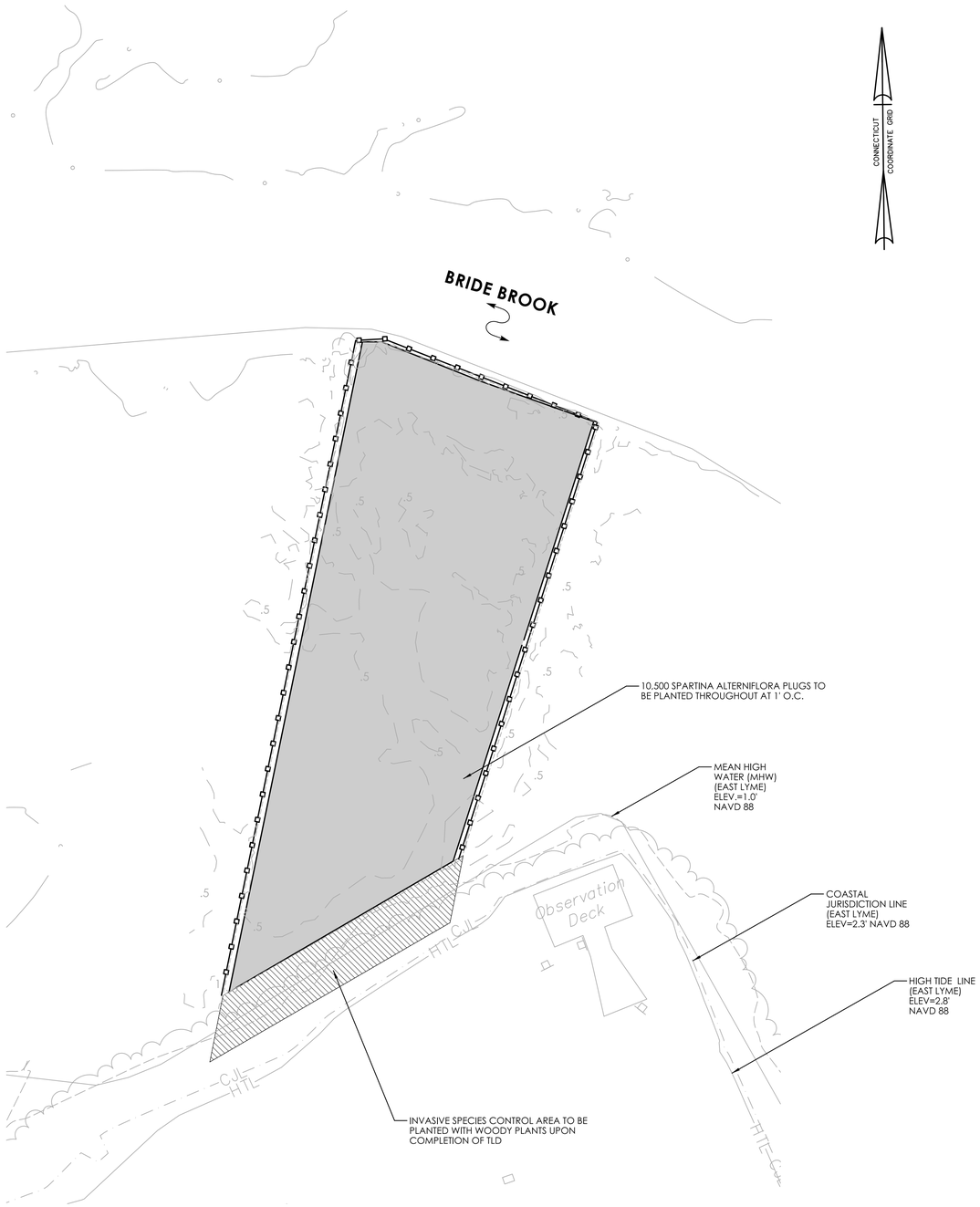
12. NO PLANTINGS OR SEEDINGS ARE TO BE PLACED IN MOWED OR MAINTAINED AREAS.

13. ALL PLANTINGS WITHIN THE TLD AND TIDAL ENHANCEMENT AREAS SHALL BE PLACED UNDER THE SUPERVISION OF OEP'S ENVIRONMENTAL SCIENTIST. THE CONTRACTOR SHALL SCHEDULE WITH OEP, THROUGH THE ENGINEER, 10-DAYS IN ADVANCE OF INSTALLATION OF ALL PROPOSED PLANTINGS AND SEEDING.

14. ALL AREAS ABOVE THE HIGH TIDE LINE (HTL) SHALL BE SEEDED WITH SHORELINE GRASS ESTABLISHMENT OR OTHER SEED MIXES AS NOTED ON THE CONTRACT PLANS AND ENVIRONMENTAL PERMIT PLANS.

15. OEP'S ENVIRONMENTAL SCIENTIST WILL CONDUCT ANNUAL INSPECTION OF INSTALLED WETLAND PLANTINGS FOR A PERIOD OF TWO (2) YEARS FOLLOWING COMPLETING OF INSTALLATION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REPLACEMENT OF ANY DEAD OR REJECTED PLANTS FOR A PERIOD OF TWO (2) YEARS, BASED ON OEP'S ANNUAL INSPECTION.

16. FOR THE ANNUAL WARRANTY PERIOD, THE CONTRACTOR SHALL SUBMIT FOR OEP'S REVIEW AND ACCEPTANCE ANY ADDITIONAL PLANTINGS REQUIRED. ADDITIONAL WETLAND PLANTINGS ARE SUBJECT TO ALL REQUIREMENTS, AS NOTED ABOVE.



PLAN

SCALE: 1" = 20'

TIDAL MITIGATION LANDSCAPE PLANT SCHEDULE

KEY	QUANTITY	BOTANICAL NAME	COMMON NAME	ROOT	SIZE	COMMENTS
	10,500	*SPARTINA ALTERNIFLORA*	SMOOTH CORDGRASS	PLUG	2" PLUG	UNIFORM, WELL DEVELOPED, 1' O.C. SPACING,
	12	*BACCHARIS HALIMIFOLIA*	GROUNDSEL TREE	B.B.	24"-36" HT.	5' O.C.
	12	*HIBISCUS MOSCHEUTOS*	CRIMSONEYED ROSEMALLOW	B.B.	18"-24" HT.	5' O.C.
	10	*IVA FRUTESCENS*	HIGH TIDE BUSH	B.B.	24"-36" HT.	5' O.C.
			SHORELINE GRASS ESTABLISHMENT			

TIDAL ELEVATION TABLE

TIDAL TYPE	ELEVATION (FT)
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COASTAL JURISDICTION LINE	2.3
MEAN HIGH WATER	1.0
MEAN LOW WATER	-2.1
MEAN LOW LOW WATER	-2.3

REV.	DATE	REVISION DESCRIPTION	SHEET NO.

THE INFORMATION, INCLUDING ESTIMATED QUANTITIES OF WORK, SHOWN ON THESE SHEETS IS BASED ON LIMITED INVESTIGATIONS BY THE STATE AND IS IN NO WAY WARRANTED TO INDICATE THE CONDITIONS OF ACTUAL QUANTITIES OF WORK WHICH WILL BE REQUIRED.

Plotted Date: 10/26/2023

DESIGNER/DRAFTER: S.PELLEGRINI
CHECKED BY: W. WOLF
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SCALE 1"=20'

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

Filename: ...\ENVE_0104-0175_TLD_PlantingPlan.dgn

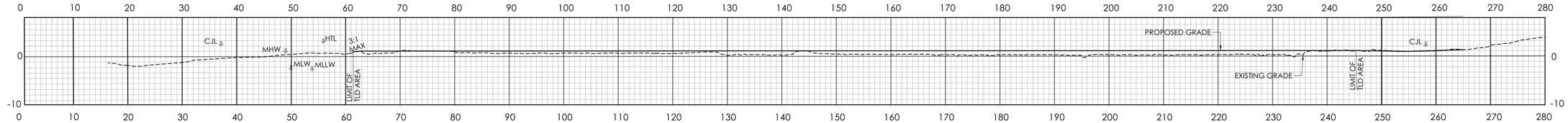
SIGNATURE/ BLOCK:

PROJECT TITLE:
REPLACEMENT OF BRIDGE NO. 02713, ROUTE 156 OVER FOUR MILE RIVER

TOWN:
OLD LYME EAST LYME

DRAWING TITLE:
THIN LAYER DEPOSITION PLANTING PLAN

PROJECT NO. 0104-0175
DRAWING NO. MIT-04
SHEET NO.



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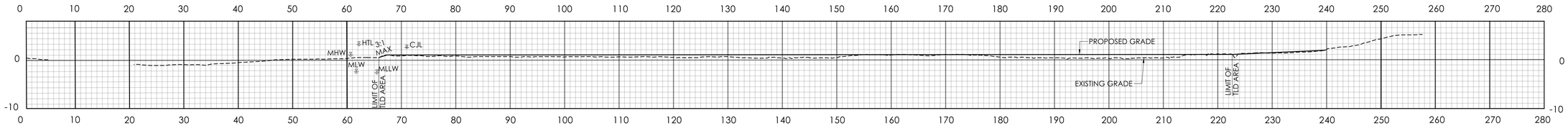

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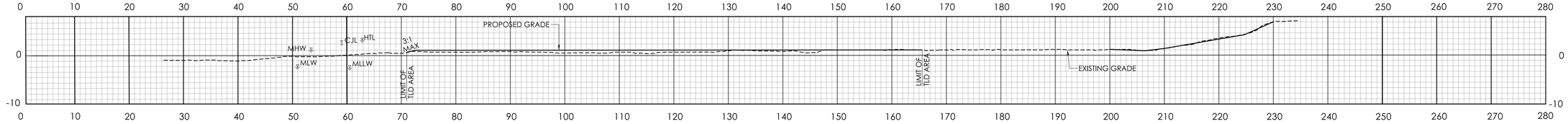

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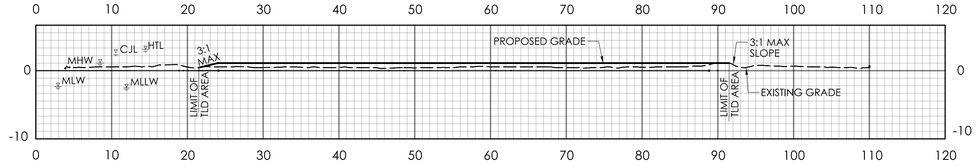

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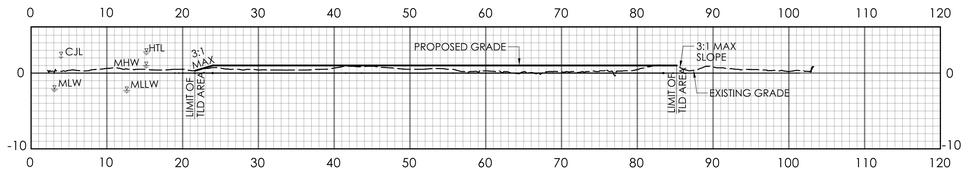

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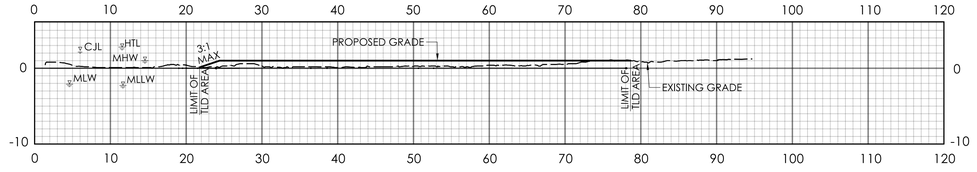

SECTION F-F

REV.	DATE	REVISION DESCRIPTION	SHEET NO.

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Plotted Date: 10/26/2023

DESIGNER/DRAFTER: S.PELLEGRINI

CHECKED BY: W. WOLF

SCALE IN FEET 0 10 20

SCALE 1"=10'

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

Filename: ...\ENVE_0104-017501_CrossSections.dgn

SIGNATURE/ BLOCK:

PROJECT TITLE:
REPLACEMENT OF BRIDGE NO. 02713, ROUTE 156 OVER FOUR MILE RIVER

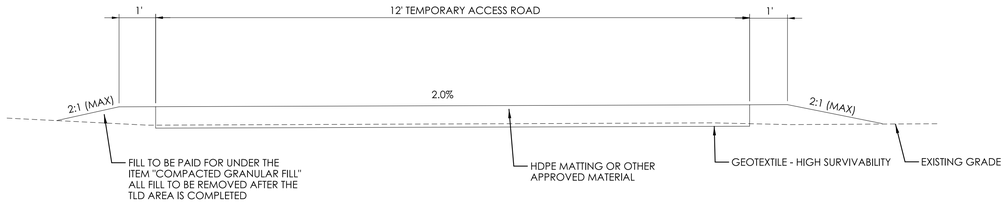
TOWN: OLD LYME / EAST LYME

DRAWING TITLE: THIN LAYER DEPOSITION CROSS SECTIONS

PROJECT NO. 0104-0175

DRAWING NO. MIT-05

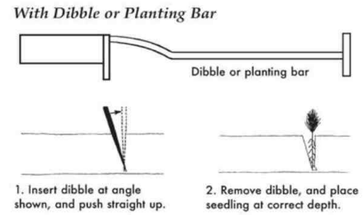
SHEET NO.



TEMPORARY ACCESS ROAD

SCALE: N.T.S.

The following illustration shows the proper hand planting technique:



PLUG PLANTING DETAIL

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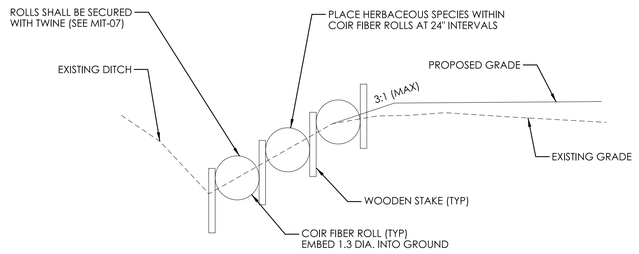

TYPICAL TLD TIE-IN SECTION

SCALE: N.T.S.

REV.	DATE	REVISION DESCRIPTION	SHEET NO.

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Plotted Date: 10/26/2023

DESIGNER/DRAFTER: S.PELLEGRINI

CHECKED BY: W. WOLF

SCALE AS NOTED

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

Filename: ...\MDS_0104-0175_TLD_Details.dgn

SIGNATURE/ BLOCK:

PROJECT TITLE: REPLACEMENT OF BRIDGE NO. 02713, ROUTE 156 OVER FOUR MILE RIVER

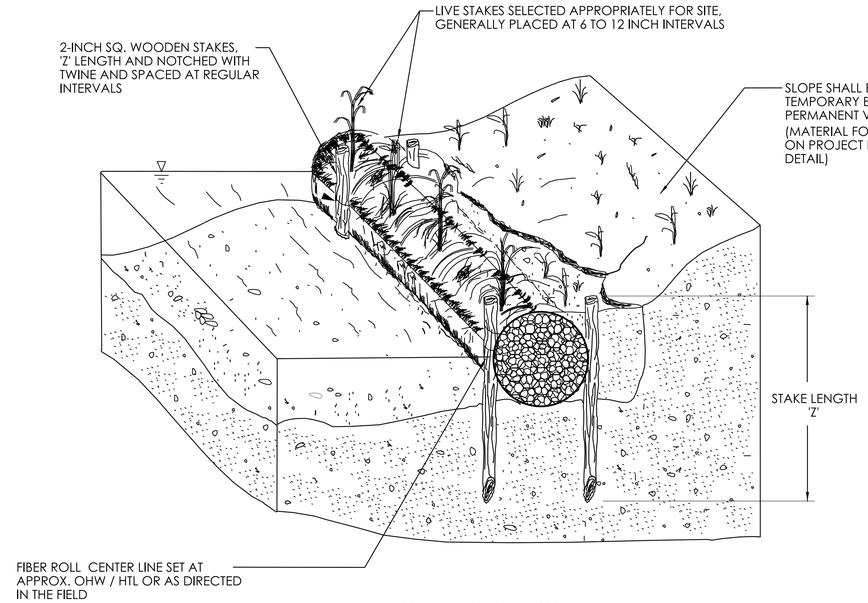
TOWN: OLD LYME EAST LYME

DRAWING TITLE: THIN LAYER DEPOSITION DETAILS

PROJECT NO. 0104-0175

DRAWING NO. MIT-06

SHEET NO.



VEGETATED FIBER ROLL
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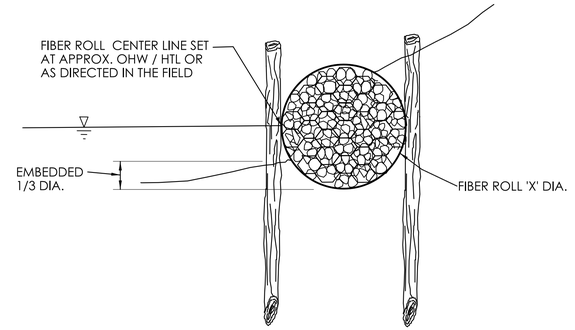
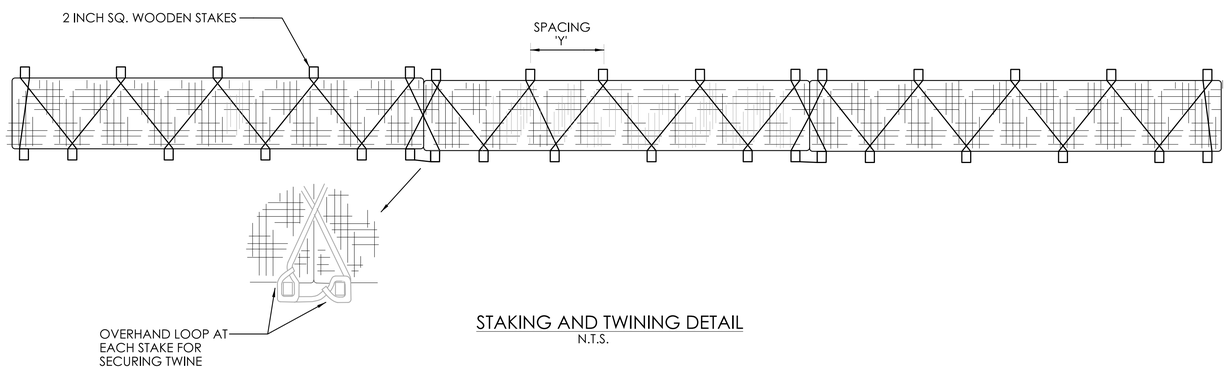


FIBER ROLL SECTION
N.T.S.

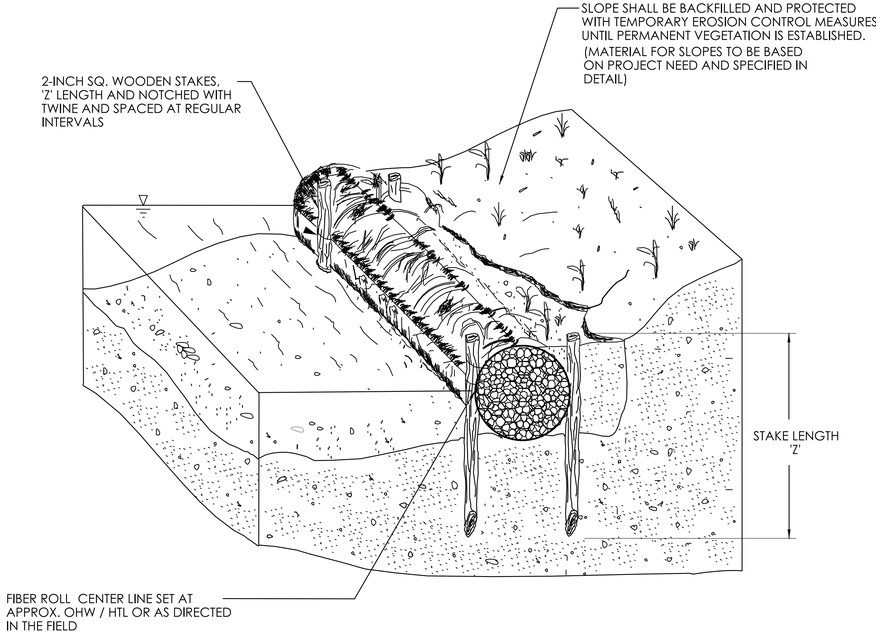
DIAMETER OF ROLL 'X'	WOODEN STAKE LENGTH 'Z'	STAKE SPACING 'Y'
20 INCHES	4 FT. MINIMUM	EVERY 2 FT.
16 INCHES	3 FT. MINIMUM	EVERY 2.5 FT.
12 INCHES	3 FT. MINIMUM	EVERY 3 FT.

TABLE FOR ANCHORING

NOTE:
PLACEMENT OF THE FIBER ROLLS SHALL BE DIRECTED IN THE FIELD BY THE ENGINEER OR THEIR AUTHORIZED DELEGATE. SEE SPECIAL PROVISION "FIBER ROLL."



STAKING AND TWINING DETAIL
N.T.S.



FIBER ROLL ALONG STREAMBANK
N.T.S.

REV.	DATE	REVISION DESCRIPTION	SHEET NO.

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Plotted Date: 10/26/2023

DESIGNER/DRAFTER: S.PELLEGRINI
CHECKED BY: W. WOLF
SCALE AS NOTED

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

Filename: ...\MDS_0104-0175_TLD_FiberRollDetails.dgn

SIGNATURE/ BLOCK:

PROJECT TITLE:
REPLACEMENT OF BRIDGE NO. 02713, ROUTE 156 OVER FOUR MILE RIVER

TOWN:
OLD LYME
EAST LYME

DRAWING TITLE:
THIN LAYER DEPOSITION FIBER ROLL DETAILS

PROJECT NO. 0104-0175
DRAWING NO. MIT-07
SHEET NO.

APPENDIX B – TIDAL WETLAND CREATION SPECIFICATION

DRAFT

Rev. 12/15/2023

ITEM #0948015A – TIDAL WETLAND CREATION (THIN LAYER DEPOSITION)

Description: The work under this item shall consist of construction of a tidal wetland area, tidal restoration area, and/or tidal enhancement area, collectively herein referred to as Thin Layer Deposition (TLD) area at the Site(s) identified on the Tidal Wetland Mitigation Plans. The work generally consists of furnishing TLD material and preparing appropriate Site grades under the direction of an Environmental Scientist from the Connecticut Department of Transportation's Office of Environmental Planning (OEP).

Materials: The TLD material must consist of no more than 25% sand by weight, not less than 25% organic material by weight, and not more than 40% organic material by weight. The Contractor shall test all TLD material and a Certified Test Report must be submitted to OEP for review and acceptance. TLD source material selected by the Contractor may include, but is not limited to, man-made soil, materials excavated from local marinas during maintenance activities around boat docks, channels and bulkhead areas, or beach replenishment material that is recovered from ocean substrate. Clean leaf compost is the preferred soil amendment to achieve the organic content criteria. If other soil amendments are more readily available than clean leaf compost they can be used to meet the requirement for organic content.

The soils must be analyzed by USDA-approved methodology for organic matter by loss-on-ignition of oven-dried samples dried at 105 degrees centigrade. The mineral fraction must be analyzed to determine weight percentage of sand, as determined after passing a 2-millimeter (mm) sieve. Sand particles are defined to be between 0.05 and 2.0 mm in diameter. Certified Materials Test results are to be submitted to OEP for approval. The soils must be free of seeds and roots of invasive species and inspected and approved by OEP prior to their application.

If soil must be supplemented with organic material, the following sources are acceptable but must meet the specification of TLD material described above:

a) **Compost:** Compost shall meet the requirements of **Subarticle M.13.06–Compost.**

b) **Peat:** Peat shall meet the requirements of **Subarticle M.13.07–Plant Materials: 13. Peat.** Peat material excavated from the Project Site may be substituted for commercially packaged peat, at the discretion of the Engineer, if the on-Site peat meets all the requirements of the specification.

The Contractor shall consider potential contaminant sources so as not to import hydrocarbons, metals or semi-volatile compounds. All TLD source material shall be obtained from previously permitted dredging activities, tested and evaluated for organic content, pH, sulfides and a range of potential contaminants that are commonly associated with dredge material.

The Certified Test Report for TLD source material from permitted dredging activities shall include the following:

1. Substrate shall have no less than 25% and no more than 40% percent organic material by weight and little to no cobbles (or larger size stone).
2. Substrate shall be composed of not more than 25% sand passing through > 200 sieve
3. Substrate shall not contain acid sulfate compounds to ensure soils are suitable for application to the mitigation. Acid sulfate soils with redox potential ranges between -200 and 600 mV may be utilized but must be treated with CaCO3 prior to application.
4. No hazardous or residual waste parameters must be exceeded for the compound list included in the wetland mitigation plan.

In addition to the above organic parameters testing, potential TLD source material shall be tested for acid sulfate compounds to ensure soils are suitable for application within the TLD area. Acid sulfate soils with redox potential ranges between -200 and 600 mV may be treated and used within the TLD area(s). Soils that contain low levels of acid sulfate may be treated prior to applying to TLD area(s) by mixing calcium carbonate (CaCO3) into the soil.

Construction Methods: An Environmental Scientist from the OEP will be on-Site to oversee and monitor construction of the TLD area(s) to ensure compliance with the Tidal Wetland Mitigation Plans.

The Contractor shall submit to OEP for review and acceptance a construction schedule and an outline of construction methodologies (called the Contractor's Mitigation Plan). The Plan shall outline the required work of the TLD area according to the general construction sequence and requirements outlined below. No work associated with the TLD area(s) shall commence until the OEP has reviewed and accepted the submittal.

The Contractor must schedule TLD activities to begin as soon as access allows and within the established time-of-year restriction of December 1 through February 15, inclusive. There shall be no inactive period of longer than 10 days between the beginning of the mitigation site preparation and the time when final grades are reached. When applicable, and when conditions warrant, placement of TLD material and final grading shall be completed during and near times of low tide. The installation and removal of temporary construction access, placement of fiber rolls, placement of TLD material, final grading, seeding and planting shall be scheduled so that planting will occur within the planting season according to Item #0949875A – Wetland Plantings.

The Contractor shall coordinate with the Environmental Scientist from OEP at least 10 days prior to the commencement of these activities to ensure that the Environmental Scientist is available.

The Contractor's Mitigation Plan submittal shall include, but not be limited to, the following work at the TLD area(s):

(a) Identification of proposed temporary stockpile and staging locations.

(b) Verification and delineation of established Limit of Disturbance as shown on the plans. Prior to placing of TLD material, the Contractor shall set reference stakes for Site-specific tidal data at the TLD area in order to establish appropriate elevations for final grading as directed by OEP staff.

1. Obtain (survey) elevation of existing tidal vegetation and stake in field as directed by OEP.
2. Stake CJL, HTL, MHW, MLW and other jurisdictional limits as required by the Project permits.

(c) Temporary sedimentation and erosion control measures to be installed.

(d) Removal of nuisance vegetation and all invasive plant species in accordance with Contract Item #0952051A – Control and Removal of Invasive Vegetation.

(e) Identification of clearing and construction limits of any required access road(s) . Construct access roads in a manner that minimizes disturbance to existing native vegetation and archaeological resources. No additional impacts shall occur to the existing tidal wetland vegetation or native upland vegetation other than the impacts depicted on the plans. Access roads are to be maintained throughout the duration of the Project and access road locations restored back to their original condition or as depicted on the plans.

(f) TLD Material, as specified above, shall be placed to meet the proposed final grade or as directed by an Environmental Scientist from OEP.

(g) Upon completion of final grades, the Site shall be exposed to tidal flushing for a minimum of 7 and a maximum of 14 calendar days to allow for settlement of the TLD material and to evaluate final grades. At the end of the first 7 calendar days, the TLD area will be evaluated by an Environmental Scientist from OEP and if deemed necessary, will direct the Contractor to place additional TLD material to ensure mitigation site success.

(h) Wetland plantings and seeding shall be installed in the spring immediately following achievement of final grades during the period of April 15 through June 15, inclusive. Wetland plantings, when applicable, and when conditions warrant shall be installed during and near times of low tide. Seeding shall only be placed above the HTL.

(i) Any substitutions to the plantings and/or seeding must be submitted to OEP for review and acceptance. Final regulatory approval will be required before any substitutions are accepted. The Contractor shall schedule with OEP, through the Engineer, 30-days in advance of installation of all proposed plantings and seeding.

(j) Restoration plan for stockpile and staging Site(s) and access roads at the TLD area(s) to their original condition or as depicted in the Mitigation Plan.

(k) Upon Site completion, clear the Site of any debris, rubbish, garbage, and other manmade litter.

(l) Provide post construction as-built plans of the TLD area signed and certified by a Professional Land Surveyor to OEP.

(m) Installation of tidal creation signs as directed by OEP.

Upon acceptance of the Contractor's Mitigation Plan submittal, the Contractor shall meet with the OEP Environmental Scientist in the field prior to on-Site mobilization to discuss work operations within the TLD area(s).

Method of Measurement: Tidal Wetland Creation (Thin Layer Deposition) will be measured for payment by the number of square feet of TLD area(s) graded, covered with TLD material and accepted.

Basis of Payment: This work will be paid for at the Contract unit price per square foot for "Tidal Wetland Creation (Thin Layer Deposition)" within the TLD area(s) complete in place, including all materials, equipment, maintenance, tools, labor, and work incidental thereto.

The unit price shall also include: survey and staking of reference elevations and work associated with maintaining the field stakes for the duration of construction to the point of acceptance of the Site by OEP; testing, mixing, and providing TLD material; restoring stockpile and staging Site(s); and, removing and disposing of debris, garbage and litter.

The cost of installing and removing sedimentation and erosion controls, including sedimentation control systems, anti-tracking pad and coir/fiber rolls will be paid for under their respective Contract items.

The installation, maintenance, and removal/restoration of access roads will be paid under Item #0202590A – Protective Matting System Access Road.

The cost of all excavation will be paid under Earth Excavation.

The cost of all plantings will be paid under Item #0949875A – Wetland Plantings.

The cost of all seeding will be paid for under their respective Contract items as shown in the plans.

The cost of installing wetland creation signs (Sign #31-5478) will be paid for under Contract Item #1208931A – Sign Face – Sheet Aluminum (Type IX Retroreflective Sheeting).

The cost of removing invasive species will be paid for under the Contract Item #0952051A - Control and Removal of Invasive Vegetation.

Pay Item	Pay Unit
Tidal Wetland Creation (Thin Layer Deposition)	s.f.

APPENDIX C – WETLAND PLANTINGS SPECIFICATION

ITEM #0949875A – WETLAND PLANTINGS

Amend Section 9.49 as follows ***for Thin Layer Deposition Area(s) only****:*

Article 9.49.01—Description: *Add the following:*

Work under this item shall also include furnishing, installing, trees, shrubs and herbaceous stock of the type and size indicated in the Tidal Mitigation Landscape Plant Schedule on the Thin Layer Deposition Planting Plan herein referred to as Thin Layer Deposition (TLD) area(s) and in the Permit Planting Items on the Permit Planting Plan (Bridge No. 02713). Work in the TLD area(s) and areas identified on the Permit Planting Plan (Bridge No. 02713) will be performed under the direction of an Environmental Scientist from the Connecticut Department of Transportation's Office of Environmental Planning (OEP).

Article 9.49.02—Materials: *Add the following:*

The trees, shrubs and herbaceous stock to be planted within the TLD area(s) and planting area at Bridge No. 02713 must be native varieties of those species listed in the Tidal Mitigation Landscape Plant Schedule as shown on the Thin Layer Deposition Planting Plan and in the Permit Planting Items on the Permit Planting Plan (Bridge No. 02713). OEP's Environmental Scientist must review and accept any plant species substitutions from the Thin Layer Deposition Planting Plan and/or Permit Planting Plan (Bridge 02713) a minimum of 30 days in advance and receive regulatory approval of any substitutions prior to plant inspection by OEP's Environmental Scientist and delivery to the Site. If substitutions are proposed, the Contractor must provide OEP with documentation from 5 wholesale plant material sources of supply indicating that the species type or size listed in the Tidal Mitigation Landscape Plant Schedule and or Permit Planting Items are not available. No cultivars or hybrids of any species will be allowed as a substitution.

Article 9.49.03—Construction Methods:

1. **Planting Season:** *Add the following:*

All Plant Material to be Installed (Including Deciduous and Evergreen)

For TLD area(s), installation of all trees, shrubs, and herbaceous plantings must be initiated in the spring immediately following achievement of final grades during the period of April 15 through June 15, inclusive. Wetland plantings, when applicable, and when conditions warrant shall be installed during and near times of low tide.

For the planting area(s) identified on the Permit Planting Plan (Bridge No. 02713) all plant material must be installed during the period of April 15 and June 15, inclusive or August 15 and October 15, inclusive. Installation of all trees, shrubs, and herbaceous plantings must be initiated after final grade of the Site has settled and has been evaluated for tidal flows during a specified time period provided by the Environmental Scientist. Upon OEP review and evaluation of tidal

conditions, planting must be performed and completed within the specified period, or as otherwise directed by the Environmental Scientist.

3. Field Coordination: *Add the following:*

For TLD area(s) and areas identified on the Permit Planting Plan (Bridge No. 02713), a schedule for planting must be submitted by the Contractor for review and acceptance by OEP's Environmental Scientist at least 30 days prior to planting. Plant locations shall be as generally depicted in the Thin Layer Deposition Planting Plan for the TLD area(s) and areas identified on the Permit Planting Plan (Bridge No. 02713) or as directed by the Environmental Scientist.

4. Planting Layout: *Add the following:*

For the TLD area(s) and areas identified on the Permit Planting Plan (Bridge No. 02713) the Contractor shall review Site conditions and inform the Environmental Scientist of any conflicts. The Contractor shall coordinate planting layout with the Environmental Scientist for review and acceptance.

5. Preparation of Planting Areas: *Add the following:*

For the TLD area(s) and areas identified on the Permit Planting Plan (Bridge No. 02713), the planting areas shall be prepared by use of approved tools or machinery. All undesirable invasive species shall be removed in accordance with the requirements detailed in the Control and Removal of Invasive Vegetation special provision. All undesirable material shall be removed from the Site and disposed of by the Contractor in a manner satisfactory to the Engineer.

6. Pit Excavation: *Add the following:*

Plant pits within the TLD area(s) must be hand dug. Machinery may be allowed for use in limited areas, with prior review and acceptance by OEP's Environmental Scientist.

7. Setting Plants: *Add the following:*

d. Setting of Herbaceous Stock in the TLD areas and areas identified on the Permit Planting Plan (Bridge No. 02713): Plantings shall be installed as shown on the Thin Layer Deposition Planting Plan and areas identified on the Permit Planting Plan (Bridge No. 02713) according to their wetland indicator status or as directed by OEP's Environmental Scientist.

e. Setting of Trees and Shrubs in the TLD areas and areas identified on the Permit Planting Plan (Bridge No. 02713): Trees and shrubs shall be installed as shown on the Thin Layer Deposition Planting Plan and areas identified on the Permit Planting Plan (Bridge No. 02713) or as directed by OEP's Environmental Scientist. All trees and shrubs in the TLD area(s) and areas identified on the Permit Planting Plan (Bridge No. 02713) shall be set so that they are level with the microtopography within the immediate area.

f. All plants shall be set manually, and any relocated plants shall be placed in locations with suitable hydrology and soils, and where appropriate structural context with other plants can be maintained, as determined by OEP's Environmental Scientist.

8. Fertilizing: *Add the following:*

Fertilizing within the TLD area(s) and areas identified on the Permit Planting Plan (Bridge No. 02713) is strictly prohibited.

9. Watering: *Add the following*

Watering within the TLD area(s) and areas identified on the Permit Planting Plan (Bridge No. 02713) is strictly prohibited.

10. Guying and Staking: *Add the following:*

For TLD area(s) and areas identified on the Permit Planting Plan (Bridge No. 02713), the guying and staking within coastal areas may occur above the higher elevation between the Coastal Jurisdictional Limit (CJL) or High Tide Limit (HTL) or as directed by the Environmental Scientist to stabilize plantings due to tidal flows.

11. Pruning: *Delete Section.*

12. Spraying: *Delete Section.*

13. Mulching: *Add the following:*

For TLD area(s) and areas identified on the Permit Planting Plan (Bridge No. 02713), the mulching within coastal areas may occur above the higher elevation between the Coastal Jurisdictional Limit (CJL) or High Tide Limit (HTL) or as directed by the Environmental Scientist.

15. One-Year Establishment Period: *Add the following:*

For the TLD area(s) and areas identified on the Permit Planting Plan (Bridge No. 02713), a **two-year** review will be required from the date of initial plant installation within the areas identified on the Thin Layer Deposition Planting Plan and Permit Planting Plan (Bridge No. 02713). The Environmental Scientist will, annually, identify, list and quantify dead or rejected plants. The Contractor shall furnish and install new plants as directed by the Environmental Scientist. Dead or rejected plants need not be removed from TLD area(s) and areas identified on the Permit Planting Plan (Bridge No. 02713).

Add the following at the end of Article 9.49.03:

Article 9.49.04—Method of Measurement:

Add the following ***for Thin Layer Deposition Area(s)*** *only:*

Wetland Plantings will be measured for payment as a Contract lump sum item.

Article 9.49.05—Basis of Payment: *Add the following:*

Wetland Plantings will be paid for at the Contract lump sum price for "Wetland Plantings," which price shall include all materials, tools, equipment, labor and work incidental thereto. The Contractor shall submit to the Department a Schedule of payment values for review and comment prior to payment.

Replacement of dead or rejected plants required within two years of the initial planting installation will not be measured for payment. OEP's Environmental Scientist will inspect the wetland plants annually, for two years after initial installation, and determine the number and types of replacement plants to be provided. Forty percent (40%) of the Contract value for this item will be withheld until final acceptance of the wetland plantings following the two-year replacement period.

Pay Item	Pay Unit
Wetland Plantings	l.s.

APPENDIX D – CONTROL AND REMOVAL OF INVASIVE VEGETATION SPECIFICATION

DRAFT

Rev. 06/05/23

ITEM #0952051A – CONTROL AND REMOVAL OF INVASIVE VEGETATION

Description: This work shall include the development and implementation of an Invasive Vegetation Removal Plan (IVRP) to outline the materials, labor, and equipment the Contractor plans to use for the complete removal and treatment of the invasive vegetation within the areas identified on the Permit Planting Plans (Bridge No. 06896 and Bridge No. 02713) and the Thin Layer Deposition Planting Plan shown on the Contract Plans or the Environmental Permit Plans. The work shall also include the identification, removal, and off-Site disposal of unwanted vegetation as indicated on the plan sheets, permits or as directed by the Environmental Scientist from the Office of Environmental Planning (OEP).

All invasive vegetation listed on the following websites will be subject to eradication:

- Connecticut Invasive Plant Working Group (CIPWG) Invasive Plants Council (http://cipwg.uconn.edu/invasive_plant_list/)
- US Army Corps of Engineers (ACOE) New England District Compensatory Mitigation Guidance Appendix K (http://www.nae.usace.army.mil/portals/74/docs/regulatory/Mitigation/2016_New_England_Compensatory_Mitigation_Guidance.pdf)

All vegetation designated for removal shall be removed in its entirety in accordance with the IVRP submitted by the Contractor, through the Engineer, to OEP for review and acceptance. The use of herbicides will not be permitted between the dates of October 15 and April 15. These dates may be changed under the direction of OEP's Environmental Scientist or their approved delegate, based on the given yearly seasonal weather patterns.

Materials: All herbicides shall be registered for the species being treated and shall be formulated as applicable for target-species foliar treatment, cut surface, or injection applications. Where work in or immediately adjacent to wetlands is necessary, the product label(s) for any chemical/adjuvant formulation applied must indicate that the formulation is approved for aquatic environments.

Construction Methods:

1. Thin Layer Deposition Planting Plan: Within the Thin Layer Deposition (TLD) area, no ground disturbance or grubbing is permitted at any time throughout the duration of the project. The invasive vegetation within the TLD area shall be treated between October 15 and April 14 by flush cutting and paid under Clearing and Grubbing. The invasive vegetation within the TLD area shall be treated with herbicide between April 15 and June 15. Herbicide is to take root for 7-10 days. After the 7–10-day period and review of the areas by the Environmental Scientist, the Contractor shall manually flush cut any invasive vegetation present as close to the existing grade as possible.

2. Permit Planting Plans (Bridge No. 06896 and Bridge No. 02713): Removal of invasive vegetation between October 15 and April 14 shall be done by mechanical means only to a depth approved by OEP's Environmental Scientist to ensure complete removal of the entire root system with the exception of phragmites which shall be manually flush cut as close to the

existing grade as possible.

The invasive vegetation within the Permit Planting Plan areas shall be treated with herbicide between April 15 and October 14. Herbicide is to take root for 7-10 days. After the 7-10 day period and review of the areas by the Environmental Scientist, the Contractor shall completely remove the entire root system of the invasive species with the exception of phragmites which shall be manually flush cut as close to the existing grade as possible.

3. IVRP: Prior to any ground disturbance within the Project limits, the Contractor shall submit an IVRP, through the Engineer, to OEP's Environmental Scientist for review and acceptance. If any part of the plan is not accepted, the Contractor shall promptly make any necessary changes and re-submit the entire IVRP for acceptance. The entire plan must be accepted in writing prior to beginning any work on-Site.

The IVRP for the Thin Layer Deposition Planting Plan and Permit Planting Plans (Bridge No. 06896 and Bridge No. 02713) shall include separate schedules and outlines with the following information:

1) The Contractor's methods of determining invasive vegetation surveyed limits, including:
    a. Stake out the limits prior to the initial treatment
    b. Maintain a record of the staked limits throughout the life of the Contract
2) Identification of the type(s) of invasive species present within the field surveyed limits
3) A marked-up plan sheet outlining the invasive species limits and identifying the types of invasive species present within those limits and total square yards of proposed removal
4) For each species present on-Site, the following shall be described:
    a. Methods to eradicate specific invasive plant species for the life of the Contract and shall include the 2-Year Control and Removal of Invasive Vegetation Warranty Period eradication methods for each plant species
    b. Types and concentrations of any herbicides to be used, including any adjuvants, SDS sheets, types of tools or machinery to be used
    c. Schedules showing dates and eradication methods for life of the Contract including the 2-Year Control and Removal of Invasive Vegetation Warranty Period
5) All invasive species are considered controlled materials and are to be taken off-Site to an approved disposal facility. For disposal methods:
    a. Provide address of location, current permits / letters from the town authorizing such activity and a Site map (complete with regulated areas)
    b. Invasive plants shall not be buried on-Site
6) Proof of CT DEEP licensure for herbicide application
7) A description of safety equipment required
8) Procedures for handling chemical spills

No equipment or vehicles to complete the work will be permitted within the TLD area. Treatment within the TLD area shall be done manually. Any equipment used to process invasive vegetation must be cleaned prior to further use.

Any invasive species control and removal work performed throughout the duration of the Contract that causes damage or soil disturbance shall be repaired at the Contractor's expense within 7 days. It is the Contractor's responsibility to identify additional areas of concern for invasive vegetation within the limits of the Project, notify the Engineer, and to amend the IVRP. Any amendments to the IVRP shall be submitted, through the Engineer, to OEP's Environmental Scientist for review and acceptance. The Contractor shall be responsible to identify invasive vegetation at all times of the year and to prepare a plan for its removal without assistance.

Herbicide applications will not be permitted during any rain event or during windy conditions. Broadcast or uncontrolled spray application will not be permitted and care must be taken to avoid contacting non-target native species. If any non-target native species to remain within the Project limits are inadvertently treated with herbicide and perish, the Contractor will be responsible to replace in-kind species at no cost to the State.

Remove all twining vines in treetops to the greatest extent possible without damaging the branches of the supporting desired native vegetation. Cut and remove vines overtopping tree canopies to the extent practical. Climbing spikes will not be permitted for aerial work.

The Contractor shall also:

1) Maintain the labels for herbicides being used in his/her possession
2) Conduct all herbicide formulations and applications, including the addition of appropriate surfactants and other adjuvants, in strict conformance with the manufacturer's recommendation and per requirements of regulatory agencies
3) Maintain a written record of herbicide application, including the formulation, concentration, area treated, and date for each application. The records are to be provided by the commercial applicator and submitted to the Engineer following each treatment

Wherever removal operations result in exposed soils, disturbed areas shall be vegetatively stabilized with the appropriate seed mix, topsoil and placed above the CJL or as directed by OEP's Environmental Scientist.

Once the IVRP is accepted, a field review shall be scheduled by the Contractor, through the Engineer to review the limits of invasive species removal (surveyed and flagged by the Contactor prior to the meeting), the specific species required to be removed, and the Contractor's submitted IVRP with OEP's Environmental Scientist. At this time, OEP's Environmental Scientist may identify additional invasive species or designate additional areas for removal that are not included with the Contractor's accepted IVRP.

If changes are required to the accepted IVRP during the life of the Contract, these changes shall be documented by the Contractor and resubmitted, through the Engineer, to OEP's Environmental Scientist for review and acceptance a minimum of 10 days prior to beginning of the additional work associated with the proposed changes. The Contractor shall provide a 10-day work notice to OEP's Environmental Scientist, through the Engineer, prior to proceeding with each treatment.

4. Invasive Treatment: 2-Year Control and Removal of Invasive Vegetation Warranty Period: A two-year warranty to treat invasive species at all Sites will be required. The dates for the annual warranty invasive species treatment shall be scheduled to be specific for each Site that was treated the previous year. The annual warranty for invasive species treatment shall occur within the optimal growing season between April 15 and October 14. Only one treatment will be required annually for the two-year warranty. Annual warranty treatment of invasive species, between October 15 and April 14 is not permitted.

Method of Measurement: This work will be measured for payment by the number of square yards of invasive vegetation identified, surveyed, treated and removed, as required, including any required re-treatment of any regrowth or new growth. No additional payment will be made for subsequent treatments. The area for removal will be surveyed and flagged prior to treatment and measured. After a review of the surveyed limits, OEP's Environmental Scientist may designate additional areas for removal that are not shown on the plans. These additional areas will be measured for payment and included as part of the Contract work.

Basis of Payment: This work will be paid for at the Contract unit price per square yard for "Control and Removal of Invasive Vegetation." This payment shall include all labor, surveys, materials, tools, and equipment necessary for limits of the invasive area(s); maintenance of the limits throughout the Project; species identification; and cutting, treating, re-treating, removal, and off-Site disposal of designated invasive plant material. Off-Site disposal of residue shall include the loading, transport, dumping, and fees associated with legal off-Site disposal.

- Upon acceptance of the required IVRP, the Contractor will receive a payment equal to 20% of the estimated Contract value
- Upon successful completion of the treatment period in the final year of the Contract as determined during the Site review by the Engineer, the Contractor will receive a payment equal to 40%
- Upon successful completion of the 2-Year Control and Removal of Invasive Vegetation Warranty Period covering all treated Sites on the Project, the Contractor will receive a final payment equal to 40%

Vegetative stabilization of disturbed areas will be paid for under the respective Contract Items: "Turf Establishment," "Wetland Grass Establishment," "Conservation Seeding for Slopes," "Floodplain Establishment," "Wildflower Establishment," or "Shoreline Grass Establishment."

Pay Item	Pay Unit
Control and Removal of Invasive Vegetation	s.y.