TOWN OF LEDYARD
CONNECTICUT

741 Colonel Ledyard Highway
Ledyard, Connecticut 06339

Inland Wetland and Water Courses Commission

~ AGENDA ~

Chairman
Justin DeBrodt

Regular Meeting

Tuesday, July 11, 2023 **7:00 PM** **Town Hall Annex Meeting Room -Hybrid Format**

REMOTE MEETING INFORMATION

Town Hall Annex Meeting Room

Join Zoom Meeting
https://us06web.zoom.us/j/89934593690?pwd=dG1GbnJHZmxKd3JXQUozcURneVlNZz09

Meeting ID: 899 3459 3690
Passcode: 865614

I. CALL TO ORDER

II. ROLL CALL

III. CITIZENS COMMENTS

IV. OLD BUSINESS

A. Application IWWC#23-2URA of Gales Ferry Intermodal LLC, 549 South Street, Quincy, MA 02169, for activity in the upland review area at the Gales Ferry Intermodal LLC property, 1761 CT Route 12, Ledyard, CT 06339 in conjunction with aggregate removal and site preparation for the creation of building locations to accommodate the siting of future industrial buildings (mixed-use / industrial).

Attachments: Exhibit #1 - Application, Authorization
Exhibit #2 - Project Narrative
Exhibit #3 - Loureiro Plan Set
Exhibit #5 - Abutters List
Exhibit #4 - REMA Wetland Assessment Report
Exhibit #12 - Extension Request from H. Heller
Exhibit #11 - Stony Brook Farm Example from G. Logan
Exhibit #10 - NewMitigation-6-1-23
Exhibit #9 - Allyn's Pt compost area permit and regs
Exhibit #8 - 2015 - 2022 Summary Analytical only for Latex Landfill (1)
Exhibit #7 Industrial Site Prep_Civil Plan Set
Exhibit #6 - Narrative Revised 6.6.23
Exhibit #14 - Mitigation Area Map
Exhibit #13 - Revised Site Plan

B. Application IWWC#23-4SITE of B+R Holding Company LLC, of 1358 Baldwin Hill Road, Gales Ferry, CT 06335 for processing of earth materials and removal of ledge at 1340 Baldwin Hill Road, Gales Ferry, CT 06335.

Attachments: IWWC#23-4SITE Application
IWWC#23-4SITE Plan Set
1340 Baldwin Hill - Updated Plan July 11

V. NEW BUSINESS

VI. REPORTS

A. Wetland Enforcement Official Report

Attachments: Wetlands Report for July 11, 2023

VII. APPROVAL OF MINUTES

A. Draft Meeting Minutes - June 7, 2023

Attachments: IWWC June 6 Minutes

VIII. MEETING REVIEW

IX. ADJOURNMENT

File #: 23-1468 **Agenda Date:** 5/2/2023 **Agenda #:** A.

LAND USE APPLICATION

Subject/Application:
Application IWWC#23-2URA of Gales Ferry Intermodal LLC, 549 South Street, Quincy, MA 02169, for activity in the upland review area at the Gales Ferry Intermodal LLC property, 1761 CT Route 12, Ledyard, CT 06339 in conjunction with aggregate removal and site preparation for the creation of building locations to accommodate the siting of future industrial buildings (mixed-use / industrial).

Background:
(type text here)

Land Use Director/Town Planner:
(type text here)

Exhibit #1

Street No./ Name:

TOWN OF LEDYARD
INLAND WETLANDS AND WATERCOURSES COMMISSION (IWWC)
APPLICATION FOR PERMIT (Or Commission ruling that a permit is not needed)

Application No. IWWC#23-2URA
Receipt Date 4/3/23

Date Submitted _____

Applicant/Agent Gales Ferry Intermodal, LLC/Heller, Heller & McCoy
Owner (if different) Gales Ferry Intermodal, LLC

Address 549 South Street, Quincy, MA 02169
Address of Owner 549 South Street, Quincy, MA 02169

Phones (781) 789-8757 / (Alan Perrault) cell
Phone (781) 789-8757 (Alan Perrault)

- **I have received information on the Army Corps of Engineers permit procedure.**
- **I have read and have included all the application and site plan requirements in Section 7 of the IWWC Regulations**

By: GALES FERRY INTERMODAL, LLC
Harry B. Heller, its Agent Signature of Applicant/ Agent

Location of Property 1761 and 1737 Connecticut Route 12

Tax Assessor's Map No. 61
Zoning District I

Written Description of Proposed Activity Upland review area activities in conjunction with aggregate removal and site preparation for the creation of building locations to accommodate the siting of future industrial buildings.

(LRC)

Proposed Erosion/ Sediment Control Measures: See site plan and narrative submitted with this application.

Total Area of Site 165 Acres +/-
Total Area of Wetlands per Official Inventory Map _____

Amount of Fill, in Cubic Yards N/A
Disturbed Area, in Square Feet 1,700 or in Acres 0.04

Area Increase/Decrease in Wetlands 0 (For Map Amendment Only*)

Soil Types from USDA Soil Survey Hinckley (HkD), Hollis (HpD), Hollis (HrC) Rock Outcrop (Rp), Udorthents (Ud), Ridgbury, Leicester, Whitman (Rn)

General Description of Vegetative Cover Disturbed industrial complex, rock outcrops and wooded.

Name and Address of Adjacent Property Owners
See attached.

Anticipated Start Date ** Completion Date 7 years +/-
**Upon receipt of all applicable approvals

List previous IWWC application #'s Unknown

IWW Commission Disposition: IWWC Regulations; Section _____ Classification _____

_____

_____ Signature of Chair

FEE: 200 + **$60.00 State Fee =** 260 **DATE PAID** 4/3/23 **RECEIPT #** 760145

P:\Zoning\W_Application_7-1-13.doc

Check #3363

AUTHORIZATION

Gales Ferry Intermodal, LLC, hereby authorizes the law firm of Heller, Heller & McCoy to submit an application, on its behalf, to the Town of Ledyard Inland Wetlands and Watercourses Commission for a permit to conduct regulated activities in conjunction with a proposed site preparation application for the removal of aggregate and site regrading in conjunction with the preparation of an industrial property for future industrial development in accordance with a site plan entitled "Gales Ferry Intermodal Industrial Site Preparation Plans 1761 Route 12 Gales Ferry, CT 06335 March 30, 2023 Property Owner / Applicant: Gales Ferry Intermodal LLC 549 South Street Quincy, MA 02169 Prepared By: Engineer: Loureiro Engineering Associates, Inc. 100 Northwest Drive · Plainville, Connecticut 06062 Phone: 860-747-6181 · Fax: 860-747-8822".

Gales Ferry Intermodal, LLC hereby further authorizes the law firm of Heller, Heller & McCoy, the engineering firm of Loureiro Engineering Associates, Inc., the wetland consulting firm of REMA Ecological Services, LLC and GEODesign, Inc. to represent its interests in all proceedings before the Town of Ledyard Inland Wetlands and Watercourses Commission with respect to said permit application.

Dated at Quincy, Massachusetts this 29th day of March, 2023.

GALES FERRY INTERMODAL, LLC

By: Alan Perrault

Alan Perrault, its Authorized Agent

HELLER, HELLER & McCOY

Attorneys at Law

736 Norwich-New London Turnpike
Uncasville, Connecticut 06382

Sidney F. Heller (1903-1986)
Harry B. Heller (hheller@hellermccoy.com)
William E. McCoy (bmccoy@hellermccoy.com)

Mary Gagne O'Donal (mgodonal@hellermccoy.com)
Andrew J. McCoy (amccoy@hellermccoy.com)

Telephone: (860) 848-1248
Facsimile: (860) 848-4003

April 3, 2023

Town of Ledyard Inland Wetlands and Watercourses Commission
741 Colonel Ledyard Highway
Ledyard, CT 06339

Re: Application of Gales Ferry Intermodal, LLC for a permit to conduct regulated activities in conjunction with the site preparation of 38 +/- acres of a 165 acre industrial site for future industrial development

Dear Commissioners:

Please be advised that this office represents Gales Ferry Intermodal, LLC (Applicant and Owner). Our client is the owner of real properties located at 1737 and 1761 Connecticut Route 12 in the Gales Ferry Section of Ledyard, Connecticut. Our client's property, the site of the former Dow Chemical manufacturing company, is currently partially occupied by Americas Sytrenics which engages in the manufacture of Styrofoam on a portion of the application parcel. Gales Ferry Intermodal, LLC has acquired these adjacent properties, both located within the Industrial Zoning District in the Town of Ledyard, with the intent to redevelop the site for a diverse array of industrial uses. Due to the amount of the property encumbered by the Americas Styrenics lease, and other areas not available for development; i.e. Allyn's Cove, the Applicant desires to engage in the preparation of the southerly portion of the property for future industrial development. Due to the presence of a bedrock and significant topography in this area, it is necessary to engage in a significant site grading in order to render this portion of the property suitable for the future development of up to 300,000 square foot of finished industrial space. The Applicant is proposing to remove topsoil and bedrock and prepare the site for future industrial development in four phases as depicted on the grading and drainage plan submitted with this application. There are small pockets of inland wetlands and an intermittent watercourse located between the proposed site regrading area and a rail track which services the current industrial activities on the property. In addition, there is a small, isolated pocket of inland wetlands containing approximately 1,700 square feet located within the side hill gradient of the Phase 4 regrading area. The development of the project requires the applicant to conduct regulated activities in these areas of the project site. The characteristics, functions and values of (i) the isolated pocket of wetlands in the Phase 4 regrading area (ii) the intermittent watercourse which must be culverted to access the regrading

area and (iii) the northerly and westerly peripheral wetlands are fully detailed in the report for this project prepared by REMA Ecological Services, LLC submitted with this application. The application contemplates the creation of new wetlands on the property to compensate for the loss of wetland and intermittent watercourse areas required to be disturbed by the activities contemplated by this application.

In furtherance thereof, I forward herewith an application to the Town of Ledyard Inland Wetlands and Watercourses Commission seeking a permit to conduct regulated activities in conjunction with the development of the southerly portion of the application parcel for future industrial purposes.

Submitted herewith and constituting the application to the Town of Ledyard Inland Wetlands and Watercourses Commission are the following:

1. Three (3) copies of the application form.

2. Three (3) copies of the List of Abutting Property Owners and owners of property located immediately across the street from the application parcel.

3. Three (3) copies of the Project Narrative including the Project Overview, Delineation of Proposed Regulated Activities, Soil Classifications, General Procedures, Construction Sequencing, Certification and Mitigation sections.

4. Authorization signed by Gales Ferry Intermodal, LLC authorizing the law firm of Heller, Heller, Heller & McCoy, the engineering firm of Loureiro Engineering Associates, Inc., the ecological firm of REMA Ecological Services, LLC and GEODesign, Inc., the Applicant's geotechnical engineer, to represent its interest in all proceedings before the Town of Ledyard Inland Wetlands and Watercourses Commission with respect to the permit application.

5. State of Connecticut Department of Energy and Environmental Protection Inland Wetlands and Watercourses Reporting Form.

6. Three (3) prints of the project plans entitled "Gales Ferry Intermodal Industrial Site Preparation Plans 1737 and 1761 Route 12 Gales Ferry, CT 06335 April 3, 2023 Property Owner / Applicant: Gales Ferry Intermodal LLC 549 South Street Quincy, MA 02169 Prepared By: Loureiro Engineering Associates, Inc. 100 Northwest Drive · Plainville, Connecticut 06062 Phone: 860-747-6181 · Fax: 860-747-8822".

7. Our check in the amount of $260.00 representing payment of the application fee for this application, including the State of Connecticut surcharge, which fee is calculated as follows:

Multi-Family/Commercial/Industrial/Mixed Uses	$200.00
State fee:	$60.00
Total:	**$260.00**

8. Three (3) copies of the project wetland analysis and impact report, and mitigation protocol for the proposed site preparation application prepared by REMA Ecological Services, LLC.

Request is hereby made that you place this matter on the agenda of the regularly scheduled meeting of the Town of Ledyard Inland Wetlands and Watercourses Commission of April 4, 2023.

Should you have any questions concerning the application, or need any additional information prior to the April 4, 2023 meeting, please feel free to contact me to discuss the same.

Very truly yours,

Harry B. Heller

HBH/rmb
Enclosures

Connecticut Department of
ENERGY & ENVIRONMENTAL PROTECTION

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

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

Statewide Inland Wetlands & Watercourses Activity Reporting Form

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

PART I: Must Be Completed By The Inland Wetlands Agency

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

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

5. TOWN IN WHICH THE ACTIVITY IS OCCURRING (print name): Ledyard
   does this project cross municipal boundaries (check one)? yes ☐ no ☒
   if yes, list the other town(s) in which the activity is occurring (print name(s)): _____, _____
6. LOCATION (see instructions for information): USGS quad name: Uncasville or number: 87
   subregional drainage basin number: 3000
7. NAME OF APPLICANT, VIOLATOR OR PETITIONER (print name): Gales Ferry Intermodal, LLC
8. NAME & ADDRESS OF ACTIVITY / PROJECT SITE (print information): 1737 and 1761 Route 12, Ledyard, CT site preparation activities for future industrial development
   briefly describe the action/project/activity (check and print information): temporary ☐ permanent ☒ description:
   Soil and rock removal to create building pads to accommodate 300,000 sf +/- of finished grade ready industrial development land.
9. ACTIVITY *PURPOSE* CODE (see instructions - one code only): D
10. ACTIVITY *TYPE* CODE(S) (see instructions for codes): 2, 3, 9, 10, 12, 14
11. WETLAND / WATERCOURSE AREA ALTERED (see instructions for explanation, must provide acres or linear feet):
    wetlands: .039 acres open water body: 0 acres stream: 200 linear feet
12. UPLAND AREA ALTERED (must provide acres): 38 +/- acres
13. AREA OF WETLANDS / WATERCOURSES RESTORED, ENHANCED OR CREATED (must provide acres): To be determined minimum 2500 square feet acres

PART III: To Be Completed By The DEEP

DATE RECEIVED: DATE RETURNED TO DEEP:

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

APPLICATION OF GALES FERRY INTERMODAL, LLC TO LEDYARD INLAND WETLANDS AND WATERCOURSES COMMISSION

NARRATIVE DESCRIPTION OF CONSTRUCTION SEQUENCING AND EROSION AND SEDIMENTATION CONTROL PLAN RELATIVE TO AGGREGATE REMOVAL AND PROCESSING FOR THE PREPARATION OF AN INDUSTRIAL SITE FOR FUTURE INDUSTRIAL DEVELOPMENT AT 1737 AND 1761 ROUTE 12, LEDYARD, CONNECTICUT

DATE: APRIL 3, 2023

OVERVIEW

The instant application is an application for a permit to conduct regulated activities in conjunction with a regrading operation to create additional building pads for future industrial development on real property owned of record by Gales Ferry Intermodal, LLC (the "Applicant") at 1737 and 1761 Route 12, Gales Ferry, Connecticut as depicted as Lots 1737 and 1761 on Ledyard Assessor's Map 61 (hereinafter, the "Property"). The application parcel is located in an Industrial Zoning District and contains 165 acres of land, more or less. The proposed regrading operation is contemplated on approximately 38 acres of the Property in order to ready the Property for future industrial development in conjunction with the placement of approximately 300,000 square feet of industrial space. The proposed site regrading and preparation application will be conducted in four (4) phases with each phase of the proposed site regrading being maintained at or less than ten (10) acres of disturbed land in accordance with the requirements of the Town of Ledyard Zoning Regulations. Based upon test borings conducted on the Property, the site preparation will require the removal of topsoil and bedrock with the result being the creation of approximately 30-usable acres of the project site suitable for the placement of future industrial buildings and the finished grading resulting in a rock cut along the southerly periphery of the site regrading area.

It is anticipated that the majority of the earthen material removed from the site will be processed on site and removed from the site primarily by way of barge or rail, both of which are located near the westerly periphery of the Property.

Site testing conducted on the Property evidences the fact that the proposed site grading area is overlaid with a layer of surficial material (as is more particularly described in the Soil Characteristics section of this Narrative) and underlaid with bedrock.

While the instant application has been formulated in order to take advantage of (i) the industrial zoning district classification of the Property (ii) the fact that the Property is located on the shore of the Thames River with deep water access suitable for the shipping of materials and (iii) the fact that the Property is bisected by the rail line of the Providence and Worcester Railroad Company; and is therefore a strategically located site for future industrial development, the removal of aggregate material to ready the site for future industrial development provides an essential product in the marketplace in and of itself. Due to the nature of the site preparation activities, proper design controls and cultural controls must be utilized in order to ensure that the regrading operation is conducted in an environmentally and ecologically appropriate manner,

giving due consideration to the inland wetland and watercourse resources which are located on and in proximity to the area of proposed regrading. The plans for this proposed regrading activity to ready the site for future industrial development, prepared by Loureiro Engineering Associates, Inc., and this Narrative, specify, in detail, the manner in which the proposed material removal operation will be conducted in accordance with the applicable Town of Ledyard Inland Wetlands and Watercourses Regulations and the Ledyard Zoning Regulations; and in a manner which will provide for compensatory mitigation for the wetland removed in the Phase 4 extraction area; and in the event that an adverse impact occurs to the hydrology of the wetland systems located northerly and westerly of the location for the proposed grading operation for the loss of the functionality in those systems.

In conjunction with the proposed regrading of the southerly portion of the application parcel, the Applicant proposes to conduct certain regulated activities delineated in the next section of this Narrative. These regulated activities are required to create future industrial land suitable for the accommodation of up to 300,000 square feet of future industrial building development.

DELINEATION OF REGULATED ACTIVITIES

1. Removal of an isolated pocket of inland wetlands delineated by the Z series of flagging in the Phase 4 site regrading area resulting in the loss of approximately 1,700 square feet of inland wetland area.

2. Culverting of 200 linear feet of intermittent watercourse to provide site access for site vehicles to the regrading area and to provide for future vehicular access to this area of the Property for future industrial uses.

3. Disturbance of 225,591 square feet of upland review area, of which 125,901 square feet is currently disturbed as a result of historic industrial operations dating back for nearly 200 years, in conjunction with the regrading activities easterly and southeasterly of isolated pockets of wetlands and the intermittent watercourse delineated by Wetland Flags WC-1 to WC-22.

SOIL CHARACTERISTICS ON THE PROPERTY

The portion of the Property located southerly and southwesterly of the existing American Styrenics manufacturing facility contains primarily upland soils, with small wetland areas and two (2) intermittent watercourses; (i) the first located in the Phase 1 project area and (ii) the second located in the Phase 4 project area. The first intermittent watercourse is located adjacent northwesterly to the proposed site development area and intervening between the proposed site development area and the Thames River to the west. The second intermittent watercourse is located northerly of the Phase 4 project area and adjacent southerly to the Americas Styrenics leasehold area. Soil characteristics on the site are as follows:

WETLAND SOILS

Ridgebury-Leicester-Whitman Soils (3). These poorly drained and very poorly drained soils are found in drainageways and depressions on glacial till, upland hills, ridges, plains and

drumloidal landforms. Stones and boulders cover 8-25% of the surface. Slopes range from 0-30%. The mapped acreage of this undifferentiated group is about 35% Ridgebury soil, 30% Leicester soil, 20% Whitman soil and 15% other soils. Some mapped areas consist of one of these soils, and other areas consist of two or three. These soils were mapped together because there are no major differences in use and management.

The soil stratification for the Ridgebury soil is as follows:

0" – 1"	Partly decomposed leaves.
0" – 4"	Black, fine sandy loam; weak medium granular structure; friable; common fine roots; 5% rock fragments; strongly acid; clear wavy boundary.
4" – 13"	Gray fine sandy loam; common medium distinct strong brown mottles and common, medium faint yellowish brown mottles; massive; friable; 5% rock fragments; strongly acid; gradual wavy boundary.
13" – 20"	Brown fine sandy loam; many medium distinct yellowish brown mottles and few fine faint grayish brown mottles; massive; friable; firm in place; 10% rock fragments; slightly acid; clear wavy boundary.
20" – 60"	Grayish brown sandy loam; few fine faint yellowish brown mottles; massive; very firm, brittle; 5% rock fragment; slightly acid.

The soil stratification of the Leicester soil is as follows:

0" – 2"	Decomposed leaves.
2" – 6"	Very dark gray fine sandy loam; weak fine granular structure; very friable; few fine and medium roots; 5% rock fragments; very strongly acid; abrupt smooth boundary.
6" – 12"	Dark grayish brown, fine sandy loam; few fine faint yellowish-brown mottles and many medium distinct light brownish gray mottles; weak medium subangular blocky structure; very friable; few medium roots; 5% rock fragments; strongly acid; clear wavy boundary.
12" – 24"	Grayish brown, fine sandy loam; few medium distinct yellowish-brown and dark grayish brown mottles; weak medium subangular blocky structure; friable; 10% rock fragments; strongly acid; gradual wavy boundary.
24" – 32"	Pale olive fine sandy loam; many course distinct yellowish brown mottles; weak medium subangular blocky structure; friable; 15% rock fragments; strongly acid; gradual wavy boundary.

32” – 60” Light olive gray gravelly fine sandy loam; many medium distinct yellowish-brown mottles; massive; friable; 25% rock fragment; strongly acid.

The soil stratification of the Whitman soil is as follows:

0” – 1” Decomposed leaf litter.

1” – 9” Black fine sandy loam; weak medium granular structure; friable; common fine and medium roots; strongly acid; abrupt wavy boundary.

9” – 16” Dark grayish brown fine sandy loam; few fine faint yellowish brown mottles; weak medium subangular blocky structure; friable; few fine roots; 5% rock fragments; medium acid; clear wavy boundary.

16” – 22” Grayish brown, fine sandy loam; common medium distinct strong brown mottles and few medium light brownish gray mottles; moderate medium platy structure; very firm, brittle; 5% rock fragments; slightly acid; gradual wavy boundary.

22” – 60” Grayish brown fine sandy loam; common medium distinct strong brown mottles and few medium faint light brownish gray mottles; massive; firm, brittle; 5% rock fragments; slightly acid.

Included with these soils in mapping are small areas of moderately well drained Rainbow, Sutton and Woodbridge soils and very poorly drained Adrian and Palms soils. The Ridgebury soil has a seasonal high water table at a depth of about 6”. Permeability is moderate or moderately rapid in the surface layer and subsoil and slow or very slow in the substratum. The Leicester soil has a seasonal high water table at a depth of about 6”. Permeability is moderate or moderately rapid. The Whitman soil has a high water table at or near the surface for most of the year. Permeability is moderate or moderately rapid in the surface layer and subsoil and slow or very slow in the substratum.

Aquent Soils - These poorly drained and very poorly drained soils are formed in human transported material or on excavated (cut) landscapes on flood plains. Slopes range from 0 to 3 percent.

The soil stratification for the Aquent soil is as follows:

0” – 4” Black silt loam, light brownish gray dry; weak fine to medium granular structure; very friable; may fine to coarse roots; slightly alkaline; abrupt wavy boundary

4” – 14” Dark grayish brown fine sand; single grain; loose; many fine to coarse roots; 10 % light olive gray lenses of stratified loamy fine sand to sand; common fine to coarse prominent strong brown soft masses of iron

	accumulation and few fine to coarse faint gray iron depletions; slightly alkaline; gradual wavy boundary
14" – 21"	Very dark grayish brown very fine sand; single grain; loose; common fine to medium roots; many fine to coarse prominent strong brown soft masses of iron accumulation; slightly alkaline; abrupt wavy boundary
21" – 38"	Very dark gray silt loam; massive; very friable; few fine to medium roots; 1" thick lense of medium sand; common partially decomposed wood fragments; common fine prominent yellowish red soft masses of iron accumulation; slightly alkaline; clear wavy boundary
38" – 45"	Very dark gray fine sandy loam; massive; very friable; many charcoal fragments; common fine prominent yellowish red soft masses of iron accumulation; slightly alkaline; clear smooth boundary
55" – 60"	Black fine sandy loam; massive; very friable; neutral.

Permeability of the Aquent soil is moderate to very rapid.

UPLAND SOILS

Hinckley Soils - HkD. This moderately steep and steep, excessively drained soil is found on stream terraces, outwash plains, kames and eskers. Mapped areas are dominantly irregular in shape and mostly 2 to 35 acres. Typically, the Hinckley soil has a dark brown, gravelly sandy loam surface layer 2 inches thick.

The soil stratification of the Hinckley soil is as follows:

0" – 7"	Dark brown gravelly sandy loam; weak fine granular structure; very friable; many fine roots; 20% coarse fragments; medium acid; abrupt wavy boundary.
7" – 14"	Yellowish brown gravelly loamy sand; single grain; loose; few fine roots; 25% coarse fragments; medium acid; gradual wavy boundary.
14" – 22"	Yellowish brown gravelly loamy sand; single grain; loose; few fine roots; 40% coarse fragments; strongly acid; clear wavy boundary.
22" – 60"	Brownish yellow very gravelly coarse sand; single grain; loose; 60% coarse fragments; medium acid

Permeability of the Hinckley soil is rapid in the surface layer and subsoil and very rapid in the substratum. The available water capacity is low. Runoff is very rapid.

Hollis – Charlton – Rock Outcrop Complex (also characterized as the Hollis-Chatfield Complex) (HrD) 15 – 45% Slopes. This moderately steep to very steep complex consists of somewhat excessively drained and well-drained soils and rock outcrop found on glacial till

uplands. Stones and boulders cover 1 to 8% of the surface. Mapped areas are irregular in shape and mostly 2 to 45 acres. The soils and rock outcrop in this complex are so intermingled on the landscape that it was not practical to separate them in mapping at the scale used. This complex is about 40% Hollis soil, 25% Charlton soil, 20% rock outcrop and 15% other soils.

The soil stratification of the Hollis soil is as follows:

0" – 2"	Very dark brown fine sandy loam; weak medium granular structure; very friable; many fine roots; 5% rock fragments; strongly acid; clear wavy boundary.
2" – 5"	Dark brown fine sandy loam; weak medium granular structure; very friable; common fine roots; 5% rock fragments; strongly acid; gradual wavy boundary.
5" – 12"	Dark yellowish brown fine sandy loam; weak medium subangular structure; very friable; common fine roots; 5% rock fragments; strongly acid; gradual wavy boundary.
12" – 17"	Dark yellowish brown fine sandy loam; weak medium subangular blocky structure; very friable; common fine roots; 5% rock fragments; strongly acid.
17"	Hard, unweathered schist bedrock

The soil stratification of the Charlton soils is as follows:

0" – 4"	Fine sandy loam.
4" – 7"	Fine sandy loam.
7 – 19"	Fine sandy loam.
19" – 27"	Gravelly fine sandy loam.
27" – 65"	Gravelly fine sandy loam.

The soil stratification of the Chatfield soil is as follows:

0" – 1"	Highly decomposed plant material.
1" – 6"	Gravelly fine sandy loam.
6" – 15"	Gravelly fine sandy loam.
15" – 29"	Gravelly fine sandy loam.

29” – 80” Unweathered bedrock.

Hollis – Charlton – Rock Outcrop Complex 3-15% slopes (also characterized as the Hollis-Chatfield Complex) (HrC). This gently sloping to sloping complex consists of somewhat excessively drained and well-drained soils and rock outcrop on glacial till uplands. Stones and boulders cover 1 to 8% of the surface. Mapped areas are irregular in shape and mostly 2 to 45 acres. The soils and rock outcrop in this complex are so intermingled on the landscape that it was not practical to separate them in mapping at the scale used. This complex is about 40% Hollis soil, 25% Charlton soil, 20% rock outcrop and 15% other soils.

The soil stratification of this Hollis – Charlton – Rock Outcrop soil is as follows:

0” – 2”	Very dark brown fine sandy loam; weak medium granular structure; very friable; many fine roots; 5% rock fragments; strongly acid; clear wavy boundary.
2” – 5”	Dark brown fine sandy loam; weak medium granular structure; very friable; common fine roots; 5% rock fragments; strongly acid; gradual wavy boundary.
5” – 12”	Dark yellowish brown fine sandy loam; weak medium subangular structure; very friable; common fine roots; 5% rock fragments; strongly acid; gradual wavy boundary.
12” – 17”	Dark yellowish brown fine sandy loam; weak medium subangular blocky structure; very friable; common fine roots; 5% rock fragments; strongly acid.
17”	Hard, unweathered schist bedrock

The soil stratification of the Charlton soils is as follows:

0” – 4”	Fine sandy loam.
4” – 7”	Fine sandy loam.
7 – 19”	Fine sandy loam.
19” – 27”	Gravelly fine sandy loam.
27” – 65”	Gravelly fine sandy loam.

The soil stratification of the Chatfield soil is as follows:

0” – 1”	Highly decomposed plant material.

1" – 6"	Gravelly fine sandy loam.
6" – 15"	Gravelly fine sandy loam.
15" – 29"	Gravelly fine sandy loam.
29" – 80"	Unweathered bedrock.

Rock Outcrop – Hollis Complex (Rp). This gently sloping to very steep complex consists rock outcrop and a somewhat excessively drained soil on glacial till uplands. Stones and boulders cover 1 to 8% of the surface. Mapped areas are irregular in shape and mostly 2 to 15 acres. Slopes range from 3 to 45%. Rock Outcrop and Hollis soil are so intermingled on the landscape that it was not practical to separate them in mapping at the scale used. This complex is about 50% rock outcrop, 30% Hollis soil, and 20% other soils. Rock outcrop is hard, unweathered, exposed bedrock. It is mainly gneiss and schist.

The soil stratification for the Hollis component of this complex has been previously stated in this Narrative.

Udorthent – Urban Land Complex (Ud). This complex consists of excessively drained and moderately well-drained soils that have been disturbed by cutting or filling and areas that are covered by buildings or pavement. Mapped acres are mostly 5 to 40 acres. Slopes range from 0 to 15%. About 60% of this complex is Udorthents, 25% is urban land, and 15% is other soils. The areas of Udorthents and urban land are so intermingled on the landscape that it was not practical to map them separately. Some areas of Udorthents have been cut to a depth of 2 feet or more, and some have been covered with more than 2 feet of fill. Permeability of the Udorthents is slow to very rapid. The available water capacity and runoff are variable. Most areas were cut or filled in order to smooth sites for community developments, recreational facilities, and roads. This complex requires onsite investigation and evaluation for most uses. Udorthents are found on the landscape with excessively drained Hinckley soils, somewhat excessively drained Hollis and Merrimack soils; well-drained Canton, Charlton, Narragansett, Agawam, Paxton and Montauk soils; and moderately well-drained Sutton, Woodbridge, Rainbow, Sudbury and Ninigret soils. Udorthents are found in a complex pattern on the landscape with urban land and pits, gravel. Coarse fragments range from 0-65% in the soil. Udorthents are very strongly acid to slightly acid.

GENERAL PROCEDURES

1. Prior to the initiation of construction activities on the project site, the applicant shall meet with the Zoning Enforcement Officer and Wetlands Enforcement Officer of the Town of Ledyard to agree upon the methodology for the installation, maintenance and repair of erosion and sediment control measures as delineated on a plan entitled "Gales Ferry Intermodal Industrial Site Preparation Plans 1737 and 1761 Route 12 Gales Ferry, CT 06335 April 3, 2023 Property Owner / Applicant: Gales Ferry Intermodal LLC 549 South Street Quincy, MA 02169 Prepared By: Loureiro Engineering Associates, Inc. 100 Northwest Drive · Plainville, Connecticut 06062 Phone: 860-747-6181 · Fax: 860-747-8822" (hereinafter the "Plan"). In no event shall actual excavation and extraction operations commence until such time as erosion and sediment control measures have been

installed and inspected and approved by the Town of Ledyard Zoning Enforcement Officer and Ledyard Wetlands Enforcement Officer.

2. The Applicant's engineer shall delineate in the field the limits within which the Phase 1 excavation and extraction operations shall occur.

3. All operations approved under the permit issued by the Town of Ledyard Inland Wetlands and Watercourses Commission shall be conducted by the Applicant in accordance with the approved Plan and this Narrative. This Narrative and the approved Plan delineated herein shall be incorporated into any permit to conduct regulated activities approved by the Town of Ledyard Inland Wetlands and Watercourses Commission and/or the Town of Ledyard Planning and Zoning Commission.

4. All erosion and sediment control measures shall be inspected at least weekly while activities are ongoing and after every storm event resulting in a discharge and repaired and maintained as necessary. Sediment traps shall be restored to their design capacity when they reach 50% of their design capacity. Removed surficial material shall be utilized as structural site fill.

5. During the stabilization period (after construction has been completed in each phase of the regrading activities, but prior to certification of approval by the Zoning Enforcement Officer of the Town of Ledyard and the Wetlands Enforcement Officer of the Town of Ledyard for the removal thereof), the structural integrity of silt fence and water quality and sediment traps shall be maintained. Alan Perrault, consultant to Gales Ferry Intermodal, LLC, or his designee, shall be responsible for compliance with all erosion and sediment control measures in conjunction with the extraction operation. The addresses of Alan Perrault and Chase Davis is 549 South Street, Quincy, Massachusetts 02169. Their e-mail addresses are aperrault@jaycashman.com, cdavis@jaycashman.com. All erosion and sediment control measures shall be inspected, maintained and/or repaired, as necessary, on a weekly basis during the stabilization period and after each storm occurrence resulting in a discharge. Perrault and Davis shall be the designated representative for the implementation of all of the terms and conditions of the erosion and sedimentation control plan for the industrial regrading of the Property in order to ready the same for future industrial development.

6. During the stabilization period, any erosion which occurs shall be immediately repaired by the Applicant, reseeded with the seeding mixes set forth in the Construction Sequencing section of this Narrative and restabilized. Since the southerly limits of the improved industrial site will be a semi-vertical rock cut, no stabilization measures are contemplated or required along the finished face of the rock cut.

7. Once stabilization has been completed and certification thereof obtained in writing from the Zoning Enforcement Officer of the Town of Ledyard and the Wetlands Enforcement Officer of the Town of Ledyard, all erosion and sediment control measures as delineated on the Plan shall be removed by the Applicant and the operating floor of the rock removal area shall be stabilized as described in the Construction Sequencing section of this Narrative until such time as that area is developed for future industrial development.

8. The extraction contemplated by this application will render the Property in a condition suitable for future utilization for industrial development pursuant to the Zoning Regulations of the Town of Ledyard in the Industrial Zoning District. Until such uses have been implemented, the area of extraction shall be stabilized in accordance with the procedures delineated in the Construction Sequencing section of this Narrative.

CONSTRUCTION SEQUENCING

1. The Applicant shall, prior to the commencement of operations on the Property, secure all necessary local, state and federal permits and file all applicable stormwater registrations as required by applicable law.

2. The Applicant, together with its contractor, shall engage in the pre-construction meeting with the Town of Ledyard staff as required by Paragraph 1 of the General Procedures section of this Narrative.

3. The Applicant shall install a double row of mulch sock immediately down gradient from the Phase 1 site preparation area where there are wetlands downgradient. Otherwise, a single row of mulch sock down gradient of Phase 1 site preparation area.

4. The Applicant shall install the Phase 1 temporary sediment trap in the location delineated on Sheet 7 of 13 of the Plan and associated piping, pump, fractionalization tank and weir tank as shown on Sheet 6 of 13 and Sheet 7 of 13 of the Plan.

5. The Applicant's contractor shall install an anti-tracking pad in accordance with the anti-tracking pad detail contained on Sheet 13 of 13 of the Plan at the interface of the active construction area with the haul road to the Applicant's processing facility to be installed on the Property. See Sheets 6 of 13 and 7 of 13 of the Plan for location of anti-tracking pad construction entrance to site preparation area.

6. The crossing of the intermittent watercourse shall be effected by excavating to design grade for the installation of the cross culvert. Upon attaining rough grade, the area for culvert installation shall be bedded with not less than 18" of riprap and 6" of gravel. A 36" reinforced concrete pipe (RCP) culvert shall be installed with flared end sections at the inlet and outlet. Plunge pool outlet protection shall be installed at the outlet of the cross culvert in accordance with the detail delineated on Sheet 13 of 13 of the Plan. The cross culvert shall be backfilled with not less than 12" cover sand or other bedding material which will protect integrity of the RCP culvert. Thereafter, the area of the crossing shall be backfilled to grade with site materials and improved with not less than 8" of compacted bankrun gravel suitable for the accommodation of the weight of loaded site trucks.

7. The Applicant shall strip the topsoil and subsoil in the Phase 1 excavation area. All topsoil and subsoil shall be retained onsite for use in the final stabilization and reclamation of the site. The topsoil shall and subsoil shall be retained in a surface soil stockpile which shall be formed with slopes not exceeding the angle of repose. The surface soil stockpile shall be encircled with a single row of silt fence installed in accordance with the silt fence detail

delineated on Sheet 6 of 13 of the Plan. The surface soil stockpile shall be stabilized by seeding with a perennial ryegrass mix and mulch. The perennial ryegrass mix shall be applied at a rate of 40 pounds per acre. Mulch shall be applied at a rate of 80 pounds per 1,000 square feet, and shall be spread by hand or with a mulch blower.

8. The proposed site preparation for future development will involve the extraction of rock from the project site.

9. Surficial material (other than topsoil and subsoil) shall be excavated from the Phase 1 extraction area and removed by truck to the processing facility of the Applicant to be located as depicted on Sheet 6 of 13 of the Plan.

10. Bedrock will be severed from the land in well-designed and controlled blasts in order to produce "shot rock" for processing. Prior to engaging in any blasting activities on the Property, the Applicant's blasting contractor shall conduct a complete pre-blast survey. The Applicant's geotechnical/blasting consultant will determine a safe pre-blasting survey radius. The pre-blast survey will include collecting background water quality data for nearby domestic wells and surface water. Each blast will be monitored with a seismograph at pre-determined locations in order to record the data (ground vibration and air overpressure (decibel levels)) associated with each blast to ensure that each blast is being conducted in a safe and proper manner which will not result in any property damage.

11. Throughout the duration of the excavation operation and thereafter on a permanent basis, a chain link fence will be maintained along the top of the operating face of the excavation operation in order to prohibit the inadvertent trespass onto the operating portion of the Property.

12. Shot rock shall be removed from the Phase 1 extraction site by site trucks for processing to marketable material at the processing plant of the Applicant to be installed on the Property in the location delineated on Sheet 6 of 13 of the Plan. It is anticipated that the majority of the processed material will be removed from the Property by rail or barge.

13. The Phase 1 operating area shall be over-excavated to a depth of 6 feet and thereafter backfilled with stone dust or equally suitable material order to accommodate the installation of future underground utilities necessary to serve the future industrial development of the Property.

14. Upon completion of the extraction of stone in each phase of the project, the Applicant shall backfill the future development pad with a minimum of 6 feet of compacted stone dust (or equally suitable material) as delineated in the preceding paragraph and place sufficient fill material, specified by the Applicant's engineer, to support the growth of the hereinafter specified vegetation until such time as an industrial end-user for the Property has been identified. Thereafter, the building pad area shall be loamed with not less than 4 inches of topsoil which has been stripped from the project site and stored in temporary soil stockpile locations. Areas to be seeded will be prepared by spreading ground limestone equivalent to 50% calcium plus magnesium oxide applied at a rate of 100 pounds per 1,000 square feet. Fertilizer (10-10-10) is to be applied at a rate of 15 pounds per 1,000 square feet.

Following the initial application of lime and fertilizer, there are to be no periodic applications of lime and fertilizer. After seeding, the area shall be stabilized with hay mulch immediately applied at a rate of 80 pounds per 1,000 square feet and anchored after spreading by tracking. Seeding shall be applied with a conservation mix specified by the project engineer based upon soil types from one of the following categories: (i) switchgrass applied at a rate of 4 pounds per acre, big bluestem applied at a rate of 4 pounds per acre, little bluestem applied at a rate of 2 pounds per acre, sand lovegrass applied at a rate of 1.5 pounds per acre and bird's-foot trefoil applied at a rate of 2 pounds per acre for a total application of 13.5 pounds per acre or (ii) flatpea applied at a rate of 10 pounds per acre, perennial pea applied at a rate of 2 pounds per acre, crown vetch applied at a rate of 10 pounds per acre and tall fescue applied at a rate of 2 pounds per acre for a total application of 24 pounds per acre or (iii) orchardgrass applied at a rate of 5 pounds per acre, tall fescue applied at a rate of 10 pounds per acre, redtop applied at a rate of 2 pounds per acre and bird's-foot trefoil applied at a rate of 5 pounds per acre for a total application of 22 pounds per acre. Seeding shall only occur during the periods April 15 to June 15 and August 15 to October 1.

15. The stabilization measures delineated in the preceding paragraph of the Construction Sequencing section of this Narrative are intended to stabilize the disturbed area of the Property until such time as an end-user for industrial development is identified and the site is fully developed in accordance with a final site plan approved by the Town of Ledyard Planning and Zoning Commission.

16. The methodologies delineated in Paragraphs 1 to 14 of the Construction Sequencing section of this Narrative shall be followed sequentially for Phases 2, 3 and 4 of the proposed site preparation endeavor.

WETLAND MITIGATION

The proposed regrading area (i) encompasses a small pocket of wetlands in the Phase 4 regrading area (ii) the culverting of 200 linear feet of intermittent watercourse and (iii) is abutted to the north and northwest by a series of wetland and watercourse systems, the characteristics of which are more particularly described in a report entitled "Wetlands Assessment and Mitigation Site Preparation for Future Industrial Development 1737 and 1761 Route 12, Gales Ferry (Ledyard), CT REMA Job #23-2596-LED5" prepared by REMA Ecological Services, LLC and submitted or to be submitted to the Town of Ledyard Inland Wetlands and Watercourses Commission with respect to this permit application. Activities proposed in conjunction with this application will result in the elimination of an isolated pocket of wetlands containing 1,700 square feet and the elimination of 200 linear feet of intermittent watercourse; and, the Applicant recognizes the fact that the proposed extraction raises an area of possible concern and/or impact with respect to the adjacent wetland/watercourse areas to the north and west of the proposed regrading area. The possible indirect impact is that the reduction of contributing watershed area to the adjacent wetland systems and/or the time of concentration will adversely impact the hydrology of these adjacent resources.

The Applicant is proposing complete mitigation for the area of direct wetland and watercourse impact. In addition, to mitigate against possible adverse impacts, the Applicant is

proposing that the Applicant be required to monitor the hydrology of the adjacent northerly and westerly wetland systems on a semi-annual basis commencing with the date of commencement of extraction in the Phase 1 extraction area and continuing through and including a period of five (5) years subsequent to the date that the Applicant completes the regrading–on the Property. The monitoring of the wetland system shall be conducted by a wetland scientist approved by the Ledyard Inland Wetlands and Watercourses Commission. The wetland scientist shall be required to submit written reports to the Ledyard Inland Wetlands and Watercourses Commission within thirty (30) days subsequent to the date of each required inspection. In the event that the wetland scientist notes that the regrading authorized by this Application is resulting in an adverse hydrologic impact to the adjacent northerly and westerly wetland systems, the Applicant shall be required, as a condition of the wetland permit issued in conjunction with this permit application, to create additional compensatory wetlands as a component of the closure plan for this project (the "Mitigation").

The Applicant shall create a Mitigation area equal to three hundred (300%) percent of the area of regulated inland wetlands and/or watercourses which have been adversely impacted by the site regrading and associated activities. The wetland Mitigation area shall be identified by the Applicant's wetland consultant and shall be constructed within the limits of the Property. The wetland Mitigation area shall be constructed and planted under the supervision of a wetland scientist and/or wetland biologist experienced in wetland creation and mitigation. The wetland Mitigation area shall be designed in order to create a diverse wetland environment that currently does not exist on the Property. The wetland creation area will be constructed in accordance with the protocol established in the report prepared by REMA Ecological Services, LLC and submitted to the Ledyard Inland Wetlands and Watercourses Commission with this application.

The final site grading shall be modified to provide a positive gradient to the mitigation area in order to ensure that an adequate water supply exists to support the wetland plants specified for the Mitigation. The wetland scientist and/or wetland biologist experienced in the science of wetland creation shall specify a planting scheme and monitoring plan for the Mitigation, which planting scheme shall be submitted to, and approved by, the Ledyard Inland Wetlands and Watercourses Commission prior to commencement of the construction of the Mitigation. The specific planting scheme will not be determined until such time as the Mitigation has been finally shaped and the depth of inundation in the Mitigation determined which will control the species of plants which will have the greatest likelihood of survival within said environment and which will be most successful in inhibiting the infestation of invasive species.

Contemporaneously with the approval of any permit for the regulated activities proposed in conjunction with this Application, the Ledyard Inland Wetlands and Watercourses Commission shall establish a performance bond for the Mitigation. Prior to the commencement of site regrading operations on the Property, the Applicant shall be required to post the performance bond with the Town of Ledyard, which performance bond shall be continued in full force and effect until such time as either (i) it is determined by the Applicant's wetland scientist that no adverse impacts have occurred or (ii) the Mitigation has been completed.

CERTIFICATIONS

The Applicant hereby certifies pursuant to Section 7 of the Ledyard Inland Wetlands and Watercourses Regulations that:

(a) That the Applicant is familiar with all information provided in the permit application and is aware of the penalties for obtaining a permit through deception or through inaccurate or misleading information.

(b) The Applicant hereby authorizes the members and agents of the Town of Ledyard Inland Wetlands and Watercourses Commission to inspect the permit application property, at reasonable times, during the pendency of the submitted application and for the life of any permit issued thereunder.

(c) No traffic attributable to the completed project on the application parcel will use streets within any adjoining municipality to enter or exit the site.

(d) A portion of the Property on which the regulated activity is proposed is located within 500 feet of the municipal boundary of the Town of Montville.

(e) Water drainage from the project site will not flow through and/or impact the drainage system within any adjoining municipality.

(f) Water runoff from the improved site will not impact streets or other municipal or private property within an adjoining municipality.

(g) No portion of the application parcel is located within the watershed of a water company as defined in Section 25-32a of the Connecticut General Statutes.

GALES FERRY INTERMODAL, LLC

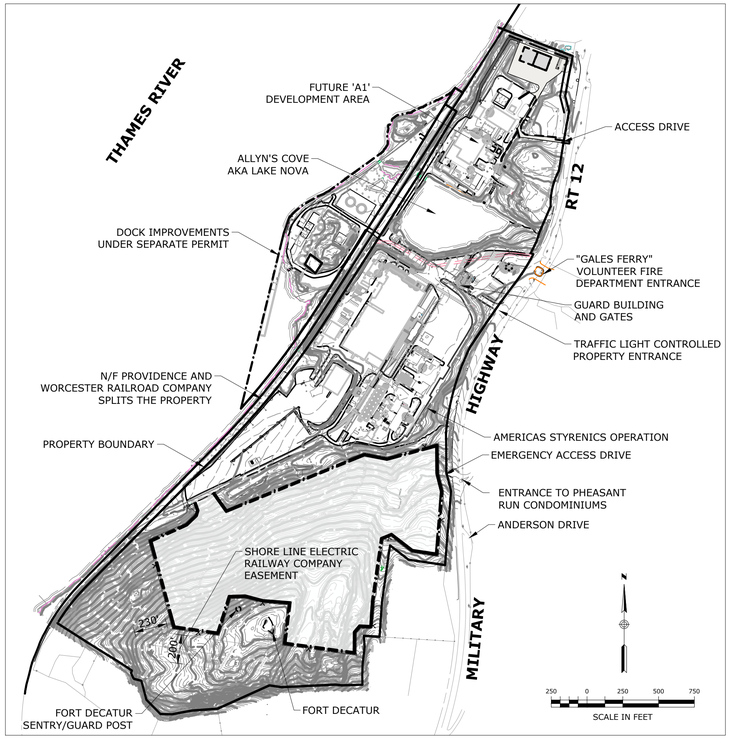
By: _____
Harry B. Heller, its Authorized Agent

GALES FERRY INTERMODAL

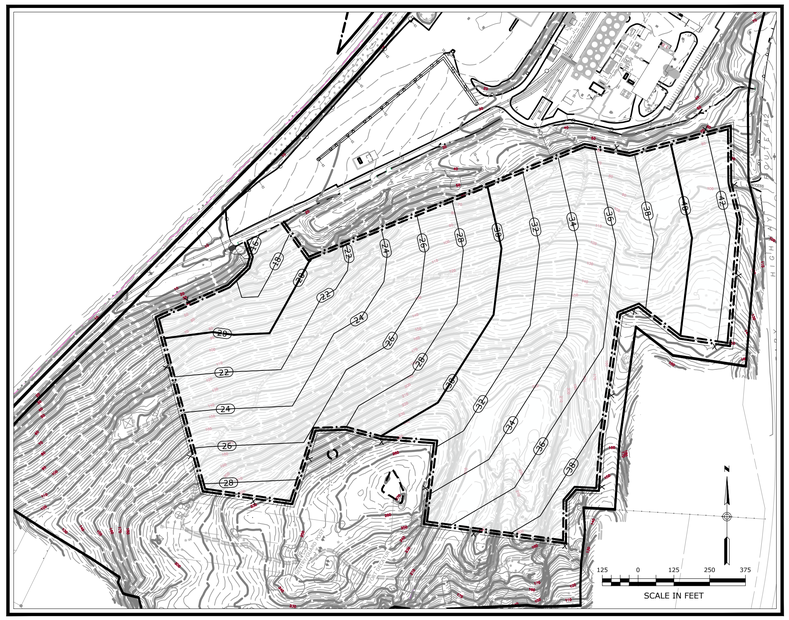
INDUSTRIAL SITE PREPARATION PLANS

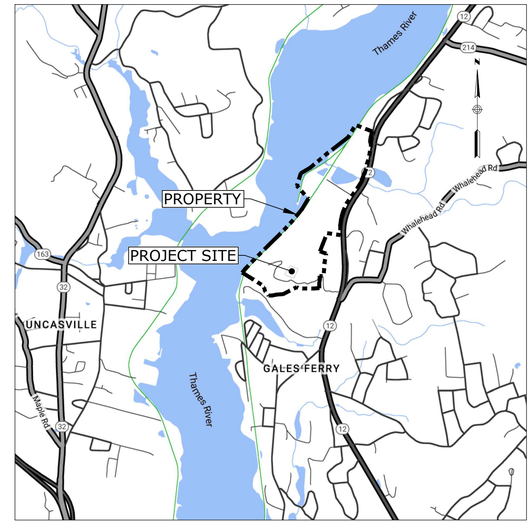
1737 & 1761 ROUTE 12
GALES FERRY, CT 06335

APRIL 3, 2023



PROPERTY MAP AND ADJACENT FEATURES





LOCATION MAP
SCALE: 1"=±2,000'

DRAWING INDEX		
SHEET NO.	DRAWING	TITLE
1	-	COVER SHEET
2	C-1	NOTES LEGEND AND ABBREVIATIONS
1 of 2	BY CME	PROPERTY AND TOPOGRAPHIC SURVEY
2 of 2	BY CME	PROPERTY AND TOPOGRAPHIC SURVEY
3	C-2	EXISTING CONDITIONS PLAN
4	C-3	OVERALL SITE PLAN
5	C-4	GRADING AND DRAINAGE PLAN
6	C-5	SOIL EROSION & SEDIMENT CONTROL - OVERALL PHASING
7	C-6	SOIL EROSION & SEDIMENT CONTROL - PHASE 1
8	C-7	SOIL EROSION & SEDIMENT CONTROL - PHASE 2
9	C-8	SOIL EROSION & SEDIMENT CONTROL - PHASE 3
10	C-9	SOIL EROSION & SEDIMENT CONTROL - PHASE 4
11	C-10	SOIL EROSION & SEDIMENT CONTROL - FINAL
12	C-11	WETLAND MITIGATION PLAN
13	C-12	DETAILS

PZC PERMIT # _____ DATE OF APPROVAL _____ EXPIRATION DATE _____

_____ _____
PZC CHAIRMAN OR SECRETARY DATE

IWWC PERMIT #_____ DATE OF APPROVAL _____

_____ _____
IWWC CHAIRMAN DATE

LEA# 045JC2.06

Property Owner / Applicant:

GALES FERRY INTERMODAL LLC
549 SOUTH STREET
QUINCY, MA 02169

STATE OF CONNECTICUT · GEORGE F. ANDREWS · No. 16281 · LICENSED PROFESSIONAL ENGINEER

Prepared By:

Engineer:
Loureiro Engineering Associates, Inc.
100 Northwest Drive · Plainville, Connecticut 06062
Phone: 860-747-6181 · Fax: 860-747-8822
An Employee Owned Company · www.Loureiro.com
Engineering • Construction • EH&S • Energy
Waste • Facility Services • Laboratory

SURVEY NOTES

1. THIS PLAN IS BASED ON MAP REFERENCE A AND B.
2. REFERENCE IS MADE TO THE TOWN OF LEDYARD, CT LAND EVIDENCE RECORDS VOLUME 621 AT PAGE 981 FOR THE SUBJECT PROPERTY.
3. THE SUBJECT PROPERTY IS LOCATED ENTIRELY WITHIN THE "I" INDUSTRIAL ZONE DISTRICT.
4. "NATIONAL FLOOD INSURANCE PROGRAM FLOOD INSURANCE RATE MAP NEW LONDON COUNTY, CONNECTICUT ALL JURISDICTIONS PANEL 354, TOWN OF LEDYARD, MAP NUMBER 09011C0354G EFFECTIVE DATE JULY 18, 2011 FEDERAL EMERGENCY MANAGEMENT AGENCY" INDICATES THE SUBJECT PROPERTY IS LOCATED IN ZONE AE (EL 12) AND ZONE X.
5. THE SUBJECT PROPERTIES ARE SHOWN ON THE TOWN OF LEDYARD, CT TAX ASSESSOR MAP 61 BLOCK 2120 AS LOT 1761 WHICH HAS ASSIGNED STREET ADDRESS OF 1761 ROUTE 12, GALES FERRY, CONNECTICUT 06335 AND TOWN OF LEDYARD, CT TAX ASSESSOR MAP 76 BLOCK 2120 AS LOT 1737 WHICH HAS ASSIGNED STREET ADDRESS OF 1737 ROUTE 12, GALES FERRY, CONNECTICUT 06335.
6. UNDERGROUND UTILITIES MUST BE FIELD VERIFIED PRIOR TO ANY EXCAVATION.
7. A PORTION OF INLAND WETLANDS WERE DELINEATED IN THE FIELD BY JMM WETLAND CONSULTING SERVICES, LLC AND LOCATED BY LOUREIRO ENGINEERING ASSOCIATES, INC., GROTON, CONNECTICUT. THE REMAINING WETLANDS WERE FROM ELECTRONIC DATA FROM CMA AS RECEIVED FROM GALES FERRY INTERMODAL LLC.

MAP REFERENCES

A. PROPERTY SURVEY, PROPERTY OF TRINSEO LLC, #1737 & #1761 MILITARY HIGHWAY (ROUTE 12), LEDYARD, GALES FERRY, CT, PREPARED FOR: JAY CASHMAN, INC., 549 SOUTH STREET, QUINCY, MA, SCALE: 1"=100', DATE: 5/10/2022, BY CHA.

B. PROPERTY AND TOPOGRAPHIC SURVEY, #1737 & #1761 MILITARY HIGHWAY (ROUTE 12), LEDYARD, GALES FERRY, CT, PREPARED FOR: STYRON LLC "ALLYN'S POINT PLANT", BY CME.

SITE NOTES:

1. THE APPLICANT/OWNER IS GALES FERRY INTERMODAL LLC OF 549 SOUTH STREET, QUINCY, MA.
2. THE APPLICANT IS PROPOSING A REGRADING OPERATION TO CREATE ADDITIONAL BUILDING PADS FOR FUTURE INDUSTRIAL DEVELOPMENT. THE PROPOSED SITE REGRADING AND PREPARATION APPLICATION WILL BE CONDUCTED IN FOUR PHASES WITH EACH PHASE BEING 10 ACRES OR LESS OF DISTURBED LAND. BASED ON TEST BORINGS CONDUCTED ONSITE, THE SITE PREPARATION WILL REQUIRE THE REMOVAL OF TOPSOIL AND BEDROCK WITH FINAL GRADING BEING SUITABLE FOR FUTURE INDUSTRIAL BUILDINGS.
3. OTHER USES ON THE SITE CURRENTLY INCLUDE MANUFACTURING OF STYROFOAM PRODUCTS BY AMERICAS STYRENICS, A TENANT OF THE PROPERTY.
4. THE PURPOSE OF THESE PLANS IS FOR REVIEW BY THE TOWN OF LEDYARD INLAND WETLAND WATERCOURSE COMMISSION AND PLANNING AND ZONING COMMISSION. THESE PLANS ARE FOR PERMIT PURPOSES ONLY AND ARE NOT TO BE USED FOR CONTRACT DOCUMENTS.
5. NO CONSTRUCTION OF BUILDINGS IS ASSOCIATED WITH THIS APPLICATION.

4. THE SUBJECT PROPERTY IS LOCATED WITHIN THE 'I' INDUSTRIAL ZONE. THE PARCEL DOES LIE WITHIN THE COASTAL AREA MANAGEMENT ZONE. A PORTION OF THE SITE IS WITHIN THE FEMA AE (EL 12) AND ZONE X.
5. LOT COVERAGE CALCULATIONS:
   A. ALLOWED @ 70% = 70% X 7,220,941 SF = 5,054,658 SF
   B. PROVIDED: 2,091,741 (EXISTING) + 73,965 (PROPOSED BUILDING AND PAVEMENT ON OTHER PORTION OF SITE UNDER DIFFERENT APPLICATION) / 7,220,941 SF = 30.0 %
6. THE CONTRACTOR SHALL OBTAIN ALL REQUIRED PERMITS INCLUDING A CONNECTICUT D.O.T. ENCROACHMENT PERMIT FOR ANY WORK WITHIN THE D.O.T. RIGHT-OF-WAY PRIOR TO CONSTRUCTION.
7. THE CONTRACTOR SHALL OBTAIN, REVIEW AND ADHERE TO ALL REQUIREMENTS AND ANY CONDITIONS OF APPROVAL OF THE TOWN OF LEDYARD.
8. ALL EXISTING CURBING, PAVEMENT, ETC. DISTURBED AS A RESULT OF CONSTRUCTION ACTIVITIES SHALL BE REPLACED/RESTORED TO ORIGINAL CONDITION BY THE CONTRACTOR.

EROSION AND SEDMIENTATION (E&S) CONTROL PLAN:

NARRATIVE

1. THIS EROSION AND SEDIMENTATION CONTROL (ESC) PLAN IS FOR THE REGRADING OPERATION FOR BUILDING PADS FOR FUTURE INDUSTRIAL SITE.
2. THE TOPOGRAPHY VARIES ACROSS THE SITE AND GENERALLY SLOPES FROM THE SOUTH ALONG THE ONSITE POWER LINE EASEMENT NORTH DOWN TO THE EXISTING RAILROAD AND IMPROVED PORTION OF THE TENANT AMERICA'S STYRENICS. THE UNDERLYING SOIL ON THE HIGHER PORTION OF THE PROJECT AREA IS HOLLIS CHATFIELD ROCK, HYDROLOGIC GROUP D, AND THE LOWER PORTION OF THE PROJECT AREA IS HINCKLEY LOAMY SAND, HYDROLOGIC SOIL GROUP A.
3. A LARGE PORTION OF THE UPLAND SOILS WILL BE DISTURBED BY EARTHWORK ACTIVITIES AND THE INTENT OF THIS EROSION AND SEDIMENT CONTROL PLAN IS TO ESTABLISH STORMWATER CONTROLS DURING CONSTRUCTION TO PREVENT THE DISCHARGE OF SEDIMENT LADEN RUNOFF FROM ENTERING THE EXISTING INLAND WETLANDS.
4. EROSION CONTROL MEASURES INTENDED TO MINIMIZE SOIL EROSION AND TO CONTROL SEDIMENTATION DURING CONSTRUCTION INCLUDE:
   A. THE INSTALLATION OF MULCH SOCKS ALONG THE DOWN-GRADIENT LIMIT OF DISTURBANCE. INSTALL MULCH SOCKS AND/OR HAYBALES AS SHOWN ON PLANS.
   B. TEMPORARY SEDIMENT BASINS DURING CONSTRUCTION.
   C. THE IMMEDIATE STABILIZATION OF FINAL GRADED AREAS THROUGH THE PLACEMENT OF CRUSHED STONE, TOPSOIL, SEED, MULCH AND EROSION CONTROL NETTING.
   D. SWEEP THE PAVED AREA IN THE CONSTRUCTION AREA WEEKLY.
   E. DEVELOPMENT OF A CONSTRUCTION OPERATIONS PLAN IN CONSIDERATION OF BASIC CONSTRUCTION SEQUENCING OUTLINED HEREIN.
5. THE CONSTRUCTION OF THIS PROJECT IS IN 4 PHASES. IT IS ANTICIPATED THAT SITE WORK CONSTRUCTION WILL BEGIN IN THE FALL OF 2023 AND WILL CONTINUE OFF AND ON FOR 5-10 YEARS.
6. A STATE OF CONNECTICUT GENERAL PERMIT FOR THE DISCHARGE OF STORMWATER AND DEWATERING WASTEWATERS FROM CONSTRUCTION ACTIVITIES MUST BE FILED AT LEAST 60 DAYS PRIOR TO CONSTRUCTION.

CONSTRUCTION SEQUENCE

1. CONTACT "CALL BEFORE YOU DIG" TO MARK OUT ALL UTILITY LOCATIONS PRIOR TO ANY CONSTRUCTION ACTIVITIES.
2. ENSURE ALL LAND USE PERMITS HAVE BEEN SECURED. OBTAIN ALL NECESSARY LOCAL, STATE AND FEDERAL PERMITS, AS REQUIRED. FILE ALL STATE GENERAL PERMITS FOR CONSTRUCTION ACTIVITY THAT APPLY AS REQUIRED.
3. PRIOR TO THE START OF WORK, THE CONTRACTOR SHALL MEET WITH THE TOWN REPRESENTATIVE FOR A PRE-CONSTRUCTION MEETING TO DISCUSS ESC REQUIREMENTS AND WATER QUALITY MANAGEMENT PROCEDURES.
4. THE LIMITS OF PHASE 1 EXCAVATION AND WORK AREA SHALL BE DELINEATED IN THE FIELD PRIOR TO ANY WORK.
5. INSTALL TEMPORARY CONSTRUCTION ENTRANCE, MULCH SOCKS, TEMPORARY SEDIMENT BASIN AND/OR HAY BALE BARRIERS AS SHOWN ON THE EROSION & SEDIMENT CONTROL PLAN FOR EACH PHASE. INSTALL A DOUBLE ROW OF MULCH SOCKS WHERE WETLANDS ARE DOWNGRADIENT OF ANY WORK.
6. INSTALL NEW CULVERT ACROSS EXISTING STREAM AND ANY WORK NEEDED TO CROSS THE EXISTING RAILROAD TRACKS.
7. REMOVE ALL TREES, BRUSH, STUMPS, TOPSOIL AND SUBSOIL WITHIN PHASE 1 AS NECESSARY. PROTECT WETLANDS AT ALL TIMES. ALL TOPSOIL AND SUBSOIL SHALL BE RETAINED ONSITE FOR USE IN THE FINAL STABILIZATION AND RECLAMATION OF THE SITE. THE TOPSOIL AND SUBSOIL SHALL BE STOCKPILED IN AREA DELINEATED ON THE PLAN. THE SURFACE OF THE SOIL STOCKPILE SHALL BE STABILIZED BY SEEDING WITH A PERENNIAL RYEGRASS MIX AND MULCH. THE PERENNIAL RYEGRASS MIX SHALL BE APPLIED AT A RATE OF 40 POUNDS PER ACRE. MULCH SHALL BE APPLIED AT A RATE OF 80 POUNDS PER 1,000 SQUARE FEET.
8. PRIOR TO ANY BLASTING ACTIVITIES, THE APPLICANT'S BLASTING CONTRACTOR SHALL CONDUCT A PRE-BLAST SURVEY. THE APPLICANT'S GEOTECHNICAL/BLASTING CONSULTANT WILL DETERMINE A SAFE PRE-BLASTING PROCEDURE.
9. SURFICIAL MATERIAL (OTHER THAN TOPSOIL AND SUBSOIL) SHALL BE EXCAVATED FROM THE PHASE 1 AREA AND REMOVED BY TRUCK TO THE PROCESSING AREA SHOWN ON THE PLAN.
10. PHASE 1 EXCAVATION AREA SHALL BE OVER-EXCAVATED TO A DEPTH OF 6 FEET AND THEREAFTER BACKFILLED WITH STONE DUST OR EQUALLY SUITABLE MATERIAL IN ORDER TO ACCOMMODATE THE INSTALLATION OF FUTURE UNDERGROUND UTILITIES NECESSARY TO SERVE THE FUTURE INDUSTRIAL DEVELOPMENT ON THE PROPERTY.
11. UPON THE COMPLETION OF THE EXTRACTION OF STONE IN EACH PHASE OF THE PROJECT, BACKFILL THE FUTURE DEVELOPMENT PAD WITH A MINIMUM OF 6 FEET OF COMPACTED STONE DUST OR EQUALLY SUITABLE MATERIAL AND PLACE SUFFICIENT FILL MATERIAL. THEN LOAM THE AREA WITH NO LESS THAN 4 INCHES OF TOPSOIL FROM THE TOPSOIL THAT WAS PREVIOUSLY STRIPPED AND STOCKPILED ONSITE. THEN SEED AREA WITH FUTURA 2000 BY THE CHAS C. ART CO CONTAINING VARIETIES OF PERENNIAL RYEGRASSES. APPLY AT A RATE OF 90 POUNDS PER 1,000 SQUARE FEET.
12. ESC MEASURES SHALL BE INSTALLED AND MAINTAINED THROUGHOUT THE WORK IN EACH PHASE.
13. THE CONSTRUCTION MANAGER SHALL BE RESPONSIBLE FOR IMPLEMENTING AND INSPECTING ESC MEASURES PER THIS PLAN AND SHALL INFORM ALL CONTRACTORS OF THE OBJECTIVES AND REQUIREMENTS OF THE PLAN. THE OWNER SHALL NOTIFY THE PROPER TOWN AGENCY OF ANY TRANSFER OF THIS RESPONSIBILITY AND SHALL ADVISE THE TOWN REGARDING THE NEED FOR IMPLEMENTING ADDITIONAL CONTROL MEASURES OR MAINTAINING EXISTING MEASURES AS DEEMED NECESSARY DURING CONSTRUCTION. WEEKLY INSPECTIONS SHALL BE CONDUCTED AND/OR WITHIN 24 HOURS OF THE END OF A STORM RESULTING IN A DISCHARGE. ALL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE REPAIRED AND MAINTAINED AS NECESSARY. MONTHLY WRITTEN REPORTS SHALL BE PREPARED INFORMING THE TOWN OF LEDYARD OBSERVATIONS, MAINTENANCE, AND CORRECTIVE ACTIONS.
14. THE CONTRACTOR IS RESPONSIBLE FOR DUST CONTROL DURING THE CONSTRUCTION PROCESS. THE CONSTRUCTION MANAGER SHALL INSPECT THE SITE TO ASSURE DUST IS ADEQUATELY CONTROLLED. IF THE CONSTRUCTION MANAGER DETERMINES DUST CONTROL MEASURES ARE NOT ADEQUATE, THE CONTRACTOR SHALL BE REQUIRED TO INCREASE THESE MEASURES AS DIRECTED BY THE CONSTRUCTION MANAGER.
15. WHEN ALL GRADED AREAS ARE PERMANENTLY STABILIZED, REMOVE ALL EROSION AND SEDIMENT CONTROLS AS INDICATED ON PLAN.
16. THE SEQUENCE ABOVE APPLIES TO PHASES 2, 3 AND 4.
17. CONSTRUCT WETLAND MITIGATION AS SHOWN ON PLANS.
18. WETLAND AREAS ONSITE DOWNSTREAM OF THE EXCAVATION AREA SHALL BE MONITORED FOR 5 YEARS BY A WETLAND SCIENTIST. IF THESE WETLANDS ARE DETERMINED TO BE IMPACTED THEN FUTURE MITIGATION WILL BE DESIGNED AND IMPLEMENTED.

MAINTENANCE OF EROSION CONTROL DEVICES:

1. HAYBALE BARRIERS/MULCH SOCK/SILT FENCE:
   A. INSPECT HAY BALE BARRIERS/MULCH SOCK/SILT FENCE AT LEAST ONCE A WEEK AND WITHIN 24 HOURS AFTER THE END OF A STORM RESULTING IN A DISCHARGE TO DETERMINE MAINTENANCE NEEDS.
   B. IF A MULCH SOCK IS OVERTOPPED DURING A STORM EVENT, CONTRACTOR SHALL INSTALL AN ADDITIONAL MULCH SOCK ON TOP OF THE EXISTING MULCH SOCK OR PLACE ANOTHER MULCH SOCK UPSTREAM OF THE MULCH SOCK THAT OVERTOPPED.
   C. INSTALL A SECONDARY BARRIER/FENCE WHEN SEDIMENT DEPOSITS REACH APPROXIMATELY ONE HALF HEIGHT OF THE BARRIER/FENCE.
   D. REMOVE SEDIMENT THAT BUILDS UP AGAINST THE MULCH SOCK/BARRIER/SILT FENCE.
   E. REPAIR OR REPLACE SPLIT, TORN OR UNRAVELING SOCKS. REPLACE BROKEN OR SPLIT STAKES. SAGGING OR SLUMPING MULCH SOCKS MUST BE REPAIRED WITH ADDITIONAL STAKES OR REPLACED.
   F. REPLACE OR REPAIR THE BARRIER/SOCK/FENCE WITHIN 24 HOURS OF OBSERVED FAILURE. IF REPETITIVE FAILURE OCCURS, CONSULT 2002 GUIDELINES FOR TROUBLESHOOTING FAILURES.
   G. MAINTAIN THE HAY BALE BARRIER/MULCH SOCK/FENCE UNTIL THE CONTRIBUTING AREA IS STABILIZED.
2. CONSTRUCTION ENTRANCES AND ROADWAYS:
   A. MAINTAIN THE ENTRANCE IN A CONDITION IN WHICH WILL PREVENT TRACKING AND WASHING OF SEDIMENTS ONTO PAVED SURFACES.
   B. PROVIDE PERIODIC TOP DRESSING AND ADDITIONAL STONE OR LENGTH AS NECESSARY.
   C. IMMEDIATELY REMOVE ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACKED ONTO PAVED SURFACES. ROADS ADJACENT TO THE CONSTRUCTION SITE SHALL BE LEFT CLEAN EVERY DAY.
3. TEMPORARY SEDIMENT TRAP:
   A. INSPECTIONS SHALL BE AT SAME INTERVALS AS ABOVE.
   B. OUTLET SHALL BE CHECKED FOR INTEGRITY; HEIGHT OF THE STONE OUTLET SHALL BE MAINTAINED AT ONE FOOT BELOW CREST OF EMBANKMENT. SEDIMENT ACCUMULATION AND FILTRATION PERFORMANCE SHOULD BE OBSERVED.
   C. WHEN SEDIMENTS HAVE ACCUMULATED TO ONE HALF OF THE MINIMUM REQUIRED STORAGE VOLUME, DE-WATER BASIN, REMOVE SEDIMENTS, RESTORE TRAP TO ORIGINAL DIMENSIONS AND DISPOSE OF SEDIMENT AT A LOCATION AND MANNER THAT WILL NOT RESULT IN EROSION OR SEDIMENTATION.
   D. AFTER CONTRIBUTING AREA IS STABILIZED, REMOVE BASIN AND RE-GRADE/STABILIZE AREA. PHASE 1 AND PHASE 2 TEMPORARY SEDIMENT BASINS WILL BE CLEANED AND CONVERTED TO PERMANENT WATER QUALITY BASINS.
4. TEMPORARY DIVERSION DITCHES/SWALES:
   A. WHEN THE TEMPORARY DIVERSION IS LOCATED IN CLOSE PROXIMITY TO ONGOING CONSTRUCTION ACTIVITIES, INSPECT AT THE END OF EACH DAY AND IMMEDIATELY REPAIR DAMAGES. OTHERWISE, INSPECT ON SAME INTERVAL AS ABOVE.
   B. REPAIR THE DIVERSION WITHIN 24 HOURS OF ANY OBSERVED FAILURE. FAILURE HAS OCCURRED WHEN THE DIVERSION HAS BEEN DAMAGED SUCH THAT IT NO LONGER MEETS THE SPECIFICATIONS IN THE 2002 GUIDELINES.
   C. IF REPETITIVE FAILURES OCCUR, REVIEW CONDITIONS AND DETERMINE IF ADDITIONAL MEASURES OR AN ALTERNATIVE MEASURES IS NECESSARY.

ZONING DATA TABLE

'I' INDUSTRIAL ZONE

ITEM	REQUIRED	PROVIDED
LOT AREA	200,000 SQ. FT. (4.59 AC.)	7,220,941 SQ. FT. (165.7 AC.)
FRONTAGE	200 FT.	3700 ± FT.
LOT WIDTH	200 FT	> 200 FT.
FRONT SETBACK	35 FT.	> 35 FT EXISTING BUILDINGS
SIDE SETBACK	25 FT	> 25 FT EXISTING BUILDINGS
REAR SETBACK	25 FT.	> 25 FT EXISTING BUILDINGS
LOT COVERAGE (%) (SEE SITE NOTE 5)	70% (4,817,736 SQ. FT.)	30.0 % (2,165,706 SQ. FT.)
BUILDING HEIGHT	N/A	N/A
PARKING (# OF SPACES)	N/A	N/A
WATER SUPPLY	MUNICIPAL	
SANITARY DISPOSAL	ONSITE SSDS	

PZC PERMIT # __________ DATE OF APPROVAL _________ EXPIRATION DATE __________

PZC CHAIRMAN OR SECRETARY ____________ DATE ____________

IWWC PERMIT #__________ DATE OF APPROVAL _______________

IWWC CHAIRMAN ____________ DATE ____________

LEGEND

AC	ACRES
BIT	CONC
TC	TOP OF CURB
CHD	CONNECTICUT HIGHWAY DEPARTMENT MONUMENT
BC	BOTTOM OF CURB
C.O.	CLEAN OUT
CL&P	CONNECTICUT LIGHT & POWER
LLR	LEDYARD LAND RECORDS
INV	INVERT
M/L	MOR EOR LESS
MIN	MINIMUM
N/F	NOW OR FORMERLY
SF	SQUARE FEET
TYP	TYPICAL
TORW	TOP OF ROCK WALL

— —5— —	EXISTING CONTOUR
— —5— —	EXISTING INDEX CONTOUR
x6.1	NEW SPOT GRADE
——5——	NEW CONTOUR
——5——	NEW INDEX CONTOUR
————	BUILDING SETBACK LINE
——W——	MUNICIPAL WATER
——E——	UNDERGROUND ELECTRIC
	CATCH BASIN W/ E&SC
	SEDIMENT FENCE
	SIGN
	UTILITY POLE
	DECIDUOUS TREE
(13)	SOIL TYPE - TAKEN FROM NATURAL RESOURCES CONSERVATION SERVICE, WEBSOIL SURVEY, NATIONAL COOPERATIVE SOIL SURVEY

REV.	DESCRIPTION OF REVISION	DATE	APPR.

STAMP: STATE OF CONNECTICUT, GEORGE F. ANDREWS JR., No. 19286, LICENSED PROFESSIONAL ENGINEER

Loureiro
Engineering • Construction • EH&S • Energy
Waste • Facility Services • Laboratory
Loureiro Engineering Associates, Inc.
100 Northwest Drive • Plainville, Connecticut 06062
Phone: 860-747-6181 • Fax: 860-747-8822
An Employee Owned Company • www.Loureiro.com

SCALE: NOT TO SCALE
COMM. NO.: 045JC2.06
DRAWN BY: SRM DATE: 04/03/2023
APPROVED BY: GFA DATE: 04/03/2023

NOTES LEGEND AND ABBREVIATIONS

GALES FERRY INTERMODAL LLC
1737 & 1761 ROUTE 12, GALES FERRY, CT 06335

PREPARED FOR:

GALES FERRY INTERMODAL LLC
549 SOUTH STREET, QUINCY, MA 02169

DRAWING: C-1
SHEET NO. 2 NO. OF SHEETS 13

MAP REFERENCES

1.) "RIGHT OF WAY AND TRACK MAP OPERATED BY THE NORWICH AND WORCESTER R.R. CO. OPERATED BY THE NEW YORK NEW HAVEN AND HARTFORD R.R. CO. FROM WORCESTER TO GROTON STATION 3379+20 TO STATION 3405+60 TOWN OF LEDYARD, STATE OF CONN" SCALE 1"=50' DATE: JUNE 30, 1915 REVISED THROUGH OCTOBER 9, 1947, OFFICE OF VALUATION ENGINEER, BOSTON MASS. MAP NO. V.5063 / 129.

2.) "RIGHT OF WAY AND TRACK MAP OPERATED BY THE NORWICH AND WORCESTER R.R. CO. OPERATED BY THE NEW YORK NEW HAVEN AND HARTFORD R.R. CO. FROM WORCESTER TO GROTON STATION 3405+60 TO STATION 32+00. TOWN OF LEDYARD, STATE OF CONN" SCALE 1"=50' DATE: JUNE 30, 1915, OFFICE OF VALUATION ENGINEER, BOSTON MASS. MAP NO. V.5063 / 130.

3.) "RIGHT OF WAY AND TRACK MAP OPERATED BY THE NORWICH AND WORCESTER R.R. CO. OPERATED BY THE NEW YORK NEW HAVEN AND HARTFORD R.R. CO. FROM WORCESTER TO GROTON STATION 32+00 TO STATION 58+40 TOWN OF LEDYARD, STATE OF CONN" SCALE 1"=50' DATE: JUNE 30, 1915 REVISED THROUGH APRIL 11, 1951, OFFICE OF VALUATION ENGINEER, BOSTON MASS. MAP NO. V.5063 / 131.

4.) "RIGHT OF WAY AND TRACK MAP OPERATED BY THE NORWICH AND WORCESTER R.R. CO. OPERATED BY THE NEW YORK NEW HAVEN AND HARTFORD R.R. CO. FROM WORCESTER TO GROTON STATION 58+40 TO STATION 84+80 TOWN OF LEDYARD, STATE OF CONN" SCALE 1"=50' DATE: JUNE 30, 1915 REVISED THROUGH APRIL 11, 1951, OFFICE OF VALUATION ENGINEER, BOSTON MASS. MAP NO. V.5063 / 132.

MAP REFERENCES–CONTINUED

5.) "NORWICH AND WORCESTER RAILROAD REAL ESTATE & RIGHT OF WAY DEPARTMENT LAND IN LEDYARD, CONN. TO BE CONVEYED TO THE DOW CHEMICAL COMPANY" SCALE 1"=200' DATE: SEPTEMBER 1950 REVISED THROUGH OCTOBER 1950. ON FILE AS MAP NO. 8A.

6.) "LOCATION OF THE RIGHT OF WAY OF THE CONNECTICUT LIGHT & POWER COMPANY ACROSS THE PROPERTY OF THE DOW CHEMICAL COMPANY, TOWN OF LEDYARD, COUNTY OF NEW LONDON, STATE OF CONNECTICUT" SCALE 1"=200' DATE: APRIL 17, 1951.

7.) "MAP OF PROPERTY OWNED BY THE DOW CHEMICAL COMPANY LOCATED AT ALLYN'S POINT ON THE WEST SIDE OF ROUTE 12 AND EAST OF THE NEW YORK NEW HAVEN & HARTFORD RAILROAD CO. LEDYARD, CONN." SCALE: 1"=100' DATE: JULY 1952 REVISED AUGUST 1953, G.L. BILDERBECK CONSULTING ENGINEERS, NEW LONDON, CONN.

8.) "MAP SHOWING PROPERTY OWNED BY DOW CHEMICAL COMPANY, ALLYN'S POINT, LEDYARD, CONN." SCALE: 1"=100' DATE : DECEMBER 1953, G.L. BILDERBECK, CONSULTING ENGINEERS, NEW LONDON, CONN, ON FILE AS MAP NO. 43A.

MAP REFERENCES–CONTINUED

9.) "CONNECTICUT STATE HIGHWAY DEPARTMENT RIGHT OF WAY MAP TOWN OF LEDYARD NORWICH–GROTON ROAD FROM ALLYN'S BROOK NORTHERLY TO LEDARD–PRESTON TOWN LINE" SCALE 1"=40' DATE: NOVEMBER 5, 1957, SHEETS 1 THROUGH 3 OF 9 PROJECT NUMBER: 71–16. THESE MAPS SUPERSEDE PROJECT 71–05. SHEET 3 REVISED AUGUST 25, 1967.

10.) "CONNECTICUT STATE HIGHWAY DEPARTMENT RIGHT OF WAY MAP TOWN OF LEDYARD GROTON–NORWICH ROAD GALES FERRY ROAD TO ALLYN'S BROOK" SCALE 1"=40' DATE: NOVEMBER 5, 1957, SHEETS 1 THROUGH 4 OF 4. PROJECT NUMBER 71–15. THESE MAPS SUPERSEDE PROJECT 71–04. SHEET 1 REVISED THROUGH MAY 17, 2004.

11.) "PLAN SHOWING LANDS NOW AND FORMALLY OF H. WINTHROP HURLBUTT LEDYARD, CONNECTICUT" SCALE 1"=100' DATE: OCTOBER 1964, GEORGE H. DIETER, LAND SURVEYOR, ON FILE AS MAP # 226.

12.) "PLAN OF PROPERTY TO BE CONVEYED TO THE TOWN OF LEDYARD BY THE DOW CHEMICAL COMPANY, TOWN OF LEDYARD, CONN." SCALE: 1"=100' DATE: APRIL 1972, CHANDLER, PALMER & KING, NORWICH, CONN.

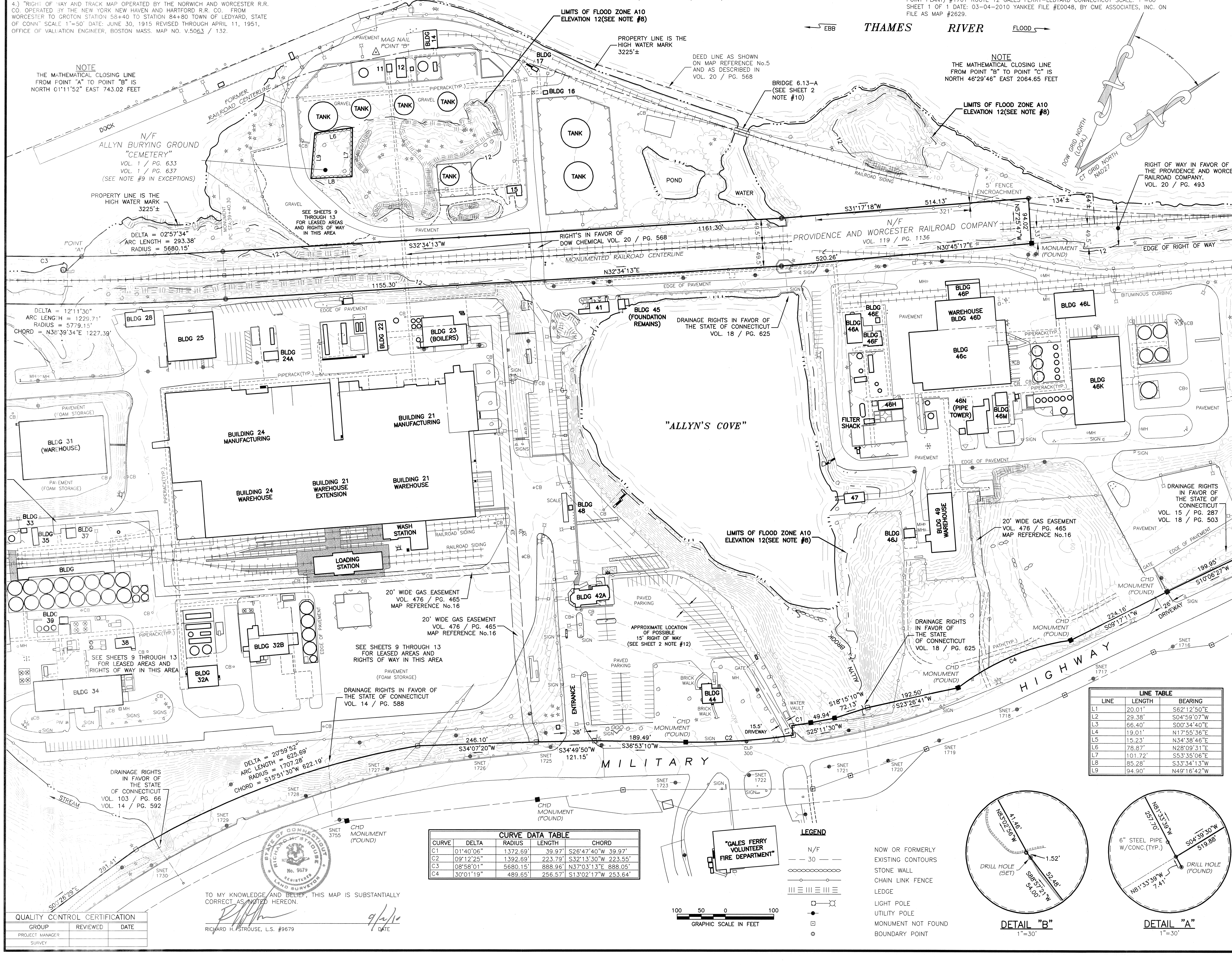
MAP REFERENCES–CONTINUED

13.) "PLAN SHOWING PARCELS OF LAND WITH BUILDINGS PROPERTY OF JAMES L. LEWIS AND ALICE L. LEWIS, PENTWAY AT WEST END CHAPMAN LANE LEDYARD, CONNECTICUT" SCALE 1"=20' DATE JUNE 1976, GEORGE H. DIETER, LAND SURVEYOR, ON FILE AS MAP # 672.

14.) "TOPOGRAPHICAL PLAN, PLAN OF A PORTION OF DOW CHEMICAL CO. ALLYN'S POINT PLANT GALES FERRY, CONN." SCALE: 1"=40' DATE: JULY 9, 1984 REVISIONS THROUGH AUGUST 28, 1984, CHANDLER, PALMER & KING, NORWICH, CONN.

15.) "MONUMENTED PROPERTY SURVEY MAP DEPICTING LAND OF GALES FERRY MARINA, INC. A PORTION OF LAND OF JAMES L. LEWIS AND LUCILLE A LUPINACCI, CHAPMAN LANE, GALES FERRY, LEDYARD, CONNECTICUT" SCALE: 1"=40' DATE: MARCH 26, 1994 REVISED APRIL 19, 1994, DAVID L. STEIN, LAND SURVEYOR, WESTBROOK, CONNECTICUT, ON FILE AS MAP #1753.

16.) COMPILATION PLAN MAP SHOWING EASEMENT AREA TO BE GRANTED TO THE YANKEE GAS SERVICES COMPANY ACROSS THE PROPERTY OF DOW CHEMICAL COMPANY (ALLYN'S POINT PLANT) #1761 ROUTE 12 GALES FERRY–LEDYARD CONNECTICUT SCALE: 1"=60' SHEET 1 OF 1 DATE: 03–04–2010 YANKEE FILE #E0048, BY CME ASSOCIATES, INC. ON FILE AS MAP #2629.



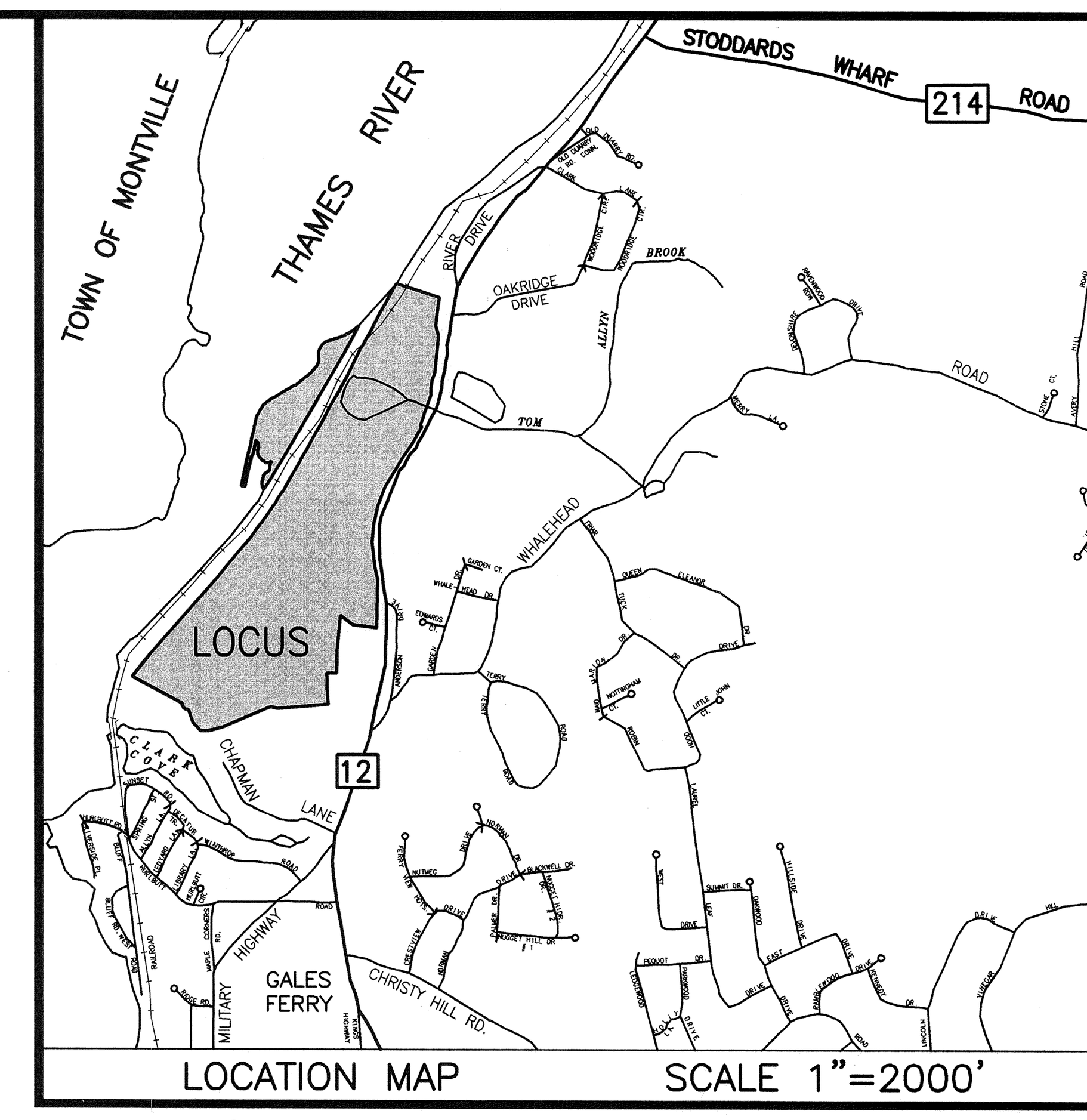
LINE TABLE		
LINE	LENGTH	BEARING
L1	20.01'	S62°12'50"E
L2	29.38'	S04°59'07"W
L3	66.40'	S00°34'40"E
L4	19.01'	N17°55'36"E
L5	15.23'	N34°38'46"E
L6	78.87'	N28°09'31"E
L7	101.72'	S53°35'06"E
L8	85.28'	S33°34'13"W
L9	94.90'	N49°16'42"W

CURVE DATA TABLE				
CURVE	DELTA	RADIUS	LENGTH	CHORD
C1	01°40'06"	1372.69'	39.97'	S26°47'40"W 39.97'
C2	09°12'25"	1392.69'	223.79'	S32°13'30"W 223.55'
C3	08°58'01"	5680.15'	888.96'	N37°03'13"E 888.05'
C4	30°01'19"	489.65'	256.57'	S13°02'17"W 253.64'

TO MY KNOWLEDGE AND BELIEF, THIS MAP IS SUBSTANTIALLY CORRECT AS NOTED HEREON.

RICHARD H. STROUSE, L.S. #9679 — DATE 9/2/10

QUALITY CONTROL CERTIFICATION		
GROUP	REVIEWED	DATE
PROJECT MANAGER		
SURVEY		



NOTES

1.) THIS SURVEY HAS BEEN PREPARED PURSUANT TO THE REGULATIONS OF CONNECTICUT STATE AGENCIES SECTIONS 20–300b–1 THROUGH 20–300b–20 AND THE "STANDARDS FOR SURVEYS AND MAPS IN THE STATE OF CONNECTICUT" AS PREPARED AND ADOPTED BY THE CONNECTICUT ASSOCIATION OF LAND SURVEYORS, INC. ON SEPTEMBER 26, 1996.

THE TYPE OF SURVEY PERFORMED IS A PERIMETER AND TOPOGRAPHIC SURVEY CONFORMING TO THE STANDARDS OF ACCURACY FOR A HORIZONTAL CLASS A–2 AND IS A RESURVEY OF THE SUBJECT PROPERTY.

VERTICAL INFORMATION DEPICTED HEREON CONFORMS TO VERTICAL CLASS T–3 STANDARDS OF ACCURACY. CONTOURS, PHYSICAL FEATURES AND OTHER INFORMATION WAS DERIVED FROM AERIAL MAPPING DONE BY GOLDEN AERIAL SURVEYS, INC. MAPPING SCALE: 1"=40' PHOTO SCALE: 1"=500' PHOTO DATE: 04–27–2001

THIS SURVEY WAS PREPARED TO DEPICT THE BOUNDARY AND EXISTING CONDITIONS OF THE SUBJECT PROPERTY.

2.) THE SUBJECT PARCEL WAS CONVEYED TO STYRON LLC THROUGH A CONVEYANCE RECORDED IN VOLUME 474, PAGE 809 OF THE LEDYARD LAND RECORDS.

3.) SEE SHEET No.2 FOR A LIST OF EASEMENTS, RIGHTS OF WAY AND EXCEPTIONS.

4.) SEE SHEET 8 FOR ADDITIONAL CERTIFICATIONS AND LEGAL DESCRIPTION.

5.) THE SUBJECT PROPERTY IS SHOWN ON THE TOWN OF LEDYARD TAX ASSESSOR MAP No. 47, 61, 75 & 76 AS LOT 1761 OF BLOCK 2120

6.) TOTAL AREA OF PROPERTY = 158.201± ACRES (6,891,237.787± SQUARE FEET).

7.) SITE IS LOCATED IN ZONE I (INDUSTRIAL).

8.) VERTICAL INFORMATION IS REFERENCED TO NGVD 29.

9.) A PORTION OF THIS PROPERTY LIES WITHIN FLOOD ZONE A10–ELEVATION 12 AND ZONE B AS SHOWN ON FIRM, FLOOD INSURANCE RATE MAP TOWN OF LEDYARD, CONNECTICUT NEW LONDON COUNTY PANEL 15 OF 20 COMMUNITY–PANEL NUMBER 090157 0015 B EFFECTIVE DATE: APRIL 1, 1981.

10.) UNDERGROUND UTILITY, STRUCTURE AND FACILITY LOCATIONS DEPICTED AND NOTED HEREON HAVE BEEN COMPILED, IN PART, FROM RECORD MAPPING SUPPLIED BY THE RESPECTIVE UTILITY COMPANIES OR GOVERNMENTAL AGENCIES, FROM PAROL TESTIMONY AND FROM OTHER SOURCES. THESE LOCATIONS MUST BE CONSIDERED AS APPROXIMATE IN NATURE. ADDITIONALLY, OTHER SUCH FEATURES MAY EXIST ON THE SITE, THE EXISTENCE OF WHICH ARE UNKNOWN TO CME ASSOCIATES, INC. THE SIZE, LOCATION AND EXISTENCE OF ALL SUCH FEATURES MUST BE FIELD DETERMINED AND VERIFIED BY THE APPROPRIATE AUTHORITIES PRIOR TO CONSTRUCTION. CALL BEFORE YOU DIG 1–800–922–4455.

CME Associates, Inc.
32 Crabtree Lane, Woodstock, CT 06281
55 Main Street, Suite 340 Norwich, CT 06360
333 East River Drive, East Hartford, CT 06108
50 Elm Street, Southbridge, MA 01550
Phone 888-291-3227
www.cmeengineering.com

PROPERTY AND TOPOGRAPHIC SURVEY
PREPARED FOR
STYRON LLC
"ALLYN'S POINT PLANT"
#1737 & 1761 MILITARY HIGHWAY – ROUTE 12, GALES FERRY
LEDYARD, CONNECTICUT

REVISIONS			
NO.	DATE	DESCRIPTION	BY

JOB DATA	
PROJECT	2010063 DOW
BOOK NO.	4173
DESIGNED	
DRAWN	CB
CHECKED	RHS
COGO FILE	2010063 CB 4–21–2010
FILE	2010063 BND.dwg

DATE: SEPT. 2, 2010

SCALE: 1" = 100'

PROJECT: #2010063

SHEET 1 OF 13

CURVE DATA TABLE				
CURVE	DELTA	RADIUS	LENGTH	CHORD
C1	01°40'06"	1372.69'	39.97'	S26°47'40"W 39.97'
C2	09°12'25"	1392.69'	223.79'	S32°13'30"W 223.55'
C3	08°58'01"	5680.15'	888.96'	N37°03'13"E 888.05'
C4	30°01'19"	489.65'	256.57'	S13°02'17"W 253.64'

NOTE
THE MATHEMATICAL CLOSING LINE FROM POINT "A" TO POINT "B" IS NORTH 01°11'52" EAST 743.02 FEET

LINE TABLE		
LINE	LENGTH	BEARING
L1	20.01'	S62°12'50"E
L2	29.38'	S04°59'07"W
L3	66.40'	S00°34'40"E
L4	19.01'	N17°55'36"E
L5	7.16'	N34°38'46"E

EASEMENTS, RIGHT OF WAYS AND EXCEPTIONS

1.) ELECTRIC AND TELEPHONE EASEMENT IN FAVOR OF THE SHORE LINE ELECTRIC RAILWAY COMPANY DATED JULY 31, 1918 AND RECORDED IN VOLUME 12, PAGE 195 OF THE LEDYARD LAND RECORDS.

2.) DRAINAGE RIGHT IN FAVOR OF THE STATE OF CONNECTICUT SET FORTH IN A DEED TO THE STATE OF CONNECTICUT DATED MAY 1, 1947 AND RECORDED IN VOLUME 14, PAGE 588 OF THE LEDYARD LAND RECORDS.

3.) DRAINAGE RIGHT IN FAVOR OF THE STATE OF CONNECTICUT SET FORTH IN A DEED TO THE STATE OF CONNECTICUT DATED APRIL 22, 1947 AND RECORDED IN VOLUME 14, PAGE 592 OF THE LEDYARD LAND RECORDS.

4.) DRAINAGE RIGHT IN FAVOR OF THE STATE OF CONNECTICUT AS SET FOR THE IN A CERTIFICATE OF TAKING DATED APRIL 22, 1947 AND RECORDED IN VOLUME 18, PAGE 503 AND IN A DEED TO THE STATE OF CONNECTICUT DATED JUNE 8, 1949 AND RECORDED IN VOLUME 15, PAGE 287 OF THE LEDYARD LAND RECORDS.

5.) RIGHT TO DRAIN IN FAVOR OF THE STATE OF CONNECTICUT SET FORTH IN A DEED TO THE STATE OF CONNECTICUT DATED SEPTEMBER 4, 1947 AND RECORDED IN VOLUME 18, PAGE 625 OF THE LEDYARD LAND RECORDS.

6.) DRAINAGE EASEMENT IN FAVOR OF THE STATE OF CONNECTICUT DATED AUGUST 6, 1976 AND RECORDED IN VOLUME 103, PAGE 66 OF THE LEDYARD LAND RECORDS.

7.) EASEMENT IN FAVOR OF THE CONNECTICUT LIGHT AND POWER COMPANY DATED FEBRUARY 11, 1935 AND RECORDED IN VOLUME 16, PAGE 66 OF THE LEDYARD LAND RECORDS.

8.) EASEMENT IN FAVOR OF THE CONNECTICUT LIGHT & POWER COMPANY DATED JUNE 18, 1951 AND RECORDED IN VOLUME 21, PAGE 139 OF THE LEDYARD LAND RECORDS.

9.) NOTICE BY THE LEDYARD BOARD OF SELECTMEN OF THE INTENTION OF THE DOW CHEMICAL COMPANY TO ALLOW ACCESS OVER A PRIVATE COMPANY ROAD FROM ROUTE 12 TO THE CEMETERY AT ALLYN'S POINT AND CERTIFICATION BY THE BOARD DATED NOVEMBER 27, 1950 AND RECORDED IN VOLUME 20, PAGE 552 OF THE LEDYARD LAND RECORDS.

10.) COVENANTS SET FORTH IN A DEED TO DOW CHEMICAL COMPANY DATED NOVEMBER 16, 1950 IN VOLUME 20 PAGE 568.

11.) SUBJECT TO RIPARIAN RIGHTS, AND ANY RIGHTS TO ALLYN'S COVE FROM THE THAMES RIVER THROUGH AND UNDER BRIDGE 6.13–A.

12.) POSSIBLE RIGHTS OF OTHERS IN AND TO A 15' OLD ROAD OR RIGHT OF WAY CROSSING A PORTION OF THE PREMISES AS SHOWN ON MAP REFERENCE No.5.

LEGEND

N/F	NOW OR FORMERLY
VOL	VOLUME
PG	PAGE
SF	SQUARE FEET
— 30 —	EXISTING CONTOURS
	STONE WALL
	RETAINING WALL
	CHAIN LINK FENCE
	TREELINE
	LEDGE
	LIGHT POLE
	MAN HOLE
	HYDRANT
	UTILITY POLE
	MONUMENT NOT FOUND
	BOUNDARY POINT

QUALITY CONTROL CERTIFICATION		
GROUP	REVIEWED	DATE
PROJECT MANAGER		
SURVEY		

TO MY KNOWLEDGE AND BELIEF, THIS MAP IS SUBSTANTIALLY CORRECT AS NOTED HEREON.

RICHARD H. STROUSE, L.S. #9679 — DATE 9/2/10

RICHARD H. STROUSE No. 9679 REGISTERED LAND SURVEYOR

GRAPHIC SCALE IN FEET 100 50 0 100

CME Associates, Inc.
32 Crabtree Lane Woodstock, CT 06281
55 Main Street, Suite 340 Norwich, CT 06360
333 East River Drive, East Hartford, CT 06108
50 Elm Street, Southbridge, MA 01550
Phone 888-291-3227
www.cmeengineering.com

PROPERTY AND TOPOGRAPHIC SURVEY
PREPARED FOR
STYRON LLC
"ALLYN'S POINT PLANT"
#1737 & 1761 MILITARY HIGHWAY – ROUTE 12, GALES FERRY
LEDYARD, CONNECTICUT

REVISIONS			
NO.	DATE	DESCRIPTION	BY

JOB DATA	
PROJECT	2010063 DOW
BOOK NO.	4173
DESIGNED	
DRAWN	CB
CHECKED	RHS
COGO FILE	2010063 CB 4-21-2010
FILE	2010063 BND.dwg

DATE: SEPT. 2, 2010

SCALE: 1" = 100'

PROJECT: #2010063

SHEET
2 OF 13

PZC PERMIT # ___________ DATE OF APPROVAL ___________ EXPIRATION DATE ___________

PZC CHAIRMAN OR SECRETARY ___________ DATE ___________

IWWC PERMIT # ___________ DATE OF APPROVAL ___________

IWWC CHAIRMAN ___________ DATE ___________

REV.	DESCRIPTION OF REVISION	DATE	APPR.

STATE OF CONNECTICUT GEORGE F. ANDREWS JR. No. 19286 LICENSED PROFESSIONAL ENGINEER

Loureiro
Engineering • Construction • EH&S • Energy
Waste • Facility Services • Laboratory
Loureiro Engineering Associates, Inc.
100 Northwest Drive • Plainville, Connecticut 06062
Phone: 860-747-6181 • Fax: 860-747-8822
An Employee Owned Company • www.Loureiro.com

SCALE	COMM. NO.	DRAWN BY	DATE	APPROVED BY	DATE
1"=120'	045JC2.06	ESF	04/03/2023	SRM	04/03/2023

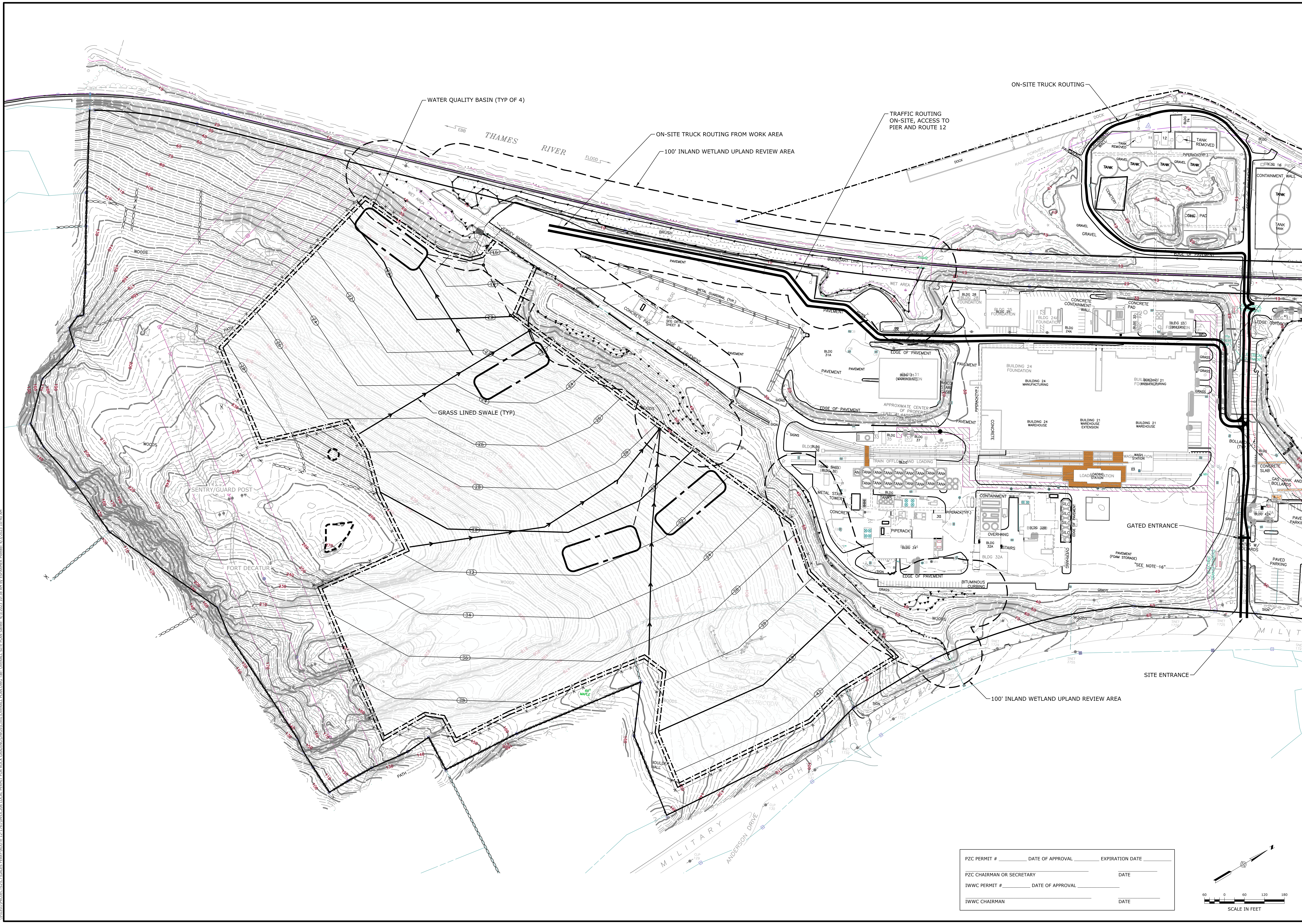
INDUSTRIAL SITE PREPARATION PLAN:
EXISTING CONDITIONS PLAN

GALES FERRY INTERMODAL
1737 & 1761 ROUTE 12, GALES FERRY, CT 06335

PREPARED FOR:
GALES FERRY INTERMODAL LLC
549 SOUTH STREET, QUINCY, MA 02169

DRAWING C-2

SHEET NO. 3 NO. OF SHEETS 13



PZC PERMIT # __________ DATE OF APPROVAL __________ EXPIRATION DATE __________

PZC CHAIRMAN OR SECRETARY __________ DATE __________

IWWC PERMIT # __________ DATE OF APPROVAL __________

IWWC CHAIRMAN __________ DATE __________

REV.	DESCRIPTION OF REVISION	DATE	APPR.

STAMP

Loureiro
Engineering • Construction • EH&S • Energy
Waste • Facility Services • Laboratory

Loureiro Engineering Associates, Inc.
100 Northwest Drive • Plainville, Connecticut 06062
Phone: 860-747-6181 • Fax: 860-747-8822
An Employee Owned Company • www.Loureiro.com

SCALE	COMM. NO.	DRAWN BY	DATE	APPROVED BY	DATE
1"=120'	045JC2.06	ESF	04/03/2023	SRM	04/03/2023

INDUSTRIAL SITE PREPARATION PLAN:
OVERALL SITE PLAN

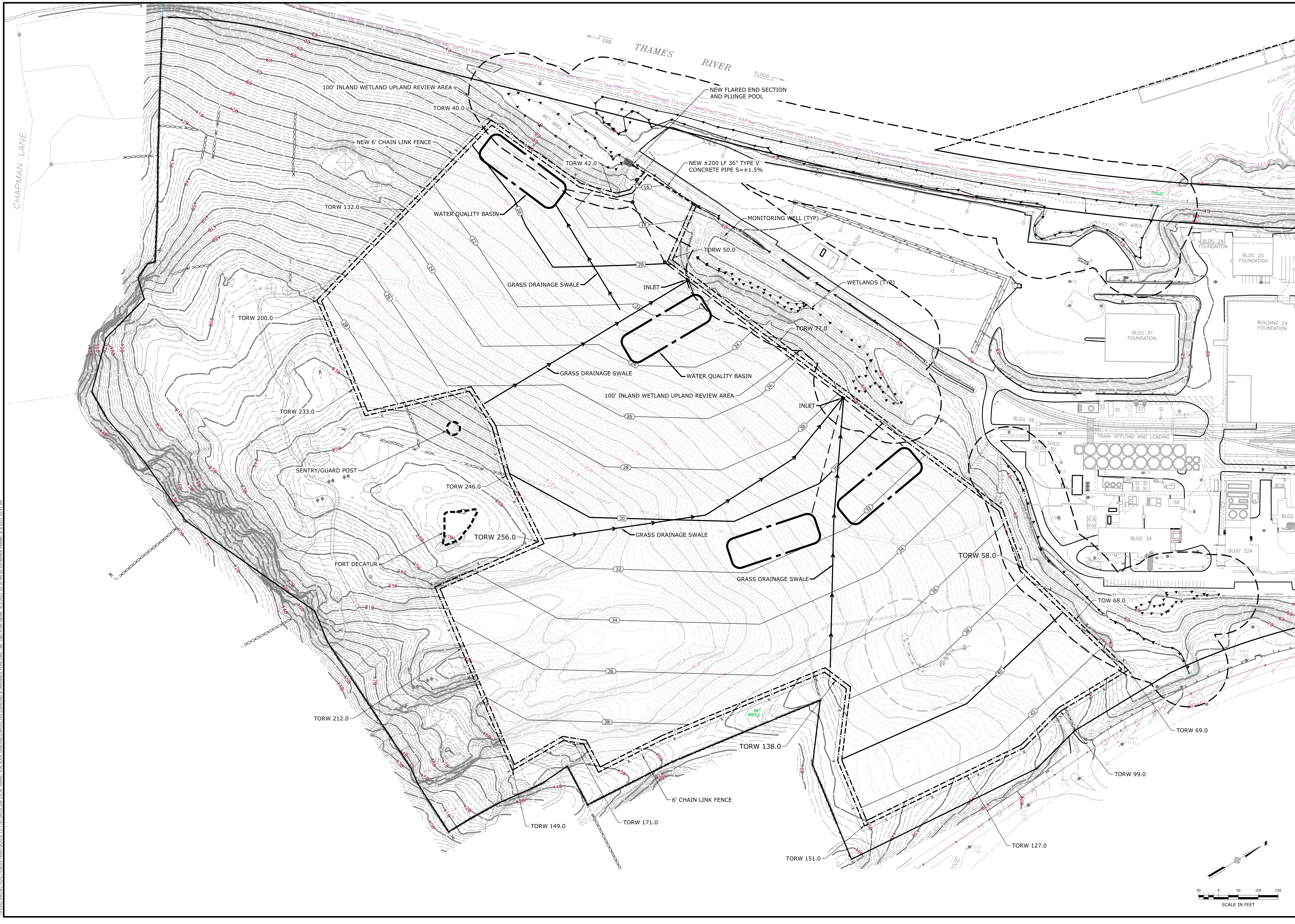
GALES FERRY INTERMODAL
1737 & 1761 ROUTE 12, GALES FERRY, CT 06335

PREPARED FOR:

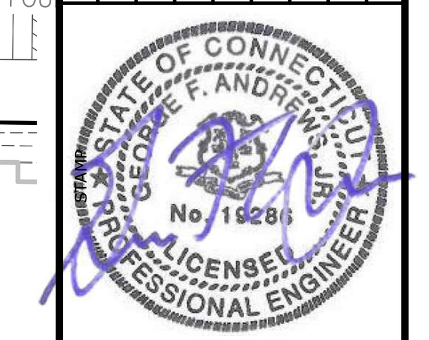
GALES FERRY INTERMODAL LLC
549 SOUTH STREET, QUINCY, MA 02169

DRAWING
C-3

SHEET NO. 4 NO. OF SHEETS 13



THAMES RIVER
CHAPMAN LANE
100' INLAND WETLAND UPLAND REVIEW AREA
TORW 40.0
NEW 6' CHAIN LINK FENCE
NEW FLARED END SECTION AND PLUNGE POOL
TORW 42.0
NEW ±200 LF 36" TYPE V CONCRETE PIPE S=±1.5%
TORW 132.0
WATER QUALITY BASIN
MONITORING WELL (TYP)
TORW 50.0
GRASS DRAINAGE SWALE
INLET
WETLANDS (TYP)
TORW 200.0
TORW 77.0
WATER QUALITY BASIN
100' INLAND WETLAND UPLAND REVIEW AREA
TORW 233.0
INLET
SENTRY/GUARD POST
TORW 246.0
TORW 256.0
GRASS DRAINAGE SWALE
FORT DECATUR
GRASS DRAINAGE SWALE
TORW 58.0
TORW 68.0
TORW 212.0
TORW 138.0
TORW 69.0
6' CHAIN LINK FENCE
TORW 99.0
TORW 149.0
TORW 171.0
TORW 127.0
TORW 151.0
BLDG 28 FOUNDATION
BLDG 25 FOUNDATION
BLDG 31 FOUNDATION
BUILDING 24 FOUNDATION
BLDG 36
TRAIN OFFLOAD AND LOADING
BLDG 34
BLDG 32A
SCALE IN FEET



REV.	DESCRIPTION OF REVISION	DATE	APPR.

Loureiro Engineering Associates, Inc.
Engineering • Construction • EH&S • Energy • Waste • Facility Services • Laboratory
100 Northwest Drive • Plainville, Connecticut 06062
Phone: 860-747-6181 • Fax: 860-747-8822
An Employee Owned Company • www.Loureiro.com

SCALE	COMM. NO.	DRAWN BY	DATE	APPROVED BY	DATE
1"=100'	0451C2.06	ESF	04/03/2023	SRM	04/03/2023

INDUSTRIAL SITE PREPARATION PLAN:

GRADING AND DRAINAGE PLAN

GALES FERRY INTERMODAL

1737 & 1761 ROUTE 12, GALES FERRY, CT 06335

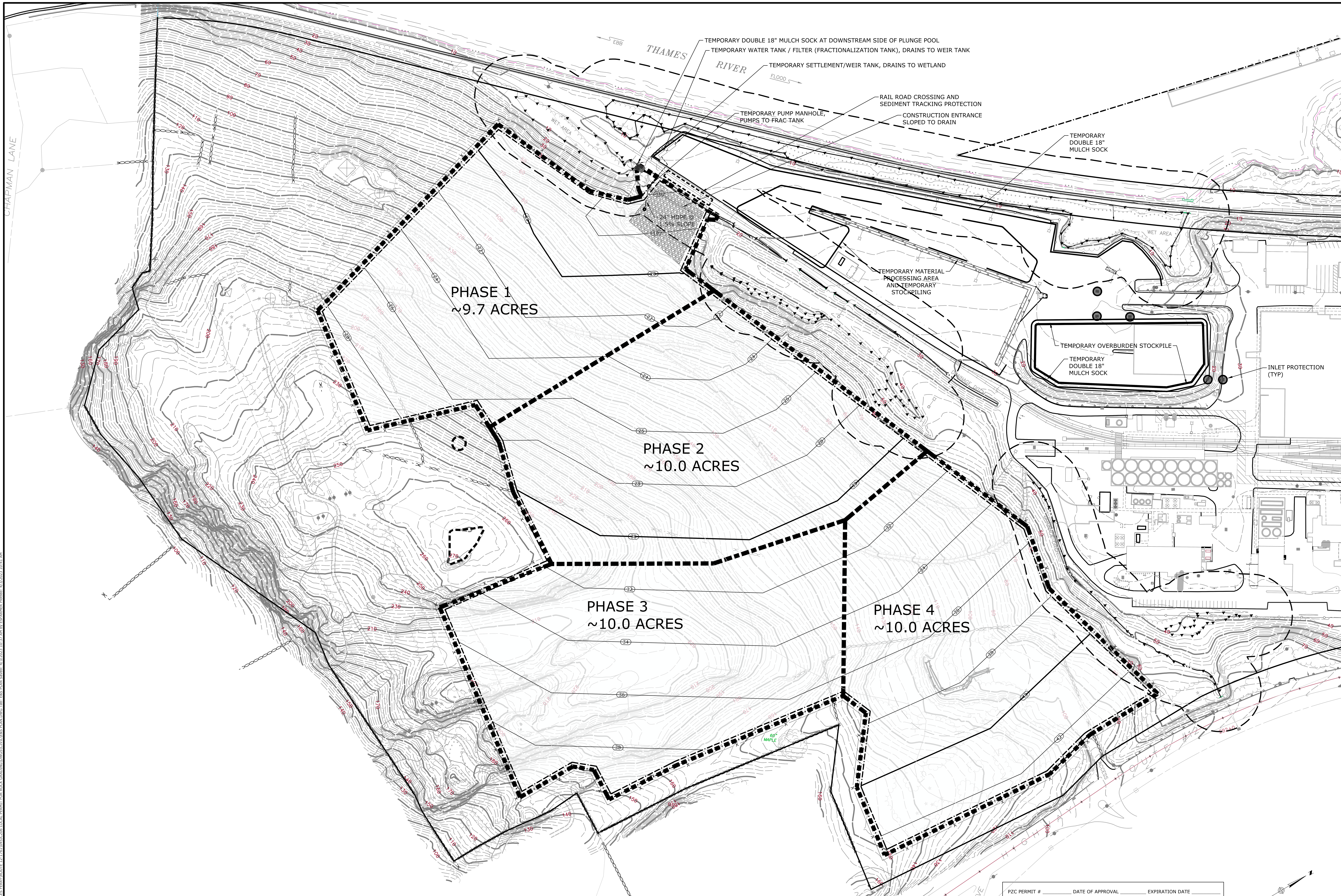
PREPARED FOR:

GALES FERRY INTERMODAL LLC

549 SOUTH STREET, QUINCY, MA 02169

DRAWING C-4

SHEET NO. 5 NO. OF SHEETS 13



PZC PERMIT # __________ DATE OF APPROVAL __________ EXPIRATION DATE __________

PZC CHAIRMAN OR SECRETARY __________ DATE __________

IWWC PERMIT # __________ DATE OF APPROVAL __________

IWWC CHAIRMAN __________ DATE __________

REV.	DESCRIPTION OF REVISION	DATE	APPR.

STAMP: STATE OF CONNECTICUT GEORGE F. ANDREWS JR. No. 19286 LICENSED PROFESSIONAL ENGINEER

Loureiro
Engineering • Construction • EH&S • Energy
Waste • Facility Services • Laboratory
Loureiro Engineering Associates, Inc.
100 Northwest Drive • Plainville, Connecticut 06062
Phone: 860-747-6181 • Fax: 860-747-8822
An Employee Owned Company • www.Loureiro.com

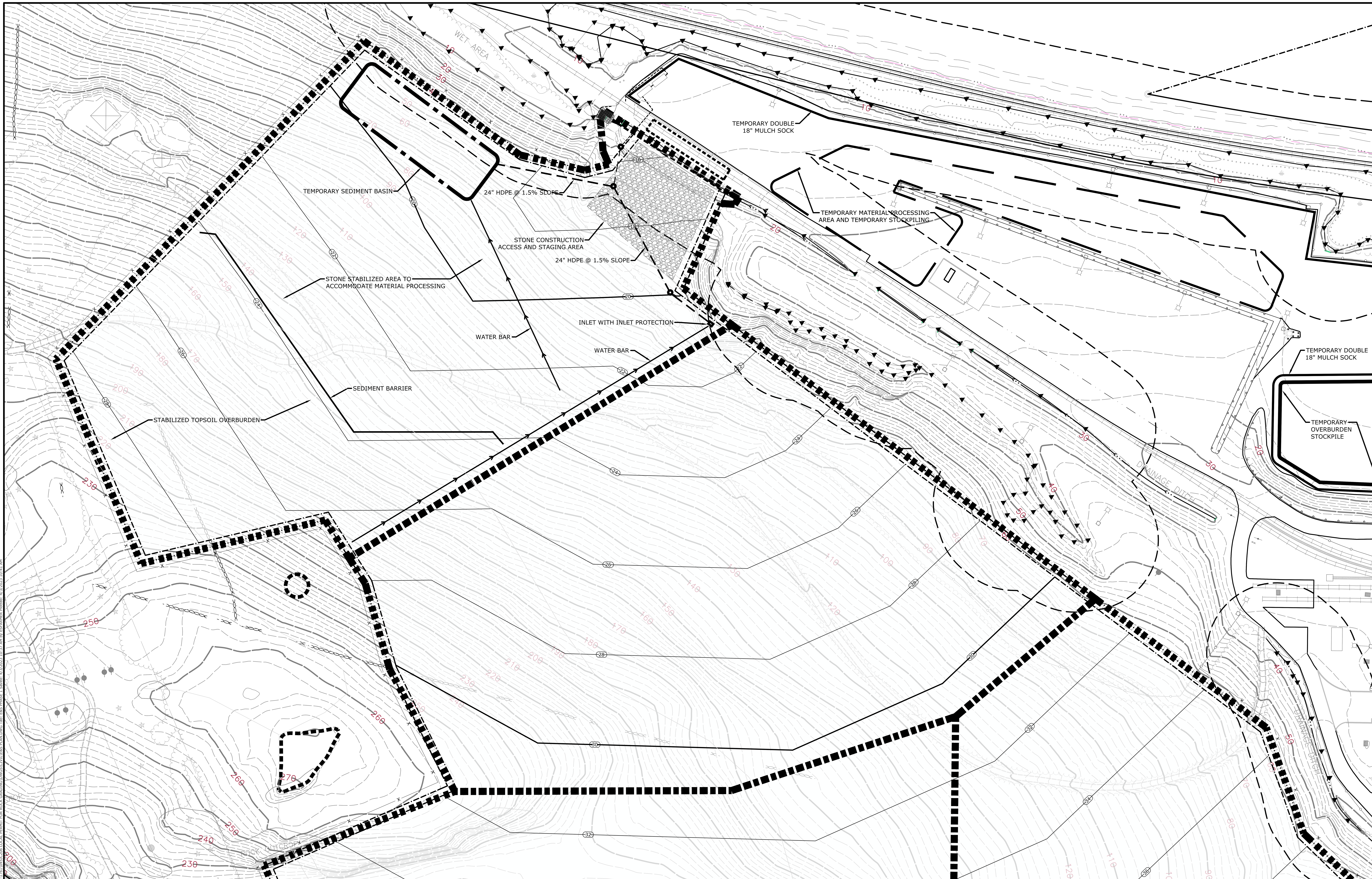
SCALE 1"=100'
COMM. NO. 045JC2.06
DRAWN BY ESF — DATE 04/03/2023
APPROVED BY SRM — DATE 04/03/2023

INDUSTRIAL SITE PREPARATION PLAN:
SOIL EROSION & SEDIMENT CONTROL - OVERALL PHASING

GALES FERRY INTERMODAL
1737 & 1761 ROUTE 12, GALES FERRY, CT 06335
PREPARED FOR:
GALES FERRY INTERMODAL LLC
549 SOUTH STREET, QUINCY, MA 02169

DRAWING C-5

SHEET NO. 6 — NO. OF SHEETS 13



PZC PERMIT # ___________ DATE OF APPROVAL _________ EXPIRATION DATE ___________

PZC CHAIRMAN OR SECRETARY DATE

IWWC PERMIT #___________ DATE OF APPROVAL ___________

IWWC CHAIRMAN DATE

SCALE IN FEET (30 0 30 60 90)

REV.	DESCRIPTION OF REVISION	DATE	APPR.

STAMP: STATE OF CONNECTICUT, GEORGE F. ANDREWS JR., No. 19286, LICENSED PROFESSIONAL ENGINEER

Loureiro
Engineering • Construction • EH&S • Energy
Waste • Facility Services • Laboratory

Loureiro Engineering Associates, Inc.
100 Northwest Drive • Plainville, Connecticut 06062
Phone: 860-747-6181 • Fax: 860-747-8822
An Employee Owned Company • www.Loureiro.com

SCALE	COMM. NO.	DRAWN BY	DATE	APPROVED BY	DATE
1"=60'	045JC2.06	ESF	04/03/2023	SRM	04/03/2023

INDUSTRIAL SITE PREPARATION PLAN:
SOIL EROSION & SEDIMENT CONTROL - PHASE 1

GALES FERRY INTERMODAL
1737 & 1761 ROUTE 12, GALES FERRY, CT 06335

PREPARED FOR:
GALES FERRY INTERMODAL LLC
549 SOUTH STREET, QUINCY, MA 02169

DRAWING **C-6**

SHEET NO. 7 NO. OF SHEETS 13

TEMPORARY DOUBLE 18" MULCH SOCK

CONVERT TEMPORARY SEDIMENT BASIN INTO WATER QUALITY BASIN

TEMPORARY MATERIAL PROCESSING AREA AND TEMPORARY STOCKPILING

STONE CONSTRUCTION ACCESS AND STAGING AREA

24" HDPE @ 1.5% SLOPE

STONE STABILIZED AREA

24" HDPE @ 1.5% SLOPE

INLET

STABILIZED TOPSOIL OVERBURDEN

SEDIMENT BARRIER

TEMPORARY DOUBLE 18" MULCH SOCK

TEMPORARY OVERBURDEN STOCKPILE

WATER BAR

24" HDPE @ 1.5% SLOPE

TEMPORARY SEDIMENT BASIN, CONVERT TO WATER QUALITY BASIN

CONSTRUCTION ACCESS

INLET

STONE STABILIZED AREA TO ACCOMMODATE MATERIAL PROCESSING

STABILIZED TOPSOIL OVERBURDEN

SEDIMENT BARRIER

WATER BAR

WET AREA

DRAINAGE DITCH

ROCK OUTCROP

PZC PERMIT # _____ DATE OF APPROVAL _____ EXPIRATION DATE _____

_____ _____

PZC CHAIRMAN OR SECRETARY DATE

IWWC PERMIT # _____ DATE OF APPROVAL _____

_____ _____

IWWC CHAIRMAN DATE

30 0 30 60 90

SCALE IN FEET

REV.	DESCRIPTION OF REVISION	DATE	APPR.

STATE OF CONNECTICUT
GEORGE F. ANDRICOS
No. 18281
LICENSED PROFESSIONAL ENGINEER

Loureiro Engineering Associates, Inc.
100 Northfield Street, Greenwich, CT 06830
Phone: 860-747-6181 • Fax: 860-747-8822
An Employee Owned Company • www.Loureiro.com

SCALE 1"=60'
COMM. NO. 0493C2.06
DRAWN BY ESF
DATE 04/03/2023
APPROVED BY SRM
DATE 04/03/2023

INDUSTRIAL SITE PREPARATION PLAN:
SOIL EROSION & SEDIMENT CONTROL - PHASE 2

PREPARED FOR:
GALES FERRY INTERMODAL
1737 & 1761 ROUTE 12, GALES FERRY, CT 06335
GALES FERRY INTERMODAL LLC
549 SOUTH STREET, QUINCY, MA 02169

DRAWING
C-7

SHEET NO. 8 NO. OF SHEETS 13

WATER BAR

CONVERT TEMPORARY SEDIMENT BASIN INTO WATER QUALITY BASIN

24" HDPE @ 1.5%SLOPE

INLET

STONE STABILIZED AREA TO ACCOMMODATE MATERIAL PROCESSING

STABILIZED TOPSOIL OVERBURDEN

SEDIMENT BARRIER

24" HDPE @ 1.5%SLOPE

CONSTRUCTION ACCESS

WATER BAR

TEMPORARY SEDIMENT BASIN

CONSTRUCTION ACCESS

STABILIZED TOPSOIL OVERBURDEN

60" MAPLE

TEMPORARY OVERBURDEN STOCKPILE

DRAINAGE DITCH

DRAINAGE DITCH

ROCK OUTCROP

PZC PERMIT # _____ DATE OF APPROVAL _____ EXPIRATION DATE _____

_____ _____

PZC CHAIRMAN OR SECRETARY DATE

IWWC PERMIT #_____ DATE OF APPROVAL _____

_____ _____

IWWC CHAIRMAN DATE

30 0 30 60 90

SCALE IN FEET

DESCRIPTION OF REVISION	DATE	APPR.

STATE OF CONNECTICUT
GEORGE F. ANDRIKOPOULOS
No. 18284
LICENSED PROFESSIONAL ENGINEER

Loureiro Engineering Associates, Inc.
100 Northfield Street • Greenwich, CT 06830
Phone: 860-747-6181 • Fax: 860-747-8822
An Employee Owned Company • www.Loureiro.com

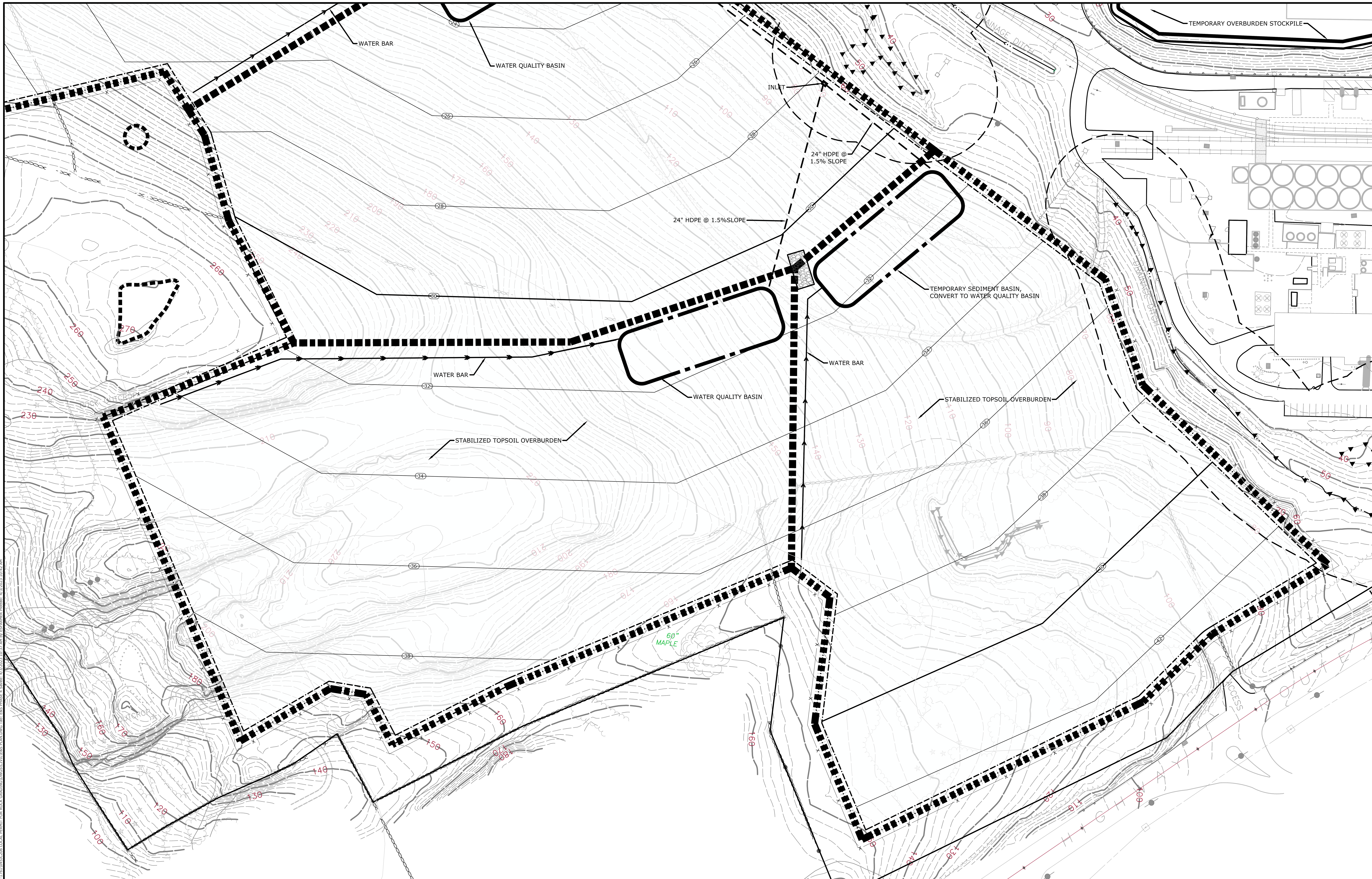
SCALE 1"=60'
COMM. NO. 045C2.06
DRAWN BY ESF
APPROVED BY SRM
DATE 04/03/2023
DATE 04/03/2023

INDUSTRIAL SITE PREPARATION PLAN:
SOIL EROSION & SEDIMENT CONTROL - PHASE 3

GALES FERRY INTERMODAL
1737 & 1761 ROUTE 12, GALES FERRY, CT 06335
PREPARED FOR:
GALES FERRY INTERMODAL LLC
549 SOUTH STREET, QUINCY, MA 02169

DRAWING
C-8

SHEET NO. 9 NO. OF SHEETS 13



PZC PERMIT # ___________ DATE OF APPROVAL __________ EXPIRATION DATE ____________

PZC CHAIRMAN OR SECRETARY ______________________ DATE ________

IWWC PERMIT # ___________ DATE OF APPROVAL ______________________

IWWC CHAIRMAN ______________________ DATE ________

REV.	DESCRIPTION OF REVISION	DATE	APPR.

STAMP: STATE OF CONNECTICUT, GEORGE F. ANDREWS, JR., No. 19286, LICENSED PROFESSIONAL ENGINEER

Loureiro
Engineering • Construction • EH&S • Energy
Waste • Facility Services • Laboratory

Loureiro Engineering Associates, Inc.
100 Northwest Drive • Plainville, Connecticut 06062
Phone: 860-747-6181 • Fax: 860-747-8822
An Employee Owned Company • www.Loureiro.com

SCALE	COMM. NO.	DRAWN BY	DATE	APPROVED BY	DATE
1"=60'	045JC2.06	ESF	04/03/2023	SRM	04/03/2023

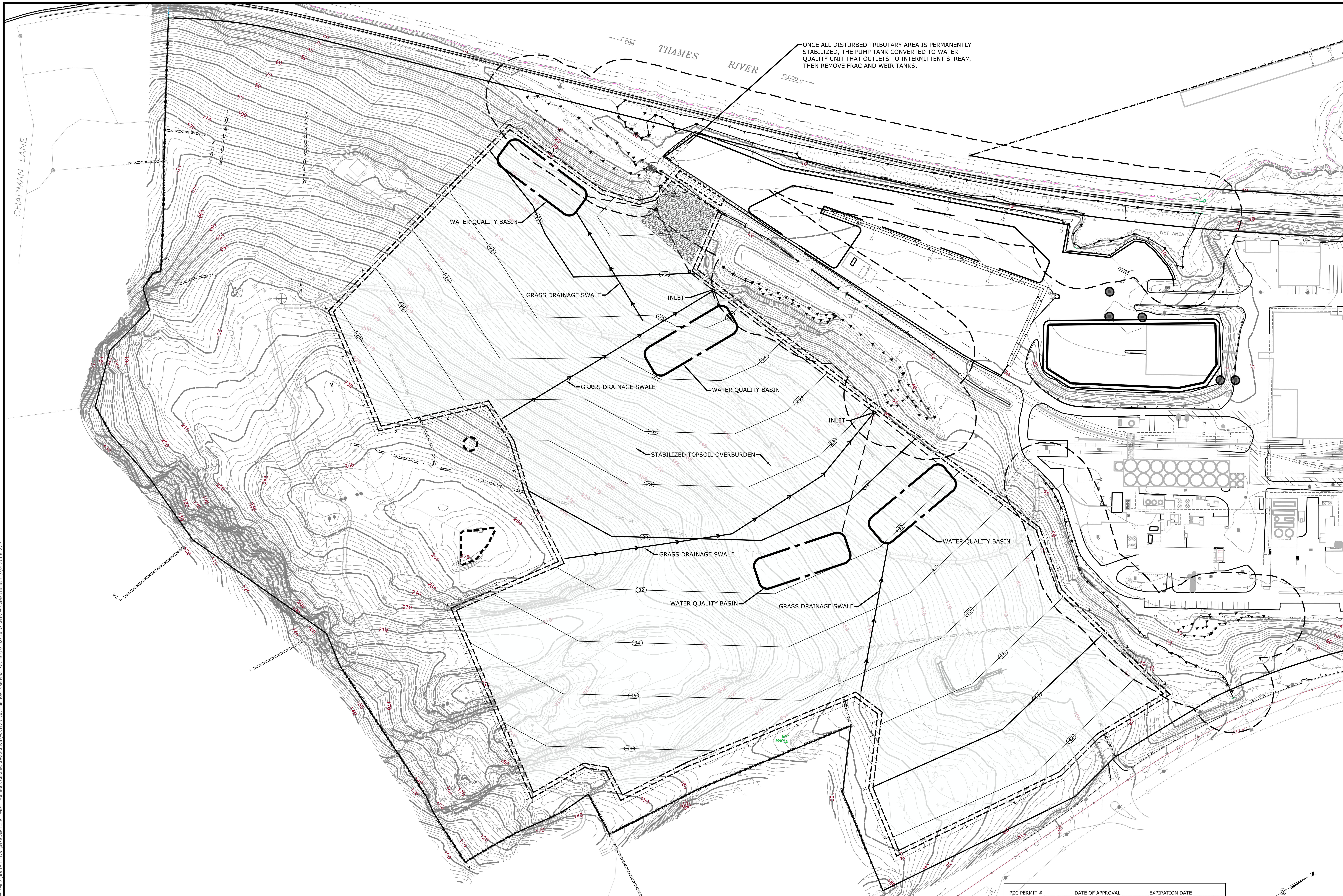
INDUSTRIAL SITE PREPARATION PLAN:
SOIL EROSION & SEDIMENT CONTROL - PHASE 4

GALES FERRY INTERMODAL
1737 & 1761 ROUTE 12, GALES FERRY, CT 06335

PREPARED FOR:
GALES FERRY INTERMODAL LLC
549 SOUTH STREET, QUINCY, MA 02169

DRAWING **C-9**

SHEET NO. 10 NO. OF SHEETS 13



PZC PERMIT # ___________ DATE OF APPROVAL __________ EXPIRATION DATE ___________

PZC CHAIRMAN OR SECRETARY DATE

IWWC PERMIT #___________ DATE OF APPROVAL ________________

IWWC CHAIRMAN DATE

REV.	DESCRIPTION OF REVISION	DATE	APPR.

STATE OF CONNECTICUT GEORGE F. ANDREWS JR. No. 19286 LICENSED PROFESSIONAL ENGINEER

Loureiro
Engineering • Construction • EH&S • Energy
Waste • Facility Services • Laboratory
Loureiro Engineering Associates, Inc.
100 Northwest Drive • Plainville, Connecticut 06062
Phone: 860-747-6181 • Fax: 860-747-8822
An Employee Owned Company • www.Loureiro.com

SCALE	COMM. NO.	DRAWN BY	DATE	APPROVED BY	DATE
1"=100'	045JC2.06	ESF	04/03/2023	SRM	04/03/2023

INDUSTRIAL SITE PREPARATION PLAN:
SOIL EROSION & SEDIMENT CONTROL - FINAL

GALES FERRY INTERMODAL
1737 & 1761 ROUTE 12, GALES FERRY, CT 06335

PREPARED FOR:
GALES FERRY INTERMODAL LLC
549 SOUTH STREET, QUINCY, MA 02169

DRAWING
C-10

SHEET NO. 11 NO. OF SHEETS 13

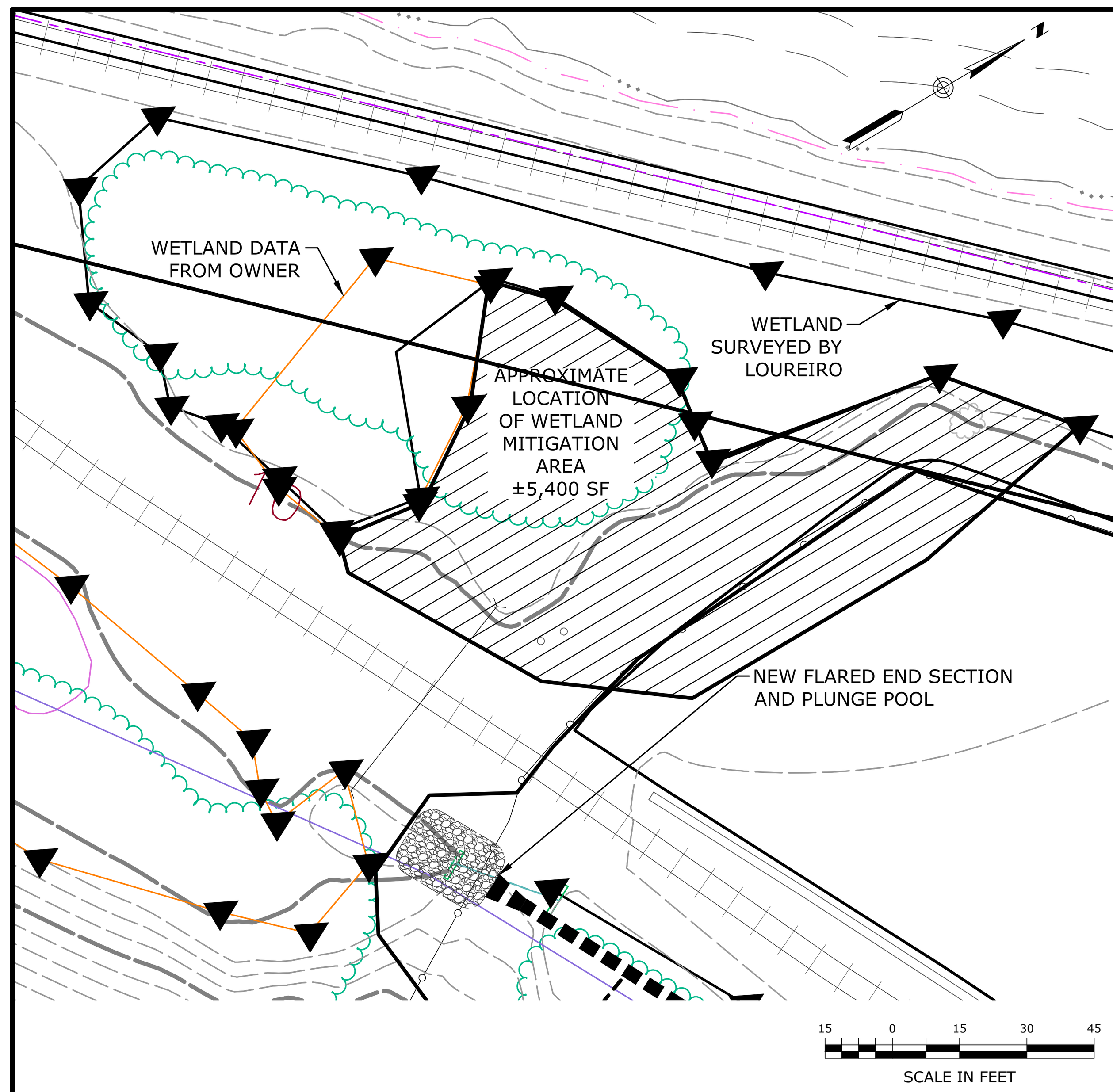


Table 3. Herbs						Wetland Creation Area	TotalS
Hydrologic Zones: Zone A: Saturated/Shallow inundation; **Zone B**: seasonally saturated, moist **Zone C:** moderately well drained, usually moist; **Zone D:** well-drained							
Scientific Name	**Zone**	**Common Name**	**Form**	**NWI***	**Spacing**		
Asclepias incarnata	A,B	Swamp milkweed	2"plug	OBL	2'OC	50	50
Carex lupulina	B	Hop sedge	2" plug	FACW	2'OC	100	100
Eutrochium purpureum	B	Purple Joe Pye weed	2" plug	FAC	3'OC	50	50
Juncus canadensis	A,B	Canada rush	2" plug	OBL	2'OC	50	50
Mimulus ringens	B	Monkey-flower	2" plug	OBL	2'OC	50	50
Monarda fistulosa	C	Wild bergamot	2" plug	UPL	3'OC	50	50
Panicum virgatum	C	Switchgrass	2" plug	FAC	3'OC	100	100
Onoclea sensibilis	B	Sensitive fern	6" pot	FAC	2'OC	20	20
Verbena hastata	B	Blue vervain	2" plug	FACW	3'OC	50	50
Vernonia noveborecensis	B	New York Ironweed	2" plug	FACW	3'OC	50	50
Zizia aurea	B	Golden alexanders	2" plug	FAC	3'OC	50	50
Total:						620	620

** NWI Status (National Wetland Inventory; National Wetland Plant List: Northcentral & Northeast)*

NOTES:

1. Plant between May 15 and June 30 for herbaceous species. July planting will need watering through end of August.
2. Purchased woody material may be installed either in the spring (April 15 to June 15), or in the fall (August 15 to October15)
3. Plant in same species groupings of three to six shrubs, ten to twenty for herbs
4. Use seed mixes from New England Wetland Plants, Inc., South Hadley, MA (see Table 4), at specified seeding rate.
5. No seeding or plants in 3' diameter circle around each shrub and tree,1' around plugs; mulch with shredded bark
6. Water and weed as needed during first growing season.

Table 1. Trees							Wetland Creation Area	TotalS
Hydrologic Zones: Zone A: Saturated/Shallow inundation; **Zone B**: seasonally saturated, moist **Zone C:** moderately well drained, usually moist; **Zone D**: well-drained								
Scientific Name	**Zone**	**Common Name**	**Size**	**Shade tolerant?**	**NWI***	**Form**		
FULL SIZE TREES								
Nyssa sylvatica	B,C	Black gum	4'-6'	Y	FAC	nursery pot	1	1
Quercus palustris	B,C	Pin Oak	4'-6'	Y	FACW	nursery pot	2	2
Acer rubrum	D	Red maple	4'-6'	Y	FACU-	nursery pot	2	2
Total:							5	5
SMALL TREES/LARGE SHRUBS								
Amelanchier canadensis	C,D	Shadblow	3'-4'	Y/N	FAC	nursery pot	2	2
Salix discolor	B,C	Pussy willow	3'-4'	N	FACW	nursery pot	4	4
Juniperus virginiana	C,D	Red cedar	3'-4'	Y	UPL	nursery pot	8	8
Total:							14	14

Table 2. Shrubs								Totals
Scientific Name	**Zone**	**Common Name**	**Size**	**Shade tolerant?**	**NWI***	**Form**		
MEDIUM TO LOW SHRUBS								
Aronia arbutifolia	B,C	Chokeberry	3'-4'	N	FACW	pot	6	6
Clethra alnifolia	B,C	Sweet pepperbush	3'-4'	Y	FAC+	pot	6	6
Corylus americana	C,D	American hazelnut	3'-4'	Y	FACU-	pot	6	6
Ilex verticillata	B,C	Winterberry	3'-4'	Y	FACW+	pot	8	8
Lyonia ligustrina	B,C	Maleberry	3'-4'	Y/N	FACW	pot	8	8
Morella pensylvanica	C,D	Bayberry	3'-4'	N	FAC	pot	8	8
Vaccinium corymbosum	B	Highbush blueberry	3'-4'	Y	FACW	pot	10	10
Viburnum lentago	B,C	Nannyberry	3'-4'	Y	FAC	pot	10	10
Spiraea latifolia	B,C	Meadowsweet	3'-4'	N	FAC+	pot	30	30
Swida racemosa	B,C	Gray dogwood	3'-4'	Y	FAC	pot	15	15
Rosa palustris	A	Swamp rose	3'-4'	Y	OBL	pot	5	5
Total:							112	112

PZC PERMIT # __________ DATE OF APPROVAL __________ EXPIRATION DATE __________

PZC CHAIRMAN OR SECRETARY __________ DATE

IWWC PERMIT # __________ DATE OF APPROVAL __________

IWWC CHAIRMAN __________ DATE

New England Conservation/Wildlife Mix

Botanical Name	Common Name	Indicator
Elymus virginicus	Virginia Wild Rye	FACW-
Schizachyrium scoparium	Little Bluestem	FACU
Andropogon gerardii	Big Bluestem	FAC
Festuca rubra	Red Fescue	FACU
Sorghastrum nutans	Indian Grass	UPL
Panicum virgatum	Switch Grass	FAC
Chamaecrista fasciculata	Partridge Pea	FACU
Desmodium canadense	Showy Tick Trefoil	FAC
Asclepias tuberosa	Butterfly Milkweed	NI
Bidens frondosa	Beggar Ticks	FACW
Eupatorium purpureum (Eutrochium maculatum)	Purple Joe Pye Weed	FAC
Rudbeckia hirta	Black Eyed Susan	FACU-
Aster pilosus (Symphyotrichum pilosum)	Heath (or Hairy) Aster	UPL
Solidago juncea	Early Goldenrod	

PRICE PER LB. $39.50 MIN. QUANITY 2 LBS. **TOTAL:** $79.00 APPLY: 25 LBS/ACRE :1750 sq ft/lb

The New England Conservation/Wildlife Mix provides a permanent cover of grasses, wildflowers, and legumes
For both good erosion control and wildlife habitat value. The mix is designed to be a no maintenance seeding, and is appropriate for cut and fill slopes, detention basin side slopes, and disturbed areas adjacent to commercial and residential projects.

New England Wetland Plants, Inc. may modify seed mixes at any time depending upon seed availability. The design criteria and ecological function of the mix will remain unchanged. Price is $/bulk pound, FOB warehouse, Plus SH and applicable taxes.

New England Wetmix (Wetland Seed Mix)

Botanical Name	Common Name	Indicator
Carex vulpinoidea	Fox Sedge	OBL
Carex scoparia	Blunt Broom Sedge	FACW
Carex lurida	Lurid Sedge	OBL
Carex lupulina	Hop Sedge	OBL
Poa palustris	Fowl Bluegrass	FACW
Bidens frondosa	Beggar Ticks	FACW
Scirpus atrovirens	Green Bulrush	OBL
Asclepias incarnata	Swamp Milkweed	OBL
Carex crinita	Fringed Sedge	OBL
Vernonia noveboracensis	New York Ironweed	FACW+
Juncus effusus	Soft Rush	FACW+
Aster lateriflorus (Symphyotrichum lateriflorum)	Starved/Calico Aster	FACW
Iris versicolor	Blue Flag	OBL
Glyceria grandis	American Mannagrass	OBL
Mimulus ringens	Square Stemmed Monkey Flower	OBL
Eupatorium maculatum (Eutrochium maculatum)	Spotted Joe Pye Weed	OBL

PRICE PER LB. $135.00 MIN. QUANITY 1 LBS. **TOTAL:** $135.00 APPLY: 18 LBS/ACRE :2500 sq ft/lb

The New England Wetmix (Wetland Seed Mix) contains a wide variety of native seeds that are suitable for most wetland restoration sites that are not permanently flooded. All species are best suited to moist ground as found in most wet meadows, scrub shrub, or forested wetland restoration areas. The mix is well suited for detention basin borders and the bottom of detention basins not generally under standing water. The seeds will not germinate under inundated conditions. If planted during the fall months the seed mix will germinate the following spring. During the first season of growth several species will produce seeds while other species will produce seeds after the second growing season. Not all species will grow in all wetland situations. This mix is comprised of the wetland species most likely to grow in created/restored wetlands and should produce more than 75% ground cover in two full growing seasons.

The wetland seeds in this mix can be sown by hand, with a hand-held spreader, or hydro-seeded on large or hard to reach sites. Lightly rake to insure good seed-to-soil contact. Seeding can take place on frozen soil, as the freezing and thawing weather of late fall and late winter will work the seed into the soil. If spring conditions are drier than usual watering may be required. If sowing during the summer months supplemental watering will likely be required until germination. A light mulch of clean, weed free straw is recommended.

New England Wetland Plants, Inc. may modify seed mixes at any time depending upon seed availability. The design criteria and ecological function of the mix will remain unchanged. Price is $/bulk pound, FOB warehouse, Plus SH and applicable taxes.

Table 4: Seed Mixes for Wetland Mitigation Area

COMMENTS:
See notes accompanying each seed mix for additional guidance pertaining to the season that seed mix is applied. Implementation notes also include a section on seeding.

		Total (lbs per seed mix)
NEWP Seed Mix #1	***Wetland Creation Area***	
New England Wetmix ***1 lb/2,500 sf***	*(in seasonally saturated to moist areas)*	3
NEWP Seed Mix #2	***Wetland Creation Area*** *(moist edges)*	
New England Conservation/Wildlife Mix ***1 lb/1,750 sf***	*(also on 3:1 slopes above wetland)*	2
	TOTAL:	5

Notes:

1. Mix 1:1 with filler (coarse sand, kitty litter) to help correctly divide seed packages and for even spreading.
2. Mixes contain seeds with a range of hydrologic tolerances, so different species will thrive in different areas.
3. Plants will set seed and spread further, increasing in density, becoming concnetrated in most suitable areas.
4. Mulch (do not seed) areas under and around plug & shrub clusters, to exclude weeds and hold moisture. (Coverage specified assumes area occupied by mulched woody plantings has been subtracted.)
5. A late fall seeding will require 20% more seed, because some seed wil be lost to wash off and herbivory, but germination rates will actually be higher the following spring, due to the cold winter stratification of the seed.

Source:
New England Wetland Plants, 14 Pearl Lane, South Bradley, Massachusetts; phone: 413-548-8000

MITIGATION PLAN FOR CREATION OF WETLAND HABITATS

IMPLEMENTATION NOTES

1.0 INTRODUCTION

EMERGENT AND SCRUB-SHRUB WETLAND (I.E., WET MEADOW/MARSH AND SHRUB SWAMP) CREATION BY EXCAVATION, AND HERBACEOUS AND WOODY PLANTINGS, WILL TAKE PLACE AT ONE LOCATION ON THE SUBJECT SITE, AT THE SOUTHWESTERN PORTION OF THE OVERALL PROPERTY, SOUTHERLY OF AN EXISTING PAVED STORAGE AREA, EASTERLY OF EXISTING RAILROAD TRACKS, AND IMMEDIATELY ADJACENT AND TO THE NORTH OF A DELINEATED WETLAND, WHICH DOES NOT HAVE A SURFACE WATER CONNECTION TO THE TIDAL WATERS OF THE THAMES RIVER.

A PORTION OF THE SELECTED WETLAND MITIGATION SITE IS CURRENTLY PAVED. SOILS RANGE FROM WELL DRAINED, TO MODERATELY WELL DRAINED FINE SANDY LOAMS TO LOAMY SAND. BASED ON PRELIMINARY SOIL EXPLORATION THE SITE WAS PREVIOUSLY A WETLAND, WITH A FOOT OR MORE OF FILL PLACED OVER PRE-EXISTING POORLY DRAINED WETLAND SOILS.

THOUGH SOME GOOD-QUALITY NATIVE VEGETATION OF FORESTED WETLAND HABITATS DOMINATE THE ADJACENT EXISTING WETLAND, THE SELECTED CREATION AREA HAS LOW HABITAT VALUE, INCLUDING DOMINANCE BY INVASIVE PLANTS (E.G., MULTIFLORA ROSE, MUGWORT, ASIATIC BITTERSWEET, TREE OF HEAVEN, ETC.).

IN-KIND MITIGATION (I.E., CREATION) IS PROPOSED TO OFF-SET LOST FUNCTIONS & VALUES FROM THE CURRENTLY PROPOSED PERMANENT WETLAND IMPACT (I.E., +/- ***1,700 SQUARE FEET***) (I.E., "WETLAND Z") THE GOAL IS TO CREATE ECOLOGICAL COMMUNITIES WITH AT LEAST COMPARABLE, AND PREFERABLY HIGHER, FUNCTIONS AND COMPLIMENTARY WETLAND COVER TYPES TO THE WETLAND THAT WOULD BE IMPACTED. THE INITIAL TARGET COVER TYPE RATIO FOR THE WETLAND REPLICATION SHALL BE ½ EMERGENT (I.E., WET MEADOW, MARSH) AND ½ SCRUB SHRUB HABITATS. APPROXIMATELY ***5,400 SQUARE FEET*** OF PRODUCTIVE WETLAND CAN BE CREATED AT THIS LOCATION.

THE WETLAND CREATION GOAL IS 100% COVER, AND 95% COVER BY NATIVE SPECIES, BY THE END OF THE FIVE-YEAR (5) MONITORING PERIOD. PLANT SPECIES WERE SELECTED TO ENCOMPASS THE FOLLOWING CRITERIA: FOOD PLANTS FOR CATEPILLARS, BEETLES, AND OTHER INSECTS; FRUIT, SEED, AND NUT PRODUCTION IN DIFFERENT SEASONS, INCLUDING PERSISTENT WINTER FRUIT AND SPRING SEEDS; FORAGE FOR VERTEBRATE HERBIVORES; SUITABLE MICRO-HABITATS FOR OVERWINTERING INSECTS; AND NECTAR AND POLLEN THROUGHOUT THE GROWING SEASON (SEE TABLE 3). SPECIES ALREADY PRESENT IN NEARBY WETLAND HABITATS, ESPECIALLY WOODY SPECIES, WERE SELECTED FIRST, AS THEY ARE ALREADY USED BY THE LOCAL FAUNAL ASSEMBLAGE.

2.0 WETLAND CREATION

PREPARATION

1. ORDER THE TRAYS OF HERBACEOUS PLUGS AND THE SEED MIX, FOR DELIVERY RIGHT AFTER COMPLETION OF GRADING. STORE IN SHADE WHEN THEY ARRIVE.
2. EARTHWORK FOR THE WETLAND CREATION AREA WILL TAKE PLACE IN APRIL / MAY, OR IN AUGUST, SO THAT PLANTINGS CAN BE INSTALLED IMMEDIATELY AFTERWARDS, EITHER IN LATE SPRING OR VERY EARLY FALL SEASONS.
3. A MINIMUM OF 10 INCHES OF TOPSOIL (AFTER COMPACTION) SHALL BE USED. SOIL TEXTURE SHALL BE LOAM OR FINER. ORGANIC MATTER CONTENT SHALL BE A MINIMUM OF 10 PERCENT BY WEIGHT (I.E., LOSS AT IGNITION), AS TESTED AT A QUALIFIED LABORATORY (E.G., UNIVERSITY OF CONNECTICUT SOILS LAB).
4. IF NECESSARY, WELL-ROTTED LEAF COMPOST (I.E., TWO YEAR MINIMUM) WILL BE ADDED TO BRING THE PERCENT ORGANIC MATTER TO THE DESIRED SPECIFICATION.
5. A ONE TO TWO INCH THICK "TOP-DRESSING" SHALL BE APPLIED TO THE FINAL GRADE AT THE CREATION AREA, EXCEPT IN AREAS WITH PROPOSED INUNDATION, CONSISTING OF LEAF COMPOST (2-YEAR OLD, MINIMUM).
6. ADD ORGANIC, SLOW-RELEASE FERTILIZER OR OTHER AMENDMENT ONLY AS INDICATED BY THE SOIL TEST RESULTS. ***NOTE*** THAT NUTRIENT LEVELS SHOULD BE LOWER FOR NATURAL HABITATS THAN FOR AGRICULTURAL OR HORTICULTURAL SITES, TO PREVENT EXCESSIVE COMPETITION BY RANK WEEDS.
7. INSTALL *PERIMETER EROSION CONTROLS* AROUND THE MITIGATION AREAS AS SHOWN ON PLAN: CORRECTLY TRENCHED AND STAKED SILT FENCE PER THE *2002 CONNECTICUT EROSION & SEDIMENTATION CONTROL GUIDELINES* (2002 GUIDELINES).

EARTHWORK

8. CLEAR AND GRUB THE WETLAND MITIGATION AREA.
   a. REMOVE THE EXISTING TOPSOIL FROM THESE LOCATIONS & PLACE IN A DESIGNATED SOIL STOCKPILE AREA, AT LEAST FIFTY FEET AWAY. [***IMPORTANT NOTE: THE TOPSOIL FROM THE MITIGATION AREA SHALL NOT BE USED, BECAUSE IT IS HEAVILY INFESTED WITH INVASIVE PLANT SPECIES.***
9. SUBSOIL FROM CERTAIN PORTIONS OF THE WETLAND REPLICATION AREA, WITH HIGHER POTENTIAL FOR INVASIVE SPECIES, WILL BE TRUCKED TO OTHER UPLAND PARTS OF THE SITE, AND COULD BE STOCKPILED FOR USE IN AREAS OF MAINTAINED LAWN.
10. **EXCAVATION, GRADING, AND TRANSPLANTING** WILL TAKE PLACE UNDER THE DIRECTION OF THE WETLAND SCIENTIST. GRADING WILL BE BASED ON CONDITIONS OBSERVED AT THE FIELD BY THE WETLAND SCIENTIST WHO MAY MAKE SMALL IN-FIELD ADJUSTMENTS TO ACHIEVE THE DESIRED WETLAND HYDROLOGY.
11. GRADING FOR THE WETLAND REPLICATION AREA WILL ENTAIL THE REMOVAL OF FILL OVER PRE-EXISTING WETLANDS. THE DEPTH OF MATERIALS TO BE REMOVED, BEFORE TOPSOIL IS PLACED, WILL RANGE FROM APPROXIMATELY ONE FOOT TO OVER FIVE FEET.
12. NO MACHINERY WILL BE ALLOWED WITHIN THE WETLAND CREATION AREAS WHERE TOPSOIL HAS BEEN PLACED.
13. SPECIAL PROTECTIVE MEASURES SHALL BE IMPLEMENTED TO ALLOW FOR THE DISCHARGE OF SURFACE RUNOFF FROM AN EXISTING CULVERT WHICH DIRECTS WATER TO THIS THE MITIGATION AREA UNDER THE RAILROAD TRACKS, FROM A DELINEATED AREA TO THE EAST. THIS MAY INCLUDE HAYBALE CHECK DAMS REINFORCED WITH WIRE FENCING TO ENSURE THAT FLOWS WILL NOT ERODE THE MITIGATION AREA WHILE VEGETATION IS BEING ESTABLISHED. WE NOTE THAT THIS CULVERT, WHICH IS LIKELY FULLY OR PARTIALLY CLOGGED, WILL PROVIDE FORE SOME OF THE EXPECTED HYDROLOGY FOR THE CREATED WETLAND.

PLANTINGS

14. **ORDER** THE **WOODY PLANTING MATERIALS** FOR DELIVERY DURING THE PLANTING WINDOWS LISTED ABOVE (MID TO LATE SPRING OR EARLY FALL). STORE IN SHADE WHEN THEY ARRIVE AND INSTALL WITHIN THREE DAYS OF DELIVERY. MAKE SURE THAT ALL DESIRED SPECIES ARE AVAILABLE AT TIME OF ORDERING. WETLAND SCIENTIST SHALL APPROVE ANY SUBSTITUTIONS.
15. **CHECK DELIVERY**. MAKE SURE SPECIES, SIZES, AND QUANTITIES ARE AS SPECIFIED.
16. A WETLAND PROFESSIONAL OR ECOLOGIST SHALL SPECIFY PLANTING AND SEEDING LOCATIONS. THE PROFESSIONAL WILL DIRECT THE INSTALLATION, EITHER BY STAKING PLANTING LOCATIONS WITH A WIRE FLAG OR BAMBOO STAKE LABELED WITH THE SPECIES NAME OR CODE; OR POTTED STOCK MAY ALSO BE DIRECTLY PLACED AT PLANTING LOCATION.
17. **INSTALL THE PURCHASED WOODY MATERIALS FIRST, THEN THE HERBACEOUS PLUGS.**
18. **WOODY PLANTINGS AND LARGE HERBACEOUS PERENNIALS** (SEE TABLE 1 THROUGH TABLE 3) SHALL BE PLANTED IN SAME-SPECIES CLUSTERS, TWO TO THREE FEET APART FOR HERBACEOUS PERENNIALS, FIVE TO SIX FEET APART, FOR SHRUBS, TEN FEET APART FOR SMALL TREE SEEDLINGS/SAPLINGS. LARGER TREES SHALL BE NO CLOSER THAN EIGHT FEET FROM A SHRUB OR SMALL TREE.
19. DIG HOLES *BY HAND* TO *MINIMIZE COMPACTION* OF SOIL (MECHANICAL AUGERS ARE PROHIBITED). WATER HOLES BEFORE PLANTING, UNLESS SOIL IS ALREADY MOIST. ADD *SLOW-RELEASE FERTILIZER* (OSMACOTE, MILORGANITE OR EQUIVALENT) TO PLANTING HOLE. PLACE PLANTS INTO HOLES AND REPLACE SOIL, SO THAT THERE IS FULL COVERAGE OF ROOTS, WITH *NO AIR SPACES* AND LEVEL SOIL AROUND THE PLANT. HOLES SHALL BE OVERSIZED (2X THE ROOT MASS DIAMETER) AND BACKFILLED WITH LOCAL TOPSOIL OR EXTRA TOPSOIL IN AN OVERSIZED TRANSPLANT POT (NOT SUBSOIL REMOVED FROM BOTTOM PART OF HOLE).
20. MULCH WITH A THREE-INCH LAYER OF WELL-ROTTED HARDWOOD MULCH TO REDUCE COMPETITION FROM MEADOW VEGETATION IN A THREE-FOOT DIAMETER CIRCLE. LEAVE A GAP OF THREE INCHES AROUND EACH TRUNK. FORM *SAUCERS* AROUND ALL MULCHED TREE AND SHRUB PLANTINGS, TWO TO THREE INCHES HIGH, 36" ACROSS FOR NURSERY STOCK. WATER RIGHT AFTER PLANTING.
21. **HERBACEOUS PLUGS:** PLANT IN MID TO LATE AFTERNOON, OR UNDER SHADY CONDITIONS, *WATER* IMMEDIATELY AFTER PLANTING. SPACE PLUGS 24 TO 36 INCHES APART, PER PLAN (SEE TABLE 3) IN THE BARE SOIL AREAS, AND SPREAD SHREDDED LEAF MULCH IN A SIX-INCH CIRCLE AROUND EACH PLUG. PLANT IN SAME-SPECIES GROUPINGS OF VARIABLE SIZE AND SHAPE.
22. **SEEDING:** AFTER MIXING 1:1 WITH NON-CLUMPING KITTY LITTER (CLAY BASED), SPREAD SEED OVER BARE SOIL AREAS, AVOIDING MULCHED CIRCLES AROUND PLUGS. SEEDING RATE SHALL BE HALF THAT SPECIFIED FOR THE MIX. IF GERMINATION RATES ARE LOW, OVER-SEED IN FALL IN YEAR 2.
23. FOR SPRING SEEDING IN MOIST, BUT NOT SATURATED SOIL, LIGHTLY RAKE IN SEED (LESS THAN ½ INCH DEEP), TAMP DOWN, AND LIGHTLY MULCH WITH STRAW (FREE OF SEEDS) TO HOLD MOISTURE FOR GERMINATION. FOR FALL SEEDING, WAIT UNTIL AFTER HARD FROST; SEED MAY SIMPLY BE SOWN. SNOW AND FROST WILL INCORPORATE INTO THE SOIL. NOTE THAT COLD STRATIFICATION WILL INCREASE GERMINATION RATES OF SOME SPECIES IN A FALL SEEDING, BUT MORE SEEDS WILL ALSO BE EATEN BY WILDLIFE OR WASHED AWAY. IF SOIL IS SATURATED, BROADCAST ON SOIL SURFACE WITHOUT RAKING.
24. SPREAD A THIN LAYER OF WEED-FREE *STRAW MULCH* OVER ALL SEEDED AREAS WITHOUT STANDING WATER, ALLOWING FOR SOME LIGHT PENETRATION
25. FOR PLUGS IN THE WET MEADOW AND FOR SEED GERMINATION, WATERING SEVERAL TIMES A WEEK IS ESSENTIAL, IN DRY WEATHER. FOR IRRIGATION, SET UP A PUMP DRAWING ON LOCAL WATER, OR FROM A WATER TANK BROUGHT TO THE SITE.

3.0 PROTECTION FROM HERBIVORY

1. WOODY PLANTINGS WILL BE MONITORED DURING THE FIRST AND SECOND GROWING SEASONS AFTER PLAN IMPLEMENTATION FOR EXCESSIVE HERBIVORY. IF OBSERVED, THE WETLAND ECOLOGIST MAY PROPOSE ADDITIONAL CONTROLS/METHODS TO REDUCE HERBIVORY. DEER FENCE MAY BE CONSIDERED, AS THE MITIGATION AREA IS RELATIVELY SMALL.
2. AS AN INITIAL CONTROL, THE ORGANIC, SLOW-RELEASE FERTILIZER MILORGRANITE SHALL BE USED AT EACH SHRUB/TREE PLANTING, AND ALONG THE PERIMETER OF EACH OF THE MITIGATION AREAS. THIS FERTILIZER IS A MILD TO MODERATE DETERRENT TO HERBIVORY BY DEER. APPLICATION OF MILOGRANITE SHALL TAKE PLACE THREE TIMES DURING THE FIRST GROWING SEASON, SHOULD A DETERRENT BE NECESSARY.

4.0 INITIAL FOLLOW-UP AND MAINTENANCE

1. PROMPT SEEDING AND HAY MULCH APPLICATION FOLLOWING INITIAL GRADING IS KEY, TO PREVENT EROSION OF EXPOSED, RECENTLY GRADED SOILS. GRADING OF WETLAND CREATION AREAS SHOULD BE TIMED TO PRECEDE A FORECAST RAIN-FREE PERIOD, ENCOMPASSING THE SCHEDULED PLANTING DAY.
2. PERIMETER SEDIMENT CONTROLS. MAINTAIN PER THE 2002 CT E&S GUIDELINES, CHECK AFTER EACH RAIN MORE THAN ONE INCH. REMOVE SILT FENCE AS SOON AS GROUND IS VEGETATED (>80% COVER) TO PREVENT IMPEDING ANIMAL MOVEMENT TO AND FROM ADJACENT SEASONALLY FLOODED AND SATURATED WETLANDS. SEDIMENT COLLECTED BY THESE DEVICES WILL BE REMOVED AND PLACED UPLAND IN A MANNER THAT PREVENTS ITS EROSION AND TRANSPORT TO A WATERWAY OR WETLAND.
3. IRRIGATION: WATER ALL SEEDED AREAS, PLANTINGS AND/OR TRANSPLANTS AT LEAST WEEKLY IN DROUGHT PERIODS. MORE FREQUENT WATERING WILL INCREASE PLANTINGS' SUCCESS. FOR PLUGS, MORE FREQUENT WATERING COULD BE NEEDED.

5.0 WEED CONTROL

1. FOR 2-3 SEASONS FOLLOWING PLAN IMPLEMENTATION, CONTROL WEEDS IN A THREE- FOOT DIAMETER CIRCLE AROUND WOODY PLANTINGS. NECESSARY FREQUENCY WILL DEPEND ON RAINFALL AND SOIL SEED BANK, BUT AT LEAST MONTHLY FROM MAY TO JULY. MULCH HELPS CONTROL WEEDS, BUT IS NOT SUFFICIENT. THE SEED MIX AND OTHER NATURAL COLONIZERS NEEDS TO GERMINATE AND SPROUT IN THE MATRIX AROUND THE WOODY PLANTINGS.
2. AT TIME OF PLANTING MARK EACH PLANTED SHRUB OR TREE WITH A FOUR-FOOT TALL "SNOW STAKE" OR "DRIVEWAY MARKER" WITH REFLECTOR TAPE. THESE SHALL BE REMOVED AT THE END OF THE MONITORING PERIOD, BUT WILL ASSIST IN FINDING THEM, SHOULD TALL HERBACEOUS VEGETATION BEGIN TO OBSCURE THEM.
3. FOR CONTROL OF SMALL SEEDLINGS USE A HOE.
4. FOR LARGER WEEDS USE A WEED WHACKER (POLE HEDGE TRIMMER).
5. LANDSCAPER SHALL FOLLOW DIRECTION OF WETLAND SCIENTIST WHO SHALL PROVIDE INITIAL GUIDANCE, BUT NEED NOT REMAIN ON SITE DURING MAINTENANCE.
6. THE WETLANDS PROFESSIONAL WILL POINT OUT TO THE LANDSCAPER CERTAIN WEEDS LIKE MUGWORT, WHICH IS PREVALENT IN PORTIONS OF THE SITE, WHICH ARE BEST PULLED, TO WEAKEN ROOT SYSTEM AND REDUCE NEEDED FREQUENCY FOR WEEDING.
7. OUTSIDE THE THREE-FOOT DIAMETER CIRCLE, WEED ONLY SELECTED UNDESIRABLE COLONIZING PLANTS, INCLUDING INVASIVE SPECIES. THE WETLANDS PROFESSIONAL SHALL TRAIN THE LANDSCAPER TO RECOGNIZE AND AVOID NATIVE SPECIES SUCH AS GOLDENRODS, SUMACS, AND VIRGINIA CREEPER. INITIALLY, FLAG DESIRABLE NATIVE SPECIES AS A TRAINING AID; ALSO, FOLLOWING ANY PERSONNEL CHANGES.

6.0 INVASIVE PLANT CONTROL

1. THE ECOLOGIST/WETLANDS PROFESSIONAL WILL FLAG WOODY INVASIVES TO BE REMOVED IN THE VICINITY OF THE WETLAND REPLICATION AREA (I.E., WITHIN 25 FEET) AT THE TIME OF PLAN IMPLEMENTATION, AND PREFERABLY JUST PRIOR TO ANY EARTHWORK.
2. AS NEEDED, CONTROL USING TARGETED, RATHER THAN BROADCAST HERBICIDE APPLICATION METHODS. FOR SPRING TREATMENT, CUT EARLY IN GROWING SEASON (LATE APRIL TO MID MAY) AND TREAT SMALL RESPROUTS IN EARLY SUMMER USING A LOW VOLUME SPRAYER. IN EARLY FALL USE THE CUT-AND-PAINT METHOD, APPLYING HERICIDE TO A RECENTLY CUT STEM (WITHIN 10 MINUTES) ON BROADLEAF INVASIVES. USE A SELECTIVE HERBICIDE LIKE TRICLOPYR (FOUND IN BRUSH-B-GON, GARLON 3A OR 4A, AND OTHER PRODUCTS), RATHER THAN BROAD-SPECTRUM GLYPHOSATE, TO MINIMIZE IMPACTS ON NON-TARGET PLANTS AND SOIL FAUNA.
3. INVASIVE PLANT CONTROL WITHIN THE AREAS OF WETLAND REPLICATION SHALL TAKE PLACE FOR **FOUR (4) YEARS** FOLLOWING THE YEAR OF PLAN IMPLEMENTATION (I.E., YEAR 2 THROUGH YEAR 5), FOLLOWING THE PROCEDURES PROMULGATED BY THE CT DEEP'S CONNECTICUT INVASIVE PLANT WORKING GROUP (CIPWG), AND/OR THE NATURE CONSERVANCY.

7.0 MONITORING

1. INSPECTIONS AT THE WETLAND REPLICATION AREA SHALL BE CONDUCTED BY A QUALIFIED WETLANDS PROFESSIONAL OR ECOLOGIST DURING THE GROWING SEASON, THE THREE MONTHS FOLLOWING INSTALLATION (I.E., YEAR ONE), AND TWICE DURING EACH OF THE **FOUR (4) NEXT GROWING SEASONS,** ONCE IN LATE MAY THROUGH JUNE, AND ONCE IN EARLY FALL. ADDITIONAL INSPECTIONS MAY BE NECESSARY AT THE DISCRETION OF THE WETLANDS PROFESSIONAL TO ENSURE THE SUCCESS OF THE WETLAND CREATION.
2. DURING INSPECTIONS, CHECK MITIGATION AREA FOR SEEDLINGS OF THE FOLLOWING *INVASIVE SPECIES* AND MECHANICALLY REMOVE: JAPANESE KNOTWEED, COMMON REED, MORROW'S HONEYSUCKLE, AUTUMN OLIVE, MULTIFLORA ROSE, ASIATIC BITTERSWEET, JAPANESE BARBERRY, GLOSSY BUCKTHORN, BURNING BUSH, TREE-OF-HEAVEN, MUGWORT, AND GARLIC MUSTARD. INSPECTIONS SHALL BE DONE BY THE WETLANDS PROFESSIONAL, WHO COULD ALSO IDENTIFY OTHER INVASIVE PLANT SPECIES, BUT PERSONNEL TRAINED BY THE PROFESSIONAL IN IDENTIFICATION OF INVASIVE SEEDLINGS MAY ASSIST WITH MECHANICAL REMOVAL (WEEDING).
3. *COMPETING PLANTS:* IF THE WETLANDS PROFESSIONAL DETERMINES THAT EXCESSIVE NUMBERS OF SEEDLINGS OF A PARTICULAR NATIVE SPECIES HAVE GERMINATED ON SITE (E.G., CATTAIL), REMOVE THEM BY HOEING OR HAND PULLING. COLONIZATION BY A VARIETY OF NATIVE SPECIES IS EXPECTED AND IS DESIRABLE.
4. *REMEDIAL MEASURES* SUCH AS REPLACEMENT PLANTINGS, HYDROLOGIC ADJUSTMENTS, AND DEER BROWSING PROTECTION, MAY BE RECOMMENDED AND SUPERVISED BY THE WETLANDS PROFESSIONAL AND IMPLEMENTED BY THE PROPERTY OWNER/MANAGER, FOR SIGNIFICANT PROBLEMS.
5. A BRIEF *REPORT* TO THE TOWN'S INLAND WETLANDS AND WATERCOURSES AGENCY WILL SUBMITTED BY NOVEMBER 30TH OF THE MONITORING YEAR.

REV. | DESCRIPTION OF REVISION | DATE | APPR.

STAMP
STATE OF CONNECTICUT GEORGE F. ANDREWS, JR. No. 19286 LICENSED PROFESSIONAL ENGINEER

Loureiro
Engineering • Construction • EH&S • Energy
Waste • Facility Services • Laboratory
Loureiro Engineering Associates, Inc.
100 Northwest Drive • Plainville, Connecticut 06062
Phone: 860-747-6181 • Fax: 860-747-8822
An Employee Owned Company • www.Loureiro.com

SCALE	COMM. NO.	DRAWN BY	DATE	APPROVED BY	DATE
1"=30'	045JC2.06	SRM	04/03/2023	GFA	04/03/2023

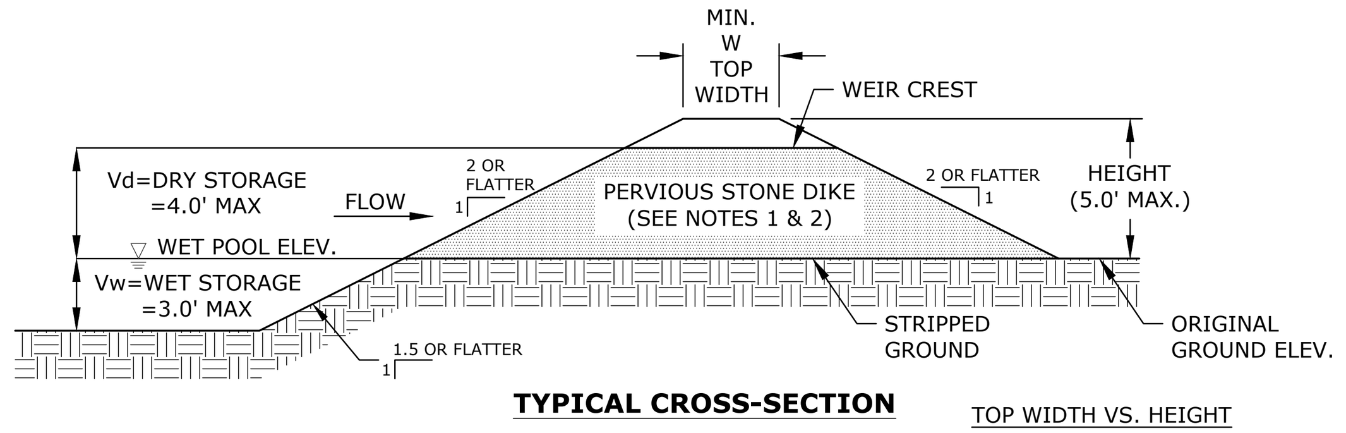
INDUSTRIAL SITE PREPARATION PLAN:
WETLAND MITIGATION PLAN

GALES FERRY INTERMODAL
1737 & 1761 ROUTE 12, GALES FERRY, CT 06335
PREPARED FOR
GALES FERRY INTERMODAL LLC
549 SOUTH STREET, QUINCY, MA 02169

DRAWING **C-11**

SHEET NO. 12 NO. OF SHEETS 13

TEMPORARY SEDIMENT TRAP DETAIL



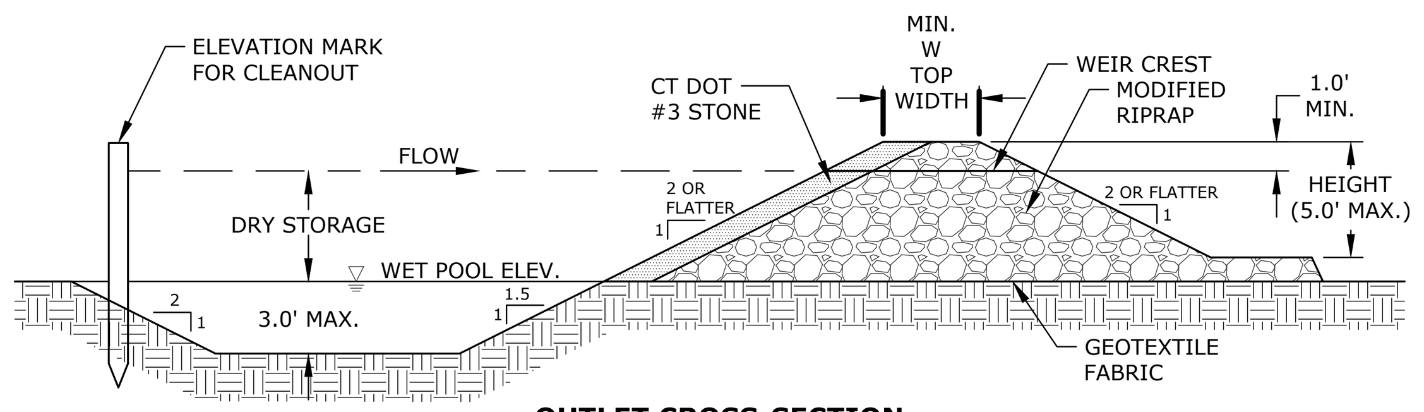
TYPICAL CROSS-SECTION

TOP WIDTH VS. HEIGHT

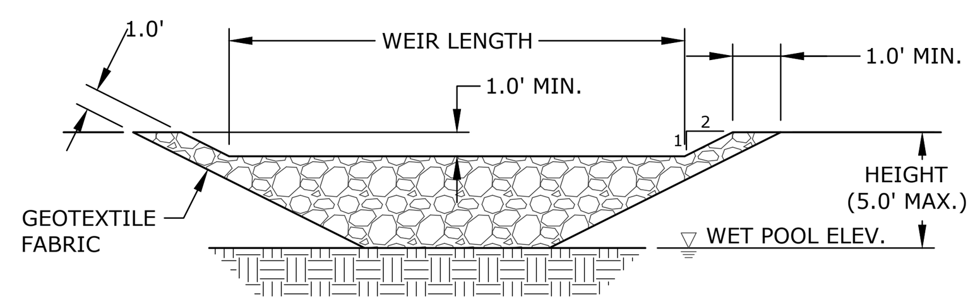
H = HEIGHT OF EMBANKMENT
W = MIN. TOP WIDTH OF EMBANKMENT

H (ft)	W (ft)
1.5	2.0
2.0	2.0
2.5	2.5
3.0	2.5
3.5	3.0
4.0	3.0
4.5	4.0
5.0	4.5

NOTES:
1. PERVIOUS STONE DIKE SHALL BE CONSTRUCTED OF CT DOT MODIFIED RIPRAP WITH #3 STONE ON FACE.
2. NON-OVERFLOW PORTIONS AND ABUTMENTS OF TEMPORARY SEDIMENT TRAP MAY BE CONSTRUCTED OF COMPACTED EARTH FILL.



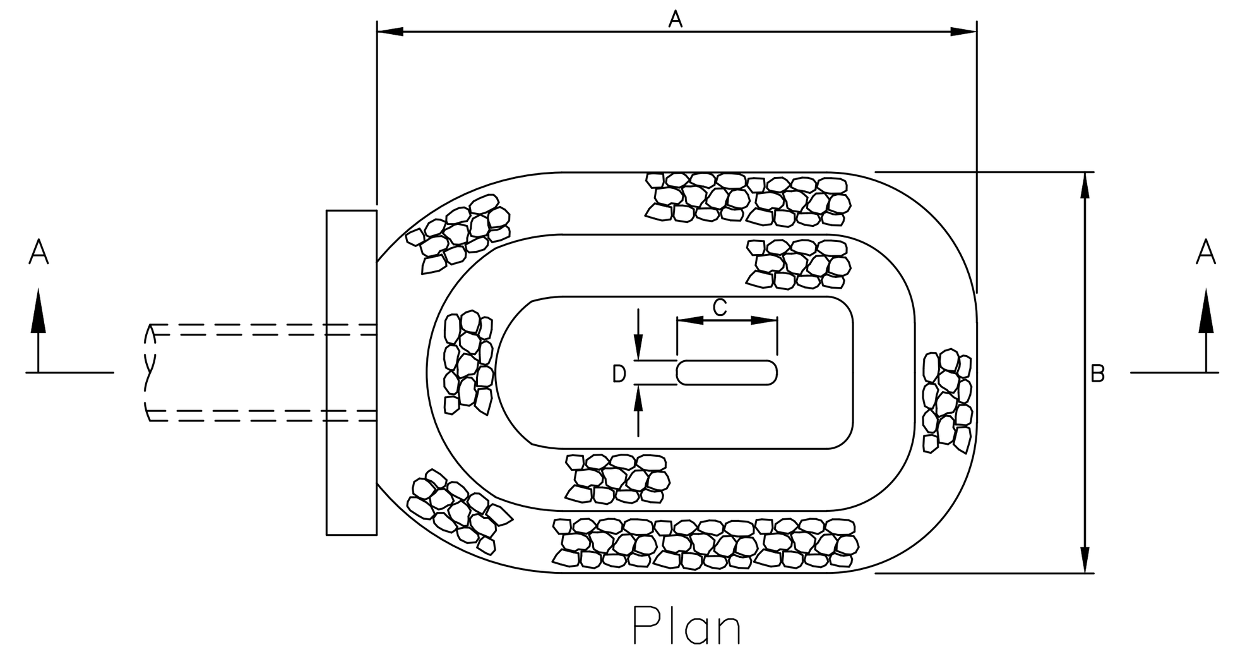
OUTLET CROSS-SECTION

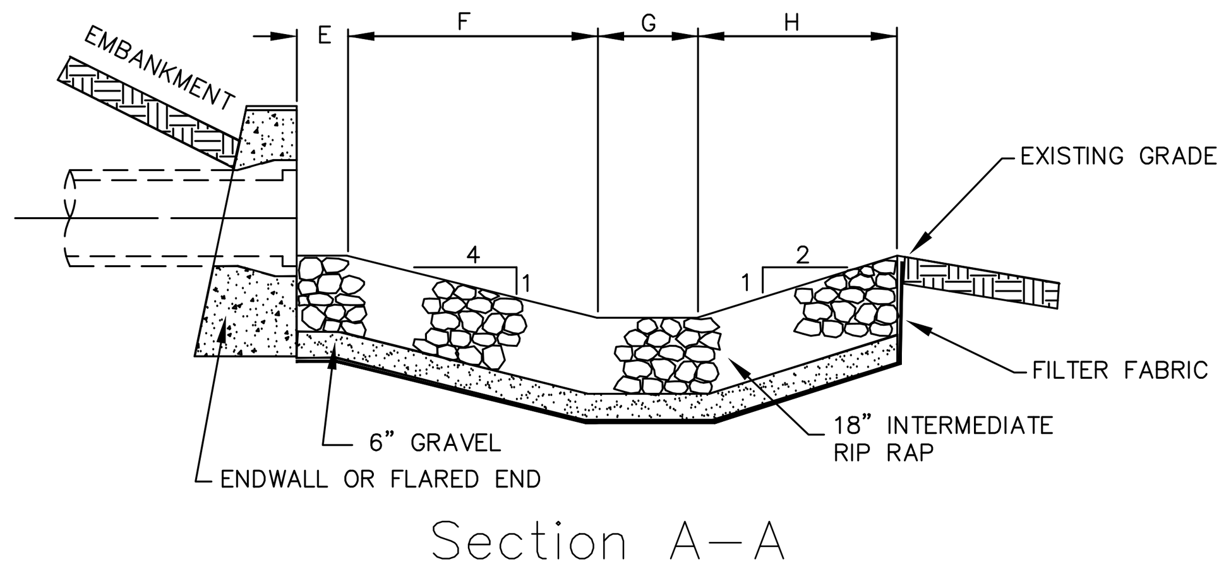


SPILLWAY DETAIL

TEMPORARY SEDIMENT TRAP SHALL BE SIZED BASED ON A MINIMUM OF 134 CUBIC YARDS OF WATER STORAGE PER ACRE DRAINED, A MINIMUM WET STORAGE VOLUME EQUAL TO HALF OF THE TOTAL STORAGE VOLUME AND A MINIMUM DRY STORAGE VOLUME EQUAL TO HALF OF THE TOTAL STORAGE VOLUME .

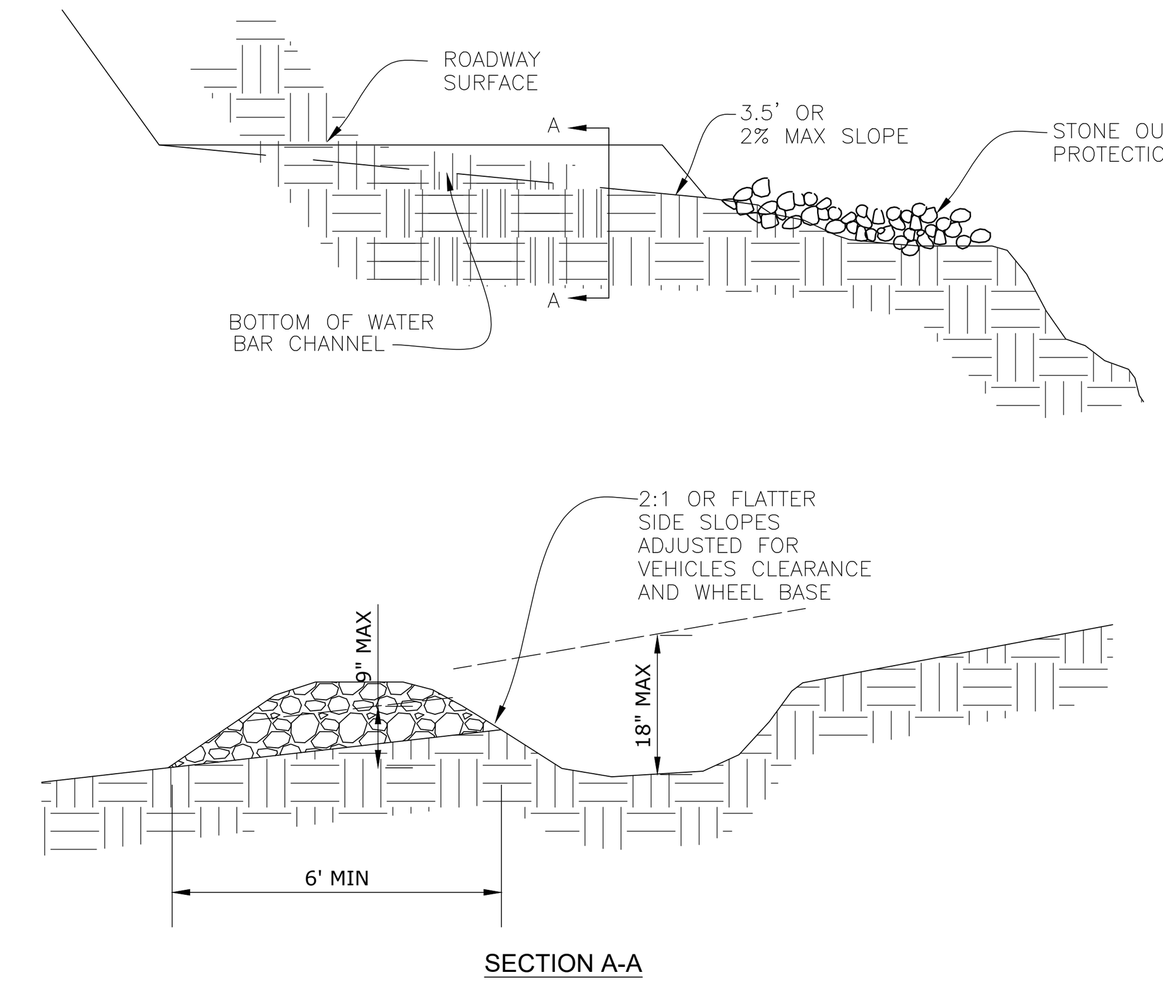
TEMPORARY SEDIMENT TRAP DETAIL
SCALE: NONE



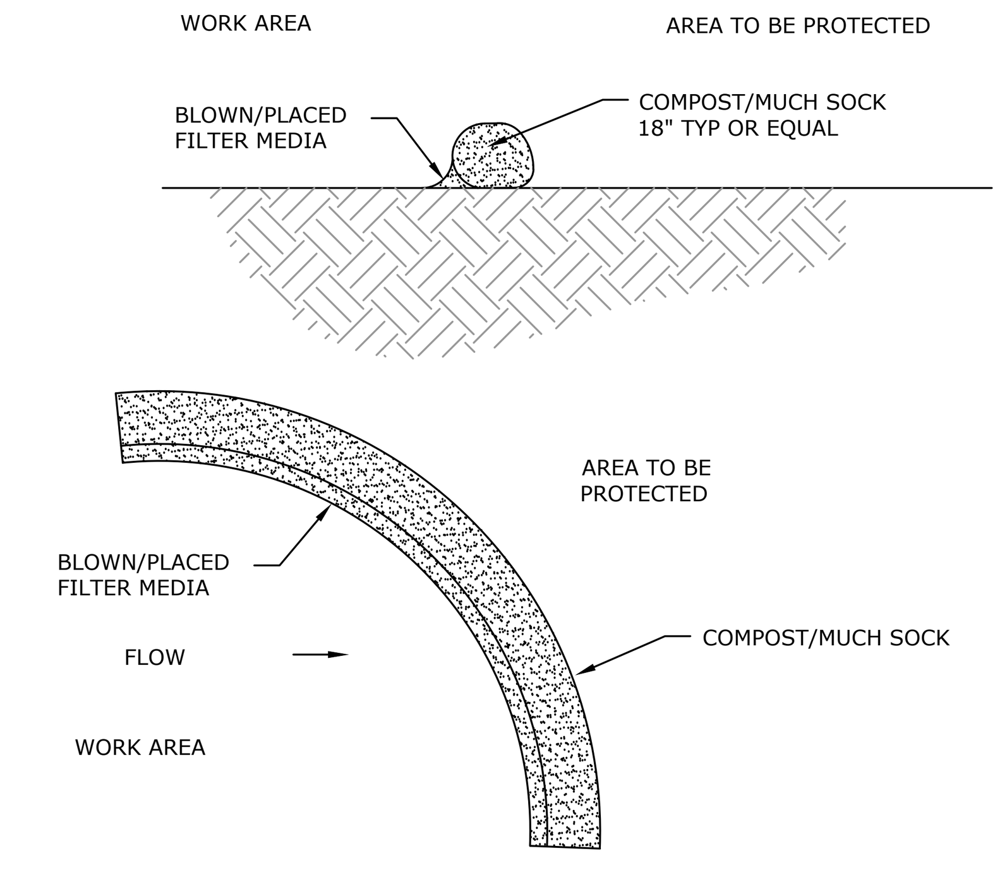


PIPE SIZE	A	B	C	D	E	F	G	H
15"	10'	7'	1 1/2'	1'	1'	4 1/2'	1 1/2'	3'
18"	12'	8'	2'	1'	1'	5'	2'	4'
21"	13'	9'	2 1/2'	1 1/2'	1'	7'	2 1/2'	4 1/2'
24"	17'	10'	2 1/2'	1 1/2'	1'	8'	2 1/2'	5 1/2'
30"	20'	13'	3'	2'	2'	9'	3'	6'
36"	22'	16'	3 1/2'	2'	2'	9 1/2'	3 1/2'	7'

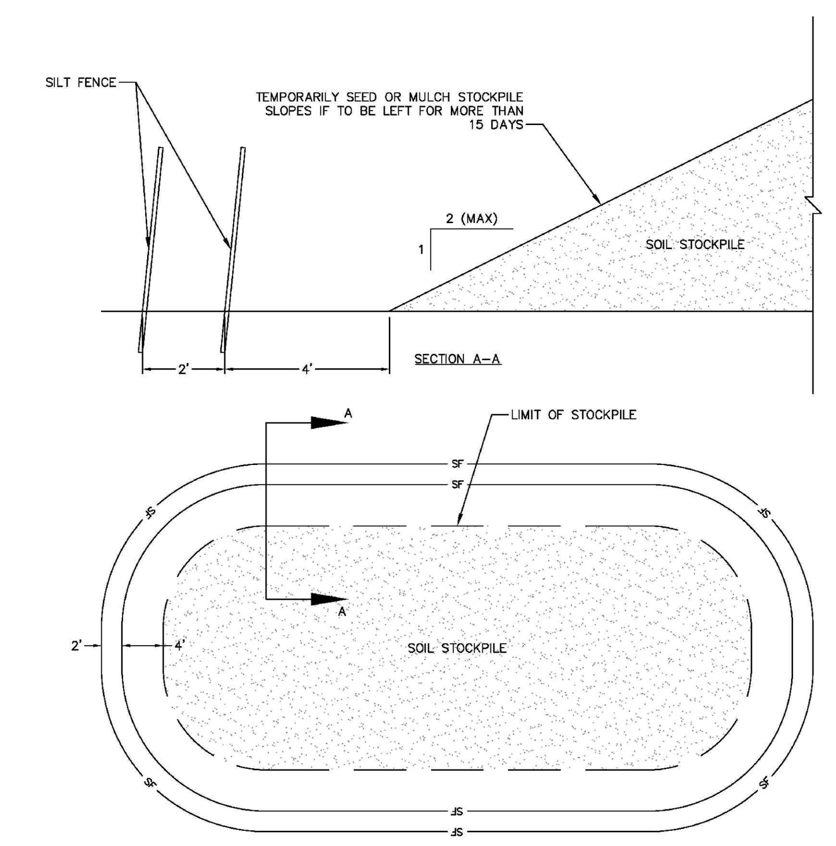
PLUNGE POOL
NOT TO SCALE



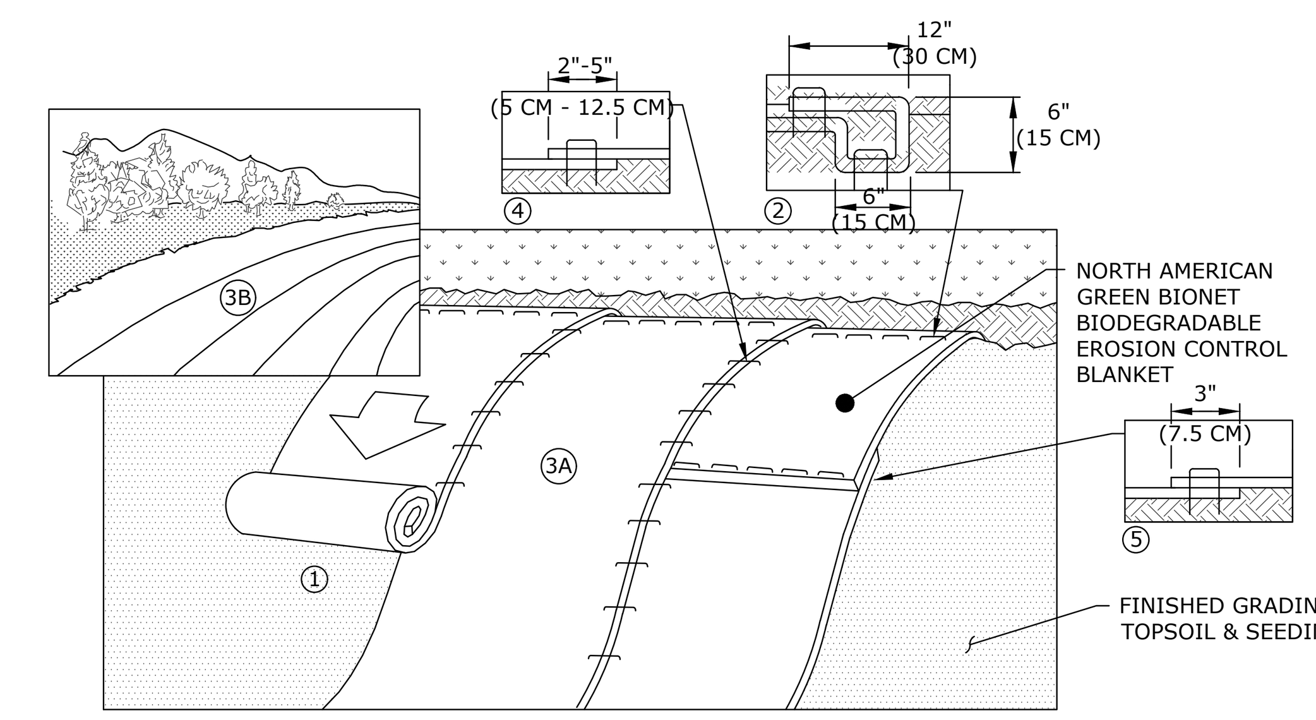
WATER BAR DETAIL
NOT TO SCALE



COMPOST/MULCH SOCK DETAIL
NOT TO SCALE

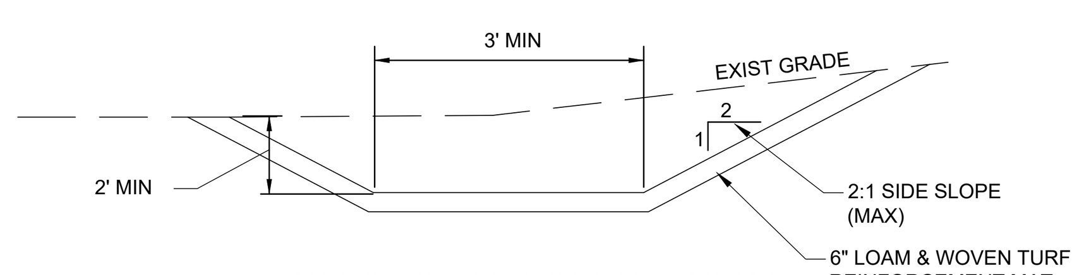


TEMPORARY SOIL STOCKPILE DETAIL
NOT TO SCALE

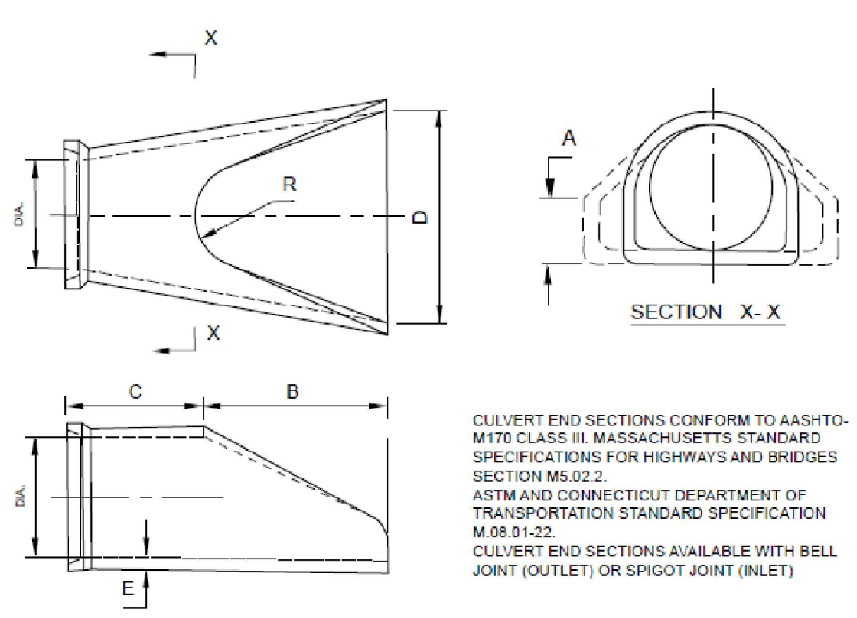


NOTES:
1. PREPARE SOIL BEFORE INSTALLING BLANKETS, INCLUDING ANY NECESSARY APPLICATION OF LIME, FERTILIZER, AND SEED. WHEN USING CELL-O-SEED DO NOT SEED PREPARED AREA. CELL-O-SEED MUST BE INSTALLED WITH PAPER SIDE DOWN.
2. BEGIN AT THE TOP OF THE SLOPE BY ANCHORING THE BLANKET IN A 6",(15CM), DEEP X 6", (15CM), WIDE TRENCH WITH APPROXIMATELY 12", (30CM), OF BLANKET EXTENDED BEYOND THE UP-SLOPE PORTION OF THE TRENCH. ANCHOR THE BLANKET WITH A ROW OF STAPLES/STAKES APPROXIMATELY 12", (30CM), APART IN THE BOTTOM OF THE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING. APPLY SEED TO COMPACTED SOIL AND FOLD REMAINING 12", (30CM), PORTION OF BLANKET BACK OVER SEED AND COMPACTED SOIL. SECURE BLANKET OVER COMPACTED SOIL WITH A ROW OF STAPLES/STAKES SPACED APPROXIMATELY 12", (30CM), APART ACROSS THE WIDTH OF THE BLANKET. IN LOOSE SOIL CONDITIONS, THE USE OF STAPLE OR STAKE LENGTHS GREATER THAN 6", (15 CM), MAY BE NECESSARY TO PROPERLY SECURE THE BLANKETS.
3. ROLL THE BLANKETS (A.) DOWN OR (B.) HORIZONTALLY ACROSS THE SLOPE. BLANKETS WILL UNROLL WITH APPROPRIATE SIDE AGAINST THE SOIL SURFACE. ALL BLANKETS MUST BE SECURELY FASTENED TO SOIL SURFACE BY PLACING STAPLES/STAKES IN APPROPRIATE LOCATIONS AS SHOWN IN THE STAPLE PATTERN GUIDE. WHEN USING OPTIONAL DOT SYSTEM TM, STAPLES/STAKES SHOULD BE PLACED THROUGH EACH OF THE COLORED DOTS CORRESPONDING TO THE APPROPRIATE STAPLE PATTERN.
4. THE EDGES OF PARALLEL BLANKETS MUST BE STAPLED WITH APPROXIMATELY 2"-5" ,(5CM-12.5CM), OVERLAP DEPENDING ON BLANKET TYPE. TO ENSURE PROPER SEAM ALIGNMENT, PLACE THE EDGE OF THE OVERLAPPING BLANKET (BLANKET BEING INSTALLED ON TOP) EVEN WITH THE COLORED SEAM STITCH TM ON THE PREVIOUSLY INSTALLED BLANKET.
5. CONSECUTIVE BLANKETS SPLICED DOWN THE SLOPE MUST BE PLACED END OVER END (SHINGLE STYLE) WITH AN APPROXIMATE 3", (7.5CM), OVERLAP. STAPLE THROUGH OVERLAPPED AREA, APPROXIMATELY 12", (30CM), APART ACROSS ENTIRE BLANKET WIDTH.

EROSION CONTROL BLANKET DETAIL
NOT TO SCALE



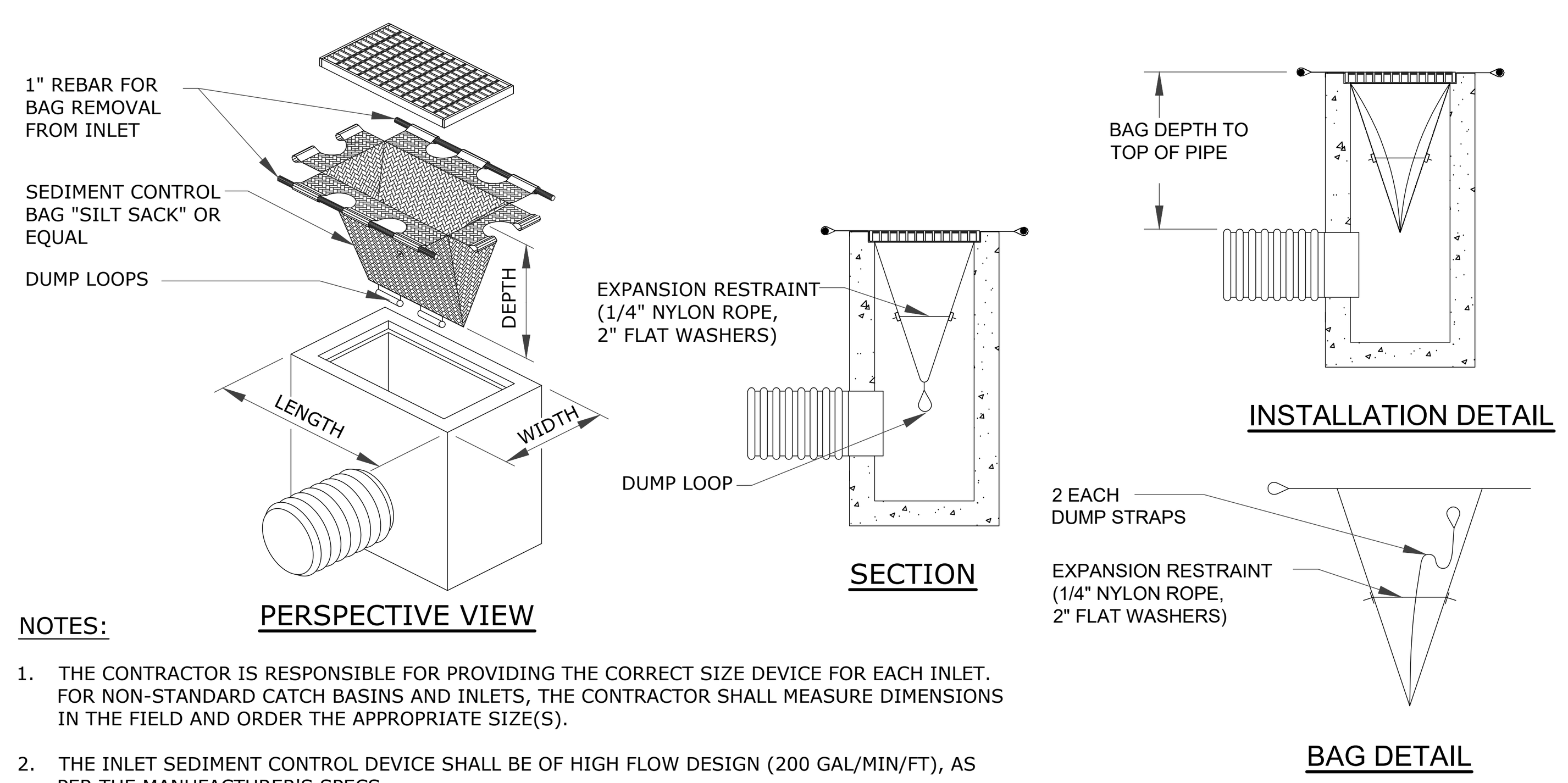
GRASSED DRAINAGE SWALE
NOT TO SCALE



CULVERT END SECTIONS CONFORM TO AASHTO-M170 CLASS III. MASSACHUSETTS STANDARD SPECIFICATIONS FOR HIGHWAYS AND BRIDGES SECTION M5.02.2.
ASTM AND CONNECTICUT DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATION M.08.01-22.
CULVERT END SECTIONS AVAILABLE WITH BELL JOINT (OUTLET) OR SPIGOT JOINT (INLET)

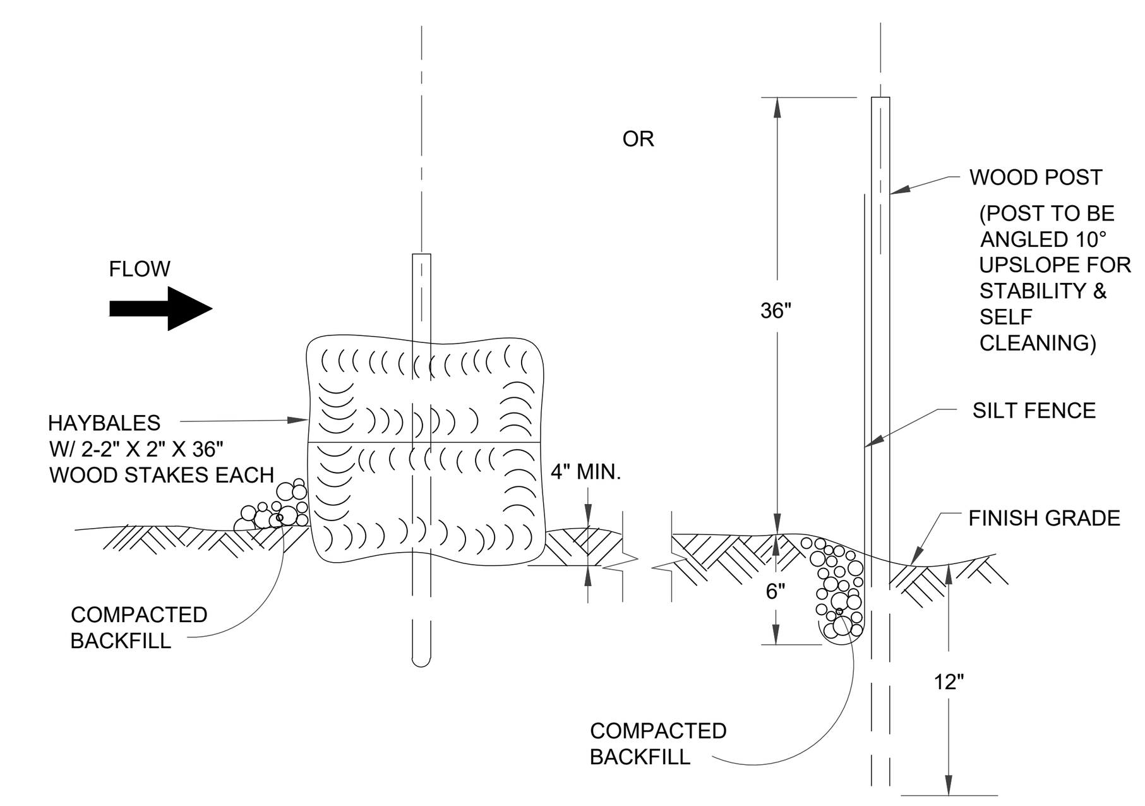
DIA	A	B	C	D	E	R
12"	4"	2'-0"	4'-0 7/8"	2'-0"	3"	9"
15"	6"	2'-3"	3'-10"	2'-6"	3"	11"
18"	9"	2'-3"	3'-10"	3'-0"	3"	12"
24"	9 1/2"	3'-7 1/2"	2'-6"	4'-0"	3"	14"
30"	12"	4'-6"	1'-7 3/4"	5'-0"	3 1/2"	15"
36"	15"	5'-3"	2'-10 3/4"	6'-0"	4"	20"
42"	21"	5'-3"	2'-11"	6'-6"	4 1/2"	22"
48"	24"	6'-0"	2'-2"	7'-0"	5"	22"
54"	27"	5'-5"	2'-11"	7'-6"	5 1/2"	24"
60"	30"	5'-0"	3'-3"	8'-0"	6"	24"

FLARED END SECTION
SCALE: NONE



NOTES:
1. THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING THE CORRECT SIZE DEVICE FOR EACH INLET. FOR NON-STANDARD CATCH BASINS AND INLETS, THE CONTRACTOR SHALL MEASURE DIMENSIONS IN THE FIELD AND ORDER THE APPROPRIATE SIZE(S).
2. THE INLET SEDIMENT CONTROL DEVICE SHALL BE OF HIGH FLOW DESIGN (200 GAL/MIN/FT), AS PER THE MANUFACTURER'S SPECS.
3. THE SEDIMENT CONTROL DEVICE SHALL BE INSPECTED DAILY BY THE CONTRACTOR AND CLEANED AND MAINTAINED A MINIMUM ONCE PER MONTH OR WITHIN THE 48 HOURS FOLLOWING A STORM EVENT. THE FILTER SHALL BE REPLACED OR CLEANED WHEN THE BAG BECOMES HALF FULL. THE FILTER SHALL BE CLEANED IN A MANNER WHICH ENSURES THAT ALL SEDIMENT REMAINS ON SITE.
4. SUBSTITUTION OF A SHEET OF FILTER FABRIC PLACED OVER THE OPENING OF THE INLET IS NOT APPROVED.
5. RECESSED CURB INLET CATCH BASINS MUST BE BLOCKED WHEN USING FILTER FABRIC INLET SACKS, SIZE OF FILTER INLET SACK TO BE DETERMINED BY MANUFACTURER.
6. THE FILTER DEVICE SHALL BE MANUFACTURED BY ACF ENVIRONMENTAL OR APPROVED EQUAL.

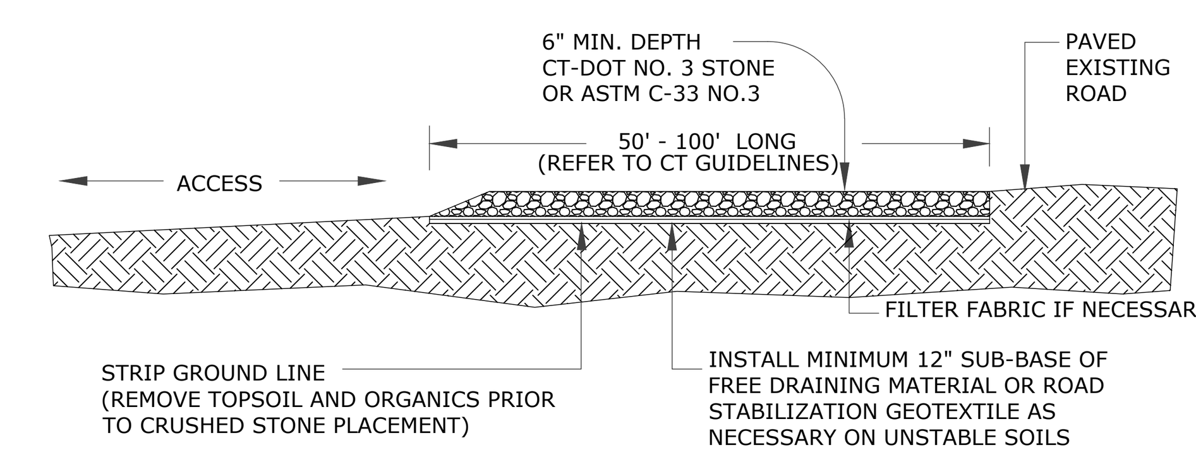
CATCH BASIN FILTER (SILT SACK) DETAIL
NOT TO SCALE



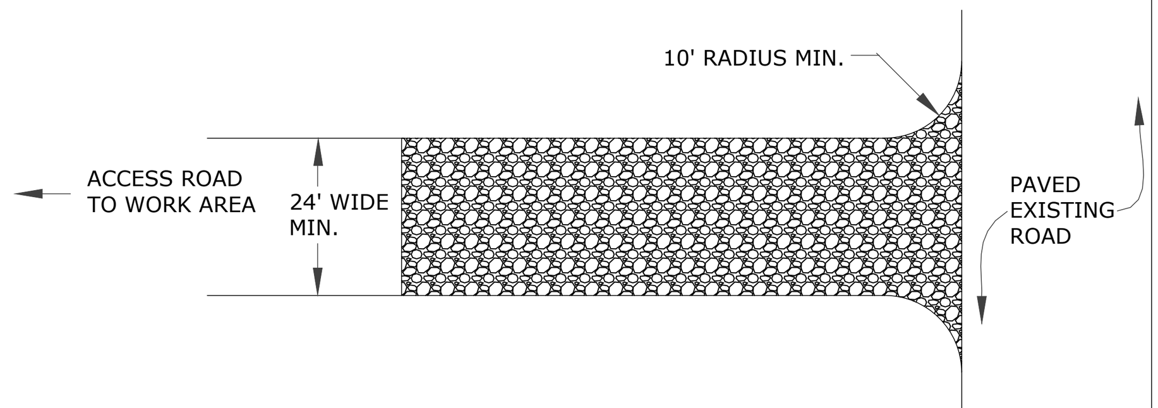
TYPICAL SEDIMENT BARRIER DETAIL
SCALE: NONE

INSTALLATION NOTES FOR HAY BALES:
1. PLACE HAY BALES ON CONTOUR AND WITH LAST HAY BALES UPSLOPE TO THAT TOP OF LAST SEVERAL HAY BALES ARE HIGHER THAN LINE OF HAY BALES.
2. EXCAVATE TRENCH 4" MIN. AND PLACE FILL UPSLOPE OF TRENCH
3. PLACE HAY BALE AND STAKE FIRST STAKE AT ANGLE TOWARDS FIRST BAKE. STAKES ARE 18" MIN. INTO GROUND.
4. WEDGE LOOSE HAY BETWEEN BALES.
5. BACKFILL & COMPACT EXCAVATED FILL ALONG UPHILL SIDE OF HAY BALE.

PZC PERMIT # __________ DATE OF APPROVAL __________ EXPIRATION DATE __________
PZC CHAIRMAN OR SECRETARY DATE
IWWC PERMIT # __________ DATE OF APPROVAL __________
IWWC CHAIRMAN DATE



LONGITUDINAL SECTION



PLAN

NOTE: ALL ANTI-TRACKING PADS SHALL BE INSTALLED AND MAINTAINED IN ACCORDANCE WITH 2002 CT GUIDELINES FOR SOIL EROSION & SEDIMENT CONTROL, AS AMENDED.

ANTI-TRACKING PAD DETAIL
NOT TO SCALE

Reference: 2002 CT Guidelines for Erosion and Sediment Control, DEEP Bulletin 34, Figure CE-2

REV.	DESCRIPTION OF REVISION	DATE	APPR.

STATE OF CONNECTICUT GEORGE F. ANDREWS JR. No. 19286 LICENSED PROFESSIONAL ENGINEER

Loureiro
Engineering • Construction • EH&S • Energy
Waste • Facility Services • Laboratory
Loureiro Engineering Associates, Inc.
100 Northwest Drive • Plainville, Connecticut 06062
Phone: 860-747-6181 • Fax: 860-747-8822
An Employee Owned Company • www.Loureiro.com

SCALE: AS NOTED
COMM. NO.: 045JC2.06
DRAWN BY: SRM DATE: 04/03/2023
APPROVED BY: GFA DATE: 04/03/2023

INDUSTRIAL SITE PREPARATION PLAN:
DETAILS

GALES FERRY INTERMODAL
1737 & 1761 ROUTE 12, GALES FERRY, CT 06335
PREPARED FOR:
GALES FERRY INTERMODAL LLC
549 SOUTH STREET, QUINCY, MA 02169

DRAWING C-12
SHEET NO. 13 NO. OF SHEETS 13

LIST OF ABUTTING PROPERTY OWNERS
APPLICATION OF GALES FERRY INTERMODAL, LLC
1761 CONNECTICUT ROUTE 12, LEDYARD, CONNECTICUT

Property ID Number	Property Location	Owner's Name and Mailing Address
47-2060-3	3 River Drive	Stogie Properties LLC 35 River Drive Gales Ferry, CT 06335
47-2060-9	9 River Drive	Ms. Karen Sacco 2821 East Orchard Circle Davie, FL 32904
76-2120-1721	1721 Route 12	Mr. Clifford E. Cline Mrs. Emillia A. Cline P.O. Box 536 Gales Ferry, CT 06335
76-2120-1737	1737 Route 12	Gales Ferry Intermodal LLC 549 South Street Quincy, MA 02169
61-2120-1742-1A	1742 Route 12, Unit 1A	Mr. Bobby Collins 1742 Route 12, Unit 1A Gales Ferry, CT 06335
61-2120-1742-1B	1742 Route 12, Unit 1B	Mr. Nicholas J. Vekakis Mrs. Sandra B. Vekakis 83 Chestnut Drive Colchester, CT 06415
61-2120-1742-1C	1742 Route 12, Unit 1C	Ms. Theresa M. Ryder 19 Kingfisher Way Waterford, CT 06385
61-2120-1742-1D	1742 Route 12, Unit 1D	Mr. Richard Del Russo P.O. Box 745 East Lyme, CT 06333
61-2120-1742-1E	1742 Route 12, Unit 1E	Mr. David M. Wing 1742 Route 12, Unit 1E Gales Ferry, CT 06335
61-2120-1742-1F	1742 Route 12, Unit 1F	Mr. Qassim M. Bani-Hani 1742 Route 12, Unit 1F Gales Ferry, CT 06335
61-2120-1742-1G	1742 Route 12, Unit 1G	Mr. Sean M. Wilding 1742 Route 12, Unit 1G Gales Ferry, CT 06335
61-2120-1742-1H	1742 Route 12, Unit 1H	Yuan Liang Wang Peng Han 243 Argyle Road Cheshire, CT 06410

61-2120-1742-2A	1742 Route 12, Unit 2A	Ms. Holly Chen 1742 Route 12, Unit 2A Gales Ferry, CT 06335
61-2120-1742-2B	1742 Route 12, Unit 2B	Mr. David M. Wing 77 Knotty Oak Road Coventry, RI 02816
61-2120-1742-2C	1742 Route 12, Unit 2C	Mr. Andrew D. Parrish, III Mrs. Mary C. Parrish 1742 Route 12, Unit 2C Gales Ferry, CT 06335
61-2120-1742-2D	1742 Route 12, Unit 2D	Ms. Sophie R. Fournier Mr. Dustin M. Tougas 1742 Route 12, Unit 2D Gales Ferry, CT 06335
61-2120-1742-2E	1742 Route 12, Unit 2E	Ms. Cheryl Marchant 1742 Route 12, Unit 2E Gales Ferry, CT 06335
61-2120-1742-2F	1742 Route 12, Unit 2F	Wei Guo Tammy Tian 478 Canterbury Turnpike Norwich, CT 06360
61-2120-1742-2G	1742 Route 12, Unit 2G	Ms. Denise Morgan 1742 Route 12, Unit 2G Gales Ferry, CT 06335
61-2120-1742-2H	1742 Route 12, Unit 2H	Rmelgar LLC 121 Brook Lane North Branford, CT 06471
61-2120-1742-3A	1742 Route 12, Unit 3A	Mr. Ronald K. Tagliapietra 1742 Route 12, Unit 3A Gales Ferry, CT 06335
61-2120-1742-3B	1742 Route 12, Unit 3B	Mrs. Jennylyn Salva Duyan Mr. Lerma V. Duyan 1742 Route 12, Unit 3B Gales Ferry, CT 06335
61-2120-1742-3C	1742 Route 12, Unit 3C	Mr. Brian D. Weiss 1742 Route 12, Unit 3C Gales Ferry, CT 06335
61-2120-1742-3D	1742 Route 12, Unit 3D	Wei Guo Tammy Tian 478 Canterbury Turnpike Norwich, CT 06360
61-2120-1742-3E	1742 Route 12, Unit 3E	Wenxin Ding 1742 Route 12, Unit 3E Gales Ferry, CT 06335

61-2120-1742-3F	1742 Route 12, Unit 3F	Mr. Kevin J. McGill Mrs. Jennifer L. McGill 7 Joseph Lane Colchester, CT 06415
61-2120-1742-3G	1742 Route 12, Unit 3G	Mr. Jon Filipians 1742 Route 12, Unit 3G Gales Ferry, CT 06335
61-2120-1742-3H	1742 Route 12, Unit 3H	Mr. John Furmanek Ms. Kim Zook 45 Woodruff Road Farmington, CT 06032
61-2120-1742-4A	1742 Route 12, Unit 4A	Mr. Ralph F. Smith Mrs. Vickie A. Smith 1742 Route 12, Unit 4A Gales Ferry, CT 06335
61-2120-1742-4B	1742 Route 12, Unit 4B	Mr. Daniel J. Redner, Jr. 1742 Route 12, Unit 4B Gales Ferry, CT 06335
61-2120-1742-4C	1742 Route 12, Unit 4C	Mr. Andrew John Hernandez Ms. Rachel Dian Banker 1742 Route 12, Unit 4C Gales Ferry, CT 06335
61-2120-1742-4D	1742 Route 12, Unit 4D	Ms. Lorraine E. Dollard 1742 Route 12, Unit 4D Gales Ferry, CT 06335
61-2120-1742-4E	1742 Route 12, Unit 4E	Ms. Cheryl Bowler 1742 Route 12, Unit 4E Gales Ferry, CT 06335
61-2120-1742-4F	1742 Route 12, Unit 4F	Mr. Daniel O'Connor 1742 Route 12, Unit 4F Gales Ferry, CT 06335
61-2120-1742-4G	1742 Route 12, Unit 4G	Mr. Sakher Michael Hanania 30 Meetinghouse Lane Ledyard, CT 06339
61-2120-1742-4H	1742 Route 12, Unit 4H	Ms. Heidi M. Fenton 1742 Route 12, Unit 4H Gales Ferry, CT 06335
61-2120-1742-5A	1742 Route 12, Unit 5A	Wei Guo Tammy Tian 478 Canterbury Turnpike Norwich, CT 06360
61-2120-1742-5B	1742 Route 12, Unit 5B	Ms. Marcella Uhlig 1742 Route 12, Unit 5B Gales Ferry, CT 06335

61-2120-1742-5C	1742 Route 12, Unit 5C	Lai Fong Chan 1742 Route 12, Unit 5C Gales Ferry, CT 06335
61-2120-1742-5D	1742 Route 12, Unit 5D	Mr. Thomas M. Feeley 1742 Route 12, Unit 5D Gales Ferry, CT 06335
61-2120-1742-5E	1742 Route 12, Unit 5E	Ms. Alyssa Kizilski 1742 Route 12, Unit 5E Gales Ferry, CT 06335
61-2120-1742-5F	1742 Route 12, Unit 5F	Ms. Denise M. Scarnati 1742 Route 12, Unit 5F Gales Ferry, CT 06335
61-2120-1742-5G	1742 Route 12, Unit 5G	A L Investments LLC 500 Bridge Street, Suite A Groton, CT 06340
61-2120-1742-5H	1742 Route 12, Unit 5H	Mr. Mason Miles Egan 1742 Route 12, Unit 5H Gales Ferry, CT 06335
61-2120-1742-6A	1742 Route 12, Unit 6A	Ms. Alexus M. Ohar 1742 Route 12, Unit 6A Gales Ferry, CT 06335
61-2120-1742-6B	1742 Route 12, Unit 6B	Mr. Zachary Benevides Ms. Meagan Perez 1742 Route 12, Unit 6B Gales Ferry, CT 06335
61-2120-1742-6C	1742 Route 12, Unit 6C	Xi Zhou 1742 Route 12, Unit 6C Gales Ferry, CT 06335
61-2120-1742-6D	1742 Route 12, Unit 6D	A to Z Rentals LLC 38 Emerald Glen Salem, CT 06420
61-2120-1742-6E	1742 Route 12, Unit 6E	Mr. Richard Chao M. Chen 1742 Route 12, Unit 6E Gales Ferry, CT 06335
61-2120-1742-6F	1742 Route 12, Unit 6F	Mr. John Rophael 1742 Route 12, Unit 6F Gales Ferry, CT 06335
61-2120-1742-6G	1742 Route 12, Unit 6G	Kin Wai Chan 15 Oakridge Drive Gales Ferry, CT 06335
61-2120-1742-6H	1742 Route 12, Unit 6H	Michael Tse Huiying Liang 1742 Route 12, Unit 6H Gales Ferry, CT 06335

61-2120-1754	1754 Route 12	Mr. Ryan Allen 1754 Route 12 Gales Ferry, CT 06335
61-2120-1756	1756 Route 12	Mr. Ryan Allen 1754 Route 12 Gales Ferry, CT 06335
61-2120-1758	1758 Route 12	Mr. Lloyd Geer 1009 Long Cove Road Gales Ferry, CT 06335
61-2120-1761	1761 Route 12	Gales Ferry Intermodal LLC 549 South Street Quincy, MA 02169
61-2120-1761R	1761R Route 12	Ledyard Town Clerk 741 Colonel Ledyard Highway Ledyard, CT 06339
61-2120-1761R	1761R Route 12	Allyn Family c/o Honorable Fred Allyn, III, Mayor 741 Colonel Ledyard Highway Ledyard, CT 06339
61-2120-1764	1764 Route 12	Mr. Daniel W. Stanavage, Jr. 33 Chapman Lane Stonington, CT 06378
61-2120-1772	1772 Route 12	Gales Ferry Fire Company Inc. P.O. Box 31 Gales Ferry, CT 06335
61-2120-1772A	1772A Route 12	The Dow Chemical Company 2211 H.H. Dow Way Midland, MI 48674
61-2120-1780	1780 Route 12	Mr. Steven E. Buttermore Mrs. Diane L. Buttermore 15 Merry Lane Gales Ferry, CT 06335
62-2120-1792	1792 Route 12	The Dow Chemical Company 2211 H.H. Dow Way Midland, MI 48674
76-440-6	6 Chapman Lane	The United Methodist Church of Gales Ferry, Incorporated 6 Chapman Lane Gales Ferry, CT 06335
75-440-40	40 Chapman Lane	Ms. Elizabeth T. Smith 40 Chapman Lane Gales Ferry, CT 06335
75-440-48	48 Chapman Lane	Ms. Dorothy E. Lewis 56 Chapman Lane Gales Ferry, CT 06335

75-440-54	54 Chapman Lane	Ms. Marie E. Bridgman 54 Chapman Lane Gales Ferry, CT 06335
75-440-56	56 Chapman Lane	Ms. Dorothy E. Lewis 56 Chapman Lane Gales Ferry, CT 06335
62-1750-3	3 Oakridge Drive	Mr. Eric M. Ledesma Ms. Lisa Cosner 3 Oakridge Drive Gales Ferry, CT 06335
	Thames River	Connecticut Department of Energy and Environmental Protection 79 Elm Street Hartford, CT 06106
76-60-14	14 Anderson Drive	Mr. Noble Thomas, III Mrs. Joanna Thomas 14 Anderson Drive Gales Ferry, CT 06335
76-60-20	20 Anderson Drive	Ms. Jenna Bennett Mr. Alexander Kintz 20 Andesron Drive Gales Ferry, CT 06335
76-60-22	22 Anderson Drive	Small Fish Properties LLC 70 White Rock Drive Windsor, CT 06095

• Soil & Wetland Studies
• Ecology • Application Reviews
• Listed Species Surveys • GPS
• Environmental Planning & Management
• Ecological Restoration & Habitat Mitigation
• Expert Testimony • Permitting

April 3, 2023

VIA E-MAIL

Town of Ledyard
Inland Wetlands & Water Courses Commission
Town Hall
741 Colonel Ledyard Highway
Ledyard, CT 06339

ATTN: Mr. Justin DeBrodt, Chairman

RE: **WETLANDS ASSESSMENT & MITIGATION**
Site Preparation for Future Industrial Development
1737 and 1761 Route 12, Gales Ferry (Ledyard), CT
REMA Job #23-2596-LED5

Dear Chairman DeBrodt and Commission Members:

At the request of the applicant, Gales Ferry Intermodal, LLC, REMA ECOLOGICAL SERVICES, LLC (REMA), has prepared this *Wetlands Assessment & Mitigation* report, to be submitted as part of an application before the Town of Ledyard Inland Wetlands and Water Courses Commission.

1.0 Introduction & Overview

The applicant is proposing to extract rock from roughly 38 +/- acres (i.e., "site," "study area") of a 165-acre industrial property, in order to prepare the site for future industrial development (see Figure A, attached).

The site is predominately wooded, and encompasses a portion of a moderately steep hill, that overlooks the Thames River to the west. Wetland delineations were conducted by JMM Wetland Consulting Services, LLC, with assistance from REMA, in April and September of 2022, and March of 2023.

The regulated resources associated with the proposal, are predominately disturbed, and/or man-made, isolated wetland pockets, as well as a man-made ditch, with intermittent watercourse characteristics. Within the proposed rock extraction area, Wetland Z, is a +/- 1,700 square foot wetland, created through past excavation. Westerly, and downgradient of the proposed rock extraction area, two small wetlands (i.e., Wetland X and Wetland Y), are connected via a ditched intermittent watercourse, for a combined wetland area of roughly 6,150 square feet. Finally, further downgradient and southwesterly of Wetlands X and Y, a ditched intermittent watercourse runs in a southwesterly direction parallel to an existing paved area that has been used in the past for equipment and materials storage.

In addition to providing brief descriptions and characterizations of the aforementioned regulated wetland areas (i.e., Wetlands X, Y, and Z), this report describes a proposed compensatory wetland mitigation plan for the disturbance of Wetland Z, and in part for Wetlands X and Y. If in the future, REMA, or another qualified wetlands professional, determines that Wetlands X and Y, while not being directly disturbed, have been hydrologically impacted by the proposal, additional compensatory mitigation would be required.

We note that REMA reviewed secondary source data, including archival aerial photographs (e.g., 1934, 1951, 1965, 1970, and 1986), and also more recent aerial photography for flight years 1990 through 2021 (Google Earth). We also reviewed USGS topographic maps, including historic ones, Connecticut Environmental Conditions Online (CTECO) Resource Maps, the State of Connecticut Soil Survey (USDA-NRCS) (attached), and several CT DEEP GIS-based resource maps (e.g., surficial and bedrock geology, etc.). Also, attached to this report, we provide several annotated photographs, primarily of the site's regulated resources (see Photos 1 through 14).

2.0 Existing Conditions

2.1 Wetlands Overview

The study area's primary regulated wetland/watercourse resources, Wetlands X, Y, and Z, are early successional, forested, and scrub shrub wetlands, for the most part created through prior excavation and/or ditching. These are *seasonally flooded* to *seasonally saturated* wetlands, low in floristic diversity.

In the early portion of the growing seasonal these wetlands receive shallow groundwater discharge. As the growing season progresses and evapotranspiration increases in the contributing forested areas, groundwater discharge decreases, and surface flows within these wetlands, and associated intermittent watercourses, are only observed during significant rain events.

2.2 Geology and Soils

The general surficial geology of all three delineated wetlands (i.e., Wetlands X, Y, and Z) is attributed to thin glacial till over bedrock, per field observations, and geologic maps. However, Wetlands X and Y, overlap upon are within an area that has been previously designated as a landfill, with soils derived from sandy fill.

The USDA/NRCS soils map shows the excessively drained Hinckley loamy sand (Unit 38E) underlying Wetlands X and Y, which a soil type derived from glacial outwash. However, field observations would indicate that both of these wetlands were either excavated or derived from glacial till deposits and/or sandy fill. With the exception of the small, southerly hillside portion of Wetland Y, which has some poorly drained, undisturbed soils, the balance of these wetlands are mapped as Aquents (308w). These are poorly and very poorly drained soils of previously disturbed land. The undisturbed wetlands soils, which are limited to one small area of Wetland Y, are the poorly drained to very poorly drained Ridgebury, Leicester, and Whitman (3) soils series complex.

2.3 Wetland Characterization

The wetlands within the study area (i.e., Wetlands X, Y, and Z) are predominately classified as *palustrine, forested/scrub shrub, seasonally saturated/seasonally flooded* (PFO/SS1E) per the National Wetlands Inventory (NWI) classification system. Being relatively narrow, and steep sided, they contain vegetation of both wetlands and moist uplands. Floristic diversity is relatively low, and the percentage of invasive species is low (Wetland Z) to moderate (Wetlands X and Y).

Dominant or common overstory trees and large shrubs observed, included red maple, gray birch, flowering dogwood, sugar maple, cottonwood, green ash, speckled alder, black willow, bigtooth aspen, and eastern hemlock. The woody understory contained such species as mountain laurel, multiflora rose, Morrow's honeysuckle, wineberry, autumn olive, Japanese knotweed, sweet pepperbush, highbush blueberry, and silky dogwood. Observed herbaceous species included skunk cabbage, jewelweed, clearweed, field horsetail, cinnamon, New York, royal, Christmas, and sensitive ferns, evergreen woodfern, swamp dewberry, garlic mustard, goldenrods, asters, poison ivy, and grasses. Lianas included Asiatic bittersweet, fox grape, and Virginia creeper.

2.4 Wetland Functions & Values

Wetland/watercourse functions and values[1] were assessed informally, using the rationales of a standardized evaluation methods [e.g., US Army Corps of Engineers' *Descriptive Approach* (1995)], and best professional judgment. Wetland and upland baseline data provide the basis for the assessment, as well as the landscape setting of the site. We note that the small size of the wetlands within the study area does not allow for a more formal evaluation. In fact, the *Descriptive Approach* resolution in evaluating wetlands that are much less than a half-acre is relatively low, which is the reason for relying mostly on best professional judgment. Table A (below) shows the results of the assessment. Generally, small disturbed wetlands do not score highly for wetland functions and values.

[1] Functions are those provided by a given wetland/watercourse that are intrinsic to the resource. That is, they would present regardless of society (e.g wildlife habitat, nutrient removal/transformation). Values are those services that society benefits from (e.g., floodflow alteration, recreation, educational/scientific value. Some "functions" also benefit society, such as sediment/toxicant/pathogen retention.

Table A, also includes a column of potential functions & values that would result from the proposed compensatory mitigation. This is attributed to several factors, including landscape position, juxtaposition with other wetlands, expected hydrology, number of wetland cover type classes and subclasses, and proposed floristic diversity.

Table A: Summary of Wetland/Watercourse Functions-Values Assessment

Function/Value	Wetlands X, Y, and Z	*Potential* Wetland Creation Area (post-dev.)
Groundwater Recharge/discharge	**P**	Y
Floodflow alteration	N	Y
Sediment/Shoreline Stabilization	N	Y
Sediment/toxicant/pathogen retention	N	Y
Nutrient Removal/Transformation	Y	Y
Production Export	N	N
Aquatic Habitat	N	Y
Wildlife Habitat	Y	Y
Endangered Species Habitat	N	N
Visual Quality/aesthetics	N	Y
Educational/Scientific Value	N	Y
Recreation (passive/active)	N	N
Uniqueness/heritage	N	N

Notes: P = Primary function; Y = function present; N = function not appreciably present or absent

3.0 Mitigation

The proposed 1,700 square foot *direct wetland impact* to Wetland Z will be mitigated through the creation of at least 5,400 square feet of productive wetlands, within the southwestern section of the site, adjacent to an existing wetland, and in part within the southernmost portion of an existing paved area (see Figure B, attached). Typically, a 1.5:1 or 2:1 wetland creation to wetland impact area ratio is provided for mitigating impacts to low-functioning, disturbed wetlands, but in this case a higher ratio was provided. Should in the future hydrologic impacts be experienced in Wetlands X and Y, the proposed wetland mitigation will compensate for all or most of such a wetland disturbance.

The goal for the wetland creation is to provide a mosaic of scrub shrub, wet meadow, and marsh wetland cover types, with a much higher diversity of vegetation than is provided by Wetland Z, which would be impacted. Seeding and plant materials tables, as well as detailed

mitigation implementation notes, have been provided by REMA and are part of the submitted plan set. It should be noted that the intent is for a qualified wetland professional to supervise the implementation of the mitigation plan, and its planting and seeding, including the actual placement of plants (i.e., emergents, shrubs, and trees).

4.0 Conclusion

It is our professional opinion that the proposed compensatory wetland mitigation will more than off-set the direct impact to Wetland Z.

Please call us if you have any questions on the above or need further assistance.

Respectfully submitted,

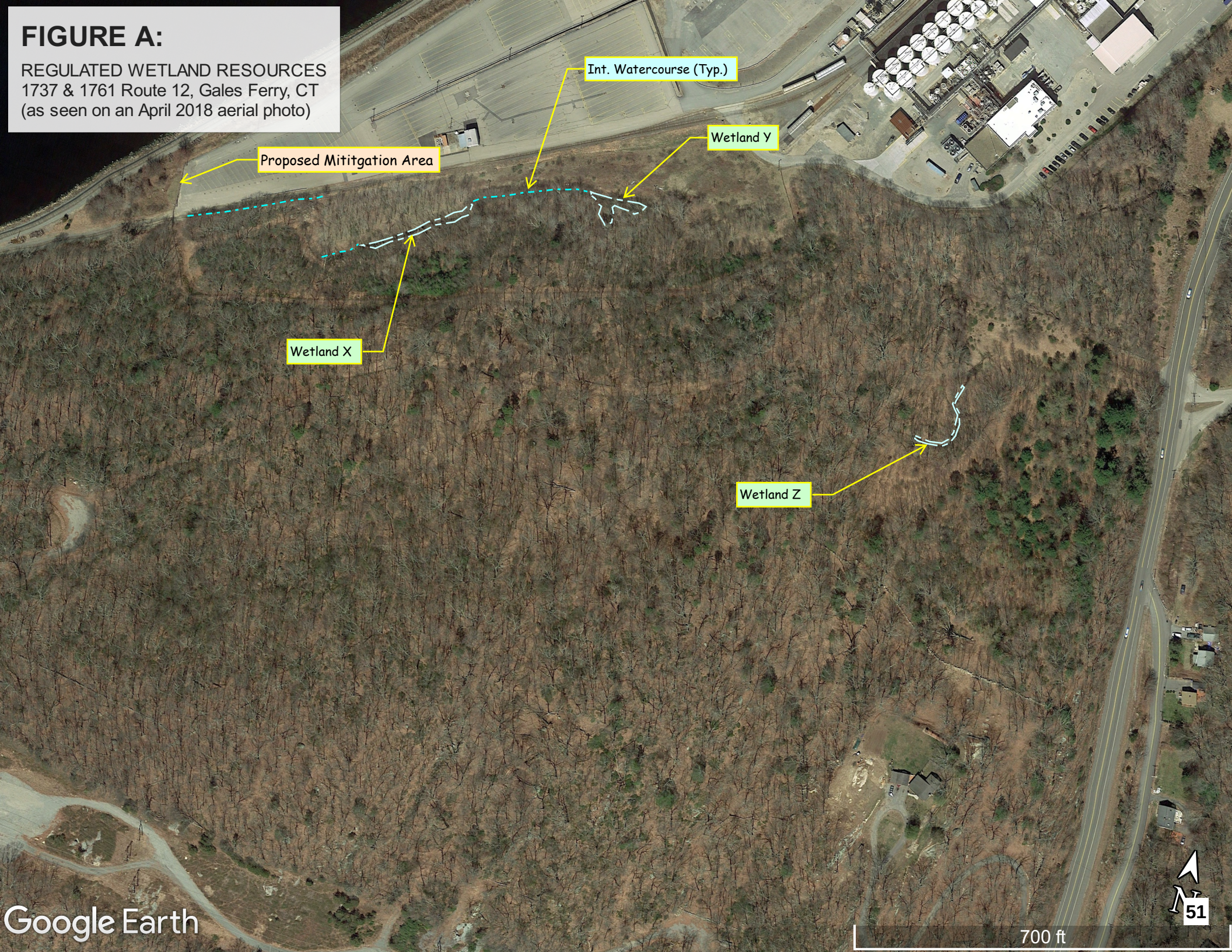
REMA ECOLOGICAL SERVICES, LLC

George T. Logan, MS, PWS, CSE
Certified Senior Ecologist
Professional Wetland Scientist
Registered Soil Scientist

Attachments: Figures A and B; Annotated Photographs (1-14); CT Web Soil Survey

FIGURE A:

REGULATED WETLAND RESOURCES
1737 & 1761 Route 12, Gales Ferry, CT
(as seen on an April 2018 aerial photo)



CT Environmental Conditions Online

FIGURE B: PROPOSED COMPENSATORY WETLAND MITIGATION AREA
1737 & 1761 Route 12, Gales Ferry, Connecticut

Legend

Town Boundary
- State Boundary
- Town Boundary
- Coastline

Light Gray Canvas Base

Notes

0.0 0 0.01 0.0 Miles

THIS MAP IS NOT TO BE USED FOR NAVIGATION

This map is intended for general planning, management, education, and research purposes only. Data shown on this map may not be complete or current. The data shown may have been compiled at different times and at different map scales, which may not match the scale at which the data is shown on this map.

REMA	**SITE/LOCATION:** 1737 & 1761 Route 12 Gales Ferry, CT	REMA JOB NO.: 23-2596-LED5	**ANNOTATED PHOTO LOG**
	INVESTIGATOR(S): George T. Logan, MS, PWS, CSE		

DATE: March 29, 2023	**FACING:** NORTHEASTERLY	**PHOTO NO.:** 1

Wetland X; man-made wetland receives seasonal groundwater discharge and surface runoff from hillside about it to the south

DATE: March 29, 2023	**FACING:** SOUTHWESTERLY	**PHOTO NO.:** 2

Wetland X; seasonally ponds a few inches of water; no amphibian activity noted

REMA	**SITE/LOCATION:** 1737 & 1761 Route 12 Gales Ferry, CT	REMA JOB NO.: 23-2596-LED5	**ANNOTATED PHOTO LOG**
	INVESTIGATOR(S): George T. Logan, MS, PWS, CSE		

DATE: March 29, 2023	**FACING:** NORTHEASTERLY	**PHOTO NO.:** 3

Flagged ditched intermittent watercourse between Wetland Y, upgradient and Wetland X

DATE: March 29, 2023	**FACING:** EASTERLY	**PHOTO NO.:** 4

Wetland Y; seasonally saturated hillside seep; only partially disturbed

REMA	**SITE/LOCATION:** 1737 & 1761 Route 12 Gales Ferry, CT	REMA JOB NO.: 23-2596-LED5	**ANNOTATED PHOTO LOG**
	INVESTIGATOR(S): George T. Logan, MS, PWS, CSE		

DATE: March 29, 2023	**FACING:** NORTHERLY	**PHOTO NO.:** 5

Wetland Y; two wetland delineation flags denote the top (uphill) limit of the wetland

DATE: March 29, 2023	**FACING:** WESTERLY	**PHOTO NO.:** 6

Wetland Y; seasonally saturated hillside seep; beginning (easterly) edge of hillside dicharge and embedded intermittent watercourse

REMA	**SITE/LOCATION:** 1737 & 1761 Route 12 Gales Ferry, CT	REMA JOB NO.: 23-2596-LED5	**ANNOTATED PHOTO LOG**
	INVESTIGATOR(S): George T. Logan, MS, PWS, CSE		

DATE: September 7, 2022	**FACING:** NORTHEASTERLY	**PHOTO NO.:** 7

Westerly end of flagged ditched intermittent watercourse that begins at the westerly edge of Wetland X; past this point surface waters infiltrate readily into sandy soils, at the interface between glacial till and glacial outwash deposits.

DATE: March 29, 2023	**FACING:** EASTERLY	**PHOTO NO.:** 8

Wetland Z; man-made, through excavation, seasonally flooded and seasonally flooded, isolated wetland; no amphibian activity observed in the 6-8 inches of inundation

REMA	**SITE/LOCATION:** 1737 & 1761 Route 12 Gales Ferry, CT	REMA JOB NO.: 23-2596-LED5	**ANNOTATED PHOTO LOG**
	INVESTIGATOR(S): George T. Logan, MS, PWS, CSE		

DATE: March 29, 2023	**FACING:** WESTERLY	**PHOTO NO.:** 9

Wetland Z; upper portion at hillside cut

DATE: March 29, 2023	**FACING:** NORTHERLY	**PHOTO NO.:** 10

Wetland Z; central section; ditched

REMA	**SITE/LOCATION:** 1737 & 1761 Route 12 Gales Ferry, CT	REMA JOB NO.: 23-2596-LED5	**ANNOTATED PHOTO LOG**
	INVESTIGATOR(S): George T. Logan, MS, PWS, CSE		

DATE: March 29, 2023	**FACING:** SOUTHWESTERLY	**PHOTO NO.:** 11

Edge of delineated wetland, next to which (i.e., easterly) wetland creation is proposed; this partially forested wetland is not connected via surface flows to the the tidal waters of the Thames River; up to 10 inches of sandy fill over wetland topsoil was observed in this wetland, which is seasonally satruated to temporarily flooded

DATE: March 29, 2023	**FACING:** NORTHEASTERLY	**PHOTO NO.:** 12

Looking roughly 180 degrees from previous photo, into a portion of the upland area to be converted to wetlands; replete with invasives, such as multiflora rose and Asiatic bittersweet.

REMA	**SITE/LOCATION:** 1737 & 1761 Route 12 Gales Ferry, CT	REMA JOB NO.: 23-2596-LED5	**ANNOTATED PHOTO LOG**
	INVESTIGATOR(S): George T. Logan, MS, PWS, CSE		

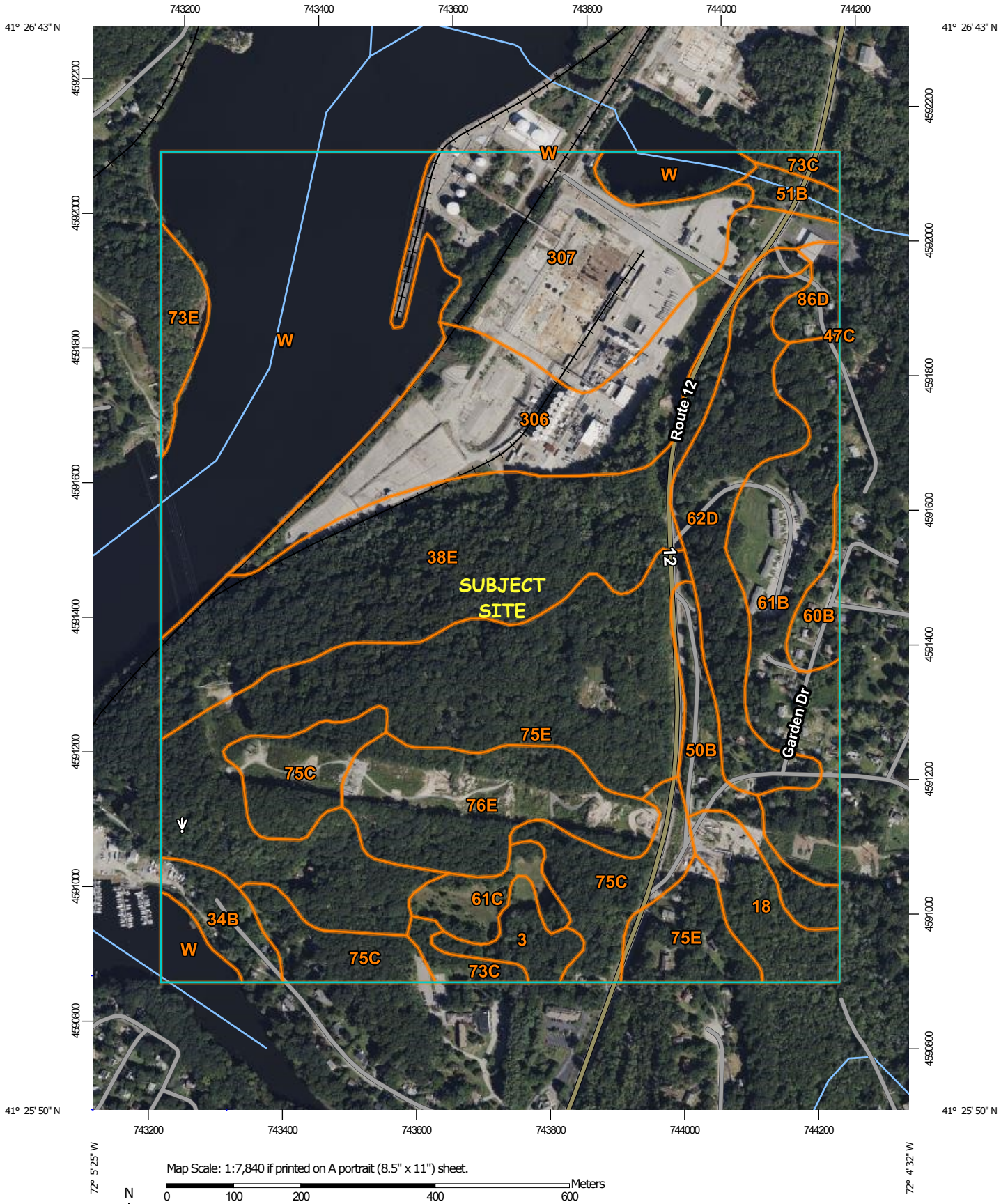
DATE: March 29, 2023	**FACING:** WESTERLY	**PHOTO NO.:** 13

Mugwort infested upland that would be converted to a productive/functioning wetland

DATE: March 29, 2023	**FACING:** SOUTHERLY	**PHOTO NO.:** 14

A portion of the area at the western portion of the paved area would be excvated to create a wetland habitat

Soil Map—State of Connecticut
(1737 and 1761 Route 12, Gales Ferry, CT)



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.

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
Survey Area Data: Version 22, Sep 12, 2022

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	3.4	1.1%
18	Catden and Freetown soils, 0 to 2 percent slopes	6.5	2.1%
34B	Merrimac fine sandy loam, 3 to 8 percent slopes	4.1	1.3%
38E	Hinckley loamy sand, 15 to 45 percent slopes	38.7	12.5%
47C	Woodbridge fine sandy loam, 3 to 15 percent slopes, extremely stony	0.0	0.0%
50B	Sutton fine sandy loam, 3 to 8 percent slopes	6.7	2.2%
51B	Sutton fine sandy loam, 0 to 8 percent slopes, very stony	1.9	0.6%
60B	Canton and Charlton fine sandy loams, 3 to 8 percent slopes	2.5	0.8%
61B	Canton and Charlton fine sandy loams, 0 to 8 percent slopes, very stony	20.1	6.5%
61C	Canton and Charlton fine sandy loams, 8 to 15 percent slopes, very stony	4.1	1.3%
62D	Canton and Charlton fine sandy loams, 15 to 35 percent slopes, extremely stony	16.5	5.3%
73C	Charlton-Chatfield complex, 0 to 15 percent slopes, very rocky	2.9	0.9%
73E	Charlton-Chatfield complex, 15 to 45 percent slopes, very rocky	3.6	1.2%
75C	Hollis-Chatfield-Rock outcrop complex, 3 to 15 percent slopes	19.7	6.4%
75E	Hollis-Chatfield-Rock outcrop complex, 15 to 45 percent slopes	50.5	16.3%
76E	Rock outcrop-Hollis complex, 3 to 45 percent slopes	16.2	5.2%
86D	Paxton and Montauk fine sandy loams, 15 to 35 percent slopes, extremely stony	2.5	0.8%

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
306	Udorthents-Urban land complex	26.5	8.6%
307	Urban land	28.5	9.2%
W	Water	54.7	17.6%
Totals for Area of Interest		**309.9**	**100.0%**

Exhibit #12

received 6/6

LEDYARD INLAND WETLANDS AND WATERCOURSES COMMISSION
741 Colonel LEDYARD HIGHWAY
LEDYARD, CONNECTICUT 06339

Re: GALES FERRY INTERMODAL, LLC
1761 AND 1737 Route 12, LEDYARD, CONNECTICUT

Dear COMMISSIONERS:

The Above Referenced Applicant hereby grants a 35 DAY extension of the TIME PERIOD WITHIN which TO Reach A decision on the Above permit Application.

GALES FERRY INTERMODAL, LLC

BY _____
ITS AUTHORIZED AGENT

REMA ECOLOGICAL SERVICES, LLC

Stony Brook Farms II, Suffield

Exhibit # 11

Ecological Restoration & Habitat Mitigation

Project Profile

As part of a residential subdivision in the Town of Suffield, REMA provided a Compensatory Wetland Mitigation Plan to satisfy permitting requirements under both the CT Wetlands Act, administered by the Town's Inland Wetlands Agency, and the Connecticut Programmatic General Permit (PGP), administered by the US Army Corps of Engineers.

To compensate for the disturbance of 0.98 acres of jurisdictional wetlands, the Plan includes 1.53 acres of wetland creation and 0.18 acres of wetland restoration. The created wet meadow, shallow marsh, and scrub shrub wetland community is located in a moist agricultural field within an 114-acre dedicated open space.

The implementation of the plan is now in its third season, having begun in the Fall of 2006. This particular wetland mitigation area is being actively monitored by the US Army Corps of Engineers as part of a multi-year study of wetland mitigation implementation and success.

REMA ECOLOGICAL SERVICES, LLC

164 East Center Street
Suite 2
Manchester, CT 06040

Phone: 860.649.7362 (REMA)
Fax: 860.647.8397

www.remaecological.com

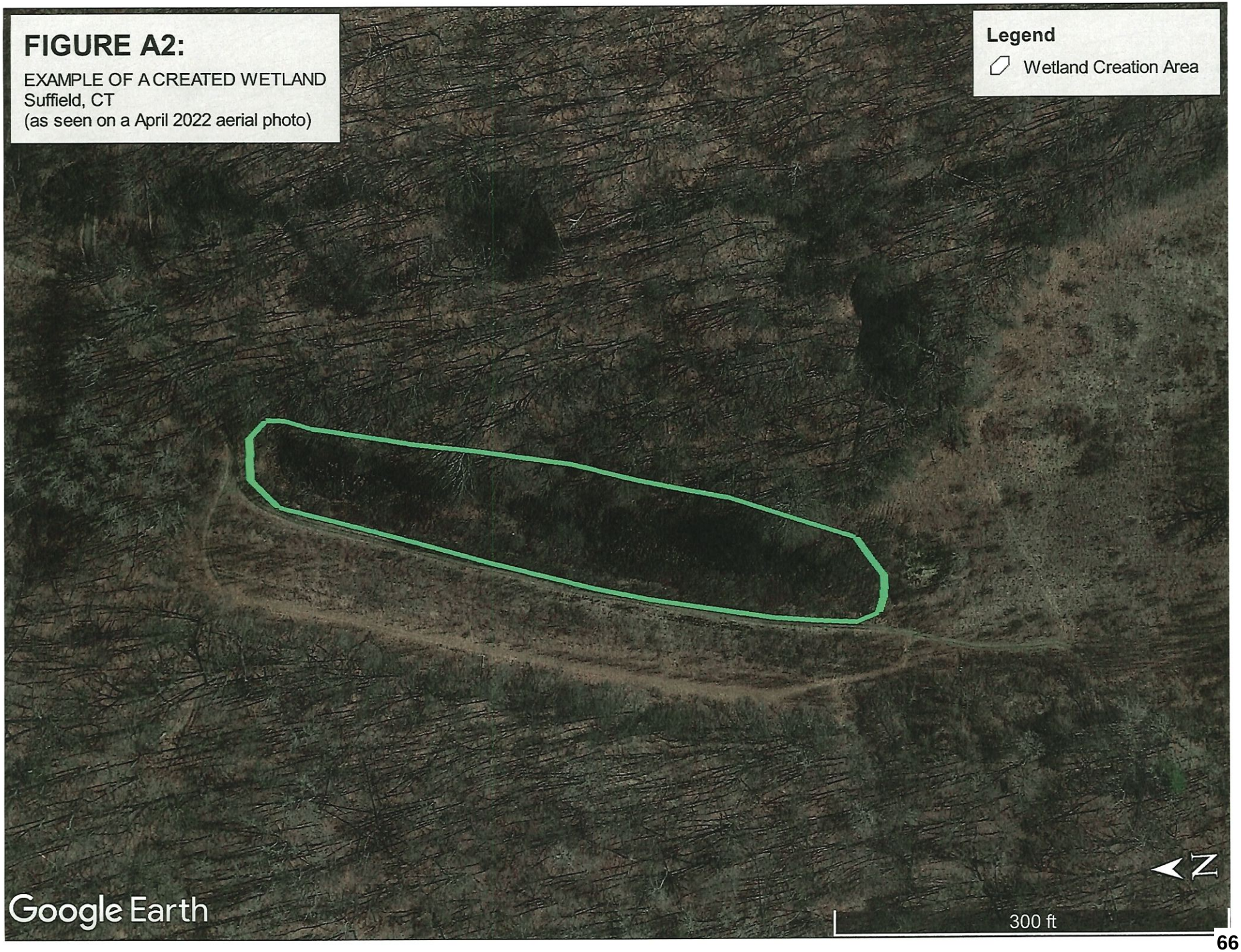


FIGURE A2:
EXAMPLE OF A CREATED WETLAND
Suffield, CT
(as seen on a April 2022 aerial photo)
Legend
Wetland Creation Area
Google Earth
300 ft
N

FIGURE A1:

EXAMPLE OF A CREATED WETLAND
(before implementation)
Suffield, CT
(as seen on a September 2006 aerial photo)

• Soil & Wetland Studies
• Ecology • Application Reviews
• Listed Species Surveys • GPS
• Environmental Planning & Management
• Ecological Restoration & Habitat Mitigation
• Expert Testimony • Permitting

June 1, 2023

VIA E-MAIL

Town of Ledyard
Inland Wetlands & Water Courses Commission
Town Hall
741 Colonel Ledyard Highway
Ledyard, CT 06339

ATTN: Mr. Justin DeBrodt, Chairman

RE: **COMPENSATORY WETLAND MITIGATION**
Site Preparation for Future Industrial Development
1737 and 1761 Route 12, Gales Ferry (Ledyard), CT
REMA Job #23-2596-LED5

Dear Chairman DeBrodt and Commission Members:

At the request of the applicant, Gales Ferry Intermodal, LLC, REMA ECOLOGICAL SERVICES, LLC (REMA), has prepared this brief *Compensatory Wetland Mitigation* report, to be submitted as part of an application before the Town of Ledyard Inland Wetlands and Water Courses Commission.

Per our discussion with Commission and Town staff, an additional stand-alone compensatory wetland mitigation area was selected at the site, since the one previously proposed would have to be greatly reduced in size, likely by half, by not excavating within the existing paved area.

The newly proposed area would be located within a pie-shaped upland area, between two railroad tracks, and northerly of an existing tidal pond/marsh (see Figure A, attached). Under

existing conditions this area includes shrub and vine tangles, ruderal forest, and open moist meadow. Invasive plants are dominant throughout (see attached annotated photos).

Attached, we include implementation notes, and planting material tables. We should note that soil exploration would have to take place prior to finalizing the grading for this area, in order to ascertain the seasonal groundwater table. The hydrology of the created wetland will rely almost entirely on the fluctuations of groundwater, which is also to some extent influenced by the tidal regime of the river.

Please call us if you have any questions on the above or need further assistance.

Respectfully submitted,

REMA ECOLOGICAL SERVICES, LLC

George T. Logan, MS, PWS, CSE
Certified Senior Ecologist
Professional Wetland Scientist
Registered Soil Scientist

Attachments: Figure A; Annotated Photographs (1-6); Implementation Notes, Planting Materials Tables (1-4)

CT Environmental Conditions Online

FIGURE A: PROPOSED COMPENSATORY WETLAND MITIGATION AREA
1737 & 1761 Route 12, Gales Ferry, Connecticut

Legend

Town Boundary

State Boundary

Town Boundary

Coastline

Light Gray Canvas Base

Notes

0.0 0 0.02 0.0 Miles

THIS MAP IS NOT TO BE USED FOR NAVIGATION

This map is intended for general planning, management, education, and research purposes only. Data shown on this map may not be complete or current. The data shown may have been compiled at different times and at different map scales, which may not match the scale at which the data is shown on this map.

REMA	**SITE/LOCATION:** 1737 & 1761 Route 12 Gales Ferry, CT	REMA JOB NO.: 23-2596-LED5	**ANNOTATED PHOTO LOG**
	INVESTIGATOR(S): George T. Logan, MS, PWS, CSE		

DATE: May 25, 2023	**FACING:** SOUTHERLY	**PHOTO NO.:** 1

Northern section of proposed compensatory wetland area; replete with invasives such as autumn olive, multiflora rose, mugwort, Asiatic bittersweet, black locust, etc.

DATE: May 25, 2023	**FACING:** SOUTHWESTERLY	**PHOTO NO.:** 2

Dense thickets characterize the central and upper sections of the compensatory wetland mitigation area

REMA	**SITE/LOCATION:** 1737 & 1761 Route 12 Gales Ferry, CT	REMA JOB NO.: 23-2596-LED5	**ANNOTATED PHOTO LOG**
	INVESTIGATOR(S): George T. Logan, MS, PWS, CSE		

DATE: May 25, 2023	**FACING:** NORTHERLY	**PHOTO NO.:** 3

Southern section of proposed compensatory wetland area; young ruderal woods, also replete with invasives

DATE: May 25, 2023	**FACING:** SOUTHWESTERLY	**PHOTO NO.:** 4

At the far southern edge of this area a higher earthern berm separates it from a wetland/tidal area; this berm will be left intact, roughly 20 to 25 feet in widith

REMA	**SITE/LOCATION:** 1737 & 1761 Route 12 Gales Ferry, CT	REMA JOB NO.: 23-2596-LED5	**ANNOTATED PHOTO LOG**
	INVESTIGATOR(S): George T. Logan, MS, PWS, CSE		

DATE: May 25, 2023	**FACING:** EASTERLY	**PHOTO NO.:** 5

The proposed mitigation will expand the functios and values of existing wetlands, such as shown here to the south

DATE: May 25, 2023	**FACING:** SOUTHERLY	**PHOTO NO.:** 6

Railroad tracks to the west of the proposed mitigation area with prominent bedrock knoll

MITIGATION PLAN FOR
CREATION OF WETLAND HABITATS

IMPLEMENTATION NOTES

1.0 INTRODUCTION

EMERGENT AND SCRUB-SHRUB WETLAND (I.E., WET MEADOW/MARSH AND SHRUB SWAMP) CREATION BY EXCAVATION, AND HERBACEOUS AND WOODY PLANTINGS, WILL TAKE PLACE AT AN ADDITIONAL LOCATION ON THE SUBJECT SITE, AT THE WESTERN PORTION OF THE OVERALL PROPERTY, A PIE-SHAPED AREA, BETWEEN TO RAILROAD TRACKS, AND EASTERLY OF A PROMINENT BEDROCK KNOLL.

SOILS RANGE FROM WELL DRAINED, TO MODERATELY WELL DRAINED FINE SANDY LOAMS TO LOAMY SAND. BASED ON PRELIMINARY SOIL EXPLORATION THE SITE AND REMOTE SENSING, THIS AREA APPEARS TO NO HAVE BEEN FILLED OR MANIPULATED TO A GREAT DEGREE, IN THE SUBSOILS.

THOUGH SOME BETTER-QUALITY NATIVE VEGETATION OF RUDERAL WOODS EXISTS WITHIN THIS AREA, FOR THE MOST PART IT IS REPLETE WITH INVASIVE PLANTS (E.G., MULTIFLORA ROSE, MUGWORT, ASIATIC BITTERSWEET, TREE OF HEAVEN, AUTUMN OLIVE, ETC.).

IN-KIND MITIGATION (I.E., CREATION) IS PROPOSED TO OFF-SET LOST FUNCTIONS & VALUES FROM THE CURRENTLY PROPOSED PERMANENT WETLAND IMPACT (I.E., +/- ***1,700 SQUARE FEET***) (I.E., "WETLAND Z"), AND THE POTENTIAL HYDROLOGIC IMPACTS TO WETLANDS "Y" AND "X", THE GOAL IS TO CREATE ECOLOGICAL COMMUNITIES WITH AT LEAST COMPARABLE, AND PREFERABLY HIGHER, FUNCTIONS AND COMPLIMENTARY WETLAND COVER TYPES TO THE WETLANDS THAT WOULD BE IMPACTED. THE INITIAL TARGET COVER TYPE RATIO FOR THE WETLAND REPLICATION SHALL BE ½ EMERGENT (I.E., WET MEADOW, MARSH) AND ½ SCRUB SHRUB HABITATS. APPROXIMATELY ***17,500 SQUARE FEET*** OF PRODUCTIVE WETLAND CAN BE CREATED AT THIS LOCATION.

THE WETLAND CREATION GOAL IS 100% COVER, AND 95% COVER BY NATIVE SPECIES, BY THE END OF THE FIVE-YEAR (5) MONITORING PERIOD. PLANT SPECIES WERE SELECTED TO ENCOMPASS THE FOLLOWING CRITERIA: FOOD PLANTS FOR CATEPILLARS, BEETLES, AND OTHER INSECTS; FRUIT, SEED, AND NUT PRODUCTION IN DIFFERENT SEASONS, INCLUDING PERSISTENT WINTER FRUIT AND SPRING SEEDS; FORAGE FOR VERTEBRATE HERBIVORES; SUITABLE MICRO-HABITATS FOR OVERWINTERING INSECTS; AND NECTAR AND POLLEN THROUGHOUT THE GROWING SEASON (SEE TABLE 3). SPECIES ALREADY PRESENT IN NEARBY WETLAND HABITATS, ESPECIALLY WOODY SPECIES, WERE SELECTED FIRST, AS THEY ARE ALREADY USED BY THE LOCAL FAUNAL ASSEMBLAGE.

NOTE: *ALL WETLAND REPLICATION WORK, SHALL BE SUPERVISED BY AN ECOLOGIST (OR WETLAND SCIENTIST), INCLUDING INITIAL GRADING, PLANTING, MARKING INVASIVES IN ADJACENT UPLAND BUFFER AREAS, AND MARKING ANY NATIVE MATERIALS FOR SALVAGE. A PRE-IMPLEMENTATION MEETING SHALL TAKE PLACE AT LEAST ONE MONTH PRIOR TO PLAN IMPLEMENTATION, BETWEEN THE WETLAND SCIENTIST, THE SITE CONTRACTOR, AND THE LANDSCAPER, AND THE TOWN'S WETLAND AGENT, AT THE TOWN'S DISCRETION.*

2.0 WETLAND CREATION

PREPARATION

1. ORDER THE TRAYS OF HERBACEOUS PLUGS AND THE SEED MIX, FOR DELIVERY RIGHT AFTER COMPLETION OF GRADING. STORE IN SHADE WHEN THEY ARRRIVE.
2. EARTHWORK FOR THE WETLAND CREATION AREA WILL TAKE PLACE IN APRIL / MAY, OR IN AUGUST, SO THAT PLANTINGS CAN BE INSTALLED IMMEDIATELY AFTERWARDS, EITHER IN LATE SPRING OR VERY EARLY FALL SEASONS.
3. A MINIMUM OF 10 INCHES OF TOPSOIL (AFTER COMPACTION) SHALL BE USED. SOIL TEXTURE SHALL BE LOAM OR FINER. ORGANIC MATTER CONTENT SHALL BE A MINIMUM OF 10 PERCENT BY WEIGHT (I.E., LOSS AT IGNITION), AS TESTED AT A QUALIFIED LABORATORY (E.G., UNIVERSITY OF CONNECTICUT SOILS LAB).
4. IF NECESSARY, WELL-ROTTED LEAF COMPOST (I.E., TWO YEAR MINIMUM) WILL BE ADDED TO BRING THE PERCENT ORGANIC MATTER TO THE DESIRED SPECIFICATION.
5. A ONE TO TWO INCH THICK "TOP-DRESSING" SHALL BE APPLIED TO THE FINAL GRADE AT THE CREATION AREA, EXCEPT IN AREAS WITH PROPOSED INUNDATION, CONSISTING OF LEAF COMPOST (2-YEAR OLD, MINIMUM).
6. ADD ORGANIC, SLOW-RELEASE FERTILIZER OR OTHER AMENDMENT ONLY AS INDICATED BY THE SOIL TEST RESULTS. ***NOTE*** THAT NUTRIENT LEVELS SHOULD BE LOWER FOR NATURAL HABITATS THAN FOR AGRICULTURAL OR HORTICULTURAL SITES, TO PREVENT EXCESSIVE COMPETITION BY RANK WEEDS.
7. INSTALL *PERIMETER EROSION CONTROLS* AROUND THE MITIGATION AREAS AS SHOWN ON PLAN: CORRECTLY TRENCHED AND STAKED SILT FENCE PER THE *2002 CONNECTICUT EROSION & SEDIMENTATION CONTROL GUIDELINES* (2002 GUIDELINES).

EARTHWORK

8. CLEAR AND GRUB THE WETLAND MITIGATION AREA.
   - ***i.*** REMOVE THE EXISTING TOPSOIL FROM THESE LOCATIONS & PLACE IN A DESIGNATED SOIL STOCKPILE AREA, AT LEAST FIFTY FEET AWAY. **[*IMPORTANT NOTE: THE TOPSOIL FROM THE MITIGATION AREA SHALL NOT BE USED, BECAUSE IT IS HEAVILY INFESTED WITH INVASIVE PLANT SPECIES.***

9. SUBSOIL FROM CERTAIN PORTIONS OF THE WETLAND REPLICATION AREA, WITH HIGHER POTENTIAL FOR INVASIVE SPECIES, WILL BE TRUCKED TO OTHER UPLAND PARTS OF THE SITE, AND COULD BE STOCKPILED FOR USE IN AREAS OF MAINTAINED LAWN.
10. **EXCAVATION, GRADING, AND TRANSPLANTING** WILL TAKE PLACE UNDER THE DIRECTION OF THE WETLAND SCIENTIST. GRADING WILL BE BASED ON CONDITIONS OBSERVED AT THE FIELD BY THE WETLAND SCIENTIST WHO MAY MAKE SMALL IN-FIELD ADJUSTMENTS TO ACHIEVE THE DESIRED WETLAND HYDROLOGY.
11. GRADING FOR THE WETLAND REPLICATION AREA WILL ENTAIL EXCAVATION TO DEPTHS THAT WILL BE WITHIN THE SEASONAL GROUNDWATER TABLE AND/OR WITHIN 12 INCHES OF IT. THE DEPTH OF EXCAVATION WILL BE ADJUSTED ACCORDINGLY AFTER A MINIMUM OF THREE DEEP HOLE SOIL TEST PITS ARE PERFORMED AT THE WETLAND REPLICATION AREA. DATA WILL BE LOGGED BY A WETLANDS PROFESSIONAL.
12. NO MACHINERY WILL BE ALLOWED WITHIN THE WETLAND CREATION AREAS WHERE TOPSOIL HAS BEEN PLACED.
13. THE CREATED WETLAND HABITAT WILL ONLY HAVE A SUBSURFACE HYDROLOGIC CONNECTION TO THE TIDAL WETLANDS TO THE SOUTH.

PLANTINGS

14. **ORDER** THE **WOODY PLANTING MATERIALS** FOR DELIVERY DURING THE PLANTING WINDOWS LISTED ABOVE (MID TO LATE SPRING OR EARLY FALL). STORE IN SHADE WHEN THEY ARRRIVE AND INSTALL WITHIN THREE DAYS OF DELIVERY. MAKE SURE THAT ALL DESIRED SPECIES ARE AVAIALBLE AT TIME OF ORDERING. WETLAND SCIENTIST SHALL APPROVE ANY SUBSTITUTIONS.
15. **CHECK DELIVERY**. MAKE SURE SPECIES, SIZES, AND QUANTITIES ARE AS SPECIFIED.
16. A WETLAND PROFESSIONAL OR ECOLOGIST SHALL SPECIFY PLANTING AND SEEDING LOCATIONS. THE PROFESSIONAL WILL DIRECT THE INSTALLATION, EITHER BY STAKING PLANTING LOCATIONS WITH A WIRE FLAG OR BAMBOO STAKE LABELED WITH THE SPECIES NAME OR CODE; OR POTTED STOCK MAY ALSO BE DIRECTLY PLACED AT PLANTING LOCATION.
17. **INSTALL THE PURCHASED WOODY MATERIALS FIRST, THEN THE HERBACEOUS PLUGS.**
18. **WOODY PLANTINGS AND LARGE HERBACEOUS PERENNIALS** (SEE TABLE 1 THROUGH TABLE 3) SHALL BE PLANTED IN SAME-SPECIES CLUSTERS, TWO TO THREE FEET APART FOR HERBACEOUS PERENNIALS, FIVE TO SIX FEET APART, FOR SHRUBS, TEN FEET APART FOR SMALL TREE SEEDLINGS/SAPLINGS. LARGER TREES SHALL BE NO CLOSER THAN EIGHT FEET FROM A SHRUB OR SMALL TREE.
19. DIG HOLES *BY HAND* TO *MINIMIZE COMPACTION* OF SOIL (MECHANICAL AUGERS ARE PROHIBITED). WATER HOLES BEFORE PLANTING, UNLESS SOIL IS ALREADY MOIST. ADD *SLOW-RELEASE FERTILIZER* (OSMACOTE, MILORGANITE OR EQUIVALENT) TO PLANTING HOLE. PLACE PLANTS INTO HOLES AND REPLACE SOIL, SO THAT THERE IS FULL

COVERAGE OF ROOTS, WITH *NO AIR SPACES* AND LEVEL SOIL AROUND THE PLANT. HOLES SHALL BE OVERSIZED (2X THE ROOT MASS DIAMETER) AND BACKFILLED WITH LOCAL TOPSOIL OR EXTRA TOPSOIL IN AN OVERSIZED TRANPLANT POT (NOT SUBSOIL REMOVED FROM BOTTOM PART OF HOLE).

20. MULCH WITH A THREE-INCH LAYER OF WELL-ROTTED HARDWOOD MULCH TO REDUCE COMPETITION FROM MEADOW VEGETATION IN A THREE-FOOT DIAMETER CIRCLE. LEAVE A GAP OF THREE INCHES AROUND EACH TRUNK. FORM *SAUCERS* AROUND ALL MULCHED TREE AND SHRUB PLANTINGS, TWO TO THREE INCHES HIGH, 36" ACROSS FOR NURSERY STOCK. WATER RIGHT AFTER PLANTING.
21. **HERBACEOUS PLUGS:** PLANT IN MID TO LATE AFTERNOON, OR UNDER SHADY CONDITIONS, *WATER* IMMEDIATELY AFTER PLANTING. SPACE PLUGS 24 TO 36 INCHES APART, PER PLAN (SEE TABLE 3) IN THE BARE SOIL AREAS, AND SPREAD SHREDDED LEAF MULCH IN A SIX-INCH CIRCLE AROUND EACH PLUG. PLANT IN SAME-SPECIES GROUPINGS OF VARIABLE SIZE AND SHAPE.
22. **SEEDING:** AFTER MIXING 1:1 WITH NON-CLUMPING KITTY LITTER (CLAY BASED), SPREAD SEED OVER BARE SOIL AREAS, AVOIDING MULCHED CIRCLES AROUND PLUGS. SEEDING RATE SHALL BE HALF THAT SPECIFIED FOR THE MIX. IF GERMINATION RATES ARE LOW, OVER-SEED IN FALL IN YEAR 2.
23. FOR SPRING SEEDING IN MOIST, BUT NOT SATURATED SOIL, LIGHTLY RAKE IN SEED (LESS THAN ½ INCH DEEP), TAMP DOWN, AND LIGHTLY MULCH WITH STRAW (FREE OF SEEDS) TO HOLD MOISTURE FOR GERMINATION. FOR FALL SEEDING, WAIT UNTIL AFTER HARD FROST; SEED MAY SIMPLY BE SOWN. SNOW AND FROST WILL INCORPORATE INTO THE SOIL. NOTE THAT COLD STRATIFICATION WILL INCREASE GERMINATION RATES OF SOME SPECIES IN A FALL SEEDING, BUT MORE SEEDS WILL ALSO BE EATEN BY WILDLIFE OR WASHED AWAY. IF SOIL IS SATURATED, BROADCAST ON SOIL SURFACE WITHOUT RAKING.
24. SPREAD A THIN LAYER OF WEED-FREE *STRAW MULCH* OVER ALL SEEDED AREAS WITHOUT STANDING WATER, ALLOWING FOR SOME LIGHT PENETRATION
25. FOR PLUGS IN THE WET MEADOW AND FOR SEED GERMINATION, WATERING SEVERAL TIMES A WEEK IS ESSENTIAL, IN DRY WEATHER. FOR IRRIGATION, SET UP A PUMP DRAWING ON LOCAL WATER, OR FROM A WATER TANK BROUGHT TO THE SITE.

3.0 PROTECTION FROM HERBIVORY

1. WOODY PLANTINGS WILL BE MONITORED DURING THE FIRST AND SECOND GROWING SEASONS AFTER PLAN IMPLEMENTATION FOR EXCESSIVE HERBIVORY. IF OBSERVED, THE WETLAND ECOLOGIST MAY PROPOSE ADDITIONAL CONTROLS/METHODS TO REDUCE HERBIVORY. DEER FENCE MAY BE CONSIDERED, AS THE MITIGATION AREA IS RELATIVELY SMALL.
2. AS AN INITIAL CONTROL, THE ORGANIC, SLOW-RELEASE FERTILIZER MILORGRANITE SHALL BE USED AT EACH SHRUB/TREE PLANTING, AND ALONG THE PERIMETER OF EACH OF THE

MITIGATION AREAS. THIS FERTILIZER IS A MILD TO MODERATE DETERENT TO HERBIVORY BY DEER. APPLICATION OF MILOGRANITE SHALL TAKE PLACE THREE TIMES DURING THE FIRST GROWING SEASON, SHOULD A DETERRENT BE NECESSARY.

4.0 INITIAL FOLLOW-UP AND MAINTENANCE

1. PROMPT SEEDING AND HAY MULCH APPLICATION FOLLOWING INITIAL GRADING IS KEY, TO PREVENT EROSION OF EXPOSED, RECENTLY GRADED SOILS. GRADING OF WETLAND CREATION AREAS SHOULD BE TIMED TO PRECEDE A FORECAST RAIN-FREE PERIOD, EMCPOMPASSING THE SCHEDULED PLANTING DAY.
2. PERIMETER SEDIMENT CONTROLS. MAINTAIN PER THE 2002 CT E&S GUIDELINES, CHECK AFTER EACH RAIN MORE THAN ONE INCH. REMOVE SILT FENCE AS SOON AS GROUND IS VEGETATED (>80% COVER) TO PREVENT IMPEDING ANIMAL MOVEMENT TO AND FROM ADJACENT SEASONALLY FLOODED AND SATURATED WETLANDS. SEDIMENT COLLECTED BY THESE DEVICES WILL BE REMOVED AND PLACED UPLAND IN A MANNER THAT PREVENTS ITS EROSION AND TRANSPORT TO A WATERWAY OR WETLAND.
3. IRRIGATION: WATER ALL SEEDED AREAS, PLANTINGS AND/OR TRANSPLANTS AT LEAST WEEKLY IN DROUGHTY PERIODS. MORE FREQUENT WATERING WILL INCREASE PLANTINGS' SUCCESS. FOR PLUGS, MORE FREQUENT WATERING COULD BE NEEDED.

5.0 WEED CONTROL

1. FOR 2-3 SEASONS FOLLOWING PLAN IMPLEMENTATION, CONTROL WEEDS IN A THREE-FOOT DIAMETER CIRCLE AROUND WOODY PLANTINGS. NECESSARY FREQUENCY WILL DEPEND ON RAINFALL AND SOIL SEED BANK, BUT AT LEAST MONTHLY FROM MAY TO JULY. MULCH HELPS CONTROL WEEDS, BUT IS NOT SUFFICIENT. THE SEED MIX AND OTHER NATURAL COLONIZERS NEEDS TO GERMINATE AND SPROUT IN THE MATRIX AROUND THE WOODY PLANTINGS.
2. AT TIME OF PLANTING MARK EACH PLANTED SHRUB OR TREE WITH A FOUR-FOOT TALL "SNOW STAKE" OR "DRIVEWAY MARKER" WITH REFLECTOR TAPE. THESE SHALL BE REMOVED AT THE END OF THE MONITORING PERIOD, BUT WILL ASSIST IN FINDING THEM, SHOULD TALL HERBACEOUS VEGATION BEGIN TO OBSCURE THEM.
3. FOR CONTROL OF SMALL SEEDLINGS USE A HOE.
4. FOR LARGER WEEDS USE A WEED WHACKER (POLE HEDGE TRIMMER).
5. LANDSCAPER SHALL FOLLOW DIRECTION OF WETLAND SCIENTIST WHO SHALL PROVIDE INITIAL GUIDANCE, BUT NEED NOT REMAIN ON SITE DURING MAINTENANCE.
6. THE WETLANDS PROFESSIONAL WILL POINT OUT TO THE LANDSCAPER CERTAIN WEEDS LIKE MUGWORT, WHICH IS PREVALENT IN PORTIONS OF THE SITE, WHICH ARE BEST PULLED, TO WEAKEN ROOT SYSTEM AND REDUCE NEEDED FREQUENCY FOR WEEDING.

7. OUTSIDE THE THREE-FOOT DIAMETER CIRCLE, WEED ONLY SELECTED UNDESIRABLE COLONIZING PLANTS, INLCUDING INVASIVE SPECIES. THE WETLANDS PROFESSIONAL SHALL TRAIN THE LANDSCAPER TO RECOGNIZE AND AVOID NATIVE SPECIES SUCH AS GOLDENRODS, SUMACS, AND VIRGINIA CREEPER. INITIALLY, FLAG DESIRABLE NATIVE SPECIES AS A TRAINING AID; ALSO, FOLLOWING ANY PERSONNEL CHANGES.

6.0 INVASIVE PLANT CONTROL

1. THE ECOLOGIST/WETLANDS PROFESSIONAL WILL FLAG WOODY INVASIVES TO BE REMOVED IN THE VICINITY OF THE WETLAND REPLICATION AREA (I.E., WITHIN 25 FEET) AT THE TIME OF PLAN IMPLEMENTATION, AND PREFERABLY JUST PRIOR TO ANY EARTHWORK.
2. AS NEEDED, CONTROL USING TARGETED, RATHER THAN BROADCAST HERBICIDE APPLICATION METHODS. FOR SPRING TREATMENT, CUT EARLY IN GROWING SEASON (LATE APRIL TO MID MAY) AND TREAT SMALL RESPROUTS IN EARLY SUMMER USING A LOW VOLUME SPRAYER. IN EARLY FALL USE THE CUT-AND-PAINT METHOD, APPLYING HERICIDE TO A RECENLTY CUT STEM (WITHIN 10 MINUTES) ON BROADLEAF INVASIVES. USE A SELECTIVE HERBICIDE LIKE TRICLOPYR (FOUND IN BRUSH-B-GON, GARLON 3A OR 4A, AND OTHER PRODUCTS), RATHER THAN BROAD-SPECTRUM GLYPHOSATE, TO MINIMIZE IMPACTS ON NON-TARGET PLANTS AND SOIL FAUNA.
3. INVASIVE PLANT CONTROL WITHIN THE AREAS OF WETLAND REPLICATION SHALL TAKE PLACE FOR **FOUR (4) YEARS** FOLLOWING THE YEAR OF PLAN IMPEMENTATION (I.E., YEAR 2 THROUGH YEAR 5), FOLLOWING THE PROCEDURES PROMULGATED BY THE CT DEEP'S CONNECTICUT INVASIVE PLANT WORKING GROUP (CIPWG), AND/OR THE NATURE CONSERVANCY.

7.0 MONITORING

1. INSPECTIONS AT THE WETLAND REPLICATION AREA SHALL BE CONDUCTED BY A QUALIFIED WETLANDS PROFESSIONAL OR ECOLOGIST DURING THE GROWING SEASON, THE THREE MONTHS FOLLOWING INSTALLATION (I.E., YEAR ONE), AND TWICE DURING EACH OF THE **FOUR (4) NEXT GROWING SEASONS**, ONCE IN LATE MAY THROUGH JUNE, AND ONCE IN EARLY FALL. ADDITIONAL INSPECTIONS MAY BE NECESSARY AT THE DISCRETION OF THE WETLANDS PROFESSIONAL TO ENSURE THE SUCCESS OF THE WETLAND CREATION.
2. DURING INSPECTIONS, CHECK MITIGATION AREA FOR SEEDLINGS OF THE FOLLOWING *INVASIVE SPECIES* AND MECHANICALLY REMOVE: JAPANESE KNOTWEED, COMMON REED, MORROW'S HONEYSUCKLE, AUTUMN OLIVE, MULTIFLORA ROSE, ASIATIC BITTERSWEET, JAPANESE BARBERRY, GLOSSY BUCKTHORN, BURNING BUSH, TREE-OF-HEAVEN, MUGWORT, AND GARLIC MUSTARD. INSPECTIONS SHALL BE DONE BY THE WETLANDS PROFESSIONAL, WHO COULD ALSO IDENTIFY OTHER INVASIVE PLANT SPECIES, BUT

PERSONNEL TRAINED BY THE PROFESSIONAL IN IDENTIFICATION OF INVASIVE SEEDLINGS MAY ASSIST WITH MECHANICAL REMOVAL (WEEDING).

3. *COMPETING PLANTS:* IF THE WETLANDS PROFESSIONAL DETERMINES THAT EXCESSIVE NUMBERS OF SEEDLINGS OF A PARTICULAR NATIVE SPECIES HAVE GERMINATED ON SITE (E.G., CATTAIL), REMOVE THEM BY HOEING OR HAND PULLING. COLONIZATION BY A VARIETY OF NATIVE SPECIES IS EXPECTED AND IS DESIRABLE.
4. *REMEDIAL MEASURES* SUCH AS REPLACEMENT PLANTINGS, HYDROLOGIC ADJUSTMENTS, AND DEER BROWSING PROTECTION, MAY BE RECOMMENDED AND SUPERVISED BY THE WETLANDS PROFESSIONAL AND IMPLEMENTED BY THE PROPERTY OWNER/MANAGER, FOR SIGNFICANT PROBLEMS.
5. A BRIEF *REPORT* TO THE TOWN'S INLAND WETLANDS AND WATERCOURSES AGENCY WILL SUBMITTED BY NOVEMBER 30TH OF THE MONITORING YEAR.

TABLES OF PLANTING MATERIALS FOR WETLAND MITIGATION AREA

1737 & 1761 Route 12, Gales Ferry, Connecticut

Table 1. Trees

Hydrologic Zones: Zone A: Saturated/Shallow inundation; **Zone B**: seasonally saturated, moist

Zone C: moderately well drained, usually moist; **Zone D**: well-drained

Scientific Name	Zone	Common Name	Size	Shade tolerant?	NWI*	Form	*Wetland Creation Area*	*TotalS*
FULL SIZE TREES								
Nyssa sylvatica	B,C	Black gum	4'-6'	Y	FAC	nursery pot	4	***4***
Quercus palustris	B,C	Pin Oak	4'-6'	Y	FACW	nursery pot	4	***4***
Acer rubrum	D	Red maple	4'-6'	Y	FACU-	nursery pot	7	***7***
Total:							*15*	**15**
SMALL TREES/LARGE SHRUBS								
Amelanchier canadensis	C,D	Shadblow	3'-4'	Y/N	FAC	nursery pot	4	***4***
Salix discolor	B,C	Pussy willow	3'-4'	N	FACW	nursery pot	8	***8***
Juniperus virginiana	C,D	Red cedar	3'-4'	Y	UPL	nursery pot	16	***16***
Total:							*28*	**28**

Table 2. Shrubs

Scientific Name	Zone	Common Name	Size	Shade tolerant?	NWI*	Form		*Totals*
MEDIUM TO LOW SHRUBS								
Aronia arbutifolia	B,C	Chokeberry	3'-4'	N	FACW	pot	12	***12***
Clethra alnifolia	B,C	Sweet pepperbush	3'-4'	Y	FAC+	pot	16	***16***
Corylus americana	C,D	American hazelnut	3'-4'	Y	FACU-	pot	12	***12***
Ilex verticillata	B,C	Winterberry	3'-4'	Y	FACW+	pot	15	***15***
Lyonia ligustrina	B,C	Maleberry	3'-4'	Y/N	FACW	pot	15	***15***
Morella pensylvanica	C,D	Bayberry	3'-4'	N	FAC	pot	20	***20***
Vaccinium corymbosum	B	Highbush blueberry	3'-4'	Y	FACW	pot	20	***20***
Viburnum lentago	B,C	Nannyberry	3'-4'	Y	FAC	pot	25	***25***
Spiraea latifolia	B,C	Meadowsweet	3'-4'	N	FAC+	pot	50	***50***
Swida racemosa	B,C	Gray dogwood	3'-4'	Y	FAC	pot	30	***30***
Rosa palustris	A	Swamp rose	3'-4'	Y	OBL	pot	15	***15***
Total:							*230*	**230**

Table 3. Herbs

Hydrologic Zones: Zone A: Saturated/Shallow inundation; **Zone B**: seasonally saturated, moist
Zone C: moderately well drained, usually moist; **Zone D:** well-drained

Scientific Name	Zone	Common Name	Form	NWI*	Spacing	*Wetland Creation Area*	*TotalS*
Asclepias incarnata	A,B	Swamp milkweed	2"plug	OBL	2'OC	100	***100***
Carex lupulina	B	Hop sedge	2" plug	FACW	2'OC	100	***100***
Eutrochium purpureum	B	Purple Joe Pye weed	2" plug	FAC	3'OC	100	***100***
Juncus canadensis	A,B	Canada rush	2" plug	OBL	2'OC	50	***50***
Mimulus ringens	B	Monkey-flower	2" plug	OBL	2'OC	50	***50***
Monarda fistulosa	C	Wild bergamot	2" plug	UPL	3'OC	100	***100***
Panicum virgatum	C	Switchgrass	2" plug	FAC	3'OC	150	***150***
Onoclea sensibilis	B	Sensitive fern	6" pot	FAC	2'OC	50	***50***
Verbena hastata	B	Blue vervain	2" plug	FACW	3'OC	100	***100***
Vernonia noveborecensis	B	New York Ironweed	2" plug	FACW	3'OC	100	***100***
Zizia aurea	B	Golden alexanders	2" plug	FAC	3'OC	100	***100***
Total:						*1000*	**1000**

* *NWI Status (National Wetland Inventory; National Wetland Plant List: Northcentral & Northeast)*

NOTES:

1. Plant between May 15 and June 30 for herbaceous species. July planting will need watering through end of August.
2. Purchased woody material may be installed either in the spring (April 15 to June 15), or in the fall (August 15 to October15)
3. Plant in same species groupings of three to six shrubs, ten to twenty for herbs
4. Use seed mixes from New England Wetland Plants, Inc., South Hadley, MA (see Table 4), at specified seeding rate.
5. No seeding or plants in 3' diameter circle around each shrub and tree,1' around plugs; mulch with shredded bark
6. Water and weed as needed during first growing season.

Table 4: Seed Mixes for Wetland Mitigation Area

COMMENTS: **See notes accompanying each seed mix for additional guidance pertaining to the season that seed mix is applied. Implementation notes also include a section on seeding.**		**Total (lbs per seed mix)**
NEWP Seed Mix #1	***Wetland Creation Area***	**6**
New England Wetmix ***1 lb/2,500 sf***	*(in seasonally saturated to moist areas)*	
NEWP Seed Mix #2	***Wetland Creation Area*** *(moist edges)*	**4**
New England Conservation/Wildlife Mix ***1 lb/1,750 sf***	*(also on 3:1 slopes above wetland)*	
	TOTAL:	**10**

Notes:

1. Mix 1:1 with filler (coarse sand, kitty litter) to help correctly divide seed packages and for even spreading.
2. Mixes contain seeds with a range of hydrologic tolerances, so different species will thrive in different areas.
3. Plants will set seed and spread further, increasing in density, becoming concnetrated in most suitable areas.
4. Mulch (do not seed) areas under and around plug & shrub clusters, to exclude weeds and hold moisture. (Coverage specified assumes area occupied by mulched woody plantings has been subtracted.)
5. A late fall seeding will require 20% more seed, because some seed wil be lost to wash off and herbivory, but germination rates will actually be higher the following spring, due to the cold winter stratification of the seed.

Source:

New England Wetland Plants, 14 Pearl Lane, South Bradley, Massachusetts; phone: 413-548-8000

STATE OF CONNECTICUT
DEPARTMENT OF ENVIRONMENTAL PROTECTION

PERMIT TO DOW CHEMICAL COMPANY FOR CONTINUED OPERATION OF A SOLID WASTE DISPOSAL AREA IN LEDYARD, CONNECTICUT

An application for a permit dated March 15, 1983, has been submitted by:

James Brozzo
Dow Chemical USA
Allyn's Point Plant
Route 12
Gales Ferry, CT 06335

for continued operation of a solid waste disposal area on two acres of property owned by DOW Chemical and located within their plant area off Route 12 in Ledyard, adjacent to and east of Thames River. The actual disposal operation consists of the composting of plant latex wastes.

THIS PERMIT IS HEREBY GRANTED in accordance with Section 22a-208, Connecticut General Statutes and based on the following submittals:

A. Application form and one sheet of site plans (topographic map, town of Ledyard) received by the Solid Waste Management Unit on March 24, 1983.

B. A five page letter entitled, "Operation and Management Plan for the DOW Chemical Latex Compost and Compost Landfill Areas" prepared by Andrew J. Clapham and received by the Solid Waste Management Unit on March 24, 1983.

C. Monitor well locations and boring logs, received by the Solid Waste Management Unit, date unknown.

D. Two letters addressed to John England, Solid Waste Management Unit, from Andrew Clapham, Dow Chemical, received on October 6, 1983. One letter contains a drawing of the compost area, the other contains the water analysis from the monitor wells.

PROVIDED THAT:

1. The site development and operational plans, as prepared by Andrew J. Clapham of DOW Chemical, shall be strictly adhered to throughout the site life.

2. Material to be disposed of is strictly limited to latex wastes as described in the site operation and management plan.

3. The used composting soil shall be confined to the delineated compost area. The soil shall not be removed from the site without DEP permission.

4. The completed facility shall be graded to drain, covered with one foot of clean soil, and stabilized with vegetation.

5. The site access shall be controlled with a locked gate. The site shall have an attendant present when open during the posted hours.

6. Waste processing and disposal operations shall be conducted so as to maximize runoff, minimize infiltration and prevent erosion and the collection of standing water.

7. Disposal or storage of hazardous wastes at this facility is prohibited.

8. Ground water quality monitoring shall be conducted by the applicant or its consultant at the two locations outlined on the site engineering plans.

Ground water monitoring will be conducted at the following locations:

W-1 (upgradient) - monitor well up gradient and adjacent to compost area.
W-2 monitor well down gradient of the compost area.

Each annual sample shall be analyzed for the following ten leachate indicator parameters:

1. total dissolved solids
2. total suspended solids
3. alkalinity
4. BOD (20)
5. COD
6. total iron
7. total manganese
8. ammonia
9. nitrate
10. chloride

and for volatile organic scan.

Following measurement of the water level in the monitoring wells, the wells shall be pumped immediately prior to sampling until at least three (3) times the volume of water standing in the well is evacuated to insure that a representative sample of the ground water is obtained. All ground water samples should be filtered in the field to remove excess suspended solids. The samples shall be analyzed by a laboratory certified by the State Health Department. All samples shall be placed in the appropriate container for the test to be conducted (i.e. BOD bottle, volatile organics bottle, ½ gallon plastic bottle, etc.)

8. (cont)
The sampling and testing performed according to this paragraph shall be done according to this schedule:

Sampling date	Reporting date
July	September 1

The results shall be reported to the Solid Waste and Water Compliance Units of the Department of Environmental Protection at the State Office Building, Hartford, Connecticut 06106. A copy of the sampling results shall also be sent to the Health Officer of the town in which the disposal area is located.

The Commissioner may revise this monitoring schedule at any time with regard to locations to be sampled, frequency, or parameters to be tested, as the need arises.

9. All major sources of final cover material shall be DEP approved and shall conform to grain size specifications under Section 19-524-2 of the Solid Waste Regulations.

10. This permit is subject to and in no way derogates any present or future property rights or other rights or powers of the State of Connecticut, and conveys no property rights in real estate or material nor any exclusive privileges, and is further subject to any and all public and private rights and to any federal, state, or local laws or regulations pertinent to the property or activity affected hereby.

11. This permit is transferable only with the prior written permission of the Commissioner of DEP.

12. The operator complies with all rules and regulations of the Department of Environmental Protection applicable to the operation and maintenance of the disposal area as they may be amended from time to time.

Dated in Hartford, Connecticut this 14th day of November, 1983.

STATE OF CONNECTICUT
DEPARTMENT OF ENVIRONMENTAL PROTECTION
STANLEY J. PAC, COMMISSIONER

BY Stanley J. Pac
Stanley J. Pac, Commissioner

Operator/Owner
John H. Abercrombie

Solid Waste Permit No. 072-1L

(i) **Waste collection areas.**

(1) Owners or operators of solid waste disposal areas may provide one or more containers within a designated collection area so that waste may be unloaded from non-commercial vehicles and deposited therein. Disposal area personnel shall oversee the disposal of waste at such designated collection areas.

(2) Scavenging at waste collection areas shall be prohibited.

(3) Collection areas shall be located a safe distance from the working face and from the movement of disposal area equipment and commercial collection and hauling vehicles.

(4) The owner or operator shall be responsible for the sanitary condition and orderly appearance of the waste collection area, and shall remove all waste from the collection area and deposit it in the working face of the disposal area at such frequencies as to insure that no waste remains in the collection area for longer than forty-eight (48) hours.

(5) Portions of the solid waste disposal area which are used solely to collect and store recyclable materials are not subject to the requirements of subdivision (i) (4) of this section.

(j) **Equipment.**

(1) The equipment used for spreading, compacting and covering shall be of sufficient size and number to achieve maximum compaction and efficient operation.

(2) Provision shall be made for the routine operational maintenance of equipment at the solid waste disposal area or elsewhere, and for the prompt repair or replacement of equipment.

(3) The owner or operator of a solid waste disposal area shall establish a contingency plan outlining procedures for obtaining alternative equipment or other alternative method of disposal in the event of an equipment breakdown which can reasonably be expected to exceed twenty-four hours in duration. The owner or operator shall notify the Department immediately when such a breakdown occurs.

(k) **Blowing litter.** Blowing litter shall be controlled by use of fencing near the working area or by the use of earth banks or other natural barriers acceptable to the Commissioner. Solid wastes shall be unloaded in such a manner as to minimize scattering. The entire solid waste disposal area shall be reasonably clear of litter at the end of each working day.

(*l*) **Cover operations.**

(1) Cover material. There shall be stored within the boundaries of the solid waste disposal area a standby supply of cover material equal to twenty-five (25) percent of the volume of the disposal area consumed in ten days at normal disposal rates. Such cover stockpile shall be protected from freezing in the winter season.

(2) Daily cover. Cover material shall be applied and compacted to a minimum thickness of six (6) inches on all exposed wastes by the end of each working day.

(3) Intermediate cover. On all but the final lift of a solid waste disposal area, if more than nine months is expected to elapse before another lift is added, a layer of intermediate cover material, compacted to a minimum uniform depth of one (1) foot, shall be placed on such area and vegetative cover shall be planted in the next planting season and shall be maintained thereon.

(4) Final cover. A uniform layer of final cover material compacted to a minimum depth of two (2) feet shall be placed over the entire surface of each portion of the final lift not later than one week following the final placement of solid waste in that portion of the area unless otherwise specified in the facility permit to construct. Upon application of final cover, the area shall be regraded to prevent erosion and ponding, and vegetative cover shall be planted in the next planting season and shall be maintained thereon.

(m) **Vector control.**

(1) Conditions shall be maintained that are unfavorable for the harboring, feeding and breeding of vectors.

(2) Additional means for controlling and exterminating vectors shall be instituted, whenever necessary in the judgment of the Commissioner to prevent the transmission of disease.

(n) **Decomposition gases.**

(1) Decomposition gases generated within the solid waste disposal area shall be controlled as necessary to avoid posing a hazard to any persons or property and to minimize adverse environmental effects.

(2) The concentration of methane gases generated by the solid waste disposal area shall not exceed:

(A) Twenty-five percent (25%) of the lower explosive limit for methane in on-site or off-site structures including buildings, sheds and utility or drainage lines, but excluding gas control or recovery system components, or

(B) The lower explosive limit for methane in the ground at the property boundary of the solid waste disposal area.

(3) (A) No new solid waste disposal area shall begin operations without the owner or operator first installing any gas venting and monitoring system indicated on the approved facility plan. A phase-in of the system may be permitted if so indicated in the facility's permit to construct.

(B) Upon written notice to the owner or operator of an active solid waste disposal area or the owner of an inactive or closed solid waste disposal area that in the opinion of the Commissioner the area poses an actual or potential hazard from decomposition gases, the owner or operator shall submit construction and installation plans for a gas monitoring and/or venting system to the Commissioner for approval, and, upon approval, shall install such a system in conformance with such approved plans. The approved plans shall become part of the facility plan. Monitoring shall be performed in accordance with a schedule approved by the Commissioner.

(4) The recovery of methane gases for use as a fuel is not prohibited by this subsection.

(o) **Restrictions on certain wastes.**

(1) Hazardous wastes shall be excluded from solid waste disposal areas. However, separate facilities at a solid waste disposal area may be approved for the disposal of certain hazardous wastes by the Commissioner in accordance with Public Act 84-115 and the Hazardous Waste Management regulations of the Department of Environmental Protection.

Special wastes, including any liquid waste, shall be excluded unless disposal is approved in writing by the Commissioner.

(p) **Recycling.** Materials to be recycled shall be maintained in a separate area so as not to interfere with disposal operations. Materials held for recycling shall be adequately screened from view or removed at frequent intervals.

(q) **Employee facilities.** Each solid waste disposal area shall have adequate shelter and restroom facilities for employees, first aid supplies, and telephone or two-way (i.e., sending and receiving) radio communication equipment. Each of these must be provided at or adjacent to the disposal area.

(r) **Air quality.**

(1) Dust and odors resulting from the operation of the solid waste disposal area shall be controlled at all times to assure compliance with the applicable regulations of the Department for the Abatement of Air Pollution.

(2) No open burning of solid waste shall be conducted except upon compliance with the applicable statutes and regulations of the Department for the Abatement of Air Pollution regarding open burning.

(s) **Bird hazards to aircraft.** A solid waste disposal area disposing of putrescible wastes that may attract birds and which occurs within 10,000 feet (3,048 meters) of any public airport runway used by turbojet aircraft or within 5,000 feet (1,524 meters) of any public airport runway used by only piston-type aircraft shall conduct its operations so as not to pose a bird hazard to aircraft. Affirmative measures for bird hazard control shall be taken as necessary.

(t) **Screening.** Best practical effort shall be made to screen the working face of a solid waste disposal area from view from surrounding residential or business areas.

(u) **Disruption of solid waste disposal areas.**

(1) Written approval shall be obtained from the Commissioner prior to any excavation, disruption, or removal of deposited material at an active, inactive or closed solid waste disposal area.

(2) All requests for approval shall include but need not be limited to an operational plan stating the area involved, depth of proposed excavation with final grades, estimated cubic yards of material to be excavated or disrupted, site where excavated material is to be redeposited and estimated time required for completion of excavation procedures. The approved plan shall become part of the facility plan.

(3) All excavation shall be confined to an area consistent with the number of pieces of digging equipment and/or trucks used for haulage.

(4) Adequate measures shall be taken during excavation to protect the public health and to control dust, odors, fires, vectors, and blowing litter.

(5) Disposal of all solid waste resulting from excavation shall be in conformity with the requirements of these regulations.

(v) **Endangered species.**

(1) Facilities or practices shall not cause or contribute to the taking of any endangered

LANDFILL WATER QUALITY MONITORING REPORT
Connecticut Department of Energy and Environmental Protection
Solid Waste Management Unit, 79 Elm Street, Hartford, 06106

Municipality: Ledyard	*Facility Name:* Allyn's Point (former Dow Chemical Co.)	*Permit No.* 072-1L

Submitted *by:* Timothy King (Dow Remediation Leader)	*Date: 8/26/2015*

Sample Collected by: Tim Bakey, CH2M
Sample Date: 6/15/2015 2015 Annual Submission

Monitor Point: CLW-1 (Downgradient)

Code	***Parameter***	***Result***	***Units***	***Frequency***	***Month***
113	TOTAL IRON	ND	mg/L	annual	6
116	TOTAL MANGANESE	0.0369	mg/L	annual	6
201	AMMONIA (as N)	0.033 J	mg/L	annual	6
204	NITRATE NO_3	0.199	mg/L	annual	6
302	BOD (5 day)	ND	mg/L	annual	6
303	COD	5.2 J	mg/L	annual	6
502	CHLORIDE	3.9	mg/L	annual	6
602	ALKALINITY	6.10	mg/L	annual	6
613	TOTAL DISSOLVED SOLIDS	45	mg/L	annual	6
614	TOTAL SUSPENDED SOLIDS	ND	mg/L	annual	6
739	WATER LEVEL	NA	ft	annual	6
892	VOLATILE ORGANICS	(please refer to summary & attached report			

Monitor Point: CLW-2 (Upgradient)

Code	***Parameter***	***Result***	***Units***	***Frequency***	***Month***
113	TOTAL IRON	0.098	mg/L	annual	6
116	TOTAL MANGANESE	0.0043 J	mg/L	annual	6
201	AMMONIA (as N)	ND	mg/L	annual	6
204	NITRATE NO_3	0.614	mg/L	annual	6
302	BOD (5 day)	ND	mg/L	annual	6
303	COD	5.2 J	mg/L	annual	6
502	CHLORIDE	4.3	mg/L	annual	6
602	ALKALINITY	11.0	mg/L	annual	6
613	TOTAL DISSOLVED SOLIDS	49	mg/L	annual	6
614	TOTAL SUSPENDED SOLIDS	15	mg/L	annual	6
739	WATER LEVEL	18.96	ft	annual	6
892	VOLATILE ORGANICS	(please refer to summary & attached report			

Monitor Point: CLW-3 (Downgradient)

Code	*Parameter*	*Result*	*Units*	*Frequency*	*Month*
113	TOTAL IRON	ND	mg/L	annual	6
116	TOTAL MANGANESE	0.0076 J	mg/L	annual	6
201	AMMONIA (as N)	0.071 J	mg/L	annual	6
204	NITRATE NO_3	0.071 J	mg/L	annual	6
302	BOD (5 day)	ND	mg/L	annual	6
303	COD	5.2 J	mg/L	annual	6
502	CHLORIDE	3.9	mg/L	annual	6
602	ALKALINITY	6.00	mg/L	annual	6
613	TOTAL DISSOLVED SOLIDS	23	mg/L	annual	6
614	TOTAL SUSPENDED SOLIDS	ND	mg/L	annual	6
739	WATER LEVEL	7.6	ft	annual	6
892	VOLATILE ORGANICS	(please refer to summary & attached report)			

892	**Volatile Organics Summary**

	CLW1	**CLW2**	**CLW3**	**Units**	**Method Detection Limits (µg/L)**
Chloroform	0.286 J	0.212 J	0.456 J	µg/L	0.162
Carbon tetrachloride	0.313 J	ND	0.642	µg/L	0.134
Ethylbenzene	ND	ND	ND	µg/L	0.168
Styrene	ND	ND	ND	µg/L	0.359

Note:
J – Estimated value greater than method detection limit (MDL) but less than reporting limit (RL).
NA - Not Analyzed
ND - Not Detected

LANDFILL WATER QUALITY MONITORING REPORT
Connecticut Department of Energy and Environmental Protection
Solid Waste Management Unit, 79 Elm Street, Hartford, 06106

Municipality: Ledyard	*Facility Name:* Allyn's Point (former Dow Chemical Co.)	*Permit No.* 072-1L

Submitted *by:* Timothy King (Dow Remediation Leader)	*Date: 8/26/2016*

Sample Collected by: Fred Roche, CH2M
Sample Date: 6/23 -6/24/2016 2016 Annual Submission

Monitor Point: CLMW-1 (Downgradient)

Code	***Parameter***	***Result***	***Units***	***Frequency***	***Month***
113	TOTAL IRON	0.024 J	mg/L	annual	6
116	TOTAL MANGANESE	0.007 J	mg/L	annual	6
201	AMMONIA (as N)	0.040 J	mg/L	annual	6
204	NITRATE NO_3	0.30	mg/L	annual	6
302	BOD (5 day)	ND	mg/L	annual	6
303	COD	ND	mg/L	annual	6
502	CHLORIDE	5.57	mg/L	annual	6
602	ALKALINITY	5.70	mg/L	annual	6
613	TOTAL DISSOLVED SOLIDS	46 J	mg/L	annual	6
614	TOTAL SUSPENDED SOLIDS	ND	mg/L	annual	6
739	WATER LEVEL (depth)	18.45	ft	annual	6
892	VOLATILE ORGANICS	(please refer to summary & attached report			

Monitor Point: CLMW-2 (Upgradient)

Code	***Parameter***	***Result***	***Units***	***Frequency***	***Month***
113	TOTAL IRON	0.523	mg/L	annual	6
116	TOTAL MANGANESE	0.0493	mg/L	annual	6
201	AMMONIA (as N)	0.035 J	mg/L	annual	6
204	NITRATE NO_3	0.094 J	mg/L	annual	6
302	BOD (5 day)	ND	mg/L	annual	6
303	COD	72 J	mg/L	annual	6
502	CHLORIDE	5.01	mg/L	annual	6
602	ALKALINITY	12.0	mg/L	annual	6
613	TOTAL DISSOLVED SOLIDS	49	mg/L	annual	6
614	TOTAL SUSPENDED SOLIDS	10	mg/L	annual	6
739	WATER LEVEL (depth)	18.45*	ft	annual	6
892	VOLATILE ORGANICS	(please refer to summary & attached report			

*Well purged dry; recovered overnight; and sampled on 6/24.

Monitor Point: CLMW-3 (Downgradient)

Code	*Parameter*	*Result*	*Units*	*Frequency*	*Month*
113	TOTAL IRON	0.020 J	mg/L	annual	6
116	TOTAL MANGANESE	0.0379	mg/L	annual	6
201	AMMONIA (as N)	ND	mg/L	annual	6
204	NITRATE NO_3	0.16	mg/L	annual	6
302	BOD (5 day)	2 UJ	mg/L	annual	6
303	COD	ND	mg/L	annual	6
502	CHLORIDE	4.74	mg/L	annual	6
602	ALKALINITY	3.00	mg/L	annual	6
613	TOTAL DISSOLVED SOLIDS	38	mg/L	annual	6
614	TOTAL SUSPENDED SOLIDS	ND	mg/L	annual	6
739	WATER LEVEL (depth)	15.83	ft	annual	6
892	VOLATILE ORGANICS	(please refer to summary & attached report)			

892	**Volatile Organics Summary**

	CLW1	**CLW2**	**CLW3**	**Units**	**Method Detection Limits (µg/L)**
Chloroform	0.672 J	0.264 J	0.198 J	µg/L	0.162
Carbon tetrachloride	1.23	ND	ND	µg/L	0.134
Ethylbenzene	ND	ND	ND	µg/L	0.168
Chloromethane	0.612 J	ND	ND	µg/L	0.149
Styrene	ND	ND	ND	µg/L	0.359
Acetone	8.61	ND	ND	µg/L	1.46

Note:
J – Estimated value greater than method detection limit (MDL) but less than reporting limit (RL).
NA - Not Analyzed
ND - Not Detected

LANDFILL WATER QUALITY MONITORING REPORT
Connecticut Department of Energy and Environmental Protection
Solid Waste Management Unit, 79 Elm Street, Hartford, 06106

Municipality: Ledyard	*Facility Name:* Allyn's Point (former Dow Chemical Co.)	*Permit No.* 072-1L

Submitted *by:* Timothy King (Dow Remediation Leader)	*Date: 7/19/2017*

Sample Collected by: Fred Roche, CH2M
Sample Date: 6/15/2017 2017 Annual Submission

Monitor Point: CLMW-1 (Downgradient)

Code	***Parameter***	***Result***	***Units***	***Frequency***	***Month***
113	TOTAL IRON	ND	mg/L	annual	6
116	TOTAL MANGANESE	0.0073	mg/L	annual	6
201	AMMONIA (as N)	ND	mg/L	annual	6
204	NITRATE NO_3	0.039 J	mg/L	annual	6
302	BOD (5 day)	ND	mg/L	annual	6
303	COD	ND	mg/L	annual	6
502	CHLORIDE	4.00	mg/L	annual	6
602	ALKALINITY	5.60	mg/L	annual	6
613	TOTAL DISSOLVED SOLIDS	37	mg/L	annual	6
614	TOTAL SUSPENDED SOLIDS	ND	mg/L	annual	6
739	WATER LEVEL (depth)	15.70	ft	annual	6
892	VOLATILE ORGANICS	(please refer to summary & attached report			

Monitor Point: CLMW-2 (Upgradient)

Code	***Parameter***	***Result***	***Units***	***Frequency***	***Month***
113	TOTAL IRON	0.102	mg/L	annual	6
116	TOTAL MANGANESE	0.0058	mg/L	annual	6
201	AMMONIA (as N)	0.030 J	mg/L	annual	6
204	NITRATE NO_3	0.025 J	mg/L	annual	6
302	BOD (5 day)	ND	mg/L	annual	6
303	COD	ND	mg/L	annual	6
502	CHLORIDE	4.55	mg/L	annual	6
602	ALKALINITY	12.1	mg/L	annual	6
613	TOTAL DISSOLVED SOLIDS	44	mg/L	annual	6
614	TOTAL SUSPENDED SOLIDS	36	mg/L	annual	6
739	WATER LEVEL (depth)	17.05	ft	annual	6
892	VOLATILE ORGANICS	(please refer to summary & attached report			

Monitor Point: CLMW-3 (Downgradient)

Code	*Parameter*	*Result*	*Units*	*Frequency*	*Month*
113	TOTAL IRON	ND	mg/L	annual	6
116	TOTAL MANGANESE	0.0065	mg/L	annual	6
201	AMMONIA (as N)	ND	mg/L	annual	6
204	NITRATE NO_3	0.20	mg/L	annual	6
302	BOD (5 day)	ND	mg/L	annual	6
303	COD	ND	mg/L	annual	6
502	CHLORIDE	4.07	mg/L	annual	6
602	ALKALINITY	6.30	mg/L	annual	6
613	TOTAL DISSOLVED SOLIDS	32	mg/L	annual	6
614	TOTAL SUSPENDED SOLIDS	ND	mg/L	annual	6
739	WATER LEVEL (depth)	13.05	ft	annual	6
892	VOLATILE ORGANICS	(please refer to summary & attached report)			

892	**Volatile Organics Summary**

	CLW1	**CLW2**	**CLW3**	**Units**	**Method Detection Limits (µg/L)**
Chloroform	0.878	ND	0.547 J	µg/L	0.162
Carbon tetrachloride	1.76	ND	0.204 J	µg/L	0.134
Ethylbenzene	ND	ND	ND	µg/L	0.167
Chloromethane	ND	ND	ND	µg/L	0.176
Styrene	ND	ND	ND	µg/L	0.359
Acetone	ND	ND	ND	µg/L	1.46

Note:
J – Estimated value greater than method detection limit (MDL) but less than reporting limit (RL).
NA - Not Analyzed
ND - Not Detected

LANDFILL WATER QUALITY MONITORING REPORT
Connecticut Department of Energy and Environmental Protection
Solid Waste Management Unit, 79 Elm Street, Hartford, 06106

Municipality: Ledyard	*Facility Name:* Allyn's Point (former Dow Chemical Co.)	*Permit No.* 072-1L

Submitted *by:* Timothy King (Dow Remediation Leader)	*Date: 7/2/2018*

Sample Collected by: Maria Vidal, Jacobs
Sample Date: 5/29/18 and 5/31/18 2018 Annual Submission

Monitor Point: CLMW-1 (Downgradient)

Code	***Parameter***	***Result***	***Units***	***Frequency***	***Month***
113	TOTAL IRON	ND	mg/L	annual	6
116	TOTAL MANGANESE	0.014	mg/L	annual	6
201	AMMONIA (as N)	0.028 J	mg/L	annual	6
204	NITRATE NO_3	0.21	mg/L	annual	6
302	BOD (5 day)	ND	mg/L	annual	6
303	COD	34 J	mg/L	annual	6
502	CHLORIDE	3.85	mg/L	annual	6
602	ALKALINITY	5.3	mg/L	annual	6
613	TOTAL DISSOLVED SOLIDS	40 J	mg/L	annual	6
614	TOTAL SUSPENDED SOLIDS	ND	mg/L	annual	6
739	WATER LEVEL (depth)	15.45	ft	annual	6
892	VOLATILE ORGANICS	(please refer to summary & attached report			

Monitor Point: CLMW-2 (Upgradient)

Code	***Parameter***	***Result***	***Units***	***Frequency***	***Month***
113	TOTAL IRON	0.045 J	mg/L	annual	6
116	TOTAL MANGANESE	ND	mg/L	annual	6
201	AMMONIA (as N)	ND	mg/L	annual	6
204	NITRATE NO_3	0.076 J	mg/L	annual	6
302	BOD (5 day)	ND	mg/L	annual	6
303	COD	ND	mg/L	annual	6
502	CHLORIDE	3.98	mg/L	annual	6
602	ALKALINITY	12.4	mg/L	annual	6
613	TOTAL DISSOLVED SOLIDS	13 J	mg/L	annual	6
614	TOTAL SUSPENDED SOLIDS	ND	mg/L	annual	6
739	WATER LEVEL (depth)	18.31	ft	annual	6
892	VOLATILE ORGANICS	(please refer to summary & attached report			

Monitor Point: CLMW-3 (Downgradient)

Code	*Parameter*	*Result*	*Units*	*Frequency*	*Month*
113	TOTAL IRON	ND	mg/L	annual	6
116	TOTAL MANGANESE	ND	mg/L	annual	6
201	AMMONIA (as N)	ND	mg/L	annual	6
204	NITRATE NO_3	0.33	mg/L	annual	6
302	BOD (5 day)	ND	mg/L	annual	6
303	COD	7.2 J	mg/L	annual	6
502	CHLORIDE	3.83	mg/L	annual	6
602	ALKALINITY	7.0	mg/L	annual	6
613	TOTAL DISSOLVED SOLIDS	37	mg/L	annual	6
614	TOTAL SUSPENDED SOLIDS	ND	mg/L	annual	6
739	WATER LEVEL (depth)	12.97	ft	annual	6
892	VOLATILE ORGANICS	(please refer to summary & attached report)			

892	**Volatile Organics Summary**

	CLW1	**CLW2**	**CLW3**	**Units**	**Method Detection Limits (µg/L)**
Chloroform	0.54 J	ND	0.295 J	µg/L	0.222
Carbon tetrachloride	1.06	ND	0.199 J	µg/L	0.134
Ethylbenzene	ND	ND	ND	µg/L	0.167
Chloromethane	0.20 UJ	ND	ND	µg/L	0.200
Styrene	ND	ND	ND	µg/L	0.359
Acetone	8.61	ND	ND	µg/L	1.46

Note:
J – Estimated value greater than method detection limit (MDL) but less than reporting limit (RL).
NA - Not Analyzed
ND - Not Detected

LANDFILL WATER QUALITY MONITORING REPORT
Connecticut Department of Energy and Environmental Protection
Solid Waste Management Unit, 79 Elm Street, Hartford, 06106

Municipality: Ledyard	*Facility Name:* Allyn's Point (former Dow Chemical Co.)	*Permit No.* 072-1L

Submitted *by:* Timothy King (Dow Remediation Leader)	*Date: 6/21/2019*

Sample Collected by: David Kortjohn, Jacobs Engineering Group, Inc. (Jacobs)
Sample Date: 5/22/19

2019 Annual Submission

Monitor Point: CLMW-1 (Downgradient)

Code	***Parameter***	***Result***	***Units***	***Frequency***	***Month***
113	TOTAL IRON	ND	mg/L	annual	6
116	TOTAL MANGANESE	0.0144	mg/L	annual	6
201	AMMONIA (as N)	ND	mg/L	annual	6
204	NITRATE NO_3	0.098 J	mg/L	annual	6
302	BOD (5 day)	ND	mg/L	annual	6
303	COD	6.6 J	mg/L	annual	6
502	CHLORIDE	3.37	mg/L	annual	6
602	ALKALINITY	2.7	mg/L as $CaCO_3$	annual	6
613	TOTAL DISSOLVED SOLIDS	47 J	mg/L	annual	6
614	TOTAL SUSPENDED SOLIDS	ND	mg/L	annual	6
739	WATER LEVEL (depth)	11.46	ft	annual	6
892	VOLATILE ORGANICS	(please refer to summary & attached report			

Monitor Point: CLMW-2 (Upgradient)

Code	***Parameter***	***Result***	***Units***	***Frequency***	***Month***
113	TOTAL IRON	ND	mg/L	annual	6
116	TOTAL MANGANESE	0.0031	mg/L	annual	6
201	AMMONIA (as N)	ND	mg/L	annual	6
204	NITRATE NO_3	0.093 J	mg/L	annual	6
302	BOD (5 day)	ND	mg/L	annual	6
303	COD	ND	mg/L	annual	6
502	CHLORIDE	3.47	mg/L	annual	6
602	ALKALINITY	11.3	mg/L as $CaCO_3$	annual	6
613	TOTAL DISSOLVED SOLIDS	59 J	mg/L	annual	6
614	TOTAL SUSPENDED SOLIDS	ND	mg/L	annual	6
739	WATER LEVEL (depth)	16.09	ft	annual	6
892	VOLATILE ORGANICS	(please refer to summary & attached report			

Monitor Point: CLMW-3 (Downgradient)

Code	*Parameter*	*Result*	*Units*	*Frequency*	*Month*
113	TOTAL IRON	ND	mg/L	annual	6
116	TOTAL MANGANESE	0.0034	mg/L	annual	6
201	AMMONIA (as N)	ND	mg/L	annual	6
204	NITRATE NO_3	0.47	mg/L	annual	6
302	BOD (5 day)	ND	mg/L	annual	6
303	COD	ND	mg/L	annual	6
502	CHLORIDE	3.32	mg/L	annual	6
602	ALKALINITY	4.50	mg/L as $CaCO_3$	annual	6
613	TOTAL DISSOLVED SOLIDS	43	mg/L	annual	6
614	TOTAL SUSPENDED SOLIDS	ND	mg/L	annual	6
739	WATER LEVEL (depth)	8.62	ft	annual	6
892	VOLATILE ORGANICS	(please refer to summary & attached report)			

892	**Volatile Organics Summary**

	CLMW-1	**CLMW-2**	**CLMW-3**	**Units**	**Method Detection Limits (µg/L)**
Chloroform	0.419 J	ND	0.478 J	µg/L	0.222
Carbon tetrachloride	0.840	ND	0.920	µg/L	0.134
Ethylbenzene	ND	ND	ND	µg/L	0.167
Chloromethane	ND	ND	ND	µg/L	0.200
Styrene	ND	ND	ND	µg/L	0.359
Acetone	ND	ND	ND	µg/L	1.46

Note:
J – Estimated value greater than method detection limit (MDL) but less than reporting limit (RL).
NA - Not Analyzed
ND - Not Detected

LATEX COMPOST AREA (LANDFILL) WATER QUALITY MONITORING REPORT
Connecticut Department of Energy and Environmental Protection
Solid Waste Management Unit, 79 Elm Street, Hartford, 06106

Municipality: Ledyard	*Facility Name:* Allyn's Point (former Dow Chemical Co.)	*Permit No.* 072-1L

Submitted *by:* Jerome Cibrik (Dow Remediation Leader)	*Date: 8/31/2020*

Sample Collected by: David Kortjohn, Jacobs Engineering Group, Inc. (Jacobs)
Sample Date: 8/11/2020

2020 Annual Submission

Monitor Point: CLMW-1 (Downgradient)

Code	***Parameter***	***Result***	***Units***	***Frequency***	***Month***
113	TOTAL IRON	ND	mg/L	annual	8
116	TOTAL MANGANESE	0.0046	mg/L	annual	8
201	AMMONIA (as N)	0.079	mg/L	annual	8
204	NITRATE NO_3	0.230	mg/L	annual	8
302	BOD (5 day)	ND	mg/L	annual	8
303	COD	ND	mg/L	annual	8
502	CHLORIDE	3.08	mg/L	annual	8
602	ALKALINITY	6	mg/L as $CaCO_3$	annual	8
613	TOTAL DISSOLVED SOLIDS	78	mg/L	annual	8
614	TOTAL SUSPENDED SOLIDS	ND	mg/L	annual	8
739	WATER LEVEL (depth)	19.89	ft	annual	8
892	VOLATILE ORGANICS	(please refer to summary & attached report			

Monitor Point: CLMW-2 (Upgradient)

Code	***Parameter***	***Result***	***Units***	***Frequency***	***Month***
113	TOTAL IRON	0.075	mg/L	annual	8
116	TOTAL MANGANESE	0.0023	mg/L	annual	8
201	AMMONIA (as N)	ND	mg/L	annual	8
204	NITRATE NO_3	0.081 J	mg/L	annual	8
302	BOD (5 day)	ND	mg/L	annual	8
303	COD	ND	mg/L	annual	8
502	CHLORIDE	2.90	mg/L	annual	8
602	ALKALINITY	12	mg/L as $CaCO_3$	annual	8
613	TOTAL DISSOLVED SOLIDS	70	mg/L	annual	8
614	TOTAL SUSPENDED SOLIDS	25	mg/L	annual	8
739	WATER LEVEL (depth)	18.35	ft	annual	8
892	VOLATILE ORGANICS	(please refer to summary & attached report			

Monitor Point: CLMW-3 (Downgradient)

Code	*Parameter*	*Result*	*Units*	*Frequency*	*Month*
113	TOTAL IRON	ND	mg/L	annual	8
116	TOTAL MANGANESE	0.062	mg/L	annual	8
201	AMMONIA (as N)	ND	mg/L	annual	8
204	NITRATE NO_3	0.13	mg/L	annual	8
302	BOD (5 day)	ND	mg/L	annual	8
303	COD	ND	mg/L	annual	8
502	CHLORIDE	3.09	mg/L	annual	8
602	ALKALINITY	8	mg/L as $CaCO_3$	annual	8
613	TOTAL DISSOLVED SOLIDS	69 J	mg/L	annual	8
614	TOTAL SUSPENDED SOLIDS	7.2	mg/L	annual	8
739	WATER LEVEL (depth)	17.36	ft	annual	8
892	VOLATILE ORGANICS	(please refer to summary & attached report)			

892	**Volatile Organics Summary**

	CLMW-1	**CLMW-2**	**CLMW-3**	**Units**	**Method Detection Limits (µg/L)**
Chloroform	0.322 J	ND	ND	µg/L	0.222
Carbon tetrachloride	0.634	ND	ND	µg/L	0.134
Ethylbenzene	ND	ND	ND	µg/L	0.167
Chloromethane	ND	ND	ND	µg/L	0.200
Styrene	ND	ND	ND	µg/L	0.359
Acetone	ND	ND	ND	µg/L	1.46

Note:
J – Estimated value greater than method detection limit (MDL) but less than reporting limit (RL).
NA - Not Analyzed
ND - Not Detected

LATEX COMPOST AREA (LANDFILL) WATER QUALITY MONITORING REPORT
Connecticut Department of Energy and Environmental Protection
Solid Waste Management Unit, 79 Elm Street, Hartford, 06106

Municipality: Ledyard	*Facility Name:* Allyn's Point (former Dow Chemical Co.)	*Permit No.* 072-1L

Submitted *by:* Audrey Sidebottom (Dow Remediation Leader)	*Date: 7/14/2021*

Sample Collected by: David Kortjohn, Jacobs Engineering Group, Inc. (Jacobs)
Sample Date: 5/18/2021

2021 Annual Submission

Monitor Point: CLMW-1 (Downgradient)

Code	***Parameter***	***Result***	***Units***	***Frequency***	***Month***
113	TOTAL IRON	0.0339 J	mg/L	annual	5
116	TOTAL MANGANESE	0.00622	mg/L	annual	5
201	AMMONIA (as N)	0.096	mg/L	annual	5
204	NITRATE NO_3	0.150	mg/L	annual	5
302	BOD (5 day)	ND	mg/L	annual	5
303	COD	ND	mg/L	annual	5
502	CHLORIDE	3.01	mg/L	annual	5
602	ALKALINITY	3.70	mg/L as $CaCO_3$	annual	5
613	TOTAL DISSOLVED SOLIDS	48 J	mg/L	annual	5
614	TOTAL SUSPENDED SOLIDS	ND	mg/L	annual	5
739	WATER LEVEL (depth)	14.90	ft	annual	5
892	VOLATILE ORGANICS	(please refer to summary & attached report			

Monitor Point: CLMW-2 (Upgradient)

Code	***Parameter***	***Result***	***Units***	***Frequency***	***Month***
113	TOTAL IRON	0.158	mg/L	annual	5
116	TOTAL MANGANESE	0.00434	mg/L	annual	5
201	AMMONIA (as N)	ND	mg/L	annual	5
204	NITRATE NO_3	0.049 J	mg/L	annual	5
302	BOD (5 day)	ND	mg/L	annual	5
303	COD	ND	mg/L	annual	5
502	CHLORIDE	2.49	mg/L	annual	5
602	ALKALINITY	ND	mg/L as $CaCO_3$	annual	5
613	TOTAL DISSOLVED SOLIDS	43	mg/L	annual	5
614	TOTAL SUSPENDED SOLIDS	6.7	mg/L	annual	5
739	WATER LEVEL (depth)	18.15	ft	annual	5
892	VOLATILE ORGANICS	(please refer to summary & attached report			

Monitor Point: CLMW-3 (Downgradient)

Code	*Parameter*	*Result*	*Units*	*Frequency*	*Month*
113	TOTAL IRON	ND	mg/L	annual	5
116	TOTAL MANGANESE	0.00107	mg/L	annual	5
201	AMMONIA (as N)	0.081 J	mg/L	annual	5
204	NITRATE NO_3	0.42	mg/L	annual	5
302	BOD (5 day)	ND	mg/L	annual	5
303	COD	ND	mg/L	annual	5
502	CHLORIDE	3.14	mg/L	annual	5
602	ALKALINITY	5.60	mg/L as $CaCO_3$	annual	5
613	TOTAL DISSOLVED SOLIDS	35	mg/L	annual	5
614	TOTAL SUSPENDED SOLIDS	ND	mg/L	annual	5
739	WATER LEVEL (depth)	12.20	ft	annual	5
892	VOLATILE ORGANICS	(please refer to summary & attached report)			

892	**Volatile Organics Summary**

	CLMW-1	**CLMW-2**	**CLMW-3**	**Units**	**Method Detection Limits (µg/L)**
Chloroform	0.820	ND	0.521 J	µg/L	0.222
Carbon tetrachloride	2.22	ND	0.470 J	µg/L	0.134
Ethylbenzene	ND	ND	ND	µg/L	0.167
Chloromethane	ND	ND	ND	µg/L	0.200
Styrene	ND	ND	ND	µg/L	0.359
Acetone	ND	ND	ND	µg/L	1.46

Note:
J – Estimated value greater than method detection limit (MDL) but less than reporting limit (RL).
NA - Not Analyzed
ND - Not Detected

LATEX COMPOST AREA (LANDFILL) WATER QUALITY MONITORING REPORT
Connecticut Department of Energy and Environmental Protection
Solid Waste Management Unit, 79 Elm Street, Hartford, 06106

Municipality: Ledyard	*Facility Name:* Allyn's Point (former Dow Chemical Co.)	*Permit No.* 072-1L

Submitted *by:* Audrey Sidebottom (Dow Remediation Leader)	*Date: 8/15/2022*

Sample Collected by: Maria Vidal, Jacobs Engineering Group, Inc. (Jacobs)
Sample Date: 6/16/2022

2022 Annual Submission

Monitor Point: CLMW-1 (Downgradient)

Code	***Parameter***	***Result***	***Units***	***Frequency***	***Month***
113	TOTAL IRON	ND	mg/L	annual	6
116	TOTAL MANGANESE	0.00253	mg/L	annual	6
201	AMMONIA (as N)	0.103 J	mg/L	annual	6
204	NITRATE NO_3	0.21	mg/L	annual	6
302	BOD (5 day)	ND	mg/L	annual	6
303	COD	ND	mg/L	annual	6
502	CHLORIDE	3.36	mg/L	annual	6
602	ALKALINITY	4.80	mg/L as $CaCO_3$	annual	6
613	TOTAL DISSOLVED SOLIDS	35	mg/L	annual	6
614	TOTAL SUSPENDED SOLIDS	ND	mg/L	annual	6
739	WATER LEVEL (depth)	17.54	ft	annual	6
892	VOLATILE ORGANICS	(please refer to summary & attached report			

Monitor Point: CLMW-2 (Upgradient)

Code	***Parameter***	***Result***	***Units***	***Frequency***	***Month***
113	TOTAL IRON	0.126	mg/L	annual	6
116	TOTAL MANGANESE	0.00269	mg/L	annual	6
201	AMMONIA (as N)	ND	mg/L	annual	6
204	NITRATE NO_3	0.042 J	mg/L	annual	6
302	BOD (5 day)	ND	mg/L	annual	6
303	COD	ND	mg/L	annual	6
502	CHLORIDE	3.08	mg/L	annual	6
602	ALKALINITY	10.2	mg/L as $CaCO_3$	annual	6
613	TOTAL DISSOLVED SOLIDS	8.0 J	mg/L	annual	6
614	TOTAL SUSPENDED SOLIDS	ND	mg/L	annual	6
739	WATER LEVEL (depth)	16.91	ft	annual	6
892	VOLATILE ORGANICS	(please refer to summary & attached report			

Monitor Point: CLMW-3 (Downgradient)

Code	*Parameter*	*Result*	*Units*	*Frequency*	*Month*
113	TOTAL IRON	0.0515	mg/L	annual	6
116	TOTAL MANGANESE	0.04850	mg/L	annual	6
201	AMMONIA (as N)	0.083 J	mg/L	annual	6
204	NITRATE NO_3	0.086 J	mg/L	annual	6
302	BOD (5 day)	ND	mg/L	annual	6
303	COD	ND	mg/L	annual	6
502	CHLORIDE	3.42	mg/L	annual	6
602	ALKALINITY	4.70 J	mg/L as $CaCO_3$	annual	6
613	TOTAL DISSOLVED SOLIDS	41	mg/L	annual	6
614	TOTAL SUSPENDED SOLIDS	ND	mg/L	annual	6
739	WATER LEVEL (depth)	14.95	ft	annual	6
892	VOLATILE ORGANICS	(please refer to summary & attached report)			

892	**Volatile Organics Summary**

	CLMW-1	**CLMW-2**	**CLMW-3**	**Units**	**Method Detection Limits (µg/L)**
Chloroform	0.377 J	0.254 J	ND	µg/L	0.222
Carbon tetrachloride	0.304 J	0.134 UJ	0.134 UJ	µg/L	0.134
Ethylbenzene	ND	ND	ND	µg/L	0.167
Chloromethane	0.2 UJ	0.2 UJ	0.2 UJ	µg/L	0.200
Styrene	ND	ND	ND	µg/L	0.359
Acetone	1.46 UJ	1.46 UJ	1.46 UJ	µg/L	1.46

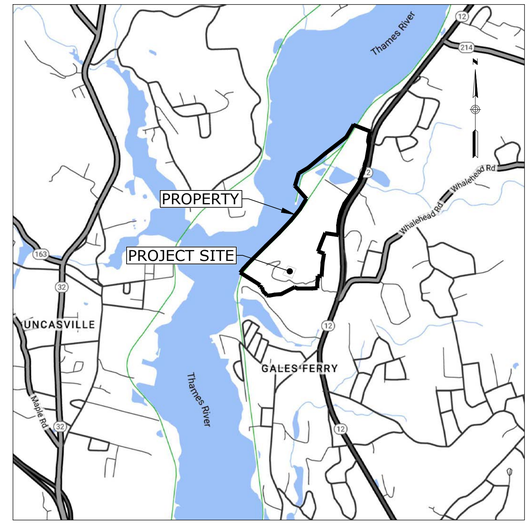
Note:
J – Estimated value greater than method detection limit (MDL) but less than reporting limit (RL).
NA - Not Analyzed
ND - Not Detected

GALES FERRY INTERMODAL

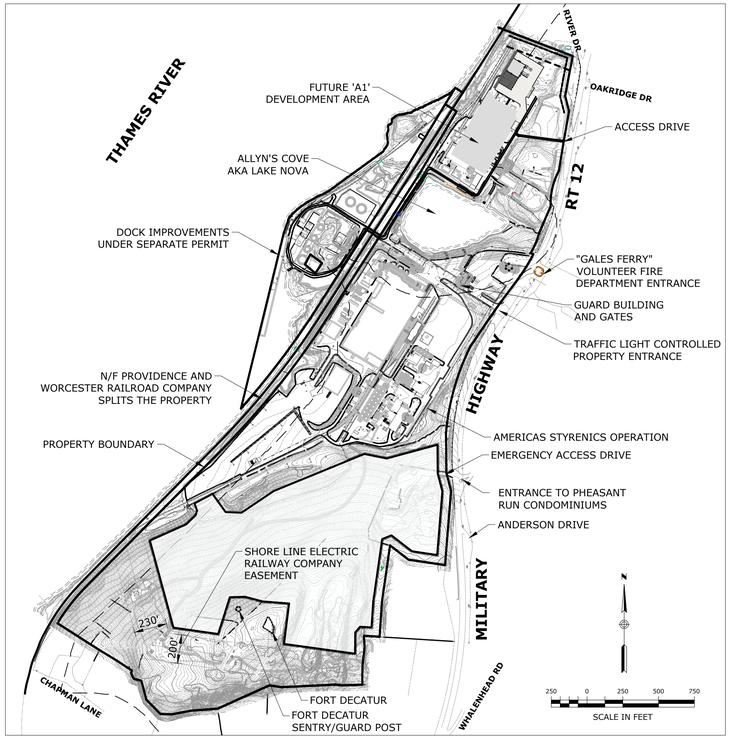
INDUSTRIAL SITE PREPARATION PLANS

1737 & 1761 ROUTE 12
GALES FERRY, CT 06335

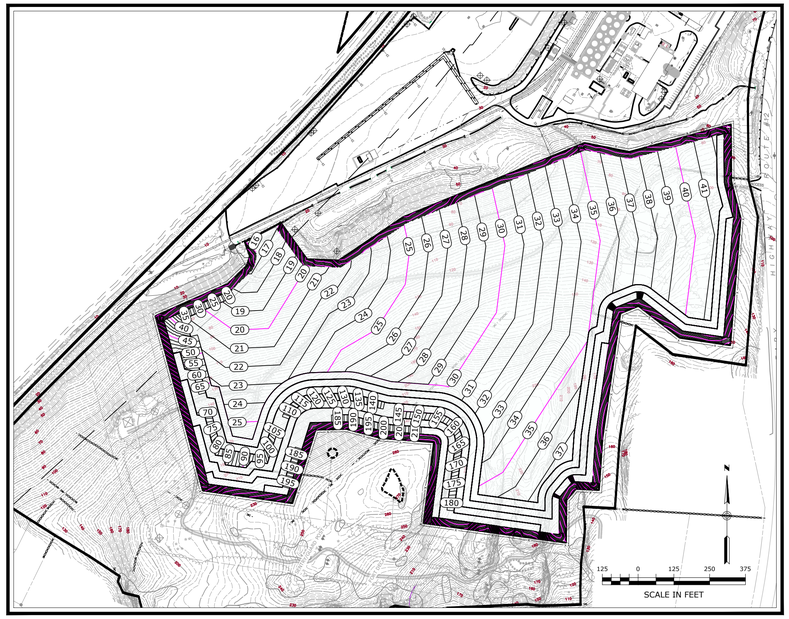
APRIL 3, 2023
REVISED: JUNE 6, 2023



LOCATION MAP
SCALE: 1"=±2,000'



PROPERTY MAP AND ADJACENT FEATURES



DRAWING INDEX		
SHEET NO.	DRAWING	TITLE
1	-	COVER SHEET
2	C-1	NOTES LEGEND AND ABBREVIATIONS
1 of 2	BY CME	PROPERTY AND TOPOGRAPHIC SURVEY
2 of 2	BY CME	PROPERTY AND TOPOGRAPHIC SURVEY
3	C-2	EXISTING CONDITIONS PLAN
4	C-3	OVERALL SITE PLAN
5	C-4	GRADING AND DRAINAGE PLAN
6	XS-1	CROSS SECTIONS
7	C-5	SOIL EROSION & SEDIMENT CONTROL - OVERALL PHASING
8	C-6	SOIL EROSION & SEDIMENT CONTROL - PHASE 1
9	C-7	SOIL EROSION & SEDIMENT CONTROL - PHASE 2
10	C-8	SOIL EROSION & SEDIMENT CONTROL - PHASE 3
11	C-9	SOIL EROSION & SEDIMENT CONTROL - PHASE 4
12	C-10	SOIL EROSION & SEDIMENT CONTROL - FINAL
13	C-11A	WETLAND MITIGATION PLAN - LOCATION 1
14	C-11B	WETLAND MITIGATION PLAN - LOCATION 2
15	C-12	DETAILS

PZC PERMIT # _____ DATE OF APPROVAL _____ EXPIRATION DATE _____

_____ _____
PZC CHAIRMAN OR SECRETARY DATE

IWWC PERMIT #_____ DATE OF APPROVAL _____

_____ _____
IWWC CHAIRMAN DATE

LEA# 045JC2.06

Property Owner / Applicant:

GALES FERRY INTERMODAL LLC
549 SOUTH STREET
QUINCY, MA 02169

STATE OF CONNECTICUT · GEORGE F. ANDREWS · No. 16268 · LICENSED PROFESSIONAL ENGINEER

Prepared By:

Engineer:
Loureiro Engineering Associates, Inc.
100 Northwest Drive · Plainville, Connecticut 06062
Phone: 860-747-6181 · Fax: 860-747-8822
An Employee Owned Company · www.Loureiro.com
Engineering • Construction • EH&S • Energy
Waste • Facility Services • Laboratory

SURVEY NOTES

1. THIS PLAN IS BASED ON MAP REFERENCE A AND B.
2. REFERENCE IS MADE TO THE TOWN OF LEDYARD, CT LAND EVIDENCE RECORDS VOLUME 621 AT PAGE 981 FOR THE SUBJECT PROPERTY.
3. THE SUBJECT PROPERTY IS LOCATED ENTIRELY WITHIN THE "I" INDUSTRIAL ZONE DISTRICT.
4. "NATIONAL FLOOD INSURANCE PROGRAM FLOOD INSURANCE RATE MAP NEW LONDON COUNTY, CONNECTICUT ALL JURISDICTIONS PANEL 354, TOWN OF LEDYARD, MAP NUMBER 09011C0354G EFFECTIVE DATE JULY 18, 2011 FEDERAL EMERGENCY MANAGEMENT AGENCY" INDICATES THE SUBJECT PROPERTY IS LOCATED IN ZONE AE (EL 12) AND ZONE X.
5. THE SUBJECT PROPERTIES ARE SHOWN ON THE TOWN OF LEDYARD, CT TAX ASSESSOR MAP 61 BLOCK 2120 AS LOT 1761 WHICH HAS ASSIGNED STREET ADDRESS OF 1761 ROUTE 12, GALES FERRY, CONNECTICUT 06335 AND TOWN OF LEDYARD, CT TAX ASSESSOR MAP 76 BLOCK 2120 AS LOT 1737 WHICH HAS ASSIGNED STREET ADDRESS OF 1737 ROUTE 12, GALES FERRY, CONNECTICUT 06335.
6. UNDERGROUND UTILITIES MUST BE FIELD VERIFIED PRIOR TO ANY EXCAVATION.
7. A PORTION OF INLAND WETLANDS WERE DELINEATED IN THE FIELD BY JMM WETLAND CONSULTING SERVICES, LLC AND LOCATED BY LOUREIRO ENGINEERING ASSOCIATES, INC., GROTON, CONNECTICUT. THE REMAINING WETLANDS WERE FROM ELECTRONIC DATA FROM CMA AS RECEIVED FROM GALES FERRY INTERMODAL LLC.

MAP REFERENCES

A. PROPERTY SURVEY, PROPERTY OF TRINSEO LLC, #1737 & #1761 MILITARY HIGHWAY (ROUTE 12), LEDYARD, GALES FERRY, CT, PREPARED FOR: JAY CASHMAN, INC., 549 SOUTH STREET, QUINCY, MA, SCALE: 1"=100', DATE: 5/10/2022, BY CHA.

B. PROPERTY AND TOPOGRAPHIC SURVEY, #1737 & #1761 MILITARY HIGHWAY (ROUTE 12), LEDYARD, GALES FERRY, CT, PREPARED FOR: STYRON LLC "ALLYN'S POINT PLANT", BY CME.

SITE NOTES:

1. THE APPLICANT/OWNER IS GALES FERRY INTERMODAL LLC OF 549 SOUTH STREET, QUINCY, MA.
2. THE APPLICANT IS PROPOSING A REGRADING OPERATION TO CREATE ADDITIONAL BUILDING PADS FOR FUTURE INDUSTRIAL DEVELOPMENT. THE PROPOSED SITE REGRADING AND PREPARATION APPLICATION WILL BE CONDUCTED IN FOUR PHASES WITH EACH PHASE BEING 10 ACRES OR LESS OF DISTURBED LAND. BASED ON TEST BORINGS CONDUCTED ONSITE, THE SITE PREPARATION WILL REQUIRE THE REMOVAL OF TOPSOIL AND BEDROCK WITH FINAL GRADING BEING SUITABLE FOR FUTURE INDUSTRIAL BUILDINGS.
3. OTHER USES ON THE SITE CURRENTLY INCLUDE MANUFACTURING OF STYROFOAM PRODUCTS BY AMERICAS STYRENICS, A TENANT OF THE PROPERTY.
4. THE PURPOSE OF THESE PLANS IS FOR REVIEW BY THE TOWN OF LEDYARD INLAND WETLAND WATERCOURSE COMMISSION AND PLANNING AND ZONING COMMISSION. THESE PLANS ARE FOR PERMIT PURPOSES ONLY AND ARE NOT TO BE USED FOR CONTRACT DOCUMENTS.
5. NO CONSTRUCTION OF BUILDINGS IS ASSOCIATED WITH THIS APPLICATION.

4. THE SUBJECT PROPERTY IS LOCATED WITHIN THE 'I' INDUSTRIAL ZONE. THE PARCEL DOES LIE WITHIN THE COASTAL AREA MANAGEMENT ZONE. A PORTION OF THE SITE IS WITHIN THE FEMA AE (EL 12) AND ZONE X.
5. LOT COVERAGE CALCULATIONS:
   A. ALLOWED @ 70% = 70% X 7,220,941 SF = 5,054,658 SF
   B. PROVIDED: 2,091,741 (EXISTING) + 73,965 (PROPOSED BUILDING AND PAVEMENT ON OTHER PORTION OF SITE UNDER DIFFERENT APPLICATION) / 7,220,941 SF = 30.0 %
6. THE CONTRACTOR SHALL OBTAIN ALL REQUIRED PERMITS INCLUDING A CONNECTICUT D.O.T. ENCROACHMENT PERMIT FOR ANY WORK WITHIN THE D.O.T. RIGHT-OF-WAY PRIOR TO CONSTRUCTION.
7. THE CONTRACTOR SHALL OBTAIN, REVIEW AND ADHERE TO ALL REQUIREMENTS AND ANY CONDITIONS OF APPROVAL OF THE TOWN OF LEDYARD.
8. ALL EXISTING CURBING, PAVEMENT, ETC. DISTURBED AS A RESULT OF CONSTRUCTION ACTIVITIES SHALL BE REPLACED/RESTORED TO ORIGINAL CONDITION BY THE CONTRACTOR.

EROSION AND SEDMIENTATION (E&S) CONTROL PLAN:

NARRATIVE

1. THIS EROSION AND SEDIMENTATION CONTROL (ESC) PLAN IS FOR THE REGRADING OPERATION FOR BUILDING PADS FOR FUTURE INDUSTRIAL SITE.
2. THE TOPOGRAPHY VARIES ACROSS THE SITE AND GENERALLY SLOPES FROM THE SOUTH ALONG THE ONSITE POWER LINE EASEMENT NORTH DOWN TO THE EXISTING RAILROAD AND IMPROVED PORTION OF THE TENANT AMERICA'S STYRENICS. THE UNDERLYING SOIL ON THE HIGHER PORTION OF THE PROJECT AREA IS HOLLIS CHATFIELD ROCK, HYDROLOGIC GROUP D, AND THE LOWER PORTION OF THE PROJECT AREA IS HINCKLEY LOAMY SAND, HYDROLOGIC SOIL GROUP A.
3. A LARGE PORTION OF THE UPLAND SOILS WILL BE DISTURBED BY EARTHWORK ACTIVITIES AND THE INTENT OF THIS EROSION AND SEDIMENT CONTROL PLAN IS TO ESTABLISH STORMWATER CONTROLS DURING CONSTRUCTION TO PREVENT THE DISCHARGE OF SEDIMENT LADEN RUNOFF FROM ENTERING THE EXISTING INLAND WETLANDS.
4. EROSION CONTROL MEASURES INTENDED TO MINIMIZE SOIL EROSION AND TO CONTROL SEDIMENTATION DURING CONSTRUCTION INCLUDE:
   A. THE INSTALLATION OF MULCH SOCKS ALONG THE DOWN-GRADIENT LIMIT OF DISTURBANCE. INSTALL MULCH SOCKS AND/OR HAYBALES AS SHOWN ON PLANS.
   B. TEMPORARY SEDIMENT BASINS DURING CONSTRUCTION.
   C. THE IMMEDIATE STABILIZATION OF FINAL GRADED AREAS THROUGH THE PLACEMENT OF CRUSHED STONE, TOPSOIL, SEED, MULCH AND EROSION CONTROL NETTING.
   D. SWEEP THE PAVED AREA IN THE CONSTRUCTION AREA WEEKLY.
   E. DEVELOPMENT OF A CONSTRUCTION OPERATIONS PLAN IN CONSIDERATION OF BASIC CONSTRUCTION SEQUENCING OUTLINED HEREIN.
5. THE CONSTRUCTION OF THIS PROJECT IS IN 4 PHASES. IT IS ANTICIPATED THAT SITE WORK CONSTRUCTION WILL BEGIN IN THE FALL OF 2023 AND WILL CONTINUE OFF AND ON FOR 5-10 YEARS.
6. A STATE OF CONNECTICUT GENERAL PERMIT FOR THE DISCHARGE OF STORMWATER AND DEWATERING WASTERWATERS FROM CONSTRUCTION ACTIVITIES MUST BE FILED AT LEAST 60 DAYS PRIOR TO CONSTRUCTION.

CONSTRUCTION SEQUENCE

1. CONTACT "CALL BEFORE YOU DIG" TO MARK OUT ALL UTILITY LOCATIONS PRIOR TO ANY CONSTRUCTION ACTIVITIES.
2. ENSURE ALL LAND USE PERMITS HAVE BEEN SECURED. OBTAIN ALL NECESSARY LOCAL, STATE AND FEDERAL PERMITS, AS REQUIRED. FILE ALL STATE GENERAL PERMITS FOR CONSTRUCTION ACTIVITY THAT APPLY AS REQUIRED.
3. PRIOR TO THE START OF WORK, THE CONTRACTOR SHALL MEET WITH THE TOWN REPRESENTATIVE FOR A PRE-CONSTRUCTION MEETING TO DISCUSS ESC REQUIREMENTS AND WATER QUALITY MANAGEMENT PROCEDURES.
4. THE LIMITS OF PHASE 1 EXCAVATION AND WORK AREA SHALL BE DELINEATED IN THE FIELD PRIOR TO ANY WORK.
5. INSTALL TEMPORARY CONSTRUCTION ENTRANCE, MULCH SOCKS, TEMPORARY SEDIMENT BASIN AND/OR HAY BALE BARRIERS AS SHOWN ON THE EROSION & SEDIMENT CONTROL PLAN FOR EACH PHASE. INSTALL A DOUBLE ROW OF MULCH SOCKS WHERE WETLANDS ARE DOWNGRADIENT OF ANY WORK.
6. INSTALL NEW CULVERT ACROSS EXISTING STREAM AND ANY WORK NEEDED TO CROSS THE EXISTING RAILROAD TRACKS.
7. REMOVE ALL TREES, BRUSH, STUMPS, TOPSOIL AND SUBSOIL WITHIN PHASE 1 AS NECESSARY. PROTECT WETLANDS AT ALL TIMES. ALL TOPSOIL AND SUBSOIL SHALL BE RETAINED ONSITE FOR USE IN THE FINAL STABILIZATION AND RECLAMATION OF THE SITE. THE TOPSOIL AND SUBSOIL SHALL BE STOCKPILED IN AREA DELINEATED ON THE PLAN. THE SURFACE OF THE SOIL STOCKPILE SHALL BE STABILIZED BY SEEDING WITH A PERENNIAL RYEGRASS MIX AND MULCH. THE PERENNIAL RYEGRASS MIX SHALL BE APPLIED AT A RATE OF 40 POUNDS PER ACRE. MULCH SHALL BE APPLIED AT A RATE OF 80 POUNDS PER 1,000 SQUARE FEET.
8. PRIOR TO ANY BLASTING ACTIVITIES, THE APPLICANT'S BLASTING CONTRACTOR SHALL CONDUCT A PRE-BLAST SURVEY. THE APPLICANT'S GEOTECHNICAL/BLASTING CONSULTANT WILL DETERMINE A SAFE PRE-BLASTING PROCEDURE.
9. SURFICIAL MATERIAL (OTHER THAN TOPSOIL AND SUBSOIL) SHALL BE EXCAVATED FROM THE PHASE 1 AREA AND REMOVED BY TRUCK TO THE PROCESSING AREA SHOWN ON THE PLAN.
10. PHASE 1 EXCAVATION AREA SHALL BE OVER-EXCAVATED TO A DEPTH OF 6 FEET AND THEREAFTER BACKFILLED WITH STONE DUST OR EQUALLY SUITABLE MATERIAL IN ORDER TO ACCOMMODATE THE INSTALLATION OF FUTURE UNDERGROUND UTILITIES NECESSARY TO SERVE THE FUTURE INDUSTRIAL DEVELOPMENT ON THE PROPERTY.
11. UPON THE COMPLETION OF THE EXTRACTION OF STONE IN EACH PHASE OF THE PROJECT, BACKFILL THE FUTURE DEVELOPMENT PAD WITH A MINIMUM OF 6 FEET OF COMPACTED STONE DUST OR EQUALLY SUITABLE MATERIAL AND PLACE SUFFICIENT FILL MATERIAL. THEN LOAM THE AREA WITH NO LESS THAN 4 INCHES OF TOPSOIL FROM THE TOPSOIL THAT WAS PREVIOUSLY STRIPPED AND STOCKPILED ONSITE. THEN SEED AREA WITH FUTURA 2000 BY THE CHAS C. ART CO CONTAINING VARIETIES OF PERENNIAL RYEGRASSES. APPLY AT A RATE OF 90 POUNDS PER 1,000 SQUARE FEET.
12. ESC MEASURES SHALL BE INSTALLED AND MAINTAINED THROUGHOUT THE WORK IN EACH PHASE.
13. THE CONSTRUCTION MANAGER SHALL BE RESPONSIBLE FOR IMPLEMENTING AND INSPECTING ESC MEASURES PER THIS PLAN AND SHALL INFORM ALL CONTRACTORS OF THE OBJECTIVES AND REQUIREMENTS OF THE PLAN. THE OWNER SHALL NOTIFY THE PROPER TOWN AGENCY OF ANY TRANSFER OF THIS RESPONSIBILITY AND SHALL ADVISE THE TOWN REGARDING THE NEED FOR IMPLEMENTING ADDITIONAL CONTROL MEASURES OR MAINTAINING EXISTING MEASURES AS DEEMED NECESSARY DURING CONSTRUCTION. WEEKLY INSPECTIONS SHALL BE CONDUCTED AND/OR WITHIN 24 HOURS OF THE END OF A STORM RESULTING IN A DISCHARGE. ALL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE REPAIRED AND MAINTAINED AS NECESSARY. MONTHLY WRITTEN REPORTS SHALL BE PREPARED INFORMING THE TOWN OF LEDYARD OBSERVATIONS, MAINTENANCE, AND CORRECTIVE ACTIONS.
14. THE CONTRACTOR IS RESPONSIBLE FOR DUST CONTROL DURING THE CONSTRUCTION PROCESS. THE CONSTRUCTION MANAGER SHALL INSPECT THE SITE TO ASSURE DUST IS ADEQUATELY CONTROLLED. IF THE CONSTRUCTION MANAGER DETERMINES DUST CONTROL MEASURES ARE NOT ADEQUATE, THE CONTRACTOR SHALL BE REQUIRED TO INCREASE THESE MEASURES AS DIRECTED BY THE CONSTRUCTION MANAGER.
15. WHEN ALL GRADED AREAS ARE PERMANENTLY STABILIZED, REMOVE ALL EROSION AND SEDIMENT CONTROLS AS INDICATED ON PLAN.
16. THE SEQUENCE ABOVE APPLIES TO PHASES 2, 3 AND 4.
17. CONSTRUCT WETLAND MITIGATION AS SHOWN ON PLANS.
18. WETLAND AREAS ONSITE DOWNSTREAM OF THE EXCAVATION AREA SHALL BE MONITORED FOR 5 YEARS BY A WETLAND SCIENTIST. IF THESE WETLANDS ARE DETERMINED TO BE IMPACTED THEN FUTURE MITIGATION WILL BE DESIGNED AND IMPLEMENTED.

MAINTENANCE OF EROSION CONTROL DEVICES:

1. HAYBALE BARRIERS/MULCH SOCK/SILT FENCE:
   A. INSPECT HAY BALE BARRIERS/MULCH SOCK/SILT FENCE AT LEAST ONCE A WEEK AND WITHIN 24 HOURS AFTER THE END OF A STORM RESULTING IN A DISCHARGE TO DETERMINE MAINTENANCE NEEDS.
   B. IF A MULCH SOCK IS OVERTOPPED DURING A STORM EVENT, CONTRACTOR SHALL INSTALL AN ADDITIONAL MULCH SOCK ON TOP OF THE EXISTING MULCH SOCK OR PLACE ANOTHER MULCH SOCK UPSTREAM OF THE MULCH SOCK THAT OVERTOPPED.
   C. INSTALL A SECONDARY BARRIER/FENCE WHEN SEDIMENT DEPOSITS REACH APPROXIMATELY ONE HALF HEIGHT OF THE BARRIER/FENCE.
   D. REMOVE SEDIMENT THAT BUILDS UP AGAINST THE MULCH SOCK/BARRIER/SILT FENCE.
   E. REPAIR OR REPLACE SPLIT, TORN OR UNRAVELING SOCKS. REPLACE BROKEN OR SPLIT STAKES. SAGGING OR SLUMPING MULCH SOCKS MUST BE REPAIRED WITH ADDITIONAL STAKES OR REPLACED.
   F. REPLACE OR REPAIR THE BARRIER/SOCK/FENCE WITHIN 24 HOURS OF OBSERVED FAILURE. IF REPETITIVE FAILURE OCCURS, CONSULT 2002 GUIDELINES FOR TROUBLESHOOTING FAILURES.
   G. MAINTAIN THE HAY BALE BARRIER/MULCH SOCK/FENCE UNTIL THE CONTRIBUTING AREA IS STABILIZED.
2. CONSTRUCTION ENTRANCES AND ROADWAYS:
   A. MAINTAIN THE ENTRANCE IN A CONDITION IN WHICH WILL PREVENT TRACKING AND WASHING OF SEDIMENTS ONTO PAVED SURFACES.
   B. PROVIDE PERIODIC TOP DRESSING AND ADDITIONAL STONE OR LENGTH AS NECESSARY.
   C. IMMEDIATELY REMOVE ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACKED ONTO PAVED SURFACES. ROADS ADJACENT TO THE CONSTRUCTION SITE SHALL BE LEFT CLEAN EVERY DAY.
3. TEMPORARY SEDIMENT TRAP:
   A. INSPECTIONS SHALL BE AT SAME INTERVALS AS ABOVE.
   B. OUTLET SHALL BE CHECKED FOR INTEGRITY; HEIGHT OF THE STONE OUTLET SHALL BE MAINTAINED AT ONE FOOT BELOW CREST OF EMBANKMENT. SEDIMENT ACCUMULATION AND FILTRATION PERFORMANCE SHOULD BE OBSERVED.
   C. WHEN SEDIMENTS HAVE ACCUMULATED TO ONE HALF OF THE MINIMUM REQUIRED STORAGE VOLUME, DE-WATER BASIN, REMOVE SEDIMENTS, RESTORE TRAP TO ORIGINAL DIMENSIONS AND DISPOSE OF SEDIMENT AT A LOCATION AND MANNER THAT WILL NOT RESULT IN EROSION OR SEDIMENTATION.
   D. AFTER CONTRIBUTING AREA IS STABILIZED, REMOVE BASIN AND RE-GRADE/STABILIZE AREA. PHASE 1 AND PHASE 2 TEMPORARY SEDIMENT BASINS WILL BE CLEANED AND CONVERTED TO PERMANENT WATER QUALITY BASINS.
4. TEMPORARY DIVERSION DITCHES/SWALES:
   A. WHEN THE TEMPORARY DIVERSION IS LOCATED IN CLOSE PROXIMITY TO ONGOING CONSTRUCTION ACTIVITIES, INSPECT AT THE END OF EACH DAY AND IMMEDIATELY REPAIR DAMAGES. OTHERWISE, INSPECT ON SAME INTERVAL AS ABOVE.
   B. REPAIR THE DIVERSION WITHIN 24 HOURS OF ANY OBSERVED FAILURE. FAILURE HAS OCCURRED WHEN THE DIVERSION HAS BEEN DAMAGED SUCH THAT IT NO LONGER MEETS THE SPECIFICATIONS IN THE 2002 GUIDELINES.
   C. IF REPETITIVE FAILURES OCCUR, REVIEW CONDITIONS AND DETERMINE IF ADDITIONAL MEASURES OR AN ALTERNATIVE MEASURES IS NECESSARY.

ZONING DATA TABLE

'I' INDUSTRIAL ZONE

ITEM	REQUIRED	PROVIDED
LOT AREA	200,000 SQ. FT. (4.59 AC.)	7,220,941 SQ. FT. (165.7 AC.)
FRONTAGE	200 FT.	3700 ± FT.
LOT WIDTH	200 FT	> 200 FT.
FRONT SETBACK	35 FT.	> 35 FT EXISTING BUILDINGS
SIDE SETBACK	25 FT	> 25 FT EXISTING BUILDINGS
REAR SETBACK	25 FT.	> 25 FT EXISTING BUILDINGS
LOT COVERAGE (%) (SEE SITE NOTE 5)	70% (4,817,736 SQ. FT.)	30.0 % (2,165,706 SQ. FT.)
BUILDING HEIGHT	N/A	N/A
PARKING (# OF SPACES)	N/A	N/A
WATER SUPPLY	MUNICIPAL	
SANITARY DISPOSAL	ONSITE SSDS	

PZC PERMIT # __________ DATE OF APPROVAL _________ EXPIRATION DATE __________

PZC CHAIRMAN OR SECRETARY ______________________ DATE __________

IWWC PERMIT #__________ DATE OF APPROVAL ______________

IWWC CHAIRMAN ______________________ DATE __________

LEGEND

AC	ACRES
BIT	CONC
TC	TOP OF CURB
CHD	CONNECTICUT HIGHWAY DEPARTMENT MONUMENT
BC	BOTTOM OF CURB
C.O.	CLEAN OUT
CL&P	CONNECTICUT LIGHT & POWER
LLR	LEDYARD LAND RECORDS
INV	INVERT
M/L	MOR EOR LESS
MIN	MINIMUM
N/F	NOW OR FORMERLY
SF	SQUARE FEET
TYP	TYPICAL
TORW	TOP OF ROCK WALL

- — —5— — EXISTING CONTOUR
- — —5— — EXISTING INDEX CONTOUR
- x6.1 NEW SPOT GRADE
- —5— NEW CONTOUR
- —5— NEW INDEX CONTOUR
- BUILDING SETBACK LINE
- —W— MUNICIPAL WATER
- —E— UNDERGROUND ELECTRIC
- CATCH BASIN W/ E&SC
- SEDIMENT FENCE
- SIGN
- UTILITY POLE
- DECIDUOUS TREE
- (13) SOIL TYPE - TAKEN FROM NATURAL RESOURCES CONSERVATION SERVICE, WEBSOIL SURVEY, NATIONAL COOPERATIVE SOIL SURVEY

REV.	DESCRIPTION OF REVISION	DATE	APPR.
1	RESPONSE TO INLAND WETLAND COMMISSION COMMENTS	06/06/2023	SRM

STATE OF CONNECTICUT — GEORGE F. ANDREWS — No. 16286 — LICENSED PROFESSIONAL ENGINEER

Loureiro
Engineering • Construction • EH&S • Energy
Waste • Facility Services • Laboratory
Loureiro Engineering Associates, Inc.
100 Northwest Drive • Plainville, Connecticut 06062
Phone: 860.747.6181 • Fax: 860.747.8822
An Employee Owned Company • www.Loureiro.com

SCALE: NOT TO SCALE
COMM. NO.: 045JC2.06
DRAWN BY: SRM DATE: 04/03/2023
APPROVED BY: GFA DATE: 04/03/2023

INDUSTRIAL SITE PREPARATION PLAN:
NOTES LEGEND AND ABBREVIATIONS

GALES FERRY INTERMODAL LLC
1737 & 1761 ROUTE 12, GALES FERRY, CT 06335
PREPARED FOR:
GALES FERRY INTERMODAL LLC
549 SOUTH STREET, QUINCY, MA 02169

DRAWING: **C-1**
SHEET NO. 2 NO. OF SHEETS 15

MAP REFERENCES

1.) "RIGHT OF WAY AND TRACK MAP OPERATED BY THE NORWICH AND WORCESTER R.R. CO. OPERATED BY THE NEW YORK NEW HAVEN AND HARTFORD R.R. CO. FROM WORCESTER TO GROTON STATION 3379+20 TO STATION 3405+60 TOWN OF LEDYARD, STATE OF CONN" SCALE 1"=50' DATE: JUNE 30, 1915 REVISED THROUGH OCTOBER 9, 1947, OFFICE OF VALUATION ENGINEER, BOSTON MASS. MAP NO. V.5063 / 129.

2.) "RIGHT OF WAY AND TRACK MAP OPERATED BY THE NORWICH AND WORCESTER R.R. CO. OPERATED BY THE NEW YORK NEW HAVEN AND HARTFORD R.R. CO. FROM WORCESTER TO GROTON STATION 3405+60 TO STATION 32+00. TOWN OF LEDYARD, STATE OF CONN" SCALE 1"=50' DATE: JUNE 30, 1915, OFFICE OF VALUATION ENGINEER, BOSTON MASS. MAP NO. V.5063 / 130.

3.) "RIGHT OF WAY AND TRACK MAP OPERATED BY THE NORWICH AND WORCESTER R.R. CO. OPERATED BY THE NEW YORK NEW HAVEN AND HARTFORD R.R. CO. FROM WORCESTER TO GROTON STATION 32+00 TO STATION 58+40 TOWN OF LEDYARD, STATE OF CONN" SCALE 1"=50' DATE: JUNE 30, 1915 REVISED THROUGH APRIL 11, 1951, OFFICE OF VALUATION ENGINEER, BOSTON MASS. MAP NO. V.5063 / 131.

4.) "RIGHT OF WAY AND TRACK MAP OPERATED BY THE NORWICH AND WORCESTER R.R. CO. OPERATED BY THE NEW YORK NEW HAVEN AND HARTFORD R.R. CO. FROM WORCESTER TO GROTON STATION 58+40 TO STATION 84+80 TOWN OF LEDYARD, STATE OF CONN" SCALE 1"=50' DATE: JUNE 30, 1915 REVISED THROUGH APRIL 11, 1951, OFFICE OF VALUATION ENGINEER, BOSTON MASS. MAP NO. V.5063 / 132.

MAP REFERENCES–CONTINUED

5.) "NORWICH AND WORCESTER RAILROAD REAL ESTATE & RIGHT OF WAY DEPARTMENT LAND IN LEDYARD, CONN. TO BE CONVEYED TO THE DOW CHEMICAL COMPANY" SCALE 1"=200' DATE: SEPTEMBER 1950 REVISED THROUGH OCTOBER 1950. ON FILE AS MAP NO. 8A.

6.) "LOCATION OF THE RIGHT OF WAY OF THE CONNECTICUT LIGHT & POWER COMPANY ACROSS THE PROPERTY OF THE DOW CHEMICAL COMPANY, TOWN OF LEDYARD, COUNTY OF NEW LONDON, STATE OF CONNECTICUT" SCALE 1"=200' DATE: APRIL 17, 1951.

7.) "MAP OF PROPERTY OWNED BY THE DOW CHEMICAL COMPANY LOCATED AT ALLYN'S POINT ON THE WEST SIDE OF ROUTE 12 AND EAST OF THE NEW YORK NEW HAVEN & HARTFORD RAILROAD CO. LEDYARD, CONN." SCALE: 1"=100' DATE: JULY 1952 REVISED AUGUST 1953, G.L. BILDERBECK CONSULTING ENGINEERS, NEW LONDON, CONN.

8.) "MAP SHOWING PROPERTY OWNED BY DOW CHEMICAL COMPANY, ALLYN'S POINT, LEDYARD, CONN." SCALE: 1"=100' DATE : DECEMBER 1953, G.L. BILDERBECK, CONSULTING ENGINEERS, NEW LONDON, CONN, ON FILE AS MAP NO. 43A.

MAP REFERENCES–CONTINUED

9.) "CONNECTICUT STATE HIGHWAY DEPARTMENT RIGHT OF WAY MAP TOWN OF LEDYARD NORWICH–GROTON ROAD FROM ALLYN'S BROOK NORTHERLY TO LEDARD–PRESTON TOWN LINE" SCALE 1"=40' DATE: NOVEMBER 5, 1957, SHEETS 1 THROUGH 3 OF 9 PROJECT NUMBER: 71–16. THESE MAPS SUPERSEDE PROJECT 71–05. SHEET 3 REVISED AUGUST 25, 1967.

10.) "CONNECTICUT STATE HIGHWAY DEPARTMENT RIGHT OF WAY MAP TOWN OF LEDYARD GROTON–NORWICH ROAD GALES FERRY ROAD TO ALLYN'S BROOK" SCALE 1"=40' DATE: NOVEMBER 5, 1957, SHEETS 1 THROUGH 4 OF 4. PROJECT NUMBER 71–15. THESE MAPS SUPERSEDE PROJECT 71–04. SHEET 1 REVISED THROUGH MAY 17, 2004.

11.) "PLAN SHOWING LANDS NOW AND FORMALLY OF H. WINTHROP HURLBUTT LEDYARD, CONNECTICUT" SCALE 1"=100' DATE: OCTOBER 1964, GEORGE H. DIETER, LAND SURVEYOR, ON FILE AS MAP # 226.

12.) "PLAN OF PROPERTY TO BE CONVEYED TO THE TOWN OF LEDYARD BY THE DOW CHEMICAL COMPANY, TOWN OF LEDYARD, CONN." SCALE: 1"=100' DATE: APRIL 1972, CHANDLER, PALMER & KING, NORWICH, CONN.

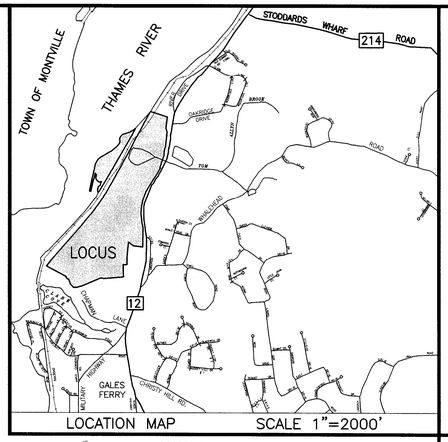
MAP REFERENCES–CONTINUED

13.) "PLAN SHOWING PARCELS OF LAND WITH BUILDINGS PROPERTY OF JAMES L. LEWIS AND ALICE L. LEWIS, PENTWAY AT WEST END CHAPMAN LANE LEDYARD, CONNECTICUT" SCALE 1"=20' DATE JUNE 1976, GEORGE H. DIETER, LAND SURVEYOR, ON FILE AS MAP # 672.

14.) "TOPOGRAPHICAL PLAN, PLAN OF A PORTION OF DOW CHEMICAL CO. ALLYN'S POINT PLANT GALES FERRY, CONN." SCALE: 1"=40' DATE: JULY 9, 1984 REVISIONS THROUGH AUGUST 28, 1984, CHANDLER, PALMER & KING, NORWICH, CONN.

15.) "MONUMENTED PROPERTY SURVEY MAP DEPICTING LAND OF GALES FERRY MARINA, INC. A PORTION OF LAND OF JAMES L. LEWIS AND LUCILLE A LUPINACCI, CHAPMAN LANE, GALES FERRY, LEDYARD, CONNECTICUT" SCALE: 1"=40' DATE: MARCH 26, 1994 REVISED APRIL 19, 1994, DAVID L. STEIN, LAND SURVEYOR, WESTBROOK, CONNECTICUT, ON FILE AS MAP #1753.

16.) COMPILATION PLAN MAP SHOWING EASEMENT AREA TO BE GRANTED TO THE YANKEE GAS SERVICES COMPANY ACROSS THE PROPERTY OF DOW CHEMICAL COMPANY (ALLYN'S POINT PLANT) #1761 ROUTE 12 GALES FERRY–LEDYARD CONNECTICUT SCALE: 1"=60' SHEET 1 OF 1 DATE: 03–04–2010 YANKEE FILE #E0048, BY CME ASSOCIATES, INC. ON FILE AS MAP #2629.



CME Associates, Inc.
CME
32 Crabtree Lane, Woodstock, CT 06281
55 Main Street, Suite 340 Norwich, CT 06360
333 East River Drive, East Hartford, CT 06108
50 Elm Street, Southbridge, MA 01550
Phone 888-291-3227
www.cmeengineering.com

PROPERTY AND TOPOGRAPHIC SURVEY
PREPARED FOR
STYRON LLC
"ALLYN'S POINT PLANT"
#1737 & 1761 MILITARY HIGHWAY – ROUTE 12, GALES FERRY
LEDYARD, CONNECTICUT

REVISIONS			
NO.	DATE	DESCRIPTION	BY

JOB DATA	
PROJECT	2010063.DGW
BOOK NO.	4173
DESIGNED	CB
DRAWN	RHS
CHECKED	
COGO FILE	2010063 CB 4-21-2010
FILE	2010063 BNDdwg

DATE: SEPT. 2, 2010
SCALE: 1" = 100'
PROJECT: #2010063

SHEET
1 OF 13

CURVE DATA TABLE				
CURVE	DELTA	RADIUS	LENGTH	CHORD
C1	01°40'06"	1372.69'	39.97'	S26°47'40"W 39.97'
C2	09°12'25"	1392.69'	223.79'	S32°13'30"W 223.55'
C3	08°58'01"	5680.15'	888.96'	N37°03'13"E 888.05'
C4	30°01'19"	489.65'	256.57'	S13°02'17"W 253.64'

LINE TABLE		
LINE	LENGTH	BEARING
L1	20.01'	S62°12'50"E
L2	29.38'	S04°59'07"W
L3	66.40'	S00°34'40"E
L4	19.01'	N17°55'36"E
L5	15.23'	N34°38'46"E
L6	78.87'	N28°09'31"E
L7	101.72'	S53°35'06"E
L8	85.28'	S33°34'13"W
L9	94.90'	N49°16'42"W

LEGEND
N/F NOW OR FORMERLY
30 EXISTING CONTOURS
STONE WALL
CHAIN LINK FENCE
LEDGE
LIGHT POLE
UTILITY POLE
MONUMENT NOT FOUND
BOUNDARY POINT

100 50 0 100
GRAPHIC SCALE IN FEET

DETAIL "B"
1"=30'

DETAIL "A"
1"=30'

NOTES

1.) THIS SURVEY HAS BEEN PREPARED PURSUANT TO THE REGULATIONS OF CONNECTICUT STATE AGENCIES SECTIONS 20–300b–1 THROUGH 20–300b–20 AND THE "STANDARDS FOR SURVEYS AND MAPS IN THE STATE OF CONNECTICUT" AS PREPARED AND ADOPTED BY THE CONNECTICUT ASSOCIATION OF LAND SURVEYORS, INC. ON SEPTEMBER 26, 1996.

THE TYPE OF SURVEY PERFORMED IS A PERIMETER AND TOPOGRAPHIC SURVEY CONFORMING TO THE STANDARDS OF ACCURACY FOR A HORIZONTAL CLASS A–2 AND IS A RESURVEY OF THE SUBJECT PROPERTY.

VERTICAL INFORMATION DEPICTED HEREON CONFORMS TO VERTICAL CLASS T–3 STANDARDS OF ACCURACY. CONTOURS, PHYSICAL FEATURES AND OTHER INFORMATION WAS DERIVED FROM AERIAL MAPPING DONE BY GOLDEN AERIAL SURVEYS, INC. MAPPING SCALE: 1"=40' PHOTO SCALE: 1"=500' PHOTO DATE: 04–27–2001

THIS SURVEY WAS PREPARED TO DEPICT THE BOUNDARY AND EXISTING CONDITIONS OF THE SUBJECT PROPERTY.

2.) THE SUBJECT PARCEL WAS CONVEYED TO STYRON LLC THROUGH A CONVEYANCE RECORDED IN VOLUME 474, PAGE 809 OF THE LEDYARD LAND RECORDS.

3.) SEE SHEET No.2 FOR A LIST OF EASEMENTS, RIGHTS OF WAY AND EXCEPTIONS.

4.) SEE SHEET 8 FOR ADDITIONAL CERTIFICATIONS AND LEGAL DESCRIPTION.

5.) THE SUBJECT PROPERTY IS SHOWN ON THE TOWN OF LEDYARD TAX ASSESSOR MAP No. 47, 61, 75 & 76 AS LOT 1761 OF BLOCK 2120

6.) TOTAL AREA OF PROPERTY = 158.201± ACRES (6,891,237.787± SQUARE FEET).

7.) SITE IS LOCATED IN ZONE I (INDUSTRIAL).

8.) VERTICAL INFORMATION IS REFERENCED TO NGVD 29.

9.) A PORTION OF THIS PROPERTY LIES WITHIN FLOOD ZONE A10–ELEVATION 12 AND ZONE B AS SHOWN ON FIRM, FLOOD INSURANCE RATE MAP TOWN OF LEDYARD, CONNECTICUT NEW LONDON COUNTY PANEL 15 OF 20 COMMUNITY–PANEL NUMBER 090157 0015 B EFFECTIVE DATE: APRIL 1, 1981

10.) UNDERGROUND UTILITY, STRUCTURE AND FACILITY LOCATIONS DEPICTED AND NOTED HEREON HAVE BEEN COMPILED, IN PART, FROM RECORD MAPPING SUPPLIED BY THE RESPECTIVE UTILITY COMPANIES OR GOVERNMENTAL AGENCIES, FROM PAROL TESTIMONY AND FROM OTHER SOURCES. THESE LOCATIONS MUST BE CONSIDERED AS APPROXIMATE IN NATURE. ADDITIONALLY, OTHER SUCH FEATURES MAY EXIST ON THE SITE. THE EXISTENCE OF WHICH ARE UNKNOWN TO CME ASSOCIATES, INC. THE SIZE, LOCATION AND EXISTENCE OF ALL SUCH FEATURES MUST BE FIELD DETERMINED AND VERIFIED BY THE APPROPRIATE AUTHORITIES PRIOR TO CONSTRUCTION. CALL BEFORE YOU DIG 1–800–922–4455.

TO MY KNOWLEDGE AND BELIEF, THIS MAP IS SUBSTANTIALLY CORRECT AS NOTED HEREON.

RICHARD H. PSTROUSE, L.S. #9679 — DATE 9/2/10

QUALITY CONTROL CERTIFICATION		
GROUP	REVIEWED	DATE
PROJECT MANAGER		
SURVEY		

CURVE DATA TABLE				
CURVE	DELTA	RADIUS	LENGTH	CHORD
C1	01°40'06"	1372.69'	39.97'	S26°47'40"W 39.97'
C2	09°12'25"	1392.69'	223.79'	S32°13'30"W 223.55'
C3	08°58'01"	5680.15'	888.96'	N37°03'13"E 888.05'
C4	30°01'19"	489.65'	256.57'	S13°02'17"W 253.64'

NOTE
THE MATHEMATICAL CLOSING LINE FROM POINT "A" TO POINT "B" IS NORTH 01°11'52" EAST 743.02 FEET

BENCHMARK USC&CTGS BM No.5 – 1917 ELEVATION=5.90 NGVD

EASEMENTS, RIGHT OF WAYS AND EXCEPTIONS

1.) ELECTRIC AND TELEPHONE EASEMENT IN FAVOR OF THE SHORE LINE ELECTRIC RAILWAY COMPANY DATED JULY 31, 1918 AND RECORDED IN VOLUME 12, PAGE 195 OF THE LEDYARD LAND RECORDS.

2.) DRAINAGE RIGHT IN FAVOR OF THE STATE OF CONNECTICUT SET FORTH IN A DEED TO THE STATE OF CONNECTICUT DATED MAY 1, 1947 AND RECORDED IN VOLUME 14, PAGE 588 OF THE LEDYARD LAND RECORDS.

3.) DRAINAGE RIGHT IN FAVOR OF THE STATE OF CONNECTICUT SET FORTH IN A DEED TO THE STATE OF CONNECTICUT DATED APRIL 22, 1947 AND RECORDED IN VOLUME 14, PAGE 592 OF THE LEDYARD LAND RECORDS.

4.) DRAINAGE RIGHT IN FAVOR OF THE STATE OF CONNECTICUT AS SET FOR THE IN A CERTIFICATE OF TAKING DATED APRIL 22, 1947 AND RECORDED IN VOLUME 18, PAGE 563 AND IN A DEED TO THE STATE OF CONNECTICUT DATED JUNE 8, 1949 AND RECORDED IN VOLUME 15, PAGE 287 OF THE LEDYARD LAND RECORDS.

5.) RIGHT TO DRAIN IN FAVOR OF THE STATE OF CONNECTICUT SET FORTH IN A DEED TO THE STATE OF CONNECTICUT DATED SEPTEMBER 4, 1947 AND RECORDED IN VOLUME 18, PAGE 625 OF THE LEDYARD LAND RECORDS.

6.) DRAINAGE EASEMENT IN FAVOR OF THE STATE OF CONNECTICUT DATED AUGUST 6, 1976 AND RECORDED IN VOLUME 103, PAGE 66 OF THE LEDYARD LAND RECORDS.

7.) EASEMENT IN FAVOR OF THE CONNECTICUT LIGHT AND POWER COMPANY DATED FEBRUARY 11, 1935 AND RECORDED IN VOLUME 16, PAGE 66 OF THE LEDYARD LAND RECORDS.

8.) EASEMENT IN FAVOR OF THE CONNECTICUT LIGHT & POWER COMPANY DATED JUNE 18, 1951 AND RECORDED IN VOLUME 21, PAGE 139 OF THE LEDYARD LAND RECORDS.

9.) NOTICE BY THE LEDYARD BOARD OF SELECTMEN OF THE INTENTION OF THE DOW CHEMICAL COMPANY TO ALLOW ACCESS OVER A PRIVATE COMPANY ROAD FROM ROUTE 12 TO THE CEMETERY AT ALLYN'S POINT AND CERTIFICATION BY THE BOARD DATED NOVEMBER 27, 1950 AND RECORDED IN VOLUME 20, PAGE 552 OF THE LEDYARD LAND RECORDS.

10.) COVENANT'S SET FORTH IN A DEED TO DOW CHEMICAL COMPANY DATED NOVEMBER 16, 1950 IN VOLUME 20 PAGE 568.

11.) SUBJECT TO RIPARIAN RIGHTS, AND ANY RIGHTS TO ALLYN'S COVE FROM THE THAMES RIVER THROUGH AND UNDER BRIDGE 6.13–A.

12.) POSSIBLE RIGHTS OF OTHERS IN AND TO A 15' OLD ROAD OR RIGHT OF WAY CROSSING A PORTION OF THE PREMISES AS SHOWN ON MAP REFERENCE No.5.

LEGEND

N/F	NOW OR FORMERLY
VOL	VOLUME
PG	PAGE
SF	SQUARE FEET
— 30 —	EXISTING CONTOURS
	STONE WALL
	RETAINING WALL
	CHAIN LINK FENCE
	TREELINE
	LEDGE
	LIGHT POLE
	MAN HOLE
	HYDRANT
	UTILITY POLE
	MONUMENT NOT FOUND
	BOUNDARY POINT

QUALITY CONTROL CERTIFICATION		
GROUP	REVIEWED	DATE
PROJECT MANAGER		
SURVEY		

LINE TABLE		
LINE	LENGTH	BEARING
L1	20.01'	S62°12'50"E
L2	29.38'	S04°59'07"W
L3	66.40'	S00°34'40"E
L4	19.01'	N17°55'36"E
L5	7.16'	N34°38'46"E

TO MY KNOWLEDGE AND BELIEF, THIS MAP IS SUBSTANTIALLY CORRECT AS NOTED HEREON.

RICHARD H. STROUSE, L.S. #9879 — DATE 9/2/10

GRAPHIC SCALE IN FEET: 100 50 0 100

CME Associates, Inc.
32 Crabtree Lane Woodstock, CT 06281
55 Main Street, Suite 340 Norwich, CT 06360
333 East River Drive, East Hartford, CT 06108
50 Elm Street, Southbridge, MA 01550
Phone 888-291-3227
www.cmeengineering.com

PROPERTY AND TOPOGRAPHIC SURVEY
PREPARED FOR
STYRON LLC
"ALLYN'S POINT PLANT"
#1737 & 1761 MILITARY HIGHWAY – ROUTE 12, GALES FERRY
LEDYARD, CONNECTICUT

REVISIONS			
NO.	DATE	DESCRIPTION	BY

JOB DATA	
PROJECT	2010063 DOW
BOOK NO.	4173
DESIGNED	
DRAWN	CB
CHECKED	RHS
COGO FILE	2010063 CB 4-21-2010
FILE	2010063 BND.dwg

DATE: SEPT. 2, 2010

SCALE: 1" = 100'

PROJECT: #2010063

SHEET 2 OF 13

PZC PERMIT # ___________ DATE OF APPROVAL __________	EXPIRATION DATE ___________
PZC CHAIRMAN OR SECRETARY	DATE
IWWC PERMIT # ___________ DATE OF APPROVAL ___________	
IWWC CHAIRMAN	DATE

REV.	DESCRIPTION OF REVISION	DATE	APPR.
1	RESPONSE TO INLAND WETLAND COMMISSION COMMENTS	06/06/2023	SRM

Loureiro
Engineering • Construction • EHS • Energy
Waste • Facility Services • Laboratory
Loureiro Engineering Associates, Inc.
100 Northwest Drive • Plainville, Connecticut 06062
Phone: 860-747-6181 • Fax: 860-747-8822
An Employee Owned Company • www.Loureiro.com

SCALE 1"=120'
COMM. NO. 045JC2.06
DRAWN BY ESF DATE 04/03/2023
APPROVED BY SRM DATE 04/03/2023

INDUSTRIAL SITE PREPARATION PLAN: EXISTING CONDITIONS PLAN

GALES FERRY INTERMODAL
1737 & 1761 ROUTE 12, GALES FERRY, CT 06335
PREPARED FOR:
GALES FERRY INTERMODAL LLC
549 SOUTH STREET, QUINCY, MA 02169

DRAWING C-2
SHEET NO. 3 NO. OF SHEETS 15

WATER QUALITY BASIN (TYP OF 4)

ON-SITE TRUCK ROUTING FROM WORK AREA

100' INLAND WETLAND UPLAND REVIEW AREA

TRAFFIC ROUTING
ON-SITE, ACCESS TO
PIER AND ROUTE 12

ON-SITE TRUCK ROUTING

GRASS LINED SWALE (TYP)

INLET

GATED ENTRANCE

SITE ENTRANCE

100' INLAND WETLAND UPLAND REVIEW AREA

THAMES RIVER

MILITARY HIGHWAY

ANDERSON DRIVE

PZC PERMIT # _____ DATE OF APPROVAL _____ EXPIRATION DATE _____

PZC CHAIRMAN OR SECRETARY — DATE

IWWC PERMIT #_____ DATE OF APPROVAL _____

IWWC CHAIRMAN — DATE

60 0 60 120 180
SCALE IN FEET

REV.	DESCRIPTION OF REVISION	DATE	SRM APPR.
1	RESPONSE TO INLAND WETLAND COMMISSION COMMENTS	06/06/2023	

STATE OF CONNECTICUT
GEORGE F. ANDERSON
No. 18281
LICENSED PROFESSIONAL ENGINEER

Loureiro Engineering Associates, Inc.
100 Northfield Drive • Windsor, CT 06095
Phone: 860-747-6181 • Fax: 860-747-8822
An Employee Owned Company • www.Loureiro.com
©Loureiro Engineering Associates, Inc.

SCALE 1" = 120'
COMP. NO. 0453C2.06
DRAWN BY ESF
DATE 04/03/2023
APPROVED BY SRM
DATE 04/03/2023

INDUSTRIAL SITE PREPARATION PLAN:
OVERALL SITE PLAN

GALES FERRY INTERMODAL
1737 & 1761 ROUTE 12, GALES FERRY, CT 06335
PREPARED FOR:
GALES FERRY INTERMODAL LLC
549 SOUTH STREET, QUINCY, MA 02169

DRAWING
C-3

SHEET NO. 4 NO. OF SHEETS 15

NATURAL DIVERSITY DATA BASE AREA, LEDYARD, CT, DECEMBER 2022 BY CT DEEP

CHAPMAN LANE

EBB

THAMES RIVER

FLOOD 1

100' INLAND WETLAND UPLAND REVIEW AREA

TORW 40.0

NEW 6' CHAIN LINK FENCE

NEW FLARED END SECTION AND PLUNGE POOL

NEW ±200 LF 36" TYPE V CONCRETE PIPE S=±1.5%

MONITORING WELL (TYP)

WATER QUALITY BASIN

TORW 50.0

GRADING FOR TRANSITION OF OVERBURDEN

GRASS DRAINAGE SWALE

INLET

WETLANDS (TYP)

TORW 200.0

GRASS DRAINAGE SWALE

TORW 77.0

WATER QUALITY BASIN

100' INLAND WETLAND UPLAND REVIEW AREA

INLET

SENTRY/GUARD POST

TORW 256.0

FORT DECATUR

GRASS DRAINAGE SWALE

GRADING FOR TRANSITION OF OVERBURDEN

GRASS DRAINAGE SWALE

60" MAPLE

6' CHAIN LINK FENCE

TORW 149.0

TORW 151.0

TOW 68.0

TORW 69.0

AOC-S33

AOC-S1

AOC-S13

AOC-S11

AOC-S20

AOC-S8

AOC-S7

AOC-S14

AOC-S39

AOC-S42

AOC-2

AOC-19

AOC-9 & AOC-18

AOC-6

AOC-21

AOC-4

AOC-3

AOC-1

AOC-8

AOC-12

AOC-16

AOC-S2

AOC-S37

BLDG 28 FOUNDATION

BLDG 25 FOUNDATION

BUILDING 24 FOUNDATION

BLDG 31

BLDG 38

BLDG 34

BLDG 32A

BLDG 32

TRAIN OFFLOAD AND LOADING

NATURAL DIVERSITY DATA BASE AREA, LEDYARD, CT, DECEMBER 2022 BY CT DEEP

SEDIMEN

SCALE IN FEET

REV.	DESCRIPTION OF REVISION	DATE	APPR.
1	RESPONSE TO INLAND WETLAND COMMISSION COMMENTS	06/06/2023	SRM

STATE OF CONNECTICUT — GEORGE F. ANDRONACO — No. 19281 — LICENSED PROFESSIONAL ENGINEER

Loureiro Engineering Associates, Inc.
100 Northwest Drive, Plainville, Connecticut 06062
Phone: 860-747-6181 • Fax: 860-747-8822
An Employee Owned Company • www.Loureiro.com

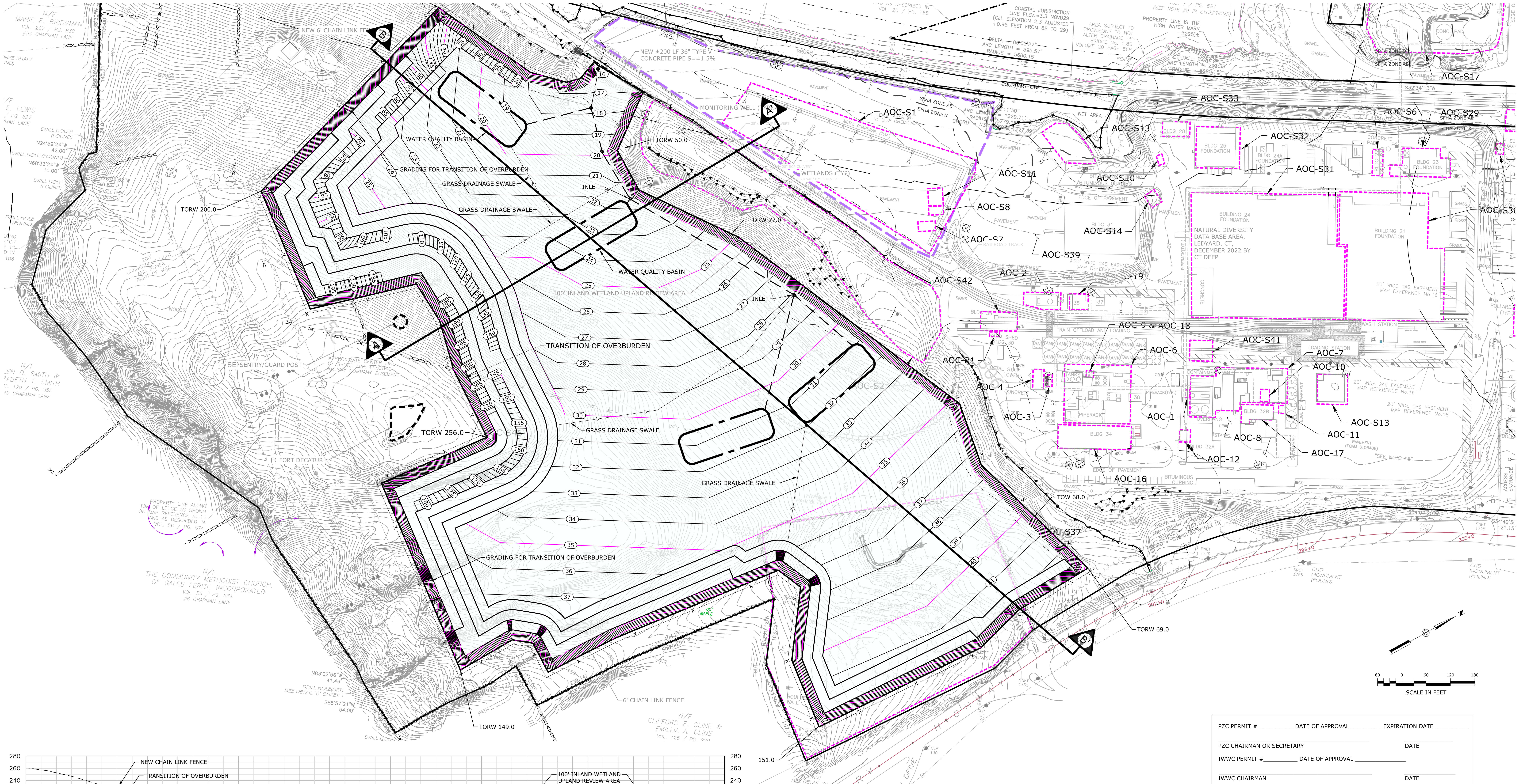
SCALE 1"=100'
CERM. NO. 0459.C2.06
DRAWN BY ESF
DATE 04/03/2023
APPROVED BY SRM
DATE 04/03/2023

INDUSTRIAL SITE PREPARATION PLAN:
GRADING AND DRAINAGE PLAN

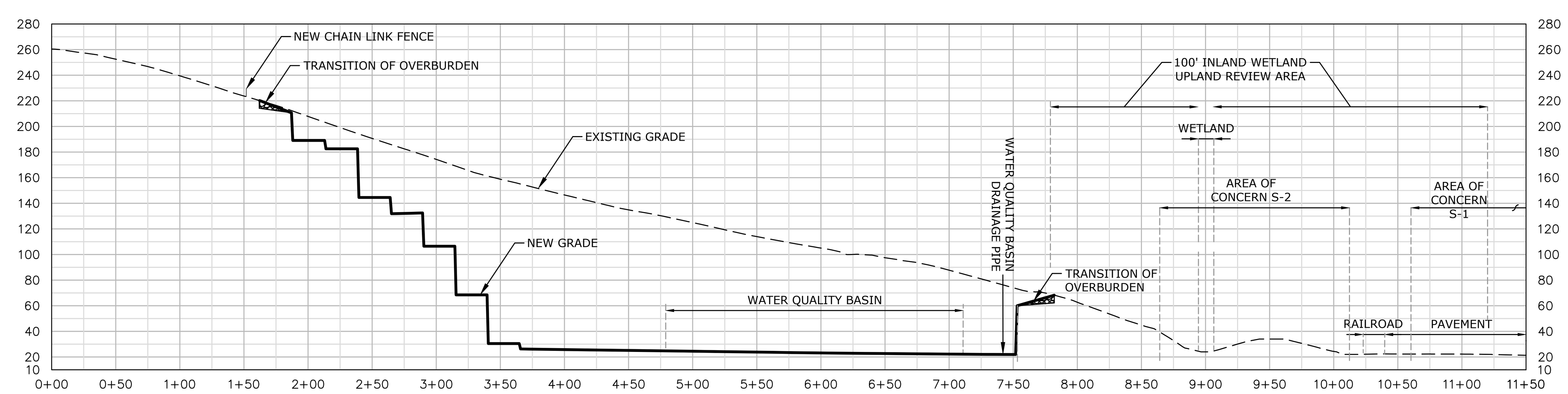
GALES FERRY INTERMODAL
1737 & 1761 ROUTE 12, GALES FERRY, CT 06335
PREPARED FOR:
GALES FERRY INTERMODAL LLC
349 SOUTH STREET, QUINCY, MA 02169

DRAWING
C-4

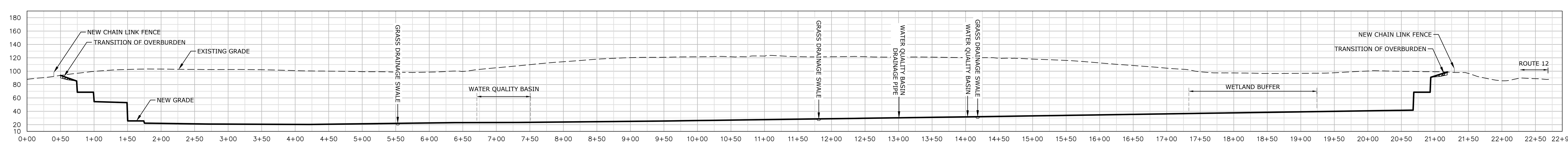
SHEET NO. 5 NO. OF SHEETS 15



PLAN VIEW
SCALE: 1"=120'



CROSS SECTION A-A'
SCALE: 1"=80' H&V



CROSS SECTION B-B'
SCALE: 1"=80' H&V

PZC PERMIT # ___________ DATE OF APPROVAL __________ EXPIRATION DATE ___________

PZC CHAIRMAN OR SECRETARY ________ DATE ________

IWWC PERMIT #___________ DATE OF APPROVAL _________________

IWWC CHAIRMAN ________ DATE ________

REV.	DESCRIPTION OF REVISION	DATE	APPR.
1	RESPONSE TO INLAND WETLAND COMMISSION COMMENTS	06/06/2023	SRM

STAMP: STATE OF CONNECTICUT GEORGE F. ANDREWS JR. No 19286 LICENSED PROFESSIONAL ENGINEER

Loureiro
Engineering • Construction • EH&S • Energy
Waste • Facility Services • Laboratory
Loureiro Engineering Associates, Inc.
100 Northwest Drive • Plainville, Connecticut 06062
Phone: 860-747-6181 • Fax: 860-747-8822
An Employee Owned Company • www.Loureiro.com

SCALE: AS NOTED
COMM. NO. 045JC2.06
DRAWN BY: ESF DATE: 04/03/2023
APPROVED BY: SRM DATE: 04/03/2023

INDUSTRIAL SITE PREPARATION PLAN: CROSS SECTIONS

GALES FERRY INTERMODAL
1737 & 1761 ROUTE 12, GALES FERRY, CT 06335

PREPARED FOR:

GALES FERRY INTERMODAL LLC
549 SOUTH STREET, QUINCY, MA 02169

DRAWING: XS-1
SHEET NO. 6 NO. OF SHEETS 15

\\FILE01\PROJECTS2\CT\GALES FERRY\ROUTE 12-1761\045JC206 LOCAL PERMIT FOR ROCK GRADING\DWGS\CIVIL\CROSS SECTIONS.DWG Tab: CROSS SECTIONS Saved: 6/6/2023 2:51 PM by ESFARMER Plotted: 6/6/2023 3:18 PM

TEMPORARY DOUBLE 18" MULCH SOCK AT DOWNSTREAM SIDE OF PLUNGE POOL
TEMPORARY WATER TANK / FILTER (FRACTIONALIZATION TANK), DRAINS TO WEIR TANK
TEMPORARY SETTLEMENT/WEIR TANK, DRAINS TO WETLAND
RAIL ROAD CROSSING AND SEDIMENT TRACKING PROTECTION
CONSTRUCTION ENTRANCE SLOPED TO DRAIN
TEMPORARY PUMP MANHOLE, PUMPS TO FRAC TANK
TEMPORARY DOUBLE 18" MULCH SOCK
TEMPORARY MATERIAL PROCESSING AREA AND TEMPORARY STOCKPILING
TEMPORARY OVERBURDEN STOCKPILE
TEMPORARY DOUBLE 18" MULCH SOCK
INLET PROTECTION (TYP)

THAMES RIVER
CHAPMAN LANE
EBB
FLOOD
WET AREA
24" HDPE @ 1.5% SLOPE
60" MAPLE

PHASE 1
~9.7 ACRES

PHASE 2
~9.7 ACRES

PHASE 3
~10.0 ACRES

PHASE 4
~10.0 ACRES

PZC PERMIT # _____ DATE OF APPROVAL _____ EXPIRATION DATE _____

PZC CHAIRMAN OR SECRETARY — DATE

IWWC PERMIT # _____ DATE OF APPROVAL _____

IWWC CHAIRMAN — DATE

50 0 50 100 150
SCALE IN FEET

REV.	DESCRIPTION OF REVISION	DATE	APPR.
1	RESPONSE TO INLAND WETLAND COMMISSION COMMENTS	06/06/2023	SRM

STATE OF CONNECTICUT
GEORGE F. ANDREWS
No. 11281
LICENSED PROFESSIONAL ENGINEER

Loureiro Engineering Associates, Inc.
100 Northfield Street, Greenwich, CT 06830
Phone: 860-747-6181 • Fax: 860-747-8822
An Employee Owned Company • www.Loureiro.com

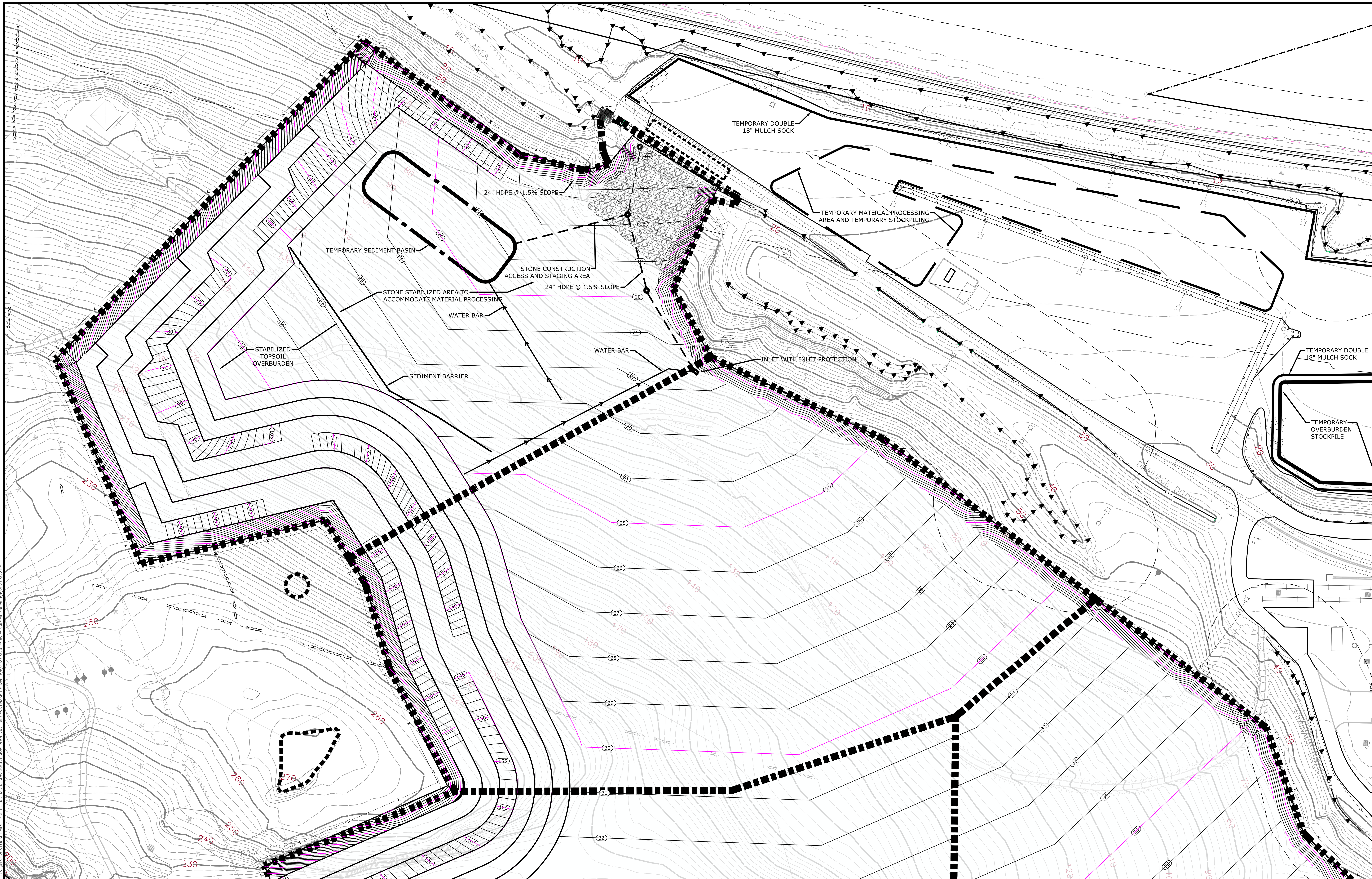
SCALE: 1"=100'
COMM. NO.: 04502.06
DRAWN BY: ESF
DATE: 04/03/2023
APPROVED BY: SRM
DATE: 04/03/2023

INDUSTRIAL SITE PREPARATION PLAN:
SOIL EROSION & SEDIMENT CONTROL - OVERALL PHASING

GALES FERRY INTERMODAL
1737 & 1761 ROUTE 12, GALES FERRY, CT 06335
PREPARED FOR:
GALES FERRY INTERMODAL LLC
349 SOUTH STREET, QUINCY, MA 02169

DRAWING
C-5

SHEET NO. 7 NO. OF SHEETS 15



PZC PERMIT # ____________ DATE OF APPROVAL __________ EXPIRATION DATE ____________

PZC CHAIRMAN OR SECRETARY DATE

IWWC PERMIT # ____________ DATE OF APPROVAL ________________

IWWC CHAIRMAN DATE

REV.	DESCRIPTION OF REVISION	DATE	APPR.
1	RESPONSE TO INLAND WETLAND COMMISSION COMMENTS	06/06/2023	SRM

STATE OF CONNECTICUT GEORGE F. ANDREWS JR. No. 19286 LICENSED PROFESSIONAL ENGINEER

Loureiro
Engineering • Construction • EH&S • Energy
Waste • Facility Services • Laboratory
Loureiro Engineering Associates, Inc.
100 Northwest Drive • Plainville, Connecticut 06062
Phone: 860-747-6181 • Fax: 860-747-8822
An Employee Owned Company • www.Loureiro.com

SCALE	COMM. NO.	DRAWN BY	DATE	APPROVED BY	DATE
1"=60'	045IC2.06	ESF	04/03/2023	SRM	04/03/2023

INDUSTRIAL SITE PREPARATION PLAN:
SOIL EROSION & SEDIMENT CONTROL - PHASE 1

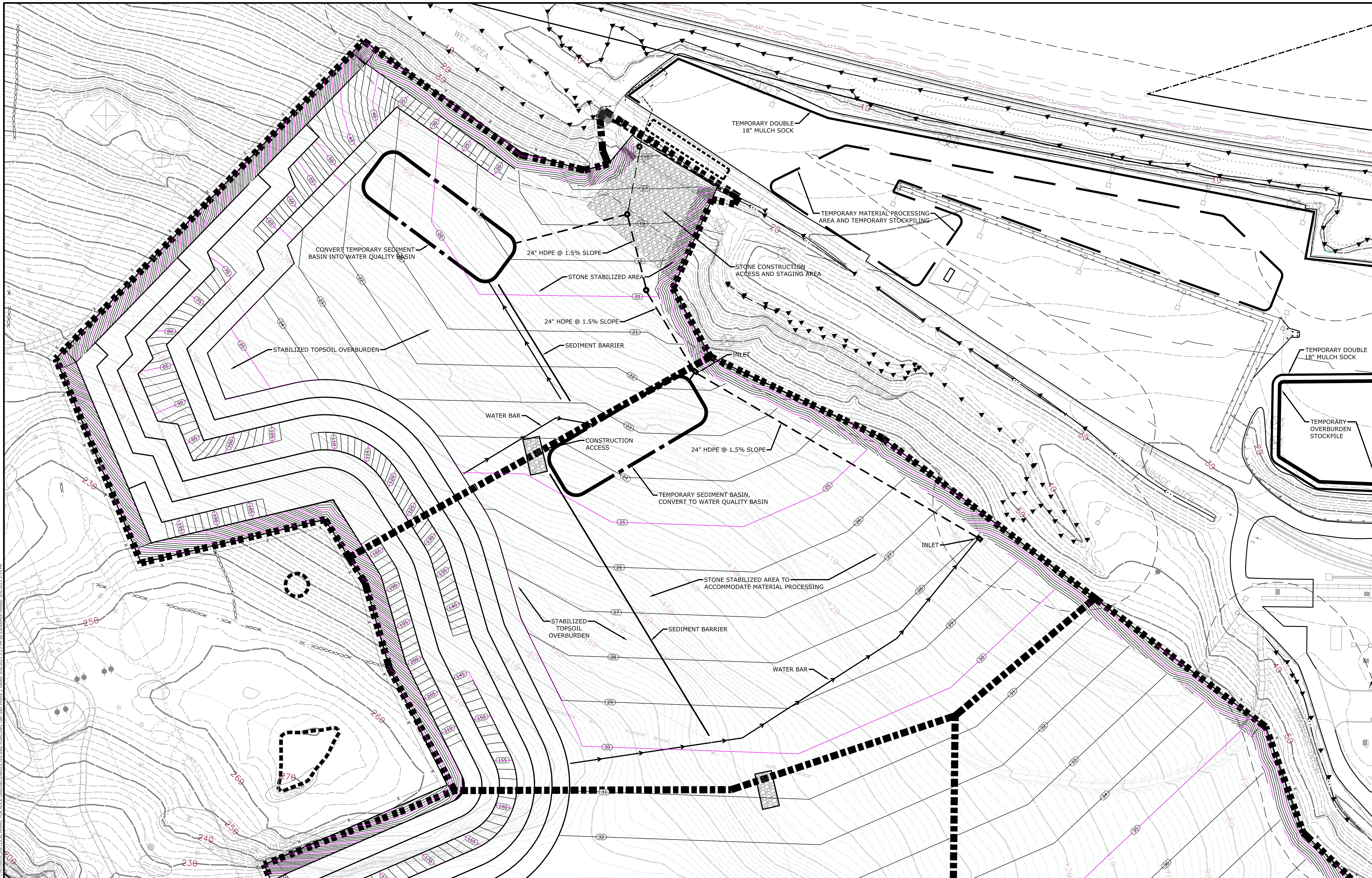
GALES FERRY INTERMODAL
1737 & 1761 ROUTE 12, GALES FERRY, CT 06335

PREPARED FOR:

GALES FERRY INTERMODAL LLC
549 SOUTH STREET, QUINCY, MA 02169

DRAWING C-6

SHEET NO. 8 NO. OF SHEETS 15



PZC PERMIT # ___________	DATE OF APPROVAL __________	EXPIRATION DATE __________	
PZC CHAIRMAN OR SECRETARY		DATE	
IWWC PERMIT # ___________	DATE OF APPROVAL __________		
IWWC CHAIRMAN		DATE	

30 0 30 60 90

SCALE IN FEET

REV.	DESCRIPTION OF REVISION	DATE	APPR.
1	RESPONSE TO INLAND WETLAND COMMISSION COMMENTS	06/06/2023	SRM

STAMP

Loureiro

Engineering • Construction • EH&S • Energy
Waste • Facility Services • Laboratory

Loureiro Engineering Associates, Inc.
100 Northwest Drive • Plainville, Connecticut 06062
Phone: 860-747-6181 • Fax: 860-747-8822
An Employee Owned Company • www.Loureiro.com

SCALE	COMM. NO.	DRAWN BY	DATE	APPROVED BY	DATE
1"=60'	045JC2.06	ESF	04/03/2023	SRM	04/03/2023

INDUSTRIAL SITE PREPARATION PLAN: SOIL EROSION & SEDIMENT CONTROL - PHASE 2

GALES FERRY INTERMODAL
1737 & 1761 ROUTE 12, GALES FERRY, CT 06335

PREPARED FOR:
GALES FERRY INTERMODAL LLC
549 SOUTH STREET, QUINCY, MA 02169

DRAWING
C-7

SHEET NO. 9 NO. OF SHEETS 15

WATER BAR
CONVERT TEMPORARY SEDIMENT BASIN INTO WATER QUALITY BASIN
24" HDPE @ 1.5%SLOPE
INLET
STONE STABILIZED AREA TO ACCOMMODATE MATERIAL PROCESSING
STABILIZED TOPSOIL OVERBURDEN
SEDIMENT BARRIER
TEMPORARY OVERBURDEN STOCKPILE
DRAINAGE DITCH
24" HDPE @ 1.5%SLOPE
CONSTRUCTION ACCESS
WATER BAR
TEMPORARY SEDIMENT BASIN
CONSTRUCTION ACCESS
STABILIZED TOPSOIL OVERBURDEN
ROCK OUTCROP
60" MAPLE
CONSTRUCTION ACCESS

PZC PERMIT # _____ DATE OF APPROVAL _____ EXPIRATION DATE _____

PZC CHAIRMAN OR SECRETARY _____ DATE _____

IWWC PERMIT #_____ DATE OF APPROVAL _____

IWWC CHAIRMAN _____ DATE _____

30 0 30 60 90
SCALE IN FEET

REV.	DESCRIPTION OF REVISION	DATE	APPR.
1	RESPONSE TO INLAND WETLAND COMMISSION COMMENTS	06/06/2023	SRM

STATE OF CONNECTICUT
GEORGE F. ANDRUSKIEVICH
No. 18284
LICENSED PROFESSIONAL ENGINEER

Loureiro Engineering Associates, Inc.
Geotechnical • Civil • Coastal • Environmental
Water • Facility Services • Laboratory
100 Northwest Drive, Plainville, Connecticut 06062
Phone: 860-747-6181 • Fax: 860-747-8822
An Employee Owned Company • www.Loureiro.com

SCALE: 1"=60'
COMM. NO.: 04502.06
DRAWN BY: ESF
DATE: 04/03/2023
APPROVED BY: SRM
DATE: 04/03/2023

INDUSTRIAL SITE PREPARATION PLAN:
SOIL EROSION & SEDIMENT CONTROL - PHASE 3

PREPARED FOR:
GALES FERRY INTERMODAL
1737 & 1761 ROUTE 12, GALES FERRY, CT 06335
GALES FERRY INTERMODAL LLC
349 SOUTH STREET, QUINCY, MA 02169

DRAWING
C-8

SHEET NO. 10 NO. OF SHEETS 15

WATER BAR
WATER QUALITY BASIN
INLET
24" HDPE @ 1.5% SLOPE
24" HDPE @ 1.5%SLOPE
TEMPORARY OVERBURDEN STOCKPILE
DRAINAGE DITCH
TEMPORARY SEDIMENT BASIN, CONVERT TO WATER QUALITY BASIN
WATER BAR
WATER QUALITY BASIN
WATER BAR
STABILIZED TOPSOIL OVERBURDEN
STABILIZED TOPSOIL OVERBURDEN
ROCK OUTCROP
60" MAPLE
DRAINAGE DITCH
OUTLET
ACCESS

PZC PERMIT # _____ DATE OF APPROVAL _____ EXPIRATION DATE _____

PZC CHAIRMAN OR SECRETARY DATE

IWWC PERMIT #_____ DATE OF APPROVAL _____

IWWC CHAIRMAN DATE

30 0 30 60 90
SCALE IN FEET

REV.	DESCRIPTION OF REVISION	DATE	APPR.
1	RESPONSE TO INLAND WETLAND COMMISSION COMMENTS	06/06/2023	SRM

STATE OF CONNECTICUT
GEORGE F. ANDRUSKIEVICH
No. 18284
LICENSED PROFESSIONAL ENGINEER

Loureiro
Engineering Associates
Geotechnical • Civil • Coastal • Environmental
Water • Facility Services • Laboratory
Loureiro Engineering Associates, Inc.
100 Northwest Drive, Plainville, Connecticut 06062
Phone: 860-747-6181 • Fax: 860-747-8822
An Employee Owned Company • www.Loureiro.com

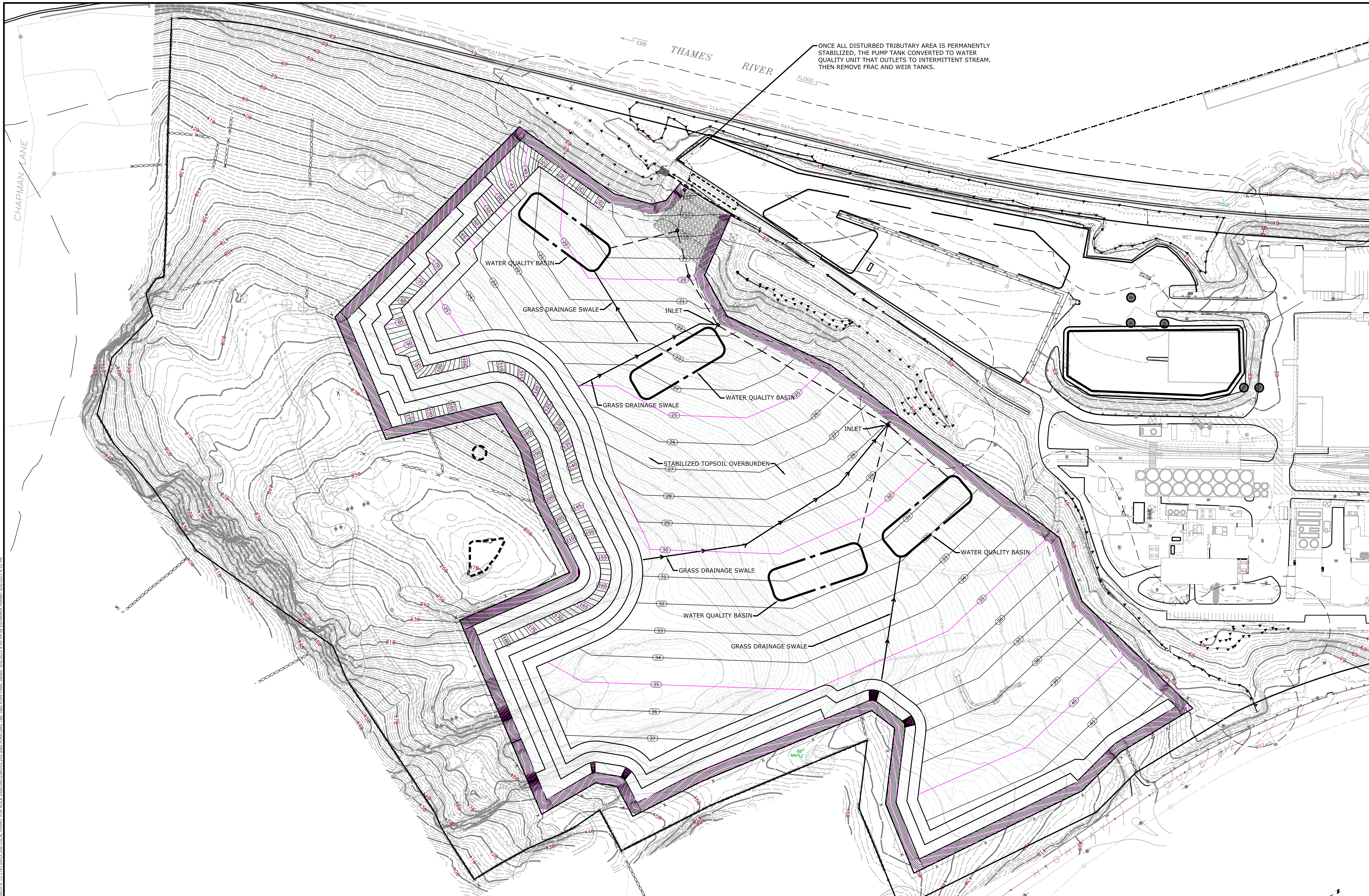
SCALE 1"=60'
COMM. NO. 04502.06
DRAWN BY ESF DATE 04/03/2023
APPROVED BY SRM DATE 04/03/2023

INDUSTRIAL SITE PREPARATION PLAN:
SOIL EROSION & SEDIMENT CONTROL - PHASE 4

GALES FERRY INTERMODAL
1737 & 1761 ROUTE 12, GALES FERRY, CT 06335
PREPARED FOR:
GALES FERRY INTERMODAL LLC
349 SOUTH STREET, QUINCY, MA 02169

DRAWING
C-9

SHEET NO. 11 NO. OF SHEETS 15



PZC PERMIT # ___________ DATE OF APPROVAL __________ EXPIRATION DATE ___________

PZC CHAIRMAN OR SECRETARY ________ DATE ________

IWWC PERMIT #___________ DATE OF APPROVAL _____________

IWWC CHAIRMAN ________ DATE ________

REV.	DESCRIPTION OF REVISION	DATE	APPR.
1	RESPONSE TO INLAND WETLAND COMMISSION COMMENTS	06/06/2023	SRM

STAMP: STATE OF CONNECTICUT · GEORGE F. ANDREWS JR. · No 19286 · LICENSED PROFESSIONAL ENGINEER

Loureiro
Engineering • Construction • EH&S • Energy
Waste • Facility Services • Laboratory
Loureiro Engineering Associates, Inc.
100 Northwest Drive • Plainville, Connecticut 06062
Phone: 860-747-6181 • Fax: 860-747-8822
An Employee Owned Company • www.Loureiro.com

SCALE	1"=100'
COMM. NO.	045JC2.06
DRAWN BY	ESF
DATE	04/03/2023
APPROVED BY	SRM
DATE	04/03/2023

INDUSTRIAL SITE PREPARATION PLAN:

SOIL EROSION & SEDIMENT CONTROL - FINAL

GALES FERRY INTERMODAL

1737 & 1761 ROUTE 12, GALES FERRY, CT 06335

PREPARED FOR:

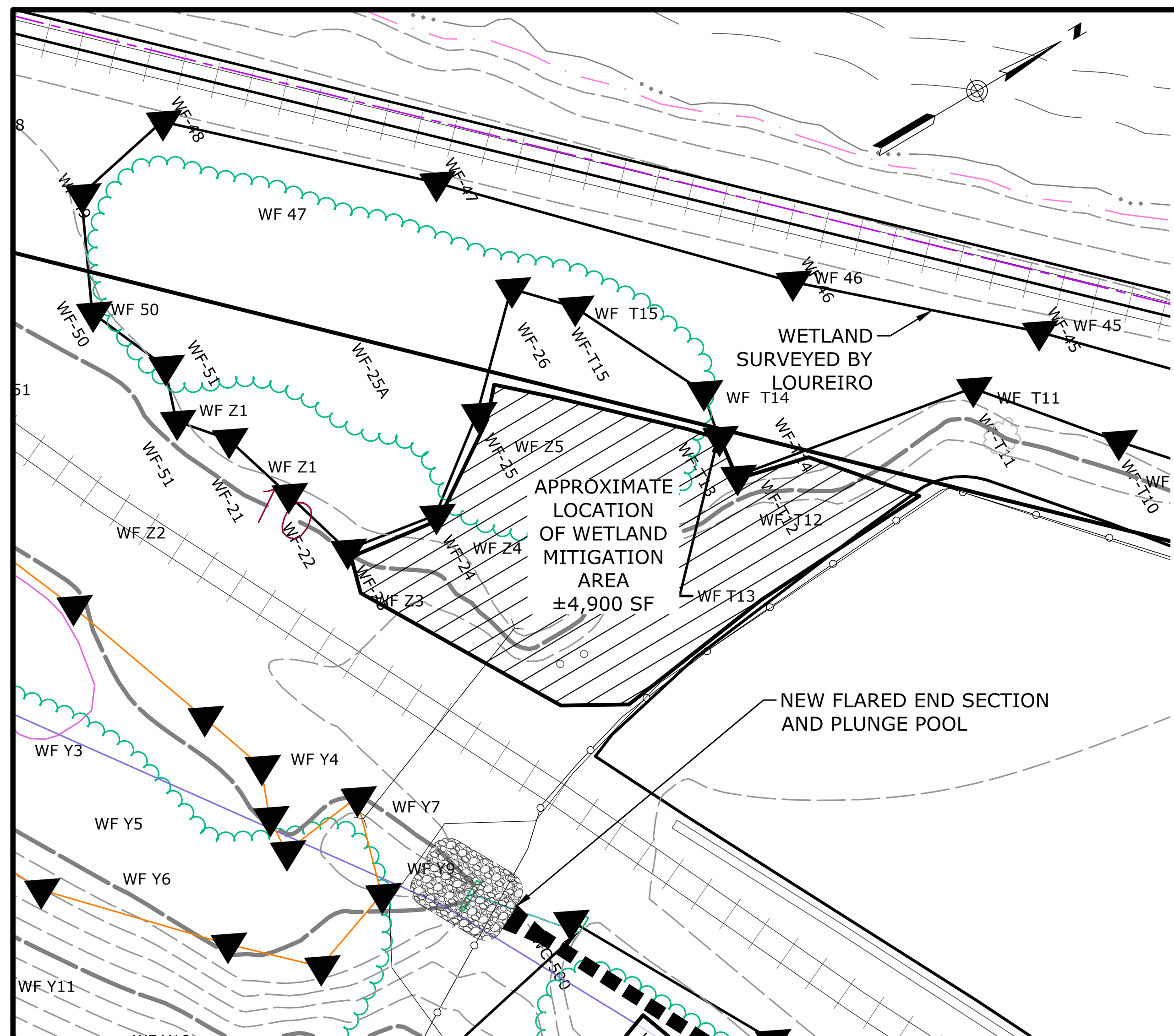
GALES FERRY INTERMODAL LLC

549 SOUTH STREET, QUINCY, MA 02169

DRAWING

C-10

SHEET NO. 12 NO. OF SHEETS 15



15 0 15 30 45
SCALE IN FEET

New England Conservation/Wildlife Mix

Botanical Name	Common Name	Indicator
Elymus virginicus	Virginia Wild Rye	FACW-
Schizachyrium scoparium	Little Bluestem	FACU
Andropogon gerardii	Big Bluestem	FAC
Festuca rubra	Red Fescue	FACU
Sorghastrum nutans	Indian Grass	UPL
Panicum virgatum	Switch Grass	FAC
Chamaecrista fasciculata	Partridge Pea	FACU
Desmodium canadense	Showy Tick Trefoil	FAC
Asclepias tuberosa	Butterfly Milkweed	NI
Bidens frondosa	Beggar Ticks	FACW
Eupatorium purpureum (Eutrochium maculatum)	Purple Joe Pye Weed	FAC
Rudbeckia hirta	Black Eyed Susan	FACU-
Aster pilosus (Symphyotrichum pilosum)	Heath (or Hairy) Aster	UPL
Solidago juncea	Early Goldenrod	

PRICE PER LB. $39.50 MIN. QUANITY 2 LBS. **TOTAL:** $79.00 APPLY: 25 LBS/ACRE :1750 sq ft/lb

The New England Conservation/Wildlife Mix provides a permanent cover of grasses, wildflowers, and legumes For both good erosion control and wildlife habitat value. The mix is designed to be a no maintenance seeding, and is appropriate for cut and fill slopes, detention basin side slopes, and disturbed areas adjacent to commercial and residential projects.

New England Wetland Plants, Inc. may modify seed mixes at any time depending upon seed availability. The design criteria and ecological function of the mix will remain unchanged. Price is $/bulk pound, FOB warehouse, Plus SH and applicable taxes.

New England Wetmix (Wetland Seed Mix)

Botanical Name	Common Name	Indicator
Carex vulpinoidea	Fox Sedge	OBL
Carex scoparia	Blunt Broom Sedge	FACW
Carex lurida	Lurid Sedge	OBL
Carex lupulina	Hop Sedge	OBL
Poa palustris	Fowl Bluegrass	FACW
Bidens frondosa	Beggar Ticks	FACW
Scirpus atrovirens	Green Bulrush	OBL
Asclepias incarnata	Swamp Milkweed	OBL
Carex crinita	Fringed Sedge	OBL
Vernonia noveboracensis	New York Ironweed	FACW+
Juncus effusus	Soft Rush	FACW+
Aster lateriflorus (Symphyotrichum lateriflorum)	Starved/Calico Aster	FACW
Iris versicolor	Blue Flag	OBL
Glyceria grandis	American Mannagrass	OBL
Mimulus ringens	Square Stemmed Monkey Flower	OBL
Eupatorium maculatum (Eutrochium maculatum)	Spotted Joe Pye Weed	OBL

PRICE PER LB. $135.00 MIN. QUANITY 1 LBS. **TOTAL:** $135.00 APPLY: 18 LBS/ACRE :2500 sq ft/lb

The New England Wetmix (Wetland Seed Mix) contains a wide variety of native seeds that are suitable for most wetland restoration sites that are not permanently flooded. All species are best suited to moist ground as found in most wet meadows, scrub shrub, or forested wetland restoration areas. The mix is well suited for detention basin borders and the bottom of detention basins not generally under standing water. The seeds will not germinate under inundated conditions. If planted during the fall months the seed mix will germinate the following spring. During the first season of growth several species will produce seeds while other species will produce seeds after the second growing season. Not all species will grow in all wetland situations. This mix is comprised of the wetland species most likely to grow in created/restored wetlands and should produce more than 75% ground cover in two full growing seasons.

The wetland seeds in this mix can be sown by hand, with a hand-held spreader, or hydro-seeded on large or hard to reach sites. Lightly rake to insure good seed-to-soil contact. Seeding can take place on frozen soil, as the freezing and thawing weather of late fall and late winter will work the seed into the soil. If spring conditions are drier than usual watering may be required. If sowing during the summer months supplemental watering will likely be required until germination. A light mulch of clean, weed free straw is recommended.

New England Wetland Plants, Inc. may modify seed mixes at any time depending upon seed availability. The design criteria and ecological function of the mix will remain unchanged. Price is $/bulk pound, FOB warehouse, Plus SH and applicable taxes.

Table 3. Herbs

Hydrologic Zones: Zone A: Saturated/Shallow inundation; **Zone B**: seasonally saturated, moist
Zone C: moderately well drained, usually moist; **Zone D:** well-drained

Scientific Name	Zone	Common Name	Form	NWI*	Spacing	Wetland Creation Area	TotalS
Asclepias incarnata	A,B	Swamp milkweed	2"plug	OBL	2'OC	50	50
Carex lupulina	B	Hop sedge	2" plug	FACW	2'OC	100	100
Eutrochium purpureum	B	Purple Joe Pye weed	2" plug	FAC	3'OC	50	50
Juncus canadensis	A,B	Canada rush	2" plug	OBL	2'OC	50	50
Mimulus ringens	B	Monkey-flower	2" plug	OBL	2'OC	50	50
Monarda fistulosa	C	Wild bergamot	2" plug	UPL	3'OC	50	50
Panicum virgatum	C	Switchgrass	2" plug	FAC	3'OC	100	100
Onoclea sensibilis	B	Sensitive fern	6" pot	FAC	2'OC	20	20
Verbena hastata	B	Blue vervain	2" plug	FACW	3'OC	50	50
Vernonia noveborecensis	B	New York Ironweed	2" plug	FACW	3'OC	50	50
Zizia aurea	B	Golden alexanders	2" plug	FAC	3'OC	50	50
Total:						620	620

* *NWI Status (National Wetland Inventory; National Wetland Plant List: Northcentral & Northeast)*

NOTES:
1. Plant between May 15 and June 30 for herbaceous species. July planting will need watering through end of August.
2. Purchased woody material may be installed either in the spring (April 15 to June 15), or in the fall (August 15 to October15)
3. Plant in same species groupings of three to six shrubs, ten to twenty for herbs
4. Use seed mixes from New England Wetland Plants, Inc., South Hadley, MA (see Table 4), at specified seeding rate.
5. No seeding or plants in 3' diameter circle around each shrub and tree,1' around plugs; mulch with shredded bark
6. Water and weed as needed during first growing season.

Table 1. Trees

Hydrologic Zones: Zone A: Saturated/Shallow inundation; **Zone B**: seasonally saturated, moist
Zone C: moderately well drained, usually moist; **Zone D**: well-drained

Scientific Name	Zone	Common Name	Size	Shade tolerant?	NWI*	Form	Wetland Creation Area	TotalS
FULL SIZE TREES								
Nyssa sylvatica	B,C	Black gum	4'-6'	Y	FAC	nursery pot	1	1
Quercus palustris	B,C	Pin Oak	4'-6'	Y	FACW	nursery pot	2	2
Acer rubrum	D	Red maple	4'-6'	Y	FACU-	nursery pot	2	2
Total:							5	5
SMALL TREES/LARGE SHRUBS								
Amelanchier canadensis	C,D	Shadblow	3'-4'	Y/N	FAC	nursery pot	2	2
Salix discolor	B,C	Pussy willow	3'-4'	N	FACW	nursery pot	4	4
Juniperus virginiana	C,D	Red cedar	3'-4'	Y	UPL	nursery pot	8	8
Total:							14	14

Table 2. Shrubs

Scientific Name	Zone	Common Name	Size	Shade tolerant?	NWI*	Form		Totals
MEDIUM TO LOW SHRUBS								
Aronia arbutifolia	B,C	Chokeberry	3'-4'	N	FACW	pot	6	6
Clethra alnifolia	B,C	Sweet pepperbush	3'-4'	Y	FAC+	pot	6	6
Corylus americana	C,D	American hazelnut	3'-4'	Y	FACU-	pot	6	6
Ilex verticillata	B,C	Winterberry	3'-4'	Y	FACW+	pot	8	8
Lyonia ligustrina	B,C	Maleberry	3'-4'	Y/N	FACW	pot	8	8
Morella pensylvanica	C,D	Bayberry	3'-4'	N	FAC	pot	8	8
Vaccinium corymbosum	B	Highbush blueberry	3'-4'	Y	FACW	pot	10	10
Viburnum lentago	B,C	Nannyberry	3'-4'	Y	FAC	pot	10	10
Spiraea latifolia	B,C	Meadowsweet	3'-4'	N	FAC+	pot	30	30
Swida racemosa	B,C	Gray dogwood	3'-4'	Y	FAC	pot	15	15
Rosa palustris	A	Swamp rose	3'-4'	Y	OBL	pot	5	5
Total:							112	112

Table 4: Seed Mixes for Wetland Mitigation Area

COMMENTS:
See notes accompanying each seed mix for additional guidance pertaining to the season that seed mix is applied. Implementation notes also include a section on seeding.

		Total (lbs per seed mix)
NEWP Seed Mix #1	***Wetland Creation Area***	
New England Wetmix	*(in seasonally saturated to moist areas)*	3
1 lb/2,500 sf		
NEWP Seed Mix #2	***Wetland Creation Area** (moist edges)*	
New England Conservation/Wildlife Mix	*(also on 3:1 slopes above wetland)*	2
1 lb/1,750 sf		
	TOTAL:	5

Notes:
1. Mix 1:1 with filler (coarse sand, kitty litter) to help correctly divide seed packages and for even spreading.
2. Mixes contain seeds with a range of hydrologic tolerances, so different species will thrive in different areas.
3. Plants will set seed and spread further, increasing in density, becoming concnetrated in most suitable areas.
4. Mulch (do not seed) areas under and around plug & shrub clusters, to exclude weeds and hold moisture. (Coverage specified assumes area occupied by mulched woody plantings has been subtracted.)
5. A late fall seeding will require 20% more seed, because some seed wil be lost to wash off and herbivory, but germination rates will actually be higher the following spring, due to the cold winter stratification of the seed.

Source:
New England Wetland Plants, 14 Pearl Lane, South Bradley, Massachusetts; phone: 413-548-8000

PZC PERMIT # __________ DATE OF APPROVAL _________ EXPIRATION DATE __________

PZC CHAIRMAN OR SECRETARY DATE

IWWC PERMIT #__________ DATE OF APPROVAL _______________

IWWC CHAIRMAN DATE

MITIGATION PLAN FOR CREATION OF WETLAND HABITATS

IMPLEMENTATION NOTES

1.0 INTRODUCTION

EMERGENT AND SCRUB-SHRUB WETLAND (I.E., WET MEADOW/MARSH AND SHRUB SWAMP) CREATION BY EXCAVATION, AND HERBACEOUS AND WOODY PLANTINGS, WILL TAKE PLACE AT ONE LOCATION ON THE SUBJECT SITE, AT THE SOUTHWESTERN PORTION OF THE OVERALL PROPERTY, SOUTHERLY OF AN EXISTING PAVED STORAGE AREA, EASTERLY OF EXISTING RAILROAD TRACKS, AND IMMEDIATELY ADJACENT AND TO THE NORTH OF A DELINEATED WETLAND, WHICH DOES NOT HAVE A SURFACE WATER CONNECTION TO THE TIDAL WATERS OF THE THAMES RIVER.

A PORTION OF THE SELECTED WETLAND MITIGATION SITE IS CURRENTLY PAVED. SOILS RANGE FROM WELL DRAINED, TO MODERATELY WELL DRAINED FINE SANDY LOAMS TO LOAMY SAND. BASED ON PRELIMINARY SOIL EXPLORATION THE SITE WAS PREVIOUSLY A WETLAND, WITH A FOOT OR MORE OF FILL PLACED OVER PRE-EXISTING POORLY DRAINED WETLAND SOILS.

THOUGH SOME GOOD-QUALITY NATIVE VEGETATION OF FORESTED WETLAND HABITATS DOMINATE THE ADJACENT EXISTING WETLAND, THE SELECTED CREATION AREA HAS LOW HABITAT VALUE, INCLUDING DOMINANCE BY INVASIVE PLANTS (E.G., MULTIFLORA ROSE, MUGWORT, ASIATIC BITTERSWEET, TREE OF HEAVEN, ETC.).

IN-KIND MITIGATION (I.E., CREATION) IS PROPOSED TO OFF-SET LOST FUNCTIONS & VALUES FROM THE CURRENTLY PROPOSED PERMANENT WETLAND IMPACT (I.E., +/- ***1,700 SQUARE FEET***) (I.E., "WETLAND Z") THE GOAL IS TO CREATE ECOLOGICAL COMMUNITIES WITH AT LEAST COMPARABLE, AND PREFERABLY HIGHER, FUNCTIONS AND COMPLIMENTARY WETLAND COVER TYPES TO THE WETLAND THAT WOULD BE IMPACTED. THE INITIAL TARGET COVER TYPE RATIO FOR THE WETLAND REPLICATION SHALL BE ½ EMERGENT (I.E., WET MEADOW, MARSH) AND ½ SCRUB SHRUB HABITATS. APPROXIMATELY ***4,900 SQUARE FEET*** OF PRODUCTIVE WETLAND CAN BE CREATED AT THIS LOCATION.

THE WETLAND CREATION GOAL IS 100% COVER, AND 95% COVER BY NATIVE SPECIES, BY THE END OF THE FIVE-YEAR (5) MONITORING PERIOD. PLANT SPECIES WERE SELECTED TO ENCOMPASS THE FOLLOWING CRITERIA: FOOD PLANTS FOR CATEPILLARS, BEETLES, AND OTHER INSECTS; FRUIT, SEED, AND NUT PRODUCTION IN DIFFERENT SEASONS, INCLUDING PERSISTENT WINTER FRUIT AND SPRING SEEDS; FORAGE FOR VERTEBRATE HERBIVORES; SUITABLE MICRO-HABITATS FOR OVERWINTERING INSECTS; AND NECTAR AND POLLEN THROUGHOUT THE GROWING SEASON (SEE TABLE 3). SPECIES ALREADY PRESENT IN NEARBY WETLAND HABITATS, ESPECIALLY WOODY SPECIES, WERE SELECTED FIRST, AS THEY ARE ALREADY USED BY THE LOCAL FAUNAL ASSEMBLAGE.

2.0 WETLAND CREATION

PREPARATION
1. ORDER THE TRAYS OF HERBACEOUS PLUGS AND THE SEED MIX, FOR DELIVERY RIGHT AFTER COMPLETION OF GRADING. STORE IN SHADE WHEN THEY ARRIVE.
2. EARTHWORK FOR THE WETLAND CREATION AREA WILL TAKE PLACE IN APRIL / MAY, OR IN AUGUST, SO THAT PLANTINGS CAN BE INSTALLED IMMEDIATELY AFTERWARDS, EITHER IN LATE SPRING OR VERY EARLY FALL SEASONS.
3. A MINIMUM OF 10 INCHES OF TOPSOIL (AFTER COMPACTION) SHALL BE USED. SOIL TEXTURE SHALL BE LOAM OR FINER. ORGANIC MATTER CONTENT SHALL BE A MINIMUM OF 10 PERCENT BY WEIGHT (I.E., LOSS AT IGNITION), AS TESTED AT A QUALIFIED LABORATORY (E.G., UNIVERSITY OF CONNECTICUT SOILS LAB).
4. IF NECESSARY, WELL-ROTTED LEAF COMPOST (I.E., TWO YEAR MINIMUM) WILL BE ADDED TO BRING THE PERCENT ORGANIC MATTER TO THE DESIRED SPECIFICATION.
5. A ONE TO TWO INCH THICK "TOP-DRESSING" SHALL BE APPLIED TO THE FINAL GRADE AT THE CREATION AREA, EXCEPT IN AREAS WITH PROPOSED INUNDATION, CONSISTING OF LEAF COMPOST (2-YEAR OLD, MINIMUM).
6. ADD ORGANIC, SLOW-RELEASE FERTILIZER OR OTHER AMENDMENT ONLY AS INDICATED BY THE SOIL TEST RESULTS. ***NOTE*** THAT NUTRIENT LEVELS SHOULD BE LOWER FOR NATURAL HABITATS THAN FOR AGRICULTURAL OR HORTICULTURAL SITES, TO PREVENT EXCESSIVE COMPETITION BY RANK WEEDS.
7. INSTALL *PERIMETER EROSION CONTROLS* AROUND THE MITIGATION AREAS AS SHOWN ON PLAN: CORRECTLY TRENCHED AND STAKED SILT FENCE PER THE *2002 CONNECTICUT EROSION & SEDIMENTATION CONTROL GUIDELINES* (2002 GUIDELINES).

EARTHWORK
8. CLEAR AND GRUB THE WETLAND MITIGATION AREA.
   a. REMOVE THE EXISTING TOPSOIL FROM THESE LOCATIONS & PLACE IN A DESIGNATED SOIL STOCKPILE AREA, AT LEAST FIFTY FEET AWAY. **[*IMPORTANT NOTE: THE TOPSOIL FROM THE MITIGATION AREA SHALL NOT BE USED, BECAUSE IT IS HEAVILY INFESTED WITH INVASIVE PLANT SPECIES.***
9. SUBSOIL FROM CERTAIN PORTIONS OF THE WETLAND REPLICATION AREA, WITH HIGHER POTENTIAL FOR INVASIVE SPECIES, WILL BE TRUCKED TO OTHER UPLAND PARTS OF THE SITE, AND COULD BE STOCKPILED FOR USE IN AREAS OF MAINTAINED LAWN.
10. **EXCAVATION, GRADING, AND TRANSPLANTING** WILL TAKE PLACE UNDER THE DIRECTION OF THE WETLAND SCIENTIST. GRADING WILL BE BASED ON CONDITIONS OBSERVED AT THE FIELD BY THE WETLAND SCIENTIST WHO MAY MAKE SMALL IN-FIELD ADJUSTMENTS TO ACHIEVE THE DESIRED WETLAND HYDROLOGY.
11. GRADING FOR THE WETLAND REPLICATION AREA WILL ENTAIL THE REMOVAL OF FILL OVER PRE-EXISTING WETLANDS. THE DEPTH OF MATERIALS TO BE REMOVED, BEFORE TOPSOIL IS PLACED, WILL RANGE FROM APPROXIMATELY ONE FOOT TO OVER FIVE FEET.
12. NO MACHINERY WILL BE ALLOWED WITHIN THE WETLAND CREATION AREAS WHERE TOPSOIL HAS BEEN PLACED.
13. SPECIAL PROTECTIVE MEASURES SHALL BE IMPLEMENTED TO ALLOW FOR THE DISCHARGE OF SURFACE RUNOFF FROM AN EXISTING CULVERT WHICH DIRECTS WATER TO THIS THE MITIGATION AREA UNDER THE RAILROAD TRACKS, FROM A DELINEATED AREA TO THE EAST. THIS MAY INCLUDE HAYBALE CHECK DAMS REINFORCED WITH WIRE FENCING TO ENSURE THAT FLOWS WILL NOT ERODE THE MITIGATION AREA WHILE VEGETATION IS BEING ESTABLISHED. WE NOTE THAT THIS CULVERT, WHICH IS LIKELY FULLY OR PARTIALLY CLOGGED, WILL PROVIDE FORE SOME OF THE EXPECTED HYDROLOGY FOR THE CREATED WETLAND.

PLANTINGS
14. **ORDER** THE **WOODY PLANTING MATERIALS** FOR DELIVERY DURING THE PLANTING WINDOWS LISTED ABOVE (MID TO LATE SPRING OR EARLY FALL). STORE IN SHADE WHEN THEY ARRIVE AND INSTALL WITHIN THREE DAYS OF DELIVERY. MAKE SURE THAT ALL DESIRED SPECIES ARE AVAILABLE AT TIME OF ORDERING. WETLAND SCIENTIST SHALL APPROVE ANY SUBSTITUTIONS.
15. **CHECK DELIVERY**. MAKE SURE SPECIES, SIZES, AND QUANTITIES ARE AS SPECIFIED.
16. A WETLAND PROFESSIONAL OR ECOLOGIST SHALL SPECIFY PLANTING AND SEEDING LOCATIONS. THE PROFESSIONAL WILL DIRECT THE INSTALLATION, EITHER BY STAKING PLANTING LOCATIONS WITH A WIRE FLAG OR BAMBOO STAKE LABELED WITH THE SPECIES NAME OR CODE; OR POTTED STOCK MAY ALSO BE DIRECTLY PLACED AT PLANTING LOCATION.
17. **INSTALL THE PURCHASED WOODY MATERIALS FIRST, THEN THE HERBACEOUS PLUGS.**
18. **WOODY PLANTINGS AND LARGE HERBACEOUS PERENNIALS** (SEE TABLE 1 THROUGH TABLE 3) SHALL BE PLANTED IN SAME-SPECIES CLUSTERS, TWO TO THREE FEET APART FOR HERBACEOUS PERENNIALS, FIVE TO SIX FEET APART, FOR SHRUBS, TEN FEET APART FOR SMALL TREE SEEDLINGS/SAPLINGS. LARGER TREES SHALL BE NO CLOSER THAN EIGHT FEET FROM A SHRUB OR SMALL TREE.
19. DIG HOLES *BY HAND* TO *MINIMIZE COMPACTION* OF SOIL (MECHANICAL AUGERS ARE PROHIBITED). WATER HOLES BEFORE PLANTING, UNLESS SOIL IS ALREADY MOIST. ADD *SLOW-RELEASE FERTILIZER* (OSMACOTE, MILORGANITE OR EQUIVALENT) TO PLANTING HOLE. PLACE PLANTS INTO HOLES AND REPLACE SOIL, SO THAT THERE IS FULL COVERAGE OF ROOTS, WITH *NO AIR SPACES* AND LEVEL SOIL AROUND THE PLANT. HOLES SHALL BE OVERSIZED (2X THE ROOT MASS DIAMETER) AND BACKFILLED WITH LOCAL TOPSOIL OR EXTRA TOPSOIL IN AN OVERSIZED TRANSPLANT POT (NOT SUBSOIL REMOVED FROM BOTTOM PART OF HOLE).
20. MULCH WITH A THREE-INCH LAYER OF WELL-ROTTED HARDWOOD MULCH TO REDUCE COMPETITION FROM MEADOW VEGETATION IN A THREE-FOOT DIAMETER CIRCLE. LEAVE A GAP OF THREE INCHES AROUND EACH TRUNK. FORM *SAUCERS* AROUND ALL MULCHED TREE AND SHRUB PLANTINGS, TWO TO THREE INCHES HIGH, 36" ACROSS FOR NURSERY STOCK. WATER RIGHT AFTER PLANTING.
21. **HERBACEOUS PLUGS:** PLANT IN MID TO LATE AFTERNOON, OR UNDER SHADY CONDITIONS, *WATER* IMMEDIATELY AFTER PLANTING. SPACE PLUGS 24 TO 36 INCHES APART, PER PLAN (SEE TABLE 3) IN THE BARE SOIL AREAS, AND SPREAD SHREDDED LEAF MULCH IN A SIX-INCH CIRCLE AROUND EACH PLUG. PLANT IN SAME-SPECIES GROUPINGS OF VARIABLE SIZE AND SHAPE.
22. **SEEDING:** AFTER MIXING 1:1 WITH NON-CLUMPING KITTY LITTER (CLAY BASED), SPREAD SEED OVER BARE SOIL AREAS, AVOIDING MULCHED CIRCLES AROUND PLUGS. SEEDING RATE SHALL BE HALF THAT SPECIFIED FOR THE MIX. IF GERMINATION RATES ARE LOW, OVER-SEED IN FALL IN YEAR 2.
23. FOR SPRING SEEDING IN MOIST, BUT NOT SATURATED SOIL, LIGHTLY RAKE IN SEED (LESS THAN ½ INCH DEEP), TAMP DOWN, AND LIGHTLY MULCH WITH STRAW (FREE OF SEEDS) TO HOLD MOISTURE FOR GERMINATION. FOR FALL SEEDING, WAIT UNTIL AFTER HARD FROST; SEED MAY SIMPLY BE SOWN. SNOW AND FROST WILL INCORPORATE INTO THE SOIL. NOTE THAT COLD STRATIFICATION WILL INCREASE GERMINATION RATES OF SOME SPECIES IN A FALL SEEDING, BUT MORE SEEDS WILL ALSO BE EATEN BY WILDLIFE OR WASHED AWAY. IF SOIL IS SATURATED, BROADCAST ON SOIL SURFACE WITHOUT RAKING.
24. SPREAD A THIN LAYER OF WEED-FREE *STRAW MULCH* OVER ALL SEEDED AREAS WITHOUT STANDING WATER, ALLOWING FOR SOME LIGHT PENETRATION
25. FOR PLUGS IN THE WET MEADOW AND FOR SEED GERMINATION, WATERING SEVERAL TIMES A WEEK IS ESSENTIAL, IN DRY WEATHER. FOR IRRIGATION, SET UP A PUMP DRAWING ON LOCAL WATER, OR FROM A WATER TANK BROUGHT TO THE SITE.

3.0 PROTECTION FROM HERBIVORY
1. WOODY PLANTINGS WILL BE MONITORED DURING THE FIRST AND SECOND GROWING SEASONS AFTER PLAN IMPLEMENTATION FOR EXCESSIVE HERBIVORY. IF OBSERVED, THE WETLAND ECOLOGIST MAY PROPOSE ADDITIONAL CONTROLS/METHODS TO REDUCE HERBIVORY. DEER FENCE MAY BE CONSIDERED, AS THE MITIGATION AREA IS RELATIVELY SMALL.
2. AS AN INITIAL CONTROL, THE ORGANIC, SLOW-RELEASE FERTILIZER MILORGRANITE SHALL BE USED AT EACH SHRUB/TREE PLANTING, AND ALONG THE PERIMETER OF EACH OF THE MITIGATION AREAS. THIS FERTILIZER IS A MILD TO MODERATE DETERRENT TO HERBIVORY BY DEER. APPLICATION OF MILOGRANITE SHALL TAKE PLACE THREE TIMES DURING THE FIRST GROWING SEASON, SHOULD A DETERRENT BE NECESSARY.

4.0 INITIAL FOLLOW-UP AND MAINTENANCE
1. PROMPT SEEDING AND HAY MULCH APPLICATION FOLLOWING INITIAL GRADING IS KEY, TO PREVENT EROSION OF EXPOSED, RECENTLY GRADED SOILS. GRADING OF WETLAND CREATION AREAS SHOULD BE TIMED TO PRECEDE A FORECAST RAIN-FREE PERIOD, ENCOMPASSING THE SCHEDULED PLANTING DAY.
2. PERIMETER SEDIMENT CONTROLS. MAINTAIN PER THE 2002 CT E&S GUIDELINES, CHECK AFTER EACH RAIN MORE THAN ONE INCH. REMOVE SILT FENCE AS SOON AS GROUND IS VEGETATED (>80% COVER) TO PREVENT IMPEDING ANIMAL MOVEMENT TO AND FROM ADJACENT SEASONALLY FLOODED AND SATURATED WETLANDS. SEDIMENT COLLECTED BY THESE DEVICES WILL BE REMOVED AND PLACED UPLAND IN A MANNER THAT PREVENTS ITS EROSION AND TRANSPORT TO A WATERWAY OR WETLAND.
3. IRRIGATION: WATER ALL SEEDED AREAS, PLANTINGS AND/OR TRANSPLANTS AT LEAST WEEKLY IN DROUGHT PERIODS. MORE FREQUENT WATERING WILL INCREASE PLANTINGS' SUCCESS. FOR PLUGS, MORE FREQUENT WATERING COULD BE NEEDED.

5.0 WEED CONTROL
1. FOR 2-3 SEASONS FOLLOWING PLAN IMPLEMENTATION, CONTROL WEEDS IN A THREE- FOOT DIAMETER CIRCLE AROUND WOODY PLANTINGS. NECESSARY FREQUENCY WILL DEPEND ON RAINFALL AND SOIL SEED BANK, BUT AT LEAST MONTHLY FROM MAY TO JULY. MULCH HELPS CONTROL WEEDS, BUT IS NOT SUFFICIENT. THE SEED MIX AND OTHER NATURAL COLONIZERS NEEDS TO GERMINATE AND SPROUT IN THE MATRIX AROUND THE WOODY PLANTINGS.
2. AT TIME OF PLANTING MARK EACH PLANTED SHRUB OR TREE WITH A FOUR-FOOT TALL "SNOW STAKE" OR "DRIVEWAY MARKER" WITH REFLECTOR TAPE. THESE SHALL BE REMOVED AT THE END OF THE MONITORING PERIOD, BUT WILL ASSIST IN FINDING THEM, SHOULD TALL HERBACEOUS VEGETATION BEGIN TO OBSCURE THEM.
3. FOR CONTROL OF SMALL SEEDLINGS USE A HOE.
4. FOR LARGER WEEDS USE A WEED WHACKER (POLE HEDGE TRIMMER).
5. LANDSCAPER SHALL FOLLOW DIRECTION OF WETLAND SCIENTIST WHO SHALL PROVIDE INITIAL GUIDANCE, BUT NEED NOT REMAIN ON SITE DURING MAINTENANCE.
6. THE WETLANDS PROFESSIONAL WILL POINT OUT TO THE LANDSCAPER CERTAIN WEEDS LIKE MUGWORT, WHICH IS PREVALENT IN PORTIONS OF THE SITE, WHICH ARE BEST PULLED, TO WEAKEN ROOT SYSTEM AND REDUCE NEEDED FREQUENCY FOR WEEDING.
7. OUTSIDE THE THREE-FOOT DIAMETER CIRCLE, WEED ONLY SELECTED UNDESIRABLE COLONIZING PLANTS, INCLUDING INVASIVE SPECIES. THE WETLANDS PROFESSIONAL SHALL TRAIN THE LANDSCAPER TO RECOGNIZE AND AVOID NATIVE SPECIES SUCH AS GOLDENRODS, SUMACS, AND VIRGINIA CREEPER. INITIALLY, FLAG DESIRABLE NATIVE SPECIES AS A TRAINING AID; ALSO, FOLLOWING ANY PERSONNEL CHANGES.

6.0 INVASIVE PLANT CONTROL
1. THE ECOLOGIST/WETLANDS PROFESSIONAL WILL FLAG WOODY INVASIVES TO BE REMOVED IN THE VICINITY OF THE WETLAND REPLICATION AREA (I.E., WITHIN 25 FEET) AT THE TIME OF PLAN IMPLEMENTATION, AND PREFERABLY JUST PRIOR TO ANY EARTHWORK.
2. AS NEEDED, CONTROL USING TARGETED, RATHER THAN BROADCAST HERBICIDE APPLICATION METHODS. FOR SPRING TREATMENT, CUT EARLY IN GROWING SEASON (LATE APRIL TO MID MAY) AND TREAT SMALL RESPROUTS IN EARLY SUMMER USING A LOW VOLUME SPRAYER. IN EARLY FALL USE THE CUT-AND-PAINT METHOD, APPLYING HERICIDE TO A RECENTLY CUT STEM (WITHIN 10 MINUTES) ON BROADLEAF INVASIVES. USE A SELECTIVE HERBICIDE LIKE TRICLOPYR (FOUND IN BRUSH-B-GON, GARLON 3A OR 4A, AND OTHER PRODUCTS), RATHER THAN BROAD-SPECTRUM GLYPHOSATE, TO MINIMIZE IMPACTS ON NON-TARGET PLANTS AND SOIL FAUNA.
3. INVASIVE PLANT CONTROL WITHIN THE AREAS OF WETLAND REPLICATION SHALL TAKE PLACE FOR **FOUR (4) YEARS** FOLLOWING THE YEAR OF PLAN IMPLEMENTATION (I.E., YEAR 2 THROUGH YEAR 5), FOLLOWING THE PROCEDURES PROMULGATED BY THE CT DEEP'S CONNECTICUT INVASIVE PLANT WORKING GROUP (CIPWG), AND/OR THE NATURE CONSERVANCY.

7.0 MONITORING
1. INSPECTIONS AT THE WETLAND REPLICATION AREA SHALL BE CONDUCTED BY A QUALIFIED WETLANDS PROFESSIONAL OR ECOLOGIST DURING THE GROWING SEASON, THE THREE MONTHS FOLLOWING INSTALLATION (I.E., YEAR ONE), AND TWICE DURING EACH OF THE **FOUR (4) NEXT GROWING SEASONS**, ONCE IN LATE MAY THROUGH JUNE, AND ONCE IN EARLY FALL. ADDITIONAL INSPECTIONS MAY BE NECESSARY AT THE DISCRETION OF THE WETLANDS PROFESSIONAL TO ENSURE THE SUCCESS OF THE WETLAND CREATION.
2. DURING INSPECTIONS, CHECK MITIGATION AREA FOR SEEDLINGS OF THE FOLLOWING *INVASIVE SPECIES* AND MECHANICALLY REMOVE: JAPANESE KNOTWEED, COMMON REED, MORROW'S HONEYSUCKLE, AUTUMN OLIVE, MULTIFLORA ROSE, ASIATIC BITTERSWEET, JAPANESE BARBERRY, GLOSSY BUCKTHORN, BURNING BUSH, TREE-OF-HEAVEN, MUGWORT, AND GARLIC MUSTARD. INSPECTIONS SHALL BE DONE BY THE WETLANDS PROFESSIONAL, WHO COULD ALSO IDENTIFY OTHER INVASIVE PLANT SPECIES, BUT PERSONNEL TRAINED BY THE PROFESSIONAL IN IDENTIFICATION OF INVASIVE SEEDLINGS MAY ASSIST WITH MECHANICAL REMOVAL (WEEDING).
3. *COMPETING PLANTS:* IF THE WETLANDS PROFESSIONAL DETERMINES THAT EXCESSIVE NUMBERS OF SEEDLINGS OF A PARTICULAR NATIVE SPECIES HAVE GERMINATED ON SITE (E.G., CATTAIL), REMOVE THEM BY HOEING OR HAND PULLING. COLONIZATION BY A VARIETY OF NATIVE SPECIES IS EXPECTED AND IS DESIRABLE.
4. *REMEDIAL MEASURES* SUCH AS REPLACEMENT PLANTINGS, HYDROLOGIC ADJUSTMENTS, AND DEER BROWSING PROTECTION, MAY BE RECOMMENDED AND SUPERVISED BY THE WETLANDS PROFESSIONAL AND IMPLEMENTED BY THE PROPERTY OWNER/MANAGER, FOR SIGNIFICANT PROBLEMS.
5. A BRIEF *REPORT* TO THE TOWN'S INLAND WETLANDS AND WATERCOURSES AGENCY WILL SUBMITTED BY NOVEMBER 30TH OF THE MONITORING YEAR.

REV.	DESCRIPTION OF REVISION	DATE	APPR.
1	RESPONSE TO INLAND WETLAND COMMISSION COMMENTS	06/06/2023	SRM

STAMP
STATE OF CONNECTICUT GEORGE F. ANDREWS JR. No. 19286 LICENSED PROFESSIONAL ENGINEER

Loureiro
Engineering • Construction • EH&S • Energy Waste • Facility Services • Laboratory
Loureiro Engineering Associates, Inc.
100 Northwest Drive • Plainville, Connecticut 06062
Phone: 860-747-6181 • Fax: 860-747-8822
An Employee Owned Company • www.Loureiro.com

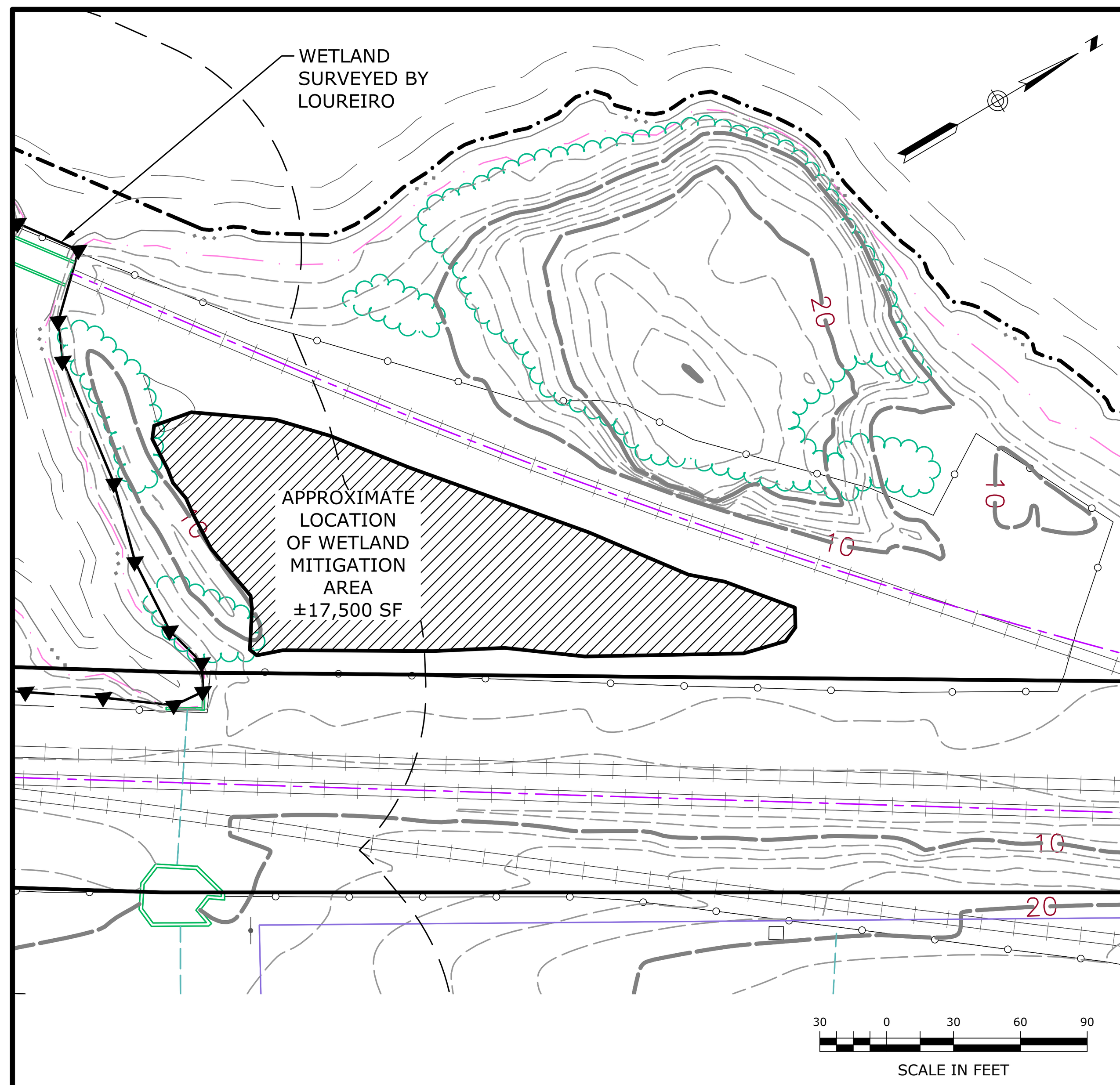
SCALE 1"=30'
COMM. NO. 045JC2.06
DRAWN BY SRM DATE 04/03/2023
APPROVED BY GFA DATE 04/03/2023

INDUSTRIAL SITE PREPARATION PLAN:
WETLAND MITIGATION PLAN - LOCATION 1

GALES FERRY INTERMODAL
1737 & 1761 ROUTE 12, GALES FERRY, CT 06335
PREPARED FOR:
GALES FERRY INTERMODAL LLC
549 SOUTH STREET, QUINCY, MA 02169

DRAWING **C-11A**
SHEET NO. 13 NO. OF SHEETS 15

\\FILE01\PROJECTS2\CT\GALES FERRY\ROUTE 12-1761\045JC206 LOCAL PERMIT FOR ROCK GRADING\DWGS\CIVIL\WETLAND MITIGATION PLAN.DWG Tab: WETLAND MITIGATION PLAN - LOCATION 1 Saved: 6/6/2023 1:28 PM by ESFARMER Plotted: 6/6/2023 4:01 PM



New England Conservation/Wildlife Mix

Botanical Name	Common Name	Indicator
Elymus virginicus	Virginia Wild Rye	FACW-
Schizachyrium scoparium	Little Bluestem	FACU
Andropogon gerardii	Big Bluestem	FAC
Festuca rubra	Red Fescue	FACU
Sorghastrum nutans	Indian Grass	UPL
Panicum virgatum	Switch Grass	FAC
Chamaecrista fasciculata	Partridge Pea	FACU
Desmodium canadense	Showy Tick Trefoil	FAC
Asclepias tuberosa	Butterfly Milkweed	NI
Bidens frondosa	Beggar Ticks	FACW
Eupatorium purpureum (Eutrochium maculatum)	Purple Joe Pye Weed	FAC
Rudbeckia hirta	Black Eyed Susan	FACU-
Aster pilosus (Symphyotrichum pilosum)	Heath (or Hairy) Aster	UPL
Solidago juncea	Early Goldenrod	

PRICE PER LB. $39.50 MIN. QUANITY 2 LBS. **TOTAL:** $79.00 APPLY: 25 LBS/ACRE :1750 sq ft/lb

The New England Conservation/Wildlife Mix provides a permanent cover of grasses, wildflowers, and legumes For both good erosion control and wildlife habitat value. The mix is designed to be a no maintenance seeding, and is appropriate for cut and fill slopes, detention basin side slopes, and disturbed areas adjacent to commercial and residential projects.

New England Wetland Plants, Inc. may modify seed mixes at any time depending upon seed availability. The design criteria and ecological function of the mix will remain unchanged. Price is $/bulk pound, FOB warehouse, Plus SH and applicable taxes.

New England Wetmix (Wetland Seed Mix)

Botanical Name	Common Name	Indicator
Carex vulpinoidea	Fox Sedge	OBL
Carex scoparia	Blunt Broom Sedge	FACW
Carex lurida	Lurid Sedge	OBL
Carex lupulina	Hop Sedge	OBL
Poa palustris	Fowl Bluegrass	FACW
Bidens frondosa	Beggar Ticks	FACW
Scirpus atrovirens	Green Bulrush	OBL
Asclepias incarnata	Swamp Milkweed	OBL
Carex crinita	Fringed Sedge	OBL
Vernonia noveboracensis	New York Ironweed	FACW+
Juncus effusus	Soft Rush	FACW+
Aster lateriflorus (Symphyotrichum lateriflorum)	Starved/Calico Aster	FACW
Iris versicolor	Blue Flag	OBL
Glyceria grandis	American Mannagrass	OBL
Mimulus ringens	Square Stemmed Monkey Flower	OBL
Eupatorium maculatum (Eutrochium maculatum)	Spotted Joe Pye Weed	OBL

PRICE PER LB. $135.00 MIN. QUANITY 1 LBS. **TOTAL:** $135.00 APPLY: 18 LBS/ACRE :2500 sq ft/lb

The New England Wetmix (Wetland Seed Mix) contains a wide variety of native seeds that are suitable for most wetland restoration sites that are not permanently flooded. All species are best suited to moist ground as found in most wet meadows, scrub shrub, or forested wetland restoration areas. The mix is well suited for detention basin borders and the bottom of detention basins not generally under standing water. The seeds will not germinate under inundated conditions. If planted during the fall months the seed mix will germinate the following spring. During the first season of growth several species will produce seeds while other species will produce seeds after the second growing season. Not all species will grow in all wetland situations. This mix is comprised of the wetland species most likely to grow in created/restored wetlands and should produce more than 75% ground cover in two full growing seasons.

The wetland seeds in this mix can be sown by hand, with a hand-held spreader, or hydro-seeded on large or hard to reach sites. Lightly rake to insure good seed-to-soil contact. Seeding can take place on frozen soil, as the freezing and thawing weather of late fall and late winter will work the seed into the soil. If spring conditions are drier than usual watering may be required. If sowing during the summer months supplemental watering will likely be required until germination. A light mulch of clean, weed free straw is recommended.

New England Wetland Plants, Inc. may modify seed mixes at any time depending upon seed availability. The design criteria and ecological function of the mix will remain unchanged. Price is $/bulk pound, FOB warehouse, Plus SH and applicable taxes.

Table 3. Herbs

Hydrologic Zones: Zone A: Saturated/Shallow inundation; **Zone B**: seasonally saturated, moist
Zone C: moderately well drained, usually moist; **Zone D:** well-drained

Scientific Name	Zone	Common Name	Form	NWI*	Spacing	Wetland Creation Area	TotalS
Asclepias incarnata	A,B	Swamp milkweed	2"plug	OBL	2'OC	100	100
Carex lupulina	B	Hop sedge	2" plug	FACW	2'OC	100	100
Eutrochium purpureum	B	Purple Joe Pye weed	2" plug	FAC	3'OC	100	100
Juncus canadensis	A,B	Canada rush	2" plug	OBL	2'OC	50	50
Mimulus ringens	B	Monkey-flower	2" plug	OBL	2'OC	50	50
Monarda fistulosa	C	Wild bergamot	2" plug	UPL	3'OC	100	100
Panicum virgatum	C	Switchgrass	2" plug	FAC	3'OC	150	150
Onoclea sensibilis	B	Sensitive fern	6" pot	FAC	2'OC	50	50
Verbena hastata	B	Blue vervain	2" plug	FACW	3'OC	100	100
Vernonia noveborecensis	B	New York Ironweed	2" plug	FACW	3'OC	100	100
Zizia aurea	B	Golden alexanders	2" plug	FAC	3'OC	100	100
Total:						1000	1000

** NWI Status (National Wetland Inventory; National Wetland Plant List: Northcentral & Northeast)*

NOTES:

1. Plant between May 15 and June 30 for herbaceous species. July planting will need watering through end of August.
2. Purchased woody material may be installed either in the spring (April 15 to June 15), or in the fall (August 15 to October15)
3. Plant in same species groupings of three to six shrubs, ten to twenty for herbs
4. Use seed mixes from New England Wetland Plants, Inc., South Hadley, MA (see Table 4), at specified seeding rate.
5. No seeding or plants in 3' diameter circle around each shrub and tree,1' around plugs; mulch with shredded bark
6. Water and weed as needed during first growing season.

Table 1. Trees

Hydrologic Zones: Zone A: Saturated/Shallow inundation; **Zone B**: seasonally saturated, moist
Zone C: moderately well drained, usually moist; **Zone D**: well-drained

Scientific Name	Zone	Common Name	Size	Shade tolerant?	NWI*	Form	Wetland Creation Area	TotalS
FULL SIZE TREES								
Nyssa sylvatica	B,C	Black gum	4'-6'	Y	FAC	nursery pot	4	4
Quercus palustris	B,C	Pin Oak	4'-6'	Y	FACW	nursery pot	4	4
Acer rubrum	D	Red maple	4'-6'	Y	FACU-	nursery pot	7	7
Total:							15	15
SMALL TREES/LARGE SHRUBS								
Amelanchier canadensis	C,D	Shadblow	3'-4'	Y/N	FAC	nursery pot	4	4
Salix discolor	B,C	Pussy willow	3'-4'	N	FACW	nursery pot	8	8
Juniperus virginiana	C,D	Red cedar	3'-4'	Y	UPL	nursery pot	16	16
Total:							28	28

Table 2. Shrubs

Scientific Name	Zone	Common Name	Size	Shade tolerant?	NWI*	Form		Totals
MEDIUM TO LOW SHRUBS								
Aronia arbutifolia	B,C	Chokeberry	3'-4'	N	FACW	pot	12	12
Clethra alnifolia	B,C	Sweet pepperbush	3'-4'	Y	FAC+	pot	16	16
Corylus americana	C,D	American hazelnut	3'-4'	Y	FACU-	pot	12	12
Ilex verticillata	B,C	Winterberry	3'-4'	Y	FACW+	pot	15	15
Lyonia ligustrina	B,C	Maleberry	3'-4'	Y/N	FACW	pot	15	15
Morella pensylvanica	C,D	Bayberry	3'-4'	N	FAC	pot	20	20
Vaccinium corymbosum	B	Highbush blueberry	3'-4'	Y	FACW	pot	20	20
Viburnum lentago	B,C	Nannyberry	3'-4'	Y	FAC	pot	25	25
Spiraea latifolia	B,C	Meadowsweet	3'-4'	N	FAC+	pot	50	50
Swida racemosa	B,C	Gray dogwood	3'-4'	Y	FAC	pot	30	30
Rosa palustris	A	Swamp rose	3'-4'	Y	OBL	pot	15	15
Total:							230	230

Table 4: Seed Mixes for Wetland Mitigation Area

COMMENTS:
See notes accompanying each seed mix for additional guidance pertaining to the season that seed mix is applied. Implementation notes also include a section on seeding.

Seed Mix	Area	Total (lbs per seed mix)
NEWP Seed Mix #1 *New England Wetmix* ***1 lb/2,500 sf***	***Wetland Creation Area*** *(in seasonally saturated to moist areas)*	6
NEWP Seed Mix #2 *New England Conservation/Wildlife Mix* ***1 lb/1,750 sf***	***Wetland Creation Area** (moist edges)* *(also on 3:1 slopes above wetland)*	4
	TOTAL:	10

Notes:

1. Mix 1:1 with filler (coarse sand, kitty litter) to help correctly divide seed packages and for even spreading.
2. Mixes contain seeds with a range of hydrologic tolerances, so different species will thrive in different areas.
3. Plants will set seed and spread further, increasing in density, becoming concnetrated in most suitable areas.
4. Mulch (do not seed) areas under and around plug & shrub clusters, to exclude weeds and hold moisture. (Coverage specified assumes area occupied by mulched woody plantings has been subtracted.)
5. A late fall seeding will require 20% more seed, because some seed wil be lost to wash off and herbivory, but germination rates will actually be higher the following spring, due to the cold winter stratification of the seed.

Source:
New England Wetland Plants, 14 Pearl Lane, South Bradley, Massachusetts; phone: 413-548-8000

MITIGATION PLAN FOR CREATION OF WETLAND HABITATS

IMPLEMENTATION NOTES

1.0 INTRODUCTION

EMERGENT AND SCRUB-SHRUB WETLAND (I.E., WET MEADOW/MARSH AND SHRUB SWAMP) CREATION BY EXCAVATION, AND HERBACEOUS AND WOODY PLANTINGS, WILL TAKE PLACE AT AN ADDITIONAL LOCATION ON THE SUBJECT SITE, AT THE WESTERN PORTION OF THE OVERALL PROPERTY, A PIE-SHAPED AREA, BETWEEN TWO RAILROAD TRACKS, AND EASTERLY OF A PROMINENT BEDROCK KNOLL.

SOILS RANGE FROM WELL DRAINED, TO MODERATELY WELL DRAINED FINE SANDY LOAMS TO LOAMY SAND. BASED ON PRELIMINARY SOIL EXPLORATION ON THE SITE AND REMOTE SENSING, THIS AREA APPEARS TO HAVE NOT BEEN FILLED OR MANIPULATED TO A GREAT DEGREE, IN THE SUBSOILS.

THOUGH SOME BETTER-QUALITY NATIVE VEGETATION OF RUDERAL WOODS EXISTS WITHIN THIS AREA, FOR THE MOST PART IT IS REPLETE WITH INVASIVE PLANTS (E.G., MULTIFLORA ROSE, MUGWORT, ASIATIC BITTERSWEET, TREE OF HEAVEN, AUTUMN OLIVE,ETC.).

IN-KIND MITIGATION (I.E., CREATION) IS PROPOSED TO OFF-SET LOST FUNCTIONS & VALUES FROM THE CURRENTLY PROPOSED PERMANENT WETLAND IMPACT (I.E., +/- ***1,700 SQUARE FEET***) (I.E., "WETLAND Z") AND THE POTENTIAL HYDROLOGIC IMPACTS TO WETLANDS "Y" AND "X",THE GOAL IS TO CREATE ECOLOGICAL COMMUNITIES WITH AT LEAST COMPARABLE, AND PREFERABLY HIGHER, FUNCTIONS AND COMPLIMENTARY WETLAND COVER TYPES TO THE WETLAND THAT WOULD BE IMPACTED. THE INITIAL TARGET COVER TYPE RATIO FOR THE WETLAND REPLICATION SHALL BE ½ EMERGENT (I.E., WET MEADOW, MARSH) AND ½ SCRUB SHRUB HABITATS. APPROXIMATELY ***17,500 SQUARE FEET*** OF PRODUCTIVE WETLAND CAN BE CREATED AT THIS LOCATION.

THE WETLAND CREATION GOAL IS 100% COVER, AND 95% COVER BY NATIVE SPECIES, BY THE END OF THE FIVE-YEAR (5) MONITORING PERIOD. PLANT SPECIES WERE SELECTED TO ENCOMPASS THE FOLLOWING CRITERIA: FOOD PLANTS FOR CATERPILLARS, BEETLES, AND OTHER INSECTS; FRUIT, SEED, AND NUT PRODUCTION IN DIFFERENT SEASONS, INCLUDING PERSISTENT WINTER FRUIT AND SPRING SEEDS; FORAGE FOR VERTEBRATE HERBIVORES; SUITABLE MICRO-HABITATS FOR OVERWINTERING INSECTS; AND NECTAR AND POLLEN THROUGHOUT THE GROWING SEASON (SEE TABLE 3). SPECIES ALREADY PRESENT IN NEARBY WETLAND HABITATS, ESPECIALLY WOODY SPECIES, WERE SELECTED FIRST, AS THEY ARE ALREADY USED BY THE LOCAL FAUNAL ASSEMBLAGE.

NOTE: ALL WETLAND REPLICATION WORK SHALL BE SUPERVISED BY AN ECOLOGIST (OR WETLAND SCIENTIST), INCLUDING INITIAL GRADING, PLANTING, MARKING INVASIVES IN ADJACENT UPLAND BUFFER AREAS, AND MARKING ANY NATIVE MATERIALS FOR SALVAGE. A PRE-IMPLEMENTATION MEETING SHALL TAKE PLACE AT LEAST ONE MONTH PRIOR TO PLAN IMPLEMENTATION, BETWEEN THE WETLAND SCIENTIST, THE SITE CONTRACTOR, AND THE LANDSCAPER, AND THE TOWN'S WETLAND AGENT, AT THE TOWN'S DISCRETION.

2.0 WETLAND CREATION

PREPARATION

1. ORDER THE TRAYS OF HERBACEOUS PLUGS AND THE SEED MIX, FOR DELIVERY RIGHT AFTER COMPLETION OF GRADING. STORE IN SHADE WHEN THEY ARRIVE.
2. EARTHWORK FOR THE WETLAND CREATION AREA WILL TAKE PLACE IN APRIL / MAY, OR IN AUGUST, SO THAT PLANTINGS CAN BE INSTALLED IMMEDIATELY AFTERWARDS, EITHER IN LATE SPRING OR VERY EARLY FALL SEASONS.
3. A MINIMUM OF 10 INCHES OF TOPSOIL (AFTER COMPACTION) SHALL BE USED. SOIL TEXTURE SHALL BE LOAM OR FINER. ORGANIC MATTER CONTENT SHALL BE A MINIMUM OF 10 PERCENT BY WEIGHT (I.E., LOSS AT IGNITION), AS TESTED AT A QUALIFIED LABORATORY (E.G., UNIVERSITY OF CONNECTICUT SOILS LAB).
4. IF NECESSARY, WELL-ROTTED LEAF COMPOST (I.E., TWO YEAR MINIMUM) WILL BE ADDED TO BRING THE PERCENT ORGANIC MATTER TO THE DESIRED SPECIFICATION.
5. A ONE TO TWO INCH THICK "TOP-DRESSING" SHALL BE APPLIED TO THE FINAL GRADE AT THE CREATION AREA, EXCEPT IN AREAS WITH PROPOSED INUNDATION, CONSISTING OF LEAF COMPOST (2-YEAR OLD, MINIMUM).
6. ADD ORGANIC, SLOW-RELEASE FERTILIZER OR OTHER AMENDMENT ONLY AS INDICATED BY THE SOIL TEST RESULTS. ***NOTE*** THAT NUTRIENT LEVELS SHOULD BE LOWER FOR NATURAL HABITATS THAN FOR AGRICULTURAL OR HORTICULTURAL SITES, TO PREVENT EXCESSIVE COMPETITION BY RANK WEEDS.
7. INSTALL *PERIMETER EROSION CONTROLS* AROUND THE MITIGATION AREAS AS SHOWN ON PLAN: CORRECTLY TRENCHED AND STAKED SILT FENCE PER THE *2002 CONNECTICUT EROSION & SEDIMENTATION CONTROL GUIDELINES* (2002 GUIDELINES).

EARTHWORK

8. CLEAR AND GRUB THE WETLAND MITIGATION AREA.
   a. REMOVE THE EXISTING TOPSOIL FROM THESE LOCATIONS & PLACE IN A DESIGNATED SOIL STOCKPILE AREA, AT LEAST FIFTY FEET AWAY. **[*IMPORTANT NOTE: THE TOPSOIL FROM THE MITIGATION AREA SHALL NOT BE USED, BECAUSE IT IS HEAVILY INFESTED WITH INVASIVE PLANT SPECIES.***
9. SUBSOIL FROM CERTAIN PORTIONS OF THE WETLAND REPLICATION AREA, WITH HIGHER POTENTIAL FOR INVASIVE SPECIES, WILL BE TRUCKED TO OTHER UPLAND PARTS OF THE SITE, AND COULD BE STOCKPILED FOR USE IN AREAS OF MAINTAINED LAWN.
10. **EXCAVATION, GRADING, AND TRANSPLANTING** WILL TAKE PLACE UNDER THE DIRECTION OF THE WETLAND SCIENTIST. GRADING WILL BE BASED ON CONDITIONS OBSERVED AT THE FIELD BY THE WETLAND SCIENTIST WHO MAY MAKE SMALL IN-FIELD ADJUSTMENTS TO ACHIEVE THE DESIRED WETLAND HYDROLOGY.
11. GRADING FOR THE WETLAND REPLICATION AREA WILL ENTAIL THE REMOVAL OF FILL OVER PRE-EXISTING WETLANDS. THE DEPTH OF MATERIALS TO BE REMOVED, BEFORE TOPSOIL IS PLACED, WILL RANGE FROM APPROXIMATELY ONE FOOT TO OVER FIVE FEET.
12. NO MACHINERY WILL BE ALLOWED WITHIN THE WETLAND CREATION AREAS WHERE TOPSOIL HAS BEEN PLACED.
13. THE CREATED WETLANDS HABITAT WILL ONLY HAVE A SUBSURFACE HYDROLOGIC CONNECTION TO THE TIDAL WETLANDS TO THE SOUTH.

PLANTINGS

14. **ORDER** THE **WOODY PLANTING MATERIALS** FOR DELIVERY DURING THE PLANTING WINDOWS LISTED ABOVE (MID TO LATE SPRING OR EARLY FALL). STORE IN SHADE WHEN THEY ARRIVE AND INSTALL WITHIN THREE DAYS OF DELIVERY. MAKE SURE THAT ALL DESIRED SPECIES ARE AVAILABLE AT TIME OF ORDERING. WETLAND SCIENTIST SHALL APPROVE ANY SUBSTITUTIONS.
15. **CHECK DELIVERY**. MAKE SURE SPECIES, SIZES, AND QUANTITIES ARE AS SPECIFIED.
16. A WETLAND PROFESSIONAL OR ECOLOGIST SHALL SPECIFY PLANTING AND SEEDING LOCATIONS. THE PROFESSIONAL WILL DIRECT THE INSTALLATION, EITHER BY STAKING PLANTING LOCATIONS WITH A WIRE FLAG OR BAMBOO STAKE LABELED WITH THE SPECIES NAME OR CODE; OR POTTED STOCK MAY ALSO BE DIRECTLY PLACED AT PLANTING LOCATION.
17. **INSTALL THE PURCHASED WOODY MATERIALS FIRST, THEN THE HERBACEOUS PLUGS.**
18. **WOODY PLANTINGS AND LARGE HERBACEOUS PERENNIALS** (SEE TABLE 1 THROUGH TABLE 3) SHALL BE PLANTED IN SAME-SPECIES CLUSTERS, TWO TO THREE FEET APART FOR HERBACEOUS PERENNIALS, FIVE TO SIX FEET APART, FOR SHRUBS, TEN FEET APART FOR SMALL TREE SEEDLINGS/SAPLINGS. LARGER TREES SHALL BE NO CLOSER THAN EIGHT FEET FROM A SHRUB OR SMALL TREE.
19. DIG HOLES *BY HAND* TO *MINIMIZE COMPACTION* OF SOIL (MECHANICAL AUGERS ARE PROHIBITED). WATER HOLES BEFORE PLANTING, UNLESS SOIL IS ALREADY MOIST. ADD *SLOW-RELEASE FERTILIZER* (OSMACOTE, MILORGANITE OR EQUIVALENT) TO PLANTING HOLE. PLACE PLANTS INTO HOLES AND REPLACE SOIL, SO THAT THERE IS FULL COVERAGE OF ROOTS, WITH *NO AIR SPACES* AND LEVEL SOIL AROUND THE PLANT. HOLES SHALL BE OVERSIZED (2X THE ROOT MASS DIAMETER) AND BACKFILLED WITH LOCAL TOPSOIL OR EXTRA TOPSOIL IN AN OVERSIZED TRANSPLANT POT (NOT SUBSOIL REMOVED FROM BOTTOM PART OF HOLE).
20. MULCH WITH A THREE-INCH LAYER OF WELL-ROTTED HARDWOOD MULCH TO REDUCE COMPETITION FROM MEADOW VEGETATION IN A THREE-FOOT DIAMETER CIRCLE. LEAVE A GAP OF THREE INCHES AROUND EACH TRUNK. FORM *SAUCERS* AROUND ALL MULCHED TREE AND SHRUB PLANTINGS, TWO TO THREE INCHES HIGH, 36" ACROSS FOR NURSERY STOCK. WATER RIGHT AFTER PLANTING.
21. **HERBACEOUS PLUGS:** PLANT IN MID TO LATE AFTERNOON, OR UNDER SHADY CONDITIONS, *WATER* IMMEDIATELY AFTER PLANTING. SPACE PLUGS 24 TO 36 INCHES APART, PER PLAN (SEE TABLE 3) IN THE BARE SOIL AREAS, AND SPREAD SHREDDED LEAF MULCH IN A SIX-INCH CIRCLE AROUND EACH PLUG. PLANT IN SAME-SPECIES GROUPINGS OF VARIABLE SIZE AND SHAPE.
22. **SEEDING:** AFTER MIXING 1:1 WITH NON-CLUMPING KITTY LITTER (CLAY BASED), SPREAD SEED OVER BARE SOIL AREAS, AVOIDING MULCHED CIRCLES AROUND PLUGS. SEEDING RATE SHALL BE HALF THAT SPECIFIED FOR THE MIX. IF GERMINATION RATES ARE LOW, OVER-SEED IN FALL IN YEAR 2.
23. FOR SPRING SEEDING IN MOIST, BUT NOT SATURATED SOIL, LIGHTLY RAKE IN SEED (LESS THAN ½ INCH DEEP), TAMP DOWN, AND LIGHTLY MULCH WITH STRAW (FREE OF SEEDS) TO HOLD MOISTURE FOR GERMINATION. FOR FALL SEEDING, WAIT UNTIL AFTER HARD FROST; SEED MAY SIMPLY BE SOWN. SNOW AND FROST WILL INCORPORATE INTO THE SOIL. NOTE THAT COLD STRATIFICATION WILL INCREASE GERMINATION RATES OF SOME SPECIES IN A FALL SEEDING, BUT MORE SEEDS WILL ALSO BE EATEN BY WILDLIFE OR WASHED AWAY. IF SOIL IS SATURATED, BROADCAST ON SOIL SURFACE WITHOUT RAKING.
24. SPREAD A THIN LAYER OF WEED-FREE *STRAW MULCH* OVER ALL SEEDED AREAS WITHOUT STANDING WATER, ALLOWING FOR SOME LIGHT PENETRATION
25. FOR PLUGS IN THE WET MEADOW AND FOR SEED GERMINATION, WATERING SEVERAL TIMES A WEEK IS ESSENTIAL, IN DRY WEATHER. FOR IRRIGATION, SET UP A PUMP DRAWING ON LOCAL WATER, OR FROM A WATER TANK BROUGHT TO THE SITE.

3.0 PROTECTION FROM HERBIVORY

1. WOODY PLANTINGS WILL BE MONITORED DURING THE FIRST AND SECOND GROWING SEASONS AFTER PLAN IMPLEMENTATION FOR EXCESSIVE HERBIVORY. IF OBSERVED, THE WETLAND ECOLOGIST MAY PROPOSE ADDITIONAL CONTROLS/METHODS TO REDUCE HERBIVORY. DEER FENCE MAY BE CONSIDERED, AS THE MITIGATION AREA IS RELATIVELY SMALL.
2. AS AN INITIAL CONTROL, THE ORGANIC, SLOW-RELEASE FERTILIZER MILORGRANITE SHALL BE USED AT EACH SHRUB/TREE PLANTING, AND ALONG THE PERIMETER OF EACH OF THE MITIGATION AREAS. THIS FERTILIZER IS A MILD TO MODERATE DETERRENT TO HERBIVORY BY DEER. APPLICATION OF MILOGRANITE SHALL TAKE PLACE THREE TIMES DURING THE FIRST GROWING SEASON, SHOULD A DETERRENT BE NECESSARY.

4.0 INITIAL FOLLOW-UP AND MAINTENANCE

1. PROMPT SEEDING AND HAY MULCH APPLICATION FOLLOWING INITIAL GRADING IS KEY, TO PREVENT EROSION OF EXPOSED, RECENTLY GRADED SOILS. GRADING OF WETLAND CREATION AREAS SHOULD BE TIMED TO PRECEDE A FORECAST RAIN-FREE PERIOD, ENCOMPASSING THE SCHEDULED PLANTING DAY.
2. PERIMETER SEDIMENT CONTROLS. MAINTAIN PER THE 2002 CT E&S GUIDELINES, CHECK AFTER EACH RAIN MORE THAN ONE INCH. REMOVE SILT FENCE AS SOON AS GROUND IS VEGETATED (>80% COVER) TO PREVENT IMPEDING ANIMAL MOVEMENT TO AND FROM ADJACENT SEASONALLY FLOODED AND SATURATED WETLANDS. SEDIMENT COLLECTED BY THESE DEVICES WILL BE REMOVED AND PLACED UPLAND IN A MANNER THAT PREVENTS ITS EROSION AND TRANSPORT TO A WATERWAY OR WETLAND.
3. IRRIGATION: WATER ALL SEEDED AREAS, PLANTINGS AND/OR TRANSPLANTS AT LEAST WEEKLY IN DROUGHT PERIODS. MORE FREQUENT WATERING WILL INCREASE PLANTINGS' SUCCESS. FOR PLUGS, MORE FREQUENT WATERING COULD BE NEEDED.

5.0 WEED CONTROL

1. FOR 2-3 SEASONS FOLLOWING PLAN IMPLEMENTATION, CONTROL WEEDS IN A THREE- FOOT DIAMETER CIRCLE AROUND WOODY PLANTINGS. NECESSARY FREQUENCY WILL DEPEND ON RAINFALL AND SOIL SEED BANK, BUT AT LEAST MONTHLY FROM MAY TO JULY. MULCH HELPS CONTROL WEEDS, BUT IS NOT SUFFICIENT. THE SEED MIX AND OTHER NATURAL COLONIZERS NEEDS TO GERMINATE AND SPROUT IN THE MATRIX AROUND THE WOODY PLANTINGS.
2. AT TIME OF PLANTING MARK EACH PLANTED SHRUB OR TREE WITH A FOUR-FOOT TALL "SNOW STAKE" OR "DRIVEWAY MARKER" WITH REFLECTOR TAPE. THESE SHALL BE REMOVED AT THE END OF THE MONITORING PERIOD, BUT WILL ASSIST IN FINDING THEM, SHOULD TALL HERBACEOUS VEGETATION BEGIN TO OBSCURE THEM.
3. FOR CONTROL OF SMALL SEEDLINGS USE A HOE.
4. FOR LARGER WEEDS USE A WEED WHACKER (POLE HEDGE TRIMMER).
5. LANDSCAPER SHALL FOLLOW DIRECTION OF WETLAND SCIENTIST WHO SHALL PROVIDE INITIAL GUIDANCE, BUT NEED NOT REMAIN ON SITE DURING MAINTENANCE.
6. THE WETLANDS PROFESSIONAL WILL POINT OUT TO THE LANDSCAPER CERTAIN WEEDS LIKE MUGWORT, WHICH IS PREVALENT IN PORTIONS OF THE SITE, WHICH ARE BEST PULLED, TO WEAKEN ROOT SYSTEM AND REDUCE NEEDED FREQUENCY FOR WEEDING.
7. OUTSIDE THE THREE-FOOT DIAMETER CIRCLE, WEED ONLY SELECTED UNDESIRABLE COLONIZING PLANTS, INCLUDING INVASIVE SPECIES. THE WETLANDS PROFESSIONAL SHALL TRAIN THE LANDSCAPER TO RECOGNIZE AND AVOID NATIVE SPECIES SUCH AS GOLDENRODS, SUMACS, AND VIRGINIA CREEPER. INITIALLY, FLAG DESIRABLE NATIVE SPECIES AS A TRAINING AID; ALSO, FOLLOWING ANY PERSONNEL CHANGES.

6.0 INVASIVE PLANT CONTROL

1. THE ECOLOGIST/WETLANDS PROFESSIONAL WILL FLAG WOODY INVASIVES TO BE REMOVED IN THE VICINITY OF THE WETLAND REPLICATION AREA (I.E., WITHIN 25 FEET) AT THE TIME OF PLAN IMPLEMENTATION, AND PREFERABLY JUST PRIOR TO ANY EARTHWORK.
2. AS NEEDED, CONTROL USING TARGETED, RATHER THAN BROADCAST HERBICIDE APPLICATION METHODS. FOR SPRING TREATMENT, CUT EARLY IN GROWING SEASON (LATE APRIL TO MID MAY) AND TREAT SMALL RESPROUTS IN EARLY SUMMER USING A LOW VOLUME SPRAYER. IN EARLY FALL USE THE CUT-AND-PAINT METHOD, APPLYING HERICIDE TO A RECENTLY CUT STEM (WITHIN 10 MINUTES) ON BROADLEAF INVASIVES. USE A SELECTIVE HERBICIDE LIKE TRICLOPYR (FOUND IN BRUSH-B-GON, GARLON 3A OR 4A, AND OTHER PRODUCTS), RATHER THAN BROAD-SPECTRUM GLYPHOSATE, TO MINIMIZE IMPACTS ON NON-TARGET PLANTS AND SOIL FAUNA.
3. INVASIVE PLANT CONTROL WITHIN THE AREAS OF WETLAND REPLICATION SHALL TAKE PLACE FOR **FOUR (4) YEARS** FOLLOWING THE YEAR OF PLAN IMPLEMENTATION (I.E., YEAR 2 THROUGH YEAR 5), FOLLOWING THE PROCEDURES PROMULGATED BY THE CT DEEP'S CONNECTICUT INVASIVE PLANT WORKING GROUP (CIPWG), AND/OR THE NATURE CONSERVANCY.

7.0 MONITORING

1. INSPECTIONS AT THE WETLAND REPLICATION AREA SHALL BE CONDUCTED BY A QUALIFIED WETLANDS PROFESSIONAL OR ECOLOGIST DURING THE GROWING SEASON, THE THREE MONTHS FOLLOWING INSTALLATION (I.E., YEAR ONE), AND TWICE DURING EACH OF THE **FOUR (4) NEXT GROWING SEASONS**, ONCE IN LATE MAY THROUGH JUNE, AND ONCE IN EARLY FALL. ADDITIONAL INSPECTIONS MAY BE NECESSARY AT THE DISCRETION OF THE WETLANDS PROFESSIONAL TO ENSURE THE SUCCESS OF THE WETLAND CREATION.
2. DURING INSPECTIONS, CHECK MITIGATION AREA FOR SEEDLINGS OF THE FOLLOWING *INVASIVE SPECIES* AND MECHANICALLY REMOVE: JAPANESE KNOTWEED, COMMON REED, MORROW'S HONEYSUCKLE, AUTUMN OLIVE, MULTIFLORA ROSE, ASIATIC BITTERSWEET, JAPANESE BARBERRY, GLOSSY BUCKTHORN, BURNING BUSH, TREE-OF-HEAVEN, MUGWORT, AND GARLIC MUSTARD. INSPECTIONS SHALL BE DONE BY THE WETLANDS PROFESSIONAL, WHO COULD ALSO IDENTIFY OTHER INVASIVE PLANT SPECIES, BUT PERSONNEL TRAINED BY THE PROFESSIONAL IN IDENTIFICATION OF INVASIVE SEEDLINGS MAY ASSIST WITH MECHANICAL REMOVAL (WEEDING).
3. *COMPETING PLANTS:* IF THE WETLANDS PROFESSIONAL DETERMINES THAT EXCESSIVE NUMBERS OF SEEDLINGS OF A PARTICULAR NATIVE SPECIES HAVE GERMINATED ON SITE (E.G., CATTAIL), REMOVE THEM BY HOEING OR HAND PULLING. COLONIZATION BY A VARIETY OF NATIVE SPECIES IS EXPECTED AND IS DESIRABLE.
4. *REMEDIAL MEASURES* SUCH AS REPLACEMENT PLANTINGS, HYDROLOGIC ADJUSTMENTS, AND DEER BROWSING PROTECTION, MAY BE RECOMMENDED AND SUPERVISED BY THE WETLANDS PROFESSIONAL AND IMPLEMENTED BY THE PROPERTY OWNER/MANAGER, FOR SIGNIFICANT PROBLEMS.
5. A BRIEF *REPORT* TO THE TOWN'S INLAND WETLANDS AND WATERCOURSES AGENCY WILL SUBMITTED BY NOVEMBER 30TH OF THE MONITORING YEAR.

REV.	DESCRIPTION OF REVISION	DATE	APPR.
1	RESPONSE TO INLAND WETLAND COMMISSION COMMENTS	06/06/2023	SRM

STAMP: STATE OF CONNECTICUT GEORGE F. ANDREWS, JR. No. 19286 LICENSED PROFESSIONAL ENGINEER

Loureiro
Engineering • Construction • EH&S • Energy
Waste • Facility Services • Laboratory
Loureiro Engineering Associates, Inc.
100 Northwest Drive • Plainville, Connecticut 06062
Phone: 860-747-6181 • Fax: 860-747-8822
An Employee Owned Company • www.Loureiro.com

SCALE	COMM. NO.	DRAWN BY	DATE	APPROVED BY	DATE
1"=60'	045JC2.06	FGC	06/05/2023	SRM	06/05/2023

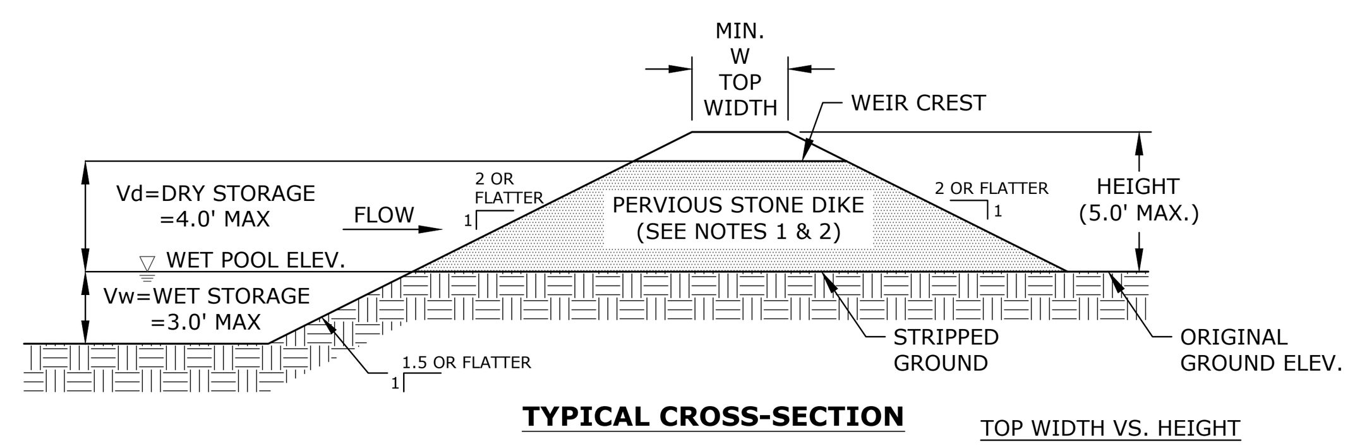
INDUSTRIAL SITE PREPARATION PLAN:
WETLAND MITIGATION PLAN - LOCATION 2

GALES FERRY INTERMODAL
1737 & 1761 ROUTE 12, GALES FERRY, CT 06335

PREPARED FOR:
GALES FERRY INTERMODAL LLC
549 SOUTH STREET, QUINCY, MA 02169

DRAWING **C-11B**

SHEET NO. 14 NO. OF SHEETS 15



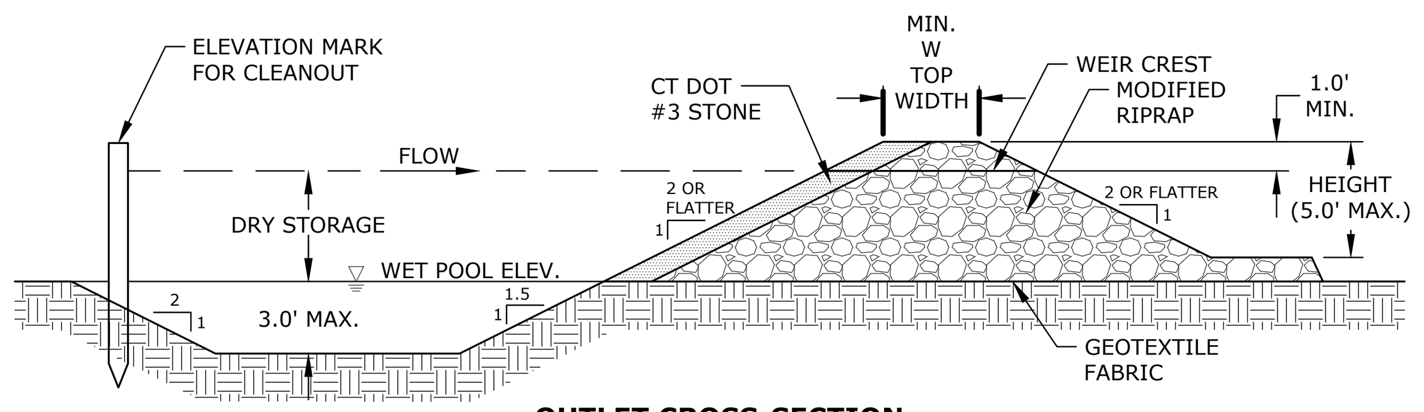
TYPICAL CROSS-SECTION

NOTES:
1. PERVIOUS STONE DIKE SHALL BE CONSTRUCTED OF CT DOT MODIFIED RIPRAP WITH #3 STONE ON FACE.
2. NON-OVERFLOW PORTIONS AND ABUTMENTS OF TEMPORARY SEDIMENT TRAP MAY BE CONSTRUCTED OF COMPACTED EARTH FILL.

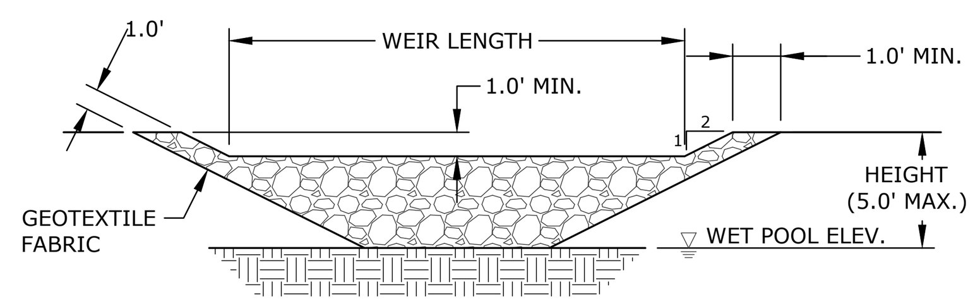
TOP WIDTH VS. HEIGHT

H = HEIGHT OF EMBANKMENT
W = MIN. TOP WIDTH OF EMBANKMENT

H (ft)	W (ft)
1.5	2.0
2.0	2.0
2.5	2.5
3.0	2.5
3.5	3.0
4.0	3.0
4.5	4.0
5.0	4.5



OUTLET CROSS-SECTION

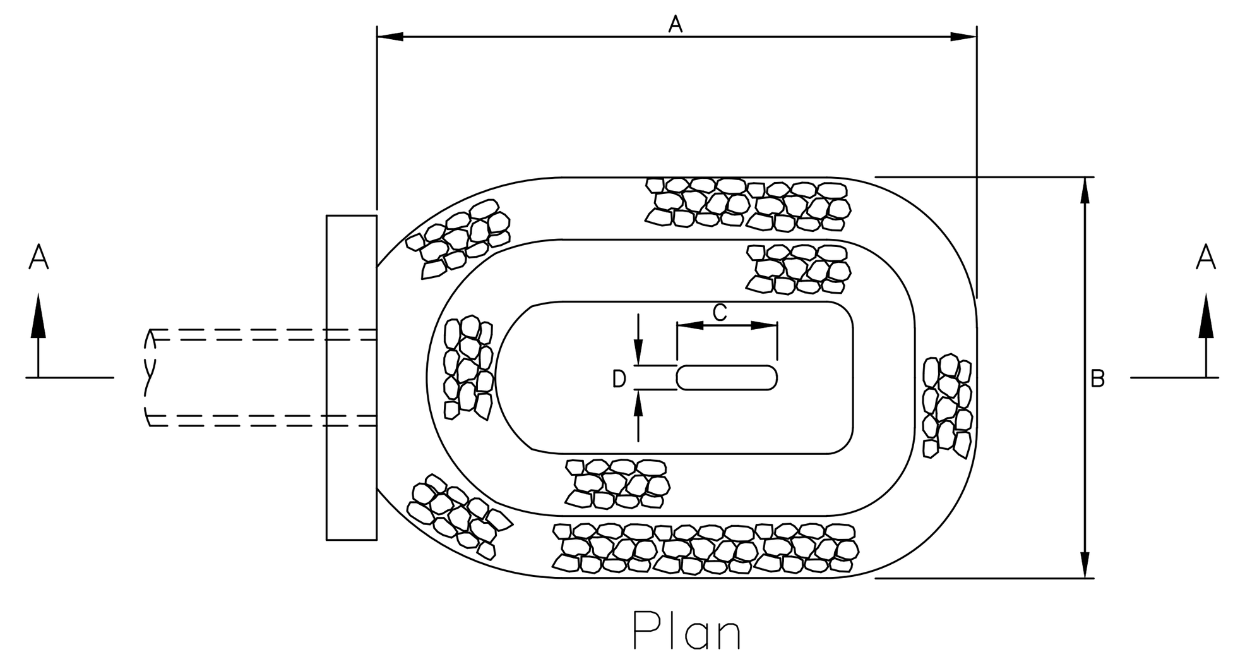


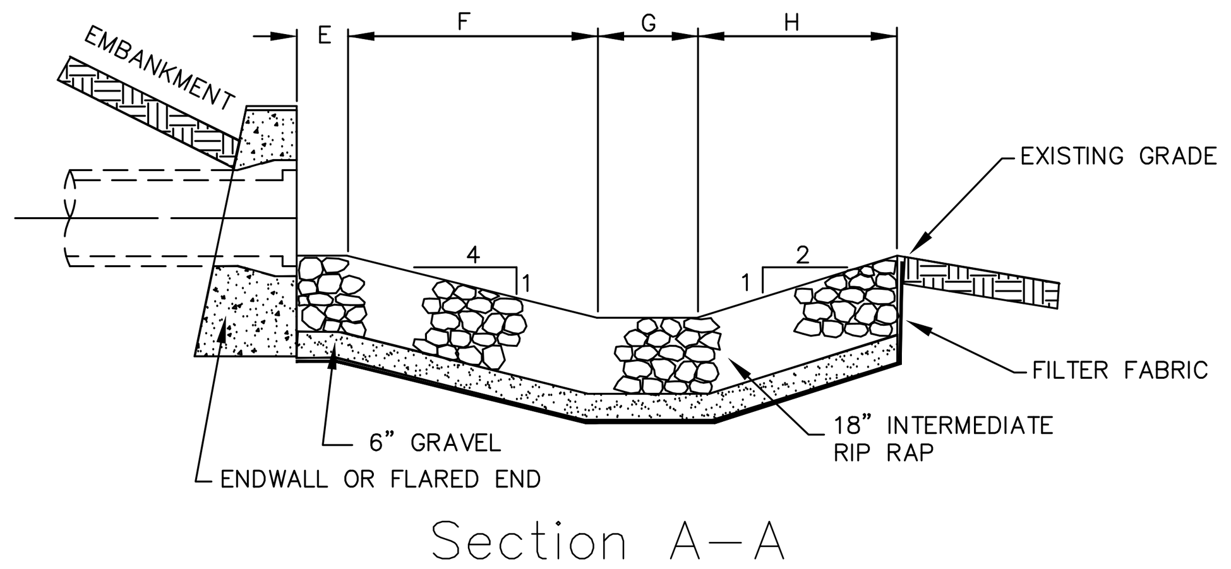
SPILLWAY DETAIL

TEMPORARY SEDIMENT TRAP SHALL BE SIZED BASED ON A MINIMUM OF 134 CUBIC YARDS OF WATER STORAGE PER ACRE DRAINED, A MINIMUM WET STORAGE VOLUME EQUAL TO HALF OF THE TOTAL STORAGE VOLUME AND A MINIMUM DRY STORAGE VOLUME EQUAL TO HALF OF THE TOTAL STORAGE VOLUME .

TEMPORARY SEDIMENT TRAP DETAIL

SCALE: NONE

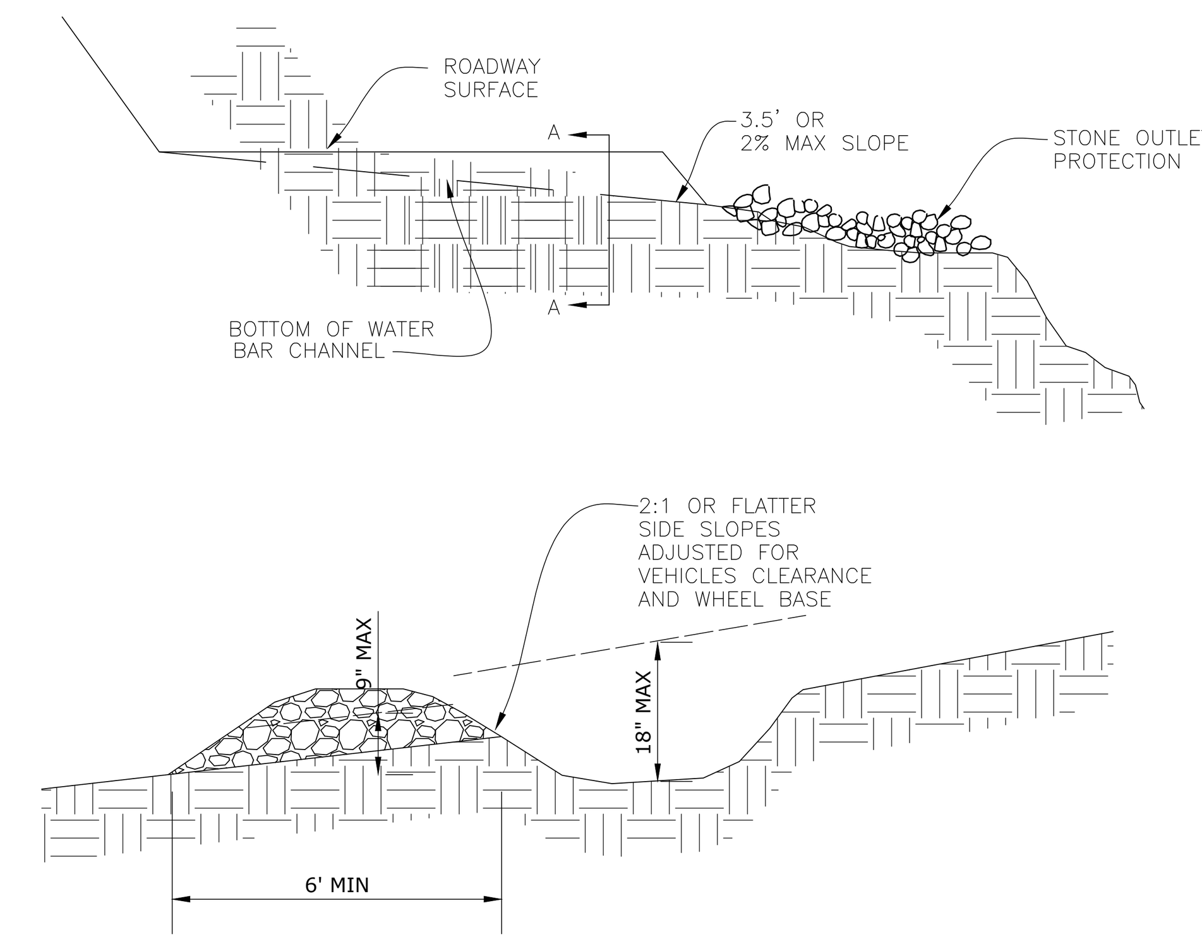




PIPE SIZE	A	B	C	D	E	F	G	H
15"	10'	7'	1 1/2'	1'	1'	4 1/2'	1 1/2'	3'
18"	12'	8'	2'	1'	1'	5'	2'	4'
21"	13'	9'	2 1/2'	1 1/2'	1'	7'	2 1/2'	4 1/2'
24"	17'	10'	2 1/2'	1 1/2'	1'	8'	2 1/2'	5 1/2'
30"	20'	13'	3'	2'	2'	9'	3'	6'
36"	22'	16'	3 1/2'	2'	2'	9 1/2'	3 1/2'	7'

PLUNGE POOL

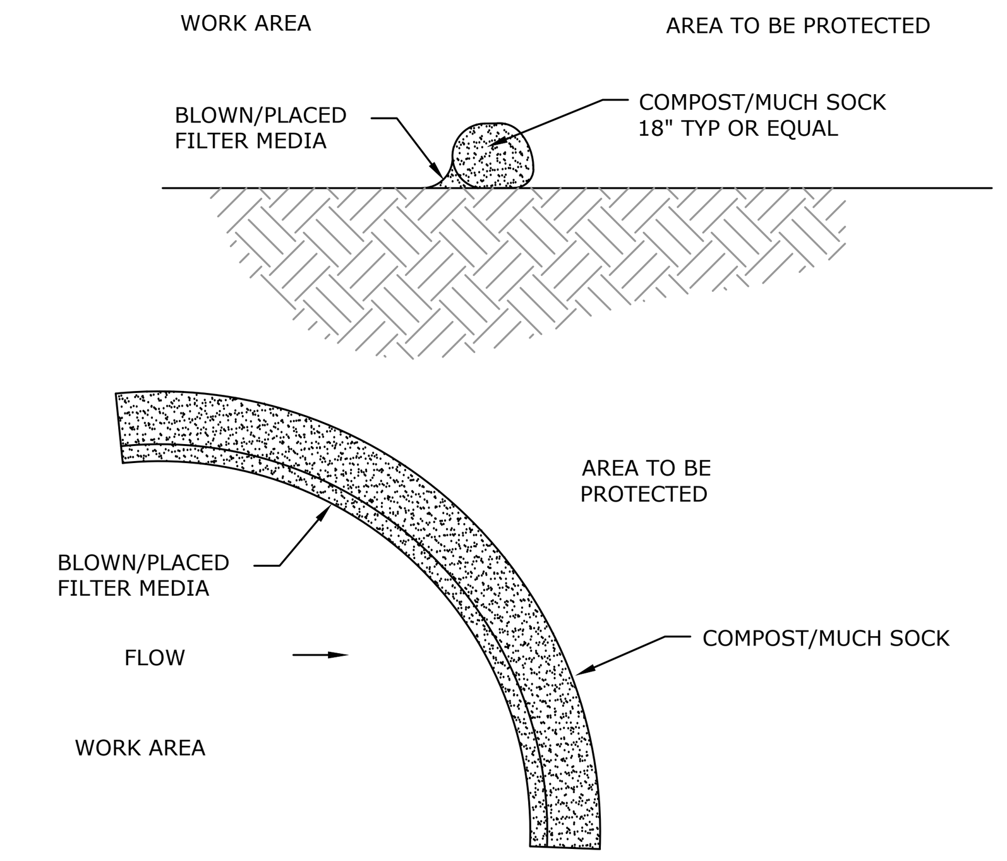
NOT TO SCALE



SECTION A-A

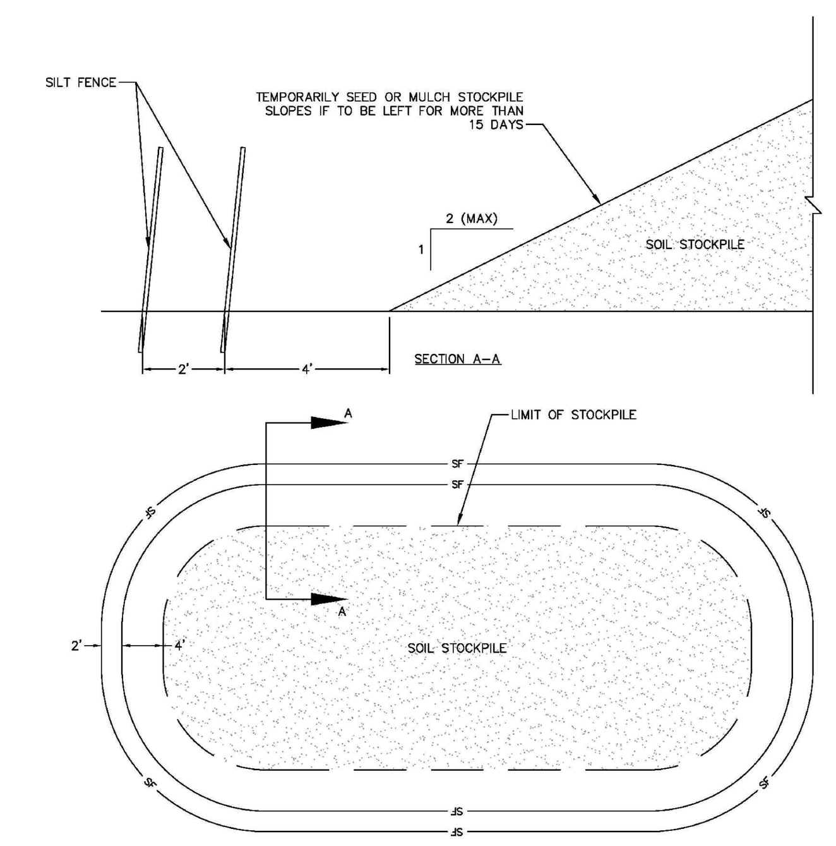
WATER BAR DETAIL

NOT TO SCALE



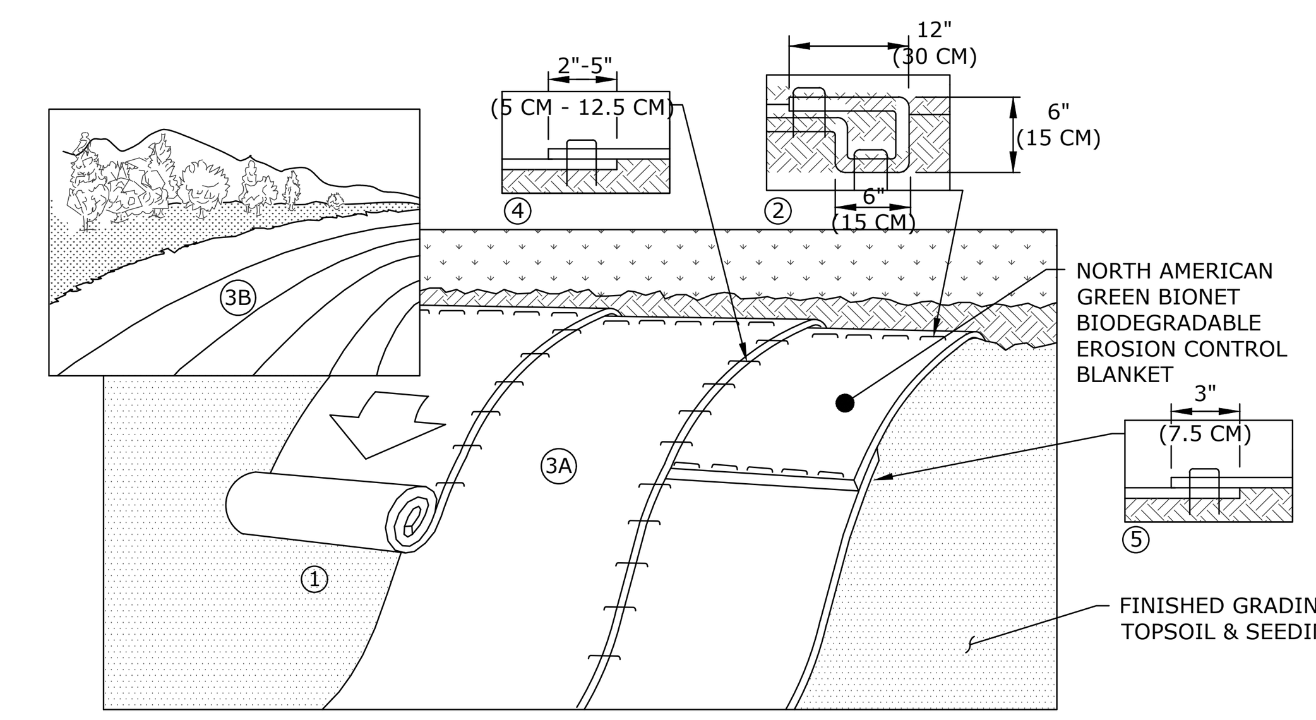
COMPOST/MULCH SOCK DETAIL

NOT TO SCALE



TEMPORARY SOIL STOCKPILE DETAIL

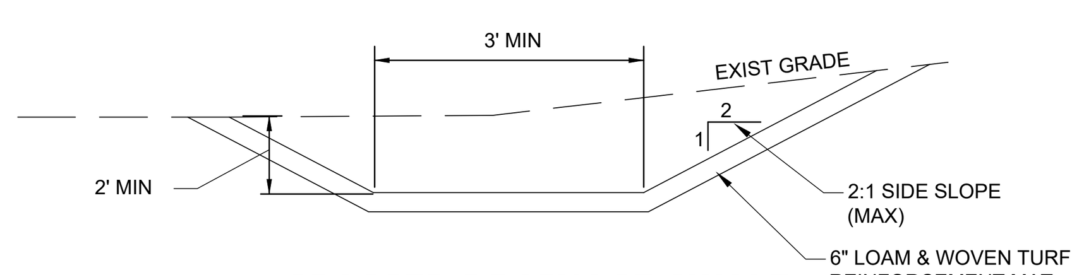
NOT TO SCALE



NOTES:
1. PREPARE SOIL BEFORE INSTALLING BLANKETS, INCLUDING ANY NECESSARY APPLICATION OF LIME, FERTILIZER, AND SEED. WHEN USING CELL-O-SEED DO NOT SEED PREPARED AREA. CELL-O-SEED MUST BE INSTALLED WITH PAPER SIDE DOWN.
2. BEGIN AT THE TOP OF THE SLOPE BY ANCHORING THE BLANKET IN A 6",(15CM), DEEP X 6", (15CM), WIDE TRENCH WITH APPROXIMATELY 12", (30CM), OF BLANKET EXTENDED BEYOND THE UP-SLOPE PORTION OF THE TRENCH. ANCHOR THE BLANKET WITH A ROW OF STAPLES/STAKES APPROXIMATELY 12", (30CM), APART IN THE BOTTOM OF THE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING. APPLY SEED TO COMPACTED SOIL AND FOLD REMAINING 12", (30CM), PORTION OF BLANKET BACK OVER SEED AND COMPACTED SOIL. SECURE BLANKET OVER COMPACTED SOIL WITH A ROW OF STAPLES/STAKES SPACED APPROXIMATELY 12", (30CM), APART ACROSS THE WIDTH OF THE BLANKET. IN LOOSE SOIL CONDITIONS, THE USE OF STAPLE OR STAKE LENGTHS GREATER THAN 6", (15 CM), MAY BE NECESSARY TO PROPERLY SECURE THE BLANKETS.
3. ROLL THE BLANKETS (A.) DOWN OR (B.) HORIZONTALLY ACROSS THE SLOPE. BLANKETS WILL UNROLL WITH APPROPRIATE SIDE AGAINST THE SOIL SURFACE. ALL BLANKETS MUST BE SECURELY FASTENED TO SOIL SURFACE BY PLACING STAPLES/STAKES IN APPROPRIATE LOCATIONS AS SHOWN IN THE STAPLE PATTERN GUIDE. WHEN USING OPTIONAL DOT SYSTEM TM, STAPLES/STAKES SHOULD BE PLACED THROUGH EACH OF THE COLORED DOTS CORRESPONDING TO THE APPROPRIATE STAPLE PATTERN.
4. THE EDGES OF PARALLEL BLANKETS MUST BE STAPLED WITH APPROXIMATELY 2"-5" ,(5CM-12.5CM), OVERLAP DEPENDING ON BLANKET TYPE. TO ENSURE PROPER SEAM ALIGNMENT, PLACE THE EDGE OF THE OVERLAPPING BLANKET (BLANKET BEING INSTALLED ON TOP) EVEN WITH THE COLORED SEAM STITCH TM ON THE PREVIOUSLY INSTALLED BLANKET.
5. CONSECUTIVE BLANKETS SPLICED DOWN THE SLOPE MUST BE PLACED END OVER END (SHINGLE STYLE) WITH AN APPROXIMATE 3", (7.5CM), OVERLAP. STAPLE THROUGH OVERLAPPED AREA, APPROXIMATELY 12", (30CM), APART ACROSS ENTIRE BLANKET WIDTH.

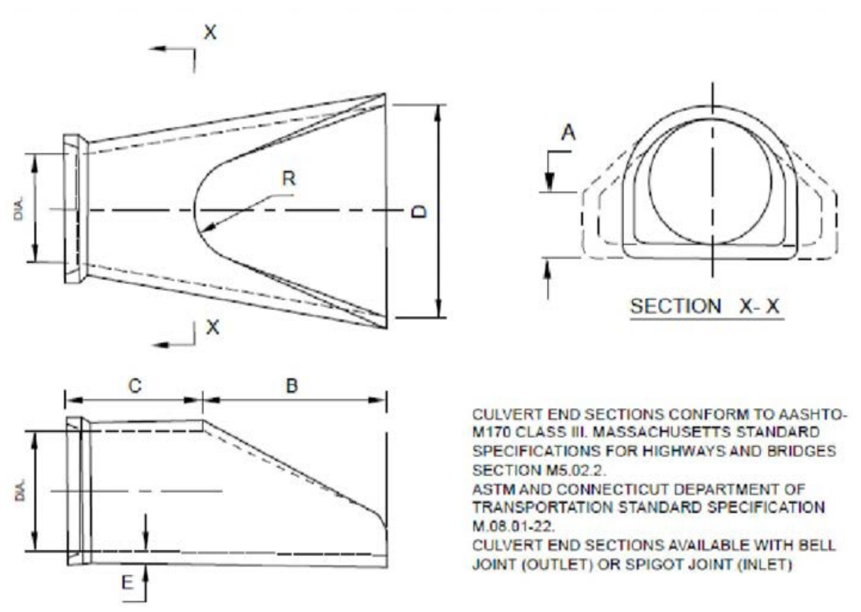
EROSION CONTROL BLANKET DETAIL

NOT TO SCALE



GRASSED DRAINAGE SWALE

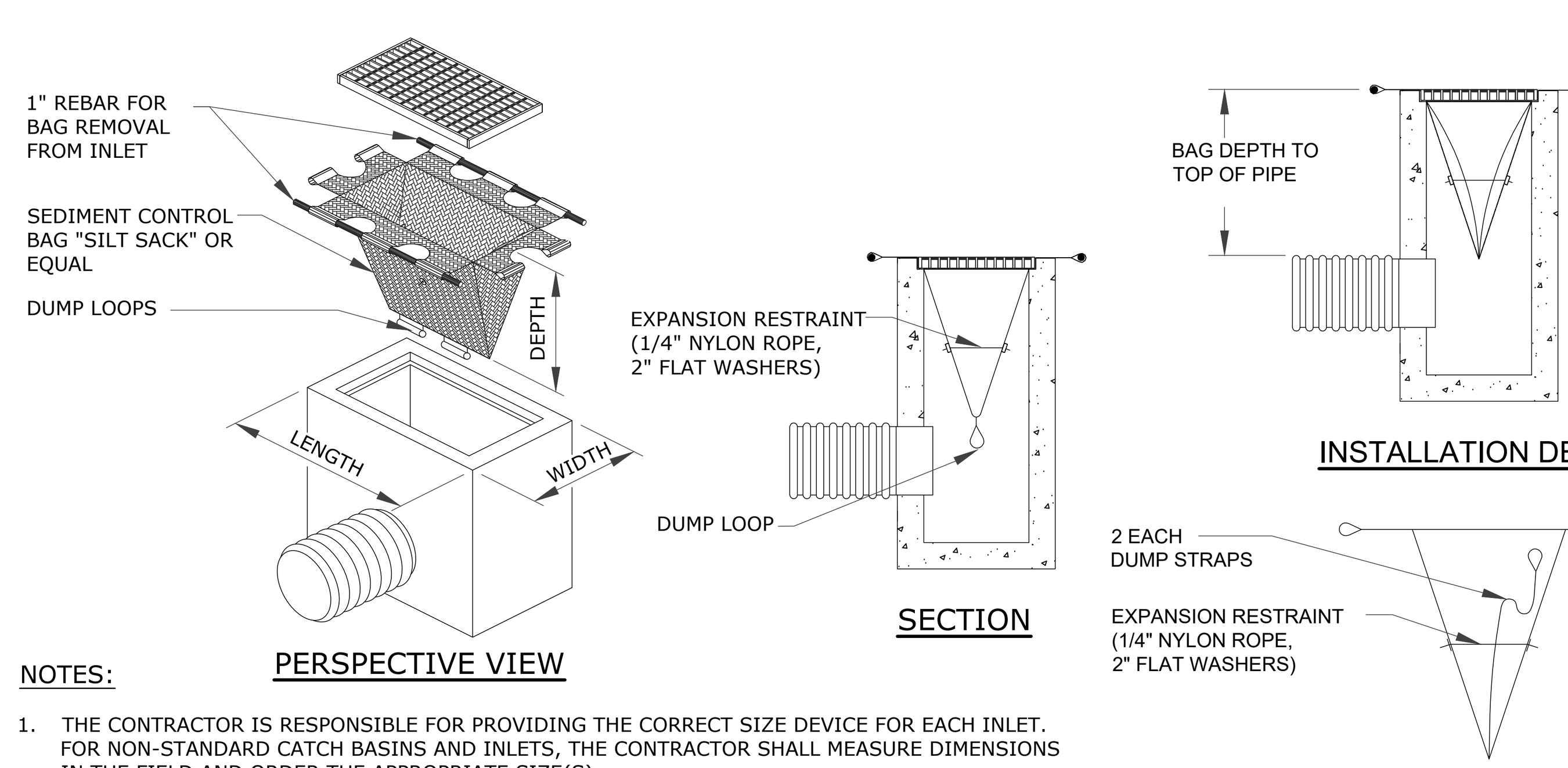
NOT TO SCALE



DIA	A	B	C	D	E	R
12"	4"	2'-0"	4'-0 7/8"	2'-0"	3"	9"
15"	6"	2'-3"	3'-10"	2'-6"	3"	11"
18"	9"	2'-3"	3'-10"	3'-0"	3"	12"
24"	9 1/2"	3'-7 1/2"	2'-6"	4'-0"	3"	14"
30"	12"	4'-6"	1'-7 3/4"	5'-0"	3 1/2"	15"
36"	15"	5'-3"	2'-10 3/4"	6'-0"	4"	20"
42"	21"	5'-3"	2'-11"	6'-6"	4 1/2"	22"
48"	24"	6'-0"	2'-2"	7'-0"	5"	22"
54"	27"	5'-5"	2'-11"	7'-6"	5 1/2"	24"
60"	30"	5'-0"	3'-3"	8'-0"	6"	24"

FLARED END SECTION

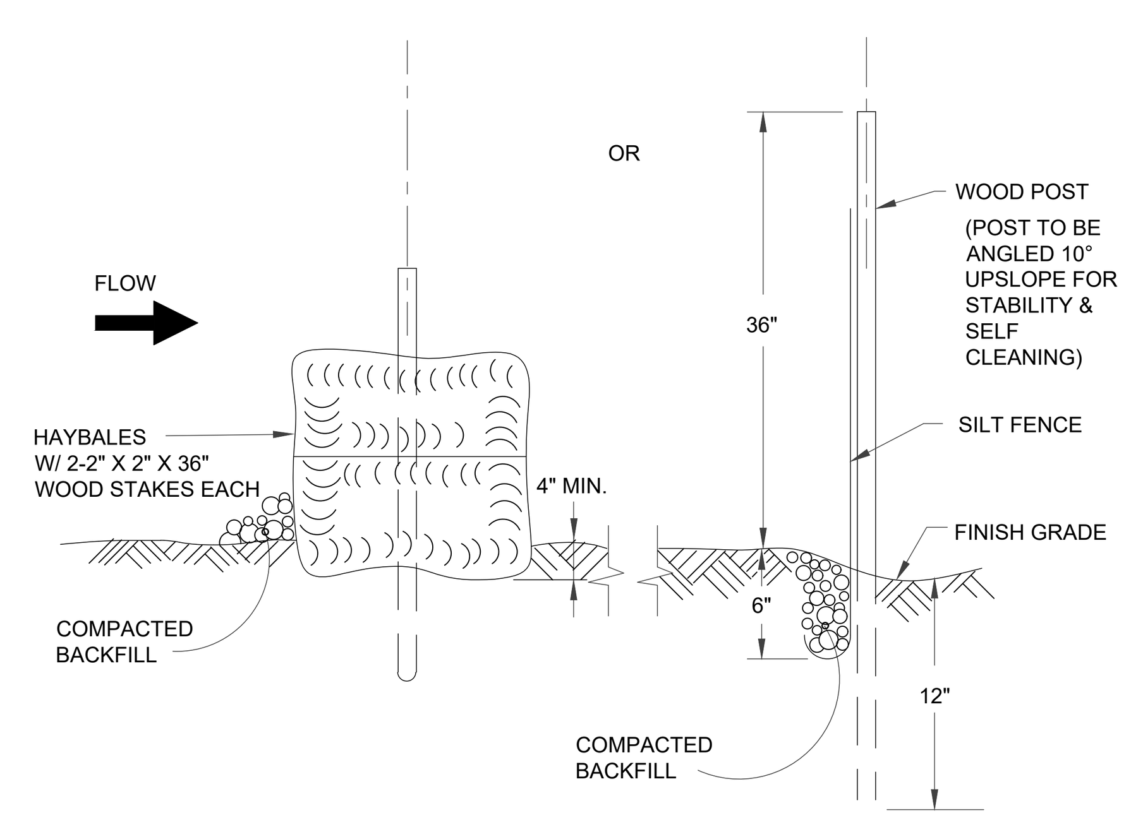
SCALE: NONE



NOTES:
1. THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING THE CORRECT SIZE DEVICE FOR EACH INLET. FOR NON-STANDARD CATCH BASINS AND INLETS, THE CONTRACTOR SHALL MEASURE DIMENSIONS IN THE FIELD AND ORDER THE APPROPRIATE SIZE(S).
2. THE INLET SEDIMENT CONTROL DEVICE SHALL BE OF HIGH FLOW DESIGN (200 GAL/MIN/FT), AS PER THE MANUFACTURER'S SPECS.
3. THE SEDIMENT CONTROL DEVICE SHALL BE INSPECTED DAILY BY THE CONTRACTOR AND CLEANED AND MAINTAINED A MINIMUM ONCE PER MONTH OR WITHIN THE 48 HOURS FOLLOWING A STORM EVENT. THE FILTER SHALL BE REPLACED OR CLEANED WHEN THE BAG BECOMES HALF FULL. THE FILTER SHALL BE CLEANED IN A MANNER WHICH ENSURES THAT ALL SEDIMENT REMAINS ON SITE.
4. SUBSTITUTION OF A SHEET OF FILTER FABRIC PLACED OVER THE OPENING OF THE INLET IS NOT APPROVED.
5. RECESSED CURB INLET CATCH BASINS MUST BE BLOCKED WHEN USING FILTER FABRIC INLET SACKS, SIZE OF FILTER INLET SACK TO BE DETERMINED BY MANUFACTURER.
6. THE FILTER DEVICE SHALL BE MANUFACTURED BY ACF ENVIRONMENTAL OR APPROVED EQUAL.

CATCH BASIN FILTER (SILT SACK) DETAIL

NOT TO SCALE



TYPICAL SEDIMENT BARRIER DETAIL

SCALE: NONE

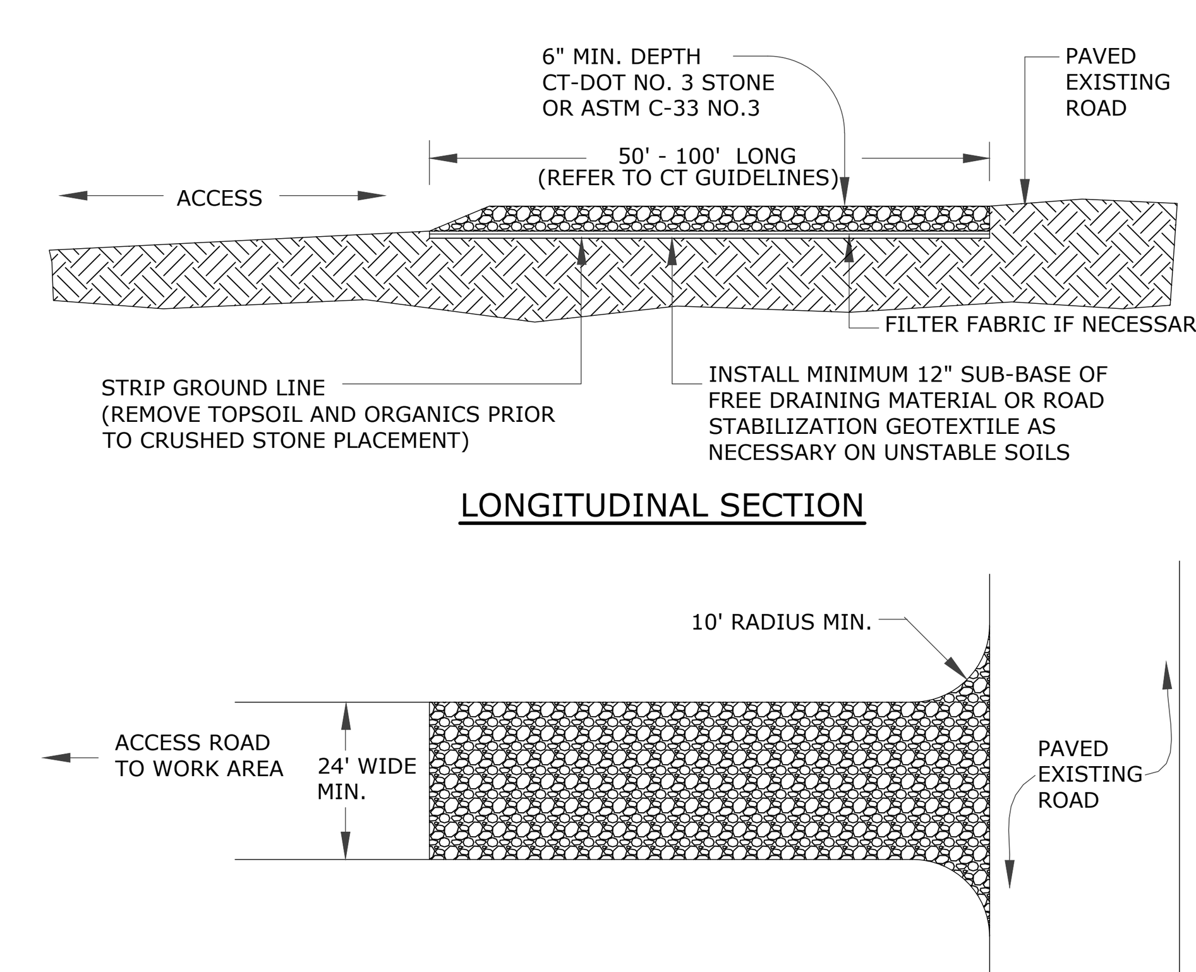
INSTALLATION NOTES FOR HAY BALES:
1. PLACE HAY BALES ON CONTOUR AND WITH LAST HAY BALES UPSLOPE TO THAT TOP OF LAST SEVERAL HAY BALES ARE HIGHER THAN LINE OF HAY BALES.
2. EXCAVATE TRENCH 4" MIN. AND PLACE FILL UPSLOPE OF TRENCH
3. PLACE HAY BALE AND STAKE FIRST STAKE AT ANGLE TOWARDS FIRST BAKE. STAKES ARE 18" MIN. INTO GROUND.
4. WEDGE LOOSE HAY BETWEEN BALES.
5. BACKFILL & COMPACT EXCAVATED FILL ALONG UPHILL SIDE OF HAY BALE.

PZC PERMIT # __________ DATE OF APPROVAL __________ EXPIRATION DATE __________

PZC CHAIRMAN OR SECRETARY DATE

IWWC PERMIT # __________ DATE OF APPROVAL __________

IWWC CHAIRMAN DATE



NOTE: ALL ANTI-TRACKING PADS SHALL BE INSTALLED AND MAINTAINED IN ACCORDANCE WITH 2002 CT GUIDELINES FOR SOIL EROSION & SEDIMENT CONTROL, AS AMENDED.

ANTI-TRACKING PAD DETAIL

NOT TO SCALE

Reference: 2002 CT Guidelines for Erosion and Sediment Control, DEEP Bulletin 34, Figure CE-2

REV.	DESCRIPTION OF REVISION	DATE	APPR.
1	RESPONSE TO INLAND WETLAND COMMISSION COMMENTS	06/06/2023	SRM

STATE OF CONNECTICUT GEORGE F. ANDREWS JR. No. 19286 LICENSED PROFESSIONAL ENGINEER

Loureiro
Engineering • Construction • EH&S • Energy
Waste • Facility Services • Laboratory
Loureiro Engineering Associates, Inc.
100 Northwest Drive • Plainville, Connecticut 06062
Phone: 860-747-6181 • Fax: 860-747-8822
An Employee Owned Company • www.Loureiro.com

SCALE: AS NOTED | COMM. NO. 045JC2.06 | DRAWN BY SRM | DATE 04/03/2023 | APPROVED BY GFA | DATE 04/03/2023

INDUSTRIAL SITE PREPARATION PLAN: DETAILS

GALES FERRY INTERMODAL
1737 & 1761 ROUTE 12, GALES FERRY, CT 06335

PREPARED FOR:
GALES FERRY INTERMODAL LLC
549 SOUTH STREET, QUINCY, MA 02169

DRAWING C-12

SHEET NO. 15 NO. OF SHEETS 15

APPLICATION OF GALES FERRY INTERMODAL, LLC TO LEDYARD INLAND WETLANDS AND WATERCOURSES COMMISSION

NARRATIVE DESCRIPTION OF CONSTRUCTION SEQUENCING AND EROSION AND SEDIMENTATION CONTROL PLAN RELATIVE TO AGGREGATE REMOVAL AND PROCESSING FOR THE PREPARATION OF AN INDUSTRIAL SITE FOR FUTURE INDUSTRIAL DEVELOPMENT AT 1737 AND 1761 ROUTE 12, LEDYARD, CONNECTICUT

DATE: APRIL 3, 2023
REVISED: JUNE 6, 2023

OVERVIEW

The instant application is an application for a permit to conduct regulated activities in conjunction with a regrading operation to create additional building pads for future industrial development on real property owned of record by Gales Ferry Intermodal, LLC (the "Applicant") at 1737 and 1761 Route 12, Gales Ferry, Connecticut as depicted as Lots 1737 and 1761 on Ledyard Assessor's Map 61 (hereinafter, the "Property"). The application parcel is located in an Industrial Zoning District and contains 165 acres of land, more or less. The proposed regrading operation is contemplated on approximately 38 acres of the Property in order to ready the Property for future industrial development in conjunction with the placement of approximately 300,000 square feet of industrial space. The proposed site regrading and preparation application will be conducted in four (4) phases with each phase of the proposed site regrading being maintained at or less than ten (10) acres of disturbed land in accordance with the requirements of the Town of Ledyard Zoning Regulations. Based upon test borings conducted on the Property, the site preparation will require the removal of topsoil and bedrock with the result being the creation of approximately 30-usable acres of the project site suitable for the placement of future industrial buildings and the finished grading resulting in a rock cut along the southerly periphery of the site regrading area.

It is anticipated that the majority of the earthen material removed from the site will be processed on site and removed from the site primarily by way of barge or rail, both of which are located near the westerly periphery of the Property.

Site testing conducted on the Property evidences the fact that the proposed site grading area is overlaid with a layer of surficial material (as is more particularly described in the Soil Characteristics section of this Narrative) and underlaid with bedrock.

While the instant application has been formulated in order to take advantage of (i) the industrial zoning district classification of the Property (ii) the fact that the Property is located on the shore of the Thames River with deep water access suitable for the shipping of materials and (iii) the fact that the Property is bisected by the rail line of the Providence and Worcester Railroad Company; and is therefore a strategically located site for future industrial development, the removal of aggregate material to ready the site for future industrial development provides an essential product in the marketplace in and of itself. Due to the nature of the site preparation activities, proper design controls and cultural controls must be utilized in order to ensure that the

regrading operation is conducted in an environmentally and ecologically appropriate manner, giving due consideration to the inland wetland and watercourse resources which are located on and in proximity to the area of proposed regrading. The plans for this proposed regrading activity to ready the site for future industrial development, prepared by Loureiro Engineering Associates, Inc., and this Narrative, specify, in detail, the manner in which the proposed material removal operation will be conducted in accordance with the applicable Town of Ledyard Inland Wetlands and Watercourses Regulations and the Ledyard Zoning Regulations; and in a manner which will provide for compensatory mitigation for the wetland removed in the Phase 4 extraction area; and in the event that an adverse impact occurs to the hydrology of the wetland systems located northerly and westerly of the location for the proposed grading operation for the loss of the functionality in those systems.

In conjunction with the proposed regrading of the southerly portion of the application parcel, the Applicant proposes to conduct certain regulated activities delineated in the next section of this Narrative. These regulated activities are required to create future industrial land suitable for the accommodation of up to 300,000 square feet of future industrial building development.

DELINEATION OF REGULATED ACTIVITIES

1. Removal of an isolated pocket of inland wetlands delineated by the Z series of flagging in the Phase 4 site regrading area resulting in the loss of approximately 1,700 square feet of inland wetland area.

2. Culverting of 200 linear feet of intermittent watercourse to provide site access for site vehicles to the regrading area and to provide for future vehicular access to this area of the Property for future industrial uses.

3. Possible adverse hydrologic impacts to Wetlands X and Y resulting from the lowering of the finished ground elevation area of the regrading area to an elevation lower than the adjacent wetland.

4. Disturbance of 225,591 square feet of upland review area, of which 125,901 square feet is currently disturbed as a result of historic industrial operations dating back for nearly 200 years, in conjunction with the regrading activities easterly and southeasterly of isolated pockets of wetlands and the intermittent watercourse delineated by Wetland Flags WC-1 to WC-22.

SOIL CHARACTERISTICS ON THE PROPERTY

The portion of the Property located southerly and southwesterly of the existing American Styrenics manufacturing facility contains primarily upland soils, with small wetland areas and two (2) intermittent watercourses; (i) the first located in the Phase 1 project area and (ii) the second located in the Phase 4 project area. The first intermittent watercourse is located adjacent northwesterly to the proposed site development area and intervening between the proposed site development area and the Thames River to the west. The second intermittent watercourse is located northerly of the Phase 4 project area and adjacent southerly to the Americas Styrenics leasehold area. Soil characteristics on the site are as follows:

WETLAND SOILS

Ridgebury-Leicester-Whitman Soils (3). These poorly drained and very poorly drained soils are found in drainageways and depressions on glacial till, upland hills, ridges, plains and drumloidal landforms. Stones and boulders cover 8-25% of the surface. Slopes range from 0-30%. The mapped acreage of this undifferentiated group is about 35% Ridgebury soil, 30% Leicester soil, 20% Whitman soil and 15% other soils. Some mapped areas consist of one of these soils, and other areas consist of two or three. These soils were mapped together because there are no major differences in use and management.

The soil stratification for the Ridgebury soil is as follows:

0" – 1"	Partly decomposed leaves.
0" – 4"	Black, fine sandy loam; weak medium granular structure; friable; common fine roots; 5% rock fragments; strongly acid; clear wavy boundary.
4" – 13"	Gray fine sandy loam; common medium distinct strong brown mottles and common, medium faint yellowish brown mottles; massive; friable; 5% rock fragments; strongly acid; gradual wavy boundary.
13" – 20"	Brown fine sandy loam; many medium distinct yellowish brown mottles and few fine faint grayish brown mottles; massive; friable; firm in place; 10% rock fragments; slightly acid; clear wavy boundary.
20" – 60"	Grayish brown sandy loam; few fine faint yellowish brown mottles; massive; very firm, brittle; 5% rock fragment; slightly acid.

The soil stratification of the Leicester soil is as follows:

0" – 2"	Decomposed leaves.
2" – 6"	Very dark gray fine sandy loam; weak fine granular structure; very friable; few fine and medium roots; 5% rock fragments; very strongly acid; abrupt smooth boundary.
6" – 12"	Dark grayish brown, fine sandy loam; few fine faint yellowish-brown mottles and many medium distinct light brownish gray mottles; weak medium subangular blocky structure; very friable; few medium roots; 5% rock fragments; strongly acid; clear wavy boundary.
12" – 24"	Grayish brown, fine sandy loam; few medium distinct yellowish-brown and dark grayish brown mottles; weak medium subangular blocky structure; friable; 10% rock fragments; strongly acid; gradual wavy boundary.

24" – 32" Pale olive fine sandy loam; many course distinct yellowish brown mottles; weak medium subangular blocky structure; friable; 15% rock fragments; strongly acid; gradual wavy boundary.

32" – 60" Light olive gray gravelly fine sandy loam; many medium distinct yellowish-brown mottles; massive; friable; 25% rock fragment; strongly acid.

The soil stratification of the Whitman soil is as follows:

0" – 1" Decomposed leaf litter.

1" – 9" Black fine sandy loam; weak medium granular structure; friable; common fine and medium roots; strongly acid; abrupt wavy boundary.

9" – 16" Dark grayish brown fine sandy loam; few fine faint yellowish brown mottles; weak medium subangular blocky structure; friable; few fine roots; 5% rock fragments; medium acid; clear wavy boundary.

16" – 22" Grayish brown, fine sandy loam; common medium distinct strong brown mottles and few medium light brownish gray mottles; moderate medium platy structure; very firm, brittle; 5% rock fragments; slightly acid; gradual wavy boundary.

22" – 60" Grayish brown fine sandy loam; common medium distinct strong brown mottles and few medium faint light brownish gray mottles; massive; firm, brittle; 5% rock fragments; slightly acid.

Included with these soils in mapping are small areas of moderately well drained Rainbow, Sutton and Woodbridge soils and very poorly drained Adrian and Palms soils. The Ridgebury soil has a seasonal high water table at a depth of about 6". Permeability is moderate or moderately rapid in the surface layer and subsoil and slow or very slow in the substratum. The Leicester soil has a seasonal high water table at a depth of about 6". Permeability is moderate or moderately rapid. The Whitman soil has a high water table at or near the surface for most of the year. Permeability is moderate or moderately rapid in the surface layer and subsoil and slow or very slow in the substratum.

Aquent Soils - These poorly drained and very poorly drained soils are formed in human transported material or on excavated (cut) landscapes on flood plains. Slopes range from 0 to 3 percent.

The soil stratification for the Aquent soil is as follows:

0" – 4" Black silt loam, light brownish gray dry; weak fine to medium granular structure; very friable; may fine to coarse roots; slightly alkaline; abrupt wavy boundary

4" – 14"	Dark grayish brown fine sand; single grain; loose; many fine to coarse roots; 10 % light olive gray lenses of stratified loamy fine sand to sand; common fine to coarse prominent strong brown soft masses of iron accumulation and few fine to coarse faint gray iron depletions; slightly alkaline; gradual wavy boundary
14" – 21"	Very dark grayish brown very fine sand; single grain; loose; common fine to medium roots; many fine to coarse prominent strong brown soft masses of iron accumulation; slightly alkaline; abrupt wavy boundary
21" – 38"	Very dark gray silt loam; massive; very friable; few fine to medium roots; 1" thick lense of medium sand; common partially decomposed wood fragments; common fine prominent yellowish red soft masses of iron accumulation; slightly alkaline; clear wavy boundary
38" – 45"	Very dark gray fine sandy loam; massive; very friable; many charcoal fragments; common fine prominent yellowish red soft masses of iron accumulation; slightly alkaline; clear smooth boundary
55" – 60"	Black fine sandy loam; massive; very friable; neutral.

Permeability of the Aquent soil is moderate to very rapid.

UPLAND SOILS

Hinckley Soils - HkD. This moderately steep and steep, excessively drained soil is found on stream terraces, outwash plains, kames and eskers. Mapped areas are dominantly irregular in shape and mostly 2 to 35 acres. Typically, the Hinckley soil has a dark brown, gravelly sandy loam surface layer 2 inches thick.

The soil stratification of the Hinckley soil is as follows:

0" – 7"	Dark brown gravelly sandy loam; weak fine granular structure; very friable; many fine roots; 20% coarse fragments; medium acid; abrupt wavy boundary.
7" – 14"	Yellowish brown gravelly loamy sand; single grain; loose; few fine roots; 25% coarse fragments; medium acid; gradual wavy boundary.
14" – 22"	Yellowish brown gravelly loamy sand; single grain; loose; few fine roots; 40% coarse fragments; strongly acid; clear wavy boundary.
22" – 60"	Brownish yellow very gravelly coarse sand; single grain; loose; 60% coarse fragments; medium acid

Permeability of the Hinckley soil is rapid in the surface layer and subsoil and very rapid in the substratum. The available water capacity is low. Runoff is very rapid.

Hollis – Charlton – Rock Outcrop Complex (also characterized as the Hollis-Chatfield Complex) (HrD) 15 – 45% Slopes. This moderately steep to very steep complex consists of somewhat excessively drained and well-drained soils and rock outcrop found on glacial till uplands. Stones and boulders cover 1 to 8% of the surface. Mapped areas are irregular in shape and mostly 2 to 45 acres. The soils and rock outcrop in this complex are so intermingled on the landscape that it was not practical to separate them in mapping at the scale used. This complex is about 40% Hollis soil, 25% Charlton soil, 20% rock outcrop and 15% other soils.

The soil stratification of the Hollis soil is as follows:

0" – 2"	Very dark brown fine sandy loam; weak medium granular structure; very friable; many fine roots; 5% rock fragments; strongly acid; clear wavy boundary.
2" – 5"	Dark brown fine sandy loam; weak medium granular structure; very friable; common fine roots; 5% rock fragments; strongly acid; gradual wavy boundary.
5" – 12"	Dark yellowish brown fine sandy loam; weak medium subangular structure; very friable; common fine roots; 5% rock fragments; strongly acid; gradual wavy boundary.
12" – 17"	Dark yellowish brown fine sandy loam; weak medium subangular blocky structure; very friable; common fine roots; 5% rock fragments; strongly acid.
17"	Hard, unweathered schist bedrock

The soil stratification of the Charlton soils is as follows:

0" – 4"	Fine sandy loam.
4" – 7"	Fine sandy loam.
7 – 19"	Fine sandy loam.
19" – 27"	Gravelly fine sandy loam.
27" – 65"	Gravelly fine sandy loam.

The soil stratification of the Chatfield soil is as follows:

0" – 1"	Highly decomposed plant material.
1" – 6"	Gravelly fine sandy loam.

6" – 15"	Gravelly fine sandy loam.
15" – 29"	Gravelly fine sandy loam.
29" – 80"	Unweathered bedrock.

Hollis – Charlton – Rock Outcrop Complex 3-15% slopes (also characterized as the Hollis-Chatfield Complex) (HrC). This gently sloping to sloping complex consists of somewhat excessively drained and well-drained soils and rock outcrop on glacial till uplands. Stones and boulders cover 1 to 8% of the surface. Mapped areas are irregular in shape and mostly 2 to 45 acres. The soils and rock outcrop in this complex are so intermingled on the landscape that it was not practical to separate them in mapping at the scale used. This complex is about 40% Hollis soil, 25% Charlton soil, 20% rock outcrop and 15% other soils.

The soil stratification of this Hollis – Charlton – Rock Outcrop soil is as follows:

0" – 2"	Very dark brown fine sandy loam; weak medium granular structure; very friable; many fine roots; 5% rock fragments; strongly acid; clear wavy boundary.
2" – 5"	Dark brown fine sandy loam; weak medium granular structure; very friable; common fine roots; 5% rock fragments; strongly acid; gradual wavy boundary.
5" – 12"	Dark yellowish brown fine sandy loam; weak medium subangular structure; very friable; common fine roots; 5% rock fragments; strongly acid; gradual wavy boundary.
12" – 17"	Dark yellowish brown fine sandy loam; weak medium subangular blocky structure; very friable; common fine roots; 5% rock fragments; strongly acid.
17"	Hard, unweathered schist bedrock

The soil stratification of the Charlton soils is as follows:

0" – 4"	Fine sandy loam.
4" – 7"	Fine sandy loam.
7 – 19"	Fine sandy loam.
19" – 27"	Gravelly fine sandy loam.
27" – 65"	Gravelly fine sandy loam.

The soil stratification of the Chatfield soil is as follows:

0" – 1"	Highly decomposed plant material.
1" – 6"	Gravelly fine sandy loam.
6" – 15"	Gravelly fine sandy loam.
15" – 29"	Gravelly fine sandy loam.
29" – 80"	Unweathered bedrock.

Rock Outcrop – Hollis Complex (Rp). This gently sloping to very steep complex consists rock outcrop and a somewhat excessively drained soil on glacial till uplands. Stones and boulders cover 1 to 8% of the surface. Mapped areas are irregular in shape and mostly 2 to 15 acres. Slopes range from 3 to 45%. Rock Outcrop and Hollis soil are so intermingled on the landscape that it was not practical to separate them in mapping at the scale used. This complex is about 50% rock outcrop, 30% Hollis soil, and 20% other soils. Rock outcrop is hard, unweathered, exposed bedrock. It is mainly gneiss and schist.

The soil stratification for the Hollis component of this complex has been previously stated in this Narrative.

Udorthent – Urban Land Complex (Ud). This complex consists of excessively drained and moderately well-drained soils that have been disturbed by cutting or filling and areas that are covered by buildings or pavement. Mapped acres are mostly 5 to 40 acres. Slopes range from 0 to 15%. About 60% of this complex is Udorthents, 25% is urban land, and 15% is other soils. The areas of Udorthents and urban land are so intermingled on the landscape that it was not practical to map them separately. Some areas of Udorthents have been cut to a depth of 2 feet or more, and some have been covered with more than 2 feet of fill. Permeability of the Udorthents is slow to very rapid. The available water capacity and runoff are variable. Most areas were cut or filled in order to smooth sites for community developments, recreational facilities, and roads. This complex requires onsite investigation and evaluation for most uses. Udorthents are found on the landscape with excessively drained Hinckley soils, somewhat excessively drained Hollis and Merrimack soils; well-drained Canton, Charlton, Narragansett, Agawam, Paxton and Montauk soils; and moderately well-drained Sutton, Woodbridge, Rainbow, Sudbury and Ninigret soils. Udorthents are found in a complex pattern on the landscape with urban land and pits, gravel. Coarse fragments range from 0-65% in the soil. Udorthents are very strongly acid to slightly acid.

GENERAL PROCEDURES

1. Prior to the initiation of construction activities on the project site, the applicant shall meet with the Zoning Enforcement Officer and Wetlands Enforcement Officer of the Town of Ledyard to agree upon the methodology for the installation, maintenance and repair of erosion and sediment control measures as delineated on a plan entitled "Gales Ferry Intermodal Industrial Site Preparation Plans 1737 and 1761 Route 12 Gales Ferry, CT 06335 April 3, 2023 Revised: June 6, 2023 Property Owner / Applicant: Gales Ferry

Intermodal LLC 549 South Street Quincy, MA 02169 Prepared By: Loureiro Engineering Associates, Inc. 100 Northwest Drive · Plainville, Connecticut 06062 Phone: 860-747-6181 · Fax: 860-747-8822" (hereinafter the "Plan"). In no event shall actual excavation and extraction operations commence until such time as erosion and sediment control measures have been installed and inspected and approved by the Town of Ledyard Zoning Enforcement Officer and Ledyard Wetlands Enforcement Officer.

2. The Applicant's engineer shall delineate in the field the limits within which the Phase 1 excavation and extraction operations shall occur.

3. All operations approved under the permit issued by the Town of Ledyard Inland Wetlands and Watercourses Commission shall be conducted by the Applicant in accordance with the approved Plan and this Narrative. This Narrative and the approved Plan delineated herein shall be incorporated into any permit to conduct regulated activities approved by the Town of Ledyard Inland Wetlands and Watercourses Commission and/or the Town of Ledyard Planning and Zoning Commission.

4. All erosion and sediment control measures shall be inspected at least weekly while activities are ongoing and after every storm event resulting in a discharge and repaired and maintained as necessary. Sediment traps shall be restored to their design capacity when they reach 50% of their design capacity. Removed surficial material shall be utilized as structural site fill.

5. During the stabilization period (after construction has been completed in each phase of the regrading activities, but prior to certification of approval by the Zoning Enforcement Officer of the Town of Ledyard and the Wetlands Enforcement Officer of the Town of Ledyard for the removal thereof), the structural integrity of silt fence and water quality and sediment traps shall be maintained. Alan Perrault, consultant to Gales Ferry Intermodal, LLC, or his designee, shall be responsible for compliance with all erosion and sediment control measures in conjunction with the extraction operation. The addresses of Alan Perrault and Chase Davis is 549 South Street, Quincy, Massachusetts 02169. Their e-mail addresses are aperrault@jaycashman.com, cdavis@jaycashman.com. All erosion and sediment control measures shall be inspected, maintained and/or repaired, as necessary, on a weekly basis during the stabilization period and after each storm occurrence resulting in a discharge. Perrault and Davis shall be the designated representative for the implementation of all of the terms and conditions of the erosion and sedimentation control plan for the industrial regrading of the Property in order to ready the same for future industrial development.

6. During the stabilization period, any erosion which occurs shall be immediately repaired by the Applicant, reseeded with the seeding mixes set forth in the Construction Sequencing section of this Narrative and restabilized. Since the southerly limits of the improved industrial site will be a semi-vertical rock cut, no stabilization measures are contemplated or required along the finished face of the rock cut.

7. Once stabilization has been completed and certification thereof obtained in writing from the Zoning Enforcement Officer of the Town of Ledyard and the Wetlands Enforcement

Officer of the Town of Ledyard, all erosion and sediment control measures as delineated on the Plan shall be removed by the Applicant and the operating floor of the rock removal area shall be stabilized as described in the Construction Sequencing section of this Narrative until such time as that area is developed for future industrial development.

8. The extraction contemplated by this application will render the Property in a condition suitable for future utilization for industrial development pursuant to the Zoning Regulations of the Town of Ledyard in the Industrial Zoning District. Until such uses have been implemented, the area of extraction shall be stabilized in accordance with the procedures delineated in the Construction Sequencing section of this Narrative.

CONSTRUCTION SEQUENCING

1. The Applicant shall, prior to the commencement of operations on the Property, secure all necessary local, state and federal permits and file all applicable stormwater registrations as required by applicable law.

2. The Applicant, together with its contractor, shall engage in the pre-construction meeting with the Town of Ledyard staff as required by Paragraph 1 of the General Procedures section of this Narrative.

3. The Applicant shall install a double row of mulch sock immediately down gradient from the Phase 1 site preparation area where there are wetlands downgradient. Otherwise, a single row of mulch sock down gradient of Phase 1 site preparation area shall be installed.

4. The Applicant shall install the Phase 1 temporary sediment trap in the location delineated on Sheet C-6 of 15 of the Plan and associated piping, pump, fractionalization tank and weir tank as shown on Sheet C-15 of 15 and Sheet C-6 of 15 of the Plan.

5. The Applicant's contractor shall install an anti-tracking pad in accordance with the anti-tracking pad detail contained on Sheet C-12 of 15 of the Plan at the interface of the active construction area with the haul road to the Applicant's temporary processing facility to be installed on the Property. See Sheets C-5 of 15 and C-6 of 15 of the Plan for location of anti-tracking pad construction entrance to site preparation area.

6. The crossing of the intermittent watercourse shall be effected by excavating to design grade for the installation of the cross culvert. Upon attaining rough grade, the area for culvert installation shall be bedded with not less than 18" of riprap and 6" of gravel. A 36" reinforced concrete pipe (RCP) culvert shall be installed with flared end sections at the inlet and outlet. Plunge pool outlet protection shall be installed at the outlet of the cross culvert in accordance with the detail delineated on Sheet C-12 of 15 of the Plan. The cross culvert shall be backfilled with not less than 12" cover sand or other bedding material which will protect integrity of the RCP culvert. Thereafter, the area of the crossing shall be backfilled to grade with site materials and improved with not less than 8" of compacted bankrun gravel suitable for the accommodation of the weight of loaded site trucks.

7. The Applicant shall strip the topsoil and subsoil in the Phase 1 excavation area. All topsoil and subsoil shall be retained onsite for use in the final stabilization and reclamation of the site. The topsoil shall and subsoil shall be retained in a surface soil stockpile which shall be formed with slopes not exceeding the angle of repose. The surface soil stockpile shall be encircled with a double row of 18 inch mulch sock installed in accordance with the compost/mulch sock detail delineated on Sheet C-12 of 15 of the Plan. The surface soil stockpile shall be stabilized by seeding with a perennial ryegrass mix and mulch. The perennial ryegrass mix shall be applied at a rate of 40 pounds per acre. Mulch shall be applied at a rate of 80 pounds per 1,000 square feet, and shall be spread by hand or with a mulch blower.

8. The proposed site preparation for future development will involve the extraction of rock from the project site.

9. Surficial material (other than topsoil and subsoil) shall be excavated from the Phase 1 extraction area and removed by truck to the processing facility of the Applicant to be located as depicted on Sheet C-15 of 15 of the Plan.

10. Bedrock will be severed from the land in well-designed and controlled blasts in order to produce "shot rock" for processing. Prior to engaging in any blasting activities on the Property, the Applicant's blasting contractor shall conduct a complete pre-blast survey. The Applicant's geotechnical/blasting consultant will determine a safe pre-blasting survey radius. The pre-blast survey will include collecting background water quality data for nearby domestic wells and surface water. Each blast will be monitored with a seismograph at pre-determined locations in order to record the data (ground vibration and air overpressure (decibel levels)) associated with each blast to ensure that each blast is being conducted in a safe and proper manner which will not result in any property damage.

11. Throughout the duration of the excavation operation and thereafter on a permanent basis, a chain link fence will be maintained along the top of the operating face of the excavation operation in order to prohibit the inadvertent trespass onto the operating portion of the Property.

12. Shot rock shall be removed from the Phase 1 extraction site by site trucks for processing to marketable material at the temporary processing plant of the Applicant to be installed on the Property in the location delineated on Sheet C-5 of 15 of the Plan. It is anticipated that the majority of the processed material will be removed from the Property by rail or barge.

13. The Phase 1 operating area shall be over-excavated to a depth of 6 feet and thereafter backfilled with stone dust or equally suitable material order to accommodate the installation of future underground utilities necessary to serve the future industrial development of the Property.

14. Upon completion of the extraction of stone in each phase of the project, the Applicant shall backfill the future development pad with a minimum of 6 feet of compacted stone dust (or equally suitable material) as delineated in the preceding paragraph and place sufficient fill material, specified by the Applicant's engineer, to support the growth of the hereinafter

specified vegetation until such time as an industrial end-user for the Property has been identified. Thereafter, the building pad area shall be loamed with not less than 4 inches of topsoil which has been stripped from the project site and stored in temporary soil stockpile locations. Areas to be seeded will be prepared by spreading ground limestone equivalent to 50% calcium plus magnesium oxide applied at a rate of 100 pounds per 1,000 square feet. Fertilizer (10-10-10) is to be applied at a rate of 15 pounds per 1,000 square feet. Following the initial application of lime and fertilizer, there are to be no periodic applications of lime and fertilizer. After seeding, the area shall be stabilized with hay mulch immediately applied at a rate of 80 pounds per 1,000 square feet and anchored after spreading by tracking. Seeding shall be applied with a conservation mix specified by the project engineer based upon soil types from one of the following categories: (i) switchgrass applied at a rate of 4 pounds per acre, big bluestem applied at a rate of 4 pounds per acre, little bluestem applied at a rate of 2 pounds per acre, sand lovegrass applied at a rate of 1.5 pounds per acre and bird's-foot trefoil applied at a rate of 2 pounds per acre for a total application of 13.5 pounds per acre or (ii) flatpea applied at a rate of 10 pounds per acre, perennial pea applied at a rate of 2 pounds per acre, crown vetch applied at a rate of 10 pounds per acre and tall fescue applied at a rate of 2 pounds per acre for a total application of 24 pounds per acre or (iii) orchardgrass applied at a rate of 5 pounds per acre, tall fescue applied at a rate of 10 pounds per acre, redtop applied at a rate of 2 pounds per acre and bird's-foot trefoil applied at a rate of 5 pounds per acre for a total application of 22 pounds per acre. Seeding shall only occur during the periods April 15 to June 15 and August 15 to October 1.

15. The stabilization measures delineated in the preceding paragraph of the Construction Sequencing section of this Narrative are intended to stabilize the disturbed area of the Property until such time as an end-user for industrial development is identified and the site is fully developed in accordance with a final site plan approved by the Town of Ledyard Planning and Zoning Commission.

16. The methodologies delineated in Paragraphs 1 to 14 of the Construction Sequencing section of this Narrative shall be followed sequentially for Phases 2, 3 and 4 of the proposed site preparation endeavor.

WETLAND MITIGATION

The proposed regrading area (i) encompasses a small pocket of wetlands in the Phase 4 regrading area (ii) the culverting of 200 linear feet of intermittent watercourse and (iii) is abutted to the north and northwest by a series of wetland and watercourse systems, the characteristics of which are more particularly described in a report entitled "Wetlands Assessment and Mitigation Site Preparation for Future Industrial Development 1737 and 1761 Route 12, Gales Ferry (Ledyard), CT REMA Job #23-2596-LED5" prepared by REMA Ecological Services, LLC and submitted or to be submitted to the Town of Ledyard Inland Wetlands and Watercourses Commission with respect to this permit application. Activities proposed in conjunction with this application will result in the elimination of an isolated pocket of wetlands containing 1,700 square feet and the elimination of 200 linear feet of intermittent watercourse; and, the Applicant recognizes the fact that the proposed extraction raises an area of possible concern and/or impact with respect to the adjacent wetland/watercourse areas to the north and west of the proposed

regrading area. The possible indirect impact is that the reduction of contributing watershed area to the adjacent wetland systems and/or the time of concentration will adversely impact the hydrology of these adjacent resources.

The Applicant is proposing complete mitigation for the areas of direct wetland and watercourse impact. In addition, to mitigate against possible adverse impacts, the Applicant is proposing that the Applicant be required to monitor the hydrology of the adjacent northerly and westerly wetland systems on a semi-annual basis commencing with the date of commencement of extraction in the Phase 1 extraction area and continuing through and including a period of five (5) years subsequent to the date that the Applicant completes the regrading on the Property. The monitoring of the wetland system shall be conducted by a wetland scientist approved by the Ledyard Inland Wetlands and Watercourses Commission. The wetland scientist shall be required to submit written reports to the Ledyard Inland Wetlands and Watercourses Commission within thirty (30) days subsequent to the date of each required inspection. In the event that the wetland scientist notes that the regrading authorized by this Application is resulting in an adverse hydrologic impact to the adjacent northerly and westerly wetland systems, the Applicant shall be required, as a condition of the wetland permit issued in conjunction with this permit application, to create additional compensatory wetlands as a component of the closure plan for this project (the "Mitigation").

The Applicant shall create a Mitigation area equal to three hundred (300%) percent of the area of regulated inland wetlands and/or watercourses which have been adversely impacted by the site regrading and associated activities. The wetland Mitigation area shall be in the location depicted in a report of REMA Ecological Services, LLC dated June 1, 2023 and shall be constructed in accordance with the parameters contained therein. The wetland Mitigation area shall be constructed and planted under the supervision of a wetland scientist and/or wetland biologist experienced in wetland creation and mitigation. The wetland Mitigation area shall be designed in order to create a diverse wetland environment that currently does not exist on the Property.

The wetland scientist and/or wetland biologist experienced in the science of wetland creation shall specify a planting scheme and monitoring plan for the Mitigation, which planting scheme shall be submitted to, and approved by, the Ledyard Inland Wetlands and Watercourses Commission prior to commencement of the construction of the Mitigation. The specific planting scheme will not be determined until such time as the Mitigation has been finally shaped and the depth of inundation in the Mitigation determined which will control the species of plants which will have the greatest likelihood of survival within said environment and which will be most successful in inhibiting the infestation of invasive species.

Contemporaneously with the approval of any permit for the regulated activities proposed in conjunction with this Application, the Ledyard Inland Wetlands and Watercourses Commission shall establish a performance bond for the Mitigation. Prior to the commencement of site regrading operations on the Property, the Applicant shall be required to post the performance bond with the Town of Ledyard, which performance bond shall be continued in full force and effect until such time as either (i) it is determined by the Applicant's wetland scientist that no adverse impacts have occurred or (ii) the Mitigation has been completed.

CERTIFICATIONS

The Applicant hereby certifies pursuant to Section 7 of the Ledyard Inland Wetlands and Watercourses Regulations that:

(a) That the Applicant is familiar with all information provided in the permit application and is aware of the penalties for obtaining a permit through deception or through inaccurate or misleading information.

(b) The Applicant hereby authorizes the members and agents of the Town of Ledyard Inland Wetlands and Watercourses Commission to inspect the permit application property, at reasonable times, during the pendency of the submitted application and for the life of any permit issued thereunder.

(c) No traffic attributable to the completed project on the application parcel will use streets within any adjoining municipality to enter or exit the site.

(d) A portion of the Property on which the regulated activity is proposed is located within 500 feet of the municipal boundary of the Town of Montville.

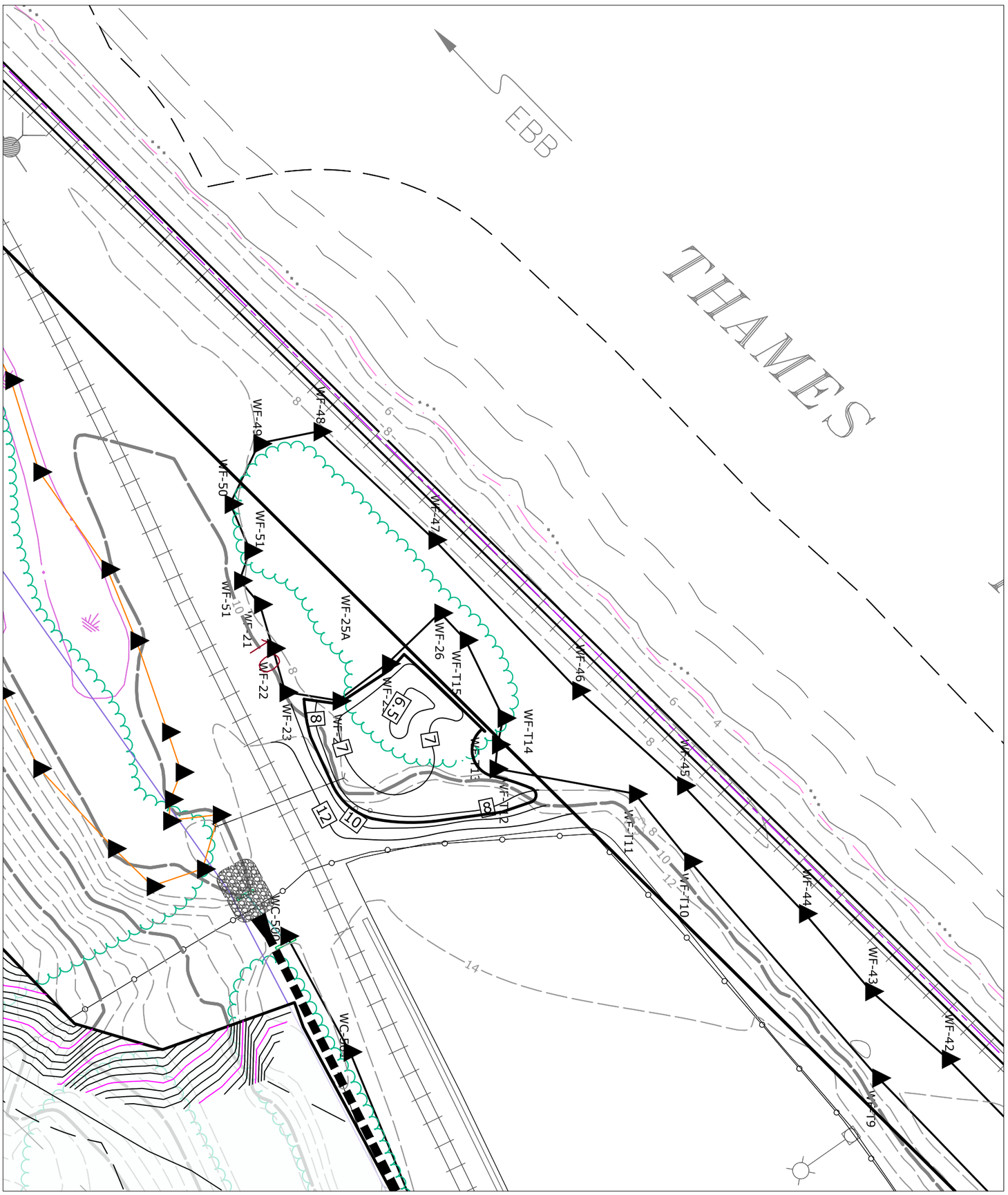
(e) Water drainage from the project site will not flow through and/or impact the drainage system within any adjoining municipality.

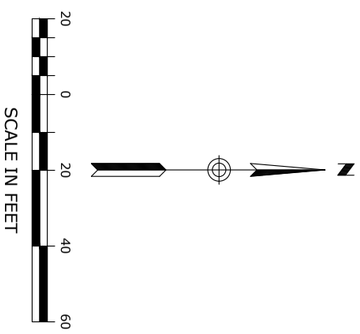
(f) Water runoff from the improved site will not impact streets or other municipal or private property within an adjoining municipality.

(g) No portion of the application parcel is located within the watershed of a water company as defined in Section 25-32a of the Connecticut General Statutes.

GALES FERRY INTERMODAL, LLC

By: _____
Harry B. Heller, its Authorized Agent





SOIL BORING AND MONITORING WELL LOCATIONS
WETLAND MITIGATION AREA 1

GALES FERRY INTERMODAL
1737 & 1761 ROUTE 12, GALES FERRY, CT 06335
PREPARED FOR:
GALES FERRY INTERMODAL LLC
549 SOUTH STREET, QUINCY, MA 02169

DRAWING **WM FIG-1**
SHEET NO. 1
NO. OF SHEETS 2

SCALE 1"=40'
COMM. NO. 045JC2.06
DATE 07/10/2023

Loureiro
Engineering • Construction • EH&S • Energy
Waste • Facility Services • Laboratory
Loureiro Engineering Associates, Inc.
100 Northwest Drive • Plainville, Connecticut 06062
Phone: 860-747-6181 • Fax: 860-747-8822
An Employee Owned Company • www.Loureiro.com

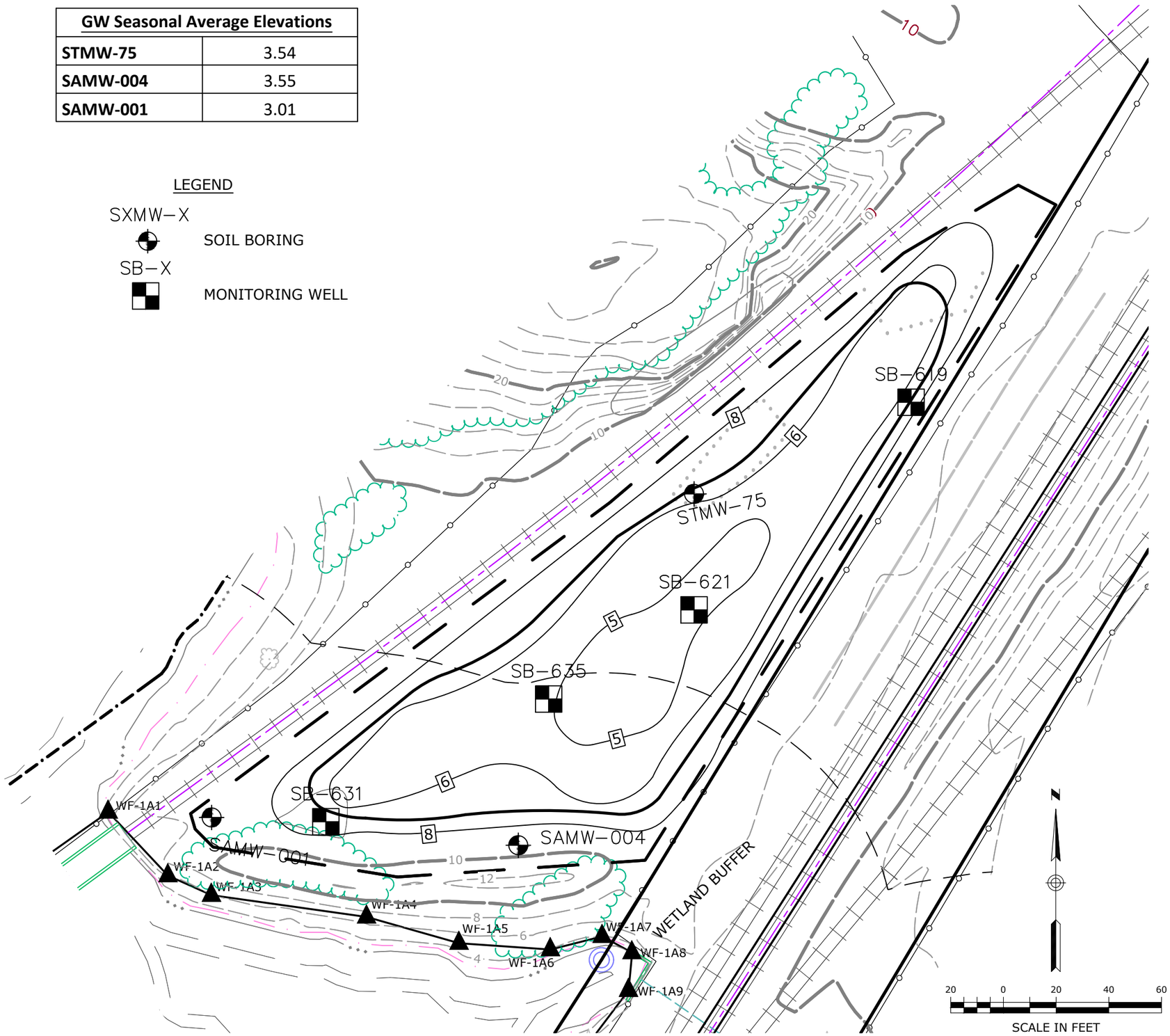
Abbreviated Soil Descriptions	
SB-619	
0' - 4'	Fill material
> 4'	Bedrock
SB-621	
0' - 9	Fill material
8' - 9'	Bedrock material (fill)
9' - 15'	Coarse sand
SB-635	
0' - 8.5'	Fill material
8.5' - 10.5'	Gravel
10.5'	Bedrock
SB-631	
0' - 8.5'	Fill material
8.5' - 9.5'	Gravel w/ sand
9.5' - 10'	Silty fine sand
10' - 11.5'	No recovery
11.5' - 15'	Silty fine sand

GW Seasonal Average Elevations	
STMW-75	3.54
SAMW-004	3.55
SAMW-001	3.01

LEGEND

SXMW–X — SOIL BORING

SB–X — MONITORING WELL



Loureiro
Engineering • Construction • ERS • Energy
Waste • Facility Services • Laboratory
Loureiro Engineering Associates, Inc.
100 Northwest Drive • Plainville, Connecticut 06062
Phone: 860-747-6181 • Fax: 860-747-8822
An Employee Owned Company • www.Loureiro.com

SCALE 1"=40'

COMM. NO. 045JC2.06

DATE 07/10/2023

SOIL BORING AND MONITORING WELL LOCATIONS
WETLAND MITIGATION AREA 2

GALES FERRY INTERMODAL
1737 & 1761 ROUTE 12, GALES FERRY, CT 06335

PREPARED FOR:
GALES FERRY INTERMODAL LLC
549 SOUTH STREET, QUINCY, MA 02169

DRAWING
WM FIG-2

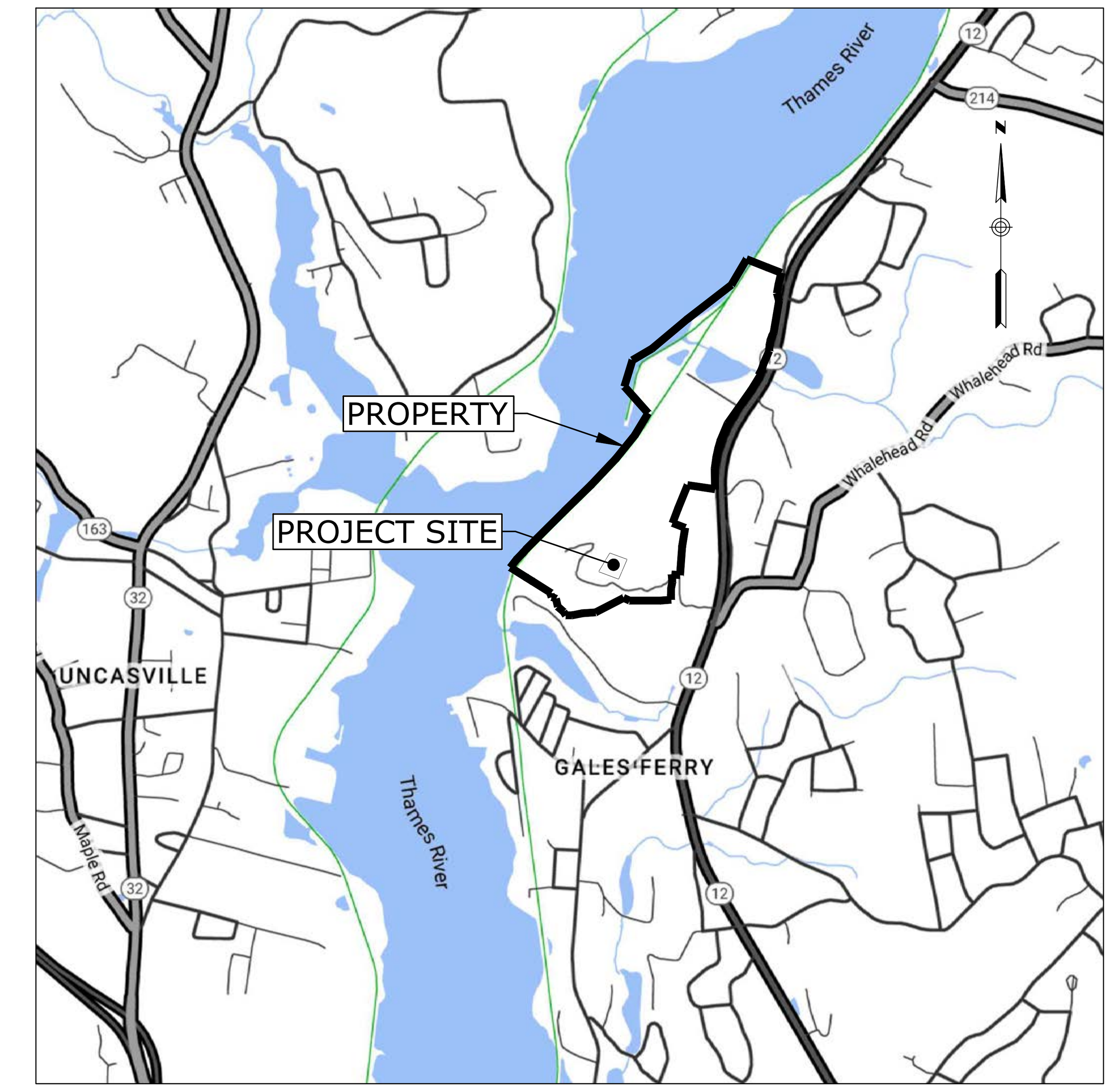
SHEET NO. 2 NO. OF SHEETS 2

GALES FERRY INTERMODAL

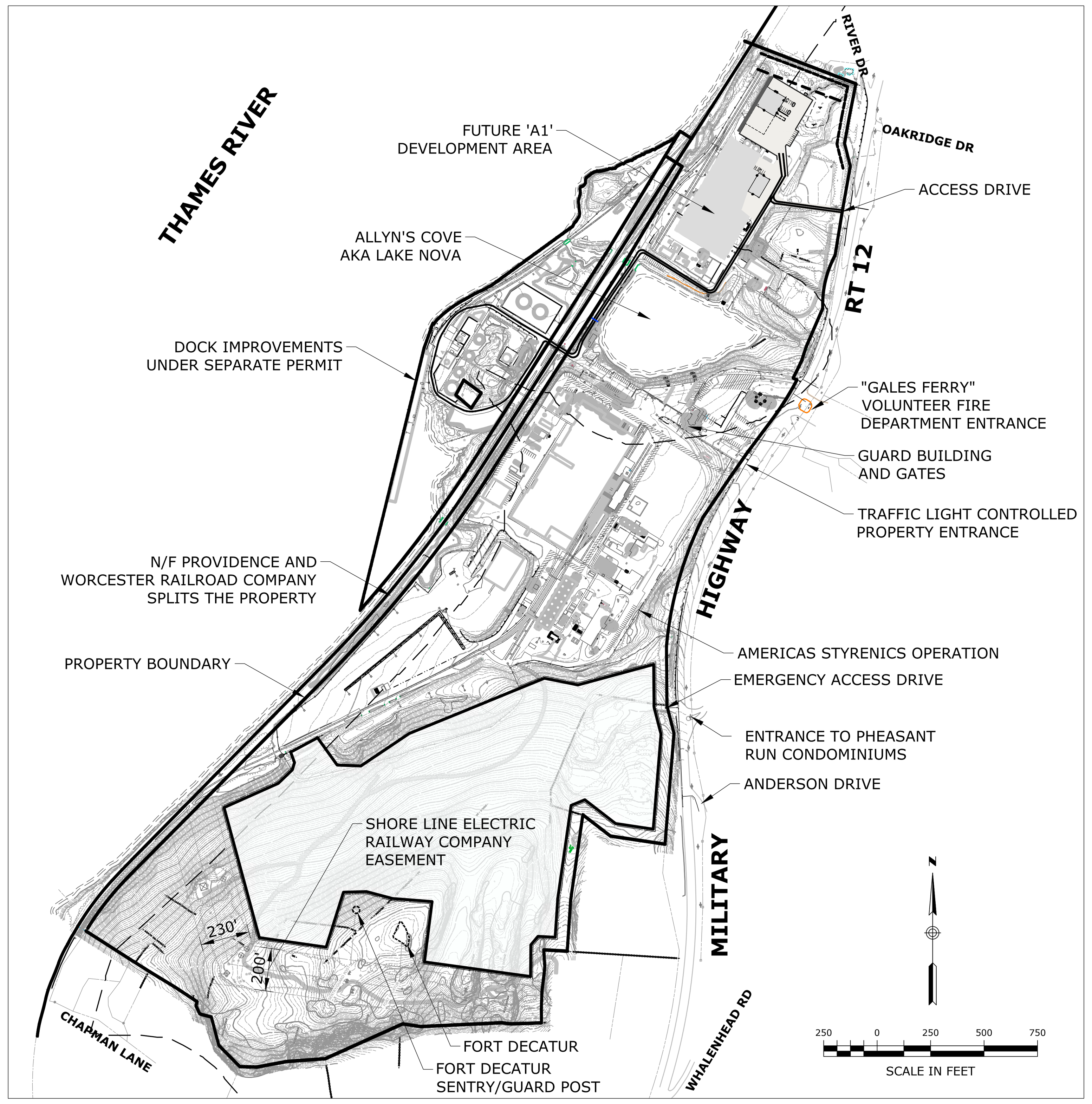
INDUSTRIAL SITE PREPARATION PLANS

1737 & 1761 ROUTE 12
GALES FERRY, CT 06335

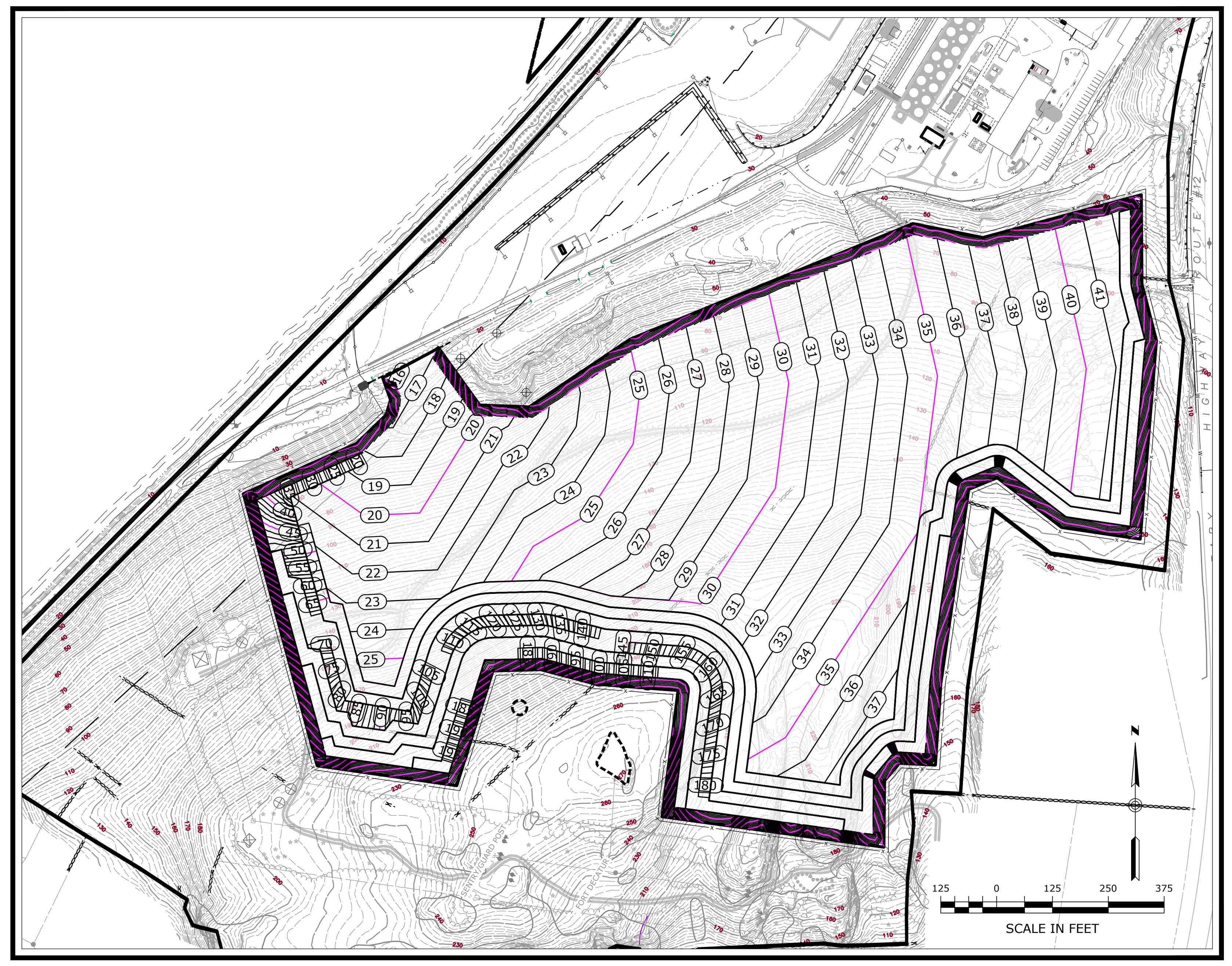
APRIL 3, 2023
REVISED: JUNE 6, 2023
REVISED: JULY 10, 2023



LOCATION MAP
SCALE: 1'=±2,000'



PROPERTY MAP AND ADJACENT FEATURES



DRAWING INDEX		
SHEET NO.	DRAWING	TITLE
1	-	COVER SHEET
2	C-1	NOTES LEGEND AND ABBREVIATIONS
1 of 2	BY CME	PROPERTY AND TOPOGRAPHIC SURVEY
2 of 2	BY CME	PROPERTY AND TOPOGRAPHIC SURVEY
3	C-2	EXISTING CONDITIONS PLAN
4	C-3	OVERALL SITE PLAN
5	C-4	GRADING AND DRAINAGE PLAN
6	XS-1	CROSS SECTIONS
7	C-5	SOIL EROSION & SEDIMENT CONTROL - OVERALL PHASING
8	C-6	SOIL EROSION & SEDIMENT CONTROL - PHASE 1
9	C-7	SOIL EROSION & SEDIMENT CONTROL - PHASE 2
10	C-8	SOIL EROSION & SEDIMENT CONTROL - PHASE 3
11	C-9	SOIL EROSION & SEDIMENT CONTROL - PHASE 4
12	C-10	SOIL EROSION & SEDIMENT CONTROL - FINAL
13	C-11A	WETLAND MITIGATION PLAN - LOCATION 1
14	C-11B	WETLAND MITIGATION PLAN - LOCATION 2
15	C-12	DETAILS

Property Owner / Applicant:

GALES FERRY INTERMODAL LLC
549 SOUTH STREET
QUINCY, MA 02169

STATE OF CONNECTICUT · GEORGE F. ANDREWS JR. · No. 18286 · LICENSED PROFESSIONAL ENGINEER

Prepared By:

Engineer:

Loureiro Engineering Associates, Inc.
100 Northwest Drive · Plainville, Connecticut 06062
Phone: 860-747-6181 · Fax: 860-747-8822
An Employee Owned Company · www.Loureiro.com
Engineering • Construction • EH&S • Energy
Waste • Facility Services • Laboratory

PZC PERMIT # ________ DATE OF APPROVAL ________ EXPIRATION DATE ________
PZC CHAIRMAN OR SECRETARY ________ DATE ________
IWWC PERMIT # ________ DATE OF APPROVAL ________
IWWC CHAIRMAN ________ DATE ________

LEA# 045JC2.06

SURVEY NOTES

1. THIS PLAN IS BASED ON MAP REFERENCE A AND B.
2. REFERENCE IS MADE TO THE TOWN OF LEDYARD, CT LAND EVIDENCE RECORDS VOLUME 621 AT PAGE 981 FOR THE SUBJECT PROPERTY.
3. THE SUBJECT PROPERTY IS LOCATED ENTIRELY WITHIN THE "I" INDUSTRIAL ZONE DISTRICT.
4. "NATIONAL FLOOD INSURANCE PROGRAM FLOOD INSURANCE RATE MAP NEW LONDON COUNTY, CONNECTICUT ALL JURISDICTIONS PANEL 354, TOWN OF LEDYARD, MAP NUMBER 09011C0354G EFFECTIVE DATE JULY 18, 2011 FEDERAL EMERGENCY MANAGEMENT AGENCY" INDICATES THE SUBJECT PROPERTY IS LOCATED IN ZONE AE (EL 12) AND ZONE X.
5. THE SUBJECT PROPERTIES ARE SHOWN ON THE TOWN OF LEDYARD, CT TAX ASSESSOR MAP 61 BLOCK 2120 AS LOT 1761 WHICH HAS ASSIGNED STREET ADDRESS OF 1761 ROUTE 12, GALES FERRY, CONNECTICUT 06335 AND TOWN OF LEDYARD, CT TAX ASSESSOR MAP 76 BLOCK 2120 AS LOT 1737 WHICH HAS ASSIGNED STREET ADDRESS OF 1737 ROUTE 12, GALES FERRY, CONNECTICUT 06335.
6. UNDERGROUND UTILITIES MUST BE FIELD VERIFIED PRIOR TO ANY EXCAVATION.
7. A PORTION OF INLAND WETLANDS WERE DELINEATED IN THE FIELD BY JMM WETLAND CONSULTING SERVICES, LLC AND LOCATED BY LOUREIRO ENGINEERING ASSOCIATES, INC., GROTON, CONNECTICUT. THE REMAINING WETLANDS WERE FROM ELECTRONIC DATA FROM CMA AS RECEIVED FROM GALES FERRY INTERMODAL LLC.

MAP REFERENCES

A. PROPERTY SURVEY, PROPERTY OF TRINSEO LLC, #1737 & #1761 MILITARY HIGHWAY (ROUTE 12), LEDYARD, GALES FERRY, CT, PREPARED FOR: JAY CASHMAN, INC., 549 SOUTH STREET, QUINCY, MA, SCALE: 1"=100', DATE: 5/10/2022, BY CHA.

B. PROPERTY AND TOPOGRAPHIC SURVEY, #1737 & #1761 MILITARY HIGHWAY (ROUTE 12), LEDYARD, GALES FERRY, CT, PREPARED FOR: STYRON LLC "ALLYN'S POINT PLANT", BY CME.

SITE NOTES:

1. THE APPLICANT/OWNER IS GALES FERRY INTERMODAL LLC OF 549 SOUTH STREET, QUINCY, MA.
2. THE APPLICANT IS PROPOSING A REGRADING OPERATION TO CREATE ADDITIONAL BUILDING PADS FOR FUTURE INDUSTRIAL DEVELOPMENT. THE PROPOSED SITE REGRADING AND PREPARATION APPLICATION WILL BE CONDUCTED IN FOUR PHASES WITH EACH PHASE BEING 10 ACRES OR LESS OF DISTURBED LAND. BASED ON TEST BORINGS CONDUCTED ONSITE, THE SITE PREPARATION WILL REQUIRE THE REMOVAL OF TOPSOIL AND BEDROCK WITH FINAL GRADING BEING SUITABLE FOR FUTURE INDUSTRIAL BUILDINGS.
3. OTHER USES ON THE SITE CURRENTLY INCLUDE MANUFACTURING OF STYROFOAM PRODUCTS BY AMERICAS STYRENICS, A TENANT OF THE PROPERTY.
4. THE PURPOSE OF THESE PLANS IS FOR REVIEW BY THE TOWN OF LEDYARD INLAND WETLAND WATERCOURSE COMMISSION AND PLANNING AND ZONING COMMISSION. THESE PLANS ARE FOR PERMIT PURPOSES ONLY AND ARE NOT TO BE USED FOR CONTRACT DOCUMENTS.
5. NO CONSTRUCTION OF BUILDINGS IS ASSOCIATED WITH THIS APPLICATION.

4. THE SUBJECT PROPERTY IS LOCATED WITHIN THE 'I' INDUSTRIAL ZONE. THE PARCEL DOES LIE WITHIN THE COASTAL AREA MANAGEMENT ZONE. A PORTION OF THE SITE IS WITHIN THE FEMA AE (EL 12) AND ZONE X.

5. LOT COVERAGE CALCULATIONS:
   A. ALLOWED @ 70% = 70% X 7,220,941 SF = 5,054,658 SF
   B. PROVIDED: 2,091,741 (EXISTING) + 73,965 (PROPOSED BUILDING AND PAVEMENT ON OTHER PORTION OF SITE UNDER DIFFERENT APPLICATION) / 7,220,941 SF = 30.0 %
6. THE CONTRACTOR SHALL OBTAIN ALL REQUIRED PERMITS INCLUDING A CONNECTICUT D.O.T. ENCROACHMENT PERMIT FOR ANY WORK WITHIN THE D.O.T. RIGHT-OF-WAY PRIOR TO CONSTRUCTION.
7. THE CONTRACTOR SHALL OBTAIN, REVIEW AND ADHERE TO ALL REQUIREMENTS AND ANY CONDITIONS OF APPROVAL OF THE TOWN OF LEDYARD.
8. ALL EXISTING CURBING, PAVEMENT, ETC. DISTURBED AS A RESULT OF CONSTRUCTION ACTIVITIES SHALL BE REPLACED/RESTORED TO ORIGINAL CONDITION BY THE CONTRACTOR.

EROSION AND SEDMIENTATION (E&S) CONTROL PLAN:

NARRATIVE

1. THIS EROSION AND SEDIMENTATION CONTROL (ESC) PLAN IS FOR THE REGRADING OPERATION FOR BUILDING PADS FOR FUTURE INDUSTRIAL SITE.
2. THE TOPOGRAPHY VARIES ACROSS THE SITE AND GENERALLY SLOPES FROM THE SOUTH ALONG THE ONSITE POWER LINE EASEMENT NORTH DOWN TO THE EXISTING RAILROAD AND IMPROVED PORTION OF THE TENANT AMERICA'S STYRENICS. THE UNDERLYING SOIL ON THE HIGHER PORTION OF THE PROJECT AREA IS HOLLIS CHATFIELD ROCK, HYDROLOGIC GROUP D, AND THE LOWER PORTION OF THE PROJECT AREA IS HINCKLEY LOAMY SAND, HYDROLOGIC SOIL GROUP A.
3. A LARGE PORTION OF THE UPLAND SOILS WILL BE DISTURBED BY EARTHWORK ACTIVITIES AND THE INTENT OF THIS EROSION AND SEDIMENT CONTROL PLAN IS TO ESTABLISH STORMWATER CONTROLS DURING CONSTRUCTION TO PREVENT THE DISCHARGE OF SEDIMENT LADEN RUNOFF FROM ENTERING THE EXISTING INLAND WETLANDS.
4. EROSION CONTROL MEASURES INTENDED TO MINIMIZE SOIL EROSION AND TO CONTROL SEDIMENTATION DURING CONSTRUCTION INCLUDE:
   A. THE INSTALLATION OF MULCH SOCKS ALONG THE DOWN-GRADIENT LIMIT OF DISTURBANCE. INSTALL MULCH SOCKS AND/OR HAYBALES AS SHOWN ON PLANS.
   B. TEMPORARY SEDIMENT BASINS DURING CONSTRUCTION.
   C. THE IMMEDIATE STABILIZATION OF FINAL GRADED AREAS THROUGH THE PLACEMENT OF CRUSHED STONE, TOPSOIL, SEED, MULCH AND EROSION CONTROL NETTING.
   D. SWEEP THE PAVED AREA IN THE CONSTRUCTION AREA WEEKLY.
   E. DEVELOPMENT OF A CONSTRUCTION OPERATIONS PLAN IN CONSIDERATION OF BASIC CONSTRUCTION SEQUENCING OUTLINED HEREIN.
5. THE CONSTRUCTION OF THIS PROJECT IS IN 4 PHASES. IT IS ANTICIPATED THAT SITE WORK CONSTRUCTION WILL BEGIN IN THE FALL OF 2023 AND WILL CONTINUE OFF AND ON FOR 5-10 YEARS.
6. A STATE OF CONNECTICUT GENERAL PERMIT FOR THE DISCHARGE OF STORMWATER AND DEWATERING WASTERWATERS FROM CONSTRUCTION ACTIVITIES MUST BE FILED AT LEAST 60 DAYS PRIOR TO CONSTRUCTION.

CONSTRUCTION SEQUENCE

1. CONTACT "CALL BEFORE YOU DIG" TO MARK OUT ALL UTILITY LOCATIONS PRIOR TO ANY CONSTRUCTION ACTIVITIES.
2. ENSURE ALL LAND USE PERMITS HAVE BEEN SECURED. OBTAIN ALL NECESSARY LOCAL, STATE AND FEDERAL PERMITS, AS REQUIRED. FILE ALL STATE GENERAL PERMITS FOR CONSTRUCTION ACTIVITY THAT APPLY AS REQUIRED.
3. PRIOR TO THE START OF WORK, THE CONTRACTOR SHALL MEET WITH THE TOWN REPRESENTATIVE FOR A PRE-CONSTRUCTION MEETING TO DISCUSS ESC REQUIREMENTS AND WATER QUALITY MANAGEMENT PROCEDURES.
4. THE LIMITS OF PHASE 1 EXCAVATION AND WORK AREA SHALL BE DELINEATED IN THE FIELD PRIOR TO ANY WORK.
5. INSTALL TEMPORARY CONSTRUCTION ENTRANCE, MULCH SOCKS, TEMPORARY SEDIMENT BASIN AND/OR HAY BALE BARRIERS AS SHOWN ON THE EROSION & SEDIMENT CONTROL PLAN FOR EACH PHASE. INSTALL A DOUBLE ROW OF MULCH SOCKS WHERE WETLANDS ARE DOWNGRADIENT OF ANY WORK.
6. INSTALL NEW CULVERT ACROSS EXISTING STREAM AND ANY WORK NEEDED TO CROSS THE EXISTING RAILROAD TRACKS.
7. REMOVE ALL TREES, BRUSH, STUMPS, TOPSOIL AND SUBSOIL WITHIN PHASE 1 AS NECESSARY. PROTECT WETLANDS AT ALL TIMES. ALL TOPSOIL AND SUBSOIL SHALL BE RETAINED ONSITE FOR USE IN THE FINAL STABILIZATION AND RECLAMATION OF THE SITE. THE TOPSOIL AND SUBSOIL SHALL BE STOCKPILED IN AREA DELINEATED ON THE PLAN. THE SURFACE OF THE SOIL STOCKPILE SHALL BE STABILIZED BY SEEDING WITH A PERENNIAL RYEGRASS MIX AND MULCH. THE PERENNIAL RYEGRASS MIX SHALL BE APPLIED AT A RATE OF 40 POUNDS PER ACRE. MULCH SHALL BE APPLIED AT A RATE OF 80 POUNDS PER 1,000 SQUARE FEET.
8. PRIOR TO ANY BLASTING ACTIVITIES, THE APPLICANT'S BLASTING CONTRACTOR SHALL CONDUCT A PRE-BLAST SURVEY. THE APPLICANT'S GEOTECHNICAL/BLASTING CONSULTANT WILL DETERMINE A SAFE PRE-BLASTING PROCEDURE.
9. SURFICIAL MATERIAL (OTHER THAN TOPSOIL AND SUBSOIL) SHALL BE EXCAVATED FROM THE PHASE 1 AREA AND REMOVED BY TRUCK TO THE PROCESSING AREA SHOWN ON THE PLAN.
10. PHASE 1 EXCAVATION AREA SHALL BE OVER-EXCAVATED TO A DEPTH OF 6 FEET AND THEREAFTER BACKFILLED WITH STONE DUST OR EQUALLY SUITABLE MATERIAL IN ORDER TO ACCOMMODATE THE INSTALLATION OF FUTURE UNDERGROUND UTILITIES NECESSARY TO SERVE THE FUTURE INDUSTRIAL DEVELOPMENT ON THE PROPERTY.
11. UPON THE COMPLETION OF THE EXTRACTION OF STONE IN EACH PHASE OF THE PROJECT, BACKFILL THE FUTURE DEVELOPMENT PAD WITH A MINIMUM OF 6 FEET OF COMPACTED STONE DUST OR EQUALLY SUITABLE MATERIAL AND PLACE SUFFICIENT FILL MATERIAL. THEN LOAM THE AREA WITH NO LESS THAN 4 INCHES OF TOPSOIL FROM THE TOPSOIL THAT WAS PREVIOUSLY STRIPPED AND STOCKPILED ONSITE. THEN SEED AREA WITH FUTURA 2000 BY THE CHAS C. ART CO CONTAINING VARIETIES OF PERENNIAL RYEGRASSES. APPLY AT A RATE OF 90 POUNDS PER 1,000 SQUARE FEET.
12. ESC MEASURES SHALL BE INSTALLED AND MAINTAINED THROUGHOUT THE WORK IN EACH PHASE.
13. THE CONSTRUCTION MANAGER SHALL BE RESPONSIBLE FOR IMPLEMENTING AND INSPECTING ESC MEASURES PER THIS PLAN AND SHALL INFORM ALL CONTRACTORS OF THE OBJECTIVES AND REQUIREMENTS OF THE PLAN. THE OWNER SHALL NOTIFY THE PROPER TOWN AGENCY OF ANY TRANSFER OF THIS RESPONSIBILITY AND SHALL ADVISE THE TOWN REGARDING THE NEED FOR IMPLEMENTING ADDITIONAL CONTROL MEASURES OR MAINTAINING EXISTING MEASURES AS DEEMED NECESSARY DURING CONSTRUCTION. WEEKLY INSPECTIONS SHALL BE CONDUCTED AND/OR WITHIN 24 HOURS OF THE END OF A STORM RESULTING IN A DISCHARGE. ALL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE REPAIRED AND MAINTAINED AS NECESSARY. MONTHLY WRITTEN REPORTS SHALL BE PREPARED INFORMING THE TOWN OF LEDYARD OBSERVATIONS, MAINTENANCE, AND CORRECTIVE ACTIONS.
14. THE CONTRACTOR IS RESPONSIBLE FOR DUST CONTROL DURING THE CONSTRUCTION PROCESS. THE CONSTRUCTION MANAGER SHALL INSPECT THE SITE TO ASSURE DUST IS ADEQUATELY CONTROLLED. IF THE CONSTRUCTION MANAGER DETERMINES DUST CONTROL MEASURES ARE NOT ADEQUATE, THE CONTRACTOR SHALL BE REQUIRED TO INCREASE THESE MEASURES AS DIRECTED BY THE CONSTRUCTION MANAGER.
15. WHEN ALL GRADED AREAS ARE PERMANENTLY STABILIZED, REMOVE ALL EROSION AND SEDIMENT CONTROLS AS INDICATED ON PLAN.
16. THE SEQUENCE ABOVE APPLIES TO PHASES 2, 3 AND 4.
17. CONSTRUCT WETLAND MITIGATION AS SHOWN ON PLANS.

MAINTENANCE OF EROSION CONTROL DEVICES:

1. HAYBALE BARRIERS/MULCH SOCK/SILT FENCE:
   A. INSPECT HAY BALE BARRIERS/MULCH SOCK/SILT FENCE AT LEAST ONCE A WEEK AND WITHIN 24 HOURS AFTER THE END OF A STORM RESULTING IN A DISCHARGE TO DETERMINE MAINTENANCE NEEDS.
   B. IF A MULCH SOCK IS OVERTOPPED DURING A STORM EVENT, CONTRACTOR SHALL INSTALL AN ADDITIONAL MULCH SOCK ON TOP OF THE EXISTING MULCH SOCK OR PLACE ANOTHER MULCH SOCK UPSTREAM OF THE MULCH SOCK THAT OVERTOPPED.
   C. INSTALL A SECONDARY BARRIER/FENCE WHEN SEDIMENT DEPOSITS REACH APPROXIMATELY ONE HALF HEIGHT OF THE BARRIER/FENCE.
   D. REMOVE SEDIMENT THAT BUILDS UP AGAINST THE MULCH SOCK/BARRIER/SILT FENCE.
   E. REPAIR OR REPLACE SPLIT, TORN OR UNRAVELING SOCKS. REPLACE BROKEN OR SPLIT STAKES. SAGGING OR SLUMPING MULCH SOCKS MUST BE REPAIRED WITH ADDITIONAL STAKES OR REPLACED.
   F. REPLACE OR REPAIR THE BARRIER/SOCK/FENCE WITHIN 24 HOURS OF OBSERVED FAILURE. IF REPETITIVE FAILURE OCCURS, CONSULT 2002 GUIDELINES FOR TROUBLESHOOTING FAILURES.
   G. MAINTAIN THE HAY BALE BARRIER/MULCH SOCK/FENCE UNTIL THE CONTRIBUTING AREA IS STABILIZED.
2. CONSTRUCTION ENTRANCES AND ROADWAYS:
   A. MAINTAIN THE ENTRANCE IN A CONDITION IN WHICH WILL PREVENT TRACKING AND WASHING OF SEDIMENTS ONTO PAVED SURFACES.
   B. PROVIDE PERIODIC TOP DRESSING AND ADDITIONAL STONE OR LENGTH AS NECESSARY.
   C. IMMEDIATELY REMOVE ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACKED ONTO PAVED SURFACES. ROADS ADJACENT TO THE CONSTRUCTION SITE SHALL BE LEFT CLEAN EVERY DAY.
3. TEMPORARY SEDIMENT TRAP:
   A. INSPECTIONS SHALL BE AT SAME INTERVALS AS ABOVE.
   B. OUTLET SHALL BE CHECKED FOR INTEGRITY; HEIGHT OF THE STONE OUTLET SHALL BE MAINTAINED AT ONE FOOT BELOW CREST OF EMBANKMENT. SEDIMENT ACCUMULATION AND FILTRATION PERFORMANCE SHOULD BE OBSERVED.
   C. WHEN SEDIMENTS HAVE ACCUMULATED TO ONE HALF OF THE MINIMUM REQUIRED STORAGE VOLUME, DE-WATER BASIN, REMOVE SEDIMENTS, RESTORE TRAP TO ORIGINAL DIMENSIONS AND DISPOSE OF SEDIMENT AT A LOCATION AND MANNER THAT WILL NOT RESULT IN EROSION OR SEDIMENTATION.
   D. AFTER CONTRIBUTING AREA IS STABILIZED, REMOVE BASIN AND RE-GRADE/STABILIZE AREA. PHASE 1 AND PHASE 2 TEMPORARY SEDIMENT BASINS WILL BE CLEANED AND CONVERTED TO PERMANENT WATER QUALITY BASINS.
4. TEMPORARY DIVERSION DITCHES/SWALES:
   A. WHEN THE TEMPORARY DIVERSION IS LOCATED IN CLOSE PROXIMITY TO ONGOING CONSTRUCTION ACTIVITIES, INSPECT AT THE END OF EACH DAY AND IMMEDIATELY REPAIR DAMAGES. OTHERWISE, INSPECT ON SAME INTERVAL AS ABOVE.
   B. REPAIR THE DIVERSION WITHIN 24 HOURS OF ANY OBSERVED FAILURE. FAILURE HAS OCCURRED WHEN THE DIVERSION HAS BEEN DAMAGED SUCH THAT IT NO LONGER MEETS THE SPECIFICATIONS IN THE 2002 GUIDELINES.
   C. IF REPETITIVE FAILURES OCCUR, REVIEW CONDITIONS AND DETERMINE IF ADDITIONAL MEASURES OR AN ALTERNATIVE MEASURES IS NECESSARY.

ZONING DATA TABLE

'I' INDUSTRIAL ZONE

ITEM	REQUIRED	PROVIDED
LOT AREA	200,000 SQ. FT. (4.59 AC.)	7,220,941 SQ. FT. (165.7 AC.)
FRONTAGE	200 FT.	3700 ± FT.
LOT WIDTH	200 FT	> 200 FT.
FRONT SETBACK	35 FT.	> 35 FT EXISTING BUILDINGS
SIDE SETBACK	25 FT	> 25 FT EXISTING BUILDINGS
REAR SETBACK	25 FT.	> 25 FT EXISTING BUILDINGS
LOT COVERAGE (%) (SEE SITE NOTE 5)	70% (4,817,736 SQ. FT.)	30.0 % (2,165,706 SQ. FT.)
BUILDING HEIGHT	N/A	N/A
PARKING (# OF SPACES)	N/A	N/A
WATER SUPPLY	MUNICIPAL	
SANITARY DISPOSAL	ONSITE SSDS	

PZC PERMIT # ___________ DATE OF APPROVAL __________ EXPIRATION DATE ___________

PZC CHAIRMAN OR SECRETARY   DATE

IWWC PERMIT #___________ DATE OF APPROVAL ________________

IWWC CHAIRMAN   DATE

LEGEND

AC	ACRES
BIT	CONC
TC	TOP OF CURB
CHD	CONNECTICUT HIGHWAY DEPARTMENT MONUMENT
BC	BOTTOM OF CURB
C.O.	CLEAN OUT
CL&P	CONNECTICUT LIGHT & POWER
LLR	LEDYARD LAND RECORDS
INV	INVERT
M/L	MOR EOR LESS
MIN	MINIMUM
N/F	NOW OR FORMERLY
SF	SQUARE FEET
TYP	TYPICAL
TORW	TOP OF ROCK WALL

— —5— —	EXISTING CONTOUR
— —5— —	EXISTING INDEX CONTOUR
x6.1	NEW SPOT GRADE
—5—	NEW CONTOUR
—5—	NEW INDEX CONTOUR
——	BUILDING SETBACK LINE
—W—	MUNICIPAL WATER
—E—	UNDERGROUND ELECTRIC
	CATCH BASIN W/ E&SC
	SEDIMENT FENCE
	SIGN
	UTILITY POLE
	DECIDUOUS TREE
(13)	SOIL TYPE - TAKEN FROM NATURAL RESOURCES CONSERVATION SERVICE, WEBSOIL SURVEY, NATIONAL COOPERATIVE SOIL SURVEY

REV.	DESCRIPTION OF REVISION	DATE	APPR.
2	RESPONSE TO INLAND WETLAND COMMISSION COMMENTS	07/10/2023	SRM
1	RESPONSE TO INLAND WETLAND COMMISSION COMMENTS	06/06/2023	SRM

STAMP: STATE OF CONNECTICUT · GEORGE F. ANDREWS, JR. · No. 19286 · LICENSED · PROFESSIONAL ENGINEER

Loureiro
Engineering • Construction • EH&S • Energy
Waste • Facility Services • Laboratory
Loureiro Engineering Associates, Inc.
100 Northwest Drive • Plainville, Connecticut 06062
Phone: 860-747-6181 • Fax: 860-747-8822
An Employee Owned Company • www.Loureiro.com

SCALE: NOT TO SCALE
COMM. NO.: 045JC2.06
DRAWN BY: SRM | DATE: 04/03/2023
APPROVED BY: GFA | DATE: 04/03/2023

INDUSTRIAL SITE PREPARATION PLAN:
NOTES LEGEND AND ABBREVIATIONS

GALES FERRY INTERMODAL LLC
1737 & 1761 ROUTE 12, GALES FERRY, CT 06335
PREPARED FOR:
GALES FERRY INTERMODAL LLC
549 SOUTH STREET, QUINCY, MA 02169

DRAWING: C-1
SHEET NO. 2 | NO. OF SHEETS 15

MAP REFERENCES

1.) "RIGHT OF WAY AND TRACK MAP OPERATED BY THE NORWICH AND WORCESTER R.R. CO. OPERATED BY THE NEW YORK NEW HAVEN AND HARTFORD R.R. CO. FROM WORCESTER TO GROTON STATION 3379+20 TO STATION 3405+60 TOWN OF LEDYARD, STATE OF CONN" SCALE 1"=50' DATE: JUNE 30, 1915 REVISED THROUGH OCTOBER 9, 1947, OFFICE OF VALUATION ENGINEER, BOSTON MASS. MAP NO. V.5063 / 129.

2.) "RIGHT OF WAY AND TRACK MAP OPERATED BY THE NORWICH AND WORCESTER R.R. CO. OPERATED BY THE NEW YORK NEW HAVEN AND HARTFORD R.R. CO. FROM WORCESTER TO GROTON STATION 3405+60 TO STATION 32+00. TOWN OF LEDYARD, STATE OF CONN" SCALE 1"=50' DATE: JUNE 30, 1915, OFFICE OF VALUATION ENGINEER, BOSTON MASS. MAP NO. V.5063 / 130.

3.) "RIGHT OF WAY AND TRACK MAP OPERATED BY THE NORWICH AND WORCESTER R.R. CO. OPERATED BY THE NEW YORK NEW HAVEN AND HARTFORD R.R. CO. FROM WORCESTER TO GROTON STATION 32+00 TO STATION 58+40 TOWN OF LEDYARD, STATE OF CONN" SCALE 1"=50' DATE: JUNE 30, 1915 REVISED THROUGH APRIL 11, 1951, OFFICE OF VALUATION ENGINEER, BOSTON MASS. MAP NO. V.5063 / 131.

4.) "RIGHT OF WAY AND TRACK MAP OPERATED BY THE NORWICH AND WORCESTER R.R. CO. OPERATED BY THE NEW YORK NEW HAVEN AND HARTFORD R.R. CO. FROM WORCESTER TO GROTON STATION 58+40 TO STATION 84+80 TOWN OF LEDYARD, STATE OF CONN" SCALE 1"=50' DATE: JUNE 30, 1915 REVISED THROUGH APRIL 11, 1951, OFFICE OF VALUATION ENGINEER, BOSTON MASS. MAP NO. V.5063 / 132.

MAP REFERENCES–CONTINUED

5.) "NORWICH AND WORCESTER RAILROAD REAL ESTATE & RIGHT OF WAY DEPARTMENT LAND IN LEDYARD, CONN. TO BE CONVEYED TO THE DOW CHEMICAL COMPANY" SCALE 1"=200' DATE: SEPTEMBER 1950 REVISED THROUGH OCTOBER 1950. ON FILE AS MAP NO. 8A.

6.) "LOCATION OF THE RIGHT OF WAY OF THE CONNECTICUT LIGHT & POWER COMPANY ACROSS THE PROPERTY OF THE DOW CHEMICAL COMPANY, TOWN OF LEDYARD, COUNTY OF NEW LONDON, STATE OF CONNECTICUT" SCALE 1"=200' DATE: APRIL 17, 1951.

7.) "MAP OF PROPERTY OWNED BY THE DOW CHEMICAL COMPANY LOCATED AT ALLYN'S POINT ON THE WEST SIDE OF ROUTE 12 AND EAST OF THE NEW YORK NEW HAVEN & HARTFORD RAILROAD CO. LEDYARD, CONN." SCALE: 1"=100' DATE: JULY 1952 REVISED AUGUST 1953, G.L. BILDERBECK CONSULTING ENGINEERS, NEW LONDON, CONN.

8.) "MAP SHOWING PROPERTY OWNED BY DOW CHEMICAL COMPANY, ALLYN'S POINT, LEDYARD, CONN." SCALE: 1"=100' DATE : DECEMBER 1953, G.L. BILDERBECK, CONSULTING ENGINEERS, NEW LONDON, CONN, ON FILE AS MAP NO. 43A.

MAP REFERENCES–CONTINUED

9.) "CONNECTICUT STATE HIGHWAY DEPARTMENT RIGHT OF WAY MAP TOWN OF LEDYARD NORWICH–GROTON ROAD FROM ALLYN'S BROOK NORTHERLY TO LEDARD–PRESTON TOWN LINE" SCALE 1"=40' DATE: NOVEMBER 5, 1957, SHEETS 1 THROUGH 3 OF 9 PROJECT NUMBER: 71–16. THESE MAPS SUPERSEDE PROJECT 71–05. SHEET 3 REVISED AUGUST 25, 1967.

10.) "CONNECTICUT STATE HIGHWAY DEPARTMENT RIGHT OF WAY MAP TOWN OF LEDYARD GROTON–NORWICH ROAD GALES FERRY ROAD TO ALLYN'S BROOK" SCALE 1"=40' DATE: NOVEMBER 5, 1957, SHEETS 1 THROUGH 4 OF 4. PROJECT NUMBER 71–15. THESE MAPS SUPERSEDE PROJECT 71–04. SHEET 1 REVISED THROUGH MAY 17, 2004.

11.) "PLAN SHOWING LANDS NOW AND FORMALLY OF H. WINTHROP HURLBUTT LEDYARD, CONNECTICUT" SCALE 1"=100' DATE: OCTOBER 1964, GEORGE H. DIETER, LAND SURVEYOR, ON FILE AS MAP # 226.

12.) "PLAN OF PROPERTY TO BE CONVEYED TO THE TOWN OF LEDYARD BY THE DOW CHEMICAL COMPANY, TOWN OF LEDYARD, CONN." SCALE: 1"=100' DATE: APRIL 1972, CHANDLER, PALMER & KING, NORWICH, CONN.

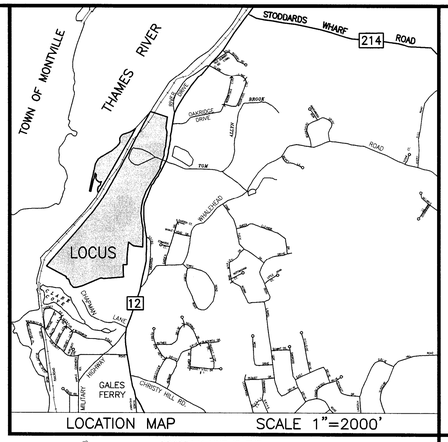
MAP REFERENCES–CONTINUED

13.) "PLAN SHOWING PARCELS OF LAND WITH BUILDINGS PROPERTY OF JAMES L. LEWIS AND ALICE L. LEWIS, PENTWAY AT WEST END CHAPMAN LANE LEDYARD, CONNECTICUT" SCALE 1"=20' DATE JUNE 1976, GEORGE H. DIETER, LAND SURVEYOR, ON FILE AS MAP # 672.

14.) "TOPOGRAPHICAL PLAN, PLAN OF A PORTION OF DOW CHEMICAL CO. ALLYN'S POINT PLANT GALES FERRY, CONN." SCALE: 1"=40' DATE: JULY 9, 1984 REVISIONS THROUGH AUGUST 28, 1984, CHANDLER, PALMER & KING, NORWICH, CONN.

15.) "MONUMENTED PROPERTY SURVEY MAP DEPICTING LAND OF GALES FERRY MARINA, INC. A PORTION OF LAND OF JAMES L. LEWIS AND LUCILLE A LUPINACCI, CHAPMAN LANE, GALES FERRY, LEDYARD, CONNECTICUT" SCALE: 1"=40' DATE: MARCH 26, 1994 REVISED APRIL 19, 1994, DAVID L. STEIN, LAND SURVEYOR, WESTBROOK, CONNECTICUT, ON FILE AS MAP #1753.

16.) COMPILATION PLAN MAP SHOWING EASEMENT AREA TO BE GRANTED TO THE YANKEE GAS SERVICES COMPANY ACROSS THE PROPERTY OF DOW CHEMICAL COMPANY (ALLYN'S POINT PLANT) #1761 ROUTE 12 GALES FERRY–LEDYARD CONNECTICUT SCALE: 1"=60' SHEET 1 OF 1 DATE: 03–04–2010 YANKEE FILE #E0048, BY CME ASSOCIATES, INC. ON FILE AS MAP #2629.



CME Associates, Inc.
CME
32 Crabtree Lane, Woodstock, CT 06281
55 Main Street, Suite 340 Norwich, CT 06360
333 East River Drive, East Hartford, CT 06108
50 Elm Street, Southbridge, MA 01550
Phone 888-291-3227
www.cmeengineering.com

PROPERTY AND TOPOGRAPHIC SURVEY
PREPARED FOR
STYRON LLC
"ALLYN'S POINT PLANT"
#1737 & 1761 MILITARY HIGHWAY – ROUTE 12, GALES FERRY
LEDYARD, CONNECTICUT

REVISIONS			
NO.	DATE	DESCRIPTION	BY

JOB DATA			
PROJECT	2010063 GDW	DRAWN	CB
BOOK NO.	4173	CHECKED	RHS
DESIGNED		COGO FILE	2010063 CB 4-21-2010
		FILE	2010063 BND.dwg

DATE: SEPT. 2, 2010
SCALE: 1" = 100'
PROJECT: #2010063

SHEET
1 OF 13

NOTES

1.) THIS SURVEY HAS BEEN PREPARED PURSUANT TO THE REGULATIONS OF CONNECTICUT STATE AGENCIES SECTIONS 20–300b–1 THROUGH 20–300b–20 AND THE "STANDARDS FOR SURVEYS AND MAPS IN THE STATE OF CONNECTICUT" AS PREPARED AND ADOPTED BY THE CONNECTICUT ASSOCIATION OF LAND SURVEYORS, INC. ON SEPTEMBER 26, 1996.

THE TYPE OF SURVEY PERFORMED IS A PERIMETER AND TOPOGRAPHIC SURVEY CONFORMING TO THE STANDARDS OF ACCURACY FOR A HORIZONTAL CLASS A–2 AND IS A RESURVEY OF THE SUBJECT PROPERTY.

VERTICAL INFORMATION DEPICTED HEREON CONFORMS TO VERTICAL CLASS T–3 STANDARDS OF ACCURACY. CONTOURS, PHYSICAL FEATURES AND OTHER INFORMATION WAS DERIVED FROM AERIAL MAPPING DONE BY GOLDEN AERIAL SURVEYS, INC. MAPPING SCALE: 1"=40' PHOTO SCALE: 1"=500' PHOTO DATE: 04–27–2001

THIS SURVEY WAS PREPARED TO DEPICT THE BOUNDARY AND EXISTING CONDITIONS OF THE SUBJECT PROPERTY.

2.) THE SUBJECT PARCEL WAS CONVEYED TO STYRON LLC THROUGH A CONVEYANCE RECORDED IN VOLUME 474, PAGE 809 OF THE LEDYARD LAND RECORDS.

3.) SEE SHEET No.2 FOR A LIST OF EASEMENTS, RIGHTS OF WAY AND EXCEPTIONS.

4.) SEE SHEET 8 FOR ADDITIONAL CERTIFICATIONS AND LEGAL DESCRIPTION.

5.) THE SUBJECT PROPERTY IS SHOWN ON THE TOWN OF LEDYARD TAX ASSESSOR MAP No. 47, 61, 75 & 76 AS LOT 1761 OF BLOCK 2120

6.) TOTAL AREA OF PROPERTY = 158.201± ACRES (6,891,237.787± SQUARE FEET).

7.) SITE IS LOCATED IN ZONE I (INDUSTRIAL).

8.) VERTICAL INFORMATION IS REFERENCED TO NGVD 29.

9.) A PORTION OF THIS PROPERTY LIES WITHIN FLOOD ZONE A10–ELEVATION 12 AND ZONE B AS SHOWN ON FIRM, FLOOD INSURANCE RATE MAP TOWN OF LEDYARD, CONNECTICUT NEW LONDON COUNTY PANEL 15 OF 20 COMMUNITY–PANEL NUMBER 090157 0015 B EFFECTIVE DATE: APRIL 1, 1981

10.) UNDERGROUND UTILITY, STRUCTURE AND FACILITY LOCATIONS DEPICTED AND NOTED HEREON HAVE BEEN COMPILED, IN PART, FROM RECORD MAPPING SUPPLIED BY THE RESPECTIVE UTILITY COMPANIES OR GOVERNMENTAL AGENCIES, FROM PAROL TESTIMONY AND FROM OTHER SOURCES. THESE LOCATIONS MUST BE CONSIDERED AS APPROXIMATE IN NATURE. ADDITIONALLY, OTHER SUCH FEATURES MAY EXIST ON THE SITE. THE EXISTENCE OF WHICH ARE UNKNOWN TO CME ASSOCIATES, INC. THE SIZE, LOCATION AND EXISTENCE OF ALL SUCH FEATURES MUST BE FIELD DETERMINED AND VERIFIED BY THE APPROPRIATE AUTHORITIES PRIOR TO CONSTRUCTION. CALL BEFORE YOU DIG 1–800–922–4455.

CURVE DATA TABLE				
CURVE	DELTA	RADIUS	LENGTH	CHORD
C1	01°40'06"	1372.69'	39.97'	S26°47'40"W 39.97'
C2	09°12'25"	1392.69'	223.79'	S32°13'30"W 223.55'
C3	08°58'01"	5680.15'	888.96'	N37°03'13"E 888.05'
C4	30°01'19"	489.65'	256.57'	S13°02'17"W 253.64'

LINE TABLE		
LINE	LENGTH	BEARING
L1	20.01'	S62°12'50"E
L2	29.38'	S04°59'07"W
L3	66.40'	S00°34'40"E
L4	19.01'	N17°55'36"E
L5	15.23'	N34°38'46"E
L6	78.87'	N28°09'31"E
L7	101.72'	S53°35'06"E
L8	85.28'	S33°34'13"W
L9	94.90'	N49°16'42"W

TO MY KNOWLEDGE AND BELIEF, THIS MAP IS SUBSTANTIALLY CORRECT AS NOTED HEREON.

RICHARD H. PSTROUSE, L.S. #9679 — DATE 9/2/10

QUALITY CONTROL CERTIFICATION		
GROUP	REVIEWED	DATE
PROJECT MANAGER		
SURVEY		

CURVE DATA TABLE				
CURVE	DELTA	RADIUS	LENGTH	CHORD
C1	01°40'06"	1372.69'	39.97'	S26°47'40"W 39.97'
C2	09°12'25"	1392.69'	223.79'	S32°13'30"W 223.55'
C3	08°58'01"	5680.15'	888.96'	N37°03'13"E 888.05'
C4	30°01'19"	489.65'	256.57'	S13°02'17"W 253.64'

NOTE
THE MATHEMATICAL CLOSING LINE FROM POINT "A" TO POINT "B" IS NORTH 01°11'52" EAST 743.02 FEET

BENCHMARK USC&CTGS BM No.5 – 1917 ELEVATION=5.90 NGVD

EASEMENTS, RIGHT OF WAYS AND EXCEPTIONS

1.) ELECTRIC AND TELEPHONE EASEMENT IN FAVOR OF THE SHORE LINE ELECTRIC RAILWAY COMPANY DATED JULY 31, 1918 AND RECORDED IN VOLUME 12, PAGE 195 OF THE LEDYARD LAND RECORDS.

2.) DRAINAGE RIGHT IN FAVOR OF THE STATE OF CONNECTICUT SET FORTH IN A DEED TO THE STATE OF CONNECTICUT DATED MAY 1, 1947 AND RECORDED IN VOLUME 14, PAGE 588 OF THE LEDYARD LAND RECORDS.

3.) DRAINAGE RIGHT IN FAVOR OF THE STATE OF CONNECTICUT SET FORTH IN A DEED TO THE STATE OF CONNECTICUT DATED APRIL 22, 1947 AND RECORDED IN VOLUME 14, PAGE 592 OF THE LEDYARD LAND RECORDS.

4.) DRAINAGE RIGHT IN FAVOR OF THE STATE OF CONNECTICUT AS SET FOR THE IN A CERTIFICATE OF TAKING DATED APRIL 22, 1947 AND RECORDED IN VOLUME 18, PAGE 563 AND IN A DEED TO THE STATE OF CONNECTICUT DATED JUNE 8, 1949 AND RECORDED IN VOLUME 15, PAGE 287 OF THE LEDYARD LAND RECORDS.

5.) RIGHT TO DRAIN IN FAVOR OF THE STATE OF CONNECTICUT SET FORTH IN A DEED TO THE STATE OF CONNECTICUT DATED SEPTEMBER 4, 1947 AND RECORDED IN VOLUME 18, PAGE 625 OF THE LEDYARD LAND RECORDS.

6.) DRAINAGE EASEMENT IN FAVOR OF THE STATE OF CONNECTICUT DATED AUGUST 6, 1976 AND RECORDED IN VOLUME 103, PAGE 66 OF THE LEDYARD LAND RECORDS.

7.) EASEMENT IN FAVOR OF THE CONNECTICUT LIGHT AND POWER COMPANY DATED FEBRUARY 11, 1935 AND RECORDED IN VOLUME 16, PAGE 66 OF THE LEDYARD LAND RECORDS.

8.) EASEMENT IN FAVOR OF THE CONNECTICUT LIGHT & POWER COMPANY DATED JUNE 18, 1951 AND RECORDED IN VOLUME 21, PAGE 139 OF THE LEDYARD LAND RECORDS.

9.) NOTICE BY THE LEDYARD BOARD OF SELECTMEN OF THE INTENTION OF THE DOW CHEMICAL COMPANY TO ALLOW ACCESS OVER A PRIVATE COMPANY ROAD FROM ROUTE 12 TO THE CEMETERY AT ALLYN'S POINT AND CERTIFICATION BY THE BOARD DATED NOVEMBER 27, 1950 AND RECORDED IN VOLUME 20, PAGE 552 OF THE LEDYARD LAND RECORDS.

10.) COVENANT'S SET FORTH IN A DEED TO DOW CHEMICAL COMPANY DATED NOVEMBER 16, 1950 IN VOLUME 20 PAGE 568.

11.) SUBJECT TO RIPARIAN RIGHTS, AND ANY RIGHTS TO ALLYN'S COVE FROM THE THAMES RIVER THROUGH AND UNDER BRIDGE 6.13–A.

12.) POSSIBLE RIGHTS OF OTHERS IN AND TO A 15' OLD ROAD OR RIGHT OF WAY CROSSING A PORTION OF THE PREMISES AS SHOWN ON MAP REFERENCE No.5.

LEGEND

N/F	NOW OR FORMERLY
VOL	VOLUME
PG	PAGE
SF	SQUARE FEET
— 30 —	EXISTING CONTOURS
	STONE WALL
	RETAINING WALL
	CHAIN LINK FENCE
	TREELINE
	LEDGE
	LIGHT POLE
	MAN HOLE
	HYDRANT
	UTILITY POLE
	MONUMENT NOT FOUND
	BOUNDARY POINT

QUALITY CONTROL CERTIFICATION		
GROUP	REVIEWED	DATE
PROJECT MANAGER		
SURVEY		

LINE TABLE		
LINE	LENGTH	BEARING
L1	20.01'	S62°12'50"E
L2	29.38'	S04°59'07"W
L3	66.40'	S00°34'40"E
L4	19.01'	N17°55'36"E
L5	7.16'	N34°38'46"E

TO MY KNOWLEDGE AND BELIEF, THIS MAP IS SUBSTANTIALLY CORRECT AS NOTED HEREON.

RICHARD H. STROUSE, L.S. #9879 — DATE 9/2/10

GRAPHIC SCALE IN FEET: 100 50 0 100

CME Associates, Inc.
32 Crabtree Lane Woodstock, CT 06281
55 Main Street, Suite 340 Norwich, CT 06360
333 East River Drive, East Hartford, CT 06108
50 Elm Street, Southbridge, MA 01550
Phone 888-291-3227
www.cmeengineering.com

PROPERTY AND TOPOGRAPHIC SURVEY
PREPARED FOR
STYRON LLC
"ALLYN'S POINT PLANT"
#1737 & 1761 MILITARY HIGHWAY – ROUTE 12, GALES FERRY
LEDYARD, CONNECTICUT

REVISIONS			
NO.	DATE	DESCRIPTION	BY

JOB DATA	
PROJECT	2010063 DOW
BOOK NO.	4173
DESIGNED	
DRAWN	CB
CHECKED	RHS
COGO FILE	2010063 CB 4-21-2010
FILE	2010063 BND.dwg

DATE: SEPT. 2, 2010

SCALE: 1" = 100'

PROJECT: #2010063

SHEET 2 OF 13

PZC PERMIT # __________ DATE OF APPROVAL __________ EXPIRATION DATE __________

PZC CHAIRMAN OR SECRETARY __________ DATE __________

IWWC PERMIT # __________ DATE OF APPROVAL __________

IWWC CHAIRMAN __________ DATE __________

REV.	DESCRIPTION OF REVISION	DATE	APPR.
2	RESPONSE TO INLAND WETLAND COMMISSION COMMENTS	07/10/2023	SRM
1	RESPONSE TO INLAND WETLAND COMMISSION COMMENTS	06/06/2023	SRM

STAMP: STATE OF CONNECTICUT · GEORGE F. ANDREWS JR. · No. 19286 · LICENSED PROFESSIONAL ENGINEER

Loureiro
Engineering • Construction • EH&S • Energy
Waste • Facility Services • Laboratory
Loureiro Engineering Associates, Inc.
100 Northwest Drive • Plainville, Connecticut 06062
Phone: 860-747-6181 • Fax: 860-747-8822
An Employee Owned Company • www.Loureiro.com

SCALE 1"=120'

COMM. NO. 045JC2.06

DRAWN BY ESF — DATE 04/03/2023

APPROVED BY SRM — DATE 04/03/2023

INDUSTRIAL SITE PREPARATION PLAN:
EXISTING CONDITIONS PLAN

GALES FERRY INTERMODAL
1737 & 1761 ROUTE 12, GALES FERRY, CT 06335

PREPARED FOR:
GALES FERRY INTERMODAL LLC
549 SOUTH STREET, QUINCY, MA 02169

DRAWING **C-2**

SHEET NO. 3 — NO. OF SHEETS 15

WATER QUALITY BASIN (TYP OF 4)

ON-SITE TRUCK ROUTING FROM WORK AREA

100' INLAND WETLAND UPLAND REVIEW AREA

TRAFFIC ROUTING
ON-SITE, ACCESS TO
PIER AND ROUTE 12

ON-SITE TRUCK ROUTING

GRASS LINED SWALE (TYP)

INLET

GATED ENTRANCE

SITE ENTRANCE

100' INLAND WETLAND UPLAND REVIEW AREA

THAMES RIVER

MILITARY HIGHWAY

ANDERSON DRIVE

PZC PERMIT # _____ DATE OF APPROVAL _____ EXPIRATION DATE _____

PZC CHAIRMAN OR SECRETARY — DATE

IWWC PERMIT #_____ DATE OF APPROVAL _____

IWWC CHAIRMAN — DATE

60 0 60 120 180
SCALE IN FEET

REV.	DESCRIPTION OF REVISION	DATE	APPR.
2	RESPONSE TO INLAND WETLAND COMMISSION COMMENTS	07/10/2023	SRM
1	RESPONSE TO INLAND WETLAND COMMISSION COMMENTS	06/06/2023	SRM

STATE OF CONNECTICUT
GEORGE F. ANDREWS
No. 19286
LICENSED PROFESSIONAL ENGINEER

Loureiro Engineering Associates, Inc.
Geotechnical • Civil • Coastal • Environmental
Water • Facility Services • Laboratory
100 Northwest Drive, Plainville, Connecticut 06062
Phone: 860-747-6181 • Fax: 860-747-8822
An Employee Owned Company • www.Loureiro.com

SCALE 1" = 120'
COMP. NO. 0453C2.06
DRAWN BY ESF
DATE 04/03/2023
APPROVED BY SRM
DATE 04/03/2023

INDUSTRIAL SITE PREPARATION PLAN:
OVERALL SITE PLAN

GALES FERRY INTERMODAL
1737 & 1761 ROUTE 12, GALES FERRY, CT 06335
PREPARED FOR:
GALES FERRY INTERMODAL LLC
549 SOUTH STREET, QUINCY, MA 02169

DRAWING
C-3

SHEET NO. 4 NO. OF SHEETS 15

REV.	DESCRIPTION OF REVISION	DATE	APPR.
2	RESPONSE TO INLAND WETLAND COMMISSION COMMENTS	07/10/2023	SRM
1	RESPONSE TO INLAND WETLAND COMMISSION COMMENTS	06/06/2023	SRM

STATE OF CONNECTICUT — GEORGE F. ANDREWS — No. 19206 — LICENSED PROFESSIONAL ENGINEER

Loureiro
Engineering • Construction • EH&S • Energy
Waste • Facility Services • Laboratory
Loureiro Engineering Associates, Inc.
100 Northwest Drive • Plainville, Connecticut 06062
Phone: 860.747.6181 • Fax: 860.747.8822
An Employee Owned Company • www.Loureiro.com

SCALE 1"=100' | COMM. NO. 04SJC2.06
DRAWN BY ESF | DATE 04/03/2023
APPROVED BY SRM | DATE 04/03/2023

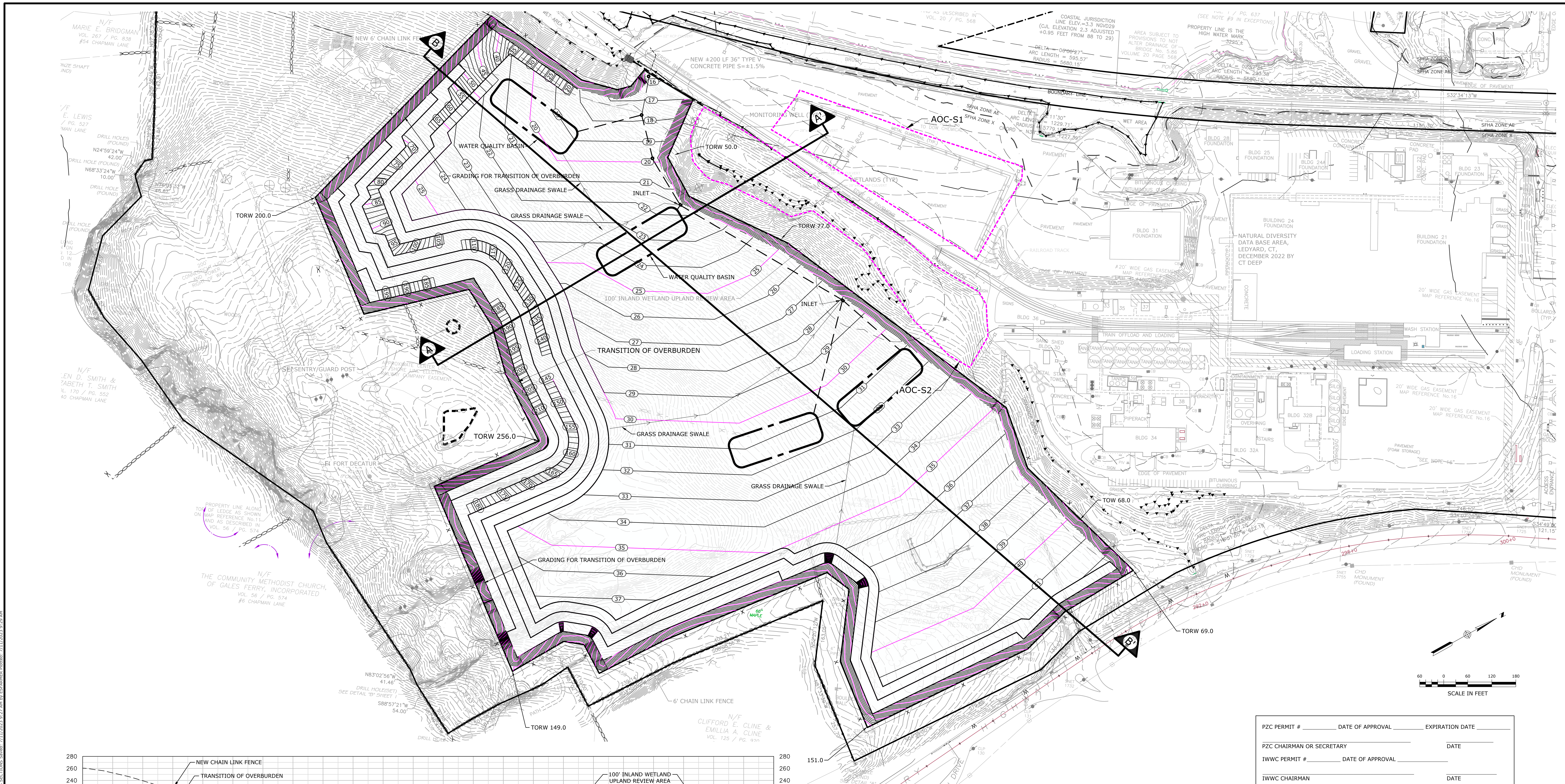
INDUSTRIAL SITE PREPARATION PLAN:
GRADING AND DRAINAGE PLAN

GALES FERRY INTERMODAL
1737 & 1761 ROUTE 12, GALES FERRY, CT 06335

PREPARED FOR:
GALES FERRY INTERMODAL LLC
549 SOUTH STREET, QUINCY, MA 02169

DRAWING C-4

SHEET NO. 5 NO. OF SHEETS 15



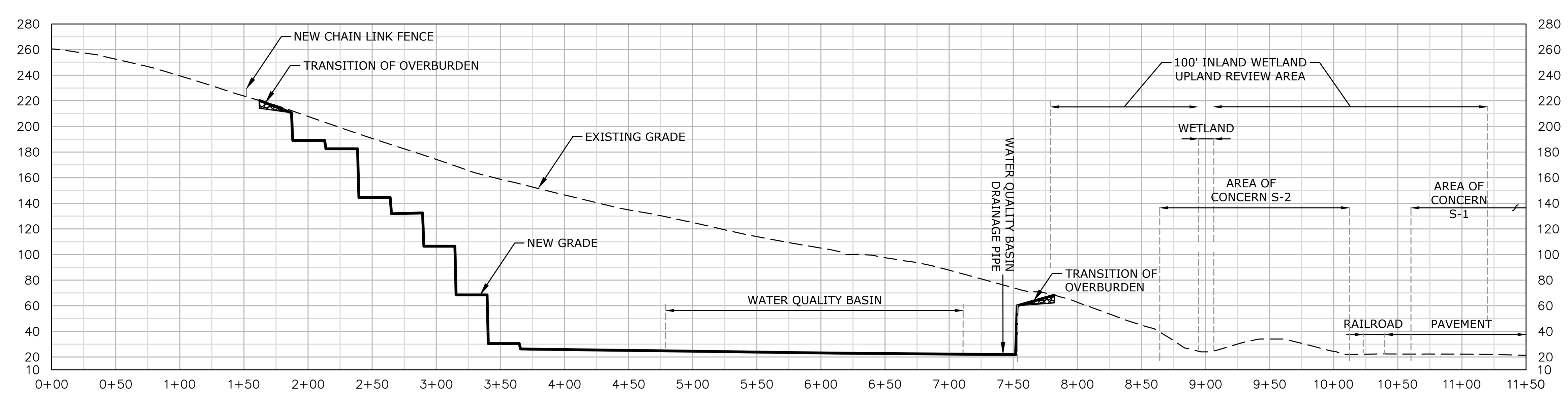
PZC PERMIT # __________ DATE OF APPROVAL _________ EXPIRATION DATE __________

PZC CHAIRMAN OR SECRETARY DATE

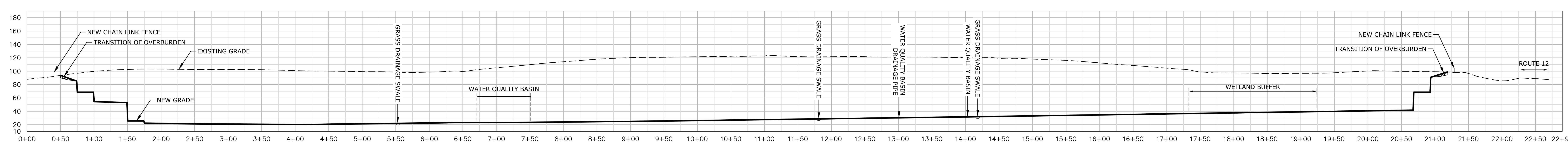
IWWC PERMIT #__________ DATE OF APPROVAL ________________

IWWC CHAIRMAN DATE

PLAN VIEW
SCALE: 1"=120'



CROSS SECTION A-A'
SCALE: 1"=80' H&V



CROSS SECTION B-B'
SCALE: 1"=80' H&V

REV.	DESCRIPTION OF REVISION	DATE	APPR.
2	RESPONSE TO INLAND WETLAND COMMISSION COMMENTS	07/10/2023	SRM
1	RESPONSE TO INLAND WETLAND COMMISSION COMMENTS	06/06/2023	SRM

STAMP: STATE OF CONNECTICUT · GEORGE F. ANDREWS JR. · No. 19286 · LICENSED PROFESSIONAL ENGINEER

Loureiro
Engineering • Construction • EH&S • Energy
Waste • Facility Services • Laboratory

Loureiro Engineering Associates, Inc.
100 Northwest Drive • Plainville, Connecticut 06062
Phone: 860-747-6181 • Fax: 860-747-8822
An Employee Owned Company • www.Loureiro.com

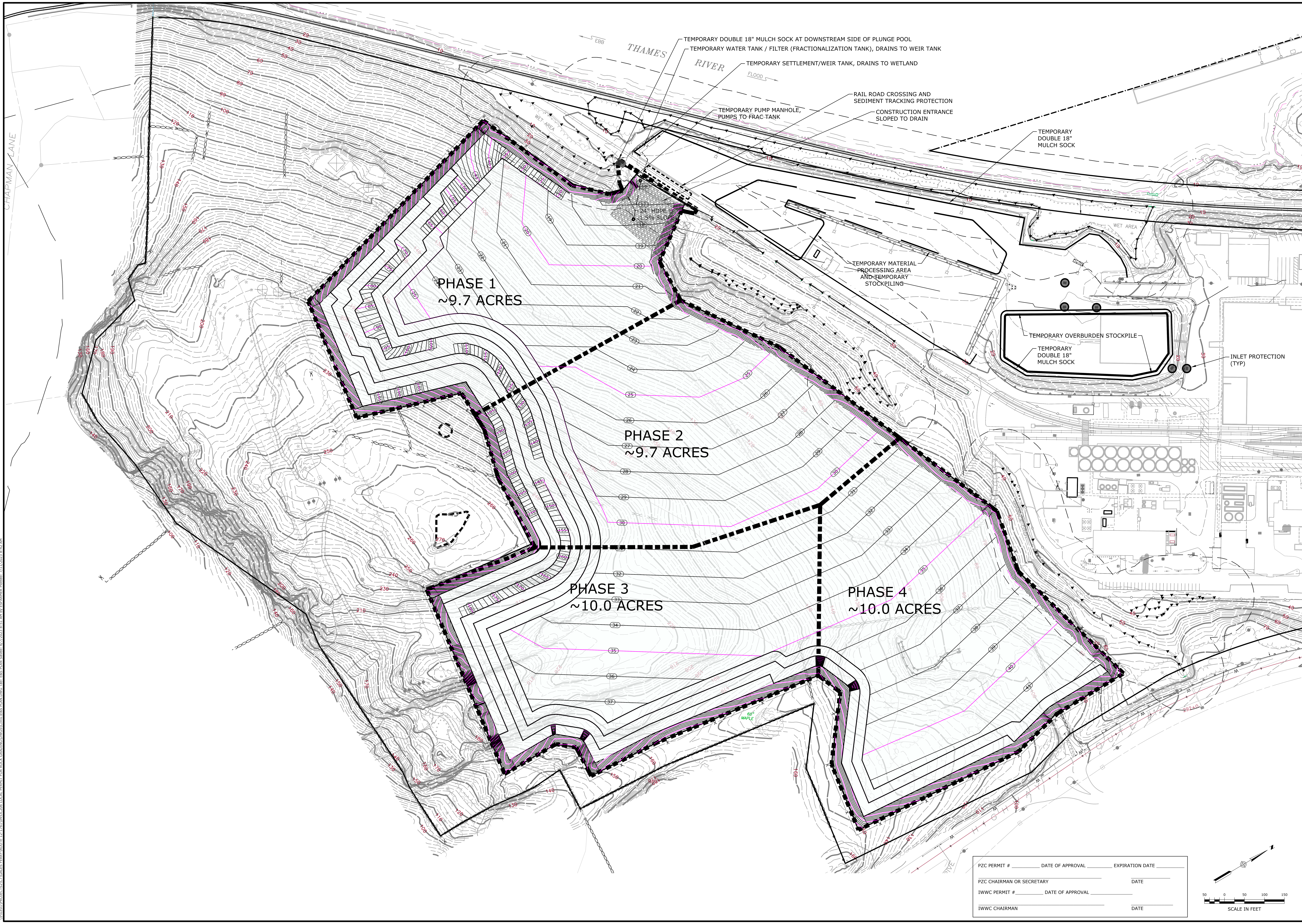
SCALE	AS NOTED		
COMM. NO.	045JC2.06		
DRAWN BY	ESF	DATE	04/03/2023
APPROVED BY	SRM	DATE	04/03/2023

INDUSTRIAL SITE PREPARATION PLAN:
CROSS SECTIONS

GALES FERRY INTERMODAL
1737 & 1761 ROUTE 12, GALES FERRY, CT 06335
PREPARED FOR:
GALES FERRY INTERMODAL LLC
549 SOUTH STREET, QUINCY, MA 02169

DRAWING
XS-1

SHEET NO. 6 NO. OF SHEETS 15



PZC PERMIT # ____	DATE OF APPROVAL ____	EXPIRATION DATE ____
PZC CHAIRMAN OR SECRETARY		DATE
IWWC PERMIT # ____	DATE OF APPROVAL ____	
IWWC CHAIRMAN		DATE

REV.	DESCRIPTION OF REVISION	DATE	APPR.
2	RESPONSE TO INLAND WETLAND COMMISSION COMMENTS	07/10/2023	SRM
1	RESPONSE TO INLAND WETLAND COMMISSION COMMENTS	06/06/2023	SRM

STAMP
STATE OF CONNECTICUT · GEORGE F. ANDREWS, JR. · No. 19286 · LICENSED PROFESSIONAL ENGINEER

Loureiro
Engineering • Construction • EH&S • Energy
Waste • Facility Services • Laboratory

Loureiro Engineering Associates, Inc.
100 Northwest Drive • Plainville, Connecticut 06062
Phone: 860-747-6181 • Fax: 860-747-8822
An Employee Owned Company • www.Loureiro.com

SCALE	COMM. NO.
1"=100'	045JC2.06

DRAWN BY	DATE
ESF	04/03/2023
APPROVED BY	**DATE**
SRM	04/03/2023

INDUSTRIAL SITE PREPARATION PLAN:
SOIL EROSION & SEDIMENT CONTROL - OVERALL PHASING

GALES FERRY INTERMODAL
1737 & 1761 ROUTE 12, GALES FERRY, CT 06335

PREPARED FOR:
GALES FERRY INTERMODAL LLC
549 SOUTH STREET, QUINCY, MA 02169

DRAWING
C-5

SHEET NO. 7 NO. OF SHEETS 15

WET AREA

TEMPORARY DOUBLE 18" MULCH SOCK

24" HDPE @ 1.5% SLOPE

TEMPORARY MATERIAL PROCESSING AREA AND TEMPORARY STOCKPILING

TEMPORARY SEDIMENT BASIN

STONE CONSTRUCTION ACCESS AND STAGING AREA

24" HDPE @ 1.5% SLOPE

STONE STABILIZED AREA TO ACCOMMODATE MATERIAL PROCESSING

WATER BAR

STABILIZED TOPSOIL OVERBURDEN

WATER BAR

INLET WITH INLET PROTECTION

SEDIMENT BARRIER

TEMPORARY DOUBLE 18" MULCH SOCK

TEMPORARY OVERBURDEN STOCKPILE

DRAINAGE DITCH

ROCK OUTCROP

DRAINAGE DITCH

PZC PERMIT # _____ DATE OF APPROVAL _____ EXPIRATION DATE _____

PZC CHAIRMAN OR SECRETARY — DATE

IWWC PERMIT # _____ DATE OF APPROVAL _____

IWWC CHAIRMAN — DATE

30 0 30 60 90

SCALE IN FEET

REV.	DESCRIPTION OF REVISION	DATE	APPR.
2	RESPONSE TO INLAND WETLAND COMMISSION COMMENTS	07/10/2023	SRM
1	RESPONSE TO INLAND WETLAND COMMISSION COMMENTS	06/06/2023	SRM

STATE OF CONNECTICUT
GEORGE F. ANDRUSKIEWICZ
No. 18281
LICENSED PROFESSIONAL ENGINEER

Loureiro Engineering Associates, Inc.
Geotechnical • Civil • Environmental
Water • Facility Services • Laboratory
100 Northfield Street, Greenwich, CT 06830
Phone: 860-747-6181 • Fax: 860-747-8822
An Employee Owned Company • www.Loureiro.com

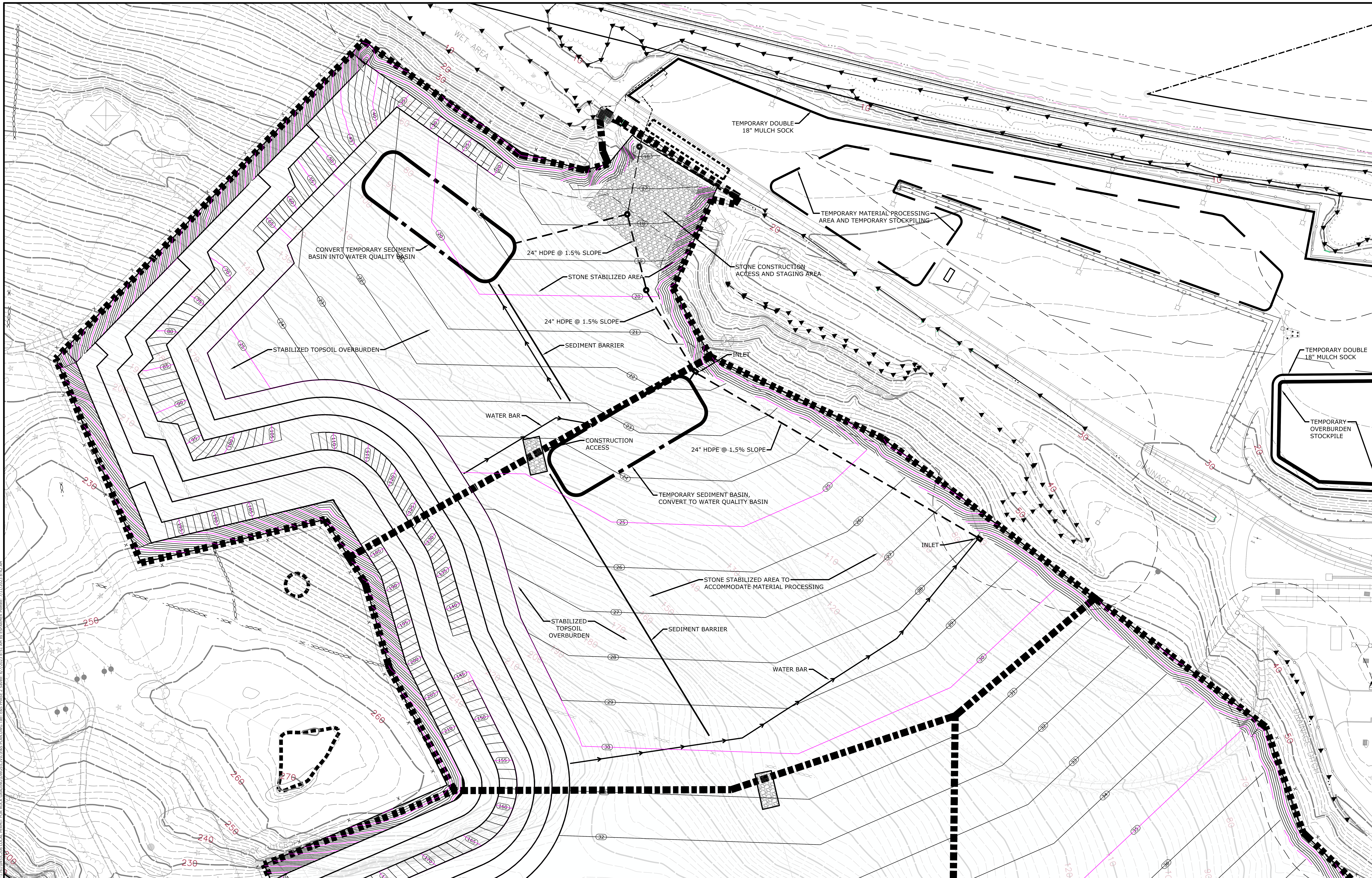
SCALE: 1"=60'
COMM. NO.: 0453C2.06
DRAWN BY: ESF — DATE: 04/03/2023
APPROVED BY: SRM — DATE: 04/03/2023

INDUSTRIAL SITE PREPARATION PLAN:
SOIL EROSION & SEDIMENT CONTROL - PHASE 1

GALES FERRY INTERMODAL
1737 & 1761 ROUTE 12, GALES FERRY, CT 06335
PREPARED FOR:
GALES FERRY INTERMODAL LLC
549 SOUTH STREET, QUINCY, MA 02169

DRAWING
C-6

SHEET NO. 8 — NO. OF SHEETS 15



PZC PERMIT # ___________ DATE OF APPROVAL __________ EXPIRATION DATE ___________

PZC CHAIRMAN OR SECRETARY DATE

IWWC PERMIT #___________ DATE OF APPROVAL ________________

IWWC CHAIRMAN DATE

SCALE IN FEET: 30 0 30 60 90

REV.	DESCRIPTION OF REVISION	DATE	APPR.
2	RESPONSE TO INLAND WETLAND COMMISSION COMMENTS	07/10/2023	SRM
1	RESPONSE TO INLAND WETLAND COMMISSION COMMENTS	06/06/2023	SRM

STAMP: STATE OF CONNECTICUT · GEORGE F. ANDREWS, JR. · No. 19286 · LICENSED PROFESSIONAL ENGINEER

Loureiro
Engineering • Construction • EH&S • Energy
Waste • Facility Services • Laboratory
Loureiro Engineering Associates, Inc.
100 Northwest Drive • Plainville, Connecticut 06062
Phone: 860-747-6181 • Fax: 860-747-8822
An Employee Owned Company • www.Loureiro.com

SCALE 1"=60'
COMM. NO. 045JC2.06
DRAWN BY ESF · DATE 04/03/2023
APPROVED BY SRM · DATE 04/03/2023

INDUSTRIAL SITE PREPARATION PLAN:
SOIL EROSION & SEDIMENT CONTROL - PHASE 2

GALES FERRY INTERMODAL
1737 & 1761 ROUTE 12, GALES FERRY, CT 06335

PREPARED FOR:
GALES FERRY INTERMODAL LLC
549 SOUTH STREET, QUINCY, MA 02169

DRAWING C-7

SHEET NO. 9 · NO. OF SHEETS 15

WATER BAR

CONVERT TEMPORARY SEDIMENT BASIN INTO WATER QUALITY BASIN

24" HDPE @ 1.5%SLOPE

INLET

STONE STABILIZED AREA TO ACCOMMODATE MATERIAL PROCESSING

STABILIZED TOPSOIL OVERBURDEN

SEDIMENT BARRIER

TEMPORARY OVERBURDEN STOCKPILE

DRAINAGE DITCH

24" HDPE @ 1.5%SLOPE

CONSTRUCTION ACCESS

WATER BAR

TEMPORARY SEDIMENT BASIN

CONSTRUCTION ACCESS

STABILIZED TOPSOIL OVERBURDEN

ROCK OUTCROP

60" MAPLE

DRAINAGE DITCH

CONSTRUCTION ACCESS

PZC PERMIT # _____ DATE OF APPROVAL _____ EXPIRATION DATE _____

_____ _____

PZC CHAIRMAN OR SECRETARY DATE

IWWC PERMIT #_____ DATE OF APPROVAL _____

_____ _____

IWWC CHAIRMAN DATE

30 0 30 60 90

SCALE IN FEET

REV.	DESCRIPTION OF REVISION	DATE	APPR.
2	RESPONSE TO INLAND WETLAND COMMISSION COMMENTS	07/10/2023	SRM
1	RESPONSE TO INLAND WETLAND COMMISSION COMMENTS	06/06/2023	SRM

STATE OF CONNECTICUT
GEORGE F. ANDRUSKIEWICZ
No. 18284
LICENSED PROFESSIONAL ENGINEER

Loureiro Engineering Associates, Inc.
Soil Scientists • Civil Engineers • Surveyors
Water • Facility Services • Laboratory
100 Northfield Street, Greenwich, CT 06830
Phone: 860-747-6181 • Fax: 860-747-8822
An Employee Owned Company • www.Loureiro.com

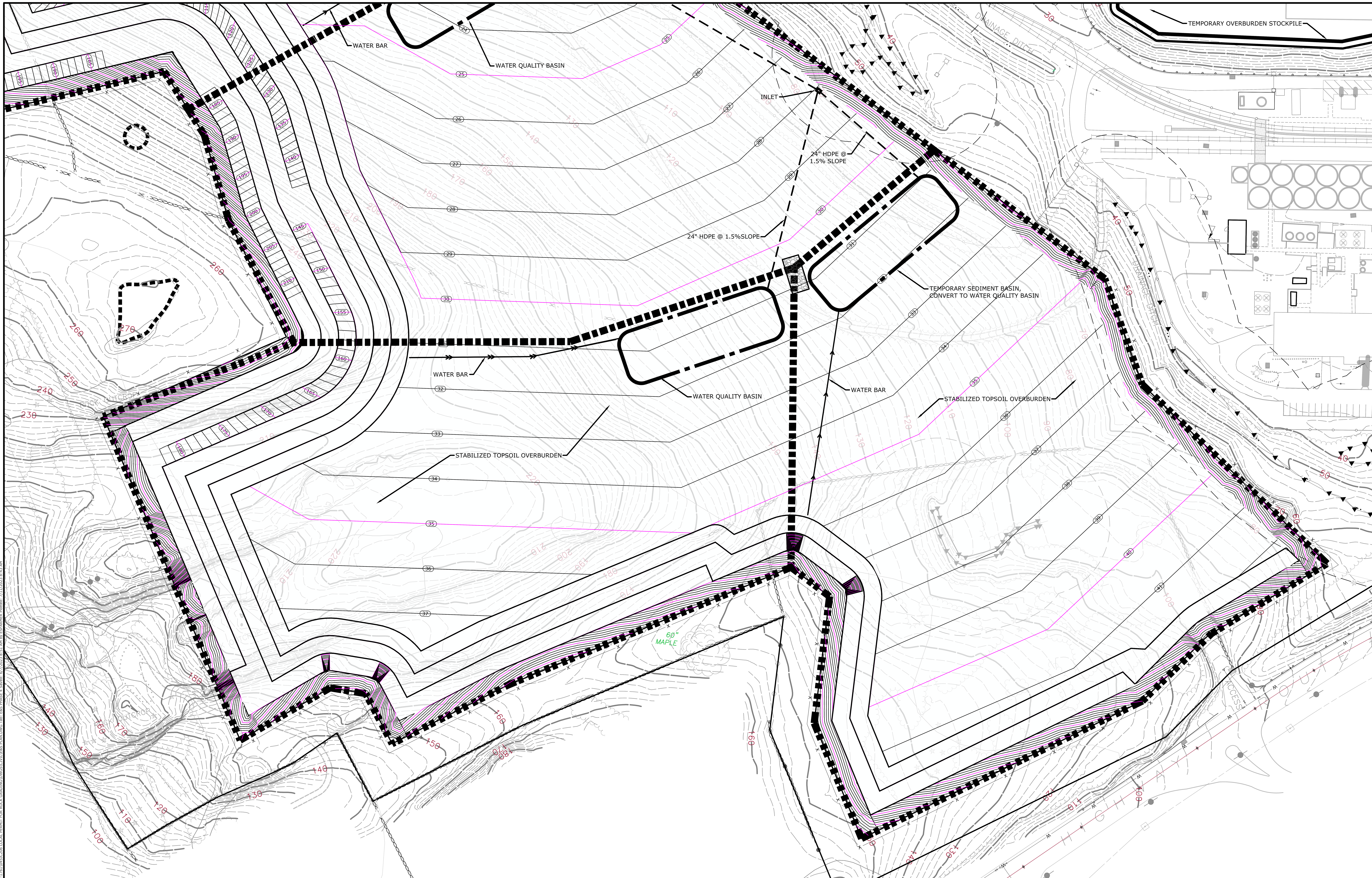
SCALE: 1"=60'
COMM. NO.: 04502.06
DRAWN BY: ESF
DATE: 04/03/2023
APPROVED BY: SRM
DATE: 04/03/2023

INDUSTRIAL SITE PREPARATION PLAN:
SOIL EROSION & SEDIMENT CONTROL - PHASE 3

PREPARED FOR:
GALES FERRY INTERMODAL
1737 & 1761 ROUTE 12, GALES FERRY, CT 06335
GALES FERRY INTERMODAL LLC
349 SOUTH STREET, QUINCY, MA 02169

DRAWING
C-8

SHEET NO. 10 NO. OF SHEETS 15

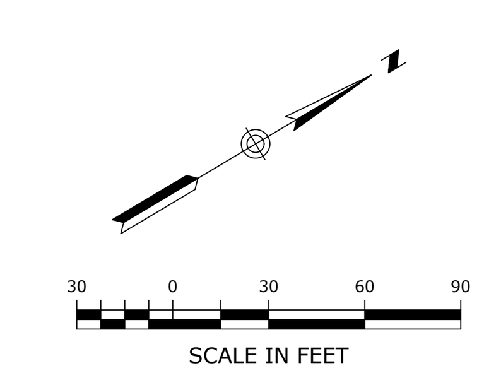


PZC PERMIT # ___________ DATE OF APPROVAL __________ EXPIRATION DATE ___________

PZC CHAIRMAN OR SECRETARY ______________________ DATE ________

IWWC PERMIT # ___________ DATE OF APPROVAL ______________________

IWWC CHAIRMAN ______________________ DATE ________



REV.	DESCRIPTION OF REVISION	DATE	APPR.
2	RESPONSE TO INLAND WETLAND COMMISSION COMMENTS	07/10/2023	SRM
1	RESPONSE TO INLAND WETLAND COMMISSION COMMENTS	06/06/2023	SRM

STAMP: STATE OF CONNECTICUT · GEORGE F. ANDREWS JR. · No. 19286 · LICENSED PROFESSIONAL ENGINEER

Loureiro
Engineering • Construction • EH&S • Energy
Waste • Facility Services • Laboratory
Loureiro Engineering Associates, Inc.
100 Northwest Drive • Plainville, Connecticut 06062
Phone: 860-747-6181 • Fax: 860-747-8822
An Employee Owned Company • www.Loureiro.com

SCALE	1"=60'
COMM. NO.	045JC2.06
DRAWN BY	ESF
DATE	04/03/2023
APPROVED BY	SRM
DATE	04/03/2023

INDUSTRIAL SITE PREPARATION PLAN:

SOIL EROSION & SEDIMENT CONTROL - PHASE 4

GALES FERRY INTERMODAL
1737 & 1761 ROUTE 12, GALES FERRY, CT 06335

PREPARED FOR:

GALES FERRY INTERMODAL LLC
549 SOUTH STREET, QUINCY, MA 02169

DRAWING
C-9

SHEET NO. 11 NO. OF SHEETS 15

ONCE ALL DISTURBED TRIBUTARY AREA IS PERMANENTLY STABILIZED, THE PUMP TANK CONVERTED TO WATER QUALITY UNIT THAT OUTLETS TO INTERMITTENT STREAM. THEN REMOVE FRAC AND WEIR TANKS.

THAMES RIVER

EBB

FLOOD

CHAPMAN LANE

WET AREA

WATER QUALITY BASIN

GRASS DRAINAGE SWALE

INLET

STABILIZED TOPSOIL OVERBURDEN

69" MAPLE

REV.	DESCRIPTION OF REVISION	DATE	APPR.
2	RESPONSE TO INLAND WETLAND COMMISSION COMMENTS	07/10/2023	SRM
1	RESPONSE TO INLAND WETLAND COMMISSION COMMENTS	06/06/2023	SRM

STATE OF CONNECTICUT
GEORGE F. ANDRUSKIEWICZ
No. 11281
LICENSED PROFESSIONAL ENGINEER

Loureiro Engineering Associates, Inc.
100 Northfield Street, Suite 360, Greenwich, CT 06830
Phone: 860-747-6181 • Fax: 860-747-8822
An Employee Owned Company • www.Loureiro.com

SCALE: 1" = 100'
COMM. NO.: 0453C2.06
DRAWN BY: ESF
DATE: 04/03/2023
APPROVED BY: SRM
DATE: 04/03/2023

INDUSTRIAL SITE PREPARATION PLAN:
SOIL EROSION & SEDIMENT CONTROL - FINAL

PREPARED FOR:
GALES FERRY INTERMODAL
1737 & 1761 ROUTE 12, GALES FERRY, CT 06335
GALES FERRY INTERMODAL LLC
349 SOUTH STREET, QUINCY, MA 02169

PZC PERMIT # _____ DATE OF APPROVAL _____ EXPIRATION DATE _____

PZC CHAIRMAN OR SECRETARY — DATE

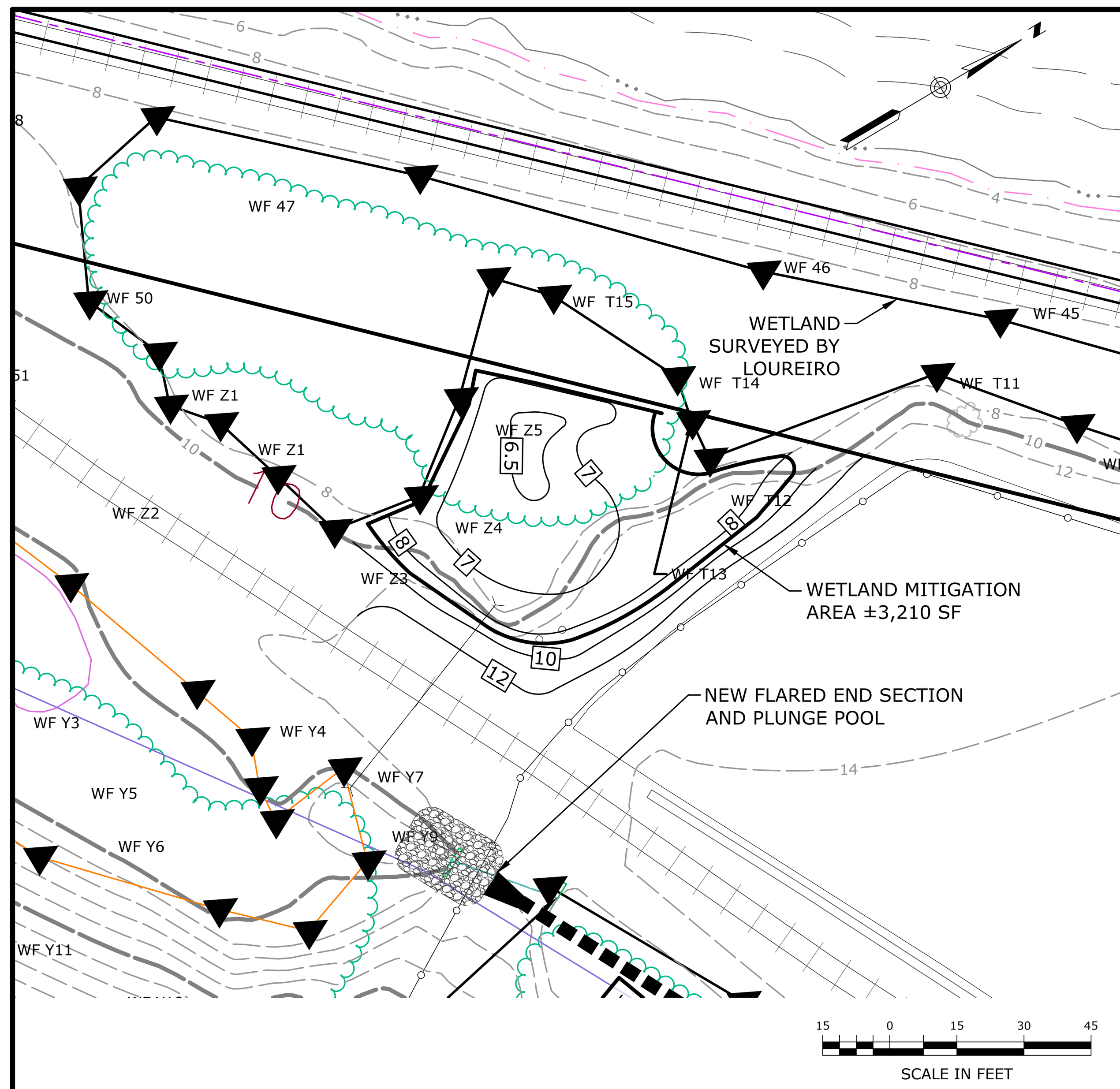
IWWC PERMIT # _____ DATE OF APPROVAL _____

IWWC CHAIRMAN — DATE

50 0 50 100 150
SCALE IN FEET

DRAWING
C-10

SHEET NO. 12 NO. OF SHEETS 15



New England Conservation/Wildlife Mix

Botanical Name	Common Name	Indicator
Elymus virginicus	Virginia Wild Rye	FACW-
Schizachyrium scoparium	Little Bluestem	FACU
Andropogon gerardii	Big Bluestem	FAC
Festuca rubra	Red Fescue	FACU
Sorghastrum nutans	Indian Grass	UPL
Panicum virgatum	Switch Grass	FAC
Chamaecrista fasciculata	Partridge Pea	FACU
Desmodium canadense	Showy Tick Trefoil	FAC
Asclepias tuberosa	Butterfly Milkweed	NI
Bidens frondosa	Beggar Ticks	FACW
Eupatorium purpureum (Eutrochium maculatum)	Purple Joe Pye Weed	FAC
Rudbeckia hirta	Black Eyed Susan	FACU-
Aster pilosus (Symphyotrichum pilosum)	Heath (or Hairy) Aster	UPL
Solidago juncea	Early Goldenrod	

PRICE PER LB. $39.50 MIN. QUANITY 2 LBS. **TOTAL:** $79.00 APPLY: 25 LBS/ACRE :1750 sq ft/lb

The New England Conservation/Wildlife Mix provides a permanent cover of grasses, wildflowers, and legumes For both good erosion control and wildlife habitat value. The mix is designed to be a no maintenance seeding, and is appropriate for cut and fill slopes, detention basin side slopes, and disturbed areas adjacent to commercial and residential projects.

New England Wetland Plants, Inc. may modify seed mixes at any time depending upon seed availability. The design criteria and ecological function of the mix will remain unchanged. Price is $/bulk pound, FOB warehouse, Plus SH and applicable taxes.

New England Wetmix (Wetland Seed Mix)

Botanical Name	Common Name	Indicator
Carex vulpinoidea	Fox Sedge	OBL
Carex scoparia	Blunt Broom Sedge	FACW
Carex lurida	Lurid Sedge	OBL
Carex lupulina	Hop Sedge	OBL
Poa palustris	Fowl Bluegrass	FACW
Bidens frondosa	Beggar Ticks	FACW
Scirpus atrovirens	Green Bulrush	OBL
Asclepias incarnata	Swamp Milkweed	OBL
Carex crinita	Fringed Sedge	OBL
Vernonia noveboracensis	New York Ironweed	FACW+
Juncus effusus	Soft Rush	FACW+
Aster lateriflorus (Symphyotrichum lateriflorum)	Starved/Calico Aster	FACW
Iris versicolor	Blue Flag	OBL
Glyceria grandis	American Mannagrass	OBL
Mimulus ringens	Square Stemmed Monkey Flower	OBL
Eupatorium maculatum (Eutrochium maculatum)	Spotted Joe Pye Weed	OBL

PRICE PER LB. $135.00 MIN. QUANITY 1 LBS. **TOTAL:** $135.00 APPLY: 18 LBS/ACRE :2500 sq ft/lb

The New England Wetmix (Wetland Seed Mix) contains a wide variety of native seeds that are suitable for most wetland restoration sites that are not permanently flooded. All species are best suited to moist ground as found in most wet meadows, scrub shrub, or forested wetland restoration areas. The mix is well suited for detention basin borders and the bottom of detention basins not generally under standing water. The seeds will not germinate under inundated conditions. If planted during the fall months the seed mix will germinate the following spring. During the first season of growth several species will produce seeds while other species will produce seeds after the second growing season. Not all species will grow in all wetland situations. This mix is comprised of the wetland species most likely to grow in created/restored wetlands and should produce more than 75% ground cover in two full growing seasons.

The wetland seeds in this mix can be sown by hand, with a hand-held spreader, or hydro-seeded on large or hard to reach sites. Lightly rake to insure good seed-to-soil contact. Seeding can take place on frozen soil, as the freezing and thawing weather of late fall and late winter will work the seed into the soil. If spring conditions are drier than usual watering may be required. If sowing during the summer months supplemental watering will likely be required until germination. A light mulch of clean, weed free straw is recommended.

New England Wetland Plants, Inc. may modify seed mixes at any time depending upon seed availability. The design criteria and ecological function of the mix will remain unchanged. Price is $/bulk pound, FOB warehouse, Plus SH and applicable taxes.

Table 3. Herbs

Hydrologic Zones: Zone A: Saturated/Shallow inundation; **Zone B**: seasonally saturated, moist
Zone C: moderately well drained, usually moist; **Zone D:** well-drained

Scientific Name	Zone	Common Name	Form	NWI*	Spacing	Wetland Creation Area	TotalS
Asclepias incarnata	A,B	Swamp milkweed	2"plug	OBL	2'OC	50	50
Carex lupulina	B	Hop sedge	2" plug	FACW	2'OC	100	100
Eutrochium purpureum	B	Purple Joe Pye weed	2" plug	FAC	3'OC	50	50
Juncus canadensis	A,B	Canada rush	2" plug	OBL	2'OC	50	50
Mimulus ringens	B	Monkey-flower	2" plug	OBL	2'OC	50	50
Monarda fistulosa	C	Wild bergamot	2" plug	UPL	3'OC	50	50
Panicum virgatum	C	Switchgrass	2" plug	FAC	3'OC	100	100
Onoclea sensibilis	B	Sensitive fern	6" pot	FAC	2'OC	20	20
Verbena hastata	B	Blue vervain	2" plug	FACW	3'OC	50	50
Vernonia noveborecensis	B	New York Ironweed	2" plug	FACW	3'OC	50	50
Zizia aurea	B	Golden alexanders	2" plug	FAC	3'OC	50	50
Total:						620	620

* *NWI Status (National Wetland Inventory; National Wetland Plant List: Northcentral & Northeast)*

NOTES:

1. Plant between May 15 and June 30 for herbaceous species. July planting will need watering through end of August.
2. Purchased woody material may be installed either in the spring (April 15 to June 15), or in the fall (August 15 to October15)
3. Plant in same species groupings of three to six shrubs, ten to twenty for herbs
4. Use seed mixes from New England Wetland Plants, Inc., South Hadley, MA (see Table 4), at specified seeding rate.
5. No seeding or plants in 3' diameter circle around each shrub and tree,1' around plugs; mulch with shredded bark
6. Water and weed as needed during first growing season.

Table 1. Trees

Hydrologic Zones: Zone A: Saturated/Shallow inundation; **Zone B**: seasonally saturated, moist
Zone C: moderately well drained, usually moist; **Zone D**: well-drained

Scientific Name	Zone	Common Name	Size	Shade tolerant?	NWI*	Form	Wetland Creation Area	TotalS
FULL SIZE TREES								
Nyssa sylvatica	B,C	Black gum	4'-6'	Y	FAC	nursery pot	1	1
Quercus palustris	B,C	Pin Oak	4'-6'	Y	FACW	nursery pot	2	2
Acer rubrum	D	Red maple	4'-6'	Y	FACU-	nursery pot	2	2
Total:							5	5
SMALL TREES/LARGE SHRUBS								
Amelanchier canadensis	C,D	Shadblow	3'-4'	Y/N	FAC	nursery pot	2	2
Salix discolor	B,C	Pussy willow	3'-4'	N	FACW	nursery pot	4	4
Juniperus virginiana	C,D	Red cedar	3'-4'	Y	UPL	nursery pot	8	8
Total:							14	14

Table 2. Shrubs

Scientific Name	Zone	Common Name	Size	Shade tolerant?	NWI*	Form		Totals
MEDIUM TO LOW SHRUBS								
Aronia arbutifolia	B,C	Chokeberry	3'-4'	N	FACW	pot	6	6
Clethra alnifolia	B,C	Sweet pepperbush	3'-4'	Y	FAC+	pot	6	6
Corylus americana	C,D	American hazelnut	3'-4'	Y	FACU-	pot	6	6
Ilex verticillata	B,C	Winterberry	3'-4'	Y	FACW+	pot	8	8
Lyonia ligustrina	B,C	Maleberry	3'-4'	Y/N	FACW	pot	8	8
Morella pensylvanica	C,D	Bayberry	3'-4'	N	FAC	pot	8	8
Vaccinium corymbosum	B	Highbush blueberry	3'-4'	Y	FACW	pot	10	10
Viburnum lentago	B,C	Nannyberry	3'-4'	Y	FAC	pot	10	10
Spiraea latifolia	B,C	Meadowsweet	3'-4'	N	FAC+	pot	30	30
Swida racemosa	B,C	Gray dogwood	3'-4'	Y	FAC	pot	15	15
Rosa palustris	A	Swamp rose	3'-4'	Y	OBL	pot	5	5
Total:							112	112

Table 4: Seed Mixes for Wetland Mitigation Area

COMMENTS:
See notes accompanying each seed mix for additional guidance pertaining to the season that seed mix is applied. Implementation notes also include a section on seeding.

		Total (lbs per seed mix)
NEWP Seed Mix #1	***Wetland Creation Area***	
New England Wetmix	*(in seasonally saturated to moist areas)*	3
1 lb/2,500 sf		
NEWP Seed Mix #2	***Wetland Creation Area** (moist edges)*	
New England Conservation/Wildlife Mix	*(also on 3:1 slopes above wetland)*	2
1 lb/1,750 sf		
	TOTAL:	5

Notes:

1. Mix 1:1 with filler (coarse sand, kitty litter) to help correctly divide seed packages and for even spreading.
2. Mixes contain seeds with a range of hydrologic tolerances, so different species will thrive in different areas.
3. Plants will set seed and spread further, increasing in density, becoming concnetrated in most suitable areas.
4. Mulch (do not seed) areas under and around plug & shrub clusters, to exclude weeds and hold moisture. (Coverage specified assumes area occupied by mulched woody plantings has been subtracted.)
5. A late fall seeding will require 20% more seed, because some seed wil be lost to wash off and herbivory, but germination rates will actually be higher the following spring, due to the cold winter stratification of the seed.

Source:
New England Wetland Plants, 14 Pearl Lane, South Bradley, Massachusetts; phone: 413-548-8000

PZC PERMIT # __________ DATE OF APPROVAL _________ EXPIRATION DATE __________

PZC CHAIRMAN OR SECRETARY DATE

IWWC PERMIT #__________ DATE OF APPROVAL _______________

IWWC CHAIRMAN DATE

MITIGATION PLAN FOR CREATION OF WETLAND HABITATS

IMPLEMENTATION NOTES

1.0 INTRODUCTION

EMERGENT AND SCRUB-SHRUB WETLAND (I.E., WET MEADOW/MARSH AND SHRUB SWAMP) CREATION BY EXCAVATION, AND HERBACEOUS AND WOODY PLANTINGS, WILL TAKE PLACE AT ONE LOCATION ON THE SUBJECT SITE, AT THE SOUTHWESTERN PORTION OF THE OVERALL PROPERTY, SOUTHERLY OF AN EXISTING PAVED STORAGE AREA, EASTERLY OF EXISTING RAILROAD TRACKS, AND IMMEDIATELY ADJACENT AND TO THE NORTH OF A DELINEATED WETLAND, WHICH DOES NOT HAVE A SURFACE WATER CONNECTION TO THE TIDAL WATERS OF THE THAMES RIVER.

A PORTION OF THE SELECTED WETLAND MITIGATION SITE IS CURRENTLY PAVED. SOILS RANGE FROM WELL DRAINED, TO MODERATELY WELL DRAINED FINE SANDY LOAMS TO LOAMY SAND. BASED ON PRELIMINARY SOIL EXPLORATION THE SITE WAS PREVIOUSLY A WETLAND, WITH A FOOT OR MORE OF FILL PLACED OVER PRE-EXISTING POORLY DRAINED WETLAND SOILS.

THOUGH SOME GOOD-QUALITY NATIVE VEGETATION OF FORESTED WETLAND HABITATS DOMINATE THE ADJACENT EXISTING WETLAND, THE SELECTED CREATION AREA HAS LOW HABITAT VALUE, INCLUDING DOMINANCE BY INVASIVE PLANTS (E.G., MULTIFLORA ROSE, MUGWORT, ASIATIC BITTERSWEET, TREE OF HEAVEN, ETC.).

IN-KIND MITIGATION (I.E., CREATION) IS PROPOSED TO OFF-SET LOST FUNCTIONS & VALUES FROM THE CURRENTLY PROPOSED PERMANENT WETLAND IMPACT (I.E., +/- ***1,700 SQUARE FEET***) (I.E., "WETLAND Z") THE GOAL IS TO CREATE ECOLOGICAL COMMUNITIES WITH AT LEAST COMPARABLE, AND PREFERABLY HIGHER, FUNCTIONS AND COMPLIMENTARY WETLAND COVER TYPES TO THE WETLAND THAT WOULD BE IMPACTED. THE INITIAL TARGET COVER TYPE RATIO FOR THE WETLAND REPLICATION SHALL BE ½ EMERGENT (I.E., WET MEADOW, MARSH) AND ½ SCRUB SHRUB HABITATS. APPROXIMATELY ***3,210 SQUARE FEET*** OF PRODUCTIVE WETLAND CAN BE CREATED AT THIS LOCATION.

THE WETLAND CREATION GOAL IS 100% COVER, AND 95% COVER BY NATIVE SPECIES, BY THE END OF THE FIVE-YEAR (5) MONITORING PERIOD. PLANT SPECIES WERE SELECTED TO ENCOMPASS THE FOLLOWING CRITERIA: FOOD PLANTS FOR CATEPILLARS, BEETLES, AND OTHER INSECTS; FRUIT, SEED, AND NUT PRODUCTION IN DIFFERENT SEASONS, INCLUDING PERSISTENT WINTER FRUIT AND SPRING SEEDS; FORAGE FOR VERTEBRATE HERBIVORES; SUITABLE MICRO-HABITATS FOR OVERWINTERING INSECTS; AND NECTAR AND POLLEN THROUGHOUT THE GROWING SEASON (SEE TABLE 3). SPECIES ALREADY PRESENT IN NEARBY WETLAND HABITATS, ESPECIALLY WOODY SPECIES, WERE SELECTED FIRST, AS THEY ARE ALREADY USED BY THE LOCAL FAUNAL ASSEMBLAGE.

2.0 WETLAND CREATION

PREPARATION

1. ORDER THE TRAYS OF HERBACEOUS PLUGS AND THE SEED MIX, FOR DELIVERY RIGHT AFTER COMPLETION OF GRADING. STORE IN SHADE WHEN THEY ARRIVE.
2. EARTHWORK FOR THE WETLAND CREATION AREA WILL TAKE PLACE IN APRIL / MAY, OR IN AUGUST, SO THAT PLANTINGS CAN BE INSTALLED IMMEDIATELY AFTERWARDS, EITHER IN LATE SPRING OR VERY EARLY FALL SEASONS.
3. A MINIMUM OF 10 INCHES OF TOPSOIL (AFTER COMPACTION) SHALL BE USED. SOIL TEXTURE SHALL BE LOAM OR FINER. ORGANIC MATTER CONTENT SHALL BE A MINIMUM OF 10 PERCENT BY WEIGHT (I.E., LOSS AT IGNITION), AS TESTED AT A QUALIFIED LABORATORY (E.G., UNIVERSITY OF CONNECTICUT SOILS LAB).
4. IF NECESSARY, WELL-ROTTED LEAF COMPOST (I.E., TWO YEAR MINIMUM) WILL BE ADDED TO BRING THE PERCENT ORGANIC MATTER TO THE DESIRED SPECIFICATION.
5. A ONE TO TWO INCH THICK "TOP-DRESSING" SHALL BE APPLIED TO THE FINAL GRADE AT THE CREATION AREA, EXCEPT IN AREAS WITH PROPOSED INUNDATION, CONSISTING OF LEAF COMPOST (2-YEAR OLD, MINIMUM).
6. ADD ORGANIC, SLOW-RELEASE FERTILIZER OR OTHER AMENDMENT ONLY AS INDICATED BY THE SOIL TEST RESULTS. ***NOTE*** THAT NUTRIENT LEVELS SHOULD BE LOWER FOR NATURAL HABITATS THAN FOR AGRICULTURAL OR HORTICULTURAL SITES, TO PREVENT EXCESSIVE COMPETITION BY RANK WEEDS.
7. INSTALL *PERIMETER EROSION CONTROLS* AROUND THE MITIGATION AREAS AS SHOWN ON PLAN: CORRECTLY TRENCHED AND STAKED SILT FENCE PER THE *2002 CONNECTICUT EROSION & SEDIMENTATION CONTROL GUIDELINES* (2002 GUIDELINES).

EARTHWORK

8. CLEAR AND GRUB THE WETLAND MITIGATION AREA.
   a. REMOVE THE EXISTING TOPSOIL FROM THESE LOCATIONS & PLACE IN A DESIGNATED SOIL STOCKPILE AREA, AT LEAST FIFTY FEET AWAY. **[*IMPORTANT NOTE: THE TOPSOIL FROM THE MITIGATION AREA SHALL NOT BE USED, BECAUSE IT IS HEAVILY INFESTED WITH INVASIVE PLANT SPECIES.***
9. SUBSOIL FROM CERTAIN PORTIONS OF THE WETLAND REPLICATION AREA, WITH HIGHER POTENTIAL FOR INVASIVE SPECIES, WILL BE TRUCKED TO OTHER UPLAND PARTS OF THE SITE, AND COULD BE STOCKPILED FOR USE IN AREAS OF MAINTAINED LAWN.
10. **EXCAVATION, GRADING, AND TRANSPLANTING** WILL TAKE PLACE UNDER THE DIRECTION OF THE WETLAND SCIENTIST. GRADING WILL BE BASED ON CONDITIONS OBSERVED AT THE FIELD BY THE WETLAND SCIENTIST WHO MAY MAKE SMALL IN-FIELD ADJUSTMENTS TO ACHIEVE THE DESIRED WETLAND HYDROLOGY.
11. GRADING FOR THE WETLAND REPLICATION AREA WILL ENTAIL THE REMOVAL OF FILL OVER PRE-EXISTING WETLANDS. THE DEPTH OF MATERIALS TO BE REMOVED, BEFORE TOPSOIL IS PLACED, WILL RANGE FROM APPROXIMATELY ONE FOOT TO OVER FIVE FEET.
12. NO MACHINERY WILL BE ALLOWED WITHIN THE WETLAND CREATION AREAS WHERE TOPSOIL HAS BEEN PLACED.
13. SPECIAL PROTECTIVE MEASURES SHALL BE IMPLEMENTED TO ALLOW FOR THE DISCHARGE OF SURFACE RUNOFF FROM AN EXISTING CULVERT WHICH DIRECTS WATER TO THIS THE MITIGATION AREA UNDER THE RAILROAD TRACKS, FROM A DELINEATED AREA TO THE EAST. THIS MAY INCLUDE HAYBALE CHECK DAMS REINFORCED WITH WIRE FENCING TO ENSURE THAT FLOWS WILL NOT ERODE THE MITIGATION AREA WHILE VEGETATION IS BEING ESTABLISHED. WE NOTE THAT THIS CULVERT, WHICH IS LIKELY FULLY OR PARTIALLY CLOGGED, WILL PROVIDE FORE SOME OF THE EXPECTED HYDROLOGY FOR THE CREATED WETLAND.

PLANTINGS

14. **ORDER** THE **WOODY PLANTING MATERIALS** FOR DELIVERY DURING THE PLANTING WINDOWS LISTED ABOVE (MID TO LATE SPRING OR EARLY FALL). STORE IN SHADE WHEN THEY ARRIVE AND INSTALL WITHIN THREE DAYS OF DELIVERY. MAKE SURE THAT ALL DESIRED SPECIES ARE AVAILABLE AT TIME OF ORDERING. WETLAND SCIENTIST SHALL APPROVE ANY SUBSTITUTIONS.
15. **CHECK DELIVERY**. MAKE SURE SPECIES, SIZES, AND QUANTITIES ARE AS SPECIFIED.
16. A WETLAND PROFESSIONAL OR ECOLOGIST SHALL SPECIFY PLANTING AND SEEDING LOCATIONS. THE PROFESSIONAL WILL DIRECT THE INSTALLATION, EITHER BY STAKING PLANTING LOCATIONS WITH A WIRE FLAG OR BAMBOO STAKE LABELED WITH THE SPECIES NAME OR CODE; OR POTTED STOCK MAY ALSO BE DIRECTLY PLACED AT PLANTING LOCATION.
17. **INSTALL THE PURCHASED WOODY MATERIALS FIRST, THEN THE HERBACEOUS PLUGS.**
18. **WOODY PLANTINGS AND LARGE HERBACEOUS PERENNIALS** (SEE TABLE 1 THROUGH TABLE 3) SHALL BE PLANTED IN SAME-SPECIES CLUSTERS, TWO TO THREE FEET APART FOR HERBACEOUS PERENNIALS, FIVE TO SIX FEET APART, FOR SHRUBS, TEN FEET APART FOR SMALL TREE SEEDLINGS/SAPLINGS. LARGER TREES SHALL BE NO CLOSER THAN EIGHT FEET FROM A SHRUB OR SMALL TREE.
19. DIG HOLES *BY HAND* TO *MINIMIZE COMPACTION* OF SOIL (MECHANICAL AUGERS ARE PROHIBITED). WATER HOLES BEFORE PLANTING, UNLESS SOIL IS ALREADY MOIST. ADD *SLOW-RELEASE FERTILIZER* (OSMACOTE, MILORGANITE OR EQUIVALENT) TO PLANTING HOLE. PLACE PLANTS INTO HOLES AND REPLACE SOIL, SO THAT THERE IS FULL COVERAGE OF ROOTS, WITH *NO AIR SPACES* AND LEVEL SOIL AROUND THE PLANT. HOLES SHALL BE OVERSIZED (2X THE ROOT MASS DIAMETER) AND BACKFILLED WITH LOCAL TOPSOIL OR EXTRA TOPSOIL IN AN OVERSIZED TRANSPLANT POT (NOT SUBSOIL REMOVED FROM BOTTOM PART OF HOLE).
20. MULCH WITH A THREE-INCH LAYER OF WELL-ROTTED HARDWOOD MULCH TO REDUCE COMPETITION FROM MEADOW VEGETATION IN A THREE-FOOT DIAMETER CIRCLE. LEAVE A GAP OF THREE INCHES AROUND EACH TRUNK. FORM *SAUCERS* AROUND ALL MULCHED TREE AND SHRUB PLANTINGS, TWO TO THREE INCHES HIGH, 36" ACROSS FOR NURSERY STOCK. WATER RIGHT AFTER PLANTING.
21. **HERBACEOUS PLUGS:** PLANT IN MID TO LATE AFTERNOON, OR UNDER SHADY CONDITIONS, *WATER* IMMEDIATELY AFTER PLANTING. SPACE PLUGS 24 TO 36 INCHES APART, PER PLAN (SEE TABLE 3) IN THE BARE SOIL AREAS, AND SPREAD SHREDDED LEAF MULCH IN A SIX-INCH CIRCLE AROUND EACH PLUG. PLANT IN SAME-SPECIES GROUPINGS OF VARIABLE SIZE AND SHAPE.
22. **SEEDING:** AFTER MIXING 1:1 WITH NON-CLUMPING KITTY LITTER (CLAY BASED), SPREAD SEED OVER BARE SOIL AREAS, AVOIDING MULCHED CIRCLES AROUND PLUGS. SEEDING RATE SHALL BE HALF THAT SPECIFIED FOR THE MIX. IF GERMINATION RATES ARE LOW, OVER-SEED IN FALL IN YEAR 2.
23. FOR SPRING SEEDING IN MOIST, BUT NOT SATURATED SOIL, LIGHTLY RAKE IN SEED (LESS THAN ½ INCH DEEP), TAMP DOWN, AND LIGHTLY MULCH WITH STRAW (FREE OF SEEDS) TO HOLD MOISTURE FOR GERMINATION. FOR FALL SEEDING, WAIT UNTIL AFTER HARD FROST; SEED MAY SIMPLY BE SOWN. SNOW AND FROST WILL INCORPORATE INTO THE SOIL. NOTE THAT COLD STRATIFICATION WILL INCREASE GERMINATION RATES OF SOME SPECIES IN A FALL SEEDING, BUT MORE SEEDS WILL ALSO BE EATEN BY WILDLIFE OR WASHED AWAY. IF SOIL IS SATURATED, BROADCAST ON SOIL SURFACE WITHOUT RAKING.
24. SPREAD A THIN LAYER OF WEED-FREE *STRAW MULCH* OVER ALL SEEDED AREAS WITHOUT STANDING WATER, ALLOWING FOR SOME LIGHT PENETRATION
25. FOR PLUGS IN THE WET MEADOW AND FOR SEED GERMINATION, WATERING SEVERAL TIMES A WEEK IS ESSENTIAL, IN DRY WEATHER. FOR IRRIGATION, SET UP A PUMP DRAWING ON LOCAL WATER, OR FROM A WATER TANK BROUGHT TO THE SITE.

3.0 PROTECTION FROM HERBIVORY

1. WOODY PLANTINGS WILL BE MONITORED DURING THE FIRST AND SECOND GROWING SEASONS AFTER PLAN IMPLEMENTATION FOR EXCESSIVE HERBIVORY. IF OBSERVED, THE WETLAND ECOLOGIST MAY PROPOSE ADDITIONAL CONTROLS/METHODS TO REDUCE HERBIVORY. DEER FENCE MAY BE CONSIDERED, AS THE MITIGATION AREA IS RELATIVELY SMALL.
2. AS AN INITIAL CONTROL, THE ORGANIC, SLOW-RELEASE FERTILIZER MILORGRANITE SHALL BE USED AT EACH SHRUB/TREE PLANTING, AND ALONG THE PERIMETER OF EACH OF THE MITIGATION AREAS. THIS FERTILIZER IS A MILD TO MODERATE DETERRENT TO HERBIVORY BY DEER. APPLICATION OF MILOGRANITE SHALL TAKE PLACE THREE TIMES DURING THE FIRST GROWING SEASON, SHOULD A DETERRENT BE NECESSARY.

4.0 INITIAL FOLLOW-UP AND MAINTENANCE

1. PROMPT SEEDING AND HAY MULCH APPLICATION FOLLOWING INITIAL GRADING IS KEY, TO PREVENT EROSION OF EXPOSED, RECENTLY GRADED SOILS. GRADING OF WETLAND CREATION AREAS SHOULD BE TIMED TO PRECEDE A FORECAST RAIN-FREE PERIOD, ENCOMPASSING THE SCHEDULED PLANTING DAY.
2. PERIMETER SEDIMENT CONTROLS. MAINTAIN PER THE 2002 CT E&S GUIDELINES, CHECK AFTER EACH RAIN MORE THAN ONE INCH. REMOVE SILT FENCE AS SOON AS GROUND IS VEGETATED (>80% COVER) TO PREVENT IMPEDING ANIMAL MOVEMENT TO AND FROM ADJACENT SEASONALLY FLOODED AND SATURATED WETLANDS. SEDIMENT COLLECTED BY THESE DEVICES WILL BE REMOVED AND PLACED UPLAND IN A MANNER THAT PREVENTS ITS EROSION AND TRANSPORT TO A WATERWAY OR WETLAND.
3. IRRIGATION: WATER ALL SEEDED AREAS, PLANTINGS AND/OR TRANSPLANTS AT LEAST WEEKLY IN DROUGHT PERIODS. MORE FREQUENT WATERING WILL INCREASE PLANTINGS' SUCCESS. FOR PLUGS, MORE FREQUENT WATERING COULD BE NEEDED.

5.0 WEED CONTROL

1. FOR 2-3 SEASONS FOLLOWING PLAN IMPLEMENTATION, CONTROL WEEDS IN A THREE- FOOT DIAMETER CIRCLE AROUND WOODY PLANTINGS. NECESSARY FREQUENCY WILL DEPEND ON RAINFALL AND SOIL SEED BANK, BUT AT LEAST MONTHLY FROM MAY TO JULY. MULCH HELPS CONTROL WEEDS, BUT IS NOT SUFFICIENT. THE SEED MIX AND OTHER NATURAL COLONIZERS NEEDS TO GERMINATE AND SPROUT IN THE MATRIX AROUND THE WOODY PLANTINGS.
2. AT TIME OF PLANTING MARK EACH PLANTED SHRUB OR TREE WITH A FOUR-FOOT TALL "SNOW STAKE" OR "DRIVEWAY MARKER" WITH REFLECTOR TAPE. THESE SHALL BE REMOVED AT THE END OF THE MONITORING PERIOD, BUT WILL ASSIST IN FINDING THEM, SHOULD TALL HERBACEOUS VEGETATION BEGIN TO OBSCURE THEM.
3. FOR CONTROL OF SMALL SEEDLINGS USE A HOE.
4. FOR LARGER WEEDS USE A WEED WHACKER (POLE HEDGE TRIMMER).
5. LANDSCAPER SHALL FOLLOW DIRECTION OF WETLAND SCIENTIST WHO SHALL PROVIDE INITIAL GUIDANCE, BUT NEED NOT REMAIN ON SITE DURING MAINTENANCE.
6. THE WETLANDS PROFESSIONAL WILL POINT OUT TO THE LANDSCAPER CERTAIN WEEDS LIKE MUGWORT, WHICH IS PREVALENT IN PORTIONS OF THE SITE, WHICH ARE BEST PULLED, TO WEAKEN ROOT SYSTEM AND REDUCE NEEDED FREQUENCY FOR WEEDING.
7. OUTSIDE THE THREE-FOOT DIAMETER CIRCLE, WEED ONLY SELECTED UNDESIRABLE COLONIZING PLANTS, INCLUDING INVASIVE SPECIES. THE WETLANDS PROFESSIONAL SHALL TRAIN THE LANDSCAPER TO RECOGNIZE AND AVOID NATIVE SPECIES SUCH AS GOLDENRODS, SUMACS, AND VIRGINIA CREEPER. INITIALLY, FLAG DESIRABLE NATIVE SPECIES AS A TRAINING AID; ALSO, FOLLOWING ANY PERSONNEL CHANGES.

6.0 INVASIVE PLANT CONTROL

1. THE ECOLOGIST/WETLANDS PROFESSIONAL WILL FLAG WOODY INVASIVES TO BE REMOVED IN THE VICINITY OF THE WETLAND REPLICATION AREA (I.E., WITHIN 25 FEET) AT THE TIME OF PLAN IMPLEMENTATION, AND PREFERABLY JUST PRIOR TO ANY EARTHWORK.
2. AS NEEDED, CONTROL USING TARGETED, RATHER THAN BROADCAST HERBICIDE APPLICATION METHODS. FOR SPRING TREATMENT, CUT EARLY IN GROWING SEASON (LATE APRIL TO MID MAY) AND TREAT SMALL RESPROUTS IN EARLY SUMMER USING A LOW VOLUME SPRAYER. IN EARLY FALL USE THE CUT-AND-PAINT METHOD, APPLYING HERICIDE TO A RECENTLY CUT STEM (WITHIN 10 MINUTES) ON BROADLEAF INVASIVES. USE A SELECTIVE HERBICIDE LIKE TRICLOPYR (FOUND IN BRUSH-B-GON, GARLON 3A OR 4A, AND OTHER PRODUCTS), RATHER THAN BROAD-SPECTRUM GLYPHOSATE, TO MINIMIZE IMPACTS ON NON-TARGET PLANTS AND SOIL FAUNA.
3. INVASIVE PLANT CONTROL WITHIN THE AREAS OF WETLAND REPLICATION SHALL TAKE PLACE FOR **FOUR (4) YEARS** FOLLOWING THE YEAR OF PLAN IMPLEMENTATION (I.E., YEAR 2 THROUGH YEAR 5), FOLLOWING THE PROCEDURES PROMULGATED BY THE CT DEEP'S CONNECTICUT INVASIVE PLANT WORKING GROUP (CIPWG), AND/OR THE NATURE CONSERVANCY.

7.0 MONITORING

1. INSPECTIONS AT THE WETLAND REPLICATION AREA SHALL BE CONDUCTED BY A QUALIFIED WETLANDS PROFESSIONAL OR ECOLOGIST DURING THE GROWING SEASON, THE THREE MONTHS FOLLOWING INSTALLATION (I.E., YEAR ONE), AND TWICE DURING EACH OF THE **FOUR (4) NEXT GROWING SEASONS**, ONCE IN LATE MAY THROUGH JUNE, AND ONCE IN EARLY FALL. ADDITIONAL INSPECTIONS MAY BE NECESSARY AT THE DISCRETION OF THE WETLANDS PROFESSIONAL TO ENSURE THE SUCCESS OF THE WETLAND CREATION.
2. DURING INSPECTIONS, CHECK MITIGATION AREA FOR SEEDLINGS OF THE FOLLOWING *INVASIVE SPECIES* AND MECHANICALLY REMOVE: JAPANESE KNOTWEED, COMMON REED, MORROW'S HONEYSUCKLE, AUTUMN OLIVE, MULTIFLORA ROSE, ASIATIC BITTERSWEET, JAPANESE BARBERRY, GLOSSY BUCKTHORN, BURNING BUSH, TREE-OF-HEAVEN, MUGWORT, AND GARLIC MUSTARD. INSPECTIONS SHALL BE DONE BY THE WETLANDS PROFESSIONAL, WHO COULD ALSO IDENTIFY OTHER INVASIVE PLANT SPECIES, BUT PERSONNEL TRAINED BY THE PROFESSIONAL IN IDENTIFICATION OF INVASIVE SEEDLINGS MAY ASSIST WITH MECHANICAL REMOVAL (WEEDING).
3. *COMPETING PLANTS:* IF THE WETLANDS PROFESSIONAL DETERMINES THAT EXCESSIVE NUMBERS OF SEEDLINGS OF A PARTICULAR NATIVE SPECIES HAVE GERMINATED ON SITE (E.G., CATTAIL), REMOVE THEM BY HOEING OR HAND PULLING. COLONIZATION BY A VARIETY OF NATIVE SPECIES IS EXPECTED AND IS DESIRABLE.
4. *REMEDIAL MEASURES* SUCH AS REPLACEMENT PLANTINGS, HYDROLOGIC ADJUSTMENTS, AND DEER BROWSING PROTECTION, MAY BE RECOMMENDED AND SUPERVISED BY THE WETLANDS PROFESSIONAL AND IMPLEMENTED BY THE PROPERTY OWNER/MANAGER, FOR SIGNIFICANT PROBLEMS.
5. A BRIEF *REPORT* TO THE TOWN'S INLAND WETLANDS AND WATERCOURSES AGENCY WILL SUBMITTED BY NOVEMBER 30TH OF THE MONITORING YEAR.

REV.	DESCRIPTION OF REVISION	DATE	APPR.
2	RESPONSE TO INLAND WETLAND COMMISSION COMMENTS	07/10/2023	SRM
1	RESPONSE TO INLAND WETLAND COMMISSION COMMENTS	06/06/2023	SRM

STAMP: STATE OF CONNECTICUT GEORGE F. ANDREWS JR. No. 19286 LICENSED PROFESSIONAL ENGINEER

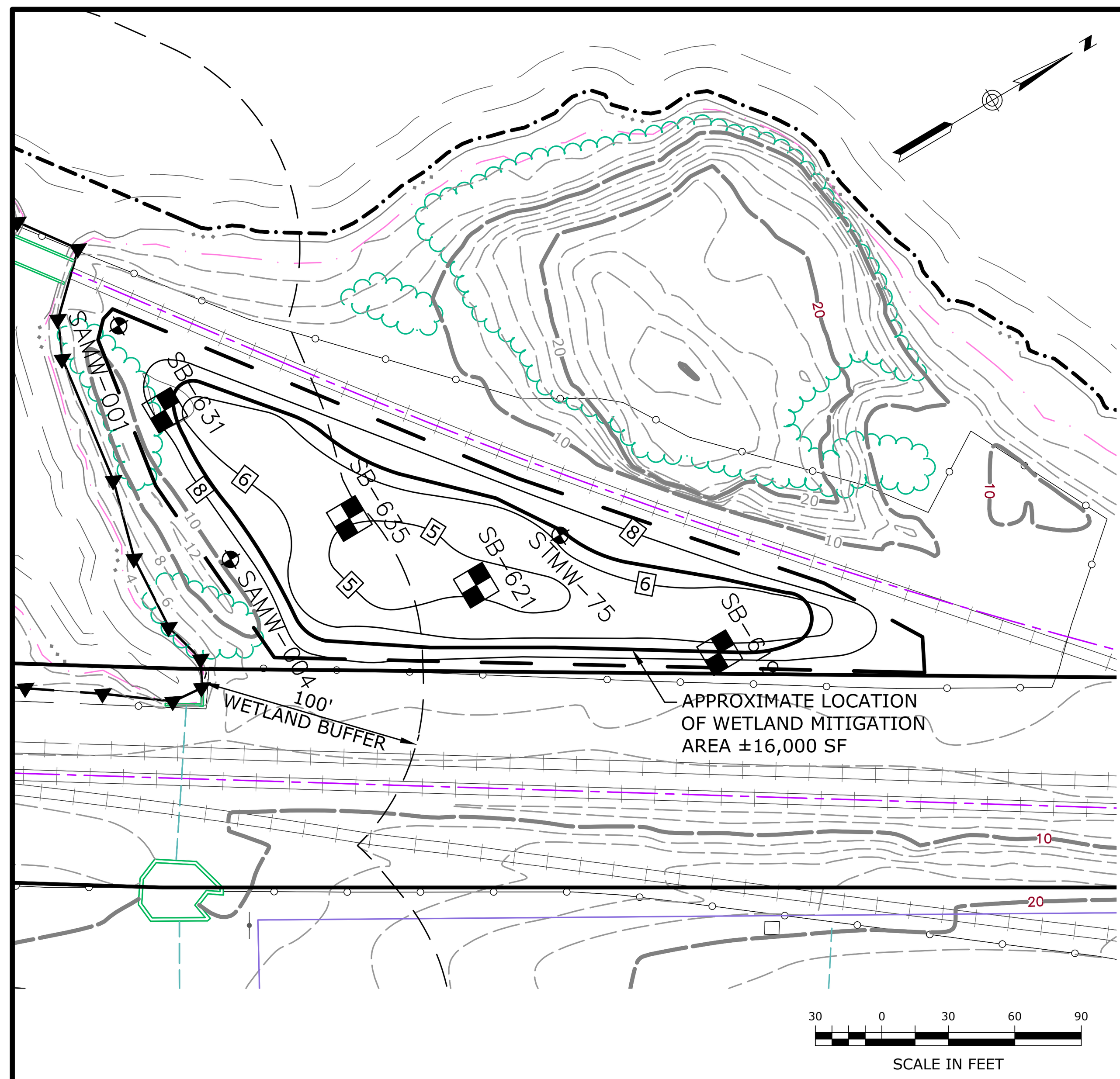
Loureiro
Engineering • Construction • EH&S • Energy
Waste • Facility Services • Laboratory
Loureiro Engineering Associates, Inc.
100 Northwest Drive • Plainville, Connecticut 06062
Phone: 860-747-6181 • Fax: 860-747-8822
An Employee Owned Company • www.Loureiro.com

SCALE 1"=30'
COMM. NO. 045JC2.06
DRAWN BY SRM DATE 04/03/2023
APPROVED BY GFA DATE 04/03/2023

INDUSTRIAL SITE PREPARATION PLAN:
WETLAND MITIGATION PLAN - LOCATION 1

GALES FERRY INTERMODAL
1737 & 1761 ROUTE 12, GALES FERRY, CT 06335
PREPARED FOR:
GALES FERRY INTERMODAL LLC
549 SOUTH STREET, QUINCY, MA 02169

DRAWING **C-11A**
SHEET NO. 13 NO. OF SHEETS 15



LEGEND

SXMW–X SOIL BORING

SB–X MONITORING WELL

New England Conservation/Wildlife Mix

Botanical Name	Common Name	Indicator
Elymus virginicus	Virginia Wild Rye	FACW-
Schizachyrium scoparium	Little Bluestem	FACU
Andropogon gerardii	Big Bluestem	FAC
Festuca rubra	Red Fescue	FACU
Sorghastrum nutans	Indian Grass	UPL
Panicum virgatum	Switch Grass	FAC
Chamaecrista fasciculata	Partridge Pea	FACU
Desmodium canadense	Showy Tick Trefoil	FAC
Asclepias tuberosa	Butterfly Milkweed	NI
Bidens frondosa	Beggar Ticks	FACW
Eupatorium purpureum (Eutrochium maculatum)	Purple Joe Pye Weed	FAC
Rudbeckia hirta	Black Eyed Susan	FACU-
Aster pilosus (Symphyotrichum pilosum)	Heath (or Hairy) Aster	UPL
Solidago juncea	Early Goldenrod	

PRICE PER LB. $39.50 MIN. QUANITY 2 LBS. **TOTAL:** $79.00 APPLY: 25 LBS/ACRE :1750 sq ft/lb

The New England Conservation/Wildlife Mix provides a permanent cover of grasses, wildflowers, and legumes For both good erosion control and wildlife habitat value. The mix is designed to be a no maintenance seeding, and is appropriate for cut and fill slopes, detention basin side slopes, and disturbed areas adjacent to commercial and residential projects.

New England Wetland Plants, Inc. may modify seed mixes at any time depending upon seed availability. The design criteria and ecological function of the mix will remain unchanged. Price is $/bulk pound, FOB warehouse, Plus SH and applicable taxes.

New England Wetmix (Wetland Seed Mix)

Botanical Name	Common Name	Indicator
Carex vulpinoidea	Fox Sedge	OBL
Carex scoparia	Blunt Broom Sedge	FACW
Carex lurida	Lurid Sedge	OBL
Carex lupulina	Hop Sedge	OBL
Poa palustris	Fowl Bluegrass	FACW
Bidens frondosa	Beggar Ticks	FACW
Scirpus atrovirens	Green Bulrush	OBL
Asclepias incarnata	Swamp Milkweed	OBL
Carex crinita	Fringed Sedge	OBL
Vernonia noveboracensis	New York Ironweed	FACW+
Juncus effusus	Soft Rush	FACW+
Aster lateriflorus (Symphyotrichum lateriflorum)	Starved/Calico Aster	FACW
Iris versicolor	Blue Flag	OBL
Glyceria grandis	American Mannagrass	OBL
Mimulus ringens	Square Stemmed Monkey Flower	OBL
Eupatorium maculatum (Eutrochium maculatum)	Spotted Joe Pye Weed	OBL

PRICE PER LB. $135.00 MIN. QUANITY 1 LBS. **TOTAL:** $135.00 APPLY: 18 LBS/ACRE :2500 sq ft/lb

The New England Wetmix (Wetland Seed Mix) contains a wide variety of native seeds that are suitable for most wetland restoration sites that are not permanently flooded. All species are best suited to moist ground as found in most wet meadows, scrub shrub, or forested wetland restoration areas. The mix is well suited for detention basin borders and the bottom of detention basins not generally under standing water. The seeds will not germinate under inundated conditions. If planted during the fall months the seed mix will germinate the following spring. During the first season of growth several species will produce seeds while other species will produce seeds after the second growing season. Not all species will grow in all wetland situations. This mix is comprised of the wetland species most likely to grow in created/restored wetlands and should produce more than 75% ground cover in two full growing seasons.

The wetland seeds in this mix can be sown by hand, with a hand-held spreader, or hydro-seeded on large or hard to reach sites. Lightly rake to insure good seed-to-soil contact. Seeding can take place on frozen soil, as the freezing and thawing weather of late fall and late winter will work the seed into the soil. If spring conditions are drier than usual watering may be required. If sowing during the summer months supplemental watering will likely be required until germination. A light mulch of clean, weed free straw is recommended.

New England Wetland Plants, Inc. may modify seed mixes at any time depending upon seed availability. The design criteria and ecological function of the mix will remain unchanged. Price is $/bulk pound, FOB warehouse, Plus SH and applicable taxes.

Table 3. Herbs

Hydrologic Zones: Zone A: Saturated/Shallow inundation; **Zone B**: seasonally saturated, moist **Zone C:** moderately well drained, usually moist; **Zone D:** well-drained

Scientific Name	Zone	Common Name	Form	NWI*	Spacing	Wetland Creation Area	TotalS
Asclepias incarnata	A,B	Swamp milkweed	2"plug	OBL	2'OC	100	***100***
Carex lupulina	B	Hop sedge	2" plug	FACW	2'OC	100	***100***
Eutrochium purpureum	B	Purple Joe Pye weed	2" plug	FAC	3'OC	100	***100***
Juncus canadensis	A,B	Canada rush	2" plug	OBL	2'OC	50	***50***
Mimulus ringens	B	Monkey-flower	2" plug	OBL	2'OC	50	***50***
Monarda fistulosa	C	Wild bergamot	2" plug	UPL	3'OC	100	***100***
Panicum virgatum	C	Switchgrass	2" plug	FAC	3'OC	150	***150***
Onoclea sensibilis	B	Sensitive fern	6" pot	FAC	2'OC	50	***50***
Verbena hastata	B	Blue vervain	2" plug	FACW	3'OC	100	***100***
Vernonia noveborecensis	B	New York Ironweed	2" plug	FACW	3'OC	100	***100***
Zizia aurea	B	Golden alexanders	2" plug	FAC	3'OC	100	***100***
Total:						*1000*	1000

** NWI Status (National Wetland Inventory; National Wetland Plant List: Northcentral & Northeast)*

NOTES:

1. Plant between May 15 and June 30 for herbaceous species. July planting will need watering through end of August.
2. Purchased woody material may be installed either in the spring (April 15 to June 15), or in the fall (August 15 to October15)
3. Plant in same species groupings of three to six shrubs, ten to twenty for herbs
4. Use seed mixes from New England Wetland Plants, Inc., South Hadley, MA (see Table 4), at specified seeding rate.
5. No seeding or plants in 3' diameter circle around each shrub and tree,1' around plugs; mulch with shredded bark
6. Water and weed as needed during first growing season.

Table 1. Trees

Hydrologic Zones: Zone A: Saturated/Shallow inundation; **Zone B**: seasonally saturated, moist **Zone C:** moderately well drained, usually moist; **Zone D**: well-drained

Scientific Name	Zone	Common Name	Size	Shade tolerant?	NWI*	Form	Wetland Creation Area	TotalS
FULL SIZE TREES								
Nyssa sylvatica	B,C	Black gum	4'-6'	Y	FAC	nursery pot	4	***4***
Quercus palustris	B,C	Pin Oak	4'-6'	Y	FACW	nursery pot	4	***4***
Acer rubrum	D	Red maple	4'-6'	Y	FACU-	nursery pot	7	***7***
Total:							*15*	15
SMALL TREES/LARGE SHRUBS								
Amelanchier canadensis	C,D	Shadblow	3'-4'	Y/N	FAC	nursery pot	4	***4***
Salix discolor	B,C	Pussy willow	3'-4'	N	FACW	nursery pot	8	***8***
Juniperus virginiana	C,D	Red cedar	3'-4'	Y	UPL	nursery pot	16	***16***
Total:							*28*	28

Table 2. Shrubs

Scientific Name	Zone	Common Name	Size	Shade tolerant?	NWI*	Form		Totals
MEDIUM TO LOW SHRUBS								
Aronia arbutifolia	B,C	Chokeberry	3'-4'	N	FACW	pot	12	***12***
Clethra alnifolia	B,C	Sweet pepperbush	3'-4'	Y	FAC+	pot	16	***16***
Corylus americana	C,D	American hazelnut	3'-4'	Y	FACU-	pot	12	***12***
Ilex verticillata	B,C	Winterberry	3'-4'	Y	FACW+	pot	15	***15***
Lyonia ligustrina	B,C	Maleberry	3'-4'	Y/N	FACW	pot	15	***15***
Morella pensylvanica	C,D	Bayberry	3'-4'	N	FAC	pot	20	***20***
Vaccinium corymbosum	B	Highbush blueberry	3'-4'	Y	FACW	pot	20	***20***
Viburnum lentago	B,C	Nannyberry	3'-4'	Y	FAC	pot	25	***25***
Spiraea latifolia	B,C	Meadowsweet	3'-4'	N	FAC+	pot	50	***50***
Swida racemosa	B,C	Gray dogwood	3'-4'	Y	FAC	pot	30	***30***
Rosa palustris	A	Swamp rose	3'-4'	Y	OBL	pot	15	***15***
Total:							*230*	230

Table 4: Seed Mixes for Wetland Mitigation Area

COMMENTS:

See notes accompanying each seed mix for additional guidance pertaining to the season that seed mix is applied. Implementation notes also include a section on seeding.

		Total (lbs per seed mix)
NEWP Seed Mix #1	***Wetland Creation Area***	
New England Wetmix ***1 lb/2,500 sf***	*(in seasonally saturated to moist areas)*	6
NEWP Seed Mix #2	***Wetland Creation Area*** *(moist edges)*	
New England Conservation/Wildlife Mix ***1 lb/1,750 sf***	*(also on 3:1 slopes above wetland)*	4
	TOTAL:	10

Notes:

1. Mix 1:1 with filler (coarse sand, kitty litter) to help correctly divide seed packages and for even spreading.
2. Mixes contain seeds with a range of hydrologic tolerances, so different species will thrive in different areas.
3. Plants will set seed and spread further, increasing in density, becoming concnetrated in most suitable areas.
4. Mulch (do not seed) areas under and around plug & shrub clusters, to exclude weeds and hold moisture. (Coverage specified assumes area occupied by mulched woody plantings has been subtracted.)
5. A late fall seeding will require 20% more seed, because some seed wil be lost to wash off and herbivory, but germination rates will actually be higher the following spring, due to the cold winter stratification of the seed.

Source:

New England Wetland Plants, 14 Pearl Lane, South Bradley, Massachusetts; phone: 413-548-8000

PZC PERMIT # __________ DATE OF APPROVAL _________ EXPIRATION DATE __________

PZC CHAIRMAN OR SECRETARY DATE

IWWC PERMIT #__________ DATE OF APPROVAL ______________

IWWC CHAIRMAN DATE

MITIGATION PLAN FOR CREATION OF WETLAND HABITATS

IMPLEMENTATION NOTES

1.0 INTRODUCTION

EMERGENT AND SCRUB-SHRUB WETLAND (I.E., WET MEADOW/MARSH AND SHRUB SWAMP) CREATION BY EXCAVATION, AND HERBACEOUS AND WOODY PLANTINGS, WILL TAKE PLACE AT AN ADDITIONAL LOCATION ON THE SUBJECT SITE, AT THE WESTERN PORTION OF THE OVERALL PROPERTY, A PIE-SHAPED AREA, BETWEEN TWO RAILROAD TRACKS, AND EASTERLY OF A PROMINENT BEDROCK KNOLL.

SOILS RANGE FROM WELL DRAINED, TO MODERATELY WELL DRAINED FINE SANDY LOAMS TO LOAMY SAND. BASED ON PRELIMINARY SOIL EXPLORATION ON THE SITE AND REMOTE SENSING, THIS AREA APPEARS TO HAVE NOT BEEN FILLED OR MANIPULATED TO A GREAT DEGREE, IN THE SUBSOILS.

THOUGH SOME BETTER-QUALITY NATIVE VEGETATION OF RUDERAL WOODS EXISTS WITHIN THIS AREA, FOR THE MOST PART IT IS REPLETE WITH INVASIVE PLANTS (E.G., MULTIFLORA ROSE, MUGWORT, ASIATIC BITTERSWEET, TREE OF HEAVEN, AUTUMN OLIVE,ETC.).

IN-KIND MITIGATION (I.E., CREATION) IS PROPOSED TO OFF-SET LOST FUNCTIONS & VALUES FROM THE CURRENTLY PROPOSED PERMANENT WETLAND IMPACT (I.E., +/- ***1,700 SQUARE FEET***) (I.E., "WETLAND Z") AND THE POTENTIAL HYDROLOGIC IMPACTS TO WETLANDS "Y" AND "X",THE GOAL IS TO CREATE ECOLOGICAL COMMUNITIES WITH AT LEAST COMPARABLE, AND PREFERABLY HIGHER, FUNCTIONS AND COMPLIMENTARY WETLAND COVER TYPES TO THE WETLAND THAT WOULD BE IMPACTED. THE INITIAL TARGET COVER TYPE RATIO FOR THE WETLAND REPLICATION SHALL BE ½ EMERGENT (I.E., WET MEADOW, MARSH) AND ½ SCRUB SHRUB HABITATS. APPROXIMATELY ***16,000 SQUARE FEET*** OF PRODUCTIVE WETLAND CAN BE CREATED AT THIS LOCATION.

THE WETLAND CREATION GOAL IS 100% COVER, AND 95% COVER BY NATIVE SPECIES, BY THE END OF THE FIVE-YEAR (5) MONITORING PERIOD. PLANT SPECIES WERE SELECTED TO ENCOMPASS THE FOLLOWING CRITERIA: FOOD PLANTS FOR CATERPILLARS, BEETLES, AND OTHER INSECTS; FRUIT, SEED, AND NUT PRODUCTION IN DIFFERENT SEASONS, INCLUDING PERSISTENT WINTER FRUIT AND SPRING SEEDS; FORAGE FOR VERTEBRATE HERBIVORES; SUITABLE MICRO-HABITATS FOR OVERWINTERING INSECTS; AND NECTAR AND POLLEN THROUGHOUT THE GROWING SEASON (SEE TABLE 3). SPECIES ALREADY PRESENT IN NEARBY WETLAND HABITATS, ESPECIALLY WOODY SPECIES, WERE SELECTED FIRST, AS THEY ARE ALREADY USED BY THE LOCAL FAUNAL ASSEMBLAGE.

NOTE: ALL WETLAND REPLICATION WORK SHALL BE SUPERVISED BY AN ECOLOGIST (OR WETLAND SCIENTIST), INCLUDING INITIAL GRADING, PLANTING, MARKING INVASIVES IN ADJACENT UPLAND BUFFER AREAS, AND MARKING ANY NATIVE MATERIALS FOR SALVAGE. A PRE-IMPLEMENTATION MEETING SHALL TAKE PLACE AT LEAST ONE MONTH PRIOR TO PLAN IMPLEMENTATION, BETWEEN THE WETLAND SCIENTIST, THE SITE CONTRACTOR, AND THE LANDSCAPER, AND THE TOWN'S WETLAND AGENT, AT THE TOWN'S DISCRETION.

2.0 WETLAND CREATION

PREPARATION

1. ORDER THE TRAYS OF HERBACEOUS PLUGS AND THE SEED MIX, FOR DELIVERY RIGHT AFTER COMPLETION OF GRADING. STORE IN SHADE WHEN THEY ARRIVE.
2. EARTHWORK FOR THE WETLAND CREATION AREA WILL TAKE PLACE IN APRIL / MAY, OR IN AUGUST, SO THAT PLANTINGS CAN BE INSTALLED IMMEDIATELY AFTERWARDS, EITHER IN LATE SPRING OR VERY EARLY FALL SEASONS.
3. A MINIMUM OF 10 INCHES OF TOPSOIL (AFTER COMPACTION) SHALL BE USED. SOIL TEXTURE SHALL BE LOAM OR FINER. ORGANIC MATTER CONTENT SHALL BE A MINIMUM OF 10 PERCENT BY WEIGHT (I.E., LOSS AT IGNITION), AS TESTED AT A QUALIFIED LABORATORY (E.G., UNIVERSITY OF CONNECTICUT SOILS LAB).
4. IF NECESSARY, WELL-ROTTED LEAF COMPOST (I.E., TWO YEAR MINIMUM) WILL BE ADDED TO BRING THE PERCENT ORGANIC MATTER TO THE DESIRED SPECIFICATION.
5. A ONE TO TWO INCH THICK "TOP-DRESSING" SHALL BE APPLIED TO THE FINAL GRADE AT THE CREATION AREA, EXCEPT IN AREAS WITH PROPOSED INUNDATION, CONSISTING OF LEAF COMPOST (2-YEAR OLD, MINIMUM).
6. ADD ORGANIC, SLOW-RELEASE FERTILIZER OR OTHER AMENDMENT ONLY AS INDICATED BY THE SOIL TEST RESULTS. ***NOTE*** THAT NUTRIENT LEVELS SHOULD BE LOWER FOR NATURAL HABITATS THAN FOR AGRICULTURAL OR HORTICULTURAL SITES, TO PREVENT EXCESSIVE COMPETITION BY RANK WEEDS.
7. INSTALL *PERIMETER EROSION CONTROLS* AROUND THE MITIGATION AREAS AS SHOWN ON PLAN: CORRECTLY TRENCHED AND STAKED SILT FENCE PER THE *2002 CONNECTICUT EROSION & SEDIMENTATION CONTROL GUIDELINES* (2002 GUIDELINES).

EARTHWORK

8. CLEAR AND GRUB THE WETLAND MITIGATION AREA.
   a. REMOVE THE EXISTING TOPSOIL FROM THESE LOCATIONS & PLACE IN A DESIGNATED SOIL STOCKPILE AREA, AT LEAST FIFTY FEET AWAY. [***IMPORTANT NOTE: THE TOPSOIL FROM THE MITIGATION AREA SHALL NOT BE USED, BECAUSE IT IS HEAVILY INFESTED WITH INVASIVE PLANT SPECIES.***
9. SUBSOIL FROM CERTAIN PORTIONS OF THE WETLAND REPLICATION AREA, WITH HIGHER POTENTIAL FOR INVASIVE SPECIES, WILL BE TRUCKED TO OTHER UPLAND PARTS OF THE SITE, AND COULD BE STOCKPILED FOR USE IN AREAS OF MAINTAINED LAWN.
10. **EXCAVATION, GRADING, AND TRANSPLANTING** WILL TAKE PLACE UNDER THE DIRECTION OF THE WETLAND SCIENTIST. GRADING WILL BE BASED ON CONDITIONS OBSERVED AT THE FIELD BY THE WETLAND SCIENTIST WHO MAY MAKE SMALL IN-FIELD ADJUSTMENTS TO ACHIEVE THE DESIRED WETLAND HYDROLOGY.
11. GRADING FOR THE WETLAND REPLICATION AREA WILL ENTAIL THE REMOVAL OF FILL OVER PRE-EXISTING WETLANDS. THE DEPTH OF MATERIALS TO BE REMOVED, BEFORE TOPSOIL IS PLACED, WILL RANGE FROM APPROXIMATELY ONE FOOT TO OVER FIVE FEET.
12. NO MACHINERY WILL BE ALLOWED WITHIN THE WETLAND CREATION AREAS WHERE TOPSOIL HAS BEEN PLACED.
13. THE CREATED WETLANDS HABITAT WILL ONLY HAVE A SUBSURFACE HYDROLOGIC CONNECTION TO THE TIDAL WETLANDS TO THE SOUTH.

PLANTINGS

14. **ORDER** THE **WOODY PLANTING MATERIALS** FOR DELIVERY DURING THE PLANTING WINDOWS LISTED ABOVE (MID TO LATE SPRING OR EARLY FALL). STORE IN SHADE WHEN THEY ARRIVE AND INSTALL WITHIN THREE DAYS OF DELIVERY. MAKE SURE THAT ALL DESIRED SPECIES ARE AVAILABLE AT TIME OF ORDERING. WETLAND SCIENTIST SHALL APPROVE ANY SUBSTITUTIONS.
15. **CHECK DELIVERY**. MAKE SURE SPECIES, SIZES, AND QUANTITIES ARE AS SPECIFIED.
16. A WETLAND PROFESSIONAL OR ECOLOGIST SHALL SPECIFY PLANTING AND SEEDING LOCATIONS. THE PROFESSIONAL WILL DIRECT THE INSTALLATION, EITHER BY STAKING PLANTING LOCATIONS WITH A WIRE FLAG OR BAMBOO STAKE LABELED WITH THE SPECIES NAME OR CODE; OR POTTED STOCK MAY ALSO BE DIRECTLY PLACED AT PLANTING LOCATION.
17. **INSTALL THE PURCHASED WOODY MATERIALS FIRST, THEN THE HERBACEOUS PLUGS.**
18. **WOODY PLANTINGS AND LARGE HERBACEOUS PERENNIALS** (SEE TABLE 1 THROUGH TABLE 3) SHALL BE PLANTED IN SAME-SPECIES CLUSTERS, TWO TO THREE FEET APART FOR HERBACEOUS PERENNIALS, FIVE TO SIX FEET APART, FOR SHRUBS, TEN FEET APART FOR SMALL TREE SEEDLINGS/SAPLINGS. LARGER TREES SHALL BE NO CLOSER THAN EIGHT FEET FROM A SHRUB OR SMALL TREE.
19. DIG HOLES *BY HAND* TO *MINIMIZE COMPACTION* OF SOIL (MECHANICAL AUGERS ARE PROHIBITED). WATER HOLES BEFORE PLANTING, UNLESS SOIL IS ALREADY MOIST. ADD *SLOW-RELEASE FERTILIZER* (OSMACOTE, MILORGANITE OR EQUIVALENT) TO PLANTING HOLE. PLACE PLANTS INTO HOLES AND REPLACE SOIL, SO THAT THERE IS FULL COVERAGE OF ROOTS, WITH *NO AIR SPACES* AND LEVEL SOIL AROUND THE PLANT. HOLES SHALL BE OVERSIZED (2X THE ROOT MASS DIAMETER) AND BACKFILLED WITH LOCAL TOPSOIL OR EXTRA TOPSOIL IN AN OVERSIZED TRANSPLANT POT (NOT SUBSOIL REMOVED FROM BOTTOM PART OF HOLE).
20. MULCH WITH A THREE-INCH LAYER OF WELL-ROTTED HARDWOOD MULCH TO REDUCE COMPETITION FROM MEADOW VEGETATION IN A THREE-FOOT DIAMETER CIRCLE. LEAVE A GAP OF THREE INCHES AROUND EACH TRUNK. FORM *SAUCERS* AROUND ALL MULCHED TREE AND SHRUB PLANTINGS, TWO TO THREE INCHES HIGH, 36" ACROSS FOR NURSERY STOCK. WATER RIGHT AFTER PLANTING.
21. **HERBACEOUS PLUGS:** PLANT IN MID TO LATE AFTERNOON, OR UNDER SHADY CONDITIONS, *WATER* IMMEDIATELY AFTER PLANTING. SPACE PLUGS 24 TO 36 INCHES APART, PER PLAN (SEE TABLE 3) IN THE BARE SOIL AREAS, AND SPREAD SHREDDED LEAF MULCH IN A SIX-INCH CIRCLE AROUND EACH PLUG. PLANT IN SAME-SPECIES GROUPINGS OF VARIABLE SIZE AND SHAPE.
22. **SEEDING:** AFTER MIXING 1:1 WITH NON-CLUMPING KITTY LITTER (CLAY BASED), SPREAD SEED OVER BARE SOIL AREAS, AVOIDING MULCHED CIRCLES AROUND PLUGS. SEEDING RATE SHALL BE HALF THAT SPECIFIED FOR THE MIX. IF GERMINATION RATES ARE LOW, OVER-SEED IN FALL IN YEAR 2.
23. FOR SPRING SEEDING IN MOIST, BUT NOT SATURATED SOIL, LIGHTLY RAKE IN SEED (LESS THAN ½ INCH DEEP), TAMP DOWN, AND LIGHTLY MULCH WITH STRAW (FREE OF SEEDS) TO HOLD MOISTURE FOR GERMINATION. FOR FALL SEEDING, WAIT UNTIL AFTER HARD FROST; SEED MAY SIMPLY BE SOWN. SNOW AND FROST WILL INCORPORATE INTO THE SOIL. NOTE THAT COLD STRATIFICATION WILL INCREASE GERMINATION RATES OF SOME SPECIES IN A FALL SEEDING, BUT MORE SEEDS WILL ALSO BE EATEN BY WILDLIFE OR WASHED AWAY. IF SOIL IS SATURATED, BROADCAST ON SOIL SURFACE WITHOUT RAKING.
24. SPREAD A THIN LAYER OF WEED-FREE *STRAW MULCH* OVER ALL SEEDED AREAS WITHOUT STANDING WATER, ALLOWING FOR SOME LIGHT PENETRATION
25. FOR PLUGS IN THE WET MEADOW AND FOR SEED GERMINATION, WATERING SEVERAL TIMES A WEEK IS ESSENTIAL, IN DRY WEATHER. FOR IRRIGATION, SET UP A PUMP DRAWING ON LOCAL WATER, OR FROM A WATER TANK BROUGHT TO THE SITE.

3.0 PROTECTION FROM HERBIVORY

1. WOODY PLANTINGS WILL BE MONITORED DURING THE FIRST AND SECOND GROWING SEASONS AFTER PLAN IMPLEMENTATION FOR EXCESSIVE HERBIVORY. IF OBSERVED, THE WETLAND ECOLOGIST MAY PROPOSE ADDITIONAL CONTROLS/METHODS TO REDUCE HERBIVORY. DEER FENCE MAY BE CONSIDERED, AS THE MITIGATION AREA IS RELATIVELY SMALL.
2. AS AN INITIAL CONTROL, THE ORGANIC, SLOW-RELEASE FERTILIZER MILORGRANITE SHALL BE USED AT EACH SHRUB/TREE PLANTING, AND ALONG THE PERIMETER OF EACH OF THE MITIGATION AREAS. THIS FERTILIZER IS A MILD TO MODERATE DETERRENT TO HERBIVORY BY DEER. APPLICATION OF MILOGRANITE SHALL TAKE PLACE THREE TIMES DURING THE FIRST GROWING SEASON, SHOULD A DETERRENT BE NECESSARY.

4.0 INITIAL FOLLOW-UP AND MAINTENANCE

1. PROMPT SEEDING AND HAY MULCH APPLICATION FOLLOWING INITIAL GRADING IS KEY, TO PREVENT EROSION OF EXPOSED, RECENTLY GRADED SOILS. GRADING OF WETLAND CREATION AREAS SHOULD BE TIMED TO PRECEDE A FORECAST RAIN-FREE PERIOD, ENCOMPASSING THE SCHEDULED PLANTING DAY.
2. PERIMETER SEDIMENT CONTROLS. MAINTAIN PER THE 2002 CT E&S GUIDELINES, CHECK AFTER EACH RAIN MORE THAN ONE INCH. REMOVE SILT FENCE AS SOON AS GROUND IS VEGETATED (>80% COVER) TO PREVENT IMPEDING ANIMAL MOVEMENT TO AND FROM ADJACENT SEASONALLY FLOODED AND SATURATED WETLANDS. SEDIMENT COLLECTED BY THESE DEVICES WILL BE REMOVED AND PLACED UPLAND IN A MANNER THAT PREVENTS ITS EROSION AND TRANSPORT TO A WATERWAY OR WETLAND.
3. IRRIGATION: WATER ALL SEEDED AREAS, PLANTINGS AND/OR TRANSPLANTS AT LEAST WEEKLY IN DROUGHT PERIODS. MORE FREQUENT WATERING WILL INCREASE PLANTINGS' SUCCESS. FOR PLUGS, MORE FREQUENT WATERING COULD BE NEEDED.

5.0 WEED CONTROL

1. FOR 2-3 SEASONS FOLLOWING PLAN IMPLEMENTATION, CONTROL WEEDS IN A THREE- FOOT DIAMETER CIRCLE AROUND WOODY PLANTINGS. NECESSARY FREQUENCY WILL DEPEND ON RAINFALL AND SOIL SEED BANK, BUT AT LEAST MONTHLY FROM MAY TO JULY. MULCH HELPS CONTROL WEEDS, BUT IS NOT SUFFICIENT. THE SEED MIX AND OTHER NATURAL COLONIZERS NEEDS TO GERMINATE AND SPROUT IN THE MATRIX AROUND THE WOODY PLANTINGS.
2. AT TIME OF PLANTING MARK EACH PLANTED SHRUB OR TREE WITH A FOUR-FOOT TALL "SNOW STAKE" OR "DRIVEWAY MARKER" WITH REFLECTOR TAPE. THESE SHALL BE REMOVED AT THE END OF THE MONITORING PERIOD, BUT WILL ASSIST IN FINDING THEM, SHOULD TALL HERBACEOUS VEGETATION BEGIN TO OBSCURE THEM.
3. FOR CONTROL OF SMALL SEEDLINGS USE A HOE.
4. FOR LARGER WEEDS USE A WEED WHACKER (POLE HEDGE TRIMMER).
5. LANDSCAPER SHALL FOLLOW DIRECTION OF WETLAND SCIENTIST WHO SHALL PROVIDE INITIAL GUIDANCE, BUT NEED NOT REMAIN ON SITE DURING MAINTENANCE.
6. THE WETLANDS PROFESSIONAL WILL POINT OUT TO THE LANDSCAPER CERTAIN WEEDS LIKE MUGWORT, WHICH IS PREVALENT IN PORTIONS OF THE SITE, WHICH ARE BEST PULLED, TO WEAKEN ROOT SYSTEM AND REDUCE NEEDED FREQUENCY FOR WEEDING.
7. OUTSIDE THE THREE-FOOT DIAMETER CIRCLE, WEED ONLY SELECTED UNDESIRABLE COLONIZING PLANTS, INCLUDING INVASIVE SPECIES. THE WETLANDS PROFESSIONAL SHALL TRAIN THE LANDSCAPER TO RECOGNIZE AND AVOID NATIVE SPECIES SUCH AS GOLDENRODS, SUMACS, AND VIRGINIA CREEPER. INITIALLY, FLAG DESIRABLE NATIVE SPECIES AS A TRAINING AID; ALSO, FOLLOWING ANY PERSONNEL CHANGES.

6.0 INVASIVE PLANT CONTROL

1. THE ECOLOGIST/WETLANDS PROFESSIONAL WILL FLAG WOODY INVASIVES TO BE REMOVED IN THE VICINITY OF THE WETLAND REPLICATION AREA (I.E., WITHIN 25 FEET) AT THE TIME OF PLAN IMPLEMENTATION, AND PREFERABLY JUST PRIOR TO ANY EARTHWORK.
2. AS NEEDED, CONTROL USING TARGETED, RATHER THAN BROADCAST HERBICIDE APPLICATION METHODS. FOR SPRING TREATMENT, CUT EARLY IN GROWING SEASON (LATE APRIL TO MID MAY) AND TREAT SMALL RESPROUTS IN EARLY SUMMER USING A LOW VOLUME SPRAYER. IN EARLY FALL USE THE CUT-AND-PAINT METHOD, APPLYING HERICIDE TO A RECENTLY CUT STEM (WITHIN 10 MINUTES) ON BROADLEAF INVASIVES. USE A SELECTIVE HERBICIDE LIKE TRICLOPYR (FOUND IN BRUSH-B-GON, GARLON 3A OR 4A, AND OTHER PRODUCTS), RATHER THAN BROAD-SPECTRUM GLYPHOSATE, TO MINIMIZE IMPACTS ON NON-TARGET PLANTS AND SOIL FAUNA.
3. INVASIVE PLANT CONTROL WITHIN THE AREAS OF WETLAND REPLICATION SHALL TAKE PLACE FOR **FOUR (4) YEARS** FOLLOWING THE YEAR OF PLAN IMPLEMENTATION (I.E., YEAR 2 THROUGH YEAR 5), FOLLOWING THE PROCEDURES PROMULGATED BY THE CT DEEP'S CONNECTICUT INVASIVE PLANT WORKING GROUP (CIPWG), AND/OR THE NATURE CONSERVANCY.

7.0 MONITORING

1. INSPECTIONS AT THE WETLAND REPLICATION AREA SHALL BE CONDUCTED BY A QUALIFIED WETLANDS PROFESSIONAL OR ECOLOGIST DURING THE GROWING SEASON, THE THREE MONTHS FOLLOWING INSTALLATION (I.E., YEAR ONE), AND TWICE DURING EACH OF THE **FOUR (4) NEXT GROWING SEASONS**, ONCE IN LATE MAY THROUGH JUNE, AND ONCE IN EARLY FALL. ADDITIONAL INSPECTIONS MAY BE NECESSARY AT THE DISCRETION OF THE WETLANDS PROFESSIONAL TO ENSURE THE SUCCESS OF THE WETLAND CREATION.
2. DURING INSPECTIONS, CHECK MITIGATION AREA FOR SEEDLINGS OF THE FOLLOWING *INVASIVE SPECIES* AND MECHANICALLY REMOVE: JAPANESE KNOTWEED, COMMON REED, MORROW'S HONEYSUCKLE, AUTUMN OLIVE, MULTIFLORA ROSE, ASIATIC BITTERSWEET, JAPANESE BARBERRY, GLOSSY BUCKTHORN, BURNING BUSH, TREE-OF-HEAVEN, MUGWORT, AND GARLIC MUSTARD. INSPECTIONS SHALL BE DONE BY THE WETLANDS PROFESSIONAL, WHO COULD ALSO IDENTIFY OTHER INVASIVE PLANT SPECIES, BUT PERSONNEL TRAINED BY THE PROFESSIONAL IN IDENTIFICATION OF INVASIVE SEEDLINGS MAY ASSIST WITH MECHANICAL REMOVAL (WEEDING).
3. *COMPETING PLANTS:* IF THE WETLANDS PROFESSIONAL DETERMINES THAT EXCESSIVE NUMBERS OF SEEDLINGS OF A PARTICULAR NATIVE SPECIES HAVE GERMINATED ON SITE (E.G., CATTAIL), REMOVE THEM BY HOEING OR HAND PULLING. COLONIZATION BY A VARIETY OF NATIVE SPECIES IS EXPECTED AND IS DESIRABLE.
4. *REMEDIAL MEASURES* SUCH AS REPLACEMENT PLANTINGS, HYDROLOGIC ADJUSTMENTS, AND DEER BROWSING PROTECTION, MAY BE RECOMMENDED AND SUPERVISED BY THE WETLANDS PROFESSIONAL AND IMPLEMENTED BY THE PROPERTY OWNER/MANAGER, FOR SIGNIFICANT PROBLEMS.
5. A BRIEF *REPORT* TO THE TOWN'S INLAND WETLANDS AND WATERCOURSES AGENCY WILL SUBMITTED BY NOVEMBER 30TH OF THE MONITORING YEAR.

Abbreviated Soil Descriptions	
SB-619	
0' - 4'	Fill material
> 4'	Bedrock
SB-621	
0' - 9	Fill material
8' - 9'	Bedrock material (fill)
9' - 15'	Coarse sand
SB-635	
0' - 8.5'	Fill material
8.5' - 10.5'	Gravel
10.5'	Bedrock
SB-631	
0' - 8.5'	Fill material
8.5' - 9.5'	Gravel w/ sand
9.5' - 10'	Silty fine sand
10' - 11.5'	No recovery
11.5' - 15'	Silty fine sand

GW Seasonal Average Elevations	
STMW-75	3.54
SAMW-004	3.55
SAMW-001	3.01

REV.	DESCRIPTION OF REVISION	DATE	APPR.
2	RESPONSE TO INLAND WETLAND COMMISSION COMMENTS	07/10/2023	SRM
1	RESPONSE TO INLAND WETLAND COMMISSION COMMENTS	06/06/2023	SRM

STAMP

Loureiro
Engineering • Construction • EH&S • Energy
Waste • Facility Services • Laboratory
Loureiro Engineering Associates, Inc.
100 Northwest Drive • Plainville, Connecticut 06062
Phone: 860-747-6181 • Fax: 860-747-8822
An Employee Owned Company • www.Loureiro.com

SCALE 1"=60'

COMM. NO. 045JC2.06

DRAWN BY FGC DATE 06/05/2023

APPROVED BY SRM DATE 06/05/2023

INDUSTRIAL SITE PREPARATION PLAN:
WETLAND MITIGATION PLAN - LOCATION 2

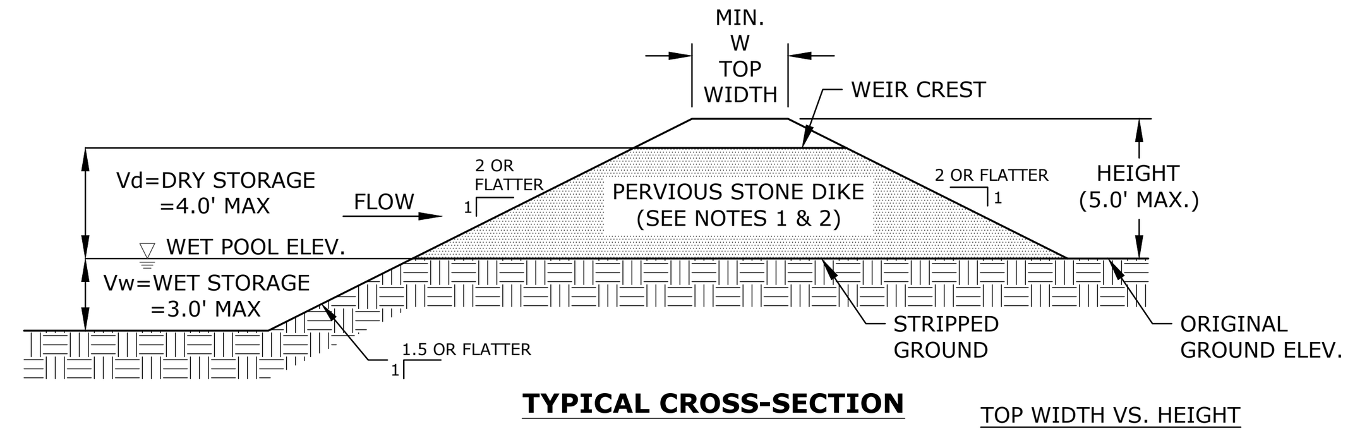
GALES FERRY INTERMODAL
1737 & 1761 ROUTE 12, GALES FERRY, CT 06335

PREPARED FOR:

GALES FERRY INTERMODAL LLC
549 SOUTH STREET, QUINCY, MA 02169

DRAWING **C-11B**

SHEET NO. 14 NO. OF SHEETS 15



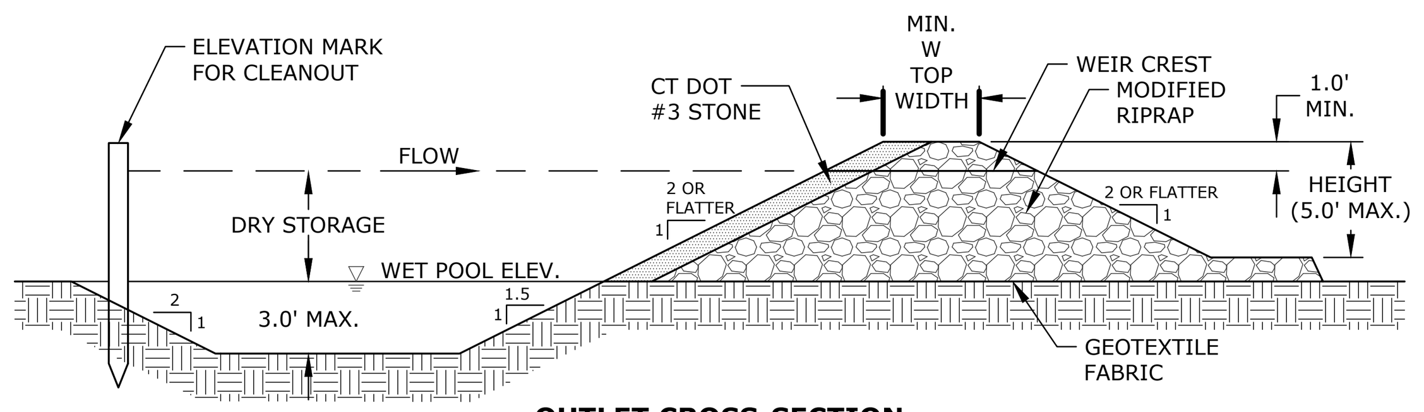
TYPICAL CROSS-SECTION

NOTES:
1. PERVIOUS STONE DIKE SHALL BE CONSTRUCTED OF CT DOT MODIFIED RIPRAP WITH #3 STONE ON FACE.
2. NON-OVERFLOW PORTIONS AND ABUTMENTS OF TEMPORARY SEDIMENT TRAP MAY BE CONSTRUCTED OF COMPACTED EARTH FILL.

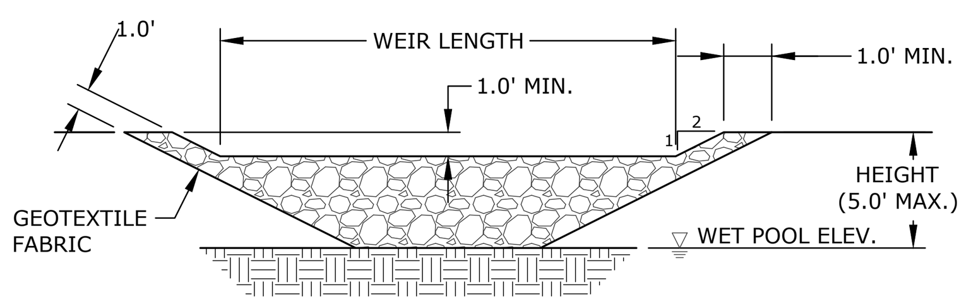
TOP WIDTH VS. HEIGHT

H = HEIGHT OF EMBANKMENT
W = MIN. TOP WIDTH OF EMBANKMENT

H (ft)	W (ft)
1.5	2.0
2.0	2.0
2.5	2.5
3.0	2.5
3.5	3.0
4.0	3.0
4.5	4.0
5.0	4.5



OUTLET CROSS-SECTION

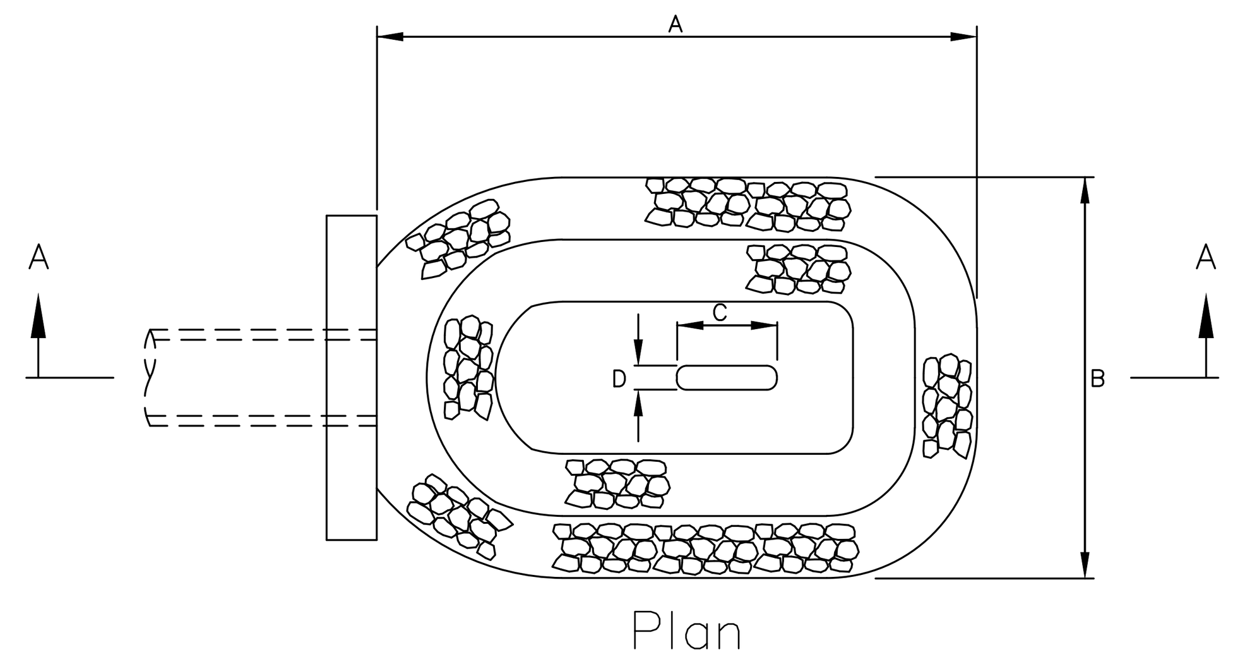


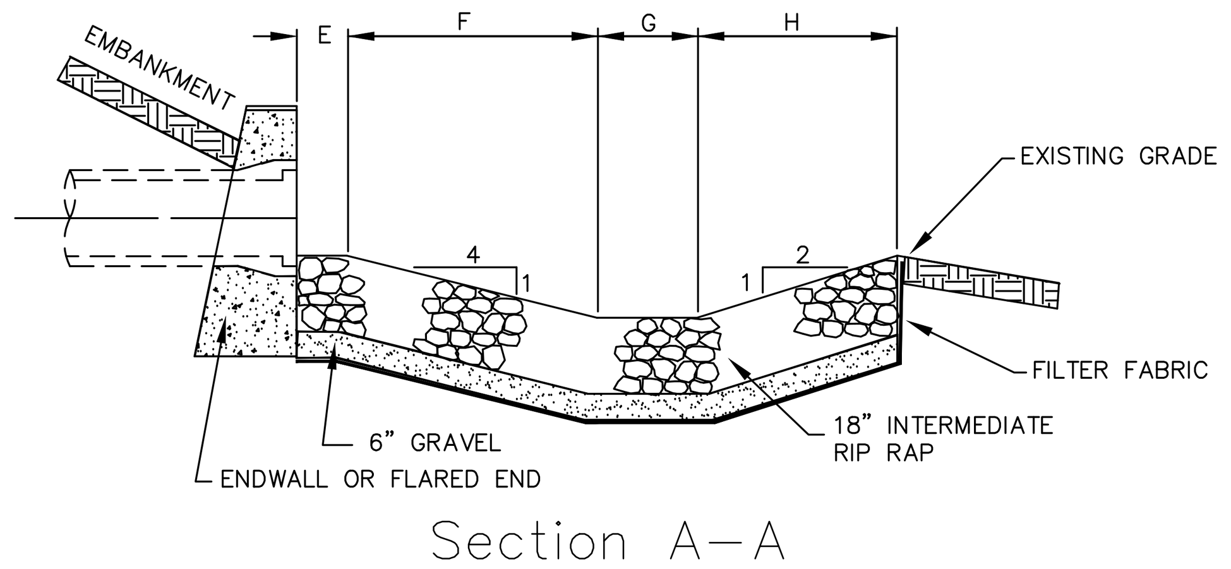
SPILLWAY DETAIL

TEMPORARY SEDIMENT TRAP SHALL BE SIZED BASED ON A MINIMUM OF 134 CUBIC YARDS OF WATER STORAGE PER ACRE DRAINED, A MINIMUM WET STORAGE VOLUME EQUAL TO HALF OF THE TOTAL STORAGE VOLUME AND A MINIMUM DRY STORAGE VOLUME EQUAL TO HALF OF THE TOTAL STORAGE VOLUME .

TEMPORARY SEDIMENT TRAP DETAIL

SCALE: NONE

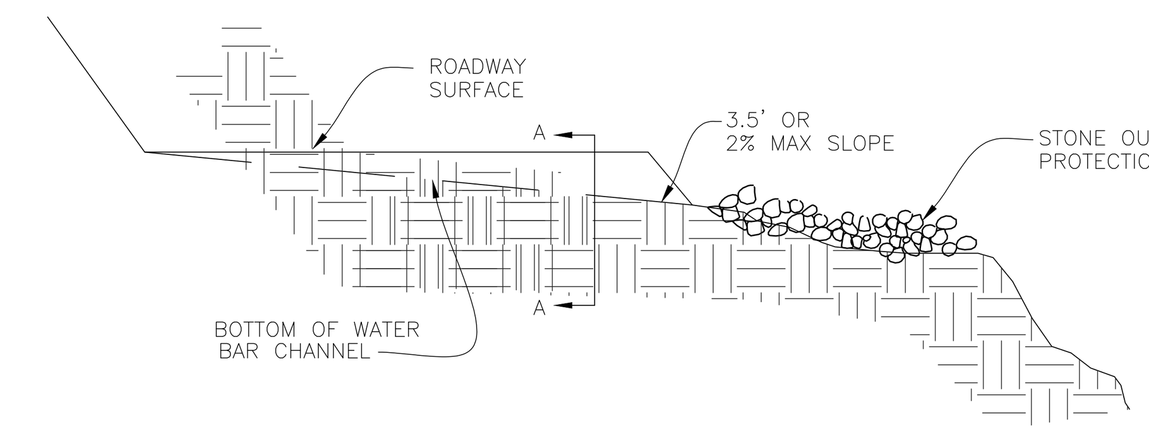


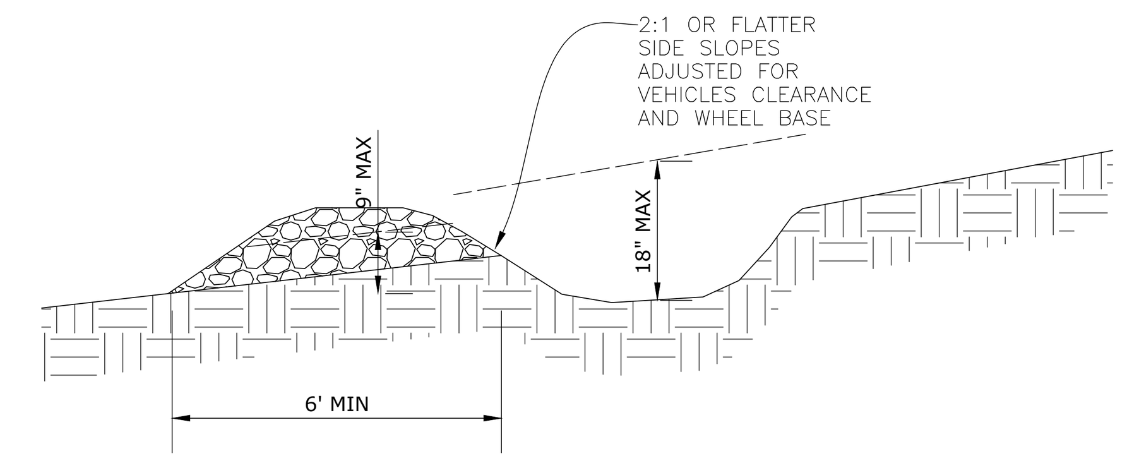


PIPE SIZE	A	B	C	D	E	F	G	H
15"	10'	7'	1 1/2'	1'	1'	4 1/2'	1 1/2'	3'
18"	12'	8'	2'	1'	1'	5'	2'	4'
21"	13'	9'	2 1/2'	1 1/2'	1'	7'	2 1/2'	4 1/2'
24"	17'	10'	2 1/2'	1 1/2'	1'	8'	2 1/2'	5 1/2'
30"	20'	13'	3'	2'	2'	9'	3'	6'
36"	22'	16'	3 1/2'	2'	2'	9 1/2'	3 1/2'	7'

PLUNGE POOL

NOT TO SCALE

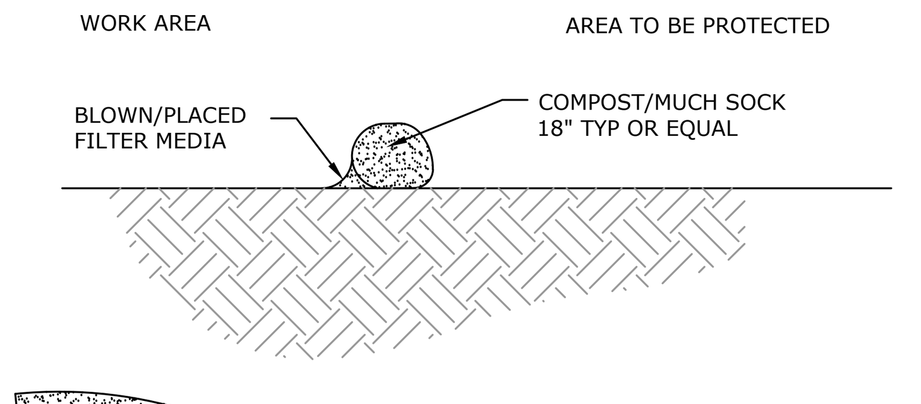


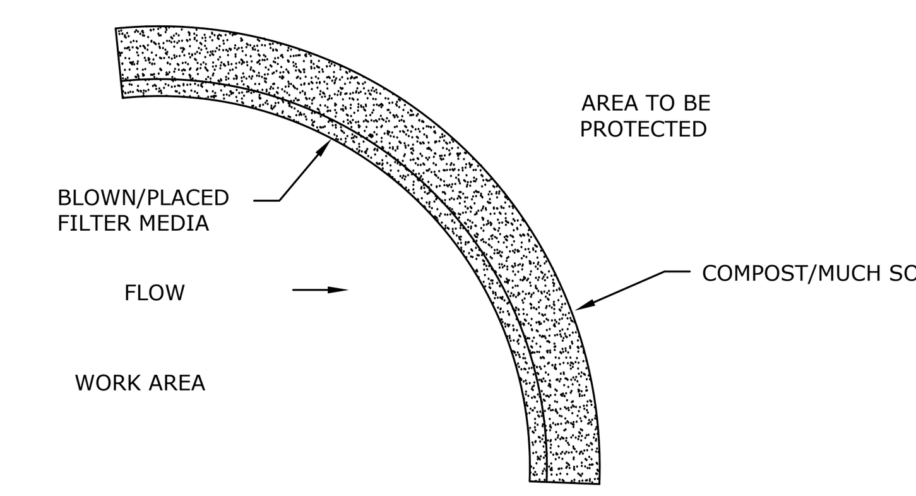


SECTION A-A

WATER BAR DETAIL

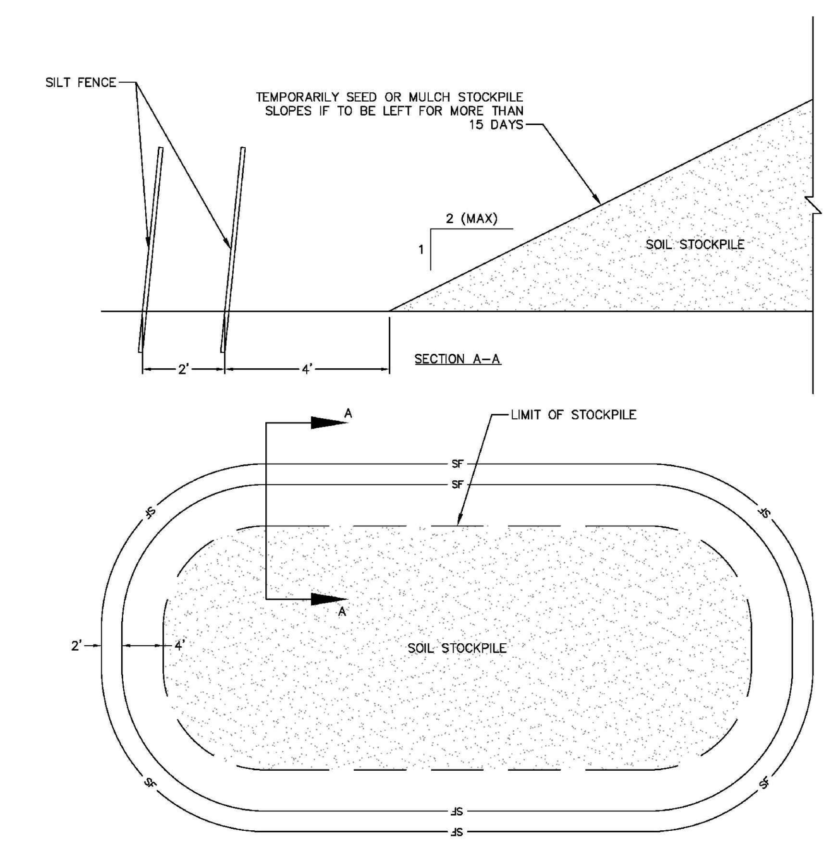
NOT TO SCALE





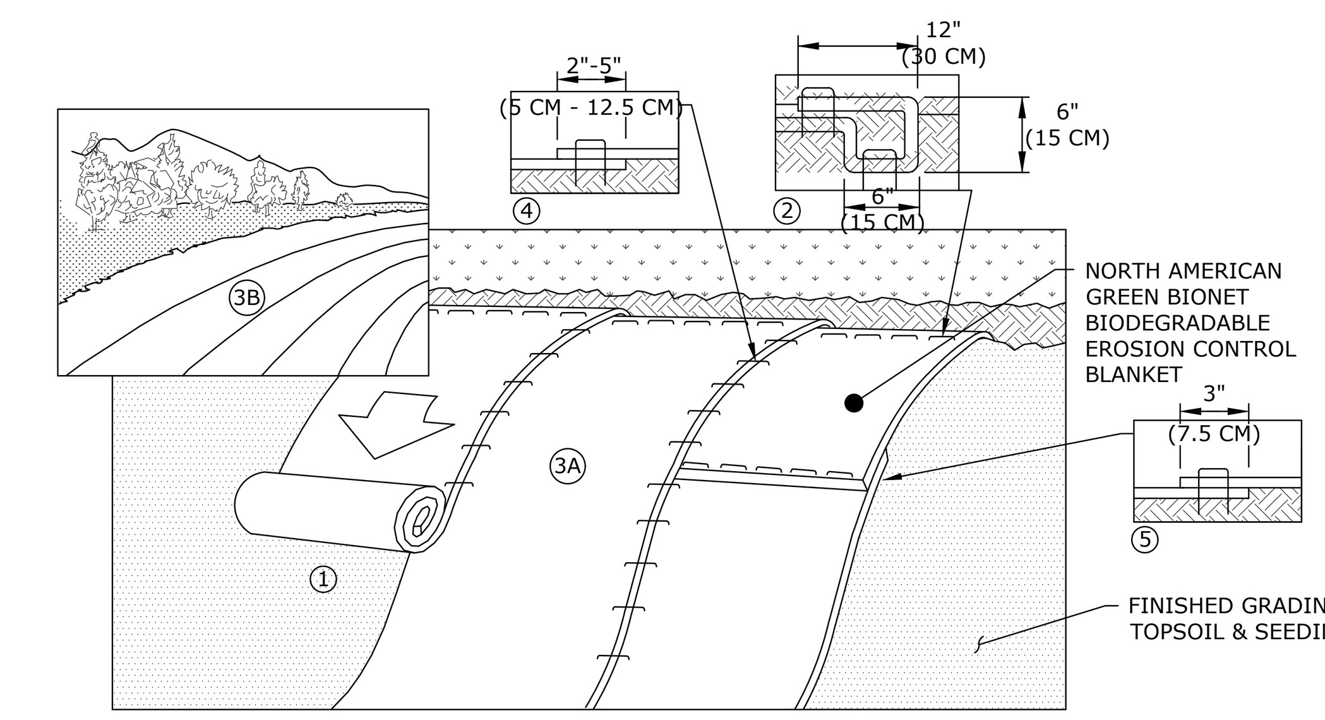
COMPOST/MULCH SOCK DETAIL

NOT TO SCALE



TEMPORARY SOIL STOCKPILE DETAIL

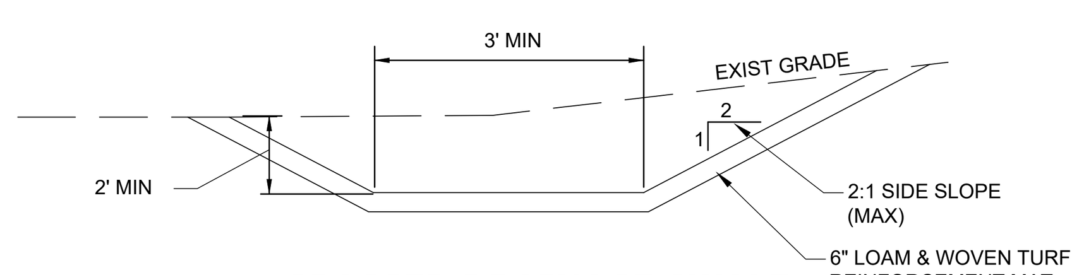
NOT TO SCALE



NOTES:
1. PREPARE SOIL BEFORE INSTALLING BLANKETS, INCLUDING ANY NECESSARY APPLICATION OF LIME, FERTILIZER, AND SEED. WHEN USING CELL-O-SEED DO NOT SEED PREPARED AREA. CELL-O-SEED MUST BE INSTALLED WITH PAPER SIDE DOWN.
2. BEGIN AT THE TOP OF THE SLOPE BY ANCHORING THE BLANKET IN A 6",(15CM), DEEP X 6", (15CM), WIDE TRENCH WITH APPROXIMATELY 12", (30CM), OF BLANKET EXTENDED BEYOND THE UP-SLOPE PORTION OF THE TRENCH. ANCHOR THE BLANKET WITH A ROW OF STAPLES/STAKES APPROXIMATELY 12", (30CM), APART IN THE BOTTOM OF THE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING. APPLY SEED TO COMPACTED SOIL AND FOLD REMAINING 12", (30CM), PORTION OF BLANKET BACK OVER SEED AND COMPACTED SOIL. SECURE BLANKET OVER COMPACTED SOIL WITH A ROW OF STAPLES/STAKES SPACED APPROXIMATELY 12", (30CM), APART ACROSS THE WIDTH OF THE BLANKET. IN LOOSE SOIL CONDITIONS, THE USE OF STAPLE OR STAKE LENGTHS GREATER THAN 6", (15 CM), MAY BE NECESSARY TO PROPERLY SECURE THE BLANKETS.
3. ROLL THE BLANKETS (A.) DOWN OR (B.) HORIZONTALLY ACROSS THE SLOPE. BLANKETS WILL UNROLL WITH APPROPRIATE SIDE AGAINST THE SOIL SURFACE. ALL BLANKETS MUST BE SECURELY FASTENED TO SOIL SURFACE BY PLACING STAPLES/STAKES IN APPROPRIATE LOCATIONS AS SHOWN IN THE STAPLE PATTERN GUIDE. WHEN USING OPTIONAL DOT SYSTEM ™, STAPLES/STAKES SHOULD BE PLACED THROUGH EACH OF THE COLORED DOTS CORRESPONDING TO THE APPROPRIATE STAPLE PATTERN.
4. THE EDGES OF PARALLEL BLANKETS MUST BE STAPLED WITH APPROXIMATELY 2"-5" ,(5CM-12.5CM), OVERLAP DEPENDING ON BLANKET TYPE. TO ENSURE PROPER SEAM ALIGNMENT, PLACE THE EDGE OF THE OVERLAPPING BLANKET (BLANKET BEING INSTALLED ON TOP) EVEN WITH THE COLORED SEAM STITCH ™ ON THE PREVIOUSLY INSTALLED BLANKET.
5. CONSECUTIVE BLANKETS SPLICED DOWN THE SLOPE MUST BE PLACED END OVER END (SHINGLE STYLE) WITH AN APPROXIMATE 3", (7.5CM), OVERLAP. STAPLE THROUGH OVERLAPPED AREA, APPROXIMATELY 12", (30CM), APART ACROSS ENTIRE BLANKET WIDTH.

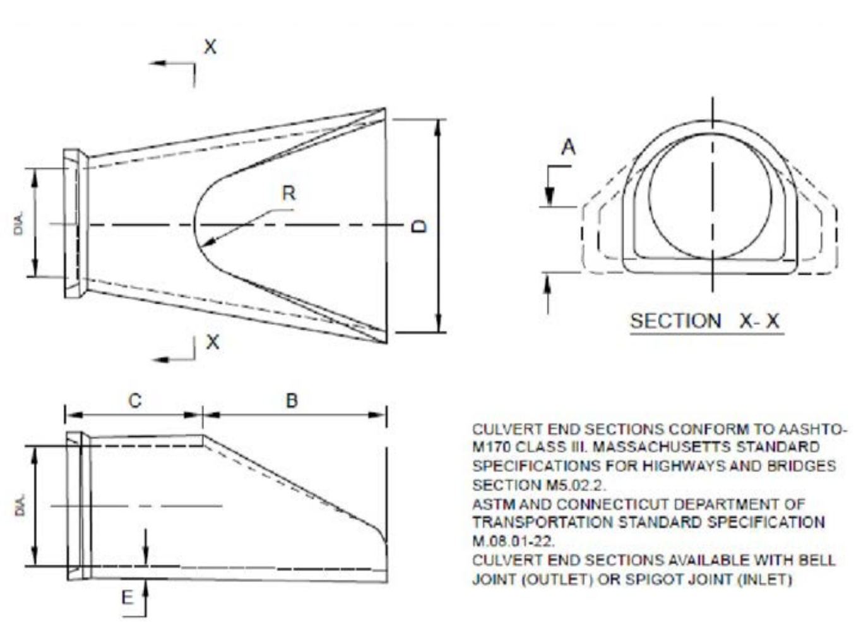
EROSION CONTROL BLANKET DETAIL

NOT TO SCALE



GRASSED DRAINAGE SWALE

NOT TO SCALE

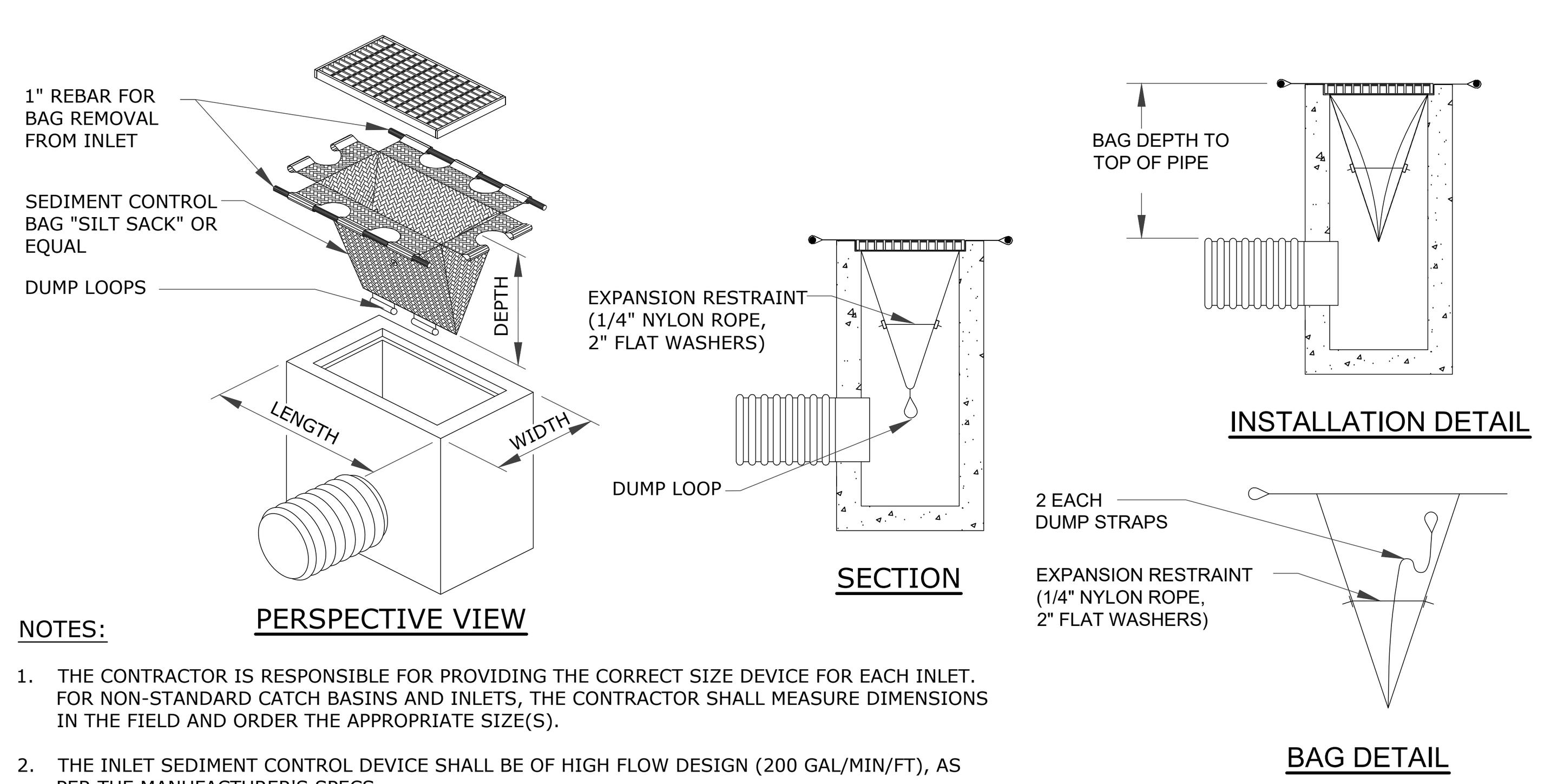


CULVERT END SECTIONS CONFORM TO AASHTO-M170 CLASS III. MASSACHUSETTS STANDARD SPECIFICATIONS FOR HIGHWAYS AND BRIDGES SECTION M5.02.2.
ASTM AND CONNECTICUT DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATION M.08.01-22.
CULVERT END SECTIONS AVAILABLE WITH BELL JOINT (OUTLET) OR SPIGOT JOINT (INLET)

DIA	A	B	C	D	E	R
12"	4"	2'-0"	4'-0 7/8"	2'-0"	3"	9"
15"	6"	2'-3"	3'-10"	2'-6"	3"	11"
18"	9"	2'-3"	3'-10"	3'-0"	3"	12"
24"	9 1/2"	3'-7 1/2"	2'-6"	4'-0"	3"	14"
30"	12"	4'-6"	1'-7 3/4"	5'-0"	3 1/2"	15"
36"	15"	5'-3"	2'-10 3/4"	6'-0"	4"	20"
42"	21"	5'-3"	2'-11"	6'-6"	4 1/2"	22"
48"	24"	6'-0"	2'-2"	7'-0"	5"	22"
54"	27"	5'-5"	2'-11"	7'-6"	5 1/2"	24"
60"	30"	5'-0"	3'-3"	8'-0"	6"	24"

FLARED END SECTION

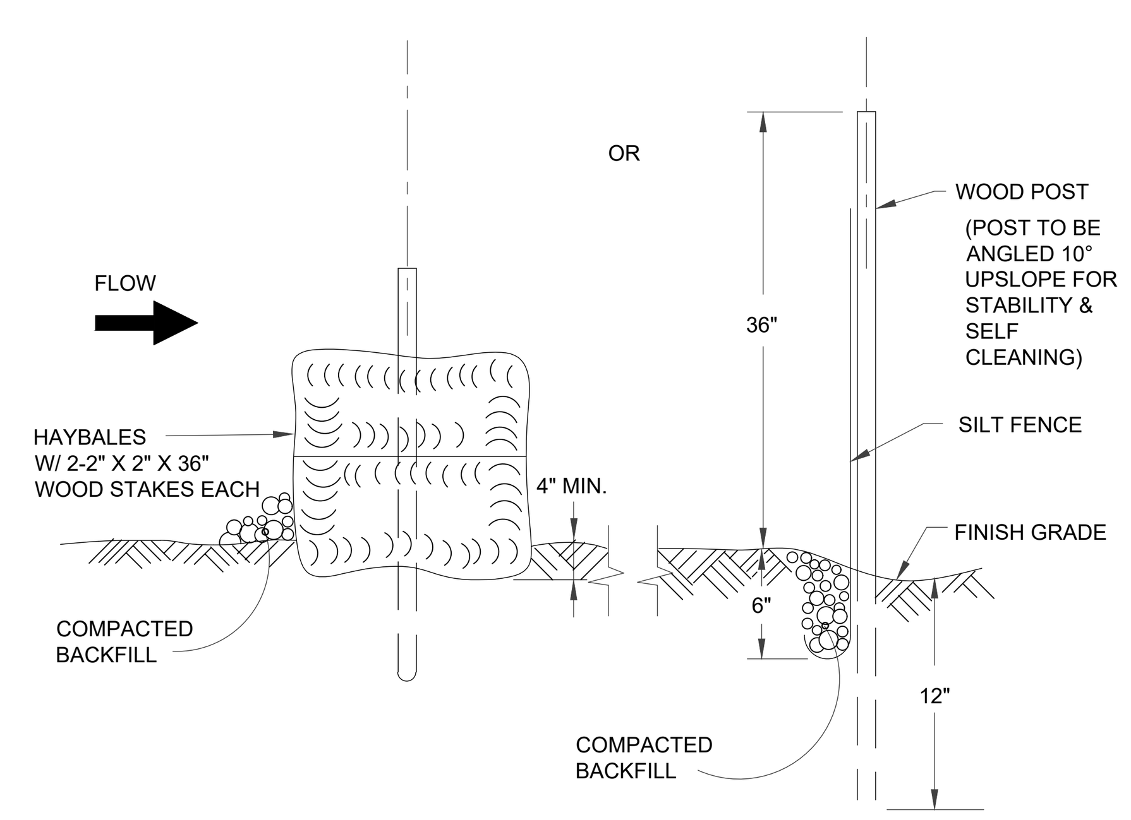
SCALE: NONE



NOTES:
1. THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING THE CORRECT SIZE DEVICE FOR EACH INLET. FOR NON-STANDARD CATCH BASINS AND INLETS, THE CONTRACTOR SHALL MEASURE DIMENSIONS IN THE FIELD AND ORDER THE APPROPRIATE SIZE(S).
2. THE INLET SEDIMENT CONTROL DEVICE SHALL BE OF HIGH FLOW DESIGN (200 GAL/MIN/FT), AS PER THE MANUFACTURER'S SPECS.
3. THE SEDIMENT CONTROL DEVICE SHALL BE INSPECTED DAILY BY THE CONTRACTOR AND CLEANED AND MAINTAINED A MINIMUM ONCE PER MONTH OR WITHIN THE 48 HOURS FOLLOWING A STORM EVENT. THE FILTER SHALL BE REPLACED OR CLEANED WHEN THE BAG BECOMES HALF FULL. THE FILTER SHALL BE CLEANED IN A MANNER WHICH ENSURES THAT ALL SEDIMENT REMAINS ON SITE.
4. SUBSTITUTION OF A SHEET OF FILTER FABRIC PLACED OVER THE OPENING OF THE INLET IS NOT APPROVED.
5. RECESSED CURB INLET CATCH BASINS MUST BE BLOCKED WHEN USING FILTER FABRIC INLET SACKS, SIZE OF FILTER INLET SACK TO BE DETERMINED BY MANUFACTURER.
6. THE FILTER DEVICE SHALL BE MANUFACTURED BY ACF ENVIRONMENTAL OR APPROVED EQUAL.

CATCH BASIN FILTER (SILT SACK) DETAIL

NOT TO SCALE



TYPICAL SEDIMENT BARRIER DETAIL

SCALE: NONE

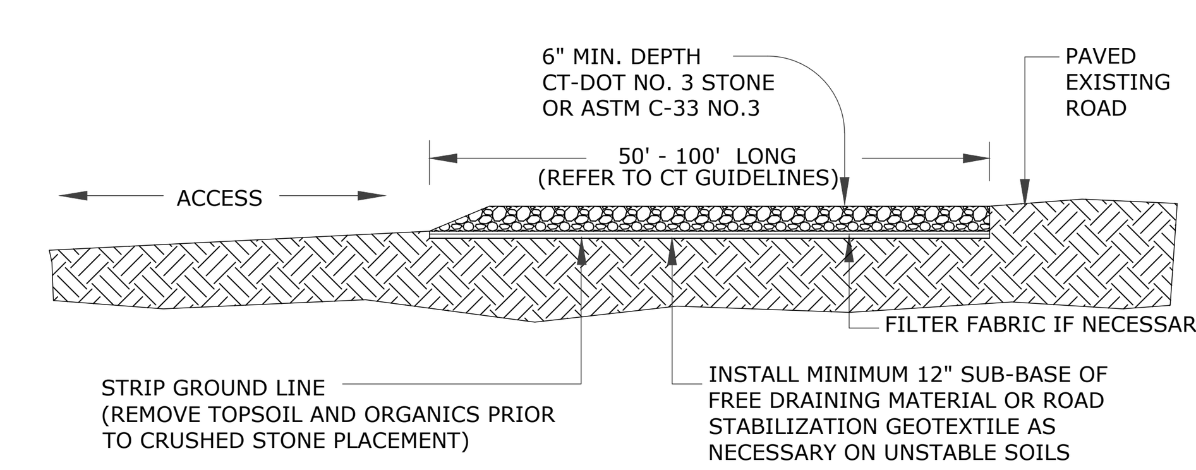
INSTALLATION NOTES FOR HAY BALES:
1. PLACE HAY BALES ON CONTOUR AND WITH LAST HAY BALES UPSLOPE TO THAT TOP OF LAST SEVERAL HAY BALES ARE HIGHER THAN LINE OF HAY BALES.
2. EXCAVATE TRENCH 4" MIN. AND PLACE FILL UPSLOPE OF TRENCH
3. PLACE HAY BALE AND STAKE FIRST STAKE AT ANGLE TOWARDS FIRST BAKE. STAKES ARE 18" MIN. INTO GROUND.
4. WEDGE LOOSE HAY BETWEEN BALES.
5. BACKFILL & COMPACT EXCAVATED FILL ALONG UPHILL SIDE OF HAY BALE.

PZC PERMIT # __________ DATE OF APPROVAL _________ EXPIRATION DATE ___________

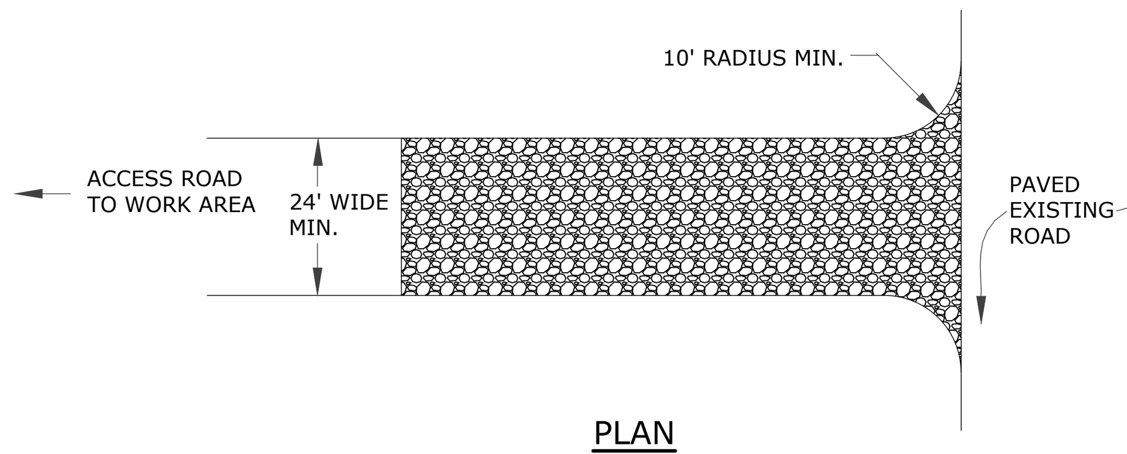
PZC CHAIRMAN OR SECRETARY DATE

IWWC PERMIT #__________ DATE OF APPROVAL ________________

IWWC CHAIRMAN DATE



LONGITUDINAL SECTION



PLAN

NOTE: ALL ANTI-TRACKING PADS SHALL BE INSTALLED AND MAINTAINED IN ACCORDANCE WITH 2002 CT GUIDELINES FOR SOIL EROSION & SEDIMENT CONTROL, AS AMENDED.

ANTI-TRACKING PAD DETAIL

NOT TO SCALE

Reference: 2002 CT Guidelines for Erosion and Sediment Control, DEEP Bulletin 34, Figure CE-2

REV.	DESCRIPTION OF REVISION	DATE	APPR.
2	RESPONSE TO INLAND WETLAND COMMISSION COMMENTS	07/10/2023	SRM
1	RESPONSE TO INLAND WETLAND COMMISSION COMMENTS	06/06/2023	SRM

STATE OF CONNECTICUT — GEORGE F. ANDREWS — No. 19208 — LICENSED PROFESSIONAL ENGINEER

Loureiro
Engineering • Construction • EH&S • Energy
Waste • Facility Services • Laboratory
Loureiro Engineering Associates, Inc.
100 Northwest Drive • Plainville, Connecticut 06062
Phone: 860.747.6181 • Fax: 860.747.8822
An Employee Owned Company • www.Loureiro.com

SCALE: AS NOTED
COMM. NO. 045JC2.06
DRAWN BY: SRM — DATE: 04/03/2023
APPROVED BY: GFA — DATE: 04/03/2023

INDUSTRIAL SITE PREPARATION PLAN:
DETAILS

GALES FERRY INTERMODAL
1737 & 1761 ROUTE 12, GALES FERRY, CT 06335

PREPARED FOR:
GALES FERRY INTERMODAL LLC
549 SOUTH STREET, QUINCY, MA 02169

DRAWING C-12

SHEET NO. 15 — NO. OF SHEETS 15

File #: 23-1695 **Agenda Date:** 6/6/2023 **Agenda #:** B.

APPLICATION

Subject/Application:
Application IWWC#23-4SITE of B+R Holding Company LLC, of 1358 Baldwin Hill Road, Gales Ferry, CT 06335 for processing of earth materials and removal of ledge at 1340 Baldwin Hill Road, Gales Ferry, CT 06335.

Background:
(type text here)

Staff Comments:
(type text here)

Scanned ___ App File ___
E-file ___ St. File ___
Planning Director ___

TOWN OF LEDYARD
CONNECTICUT

Inland Wetlands and Watercourses Commission
741 Colonel Ledyard Highway Ledyard, CT 06339
(860) 464-3216
zoning.official@ledyardct.org

In PF
Fee $260.00
Check # 4104
Receipt 760148

APPLICATION
TO CONDUCT ACTIVITY IN AN UPLAND REVIEW AREA

Application # IWWC#23-4SITE

Applicant: B & R Holding Company LLC
Owner (if different): Agent Dieter & Gardner, Inc

Address: 1358 Baldwin Hill Rd Gales Ferry, Ct. 06335
Owner Address: PO Box 335 Gales Ferry, Ct. 06335

Phone #: 860-460-0767
Phone #: 860-464-7455

E-Mail Address: chm@terrafirmaus.com dieter.gardner@yahoo.com

Location of Property: 1340 Baldwin Hill Rd

Tax Assessor's Map #: 134
Zone District: CIP

Distance between proposed activity and Inland Wetland or Watercourse: 40 ft +/- ft.

Proposed Activity:
Continued processing of earth materials and removal of ledge

Wetlands Official's Review:

____ Proposed Activity requires review by the Inland Wetlands & Watercourses Commission.

____ Proposed Activity qualifies for **URA Permit** to be issued by the Wetlands Official.

____ Proposed Activity is exempt from IWWC regulations & needs no permit or IWWC review.

_____ _____
Wetlands Official Date

Connecticut Department of
ENERGY &
ENVIRONMENTAL
PROTECTION

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

GIS CODE #: _____
For DEEP Use Only

Statewide Inland Wetlands & Watercourses Activity Reporting Form

Please complete and mail this form in accordance with the instructions on pages 2 and 3 to:
Wetlands Management Section, Inland Water Resources Division, CT DEEP, 79 Elm Street – 3rd Floor, Hartford, CT 06106

PART I: To Be Completed By the Municipal Inland Wetlands Agency Only

1. DATE ACTION WAS TAKEN: Year **Click Here for Year** Month **Click Here for Month**
2. ACTION TAKEN: **Click Here to Choose a Code**
3. WAS A PUBLIC HEARING HELD (check one)? Yes ☐ No ☐
4. NAME OF AGENCY OFFICIAL VERIFYING AND COMPLETING THIS FORM:

   (type name) _____ (signature) _____

PART II: To Be Completed By the Municipal Inland Wetlands Agency or the Applicant

5. TOWN IN WHICH THE ACTION IS OCCURRING (type name): LEDYARD

   Does this project cross municipal boundaries (check one)? Yes ☐ No ☑

   If Yes, list the other town(s) in which the action is occurring (type name(s)): _____, _____,
6. LOCATION (click on hyperlinks for information): USGS Quad Map Name: UNCASVILLE, CONN or Quad Number: _____

   Subregional Drainage Basin Number: _____
7. NAME OF APPLICANT, VIOLATOR OR PETITIONER (type name): B & L Holding Company, LLC
8. NAME & ADDRESS/LOCATION OF PROJECT SITE (type information): 1340 Baldwin Hill Rd

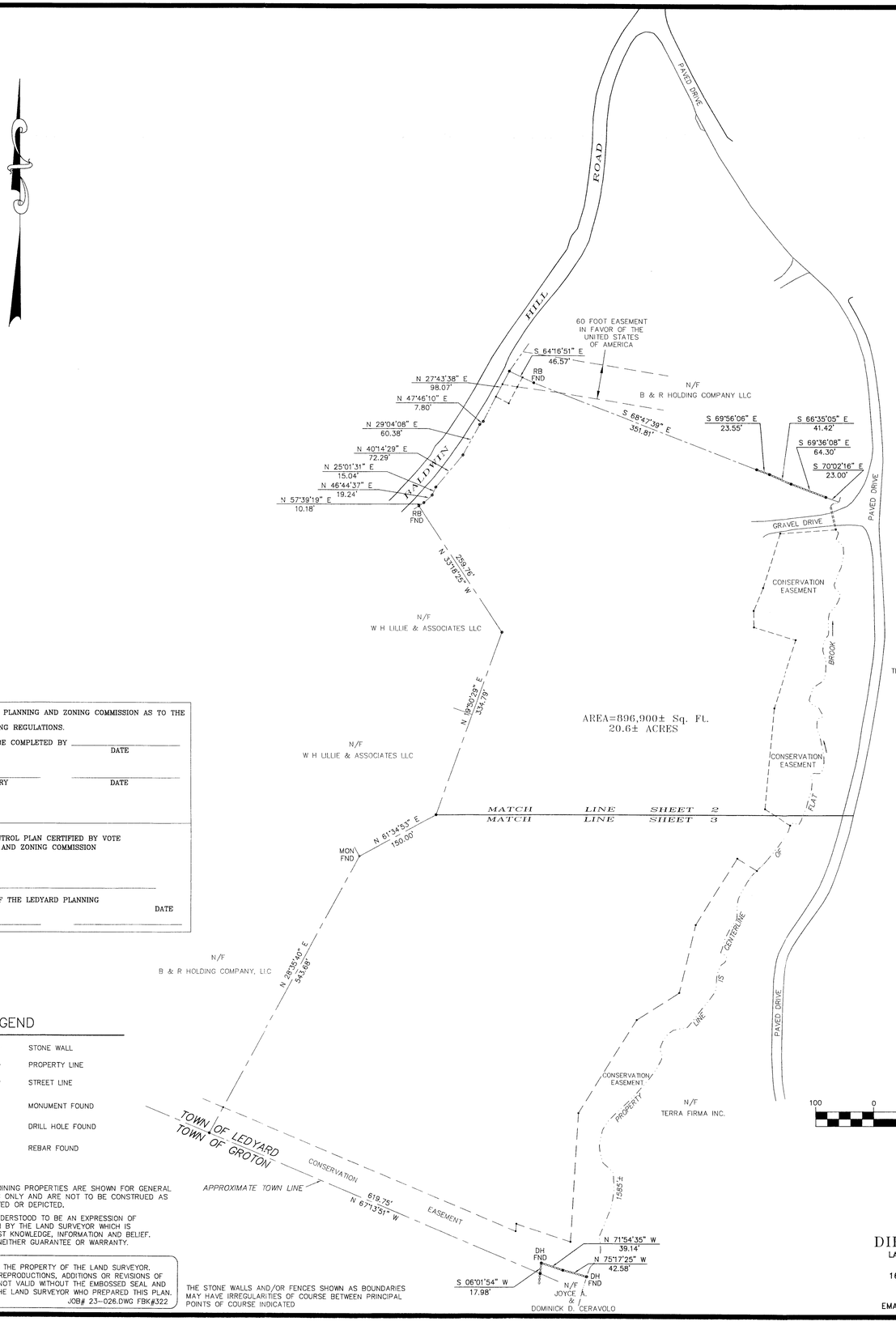
   Briefly describe the action/project/activity (check and type information): Temporary ☐ Permanent ☑ Description: _____
9. ACTIVITY *PURPOSE* CODE: **Click Here to Choose a Code** D
10. ACTIVITY *TYPE* CODE(S): **Click for Code**, **Click for Code**, **Click for Code**, **Click for Code** 2/12/14
11. WETLAND / WATERCOURSE AREA ALTERED (type in acres or linear feet as indicated):

    Wetlands: 0 acres Open Water Body: 0 acres Stream: 0 linear feet
12. UPLAND AREA ALTERED (type in acres as indicated): 6.5± acres
13. AREA OF WETLANDS / WATERCOURSES RESTORED, ENHANCED OR CREATED (type in acres as indicated): 0 acres

PART III: To Be Completed By the DEEP

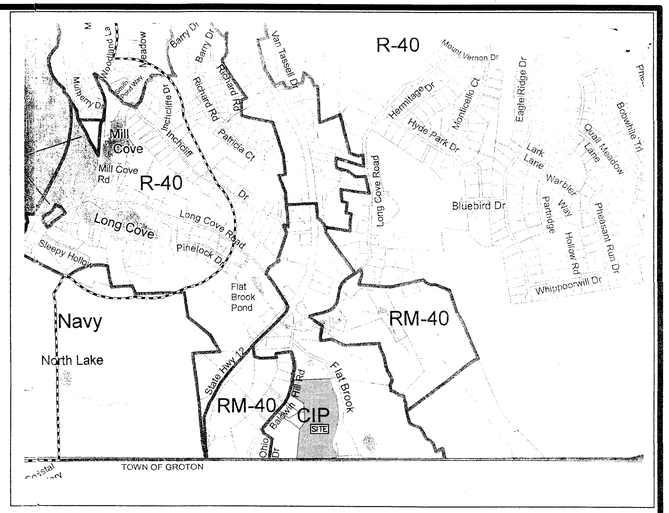
DATE RECEIVED: DATE RETURNED TO DEEP:

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



GENERAL NOTES:

1. MAP REFERENCE:
   - A) SUBDIVISION PLAN BALDWIN RIDGE INDUSTRIAL PARK PREPARED FOR B & R HOLDING COMPANY, LLC BALDWIN HILL ROAD LEDYARD, CONNECTICUT SCALE: 1"=80' AUGUST 2011 SHEET 2 OF 6 REV "A" DRAINAGE AND CONSERVATION EASEMENT 10-31-11 REV "B" PER TOWN ENGINEER'S COMMENTS 11-28-11 REV "C" CONSERVATION EASEMENT LANGUAGE 2-28-12.
   - B) SUBMARINE BASE -NEW LONDON, CONNECTICUT 33000V POWER SUPPLY TRANSMISSION LINE TO OUTDOOR SUBSTATION, SCALE 1INCH = 100 FEET, DEC. 22, 1941, STONE & WEBSTER ENGINEERING CORP., SHEET 2.
   - C) PLAN OF LAND SURVEYED FOR THE BALF CO. BALDWIN HILL ROAD, LEDYARD, CONNECTICUT, SCALE: 1"=40' MARCH 18, 1976, KIELTYKA, WOODS & PIKE, LAND SURVEYORS, KILLINGLY, CONNECTICUT.
   - D) PROPERTY TO BE ACQUIRED BY THE UNITED STATES OF AMERICA FROM THOMAS A. & JUANITA R. VIVIRITO, BALDWIN HILL ROAD , LEDYARD, CONN., NORTH ACCESS ROAD, 400 FAMILY HOUSING PROJECT, SCALE:1"=100', CODE IDENT. NO. 80091 DATE FEB. 8, 1982, DICESARE-BENTLEY ENGINEERS INC.
   - E) TOWN OF LEDYARD MAP SHOWING LAND ACQUIRED BY THOMAS A. & JUANITA R. VIVIRITO BY THE TOWN OF LEDYARD ON BALDWIN HILL ROAD, 1"=40', DECEMBER 1983, EDWARD SITTY L.S., MAP NO. 1425.
   - F) PLAN SHOWING PROPERTY OF CHARLES B. MILLER TO BE CONVEYED TO DOMINICK D. CERAVOLO LOCATED SOUTHERLY OF BALDWIN HILL ROAD IN THE TOWNS OF LEDYARD AND GROTON, CONNECTICUT, SCALE:1"=100', OCTOBER 1998, DIETER & GARDNER LAND SURVEYORS.
   - G) PROPERTY SURVEY PREPARED FOR TERRA FIRMA INC., BALDWIN HILL ROAD, LEDYARD CONNECTICUT, SCALE: 1"=80', SEPTEMBER 2007, JOB I.D. NO. 07-1509 PREPARED BY BOUNDARIES LLC.
2. EXISTING UTILITY LOCATION ARE APPROXIMATE ONLY. ALL UTILITIES MAY NOT BE SHOWN. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO CONTACT "CALL BEFORE YOU DIG" AT 1-800-922-4455 PRIOR TO INITIATION OF ANY WORK. UTILITY SIZE, MATERIAL, AND LOCATION AS PER RESPECTIVE UTILITY AUTHORITY.
3. INLAND WETLANDS ON THIS PLAN AS SHOWN ON PLAN ENTITLED SUBDIVISION PLAN BALDWIN RIDGE INDUSTRIAL PARK PREPARED FOR B & R HOLDING COMPANY, LLC BALDWIN HILL ROAD LEDYARD, CONNECTICUT SCALE: 1"=80' AUGUST 2011 SHEET 2 OF 6 REV "A" DRAINAGE AND CONSERVATION EASEMENT 10-31-11 REV "B" PER TOWN ENGINEER'S COMMENTS 11-28-11 REV "C" CONSERVATION EASEMENT LANGUAGE 2-28-12.
4. THIS PLAN HAS BEEN PREPARED TO ADDRESS SECTION 12.4 OF THE ZONING REGULATIONS. USE OF THIS PROPERTY IS FOR PROCESSING AND REMOVAL OF ROCK/STONE/GRAVEL/SAND AND OTHER MATERIALS THAT HAS BEEN ONGOING SINCE PRIOR TO ZONING REGULATIONS BEING ENACTED. WHERE STONE IS BEING REMOVED, GRADES EXCEED 20% IN PLACES, WHEN STONE REMOVAL OPERATION IS COMPLETE, SITE WILL HAVE A GRADE OF LESS THAN 2% AND GREATLY INCREASE THE SITES USEFULNESS.
5. HOURS OF OPERATION MONDAY TO SATURDAY 6:30 A.M. TO 5:30 P.M. IT IS EXPECTED THAT ROCK REMOVAL WILL BE COMPLETED BY 5/1/2027.
6. A CONSERVATION EASEMENT EXISTS ON THIS PROPERTY. THIS CONSERVATION EASEMENT AREA SHALL BE PRESERVED LAND IS NOT TO BE DEVELOPED WITH BUILDINGS OR PAVED PARKING/DRIVEWAY AREAS. THIS EASEMENT AREA, WITH APPROPRIATE REGULATORY APPROVAL, MAY BE USED FOR LANDSCAPED AREAS, SEPTIC SYSTEMS, EROSION CONTROL MEASURES, STORMWATER FACILITIES INCLUDING, BUT NOT LIMITED TO, DETENTION BASINS, WATER QUALITY BASINS, PIPING, DRAINAGE STRUCTURES, BIO-RETENTION, LOW IMPACT DEVELOPMENT STORMWATER MEASURES AND ACCESS DRIVES FOR MAINTENANCE OF SAME.



LOCATION MAP

ZONING DISTRICT: CIP

GRAPHIC SCALE

1000 0 500 1000 2000 4000

(IN FEET)

1 inch = 1000 ft.

APPROVED BY THE LEDYARD PLANNING AND ZONING COMMISSION AS TO THE COMPLIANCE WITH THE ZONING REGULATIONS.

ALL IMPROVEMENTS SHALL BE COMPLETED BY _____ DATE

_____ CHAIRMAN OR SECRETARY _____ DATE

EROSION AND SEDIMENT CONTROL PLAN CERTIFIED BY VOTE OF THE LEDYARD PLANNING AND ZONING COMMISSION

_____

CHAIRMAN OR SECRETARY OF THE LEDYARD PLANNING AND ZONING COMMISSION DATE

_____ _____

LEGEND

- STONE WALL
- PROPERTY LINE
- STREET LINE
- MON FND — MONUMENT FOUND
- DH FND — DRILL HOLE FOUND
- RB FND — REBAR FOUND

NOTE: BOUNDARY LINES OF ADJOINING PROPERTIES ARE SHOWN FOR GENERAL INFORMATIONAL PURPOSES ONLY AND ARE NOT TO BE CONSTRUED AS BEING ACCURATELY LOCATED OR DEPICTED.

THE WORD "CERTIFY" IS UNDERSTOOD TO BE AN EXPRESSION OF THE PROFESSIONAL OPINION BY THE LAND SURVEYOR WHICH IS BASED ON HIS OR HER BEST KNOWLEDGE, INFORMATION AND BELIEF, AS SUCH IT CONSTITUTES NEITHER GUARANTEE OR WARRANTY.

THE STONE WALLS AND/OR FENCES SHOWN AS BOUNDARIES MAY HAVE IRREGULARITIES OF COURSE BETWEEN PRINCIPAL POINTS OF COURSE INDICATED

GRAPHIC SCALE

100 0 50 100 200 400

(IN FEET)

1 inch = 100 ft.

DIETER & GARDNER
LAND SURVEYORS • PLANNERS
P.O. BOX 335
1641 CONNECTICUT ROUTE 12
GALES FERRY, CT. 06335
(860) 464-7455
EMAIL: DIETER.GARDNER@YAHOO.COM

SHEET INDEX

PLAN SHOWING PROPERTY OF B & R HOLDING COMPANY, LLC 1340 BALDWIN HILL ROAD LEDYARD, CONNECTICUT

SCALE: 1"=100'

MAY 2023

SHEET 1 OF 4

THIS MAP AND SURVEY HAS BEEN PREPARED IN ACCORDANCE WITH SECTIONS 20-300B-1 THROUGH 20-300B-20 OF THE REGULATIONS OF CONNECTICUT STATE AGENCIES-"MINIMUM STANDARDS OF ACCURACY, CONTENT AND CERTIFICATION FOR SURVEYS AND MAPS IN THE STATE OF CONNECTICUT", ADOPTED EFFECTIVE JUNE 21, 1996, REVISED OCTOBER 26, 2018. IT IS A BOUNDARY SURVEY BASED ON A DEPENDENT RESURVEY CONFORMING TO HORIZONTAL ACCURACY CLASS A-2.
TO MY KNOWLEDGE AND BELIEF, THIS MAP IS SUBSTANTIALLY CORRECT AS NOTED HEREON.

TITLE: LAND SURVEYOR CT No. 14208

DATE: MAY 1, 2023

APPROVED BY THE LEDYARD PLANNING AND ZONING COMMISSION AS TO THE COMPLIANCE WITH THE ZONING REGULATIONS.

ALL IMPROVEMENTS SHALL BE COMPLETED BY _____ DATE

_____ CHAIRMAN OR SECRETARY _____ DATE

EROSION AND SEDIMENT CONTROL PLAN CERTIFIED BY VOTE OF THE LEDYARD PLANNING AND ZONING COMMISSION

_____

CHAIRMAN OR SECRETARY OF THE LEDYARD PLANNING AND ZONING COMMISSION _____ DATE

LEGEND

- STONE WALL
- PROPERTY LINE
- STREET LINE
- EXISTING CONTOUR
- PROPOSED GRADE AT END OF QUARRY ACTIVITY
- UTILITY POLE
- TOE OF CUT — TOE OF LEDGE CUT APRIL 19, 2023
- TREE LINE APRIL 10, 2023
- INLAND WETLANDS
- CENTERLINE FLAT BROOK
- SILTFENCE OR HAYBALES
- 6 FOOT HIGH CHAIN LINK FENCE TO BE INSTALLED

GRAPHIC SCALE

40 0 20 40 80 160

(IN FEET)
1 inch = 40 ft.

DIETER & GARDNER
LAND SURVEYORS • PLANNERS
1641 CONNECTICUT ROUTE 12
P.O. BOX 335
GALES FERRY, CT. 06335
(860) 464-7455
EMAIL: DIETER.GARDNER@YAHOO.COM

THE STONE WALLS AND/OR FENCES SHOWN AS BOUNDARIES MAY HAVE IRREGULARITIES OF COURSE BETWEEN PRINCIPAL POINTS OF COURSE INDICATED

NOTE: BOUNDARY LINES OF ADJOINING PROPERTIES ARE SHOWN FOR GENERAL INFORMATIONAL PURPOSES ONLY AND ARE NOT TO BE CONSTRUED AS BEING ACCURATELY LOCATED OR DEPICTED.

THE WORD "CERTIFY" IS UNDERSTOOD TO BE AN EXPRESSION OF THE PROFESSIONAL OPINION BY THE LAND SURVEYOR WHICH IS BASED ON HIS OR HER BEST KNOWLEDGE, INFORMATION AND BELIEF. AS SUCH IT CONSTITUTES NEITHER GUARANTEE OR WARRANTY.

PLAN SHOWING PROPERTY OF B & R HOLDING COMPANY, LLC 1340 BALDWIN HILL ROAD LEDYARD, CONNECTICUT

SCALE: 1"=40'

MAY 2023

SHEET 2 OF 4

THIS MAP AND SURVEY HAS BEEN PREPARED IN ACCORDANCE WITH SECTIONS 20-300B-1 THROUGH 20-300B-20 OF THE REGULATIONS OF CONNECTICUT STATE AGENCIES-"MINIMUM STANDARDS OF ACCURACY, CONTENT AND CERTIFICATION FOR SURVEYS AND MAPS IN THE STATE OF CONNECTICUT", ADOPTED EFFECTIVE JUNE 21, 1996, REVISED OCTOBER 26, 2018. IT IS A BOUNDARY SURVEY BASED ON A DEPENDENT RESURVEY CONFORMING TO HORIZONTAL ACCURACY CLASS "D". TOPOGRAPHIC ACCURACY T-2.
TO MY KNOWLEDGE AND BELIEF, THIS MAP IS SUBSTANTIALLY CORRECT AS NOTED HEREON.

TITLE: LAND SURVEYOR CT No. 14208

DATE: MAY 1, 2023

APPROVED BY THE LEDYARD PLANNING AND ZONING COMMISSION AS TO THE COMPLIANCE WITH THE ZONING REGULATIONS.

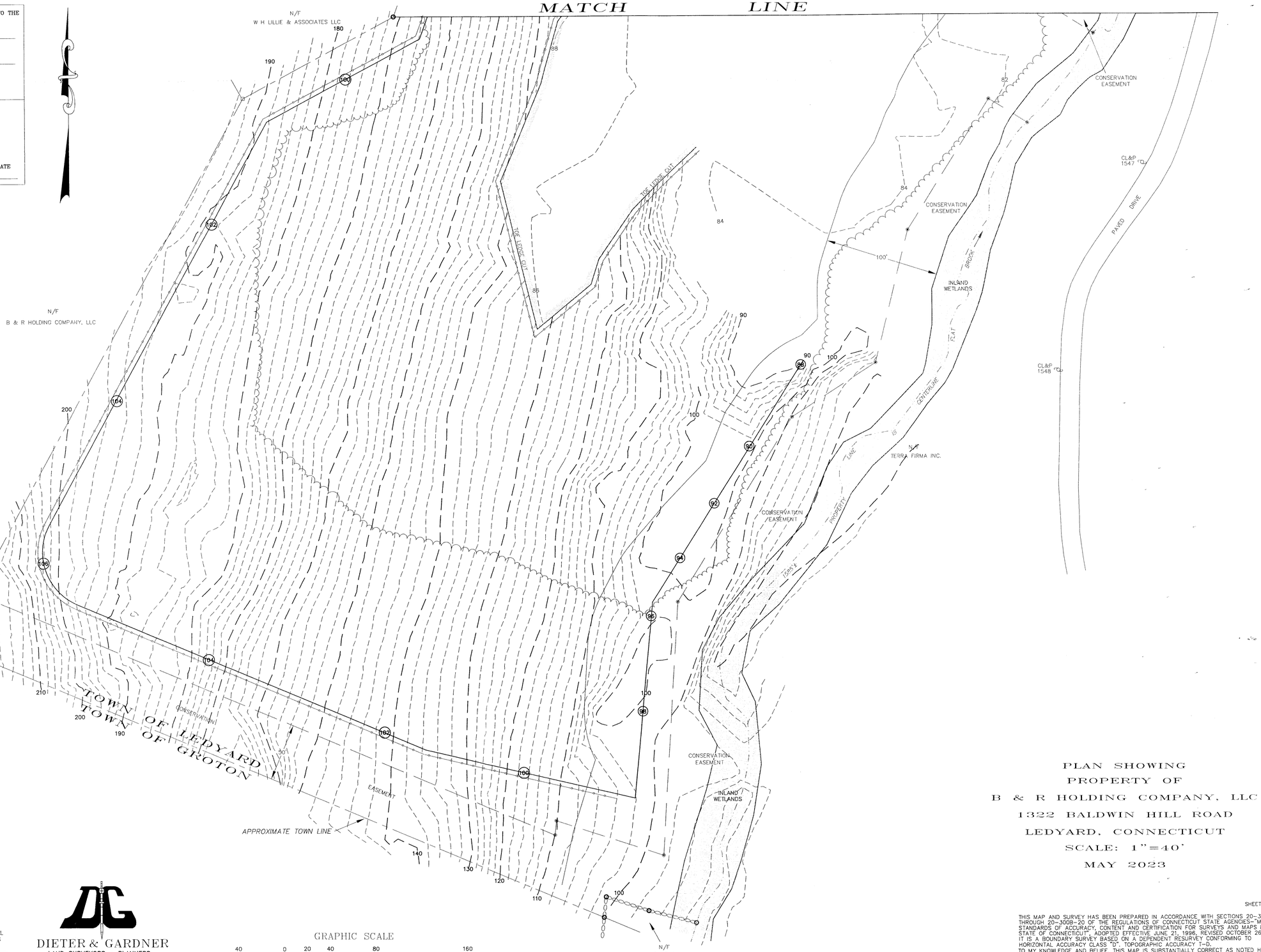
ALL IMPROVEMENTS SHALL BE COMPLETED BY _____ DATE

_____ CHAIRMAN OR SECRETARY _____ DATE

EROSION AND SEDIMENT CONTROL PLAN CERTIFIED BY VOTE OF THE LEDYARD PLANNING AND ZONING COMMISSION

_____

CHAIRMAN OR SECRETARY OF THE LEDYARD PLANNING AND ZONING COMMISSION _____ DATE



LEGEND

- STONE WALL
- PROPERTY LINE
- STREET LINE
- EXISTING CONTOUR
- PROPOSED GRADE AT END OF QUARRY ACTIVITY
- TOE OF CUT — TOE OF LEDGE CUT APRIL 19, 2023
- UTILITY POLE
- TREE LINE APRIL 10, 2023
- INLAND WETLANDS
- CENTERLINE FLAT BROOK
- 6 FOOT HIGH CHAIN LINK FENCE TO BE INSTALLED

THE WORD "CERTIFY" IS UNDERSTOOD TO BE AN EXPRESSION OF THE PROFESSIONAL OPINION BY THE LAND SURVEYOR WHICH IS BASED ON HIS OR HER BEST KNOWLEDGE, INFORMATION AND BELIEF. AS SUCH IT CONSTITUTES NEITHER GUARANTEE OR WARRANTY.

THE STONE WALLS AND/OR FENCES SHOWN AS BOUNDARIES MAY HAVE IRREGULARITIES OF COURSE BETWEEN PRINCIPAL POINTS OF COURSE INDICATED

NOTE: BOUNDARY LINES OF ADJOINING PROPERTIES ARE SHOWN FOR GENERAL INFORMATIONAL PURPOSES ONLY AND ARE NOT TO BE CONSTRUED AS BEING ACCURATELY LOCATED OR DEPICTED.

JOB# 23-026.DWG FBK#322

DIETER & GARDNER
LAND SURVEYORS • PLANNERS
1641 CONNECTICUT ROUTE 12
P.O. BOX 335
GALES FERRY, CT. 06335
(860) 464-7455
EMAIL: DIETER.GARDNER@YAHOO.COM

GRAPHIC SCALE

40 0 20 40 80 160

(IN FEET)
1 inch = 40 ft.

PLAN SHOWING PROPERTY OF B & R HOLDING COMPANY, LLC 1322 BALDWIN HILL ROAD LEDYARD, CONNECTICUT

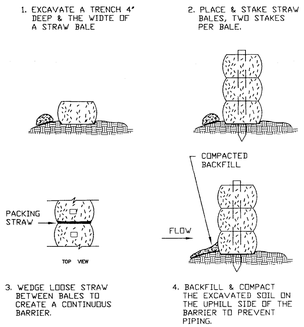
SCALE: 1"=40'

MAY 2023

THIS MAP AND SURVEY HAS BEEN PREPARED IN ACCORDANCE WITH SECTIONS 20-300B-1 THROUGH 20-300B-20 OF THE REGULATIONS OF CONNECTICUT STATE AGENCIES-"MINIMUM STANDARDS OF ACCURACY, CONTENT AND CERTIFICATION FOR SURVEYS AND MAPS IN THE STATE OF CONNECTICUT", ADOPTED EFFECTIVE JUNE 21, 1996, REVISED OCTOBER 26, 2018. IT IS A BOUNDARY SURVEY BASED ON A DEPENDENT RESURVEY CONFORMING TO HORIZONTAL ACCURACY CLASS "D", TOPOGRAPHIC ACCURACY T-D, TO MY KNOWLEDGE AND BELIEF, THIS MAP IS SUBSTANTIALLY CORRECT AS NOTED HEREON.

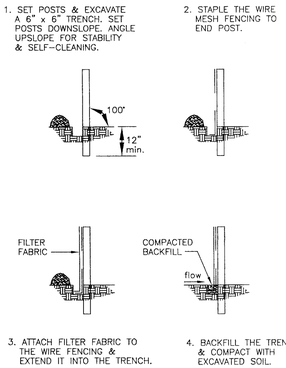
TITLE: LAND SURVEYOR CT No. 14208

DATE: MAY 1, 2023



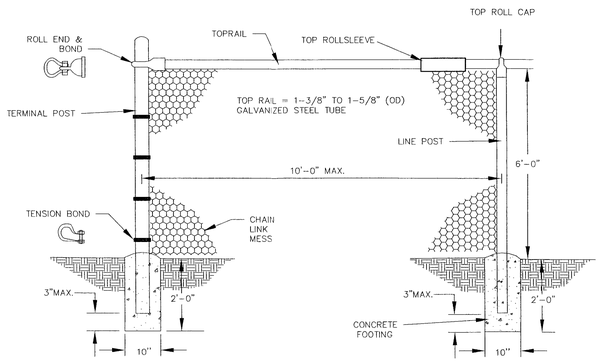
CONSTRUCTION OF A STRAW BALE BARRIER

NOT TO SCALE



FILTER FABRIC SEDIMENT BARRIER

NOT TO SCALE



CHAIN LINK FENCE DETAIL

NOT TO SCALE

EROSION AND SEDIMENTATION CONTROL PLAN

THE ACCOMPANYING PLANS PROVIDE THE FOLLOWING INFORMATION FOR THE IMPLEMENTATION OF THIS PLAN:

— LOCATION OF SEDIMENT CONTROL BARRIERS

— FINISHED GRADES TO BE ACHIEVED

PLAN HAS BEEN PREPARED TO ADDRESS SECTION 12.4 OF THE ZONING REGULATIONS USE OF THIS PROPERTY IS FOR PROCESSING AND REMOVAL OF ROCK/STONE/GRAVEL/SAND AND OTHER MATERIALS THAT HAS BEEN ONGOING SINCE PRIOR TO ZONING REGULATIONS BEING ENACTED. WHERE STONE IS BEING REMOVED, GRADES EXCEED 20% IN PLACES, WHEN STONE REMOVAL OPERATION IS COMPLETE, SITE WILL HAVE A GRADE OF LESS THAN 2%.
THERE ARE INLAND WETLANDS ON THIS PROPERTY.

CHRISTOPHER McLAUGLIN 860-460-0767 WILL SERVE AS CONTACT PERSON FOR IMPLEMENTING EROSION AND SEDIMENT CONTROL MEASURES ON THIS PLAN.

CONSTRUCTION SEQUENCE:

1. REMOVE EXISTING VEGETATION AND TOPSOIL WITHIN THE LIMITS OF CONSTRUCTION.
2. STRIP TOPSOIL AND STOCKPILE AS SHOWN.
3. FOLLOWING REMOVAL OF ROCK/STONE/GRAVEL/SAND, FINISH GRADE ALL DISTURBED AREAS.
4. LOAM AND SEED ALL DISTURBED AREAS.
5. MAINTAIN ALL SEDIMENT AND EROSION CONTROL UNTIL ALL AREAS HAVE BEEN STABILZED.

MAINTENANCE:

INSPECT SEDIMENT BARRIERS AFTER EACH STORM EVENT AND REPAIR OR REPLACE AS NECESSARY. CLEAN OUT OF ACCUMULATED SEDIMENT IS NECESSARY IF 1/2 OF THE ORIGINAL HEIGHT OF THE BARRIER BECOMES FILLED IN WITH SEDIMENT.

PERMANENT SEEDING:

SEED BED PREPARATION: FINE GRADE AND RAKE SOIL SURFACE TO REMOVE STONES LARGER THAN 2" IN DIAMETER. APPLY LIMESTONE AT A RATE OF 90 lbs./1000 S.F. FERTILIZE WITH 10-10-10, OR EQUIVALENT, AT A RATE OF 7.5 lbs./1000 S.F. WORK LIMESTONE AND FERTILIZER INTO SOIL UNIFORMLY TO A DEPTH OF 4" WITH A HARROW OR EQUIVALENT. SEED APPLICATION: APPLY LAWN SEED BY HAND, CYCLONE SEEDER OR HYDROSEEDER. LIGHTLY DRAG OR ROLL THE SEED SURFACE TO COVER SEED. SEEDING SHOULD BE DONE BETWEEN APRIL 15 AND JUNE 15 OR BETWEEN AUGUST 15 AND SEPTEMBER 30.
REPEAT MULCHING PROCEDURE BELOW UNTIL SEEDING CAN TAKE PLACE. NOTE: IF HYDROSEEDER IS USED, INCREASE SEED MIXTURE BY 10% MULCHING: IMMEDIATELY FOLLOWING SEEDING, MULCH THE SEEDED SURFACE WITH STRAW OR HAY AT A RATE OF 70 lbs./1000 S.F. SPREAD MULCH BY HAND OR MULCH BLOWER. PUNCH MULCH INTO SOIL SURFACE WITH TRACK MACHINE OR DISK HARROW.

HOURS OF OPERATION MONDAY TO SATURDAY 6:30 A.M. TO 5:30 P.M. IT IS EXPECTED THAT ROCK REMOVAL WILL BE COMPLETED BY 5/1/2027.

DIETER & GARDNER
LAND SURVEYORS • PLANNERS
1641 CONNECTICUT ROUTE 12
P.O. BOX 335
GALES FERRY, CT. 06335
(860) 464-7455
EMAIL: DIETER.GARDNER@YAHOO.COM

PLAN SHOWING
EROSION AND SEDIMENT CONTROL
NARRATIVE AND DETAILS
PROPERTY OF
B & R HOLDING COMPANY, LLC
1322 BALDWIN HILL ROAD
LEDYARD, CONNECTICUT
MAY 2023

NAD 83

NAMES & ADDRESSES PROPERTY OWNERS WITHIN 100 FEET OF 1340 BALDWIN HILL ROAD

1322 B & R HOLDING COMPANY, LLC
1358 BALDWIN HILL ROAD
GALES FERRY, CT. 06335

1330 W. H. LILLIE & ASSOCIATES LLC
P. O. BOX 245
GALES FERRY, CT. 06335

1332 W. H. LILLIE & ASSOCIATES LLC
P. O. BOX 245
GALES FERRY, CT. 06335

1336 W. H. LILLIE & ASSOCIATES LLC
P. O. BOX 245
GALES FERRY, CT. 06335

1340 TERRA FIRMA INC.
1358 BALDWIN HILL ROAD
GALES FERRY, CT. 06335

1348 TERRA FIRMA INC.
1358 BALDWIN HILL ROAD
GALES FERRY, CT. 06335

1352 TERRA FIRMA INC.
1358 BALDWIN HILL ROAD
GALES FERRY, CT. 06335

1354R TERRA FIRMA INC.
1358 BALDWIN HILL ROAD
GALES FERRY, CT. 06335

1356R TERRA FIRMA INC.
1358 BALDWIN HILL ROAD
GALES FERRY, CT. 06335

1358 TERRA FIRMA INC.
1358 BALDWIN HILL ROAD
GALES FERRY, CT. 06335

1339 CHRISTOPHER & REBECCA TEHAN
1339 BALDWIN HILL ROAD
LEDYARD, CT. 06339

1341 ANGEL & BETZAIDA RUIZ
1341 BALDWIN HILL ROAD
GALES FERRY, CT. 06335

1356 DOMINICK D. & JOYCE A. CERAVOLO
1356 BALDWIN HILL ROAD
GALES FERRY, CT. 06335

UNITED STATES OF AMERICA

APPROVED BY THE LEDYARD PLANNING AND ZONING COMMISSION AS TO THE COMPLIANCE WITH THE ZONING REGULATIONS.

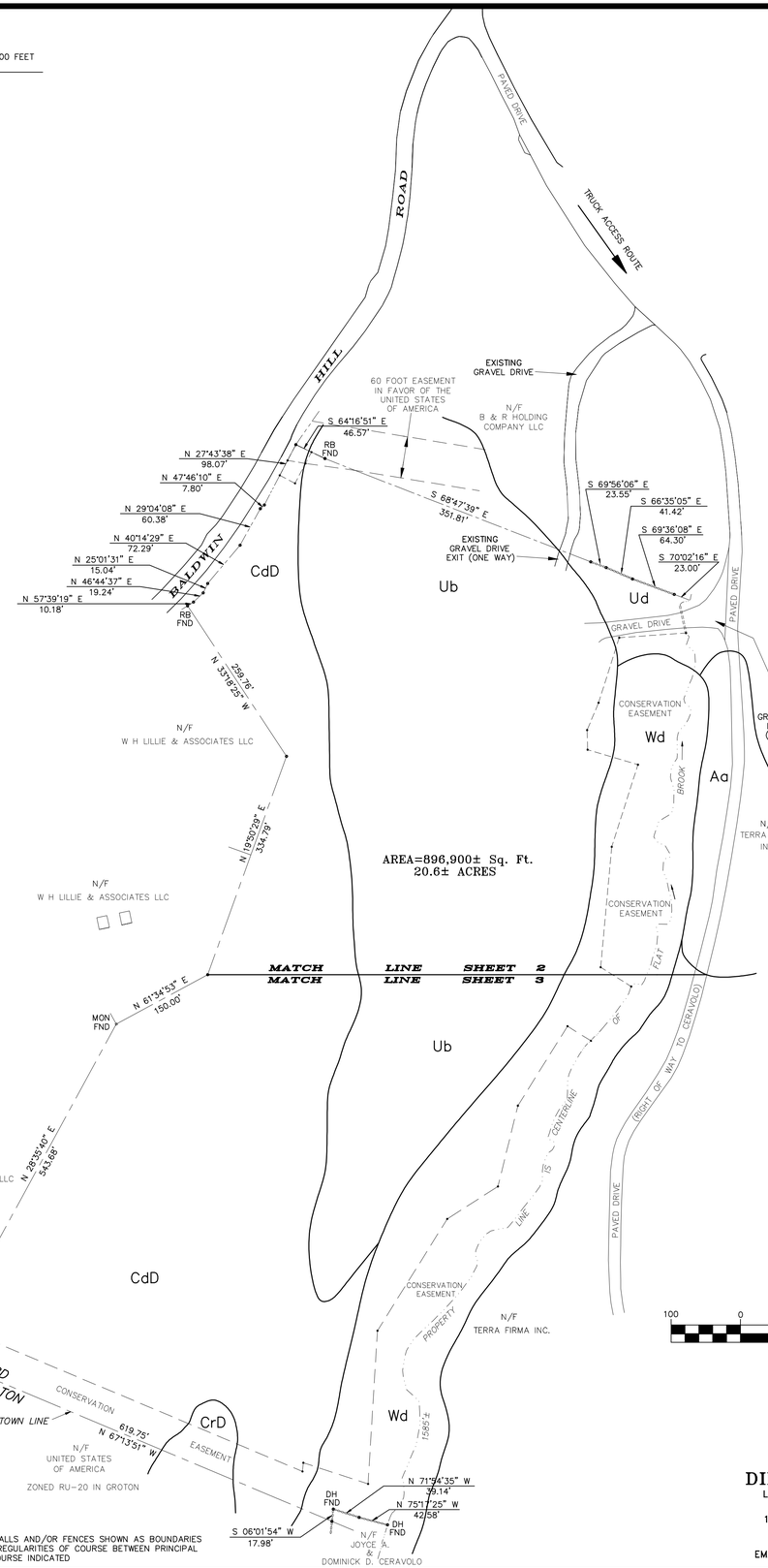
ALL IMPROVEMENTS SHALL BE COMPLETED BY _____ DATE

_____ CHAIRMAN OR SECRETARY _____ DATE

EROSION AND SEDIMENT CONTROL PLAN CERTIFIED BY VOTE OF THE LEDYARD PLANNING AND ZONING COMMISSION

_____

CHAIRMAN OR SECRETARY OF THE LEDYARD PLANNING AND ZONING COMMISSION _____ DATE



SOILS LEGEND

PER SOIL SURVEY OF NEW LONDON COUNTY CONNECTICUT

- Aa – ADRIAN AND PALMS MUCKS
- CcB – CANTON AND CHARLTON VERY STONY FINE SANDY LOAMS 3 TO 8 PERCENT SLOPES
- CdD – CANTON AND CHARLTON EXTREMELY STONY FINE SANDY LOAMS 15 TO 35 PERCENT SLOPES
- CrD – CHARLTON–HOLLIS FINE SANDY LOAMS, VERY ROCKY 15 TO 45 PERCENT SLOPES
- Ub – UDORTHENTS–PITS COMPLEX, GRAVELLY
- Ud – UDORTHENTS–URBAN LAND COMPLEX
- Wd – WALPOLE FINE SANDY LOAM

LEGEND

- STONE WALL
- PROPERTY LINE
- STREET LINE
- MON FND – MONUMENT FOUND
- DH FND – DRILL HOLE FOUND
- RB FND – REBAR FOUND

THE WORD "CERTIFY" IS UNDERSTOOD TO BE AN EXPRESSION OF THE PROFESSIONAL OPINION BY THE LAND SURVEYOR WHICH IS BASED ON HIS OR HER BEST KNOWLEDGE, INFORMATION AND BELIEF. AS SUCH IT CONSTITUTES NEITHER GUARANTEE OR WARRANTY.

NOTE: BOUNDARY LINES OF ADJOINING PROPERTIES ARE SHOWN FOR GENERAL INFORMATIONAL PURPOSES ONLY AND ARE NOT TO BE CONSTRUED AS BEING ACCURATELY LOCATED OR DEPICTED.

JOB# 23-026.DWG FBK#322

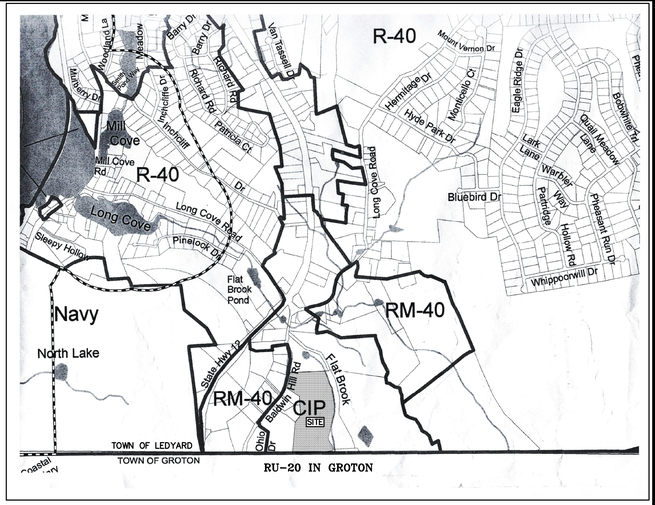
THE STONE WALLS AND/OR FENCES SHOWN AS BOUNDARIES MAY HAVE IRREGULARITIES OF COURSE BETWEEN PRINCIPAL POINTS OF COURSE INDICATED

GRAPHIC SCALE
100 0 50 100 200 400
(IN FEET)
1 inch = 100 ft.

DIETER & GARDNER
LAND SURVEYORS • PLANNERS
P.O. BOX 335
1641 CONNECTICUT ROUTE 12
GALES FERRY, CT. 06335
(860) 464-7455
EMAIL: DIETER.GARDNER@YAHOO.COM

GENERAL NOTES:

1. MAP REFERENCE:
   A) SUBDIVISION PLAN BALDWIN RIDGE INDUSTRIAL PARK PREPARED FOR B & R HOLDING COMPANY, LLC BALDWIN HILL ROAD LEDYARD, CONNECTICUT SCALE: 1"=80' AUGUST 2011 SHEET 2 OF 6 REV "A" DRAINAGE AND CONSERVATION EASEMENT 10–31–11 REV "B" PER TOWN ENGINEER'S COMMENTS 11–28–11 REV "C" CONSERVATION EASEMENT LANGUAGE 2–28–12.
   B) SUBMARINE BASE –NEW LONDON, CONNECTICUT 33000V POWER SUPPLY TRANSMISSION LINE TO OUTDOOR SUBSTATION, SCALE 1INCH = 100 FEET, DEC. 22, 1941, STONE & WEBSTER ENGINEERING CORP., SHEET 2.
   C) PLAN OF LAND SURVEYED FOR THE BALF CO. BALDWIN HILL ROAD, LEDYARD, CONNECTICUT, SCALE: 1"=40' MARCH 18, 1976, KIELTYKA, WOODS & PIKE, LAND SURVEYORS, KILLINGLY, CONNECTICUT.
   D) PROPERTY TO BE ACQUIRED BY THE UNITED STATES OF AMERICA FROM THOMAS A. & JUANITA R. VIVIRITO, BALDWIN HILL ROAD , LEDYARD, CONN., NORTH ACCESS ROAD, 400 FAMILY HOUSING PROJECT, SCALE:1"=100', CODE IDENT. NO. 80091 DATE FEB. 8, 1982, DICESARE–BENTLEY ENGINEERS INC.
   E) TOWN OF LEDYARD MAP SHOWING LAND ACQUIRED BY THOMAS A. & JUANITA R. VIVIRITO BY THE TOWN OF LEDYARD ON BALDWIN HILL ROAD, 1"=40', DECEMBER 1983, EDWARD SITTY L.S., MAP NO. 1425.
   F) PLAN SHOWING PROPERTY OF CHARLES B. MILLER TO BE CONVEYED TO DOMINICK D. CERAVOLO LOCATED SOUTHERLY OF BALDWIN HILL ROAD IN THE TOWNS OF LEDYARD AND GROTON, CONNECTICUT, SCALE:1"=100', OCTOBER 1998, DIETER & GARDNER LAND SURVEYORS.
   G) PROPERTY SURVEY PREPARED FOR TERRA FIRMA INC., BALDWIN HILL ROAD, LEDYARD CONNECTICUT, SCALE: 1"=80', SEPTEMBER 2007, JOB I.D. NO. 07–1509 PREPARED BY BOUNDARIES LLC.
2. EXISTING UTILITY LOCATION ARE APPROXIMATE ONLY. ALL UTILITIES MAY NOT BE SHOWN. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO CONTACT "CALL BEFORE YOU DIG" AT 1–800–922–4455 PRIOR TO INITIATION OF ANY WORK. UTILITY SIZE, MATERIAL, AND LOCATION AS PER RESPECTIVE UTILITY AUTHORITY.
3. INLAND WETLANDS ON THIS PLAN AS SHOWN ON PLAN ENTITLED SUBDIVISION PLAN BALDWIN RIDGE INDUSTRIAL PARK PREPARED FOR B & R HOLDING COMPANY, LLC BALDWIN HILL ROAD LEDYARD, CONNECTICUT SCALE: 1"=80' AUGUST 2011 SHEET 2 OF 6 REV "A" DRAINAGE AND CONSERVATION EASEMENT 10–31–11 REV "B" PER TOWN ENGINEER'S COMMENTS 11–28–11 REV "C" CONSERVATION EASEMENT LANGUAGE 2–28–12.
4. THIS PLAN HAS BEEN PREPARED TO ADDRESS SECTION 8.16 OF THE ZONING REGULATIONS. USE OF THIS PROPERTY IS FOR PROCESSING AND REMOVAL OF ROCK/STONE/GRAVEL/SAND AND OTHER MATERIALS THAT HAS BEEN ONGOING SINCE PRIOR TO ZONING REGULATIONS BEING ENACTED. WHERE STONE IS BEING REMOVED, GRADES EXCEED 20% IN PLACES, WHEN STONE REMOVAL OPERATION IS COMPLETE, SITE WILL HAVE A GRADE OF LESS THAN 2% AND GREATLY INCREASE THE SITES USEFULNESS.
5. A CONSERVATION EASEMENT EXISTS ON THIS PROPERTY. THIS CONSERVATION EASEMENT AREA SHALL BE PRESERVED LAND IS NOT TO BE DEVELOPED WITH BUILDINGS OR PAVED PARKING/DRIVEWAY AREAS. THIS EASEMENT AREA, WITH APPROPRIATE REGULATORY APPROVAL, MAY BE USED FOR LANDSCAPED AREAS, SEPTIC SYSTEMS, EROSION CONTROL MEASURES, STORMWATER FACILITIES INCLUDING, BUT NOT LIMITED TO, DETENTION BASINS, WATER QUALITY BASINS, PIPING, DRAINAGE STRUCTURES, BIO–RETENTION, LOW IMPACT DEVELOPMENT STORMWATER MEASURES AND ACCESS DRIVES FOR MAINTENANCE OF SAME.
6. ON SITE SOIL TYPES Aa (ADRIAN) CcD (CANTON), CrD (CHARLTON), CcB (CANTON), Ub (UDORTHENTS–PITS), Ud (UDORTHENTS–URBAN) AND Wd (WALPOLE).
7. THIS LOT DOES NOT INCLUDE LAND AREAS WITHIN THE FEDERAL EMERGENCY MANAGEMENT AGENCY'S 100–YEAR FLOOD HAZARD AREA.
8. NO IMPACTS FROM THIS PROPOSAL ON EXISTING/POTENTIAL SURFACE AND GROUND DRINKING WATER SUPPLIES.
9. NO CHEMICALS/POTENTIAL CONTAMINANTS WILL BE PRODUCED OR STORED ON SITE.
10. PLAN OF OPERATION:
    BOVE BROTHERS, LLC WILL OPERATE AT 1340 BALDWIN HILL ROAD SITE ACCORDING TO THE FOLLOWING SCHEDULE: MONDAY THROUGH FRIDAY: 6:00 AM TO 6:00 PM, SATURDAY 7:00 AM TO 5 PM. THERE IS CONTINUOUS WATERING FOR DUST CONTROL DURING HOURS OF OPERATION. THE SITE IS UNDER THE SCOPE OF THE UNITED STATES BUREAU OF MINES (MSHA) WITH UNANNOUNCED INSPECTIONS DONE AT LEAST TWICE A YEAR. IN ACCORDANCE WITH MSHA REQUIREMENTS, THERE IS FIRST AID SAFETY EQUIPMENT ON SITE AND POSTED INSTRUCTIONS IN CASE OF AN EMERGENCY. POSTED SIGNS CONTROL FLOW OF TRAFFIC AND DIRECT ANY VISITORS. ALL BLASTING IS IN ACCORDANCE WITH THE REQUIREMENTS AND REGULATIONS OF THE STATE OF CONNECTICUT AND THE LEDYARD FIRE MARSHALL AND OCCURS ONCE OR TWICE A WEEK WITH MAXIMUM "SHOT" OF 4000± CUBIC YARDS. NEARBY PROPERTY OWNERS HAVE BEEN NOTIFIED TO CALL BOVE BROTHERS, LLC AT 860–443–9200 TO BE ADDED TO A CALL LIST FOR BLASTING. CURRENTLY, THERE ARE APPROXIMATELY ELEVEN TRIAXLES THAT ENTER/EXIT THE QUARRY UP TO TEN TRIPS A DAY. IN MOST CASES, THE TRUCKS WILL TRAVEL SOUTH DOWN ROUTE 12 AND USE ROUTE 95 EITHER HEADED NORTH OR SOUTH, DEPENDING ON JOB LOCATION. HOWEVER, AT TIMES, TRIAXLES MAY TRAVEL NORTH ON ROUTE 12 AND USE ROUTE 2–A MOHEGAN PEQUOT BRIDGE DUE TO ACCIDENTS OR JOB LOCATIONS. EXCAVATION WILL NOT GET WITHIN 4 FEET OF THE WATER TABLE. FLOOR OF SITE SHALL BE GRADED NOT LESS THAN ONE PERCENT (1%) OR MORE THAN FOUR PERCENT (4%). A BOND SHALL BE POSTED AFTER SITE PLAN APPROVAL TO GUARANTEE WORK WILL BE DONE IN ACCORDANCE THE APPROVED PLAN BY THE OWNER. OWNER SHALL SIGN DOCUMENT PROVIDED BY THE ZONING OFFICIAL TO CERTIFY THAT THE PROPOSED OPERATION WILL BE CONDUCTED IN ACCORDANCE WITH THE APPROVED PLAN.



LOCATION MAP
ZONING DISTRICT: CIP

GRAPHIC SCALE
1000 0 500 1000 2000 4000
(IN FEET)
1 inch = 1000 ft.

OWNER: B & R HOLDING COMPANY LLC
1358 BALDWIN HILL ROAD
GALES FERRY, CT. 06335

APPLICANT: DIETER & GARDNER, INC.
P. O. BOX 335
GALES FERRY, CT. 06335

SHEET INDEX

PLAN PREPARED TO ACCOMPANY SPECIAL PERMIT APPLICATION PROPERTY OF B & R HOLDING COMPANY, LLC 1340 BALDWIN HILL ROAD MAP 134 BLOCK 140 LOT 1340 LEDYARD, CONNECTICUT

SCALE: 1"=100'

MAY 2023

REVISED: MAY 10, 2023
REVISED: JULY 7, 2023

SHEET 1 OF 4

THIS MAP AND SURVEY HAS BEEN PREPARED IN ACCORDANCE WITH SECTIONS 20–300B–1 THROUGH 20–300B–20 OF THE REGULATIONS OF CONNECTICUT STATE AGENCIES–"MINIMUM STANDARDS OF ACCURACY, CONTENT AND CERTIFICATION FOR SURVEYS AND MAPS IN THE STATE OF CONNECTICUT", ADOPTED EFFECTIVE JUNE 21, 1996, REVISED OCTOBER 26, 2018. IT IS A BOUNDARY SURVEY BASED ON A DEPENDENT RESURVEY CONFORMING TO HORIZONTAL ACCURACY CLASS A–2.
TO MY KNOWLEDGE AND BELIEF, THIS MAP IS SUBSTANTIALLY CORRECT AS NOTED HEREON.

TITLE: LAND SURVEYOR CT No. 14208

DATE: MAY 1, 2023

APPROVED BY THE LEDYARD PLANNING AND ZONING COMMISSION AS TO THE COMPLIANCE WITH THE ZONING REGULATIONS.

ALL IMPROVEMENTS SHALL BE COMPLETED BY _____ DATE

_____ CHAIRMAN OR SECRETARY _____ DATE

EROSION AND SEDIMENT CONTROL PLAN CERTIFIED BY VOTE OF THE LEDYARD PLANNING AND ZONING COMMISSION

_____

CHAIRMAN OR SECRETARY OF THE LEDYARD PLANNING AND ZONING COMMISSION DATE

_____ _____

NAD 83

LEGEND

- STONE WALL
- PROPERTY LINE
- STREET LINE
- EXISTING CONTOUR
- (110) PROPOSED GRADE AT END OF QUARRY ACTIVITY
- UTILITY POLE
- TOE OF CUT — TOE OF LEDGE CUT APRIL 19, 2023
- BERM (EROSION CONTROL)
- APPROXIMATE TREE LINE
- INLAND WETLANDS
- CENTERLINE FLAT BROOK
- SILTFENCE OR HAYBALES TO BE INSTALLED
- DIRECTION WATER FLOW

GRAPHIC SCALE

40 0 20 40 80 160

(IN FEET)
1 inch = 40 ft.

DIETER & GARDNER
LAND SURVEYORS • PLANNERS
1641 CONNECTICUT ROUTE 12
P.O. BOX 335
GALES FERRY, CT. 06335
(860) 464-7455
EMAIL: DIETER.GARDNER@YAHOO.COM

THE STONE WALLS AND/OR FENCES SHOWN AS BOUNDARIES MAY HAVE IRREGULARITIES OF COURSE BETWEEN PRINCIPAL POINTS OF COURSE INDICATED

NOTE: BOUNDARY LINES OF ADJOINING PROPERTIES ARE SHOWN FOR GENERAL INFORMATIONAL PURPOSES ONLY AND ARE NOT TO BE CONSTRUED AS BEING ACCURATELY LOCATED OR DEPICTED.

JOB# 23-026.DWG FBK#322

THE WORD "CERTIFY" IS UNDERSTOOD TO BE AN EXPRESSION OF THE PROFESSIONAL OPINION BY THE LAND SURVEYOR WHICH IS BASED ON HIS OR HER BEST KNOWLEDGE, INFORMATION AND BELIEF. AS SUCH IT CONSTITUTES NEITHER GUARANTEE OR WARRANTY.

PLAN PREPARED TO ACCOMPANY SPECIAL PERMIT APPLICATION PROPERTY OF B & R HOLDING COMPANY, LLC 1340 BALDWIN HILL ROAD MAP 134 BLOCK 140 LOT 1340 LEDYARD, CONNECTICUT

SCALE: 1"=40'

MAY 2023

REVISED: MAY 10, 2023
REVISED: JULY 7, 2023

SHEET 2 OF 4

THIS MAP AND SURVEY HAS BEEN PREPARED IN ACCORDANCE WITH SECTIONS 20-300B-1 THROUGH 20-300B-20 OF THE REGULATIONS OF CONNECTICUT STATE AGENCIES-"MINIMUM STANDARDS OF ACCURACY, CONTENT AND CERTIFICATION FOR SURVEYS AND MAPS IN THE STATE OF CONNECTICUT", ADOPTED EFFECTIVE JUNE 21, 1996, REVISED OCTOBER 26, 2018. IT IS A BOUNDARY SURVEY BASED ON A DEPENDENT RESURVEY CONFORMING TO HORIZONTAL ACCURACY CLASS "D". TOPOGRAPHIC ACCURACY T-2.
TO MY KNOWLEDGE AND BELIEF, THIS MAP IS SUBSTANTIALLY CORRECT AS NOTED HEREON.

TITLE: LAND SURVEYOR CT No. 14208

DATE: MAY 1, 2023

APPROVED BY THE LEDYARD PLANNING AND ZONING COMMISSION AS TO THE COMPLIANCE WITH THE ZONING REGULATIONS.

ALL IMPROVEMENTS SHALL BE COMPLETED BY _____ DATE

_____ CHAIRMAN OR SECRETARY

_____ DATE

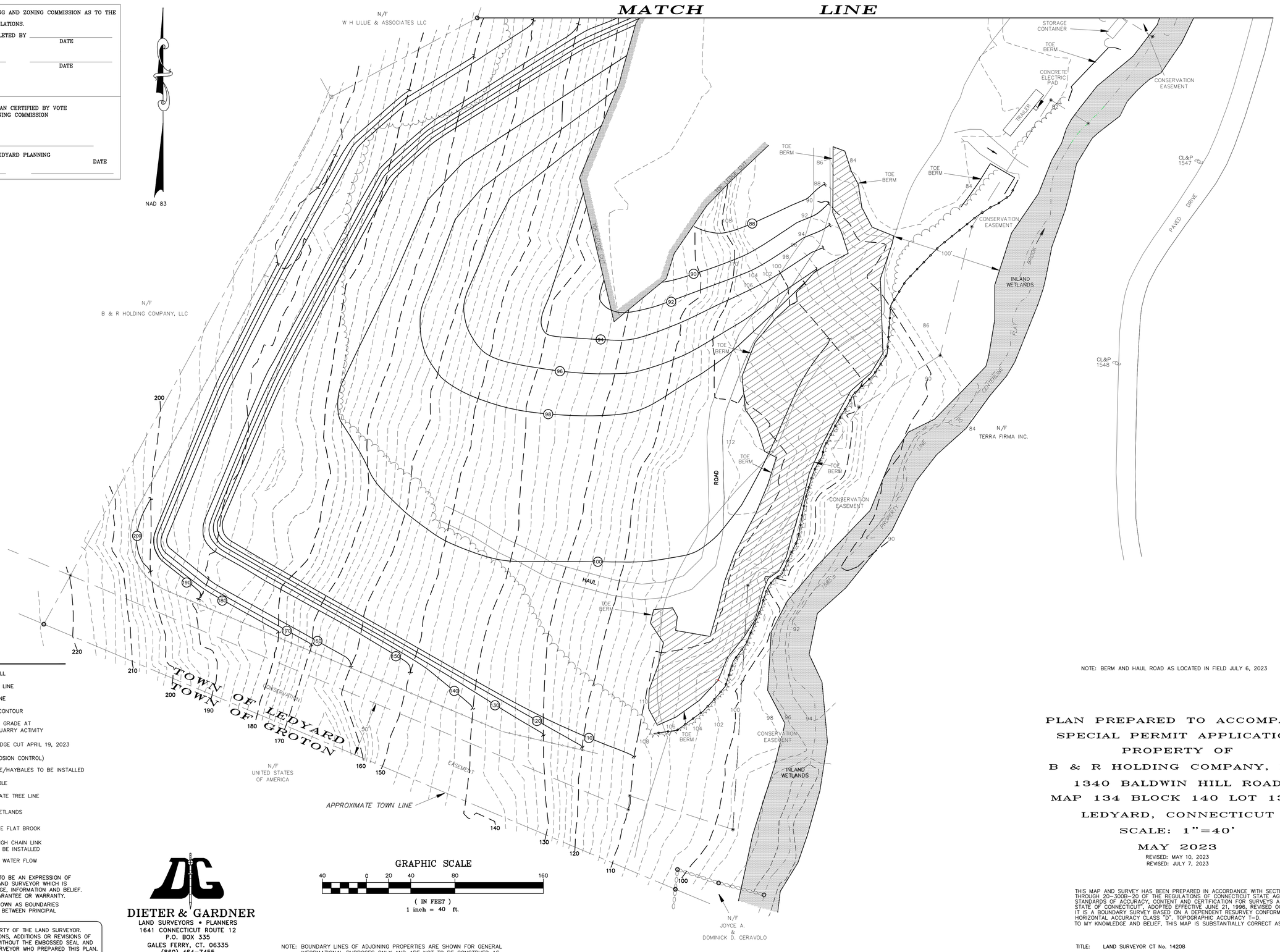
EROSION AND SEDIMENT CONTROL PLAN CERTIFIED BY VOTE OF THE LEDYARD PLANNING AND ZONING COMMISSION

_____

CHAIRMAN OR SECRETARY OF THE LEDYARD PLANNING AND ZONING COMMISSION

_____ DATE

NAD 83



LEGEND

- STONE WALL
- PROPERTY LINE
- STREET LINE
- EXISTING CONTOUR
- PROPOSED GRADE AT END OF QUARRY ACTIVITY
- TOE OF CUT — TOE OF LEDGE CUT APRIL 19, 2023
- BERM (EROSION CONTROL)
- SILT FENCE/HAYBALES TO BE INSTALLED
- UTILITY POLE
- APPROXIMATE TREE LINE
- INLAND WETLANDS
- CENTERLINE FLAT BROOK
- 6 FOOT HIGH CHAIN LINK FENCE TO BE INSTALLED
- DIRECTION WATER FLOW

THE WORD "CERTIFY" IS UNDERSTOOD TO BE AN EXPRESSION OF THE PROFESSIONAL OPINION BY THE LAND SURVEYOR WHICH IS BASED ON HIS OR HER BEST KNOWLEDGE, INFORMATION AND BELIEF. AS SUCH IT CONSTITUTES NEITHER GUARANTEE OR WARRANTY.

THE STONE WALLS AND/OR FENCES SHOWN AS BOUNDARIES MAY HAVE IRREGULARITIES OF COURSE BETWEEN PRINCIPAL POINTS OF COURSE INDICATED

DIETER & GARDNER
LAND SURVEYORS • PLANNERS
1641 CONNECTICUT ROUTE 12
P.O. BOX 335
GALES FERRY, CT. 06335
(860) 464-7455
EMAIL: DIETER.GARDNER@YAHOO.COM

GRAPHIC SCALE

40 0 20 40 80 160

(IN FEET)
1 inch = 40 ft.

NOTE: BOUNDARY LINES OF ADJOINING PROPERTIES ARE SHOWN FOR GENERAL INFORMATIONAL PURPOSES ONLY AND ARE NOT TO BE CONSTRUED AS BEING ACCURATELY LOCATED OR DEPICTED.

NOTE: BERM AND HAUL ROAD AS LOCATED IN FIELD JULY 6, 2023

PLAN PREPARED TO ACCOMPANY SPECIAL PERMIT APPLICATION PROPERTY OF B & R HOLDING COMPANY, LLC

1340 BALDWIN HILL ROAD
MAP 134 BLOCK 140 LOT 1340
LEDYARD, CONNECTICUT
SCALE: 1"=40'
MAY 2023

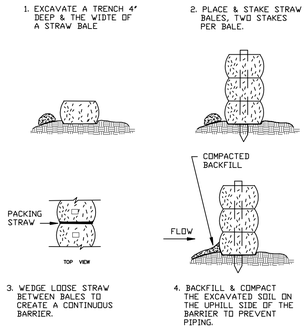
REVISED: MAY 10, 2023
REVISED: JULY 7, 2023

SHEET 3 OF 4

THIS MAP AND SURVEY HAS BEEN PREPARED IN ACCORDANCE WITH SECTIONS 20-300B-1 THROUGH 20-300B-20 OF THE REGULATIONS OF CONNECTICUT STATE AGENCIES-"MINIMUM STANDARDS OF ACCURACY, CONTENT AND CERTIFICATION FOR SURVEYS AND MAPS IN THE STATE OF CONNECTICUT", ADOPTED EFFECTIVE JUNE 21, 1996, REVISED OCTOBER 26, 2018. IT IS A BOUNDARY SURVEY BASED ON A DEPENDENT RESURVEY CONFORMING TO HORIZONTAL ACCURACY CLASS "D", TOPOGRAPHIC ACCURACY T-D. TO MY KNOWLEDGE AND BELIEF, THIS MAP IS SUBSTANTIALLY CORRECT AS NOTED HEREON.

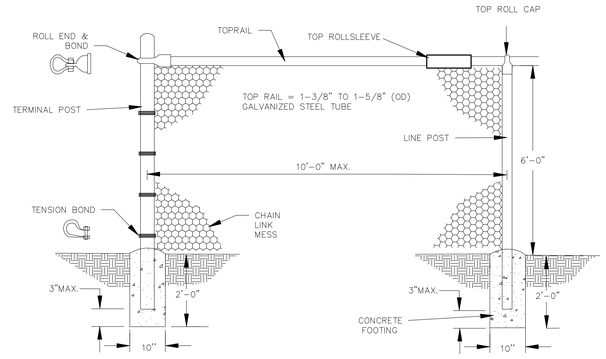
TITLE: LAND SURVEYOR CT No. 14208

DATE: MAY 1, 2023



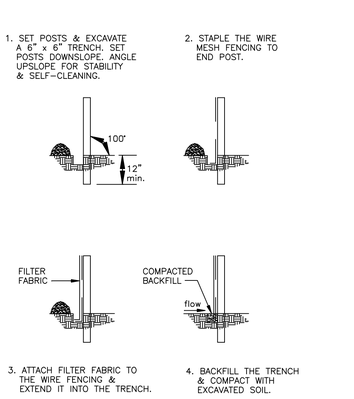
CONSTRUCTION OF A STRAW BALE BARRIER

NOT TO SCALE



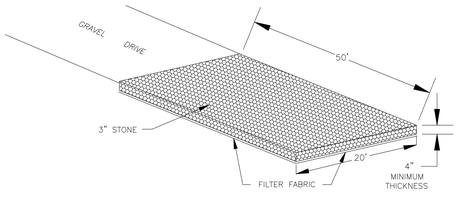
CHAIN LINK FENCE DETAIL

NOT TO SCALE



FILTER FABRIC SEDIMENT BARRIER

NOT TO SCALE



ANTI TRACKING PAD

NOT TO SCALE

EROSION AND SEDIMENTATION CONTROL PLAN

THE ACCOMPANYING PLANS PROVIDE THE FOLLOWING INFORMATION FOR THE IMPLEMENTATION OF THIS PLAN:

— LOCATION OF SEDIMENT CONTROL BARRIERS

— FINISHED GRADES TO BE ACHIEVED

PLAN HAS BEEN PREPARED TO ADDRESS SECTION 12.4 OF THE ZONING REGULATIONS USE OF THIS PROPERTY IS FOR PROCESSING AND REMOVAL OF ROCK/STONE/GRAVEL/SAND AND OTHER MATERIALS THAT HAS BEEN ONGOING SINCE PRIOR TO ZONING REGULATIONS BEING ENACTED. WHERE STONE IS BEING REMOVED, GRADES EXCEED 20% IN PLACES, WHEN STONE REMOVAL OPERATION IS COMPLETE, SITE WILL HAVE A GRADE OF LESS THAN 2%.
THERE ARE INLAND WETLANDS ON THIS PROPERTY.

CHRISTOPHER McLAUGLIN 860-460-0767 WILL SERVE AS CONTACT PERSON FOR IMPLEMENTING EROSION AND SEDIMENT CONTROL MEASURES ON THIS PLAN.

CONSTRUCTION SEQUENCE:

1. REMOVE EXISTING VEGETATION AND TOPSOIL WITHIN THE LIMITS OF CONSTRUCTION.
2. STRIP TOPSOIL AND STOCKPILE AS SHOWN.
3. FOLLOWING REMOVAL OF ROCK/STONE/GRAVEL/SAND, FINISH GRADE ALL DISTURBED AREAS.
4. LOAM AND SEED ALL DISTURBED AREAS.
5. MAINTAIN ALL SEDIMENT AND EROSION CONTROL UNTIL ALL AREAS HAVE BEEN STABILIZED.

MAINTENANCE:

INSPECT SEDIMENT BARRIERS AFTER EACH STORM EVENT AND REPAIR OR REPLACE AS NECESSARY. CLEAN OUT OF ACCUMULATED SEDIMENT IS NECESSARY IF 1/2 OF THE ORIGINAL HEIGHT OF THE BARRIER BECOMES FILLED IN WITH SEDIMENT.

PERMANENT SEEDING:

SEED BED PREPARATION: FINE GRADE AND RAKE SOIL SURFACE TO REMOVE STONES LARGER THAN 2" IN DIAMETER. APPLY LIMESTONE AT A RATE OF 90 lbs./1000 S.F. FERTILIZE WITH 10-10-10, OR EQUIVALENT, AT A RATE OF 7.5 lbs./1000 S.F. WORK LIMESTONE AND FERTILIZER INTO SOIL UNIFORMLY TO A DEPTH OF 4" WITH A HARROW OR EQUIVALENT. SEED APPLICATION: APPLY LAWN SEED BY HAND, CYCLONE SEEDER OR HYDROSEEDER. LIGHTLY DRAG OR ROLL THE SEED SURFACE TO COVER SEED. SEEDING SHOULD BE DONE BETWEEN APRIL 15 AND JUNE 15 OR BETWEEN AUGUST 15 AND SEPTEMBER 30.
REPEAT MULCHING PROCEDURE BELOW UNTIL SEEDING CAN TAKE PLACE. NOTE: IF HYDROSEEDER IS USED, INCREASE SEED MIXTURE BY 10%. MULCHING: IMMEDIATELY FOLLOWING SEEDING, MULCH THE SEEDED SURFACE WITH STRAW OR HAY AT A RATE OF 70 lbs./1000 S.F. SPREAD MULCH BY HAND OR MULCH BLOWER. PUNCH MULCH INTO SOIL SURFACE WITH TRACK MACHINE OR DISK HARROW.

HOURS OF OPERATION MONDAY THROUGH FRIDAY 6:00 A.M. TO 6:00 P.M. AND SATURDAY 7:00 A.M. TO 5 P.M. IT IS EXPECTED THAT ROCK REMOVAL WILL BE COMPLETED BY 5/1/2027.

DIETER & GARDNER
LAND SURVEYORS • PLANNERS
1641 CONNECTICUT ROUTE 12
P.O. BOX 335
GALES FERRY, CT. 06335
(860) 464-7455
EMAIL: DIETER.GARDNER@YAHOO.COM

PLAN SHOWING
EROSION AND SEDIMENT CONTROL
NARRATIVE AND DETAILS
PREPARED TO ACCOMPANY
SPECIAL PERMIT APPLICATION
PROPERTY OF
B & R HOLDING COMPANY, LLC
1340 BALDWIN HILL ROAD
MAP 134 BLOCK 140 LOT 1340
LEDYARD, CONNECTICUT
MAY 2023
REVISED: MAY 10, 2023

File #: 23-1816 **Agenda Date:** 7/11/2023 **Agenda #:** A.

REPORT

Staff/Committee Report:
Wetland Enforcement Official Report

TOWN OF LEDYARD

Wetlands Official's Office

Len Johnson, Wetlands Official

741 Colonel Ledyard Highway, Ledyard, CT 06339

Phone: (860) 303-2879

Wetlands@LedyardCT.Org

Wetlands Official's Report: IWWC Regular Meeting July 11, 2023

No Wetlands Impact

6/21 Owner/Applicant: Samuel Andriessen

Address: 205 Sandy Hollow Rd.

Installation of pre-built storage shed with no foundation.

Permit IWWC#23-4SITE

6/30-Owner/Applicant: B&R Holding Company LLC

Address: 1358 Baldwin Hill Rd.

Members of the commission did a site walk with Peter Gardner to see the extent of the blasting and stone crushing operation. The members attending were Justin Debrodt and Beth Ribe. Also attending were myself and property owner Chris Mcglaughlin and co-owner of Lombardi Construction Al Bove.

There was no evidence of any previous erosion at the site and an earth berm has been constructed around the stream. Currently, the blasting being done is a considerable distance from the stream but plans for future blasting calls for coming within 50' of the wetland. The entire operation will encompass approximately 3 years. So far, there seems to be no impact on the wetland area and the operators seem to be responsive to any erosion control measures.

Permit IWWC#23-6URA

Owner/Applicant: Christopher Gush

Address: 50 Town Farm Rd.

Construct duplex building.

Len Johnson

Ledyard IWWC Official

File #: 23-1817 **Agenda Date:** 7/11/2023 **Agenda #:** A.

MINUTES

Minutes:
Draft Meeting Minutes - June 7, 2023

TOWN OF LEDYARD

741 Colonel Ledyard Highway
Ledyard, Connecticut 06339

Inland Wetland and Water Courses Commission

Meeting Minutes

Chairman
Justin DeBrodt

Regular Meeting

Tuesday, June 6, 2023 **7:00 PM** **Council Chambers -Hybrid Format**

I. CALL TO ORDER

Chairman DeBrodt called the Regular Meeting of the IWWC to order at 7:00 PM. The meeting was hybrid with some attending in person and others via Zoom.

II. ROLL CALL

Staff Present: Juliet Hodge, Director of Planning and Development, Len Johnson, Wetlands Enforcement Officer, Alex Samalot, Zoning Enforcement Staff, and Makenna Perry, Land Use Administrative Asst.

Present Chairman Justin DeBrodt
Vice Chair Paul Maugle
Commissioner Dan Pealer
Commissioner Beth E. Ribe
Alternate Member Gary St. Vil

Excused Commissioner Lynmarie Thompson

VII. CITIZENS COMMENTS

Kevin Blacker, 108 Main Street, Noank, expressed favorability towards Cashman, and felt their project will benefit Ledyard. Mr. Blacker questioned the impact that the proposed blasting would have on the subterranean water resources on site, as well as to surrounding wells and aquifers. Mr. Blacker explained the importance of creating aggregate, as it is a finite resource. He wishes the applicant to consider alternate sources to retrieve aggregate.

IV. OLD BUSINESS

A. Application IWWC#23-2URA of Gales Ferry Intermodal LLC, 549 South Street, Quincy, MA 02169, for activity in the upland review area at the Gales Ferry Intermodal LLC property, 1761 CT Route 12, Ledyard, CT 06339 in conjunction with aggregate removal and site preparation for the creation of building locations to accommodate the siting of future industrial buildings (mixed-use / industrial).

Atty. Harry Heller, 736 Route 32, Uncasville, represented the applicant. Also present on behalf of the applicant, George Andrews, with Lourerio Engineering, Andrew McCoy, an associate at Heller, Heller, & McCoy, and George Logan, Registered Soil Scientist, and Wetland Scientist, with REMA Ecological Services.

George Andrews, Loureiro Engineering, presented the revised site plan for the project.

George Logan, REMA Ecological Services, presented the revised REMA Report. Mr. Logan discussed the functionality of each wetland. He also discussed the location of the proposed new mitigation area, given the restrictions of the original mitigation area.

Chairman DeBrodt suggested that the applicant acknowledge that wetland x and wetland y will be eliminated, and move forward with the appropriately sized mitigation area.

Atty. Heller explained that he would discuss the proposal with the applicant.

The Commission decided to wait until they received further information before classifying the application.

RESULT: CONTINUE

V. NEW BUSINESS

A. Application IWWC#23-4SITE of B+R Holding Company LLC, of 1358 Baldwin Hill Road, Gales Ferry, CT 06335 for processing of earth materials and removal of ledge at 1340 Baldwin Hill Road, Gales Ferry, CT 06335.

Peter Gardner, LLS of Dieter and Gardner LLC, Gales Ferry, represented the applicant, B+R Holding Co. Mr. Gardner explained that the parcel is 20.8 acres and will be used for aggregate production. The parcel is to be leveled out for future use and the aggregate retrieved to support off shore wind. Mr. Gardner noted that the area to be excavated is within a 100' upland review area.

Wetlands Enforcement Officer, Len Johnson, explained that he and Alex Samalot, Zoning Enforcement Official (in - training) conducted a site walk this past month. Mr. Johnson explained to the Commission that the areas being blasted were far away from the upland review area.

The Commission determined that a site walk would be beneficial in order to properly classify the application at the next meeting.

RESULT: CONTINUE

VII. REPORTS

A. Wetlands Enforcement Officer Report

Wetlands Enforcement Officer, Len Johnson, identified the properties he visited throughout the month, as well as the applications he reviewed.

VI. CORRESPONDENCE

VIII. APPROVAL OF MINUTES

A. Draft Meeting Minutes - May 2, 2023

Commissioner Ribe suggested minor corrections. The draft meeting minutes were approved as amended.

RESULT: APPROVED AS AMENDED
MOVER: Dan Pealer
SECONDER: Paul Maugle

IX. MEETING REVIEW

Chairman DeBrodt commented that The Commission was well prepared for the meeting and that the technology worked well.

X. ADJOURNMENT

The meeting was adjourned at 8:47 PM.

This was Approved and so declared.

RESULT: APPROVED AND SO DECLARED
MOVER: Dan Pealer
SECONDER: Beth E. Ribe