Stormwater Pollution Control Plan (SPCP)

THE UNITED ILLUMINATING COMPANY

MILVON TO WEST RIVER RAILROAD TRANSMISSION LINE 115-Kv REBUILD PROJECT

March 2026

Ref. No. R25-00008R01

Prepared for:

The United Illuminating Company
100 Marsh Hill Road
Orange, CT 06477

Prepared by:

MATRIXNEWORLD
A TRUE ENVIRONMENTAL COMPANY

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1.0 - INTRODUCTION

Matrix New World Engineering (Matrix) has prepared this updated Stormwater Pollution Control Plan (SPCP or "Plan") on behalf of The United Illuminating Company (“UI”) in accordance with the Connecticut Department of Energy and Environmental Protection (CT DEEP) General Permit for the Discharge of Stormwater from Construction Activities (General Permit), effective date January 1, 2026 (Appendix P). The project was initially authorized (Permit No. GSN003935) under the previous version of the permit using the design plans and SPCP prepared by HRP Associates, Inc. (“HRP”). A copy of the registration form, as submitted electronically, is included in Appendix A.

UI is continuing the Milvon-West River Transmission Line 115-Kv Rebuild Project ("Project") under the previous General Permit authorization until the updated registration is approved. The Project consists of relocating and rebuilding its existing 115-kV lines from the UI-owned bonnets, fastened on top of the CT DOT-owned railroad catenary structures, to independent new steel monopoles, which is considered a construction activity as defined in the General Permit. The purpose of this plan is to identify best management practices (BMPs), erosion and sediment (E&S) control measures, and restoration practices that shall be followed to minimize erosion and migration of sediment caused by use of the project areas during and after construction. E&S control requirements are shown on the drawings provided in Appendix C. The approximate limits of the Project are identified in Figure 1.

Upon commencement of construction activities, the contractor(s) shall be responsible for implementing all elements of the E&S control measures identified on the drawings (Appendix C) and described in this plan. The overall Project construction sequencing is expected to be organized into four segments with most construction on one segment completed prior to commencing activity on the next segment, such that areas of disturbance throughout construction will be minimized. E&S controls will be implemented post vegetation clearing but prior to any ground disturbance and maintained and adjusted as needed throughout construction to minimize soil erosion or migration thereof. The Project does not propose any activities that will significantly affect the stormwater operations of the Project area. Proposed final site conditions are designed to predominately match existing grades such that drainage patterns will not change from pre- to post-construction activities.

Throughout the construction process, UI or UI's agent shall regularly inspect all E&S control measures as detailed in Section 5.2.4.2 of the General Permit. After construction, UI shall be responsible for maintaining these E&S control measures until stabilization is achieved. The Project will not be considered complete until all disturbed areas have been satisfactorily inspected as further discussed in Section 7.6.

1.1 - Stormwater Team

Site Stormwater Compliance Representative:

Correne Auer
The United Illuminating Company
180 Marsh Hill Road
Orange, CT 06477
(860) 202-8762

SPCP Preparer

Matrix New World Engineering
385 Church Street, Suite 201
Guilford, CT 06437

Qualified Stormwater Inspectors:

The following Matrix staff are Qualified Stormwater Inspectors:

Mr. Stephen Benben, P.E.
Mr. Jeff Cannon, QCIS
Mr. Benjamin VanDine, QCIS
Mr. Shane Goodson, QCIS

Township Contact Information:

City of Milford - Engineering Dept.
70 West River Street
Milford, CT 06460
203-783-3261

Town of Orange - Public Works/Engineering Dept.
617 Orange Center Road
Orange, CT 06477
203-891-4741

City of West Haven - Public Works/Engineering Dept. 355 Main Street
West Haven, CT 06516
203-937-3575

City of New Haven - Engineering Dept.
200 Orange Street, 5th Floor
New Haven, CT 06510
203-946-6417

1.2 - Owners/Operators/Contractors

All contractors and subcontractors who will perform actions on site that may reasonably be expected to cause or have the potential to cause pollution of the waters of the State will be identified in Appendix B of this plan. The general contractor(s) and subcontractor(s) will be required to sign the certification statement located in Appendix B prior to commencing work.

Owner(s)

The majority of the proposed Project is located within the existing Connecticut Department of Transportation (CT DOT) Railroad corridor, with the Transmission Line Agreement (Agreement No. 5.15-99(03)) included in Appendix B. Additional new easements and landowner permissions of abutters will be needed for temporary construction access and vegetation clearing, to adhere to mandated clearance distances between the 115-kV conductors, the railroad tracks, and the edge of the UI easement, and for UI's operation and maintenance of the utility infrastructure. UI is currently obtaining these permissions and will continue doing so throughout the Project as each construction segment advances. To date, applicable property owners have been notified of the Project, and approval to conduct the Project has been granted by the Connecticut Siting Council (CSC) through the Certificate of Environmental Compatibility and Public Need, August 18, 2022 (CSC Docket #508).

Operator(s)

The Operator, as noted below, will be responsible for the day-to-day operations of all construction activities shown on the approved development plans in accordance with the CT DEEP General Permit including erosion, sediment control and pollution prevention, land development, utilities installation, and vertical construction.

Environmental & Permitting
The United Illuminating Company
180 Marsh Hill Road
Orange, CT 06477
(203) 926-443

Construction Manager(s)

The Construction Manager(s) will be responsible for the supervision of all sub-contractors and direct employees, executing the day-to-day operations of all construction activities shown as per the approved development plans in accordance with the CT DEEP General Permit including erosion, sediment control and pollution prevention, land development, utilities installation, and vertical construction.

The United Illuminating Company
180 Marsh Hill Road
Orange, CT 06477

Subcontractor(s)

Site Contractor: Responsible for installation and maintenance of E&S Controls and Pollution Prevention Measures under the supervision of Construction Manager:

Company Name: _____
Contact: _____
Address: _____
Phone: _____
Email: _____

Solid Waste Hauler: Licensed solid waste hauler vendor to provide trash containers to collect and dispose of waste debris generated during construction:

Company Name: _____
Contact: _____
Address: _____
Phone: _____
Email: _____

Sanitary Waste Vendor: Licensed sanitary waste hauler vendor to provide and maintain sanitary facilities during construction:

Company Name: _____
Contact: _____
Address: _____
Phone: _____
Email: _____

24/7 Spill Response Contractor

Company Name: _____
Contact: _____
Address: _____
Phone: _____
Email: _____

1.3 - Certification Statements

The following certification statements will be maintained in Appendix B:

- Operator Certification Statement; and
- Trained Contractor/Subcontractor Certification Statement.

2.0 - SITE DESCRIPTION

UI is rebuilding approximately 9.5 miles of its existing overhead 115-kilvolt (kV) transmission lines that extend southwest-northeast within CT DOT's corridor between UI's existing Milvon Substation (located in the City of Milford) and West River Substation (located in the City of New Haven). The rebuild consists of relocating the existing lines from the bonnets fastened on top of the railroad catenary structures to independent new double-circuit self-supporting steel monopoles, located north of the railroad tracks (with a small percentage of monopoles proposed south of the tracks), mostly within the CT DOT corridor.

Between UI's Milvon and West River Substation(s), the CT DOT corridor accommodates the Metro North Railroad (MNR) tracks and includes 186 catenary structures, which support UI's existing 115-kV lines, as well as infrastructure for electric train operations. The corridor, which has long been established for linear transportation and utility use, is characterized by adjacent highly developed suburban and urban areas.

The goal of the overall project is for UI to gain independence of its electrical transmission lines from the MNR overhead catenary system by installing new monopoles to carry the electrical transmission lines. The work for the Milvon-West River involves erecting a steel monopole tower at each site for the UI transmission lines that run along the railroad. This work includes installing a new concrete foundation and steel monopole for the tower at each site and removing the existing conductor and shield wires from the catenary tower structures and replacing with new conductor and optical ground wire (OPGW) to the new UI dedicated monopoles.

Work areas, limits of disturbance, proposed controls measures, permanent and temporary access roads, along with areas of selective and limited clearing are identified in the E&S Control Plans (Plans) found in Appendix C.

2.1 - Scope of Construction Activities

The Overall Project will involve the following components:

1. Rebuild the existing 115-kV lines between Milvon and West River substations on new independent monopoles;

2. Interconnect the rebuilt 115-kV lines to UI's existing Milvon, Woodmont, Allings Crossing, Elmwest, and West River Substations;
3. Remove, partially remove, or modify certain existing 115-kV steel monopoles, conductors and steel lattice structures/select derelict structures;
4. Decommission and remove the existing 115-kV facilities, including (in most cases) the bonnets, from the railroad catenary structures.

The proposed construction activities at each work site along the Project Area include the following:

- Conduction of selective/limited clearing,
- Establishment of E&S controls,
- Performance of civil construction which includes the installation of both temporary and permanent access roads and work pads,
- Drilling and installation of concrete foundations,
- Installation of steel monopole tower,
- Installation of conductor and OPGW, and
- Restoration and stabilization of work site.

In the Project area, the entire CT DOT corridor extends through an urban-suburban area where the transportation network is fully developed. As a result, public roads provide access to the vicinity of the CT DOT corridor; however, direct access to the railroad property is limited as the railroad tracks either span roads or extend beneath road overpasses.

To construct the new UI 115-kV transmission lines, remove the existing 115-kV lines and hardware (bonnets, hardware, insulators, etc.) from the railroad catenary support columns, and modify certain existing transmission line structures, UI proposes to use a combination of new and existing access roads, extending from the public road network to the CT DOT corridor. Access roads will be either temporary or permanent based on such factors as but not limited to, minimization of environmental impacts, width of corridor, or resiliency needs based on maintenance. Temporary access roads will be made up of construction matting or similar. Permanent access roads will be built using the applicable free-draining aggregate based on Project specifications. Temporary work pads will also be required to provide a safe work area and stage construction activities at each site. Temporary work pads will be built using construction mats or similar and free-draining aggregate. Permanent access roads constructed of free draining aggregate will be

installed in certain locations to allow for future transmission line operations and maintenance work.

2.2 - Area of Disturbance

The total disturbed area for estimated the Project will be approximately 14.51 acres across non-contiguous work sites at 160 new monopoles, decommissioning of existing hardware from 165 catenary structures, and removal of select derelict structures along the Project corridor. Project activities resulting in ground disturbance and included in the disturbed area calculation include the installation of permanent access roads, the installation of new monopole structures, and areas where grubbing or minor surficial grading will be required to install temporary access matting. To the extent practicable, disturbed areas will be limited to no more than 5.0 acres at one time through project sequencing. Construction will be completed in a segmented approach as described in Section 3.0. Each monopole will require footings of approximately 50 square feet and, with exceptions where necessary, are generally located approximately 300 linear feet or more apart.

Any additional areas of disturbance not anticipated herein will be protected from E&S and restored in accordance with the measures outlined within this Plan.

2.3 - Stormwater Discharge Information

The Project site is within or adjacent to the MNR railroad tracks and/or UI right-of-way. Overall, the Project borders highly-developed suburban and urban areas. A typical average runoff coefficient identified for the Project is C=0.70, generally reserved for urban neighborhood, which is consistent for each work site throughout the project. Additional impervious surfaces resulting from the Project are limited to the 160 new concrete monopole foundations which have an average diameter of eight feet, or 50 square feet each.

The majority of stormwater runoff generated in the Project area infiltrates directly through the crushed stone of the railroad and/or CT DOT right-of-way or UI construction area for the Project. Surface runoff that does not infiltrate will continue to sheet flow down and along the railroad embankment via existing stormwater management drainage

features and natural drainage ditches as it does under existing conditions. The Project does not propose any activities that will significantly affect the stormwater operations of the Project area. Proposed final conditions are designed to match existing grades such that drainage patterns will not change from pre to post construction activities and sections of permanent maintenance access road will be constructed of uncompacted free draining aggregate to minimize additional stormwater runoff generation.

Due to the linear nature of the Project and generally consistent land use applications along the length of the corridor, eight representative locations have been selected as the Stormwater Discharge locations for this Project. As noted, no new channelized or concentrated discharges will be created as a result of the Project activities. These locations include instances of overland flow to wetlands, watercourses, and municipal storm sewer systems, as well as locations where site stormwater will discharge to existing drainage swales that are located adjacent to the MNR tracks and the work area. The eight locations selected are located near the following proposed monopole structures:

- Structure P889N
- Structure P910N
- Structure P914N
- Structure P932N
- Structure P956N
- Structure P982N
- Structure P1002N
- Structure P1047N

2.4 - Stormwater Management

Two culverts are proposed to allow maintenance access to monopole structures P982N and P983N, while continuing existing stormwater operations of an unnamed intermittent stream, identified as Watercourse JA (W-JA) in the Wetland Identification and Delineation Report Update prepared by BL Companies and provided as Appendix D of this Plan. Culvert sizing calculations prepared by Westwood Professional Services are provided in the attached Milvon - West River T-Line Crossing Sizing Memorandum (Appendix E). Temporary crossings of streams will be completed using temporary

matting in accordance with Detail DN-54 of the Project Plans (D1.0, Sheet 56, Appendix C), so as to not impede stormwater flow.

Stormwater management for the remainder of the Project will utilize existing stormwater features and natural drainage ditches along the railroad corridor. No other new structural stormwater management features are proposed.

2.5 - Floodway/Floodplain Assessment

The Project does not propose any ground level activities in the floodway. Monopole foundations will be installed within two floodplain areas associated with Long Island Sound; one adjacent to the West River and one adjacent to the Indian River. Due to the coastal nature of these floodplains, it is not anticipated that proposed project activities will significantly affect floodplain operations. Furthermore, proposed earthwork is anticipated to result in a net cut within the floodplain adjacent to the Indian River and net neutral in the floodplain area adjacent to the West River. Therefore, flood conveyance and storage capacity will not be negatively altered by the project.

Limits of the mapped Federal Emergency Management Agency (FEMA) floodplains and floodways are presented in the Plans provided as Appendix C.

2.6 - Coastal Site Plan Review

On February 28, 2022, UI submitted to the CSC an Application for a Certificate of Environmental Compatibility and Public Need for the Project (CSC Docket No. 508), which included discussion of the coastal resources within the Project limits. After evidentiary hearings, between June 14, 2022, and August 19, 2022, the CSC issued a Decision and Order approving the Project. Documentation of the final decision is included in Appendix F. The Project was reviewed through the CT DEEP Certificate of Permission (COP) application process, which includes a review of coastal resource impacts.

2.7 - Receiving Waters

The Project lies within four major drainage basins in southwest Connecticut: the Housatonic River-Frontal Long Island Sound (011000051302), the Mill River-Frontal

Long Island Sound (0110000403), the West River (5305), and the South-Central Shoreline (5000). Surface water in the Project area drains via existing swales and natural overland runoff, with no directly channelized or concentrated discharges created by the Project. The Project area does not fall within a public water supply or Aquifer Protection Area (APA).

In addition to several unnamed, intermittent and perennial watercourses located within the Project corridor. The most current Connecticut Impaired Waters list as determined from the United States Environmental Protection Agency (EPA) Category 5 identifies surface waters statewide that do not meet water quality standards under section 303(d) of the Clean Water Act. The names of the receiving waters along the Project corridor and its impairment status based on the 2024 Connecticut Impaired waters list are provided in the table below. Where impairments are noted, the associated causes are identified. None of the impairments listed are due to sedimentation/siltation, total suspended solids, or turbidity. Stormwater runoff from the proposed construction activities will not contribute to the pollutants causing impairment at these locations.

Impaired Waters/TMDLs

Water Body	Is this Surface Water listed as Impaired?	What pollutant(s) are causing the impairment?	Has a TMDL been completed?	Title of the TMDL document	Pollutant(s) for which there is a TMDL
Cove River	☒ Yes ☐ No	Dissolved Oxygen Nutrients PCBs	☐ Yes ☒ No		
Oyster River	☒ Yes ☐ No	Dissolved Oxygen Mercury Nutrients PCBs	☒ Yes ☐ No	Connecticut Statewide Bacteria	Fecal Coliform
West River	☒ Yes ☐ No	Dissolved Oxygen Enterococcus Fecal Coliform Nutrients Oil and Grease PCBs	☒ Yes ☐ No	Connecticut Statewide Bacteria	Fecal Coliform
Indian River	☒ Yes ☐ No	Fecal Coliform	☒ Yes ☐ No	Connecticut Statewide Bacteria	Escherichia Coli
Wepawaug River	☒ Yes ☐ No	Escherichia Coli (E. Coli)	☒ Yes ☐ No	Connecticut Statewide Bacteria	Escherichia Coli

Source: US EPA Stormwater Discharge Mapping Tools (https://www.epa.gov/npdes/epas-stormwater-discharge-mapping-tools).

2.8 - Wetlands

The Project area extends across 25 wetlands: Twenty-one of which are inland wetlands and four of which are tidal wetlands. Wetland identification and delineation reports prepared by BL Companies and Stantec for the Project area are provided as Appendix D.

2.9 - Site Soils

Soil types on the site have been mapped by the United States Department of Agriculture National Resource Conservation Service (NRCS). The NRCS Soils Report has been included as Appendix G. Additional discussion of the soils within the Project Area can be found in Section 5.6.8.

3.0 - CONSTRUCTION SEQUENCING

Grubbing, stripping, and associated earthwork operations all have significant potential to cause E&S until complete stabilization of the site has occurred. Areas subject to such disturbances will be protected through the implementation of the typical E&S controls described in Section 5.

The Project will be constructed at multiple separate and non-contiguous work sites along the Project corridor. Construction began in the third quarter of 2023 and conclude with inspections and restoration activities (as needed) into the second quarter of 2029. The overall Project construction sequencing is expected to be organized into four segments (segments are comprised of the areas between and connecting to substations) with most construction on one segment completed prior to commencing most of the activity on the next segment, such that areas of disturbance throughout construction will be minimized. E&S controls will be implemented prior to ground disturbance and maintained and adjusted as needed throughout construction to minimize soil erosion. As currently planned, the sequence of segment construction is expected to be:

- Segment 1: Elmwest Substation to West River Substation (Q3 2023 - Q4 2025).
- Segment 2: Allings Crossing Substation to Elmwest Substation (Q3 2024 - Q4 2026).
- Segment 3: Woodmont Substation to Allings Crossing Substation (Ql 2026 - Q2 2029).
- Segment 4: Milvon Substation to Woodmont Substation (Ql 2025 - Q4 2027).

Project construction work hours will be determined based on consultation with MNR, taking into full consideration the necessary transmission line and railroad outages. Standard construction hours, for work that will not require railroad or transmission line outages, will be 7:00 AM to 7:00 PM, Monday through Saturday. The general project Construction Sequencing for construction activities at each work site is attached is provided below:

General Project Construction Sequence

Typical Pre-Construction Activities

- Survey and stake construction work areas, including edge of CT DOT property and UI easement (where different) and proposed structure locations
- Confirm and re-flag environmental resource areas (e.g., wetland and watercourse boundaries) or other sensitive areas to be avoided
- Mark vegetation clearing limits
- Locate and mark utilities

Typical Construction Activities

- Establish laydown/material staging areas/contractor yard(s) to support the construction Effort.
- Establish temporary erosion and sedimentation controls as needed
- Remove or mow vegetation, where necessary
- Install temporary matting in wetlands as needed; install temporary bridges to traverse small watercourses
- Establish or upgrade access roads to new monopole sites
- Create a level work pad at each monopole site, as well as at conductor pulling sites and if necessary, at guard structure sites
- Install new structure foundations and assemble/erect new structures
- Remove the existing 115-kV line facilities from the north side catenary structures (i.e., existing OPGW, shield wire, conductors, hardware, steel bonnets). Any existing lattice towers that are no longer required on the north side of the railroad tracks will also be removed.
- Install conductors, shield wire, and OPGW
- Install rebuilt 115-kV line connections to UI substations.
- Place the rebuilt 115-kV lines in service (by segment).
- Remove the existing 115-kV line facilities from the south side catenary structures (i.e., existing shield wires, conductors, hardware, steel bonnets). This activity will include establishing temporary construction access and work pads at the locations of the facilities to be removed. Existing access, upgrades to existing access, or new access roads will be required.
- Construct permanent access roads where required; remove temporary construction access and work pads along with associated matting and bridges
- Perform final clean-up and restore/stabilize areas affected by construction to pre-construction conditions (e.g., by seeding and re-vegetating as needed).
- Maintain erosion and sedimentation controls until areas affected by construction are stabilized .

4.0 - POLLUTANTS OF CONCERN

Stormwater discharges associated with construction activities at the site may contain the following pollutants of concern, based on site conditions, historical site environmental investigations, and proposed construction activities:

- Sediment and suspended solids, including soils disturbed during grading, excavation, structure installation, etc;
- Trace quantities of hydrocarbons associated with vehicle and equipment operation;
- Concrete wash water from concrete placement and washout activities;
- Construction debris and solid waste;
- Dust and airborne particulates generated during earthwork and material handling; and,
- Site-related contaminants associated with impacted soil and groundwater in select locations of the project area identified during site investigations conducted by Haley and Aldrich:
    - Extractible Total Petroleum Hydrocarbons (ETPH);
    - Semi-Volatile Organic Compounds (SVOCs); and,
    - Heavy Metals such as arsenic and lead.

All disturbed areas will be managed using erosion and sedimentation (E&S) control measures, such as silt fencing, inlet protection, or other approved controls, to minimize the mobilization and off-site transport of these pollutants and potential of polluted runoff. Stockpiling of impacted materials will be minimized, and any temporary staging will occur within the designated areas using appropriate containment and perimeter controls as described in Section 5.0 to prevent contact with stormwater.

5.0 - CONTROL MEASURES

Typical controls and measures to be implemented on the Project both during and after construction to minimize stormwater pollution to the Waters of the State in accordance with Section 5.2.2 of the General Permit. Temporary E&S controls will be inspected and maintained, as necessary, throughout all phases of the Project construction until areas of disturbed soil are appropriately stabilized. Proposed placement for E&S control measures during construction activities are shown on the Plan sheets included as Appendix C. Any alterations to the temporary or permanent controls, including inspection frequency, shall be documented by a written SPCP Amendment and maintained in Appendix H.

5.1 - Erosion and Sedimentation Controls

The general objective of this plan is to protect water resources (wetlands, waterbodies, and storm sewer systems) during construction by preventing or minimizing the potential for the migration of sediment from work sites. In accordance with Section 5.2.2 of the General Permit, the E&S controls shall conform to the requirements of the Connecticut Guidelines for Soil Erosion and Sediment Control, effective March 30, 2024, (the "Guidelines") and the Connecticut Stormwater Quality Manual, effective March 30, 2024, (the "Standards"). To meet these goals, the following stabilization, structural and maintenance practices shall be implemented by the Contractor.

5.1.1 - Stabilization Practices and Protection

Temporary and permanent stabilization practices shall be implemented throughout the Project to minimize erosion of soil from disturbed Project areas during and after construction. The structural measures described in Section 5.1.2 shall be maintained until permanent stabilization of the contributing drainage areas is achieved. Existing vegetation shall be preserved to the maximum extent practicable.

When construction activities have permanently ceased or when final grades are reached on any portion of the sites, permanent stabilization and protection practices shall be implemented. Areas that will remain disturbed but inactive for at least fourteen (14) calendar days shall receive temporary seeding or

soil protection in accordance with the Guidelines. Areas that will remain disturbed beyond the seeding season shall receive long term non-vegetative stabilization and protection measures, such as the erosion control blankets (ECBs) specified in Detail GD21 of the Project Plans (Sheet Dl.0, Appendix C), sufficient to protect the site through the winter. In all cases, stabilization and protection measures shall be implemented as soon as possible in accordance with the Guidelines as well as CT DOT and MNR schedules. The stabilization practices to be implemented during the construction of the proposed linear project are as follows:

Temporary Seeding

Exposed work areas that will remain disturbed but inactive for 1-12 months (i.e., stockpiles, borrow pits, road banks, other disturbed or unstable areas) shall receive temporary seeding or soil protection within seven (7) days of suspending work. Temporary vegetative cover will only be applied during the optimum seeding timeframe recommended in the Guidelines per the seed mix selected, which generally follows a planting season of March 15 through July 15 and August 1 through October 15. Temporary vegetative cover shall be planted per the temporary seeding rates and specifications described within the Guidelines (Table 5.2), and the detail sheets included in Appendix C.

Temporary erosion controls will remain in place and will be maintained, as necessary, throughout the period of active Project construction until disturbed sites are appropriately stabilized, using restoration methods to match existing conditions along the Project corridor, and as required on UI's new permanent easement and signed off on by the independent inspector. SPCP inspections are expected to continue as noted in Section 7.0

Permanent Seeding

Once the planting season begins, temporary stabilization measures shall be removed, and slopes shall be prepared and seeded. Seeding shall be in accordance with the seeding schedule in the General Notes sheet of the Project Plans (GNL0 Sheet 1, Appendix C), and the Guidelines (March 15 through June 30 and August

15 through October 31). Areas along the Project corridor determined to be suitable by UI and the CT DOT, or other property owner, for the placement of a pollinator seed mix shall receive such a mix. In general, this type of seeding will not be placed around catenary foundations. The areas are currently under review and will require approval from property owners prior to application of a pollinator seed mix.

5.1.2 - Structural Measures

The following are examples of erosion control measures which will be implemented on the Project during construction activities and throughout the stabilization period to minimize the mobilization of sediments, to intercept and detain pollutants, and decrease the velocity of sheet flows.

Geotextile Silt Fence

Silt fence will be installed downgradient of disturbed areas as shown on the Project plans to intercept and retain sediment and decrease the velocity of sheet flows. Within 50 feet of wetlands and watercourses, a redundant row of silt fence will be installed approximately five feet away from the initial row. Silt fence construction and installation shall be in accordance with Detail ESC0l of the Plans (Dl.0, Sheet 59, Appendix C). Silt fence shall be removed after the permanent stabilization of the adjacent disturbed area has been achieved.

Straw Bale Barrier

To reduce velocity of sheet flows and redirect water away from erodible soils, straw bale barriers may be installed across the direction of runoff flows. The primary application for this measure is on the downgradient side of new monopole foundations in accordance with Detail GD61 of the Plans (Dl.0, Sheet 62, Appendix C) and must be used in areas near wetlands. Straw bale barriers shall be maintained until permanent stabilization of the adjacent area is achieved.

Filter Sock (Mulch Roll)

Filter socks shall be utilized for perimeter control of construction area limits and installed in accordance with Detail GD43 of the Project Plans (Dl.0, Sheet 62, Appendix C). Installation should occur prior to commencement of upslope disturbance. Filter sock placement shall be perpendicular to water movement and parallel to the slope contour. Filter socks shall be maintained until upgradient areas have been permanently stabilized.

ECB

ECB may be utilized to protect newly seeded and/or disturbed soils to prevent erosion and enhance the establishment of vegetation growth. Installation should occur following grading and seeding activities, in accordance with the Guidelines and Detail GD21 of the Project Plans (Dl.O, Sheet 60, Appendix C).

Dewatering Filter/Silt Bag

Dewatering effluent suitable for discharge to the ground surface will be discharged through a filtering media bag. The dewatering bag units will be sited in upland areas outside of wetlands and installed in accordance with Detail ESC02 of the Project Plans (Dl.O, Sheet 67, Appendix C). To increase the efficiency of filtration, place the bag on an aggregate bed to maximize water flow through the surface area of the bag. Once the analytical test results confirm that water quality is acceptable for release, the water will be discharged to the existing drainage system. Additionally, each dewatering discharge point will be monitored initially and weekly for turbidity for the duration of dewatering operations. Samples will be taken after the dewatering water has been treated with the first turbidity measurement taken within 30 minutes of initiating the dewatering discharge. A record of the turbidity monitoring results will be kept on-site. Dewatering activities will be monitored and adjusted, as needed.

Storm Drain Filter Bag Insert

Where work areas drain to a storm drain, filter bag inserts shall be used to filter sediment from storm runoff. Filter bag inserts shall meet the requirements of

and be installed in accordance with Detail GD10 of the Project Plans (Dl.O, Sheet 61, Appendix C).

Construction Entrance/ Anti-Tracking Pad

A stone stabilized pad shall be installed at points of vehicular ingress and egress to reduce the tracking of sediment off site onto paved surfaces. The construction entrance dimensions shall be in accordance with the requirements of Detail GD07 (Dl.O, Sheet 59, Appendix C) in the Project Plans. Adjacent roadways shall be swept daily to remove material that may be tracked onto pavement.

Concrete Washout Area

Designated concrete washout areas will be established to allow for the cleaning of concrete trucks after pouring. The washout area shall be installed in accordance with Detail GDOB of the Project Plans (Dl.O, Sheet 61, Appendix C) and will have sealed units or an impermeable liner to prevent concrete washout water from infiltrating or contacting soil at the Site. There shall be no surface discharge of washout waste waters from this area, and the washout area shall be designed such that no overflows can occur during rainfall or after snowmelt.

5.1.3 - Maintenance

The E&S controls must be maintained in good and effective operating conditions that will protect waters of the State from pollution during Project activities. All control measures shall be inspected routinely and in accordance with the inspections schedule outlined in Section 6 of this document. The Contractor shall conduct as directed by UI's inspector or UI the following maintenance to promote the proper performance of E&S control measures.

Temporary and Permanent Vegetation:

At any eroded areas, repair by filling to finished grades, replace vegetative support material and seed, fertilizer and lime, as specified for temporary and permanent stabilization. Add additional mulch as required.

Silt Fence, Hay Bales, and Filter Socks

Silt fence and hay bales shall be repaired and replaced as needed to maintain effective control of sediments and sheet flows. Remove accumulated sediment when it has reached one-half the height of the control measure. Accumulated sediment shall be spread and stabilized on-site in areas not subject to erosion or appropriately disposed of as directed by UI.

ECB

ECB shall be reinstalled immediately if soils and/or seed have eroded away from beneath the blanket, or the blanket has become dislodged from the soil surface or is torn. Reinstall the ECB after regrading and re-seeding has occurred.

Dewatering Filter/Silt Bag

Dewatering filter bags shall be maintained and monitored continuously in accordance with the specific manufacturer requirements of the product being utilized. Once the bag can no longer efficiently filter sediment or pass water at a reasonable rate, use will be discontinued. The used bag(s) and all accumulated sediment will be removed following dewatering operations and disposed of in accordance with all applicable local, state, and federal regulations.

Storm Drain Filter Bag Insert

Filter bag inserts shall be maintained in accordance with the specific manufacturer requirements of the product that was installed. In general, maintenance will consist of removing accumulated sediments and/or replacing the filter bag insert once it is no longer functioning as designed. Removed sediments shall be properly handled and disposed of in accordance with local, state, and federal regulations.

Construction Entrance/ Anti-Tracking Pad

Provide periodic top dressing of the construction entrance with additional stone or provide additional length as site conditions demand. Sweep roads adjacent to the construction entrances, the soil management areas, and designated

haul routes daily. Properly dispose of sediment or debris collected during sweeping.

Concrete Washout Area

The concrete washout areas shall be cleaned or replaced when they reach 50 percent of capacity. Any damage observed during inspections shall be repaired prior to continued use. Removed hardened concrete shall be properly disposed of.

5.2 - Dewatering Wastewaters

Groundwater is anticipated to be encountered at select locations of the Project during the monopole installation activities and, thus, will need to be properly dewatered, handled, and disposed of. During the pre-characterization sampling activities completed by Haley & Aldrich, groundwater was encountered at a total of 102 out of 139 boring locations. Based on the data, the groundwater will be classified as one of the two following categories:

- Treatment not required; or
- Containment, treatment, and/or disposal required.

A classification of "treatment not required" includes groundwater that has constituents of concern (COCs) less than laboratory detection levels and/or CT DEEP Remediation Standard Regulation (RSR) criteria or may contain detected COCs at concentrations above background levels but below the CT DEEP RSR criteria for groundwater and any additional criteria associated with required wastewater permits. Groundwater characterized as "treatment not required" may be able to be reused (rather than disposed) and/or discharged to the ground surface or local surface water body without treatment; however, appropriate CT DEEP and/or local permits may be required. Dewatering discharges are considered allowable non-stormwater discharges under the General Permit and shall be managed to minimize turbidity and sedimentation mobilization. Appropriate filtration and erosion controls shall be implemented.

In general, dewatering effluent suitable for discharge to the ground surface will be discharged through a sediment filtering media bag. The dewatering bag units will be sited

in upland areas outside of wetlands and other sensitive natural resources. The used dewatering bag and all accumulated sediment will be removed following dewatering operations and disposed of in accordance with all applicable local, state, and federal regulations.

A classification of "containment, treatment, and/or disposal required" includes groundwater that contains COCs at concentrations above the CT DEEP RSR criteria and/or additional criteria associated with required wastewater permits. Groundwater meeting this classification will be properly dewatered, containerized, and disposed of at an off-site licensed facility or properly permitted for on-site treatment and discharged to groundwater, surface water, or the local wastewater treatment facility.

Dewatering wastewater that contains drilling fluids or additives, such as bentonite, or has otherwise become impacted by drilling and monopole construction activities, such as contact with uncured concrete, may not be suitable for discharge to the ground surface, regardless of the initial classification. The Contractor shall be responsible for identifying any additives being used during the construction process and containerizing any generated wastewater for appropriate management via transportation and disposal or treatment and disposal under appropriate permits.

Dewatering shall be done in accordance with the Project specific Material Management Plan prepared by HRP for UI. It is recommended that groundwater encountered within the vicinity of the monopole locations identified in Appendix I be managed and characterized as specified in the aforementioned plan.

Additional dewatering control measures that shall be utilized to minimize the mobilization of solids during pumping activities and assist in retaining suspended solids include the following:

- Divert surface waters away from areas needing dewatering;
- For sites that don't require continuous pumping, pump work areas before construction activities begin each work day;
- Provide filtration measures near the suction intake using structures or other protective devices, such as barrels, boards, stones, strainers and floats;

- Locate pumps, intake sumps, and other intake structures in areas which will not require constant moving, when possible; and
- Provide protection at outlets from pumping operations to dissipate pumping surges and prevent erosion at the point of discharge.

5.3 - Non-Stormwater Discharges

All non-stormwater discharges are prohibited except those allowable under the General Permit. The following non-stormwater discharges may occur during construction activities, provided appropriate controls are implemented:

- Dewatering discharges managed in accordance with Section 5.2;
- Uncontaminated groundwater;
- Potable water sources; or,
- Landscape irrigation

All other non-stormwater sources including wash water containing fuels, oils, concrete slurry, or other pollutants, are prohibited.

5.4 - Stormwater Treatment

Stormwater treatment will consist of the typical E&S controls outlined above. Because the Project does not alter existing drainage patterns, permanent stormwater treatment practices are not anticipated or required.

5.5 - Post-Construction Stormwater Management

Post-construction stormwater management shall be achieved through the establishment of permanent vegetation at disturbed areas and the maintenance of perimeter E&S controls until permanent stabilization is achieved. The Project does not propose any activities that would significantly affect the stormwater operations of the corridor. Proposed final conditions are primarily designed to match existing grades and drainage patterns, with the exception of grading required for installation of some permanent access roads.

5.5.1 - Control Measures

At the end of construction, areas disturbed by construction activities shall be stabilized in accordance with the CT DEEP General Permit requirements. As a result, the potential for erosion at this site after construction is minimal. Perimeter controls will be actively maintained until final stabilization is achieved at contributing drainage areas, at which point they will be removed.

No new channelized or concentrated discharges will be created as a result of the Project activities. The majority of the water quality rain event will infiltrate through the crushed stone of the railroad bed and any newly installed maintenance roads constructed of free draining aggregate. Surface runoff that does not infiltrate will continue to sheet flow down and along the railroad embankment and existing drainage swales as it does under pre-construction conditions.

The contractor shall be responsible for cleaning all post-construction stormwater structures and removing temporary E&S controls before the Project Notice of Termination (NOT) is filed by UI. A copy of the NOT form is included as Appendix J.

5.5.2 - Redevelopment Project Performance Standards

Post-construction stormwater management measures primarily consist of allowing areas to revegetate to their pre-construction conditions and maintaining existing drainage patterns. Changes to the existing conditions include the installation of 160 concrete monopole foundations with an approximately eight-foot diameter, resulting in a total of 8000 square feet of new, non-contiguous, impervious surface along the 9.5-mile Project corridor. With some exceptions where necessary, there are generally more than 300 linear feet between each monopole foundation. In select areas, new permanent maintenance access roads constructed of free draining aggregate will also be installed. For this condition of existing imperviousness above 40 percent, the project would be designed to retain on-site half the entire water quality volume from the proposed development, for each work area.

For linear redevelopment projects of this type, compliance with water quality retention standards may not be practicable due to site constraints such as the active railroad line. As a linear development project with limited addition of impervious surfaces, the post-development runoff characteristics will not differ significantly from pre-development conditions and retention of the water quality volume is not required, as per Section 5.2.2.9.b. of the General Permit. The water quality rain event(s) will continue to primarily infiltrate through the existing crushed stone of the MNR beds along with any permanent access roads installed by UI using free drainage aggregate and/or the UI right of way.

5.6 - Other Controls

Good housekeeping will be maintained, and the following additional controls shall be implemented to minimize impacts of protected areas by pollutants, soil, and fugitive sediment.

5.6.1 - Waste Disposal

The following BMPs shall be implemented to minimize the discharge of litter, debris, construction materials, hardened concrete waste, or similar materials to Waters of the State.

- Construction bulky debris and waste will be managed and disposed of in accordance with both State and Federal requirements.
- Appropriate containers will be provided for all waste to be generated at the Site and stored in said containers immediately upon generation.
- Waste will be removed from the Site as soon as practical.
- Where necessary, containers will be sealed/covered to prevent waste from escaping the container and protect the contents from exposure to the elements.
- Containers will only be located where approved by the engineer or regulatory agency.
- Waste storage areas shall be located, designed, and operated to prevent polluted runoff from leaving the waste storage area.

- Fences or covers shall be provided to prevent waste from blowing out of the waste storage area.
- Waste storage areas shall be established outside of any buffer and at least 50 feet from any stream, wetland, or other sensitive resource. Waste storage areas shall be outside of a designated flood zone to the fullest extent practicable and all waste shall be removed from a flood-prone area prior to an anticipated flood event.

5.6.2 - Construction Materials

Construction materials required for this project will be properly stored in a neat and orderly manner until used. Any construction materials that may contribute pollutants to stormwater runoff shall be adequately covered and protected from the elements. Construction materials, when and where practicable, shall be stored at least 50 feet from any sensitive area such as but not limited to drainage inlets or outfalls, wetland or watercourse.

5.6.3 - Washout Areas

Washout of applicators, containers, vehicles, and equipment for concrete and other materials shall be conducted in the designed washout areas, as depicted on the Project Plans (Appendix C). There shall be no surface discharge of washout waste waters from this area. Washouts shall be conducted when and where practicable at least 50 feet from any sensitive area such as but not limited to drainage inlet or outfall, wetland or watercourse. or shall be in an entirely self-contained washout system. All wash water shall be directed into a container or pit designed to prevent overflows during rainfall or snowmelt.

The concrete washout areas shall be inspected at least once a week and shall be included in the routine E&S control inspections. The concrete washout areas shall be cleaned or replaced when they reach 50 percent of capacity. Any damage observed during inspections shall be repaired prior to continued use. Removed hardened concrete shall be properly disposed of.

5.6.4 - Vehicle Tracking and Dust Control

As shown on the Project Plans, construction entrances shall be installed and maintained at intersections between construction areas and public roads, or private property being used for access purposes to prevent vehicles from tracking sediments out of active work areas. The Contractor shall be responsible for performing dust suppression techniques during construction, including but not limited to:

- Spraying water as necessary to control dust from construction activities. The volume of water sprayed for controlling dust shall be minimized so as to prevent runoff of water. No discharge of dust control water shall contain or cause a visible oil sheen, floating solids, visible discoloration, or foaming.
- Sweeping surfaces adjacent to the construction entrances and the soil management areas daily. The designated haul routes will be swept as required.

If at any time fugitive dust is observed to be generated from the construction site, the Contractor shall be responsible for employing additional dust suppression techniques to remedy the situation.

5.6.5 - Chemical and Petroleum Products

All chemical and petroleum product containers stored on the site (excluding those contained within vehicles and equipment) shall be stored within an impermeable secondary containment that is free of gaps and cracks, can contain any leaks or spills and accumulated precipitation until the collected materials are detected and removed, and which can hold at least 110 percent of the volume of the largest container, or ten percent of the total volume of all containers in the area, whichever is larger, without overflow from the containment area. All chemicals and their containers shall be stored under a roofed area except for those chemicals stored in containers of 100-gallon capacity or more, in which case a

roof is not required pending use of an appropriate and approved container. Double-walled tanks satisfy the requirements for containment and roofing.

The Contractor shall maintain an inventory of all chemical and petroleum products being kept at the Site and have access to the appropriate Safety Data Sheets (SDSs) for all products. Any chemicals being stored outside of its original container shall be properly labeled for identification purposes. An appropriately sized chemical spill kit shall be accessible whenever chemical and petroleum products are being used.

On-site vehicles and equipment shall be monitored for leaks and receive maintenance as needed. Equipment and vehicle maintenance activities shall be performed outside of any designed buffers and at least 50 feet away from wetlands and watercourses when practicable. Metro-North will not permit the storage of equipment and vehicles on the work areas within the railroad right-of-way. Equipment and vehicles will be refueled and stored overnight within approved areas only.

5.6.6 - Fertilizers

User of fertilizers is not planned for this Project. If determined to be necessary, and approved by UI, fertilizers shall only be used as necessary to establish vegetation to prevent erosion and soil compaction in appropriate areas. Fertilizers, if used in conjunction with the seeding operation, will be applied in accordance with the Seedbed Preparation section of the Guidelines and any manufacturer recommendations. Lime and fertilizer shall be worked into the soil to a depth of three inches with a disc or other suitable equipment to limit exposure to stormwater.

5.6.7 - Spill Control Practices

The following practices shall be implemented during construction activities to mitigate spills of material and prevent its release into the waters of the State.

- Materials shall be stored in their original container or an appropriately labeled and chemically compatible container.
- Chemical SDSs including recommended methods for spill cleanup for all products being used on the Project shall be maintained on-site and readily accessible in the event of a release. All personnel will be made aware of the location of this information and the cleanup supplies.
- Materials and equipment necessary for spill cleanup will be kept in the material storage area on-site and shall be accessible during the transfer or use of any chemicals. Spill kit materials will include but not be limited to brooms, dust pans, mops, rags, gloves, goggles, absorbent materials (e.g. kitty litter or appropriate absorbent booms), sand, sawdust, trash bags, and plastic and metal trash containers specifically for this purpose.
- Spills will be cleaned up immediately after discovery.
- Spills of toxic or hazardous material will be reported to UI and the appropriate State and local government agency, regardless of size.
- Spills of non-toxic or non-hazardous materials will be reported to UI regardless of size. Spills of such chemicals will be reported to the CT DEEP Emergency Response Unit in accordance with the Connecticut Release Reporting Regulations - Reportable Quantities flow chart dated July 21, 2022, or the most recent guidelines.
- Spills will be communicated to both the State or appropriate agency and Permittee in accordance with the Project-specific Spill Control Plan.

5.6.8 - Impacted Soils

Based on the analytical results from October through November 2020, April through July 2021, October 2021 through January 2022, and August 2022 soil sampling activities completed by Haley & Aldrich, soil was characterized into one out of four following categories:

- Clean soil;

- Polluted soil;
- Contaminated soil; or
- Potentially hazardous soil.

The soil designations for each proposed structure number are summarized in Appendix K. Clean and polluted soil reuse at the point of generation will be dependent on location (i.e. located outside of wetlands, farmlands, etc.) and other factors at the discretion of UI. If reuse is permitted, the soils may be temporarily stockpiled in the MNR ROW, with the appropriate E&S controls to ensure appropriate protection of the surrounding environment. Appropriate controls may include and are not limited to perimeter silt fence backed by straw bales to avoid drainage and wetland/watercourse impacts.

Based on the soil data collected to date, no potentially hazardous soil has been identified at the Project. However, due to the observed concentrations of contaminants in soil material, consideration should be given to controlling potential storm water runoff during construction activities to the greatest extent possible.

Controls described in this SPCP are proposed to keep off-site runoff away from the construction activities, and on-site runoff contained. Any excessive impounded runoff shall be considered and handled as contaminated in accordance with the Project specific *Materials Management Plan.*

6.0 - RUNOFF REDUCTION AND LOW IMPACT DESIGN INFORMATION

The majority of stormwater runoff generated at the sites infiltrates directly through the crushed stone of the MNR bed and/or UI right-of-way. Surface runoff that does not infiltrate will continue to sheet flow down and along the railroad embankment and existing drainage ditches as it does under pre-construction conditions. The proposed construction will not significantly alter the runoff coefficient or existing stormwater operations of the Project sites by promoting channelized or concentrated runoff. Existing drainage patterns will not change from pre- to post-construction activities. There will be no significant impacts to runoff peak flow rate or volumes leaving the Project areas post construction.

The Wetland Identification and Delineation Reports included in Appendix D of this plan provide figures for the location of natural features, wetlands, drainage patterns, and soil information of the project site and surrounding areas. Impacts on the surroundings described in this report will be minimal. Limited vegetation clearing is required to access a portion of the Milvon-West River Project work sites and to maintain the necessary clearances for the electrical transmission lines. Many of these areas will be allowed to revegetate or otherwise converted to low growth scrub-shrub habitat to maintain those clearances. The permanent impact resulting from the installation of 160 new monopoles will be approximately 8,000 square feet.

7.0 - INSPECTIONS

All construction activities will be inspected initially for Plan implementation as described in Section 5.1.6, and then routinely pursuant to Section 5.2.4.2 of the General Permit. Upon project completion and prior to submission of a Notice of Termination, Post-Construction, Final Stabilization, and Termination Inspections shall also be conducted as further described below.

7.1 - Plan Implementation Inspections

Prior to commencement of each phase of construction activity, the project area will be inspected by a qualified inspector in accordance with Section 5.2.4.1. The site shall be inspected at least once within the first thirty (30) days of construction activity and at least three times, with seven (7) or more days between inspections, within the first ninety (90) days of construction activity to confirm compliance with the general permit and proper initial implementation of all Control Measures designated in the Plan for each phase of construction.

7.2 - Routine Inspections

A qualified inspector shall routinely inspect the work areas along the linear project in accordance with Section 5.2.4.2 of the General Permit until a NOT has been submitted under Section 4 of the General Permit UI shall maintain a rain gauge on-site to document rainfall amounts. At least once a week and within 24 hours of the end of a storm that generates a discharge. If possible, the inspection shall be conducted during an active rain event. For storms that end on a weekend, holiday or other time after which normal working hours will not commence within 24 hours, a routine inspection is required within 24 hours only for storms that equal or exceed 0.5 inches. For storms of less than 0.5 inches, an inspection shall occur immediately upon the start of the subsequent normal working hours. Note that inspections of areas within the railroad right of way are dependent upon MNR flagman scheduling and availability.

In areas of the site where temporary stabilization has been implemented, a routine inspection shall be conducted at least weekly until final stabilization has been achieved. Once all post-construction stormwater measures have been installed in accordance with the Post-Construction Stormwater Management and cleaned of any construction sediment

or debris, a Post-Construction Inspection shall be conducted. For sites that have achieved final stabilization pursuant to Section 5.2.4.4, routine inspections shall then be conducted at least monthly. Inspections that involve access within the railroad right-of-way will be coordinated and scheduled with UI and Metro-North to arrange a flagman.

Items to be inspected shall include, at a minimum, the following:

- Disturbed areas of the construction activity that have not been finally stabilized;
- Site discharge outfalls;
- Dewatering discharges;
- All erosion and sediment Control Measures;
- All structural Control Measures;
- All soil stockpile areas;
- All washout areas, and ; and,
- Locations where vehicles enter or exit the site; and,
- Evidence of, or the potential for, the discharge of pollutants (such as sediment, discoloration, floatables, sheen, etc.) to waters or entering the drainage system, and impacts to the receiving waters.

During each routine inspection the Qualified Inspector(s) shall, among other things, evaluate the effectiveness of the following:

- Erosion and sediment controls;
- Structural controls;
- Stabilization practices, and
- Any other controls implemented to prevent pollution and determine if it is necessary to install, maintain, or repair such controls and/or practices to improve the quality of stormwater discharge(s).

Turbidity monitoring pursuant to Section 5.2.2.8.b may also be conducted during these inspections.

Based on the results of the inspection, the description of potential sources and pollution prevention measures identified in the plan shall be revised as appropriate by UI or his agent as soon as practicable after such inspection.

A report shall be prepared for every inspection and retained as part of the plan. The report shall, at a minimum, summarize the following:

- The scope of the inspection,
- Name(s) and qualifications of personnel making the inspection,
- Date(s) of the inspection,
- Weather conditions including precipitation information,
- Major observations relating to the implementation of the storm water pollution control plan,
- Descriptions of the stormwater discharge(s) from the site,
- Any water quality monitoring performed during the inspection, and
- Statement that, in the judgment of the qualified inspector(s), the site is either in compliance or out of compliance with the terms and conditions of the Plan and General Permit.

The report shall be signed by UI or its authorized representative in accordance with the Certification of Documents the General Permit.. A sample inspection report is provided in Appendix L.

7.3 - Post-Construction Inspections

Once all post-construction stormwater measures have been installed in accordance with the Section 5.2.2.10 of the General Permit, and cleaned of any construction sediment or debris, UI shall ensure that a Qualified Professional inspects the site to confirm site stabilization and compliance with the post-construction stormwater management requirements. A report shall be prepared and certified in accordance with Sections 4.2.2, 5.1.6, and 5.2.1.2.h of the General Permit to indicate compliance with this requirement on the NOT form.

Due to the anticipated duration and length of the linear construction over multiple municipalities, Post-Construction Inspections and documentation will be conducted following completion of each segment described in Section 3.0 to confirm stabilization as the project progresses.

7.4 - Final Stabilization Inspections

Once all Project has achieved final stabilization, as defined in Section 10 of the General Permit (no disturbed areas remain exposed and there are no signs of erosion or sedimentation on site; the vegetation must be at least 6 inches tall with a minimum of one hundred (100) plants per square foot across all seeded areas, or a permanent non-vegetative ground cover has been fully established over the entire site.), the site will inspected by a Qualified Professional Engineer in accordance with Section 5.2.4.4 of the General Permit.

This inspection shall confirm that all temporary erosion and sedimentation measures (silt fence, haybales, etc.) have been removed, all areas of the site are fully stabilized and vegetated, and that all post-construction stormwater management measures are implemented and functioning as designed. The inspection report shall include ground and/or aerial photographs to document final stabilization. All photographs must be clear and in focus, and in the original format and resolution; and include the date each photograph was taken, and a brief description of the area of the site captured by the photograph.

Once the full Site (i.e. all four segments) has achieved final stabilization, UI shall maintain documentation of the Final Stabilization Inspection(s) and shall indicate compliance with this requirement on the NOT form.

7.5 - Termination Inspection

Once the site has maintained final stabilization for at least one (1) year following the Final Stabilization Inspection, UI shall have the site inspected by a Qualified Inspector to confirm such stabilization has been maintained in accordance with Section 5.2.4.4 of the General Permit. The inspection report shall include ground or aerial photographs to document final stabilization. All photographs must be clear and in focus,

and in the original format and resolution and include the date each photograph was taken, and a brief description of the area of the site captured by the photograph. UI shall submit the Termination Inspection report with the NOT form.

7.6 - Corrective Actions

If the site inspection indicates that the site is out of compliance, the inspection report shall include a summary of the corrective actions required to bring the site back into compliance. The results of these inspections and summary of actions shall be communicated to both UI and contractor immediately. Non-engineering corrective actions shall be implemented on site within 24 hours or within a capable practical timeframe and incorporated into a revised Plan within three (3) days of the date of the inspection unless otherwise specified in the Guidelines. Engineered corrective actions shall be implemented on site within seven (7) calendar days and incorporated into a revised Plan within ten (10) calendar days of the date of inspection unless otherwise specified in the Guidelines. During the period in which any corrective actions are being developed and have not yet been fully implemented, interim measures shall be implemented to minimize the potential for the discharge of pollutants to the site. Implementation of corrective actions for areas within the railroad right of way is dependent upon Metro North flagman scheduling

7.7 - Recordkeeping Requirement

UI will retain the Plan and all reports required by the Permit, and records of data used to complete the permit registration, for at least five (5) years from the date the Notice of Termination is accepted by the Commissioner unless the commissioner specifies another time period in writing. Inspection records, including plan implementation inspections and routine inspections, will also be retained for a period of five years from the date recorded on the inspection form. A copy of the SPCP will also be made available via a publicly accessible URL during the term of the permit. UI's hardcopy will be kept at the project headquarters:

680 Campbell Avenue
West Haven, CT 06516

7.8 - Reporting Requirements

UI will provide all reports requested by the Commissioner, except turbidity monitoring reports pursuant to Section 5.2.2.8.b, shall be provided to the Commissioner within the timeframe specified in any request by the Commissioner, and if no timeframe is specified, no later than thirty (30) days after the date of any such request. If requested by the Commissioner, the reports shall be submitted to the Commissioner by email to DEEP.StormwaterConstruction@ct.gov

7.8.1 - Turbidity Monitoring

Records of turbidity monitoring conducted pursuant to Sections 5.2.2.8.b. shall be submitted to the Commissioner on the first day of each month following the initiation of the dewatering discharge for as long as the discharge exists. Turbidity Monitoring Reports shall be submitted by email with the subject line "Construction Turbidity Monitoring" on forms prescribed by the Commission to DEEP.StormwaterConstruction@ct.gov

7.8.2 - Corrective Actions

Upon learning of a violation of a condition of the permit, UI will immediately take all reasonable actions to determine the cause of the violation, correct the violation, mitigate the impact of the violation, and prevent its recurrence.

7.8.3 - Reporting Noncompliance

UI will notify the Commissioner of the following actual or anticipated noncompliance with the terms or conditions of this permit within two hours of becoming aware of the circumstances. All other actual or anticipated violations of the permit shall be reported to the Commissioner within 24 hours of becoming aware of the following circumstances:

- A noncompliance that is greater than two times an effluent limitation.
- A noncompliance of any minimum or maximum daily limitation or excursion beyond a minimum or maximum daily range.

- Any condition that may endanger human health or the environment.
- A failure or malfunction of monitoring equipment used to comply with the monitoring requirements of the General Permit.
- Any actual or potential bypass of the Permittee's collection system or treatment facilities.
- Expansions or significant alterations of any wastewater collection, treatment components, or its method of operation for the purpose of correcting or avoiding a permit violation.

Notifications will be submitted via the Commissioner's online Noncompliance Notification Form at:
https://portal.ct.gov/deep/water-regulating-and-discharges/stormwater/stormwater-management

7.8.4 - Five-Day Follow Up Report

Within five (5) days of any notification of noncompliance in accordance with this permit, UI will submit a follow-up report within five days of the noncompliance using the Commissioner's online Noncompliance Follow-up Report Form at:
https://portal.ct.gov/deep/water-regulating-and-discharges/stormwater/stormwater-management

The follow-up report shall contain, at a minimum, the following information:

- A description of the noncompliance and its cause.
- The period of noncompliance, including exact dates and times.
- If the noncompliance has not been corrected, the anticipated time it is expected to continue.
- Steps taken or planned to correct the noncompliance and reduce, eliminate and prevent recurrence of the noncompliance.

Notification of an actual or anticipated noncompliance or site modification does not stay any term or condition of this permit.

7.8.5 - Additional Notification Requirements

UII will notify the Commissioner within seventy-two (72) hours and in writing within 30 days when it knows or has reason to believe that the concentration in the discharge of any substance listed in the application, or any toxic substance as listed in Appendix B or D of RSCA Section 22a-430-4, has exceeded or will exceed the highest of the following levels:

- 100 micrograms/liter;
- 200 micrograms/liter for acrolein and acrylonitrile;
- 500 micrograms/liter for 2,4-dinitrophenol and 2-methyl-4, 6-dinitrophenol;
- 1 milligram/liter for antimony; and,
- An alternative level specified by the Commissioner, provided such level shall not exceed the level which can be achieved by the permittee's treatment system.

The 72-hour initial notifications and thirty (30) day follow-up reports shall be submitted via the Commissioner's online Noncompliance Follow-up Report Form located at:
https://portal.ct.gov/deep/water-regulating-and-discharges/stormwater/stormwater-management

8.0 - ADDITIONAL REQUIREMENTS

8.1 - Endangered and Threatened Species

Preliminary review of the maps titled Natural Diversity Data Base (NDDB) Areas in Milford, Orange, West Haven and New Haven, Connecticut published by CT DEEP, indicated that the project sites are partially within, and in close proximity to areas known to contain State and Federal Listed Species and Significant Natural Communities. Therefore, a NDDB review was requested and CT DEEP conducted a review and issued an NDDB Determination. Initial determination, No. 202073487 expired on December 27, 2022, and was subsequently renewed on February 8, 2023, with Determination No. 202209567.

The previously provided NDDB map, application, and CT DEEP response is provided in Appendix M.

8.2 - Historic Preservation

A review of information on file with the Connecticut State Historic Preservation Office (CT SHPO) and online mapping resources provided by the National Park Service revealed that the Project does not intersect or encompass any State or National Register of Historic Places (S/NRHP)-listed historic resources. However, five National Register-listed historic resources are located within 500 feet of the Project Area in the City of Milford. They include River Park Historic District, St. Peter's Episcopal Church, Academy of our Lady of Mercy at Laurelton Hall, Taylor Memorial Library, and the Academy of Our Lady of Mercy - Lauralton Hall property. An additional fifteen S/NRHP-listed historic resources are located within 1.6 kilometers (km) (1.0 mile) of the Project Area (one individual historic property is listed twice as both the Beth Israel Synagogue and as the Ahavas Sholem Synagogue).

Mitigation measures for indirect visual impacts to the historic resources located in Milford has been completed. Correspondence with CT SHPO is included as Appendix N.

8.3 - Conservation or Preservation Restriction Determination

The property located at O Wampus Lane (Map 56, Block 831, Lot 1) in Milford, Connecticut is located within the Project corridor and is a Protected Open Space located within the City of Milford's Stubby Plain Brook/Indian River Corridor greenbelt. UI notified the City of proposed Project impacts at this location as part of the requirements for submitting a Land and Water Resource Division (LWRD) License Application Form D - COP to the CT DEEP, and again recently to notify the City of this permit application. The Project access routes were selected to avoid activities within wetlands present in this area and coincide with an existing unimproved road to the maximum extent practicable, as to minimize alteration of the Protected Open Space and the existing natural resources. No permanent structures will be placed on this property. A record of correspondence with the City regarding this topic is provided as Appendix O. In addition, an in-person meeting was held between the City and UI, to provide details of activities that will occur on the open space parcel. No changes or restrictions to UI's project plans came as a result of this meeting.

9.0 - NOTICE OF TERMINATION

The Project shall be considered complete after all post-construction measures have been installed, cleaned, functioning, inspected, and the site has achieved final stabilization for all phases of construction for at least one (1) year following the Final Stabilization Inspection. Once the full site has been stabilized, UI will file a Notice of Termination Form (NOT) in accordance with Section 4 of the General Permit. A blank copy of the NOT Form is provided in Appendix J. A Notice of Termination form shall include the following:

- The permit number as provided to the Permittee on its Notice of Coverage;
- The name of the Permittee as reported on its general permit application form;
- The address of the construction site;
- Certifications and Signatures for UI

A termination form shall be filed electronically with the Commissioner with the subject line "Construction GP Termination The United Illuminating Company at: DEEP.StormwaterConstruction@ct.gov

10.0 - PLAN AMENDMENTS

UI is responsible for keeping the Plan in compliance with the General Permit conditions, and will maintain a copy of the Plan, Plan modifications, if any, and site inspection reports. UI will amend the Plan whenever:

- Actions required by the SPCP fail to prevent pollution or unauthorized discharges to the waters of the State or fail to comply with any other provision of this general permit;
- Whenever there is an addition of or change in contractors or subcontractors at the site, the designing Qualified Professional, District personnel; or,
- A change in design, construction, operation, or maintenance at the site which has not otherwise been addressed in the SPCP.
- UI will comply with Section 3.5 if submission of a Notice of Change is required pursuant to that section.

The Commissioner may notify UI at any time that the Plan or the site does not meet one or more requirements of this general permit. Within seven (7) days of such notice, or such other time as the Commissioner may allow, UI shall make the required changes to the Plan and perform all actions required by such revised Plan. Within fifteen (15) days of such notice, or such other time as the Commissioner may allow, the Permittee shall submit to the Commissioner a written certification that the requested changes have been made and implemented and such other information as the Commissioner requires. Any such certification or information shall be submitted in accordance with the 'Duty to Provide Information" and "Certification," Sections 8.9 and 8.21.4 of the General Permit.

It should be noted that if plan changes are not made in a timely manner, it does not relieve the Owner of the responsibility to implement any actions to protect the Waters of the State and comply with all conditions of the permit.

Figure 1
Site Location Map

Stratford

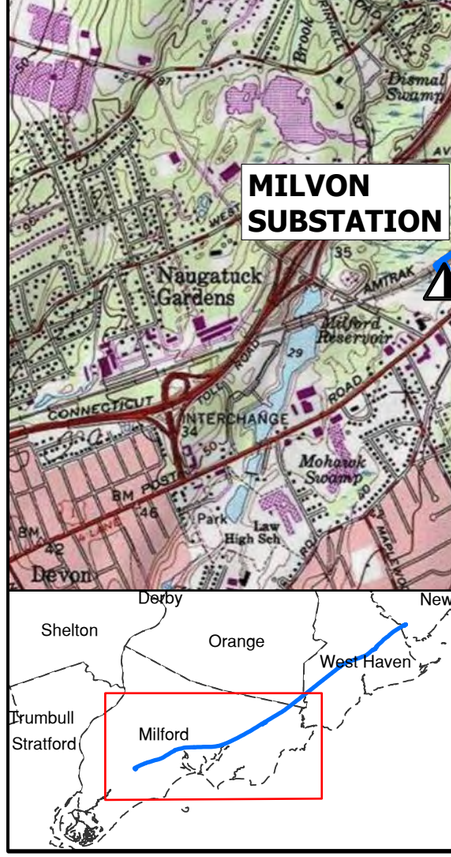
Orange

West Haven

Milford

WOODMONT SUBSTATION

MILVON SUBSTATION



MAP LEGEND

- Existing Substations Connected to 115 kV Facilities
- Proposed Alignment of Relocated UI 115 kV Lines
- Municipal Boundary

UI 115 KV RAILROAD PROJECT – MILVON TO WEST RIVER

Milford, Orange, West Haven, and New Haven, CT

N

1 Inch = 2,000 Feet

0 2,000 4,000 US Feet

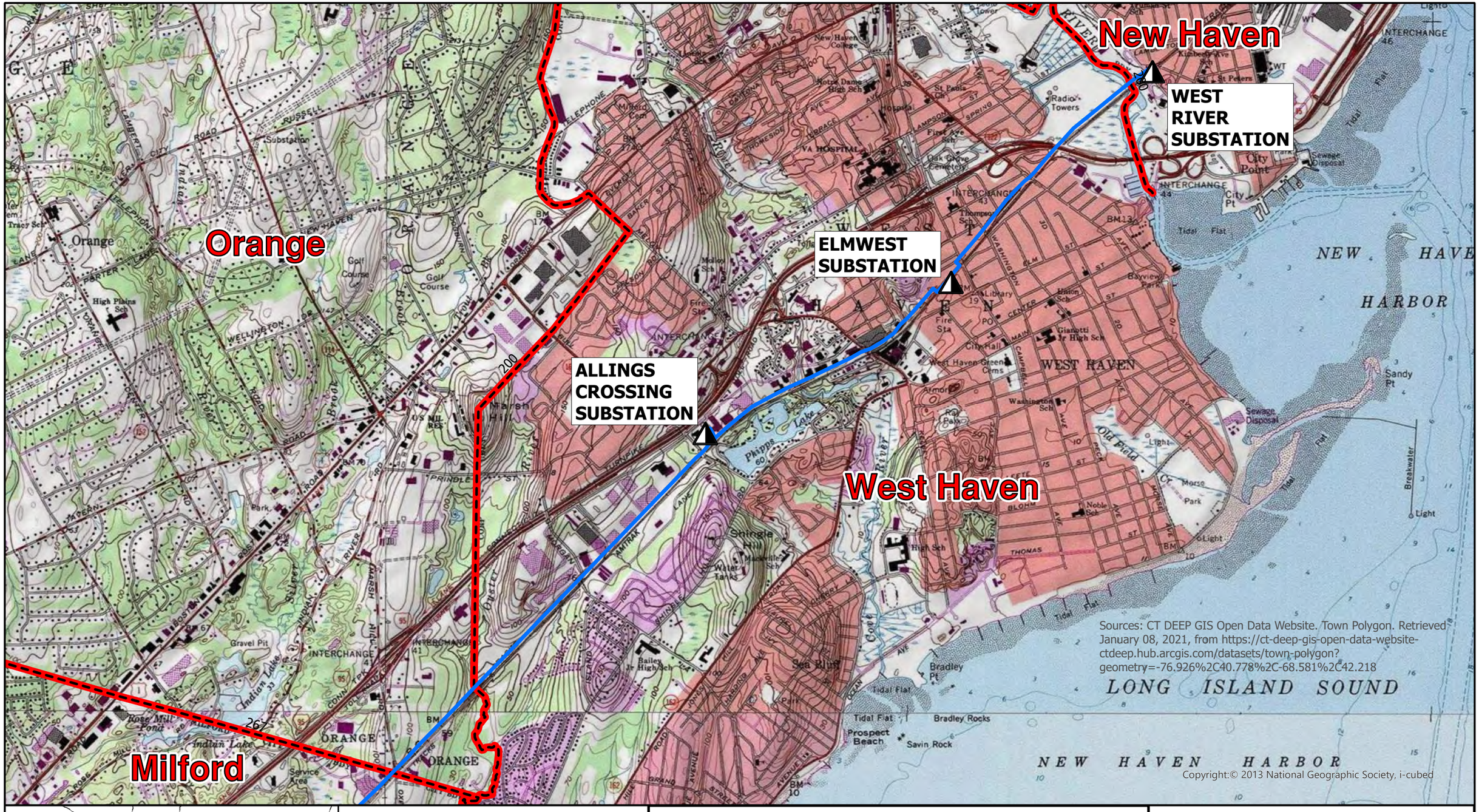
UI AVANGRID

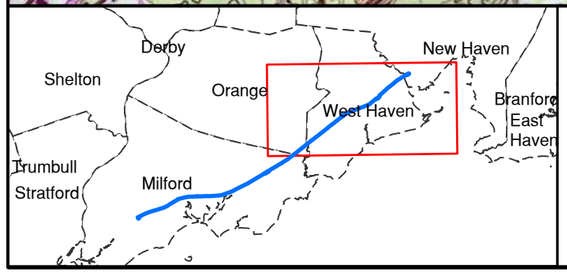
Westwood

USGS Project Locus Map Sheet 1 of 2

Sources: CT DEEP GIS Open Data Website. Town Polygon. Retrieved January 08, 2021, from https://ct-deep-gis-open-data-website-ctdeep.hub.arcgis.com/datasets/town-polygon?geometry=-76.926%2C40.778%2C-68.581%2C42.218

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MAP LEGEND

- Existing Substations Connected to 115 kV Facilities
- Proposed Alignment of Relocated UI 115 kV Lines
- Municipal Boundary

UI 115 KV RAILROAD PROJECT – MILVON TO WEST RIVER

Milford, Orange, West Haven, and New Haven, CT

N

1 Inch = 2,000 Feet

0 2,000 4,000 US Feet

UI AVANGRID

Westwood

USGS Project Locus Map Sheet 2 of 2

Appendix A

CTDEEP General Permit Registration Form (As Submitted Electronically)

Connecticut Department of
ENERGY &
ENVIRONMENTAL
PROTECTION

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

Bureau of Materials Management and Compliance Assurance

Notice of Permit Authorization

June, 12 2023

TODD BERMAN
THE UNITED ILLUMINATING COMPANY
100 Marsh Hill Rd
Orange, CT 06477-3628

Subject: General Permit Registration for the Discharge of Stormwater and Dewatering Wastewaters from Construction Activities
Application NO.: 202303042

TODD BERMAN:

The Department of Energy and Environmental Protection, Water Permitting and Enforcement Division of the Bureau of Materials Management and Compliance Assurance, has completed the review of the Milvon - West River Line Rebuild Project (located at , Milford, Orange, West Haven, New Haven) registration for the **General Permit for the Discharge of Stormwater and Dewatering Wastewaters from Construction Activities, effective 12/31/2020, modified 11/25/2022 (general permit)** . The project is compliant with the requirements of the general permit and the discharge(s) associated with this project is (are) authorized to commence as of the date of this letter. Permit No. GSN003935 has been assigned to authorize the stormwater discharge(s) from this project.

Questions can be emailed to deep.stormwater@ct.gov.

Appendix B

Stormwater Pollution Control Plan Certifications

REGISTRANT/PREPARER CERTIFICATION

The United Illuminating Company

I hereby certify that I am making this certification in connection with an application under the General Permit for the Discharge of Stormwater from Construction Activities (general permit), submitted to the Commissioner by United Illuminating Company (UI) for an activity located between UI's existing Milvon Substation in the City of Milford and West River Substation in the City of New Haven, and that all terms and conditions of the general permit are being met all discharges which will be initiated and such activity is eligible for authorization under such permit. I further certify that a system is in place to ensure that all terms and conditions of this general permit will continue to be met for all discharges authorized by this general permit at the site. I certify that the application filed pursuant to this general permit is on complete and accurate forms as prescribed by the Commissioner without alteration of their text. I certify that I have personally examined and am familiar with the information that provides the basis for this certification, including but not limited to all information described in Section 2.2.13.1 of such general permit, and I certify, based on reasonable investigation, including my inquiry of those individuals responsible for obtaining such information, that the information upon which this certification is based is true, accurate and complete to the best of my knowledge and belief. I certify that I have made an affirmative determination in accordance with Section 2.2.13.2 of this general permit. I understand that the application filed in connection with such general permit is submitted in accordance with and shall comply with the requirements of Section 22a-430b of Conn. Gen. Stat. I also understand that knowingly making any false statement in the submitted information and in this certification may be punishable as a criminal offense, including the possibility of fine and imprisonment, under Section 53a-157b of the Conn. Gen. Stat. and any other applicable law.

_____	_____
Signature of Registrant	*Date*
_____	_____
Name of Registrant	*Title (if applicable)*
_____	_____
Signature of Preparer	*Date*
Stephen Benben, PE	Vice President
Name of Preparer	*Title (if applicable)*

PROFESSIONAL ENGINEER CERTIFICATION

The United Illuminating Company

I hereby certify that I am a professional engineer licensed in the State of Connecticut. I am making this certification in connection with an application under the General Permit for the Discharge of Stormwater from Construction Activities (general permit), submitted to the Commissioner by United Illuminating Company (UI) for activities located between UI's existing Milvon Substation in the City of Milford and West River Substation in the City of New Haven. I certify that I have thoroughly and completely reviewed the Stormwater Pollution Control Plan for the project or activity covered by this certification. I further certify, based on such review and on the standard of care for such projects, that the Stormwater Pollution Control Plan has been prepared in accordance with the Connecticut Guidelines for Soil Erosion and Sediment Control, as amended, the Stormwater Quality Manual, as amended, and the conditions of the general permit, and that the controls required for such SPCP are appropriate for the site. I further certify, based on reasonable investigation, including my inquiry of those individuals responsible for obtaining such information, that the information upon which this certification is based is true, accurate and complete to the best of my knowledge and belief. I also understand that knowingly making any false statement in this certification may subject me to sanction by the Department and/or be punishable as a criminal offense, including the possibility of fine and imprisonment, under Section 53a-157b of the Conn. Gen. Stat. and any other applicable law.

Signature of Professional Engineer	*Date*
Stephen J. Benben, PE	24952
Name of Professional Engineer	*License Number*

(SUB)CONTRACTOR CERTIFICATION STATEMENT CERTIFICATION

The United Illuminating Company

I certify under penalty of the law that I have read and understand the terms and conditions of the General Permit for the Discharge of Stormwater from Construction Activities and the site-specific Stormwater Pollution Control Plan ("SPCP"). I understand that as a contractor or subcontractor at the site, I must comply with the terms and conditions of this general permit and the SPCP.

Contractor 1:

_____
Name/Title

_____
Signature

_____
Name of Company

_____
Address of Company

_____
Date

Contractor 2:

_____
Name/Title

_____
Signature

_____
Name of Company

_____
Address of Company

_____
Date

Contractor 3:

_____
Name /Title

_____
Signature

_____
Name of Company

_____
Address of Company

_____
Date

Contractor 4:

_____
Name/Title

_____
Signature

_____
Name of Company

_____
Address of Company

_____
Date

☐ Check box if additional page(s) required

Appendix C

Erosion and Sediment Control Plans

GENERAL NOTES

1. ALL DIMENSIONS, ELEVATIONS, AND EXISTING CONDITIONS SHALL BE FIELD VERIFIED BY THE CONTRACTOR PRIOR TO CONSTRUCTION. ANY DISCREPANCIES DISCOVERED DURING THE COURSE OF CONSTRUCTION SHALL BE PROMPTLY REPORTED TO THE ENGINEER.
2. THE CONTRACTOR IS RESPONSIBLE FOR DETERMINING, PRIOR TO BIDDING, THE LOCATIONS OF ALL UTILITIES AND SHALL BE RESPONSIBLE FOR ALL DAMAGE TO SAID UTILITIES. THE CONTRACTOR SHALL CONTACT "CALL BEFORE YOU DIG" (1-800-922-4455), AT LEAST 72 HOURS PRIOR TO STARTING CONSTRUCTION. THE CONTRACTOR SHALL COORDINATE ACTIVITIES WITH INDIVIDUAL UTILITY COMPANIES.
3. THE CONTRACTOR IS RESPONSIBLE FOR ENSURING THAT PROPER STORM DRAINAGE IS MAINTAINED THROUGHOUT CONSTRUCTION.
4. ALL SOIL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE INSPECTED AND MAINTAINED ON A REGULAR BASIS AS OUTLINED HEREIN. INSPECTION AND MAINTENANCE SHALL BE CARRIED OUT THROUGHOUT THE CONSTRUCTION PERIOD UNTIL ALL DISTURBED AREAS ARE STABILIZED WITH VEGETATION OR PAVING. THE MINIMUM INSPECTION PERIOD SHALL BE WEEKLY AND AFTER MAJOR STORMS.
5. CONSTRUCTION ACTIVITIES SHALL CONFORM TO APPLICABLE SECTIONS OF THE CITY OF MILFORD, WEST HAVEN, AND NEW HAVEN AND THE TOWN OF ORANGE, CONNECTICUT STANDARDS AND APPLICABLE SECTIONS OF THE CONNECTICUT DEPARTMENT OF TRANSPORTATION "STANDARD SPECIFICATIONS FOR ROADS, BRIDGES, AND INCIDENTAL CONSTRUCTION," FORM 818, AS AMENDED.

MARCH 2023

SOIL EROSION & SEDIMENTATION CONTROL PLAN
MILVON TO WEST RIVER RAILROAD
TRANSMISSION LINE 115kV REBUILD PROJECT

MILFORD, ORANGE, WEST HAVEN,
NEW HAVEN, CONNECTICUT

HRP PROJECT NO. UNI9212.EE

Prepared By:

HRP
MOVE YOUR ENVIRONMENT FORWARD

197 SCOTT SWAMP ROAD
FARMINGTON, CT 06032
(860) 674-9570
HRPASSOCIATES.COM

Prepared For:

THE UNITED ILLUMINATING COMPANY
100 MARSH HILL ROAD,
ORANGE, CT 06477

SHEET INDEX

SERIES	SHEET	TITLE / DESCRIPTION	CREATED	REVISED
		TITLE	03/15/2023	
GN1.0	01	GENERAL NOTES	03/15/2023	
C1.0	02	CORRIDOR OVERVIEW	03/15/2023	
C1.1	03 - 56	SOIL EROSION & SEDIMENTATION CONTROL PLAN	03/15/2023	
D1.0	57 - 67	DETAILS	03/15/2023	

DRAWING NAME: V:\Data\U\unitl - the united illuminating company\milford to new haven, ct \uni9207ee\CAD\SWPCP\GENERAL NOTES.dwg LAYOUT: 01 GENERAL NOTES PLOT DATE: Apr 03, 2023 - 12:08pm OPERATOR: ASB

SEDIMENTATION AND EROSION CONTROL PLAN

GENERAL

THE PLAN PROPOSES EROSION CONTROL MEASURES TO ADEQUATELY CONTROL ACCELERATED EROSION AND SEDIMENTATION AND REDUCE THE DANGER FROM STORM WATER RUNOFF AT THE SITE. THE RUNOFF SHALL BE CONTROLLED BY THE INTERCEPTION, DIVERSION, AND SAFE DISPOSAL OF PRECIPITATION. RUNOFF SHALL ALSO BE CONTROLLED BY STAGING CONSTRUCTION ACTIVITY AND PRESERVING NATURAL VEGETATION WHENEVER POSSIBLE.

EXISTING VEGETATION SHALL BE PROTECTED AND ONLY THAT CLEARING AND GRUBBING ABSOLUTELY NECESSARY FOR THE PROPOSED CONSTRUCTION SHALL BE PERFORMED. ALL DISTURBED AREAS SHALL BE RESTORED TO THEIR ORIGINAL CONDITION AND CONTOUR, UNLESS OTHERWISE INDICATED ON THE PLANS. THE CONTRACTOR SHALL TAKE A SPECIAL CARE WITH HIS CONSTRUCTION METHODS AND SHALL COMPLY WITH THE FOLLOWING GUIDELINES.

EROSION AND SEDIMENTATION CONTROLS ARE PROPOSED IN AREAS WHERE SUBSURFACE DISTURBANCE IS ANTICIPATED. EXISTING VEGETATION CLEARING IS EXPECTED TO BE LIMITED TO NON-STUMPING ACTIONS IN AREAS WHERE EROSION AND SEDIMENTATION CONTROLS ARE NOT PROPOSED.

REFERENCE IS MADE TO THE 2002 "CONNECTICUT GUIDELINES FOR SOIL EROSION AND SEDIMENT CONTROL", AS AMENDED. THE GUIDELINES ARE OBTAINABLE FROM THE CONNECTICUT COUNCIL ON SOIL AND WATER CONSERVATION, STATE OFFICE BUILDING, HARTFORD, CONNECTICUT, AND SHOULD BE USED AS A REFERENCE IN CONSTRUCTING THE EROSION AND SEDIMENT CONTROLS INDICATED ON THESE PLANS.

SEDIMENTATION CONTROL

ALL AREAS SHALL BE PROTECTED FROM SEDIMENTATION DURING AND AFTER CONSTRUCTION, PARTICULARLY THE STORAGE OF EXCAVATED OR STOCKPILED MATERIAL. THE CONTRACTOR SHALL CAREFULLY STRIP ALL TOPSOIL, LOAM, OR ORGANIC MATTER PRIOR TO TRENCHING OR OTHER OPERATION, AND SHALL STORE THEM SEPARATELY FROM ALL OTHER MATERIALS DURING EXCAVATION. EACH STOCKPILE MUST BE ADEQUATELY RINGED WITH SEDIMENT CONTROL MATERIAL (I.E. HAY BALES AND/OR GEOTEXTILE).

STABILIZING OF SLOPES SHALL BE DONE IMMEDIATELY AFTER CONSTRUCTION OF SLOPES. SLOPES STEEPER THAN 2:1 SHALL BE PROTECTED WITH JUTE MESH EROSION PROTECTION. ALL OTHER AREAS SHALL BE MULCHED WITH HAY OR STRAW AS REQUIRED UNDER TURF ESTABLISHMENT.

EROSION CONTROL PLAN

SEDIMENTATION CONTROL SYSTEM - THE SEDIMENTATION CONTROL SYSTEM SHALL CONSIST OF GEOTEXTILE BARRIER FENCE OR STACKED HAY BALES.

GEOTEXTILE BARRIER FENCE - THE SEDIMENTATION CONTROL SYSTEM SHALL BE INSTALLED IMMEDIATELY AFTER A CUT SLOPE HAS BEEN GRADED, BEFORE A FILL SLOPE HAS BEEN CREATED AND AS INDICATED ON THE PLANS. THE SYSTEM IS DESIGNED TO INTERCEPT SILT AND SEDIMENT BEFORE IT REACHES THE WETLAND AREAS, OR WATERCOURSES. DEPOSITS OF SEDIMENT AND SILT ARE TO BE PERIODICALLY REMOVED FOR THE UPSTREAM SIDE OF THE FENCE. THIS MATERIAL IS TO BE SPREAD AND STABILIZED IN AREAS NOT SUBJECT TO EROSION, OR IN AREAS WHICH ARE NOT TO BE PAVED OR BUILT ON. THE SEDIMENTATION CONTROL SYSTEM AREAS IS TO BE REPLACED AS NECESSARY TO PROVIDE PROPER FILTERING ACTION. THE SYSTEM IS TO REMAIN IN PLACE AND BE MAINTAINED TO INSURE EFFICIENT SILTATION CONTROL UNTIL ALL AREAS ABOVE THE FENCE ARE STABILIZED AND VEGETATION HAS BEEN ESTABLISHED.

STACKED HAY BALES - HAY OR STRAW BALES USED FOR EROSION CONTROL SHALL BE PLACED AS INDICATED ON THE PLANS, STACKED AT CATCH BASINS WHERE SEDIMENT MAY ENTER THE CATCH BASINS, OR AS DIRECTED BY THE RESIDENT ENGINEER. DEPOSITS OF SEDIMENT AND SILT ARE TO BE PERIODICALLY REMOVED FROM THE UPSTREAM SIDE OF THE EROSION CHECKS. THIS MATERIAL IS TO BE SPREAD AND STABILIZED IN AREAS NOT SUBJECT TO EROSION, OR IN AREAS WHICH ARE NOT TO BE BUILT OR PAVED ON. HAY OR STRAW BALES ARE TO BE REPLACED AS NECESSARY TO PROVIDE PROPER FILTERING ACTION. EROSION CHECKS ARE TO REMAIN IN PLACE AND MAINTAINED TO ENSURE EFFICIENT SILTATION CONTROL UNTIL ALL AREAS ABOVE THE EROSION CHECKS ARE STABILIZED AND VEGETATION HAS BEEN ESTABLISHED.

IN ALL AREAS, REMOVAL OF TREES, BUSHES AND OTHER VEGETATION, AND DISTURBANCE OF THE SOIL, IS TO BE KEPT TO AN ABSOLUTE MINIMUM WHILE ALLOWING PROPER DEVELOPMENT OF THE SITE.

DURING CONSTRUCTION, AS SMALL AN AREA OF SOIL AS POSSIBLE SHOULD BE EXPOSED FOR AS SHORT A TIME AS POSSIBLE. AFTER CONSTRUCTION, GRADE, RESPREAD TOPSOIL, AND STABILIZE SOIL BY SEEDING AND MULCHING SO AS TO PREVENT EROSION.

SEDIMENTATION AND EROSION CONTROL MAINTENANCE PROCEDURES

ALL SEDIMENTATION AND EROSION CONTROL DEVICES SHALL BE INSPECTED DURING CONSTRUCTION ON A WEEKLY BASIS, AND FOLLOWING ALL STORMS, BY THE ENGINEER. THE CONTRACTOR SHALL MAINTAIN AND MAKE REPAIRS AND REMOVE SEDIMENT AS REQUESTED BY THE ENGINEER. THIS WORK SHALL BE PERFORMED WITH 24 HOURS OF THE REQUEST AND THERE SHALL BE NO SEPARATE PAYMENT FOR THIS WORK.

THE CONTRACTOR SHALL CLEAN SEDIMENT AND DEBRIS FROM ALL DRAINAGE STRUCTURES AND PIPES AT THE COMPLETION OF CONSTRUCTION, AND AS REQUESTED BY THE ENGINEER TO KEEP THE SYSTEM FUNCTIONING PROPERLY DURING CONSTRUCTION. THE CONTRACTOR SHALL SWEEP ADJACENT ROADWAYS AS REQUIRED OR REQUESTED BY THE ENGINEER. FOLLOWING COMPLETION OF CONSTRUCTION, THE CONTRACTOR SHALL REPAIR ALL ERODED AREAS AND ENSURE A GOOD STAND OF TURF IS ESTABLISHED THROUGHOUT. THE CONTRACTOR SHALL REPAIR ALL ERODED OR DISPLACED RIPRAP, AND CLEAN SEDIMENT COVERED STONES.

TOPSOILING

APPLY TOPSOIL IN PERMANENT SEEDING SITUATIONS ACCORDING TO THE GUIDELINES SET FORTH IN THE *SEEDBED PREPARATION* SECTION 5-3-6 OF THE MOST CURRENT *CONNECTICUT GUIDELINES FOR SOIL EROSION AND SEDIMENT CONTROL* MANUAL.

RECOMMENDED TOPSOILING MEASURES INCLUDED (AS PROVIDED IN THE ABOVE MENTIONED MANUAL) :

APPLYING FERTILIZER AND GROUND LIMESTONE ACCORDING TO SOIL TESTS CONDUCTED BY THE UNIVERSITY OF CONNECTICUT SOIL TESTING LABORATORY OR OTHER RELIABLE SOURCE. A pH RANGE OF 6.2 TO 7.0 IS OPTIONAL FOR PLANT GROWTH OF MOST GRASS SPECIES.

WHERE SOIL TESTING IS NOT FEASIBLE ON SMALL OR VARIABLE SITES, OR WHERE TIMING IS CRITICAL, FERTILIZER MAY BE APPLIED AT A RATE OF 300 POUNDS PER ACRE OR 7.5 POUNDS PER 1,000 SQUARE FEET USING 10-10-10 OR EQUIVALENT AND LIMESTONE AT 4 TONS PER ACRE OR 200 POUNDS PER 1,000 SQUARE FEET. ADDITIONALLY, LIME MAY BE APPLIES USING RATES GIVEN IN THE TABLE BELOW. a pH OF 6.2 TO 7.0 IS OPTIMAL.

FOR AREAS THAT WERE PREVIOUSLY MULCHED WITH WOOD CHIPS OR BARK AND THE WOOD CHIPS OR BARK ARE TO BE INCORPORATED INTO THE SOIL, APPLY ADDITIONAL NITROGEN AT A RATE THAT IS DETERMINED BY SOIL TESTS AT TIME OF SEEDING.

WORK LIME AND FERTILIZER INTO THE SOIL TO A DEPTH OF 3 INCHES WITH A DISC OR OTHER SUITABLE EQUIPMENT.

SOIL TEXTURE	TONS./ACRE OF LIME	LBS./1000 SF OF LIME
CLAY, CLAY LOAM, AND HIGH ORGANIC SOIL	3	135
SANDY LOAM, LOAM, SILT LOAM	2	90
LOAM SAND, SAND	1	45

SEEDING SCHEDULE

A TEMPORARY STAND OF GRASS AND/OR LEGUMES WILL BE PROVIDED ON ALL AREAS OF THE SITE EXPOSED FOR A PERIOD GREATER THAN 1 MONTH BUT LESS THAN 12 MONTHS. REFER TO FIGURE TS-2 IN THE 2002 CONNECTICUT GUIDELINES FOR SOIL AND SEDIMENT CONTROL FOR TEMPORARY SEEDING RATES AND DATES.

PERMANENT SEEDING FOR ESTABLISHING VEGETATION ON DISTURBED AREAS IN NON-WETLAND AREAS SHALL USE EITHER OF THE FOLLOWING MIXTURES:

SEED MIXTURE #1	LBS./ACRE	LBS./1000 SF
KENTUCKY BLUEGRASS	20	0.45
CREEPING RED FESCUE (PENNLAWN, WINTERGREEN)	20	0.45
PERENNIAL RYEGRASS (NORLEA, MANHATTEN)	5	0.10
	45	1.00

SEED MIXTURE #2	LBS./ACRE	LBS./1000 SF
CHEWINGS FESCUE	35	0.80
HARD FESCUE	30	0.70
COLONIAL BENTGRASS	5	0.10
CANADA WILDRYE (ELYMUS CANADENSIS)	10	0.20
PERENNIAL RYEGRASS	20	0.50
	100	2.30

PERMANENT SEEDING FOR ESTABLISHING VEGETATION ON DISTURBED AREAS IN WETLAND AREAS SHALL USE THE FOLLOWING MIXTURE:

NEW ENGLAND CONSERVATION WILDLIFE MIX (NEW ENGLAND WETLAND PLANTS INC) SHOULD BE USED AT A RATE OF 25 LBS/ACRE OR 1,0LB / 1,750 SF

NEW ENGLAND CONSERVATION WILDLIFE MIX

MIXTURE CONTAINS:	
BIG BLUESTEM	20%
LITTLE BLUESTEM	20%
SWITCHGRASS	20%
FOX SEDGE	10%
SILKY WILD RYE	8%
COMMON MILKWEED	5%
DEERTONGUE	5%
PENNSYLVANIA SMARTWEED	5%
PARTRIDGE PEA	4%
SILKY SMOOTH ASTER	1.5%
NODDING BUR-MARIGOLD	1.0%
FLAT TOP ASTER	0.5%
	100%

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FARMINGTON, CT 06032
(860) 674-9570
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REVISIONS

NO.	DATE

DESIGNED BY: WW/ASB
DRAWN BY: WW/ASB
REVIEWED BY: KAM

ISSUE DATE: 03/15/2023
PROJECT NUMBER: UNI9212.EE
SHEET SIZE: 11"x17"

GENERAL NOTES

MILVON TO WEST RIVER RAILROAD TRANSMISSION LINE 115kV REBUILD PROJECT

MILFORD, ORANGE, WEST HAVEN, NEW HAVEN, CONNECTICUT

SHEET NO.
GN1.0
SHEET 01 OF 67

Appendix D

Wetland Reports (By Others)

WETLAND AND WATERCOURSE IDNETIFICATION KEY

The United Illuminating Company engaged BL Companies, Inc. to conduct wetland identification and delineation studies within the proposed project area along the CTDOT Corridor. These studies were initially completed in advance of the development of project plans and engineering design in two different intervals and resulted in two report deliverables. In order to provide a unified numbering convention with respect to the proposed project, the wetlands and watercourses identified in the studies have been numbered using the following designations with reference to the names contained in the BL Companies, Inc. reports.

Municipality	Wetland / Watercourse Map Identifier	Wetland / Watercourse Identifier in BL Companies, Inc. Reports*	USFWS NWI Classification or Watercourse Designation
Milford	M-W1	Wetland A (W-A)	PFO
Milford	M-WC1	Watercourse A (WC-A)	R4SBE1
Milford	M-W2	Wetland B (W-B)	PFO
Milford	M-WC2	Watercourse AA (WC-AA)	R4SBE1
Milford	M-W3	Wetland U (W-U)	PEM
Milford	Wepawaug River (Tidal)	Watercourse B (WC-B)	E1UBL
Milford	M-W4	Wetland C (W-C)	PSS1C (PEM sample point)
Milford	M-W5	Wetland D (W-C)	PFO
Milford	M-W6	Wetland E (W-E)	PFO
Milford	M-TW1	Coastal Wetland A (W-CA)	E2EM1Pd (PEM sample point)
Milford	M-TW2	Coastal Wetland B (W-CB)	E2EM1Pd (PEM sample point)
Milford	Indian River (Tidal)	Coastal Watercourse A (CWC-A) (Indian River)	E1UBL3/E1UBL
Milford	M-TW3	Coastal Wetland C (W-CC)	Not listed on NWI/E2EM1Pd (PEM sample point)
Milford	M-TWC2	Coastal Watercourse B (CWC-B)	E2EM1Pd
Milford	M-TWC3	Coastal Watercourse V (CWC-V)	E2EM1Pd
Milford	M-W7	Wetland EA (W-EA)	PEM
Milford	M-W8	Wetland F (W-F)	PSS
Milford	M-WC4	Watercourse D (WC-D)	R4SBE1
Milford	M-W9	Wetland G (W-G)	PFO
Milford	M-WC5	Watercourse C (WC-C)	R5UBh1
Milford	M-WC6	Watercourse EA (WC-EA)	R4SBE1
Milford	M-W10	Wetland S (W-S)	PEM
Milford	M-WC7	Watercourse E (WC-E)	R5UBh1
Milford	M-W11	Wetland H (W-H)	PSS
Milford	M-W12	Wetland I (W-I)	PFO
Milford	M-W13	Wetland K (W-K)	PSS
Milford	M-WC8	Watercourse F (WC-F)	R5UBh1
Milford	M-W14	Wetland J (W-J)	PFO
Milford	M-W15	Wetland T (W-T)	PEM1/SS1E (PSS sample point)
Milford	M-WC9	Watercourse G (WC-G)	R4SBE1
Milford	M-W16	Wetland M (W-M)	PSS1E
Milford	M-W17	Wetland L (W-L)	PSS
Milford	M-WC10	Watercourse H (WC-H)	R4SBE1
Orange	O-WC1	Watercourse I (WC-I)	R4SBE1
Orange	O-WC2	Watercourse JA (WC-JA)	R4SBE1
Orange	O-WC3	Watercourse JB (WC-JB)	R4SBE1
Orange	O-W1	Wetland NA (W-NA)	PEM
Orange	O-W2	Wetland N (W-N)	PFO
Orange/West Haven	Oyster River	Watercourse J (WC-J)	R5UBh1
West Haven	WH-WC1	Watercourse Ja (WC-Ja)	R4SBE1
West Haven	WH-WC2	Watercourse K (WC-K)	R4SBE1
West Haven	WH-W1	Wetland O (W-O)	PEM
West Haven	WH-WC3	Watercourse T (WC-T)	R4SBE1
West Haven	WH-WC4	Watercourse U (WC-U)	R4SBE1
West Haven	WH-WC5	Watercourse N (WC-N)	R5UBh1
West Haven	WH-W2	Wetland P (W-P)	PSS
West Haven	WH-WC6	Watercourse M (WC-M)	R4SBE1
West Haven	WH-W3	Wetland Q (W-Q)	PEM
West Haven	WH-WC7	Watercourse L (WC-L)	R5UBh1
West Haven	WH-WC8	Watercourse O (WC-O)	R4SBE1
West Haven	WH-WC9	Watercourse P (WC-P)	R5UBh1
West Haven	WH-WC10	Watercourse Q (WC-Q)[2] / Stream 9[1]	R4SBE1 / R4SBC
West Haven	WH-WC11	Stream 5	R4UBC
West Haven	WH-WC12	Stream 8	R4SBC
West Haven	WH-W4	Wetland R (W-R)[2] encompasses delineated CT Wetland 1[1]	PEM
West Haven	WH-WC13	Stream 7	R4UBC/R4SBC
West Haven	WH-WC14	Stream 4	R4UBC/R4SBC
West Haven	WH-WC15	Stream 6[1] / Watercourse R (WC-R)[2]	R4UBC / R4SBE1
West Haven	WH-WC16	Watercourse S (WC-S)	R4SBE1
West Haven	WH-W5	Wetland 8	PSS1E
West Haven	WH-W6	Wetland 9	PSS1E
West Haven	WH-WC17	Stream 3	R4UBCh
West Haven	WH-W7	Wetland 7	PFO1E
West Haven	WH-W8	Wetland 5	PSS1Eh
West Haven	WH-WC18	Stream 1	R4SBCh
West Haven	Cove River	Cove River / Phipps Lake	R5UBh
West Haven	WH-W9	Wetland 6	PFO1E
West Haven	WH-W10	Pond 1	PUBHx
West Haven	WH-W11	Wetland 3	PEM5E
West Haven	WH-W12	Wetland 1	E2EM5/E2SS1P
West Haven	WH-W13	Wetland 2	E2EM5/SS1P
West Haven / New Haven	West River (Tidal)	West River	E1UBL
West Haven	WH-TW1	Wetland 2 (Tidal portion - southern area)	E2EM5/E2SS1P
West Haven	WH-TW2	Wetland 1 (Tidal portion - northern area)	E2EM5/E2SS1P
West Haven	WH-TW3	Wetland 1 (Tidal portion - southern area)	E2EM5/E2SS1P
West Haven	WH-TW4	Wetland 2 (Tidal portion - northern area)	E2EM5/E2SS1P
New Haven	NH-TW1	Wetland 4 (northside CTDOT Corridor)	E1UBL
New Haven	NH-TW2	Wetland 4 (southside CTDOT Corridor)	E1UBL
* Wetland Identification and Delineation Reports prepared by BL Companies, Inc.			
1. Wetland Identification and Delineation Report Update, Milvon Substation (Milford, CT) to Allings Crossing Subsation (West Haven, CT), New Haven County, CT, BL Project No: 18S3476, dated September 17, 2017 (updated April 28, 2021)			
2. Wetland Identification and Delineation Report Update, West River-Elm West and Elm West-Allings Crossing Transmission Line Railroad Project, West Haven and New Haven, CT, BL Project No: 17S3304-A, B, and D, dated May 4, 2018 (updated April 2021)			

LEGEND

- Inland Wetland
- Tidal Wetland
- Watercourse
- Tidal Watercourse

National Wetlands Inventory (NWI) Classification of Wetlands and Deepwater Habitats Legend	
Classification Designation	**Classification Description**
E1UBL	estuarine, subtidal unconsolidated bottom subtidal
E1UBL3	estuarine, subtidal unconsolidated bottom subtidal mixohaline (brackish)
E2EM1Pd	estuarine, intertidal emergent persistent irregularly flooded, partly drained/ditched
E2EM5	estuarine intertidal emergent *Phragmites australis*
E2SS1P	estuarine intertidal scrub-shrub broad-leaved deciduous irregularly flooded
PEM	palustrine emergent
PEM1/SS1E	palustrine emergent persistent and scrub-shrub broad-leaved deciduous seasonally flooded/saturated
PEM5E	palustrine emergent *Phragmites australis* seasonally flooded/saturated
PFO	palustrine forested
PFO1E	palustrine forested broad-leaved deciduous seasonally flooded/saturated
PSS	palustrine scrub-shrub
PSS1C	palustrine scrub-shrub, broad-leved deciduous, seasonally flooded
PSS1E	palustrine scrub-shrub broad-leaved deciduous seasonally flooded/saturated
PSS1Eh	palustrine scrub-shrub broad-leaved deciduous seasonally flooded/saturated diked/impounded
PUBHx	palustrine unconsolidated bottom permanently flooded excavated
R4SBC	riverine, intermittent streambed seasonally flooded
R4SBCh	riverine, intermittent streambed seasonally flooded diked/impounded
R4SBE1	riverine, intermittent seasonally flooded/saturated streambed watercourse
R4UBC	riverine, intermittent unconsolidated bottom seasonally flooded
R4UBCh	riverine, intermittent unconsolidated bottom seasonally flooded diked/impounded
R5UBH	riverine, unknown perennial unconsolidated bottom permanently flooded
R5UBh	riverine, unknown perennial unconsolidated bottom diked/impounded
R5UBh1	riverine, unknown perennial unconsolidated bottom diked/impounded, cobble-gravel

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WETLAND IDENTIFICATION AND DELINEATION REPORT UPDATE
Milvon Substation (Milford, CT) to
Allings Crossing Substation (West Haven, CT)
New Haven County, CT

BL Project No.: 18S3476

Prepared for

The United Illuminating Company
180 Marsh Hill Road
Orange, Connecticut 06477

Prepared by

BL Companies, Inc.
355 Research Parkway
Meriden, CT 06450

May 13, 2022

Wetland Identification and Delineation Report Update

Milvon Substation to Allings Crossing Substation
New Haven County, CT

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I. INTRODUCTION

BL Companies, Inc. (BL) conducted a site investigation for the purpose of updating a previous investigation performed in 2019 & 2020 by BL delineating state and federal wetlands and Waters of the United States, state regulated tidal resources including all land below the coastal jurisdiction line (CJL) and tidal vegetation up to one foot above the CJL and to identify vernal pools, and complete a habitat assessment for federally and state listed species within the corridor along approximately 7.0 miles of the Metro-North Railroad. The project area is located in the County of New Haven, Connecticut (Figure 1, below, and Appendix A). The coordinates for the approximate southwestern and northeastern ends of this linear project are North 41.21180 / West 73.08501 and North 41.26698 / West 72.97226, respectively. The update to the previous resource delineation, vernal pool investigation, and habitat assessment followed the railroad right-of-way (ROW) map provided by United Illuminating (UI) Company, and verified by BL's survey crew. The project area is a linear corridor approximately 7.0 miles long and 50 feet wide on the north and south sides of the Metro-North rail way and associated wetlands in the vicinity of the right-of-way (hereinafter referred to as the "project area").

The project area lies within the Housatonic River-Frontal Long Island Sound (011000051302) and Mill River-Frontal Long Island Sound (0110000403) drainage basins. The project area does not fall within a public water supply or Aquifer Protection Area (APA). Multiple portions of the project area fall within the Coastal Area Management (CAM) zone. Coastal resources within the CAM portion of the project area include intertidal flats, tidal wetlands, and coastal flood hazard areas. Several coastal and inland resources were identified on the U.S. Fish and Wildlife Service's National Wetlands Inventory (NWI) mapping. Preliminary review of soil mapping provided by the Natural Resource Conservation Service did not identify any areas of hydric, poorly drained, or very poorly drained soils. Federal Emergency Management Agency (FEMA) mapping indicates that floodplain and floodway are present throughout the corridor. NWI, Soils, FEMA, and Resource mapping is provided in Appendix B.

The purpose of this report update is to document and describe state and federal jurisdictional wetlands, i.e., Waters of the United States, tidal wetlands and coastal resources, as well as identify vernal pools. It should be noted that vernal pools can only be accurately identified during the early spring while water levels are high and signs of amphibian breeding are evident. Vernal pools in Connecticut are based upon certain obligate species being present and utilizing the pool for breeding. The wetland delineations were completed during the appropriate time of year to assess vernal pools, both in the spring of 2019 and 2021, and no new evidence of vernal pool species was observed throughout the project limits during this updated investigation.

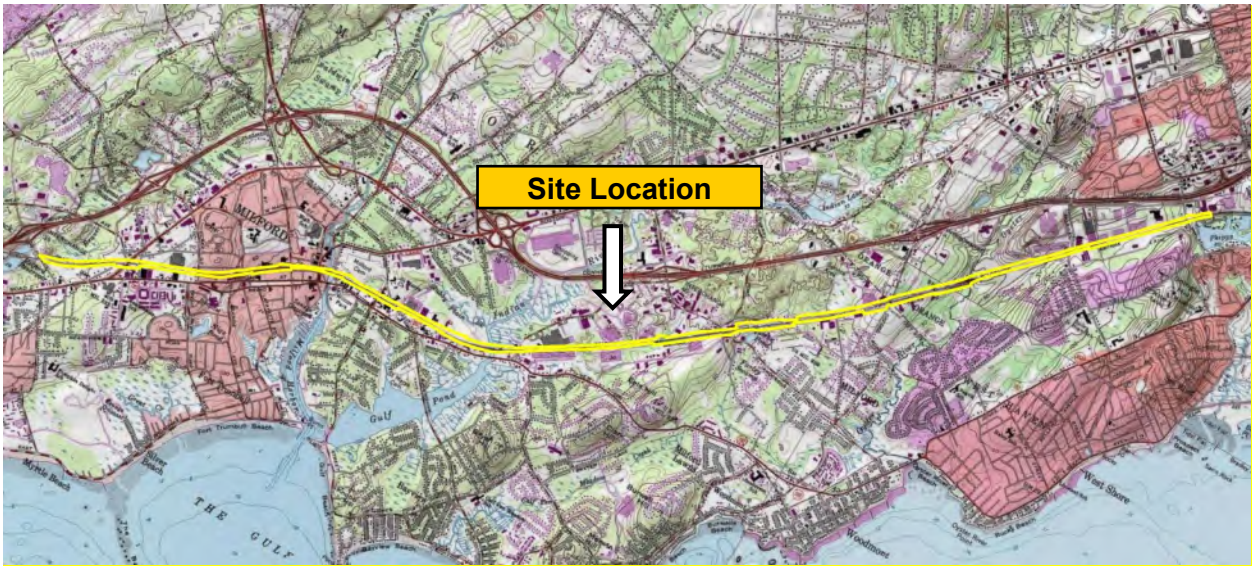


Figure 1 – Project Area Location Map near Milford & West Haven, CT
(New Haven County)

II. METHODS

This updated investigation involved a wetland/watercourse delineation that was completed by a Professional Wetland Scientists (PWS) and a Certified Professional Soil Scientist (CPSS) and conducted in accordance with the principles and practices noted in the United States Department of Agriculture (USDA) Soil Survey Manual (1993). The soil classification system of the National Cooperative Soil Survey was used in this investigation to identify the soil map units present on the project area.

Vegetation, soils, and hydrology were observed and documented during the site investigation in accordance with state and federal delineation methodologies. Soil types were identified by observing soil morphology (soil texture, color, structure, etc.). To observe the morphology of the soils, hand borings were completed. Where wetland and/or watercourses were determined to be present, their boundaries were identified with flags, which were hung from vegetation, or small stakes if in fields or grass communities. These flags are labeled "Wetland Boundary" and generally spaced approximately 50 feet apart. It is important to note that flagged wetland and watercourse boundaries are subject to verification by local, state, and/or federal regulatory agencies.

III. REGULATORY INFORMATION

Wetlands and watercourses are regulated by both state, municipal and federal laws and regulations, each with different definitions and regulatory requirements. Accordingly, the State and municipalities may regulate wetland and waters that fall outside of federal

jurisdiction; however, where federal jurisdiction exists, concurrent jurisdiction is almost always present.

State/Municipal Jurisdiction

Inland wetland determinations are based on the presence of poorly drained, very poorly drained, alluvial, or floodplain soils and submerged land. Watercourses are defined as "rivers, streams, brooks, waterways, lakes, ponds, marshes, swamps, bogs and all other bodies of water, natural or artificial, vernal or intermittent, public or private, which are contained within, flow through or border upon the state or any portion thereof." Intermittent watercourse determinations are made based on the presence of a defined permanent channel and bank, and two of the following characteristics: (1) evidence of scour or deposits of recent alluvium or detritus, (2) the presence of standing or flowing water for a duration longer than a particular storm incident, and (3) the presence of hydrophytic vegetation. (See Inland Wetlands and Watercourses Act §22a-38 CGS.) Municipalities may impose additional regulations on inland wetlands and watercourses, but have no jurisdiction over state-regulated tidal wetlands.

The Connecticut Department of Energy and Environmental Protection's (DEEP) Office of Long Island Sound Programs (OLISP) regulates all activities conducted in tidal wetlands and in tidal, coastal or navigable waters in Connecticut under the Structures, Dredging and Fill Act (Conn. Gen. Statutes (CGS) Sec. 22a-359 - 22a-363f, inclusive) and the Tidal Wetlands Act (CGS Sec. 22a-28 - 22a-35, inclusive). Recently, The High Tide Line (HTL), which was used as the jurisdictional limit for DEEP OLISP, was replaced by a Coastal Jurisdiction Line (CJL). The CJL elevation ranges for Milford from 4.8' to 5.1' (NAVD 88). The CJL elevation for West Haven is 4.6' (NAVD 88). Tidal wetlands are also separately regulated below the CJL, and up to one foot above the CJL if the area is deemed "capable of supporting" tidal wetland vegetation based on field investigations, through identification of certain plants and the presence of tidal waters.

Federal Jurisdiction

Jurisdictional wetlands at the Federal level consist of "Waters of the United States", which includes lakes, rivers and streams, as well as vegetated wetlands (See 33 CFR 328.8). The on-site waters and wetlands, regulated by the U.S. Army Corps of Engineers (ACOE), were delineated in accordance with the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual Northcentral and Northeast Region* (Version 2.0) (January 2012). This *Manual* requires there to be dominant hydrophytic vegetation, hydric soils, and hydrological conditions present in determining wetland areas.

Federal coastal jurisdiction under the Section 404 Clean Water Act includes navigable waters of the US below the High Tide Line (HTL). Federal jurisdiction includes all waters and their tributaries to the head of tide, which extends shoreward to the mean high water line under Section 10 of the Rivers and Harbors Act, and extends shoreward to the 1-year frequency tidal flood under Section 404 of the Clean Water Act.

IV. FUNCTIONS AND VALUES

Biophysical elements such as a wetland's landscape position, size, geology, hydrology, substrate, and vegetation determine the wetland functions and to what capacity they are performed. Due to the differing biophysical characteristics between on-site wetlands, the functions the wetlands provide and the capacity to perform those functions vary. To better understand these differences, a description of the assessed wetland functional values was completed based on the United States Army Corps of Engineers (ACOE) Highway Methodology Workbook (1993) and its supplement workbook. This method requires a description of each of the wetland communities as well as indicating the functions they provide. The ACOE workbook includes the following thirteen (13) functions and values that have been recognized as functions wetlands can provide:

- Groundwater Recharge/Discharge,
- Flood flow Alteration,
- Fish and Shellfish Habitat,
- Sediment/Toxicant Retention,
- Nutrient Removal/Retention/Transformation,
- Production Export,
- Sediment/Shoreline Stabilization,
- Wildlife Habitat,
- Recreation,
- Education/Scientific Value,
- Uniqueness/Heritage,
- Visual Quality/Aesthetics, and
- Threatened and Endangered Species Habitat.

V. SITE INVESTIGATION

The previous project area investigations and the updated investigations occurred on various dates in April and May 2019 and February 2020, between April 5 and April 7, 2021, and January and February 2022, under various meteorological conditions. As both the previous and updated field work was conducted early in the growing season, many vegetation specimens, particularly herbaceous species, were difficult to identify. Dates during which field investigations were conducted are noted on data forms in Appendix E.

The field investigations were conducted within the area of the Metro-North rail way right-of-way, a transportation corridor constructed over 100 years ago and in constant use since then. As such, this historic land use and both past and present anthropogenic actions have affected the ecology of areas within the railroad right-of-way.

Areas identified as jurisdictional features at the federal, state and municipal levels during the field investigations included:

Identifier	USFWS NWI Classification or Stream Designation	USDA WSS Soils Map Unit	Notes
Wetland A (W-A)	PFO	307 – Urban Land	Connected to Wetland B via a Pond.
Watercourse A (WC-A)	R4SBE1	Not applicable	Not applicable
Wetland B (W-B)	PFO	307 – Urban Land	Connected to Wetland A via a Pond.
Watercourse AA (WC-AA)	R4SBE1	Not applicable	Not applicable
Wetland U (W-U)	PEM	307 – Urban Land	Not applicable
Watercourse B (WC-B) Wepawaug River	E1UBL	Not applicable	Tidally influenced watercourse, Crosses under ROW in a north to south direction, continues outside the ROW.
Wetland C (W-C)	PSS1C (PEM sample point)	229B - Agawam-Urban Land Complex, 0 to 8% Slopes	Not applicable
Wetland D (W-D)	PFO	308 - Udorthents, smoothed	Not applicable
Wetland E (W-E)	PFO	308 - Udorthents, smoothed	Not applicable
Coastal Wetland A (W-CA)	E2EM1Pd (PEM sample point)	98 - Westbrook Mucky Peat	Adjoining Indian River, ponded areas during high tide.
Coastal Wetland B (W-CB)	E2EM1Pd (PEM sample point)	306 Udorthents-Urban Land Complex	Adjoining Indian River, ponded areas during high tide.
Coastal Wetland C (W-CC)	Not listed on NWI/ E2EM1Pd (PEM sample point)	98 - Westbrook Mucky Peat	Not applicable
Coastal Watercourse A (CWC-A) Indian River	E1UBL3/E1UBL	Not applicable	Indian River. Tidally influenced watercourse, Crosses under ROW in a north to south direction, continues outside the ROW.
Coastal Watercourse B (CWC-B)	E2EM1Pd	Not applicable	Tributary to Indian River
Coastal Watercourse V (CWC-V)	E2EM1Pd	Not applicable	Tributary to Indian River
Wetland EA (W-EA)	PEM	307 - Urban Land	Not applicable
Wetland F (W-F)	PSS	307 - Urban Land	Not applicable
Watercourse D (WC-D)	R4SBE1	Not applicable	Not applicable

Identifier	USFWS NWI Classification or Stream Designation	USDA WSS Soils Map Unit	Notes
Wetland G (W-G)	PFO	307 - Urban Land	Associated with Watercourse C
Watercourse C (WC-C)	R5UBh1	Not applicable	Not applicable
Watercourse CA (WC-CA)	R5UBh1	Not applicable	Not applicable
Watercourse EA (WC-EA)	R4SBE1	Not applicable	Not applicable
Wetland S (W-S)	PEM	306 - Udorthents-Urban Land Complex	Not applicable
Wetland H (W-H)	PSS	232B - Haven-Urban Land Complex, 0 to 8% Slopes	Not applicable
Wetland I (W-I)	PFO	306 - Udorthents-Urban Land Complex	Not applicable
Watercourse E (WC-E)	R5UBh1	Not applicable	Perennial stream, culverted under the ROW.
Wetland J (W-J)	PFO	17 - Timakwa and Natchaug Soils	Not applicable
Wetland K (W-K)	PSS	17 - Timakwa and Natchaug Soils	Not applicable
Watercourse F (WC-F)	R5UBh1	Not applicable	Not applicable
Wetland T (W-T)	PEM1/SS1E (PSS sample point)	18 - Catden and Freetown Soils	Not applicable
Wetland L (W-L)	PSS	306 - Udorthents-Urban Land Complex	When this wetland "floods" during rain or snow melt, it contributes hydrology to stream.
Wetland M (W-M)	PSS1E	306 - Udorthents-Urban Land Complex	Not applicable
Watercourse G (WC-G)	R4SBE1	Not applicable	Not applicable
Watercourse H (WC-H)	R4SBE1	Not applicable	Not applicable
Watercourse I (WC-I)	R4SBE1	Not applicable	Not applicable
Watercourse JA (WC-JA)	R4SBE1	Not applicable	Not applicable
Watercourse JB (WC-JB)	R4SBE1	Not applicable	Not applicable

Identifier	USFWS NWI Classification or Stream Designation	USDA WSS Soils Map Unit	Notes
Wetland NA (W-NA)	PEM	307 - Urban Land	Not applicable
Wetland N (W-N)	PFO	108 - Sasco Silt Loam	Not applicable
Watercourse J (WC-J)	R5UBh1	Not applicable	Not applicable
Watercourse Ja (WC-Ja)	R4SBE1	Not applicable	Not applicable
Wetland O (W-O)	PEM	306 -Udorthents-Urban Land Complex	Not applicable
Watercourse T (WC-T)	R4SBE1	Not applicable	Not applicable
Watercourse K (WC-K)	R4SBE1	Not applicable	Not applicable
Watercourse U (WC-U)	R4SBE1	Not applicable	Not applicable
Wetland P (W-P)	PSS	306 - Udorthents-Urban Land Complex	Not applicable
Wetland Q (W-Q)	PEM	307 - Urban Land	Not applicable
Watercourse L (WC-L)	R5UBh1	Not applicable	Not applicable
Watercourse M (WC-M)	R4SBE1	Not applicable	Not applicable
Watercourse N (WC-N)	R5UBh1	Not applicable	Not applicable
Watercourse O (WC-O)	R4SBE1	Not applicable	Not applicable
Watercourse P (WC-P)	R5UBh1	Not applicable	Not applicable
Watercourse Q (WC-Q)	R4SBE1	Not applicable	Not applicable
Watercourse R (WC-R)	R4SBE1	Not applicable	Not applicable
Watercourse S (WC-S)	R4SBE1	Not applicable	Not applicable
Wetland R (W-R)	PEM	306 - Udorthents-Urban Land Complex	Not applicable

Identifier	USFWS NWI Classification or Stream Designation	USDA WSS Soils Map Unit	Notes
Wetland V (W-V)	PSS	306 - Udorthents-Urban Land Complex	Not applicable

Data on the current plant communities, soils, and hydrology were documented to support the wetland delineation using Army Corps Wetland Determination Data Forms. Some of the common plant species observed in the study area are listed in Table 1. Descriptions of the delineated wetland resources are provided in Section VI. The delineated wetlands and watercourses and location of the data points are identified on the wetland mapping located in Appendix C. Delineated coastal resources are included with the mapping provided in Appendix C. Photographs of the identified wetland resources, taken to provide visual documentation of the area, are located in Appendix D, and data sheets are located in Appendix E.

Table 1: Common Plants in the Study Area and the Wetland Indicator Status

Common Name	Scientific Name	Indicator Status
Tree Stratum		
Pin oak	*Quercus palustris*	FACW
Red Maple	*Acer rubrum*	FAC
Sapling, Shrub and Vine Stratum		
Tartarian honeysuckle	*Lonicera tatrica*	FACU
White ash	*Fraxinus americana*	FACU
Rambler rose	*Rosa multiflora*	FACU
Herb Stratum		
Common reed	*Phragmites australis*	FACW
Broadleaf cattail	*Typha latifolia*	OBL
Jewelweed	*Impatiens capensis*	FACW

Source: Lichvar, R.W. 2012 *The National Wetland Plant List; 2016 wetland ratings, Phytoneuron 2013-49; 1-241.* http://wetland_plants.usace.army.mil/
Cold Regions Research and Engineering Laboratory, US Army Corps of Engineers.

VI. RESOURCE DESCRIPTIONS

Complex A

Wetland A: USFWS Classification: PFO

Wetland A is classified as a palustrine forested (PFO) wetland. This wetland system lies north of the railroad bed. Wetland A was delineated with sequentially numbered flags 1 through 18 and is open ended to the north. Wetland A is part of a larger wetland to the north. However, the majority of Wetland A is outside of the NWI to the north.

The wetland soil series identified through available mapping is 307 - Urban Land. This consists primarily of areas that have been cut for leveling or filled for development.

This wetland system provides the following functions and values: groundwater recharge/discharge, sediment/toxicant retention, nutrient removal, product export.

This area is designated as "Zone AE" in the Flood Insurance Rate Map for New Haven County, Connecticut, effective July 8, 2013. Please refer to Appendix B for FEMA FIRM Map.

Wetland B: USFWS Classification: PFO

Wetland B is classified as a palustrine forested (PFO) wetland. This wetland system lies south of the railroad bed. Wetland B was delineated with sequentially numbered flags 1 through 3 and is open ended to the south.

The wetland soil series identified through available mapping is 307 - Urban Land. This consists primarily of areas that have been cut for leveling or filled for development.

This wetland system provides the following functions and values: groundwater recharge/discharge, sediment/toxicant retention, nutrient removal, product export.

This area is designated as "Zone AE" in the Flood Insurance Rate Map for New Haven County, Connecticut, effective July 8, 2013. Please refer to Appendix B for FEMA FIRM Map.

Watercourse A: USFWS Classification R4SBE1

Watercourse A (WC-A) is not identified on NWI mapping, but is classified as a riverine, intermittent seasonally, flooded/saturated streambed (R4SBE1) watercourse. WC-A is located perpendicular to the railroad ROW and terminates into Wetland A. The watercourse is approximately 4 feet wide with a cobble, gravel, and muck substrate. Riffles and deep pools were noted throughout, and water depth varied from approximately 4 inches to 12 inches deep.

This area is designated as "Zone AE" in the Flood Insurance Rate Map for New Haven County, Connecticut, effective July 8, 2013. Please refer to Appendix B for FEMA FIRM Map.

<u>Complex B</u>

Watercourse AA: USFWS Classification R4SBE1

Watercourse AA (WC-AA) is not identified on NWI mapping, but is classified as a riverine, intermittent seasonally, flooded/saturated streambed (R4SBE1) watercourse. WC-AA is

located perpendicular and parallel to the railroad ROW and terminates near a culvert on the western side of Boston Post Road. The watercourse is approximately 4 feet wide with a gravel and muck substrate. Riffles were noted throughout, and water depth varied from approximately 1 inch to 2 inches deep.

This area is designated as "Zone X" in the Flood Insurance Rate Map for New Haven County, Connecticut, effective July 8, 2013. Please refer to Appendix B for FEMA FIRM Map.

Wetland U: USFWS Classification: PEM

Wetland U is classified as a palustrine emergent wetland (PEM). This wetland system lies south of the railroad bed. Wetland U was delineated with sequentially numbered flags 1 through 15. This wetland receives overland storm water runoff from adjoining non-wetland/upgradient areas.

The wetland soil series identified through available mapping is 307 - Urban Land. This consists primarily of areas that have been cut for leveling or filled for development.

This wetland system provides the following functions and values: groundwater recharge/discharge, sediment/toxicant retention, nutrient removal, product export.

This area is designated as "Zone X" in the Flood Insurance Rate Map for New Haven County, Connecticut, effective July 8, 2013. Please refer to Appendix B for FEMA FIRM Map.

Complex C

Watercourse B (Wepawaug River): USFWS Classification: E1UBL

Wepawaug River is classified as an estuarine subtidal unconsolidated bottom subtidal (E1UBL) watercourse according to USFWS National Wetland Inventory (NWI) mapping. The watercourse flows south into the Long Island Sound and is subject to the ebb and flood of the tides. The substrate of the river consists of an unconsolidated organic muck. During low tide, expanses of the substrate are exposed, forming intertidal flats that provide habitat for shellfish, namely mussels, and foraging habitat for birds. Some intertidal areas are stabilized with dense vegetation, forming low and high marsh habitat. Slopes in the vicinity of the railroad crossing over the river are protected by riprap, which also provides substrate for mussels and tidal vegetation.
This area is designated as "Zone AE" in the Flood Insurance Rate Map for New Haven County, Connecticut, effective July 8, 2013. Please refer to Appendix B for FEMA FIRM Map.

Complex D

Wetland C: USFWS Classification: PSS1C

Wetland C is classified as a palustrine scrub-shrub, broad-leaved deciduous, seasonally flooded wetland (PSS1C). This wetland system lies north of the railroad bed. Wetland C was delineated with sequentially numbered flags 1 through 4 and is open ended to the north. This wetland receives overland storm water runoff from adjoining non-wetland/upgradient areas and stormwater.

The wetland soil series identified through available mapping is 229B - Agawam-Urban Land Complex, 0 to 8% Slopes.

This wetland system provides the following functions and values: groundwater recharge/discharge, sediment/toxicant retention, nutrient removal, product export.

This area is designated as "Zone X" in the Flood Insurance Rate Map for New Haven County, Connecticut, effective July 8, 2013. Please refer to Appendix B for FEMA FIRM Map.

Complex E

Wetland D: USFWS Classification: PFO

Wetland D is classified as a palustrine forested (PFO) wetland. This wetland system lies north of the railroad bed. Wetland D was delineated with sequentially numbered flags 1 through 10 and is open ended to the north. Wetland D is located upgradient and just west of a tidally influenced area.

The soil series identified is 308 - Udorthents-Smoothed. Udorthents consist primarily of areas that have been cut for leveling or filled for development.

This wetland system provides the following functions and values: groundwater recharge/discharge, sediment/toxicant retention, nutrient removal, product export.

This area is designated as "Zone X" and "Zone AE" in the Flood Insurance Rate Map for New Haven County, Connecticut, effective July 8, 2013. Please refer to Appendix B for FEMA FIRM Map.

Wetland E: USFWS Classification: PFO

Wetland E is classified as a palustrine forested (PFO) wetland. This wetland system lies north of the railroad bed. Wetland E was delineated with sequentially numbered flags 1 through 14. Wetland E is located upgradient and just west of a tidally influenced area.

The soil series identified is 308 - Udorthents-Smoothed. Udorthents consist primarily of areas that have been cut for leveling or filled for development.

This wetland system provides the following functions and values: groundwater recharge/discharge, sediment/toxicant retention, nutrient removal, product export.

This area is designated as "Zone X" and "Zone AE" in the Flood Insurance Rate Map for New Haven County, Connecticut, effective July 8, 2013. Please refer to Appendix B for FEMA FIRM Map.

Coastal Wetland A: USFWS Classification: E2EM1Pd

Coastal Wetland A is classified as an estuarine intertidal emergent persistent irregularly flooded, partly drained/ditched wetland (E2EM1Pd) located on north side of the railroad bed and west of Indian River. This area floods during high tide.

The soil series identified is 98 – Westbrook Mucky Peat. Hydrologic conditions are influenced by diurnal fluctuations of Indian River.

Coastal Wetland A provides the following functions and values: groundwater recharge/discharge, flood flow alteration, sediment/toxicant retention, shellfish habitat, and nutrient removal.

This area is designated as "Zone AE" in the Flood Insurance Rate Map for New Haven County, Connecticut, effective July 8, 2013. Please refer to Appendix B for FEMA FIRM Map.

Coastal Wetland B: USFWS Classification: E2EM1Pd

Coastal Wetland B was not depicted on the NWI map; however, it can be classified as an estuarine intertidal emergent persistent irregularly flooded, partly drained/ditched wetland (E2EM1Pd) located on south side of the railroad bed and east of Indian River. This area floods during high tide.

The soil series identified is 98 – Westbrook Mucky Peat. Hydrologic conditions are influenced by diurnal fluctuations of Indian River.

Coastal Wetland B provides the following functions and values: groundwater recharge/discharge, flood flow alteration, sediment/toxicant retention, shellfish habitat, and nutrient removal.

This area is designated as "Zone AE" in the Flood Insurance Rate Map for New Haven County, Connecticut, effective July 8, 2013. Please refer to Appendix B for FEMA FIRM Map.

Coastal Wetland C: USFWS Classification: E2EM1Pd

Coastal Wetland C is classified as an estuarine intertidal emergent persistent irregularly flooded, partly drained/ditched wetland (E2EM1Pd) located on north side of the railroad bed and east of Indian River. This area floods during high tide.

The soil series identified is 306 - Udorthents-Urban Land Complex. Udorthents consist primarily of areas that have been cut for leveling or filled for development. Hydrologic conditions are influenced by diurnal fluctuations of Indian River.

Coastal Wetland C provides the following functions and values: groundwater recharge/discharge, flood flow alteration, sediment/toxicant retention, shellfish habitat, and nutrient removal.

This area is designated as "Zone AE" in the Flood Insurance Rate Map for New Haven County, Connecticut, effective July 8, 2013. Please refer to Appendix B for FEMA FIRM Map.

Coastal Watercourse A (Indian River): USFWS Classification: E1UBL3/E1UBL

Coastal Watercourse A (Indian River) is classified as an estuarine subtidal unconsolidated bottom subtidal mixohaline (brackish) (E1UBL3) watercourse north of the railroad and estuarine subtidal unconsolidated bottom subtidal (E1UBL) watercourse south of the rail road according to USFWS National Wetland Inventory (NWI) mapping. The watercourse flows south into the Long Island Sound and is subject to the ebb and flood of the tides. The substrate of the river consists of an unconsolidated organic muck. During low tide, expanses of the substrate are exposed, forming intertidal flats that provide habitat for shellfish, namely mussels, and foraging habitat for birds. Some intertidal areas are stabilized with dense vegetation, forming low and high marsh habitat. Slopes in the vicinity of the railroad crossing over the river are protected by riprap, which also provides substrate for mussels and tidal vegetation.

This area is designated as "Zone AE" in the Flood Insurance Rate Map for New Haven County, Connecticut, effective July 8, 2013. Please refer to Appendix B for FEMA FIRM Map.

Coastal Watercourse B: USFWS Classification: E2EM1Pd

Coastal Watercourse B is classified as an estuarine intertidal emergent persistent irregularly flooded, partly drained/ditched (E2EM1Pd) watercourse according to USFWS National Wetland Inventory (NWI) mapping. The watercourse flows west into the Indian River and is subject to the ebb and flood of the tides. The substrate of the river consists of an unconsolidated organic muck. During low tide, expanses of the substrate are exposed, forming intertidal flats that provide habitat for shellfish, namely mussels, and foraging habitat for birds. Some intertidal areas are stabilized with dense vegetation, forming low and high marsh habitat. Slopes in the vicinity of the railroad crossing over the

river are protected by riprap, which also provides substrate for mussels and tidal vegetation.

This area is designated as "Zone AE" in the Flood Insurance Rate Map for New Haven County, Connecticut, effective July 8, 2013. Please refer to Appendix B for FEMA FIRM Map.

Coastal Watercourse V: USFWS Classification: E2EM1Pd

Coastal Watercourse V is classified as an estuarine intertidal emergent persistent irregularly flooded, partly drained/ditched (E2EM1Pd) watercourse south of the railroad according to USFWS National Wetland Inventory (NWI) mapping. The watercourse flows west into the Indian River and is subject to the ebb and flood of the tides. The substrate of the river consists of an unconsolidated organic muck. During low tide, expanses of the substrate are exposed, forming intertidal flats that provide habitat for shellfish, namely mussels, and foraging habitat for birds. Some intertidal areas are stabilized with dense vegetation, forming low and high marsh habitat. Slopes in the vicinity of the railroad crossing over the river are protected by riprap, which also provides substrate for mussels and tidal vegetation.

This area is designated as "Zone AE" in the Flood Insurance Rate Map for New Haven County, Connecticut, effective July 8, 2013. Please refer to Appendix B for FEMA FIRM Map.

Complex F

Wetland EA: USFWS Classification: PEM

Wetland EA is identified on NWI mapping and is classified as a Palustrine Emergent, *Phragmites australis*, Seasonally Flooded wetland (PEM5C). This wetland system lies south of the railroad bed. Wetland EA was delineated with sequentially numbered flags 1 through 12. This wetland receives overland storm water runoff from adjoining non-wetland/upgradient areas and drains into a mapped NWI further south.

The wetland soil series identified through available mapping is 307 - Urban Land. This consists primarily of areas that have been cut for leveling or filled for development.
This wetland system provides the following functions and values: groundwater recharge/discharge, sediment/toxicant retention, nutrient removal, product export.

This area is designated as "Zone AE" in the Flood Insurance Rate Map for New Haven County, Connecticut, effective July 8, 2013. Please refer to Appendix B for FEMA FIRM Map.

Wetland F: USFWS Classification: PSS

Wetland F is classified as a palustrine scrub-shrub wetland (PSS). This wetland system lies south of the railroad bed. Wetland F was delineated with sequentially numbered flags 1 through 27. This wetland receives overland storm water runoff from adjoining non-wetland/upgradient areas and drains into a mapped NWI further south.

The wetland soil series identified through available mapping is 307 - Urban Land. This consists primarily of areas that have been cut for leveling or filled for development.

This wetland system provides the following functions and values: groundwater recharge/discharge, sediment/toxicant retention, nutrient removal, product export.

This area is designated as "Zone X" in the Flood Insurance Rate Map for New Haven County, Connecticut, effective July 8, 2013. Please refer to Appendix B for FEMA FIRM Map.

Watercourse D: USFWS Classification R4SBE1

Watercourse D (WC-D) is not identified on NWI mapping, but is classified as a riverine, intermittent seasonally, flooded/saturated streambed (R4SBE1) watercourse. WC-D is located parallel to the railroad ROW and associated with Wetland F. The watercourse is approximately 3 feet wide with a gravel, and muck substrate. Riffles and deep pools were noted throughout, and water depth varied from approximately 3 inches to 6 inches deep.

This area is designated as "Zone X" in the Flood Insurance Rate Map for New Haven County, Connecticut, effective July 8, 2013. Please refer to Appendix B for FEMA FIRM Map.

Wetland G: USFWS Classification: PFO

Wetland G is not identified on NWI mapping, but is classified as a palustrine forested wetland (PFO). This wetland system lies north of the railroad bed. Wetland G was delineated with sequentially numbered flags 1 through 19. This wetland receives overland storm water runoff from adjoining non-wetland/upgradient areas.

The wetland soil series identified through available mapping is 307 - Urban Land. This consists primarily of areas that have been cut for leveling or filled for development.
This wetland system provides the following functions and values: groundwater recharge/discharge, sediment/toxicant retention, nutrient removal, product export.

This area is designated as "Zone X" in the Flood Insurance Rate Map for New Haven County, Connecticut, effective July 8, 2013. Please refer to Appendix B for FEMA FIRM Map.

Watercourse C: USFWS Classification R5UBh1

Watercourse C (WC-C) is not identified on NWI mapping, but is classified as a riverine, unknown perennial, unconsolidated bottom diked/impounded (R5UBh1) watercourse. WC-C is located parallel to the railroad ROW. The watercourse is approximately 5 feet wide with a cobble, gravel, and muck substrate. Riffles and deep pools were noted throughout, and water depth varied from approximately 6 inches to 14 inches deep.

This area is designated as "Zone X" in the Flood Insurance Rate Map for New Haven County, Connecticut, effective July 8, 2013. Please refer to Appendix B for FEMA FIRM Map.

Watercourse CA: USFWS Classification R5UBh1

Watercourse CA (WC-CA) is not identified on NWI mapping, but is classified as a riverine, unknown perennial, unconsolidated bottom diked/impounded (R5UBh1) watercourse. WC-CA is located off-ROW in an area of additional workspace. The watercourse is approximately 5 feet wide with a cobble, gravel, and muck substrate. Riffles and deep pools were noted throughout, and water depth varied from approximately 12 inches to 24 inches deep.

This area is designated as "Zone X" in the Flood Insurance Rate Map for New Haven County, Connecticut, effective July 8, 2013. Please refer to Appendix B for FEMA FIRM Map.

Complex G

Watercourse EA: USFWS Classification R4SBE1

Watercourse EA (WC-EA) is not identified on NWI mapping, but is classified as a riverine, intermittent seasonally, flooded/saturated streambed (R4SBE1) watercourse. WC-EA is located parallel to the railroad ROW and is associated with Wetland S. The watercourse is approximately 4 feet wide with a gravel and muck substrate. Riffles and deep pools were noted throughout, and water depth varied from approximately 2 inches to 8 inches deep.

This area is designated as "Zone X" in the Flood Insurance Rate Map for New Haven County, Connecticut, effective July 8, 2013. Please refer to Appendix B for FEMA FIRM Map.

Wetland S: USFWS Classification: PEM

Wetland S is not identified on NWI mapping, but is classified as a palustrine emergent wetland (PEM). This wetland system lies north of the railroad bed. Wetland S was

delineated with sequentially numbered flags 1 through 5. This wetland receives overland storm water runoff from adjoining non-wetland/upgradient areas.

The wetland soil series identified through available mapping is 306 – Udorthents-Urban Land Complex. Udorthents consist primarily of areas that have been cut for leveling or filled for development.

This wetland system provides the following functions and values: groundwater recharge/discharge, sediment/toxicant retention, nutrient removal, product export.

This area is designated as "Zone X" in the Flood Insurance Rate Map for New Haven County, Connecticut, effective July 8, 2013. Please refer to Appendix B for FEMA FIRM Map.

Wetland H: USFWS Classification: PSS

Wetland H is not identified on NWI mapping, but is classified as a palustrine scrub-shrub wetland (PSS). This wetland system lies south of the railroad bed. Wetland H was delineated with sequentially numbered flags 1 through 4. This wetland receives overland storm water runoff from adjoining non-wetland/upgradient areas and floodplain of Watercourse E.

The wetland soil series identified through available mapping is 232B - Haven-Urban Land Complex, 0 to 8% Slopes.

This wetland system provides the following functions and values: groundwater recharge/discharge, sediment/toxicant retention, nutrient removal, product export.

This area is designated as "Zone X" in the Flood Insurance Rate Map for New Haven County, Connecticut, effective July 8, 2013. Please refer to Appendix B for FEMA FIRM Map.

Wetland I: USFWS Classification: PFO

Wetland I is not identified on NWI mapping, but is classified as a palustrine forested wetland (PFO). This wetland system lies north of the railroad bed. Wetland I was delineated with sequentially numbered flags 1 through 6. This wetland receives overland storm water runoff from adjoining non-wetland/upgradient areas and the floodplain of Watercourse E.

The wetland soil series identified through available mapping is 306 – Udorthents-Urban Land Complex. Udorthents consist primarily of areas that have been cut for leveling or filled for development.

This wetland system provides the following functions and values: groundwater recharge/discharge, sediment/toxicant retention, nutrient removal, product export.

This area is designated as "Zone X" in the Flood Insurance Rate Map for New Haven County, Connecticut, effective July 8, 2013. Please refer to Appendix B for FEMA FIRM Map.

Watercourse E: USFWS Classification R5UBh1

Watercourse E (WC-E) is not identified on NWI mapping, but is classified as a riverine, unknown perennial, unconsolidated bottom diked/impounded (R5UBh1) watercourse. WC-E is located perpendicular to the railroad ROW and flows underneath via a large culvert to the south. The watercourse is approximately 12 feet wide with a cobble, gravel, and muck substrate. Riffles and deep pools were noted throughout, and water depth varied from approximately 12 inches to 24 inches deep.

This area is designated as "Zone X" in the Flood Insurance Rate Map for New Haven County, Connecticut, effective July 8, 2013. Please refer to Appendix B for FEMA FIRM Map.

Complex H

Wetland J: USFWS Classification: PFO

Wetland J is not identified on NWI mapping, but is classified as a palustrine forested wetland (PFO). This wetland system lies south of the railroad bed. Wetland J was delineated with sequentially numbered flags 1 through 3. This wetland receives overland storm water runoff from adjoining non-wetland/upgradient areas.

The wetland soil series identified through available mapping is 17 - Timakwa and Natchaug Soils.

This wetland system provides the following functions and values: groundwater recharge/discharge, sediment/toxicant retention, nutrient removal, product export.

This area is designated as "Zone X" in the Flood Insurance Rate Map for New Haven County, Connecticut, effective July 8, 2013. Please refer to Appendix B for FEMA FIRM Map.

Wetland K: USFWS Classification: PSS

Wetland K is not identified on NWI mapping, but is classified as a palustrine scrub-shrub wetland (PSS). This wetland system lies north of the railroad bed. Wetland K was delineated with sequentially numbered flags 1 through 6. This wetland receives overland storm water runoff from adjoining non-wetland/upgradient areas and drains into Watercourse F.

The wetland soil series identified through available mapping is 17 - Timakwa and Natchaug Soils.

This wetland system provides the following functions and values: groundwater recharge/discharge, sediment/toxicant retention, nutrient removal, product export.

This area is designated as "Zone X" in the Flood Insurance Rate Map for New Haven County, Connecticut, effective July 8, 2013. Please refer to Appendix B for FEMA FIRM Map.

Watercourse F: USFWS Classification R5UBh1

Watercourse F (WC-F) is not identified on NWI mapping, but is classified as a riverine, unknown perennial, unconsolidated bottom diked/impounded (R5UBh1) watercourse. WC-F is located parallel to the railroad. The watercourse is approximately 15 feet wide with a cobble, gravel, and muck substrate. Riffles and deep pools were noted throughout, and water depth varied from approximately 18 inches to 28 inches deep.

This area is designated as "Zone X" in the Flood Insurance Rate Map for New Haven County, Connecticut, effective July 8, 2013. Please refer to Appendix B for FEMA FIRM Map.

Wetland T: USFWS Classification: PEM1/SS1E

Wetland T is classified as a palustrine emergent persistent and scrub-shrub broad-leaved deciduous seasonally flooded/saturated wetland (PEM1/SS1E). This wetland system lies north of the railroad bed and was classified in the field as PSS. Wetland T was delineated with sequentially numbered flags 1 through 10 and is open ended to the north. This wetland receives overland storm water runoff from adjoining non-wetland/upgradient areas and stormwater.

The wetland soil series identified through available mapping is 18 - Catden and Freetown Soils.

This wetland system provides the following functions and values: groundwater recharge/discharge, sediment/toxicant retention, nutrient removal, product export.

This area is designated as "Zone X" in the Flood Insurance Rate Map for New Haven County, Connecticut, effective July 8, 2013. Please refer to Appendix B for FEMA FIRM Map.

Complex I

Wetland L: USFWS Classification: PSS

Wetland L is not identified on NWI mapping, but is classified as a palustrine scrub-shrub wetland (PSS). This wetland system lies north of the railroad bed. Wetland L was delineated with sequentially numbered flags 1 through 27. This wetland receives overland storm water runoff from adjoining non-wetland/upgradient areas and drains into Watercourse G.

The wetland soil series identified through available mapping is 306 – Udorthents-Urban Land Complex. Udorthents consist primarily of areas that have been cut for leveling or filled for development.

This wetland system provides the following functions and values: groundwater recharge/discharge, sediment/toxicant retention, nutrient removal, product export.

This area is designated as "Zone X" in the Flood Insurance Rate Map for New Haven County, Connecticut, effective July 8, 2013. Please refer to Appendix B for FEMA FIRM Map.

Wetland M: USFWS Classification: PSS1E

Wetland M was identified on NWI mapping and is classified as a palustrine scrub-shrub broad-leaved deciduous seasonally flooded/saturated wetland (PSS1E). This wetland system lies south of the railroad bed. Wetland M was delineated with sequentially numbered flags 1 through 27. This wetland receives overland storm water runoff from adjoining non-wetland/upgradient areas and drains into Watercourse H.

The wetland soil series identified through available mapping is 306 – Udorthents-Urban Land Complex. Udorthents consist primarily of areas that have been cut for leveling or filled for development.

This wetland system provides the following functions and values: groundwater recharge/discharge, sediment/toxicant retention, nutrient removal, product export.

This area is designated as "Zone X" in the Flood Insurance Rate Map for New Haven County, Connecticut, effective July 8, 2013. Please refer to Appendix B for FEMA FIRM Map.

Watercourse G: USFWS Classification R4SBE1

Watercourse G (WC-G) is not identified on NWI mapping, but is classified as a riverine, intermittent seasonally, flooded/saturated streambed (R4SBE1) watercourse. WC-G is located parallel to the railroad ROW and is associated with Wetland L. The watercourse

is approximately 2 feet wide with a gravel, and muck substrate. Riffles and deep pools were noted throughout, and water depth varied from approximately 2 inches to 4 inches deep.

This area is designated as "Zone X" in the Flood Insurance Rate Map for New Haven County, Connecticut, effective July 8, 2013. Please refer to Appendix B for FEMA FIRM Map.

Watercourse H: USFWS Classification R4SBE1

Watercourse H (WC-H) is not identified on NWI mapping, but is classified as a riverine, intermittent seasonally, flooded/saturated streambed (R4SBE1) watercourse. WC-H is located parallel to the railroad ROW and associated with Wetland M. The watercourse is approximately 2 feet wide with a gravel, and muck substrate. Riffles and deep pools were noted throughout, and water depth varied from approximately 2 inches to 4 inches deep.

This area is designated as "Zone X" in the Flood Insurance Rate Map for New Haven County, Connecticut, effective July 8, 2013. Please refer to Appendix B for FEMA FIRM Map.

Complex J

Watercourse I: USFWS Classification R4SBE1

Watercourse I (WC-I) is not identified on NWI mapping, but is classified as a riverine, intermittent seasonally, flooded/saturated streambed (R4SBE1) watercourse. WC-I is located parallel to the railroad ROW. The watercourse is approximately 2 feet wide with a gravel, and muck substrate. Riffles and deep pools were noted throughout, and water depth varied from approximately 2 inches to 4 inches deep.

This area is designated as "Zone X" in the Flood Insurance Rate Map for New Haven County, Connecticut, effective July 8, 2013. Please refer to Appendix B for FEMA FIRM Map.

Complex K

Watercourse JA: USFWS Classification R4SBE1

Watercourse JA (WC-JA) is not identified on NWI mapping, but is classified as a riverine, intermittent seasonally, flooded/saturated streambed (R4SBE1) watercourse. WC-JA is a tributary to Watercourse J. The watercourse is approximately 5 feet wide with a cobble, gravel and muck substrate. Riffles and deep pools were noted throughout, and water depth varied from approximately 2 inches to 10 inches deep.

This area is designated as "Zone X" in the Flood Insurance Rate Map for New Haven County, Connecticut, effective July 8, 2013. Please refer to Appendix B for FEMA FIRM Map.

Watercourse JB: USFWS Classification R4SBE1

Watercourse JB (WC-JB) is not identified on NWI mapping, but is classified as a riverine, intermittent seasonally, flooded/saturated streambed (R4SBE1) watercourse. WC-JB is a tributary to Watercourse JA. The watercourse is approximately 2 feet wide with a gravel and muck substrate. Riffles were noted throughout, and water depth varied from approximately 1 inch to 3 inches deep.

This area is designated as "Zone X" in the Flood Insurance Rate Map for New Haven County, Connecticut, effective July 8, 2013. Please refer to Appendix B for FEMA FIRM Map.

Wetland NA: USFWS Classification: PEM

Wetland NA is not identified on NWI mapping, but is classified as a palustrine emergent wetland (PEM). This wetland system lies north of the railroad bed. Wetland NA was delineated with sequentially numbered flags 1 through 4. This wetland receives overland storm water runoff from adjoining non-wetland/upgradient areas and hydrological input from Watercourse JA.

The wetland soil series identified through available mapping is 307 – Urban Land. Which consists of primarily areas that have been cut for leveling or filled for development.

This wetland system provides the following functions and values: groundwater recharge/discharge, sediment/toxicant retention, nutrient removal, product export.

This area is designated as "Zone X" in the Flood Insurance Rate Map for New Haven County, Connecticut, effective July 8, 2013. Please refer to Appendix B for FEMA FIRM Map.

Wetland N: USFWS Classification: PFO

Wetland N is not identified on NWI mapping, but is classified as a palustrine forested wetland (PFO). This wetland system lies south of the railroad bed. Wetland N was delineated with sequentially numbered flags 1 through 8. This wetland receives overland storm water runoff from adjoining non-wetland/upgradient areas and is within the floodplain of Wetland N.

The wetland soil series identified through available mapping is 108 – Sasco Silt Loam.

This wetland system provides the following functions and values: groundwater recharge/discharge, sediment/toxicant retention, nutrient removal, product export.

This area is designated as "Zone X" in the Flood Insurance Rate Map for New Haven County, Connecticut, effective July 8, 2013. Please refer to Appendix B for FEMA FIRM Map.

Watercourse J: USFWS Classification R5UBh1

Watercourse J (WC-J) is not identified on NWI mapping, but is classified as a riverine, unknown perennial, unconsolidated bottom diked/impounded (R5UBh1) watercourse. WC-J is located parallel to the railroad ROW. The watercourse is approximately 12 feet wide with a cobble, gravel, and muck substrate. Riffles and deep pools were noted throughout, and water depth varied from approximately 6 inches to 22 inches deep.

This area is designated as "Zone X" in the Flood Insurance Rate Map for New Haven County, Connecticut, effective July 8, 2013. Please refer to Appendix B for FEMA FIRM Map.

Watercourse Ja: USFWS Classification R4SBE1

Watercourse Ja (WC-Ja) is not identified on NWI mapping, but is classified as a riverine, intermittent seasonally, flooded/saturated streambed (R4SBE1) watercourse. WC-Ja is a tributary to Watercourse J. The watercourse is approximately 2 feet wide with a gravel, and muck substrate. Riffles and deep pools were noted throughout, and water depth varied from approximately 2 inches to 4 inches deep.

This area is designated as "Zone X" and "Zone A" in the Flood Insurance Rate Map for New Haven County, Connecticut, effective July 8, 2013. Please refer to Appendix B for FEMA FIRM Map.

Complex L

Wetland O: USFWS Classification: PEM

Wetland O is not identified on NWI mapping, but is classified as a palustrine emergent wetland (PEM). This wetland system lies north of the railroad bed. Wetland O was delineated with sequentially numbered flags 1 through 11. This wetland receives overland storm water runoff from adjoining non-wetland/upgradient areas and hydrological input from Watercourse K, Watercourse T, and Watercourse U.

The wetland soil series identified through available mapping is 306 – Udorthents-Urban Land Complex. Udorthents consist primarily of areas that have been cut for leveling or filled for development.

This wetland system provides the following functions and values: groundwater recharge/discharge, sediment/toxicant retention, nutrient removal, product export.

This area is designated as "Zone X" in the Flood Insurance Rate Map for New Haven County, Connecticut, effective July 8, 2013. Please refer to Appendix B for FEMA FIRM Map.

Watercourse T: USFWS Classification R4SBE1

Watercourse T (WC-T) is not identified on NWI mapping, but is classified as a riverine, intermittent seasonally, flooded/saturated streambed (R4SBE1) watercourse. The watercourse is approximately 2 feet wide with a gravel, and muck substrate. Riffles and deep pools were noted throughout, and water depth varied from approximately 2 inches to 6 inches deep.

This area is designated as "Zone X" in the Flood Insurance Rate Map for New Haven County, Connecticut, effective July 8, 2013. Please refer to Appendix B for FEMA FIRM Map.

Watercourse K: USFWS Classification R4SBE1

Watercourse K (WC-K) is not identified on NWI mapping, but is classified as a riverine, intermittent seasonally, flooded/saturated streambed (R4SBE1) watercourse. The watercourse is approximately 2 feet wide with a gravel, and muck substrate. Riffles and deep pools were noted throughout, and water depth varied from approximately 2 inches to 4 inches deep.

This area is designated as "Zone X" in the Flood Insurance Rate Map for New Haven County, Connecticut, effective July 8, 2013. Please refer to Appendix B for FEMA FIRM Map.

Watercourse U: USFWS Classification R4SBE1

Watercourse U (WC-U) is not identified on NWI mapping, but is classified as a riverine, intermittent seasonally, flooded/saturated streambed (R4SBE1) watercourse. The watercourse is approximately 4 feet wide with a gravel, and muck substrate. Riffles and deep pools were noted throughout, and water depth varied from approximately 2 inches to 4 inches deep.

This area is designated as "Zone X" in the Flood Insurance Rate Map for New Haven County, Connecticut, effective July 8, 2013. Please refer to Appendix B for FEMA FIRM Map.

Complex M

Wetland P: USFWS Classification: PSS

Wetland P is not identified on NWI mapping, but is classified as a palustrine scrub-shrub wetland (PSS). This wetland system lies north of the railroad bed. Wetland P was delineated with sequentially numbered flags 1 through 25. This wetland receives overland storm water runoff from adjoining non-wetland/upgradient areas.

The wetland soil series identified through available mapping is 306 – Udorthents-Urban Land Complex. Udorthents consist primarily of areas that have been cut for leveling or filled for development.

This wetland system provides the following functions and values: groundwater recharge/discharge, sediment/toxicant retention, nutrient removal, product export.

This area is designated as "Zone X" in the Flood Insurance Rate Map for New Haven County, Connecticut, effective July 8, 2013. Please refer to Appendix B for FEMA FIRM Map.

Wetland Q: USFWS Classification: PEM

Wetland Q is not identified on NWI mapping, but is classified as a palustrine emergent wetland (PEM). This wetland system lies north of the railroad bed. Wetland Q was delineated with sequentially numbered flags 1 through 15. This wetland receives overland storm water runoff from adjoining non-wetland/upgradient areas.

The wetland soil series identified through available mapping is 307 – Urban Land. Which consists of primarily areas that have been cut for leveling or filled for development.
This wetland system provides the following functions and values: groundwater recharge/discharge, sediment/toxicant retention, nutrient removal, product export.

This area is designated as "Zone X" in the Flood Insurance Rate Map for New Haven County, Connecticut, effective July 8, 2013. Please refer to Appendix B for FEMA FIRM Map.

Watercourse L: USFWS Classification R5UBh1

Watercourse L (WC-L) is not identified on NWI mapping, but is classified as a riverine, unknown perennial, unconsolidated bottom diked/impounded (R5UBh1) watercourse. WC-L is located parallel to the railroad ROW. The watercourse is approximately 5 feet wide with a cobble, gravel, and muck substrate. Riffles and deep pools were noted throughout, and water depth varied from approximately 6 inches to 18 inches deep.

This area is designated as "Zone X" in the Flood Insurance Rate Map for New Haven County, Connecticut, effective July 8, 2013. Please refer to Appendix B for FEMA FIRM Map.

Watercourse M: USFWS Classification R4SBE1

Watercourse M (WC-M) is not identified on NWI mapping, but is classified as a riverine, intermittent seasonally, flooded/saturated streambed (R4SBE1) watercourse. The watercourse is approximately 3 feet wide with a gravel, and muck substrate. Riffles and deep pools were noted throughout, and water depth varied from approximately 6 inches to 10 inches deep.

This area is designated as "Zone X" in the Flood Insurance Rate Map for New Haven County, Connecticut, effective July 8, 2013. Please refer to Appendix B for FEMA FIRM Map.

Watercourse N: USFWS Classification R5UBh1

Watercourse N (WC-N) is not identified on NWI mapping, but is classified as a riverine, unknown perennial, unconsolidated bottom diked/impounded (R5UBh1) watercourse. WC-N is located parallel to the railroad ROW. The watercourse is approximately 6 feet wide with a cobble, gravel, and muck substrate. Riffles and deep pools were noted throughout, and water depth varied from approximately 6 inches to 12 inches deep.

This area is designated as "Zone X" in the Flood Insurance Rate Map for New Haven County, Connecticut, effective July 8, 2013. Please refer to Appendix B for FEMA FIRM Map.

<u>Complex N</u>

Watercourse O: USFWS Classification R4SBE1

Watercourse O (WC-O) is not identified on NWI mapping, but is classified as a riverine, intermittent seasonally, flooded/saturated streambed (R4SBE1) watercourse. The watercourse is approximately 3 feet wide with a gravel substrate. Riffles and deep pools were noted throughout, and water depth varied from approximately 6 inches to 10 inches deep.

This area is designated as "Zone X" in the Flood Insurance Rate Map for New Haven County, Connecticut, effective July 8, 2013. Please refer to Appendix B for FEMA FIRM Map.

Watercourse P: USFWS Classification R5UBh1

Watercourse P (WC-P) is not identified on NWI mapping, but is classified as a riverine, unknown perennial, unconsolidated bottom diked/impounded (R5UBh1) watercourse.

WC-P is located parallel to the railroad ROW. The watercourse is approximately 5 feet wide with a cobble, gravel, and muck substrate. Riffles and deep pools were noted throughout, and water depth varied from approximately 6 inches to 20 inches deep.

This area is designated as "Zone X" in the Flood Insurance Rate Map for New Haven County, Connecticut, effective July 8, 2013. Please refer to Appendix B for FEMA FIRM Map.

Watercourse Q: USFWS Classification R4SBE1

Watercourse Q (WC-Q) is not identified on NWI mapping, but is classified as a riverine, intermittent seasonally, flooded/saturated streambed (R4SBE1) watercourse. The watercourse is approximately 1 foot wide with a gravel, and muck substrate. Riffles and deep pools were noted throughout, and water depth varied from approximately 2 inches to 4 inches deep.

This area is designated as "Zone X" in the Flood Insurance Rate Map for New Haven County, Connecticut, effective July 8, 2013. Please refer to Appendix B for FEMA FIRM Map.

Watercourse R: USFWS Classification R4SBE1

Watercourse R (WC-R) is not identified on NWI mapping, but is classified as a riverine, intermittent seasonally, flooded/saturated streambed (R4SBE1) watercourse. The watercourse is approximately 3 feet wide with a gravel, and muck substrate. Riffles and deep pools were noted throughout, and water depth varied from approximately 6 inches to 12 inches deep.

This area is designated as "Zone X" in the Flood Insurance Rate Map for New Haven County, Connecticut, effective July 8, 2013. Please refer to Appendix B for FEMA FIRM Map.

Watercourse S: USFWS Classification R4SBE1

Watercourse S (WC-S) is not identified on NWI mapping, but is classified as a riverine, intermittent seasonally, flooded/saturated streambed (R4SBE1) watercourse. The watercourse is approximately 3 feet wide with a cobble, gravel, and muck substrate. Riffles and deep pools were noted throughout, and water depth varied from approximately 6 inches to 18 inches deep.

This area is designated as "Zone X" in the Flood Insurance Rate Map for New Haven County, Connecticut, effective July 8, 2013. Please refer to Appendix B for FEMA FIRM Map.

Wetland R: USFWS Classification: PEM

Wetland R is not identified on NWI mapping, but is classified as a palustrine emergent wetland (PEM). This wetland system lies north of the railroad bed. Wetland R was delineated with sequentially numbered flags 1 through 6. This wetland receives overland storm water runoff from adjoining non-wetland/upgradient areas.

The wetland soil series identified through available mapping is 306 – Udorthents-Urban Land Complex. Udorthents consist primarily of areas that have been cut for leveling or filled for development.

This wetland system provides the following functions and values: groundwater recharge/discharge, sediment/toxicant retention, nutrient removal, product export.

This area is designated as "Zone X" in the Flood Insurance Rate Map for New Haven County, Connecticut, effective July 8, 2013. Please refer to Appendix B for FEMA FIRM Map.

Wetland V: USFWS Classification: PSS

Wetland V is not identified on NWI mapping, but is classified as a palustrine scrub-shrub wetland (PSS). This wetland system lies north of the railroad bed. Wetland V was delineated with sequentially numbered flags 1 through 8. This wetland receives overland storm water runoff from adjoining non-wetland/upgradient areas.

The wetland soil series identified through available mapping is 306 – Udorthents-Urban Land Complex. Udorthents consist primarily of areas that have been cut for leveling or filled for development.

This wetland system provides the following functions and values: groundwater recharge/discharge, sediment/toxicant retention, nutrient removal, product export.

This area is designated as "Zone X" in the Flood Insurance Rate Map for New Haven County, Connecticut, effective July 8, 2013. Please refer to Appendix B for FEMA FIRM Map.

VII. VERNAL POOL INVESTIGATION

Identification of vernal pools can only be verified during the spring as they are sensitive to seasonal water fluctuations and temperatures. In a typical season, amphibians will begin their migration to a pool in late winter/early spring as the temperatures begin to rise and remain consistently above freezing and after a good amount of precipitation. Vernal pools are typically identified based on the presence of one or more obligate species which include: spotted salamander (*Ambystoma maculatum*), marbled salamander (*Ambystoma opacum*), Jefferson salamander (*Ambystoma jeffersonianum*), blue-spotted salamander (*Ambystoma laterale*), blue-spotted-Jefferson complex, wood

frog *(Rana sylvatica*), and fairy shrimp (*Anostraca*). Evidence of amphibian breeding includes the presence of salamander spermatophores at the bottom of the pool, egg masses attached to overhanging vegetation, the presence of tadpoles or larvae, presence of adults within the pool or adjacent uplands, or calling adult wood frogs. Fairy shrimp are often observed through water sampling, but can sometimes be seen swimming in the pool if the water is clear enough.

In the State of Connecticut, vernal pools are identified through field verification, as an official vernal pool inventory is not in place at this time. The timing of the field study was established to coincide with the optimum time-of-year to identify vernal pools and any fauna that may use such features. During the field visits, no vernal pools were identified along the project study area.

VIII. HABITAT ASSESSMENT

On September 12, 2019, BL submitted an application to request a review of state listed species from the CTDEEP Natural Diversity Database (NDDB). To date no response has been received from the CTDEEP NDDB. This correspondence can be found in Appendix F.

According to the U.S. Fish and Wildlife Service Information for Planning and Conservation (IPaC) tool, two (2) federally listed species may occur or could potentially be affected by activities within the project area. The northern long-eared bat (*Myotis septentrionalis*) and red knot (*Calidris canutus rufa*), which are both federally threatened.

The red knot (*Calidris canutus rufa*) is a federally threatened migratory shorebird that requires marsh or mudflat habitat and is known to occur along the shore in Connecticut. Potential marsh and mudflat habitat is present along portions of the tidally-influenced features throughout the corridor. According to Cornell Lab's EBird.org, the closest known occurrence of this species was recorded approximately 375 feet to the south-southeast of the railroad corridor, northeast of Silver Sand Park. According to Ebird, the most recent observance of the above-mentioned species occurred on September 12, 2019; however, this species was observed approximately 14,000 feet from the Project area. Given the close proximity to the project area, BL submitted a *Section 7 Consultation Request* to USFWS. To date no response has been received from the USFWS.

Given that the land use within the project area consists of an existing railroad corridor, no suitable habitat for this species was observed during the field investigation. Therefore, it is unlikely that the red knot occurs within the project area.

The northern long-eared bat (*Myotis septentrionalis*) is a federally threatened bat species. However, as stated in the IPaC correspondence dated September 12, 2019, the proposed project is not likely to result in unauthorized take of the northern long-eared bat. The official IPaC reports and EBird.org mapping can be found in Appendix G.

IX. SUMMARY

BL Companies identified 26 regulated and jurisdictional wetland areas and 30 watercourses within the project area. Poorly drained soils, hydric soils, hydrophytic vegetation, and hydrology were all observed in the wetland locations satisfying the criteria of the State and ACOE methodology for wetland delineations. Three (3) watercourses were tidal in nature and a fourth is perennial with tidal influence. In addition to the descriptions within the previous sections of this report, supporting data forms and photographs are attached that document the findings of the on-site field investigations.

X. PREPARERS

Dan King, CPSS, PWS (2019, 2020, 2021)

Mr. King has 10 years of experience in the environmental consulting field. He is a Certified Professional Soil Scientist (CPSS) and a Professional Wetland Scientist (PWS). Throughout his career as a Biologist, Mr. King has developed expertise in conducting wetland delineations, compensatory mitigation planning, lake management, invasive species management, and various other facets of the discipline. In addition, Mr. King has authored Wetland and Watercourse Delineation Reports, Section 404 Nationwide Permit applications and Section 401 Water Quality Certification applications, and Mitigation Monitoring Reports. Throughout his career as a geologist and environmental scientist, Mr. King has developed expertise in conducting Pre-construction Assessments (soil and groundwater site characterizations of new build and re-build development projects), Phase I and Phase II Environmental Site Assessments, Bureau of Underground Storage Tank Regulations (BUSTR) corrective action processes, emergency response techniques and management, soil and groundwater sampling techniques and protocols, soil vapor extraction, remediation systems, well installation, and borehole logging, and various other facets of the discipline.

Sagan Simko, CPSS, PWS (2021 & 2022)

Mr. Simko has approximately 15 years of experience in performing an array of wetland delineations and site assessments, including vernal pool surveys. His wide array of experience encompasses soil morphological evaluations, infiltration and percolation testing, wetland mitigation design and monitoring, Bog Turtle habitat identification, as well as threatened and endangered species surveys. In addition, he has completed carbonate geology site evaluations, identification of asbestos-containing material, and underground storage tank removals and investigations. Mr. Simko's computer skills include ArcGIS 10 and GPS Pathfinder Office. As a Senior Project Scientist II at BL Companies, Mr. Simko's responsibilities include wetland investigations, vernal pool surveys, soil investigations, ground water investigations, Phase I site assessments, remediation related activities, remediation system monitoring and maintenance, engineering compliance inspection for natural gas pipeline projects, and construction field inspection duties for electric transmission line projects.

REFERENCES

1. Brinson, M.M. 1993. *A Hydrogeomorphic Classification for Wetlands*. Tech. Rpt.WRP-DE-4, U.S. Army Engineer Waterways Experiment Station, Vicksburg, MS.

2. Cowardin, L.M., V. Carter, F.C. Golet and E.T. LaRoe, 1979. *Classification of Wetlands and Deepwater Habitats of the United States.* U.S. Fish and Wildlife Service. Washington, D.C. FWS/OBS-79/31.

3. Environmental Laboratory, 1987. *Corps of Engineers Wetland Delineation Manual.* Technical Report Y-87-1. US Army Engineer Waterways Experiment Station. Vicksburg, Miss.

4. Lichvar, R.W. 2012 *The National Wetland Plant List; 2013 wetland ratings, Phytoneuron 2013-49; 1-241*. http://wetland_plants.usace.army.mil/ Cold Regions Research and Engineering Laboratory, US Army Corps of Engineers.

5. United States Army Corps of Engineers. January 2012. *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region (Version 2.0)*. Ed. J.S. Wakely, R.W. Lichvar, C.V. Noble, and J.F. Berkowitz. ERDC/EL TR-12-1. Vicksburg, MS: U.S. Army Research and Development Center.

6. United States Army Corps of Engineers. 1993. *The Highway Methodology Workbook*. US Army Corps of Engineers New England Division. 28pp. NEDEP-360-1-30.

7. United States Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) soil descriptions. Internet site: (http://soils.usda.gov/technical/classification/osd/index.html)

APPENDIX F: CT DEEP Natural Diversity Database Correspondence

Connecticut Department of
Energy & Environmental Protection
Bureau of Natural Resources
Wildlife Division

CPPU USE ONLY
App #:_____
Doc #:_____
Check #: No fee required
Program: Natural Diversity Database Endangered Species
Hardcopy _____ Electronic _____

Request for Natural Diversity Data Base (NDDB) State Listed Species Review

Please complete this form in accordance with the instructions (DEEP-INST-007) to ensure proper handling of your request.
There are no fees associated with NDDB Reviews.

Part I: Preliminary Screening & Request Type

Before submitting this request, you must review the most current Natural Diversity Data Base "State and Federal Listed Species and Significant Natural Communities Maps" found on the DEEP website. These maps are updated twice a year, usually in June and December.

Does your site, including all affected areas, fall in an NDDB Area according to the map instructions:

☒ Yes ☐ No **Enter the date** of the map reviewed for pre-screening: 09/12/2019

This form is being submitted for a :

☒ *New* NDDB request ☐ *Renewal/Extension* of a NDDB Request, ***without*** *modifications and within* ***two years*** *of issued NDDB determination* (no attachments required) [*CPPU Use Only - NDDB-Listed Species Determination #* 1736]	☐ *New* **Safe Harbor Determination** (optional) must be associated with an application for a GP for the Discharge of Stormwater and Dewatering Wastewaters from Construction Activities ☐ *Renewal/Extension* of an existing Safe Harbor Determination ☐ With modifications ☐ Without modifications (no attachments required) [*CPPU Use Only - NDDB-Safe Harbor Determination #* 1736]
Enter NDDB Determination Number for Renewal/Extension:	Enter Safe Harbor Determination Number for Renewal/Extension:

Part II: Requester Information

If the requester is a corporation, limited liability company, limited partnership, limited liability partnership, or a statutory trust, it must be registered with the Secretary of State. If applicable, the name shall be stated **exactly as it is registered with the Secretary of State. Please note, for those entities registered with the Secretary of State, the registered name will be the name used by DEEP. This information can be accessed at the Secretary of the State's database CONCORD.* (www.concord-sots.ct.gov/CONCORD/index.jsp)

If the requester is an individual, provide the legal name (include suffix) in the following format: First Name; Middle Initial; Last Name; Suffix (Jr, Sr., II, III, etc.).

If there are any changes or corrections to your company/facility or individual mailing or billing address or contact information, please complete and submit the Request to Change company/Individual Information to the address indicated on the form.

1. Requester*

Company Name: BL Companies

Contact Name: Donald Smith

Address: 355 Research Parkway

City/Town: Meriden State: CT Zip Code: 06450

Business Phone: 203-608-2402 ext.

**E-mail: DSmith@BLCompanies.com

**By providing this email address you are agreeing to receive official correspondence from the department, at this electronic address, concerning this request. Please remember to check your security settings to be sure you can receive emails from "ct.gov" addresses. Also, please notify the department if your e-mail address changes

a) Requester can best be described as:

☐ Individual ☐ Federal Agency ☐ State agency ☐ Municipality ☐ Tribal

☒ *business entity (* if a business entity complete i through iii):

i) Check type ☒ corporation ☐ limited liability company ☐ limited partnership ☐ limited liability partnership ☐ statutory trust ☐ Other:

ii) Provide Secretary of the State Business ID #: This information can be accessed at the Secretary of the State's database (CONCORD). (www.concord-sots.ct.gov/CONCORD/index.jsp)

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

b) Acting as (Affiliation), pick one:

☐ Property owner ☒ Consultant ☐ Engineer ☐ Facility owner ☐ Applicant

☐ Biologist ☐ Pesticide Applicator ☐ Other representative:

2. List Primary Contact to receive Natural Diversity Data Base correspondence and inquiries, if different from requester.

Company Name:

Contact Person: Title:

Mailing Address:

City/Town: State: Zip Code:

Business Phone: ext.

**E-mail:

Part III: Site Information

This request can only be completed for one site. A separate request must be filed for each additional site.

1. SITE NAME AND LOCATION

Site Name or Project Name: Milvon to Alling Crossing

Town(s): Milford, Orange, West Haven

Street Address or Location Description: The coordinates for the approximate southwestern and northeastern ends of this linear project are N41.21180/W73.08501 and N41.26698/W72.97226, respectively. The project site is a linear corridor (i.e., an existing rail road), approximately 7.3 miles long and 50 feet wide on the north and south sides of the Metro North rail way.

Size in acres, or site dimensions:

Latitude and longitude of the center of the site in decimal degrees (e.g., 41.23456 -71.68574):

Please refer to above description.

Latitude: Longitude:

Method of coordinate determination (check one):

☐ GPS ☐ Photo interpolation using CTECO map viewer ☒ Other (specify): CAD/GIS Files

2a. Describe the current land use and land cover of the site.

The field investigations were conducted within the area of the Metro North rail way Right-of-Way, a transportation corridor constructed over 100-years ago and in constant use since then. As such, this historic land use and both past and present anthropogenic actions have affected the ecology of areas within the railroad right-of-way.

b. Check all that apply and enter the size in acres or % of area in the space after each checked category.

☐ Industrial/Commercial _____	☐ Residential _____	☐ Forest _____
☒ Wetland 5	☐ Field/grassland _____	☐ Agricultural _____
☒ Water 5	☒ Utility Right-of-way 90	
☐ Transportation Right-of-way _____	☐ Other (specify): _____	

Part IV: Project Information

1. PROJECT TYPE:

Choose Project Type: Choose Type From Dropdown List , If other describe: _____

2. Is the subject activity limited to the maintenance, repair, or improvement of an existing structure within the existing footprint? ☐ Yes ☒ No If yes, explain.

Part IV: Project Information (continued)

3. Give a detailed description of the activity which is the subject of this request and describe the methods and equipment that will be used. Include a description of steps that will be taken to minimize impacts to any known listed species.

The client is investigating upgrades to existing electric transmission lines and poles located within the CTDOT railroad right-of-way. These upgrades may involve the installation of multiple new transmission towers within or near the existing CTDOT railroad right-of-way between Milford and New Haven, CT. Anticipated construction equipment includes but is not limited to cranes, bucket trucks, pulling mechanisms for new wire, excavators, loaders, and construction support vehicles. Wetland resources will be field delineated and avoided to the extent practicable. Further avoidance and mitigation strategies will be developed as conceptual plans progress.

4. If this is a renewal or extension of an existing Safe Harbor request *with* modifications, explain what about the project has changed.

5. Provide a contact for questions about the project details if different from Part II primary contact.

   Name:

   Phone:

   E-mail:

Part V: Request Requirements and Associated Application Types

Check *one* box from either Group 1, Group 2 *or* Group 3, indicating the appropriate category for this request.

Group 1. If you check one of these boxes, complete Parts I – VII of this form and submit the required attachments A and B.

- ☐ Preliminary screening was negative but an NDDB review is still requested
- ☐ Request regards a municipally regulated or unregulated activity (no state permit/certificate needed)
- ☒ Request regards a preliminary site assessment or project feasibility study
- ☐ Request relates to land acquisition or protection
- ☐ Request is associated with a *renewal* of an existing permit or authorization, with no modifications

Group 2. If you check one of these boxes, complete Parts I – VII of this form and submit required attachments A, B, *and* C.

- ☐ Request is associated with a *new* state or federal permit or authorization application or registration
- ☐ Request is associated with modification of an existing permit or other authorization
- ☐ Request is associated with a permit enforcement action
- ☒ Request regards site management or planning, requiring detailed species recommendations
- ☐ Request regards a state funded project, state agency activity, or CEPA request

☐ **Group 3.** If you are requesting a **Safe Harbor Determination**, complete Parts I-VII and submit required attachments A, B, and D. Safe Harbor determinations can only be requested if you are applying for a GP for the Discharge of Stormwater and Dewatering Wastewaters from Construction Activities

If you are filing this request as part of a state or federal permit application(s) enter the application information below.

Permitting Agency and Application Name(s): _____

Related State DEEP Permit Number(s), if applicable: _____

State DEEP Enforcement Action Number, if applicable: _____

State DEEP Permit Analyst(s)/Engineer(s), if known: _____

Is this request related to a previously submitted NDDB request? ☐ Yes ☐ No

If yes, provide the previous NDDB Determination Number(s), if known: _____

Part VI: Supporting Documents

Check each attachment submitted as verification that *all* applicable attachments have been supplied with this request form. Label each attachment as indicated in this part (e.g., Attachment A, etc.) and be sure to include the requester's name, site name and the date. **Please note that Attachments A and B are required for all new requests and Safe Harbor renewals/extensions with modifications.** Renewals/Extensions with no modifications do not need to submit any attachments. Attachments C and D are supplied at the end of this form.

☒ Attachment A:	**Overview Map:** an 8 1/2" X 11" print/copy of the relevant portion of a USGS Topographic Quadrangle Map clearly indicating the exact location of the site.
☒ Attachment B:	**Detailed Site Map:** fine scaled map showing site boundary and area of work details on aerial imagery with relevant landmarks labeled. (Site and work boundaries in GIS [ESRI ArcView shapefile, in NAD83, State Plane, feet] format can be substituted for detailed maps, see instruction document)
☒ Attachment C:	**Supplemental Information, Group 2 requirement (attached, DEEP-APP-007C)** ☒ Section i: Supplemental Site Information and supporting documents ☒ Section ii: Supplemental Project Information and supporting documents
☐ Attachment D:	**Safe Harbor Report Requirements, Group 3 (attached, DEEP-APP-007D)**

Part VII: Requester Certification

The requester *and* the individual(s) responsible for actually preparing the request must sign this part. A request will be considered incomplete unless all required signatures are provided.

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

Donald Smith Signature of Requester (a typed name will substitute for a handwritten signature)	09/12/2019 Date
Donald Smith Name of Requester (print or type)	Senior Project Manager Title (if applicable)
 Signature of Preparer (if different than above)	09/12/2019 Date
Daniel J. King Name of Preparer (print or type)	Senior Project Scientist Title (if applicable)

Note: Please submit the completed Request Form and all Supporting Documents to:

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

Or email request to: **deep.nddbrequest@ct.gov**

Attachment C: Supplemental Information, Group 2 requirement

Section i: Supplemental Site Information

1. Existing Conditions

Describe all natural and man-made features including wetlands, watercourses, fish and wildlife habitat, floodplains and any existing structures potentially affected by the subject activity. Such features should be depicted and labeled on the site plan that must be submitted. Photographs of current site conditions may be helpful to reviewers.

☐ **Site Photographs (optional) attached**

☐ **Site Plan/sketch of existing conditions attached**

2. Biological Surveys

Has a biologist visited the site and conducted a biological survey to determine the presence of any endangered, threatened or special concern species ☐ Yes ☐ No

If yes, complete the following questions and submit any reports of biological surveys, documentation of the biologist's qualifications, and any NDDB survey forms.

Biologist(s) name: _____

Habitat and/or species targeted by survey: _____

Dates when surveys were conducted: _____

☐ **Reports of biological surveys attached**

☐ **Documentation of biologist's qualifications attached**

☐ **NDDB Survey forms for any listed species observations attached**

Section ii: Supplemental Project Information

1. Provide a schedule for all phases of the project including the year, the month and/or season that the proposed activity will be initiated and the duration of the activity.

2. Describe and quantify the proposed changes to existing conditions and describe any on-site or off-site impacts. In addition, provide an annotated site plan detailing the areas of impact and proposed changes to existing conditions.

☐ **Annotated Site Plan attached**

Attachment D: Safe Harbor Report Requirements

Submit a report, as Attachment D, that synthesizes and analyzes the information listed below. Those providing synthesis and analysis need appropriate qualifications and experience. A request for a safe harbor determination shall include:

1. **Habitat Description and Map(s), including GIS mapping overlays, of a scale appropriate for the site, identifying:**

    - wetlands, including wetland cover types;
    - plant community types;
    - topography;
    - soils;
    - bedrock geology;
    - floodplains, if any;
    - land use history; and
    - water quality classifications/criteria.

2. **Photographs -** The report should include photographs of the site taken from the ground and also all reasonably available aerial or satellite photographs and an analysis of such photographs.

3. **Inspection -** A visual inspection(s) of the site should be conducted, preferably when the ground is visible, and described in the report. This inspection can be helpful in confirming or further evaluating the items noted above.

4. **Biological Surveys -** The report should include all biological surveys of the site where construction activity will take place that are reasonably available to a registrant. A registrant shall notify the Department's Wildlife Division of biological studies of the site where construction activity will take place that a registrant is aware of but are not reasonably available to the registrant.

5. **Based on items #1 through 4 above, the report shall include a Natural Resources Inventory of the site of the construction activity.** This inventory should also include a review of reasonably available scientific literature and any recommendations for minimizing adverse impacts from the proposed construction activity on listed species or their associated habitat.

6. **In addition, to the extent the following is available at the time a safe harbor determination is requested, a request for a safe harbor determination shall include and assess:**

    - Information on Site Disturbance Estimates/Site Alteration information
    - Vehicular Use
    - Construction Activity Phasing Schedules, if any; and
    - Alteration of Drainage Patterns

Legend

Project Location

Service Layer Credits: Copyright:© 2013 National Geographic Society, i-cubed
Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, © OpenStreetMap contributors, and the GIS User Community

1:30,000
1 inch = 2,500 feet

2,000 1,000 0 2,000 Feet

Architecture
Engineering
Environmental
Land Surveying

BL Companies

DRAWN BY: JPK	**APPROVED BY:** DK
Version: Version 1	**DATE:** 9/12/2019
Notes:	

BLACK & VEATCH

Sasco Creek to Milvon to Alling Crossing Project
New Haven County, CT
USGS 7.5-Minute Topographic Quadrangle
Project Location Map

PRJ NUM: 18S3476

SHEET NUMBER: 1 OF 1



Document Path: G:\JOBS18\18S\18S3476\GIS\MXD\Appendix A. Project Location Map.mxd

Legend

Approximate Railroad Corridor

Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community
Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, © OpenStreetMap contributors, and the GIS User Community

1:1,600
1 inch = 133.33 feet

50 25 0 50
Feet

Architecture
Engineering
Environmental
Land Surveying
BL Companies

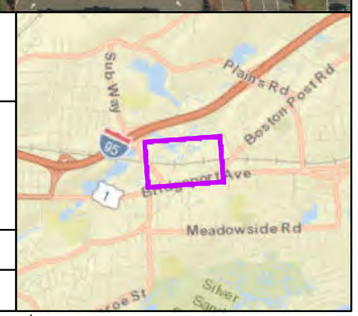
DRAWN BY: JPK	**APPROVED BY:** DK
Version: Version 1	**DATE:** 9/12/2019
Notes:	

BLACK & VEATCH

Sasco Creek to Milvon to Alling Crossing Project
New Haven County, CT
Aerial Map

PRJ NUM: 18S3476

APPENDIX A - AERIAL MAP SHEET NUMBER: 1 OF 18



Document Path: G:\JOBS18\18S\18S3476\GIS\MXD\NDDB Aerial Map.mxd

Legend

Approximate Railroad Corridor

Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community
Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, © OpenStreetMap contributors, and the GIS User Community

1:1,600
1 inch = 133.33 feet

50 25 0 50
Feet

BL Companies
Architecture
Engineering
Environmental
Land Surveying

DRAWN BY: JPK	APPROVED BY: DK
Version: Version 1	DATE: 9/12/2019
Notes:	

BLACK & VEATCH

Sasco Creek to Milvon to Alling Crossing Project
New Haven County, CT
Aerial Map

PRJ NUM: 18S3476

APPENDIX A - AERIAL
MAP SHEET NUMBER: 2 OF 18



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Legend

Approximate Railroad Corridor

Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community
Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, © OpenStreetMap contributors, and the GIS User Community

1:1,600
1 inch = 133.33 feet

50 25 0 50
Feet

BL Companies
Architecture
Engineering
Environmental
Land Surveying

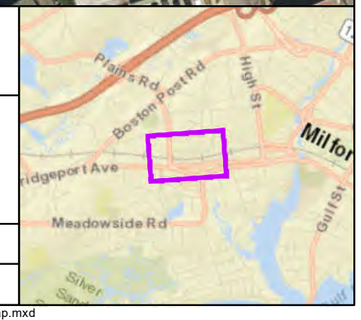
DRAWN BY: JPK	**APPROVED BY:** DK
Version: Version 1	**DATE:** 9/12/2019
Notes:	

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Sasco Creek to Milvon to Alling Crossing Project
New Haven County, CT
Aerial Map

PRJ NUM: 18S3476

APPENDIX A - AERIAL MAP SHEET NUMBER: 3 OF 18



Document Path: G:\JOBS18\18S\18S3476\GIS\MXD\NDDB Aerial Map.mxd

Legend

Approximate Railroad Corridor

Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community
Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, © OpenStreetMap contributors, and the GIS User Community

1:1,600
1 inch = 133.33 feet

50 25 0 50
Feet

BL Companies
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Engineering
Environmental
Land Surveying

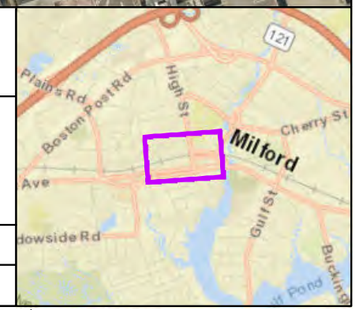
DRAWN BY: JPK	**APPROVED BY:** DK
Version: Version 1	**DATE:** 9/12/2019
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Sasco Creek to Milvon to Alling Crossing Project
New Haven County, CT
Aerial Map

PRJ NUM: 18S3476

APPENDIX A - AERIAL MAP SHEET NUMBER: 4 OF 18



Document Path: G:\JOBS18\18S\18S3476\GIS\MXD\NDDB Aerial Map.mxd

Legend

Approximate Railroad Corridor

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Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, © OpenStreetMap contributors, and the GIS User Community

1:1,600
1 inch = 133.33 feet

50 25 0 50
Feet

BL Companies
Architecture
Engineering
Environmental
Land Surveying

DRAWN BY: JPK	**APPROVED BY:** DK
Version: Version 1	**DATE:** 9/12/2019
Notes:	

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Sasco Creek to Milvon to Alling Crossing Project
New Haven County, CT
Aerial Map

PRJ NUM: 18S3476

APPENDIX A - AERIAL MAP SHEET NUMBER: 5 OF 18



Document Path: G:\JOBS18\18S\18S3476\GIS\MXD\NDDB Aerial Map.mxd



Legend

Approximate Railroad Corridor

Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community
Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, © OpenStreetMap contributors, and the GIS User Community

1:1,600
1 inch = 133.33 feet

50 25 0 50
Feet

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DRAWN BY: JPK	**APPROVED BY:** DK
Version: Version 1	**DATE:** 9/12/2019
Notes:	

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Sasco Creek to Milvon to Alling Crossing Project
New Haven County, CT
Aerial Map

PRJ NUM: 18S3476

APPENDIX A - AERIAL
MAP SHEET NUMBER: 6 OF 18



Document Path: G:\JOBS18\18S\18S3476\GIS\MXD\NDDB Aerial Map.mxd

Legend

Approximate Railroad Corridor

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Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, © OpenStreetMap contributors, and the GIS User Community

1:1,600
1 inch = 133.33 feet

50 25 0 50
Feet

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DRAWN BY: JPK	**APPROVED BY:** DK
Version: Version 1	**DATE:** 9/12/2019
Notes:	

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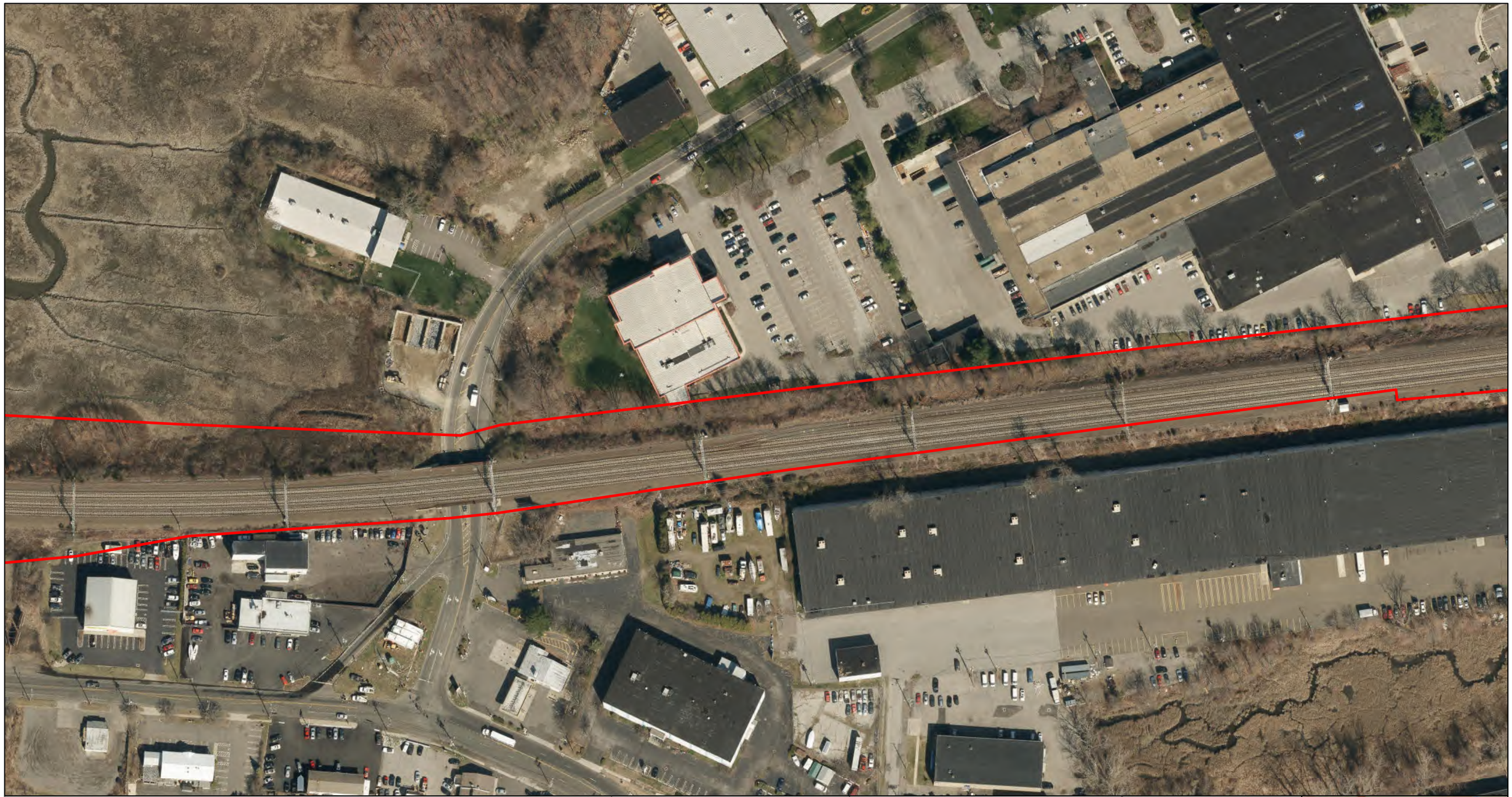
Sasco Creek to Milvon to Alling Crossing Project
New Haven County, CT
Aerial Map

PRJ NUM: 18S3476

APPENDIX A - AERIAL MAP SHEET NUMBER: 7 OF 18



Document Path: G:\JOBS18\18S\18S3476\GIS\MXD\NDDB Aerial Map.mxd



Legend

Approximate Railroad Corridor

Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community
Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, © OpenStreetMap contributors, and the GIS User Community

1:1,600
1 inch = 133.33 feet

50 25 0 50
Feet

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DRAWN BY: JPK	**APPROVED BY:** DK
Version: Version 1	**DATE:** 9/12/2019
Notes:	

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Sasco Creek to Milvon to Alling Crossing Project
New Haven County, CT
Aerial Map

PRJ NUM: 18S3476

APPENDIX A - AERIAL
MAP SHEET NUMBER: 8 OF 18



Document Path: G:\JOBS18\18S\18S3476\GIS\MXD\NDDB Aerial Map.mxd



Legend

Approximate Railroad Corridor

Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community
Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, © OpenStreetMap contributors, and the GIS User Community

1:1,600
1 inch = 133.33 feet

50 25 0 50
Feet

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DRAWN BY: JPK	**APPROVED BY:** DK
Version: Version 1	**DATE:** 9/12/2019
Notes:	

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Sasco Creek to Milvon to Alling Crossing Project
New Haven County, CT
Aerial Map

PRJ NUM: 18S3476

APPENDIX A - AERIAL MAP SHEET NUMBER: 9 OF 18



Document Path: G:\JOBS18\18S\18S3476\GIS\MXD\NDDB Aerial Map.mxd

Legend

Approximate Railroad Corridor

Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community
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1:1,600
1 inch = 133.33 feet

50 25 0 50
Feet

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Version: Version 1	**DATE:** 9/12/2019
Notes:	

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Sasco Creek to Milvon to Alling Crossing Project
New Haven County, CT
Aerial Map

PRJ NUM: 18S3476

APPENDIX A - AERIAL MAP SHEET NUMBER: 10 OF 18



Document Path: G:\JOBS18\18S\18S3476\GIS\MXD\NDDB Aerial Map.mxd

Legend

Approximate Railroad Corridor

Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community
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1:1,600
1 inch = 133.33 feet

50 25 0 50
Feet

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DRAWN BY: JPK	**APPROVED BY:** DK
Version: Version 1	**DATE:** 9/12/2019
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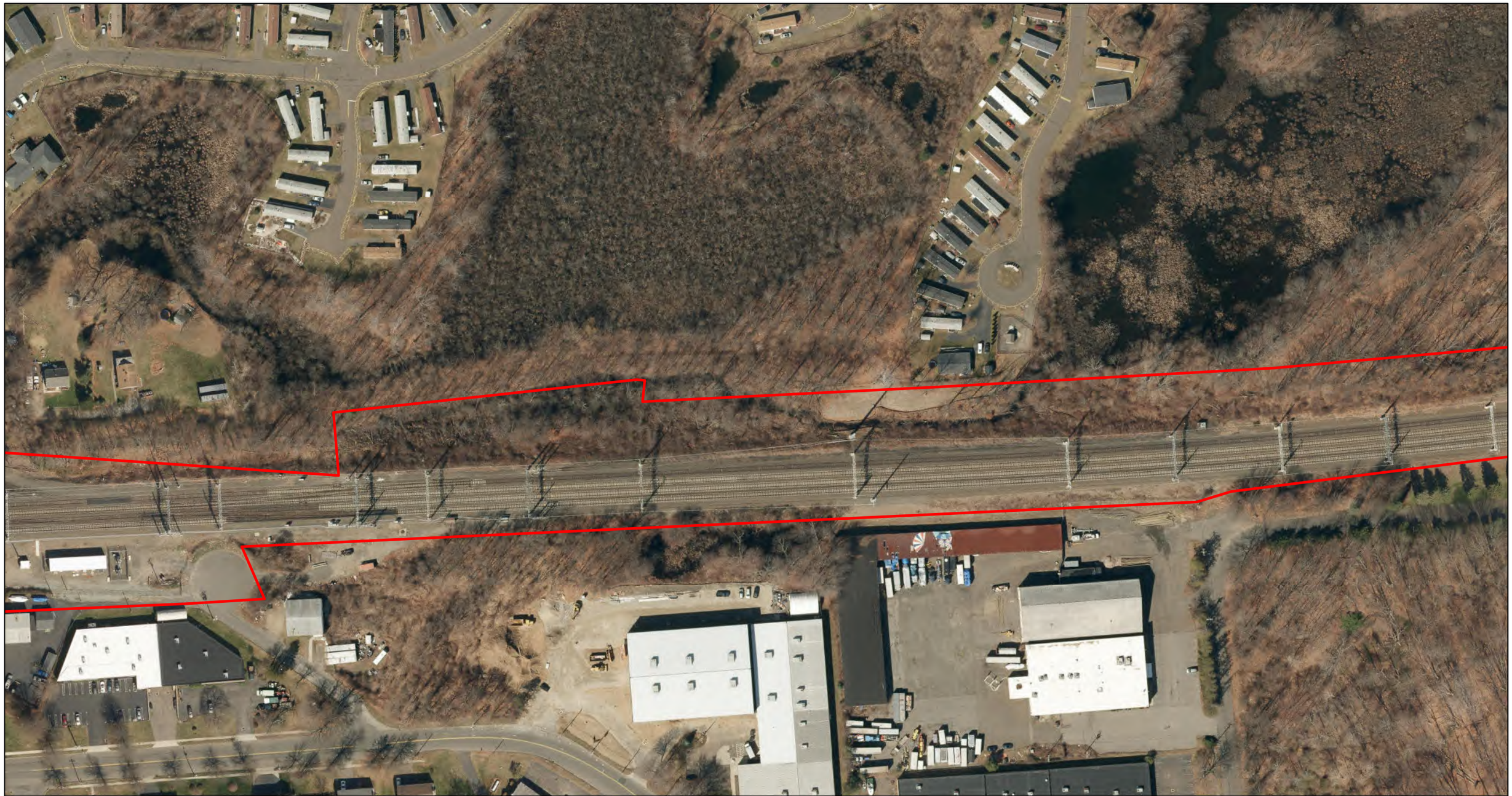
Sasco Creek to Milvon to Alling Crossing Project
New Haven County, CT
Aerial Map

PRJ NUM: 18S3476

APPENDIX A - AERIAL MAP SHEET NUMBER: 11 OF 18



Document Path: G:\JOBS18\18S\18S3476\GIS\MXD\NDDB Aerial Map.mxd



Legend

Approximate Railroad Corridor

Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community
Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, © OpenStreetMap contributors, and the GIS User Community

1:1,600
1 inch = 133.33 feet

50 25 0 50
Feet

BL Companies
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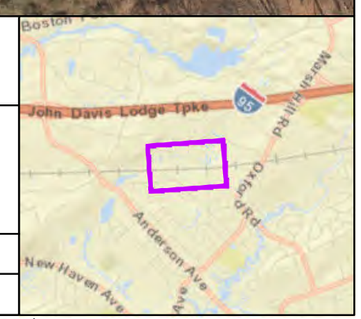
DRAWN BY: JPK	APPROVED BY: DK
Version: Version 1	DATE: 9/12/2019
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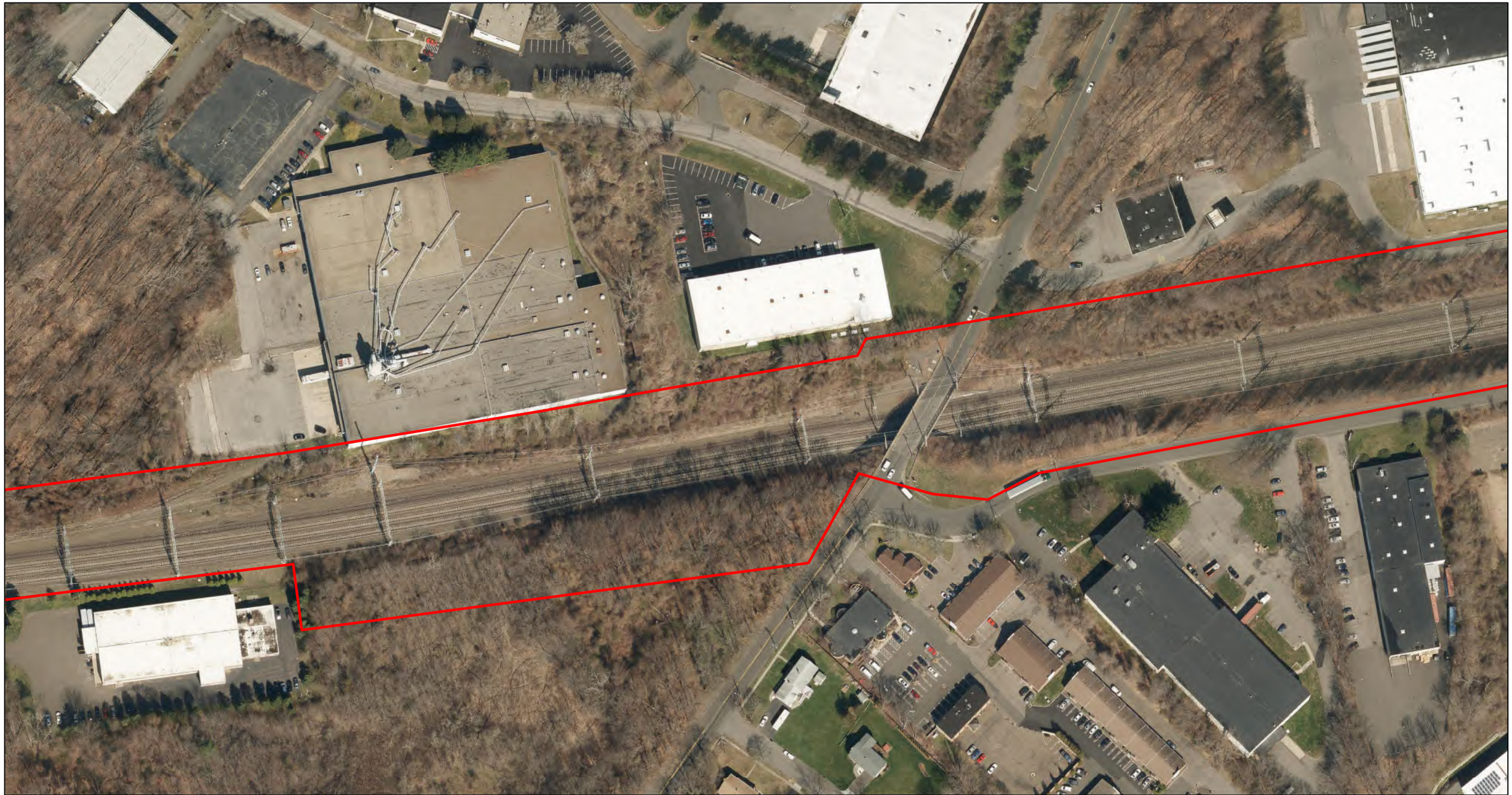
Sasco Creek to Milvon to Alling Crossing Project
New Haven County, CT
Aerial Map

PRJ NUM: 18S3476

APPENDIX A - AERIAL MAP SHEET NUMBER: 12 OF 18



Document Path: G:\JOBS18\18S\18S3476\GIS\MXD\NDDB Aerial Map.mxd



Legend

Approximate Railroad Corridor

Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community
Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, © OpenStreetMap contributors, and the GIS User Community

1:1,600
1 inch = 133.33 feet

50 25 0 50
Feet

BL Companies
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DRAWN BY: JPK	**APPROVED BY:** DK
Version: Version 1	**DATE:** 9/12/2019
Notes:	

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Sasco Creek to Milvon to Alling Crossing Project
New Haven County, CT
Aerial Map

PRJ NUM: 18S3476

APPENDIX A - AERIAL MAP SHEET NUMBER: 13 OF 18



Document Path: G:\JOBS18\18S\18S3476\GIS\MXD\NDDB Aerial Map.mxd

Legend

Approximate Railroad Corridor

Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community
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1:1,600
1 inch = 133.33 feet

50 25 0 50
Feet

BL Companies
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Environmental
Land Surveying

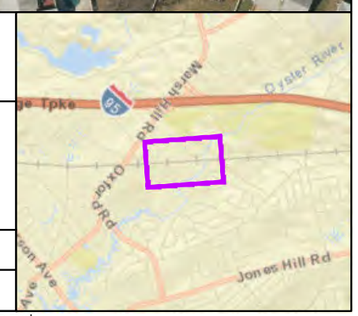
DRAWN BY: JPK	**APPROVED BY:** DK
Version: Version 1	**DATE:** 9/12/2019
Notes:	

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Sasco Creek to Milvon to Alling Crossing Project
New Haven County, CT
Aerial Map

PRJ NUM: 18S3476

APPENDIX A - AERIAL MAP SHEET NUMBER: 14 OF 18



Document Path: G:\JOBS18\18S\18S3476\GIS\MXD\NDDB Aerial Map.mxd



Legend

Approximate Railroad Corridor

Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community
Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, © OpenStreetMap contributors, and the GIS User Community

1:1,600
1 inch = 133.33 feet

50 25 0 50
Feet

BL Companies
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Environmental
Land Surveying

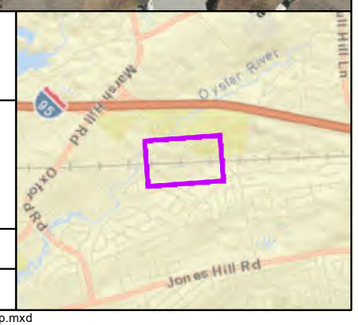
DRAWN BY: JPK	**APPROVED BY:** DK
Version: Version 1	**DATE:** 9/12/2019
Notes:	

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Sasco Creek to Milvon to Alling Crossing Project
New Haven County, CT
Aerial Map

PRJ NUM: 18S3476

APPENDIX A - AERIAL MAP SHEET NUMBER: 15 OF 18



Document Path: G:\JOBS18\18S\18S3476\GIS\MXD\NDDB Aerial Map.mxd



Legend

Approximate Railroad Corridor

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Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, © OpenStreetMap contributors, and the GIS User Community

1:1,600
1 inch = 133.33 feet

50 25 0 50
Feet

BL Companies
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Environmental
Land Surveying

DRAWN BY: JPK	**APPROVED BY:** DK
Version: Version 1	**DATE:** 9/12/2019
Notes:	

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Sasco Creek to Milvon to Alling Crossing Project
New Haven County, CT
Aerial Map

PRJ NUM: 18S3476

APPENDIX A - AERIAL MAP SHEET NUMBER: 16 OF 18



Document Path: G:\JOBS18\18S\18S3476\GIS\MXD\NDDB Aerial Map.mxd



Legend

Approximate Railroad Corridor

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Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, © OpenStreetMap contributors, and the GIS User Community

1:1,600
1 inch = 133.33 feet

50 25 0 50
Feet

BL Companies
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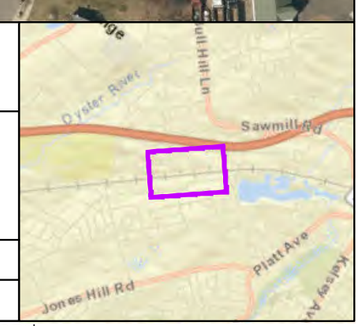
DRAWN BY: JPK	**APPROVED BY:** DK
Version: Version 1	**DATE:** 9/12/2019
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Sasco Creek to Milvon to Alling Crossing Project
New Haven County, CT
Aerial Map

PRJ NUM: 18S3476

APPENDIX A - AERIAL MAP SHEET NUMBER: 17 OF 18



Document Path: G:\JOBS18\18S\18S3476\GIS\MXD\NDDB Aerial Map.mxd



Legend

Approximate Railroad Corridor

Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community
Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, © OpenStreetMap contributors, and the GIS User Community

1:1,600
1 inch = 133.33 feet

50 25 0 50
Feet

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Environmental
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DRAWN BY: JPK	**APPROVED BY:** DK
Version: Version 1	**DATE:** 9/12/2019
Notes:	

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Sasco Creek to Milvon to Alling Crossing Project
New Haven County, CT
Aerial Map

PRJ NUM: 18S3476

APPENDIX A - AERIAL MAP SHEET NUMBER: 18 OF 18



Document Path: G:\JOBS18\18S\18S3476\GIS\MXD\NDDB Aerial Map.mxd

Legend

- Natural Diversity Area
- Project Location

Service Layer Credits: Copyright:© 2013 National Geographic Society, i-cubed
Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, © OpenStreetMap contributors, and the GIS User Community

1:30,000
1 inch = 2,500 feet

2,000 1,000 0 2,000 Feet

BL Companies — Architecture Engineering Environmental Land Surveying

DRAWN BY: JPK	**APPROVED BY:** DK
Version: Version 1	**DATE:** 9/12/2019
Notes:	

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Sasco Creek to Milvon to Alling Crossing Project
New Haven County, CT
Natural Diversity Database Map

PRJ NUM: 18S3476

SHEET NUMBER: 1 OF 1



Document Path: G:\JOBS18\18S\18S3476\GIS\MXD\NDDB Areas Map.mxd

APPENDIX G: U.S. Fish and Wildlife Service IPaC Report/ Habitat Assessment Documentation

United States Department of the Interior

FISH AND WILDLIFE SERVICE
New England Ecological Services Field Office
70 Commercial Street, Suite 300
Concord, NH 03301-5094
Phone: (603) 223-2541 Fax: (603) 223-0104
http://www.fws.gov/newengland

IPaC Record Locator: 549-18256977 September 12, 2019

Subject: Consistency letter for the 'Milvon to Alling Crossing' project indicating that any take of the northern long-eared bat that may occur as a result of the Action is not prohibited under the ESA Section 4(d) rule adopted for this species at 50 CFR §17.40(o).

Dear Joseph Kempf:

The U.S. Fish and Wildlife Service (Service) received on September 12, 2019 your effects determination for the 'Milvon to Alling Crossing' (the Action) using the northern long-eared bat (*Myotis septentrionalis*) key within the Information for Planning and Consultation (IPaC) system. You indicated that no Federal agencies are involved in funding or authorizing this Action. This IPaC key assists users in determining whether a non-Federal action may cause "take"[1] of the northern long-eared bat that is prohibited under the Endangered Species Act of 1973 (ESA) (87 Stat.884, as amended; 16 U.S.C. 1531 et seq.).

Based upon your IPaC submission, any take of the northern long-eared bat that may occur as a result of the Action is not prohibited under the ESA Section 4(d) rule adopted for this species at 50 CFR §17.40(o). Unless the Service advises you within 30 days of the date of this letter that your IPaC-assisted determination was incorrect, this letter verifies that the Action is not likely to result in unauthorized take of the northern long-eared bat.

Please report to our office any changes to the information about the Action that you entered into IPaC, the results of any bat surveys conducted in the Action area, and any dead, injured, or sick northern long-eared bats that are found during Action implementation.

If your Action proceeds as described and no additional information about the Action's effects on species protected under the ESA becomes available, no further coordination with the Service is required with respect to the northern long-eared bat.

The IPaC-assisted determination for the northern long-eared bat **does not** apply to the following ESA-protected species that also may occur in your Action area:

- Red Knot, *Calidris canutus rufa* (Threatened)

You may coordinate with our Office to determine whether the Action may cause prohibited take of the animal species listed above.

---

[1]Take means to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct [ESA Section 3(19)].

Action Description
You provided to IPaC the following name and description for the subject Action.

1. Name

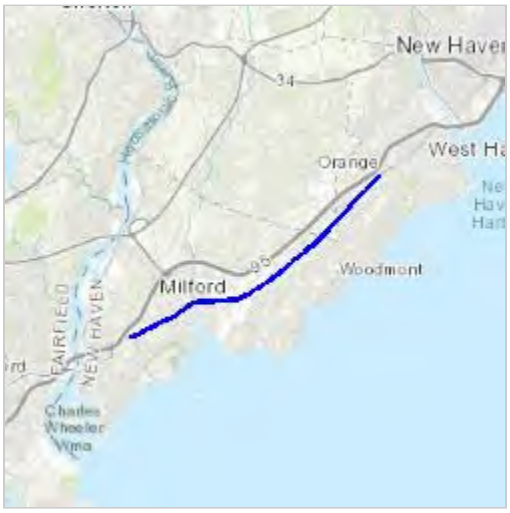
Milvon to Alling Crossing

2. Description

The following description was provided for the project 'Milvon to Alling Crossing':

> The client is investigating upgrades to existing electric transmission lines and poles located within the CTDOT railroad right-of-way. These upgrades may involve the installation of multiple new transmission towers within or near the existing CTDOT railroad right-of-way between Milford and New Haven, CT. Anticipated construction equipment includes but is not limited to cranes, bucket trucks, pulling mechanisms for new wire, excavators, loaders, and construction support vehicles. Wetland resources will be field delineated and avoided to the extent practicable. Further avoidance and mitigation strategies will be developed as conceptual plans progress.

Approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/place/41.239420781603826N73.00901736388215W



Determination Key Result

This non-Federal Action may affect the northern long-eared bat; however, any take of this species that may occur incidental to this Action is not prohibited under the final 4(d) rule at 50 CFR §17.40(o).

Determination Key Description: Northern Long-eared Bat 4(d) Rule
This key was last updated in IPaC on **May 15, 2017**. Keys are subject to periodic revision.

This key is intended for actions that may affect the threatened northern long-eared bat.

The purpose of the key for non-Federal actions is to assist determinations as to whether proposed actions are excepted from take prohibitions under the northern long-eared bat 4(d) rule.

If a non-Federal action may cause prohibited take of northern long-eared bats or other ESA-listed animal species, we recommend that you coordinate with the Service.

Determination Key Result

Based upon your IPaC submission, any take of the northern long-eared bat that may occur as a result of the Action is not prohibited under the ESA Section 4(d) rule adopted for this species at 50 CFR §17.40(o).

Qualification Interview

1. Is the action authorized, funded, or being carried out by a Federal agency?

   No

2. Will your activity purposefully **Take** northern long-eared bats?

   No

3. Is the project action area located wholly outside the White-nose Syndrome Zone?

   Automatically answered
   No

4. Have you contacted the appropriate agency to determine if your project is near a known hibernaculum or maternity roost tree?

   Location information for northern long-eared bat hibernacula is generally kept in state Natural Heritage Inventory databases – the availability of this data varies state-by-state. Many states provide online access to their data, either directly by providing maps or by providing the opportunity to make a data request. In some cases, to protect those resources, access to the information may be limited. A web page with links to state Natural Heritage Inventory databases is available at www.fws.gov/midwest/endangered/mammals/nleb/nhisites.html.

   Yes

5. Will the action affect a cave or mine where northern long-eared bats are known to hibernate (i.e., hibernaculum) or could it alter the entrance or the environment (physical or other alteration) of a hibernaculum?

   No

6. Will the action involve Tree Removal?

   No

Project Questionnaire

If the project includes forest conversion, report the appropriate acreages below. Otherwise, type '0' in questions 1-3.

1. Estimated total acres of forest conversion:

0

2. If known, estimated acres of forest conversion from April 1 to October 31

0

3. If known, estimated acres of forest conversion from June 1 to July 31

0

If the project includes timber harvest, report the appropriate acreages below. Otherwise, type '0' in questions 4-6.

4. Estimated total acres of timber harvest

0

5. If known, estimated acres of timber harvest from April 1 to October 31

0

6. If known, estimated acres of timber harvest from June 1 to July 31

0

If the project includes prescribed fire, report the appropriate acreages below. Otherwise, type '0' in questions 7-9.

7. Estimated total acres of prescribed fire

0

8. If known, estimated acres of prescribed fire from April 1 to October 31

0

9. If known, estimated acres of prescribed fire from June 1 to July 31

0

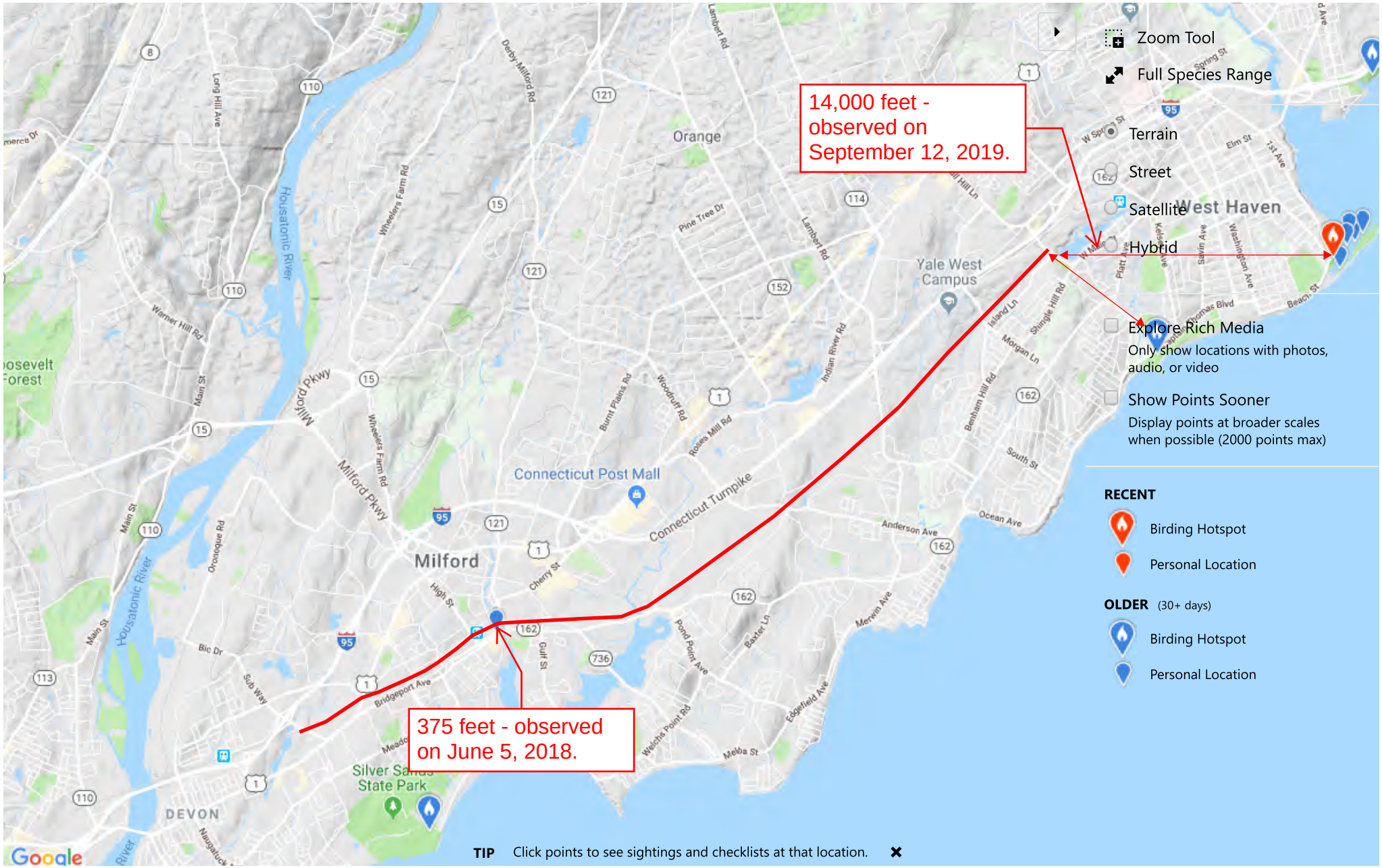
If the project includes new wind turbines, report the megawatts of wind capacity below. Otherwise, type '0' in question 10.

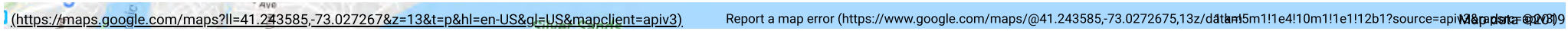
10. What is the estimated wind capacity (in megawatts) of the new turbine(s)?
0

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Architecture
Engineering
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BL Companies

Wetland Identification and Delineation Report Update

Elm West – Allings Crossing Transmission Line Railroad Project

West Haven and New Haven, CT

BL Project No.: 17S3304



Prepared for
United Illuminating Company
100 Marsh Hill Road
Orange, CT 06477

Prepared by
BL Companies, Inc.
355 Research Parkway
Meriden, CT 06450

May 4, 2018 (Updated August 2021 & May 2022)

Wetland Identification and Delineation Report Update

West River – Elm West and Elm West – Allings Crossing Transmission Line Railroad Project
New Haven and West Haven, CT

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I. INTRODUCTION

BL Companies, Inc. (BL) conducted a site investigation to confirm and extend previously delineated state and federal wetlands and Waters of the United States, state regulated tidal resources including all land below the coastal jurisdiction line (CJL) and tidal vegetation up to one foot above the CJL and vernal pools previously identified by BL in 2018 within the corridor along approximately 2.6 miles of the Metro North Railroad corridor in the Cities of New Haven and West Haven, located in New Haven County, Connecticut (**Figure 1**). The investigation extends from approximately 350 feet east of the Ella T. Grasso Boulevard overpass, in the vicinity of the West River substation, to approximately the Allings Crossing Road overpass, in the vicinity of the Allings Crossing substation (hereinafter referred to as the "project area"). Project location mapping is provided in **Appendix A**. The coordinates for the approximate center of the project are Latitude 41.2827 N and Longitude -72.9476 W. The resource confirmation and extension followed the railroad right-of-way (ROW) and access road and additional workspace maps provided by United Illuminating (UI) Company ("Client") and verified by BL's survey crew. The ROW width varies throughout the project from 90 feet to over 300 feet in some portions of the corridor. It should be noted that in some areas, the adjacent property owners are encroaching on the railroad ROW; areas of encroachment were visually assessed but were not physically walked per the Client's request to avoid confrontation from the adjacent property owners. Investigators avoided hanging flags in areas immediately adjacent to private residences to avoid drawing attention; instead only GPS points were taken in these locations.

The project area lies within the West River drainage basin (5305) and South Central Shoreline drainage basin (5000). The project area does not fall within a public water supply or Aquifer Protection Area (APA). The eastern portion of the project area, east of Campbell Avenue in West Haven, falls within the Coastal Area Management (CAM) zone. Coastal resources within the CAM portion of the project include intertidal flats, tidal wetlands, and coastal flood hazard area. Several coastal and inland resources were identified on the U.S. Fish and Wildlife Service's National Wetlands Inventory (NWI) mapping. Preliminary review of soil mapping provided by the Natural Resource Conservation Service did not identify any areas of hydric, poorly drained, or very poorly drained soils. FEMA mapping indicates that floodplain and floodway are present throughout the corridor. Resource mapping is provided in **Appendix B**.

The purpose of this report is to confirm and extend previously documented state and federal jurisdictional wetlands, i.e., Waters of the United States, tidal wetlands, and coastal resources, as well as vernal pools. It should be noted that vernal pools can only be accurately identified during the early spring while water levels are high, and signs of

amphibian breeding are evident. Vernal pools in Connecticut are based upon certain obligate species being present and utilizing the pool for breeding. The wetland delineations were completed during the appropriate time of year to assess vernal pools, in the spring of 2018 and confirmed in the spring of 2021, and no evidence of vernal pool species was observed throughout the project limits.

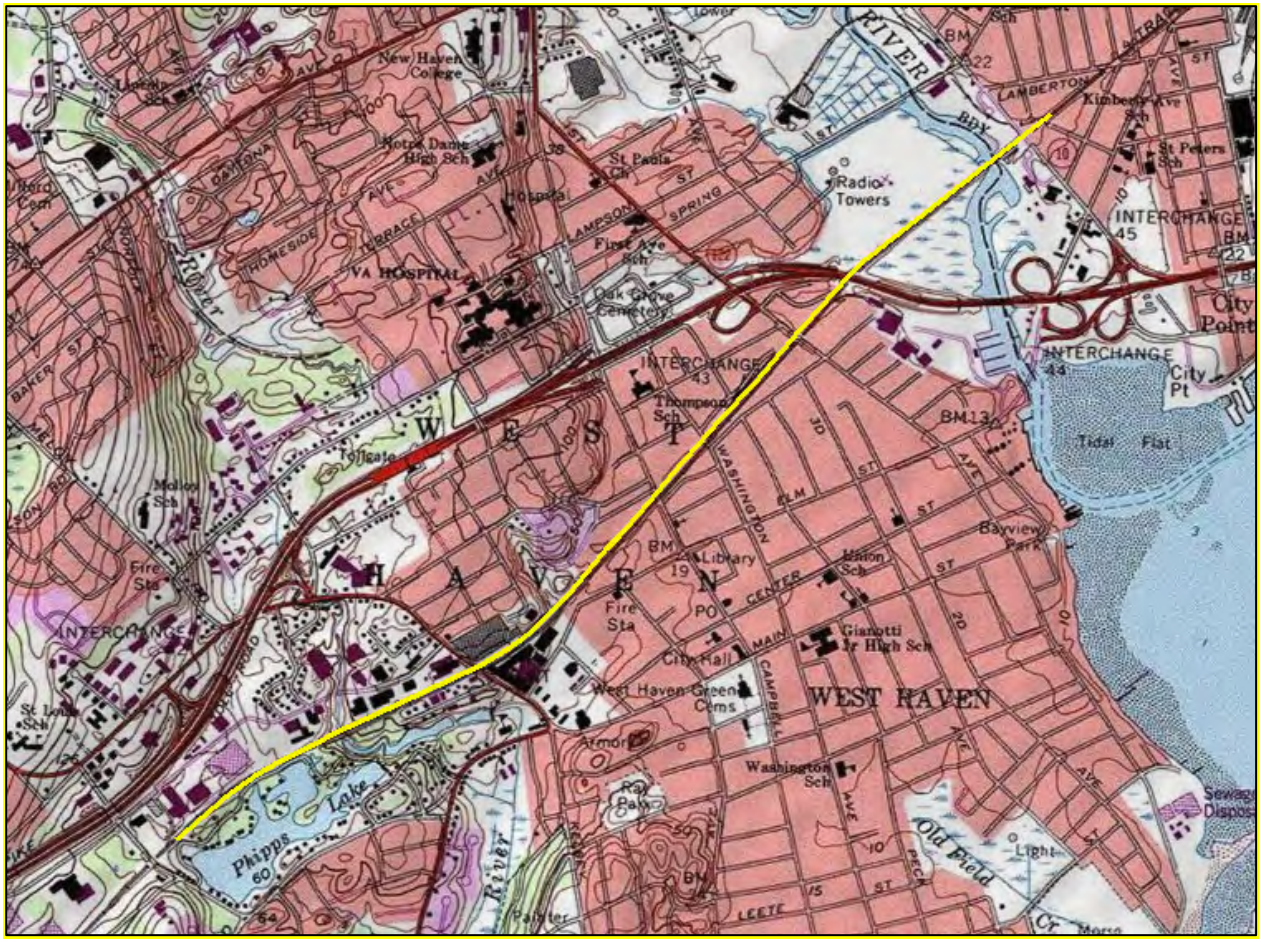


Figure 1 – Project Area Location Map - New Haven and West Haven, CT

II. METHODS

This investigation involved a wetland/watercourse delineation that was completed by wetland scientists and a Certified Professional Soil Scientist (CPSS) and conducted in accordance with the principles and practices noted in the United States Department of Agriculture (USDA) Soil Survey Manual (1993). The soil classification system of the National Cooperative Soil Survey was used in this investigation to identify the soil map units present on the project site.

Vegetation, soils, and hydrology were observed and documented during the Site investigation in accordance with state and federal delineation methodologies. Soil types were identified by observing soil morphology (soil texture, color, structure, etc.). To observe the morphology of the soils, hand borings (generally to a depth of two feet) are completed. Where wetland and/or watercourses were determined to be present, their boundaries were identified with flags and hung from vegetation or small stakes if in fields or grass communities. These flags are labeled "Wetland Boundary" and generally spaced approximately 50 feet apart and located using handheld Trimble® GPS units with submeter accuracy. It is important to note that flagged wetland and watercourse boundaries are subject to verification by local, state, and/or federal regulatory agencies.

III. REGULATORY INFORMATION

Wetlands and watercourses are regulated by state, municipal, and federal laws and regulations, each with different definitions and regulatory requirements. Accordingly, the state and municipalities may regulate wetland and waters that fall outside of federal jurisdiction; however, where federal jurisdiction exists, concurrent state jurisdiction is almost always present.

State/Municipal Jurisdiction

Inland wetland determinations are based on the presence of poorly drained, very poorly drained, alluvial, or floodplain soils and submerged land. Watercourses are defined as "rivers, streams, brooks, waterways, lakes, ponds, marshes, swamps, bogs and all other bodies of water, natural or artificial, vernal or intermittent, public or private, which are contained within, flow through or border upon the state or any portion thereof." Intermittent watercourse determinations are made based on the presence of a defined permanent channel and bank, and two of the following characteristics: (1) evidence of scour or deposits of recent alluvium or detritus, (2) the presence of standing or flowing water for a duration longer than a particular storm incident, and (3) the presence of hydrophytic vegetation. (See Inland Wetlands and Watercourses Act §22a-38 CGS.) Municipalities may impose additional regulations on inland wetlands and watercourses, but have no jurisdiction over state-regulated tidal wetlands.

The Connecticut Department of Energy and Environmental Protection's (DEEP) Land and Water Resources Division regulates all activities conducted in inland and tidal wetlands and in tidal, coastal or navigable waters in Connecticut under the Structures, Dredging and Fill Act (Conn. Gen. Statutes (CGS) Sec. 22a-359 - 22a-363f, inclusive) and the Tidal Wetlands Act (CGS Sec. 22a-28 - 22a-35, inclusive). Effective October 2012, the High Tide Line (HTL), which was used as the jurisdictional limit for DEEP, was replaced by a Coastal

Jurisdiction Line (CJL), which established a specifically determined elevation as the regulatory limit for each coastal municipality. The CJL for both West Haven and New Haven is 4.6' (NAVD 88) for Long Island Sound. Tidal wetlands are also separately regulated, including in areas up to one foot above the CJL if the area is deemed "capable of supporting" tidal wetland vegetation based on field investigations, through identification of certain plants and the presence of tidal waters. Therefore, state jurisdiction may extend up to elevation 5.6' (NAVD 88) in areas where tidal vegetation is identified; the tidal vegetation may extend above this elevation, but would not be considered regulated unless it is also delineated as state or federal inland wetland.

Federal Jurisdiction

Jurisdictional wetlands at the Federal level consist of "Waters of the United States", which includes lakes, rivers and streams, as well as vegetated wetlands (See 33 CFR 328.8). The onsite waters and wetlands, regulated by the U.S. Army Corps of Engineers, were delineated in accordance with the *Corps of Engineers Wetlands Delineation Manual* (USACE 1987) and *Regional Supplement to the Corps of Engineers Wetland Delineation Manual Northcentral and Northeast Region* (Version 2.0) (January 2012). This *Manual* requires there to be dominant hydrophytic vegetation, hydric soils, and hydrological conditions present in determining wetland areas.

Federal coastal jurisdiction under the Section 404 Clean Water Act includes navigable waters of the U.S. below the High Tide Line (HTL). Federal jurisdiction includes all waters and their tributaries to the head of tide, which extends shoreward to the mean high water line under Section 10 of the Rivers and Harbors Act, and extends shoreward to the 1-year frequency tidal flood under Section 404 of the Clean Water Act. The HTL for New Haven and West Haven is 4.6' and is coincident with the CJL.

IV. FUNCTIONS AND VALUES

Biophysical elements such as a wetland's landscape position, size, geology, hydrology, substrate, and vegetation determine the wetland functions and to what capacity they are performed. Due to the differing biophysical characteristics between on-site wetlands, the functions the wetlands provide and the capacity to perform those functions vary. To better understand these differences, a description of the assessed wetland functional values was completed based on the United States Army Corps of Engineers (USACE) Highway Methodology Workbook (1993) and its supplement workbook. This method requires a description of each of the wetland communities as well as indicating the functions they provide. The USACE workbook includes 13 functions and values that have been recognized as functions wetlands can provide. These include

groundwater recharge/discharge, flood flow alteration, fish and shellfish habitat, sediment/toxicant retention, nutrient removal/retention/transformation, production export, sediment/ shoreline stabilization, wildlife habitat, recreation, education/scientific value, uniqueness/ heritage, visual quality/aesthetics, and habitat for threatened or endangered species.

V. SITE INVESTIGATION

The project area was re-evaluated between January 24th and 28th, 2022 with temperatures in the mid-30's ºF under mostly sunny conditions. Specifically, areas in and around Wetland 1, Wetland 2, Pond 1, Stream 1 / Stream 2 (Cove River), and Wetland 10 were observed in connection with proposed access roads and additional workspace requirements.

Areas identified in 2018 and confirmed on April 5, 6, 7, 2021 and January 2022 as jurisdictional wetlands at the federal, state and municipal levels during the field investigations included:

1. West River, an estuarine subtidal unconsolidated bottom subtidal (E1UBL) watercourse;
2. Four (4) emergent federally-regulated wetlands and areas of tidal vegetation located adjacent to the West River, north and south of the railroad right-of-way (ROW);
3. One (1) pond north of the railroad ROW;
4. Cove River, a riverine perennial unconsolidated bottom watercourse (R5UBH);
5. Eight (8) intermittent watercourses, located in the western portion of the corridor, four (4) are located south of the ROW, and four (4) are located north of the ROW
6. Two (2) palustrine forested wetlands located north of the railroad ROW adjacent to the Cove River and an intermittent watercourse;
7. Three (3) palustrine scrub-shrub wetlands located north and south of the ROW, and associated with one intermittent unnamed tributary to the Cove River and two separate intermittent watercourses.

It should be noted that one emergent wetland, Wetland 2, which is part of Complex A as well as Wetland 10, which is part of Complex E were extended in the vicinity of a proposed access road and additional workspace area.

Three of these resources, the pond, one emergent wetland, and one intermittent watercourse, were characterized by pooled water that could potentially offer habitat for

vernal pool species. These resources were assessed for vernal pool species; however, no evidence of obligate vernal pool species was observed.

Data on the current plant communities, soils, and hydrology were documented to support the wetland delineation using Army Corps Wetland Determination Data Forms. Descriptions of the delineated wetland resources are provided in Section VI. The delineated inland wetlands and watercourses and location of the data points is identified on the wetland mapping located in **Appendix C.** Delineated coastal resources are mapped in **Appendix D.** Photographs of the identified wetland resources, taken to provide visual documentation of the area, are located in **Appendix E,** and data sheets are located in **Appendix F**.

VI. RESOURCE DESCRIPTIONS

The identified resources have been grouped based on hydrological connections between watercourses and/or wetlands. A total of five wetland complexes are described below.

Wetland Complex A

Wetland Complex A consists of the West River, Wetland 1, Wetland 2, Wetland 3, Wetland 4, and areas of tidal vegetation on the banks adjacent to the river. The wetlands are tidally influenced and hydraulically connected via the West River.

West River: USFWS Classification E1UBL

West River is classified as an estuarine subtidal unconsolidated bottom subtidal (E1UBL) watercourse according to USFWS National Wetland Inventory (NWI) mapping. The watercourse flows south into the New Haven Harbor, which is a tributary to Long Island Sound, and is subject to the ebb and flood of the tides. The substrate of the river consists of an unconsolidated organic muck. During low tide, expanses of the substrate are exposed, forming intertidal flats that provide habitat for shellfish, namely mussels, and foraging habitat for birds. Intertidal flats are especially prevalent north of the railroad bridge crossing. Some intertidal areas are stabilized with dense vegetation, forming low and high marsh habitat. Slopes in the vicinity of the Metro North railroad crossing over the river are protected by riprap, which also provides substrate for mussels and tidal vegetation.

According to published Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps for New Haven County, Connecticut (09009C0437J), effective July 8, 2013, West River is within a mapped FEMA 100-year floodplain.

State Regulated Tidal Wetland

Tidal vegetation (as classified by Chapter 440 Sec. 22a-29(2) of the General Statutes of Connecticut) including smooth cordgrass (*Spartina alterniflora*), hightide bush (*Iva frutescens*), and sea lavender (*Limonium nashi*) were observed and delineated in several areas bordering the West River. Areas where the tidal vegetation occurs at or below the CJL, or up to 1 foot above the CJL, is considered state regulated tidal wetland. In some areas the tidal vegetation may extend multiple feet above the CJL, however that area would not be considered regulated unless it is also delineated as state or federal inland wetland. For this specific site, the tidal vegetation was generally found to be at or below the CJL elevation, except in a portion of the Wetland 2 area, where common reed (*Phragmites australis*) was located above the CJL elevation (see **Appendix D**).

Hightide bush, a shrub found in high to upper high marsh habitat, was observed in the northeast, southeast, and northwest quadrants of the West River bridge, growing along slopes. Given that this species often grows at the upper limits of tidal marsh, it generally represents the "limits of tidal vegetation" in those three quadrants of the bridge.

Smooth cordgrass is a grass that is generally found in the low marsh and is capable of being inundated twice daily and can also withstand the salt water. This species was observed in the northeast, southeast, southwest, and northwest quadrants of the bridge, growing along the edge of water and in the crevices of riprap where sediments have built up. This low marsh habitat is also present along the southern portion of Wetland 1, paralleling the West River and extending off-site. More extensive low marsh dominated by smooth cordgrass is also present in the northeastern portion of Wetland 2, adjacent to the West River, and extends off-site to the north.

Very sparse sea lavender individuals were observed in the northeast quadrant of the bridge growing within the riprap at a slightly higher elevation than the smooth cordgrass.

A map depicting the limits of tidal vegetation and intertidal flats as well as GPS locations of the smooth cordgrass (labeled "Spartina" on the map) and the hightide bush (labeled "Iva" on the map) are provided with the delineated features map in **Appendix C**.

Wetland 1: USFWS Classification E2EM5/SS1P

Wetland 1 is an NWI mapped wetland classified as an estuarine intertidal emergent *Phragmites australis* irregularly flooded (E2EM5P). The wetland is located south of the railroad ROW and west of the West River. The wetland parallels the tracks for approximately 1,500 feet and extends off-site to the south. Wetland 1 receives overland flows from the railroad ROW as well as the hydrology from the West River. Primary wetland hydrology indicators for the wetland included 1" of surface water, high water table (to soil surface), saturation (to soil surface), drift deposits, and hydrogen sulfide odor; two secondary hydrology indicators, geomorphic position and microtopographic relief, were also noted. Wetland 1 is dominated by a monoculture of common reed (*Phragmites australis*); trees, shrubs, and vines are largely absent from this feature. Wetland 1's boundary was extended during the 2021 field efforts in the vicinity of a proposed access road, near I-95.

The wetland soil series identified through available mapping is Udorthents-Urban land complex (306) and Udorthents, smoothed (308). Udorthents consist primarily of areas that have been cut for leveling or filled for development; evidence of manipulation is present in the form of berms, riprap, and fill slopes. The soil exhibited histosol (A1) and hydrogen sulfide (A4) hydric soil indicators.

This wetland system provides the following functions and values: groundwater discharge, flood flow alteration, fish and shellfish habitat, sediment/toxicant retention, nutrient removal/retention/transformation, and sediment/shoreline stabilization. The wetland's location immediately adjacent to the river allows it to discharge groundwater and function as floodplain during storm events and high tides. Mussels were noted in portions of the wetland immediately adjacent to the river. Despite the fact that common reed is a highly invasive non-native species, the density of the vegetation aids in sediment and toxicant retention as well as nutrient attenuation and sediment and shoreline stabilization.

According to published Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps for New Haven County, Connecticut (09009C0437J), effective July 8, 2013, Wetland 1 is within a mapped FEMA 100-year floodplain.

Wetland 2: USFWS Classification E2EM5/SS1P

Wetland 2 is classified as an estuarine intertidal emergent *Phragmites australis* irregularly flooded (E2EM5P) and estuarine intertidal scrub-shrub broad-leaved deciduous irregularly flooded (E2SS1P) wetland. Field investigations classified the wetland present

within the ROW as largely emergent, while trees and shrubs were present they are very sparsely interspersed throughout the landscape; more prevalent trees and shrubs were noted north of the ROW. The wetland is located north of the railroad ROW and west of West River. The wetland parallels the tracks for approximately 1,700 feet and extends off-site to the north. Wetland 2 receives overland flows from the railroad ROW as well as hydrology from the West River. A tidally influenced channel was noted within the eastern portion of the wetland, varying from only a few inches of water to over 2 feet. The substrate throughout the channel varied slightly and consisted mainly of a silty muck substrate with drift deposits and detritus. Water could be seen flowing into the West River during low tide from the eastern portion of Wetland 2, and water levels within the eastern portion of the channel appeared higher during high tide, although the flow was less noticeable. On August 2, 2021 Wetland 2 was re-evaluated in order to delineate between the portions of Wetland 2 that are inland wetlands and tidal wetlands. For this purpose, existing project aerial LiDAR data was utilized to generate topographic contours relative to NAVD88 datum which were verified with existing project survey control. During field survey verification of the LiDAR data supplemental tidal vegetation limits were found, delineated, and located via GPS within the area approximately 1 foot above the Coastal Jurisdiction Line (CJL) (Elevation of 4.6' - NAVD88 Datum) for an approximate tidal vegetation elevation of 5.6' (NAVD88). **Appendix H Sheet 3 of 3** depicts this tidal wetland area just northwest of the railroad crossing of West River, with wetland flagging (WF) tidal wetland line (TWL) points labeled WF-TWL-1 through WF-TWL-11. The Wetland 2 sample point location displayed one primary wetland hydrology indicator, saturation (6" below soil surface), and three secondary indicators including drainage patters, saturation visible on aerial imagery, and geomorphic position. Wetland 2 is dominated by a monoculture of common reed (*Phragmites australis*); an herbaceous vine, ground nut (*Apios americana*) was also noted in the herb stratum but not dominant, and Asiatic bittersweet (*Celastrus orbiculatus*) was dominant in the woody vine stratum.

The soil series identified is dumps (302). Dumps consists of areas used for trash disposal, and are generally located on outwash terraces. Many of the dumps are adjacent to streams. Wetland 2 exhibited the Sandy Redox (S5) hydric soil indicator.

Wetland 2 provides the following functions and values: groundwater discharge, flood flow alteration, fish and shellfish habitat, sediment/toxicant retention, nutrient removal/retention/transformation, and sediment/shoreline stabilization. The wetland's location immediately adjacent to the river allows it to discharge groundwater and functions as floodplain during storm events and high tides. Mussels were noted in portions of the wetland immediately adjacent to the river. Despite the fact that common reed is a highly invasive non-native species, the density of the vegetation aids in sediment and toxicant retention as well as nutrient attenuation and sediment and shoreline

stabilization. Wetland 2 was assessed for vernal pool species and described in more detail in Section VII below.

According to published Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps for New Haven County, Connecticut (09009C0437J), effective July 8, 2013, Wetland 2 is within a mapped FEMA 100-year floodplain.

Wetland 3: USFWS Classification PEM5E

Wetland 3 is not identified on NWI mapping but is classified as a palustrine emergent *Phragmites australis* seasonally flooded/saturated (PEM5E) wetland. The wetland is located south of the railroad ROW and west of the I-95 overpass. Wetland 3 receives overland flows from the railroad ROW and highway as well as the hydrology from Wetland 1 to the east. Wetland 3 displayed one primary wetland hydrology indicator, presence of reduced iron, and one secondary indicator, geomorphic position. Wetland 3 is dominated by common reed (*Phragmites australis*), mugwort (*Artemisia vulgaris*) and ground nut (*Apios americana*) were also present. No tree, shrub, or woody vine strata were present; however, it should be noted that the area had recently been cleared.

The wetland soil series identified through available mapping is Udorthents-Urban land complex (306). Udorthents consist primarily of areas that have been cut for leveling or filled for development; evidence of manipulation is present in the form of riprap, and fill slopes. Wetland 3 exhibited the Depleted Matrix (F3) hydric soil indicator.

Wetland 3 provides the following functions and values: groundwater recharge and flood flow alteration. The wetland's concave and depressed nature allow it to store overland flows and precipitation and return water to the ground water table. The wetland's functionality is limited due to its small size and recent mowing/clearing.

According to published Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps for New Haven County, Connecticut (09009C0437J), effective July 8, 2013, Wetland 3 is not within a mapped FEMA floodplain or floodway.

Wetland 4: USFWS Classification E1UBL

NWI mapping groups Wetland 4 as part of West River and classifies it as an estuarine subtidal unconsolidated bottom subtidal (E1UBL) watercourse. The wetland was delineated during low tide, but does appear to largely fall below or follow the High Tide Line (HTL). The wetland is located north of the railroad ROW and east of West River. Wetland 3 displayed six primary wetland hydrology indicators including high water table

(6" below soil surface), saturation (to soil surface), drift deposits, inundation visible on aerial imagery, sparsely vegetated concave surface, and hydrogen sulfide odor and two secondary indicators including saturation visible on aerial imagery and geomorphic position. Wetland 4 is largely devoid of vegetation due to the regular inundation, however high tide bush (*Iva frutescens*) , common reed (*Phragmites australis*) , and smooth cord grass (*Spartina patens*) were present in small numbers. Trees and vines were largely absent from this area.

The wetland soil series identified through available mapping is Udorthents-Urban land complex (306). Udorthents consist primarily of areas that have been cut for leveling or filled for development; evidence of manipulation is present in the form of berms, riprap, and fill slopes. Wetland 4 exhibited histosol (A1) and hydrogen sulfide (A4) hydric soil indicators.

Wetland 4 provides the following functions and values: groundwater discharge, flood flow alteration, and fish and shellfish habitat. The wetland's location immediately adjacent to the river allows it to discharge groundwater and function as floodplain during storm events and high tides. Mussels were noted in portions of the wetland immediately adjacent to the river. The lack of vegetation limits the wetland's functionality.

According to published Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps for New Haven County, Connecticut (09009C0437J), effective July 8, 2013, Wetland 4 is within a mapped FEMA 100-year floodplain.

Wetland Complex B

Wetland Complex B consists only of Pond 1 and does not appear to be connected hydrologically to any of the other resources delineated within the project limits based on available information.

Pond 1: USFWS Classification PUBHx

Pond 1 is not identified on NWI mapping but is classified as a palustrine unconsolidated bottom permanently flooded excavated (PUBHx) pond. The pond receives overland flows from the surrounding uplands and from a pipe off-site to the north. The pond is located in a low point, that appears to have been excavated, at the base of the railroad embankment. Large boulder and rock formations form the eastern boundary of the pond, and steep slopes vegetated by Japanese knotweed (*Reynoutria japonica*) form the north and west boundaries.

The water throughout the pond is clear, ranging from a few inches to over 2 feet. A large amount of refuse including tires, buckets, and concrete was noted within the pond. A small area in the northern portion of the pond supports some herbaceous vegetation including common reed and sedge (*Carex sp.*) species. The pond was assessed for vernal pool species; additional information can be found in Section VII.

According to published Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps for New Haven County, Connecticut (09009C0437J), effective July 8, 2013, Wetland 3 is not within a mapped FEMA floodplain or floodway.

Wetland Complex C

Wetland Complex C consists of Stream 1, Stream 2 (Cove River), Wetland 5, and Wetland 6.

Stream 1: USFWS Classification R4SBCh

Stream 1 is not identified on NWI mapping, but is classified as a riverine intermittent streambed seasonally flooded diked/impounded (R4SBCh) watercourse. Stream 1 is located south of the railroad ROW and west of Stream 2 (Cove River). The stream receives hydrology from Phipps Lake to the west via a small dam; it then flows east, providing hydrology for Wetland 5, and eventually flows into Stream 2 (Cove River). The watercourse is approximately 8 feet wide with a cobble, gravel, and sand substrate. Riffles and deep pools were noted throughout, and water depth varied from approximately 4 inches to pools that were over 2 feet deep.

According to published Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps for New Haven County, Connecticut (09009C0439J), effective July 8, 2013, Stream 1 is partially located within a mapped FEMA 100-year floodplain, and flows into Stream 2 (Cove River), which is a mapped FEMA floodway.

Stream 2 (Cove River): USFWS Classification R5UBH

Stream 2 (Cove River) is classified as a riverine unknown perennial unconsolidated bottom permanently flooded (R5UBH) watercourse according to USFWS National Wetland Inventory (NWI) mapping. The watercourse flows north to south through the corridor, crossing under the railroad though a masonry arch culvert. Stream 2 (Cove River) flows southeast from the project corridor into Upper Lake Phipps, and then south for approximately 1.25 miles before flowing into Long Island Sound. The lower reaches of this

river are tidally influenced, however the portion of the river within the corridor appears to be riverine in nature with little to no tidal influence evident.

The river is approximately 25 feet wide, with a substrate that consists of silt and sand. North of the railroad ROW, the banks are forested and relatively steep. Wetland 6, located on the west bank, contributes hydrology to the river. South of the ROW, Stream 1 and Wetland 5 contribute to the river's hydrology. The banks a relatively flat or gently sloping, allowing for floodplain storage. It should be noted that forested wetland was observed off-site, approximately 250 feet to the south of the ROW, flanking either side of Stream 2 (Cove River).

According to published Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps for New Haven County, Connecticut (09009C0439J), effective July 8, 2013, Stream 2 (Cove River) is a mapped FEMA floodway.

Wetland 5: USFWS Classification PSS1Eh

Wetland 5 is not identified on NWI mapping but is classified as a palustrine scrub-shrub broad-leaved deciduous seasonally flooded/saturated diked/impounded (PSS1Eh) wetland. The wetland is located south of the railroad ROW, north of Stream 1, and west of Stream 2 (Cove River). The wetland is separated into two small pockets of floodplain wetland shelf north of Stream 1. Wetland 5 receives overland flows from the railroad ROW as well as the hydrology from Stream 1, which flows from the impounded Phipps Lake to the west. Wetland 5 displayed two primary wetland hydrology indicators, high water table (4" below soil surface) and saturation (to soil surface), and one secondary indicator, geomorphic position. Wetland 5 is dominated by spicebush (*Lindera benzoin*), green ash (*Fraxinus pennsylvanica*) saplings, silky dogwood (*Cornus amomum*), and multiflora rose (*Rosa multiflora*). Japanese knotweed (*Reynoutria japonica*) dominated the herbaceous stratum. No tree or woody vine strata were present.

The wetland soil series identified through available mapping is Urban land complex (307). Urban land consists primarily of areas that have been cut for leveling or filled for development; evidence of manipulation is present in the form of riprap and fill slopes. Wetland 5 exhibited the Sandy Mucky Mineral (S1) hydric soil indicator.

Wetland 5 provides the following functions and values: groundwater discharge, flood flow alteration, and shoreline/streambank stabilization. The wetland's concave and flat topography at the base of a slope and adjacent to Stream 1 allow it to store overland flows and precipitation and return water to the ground water table. Woody stems along

the edge of the stream aid in stabilizing the bank. The wetland's functionality is limited due to its small size.

According to published Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps for New Haven County, Connecticut (09009C0439J), effective July 8, 2013, Wetland 5 is partially within a mapped FEMA 100-year floodplain.

Wetland 6: USFWS Classification PFO1E

Wetland 6 is not identified on NWI mapping, but is classified as a palustrine forested broad-leaved deciduous seasonally flooded/saturated (PFO1E) wetland. The wetland is located north of the railroad ROW and west of Stream 2 (Cove River). Wetland 6 is a hillside seep located in a depressed and sloped area at the base of the railroad embankment and contributes to the hydrology of Stream 2 (Cove River). Wetland 6 receives overland flows from the railroad ROW and surrounding uplands. Wetland 6 displayed six primary wetland hydrology indicators including surface water (1"), high water table (to soil surface), saturation (to soil surface) drift deposits, sparsely vegetated concave surface, and presence of reduced iron, and one secondary indicator, drainage patterns. Wetland 6 is dominated by red maple (*Acer rubrum*). Very little to no other vegetation was noted in the shrub, herbaceous, and woody vine strata.

The wetland soil series identified through available mapping is Urban land complex (307). Urban land consists primarily of areas that have been cut for leveling or filled for development; evidence of manipulation is present in the form of riprap and fill slopes. Wetland 5 exhibited the Sandy Mucky Mineral (S1) hydric soil indicator.

Functions and values of Wetland 6 are limited to groundwater discharge. The wetland is a hillside seep that contributes to the hydrology of Stream 2 (Cove River). Given its location on a hillside several feet above the river channel, it cannot provide the normal functions, such as flood flow alteration, that are normally associated with wetlands adjacent to watercourses. Additionally, the lack of vegetation and its small size also reduces its functionality

According to published Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps for New Haven County, Connecticut (09009C0439J), effective July 8, 2013, Wetland 6 is within a mapped FEMA 100-year and 500-year floodplain.

Wetland Complex D

Wetland Complex D consists of Stream 3, Wetland 7, and Wetland 9.

Stream 3: USFWS Classification R4UBCh

Stream 3 is not identified on NWI mapping, but is classified as a riverine intermittent unconsolidated bottom seasonally flooded diked/impounded (R4UBCh) watercourse. Stream 3 is located north of the railroad ROW, at the tow of the slope, and approximately 900 feet west of Stream 2 (Cove River). The stream originates off-site to the north, receiving hydrology from off-site wetlands and uplands, as well as Wetlands 7 and 9. It flows from northeast to southwest, eventually flowing through a drainage pipe under the ROW. It is currently unclear where exactly the drainage pipe outlets, but it is believed to contribute to Phipps Lake to the south of the ROW.

The substrate consisted mainly of silt, muck, leaf litter, and detritus; pond scum was noted in deeper areas of the stream. The stream varies in width from approximately 2 feet to over 30 feet in an area where the water becomes ponded. Water depth also varied from approximately 1 inch to over 2 feet. The pooled area was assessed for vernal pool species; additional information can be found in Section VII.

According to published Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps for New Haven County, Connecticut (09009C0438H), effective December 17, 2010, Stream 3 is not located within a mapped FEMA floodplain or floodway.

Wetland 7: USFWS Classification PFO1E

Wetland 7 is not identified on NWI mapping, but is classified as a palustrine forested broad-leaved deciduous seasonally flooded/saturated (PFO1E) wetland. The wetland is located north of the railroad ROW, west of Stream 2 (Cove River), and east of Stream 3. Wetland 7 is a concave depression in a forested area; the wetland continues off-site to the north and east where it receives hydrology from intermittent watercourses and seeps. Wetland 7 displayed four primary wetland hydrology indicators including surface water (3" deep), high water table (to soil surface), saturation (to soil surface) and sparsely vegetated concave surface, and one secondary indicator, geomorphic position. Wetland 7 is dominated by red maple (*Acer rubrum*). Very little to no other vegetation was noted in the shrub, herbaceous, and woody vine strata.

The wetland soil series identified through available mapping is Cheshire-Holyoke complex (77C). Cheshire soils consists very deep, well drained loamy soils formed in supraglacial till on uplands. They are nearly level through very steep soils on till plains and hills. The Holyoke series consists of shallow, well drained and somewhat excessively drained soils formed in a thin mantle of till derived mainly from basalt and red sandstone,

conglomerate, and shale. They are nearly level to very steep soils on bedrock-controlled ridges and hills. Wetland 7 exhibited the Sandy Mucky Mineral (S1) hydric soil indicator.

Functions and values of Wetland 7 are limited to groundwater recharge and wildlife habitat. The concave nature of the wetland allows it to collect overland flows and slowly return them to the water table. Additionally, the forested habitat in an otherwise largely industrial area provides some habitat for smaller, disturbance tolerant wildlife. The lack of vegetation and its small size reduces the wetland's functionality.

According to published Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps for New Haven County, Connecticut (09009C0438H), effective December 17, 2010, Wetland 7 is not located within a mapped FEMA floodplain or floodway.

Wetland 9: USFWS Classification PSS1E

Wetland 9 is not identified on NWI mapping, but is classified as a palustrine scrub-shrub broad-leaved deciduous seasonally flooded/saturated (PSS1E) wetland. The wetland is located north of the railroad ROW, west of Stream 2 (Cove River), and west of Stream 3. Wetland 9 is a linear depression at the base of the railroad embankment. It receives hydrology from overland flows and runoff from the railroad and contributes to the hydrology of Stream 3. Wetland 9 displayed two primary wetland hydrology indicators including high water table (8" below soil surface) and saturation (2" below soil surface), and two secondary indicators, drainage patterns and geomorphic position. Wetland 9 is dominated silky dogwood (*Cornus amomum*), multiflora rose (*Rosa multiflora*), and crack willow (*Salix x fragilis*). Ground nut (*Apios americana*) was dominant through the very sparse herbaceous stratum, and Asiatic bittersweet (*Celastrus orbiculatus*) dominated the woody vine stratum. No trees were present throughout the wetland.

The wetland soil series identified through available mapping is Cheshire-Holyoke complex (77C). Cheshire soils consists very deep, well drained loamy soils formed in supraglacial till on uplands. They are nearly level through very steep soils on till plains and hills. The Holyoke series consists of shallow, well drained and somewhat excessively drained soils formed in a thin mantle of till derived mainly from basalt and red sandstone, conglomerate, and shale. They are nearly level to very steep soils on bedrock controlled ridges and hills. Wetland 9 exhibited the Depleted Below Dark Surface (A11) and Depleted Matric (F3) hydric soil indicators.

Functions and values of Wetland 9 are limited to flood flow alteration, sediment/toxicant retention, and nutrient removal/retention/transformation. The wetland's location at the

toe of slope and adjacent to an intermittent watercourse allows it to retain overland flows and flood flows. Although it is small and narrow, the wetland supports woody stems which aid in sediment and toxicant retention as well as nutrient removal, retention, and transformation.

According to published Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps for New Haven County, Connecticut (09009C0438H), effective December 17, 2010, Wetland 9 is not located within a mapped FEMA floodplain or floodway.

Wetland Complex E

Wetland Complex E consists of Streams 4/7, Stream 5, Stream 6, Stream 8, Stream 9, Wetland 8, and Wetland 10.

Stream 4 and 7: USFWS Classification R4UBC/R4SBC

Stream 4 and 7 are the same feature; flagging for this watercourse was labeled "Stream 4" north of the ROW and labeled "Stream 7" south of the ROW. Stream 4 is not identified on NWI mapping, but is classified as a riverine intermittent unconsolidated bottom seasonally flooded (R4UBC) watercourse. Stream 4 is located north of the railroad ROW, originating at a PVC pipe off-site to the north of the ROW. The substrate in the upper reaches consists of silt and leaf litter. The watercourse is approximately 6 feet wide. It flows south through Wetland 8, receives hydrology from Stream 5, and then flows into a concrete headwall pipe. Approximately 30 feet to the southeast of the headwall, the stream outfalls to a riprap channel, flowing for approximately 10 feet before entering another concrete headwall pipe and flowing under the railroad. South of the railroad, the watercourse is labeled Stream 7. Stream 7 originates from a concrete endwall pipe, and its classification changes to riverine intermittent streambed seasonally flooded (R5SBC) watercourse as the substrate transitions to cobble and gravel. The channel varies from approximately 6 to 10 feet, and deep pools are present within the channel. Stream 7 flows south, eventually joining with Stream 8 off-site and flowing through a culvert under Phipps Drive.

According to published Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps for New Haven County, Connecticut (09009C0438H), effective December 17, 2010, Stream 4/7 is not located within a mapped FEMA floodplain or floodway.

Wetland 8: USFWS Classification PSS1E

Wetland 8 is not identified on NWI mapping, but is classified as a palustrine scrub-shrub broad-leaved deciduous seasonally flooded/saturated (PSS1E) wetland. The wetland is located north of the railroad ROW and is a flat depression that flanks the east and west sides of Stream 4. It receives hydrology from overland flows and Stream 4. Wetland 8 displayed two primary wetland hydrology indicators including high water table (8" below soil surface) and saturation (4" below soil surface), and two secondary indicators, drainage patterns and geomorphic position. Wetland 8 is dominated by multiflora rose (*Rosa multiflora*) and silky dogwood (*Cornus amomum*). Common reed (*Phragmites australis*) and reed canary grass (*Phalaris arundinacea*) dominate the herbaceous stratum, and Asiatic bittersweet (*Celastrus orbiculatus*) and Japanese honeysuckle (*Lonicera japonica*) dominate the woody vine stratum. No trees were present throughout the wetland.

The wetland soil series identified through available mapping is Udorthents-Urban land complex (306). Udorthents consist primarily of areas that have been cut for leveling or filled for development; evidence of manipulation is present in the form of nearby development, berms, and fill slopes. Wetland 8 exhibited the Depleted Matric (F3) hydric soil indicators.

Functions and values of Wetland 8 include: groundwater discharge, flood flow alteration, sediment/toxicant retention, nutrient removal/retention/transformation, shoreline stabilization, and wildlife habitat. The wetland's location adjacent to Stream 4 and depressed topography allows it to discharge groundwater to the watercourse as well as retain flood flows and overland flows. Dense shrub and herbaceous cover aid in sediment/toxicant retention as well as nutrient attenuation and stabilize the banks of the stream that runs through the center of the wetland. Additionally, the wetland provides potential wildlife habitat in an otherwise highly developed and industrialized area. Several species of disturbance tolerant birds were observed in this area.

According to published Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps for New Haven County, Connecticut (09009C0438H), effective December 17, 2010, Wetland 9 is not located within a mapped FEMA floodplain or floodway.

Stream 5: USFWS Classification R4UBC

Stream 5 is not identified on NWI mapping, but is classified as a riverine intermittent unconsolidated bottom seasonally flooded (R4UBC) watercourse. Stream 5 is located

north of the railroad ROW, originating from a drainage swale that parallels the railroad tracks. The substrate in the consists largely of silt and leaf litter and is interspersed with cobble and gravel. The watercourse varies in width from approximately 6 feet to over 15 feet. It flows from west to east, eventually flowing into Stream 4 before flowing under the railroad. Wetland 10 is present to the west of the stream, contributing to its hydrology.

According to published Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps for New Haven County, Connecticut (09009C0438H), effective December 17, 2010, Stream 5 is not located within a mapped FEMA floodplain or floodway.

Wetland 10

Wetland 10 is located north of the railroad ROW, and adjacent to the west of Stream 5. The state-only wetland appears to have been recently disturbed by clearing and mulching activities, therefore little to no vegetation is currently present on-site. Mulch piles are present in portions of the wetland and in the nearby uplands. Aerial photographs available on Google Earth show that the clearing appears to have occurred sometime between April 2016 and September 2017; these photographs are available in **Appendix G**. These clearing activities appear to have affected the hydrology in the area, therefore it is unclear if this area was previously wetland, or if it has recently converted to wetland due to the recent activities.

The NRCS soil survey maps this area as Udorthents-Urban land complex (306). Udorthents consist primarily of areas that have been cut for leveling or filled for development; evidence of manipulation is present in the form of nearby development, berms, riprap, and fill slopes. While this soil series typically is considered well drained, field investigations found the soil to be poorly drained. Redoximorphic features and a depleted matrix were observed beginning 9 inches below the soil surface, indicating hydric soils.

According to published Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps for New Haven County, Connecticut (09009C0438H), effective December 17, 2010, Wetland 10 is not located within a mapped FEMA floodplain or floodway.

Stream 6: USFWS Classification R4UBC

Stream 6 is not identified on NWI mapping, but is classified as a riverine intermittent unconsolidated bottom seasonally flooded (R4UBC) watercourse. Stream 6 is located north of the railroad ROW, originating at a PVC pipe off-site to the north of the ROW. It

appears that, under normal circumstances, Stream 6 flows into Stream 5. However, recent clearing and mulching activities appear to have formed a berm between the two watercourses, therefore Stream 6 remains stagnant and does not contribute to the hydrology of Stream 5. The substrate in the consists largely of silt and mulch. The watercourse is approximately 8 feet in width and approximately 4 to 6 inches deep.

According to published Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps for New Haven County, Connecticut (09009C0438H), effective December 17, 2010, Stream 6 is not located within a mapped FEMA floodplain or floodway.

Stream 8: USFWS Classification R4SBC

Stream 8 is not identified on NWI mapping, but is classified as a riverine intermittent streambed seasonally flooded (R4SBC) watercourse. Stream 8 is located south of the railroad ROW, originating from a concrete headwall, and receives hydrology from Stream 9 to the northwest. The watercourse is approximately 5 feet wide with a cobble and gravel substrate. Water depth appeared fairly consistent throughout the reach, at approximately 4 to 6 inches. Stream 8 continues to flow southeast, eventually joining with Stream 7 off-site and flowing through a culvert under Phipps Drive.

According to published Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps for New Haven County, Connecticut (09009C0438H), effective December 17, 2010, Stream 8 is not located within a mapped FEMA floodplain or floodway.

Stream 9: USFWS Classification R4SBC

Stream 9 is not identified on NWI mapping, but is classified as a riverine intermittent streambed seasonally flooded (R4SBC) watercourse. Stream 9 is located south of the railroad ROW, originating from a drainage swale that parallels the railroad tracks, and flowing into Stream 8. The watercourse is approximately 5 feet wide with a cobble, gravel, and leaf litter substrate. Water depth appeared fairly consistent throughout the reach, at approximately 1 to 2 inches.

According to published Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps for New Haven County, Connecticut (09009C0438H), effective December 17, 2010, Stream 9 is not located within a mapped FEMA floodplain or floodway.

VII. VERNAL POOL INVESTIGATION

Identification of vernal pools can only be verified during the spring as they are sensitive to seasonal water fluctuations and temperatures. In a typical season, amphibians will begin their migration to a pool in late winter/early spring as the temperatures begin to rise and remain consistently above freezing and after a good amount of precipitation. Vernal pools are typically identified based on the presence of one or more obligate species which include: spotted salamander (*Ambystoma maculatum*), marbled salamander (*Ambystoma opacum*), Jefferson salamander (*Ambystoma jeffersonianum*), blue-spotted salamander (*Ambystoma laterale*), Jefferson/blue-spotted complex (*Ambystoma jeffersonianum/laterale)*, wood frog (*Rana sylvatica*), and fairy shrimp (Anostraca). Evidence of amphibian breeding includes the presence of salamander spermatophores at the bottom of the pool, egg masses attached to overhanging vegetation, the presence of tadpoles or larvae, presence of adults within the pool or adjacent uplands, or calling adult wood frogs. Fairy shrimp are often observed through water sampling, but can sometimes be seen swimming in the pool if the water is clear enough.

The 2018 breeding season saw an extended winter, with several days where temperatures spiked into the 60's throughout February and into early March, with low temperatures and several storm events following soon after. Despite the few warm days in February and early March, evidence of amphibian movement throughout New England generally did not begin until late March and likely concluded by mid-April. Therefore, the investigations, which occurred in mid-April, should have encompassed any residual amphibian breeding and presence of obligate species.

A total of three delineated features showed signs of pooled or ponded water that could potentially support vernal pool species. These three features included Wetland 2, Pond 1, and Stream 3.

While the habitat in and surrounding Wetland 2 is not ideal for vernal pool species, the channel and inundated portions of Wetland 2 were assessed for breeding amphibians. Overhanging vegetation was present throughout the channel, although somewhat limited in the most inundated area in the westernmost portion of the wetland. The water was somewhat murky, but clear enough to visually assess. No spermatophores, egg masses, larvae, or adult frogs or salamanders were observed within the channel, and no calling was heard. Several water samples were also assessed, and no obligate species were found. Given the likely brackish water chemistry in the majority of the channel, coupled with the lack of appropriate upland habitat, Wetland 2 does not appear to support any vernal pool species.

Pond 1 was also assessed for vernal pool species. The water was very clear with levels varying from only a few inches to over 2 feet. Some overhanging vegetation was present within the pond for potential attachment sites. No spermatophores, egg masses, larvae, or adult frogs or salamanders were observed within the pond, and no calling was heard. Several water samples were also assessed, and no obligate species were found. Several water samples were also assessed, and no obligate species were found. Furthermore, the surrounding upland habitat is limited to rock, steep dry hillslope, and riprap, and does not provide the required habitat for obligate species. Given the lack of evidence within the pool and lack of appropriate upland habitat immediately surrounding the pool, it does not appear that Pond 1 supports obligate vernal pool species.

Stream 3 was also assessed for vernal pool species. A portion of the stream becomes ponded, and pond scum was noted in this area. Visibility was high, and the stream could easily be assessed from the top of the water column to the substrate. Some overhanging vegetation was present along the perimeter of the stream. No spermatophores, egg masses, larvae, or adult frogs or salamanders were observed within the pond, and no calling was heard. Several water samples were also assessed, and no obligate species were found. Potential upland habitat is present to the north of the stream, however it is limited by the highly developed and industrialized nature of the area. No adult amphibians were observed in the upland to the north. As a result of the assessment of the stream and the associated upland, Stream 3 does not appear to support obligate vernal pool species.

In 2021, these areas were re-evaluated and determined to mimic the conditions observed in 2018, and it was determined these resources do not support obligate vernal pool species.

VIII. SUMMARY

In 2018, BL Companies identified five wetland complexes including nine federally and state- regulated and jurisdictional wetlands, ten watercourses, one state-only regulated wetland, and multiple areas of state-regulated tidal wetlands. In 2021 and 2022, BL conducted field reconnaissance and determined the features identified in 2018 were consistent with current conditions within the study area. One emergent wetland (Wetland 2) was extended in the vicinity of a proposed access road near I-95 and forested wetland (Wetland 10) was extended in the vicinity of proposed additional workspace near the Allings Crossing Substation; however, habitat conditions were consistent with the initial 2018 evaluation and the subsequent 2021 and 2022 evaluations at each of these locations. The wetland complexes have been described in this report and coincide with data that will be provided under separate cover for a future USACE preliminary

jurisdictional determination. Poorly drained soils, hydric soils, hydrophytic vegetation, and hydrology were all observed in the nine wetland locations satisfying the criteria of the State and Federal USACE methodology for wetland delineations. Poorly drained soils were observed with the state-only regulated wetland, and state-defined tidal vegetation was delineated and plotted with the CJL in order to identify state tidal wetland boundaries. One watercourse within the project corridor, the West River, and its associated wetlands are subject to tidal influences due to its location as a tributary to the New Haven Harbor and subsequently to Long Island Sound. While this area does have intertidal mudflats that are potential habitat for one federally listed bird species, the Red Knot, mapping indicates that there are no known occurrences within the project corridor. Additionally, no evidence or breeding amphibians was observed throughout the corridor and no vernal pools were identified. In addition to the descriptions within the previous sections of this report, supporting wetland data forms and photographs are attached that document the findings of the on-site field investigations.

IX. PREPARERS

Rachael Hyland, WPIT, Certified Associate Ecologist (2018)

Ms. Hyland holds a bachelor's degree in Ecology and Evolutionary Biology and has 5 years of experience in environmental sciences. Her specialty lies in ecological assessments and animal identification, specifically Connecticut species of reptiles, amphibians, and mammals including notable experience with bats. She is a Certified Associate Ecologist with the Ecologist Society of America. Ms. Hyland is also trained in wetland and upland plant identification and has assisted in federal and state delineations throughout Connecticut, Ohio, Virginia, and Alabama. Ms. Hyland is a Wetland Professional in Training with the Society of Wetland Scientists and has completed Basic Wetland Delineator Training with the Institute for Wetland Education and Environmental Research. Ms. Hyland's responsibilities include assisting with wetland delineations, wetland permitting, performing environmental site assessments, vernal pool surveys, agency coordination, ecological assessments, and the preparation of client reports.

Dan King, CPSS, PWS (2018)

Mr. King has 10 years of experience in the environmental consulting field. He is a Certified Professional Soil Scientist (CPSS) and a Professional Wetland Scientist (PWS). Throughout his career as a Biologist, Mr. King has developed expertise in conducting wetland delineations, compensatory mitigation planning, lake management, invasive species management, and various other facets of the discipline. In addition, Mr. King has authored Wetland and Watercourse Delineation Reports, Section 404 Nationwide Permit applications and Section 401 Water Quality Certification applications, and Mitigation Monitoring Reports. Throughout his career as a geologist and environmental scientist, Mr. King has developed expertise in conducting Pre-construction Assessments (soil and groundwater site characterizations of new build and re-build development projects), Phase I and Phase II Environmental Site Assessments, Bureau of Underground Storage Tank Regulations (BUSTR) corrective action processes, emergency response techniques and management, soil and groundwater sampling techniques and protocols, soil vapor extraction, remediation systems, well installation, and borehole logging, and various other facets of the discipline.

Update Preparers

Joseph Kempf (2021 & 2022)

Mr. Kempf holds a bachelor's degree in Environmental Science and has 8 years of experience in the environmental science consulting field. Mr. Kempf has developed expertise in conducting wetland delineations, compensatory mitigation planning, stream restoration, invasive species management, and various other facets of the discipline. In addition, Mr. Kempf has authored Wetland and Watercourse Delineation Reports, Section 404 Nationwide Permit applications, Pennsylvania Chapter 105 General Permits and Joint 404/105 Permit Applications, and Mitigation Monitoring Reports. Throughout his career as an environmental scientist, Mr. Kempf has developed expertise in conducting Phase I and Phase II Environmental Site Assessments, Property Condition Assessments, soil and groundwater sampling techniques and protocols, soil vapor extraction, remediation systems, well installation, and borehole logging, and various other facets of the discipline.

Sagan Simko, CPSS, PWS (2021 & 2022)

Mr. Simko has approximately 15 years of experience in performing an array of wetland delineations and site assessments, including vernal pool surveys. His wide array of experience encompasses soil morphological evaluations, infiltration and percolation testing, wetland mitigation design and monitoring, Bog Turtle habitat identification, as well as threatened and endangered species surveys. In addition, he has completed carbonate geology site evaluations, identification of asbestos-containing material, and underground storage tank removals and investigations. Mr. Simko's computer skills include ArcGIS 10 and GPS Pathfinder Office. As a Senior Project Scientist II at BL Companies, Mr. Simko's responsibilities include wetland investigations, vernal pool surveys, soil investigations, ground water investigations, Phase I site assessments, remediation related activities, remediation system monitoring and maintenance, engineering compliance inspection for natural gas pipeline projects, and construction field inspection duties for electric transmission line projects.

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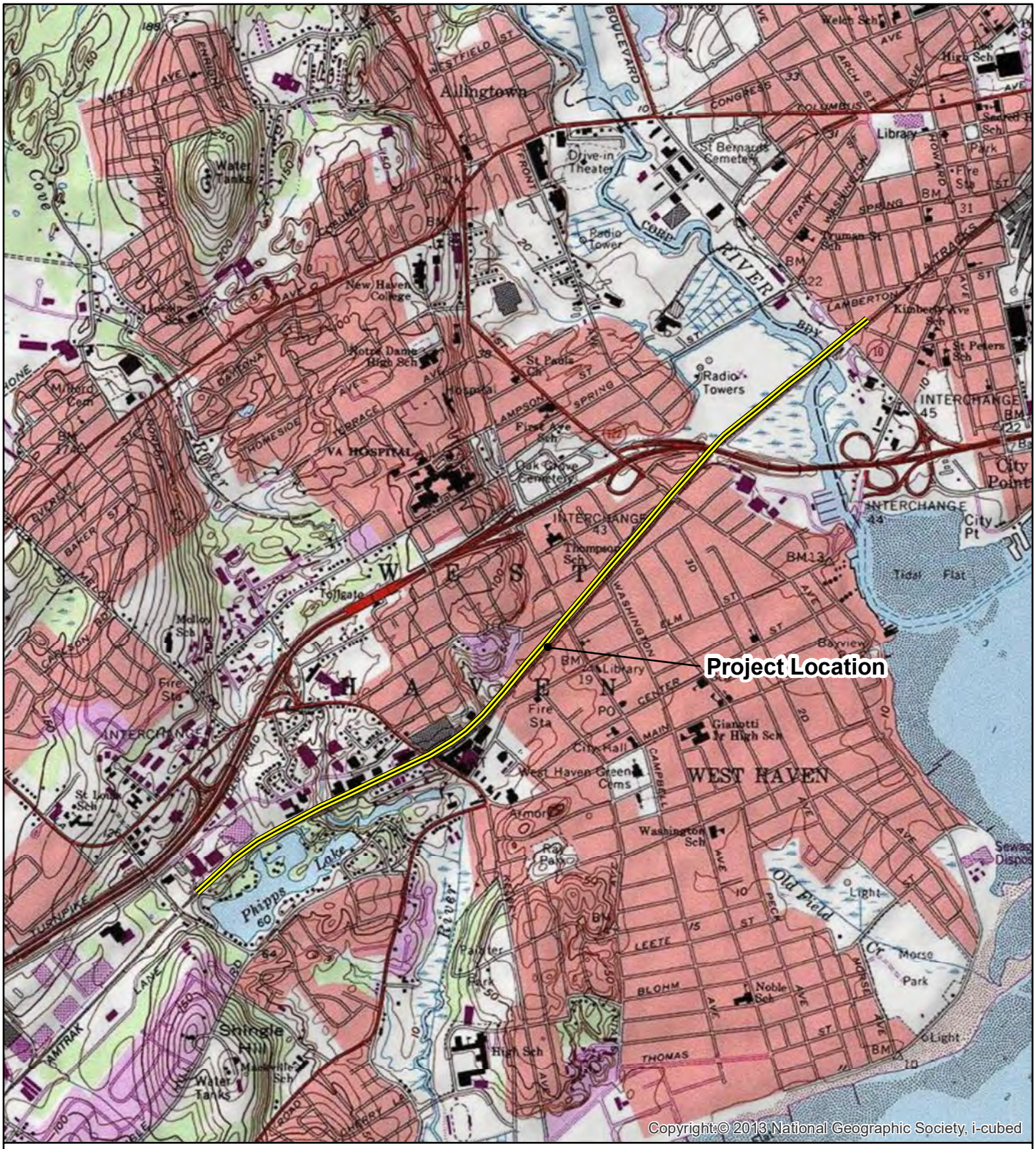
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APPENDIX: A Project Location Mapping



WEST RIVER TO ALLINGS CROSSING - WETLAND REPORT - PROJECT LOCATION MAP

GRAPHIC SCALE

0 1,000 2,000 3,000 4,000

Feet

DRAWN BY: SMS

CHECKED BY: WW

PROJECT NO: 17S3304

SCALE: 1:24,000

1 OF 1

Legend

West River to Allings Crossing

New Haven and West Haven, New Haven County, CT
New Haven, CT USGS 7.5-Minute Topographic Quadrangle

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

Document Path: G:\JOBS17\17S\17S3304\GIS\MXD\1. 17S3304 - Wetland Report - Project Location Map.mxd

APPENDIX B: Resource Mapping



WEST RIVER TO ALLINGS CROSSING - WETLAND REPORT - NATIONAL WETLAND INVENTORY MAP

GRAPHIC SCALE

0 700 1,400 2,100 2,800

Feet

DRAWN BY: SMS

CHECKED BY: WW

PROJECT NO: 17S3304

Legend

- West River to Allings Crossing T Line
- NWI Mapped Wetland

SCALE: 1:16,800

1 OF 4

New Haven and West Haven, New Haven County, CT

BL Companies — Architecture Engineering Environmental Land Surveying

355 Research Parkway
Meriden, Connecticut, 06450
(203) 630 - 1406

Document Path: G:\JOBS17\17S\17S3304\GIS\MXD\4. 17S3304 - Wetland Report - NWI Map.mxd



WEST RIVER TO ALLINGS CROSSING T LINE - WETLAND REPORT - SOILS MAP

GRAPHIC SCALE

0 700 1,400 2,100 2,800

Feet

DRAWN BY: SMS

CHECKED BY: WW

PROJECT NO: 17S3304

SCALE: 1:16,800

2 OF 4

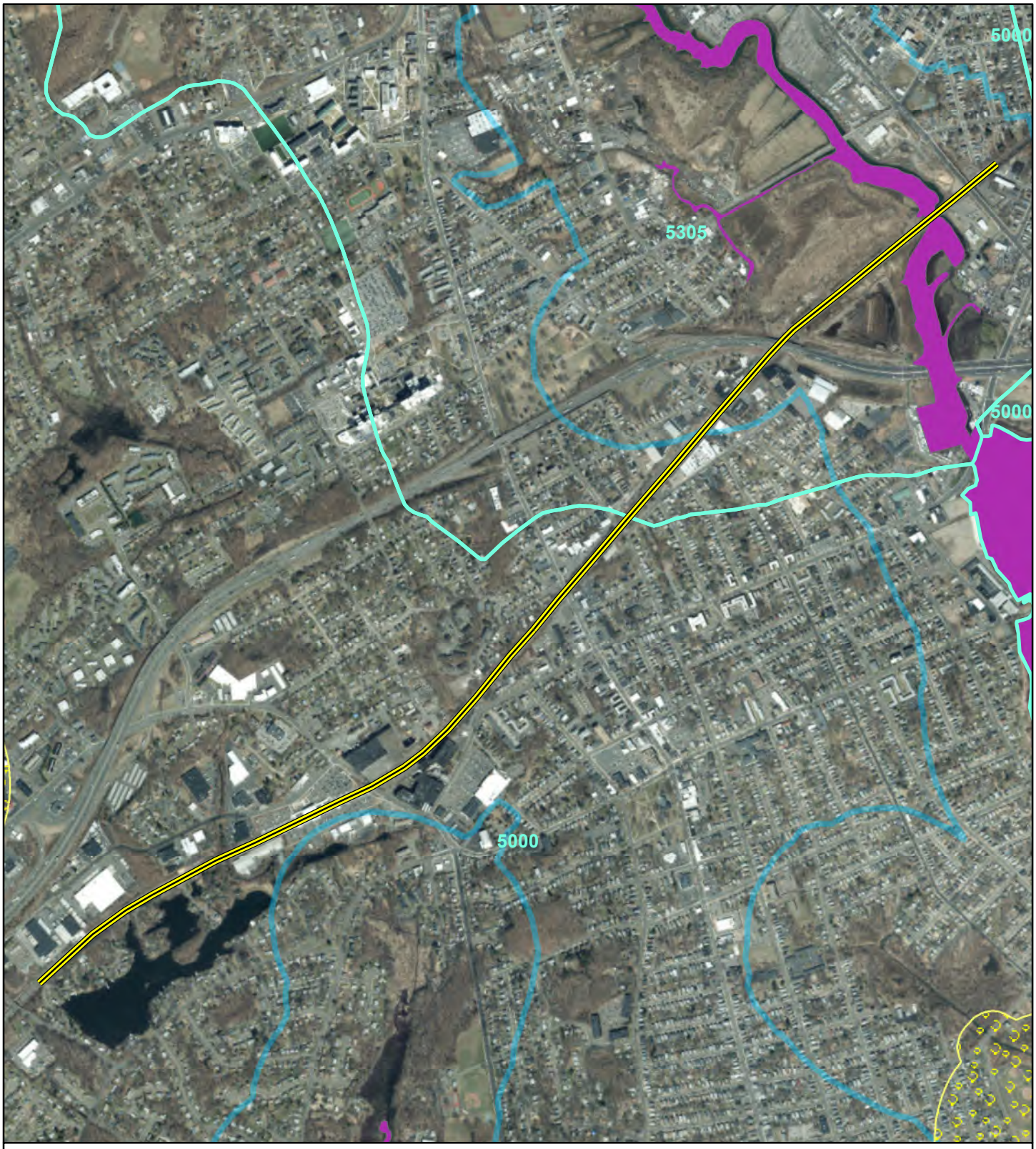
Legend

- West River to Allings Crossing
- Soil Type/Boundary

New Haven and West Haven, New Haven County, CT

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Document Path: G:\JOBS17\17S\17S3304\GIS\MXD\5. 17S3304 - Wetland Report - Soils Map.mxd



WEST RIVER TO ALLINGS CROSSING - WETLAND REPORT - RESOURCE MAP

GRAPHIC SCALE

0 700 1,400 2,100 2,800

Feet

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CHECKED BY: WW

PROJECT NO: 17S3304

Legend

- West River to Allings Crossing
- Subregional Basins
- NDDB Areas
- Aquifer Protection Area
- CAM Zone

Shellfish Classification

- Prohibited

West Haven and New Haven, New Haven County, CT

SCALE: 1:16,800

3 OF 4

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Document Path: G:\JOBS17\17S\17S3304\GIS\MXD\6. 17S3304 - Wetland Report - Resource Map.mxd



WEST RIVER TO ALLINGS CROSSING - WETLAND REPORT - FEMA MAP

GRAPHIC SCALE

0 700 1,400 2,100 2,800

Feet

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CHECKED BY: WW

PROJECT NO: 17S3304

Legend

West River to Allings Crossing T Line

FEMA Zone Subtype

- Floodway
- 100 Year Floodplain
- 500 Year Floodplain

New Haven and West Haven, New Haven County, CT

SCALE: 1:16,800

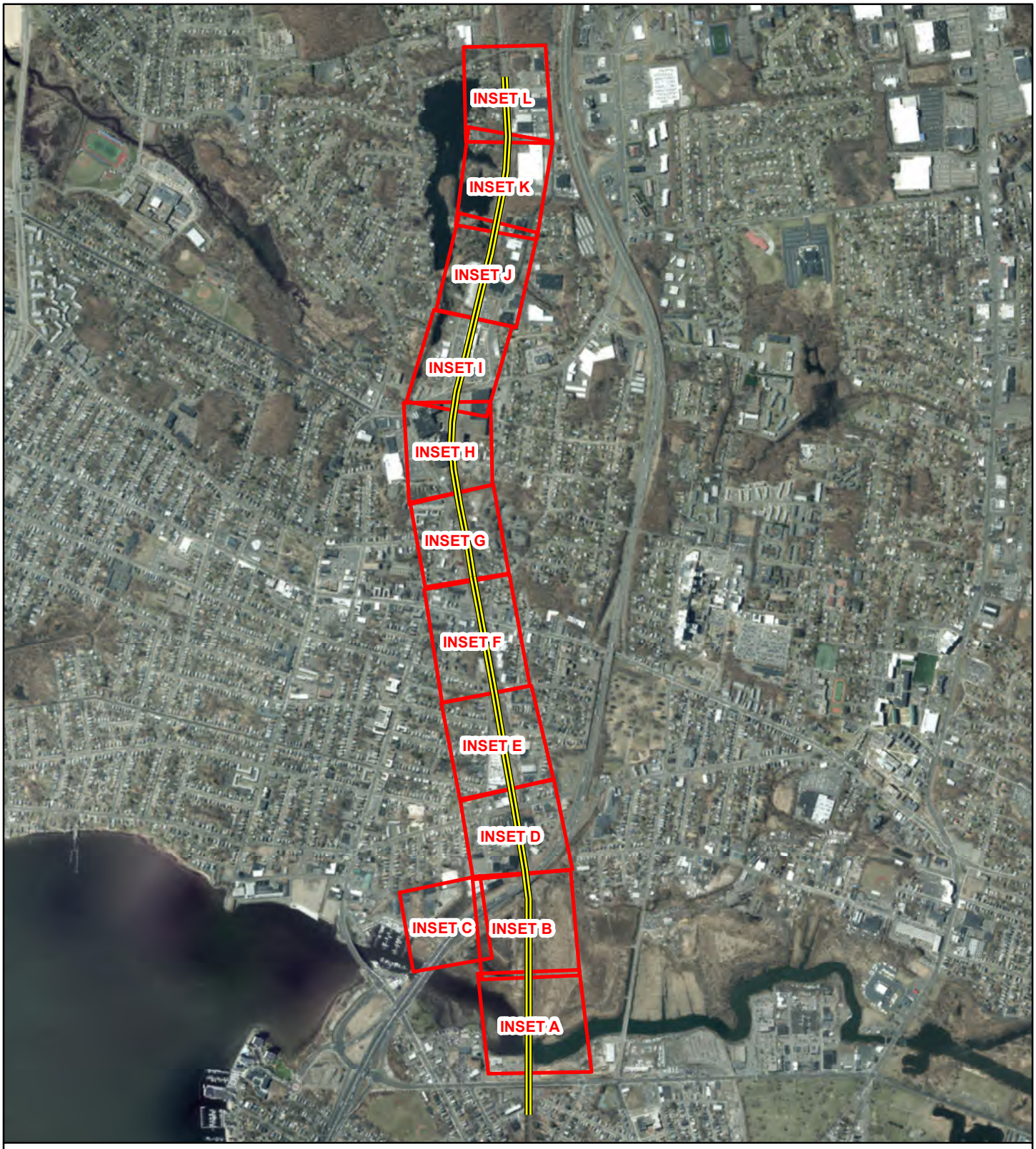
4 OF 4

BL Companies
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Document Path: G:\JOBS17\17S\17S3304\GIS\MXD\8. 17S3304 - Wetland Report - FEMA Map.mxd

APPENDIX C: Inland Wetland Delineation Mapping



WEST RIVER TO ALLINGS CROSSING - WETLAND REPORT - INSET LOCATION MAP

GRAPHIC SCALE

0 850 1,700 2,550 3,400

Feet

DRAWN BY: SMS

CHECKED BY: WW

PROJECT NO: 17S3304

Legend

West River to Allings Crossing

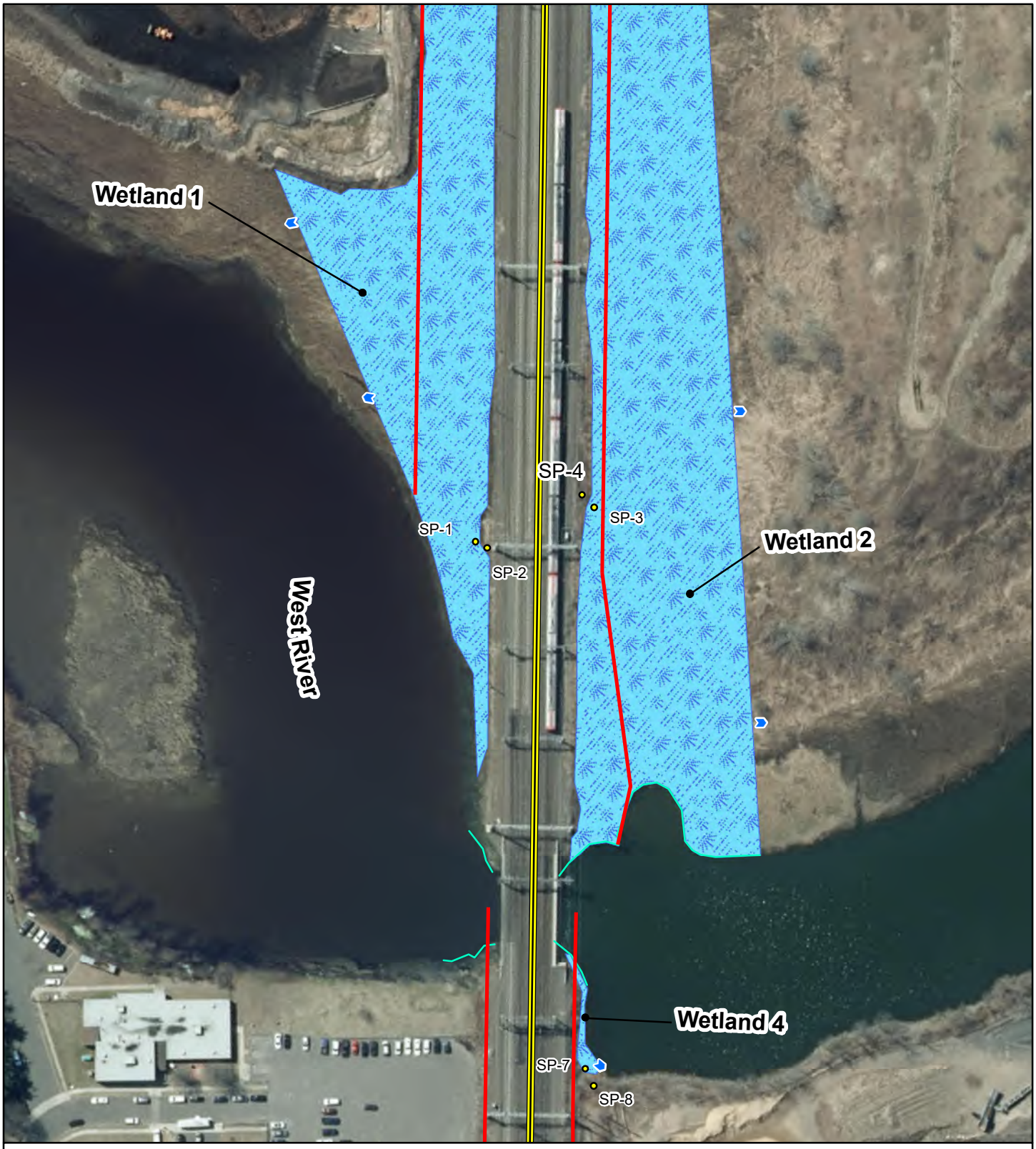
New Haven and West Haven, New Haven County, CT

SCALE: 1:20,400

1 OF 13

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

Document Path: G:\JOBS17\17S\17S3304\GIS\MXD\2. 17S3304 - Wetland Report - Inset Location Map.mxd



WEST RIVER TO ALLINGS CROSSING - WETLAND REPORT - INSET A

GRAPHIC SCALE
0 75 150 225 300
Feet

Legend

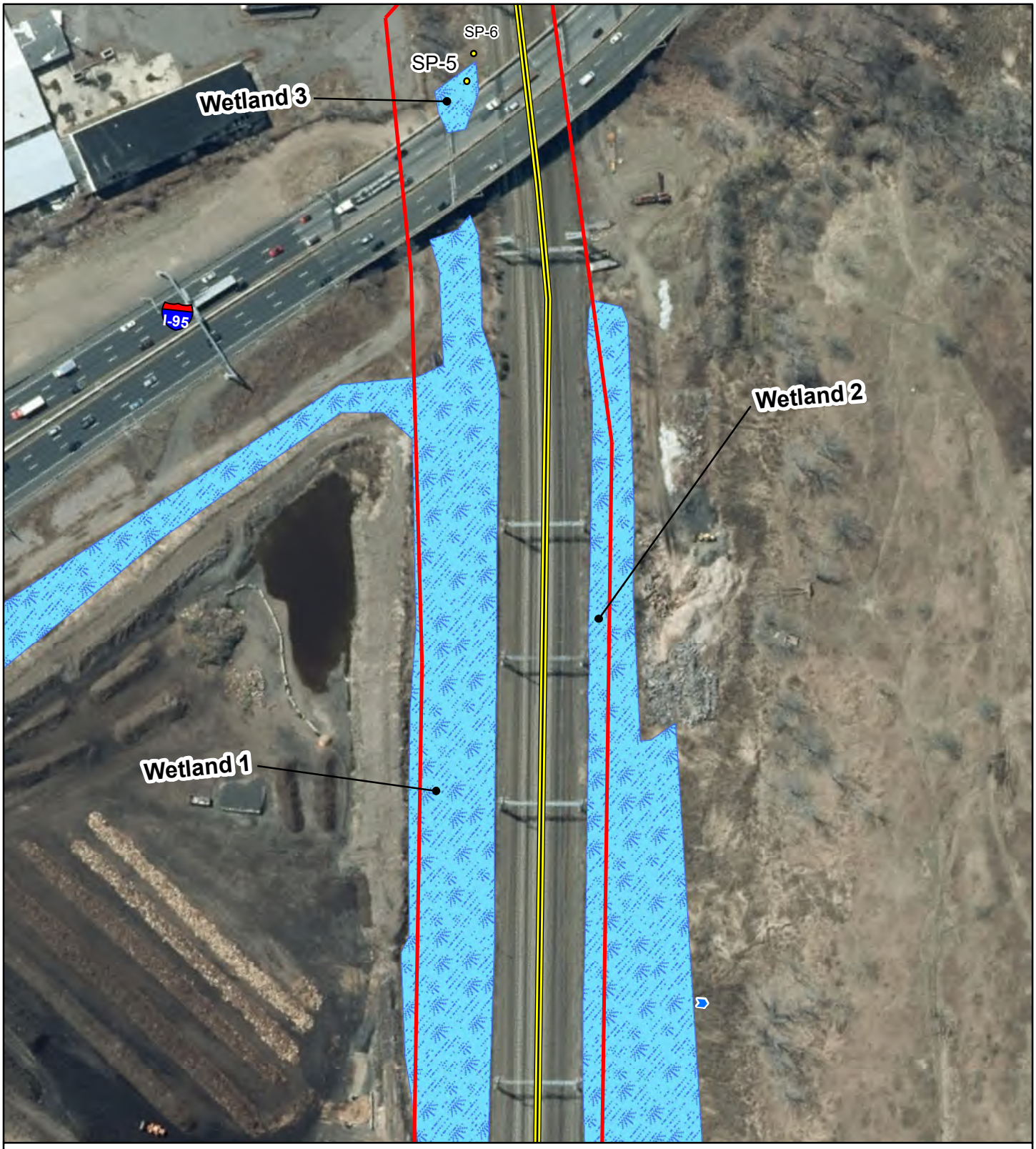
- ROW
- West River to Allings Crossing
- Open Ended Wetland Direction
- Sample Point
- Streams
- Wetlands

New Haven and West Haven, New Haven County, CT

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CHECKED BY: WW	
SCALE: 1:1,800	2 OF 13

BL Companies
Architecture Engineering Environmental Land Surveying
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WEST RIVER TO ALLINGS CROSSING - WETLAND REPORT - INSET B

GRAPHIC SCALE
0 75 150 225 300
Feet

DRAWN BY: SMS
CHECKED BY: WW
PROJECT NO: 17S3304
SCALE: 1:1,800
3 OF 13

Legend

- ROW
- West River to Allings Crossing
- Open Ended Wetland Direction
- Sample Point
- Wetlands

New Haven and West Haven, New Haven County, CT

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WEST RIVER TO ALLINGS CROSSING - WETLAND REPORT - INSET C

GRAPHIC SCALE
0 75 150 225 300
Feet

DRAWN BY: SMS
CHECKED BY: WW
PROJECT NO: 17S3304

Legend

Open Ended Wetland Direction
Wetlands

SCALE: 1:1,800

4 OF 13

New Haven and West Haven, New Haven County, CT

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WEST RIVER TO ALLINGS CROSSING - WETLAND REPORT - INSET D

GRAPHIC SCALE
0 75 150 225 300
Feet

DRAWN BY: SMS
CHECKED BY: WW
PROJECT NO: 17S3304
SCALE: 1:1,800
5 OF 13

Legend

- ROW
- West River to Allings Crossing
- Sample Point
- Wetlands

New Haven and West Haven, New Haven County, CT

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WEST RIVER TO ALLINGS CROSSING - WETLAND REPORT - INSET E

GRAPHIC SCALE
0 75 150 225 300
Feet

DRAWN BY: SMS
CHECKED BY: WW
PROJECT NO: 17S3304
SCALE: 1:1,800
6 OF 13

Legend
- ROW
- West River to Allings Crossing

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Document Path: G:\JOBS17\17S\17S3304\GIS\MXD\3. 17S3304 - Wetland Report - Inset Maps.mxd



WEST RIVER TO ALLINGS CROSSING - WETLAND REPORT - INSET F

GRAPHIC SCALE
0 75 150 225 300
Feet

DRAWN BY: SMS
CHECKED BY: WW
PROJECT NO: 17S3304
SCALE: 1:1,800
7 OF 13

Legend
- ROW
- West River to Allings Crossing

New Haven and West Haven, New Haven County, CT

BL Companies
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WEST RIVER TO ALLINGS CROSSING - WETLAND REPORT - INSET G

GRAPHIC SCALE

0 75 150 225 300

Feet

Legend

- ROW
- West River to Allings Crossing

New Haven and West Haven, New Haven County, CT

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SCALE: 1:1,800	8 OF 13

BL Companies
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WEST RIVER TO ALLINGS CROSSING - WETLAND REPORT - INSET H

GRAPHIC SCALE
0 75 150 225 300
Feet

DRAWN BY: SMS
CHECKED BY: WW
PROJECT NO: 17S3304
SCALE: 1:1,800
9 OF 13

Legend

- ROW
- West River to Allings Crossing
- Wetlands

New Haven and West Haven, New Haven County, CT

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Architecture Engineering Environmental Land Surveying
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WEST RIVER TO ALLINGS CROSSING - WETLAND REPORT - INSET I

GRAPHIC SCALE
0 75 150 225 300
Feet

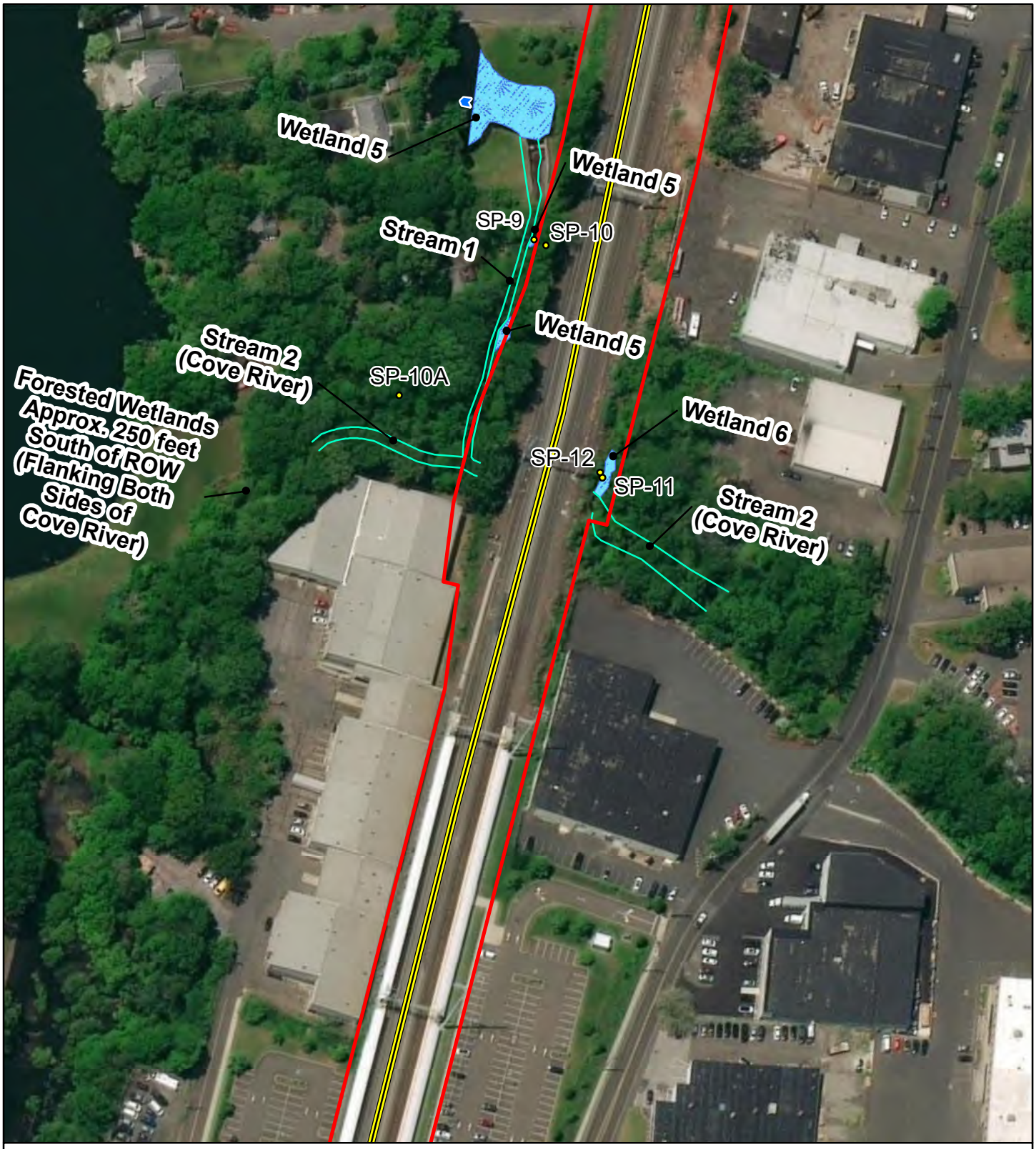
Legend
- ROW
- West River to Allings Crossing

New Haven and West Haven, New Haven County, CT

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CHECKED BY: WW	
SCALE: 1:1,800	10 OF 13

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WEST RIVER TO ALLINGS CROSSING - WETLAND REPORT - INSET J

GRAPHIC SCALE
0 75 150 225 300
Feet

DRAWN BY: SMS
CHECKED BY: WW
PROJECT NO: 17S3304
SCALE: 1:1,800
11 OF 13

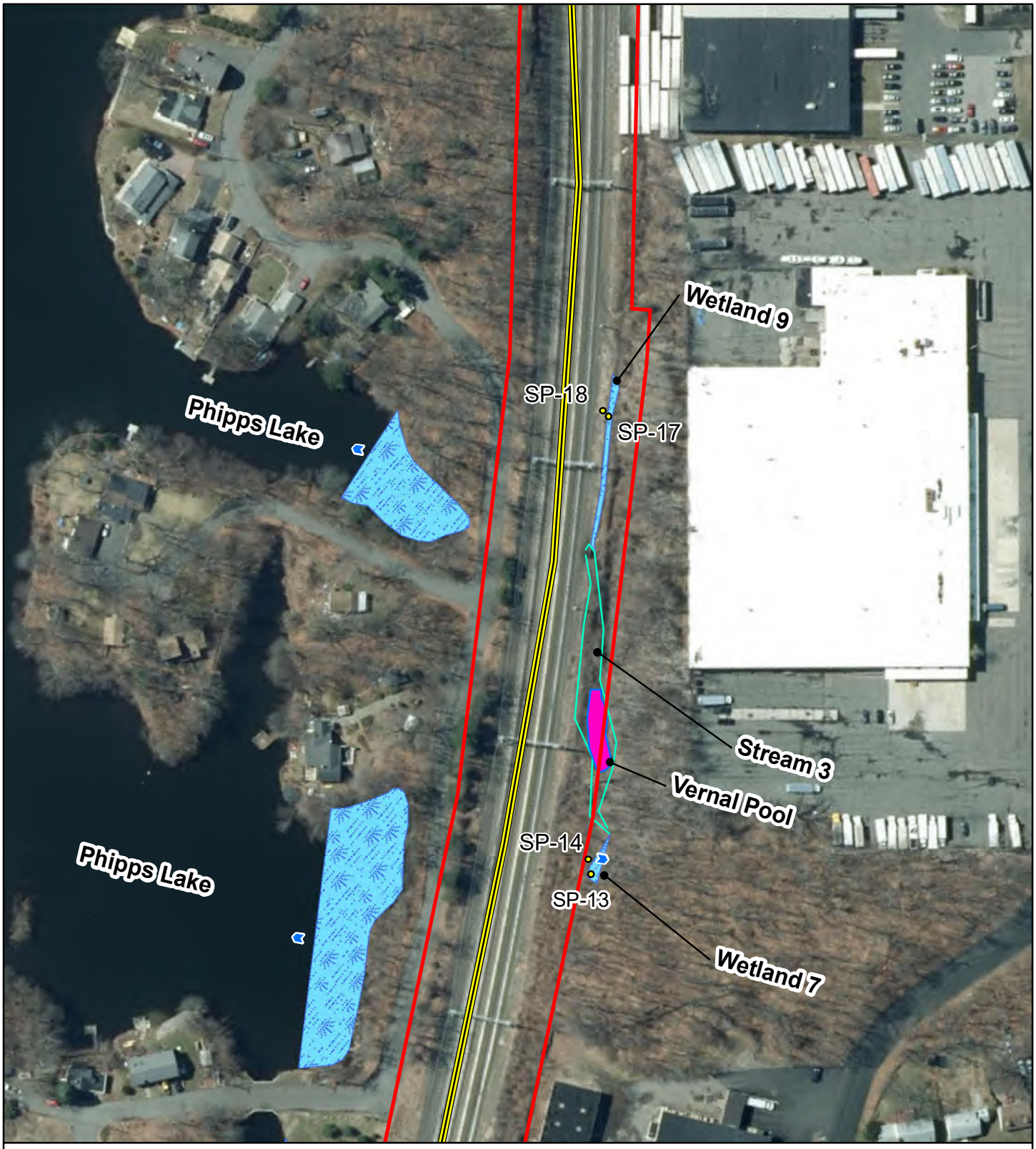
Legend

- ROW
- West River to Allings Crossing
- Open Ended Wetland Direction
- Sample Point
- Streams
- Wetlands

New Haven and West Haven, New Haven County, CT

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Document Path: G:\JOBS17\17S\17S3304\GIS\MXD\3. 17S3304 - Wetland Report - Inset Maps.mxd



WEST RIVER TO ALLINGS CROSSING - WETLAND REPORT - INSET K

GRAPHIC SCALE
0 75 150 225 300
Feet

Legend

- ROW
- West River to Allings Crossing
- Open Ended Wetland Direction
- Sample Point
- Streams
- Wetlands
- Vernal Pool

New Haven and West Haven, New Haven County, CT

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SCALE: 1:1,800	12 OF 13

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WEST RIVER TO ALLINGS CROSSING - WETLAND REPORT - INSET L

GRAPHIC SCALE
0 75 150 225 300
Feet

Legend

- ROW
- West River to Allings Crossing
- Open Ended Wetland Direction
- Sample Point
- Streams
- Wetlands

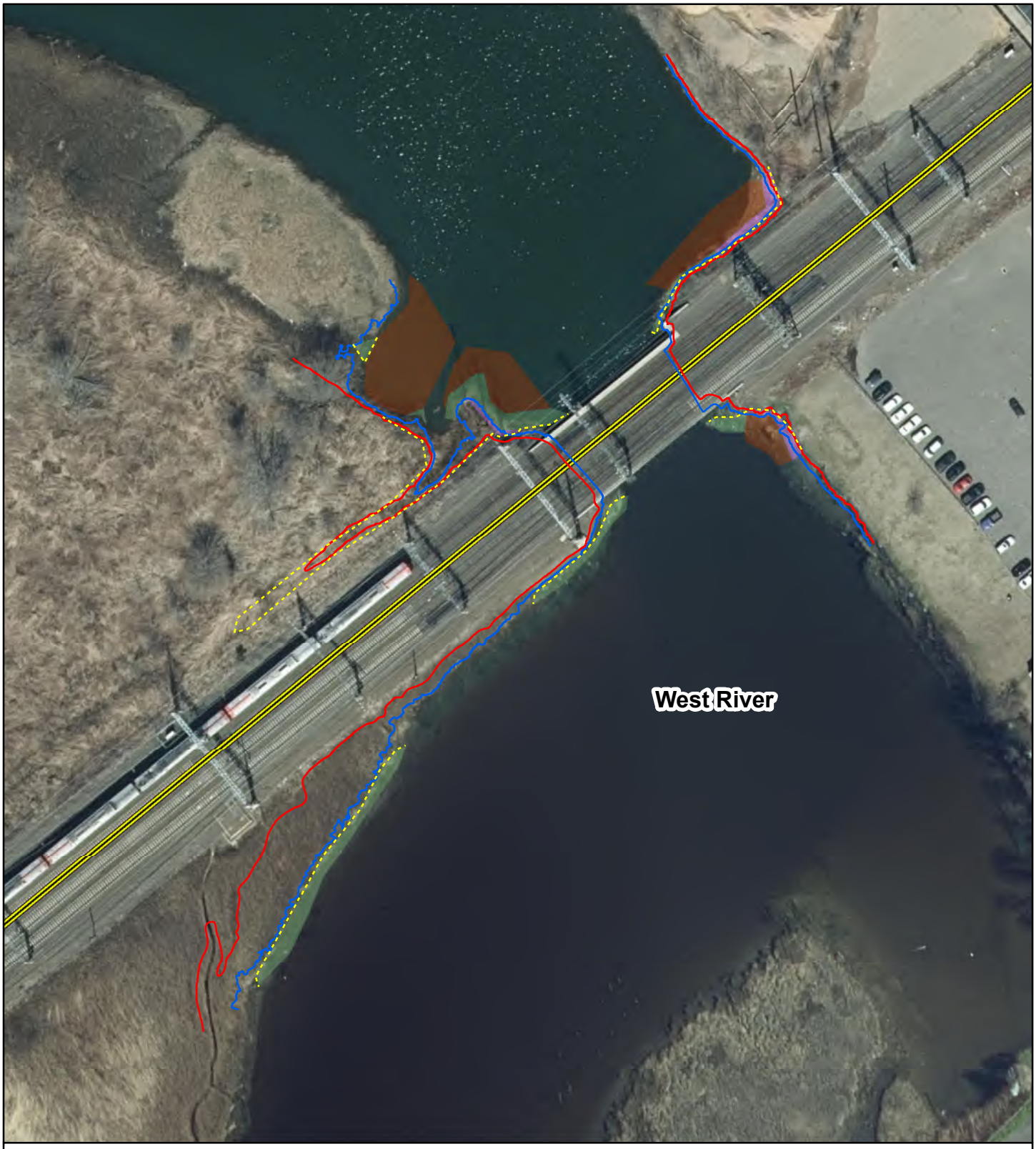
New Haven and West Haven, New Haven County, CT

DRAWN BY: SMS	PROJECT NO: 17S3304
CHECKED BY: WW	
SCALE: 1:1,800	13 OF 13

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Architecture Engineering Environmental Land Surveying
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APPENDIX D: Delineated Coastal Resources Mapping



WEST RIVER TO ALLINGS CROSSING - WETLAND REPORT - DELINEATED COASTAL RESOURCE MAP

GRAPHIC SCALE
0 50 100 150 200
Feet

DRAWN BY: SMS
CHECKED BY: WW
PROJECT NO: 17S3304
SCALE: 1:1,200
1 OF 1

Legend

- West River to Allings Crossing
- Limit of Tidal Vegetation
- CJL/HTL (4.6')
- MHW
- Intertidal Flat
- Iva
- Spartina

West Haven and New Haven, New Haven County, CT

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Document Path: G:\JOBS17\17S\17S3304\GIS\MXD\8. 17S3304 - Wetland Report - Coastal Resource_SMS Update 20210809.mxd

APPENDIX E: Photographs



PHOTO 1: Upstream view of the West River, looking east from the northwestern bank.



PHOTO 2: View of Wetland 1, looking east from the tracks towards West River.

BL Companies Architecture Engineering Environmental Land Surveying	17S3304	**West River to Allings Crossing** **MetroNorth Transmission Line** **United Illuminating** **New Haven and West Haven , CT**	**FIGURE 1**



PHOTO 3: View of estuarine area of Wetland 2, looking southwest from the northeastern bank.



PHOTO 4: View of estuarine area of Wetland 2, looking west from the northeastern bank.

BL Companies Architecture Engineering Environmental Land Surveying	17S3304	**West River to Allings Crossing** **MetroNorth Transmission Line** **United Illuminating** **New Haven and West Haven , CT**	**FIGURE 2**



PHOTO 5: View of inundated area within Wetland 2, looking northeast.



PHOTO 6: View of Wetland 3, looking southeast.

BL Companies Architecture Engineering Environmental Land Surveying	17S3304	**West River to Allings Crossing** **MetroNorth Transmission Line** **United Illuminating** **New Haven and West Haven , CT**	**FIGURE 3**



PHOTO 7: View of Wetland 4 at the toe of the slope, looking east.



PHOTO 8: View of Pond 1, looking southeast towards the tracks.

BL Companies Architecture Engineering Environmental Land Surveying	17S3304	**West River to Allings Crossing** **MetroNorth Transmission Line** **United Illuminating** **New Haven and West Haven , CT**	**FIGURE** **4**



PHOTO 9: View of Stream 1, looking west from the toe of slope.



PHOTO 10: View of Wetland 5, a floodplain shelf, looking south towards Stream 1.

BL Companies Architecture Engineering Environmental Land Surveying	17S3304	**West River to Allings Crossing** **MetroNorth Transmission Line** **United Illuminating** **New Haven and West Haven , CT**	**FIGURE** **5**



PHOTO 11: Downstream view of Stream 2 (Cove River), looking north at the culvert outfall.



PHOTO 12: Upstream view of Stream 2 (Cove River), looking off-site to the north.



PHOTO 13: Upland Sample Point near Stream 2 (Cove River), looking north towards the tracks.



PHOTO 14: Upland Sample Point near Stream 2 (Cove River), looking southwest.

BL Companies Architecture Engineering Environmental Land Surveying	17S3304	**West River to Allings Crossing** **MetroNorth Transmission Line** **United Illuminating** **New Haven and West Haven , CT**	**FIGURE 7**



PHOTO 15: View of Wetland 6, a hillside seep, looking west.



PHOTO 16: View of Wetland 7, a forested wetland, looking off-site to the north.

BL Companies Architecture Engineering Environmental Land Surveying	17S3304	**West River to Allings Crossing** **MetroNorth Transmission Line** **United Illuminating** **New Haven and West Haven , CT**	**FIGURE 8**



PHOTO 17: View of Stream 3, looking southwest.



PHOTO 18: View of Wetland 9, a linear scrub-shrub wetland, looking northwest from the top of the slope.

BL Companies Architecture Engineering Environmental Land Surveying	17S3304	**West River to Allings Crossing** **MetroNorth Transmission Line** **United Illuminating** **New Haven and West Haven , CT**	**FIGURE** **9**



PHOTO 19: View of Stream 4, looking southwest from Wetland 8 towards the tracks.



PHOTO 20: View of Wetland 8, a scrub-shrub wetland flanking Stream 4

BL Companies Architecture Engineering Environmental Land Surveying	17S3304	**West River to Allings Crossing** **MetroNorth Transmission Line** **United Illuminating** **New Haven and West Haven , CT**	**FIGURE 10**



PHOTO 21: View of Stream 5, looking north



PHOTO 22: View of CT Wetland 1, looking east towards Stream 5.

BL Companies Architecture Engineering Environmental Land Surveying	17S3304	**West River to Allings Crossing** **MetroNorth Transmission Line** **United Illuminating** **New Haven and West Haven , CT**	**FIGURE** **11**



PHOTO 23: View of Stream 6, looking south.



PHOTO 24: View of Stream 7 (downstream side of Stream 4), looking northeast towards the tracks.

BL Companies Architecture Engineering Environmental Land Surveying	17S3304	**West River to Allings Crossing** **MetroNorth Transmission Line** **United Illuminating** **New Haven and West Haven , CT**	**FIGURE 12**



PHOTO 25: View of Stream 8, looking northwest towards the tracks.



PHOTO 26: View of Stream 9 looking southwest from the tracks towards Stream 8.



PHOTO 27: View of tidal vegetation and intertidal flats in the northeast quadrant of the West River crossing, looking east.



PHOTO 28: View of intertidal flats and mussel beds in the northeast quadrant looking north.

BL Companies Architecture Engineering Environmental Land Surveying	17S3304	**West River to Allings Crossing** **MetroNorth Transmission Line** **United Illuminating** **New Haven and West Haven , CT**	**FIGURE** **14**



PHOTO 29: View *Spartina*, *Iva*, and intertidal flats in the southeast quadrant of the river crossing, looking north towards the bridge.



PHOTO 30: View of *Iva* and intertidal flats in the southeast quadrant of the river crossing looking south.

BL Companies Architecture Engineering Environmental Land Surveying	17S3304	**West River to Allings Crossing** **MetroNorth Transmission Line** **United Illuminating** **New Haven and West Haven , CT**	**FIGURE 15**



PHOTO 31: View of *Spartina* with interspersed mussel beds in the southwest quadrant of the river crossing, looking west.



PHOTO 32: View of *Spartina* and intertidal flats in the northwest quadrant of the river crossing, looking north.

APPENDIX F: Wetland Data Sheets

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: MetroNorth Railroad West River to Allings Crossing County: New Haven Sampling Date: 4/18/2018
Applicant/Owner: United Illuminating State: CT Sample Point: SP-1
Investigator(s): D. King and R. Hyland Section, Township, Range: N/A
Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): None Slope (%): 0-3
Subregion (LRR or MLRA): LRR R Lat: 41.28705 Long: -72.94099 Datum: NAVD 88
Soil Map Unit Name: Udorthents, Smoothed (308) NWI Classification: E2EM5P
Are climatic / hydrologic conditions on the site typical for this time of year? (Yes / No) YES (if no, explain in Remarks.)
Are Vegetation **No** ,Soil **No** ,or Hydrology **No** significantly disturbed? Are "Normal Circumstances" present? Yes **X** No
Are Vegetation **No** ,Soil **No** ,or Hydrology **No** naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes **X**	No	
Hydric Soil Present?	Yes **X**	No	**Is the Sampled Area**
Wetland Hydrology Present?	Yes **X**	No	**within a Wetland?** **Yes X** **No**
			If yes, optional Wetland Site ID: **Wetland 1**

Remarks:

This point was determined to be within a wetland due to the presence of all 3 wetland criteria.
Wetland 1 is an emegent wetland located south of the railroad ROW and west of the West River.

HYDROLOGY

Wetland hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface Water Present?	Yes **X** No	Depth (inches):	**1"**
Water Table Present?	Yes **X** No	Depth (inches):	**0"**
Saturation Present? (includes capillary fringe)	Yes **X** No	Depth (inches):	**0"**

Wetland Hydrology Present? **Yes X** **No**

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

Remarks:

A positive indication of wetland hydrology was observed (primary and secondary indicators were present).

VEGETATION (Four Strata) - Use scientific names of plants.

Sampling Point: **SP-1**

Tree Stratum (Plot size: 30 ft.)	Absolute % cover	Dominant Species?	Indicator Status
1. *None observed*			
2.			
3.			
4.			
5.			
6.			
7.			
	0 = Total Cover		

Sapling/Shrub Stratum (Plot size: 15 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
7.			
	0 = Total Cover		

Herb Stratum (Plot size: 5 ft.)			
1. *Phragmites australis*	100	Yes	FACW
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	100 = Total Cover		

Woody Vine Stratum (Plot size: 30 ft.)			
1. *None Observed*			
2.			
3.			
4.			
	0 = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: **1** (A)

Total Number of Dominant Species Across All Strata: **1** (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: **100%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	**0**	x 1 =	**0**
FACW species	**100**	x 2 =	**200**
FAC species	**0**	x 3 =	**0**
FACU species	**0**	x 4 =	**0**
UPL species	**0**	x 5 =	**0**
Column Totals:	**100** (A)		**200** (B)

Prevalence Index = B/A = **2.00**

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- **X** 2 - Dominance Test is >50%
- **X** 3 - Prevalence Index is ≤ 3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Five Vegetation Strata:

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

Sapling/Shrub - Woody plants lses than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

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

Woody vine - All woody vines greater than 3.28 ft in height.

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

Remarks:

A positive indication of hydrophytic vegetation was observed (>50% of dominant species indexed as OBL, FACW, or FAC).

Wetland is dominated by Phragmites australis (invasive).

SOIL

Sampling Point: **SP-1**

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-16	10YR 2/1	100					Mucky Peat	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators:

- **X** Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- **X** Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) **(LRR R, MLRA 149B)**
- ___ Polyvalue Below Surface (S8) **(LRR R, MLRA 149B)**
- ___ Thin Dark Surface (S9) **(LRR R, MLRA 149B)**
- ___ Loamy Mucky Mineral (F1) **(LRR K, L)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(LRR K, L, MLRA 149B)**
- ___ Coast Prairie Redox (A16) **(LRR K, L, R)**
- ___ 5 cm Mucky Peat or Peat (S3) **(LRR K, L, R)**
- ___ Dark Surface (S7) **(LRR K, L)**
- ___ Polyvalue Below Surface (S8) **(LRR K, L)**
- ___ Thin Dark Surface (S9) **(LRR K, L)**
- ___ Iron-Manganese Masses (F12) **(LRR K, L, R)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 149B)**
- ___ Mesic Spodic (TA6) **(MLRA 144A, 145, 149B)**
- ___ Red Parent Material (F12)
- ___ Very Shallow Dark Surface (F22)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** **X** **No** _____

Remarks:

A positive indication of hydric soil was observed.

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: MetroNorth Railroad West River to Allings Crossing County: New Haven Sampling Date: 4/18/2018
Applicant/Owner: United Illuminating State: CT Sample Point: SP-2
Investigator(s): D. King and R. Hyland Section, Township, Range: N/A
Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): Convex Slope (%): 0-3
Subregion (LRR or MLRA): LRR R Lat: 41.28710 Long: -72.94100 Datum: NAVD 88
Soil Map Unit Name: Udorthents, Smoothed (308) NWI Classification: N/A
Are climatic / hydrologic conditions on the site typical for this time of year? (Yes / No) YES (if no, explain in Remarks.)
Are Vegetation **No**, Soil **Yes**, or Hydrology **No** significantly disturbed? Are "Normal Circumstances" present? Yes **X** No
Are Vegetation **No**, Soil **No**, or Hydrology **No** naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks:

This point was determined not to be within a wetland due to the lack of all three wetland criteria.
Upland point for Wetland 1 located on a fill embankment, covered in gravel.

HYDROLOGY

Wetland hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface Water Present?	Yes	No **X**	Depth (inches): **N/A**
Water Table Present?	Yes	No **X**	Depth (inches): **>20**
Saturation Present? (includes capillary fringe)	Yes	No **X**	Depth (inches): **>20**

Wetland Hydrology Present? **Yes** **No X**

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

Remarks:

No positive indication of wetland hydrology was observed.

VEGETATION (Four Strata) - Use scientific names of plants.

Sampling Point: **SP-2**

Tree Stratum (Plot size: 30 ft.)	Absolute % cover	Dominant Species?	Indicator Status
1. *None observed*			
2.			
3.			
4.			
5.			
6.			
7.			
	0 = Total Cover		

Sapling/Shrub Stratum (Plot size: 15 ft.)	Absolute % cover	Dominant Species?	Indicator Status
1. *Ailanthus altissima*	2	Yes	UPL
2.			
3.			
4.			
5.			
6.			
7.			
	2 = Total Cover		

Herb Stratum (Plot size: 5 ft.)	Absolute % cover	Dominant Species?	Indicator Status
1. *Phragmites australis*	10	Yes	FACW
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	10 = Total Cover		

Woody Vine Stratum (Plot size: 30 ft.)	Absolute % cover	Dominant Species?	Indicator Status
1. *Celastrus orbiculatus*	10	Yes	UPL
2.			
3.			
4.			
	10 = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: **1** (A)

Total Number of Dominant Species Across All Strata: **3** (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: **33%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	**0**	x 1 =	**0**
FACW species	**10**	x 2 =	**20**
FAC species	**0**	x 3 =	**0**
FACU species	**0**	x 4 =	**0**
UPL species	**12**	x 5 =	**60**
Column Totals:	**22** (A)		**80** (B)

Prevalence Index = B/A = **3.64**

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation
___ 2 - Dominance Test is >50%
___ 3 - Prevalence Index is ≤ 3.0[1]
___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Five Vegetation Strata:

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

Sapling/Shrub - Woody plants lses than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

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

Woody vine - All woody vines greater than 3.28 ft in height.

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

Remarks:

No positive indication of hydrophytic vegetation was observed (≥50% of dominant species indexed as FAC− or drier).

Vegetation is limited due to the heavy presence of gravel along the fill slope.

SOIL

Sampling Point: **SP-2**

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-2	10YR 4/3	100					Silt Loam	gravelly

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) **(LRR R, MLRA 149B)**
- ___ Polyvalue Below Surface (S8) **(LRR R, MLRA 149B)**
- ___ Thin Dark Surface (S9) **(LRR R, MLRA 149B)**
- ___ Loamy Mucky Mineral (F1) **(LRR K, L)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(LRR K, L, MLRA 149B)**
- ___ Coast Prairie Redox (A16) **(LRR K, L, R)**
- ___ 5 cm Mucky Peat or Peat (S3) **(LRR K, L, R)**
- ___ Dark Surface (S7) **(LRR K, L)**
- ___ Polyvalue Below Surface (S8) **(LRR K, L)**
- ___ Thin Dark Surface (S9) **(LRR K, L)**
- ___ Iron-Manganese Masses (F12) **(LRR K, L, R)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 149B)**
- ___ Mesic Spodic (TA6) **(MLRA 144A, 145, 149B)**
- ___ Red Parent Material (F12)
- ___ Very Shallow Dark Surface (F22)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: Fill material

Depth (inches): 2"

Hydric Soil Present? Yes ___ **No** X

Remarks:

No positive indication of hydric soils was observed.

Restrive layer present within the first few inches throughout the fill embankment.

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: MetroNorth Railroad West River to Allings Crossing County: New Haven Sampling Date: 4/18/2018
Applicant/Owner: United Illuminating State: CT Sample Point: SP-3
Investigator(s): D. King and R. Hyland Section, Township, Range: N/A
Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): Concave Slope (%): 0-3
Subregion (LRR or MLRA): LRR R Lat: 41.28727 Long: -72.94141 Datum: NAVD 88
Soil Map Unit Name: Udorthents-Urband Lland (306), Dumps (302) NWI Classification: E2EM5P
Are climatic / hydrologic conditions on the site typical for this time of year? (Yes / No) YES (if no, explain in Remarks.)
Are Vegetation **No**, Soil **No**, or Hydrology **No** significantly disturbed? Are "Normal Circumstances" present? Yes **X** No
Are Vegetation **No**, Soil **No**, or Hydrology **No** naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes **X**	No	
Hydric Soil Present?	Yes **X**	No	**Is the Sampled Area within a Wetland?** Yes **X** No
Wetland Hydrology Present?	Yes **X**	No	If yes, optional Wetland Site ID: **Wetland 2**

Remarks:

This point was determined to be within a wetland due to the presence of all 3 wetland criteria.

Wetland 2 is an emergent wetland located north of the railroad ROW and west of West River; a tidally influenced backwater channel is present within the eastern portion of the wetland, running parallel to the ROW.

HYDROLOGY

Wetland hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface Water Present?	Yes ___	No **X**	Depth (inches): **N/A**
Water Table Present?	Yes ___	No **X**	Depth (inches): **>20**
Saturation Present? (includes capillary fringe)	Yes **X**	No ___	Depth (inches): **6"**

Wetland Hydrology Present? Yes **X** No

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

Remarks:

A positive indication of wetland hydrology was observed (primary and secondary indicators were present).

VEGETATION (Four Strata) - Use scientific names of plants.

Sampling Point: **SP-3**

Tree Stratum (Plot size: 30 ft.)	Absolute % cover	Dominant Species?	Indicator Status
1. *None observed*			
2.			
3.			
4.			
5.			
6.			
7.			
	0 = Total Cover		

Sapling/Shrub Stratum (Plot size: 15 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
7.			
	0 = Total Cover		

Herb Stratum (Plot size: 5 ft.)			
1. *Phragmites australis*	80	Yes	FACW
2. *Apios americana*	10	No	FACW
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	90 = Total Cover		

Woody Vine Stratum (Plot size: 30 ft.)			
1. *Celastrus orbiculatus*	10	Yes	UPL
2.			
3.			
4.			
	10 = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: **1** (A)

Total Number of Dominant Species Across All Strata: **2** (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: **50%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	**0**	x 1 =	**0**
FACW species	**90**	x 2 =	**180**
FAC species	**0**	x 3 =	**0**
FACU species	**0**	x 4 =	**0**
UPL species	**10**	x 5 =	**50**
Column Totals:	**100** (A)		**230** (B)

Prevalence Index = B/A = **2.30**

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- ___ 2 - Dominance Test is >50%
- **X** 3 - Prevalence Index is ≤ 3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Five Vegetation Strata:

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

Sapling/Shrub - Woody plants lses than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

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

Woody vine - All woody vines greater than 3.28 ft in height.

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

Remarks:

A positive indication of hydrophytic vegetation was observed (>50% of dominant species indexed as OBL, FACW, or FAC).

SOIL

Sampling Point: **SP-3**

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-5	10YR 2/1	100					Loamy Sand	
5-20	10YR 4/2	95	10YR 4/6	5	C	M	Loamy Sand	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- **X** Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) **(LRR R, MLRA 149B)**
- ___ Polyvalue Below Surface (S8) **(LRR R, MLRA 149B)**
- ___ Thin Dark Surface (S9) **(LRR R, MLRA 149B)**
- ___ Loamy Mucky Mineral (F1) **(LRR K, L)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(LRR K, L, MLRA 149B)**
- ___ Coast Prairie Redox (A16) **(LRR K, L, R)**
- ___ 5 cm Mucky Peat or Peat (S3) **(LRR K, L, R)**
- ___ Dark Surface (S7) **(LRR K, L)**
- ___ Polyvalue Below Surface (S8) **(LRR K, L)**
- ___ Thin Dark Surface (S9) **(LRR K, L)**
- ___ Iron-Manganese Masses (F12) **(LRR K, L, R)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 149B)**
- ___ Mesic Spodic (TA6) **(MLRA 144A, 145, 149B)**
- ___ Red Parent Material (F12)
- ___ Very Shallow Dark Surface (F22)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** **X** **No** _____

Remarks:

A positive indication of hydric soil was observed.

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: MetroNorth Railroad West River to Allings Crossing County: New Haven Sampling Date: 4/18/2018
Applicant/Owner: United Illuminating State: CT Sample Point: SP-4
Investigator(s): D. King and R. Hyland Section, Township, Range: N/A
Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): none Slope (%): 0-3
Subregion (LRR or MLRA): LRR R Lat: 41.28721 Long: -72.94141 Datum: NAVD 88
Soil Map Unit Name: Udorthents-Urban Land (306) NWI Classification: N/A
Are climatic / hydrologic conditions on the site typical for this time of year? (Yes / No) YES (if no, explain in Remarks.)
Are Vegetation **No** ,Soil **No** ,or Hydrology **No** significantly disturbed? Are "Normal Circumstances" present? Yes **X** No
Are Vegetation **No** ,Soil **No** ,or Hydrology **No** naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks:

This point was determined not to be within a wetland due to the lack of hydric soils and wetland hydrology.
Upland point for Wetland 2 located on a gravel fill slope.

HYDROLOGY

Wetland hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface Water Present?	Yes	No **X**	Depth (inches): **N/A**
Water Table Present?	Yes	No **X**	Depth (inches): **>20**
Saturation Present? (includes capillary fringe)	Yes	No **X**	Depth (inches): **>20**

Wetland Hydrology Present? **Yes** **No X**

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

Remarks:

No positive indication of wetland hydrology was observed.

VEGETATION (Four Strata) - Use scientific names of plants.

Sampling Point: **SP-4**

Tree Stratum (Plot size: 30 ft.)	Absolute % cover	Dominant Species?	Indicator Status
1. *None observed*			
2.			
3.			
4.			
5.			
6.			
7.			
	0 = Total Cover		

Sapling/Shrub Stratum (Plot size: 15 ft.)	Absolute % cover	Dominant Species?	Indicator Status
1. *Elaeagnus umbellata*	15	Yes	NI
2.			
3.			
4.			
5.			
6.			
7.			
	15 = Total Cover		

Herb Stratum (Plot size: 5 ft.)	Absolute % cover	Dominant Species?	Indicator Status
1. *Phalaris arundinacea*	30	Yes	FACW
2. *Panicum virgatum*	25	Yes	FAC
3. *Apios americana*	20	Yes	FACW
4. *Phragmites australis*	10	No	FACW
5. *Solidago sp.*	5	No	NI
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	90 = Total Cover		

Woody Vine Stratum (Plot size: 30 ft.)	Absolute % cover	Dominant Species?	Indicator Status
1. *Celastrus orbiculatus*	30	Yes	UPL
2.			
3.			
4.			
	30 = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: **3** (A)

Total Number of Dominant Species Across All Strata: **4** (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: **75%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	**0**	x 1 =	**0**
FACW species	**60**	x 2 =	**120**
FAC species	**25**	x 3 =	**75**
FACU species	**0**	x 4 =	**0**
UPL species	**30**	x 5 =	**150**
Column Totals:	**115** (A)		**345** (B)

Prevalence Index = B/A = **3.00**

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- **X** 2 - Dominance Test is >50%
- **X** 3 - Prevalence Index is ≤ 3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Five Vegetation Strata:

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

Sapling/Shrub - Woody plants lses than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

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

Woody vine - All woody vines greater than 3.28 ft in height.

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

Remarks:

A positive indication of hydrophytic vegetation was observed (>50% of dominant species indexed as OBL, FACW, or FAC).

SOIL

Sampling Point: **SP-4**

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-16	10YR 2/1	100					Loamy Sand	gravelly
16-20	10YR 4/3	100					Loamy Sand	gravelly

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) **(LRR R, MLRA 149B)**
- ___ Polyvalue Below Surface (S8) **(LRR R, MLRA 149B)**
- ___ Thin Dark Surface (S9) **(LRR R, MLRA 149B)**
- ___ Loamy Mucky Mineral (F1) **(LRR K, L)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(LRR K, L, MLRA 149B)**
- ___ Coast Prairie Redox (A16) **(LRR K, L, R)**
- ___ 5 cm Mucky Peat or Peat (S3) **(LRR K, L, R)**
- ___ Dark Surface (S7) **(LRR K, L)**
- ___ Polyvalue Below Surface (S8) **(LRR K, L)**
- ___ Thin Dark Surface (S9) **(LRR K, L)**
- ___ Iron-Manganese Masses (F12) **(LRR K, L, R)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 149B)**
- ___ Mesic Spodic (TA6) **(MLRA 144A, 145, 149B)**
- ___ Red Parent Material (F12)
- ___ Very Shallow Dark Surface (F22)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ **No** **X**

Remarks:

No positive indication of hydric soils was observed.

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: MetroNorth Railroad West River to Allings Crossing County: New Haven Sampling Date: 4/18/2018
Applicant/Owner: United Illuminating State: CT Sample Point: SP-5
Investigator(s): D. King and R. Hyland Section, Township, Range: N/A
Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): None Slope (%): 0-3
Subregion (LRR or MLRA): LRR R Lat: 41.28404 Long: -72.94573 Datum: NAVD 88
Soil Map Unit Name: Udorthents-Urban Land (306) NWI Classification: N/A
Are climatic / hydrologic conditions on the site typical for this time of year? (Yes / No) YES (if no, explain in Remarks.)
Are Vegetation **Yes**, Soil **No**, or Hydrology **No** significantly disturbed? Are "Normal Circumstances" present? Yes **X** No
Are Vegetation **No**, Soil **No**, or Hydrology **No** naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes **X**	No	
Hydric Soil Present?	Yes **X**	No	**Is the Sampled Area within a Wetland?** Yes **X** No
Wetland Hydrology Present?	Yes **X**	No	If yes, optional Wetland Site ID: **Wetland 3**

Remarks:

This point was determined to be within a wetland due to the presence of all 3 wetland criteria.

Wetland 3 is an emergent wetland located below the I-95 overpass; it is hydraulically connected to Wetland 1 by a small swatch of land that does not qualify as wetland due to a restrictive concrete layer within several inches of the soil surface.

Recently mowed and cleared.

HYDROLOGY

Wetland hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface Water Present?	Yes	No **X**	Depth (inches): **N/A**
Water Table Present?	Yes	No **X**	Depth (inches): **>20**
Saturation Present? (includes capillary fringe)	Yes	No **X**	Depth (inches): **>20**

Wetland Hydrology Present? Yes **X** No

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

Remarks:

A positive indication of wetland hydrology was observed (primary and secondary indicators were present).

VEGETATION (Four Strata) - Use scientific names of plants.

Sampling Point: **SP-5**

Tree Stratum (Plot size: 30 ft.)	Absolute % cover	Dominant Species?	Indicator Status
1. *None observed*			
2.			
3.			
4.			
5.			
6.			
7.			
	0 = Total Cover		

Sapling/Shrub Stratum (Plot size: 15 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
7.			
	0 = Total Cover		

Herb Stratum (Plot size: 5 ft.)			
1. *Phragmites australis*	30	Yes	FACW
2. *Artemisia vulgaris*	10	Yes	UPL
3. *Apios americana*	5	No	FACW
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	45 = Total Cover		

Woody Vine Stratum (Plot size: 30 ft.)			
1. *None Observed*			
2.			
3.			
4.			
	0 = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: **1** (A)

Total Number of Dominant Species Across All Strata: **2** (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: **50%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	**0**	x 1 =	**0**
FACW species	**35**	x 2 =	**70**
FAC species	**0**	x 3 =	**0**
FACU species	**0**	x 4 =	**0**
UPL species	**10**	x 5 =	**50**
Column Totals:	**45** (A)		**120** (B)

Prevalence Index = B/A = **2.67**

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- ___ 2 - Dominance Test is >50%
- **X** 3 - Prevalence Index is ≤ 3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Five Vegetation Strata:

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

Sapling/Shrub - Woody plants lses than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

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

Woody vine - All woody vines greater than 3.28 ft in height.

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

Remarks:

A positive indication of hydrophytic vegetation was observed (>50% of dominant species indexed as OBL, FACW, or FAC).

Area had recently been mowed and cleared.

SOIL

Sampling Point: **SP-5**

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-3	10YR 4/2	100					Sandy Loam	
3-11	10YR 4/2	96	10YR 5/8	4	C	M	Sandy Loam	
11-14	10YR 4/2	95	10YR 4/6	5	C	M	Sandy Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) **(LRR R, MLRA 149B)**
- ___ Polyvalue Below Surface (S8) **(LRR R, MLRA 149B)**
- ___ Thin Dark Surface (S9) **(LRR R, MLRA 149B)**
- ___ Loamy Mucky Mineral (F1) **(LRR K, L)**
- ___ Loamy Gleyed Matrix (F2)
- **X** Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(LRR K, L, MLRA 149B)**
- ___ Coast Prairie Redox (A16) **(LRR K, L, R)**
- ___ 5 cm Mucky Peat or Peat (S3) **(LRR K, L, R)**
- ___ Dark Surface (S7) **(LRR K, L)**
- ___ Polyvalue Below Surface (S8) **(LRR K, L)**
- ___ Thin Dark Surface (S9) **(LRR K, L)**
- ___ Iron-Manganese Masses (F12) **(LRR K, L, R)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 149B)**
- ___ Mesic Spodic (TA6) **(MLRA 144A, 145, 149B)**
- ___ Red Parent Material (F12)
- ___ Very Shallow Dark Surface (F22)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** **X** **No** _____

Remarks:

A positive indication of hydric soil was observed.

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: MetroNorth Railroad West River to Allings Crossing County: New Haven Sampling Date: 4/18/2018
Applicant/Owner: United Illuminating State: CT Sample Point: SP-6
Investigator(s): D. King and R. Hyland Section, Township, Range: N/A
Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): None Slope (%): 0-3
Subregion (LRR or MLRA): LRR R Lat: 41.28401 Long: -72.94582 Datum: NAVD 88
Soil Map Unit Name: Udorthents-Urban Land (306) NWI Classification: N/A
Are climatic / hydrologic conditions on the site typical for this time of year? (Yes / No) YES (if no, explain in Remarks.)
Are Vegetation **No** ,Soil **No** ,or Hydrology **No** significantly disturbed? Are "Normal Circumstances" present? Yes **X** No
Are Vegetation **No** ,Soil **No** ,or Hydrology **No** naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks:

This point was determined not to be within a wetland due to the lack of all three wetland criteria.

Upland point for Wetland 3; recently mowed and cleared.

HYDROLOGY

Wetland hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface Water Present?	Yes	No **X**	Depth (inches): **N/A**
Water Table Present?	Yes	No **X**	Depth (inches): **>20**
Saturation Present? (includes capillary fringe)	Yes	No **X**	Depth (inches): **>20**

Wetland Hydrology Present? **Yes** **No X**

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

Remarks:

No positive indication of wetland hydrology was observed.

VEGETATION (Four Strata) - Use scientific names of plants.

Sampling Point: **SP-6**

Tree Stratum (Plot size: 30 ft.)	Absolute % cover	Dominant Species?	Indicator Status
1. *Populus grandidentata*	25	Yes	FACU
2.			
3.			
4.			
5.			
6.			
7.			
	25 = Total Cover		

Sapling/Shrub Stratum (Plot size: 15 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
7.			
	0 = Total Cover		

Herb Stratum (Plot size: 5 ft.)			
1. *Alliaria petiolata*	75	Yes	FACU
2. *Artemisia vulgaris*	25	Yes	UPL
3. *Rosa multiflora*	5	No	FACU
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	105 = Total Cover		

Woody Vine Stratum (Plot size: 30 ft.)			
1. *Celastrus orbiculatus*	10	Yes	UPL
2.			
3.			
4.			
	10 = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: **0** (A)

Total Number of Dominant Species Across All Strata: **4** (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: **0** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	**0**	x 1 =	**0**
FACW species	**0**	x 2 =	**0**
FAC species	**0**	x 3 =	**0**
FACU species	**105**	x 4 =	**420**
UPL species	**35**	x 5 =	**175**
Column Totals:	**140** (A)		**595** (B)

Prevalence Index = B/A = **4.25**

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤ 3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Five Vegetation Strata:

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

Sapling/Shrub - Woody plants lses than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

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

Woody vine - All woody vines greater than 3.28 ft in height.

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

Remarks:

No positive indication of hydrophytic vegetation was observed (≥50% of dominant species indexed as FAC− or drier).

Recently mowed and cleared.

SOIL

Sampling Point: **SP-6**

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-6	10YR 2/2	100					Sandy Loam	gravelly

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) **(LRR R, MLRA 149B)**
- ___ Polyvalue Below Surface (S8) **(LRR R, MLRA 149B)**
- ___ Thin Dark Surface (S9) **(LRR R, MLRA 149B)**
- ___ Loamy Mucky Mineral (F1) **(LRR K, L)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(LRR K, L, MLRA 149B)**
- ___ Coast Prairie Redox (A16) **(LRR K, L, R)**
- ___ 5 cm Mucky Peat or Peat (S3) **(LRR K, L, R)**
- ___ Dark Surface (S7) **(LRR K, L)**
- ___ Polyvalue Below Surface (S8) **(LRR K, L)**
- ___ Thin Dark Surface (S9) **(LRR K, L)**
- ___ Iron-Manganese Masses (F12) **(LRR K, L, R)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 149B)**
- ___ Mesic Spodic (TA6) **(MLRA 144A, 145, 149B)**
- ___ Red Parent Material (F12)
- ___ Very Shallow Dark Surface (F22)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: Fill material

Depth (inches): 6"

Hydric Soil Present? **Yes** ___ **No** **X**

Remarks:

No positive indication of hydric soils was observed.

Restrictive fill material present within the first 6" of soil.

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: MetroNorth Railroad West River to Allings Crossing County: New Haven Sampling Date: 4/18/2018
Applicant/Owner: United Illuminating State: CT Sample Point: SP-7
Investigator(s): D. King and R. Hyland Section, Township, Range: N/A
Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): Concave Slope (%): 0-3
Subregion (LRR or MLRA): LRR R Lat: 41.28833 Long: -72.93968 Datum: NAVD 88
Soil Map Unit Name: Udorthents-Urban Land (306) NWI Classification: N/A
Are climatic / hydrologic conditions on the site typical for this time of year? (Yes / No) YES (if no, explain in Remarks.)
Are Vegetation **No**, Soil **No**, or Hydrology **No** significantly disturbed? Are "Normal Circumstances" present? Yes **X** No
Are Vegetation **No**, Soil **No**, or Hydrology **No** naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes **X**	No	
Hydric Soil Present?	Yes **X**	No	**Is the Sampled Area**
Wetland Hydrology Present?	Yes **X**	No	**within a Wetland?** **Yes X** **No**
			If yes, optional Wetland Site ID: **Wetland 4**

Remarks:

This point was determined to be within a wetland due to the presence of all 3 wetland criteria.

Wetland 4 is an emergent wetland located north of the railroad ROW and east of the West River; it appears to largely fall below the HTL.

HYDROLOGY

Wetland hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface Water Present?	Yes ___	No **X**	Depth (inches): **N/A**
Water Table Present?	Yes **X**	No ___	Depth (inches): **6"**
Saturation Present? (includes capillary fringe)	Yes **X**	No ___	Depth (inches): **0"**

Wetland Hydrology Present? **Yes X** **No**

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

Remarks:

A positive indication of wetland hydrology was observed (primary and secondary indicators were present).

VEGETATION (Four Strata) - Use scientific names of plants.

Sampling Point: **SP-7**

Tree Stratum (Plot size: 30 ft.)	Absolute % cover	Dominant Species?	Indicator Status
1. *None observed*			
2.			
3.			
4.			
5.			
6.			
7.			
	0 = Total Cover		

Sapling/Shrub Stratum (Plot size: 15 ft.)			
1. *Iva frutescens*	10	Yes	FACW
2.			
3.			
4.			
5.			
6.			
7.			
	10 = Total Cover		

Herb Stratum (Plot size: 5 ft.)			
1. *Phragmites australis*	10	Yes	FACW
2. *Spartina alterniflora*	10	Yes	OBL
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	20 = Total Cover		

Woody Vine Stratum (Plot size: 30 ft.)			
1. *None Observed*			
2.			
3.			
4.			
	0 = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: **3** (A)

Total Number of Dominant Species Across All Strata: **3** (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: **100%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	**10**	x 1 =	**10**
FACW species	**20**	x 2 =	**40**
FAC species	**0**	x 3 =	**0**
FACU species	**0**	x 4 =	**0**
UPL species	**0**	x 5 =	**0**
Column Totals:	**30** (A)		**50** (B)

Prevalence Index = B/A = **1.67**

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- **X** 2 - Dominance Test is >50%
- **X** 3 - Prevalence Index is ≤ 3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Five Vegetation Strata:

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

Sapling/Shrub - Woody plants lses than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

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

Woody vine - All woody vines greater than 3.28 ft in height.

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

Remarks:

A positive indication of hydrophytic vegetation was observed (>50% of dominant species indexed as OBL, FACW, or FAC).

Very limted vegetation present due to tidal inundation.

SOIL

Sampling Point: **SP-7**

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-17	10YR 2/1	100					Muck	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators:

- **X** Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- **X** Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) **(LRR R, MLRA 149B)**
- ___ Polyvalue Below Surface (S8) **(LRR R, MLRA 149B)**
- ___ Thin Dark Surface (S9) **(LRR R, MLRA 149B)**
- ___ Loamy Mucky Mineral (F1) **(LRR K, L)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(LRR K, L, MLRA 149B)**
- ___ Coast Prairie Redox (A16) **(LRR K, L, R)**
- ___ 5 cm Mucky Peat or Peat (S3) **(LRR K, L, R)**
- ___ Dark Surface (S7) **(LRR K, L)**
- ___ Polyvalue Below Surface (S8) **(LRR K, L)**
- ___ Thin Dark Surface (S9) **(LRR K, L)**
- ___ Iron-Manganese Masses (F12) **(LRR K, L, R)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 149B)**
- ___ Mesic Spodic (TA6) **(MLRA 144A, 145, 149B)**
- ___ Red Parent Material (F12)
- ___ Very Shallow Dark Surface (F22)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** **X** **No** _____

Remarks:

A positive indication of hydric soil was observed.

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: MetroNorth Railroad West River to Allings Crossing County: New Haven Sampling Date: 4/18/2018
Applicant/Owner: United Illuminating State: CT Sample Point: SP-8
Investigator(s): D. King and R. Hyland Section, Township, Range: N/A
Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): None Slope (%): 0-3
Subregion (LRR or MLRA): LRR R Lat: 41.28838 Long: -72.93963 Datum: NAVD 88
Soil Map Unit Name: Udorthents-Urban Land (306) NWI Classification: N/A
Are climatic / hydrologic conditions on the site typical for this time of year? (Yes / No) YES (if no, explain in Remarks.)
Are Vegetation **No** ,Soil **No** ,or Hydrology **No** significantly disturbed? Are "Normal Circumstances" present? Yes **X** No
Are Vegetation **No** ,Soil **No** ,or Hydrology **No** naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks:

This point was determined not to be within a wetland due to the lack of all three wetland criteria.

Upland for Wetland 4 located at the top of a fill slope.

HYDROLOGY

Wetland hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface Water Present?	Yes	No **X**	Depth (inches): **N/A**
Water Table Present?	Yes	No **X**	Depth (inches): **>20**
Saturation Present? (includes capillary fringe)	Yes	No **X**	Depth (inches): **>20**

Wetland Hydrology Present? **Yes** **No X**

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

Remarks:

No positive indication of wetland hydrology was observed.

VEGETATION (Four Strata) - Use scientific names of plants.

Sampling Point: **SP-8**

Tree Stratum (Plot size: 30 ft.)	Absolute % cover	Dominant Species?	Indicator Status
1. *Acer platanoides*	10	Yes	UPL
2. *Robinia pseudoacacia*	5	Yes	FACU
3.			
4.			
5.			
6.			
7.			
	15	= Total Cover	

Sapling/Shrub Stratum (Plot size: 15 ft.)			
1. *Ailanthus altissima*	25	Yes	UPL
2. *Betula alleghaniensis*	25	Yes	FAC
3. *Elaeagnus umbellata*	10	No	NI
4.			
5.			
6.			
7.			
	60	= Total Cover	

Herb Stratum (Plot size: 5 ft.)			
1. *Reynoutria japonica*	30	Yes	FACU
2. *Alliaria petiolata*	10	Yes	FACU
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	40	= Total Cover	

Woody Vine Stratum (Plot size: 30 ft.)			
1. *None Observed*			
2.			
3.			
4.			
	0	= Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: **1** (A)

Total Number of Dominant Species Across All Strata: **6** (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: **17%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	**0**	x 1 =	**0**
FACW species	**0**	x 2 =	**0**
FAC species	**25**	x 3 =	**75**
FACU species	**45**	x 4 =	**180**
UPL species	**35**	x 5 =	**175**
Column Totals:	**105** (A)		**430** (B)

Prevalence Index = B/A = **4.10**

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation
___ 2 - Dominance Test is >50%
___ 3 - Prevalence Index is ≤ 3.0[1]
___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Five Vegetation Strata:

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

Sapling/Shrub - Woody plants lses than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

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

Woody vine - All woody vines greater than 3.28 ft in height.

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

Remarks:

No positive indication of hydrophytic vegetation was observed (≥50% of dominant species indexed as FAC− or drier).

SOIL

Sampling Point: **SP-8**

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-4	10YR 3/4	100					Loamy Sand	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) **(LRR R, MLRA 149B)**
- ___ Polyvalue Below Surface (S8) **(LRR R, MLRA 149B)**
- ___ Thin Dark Surface (S9) **(LRR R, MLRA 149B)**
- ___ Loamy Mucky Mineral (F1) **(LRR K, L)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(LRR K, L, MLRA 149B)**
- ___ Coast Prairie Redox (A16) **(LRR K, L, R)**
- ___ 5 cm Mucky Peat or Peat (S3) **(LRR K, L, R)**
- ___ Dark Surface (S7) **(LRR K, L)**
- ___ Polyvalue Below Surface (S8) **(LRR K, L)**
- ___ Thin Dark Surface (S9) **(LRR K, L)**
- ___ Iron-Manganese Masses (F12) **(LRR K, L, R)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 149B)**
- ___ Mesic Spodic (TA6) **(MLRA 144A, 145, 149B)**
- ___ Red Parent Material (F12)
- ___ Very Shallow Dark Surface (F22)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: Fill material

Depth (inches): 4"

Hydric Soil Present? **Yes** ___ **No** **X**

Remarks:

No positive indication of hydric soils was observed.

Restrictive fill material present within the first few inches of soil.

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: MetroNorth Railroad West River to Allings Crossing County: New Haven Sampling Date: 4/18/2018
Applicant/Owner: United Illuminating State: CT Sample Point: SP-9
Investigator(s): D. King and R. Hyland Section, Township, Range: N/A
Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): None Slope (%): 0-3
Subregion (LRR or MLRA): LRR R Lat: 41.26934 Long: -72.96713 Datum: NAVD 88
Soil Map Unit Name: Urban Land (307) NWI Classification: N/A
Are climatic / hydrologic conditions on the site typical for this time of year? (Yes / No) YES (if no, explain in Remarks.)
Are Vegetation **No**, Soil **No**, or Hydrology **No** significantly disturbed? Are "Normal Circumstances" present? Yes **X** No
Are Vegetation **No**, Soil **No**, or Hydrology **No** naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes **X**	No	
Hydric Soil Present?	Yes **X**	No	**Is the Sampled Area**
Wetland Hydrology Present?	Yes **X**	No	**within a Wetland?** **Yes X** **No**
			If yes, optional Wetland Site ID: **Wetland 5**

Remarks:

This point was determined to be within a wetland due to the presence of all 3 wetland criteria.

Wetland 5 is a srub-shrub floodplain wetland adjacent to a perennial watercourse.

HYDROLOGY

Wetland hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface Water Present?	Yes ___	No **X**	Depth (inches): **N/A**
Water Table Present?	Yes **X**	No ___	Depth (inches): **4"**
Saturation Present? (includes capillary fringe)	Yes **X**	No ___	Depth (inches): **0"**

Wetland Hydrology Present? **Yes X** **No**

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

Remarks:

A positive indication of wetland hydrology was observed (primary and secondary indicators were present).

VEGETATION (Four Strata) - Use scientific names of plants.

Sampling Point: **SP-9**

Tree Stratum (Plot size: 30 ft.)	Absolute % cover	Dominant Species?	Indicator Status
1. *None observed*			
2.			
3.			
4.			
5.			
6.			
7.			
	0 = Total Cover		

Sapling/Shrub Stratum (Plot size: 15 ft.)	Absolute % cover	Dominant Species?	Indicator Status
1. *Lindera benzoin*	20	Yes	FACW
2. *Fraxinus pennsylvanica*	10	Yes	FACW
3. *Cornus amomum*	10	Yes	FACW
4. *Rosa multiflora*	10	Yes	FACU
5.			
6.			
7.			
	50 = Total Cover		

Herb Stratum (Plot size: 5 ft.)	Absolute % cover	Dominant Species?	Indicator Status
1. *Reynoutria japonica*	50	Yes	FACU
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	50 = Total Cover		

Woody Vine Stratum (Plot size: 30 ft.)	Absolute % cover	Dominant Species?	Indicator Status
1. *None Observed*			
2.			
3.			
4.			
	0 = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: **3** (A)

Total Number of Dominant Species Across All Strata: **5** (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: **60%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	**0**	x 1 =	**0**
FACW species	**40**	x 2 =	**80**
FAC species	**0**	x 3 =	**0**
FACU species	**60**	x 4 =	**240**
UPL species	**0**	x 5 =	**0**
Column Totals:	**100** (A)		**320** (B)

Prevalence Index = B/A = **3.20**

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- **X** 2 - Dominance Test is >50%
- ___ 3 - Prevalence Index is ≤ 3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Five Vegetation Strata:

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

Sapling/Shrub - Woody plants lses than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

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

Woody vine - All woody vines greater than 3.28 ft in height.

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

Remarks:

A positive indication of hydrophytic vegetation was observed (>50% of dominant species indexed as OBL, FACW, or FAC).

SOIL

Sampling Point: **SP-9**

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-10	10YR 2/1	100					Sand	Mucky

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- **X** Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) **(LRR R, MLRA 149B)**
- ___ Polyvalue Below Surface (S8) **(LRR R, MLRA 149B)**
- ___ Thin Dark Surface (S9) **(LRR R, MLRA 149B)**
- ___ Loamy Mucky Mineral (F1) **(LRR K, L)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(LRR K, L, MLRA 149B)**
- ___ Coast Prairie Redox (A16) **(LRR K, L, R)**
- ___ 5 cm Mucky Peat or Peat (S3) **(LRR K, L, R)**
- ___ Dark Surface (S7) **(LRR K, L)**
- ___ Polyvalue Below Surface (S8) **(LRR K, L)**
- ___ Thin Dark Surface (S9) **(LRR K, L)**
- ___ Iron-Manganese Masses (F12) **(LRR K, L, R)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 149B)**
- ___ Mesic Spodic (TA6) **(MLRA 144A, 145, 149B)**
- ___ Red Parent Material (F12)
- ___ Very Shallow Dark Surface (F22)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes X No _____

Remarks:

A positive indication of hydric soil was observed.

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: MetroNorth Railroad West River to Allings Crossing County: New Haven Sampling Date: 4/20/2018
Applicant/Owner: United Illuminating State: CT Sample Point: SP-10
Investigator(s): D. King and R. Hyland Section, Township, Range: N/A
Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): None Slope (%): 3-6
Subregion (LRR or MLRA): LRR R Lat: 41.26938 Long: -72.96714 Datum: NAVD 88
Soil Map Unit Name: Urban Land (307) NWI Classification: N/A
Are climatic / hydrologic conditions on the site typical for this time of year? (Yes / No) YES (if no, explain in Remarks.)
Are Vegetation **No**, Soil **No**, or Hydrology **No** significantly disturbed? Are "Normal Circumstances" present? Yes **X** No
Are Vegetation **No**, Soil **No**, or Hydrology **No** naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks:

This point was determined not to be within a wetland due to the lack of all three wetland criteria.

Upland for Wetland 5, located on a gravel fill embankment.

HYDROLOGY

Wetland hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface Water Present?	Yes	No **X**	Depth (inches): **N/A**
Water Table Present?	Yes	No **X**	Depth (inches): **>20**
Saturation Present? (includes capillary fringe)	Yes	No **X**	Depth (inches): **>20**

Wetland Hydrology Present? Yes No **X**

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

Remarks:

No positive indication of wetland hydrology was observed.

VEGETATION (Four Strata) - Use scientific names of plants.

Sampling Point: **SP-10**

Tree Stratum (Plot size: 30 ft.)	Absolute % cover	Dominant Species?	Indicator Status
1. *Robinia pseudoacacia*	20	Yes	FACU
2.			
3.			
4.			
5.			
6.			
7.			
	20 = Total Cover		

Sapling/Shrub Stratum (Plot size: 15 ft.)			
1. *Rosa multiflora*	40	Yes	FACU
2.			
3.			
4.			
5.			
6.			
7.			
	40 = Total Cover		

Herb Stratum (Plot size: 5 ft.)			
1. *Reynoutria japonica*	30	Yes	FACU
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	30 = Total Cover		

Woody Vine Stratum (Plot size: 30 ft.)			
1. *Celastrus orbiculatus*	15	Yes	UPL
2.			
3.			
4.			
	15 = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: **0** (A)

Total Number of Dominant Species Across All Strata: **4** (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: **0** (A/B)

Prevalence Index Worksheet:

Total % Cover of:			Multiply by:	
OBL species	**0**	x 1 =	**0**	
FACW species	**0**	x 2 =	**0**	
FAC species	**0**	x 3 =	**0**	
FACU species	**90**	x 4 =	**360**	
UPL species	**15**	x 5 =	**75**	
Column Totals:	**105**	(A)	**435**	(B)

Prevalence Index = B/A = **4.14**

Hydrophytic Vegetation Indicators:

____ 1 - Rapid Test for Hydrophytic Vegetation
____ 2 - Dominance Test is >50%
____ 3 - Prevalence Index is ≤ 3.0[1]
____ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
____ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Five Vegetation Strata:

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

Sapling/Shrub - Woody plants lses than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

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

Woody vine - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** ____ **No** **X**

Remarks:

No positive indication of hydrophytic vegetation was observed (≥50% of dominant species indexed as FAC− or drier).

SOIL

Sampling Point: **SP-10**

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-8	10YR 2/1	100					Sandy Loam	
8-16	10YR 4/4	98	10YR 5/8	2	C	M	Sandy Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators:

- ____ Histosol (A1)
- ____ Histic Epipedon (A2)
- ____ Black Histic (A3)
- ____ Hydrogen Sulfide (A4)
- ____ Stratified Layers (A5)
- ____ Depleted Below Dark Surface (A11)
- ____ Thick Dark Surface (A12)
- ____ Sandy Mucky Mineral (S1)
- ____ Sandy Gleyed Matrix (S4)
- ____ Sandy Redox (S5)
- ____ Stripped Matrix (S6)
- ____ Dark Surface (S7) **(LRR R, MLRA 149B)**
- ____ Polyvalue Below Surface (S8) **(LRR R, MLRA 149B)**
- ____ Thin Dark Surface (S9) **(LRR R, MLRA 149B)**
- ____ Loamy Mucky Mineral (F1) **(LRR K, L)**
- ____ Loamy Gleyed Matrix (F2)
- ____ Depleted Matrix (F3)
- ____ Redox Dark Surface (F6)
- ____ Depleted Dark Surface (F7)
- ____ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ____ 2 cm Muck (A10) **(LRR K, L, MLRA 149B)**
- ____ Coast Prairie Redox (A16) **(LRR K, L, R)**
- ____ 5 cm Mucky Peat or Peat (S3) **(LRR K, L, R)**
- ____ Dark Surface (S7) **(LRR K, L)**
- ____ Polyvalue Below Surface (S8) **(LRR K, L)**
- ____ Thin Dark Surface (S9) **(LRR K, L)**
- ____ Iron-Manganese Masses (F12) **(LRR K, L, R)**
- ____ Piedmont Floodplain Soils (F19) **(MLRA 149B)**
- ____ Mesic Spodic (TA6) **(MLRA 144A, 145, 149B)**
- ____ Red Parent Material (F12)
- ____ Very Shallow Dark Surface (F22)
- ____ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ **No** **X**

Remarks:

No positive indication of hydric soils was observed.

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: MetroNorth Railroad West River to Allings Crossing County: New Haven Sampling Date: 1/27/2022
Applicant/Owner: United Illuminating State: CT Sample Point: SP-10A
Investigator(s): S. Simko and J. Kempf Section, Township, Range: N/A
Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): None Slope (%): 8
Subregion (LRR or MLRA): LRR R Lat: 41.26943 Long: -72.96643 Datum: NAVD 88
Soil Map Unit Name: Urban land - Charlton - Chatfieldcomplex, rocky, 15 to 45 percent slopes (273E) NWI Classification: N/A
Are climatic / hydrologic conditions on the site typical for this time of year? (Yes / No) YES (if no, explain in Remarks.)
Are Vegetation **No**, Soil **No**, or Hydrology **No** significantly disturbed? Are "Normal Circumstances" present? Yes **X** No
Are Vegetation **No**, Soil **No**, or Hydrology **No** naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks:

This point was determined not to be within a wetland due to the lack of all three wetland criteria.

Upland for off-ROW work space, located on the streambank of Cove River.

HYDROLOGY

Wetland hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface Water Present?	Yes	No **X**	Depth (inches): **N/A**
Water Table Present?	Yes	No **X**	Depth (inches): **>20**
Saturation Present? (includes capillary fringe)	Yes	No **X**	Depth (inches): **>20**

Wetland Hydrology Present? **Yes** **No X**

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

Remarks:

No positive indication of wetland hydrology was observed.

VEGETATION (Four Strata) - Use scientific names of plants.

Sampling Point: **SP-10A**

Tree Stratum (Plot size: 30 ft.)	Absolute % cover	Dominant Species?	Indicator Status
1. *Quercus rubra*	60	Yes	FACU
2. *Betula lenta*	40	Yes	FACU
3.			
4.			
5.			
6.			
7.			
	100	= Total Cover	

Sapling/Shrub Stratum (Plot size: 15 ft.)			
1. *Quercus rubra*	15	Yes	FACU
2. *Betula lenta*	15	Yes	FACU
3.			
4.			
5.			
6.			
7.			
	30	= Total Cover	

Herb Stratum (Plot size: 5 ft.)			
1. *Smilax rotundifolia*	30	Yes	FAC
2. *Quercus rubra*	15	Yes	FACU
3. *Betula lenta*	15	Yes	FACU
4. *Vaccinium angustifolium*	10	No	FACU
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	70	= Total Cover	

Woody Vine Stratum (Plot size: 30 ft.)			
1. *None observed*			
2.			
3.			
4.			
	0	= Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: **1** (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: **14%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	**0**	x 1 =	**0**
FACW species	**0**	x 2 =	**0**
FAC species	**30**	x 3 =	**90**
FACU species	**170**	x 4 =	**680**
UPL species	**0**	x 5 =	**0**
Column Totals:	**200** (A)		**770** (B)

Prevalence Index = B/A = **3.85**

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation
___ 2 - Dominance Test is >50%
___ 3 - Prevalence Index is ≤ 3.0[1]
___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Five Vegetation Strata:

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

Sapling/Shrub - Woody plants lses than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

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

Woody vine - All woody vines greater than 3.28 ft in height.

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

Remarks:

No positive indication of hydrophytic vegetation was observed (≥50% of dominant species indexed as FAC− or drier).

SOIL

Sampling Point: **SP-10A**

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-2	10YR 2/1	100					Silt Loam	
2-20	7.5YR 4/6	100					Sandy Clay Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) **(LRR R, MLRA 149B)**
- ___ Polyvalue Below Surface (S8) **(LRR R, MLRA 149B)**
- ___ Thin Dark Surface (S9) **(LRR R, MLRA 149B)**
- ___ Loamy Mucky Mineral (F1) **(LRR K, L)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(LRR K, L, MLRA 149B)**
- ___ Coast Prairie Redox (A16) **(LRR K, L, R)**
- ___ 5 cm Mucky Peat or Peat (S3) **(LRR K, L, R)**
- ___ Dark Surface (S7) **(LRR K, L)**
- ___ Polyvalue Below Surface (S8) **(LRR K, L)**
- ___ Thin Dark Surface (S9) **(LRR K, L)**
- ___ Iron-Manganese Masses (F12) **(LRR K, L, R)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 149B)**
- ___ Mesic Spodic (TA6) **(MLRA 144A, 145, 149B)**
- ___ Red Parent Material (F12)
- ___ Very Shallow Dark Surface (F22)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ **No** **X**

Remarks:

No positive indication of hydric soils was observed.

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: MetroNorth Railroad West River to Allings Crossing County: New Haven Sampling Date: 4/18/2018
Applicant/Owner: United Illuminating State: CT Sample Point: SP-11
Investigator(s): D. King and R. Hyland Section, Township, Range: N/A
Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): Concave Slope (%): 0-3
Subregion (LRR or MLRA): LRR R Lat: 41.26996 Long: -72.96658 Datum: NAVD 88
Soil Map Unit Name: Urban Land (307) NWI Classification: N/A
Are climatic / hydrologic conditions on the site typical for this time of year? (Yes / No) YES (if no, explain in Remarks.)
Are Vegetation **No**, Soil **No**, or Hydrology **No** significantly disturbed? Are "Normal Circumstances" present? Yes **X** No
Are Vegetation **No**, Soil **No**, or Hydrology **No** naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes **X**	No	
Hydric Soil Present?	Yes **X**	No	**Is the Sampled Area within a Wetland?** Yes **X** No
Wetland Hydrology Present?	Yes **X**	No	If yes, optional Wetland Site ID: **Wetland 6**

Remarks:

This point was determined to be within a wetland due to the presence of all 3 wetland criteria.

Wetland 6 is a hillside seep adjacent to the Cove River, north of the ROW.

HYDROLOGY

Wetland hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface Water Present?	Yes **X** No	Depth (inches):	**1"**
Water Table Present?	Yes **X** No	Depth (inches):	**0"**
Saturation Present? (includes capillary fringe)	Yes **X** No	Depth (inches):	**0"**

Wetland Hydrology Present? Yes **X** No

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

Remarks:

A positive indication of wetland hydrology was observed (primary and secondary indicators were present).

VEGETATION (Four Strata) - Use scientific names of plants.

Sampling Point: **SP-11**

Tree Stratum (Plot size: 30 ft.)	Absolute % cover	Dominant Species?	Indicator Status
1. *Acer rubrum*	45	Yes	FAC
2.			
3.			
4.			
5.			
6.			
7.			
	45 = Total Cover		

Sapling/Shrub Stratum (Plot size: 15 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
7.			
	0 = Total Cover		

Herb Stratum (Plot size: 5 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	0 = Total Cover		

Woody Vine Stratum (Plot size: 30 ft.)			
1. *None Observed*			
2.			
3.			
4.			
	0 = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: **1** (A)

Total Number of Dominant Species Across All Strata: **1** (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: **100%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	**0**	x 1 =	**0**
FACW species	**0**	x 2 =	**0**
FAC species	**45**	x 3 =	**135**
FACU species	**0**	x 4 =	**0**
UPL species	**0**	x 5 =	**0**
Column Totals:	**45** (A)		**135** (B)

Prevalence Index = B/A = **3.00**

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- **X** 2 - Dominance Test is >50%
- **X** 3 - Prevalence Index is ≤ 3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Five Vegetation Strata:

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

Sapling/Shrub - Woody plants lses than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

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

Woody vine - All woody vines greater than 3.28 ft in height.

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

Remarks:

A positive indication of hydrophytic vegetation was observed (>50% of dominant species indexed as OBL, FACW, or FAC).

Sparsely vegetated surface.

SOIL

Sampling Point: **SP-11**

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-6	10YR 2/1	100					Loamy Sand	Mucky

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- **X** Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) **(LRR R, MLRA 149B)**
- ___ Polyvalue Below Surface (S8) **(LRR R, MLRA 149B)**
- ___ Thin Dark Surface (S9) **(LRR R, MLRA 149B)**
- ___ Loamy Mucky Mineral (F1) **(LRR K, L)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(LRR K, L, MLRA 149B)**
- ___ Coast Prairie Redox (A16) **(LRR K, L, R)**
- ___ 5 cm Mucky Peat or Peat (S3) **(LRR K, L, R)**
- ___ Dark Surface (S7) **(LRR K, L)**
- ___ Polyvalue Below Surface (S8) **(LRR K, L)**
- ___ Thin Dark Surface (S9) **(LRR K, L)**
- ___ Iron-Manganese Masses (F12) **(LRR K, L, R)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 149B)**
- ___ Mesic Spodic (TA6) **(MLRA 144A, 145, 149B)**
- ___ Red Parent Material (F12)
- ___ Very Shallow Dark Surface (F22)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** **X** **No** _____

Remarks:

A positive indication of hydric soil was observed.

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: MetroNorth Railroad West River to Allings Crossing County: New Haven Sampling Date: 4/18/2018
Applicant/Owner: United Illuminating State: CT Sample Point: SP-12
Investigator(s): D. King and R. Hyland Section, Township, Range: N/A
Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): None Slope (%): 0-3
Subregion (LRR or MLRA): LRR R Lat: 41.26995 Long: -72.96659 Datum: NAVD 88
Soil Map Unit Name: Urban Land (307) NWI Classification: N/A
Are climatic / hydrologic conditions on the site typical for this time of year? (Yes / No) YES (if no, explain in Remarks.)
Are Vegetation **No**, Soil **No**, or Hydrology **No** significantly disturbed? Are "Normal Circumstances" present? Yes **X** No
Are Vegetation **No**, Soil **No**, or Hydrology **No** naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks:

This point was determined not to be within a wetland due to the lack of all three wetland criteria.

Upland pont for Wetland 6 located on a hillslope.

HYDROLOGY

Wetland hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface Water Present?	Yes	No **X**	Depth (inches): **N/A**
Water Table Present?	Yes	No **X**	Depth (inches): **>20**
Saturation Present? (includes capillary fringe)	Yes	No **X**	Depth (inches): **>20**

Wetland Hydrology Present? **Yes** **No X**

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

Remarks:

No positive indication of wetland hydrology was observed.

VEGETATION (Four Strata) - Use scientific names of plants.

Sampling Point: **SP-12**

Tree Stratum (Plot size: 30 ft.)	Absolute % cover	Dominant Species?	Indicator Status
1. *Acer rubrum*	35	Yes	FAC
2. *Quercus rubra*	20	Yes	FACU
3.			
4.			
5.			
6.			
7.			
	55	= Total Cover	

Sapling/Shrub Stratum (Plot size: 15 ft.)			
1. *Rosa multiflora*	15	Yes	FACU
2.			
3.			
4.			
5.			
6.			
7.			
	15	= Total Cover	

Herb Stratum (Plot size: 5 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	0	= Total Cover	

Woody Vine Stratum (Plot size: 30 ft.)			
1. *Vitis aestivalis*	10	Yes	FACU
2.			
3.			
4.			
	10	= Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: **1** (A)

Total Number of Dominant Species Across All Strata: **4** (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: **25%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	**0**	x 1 =	**0**
FACW species	**0**	x 2 =	**0**
FAC species	**35**	x 3 =	**105**
FACU species	**45**	x 4 =	**180**
UPL species	**0**	x 5 =	**0**
Column Totals:	**80** (A)		**285** (B)

Prevalence Index = B/A = **3.56**

Hydrophytic Vegetation Indicators:

____ 1 - Rapid Test for Hydrophytic Vegetation
____ 2 - Dominance Test is >50%
____ 3 - Prevalence Index is ≤ 3.0[1]
____ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
____ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Five Vegetation Strata:

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

Sapling/Shrub - Woody plants lses than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

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

Woody vine - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** ____ **No** **X**

Remarks:

No positive indication of hydrophytic vegetation was observed (≥50% of dominant species indexed as FAC− or drier).

SOIL

Sampling Point: **SP-12**

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-9	10YR 2/1	100					Loamy Sand	
9-20	10YR 4/3	100					Loamy Sand	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators:

- ____ Histosol (A1)
- ____ Histic Epipedon (A2)
- ____ Black Histic (A3)
- ____ Hydrogen Sulfide (A4)
- ____ Stratified Layers (A5)
- ____ Depleted Below Dark Surface (A11)
- ____ Thick Dark Surface (A12)
- ____ Sandy Mucky Mineral (S1)
- ____ Sandy Gleyed Matrix (S4)
- ____ Sandy Redox (S5)
- ____ Stripped Matrix (S6)
- ____ Dark Surface (S7) **(LRR R, MLRA 149B)**
- ____ Polyvalue Below Surface (S8) **(LRR R, MLRA 149B)**
- ____ Thin Dark Surface (S9) **(LRR R, MLRA 149B)**
- ____ Loamy Mucky Mineral (F1) **(LRR K, L)**
- ____ Loamy Gleyed Matrix (F2)
- ____ Depleted Matrix (F3)
- ____ Redox Dark Surface (F6)
- ____ Depleted Dark Surface (F7)
- ____ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ____ 2 cm Muck (A10) **(LRR K, L, MLRA 149B)**
- ____ Coast Prairie Redox (A16) **(LRR K, L, R)**
- ____ 5 cm Mucky Peat or Peat (S3) **(LRR K, L, R)**
- ____ Dark Surface (S7) **(LRR K, L)**
- ____ Polyvalue Below Surface (S8) **(LRR K, L)**
- ____ Thin Dark Surface (S9) **(LRR K, L)**
- ____ Iron-Manganese Masses (F12) **(LRR K, L, R)**
- ____ Piedmont Floodplain Soils (F19) **(MLRA 149B)**
- ____ Mesic Spodic (TA6) **(MLRA 144A, 145, 149B)**
- ____ Red Parent Material (F12)
- ____ Very Shallow Dark Surface (F22)
- ____ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ **No** **X**

Remarks:

No positive indication of hydric soils was observed.

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: MetroNorth Railroad West River to Allings Crossing County: New Haven Sampling Date: 4/18/2018
Applicant/Owner: United Illuminating State: CT Sample Point: SP-13
Investigator(s): D. King and R. Hyland Section, Township, Range: N/A
Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave Slope (%): 0-3
Subregion (LRR or MLRA): LRR R Lat: 41.26904 Long: -72.96916 Datum: NAVD 88
Soil Map Unit Name: Cheshire-Holyoke Complex (77C) NWI Classification: N/A
Are climatic / hydrologic conditions on the site typical for this time of year? (Yes / No) YES (if no, explain in Remarks.)
Are Vegetation **No** ,Soil **No** ,or Hydrology **No** significantly disturbed? Are "Normal Circumstances" present? Yes **X** No
Are Vegetation **No** ,Soil **No** ,or Hydrology **No** naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes **X**	No	
Hydric Soil Present?	Yes **X**	No	**Is the Sampled Area**
Wetland Hydrology Present?	Yes **X**	No	**within a Wetland?** **Yes X** **No**
			If yes, optional Wetland Site ID: **Wetland 7**

Remarks:

This point was determined to be within a wetland due to the presence of all 3 wetland criteria.

Wetland 7 is a forested wetland located north of the railroad ROWand extends off-site to the north; it is adjacent to an intermittent watercourse.

HYDROLOGY

Wetland hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface Water Present?	Yes **X** No	Depth (inches):	**3"**
Water Table Present?	Yes **X** No	Depth (inches):	**0"**
Saturation Present? (includes capillary fringe)	Yes **X** No	Depth (inches):	**0"**

Wetland Hydrology Present? **Yes X** **No**

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

Remarks:

A positive indication of wetland hydrology was observed (primary and secondary indicators were present).

Standing water noted in a small pooled area. Receives hydrology from off-site seeps and watercourse.

VEGETATION (Four Strata) - Use scientific names of plants.

Sampling Point: **SP-13**

Tree Stratum (Plot size: 30 ft.)	Absolute % cover	Dominant Species?	Indicator Status
1. *Acer rubrum*	40	Yes	FAC
2.			
3.			
4.			
5.			
6.			
7.			
	40 = Total Cover		

Sapling/Shrub Stratum (Plot size: 15 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
7.			
	0 = Total Cover		

Herb Stratum (Plot size: 5 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	0 = Total Cover		

Woody Vine Stratum (Plot size: 30 ft.)			
1. *None Observed*			
2.			
3.			
4.			
	0 = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: **1** (A)

Total Number of Dominant Species Across All Strata: **1** (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: **100%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	**0**	x 1 =	**0**
FACW species	**0**	x 2 =	**0**
FAC species	**40**	x 3 =	**120**
FACU species	**0**	x 4 =	**0**
UPL species	**0**	x 5 =	**0**
Column Totals:	**40** (A)		**120** (B)

Prevalence Index = B/A = **3.00**

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- **X** 2 - Dominance Test is >50%
- **X** 3 - Prevalence Index is ≤ 3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Five Vegetation Strata:

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

Sapling/Shrub - Woody plants lses than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

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

Woody vine - All woody vines greater than 3.28 ft in height.

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

Remarks:

A positive indication of hydrophytic vegetation was observed (>50% of dominant species indexed as OBL, FACW, or FAC).

Sparsely vegetated concave surface.

SOIL

Sampling Point: **SP-13**

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-7	10YR 2/1	100					Loamy Sand	Mucky
7-20	10YR 3/8	100					Silt Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- **X** Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) **(LRR R, MLRA 149B)**
- ___ Polyvalue Below Surface (S8) **(LRR R, MLRA 149B)**
- ___ Thin Dark Surface (S9) **(LRR R, MLRA 149B)**
- ___ Loamy Mucky Mineral (F1) **(LRR K, L)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(LRR K, L, MLRA 149B)**
- ___ Coast Prairie Redox (A16) **(LRR K, L, R)**
- ___ 5 cm Mucky Peat or Peat (S3) **(LRR K, L, R)**
- ___ Dark Surface (S7) **(LRR K, L)**
- ___ Polyvalue Below Surface (S8) **(LRR K, L)**
- ___ Thin Dark Surface (S9) **(LRR K, L)**
- ___ Iron-Manganese Masses (F12) **(LRR K, L, R)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 149B)**
- ___ Mesic Spodic (TA6) **(MLRA 144A, 145, 149B)**
- ___ Red Parent Material (F12)
- ___ Very Shallow Dark Surface (F22)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** **X** **No** _____

Remarks:

A positive indication of hydric soil was observed.

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: MetroNorth Railroad West River to Allings Crossing County: New Haven Sampling Date: 4/18/2018
Applicant/Owner: United Illuminating State: CT Sample Point: SP-14
Investigator(s): D. King and R. Hyland Section, Township, Range: N/A
Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): None Slope (%): 0-3
Subregion (LRR or MLRA): LRR R Lat: 41.26901 Long: -72.96920 Datum: NAVD 88
Soil Map Unit Name: Cheshire-Holyoke Complex (77C) NWI Classification: N/A
Are climatic / hydrologic conditions on the site typical for this time of year? (Yes / No) YES (if no, explain in Remarks.)
Are Vegetation **No** ,Soil **No** ,or Hydrology **No** significantly disturbed? Are "Normal Circumstances" present? Yes **X** No
Are Vegetation **No** ,Soil **No** ,or Hydrology **No** naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks:

This point was determined not to be within a wetland due to the lack of all three wetland criteria.

Upland point for Wetland 7, located in forested area north of the railroad ROW.

HYDROLOGY

Wetland hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface Water Present?	Yes	No **X**	Depth (inches): **N/A**
Water Table Present?	Yes	No **X**	Depth (inches): **>20**
Saturation Present? (includes capillary fringe)	Yes	No **X**	Depth (inches): **>20**

Wetland Hydrology Present? **Yes** **No X**

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

Remarks:

No positive indication of wetland hydrology was observed.

VEGETATION (Four Strata) - Use scientific names of plants.

Sampling Point: **SP-14**

Tree Stratum (Plot size: 30 ft.)	Absolute % cover	Dominant Species?	Indicator Status
1. *Quercus alba*	20	Yes	FACU
2. *Acer rubrum*	15	Yes	FAC
3. *Prunus serotina*	5	No	FACU
4.			
5.			
6.			
7.			
	40	= Total Cover	

Sapling/Shrub Stratum (Plot size: 15 ft.)			
1. *Rosa multiflora*	20	Yes	FACU
2.			
3.			
4.			
5.			
6.			
7.			
	20	= Total Cover	

Herb Stratum (Plot size: 5 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	0	= Total Cover	

Woody Vine Stratum (Plot size: 30 ft.)			
1. *Smilax rotundifolia*	15	Yes	FAC
2.			
3.			
4.			
	15	= Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: **2** (A)

Total Number of Dominant Species Across All Strata: **4** (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: **50%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	**0**	x 1 =	**0**
FACW species	**0**	x 2 =	**0**
FAC species	**30**	x 3 =	**90**
FACU species	**45**	x 4 =	**180**
UPL species	**0**	x 5 =	**0**
Column Totals:	**75** (A)		**270** (B)

Prevalence Index = B/A = **3.60**

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation
___ 2 - Dominance Test is >50%
___ 3 - Prevalence Index is ≤ 3.0[1]
___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Five Vegetation Strata:

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

Sapling/Shrub - Woody plants lses than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

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

Woody vine - All woody vines greater than 3.28 ft in height.

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

Remarks:

No positive indication of hydrophytic vegetation was observed (≥50% of dominant species indexed as FAC− or drier).

SOIL

Sampling Point: **SP-14**

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-2	10YR 2/2	100					Silt Loam	
2-20	10YR 4/3	100					Silt Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators:

- ____ Histosol (A1)
- ____ Histic Epipedon (A2)
- ____ Black Histic (A3)
- ____ Hydrogen Sulfide (A4)
- ____ Stratified Layers (A5)
- ____ Depleted Below Dark Surface (A11)
- ____ Thick Dark Surface (A12)
- ____ Sandy Mucky Mineral (S1)
- ____ Sandy Gleyed Matrix (S4)
- ____ Sandy Redox (S5)
- ____ Stripped Matrix (S6)
- ____ Dark Surface (S7) **(LRR R, MLRA 149B)**
- ____ Polyvalue Below Surface (S8) **(LRR R, MLRA 149B)**
- ____ Thin Dark Surface (S9) **(LRR R, MLRA 149B)**
- ____ Loamy Mucky Mineral (F1) **(LRR K, L)**
- ____ Loamy Gleyed Matrix (F2)
- ____ Depleted Matrix (F3)
- ____ Redox Dark Surface (F6)
- ____ Depleted Dark Surface (F7)
- ____ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ____ 2 cm Muck (A10) **(LRR K, L, MLRA 149B)**
- ____ Coast Prairie Redox (A16) **(LRR K, L, R)**
- ____ 5 cm Mucky Peat or Peat (S3) **(LRR K, L, R)**
- ____ Dark Surface (S7) **(LRR K, L)**
- ____ Polyvalue Below Surface (S8) **(LRR K, L)**
- ____ Thin Dark Surface (S9) **(LRR K, L)**
- ____ Iron-Manganese Masses (F12) **(LRR K, L, R)**
- ____ Piedmont Floodplain Soils (F19) **(MLRA 149B)**
- ____ Mesic Spodic (TA6) **(MLRA 144A, 145, 149B)**
- ____ Red Parent Material (F12)
- ____ Very Shallow Dark Surface (F22)
- ____ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ **No** **X**

Remarks:

No positive indication of hydric soils was observed.

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: MetroNorth Railroad West River to Allings Crossing County: New Haven Sampling Date: 4/20/2018
Applicant/Owner: United Illuminating State: CT Sample Point: SP-15
Investigator(s): D. King and R. Hyland Section, Township, Range: N/A
Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave Slope (%): 0-3
Subregion (LRR or MLRA): LRR R Lat: 41.26669 Long: -72.97349 Datum: NAVD 88
Soil Map Unit Name: Udorthents-Urban Land (306) NWI Classification: N/A
Are climatic / hydrologic conditions on the site typical for this time of year? (Yes / No) YES (if no, explain in Remarks.)
Are Vegetation **No**, Soil **No**, or Hydrology **No** significantly disturbed? Are "Normal Circumstances" present? Yes **X** No
Are Vegetation **No**, Soil **No**, or Hydrology **No** naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes **X**	No	
Hydric Soil Present?	Yes **X**	No	**Is the Sampled Area**
Wetland Hydrology Present?	Yes **X**	No	**within a Wetland?** **Yes X** **No**
			If yes, optional Wetland Site ID: **Wetland 8**

Remarks:

This point was determined to be within a wetland due to the presence of all 3 wetland criteria.

Wetland 8 is a scrub-shrub wetland located adjacent to an intermittent watercourse. The area appears disturbed.

HYDROLOGY

Wetland hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface Water Present?	Yes	No **X**	Depth (inches): **N/A**
Water Table Present?	Yes **X**	No	Depth (inches): **8"**
Saturation Present? (includes capillary fringe)	Yes **X**	No	Depth (inches): **4"**

Wetland Hydrology Present? **Yes X** **No**

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

Remarks:

A positive indication of wetland hydrology was observed (primary and secondary indicators were present).

VEGETATION (Four Strata) - Use scientific names of plants.

Sampling Point: **SP-15**

Tree Stratum (Plot size: 30 ft.)	Absolute % cover	Dominant Species?	Indicator Status
1. *None observed*			
2.			
3.			
4.			
5.			
6.			
7.			
	0 = Total Cover		

Sapling/Shrub Stratum (Plot size: 15 ft.)	Absolute % cover	Dominant Species?	Indicator Status
1. *Rosa multiflora*	20	Yes	FACU
2. *Cornus amomum*	15	Yes	FACW
3.			
4.			
5.			
6.			
7.			
	35 = Total Cover		

Herb Stratum (Plot size: 5 ft.)	Absolute % cover	Dominant Species?	Indicator Status
1. *Phragmites australis*	55	Yes	FACW
2. *Phalaris arundinacea*	25	Yes	FACW
3. *Typha latifolia*	10	No	OBL
4. *Euthamia graminifolia*	5	No	FAC
5. *Onoclea sensibilis*	5	No	FACW
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	100 = Total Cover		

Woody Vine Stratum (Plot size: 30 ft.)	Absolute % cover	Dominant Species?	Indicator Status
1. *Celastrus orbiculatus*	5	Yes	UPL
2. *Lonicera japonica*	5	Yes	FACU
3.			
4.			
	10 = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: **3** (A)

Total Number of Dominant Species Across All Strata: **5** (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: **60%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	**10**	x 1 =	**10**
FACW species	**100**	x 2 =	**200**
FAC species	**5**	x 3 =	**15**
FACU species	**25**	x 4 =	**100**
UPL species	**5**	x 5 =	**25**
Column Totals:	**145** (A)		**350** (B)

Prevalence Index = B/A = **2.41**

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- **X** 2 - Dominance Test is >50%
- **X** 3 - Prevalence Index is ≤ 3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Five Vegetation Strata:

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

Sapling/Shrub - Woody plants lses than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

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

Woody vine - All woody vines greater than 3.28 ft in height.

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

Remarks:

A positive indication of hydrophytic vegetation was observed (>50% of dominant species indexed as OBL, FACW, or FAC).

SOIL

Sampling Point: **SP-15**

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-3	10YR 2/2	100					Silt Loam	
3-16	10YR 4/2	96	10YR 5/6	4	C	M	Silt Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) **(LRR R, MLRA 149B)**
- ___ Polyvalue Below Surface (S8) **(LRR R, MLRA 149B)**
- ___ Thin Dark Surface (S9) **(LRR R, MLRA 149B)**
- ___ Loamy Mucky Mineral (F1) **(LRR K, L)**
- ___ Loamy Gleyed Matrix (F2)
- **X** Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(LRR K, L, MLRA 149B)**
- ___ Coast Prairie Redox (A16) **(LRR K, L, R)**
- ___ 5 cm Mucky Peat or Peat (S3) **(LRR K, L, R)**
- ___ Dark Surface (S7) **(LRR K, L)**
- ___ Polyvalue Below Surface (S8) **(LRR K, L)**
- ___ Thin Dark Surface (S9) **(LRR K, L)**
- ___ Iron-Manganese Masses (F12) **(LRR K, L, R)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 149B)**
- ___ Mesic Spodic (TA6) **(MLRA 144A, 145, 149B)**
- ___ Red Parent Material (F12)
- ___ Very Shallow Dark Surface (F22)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** **X** **No** _____

Remarks:

A positive indication of hydric soil was observed.

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: MetroNorth Railroad West River to Allings Crossing County: New Haven Sampling Date: 4/20/2018
Applicant/Owner: United Illuminating State: CT Sample Point: SP-16
Investigator(s): D. King and R. Hyland Section, Township, Range: N/A
Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): None Slope (%): 0-3
Subregion (LRR or MLRA): LRR R Lat: 41.26657 Long: -72.97354 Datum: NAVD 88
Soil Map Unit Name: Udorthents-Urban land (306) NWI Classification: N/A
Are climatic / hydrologic conditions on the site typical for this time of year? (Yes / No) YES (if no, explain in Remarks.)
Are Vegetation **No**, Soil **No**, or Hydrology **No** significantly disturbed? Are "Normal Circumstances" present? Yes **X** No
Are Vegetation **No**, Soil **No**, or Hydrology **No** naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks:

This point was determined not to be within a wetland due to the lack of all three wetland criteria.

Upland point for Wetland 8, in a disturbed area adjacent to a parking lot.

HYDROLOGY

Wetland hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface Water Present?	Yes	No **X**	Depth (inches): **N/A**
Water Table Present?	Yes	No **X**	Depth (inches): **>20**
Saturation Present? (includes capillary fringe)	Yes	No **X**	Depth (inches): **>20**

Wetland Hydrology Present? **Yes** **No X**

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

Remarks:

No positive indication of wetland hydrology was observed.

VEGETATION (Four Strata) - Use scientific names of plants.

Sampling Point: **SP-16**

Tree Stratum (Plot size: 30 ft.)	Absolute % cover	Dominant Species?	Indicator Status
1. *None observed*			
2.			
3.			
4.			
5.			
6.			
7.			
	0 = Total Cover		

Sapling/Shrub Stratum (Plot size: 15 ft.)	Absolute % cover	Dominant Species?	Indicator Status
1. *Salix x fragilis*	25	Yes	FAC
2. *Cornus amomum*	20	Yes	FACW
3. *Alnus frangula*	15	Yes	NI
4.			
5.			
6.			
7.			
	60 = Total Cover		

Herb Stratum (Plot size: 5 ft.)	Absolute % cover	Dominant Species?	Indicator Status
1. *Alliaria petiolata*	25	Yes	FACU
2. *Verbascum thapsus*	10	Yes	UPL
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	35 = Total Cover		

Woody Vine Stratum (Plot size: 30 ft.)	Absolute % cover	Dominant Species?	Indicator Status
1. *Lonicera japonica*	20	Yes	FACU
2.			
3.			
4.			
	20 = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: **2** (A)

Total Number of Dominant Species Across All Strata: **5** (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: **40%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	**0**	x 1 =	**0**
FACW species	**20**	x 2 =	**40**
FAC species	**25**	x 3 =	**75**
FACU species	**45**	x 4 =	**180**
UPL species	**10**	x 5 =	**50**
Column Totals:	**100** (A)		**345** (B)

Prevalence Index = B/A = **3.45**

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation
___ 2 - Dominance Test is >50%
___ 3 - Prevalence Index is ≤ 3.0[1]
___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Five Vegetation Strata:

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

Sapling/Shrub - Woody plants lses than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

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

Woody vine - All woody vines greater than 3.28 ft in height.

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

Remarks:

No positive indication of hydrophytic vegetation was observed (≥50% of dominant species indexed as FAC− or drier).

SOIL

Sampling Point: **SP-16**

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-7	10YR 4/3	100					Silt Loam	
7-20	10YR 4/3	97	7.5YR 4/8	3	C	M	Silt Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) **(LRR R, MLRA 149B)**
- ___ Polyvalue Below Surface (S8) **(LRR R, MLRA 149B)**
- ___ Thin Dark Surface (S9) **(LRR R, MLRA 149B)**
- ___ Loamy Mucky Mineral (F1) **(LRR K, L)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(LRR K, L, MLRA 149B)**
- ___ Coast Prairie Redox (A16) **(LRR K, L, R)**
- ___ 5 cm Mucky Peat or Peat (S3) **(LRR K, L, R)**
- ___ Dark Surface (S7) **(LRR K, L)**
- ___ Polyvalue Below Surface (S8) **(LRR K, L)**
- ___ Thin Dark Surface (S9) **(LRR K, L)**
- ___ Iron-Manganese Masses (F12) **(LRR K, L, R)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 149B)**
- ___ Mesic Spodic (TA6) **(MLRA 144A, 145, 149B)**
- ___ Red Parent Material (F12)
- ___ Very Shallow Dark Surface (F22)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ **No** **X**

Remarks:

No positive indication of hydric soils was observed.

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: MetroNorth Railroad West River to Allings Crossing County: New Haven Sampling Date: 4/20/2018
Applicant/Owner: United Illuminating State: CT Sample Point: SP-17
Investigator(s): D. King and R. Hyland Section, Township, Range: N/A
Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave Slope (%): 0-3
Subregion (LRR or MLRA): LRR R Lat: 41.26820 Long: -72.97060 Datum: NAVD 88
Soil Map Unit Name: Cheshire-Holyoke Complex (77C) NWI Classification: N/A
Are climatic / hydrologic conditions on the site typical for this time of year? (Yes / No) YES (if no, explain in Remarks.)
Are Vegetation **No** ,Soil **No** ,or Hydrology **No** significantly disturbed? Are "Normal Circumstances" present? Yes **X** No
Are Vegetation **No** ,Soil **No** ,or Hydrology **No** naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes **X**	No	
Hydric Soil Present?	Yes **X**	No	**Is the Sampled Area**
Wetland Hydrology Present?	Yes **X**	No	**within a Wetland?** **Yes X** **No**
			If yes, optional Wetland Site ID: **Wetland 9**

Remarks:

This point was determined to be within a wetland due to the presence of all 3 wetland criteria.

Wetland 9 is linear/ditch scrub-shrub wetland leading to an intermittent watercourse north of the railroad ROW.

HYDROLOGY

Wetland hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface Water Present?	Yes	No **X**	Depth (inches): **N/A**
Water Table Present?	Yes **X**	No	Depth (inches): **nput Dept**
Saturation Present? (includes capillary fringe)	Yes **X**	No	Depth (inches): **nput Dept**

Wetland Hydrology Present? **Yes X** **No**

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

Remarks:

A positive indication of wetland hydrology was observed (primary and secondary indicators were present).

VEGETATION (Four Strata) - Use scientific names of plants.

Sampling Point: **SP-17**

Tree Stratum (Plot size: 30 ft.)	Absolute % cover	Dominant Species?	Indicator Status
1. *None observed*			
2.			
3.			
4.			
5.			
6.			
7.			
	0 = Total Cover		

Sapling/Shrub Stratum (Plot size: 15 ft.)	Absolute % cover	Dominant Species?	Indicator Status
1. *Cornus amomum*	25	Yes	FACW
2. *Rosa multiflora*	15	Yes	FACU
3. *Salix x fragilis*	10	Yes	FAC
4.			
5.			
6.			
7.			
	50 = Total Cover		

Herb Stratum (Plot size: 5 ft.)	Absolute % cover	Dominant Species?	Indicator Status
1. *Apios americana*	10	Yes	FACW
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	10 = Total Cover		

Woody Vine Stratum (Plot size: 30 ft.)	Absolute % cover	Dominant Species?	Indicator Status
1. *Celastrus orbiculatus*	10	Yes	UPL
2.			
3.			
4.			
	10 = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: **3** (A)

Total Number of Dominant Species Across All Strata: **5** (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: **60%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	**0**	x 1 =	**0**
FACW species	**35**	x 2 =	**70**
FAC species	**10**	x 3 =	**30**
FACU species	**15**	x 4 =	**60**
UPL species	**10**	x 5 =	**50**
Column Totals:	**70** (A)		**210** (B)

Prevalence Index = B/A = **3.00**

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- **X** 2 - Dominance Test is >50%
- **X** 3 - Prevalence Index is ≤ 3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Five Vegetation Strata:

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

Sapling/Shrub - Woody plants lses than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

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

Woody vine - All woody vines greater than 3.28 ft in height.

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

Remarks:

A positive indication of hydrophytic vegetation was observed (>50% of dominant species indexed as OBL, FACW, or FAC).

SOIL

Sampling Point: **SP-17**

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-6	10YR 2/1	100					Mucky Peat	
6-16	10YR 4/1	96	10YR 4/6	4	C	M	Clay Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- X Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) **(LRR R, MLRA 149B)**
- ___ Polyvalue Below Surface (S8) **(LRR R, MLRA 149B)**
- ___ Thin Dark Surface (S9) **(LRR R, MLRA 149B)**
- ___ Loamy Mucky Mineral (F1) **(LRR K, L)**
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(LRR K, L, MLRA 149B)**
- ___ Coast Prairie Redox (A16) **(LRR K, L, R)**
- ___ 5 cm Mucky Peat or Peat (S3) **(LRR K, L, R)**
- ___ Dark Surface (S7) **(LRR K, L)**
- ___ Polyvalue Below Surface (S8) **(LRR K, L)**
- ___ Thin Dark Surface (S9) **(LRR K, L)**
- ___ Iron-Manganese Masses (F12) **(LRR K, L, R)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 149B)**
- ___ Mesic Spodic (TA6) **(MLRA 144A, 145, 149B)**
- ___ Red Parent Material (F12)
- ___ Very Shallow Dark Surface (F22)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** X **No** _____

Remarks:

A positive indication of hydric soil was observed.

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: MetroNorth Railroad West River to Allings Crossing County: New Haven Sampling Date: 4/20/2018
Applicant/Owner: United Illuminating State: CT Sample Point: SP-18
Investigator(s): D. King and R. Hyland Section, Township, Range: N/A
Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): None Slope (%): 3-6
Subregion (LRR or MLRA): LRR R Lat: 41.26817 Long: -72.97060 Datum: NAVD 88
Soil Map Unit Name: Cheshire-Holyoke Complex (77C) NWI Classification: N/A
Are climatic / hydrologic conditions on the site typical for this time of year? (Yes / No) YES (if no, explain in Remarks.)
Are Vegetation **No**, Soil **No**, or Hydrology **No** significantly disturbed? Are "Normal Circumstances" present? Yes **X** No
Are Vegetation **No**, Soil **No**, or Hydrology **No** naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks:

This point was determined not to be within a wetland due to the lack of all three wetland criteria.

Upland point for Wetland 9, located along a gravel fill slope north of the railroad ROW.

HYDROLOGY

Wetland hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface Water Present?	Yes	No **X**	Depth (inches): **N/A**
Water Table Present?	Yes	No **X**	Depth (inches): **>20**
Saturation Present? (includes capillary fringe)	Yes	No **X**	Depth (inches): **>20**

Wetland Hydrology Present? **Yes** **No X**

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

Remarks:

No positive indication of wetland hydrology was observed.

VEGETATION (Four Strata) - Use scientific names of plants.

Sampling Point: **SP-18**

Tree Stratum (Plot size: 30 ft.)	Absolute % cover	Dominant Species?	Indicator Status
1. *None observed*			
2.			
3.			
4.			
5.			
6.			
7.			
	0 = Total Cover		

Sapling/Shrub Stratum (Plot size: 15 ft.)	Absolute % cover	Dominant Species?	Indicator Status
1. *Salix x fragilis*	15	Yes	FAC
2. *Rosa multiflora*	10	Yes	FACU
3.			
4.			
5.			
6.			
7.			
	25 = Total Cover		

Herb Stratum (Plot size: 5 ft.)	Absolute % cover	Dominant Species?	Indicator Status
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	0 = Total Cover		

Woody Vine Stratum (Plot size: 30 ft.)	Absolute % cover	Dominant Species?	Indicator Status
1. *Celastrus orbiculatus*	15	Yes	UPL
2.			
3.			
4.			
	15 = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: **1** (A)

Total Number of Dominant Species Across All Strata: **3** (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: **33%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	**0**	x 1 =	**0**
FACW species	**0**	x 2 =	**0**
FAC species	**15**	x 3 =	**45**
FACU species	**10**	x 4 =	**40**
UPL species	**15**	x 5 =	**75**
Column Totals:	**40** (A)		**160** (B)

Prevalence Index = B/A = **4.00**

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation
___ 2 - Dominance Test is >50%
___ 3 - Prevalence Index is ≤ 3.0[1]
___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Five Vegetation Strata:

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

Sapling/Shrub - Woody plants lses than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

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

Woody vine - All woody vines greater than 3.28 ft in height.

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

Remarks:

No positive indication of hydrophytic vegetation was observed (≥50% of dominant species indexed as FAC− or drier).

SOIL

Sampling Point: **SP-18**

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-10	10YR 4/3	100					Silt Loam	
10-20	10YR 5/4	100					Silt Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators:

- ____ Histosol (A1)
- ____ Histic Epipedon (A2)
- ____ Black Histic (A3)
- ____ Hydrogen Sulfide (A4)
- ____ Stratified Layers (A5)
- ____ Depleted Below Dark Surface (A11)
- ____ Thick Dark Surface (A12)
- ____ Sandy Mucky Mineral (S1)
- ____ Sandy Gleyed Matrix (S4)
- ____ Sandy Redox (S5)
- ____ Stripped Matrix (S6)
- ____ Dark Surface (S7) **(LRR R, MLRA 149B)**
- ____ Polyvalue Below Surface (S8) **(LRR R, MLRA 149B)**
- ____ Thin Dark Surface (S9) **(LRR R, MLRA 149B)**
- ____ Loamy Mucky Mineral (F1) **(LRR K, L)**
- ____ Loamy Gleyed Matrix (F2)
- ____ Depleted Matrix (F3)
- ____ Redox Dark Surface (F6)
- ____ Depleted Dark Surface (F7)
- ____ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ____ 2 cm Muck (A10) **(LRR K, L, MLRA 149B)**
- ____ Coast Prairie Redox (A16) **(LRR K, L, R)**
- ____ 5 cm Mucky Peat or Peat (S3) **(LRR K, L, R)**
- ____ Dark Surface (S7) **(LRR K, L)**
- ____ Polyvalue Below Surface (S8) **(LRR K, L)**
- ____ Thin Dark Surface (S9) **(LRR K, L)**
- ____ Iron-Manganese Masses (F12) **(LRR K, L, R)**
- ____ Piedmont Floodplain Soils (F19) **(MLRA 149B)**
- ____ Mesic Spodic (TA6) **(MLRA 144A, 145, 149B)**
- ____ Red Parent Material (F12)
- ____ Very Shallow Dark Surface (F22)
- ____ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** _____ **No** **X**

Remarks:

No positive indication of hydric soils was observed.

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: MetroNorth Railroad West River to Allings Crossing County: New Haven Sampling Date: 1/27/2022
Applicant/Owner: United Illuminating State: CT Sample Point: SP-19
Investigator(s): S. Simko and J. Kempf Section, Township, Range: N/A
Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave Slope (%): 0-3
Subregion (LRR or MLRA): LRR R Lat: 41.26623 Long: -72.97385 Datum: NAVD 88
Soil Map Unit Name: Udorthents-Urban Land (306) NWI Classification: N/A
Are climatic / hydrologic conditions on the site typical for this time of year? (Yes / No) YES (if no, explain in Remarks.)
Are Vegetation **No**, Soil **No**, or Hydrology **No** significantly disturbed? Are "Normal Circumstances" present? Yes **X** No
Are Vegetation **No**, Soil **No**, or Hydrology **No** naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes **X**	No	
Hydric Soil Present?	Yes **X**	No	**Is the Sampled Area within a Wetland?** Yes **X** No
Wetland Hydrology Present?	Yes **X**	No	If yes, optional Wetland Site ID: **Wetland 8**

Remarks:

Wetland 10 is an emergent and forested wetland located adjacent to an intermittent watercourse. The area appears disturbed on its southern border.

HYDROLOGY

Wetland hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface Water Present?	Yes	No **X**	Depth (inches): **N/A**
Water Table Present?	Yes	No **X**	Depth (inches): **N/A**
Saturation Present? (includes capillary fringe)	Yes	No **X**	Depth (inches): **N/A**

Wetland Hydrology Present? Yes **X** No

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

Remarks:

A positive indication of wetland hydrology was observed (primary and secondary indicators were present).

VEGETATION (Four Strata) - Use scientific names of plants.

Sampling Point: **SP-19**

	Absolute	Dominant	Indicator
Tree Stratum (Plot size: 30 ft.)	% cover	Species?	Status
1. *Acer rubrum*	70	Yes	FAC
2.			
3.			
4.			
5.			
6.			
7.			
	70	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15 ft.)			
1. *None observed*			
2.			
3.			
4.			
5.			
6.			
7.			
	0	= Total Cover	
Herb Stratum (Plot size: 5 ft.)			
1. *Calamagrostis perplexa*	5	Yes	FACW
2. *Lonicera sempervirens*	5	Yes	FACU
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	10	= Total Cover	
Woody Vine Stratum (Plot size: 30 ft.)			
1. *None observed*			
2.			
3.			
4.			
	0	= Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: **2** (A)

Total Number of Dominant Species Across All Strata: **3** (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: **67%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	**0**	x 1 =	**0**
FACW species	**5**	x 2 =	**10**
FAC species	**70**	x 3 =	**210**
FACU species	**5**	x 4 =	**20**
UPL species	**0**	x 5 =	**0**
Column Totals:	**80** (A)		**240** (B)

Prevalence Index = B/A = **3.00**

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- **X** 2 - Dominance Test is >50%
- **X** 3 - Prevalence Index is ≤ 3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Five Vegetation Strata:

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

Sapling/Shrub - Woody plants lses than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

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

Woody vine - All woody vines greater than 3.28 ft in height.

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

Remarks:

A positive indication of hydrophytic vegetation was observed (>50% of dominant species indexed as OBL, FACW, or FAC).

A positive indication of hydrophytic vegetation was observed (Prevalence Index is ≤ 3.00).

SOIL

Sampling Point: **SP-19**

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-8	10YR 2/1	100					Silt Loam	
8-18	N 4/	96	10YR 5/6	4	C	M	Sandy Clay Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- **X** Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- **X** Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) **(LRR R, MLRA 149B)**
- ___ Polyvalue Below Surface (S8) **(LRR R, MLRA 149B)**
- ___ Thin Dark Surface (S9) **(LRR R, MLRA 149B)**
- ___ Loamy Mucky Mineral (F1) **(LRR K, L)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(LRR K, L, MLRA 149B)**
- ___ Coast Prairie Redox (A16) **(LRR K, L, R)**
- ___ 5 cm Mucky Peat or Peat (S3) **(LRR K, L, R)**
- ___ Dark Surface (S7) **(LRR K, L)**
- ___ Polyvalue Below Surface (S8) **(LRR K, L)**
- ___ Thin Dark Surface (S9) **(LRR K, L)**
- ___ Iron-Manganese Masses (F12) **(LRR K, L, R)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 149B)**
- ___ Mesic Spodic (TA6) **(MLRA 144A, 145, 149B)**
- ___ Red Parent Material (F12)
- ___ Very Shallow Dark Surface (F22)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** **X** **No** _____

Remarks:

A positive indication of hydric soil was observed.

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: MetroNorth Railroad West River to Allings Crossing County: New Haven Sampling Date: 1/27/2022
Applicant/Owner: United Illuminating State: CT Sample Point: SP-20
Investigator(s): S. Simko and J. Kempf Section, Township, Range: N/A
Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): None Slope (%): 0-3
Subregion (LRR or MLRA): LRR R Lat: 41.26646 Long: -72.97410 Datum: NAVD 88
Soil Map Unit Name: Udorthents-Urban land (306) NWI Classification: N/A
Are climatic / hydrologic conditions on the site typical for this time of year? (Yes / No) YES (if no, explain in Remarks.)
Are Vegetation **No**, Soil **No**, or Hydrology **No** significantly disturbed? Are "Normal Circumstances" present? Yes **X** No
Are Vegetation **No**, Soil **No**, or Hydrology **No** naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks:

This point was determined not to be within a wetland due to the lack of all three wetland criteria.

Upland point for Wetland 10, in a forested area adjacent to the Allings Crossing Substation.

HYDROLOGY

Wetland hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface Water Present?	Yes	No **X**	Depth (inches): **N/A**
Water Table Present?	Yes	No **X**	Depth (inches): **>20**
Saturation Present? (includes capillary fringe)	Yes	No **X**	Depth (inches): **>20**

Wetland Hydrology Present? Yes No **X**

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

Remarks:

No positive indication of wetland hydrology was observed.

VEGETATION (Four Strata) - Use scientific names of plants.

Sampling Point: **SP-20**

Tree Stratum (Plot size: 30 ft.)	Absolute % cover	Dominant Species?	Indicator Status
1. *Acer rubrum*	70	Yes	FAC
2.			
3.			
4.			
5.			
6.			
7.			
	70 = Total Cover		

Sapling/Shrub Stratum (Plot size: 15 ft.)			
1. *Betula lenta*	25	Yes	FACU
2. *Lonicera japonica*	25	Yes	FACU
3.			
4.			
5.			
6.			
7.			
	50 = Total Cover		

Herb Stratum (Plot size: 5 ft.)			
1. *Vaccinium angustifolium*	25	Yes	FACU
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	25 = Total Cover		

Woody Vine Stratum (Plot size: 30 ft.)			
1. *Smilax rotundifolia*	5	Yes	FAC
2.			
3.			
4.			
	5 = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: **2** (A)

Total Number of Dominant Species Across All Strata: **5** (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: **40%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	**0**	x 1 =	**0**
FACW species	**0**	x 2 =	**0**
FAC species	**75**	x 3 =	**225**
FACU species	**75**	x 4 =	**300**
UPL species	**0**	x 5 =	**0**
Column Totals:	**150** (A)		**525** (B)

Prevalence Index = B/A = **3.50**

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation
___ 2 - Dominance Test is >50%
___ 3 - Prevalence Index is ≤ 3.0[1]
___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Five Vegetation Strata:

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

Sapling/Shrub - Woody plants lses than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

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

Woody vine - All woody vines greater than 3.28 ft in height.

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

Remarks:

No positive indication of hydrophytic vegetation was observed (≥50% of dominant species indexed as FAC− or drier).

SOIL

Sampling Point: **SP-20**

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-7	10YR 4/3	100					Silt Loam	
7-20	10YR 5/3	100					Sandy Clay Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) **(LRR R, MLRA 149B)**
- ___ Polyvalue Below Surface (S8) **(LRR R, MLRA 149B)**
- ___ Thin Dark Surface (S9) **(LRR R, MLRA 149B)**
- ___ Loamy Mucky Mineral (F1) **(LRR K, L)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(LRR K, L, MLRA 149B)**
- ___ Coast Prairie Redox (A16) **(LRR K, L, R)**
- ___ 5 cm Mucky Peat or Peat (S3) **(LRR K, L, R)**
- ___ Dark Surface (S7) **(LRR K, L)**
- ___ Polyvalue Below Surface (S8) **(LRR K, L)**
- ___ Thin Dark Surface (S9) **(LRR K, L)**
- ___ Iron-Manganese Masses (F12) **(LRR K, L, R)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 149B)**
- ___ Mesic Spodic (TA6) **(MLRA 144A, 145, 149B)**
- ___ Red Parent Material (F12)
- ___ Very Shallow Dark Surface (F22)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ **No** **X**

Remarks:

No positive indication of hydric soils was observed.

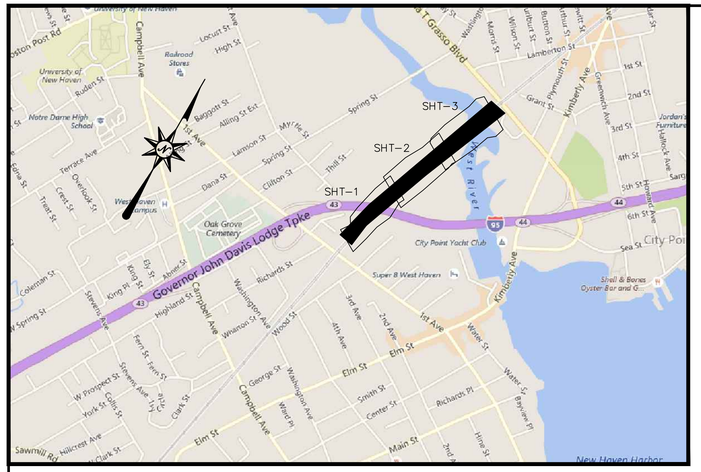
APPENDIX G: CT Wetland 10 Aerials


September 2015
Legend
Google Earth
N
200 ft


April 2016
Legend
Google Earth
N
200 ft


September 2017
Legend
Evidence of clearing
Google Earth
N
200 ft

APPENDIX H: Topographic LiDAR Exhibit



LOCATION MAP & SHEET INDEX

NOT TO SCALE

LEGEND

- Property Line
- Easement Line (Class–D)
- Monumented Four Track Centerline
- CP–1 Drill Hole N:665982.85' E:948121.10' EL=40.34' — Project Control Point and Benchmark
- Edge of Water
- Limit of Wetlands
- WF 1–2 — Wetland Flag 1–2
- WF IVA — Wetland Flag Iva
- WF SP — Wetland Flag Spartina
- WF ITF — Wetland Flag Intertidal Flats
- Stone Wall
- Retaining Wall
- Guide Rail
- Fence
- Overhead Wires
- Underground Electric Line
- Gas Line
- San
- Stm
- Underground Cable Television Line
- Underground Telecommunications Line
- Water Line
- Underground Utility – Type Unknown
- MHW — Mean High Water El=2.80' NAVD88
- CJL — Coastal Jurisdiction Line El=4.60' NAVD88
- Flood Hazard Area
- Handhole
- Electric Meter
- Utility Pole
- Utility Pole w/ Light
- Guy Wire
- Guy Pole
- Light Pole
- Double Light Standard
- Light on Parapet
- GV — Gas Valve
- CB — Catch Basin
- CB (R) — Catch Basin Plotted per Record Mapping
- Double Type I Catch Basin
- Double Type II Catch Basin
- MH — Manhole
- MH(R) — Manhole Plotted per Record Mapping
- Fire Hydrant
- WV — Water Valve
- WM — Water Meter
- UV — Valve– Utility Type Unknown
- Sign
- Bollard
- W — Monitoring Well

GENERAL NOTES

1. A) THIS MAP HAS BEEN PREPARED IN ACCORDANCE WITH 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 ADOPTED BY THE CONNECTICUT ASSOCIATION OF LAND SURVEYORS, INC. ON SEPTEMBER 26, 1996.

   B) THIS PLAN CONFORMS TO HORIZONTAL ACCURACY CLASS A–2 WITH RESPECT TO THE TRAVERSE BASELINE AND THE RAILROAD RIGHT OF WAY, AND HORIZONTAL CLASS "D" WITH RESPECT TO ADJOINER PROPERTY LINES PER MAP REFERENCE A.

   THIS PLAN CONFORMS TO A TOPOGRAPHIC ACCURACY CLASS T–2 WITH RESPECT TO FIELD SURVEYED ELEVATIONS AND PROJECT LIDAR DATA PROVIDED TO THE SURVEYOR FOR CONTOUR DEVELOPMENT.

   C) BOUNDARY DETERMINATION IS BASED UPON A RESURVEY OF MAP REFERENCE "A".

   D) THE TYPE OF SURVEY PERFORMED IS A TOPOGRAPHIC SURVEY AND IS INTENDED TO DEPICT THE TOPOGRAPHIC CONTOURS DEVELOPED FROM CLIENT PROVIDED PROJECT LIDAR DATA IN JULY 2021 WITH RESPECT TO ORIGINAL PROJECT HORIZONTAL AND VERTICAL CONTROL, TOP OF FRAME ELEVATIONS, STRUCTURES, COASTAL JURISDICTION AND MEAN HIGH WATER (MHW) LINES, FIELD DELINEATED WETLAND LINES AND OTHER FEATURES ESTABLISHED IN 2018 AS PART OF THE RAILROAD RIGHT OF WAY SURVEY OF MAP REFERENCE "A" SITUATED BETWEEN THE I–95 OVERPASS IN WEST HAVEN AND EXTENDING EASTERLY TO THE WEST RIVER AND CITY OF NEW HAVEN.

2. NORTH ARROW AND BEARINGS REFER TO THE CONNECTICUT STATE PLANE COORDINATE SYSTEM (CT NAD 83 – 2011 EPOCH) AND ARE BASED ON GPS OBSERVATIONS PERFORMED BY BL COMPANIES DURING JANUARY 2018 REFERENCED TO THE C.O.R.S. NETWORK BASE STATION "CTGU" LOCATED IN GUILFORD, CT HOLDING THE FOLLOWING PUBLISHED VALUES:
   SURVEY UNITS: U.S. SURVEY FEET
   STATION: CTGU (DH5833)
   COORDINATES (FT): N:666173.44, E:1022562.44
   ELLIPSOIDAL HEIGHT (FT): –59.406
   ORTHOMETRIC HEIGHT (FT): 39.269

3. ELEVATIONS REFER TO THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD 88) DATUM AS DETERMINED BY USING (GEOID 12B) AND ARE BASED ON GPS OBSERVATIONS PERFORMED BY BL COMPANIES IN JANUARY 2018 AND REFERENCED TO THE C.O.R.S. NETWORK BASE STATION "CTGU" LOCATED IN GUILFORD, CT HAVING THE PUBLISHED COORDINATE AND ELEVATION VALUES AS DESCRIBED IN NOTE 2 ABOVE. CONTOURS DEPICTED HEREON ARE BASED UPON LIDAR DATA PROVIDED BY WESTWOOD'S SURVEYING AND ENGINEERING PC IN JULY 2021.

4. RAILROAD RIGHT OF WAY IS LOCATED PARTIALLY WITHIN FLOOD HAZARD AREA "ZONE–X", (AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOODPLAIN) AND "ZONE–AE", (BASE FLOOD ELEVATION DETERMINED) AS DEPICTED ON F.I.R.M. COMMUNITY PANEL NO. 090092 0437 J REVISED: JULY 08, 2013 AND F.I.R.M. COMMUNITY PANEL NO. 090092 0439 J REVISED: JULY 08, 2013.

5. THE UNDERGROUND UTILITIES DEPICTED HAVE BEEN PLOTTED FROM FIELD SURVEY INFORMATION AND EXISTING DRAWINGS. THE SURVEYOR MAKES NO GUARANTEES THAT THE UNDERGROUND UTILITIES DEPICTED COMPRISE ALL SUCH UTILITIES IN THE AREA, EITHER IN SERVICE OR ABANDONED. THE SURVEYOR FURTHER DOES NOT WARRANT THAT THE UNDERGROUND UTILITIES DEPICTED ARE IN THE EXACT LOCATION INDICATED THOUGH THEY ARE PLOTTED AS ACCURATELY AS POSSIBLE FROM INFORMATION AVAILABLE. THE SURVEYOR HAS NOT PHYSICALLY EXPOSED THE UNDERGROUND UTILITIES. PER CONNECTICUT STATE LAW THE CONTRACTOR SHALL CONFIRM THE LOCATION OF ALL UTILITIES PRIOR TO THE COMMENCEMENT OF EXCAVATION. CALL BEFORE YOU DIG 1–800–922–4455.

6. MEAN HIGH WATER OR "M.H.W." (LONG ISLAND SOUND–WEST CENTRAL) ELEVATION = 2.8 FEET (NAVD 1988) – FIELD SURVEY LOCATIONS OF THE MEAN HIGH WATER ALONG THE BANKS OF THE WEST RIVER PERFORMED DURING JANUARY 2018. REFERENCE IS MADE TO THE N.O.A.A. TIDE STATION DESIGNATED "NEW HAVEN PRIMARY 8465705" AND UTILIZING THE TIDAL EPOCH "83–01" FOR THE DETERMINATION OF M.H.W.

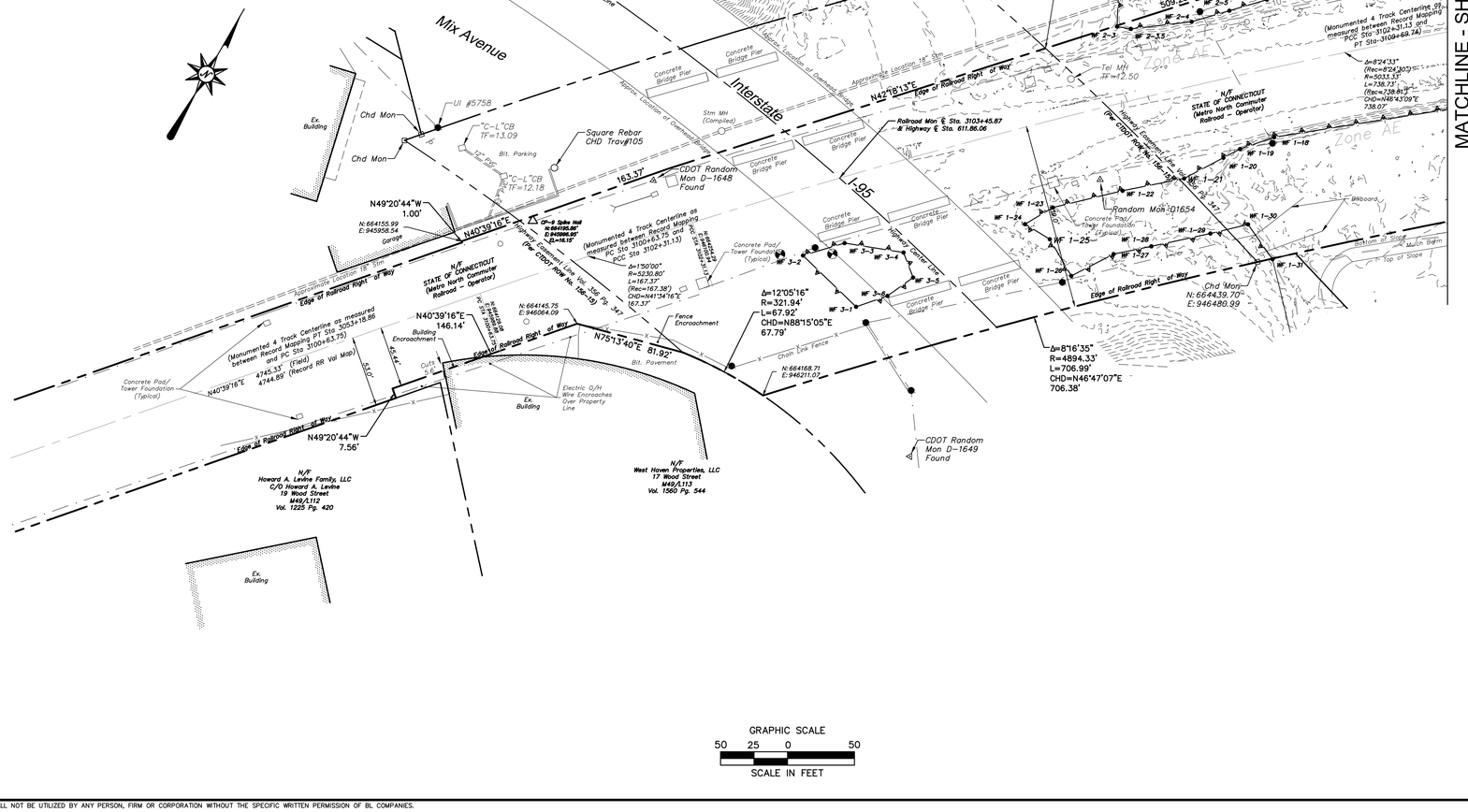
7. COASTAL JURISDICTION LINE = ELEVATION 4.6 FEET (NAVD 1988). REFERENCE IS MADE TO THE N.O.A.A. TIDE STATION DESIGNATED "NEW HAVEN PRIMARY 8465705" AND UTILIZING THE TIDAL EPOCH "83–01" FOR THE DETERMINATION OF M.H.W.

8. WETLANDS DEPICTED HEREON WERE DELINEATED BY A BL COMPANIES CERTIFIED PROFESSIONAL SOIL SCIENTIST AND FIELD LOCATED BY BL COMPANIES DURING APRIL 2018.

9. TIDAL WETLAND LIMITS DEPICTED HEREON WERE DELINEATED BY A BL COMPANIES CERTIFIED PROFESSIONAL SOIL SCIENTIST AND FIELD LOCATED BY BL COMPANIES DURING AUGUST 2021.

MAP REFERENCE

A. "RIGHT OF WAY SURVEY PREPARED FOR THE UNITED ILLUMINATING COMPANY, ELM–WEST SUBSTATION – WEST RIVER SUBSTATION, LOCATED IN THE CITIES OF WEST HAVEN AND NEW HAVEN, COUNTY OF NEW HAVEN, CONNECTICUT", SCALE 1"=50 FT, DATE APRIL 27, 2018, PREPARED BY BL COMPANIES.



GRAPHIC SCALE
50 25 0 50
SCALE IN FEET

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

DONALD A. SMITH L.S. #70206

NO CERTIFICATION IS EXPRESSED OR IMPLIED UNLESS THIS MAP BEARS THE ORIGINAL SIGNATURE AND EMBOSSED SEAL OF THE ABOVE NAMED LAND SURVEYOR.

BL Companies
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ENGINEERING
ENVIRONMENTAL
LAND SURVEYING

355 Research Parkway
Meriden, CT 06450
(203) 630-1406
(203) 630-2615 Fax

TOPOGRAPHIC SURVEY
THE UNITED ILLUMINATING COMPANY
ELM-WEST SUBSTATION - WEST RIVER SUBSTATION
LOCATED IN THE CITIES OF WEST HAVEN AND NEW HAVEN
COUNTY OF NEW HAVEN, STATE OF CONNECTICUT

REVISIONS
No. Date Desc.

Surveyed	TN,SB,WAT,DS
Drawn	TN,WAT,DS
Reviewed	DS
Scale	1"=50'
Project No.	17S3304
Date	7/22/2021
Field Book	499,507

CAD File: EX17S3304A02–EW–WR–Topo

Title
TOPOGRAPHIC SURVEY

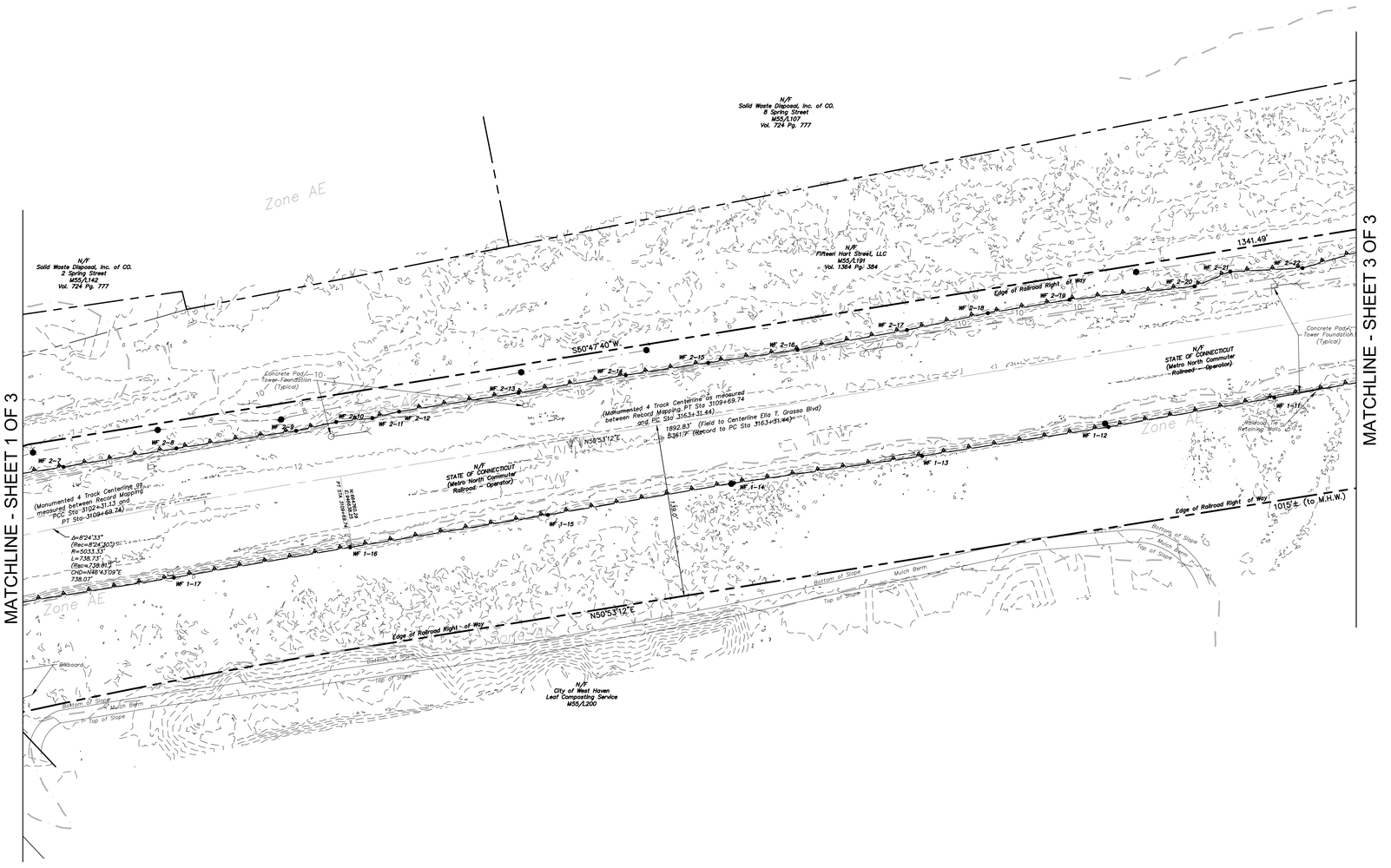
Sheet No. 6 OF 9

EX-2

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Layout: EX-2 SHT 1 OF 3 24x36 SDSC

Xref (s): ; XY17S3304–190130–Emwest–WestRiver–LiDAR–Contours ; BD17S3304A02–LiDARTopo

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LEGEND

Property Line	Handhole
Easement Line (Class-D)	Electric Meter
Monumented Four Track Centerline	Utility Pole
CP-1 Drill Hole N:665982.85' E:948121.10' El=40.34' — Project Control Point and Benchmark	Utility Pole w/ Light
	Guy Wire
Edge of Water	Guy Pole
Limit of Wetlands	Light Pole
WF 1-2 — Wetland Flag 1-2	Double Light Standard
WF IVA — Wetland Flag Iva	Light on Parapet
WF SP — Wetland Flag Spartina	GV — Gas Valve
WF ITF — Wetland Flag Intertidal Flats	CB — Catch Basin
Stone Wall	CB (R) — Catch Basin Plotted per Record Mapping
Retaining Wall	Double Type I Catch Basin
Guide Rail	Double Type II Catch Basin
Fence	MH — Manhole
Overhead Wires	MH(R) — Manhole Plotted per Record Mapping
Underground Electric Line	Fire Hydrant
Gas Line	WV — Water Valve
San	WM — Water Meter
Stm	UV — Valve- Utility Type Unknown
Underground Cable Television Line	Sign
Underground Telecommunications Line	Bollard
Water Line	W — Monitoring Well
Underground Utility - Type Unknown	
MHW — Mean High Water El=2.80' NAVD88	
CJL — Coastal Jurisdiction Line El=4.60' NAVD88	
Flood Hazard Area	

GRAPHIC SCALE
50 25 0 50
SCALE IN FEET

SEE SHEET 1 OF 3 FOR GENERAL NOTES AND MAP REFERENCES

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TOPOGRAPHIC SURVEY

THE UNITED ILLUMINATING COMPANY

ELM-WEST SUBSTATION - WEST RIVER SUBSTATION

LOCATED IN THE CITIES OF WEST HAVEN AND NEW HAVEN

COUNTY OF NEW HAVEN, STATE OF CONNECTICUT

REVISIONS

No.	Date	Desc.

Surveyed	TN,SB,WAT,DS
Drawn	TN,WAT,DS
Reviewed	DS
Scale	1"=50'
Project No.	17S3304
Date	7/22/2021
Field Book	499,507

CAD File: EX17S3304A02-EW-WR-Topo

Title

TOPOGRAPHIC SURVEY

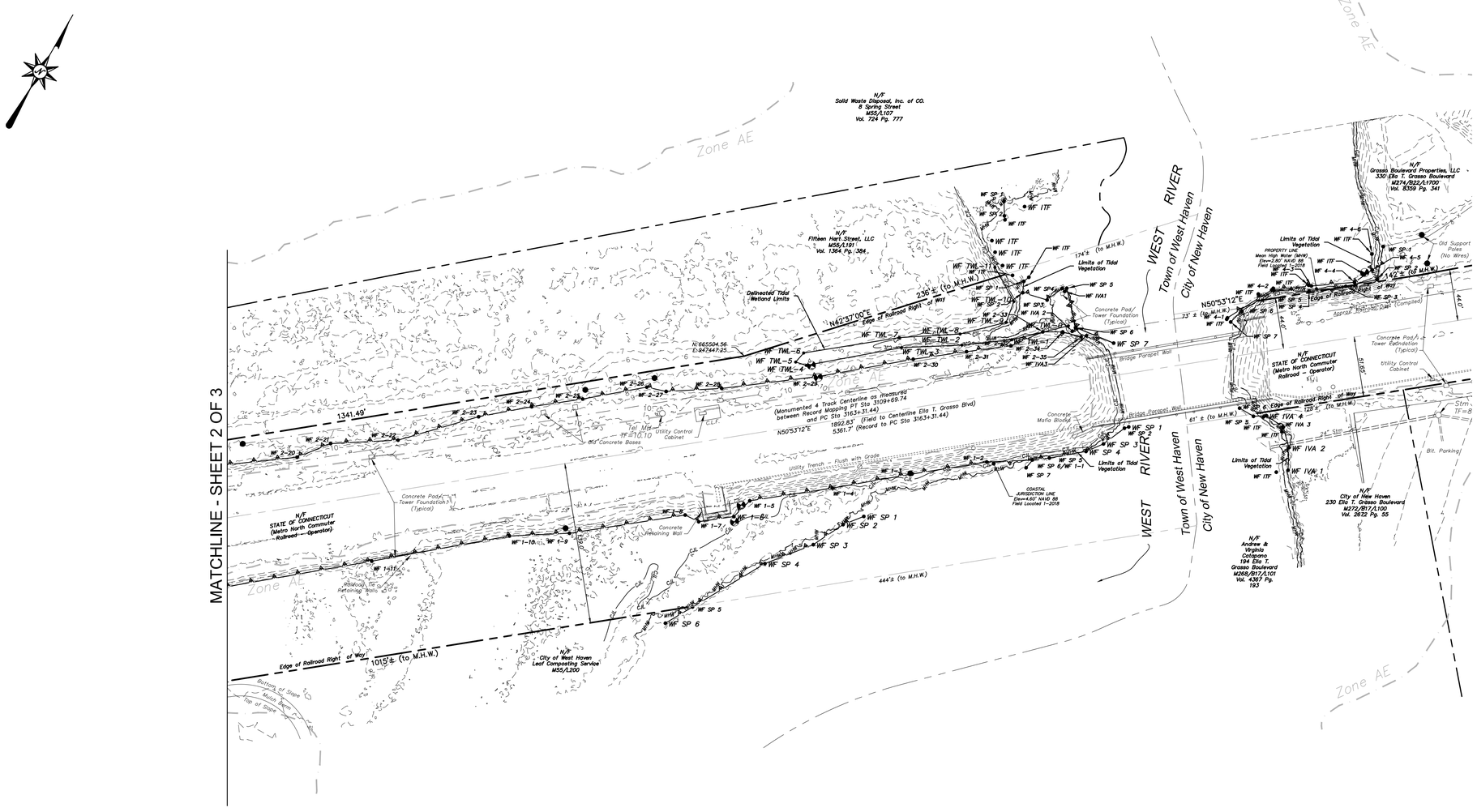
Sheet No. 2 OF 3

EX-2

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Layout: EX-2 24H 2 OF 3 24x36 SHEET

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LEGEND

Property Line	Handhole
Easement Line (Class-D)	Electric Meter
Monumented Four Track Centerline	Utility Pole
CP-1 Drill Hole N:665982.85' E:948121.10' EL=40.34' — Project Control Point and Benchmark	Utility Pole w/ Light
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Overhead Wires	Manhole
Underground Electric Line	MH(R) — Manhole Plotted per Record Mapping
Gas Line	Fire Hydrant
San	Water Valve
Stm	Water Meter
Underground Cable Television Line	Valve- Utility Type Unknown
Underground Telecommunications Line	Sign
Water Line	Bollard
Underground Utility - Type Unknown	Monitoring Well
MHW — Mean High Water El=2.80' NAVD88	
CJL — Coastal Jurisdiction Line El=4.60' NAVD88	
Flood Hazard Area	

GRAPHIC SCALE
50 25 0 50
SCALE IN FEET

SEE SHEET 1 OF 3 FOR GENERAL NOTES AND MAP REFERENCES

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Layout: EX-2 2of 3 or 3 24x36 SHEET

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TOPOGRAPHIC SURVEY
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CAD File:
EX17S3304A02-EW-WR-Topo

Title

TOPOGRAPHIC SURVEY

Sheet No. 3 OF 3

EX-2

Xref (s): ...\XY17S3304-1901130-Elmwest-WestRiver-LiDAR-Contours ; BD17S3304A02-LiDARTopo

Stantec

Milvon to West River Railroad Transmission Line 115-kV Rebuild Project – “Prospect Falls” Wetlands and Watercourses Delineation Report

June 18, 2025

Prepared for:

The United Illuminating Company - Avangrid
100 Marsh Hill Road, Orange, CT 06477

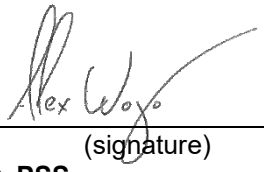
Prepared by:

Stantec Consulting Services Inc.
100 Pearl Street 10th Floor
Hartford, CT 06103

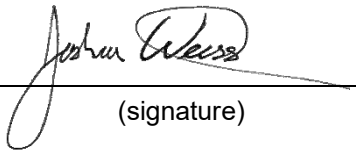
MILVON TO WEST RIVER RAILROAD TRANSMISSION LINE 115-KV REBUILD PROJECT – "PROSPECT FALLS" WETLANDS AND WATERCOURSES DELINEATION REPORT

June 18, 2025

This document entitled Milvon to West River Railroad Transmission Line 115-kV Rebuild Project – "Prospect Falls" Wetlands and Watercourses Delineation Report was prepared by Stantec Consulting Services Inc. ("Stantec") for the account of The United Illuminating Company ("UI"), a subsidiary of Avangrid Networks ("Avangrid") hence referred to as the "Client". Any reliance on this document by any third party is strictly prohibited. The material in it reflects Stantec's professional judgment in light of the scope, schedule and other limitations stated in the document and in the contract between Stantec and the Client. The opinions in the document are based on conditions and information existing at the time the document was published and do not take into account any subsequent changes. In preparing the document, Stantec did not verify information supplied to it by others. Any use which a third party makes of this document is the responsibility of such third party. Such third party agrees that Stantec shall not be responsible for costs or damages of any kind, if any, suffered by it or any other third party as a result of decisions made or actions taken based on this document.

Prepared by  (signature)

Alexander Wojtkowiak, PSS

Reviewed by  (signature)

Joshua Weiss, PSS

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1.2 GENERAL SITE DESCRIPTION 4
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Appendix C Representative Photographs C.2
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1.0 INTRODUCTION

Stantec Consulting Services Inc. (Stantec) conducted a wetland and watercourse delineation for The United Illuminating Company – Avangrid (UI – Avangrid) at Spinnaker Prospect Falls Apartments located at 25, 35, 37, 39, and 41 Prospect Street in Milford, Connecticut) for the proposed construction of a new transmission pole (P916N) for the Milvon to West River Railroad Transmission Line 115-kV Rebuild (Project). Spinnaker Prospect Falls Apartments are bordered to the west by Prospect Street and to the south by the Metro North Railroad (MNR). The investigation area for this Project was limited to the southern portion of the apartment complex bordering MNR (Appendix A – Project Location Map).

In reviewing publicly available information on the property and past permits provided by the Milford Inland Wetlands Agency, wetlands within the investigation area appear to have been previously identified and delineated by David Lord, PSS, in July 2005 and are as depicted in A-2 as-built surveys prepared by Connecticut Civil Group, dated and signed December 16, 2011 (Appendix B). Stantec confirmed this previously identified system, delineated, and assessed the wetlands functions and values it during this field effort on June 3, 2025. See § 1.3 for additional details on the system.

This effort included an assessment of potential vernal pool habitat within the investigation area. Other wetland and watercourse resources outside of the investigation area were previously delineated by a third party contracted with UI – Avangrid for the Project.[1] This report summarizes the results of Stantec's wetland and watercourse delineation.

1.1 WETLAND AND WATERCOURSE DELINEATION METHODOLOGY

The field delineation on June 3, 2025, was conducted by Professional Soil Scientist (PSS) Alexander Wojtkowiak. Wetland boundaries under U.S. Army Corps of Engineers (USACE) federal jurisdiction were determined using the technical criteria presented in the *Corps of Engineers Wetlands Delineation Manual*[2] and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region (Version 2.0)*.[3] Data were collected on evidence of wetland hydrology, dominance or prevalence of hydrophytic vegetation, and hydric soil criteria. The *Final 2022 National Wetland Plant List*[4] (NWPL) was used to determine wetland plant indicator status.

---

[1] Wetlands and watercourses were initially delineated within the Project by BL Companies throughout April 2018, April and May 2019, and August 2021 and reviewed by Davison Environmental, LLC. in September and October 2021 and April and September 2021.

[2] Environmental Laboratory. 1987. *Corps of Engineers Wetlands Delineation Manual*, Technical Report Y-87-1, US Army Corps of Engineers Waterways Experiment Station, Vicksburg, MS. January 1987.

[3] U.S. Army Corps of Engineers. 2012. *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region (Version 2.0)*. ERDC/EL TR-12, Vicksburg, MS: U.S. Army Corps of Engineers, Engineer Research and Development Center. January 2012.

[4] U.S. Army Corps of Engineers. 2023. *2022 National Wetland Plant List*, version 3.6. U.S. Army Corps of Engineer Research and Development Center, Vicksburg, MS. http://wetland-plants.usace.army.mil/

Inland wetlands under state jurisdiction were determined based upon the criteria contained in Connecticut's Inland Wetlands and Watercourses Act (IWWA; Connecticut General Statutes [CGS] Chapter 440 Section (§) 22a-36-22a-45). Inland wetlands are determined by the extent of soil types designated as poorly drained, very poorly drained, alluvial, or floodplain via a second order soil survey conducted by professional soil scientists using information provided by the National Cooperative Soils Survey (NCSS), of the U.S. Department of Agriculture Natural Resources Conservation Service (USDA NRCS) (CGS § 22a-38-15). To support the inland wetland boundary determinations, NRCS soils mapping[5], the *Field Indicators for Identifying Hydric Soils in New England* Version 4[6], and *Field Indicators of Hydric Soils in the United States,* Version 9.0[7] were used to identify hydric soils, which include both poorly and very poorly drained soils.

The *Inland Wetlands and Watercourse Regulations of the City of Milford, Connecticut,* last revised June 6, 2001, defines wetlands under local regulation in accordance with the state determination method, and including as follows:

> *"Wetlands may include areas inundated by surface or groundwater sufficient to support vegetative and aquatic life forms requiring saturated soil conditions for growth and reproduction, as well as submerged land, as defined in § 2.1 of these regulations[8], not regulated by § 22a-28 through 22a-35 inclusive, of the CGS. Such areas may include filled, graded, or excavated sites, which possess an aquic (saturated) soil moisture regime as defined by the USDA Cooperative Soil Survey*."

Tidal wetland areas under the jurisdiction of the Connecticut Department of Energy and Environmental Protection (DEEP) were identified based on the definition provided in the Connecticut Tidal Wetlands Act.[9]

Watercourses and other potential Waters of the United States (WOTUS) were identified using the regulatory criteria established by USACE *National Ordinary High Water Mark Field Delineation Manual for Rivers and Streams: Final Version*[10] and/or based on the definition provided in CGS § 22a-16. Data were appropriate, were recorded on apparent flow regime, substrate, bankfull widths, ordinary high-water mark (OHWM) widths, water depths, and presence of aquatic organisms and vegetations.

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[5] US Department of Agriculture, Natural Resources Conservation Service. 2024. Official Soils Series Descriptions (OSDs).
[6] New England Hydric Soils Technical Committee. 2019. *Field Indicators for Identifying Hydric Soils in New England*, Version 4. New England Interstate Water Pollution Control Commission, Lowell, MA.
[7] U.S. Department of Agriculture, Natural Resources Conservation Service. 2024. *Field Indicators of Hydric Soils in the United States*, Version 9.0. L.M. Vasilas, A. Miller, J.F. Berkowitz, R. Griffin, and C. Moorberg. USDA, NRCS in cooperation with the Nation Technical Committee for Hydric Soils.
[8] Inland Wetlands Agency. 1989. *Inland Wetlands and Watercourses Regulations of the City of Milford, Connecticut*. Milford, CT. Amended June 2001.
[9] Connecticut Tidal Wetlands Act, Sections 22a-30-1 through 22a-30-17, defines Tidal Wetlands as those areas at or below 1 foot above extreme high water and upon which certain species of vegetation are capable of growing.
[10] U.S. Army Corps of Engineers. 2025. National Ordinary High Water Mark Field Delineation Manual for Rivers and Streams: Final Version. ERDC/CRREL TR-25-1, Hanover, NH: U.S. Army Corps of Engineers Engineer Research and Development Center.

"Watercourses" as defined under state and local regulations are: "rivers, streams, brooks, waterways, lakes, ponds, marshes, swamps, bogs, and all other bodies of water, natural or artificial, vernal or intermittent, public or private, which are contained within, flow through or border upon the state (and/or City) or any portion thereof not regulated pursuant to § 22a-28 through 22a-35 CGS, as amended. Intermittent watercourses shall be delineated by a defined permanent channel and bank and the occurrence of two or more of the following characteristics: (a) evidence of scour or deposits of recent alluvium or detritus, (b) the presence of standing or flowing water for a duration longer than a particular storm incident, and (c) the presence of hydrophytic vegetation."

Wetland and watercourse classification was assigned based on the *Classification of Wetlands and Deepwater Habitats of the United States.*[11]

Wetland functions and values were assessed in accordance with the USACE New England District *Highway Methodology Workbook Supplement: Wetland Functions and Values – A Descriptive Approach.*[12] This is a descriptive approach, documenting 13 potential functions and values that may or may not be present within the wetland area being studied. Wetland functions are self-sustaining properties of a wetland ecosystem which exist in the absence of society. Wetland values are societal benefits derived from one or more wetland functions and the physical characteristics associated with the wetland. The criteria are assessed through direct field observations and a review of existing public data sources. As part of the evaluation, the "principal" (i.e., most important) functions and values associated with the subject wetland are identified and described. This descriptive and qualitative approach integrates wetland science with subjective value judgments made by wetland professionals. To understand the context of the wetlands, the function and value assessment referred to the overall complex of surrounding natural resources.

The following 13 wetland functions and values were considered in the assessment:

1. Groundwater Recharge/Discharge
2. Floodflow Alteration
3. Fish and Shellfish
4. Sediment/Toxicant/Pathogen Retention
5. Nutrient Removal, Retention and Transformation
6. Production Export
7. Sediment/Shoreline Stabilization
8. Wildlife Habitat
9. Recreation Value (Consumptive and Non-consumptive)
10. Educational and/or Scientific Value
11. Uniqueness/Heritage Value
12. Visual Quality/Aesthetic Value

---

[11] Federal Geographic Data Committee. 2013. *Classification of Wetlands and Deepwater Habitats of the United States*. FGDC-STD-004-2013. Second Edition. Wetlands Subcommittee, Federal Geographic Data Committee and U.S. Fish and Wildlife Service, Washington, DC.

[12] US Army Corps of Engineers. 1999. *Highway Methodology Workbook Supplement: Wetland Functions and Values - A Descriptive Approach.* New England Division. Publication no. NAEEP-360-1-30a. November 1995. 32 pp.

13. Threatened or Endangered Species Habitat Value

To understand the context of the wetlands, the function and value assessment referred to the overall complex of surrounding natural resources.

Wetlands and watercourses were flagged in the field with pink flagging labeled with "Wetland Delineation" and blue flagging, respectively, each with a unique alpha-numeric identifier, and the approximate flag locations were located with a GPS receiver capable of submeter accuracy. The GPS data were used to create a sketch map for planning purposes.

The delineation was based on current conditions observed in the field on June 3, 2025. Data were collected on evidence of wetland hydrology, dominance of hydrophytic vegetation, hydric soil criteria, and soil drainage classification using a USACE Wetland Determination Data Form. Representative photographs were taken to document the existing conditions as appropriate (Appendix C). USACE Wetland Determination Data Forms and Wetland Function - Value Evaluation Forms are provided in Appendix D.

1.2 GENERAL SITE DESCRIPTION

Spinnaker Prospect Falls Apartments is located in downtown Milford, Connecticut, adjacent to the Wepawaug River. The Wepawaug River, a WOTUS, extends and flows north to south beneath the MNR before passing over a dam to the south of the Project on New Haven Avenue where the system transitions from inland waters to tidal waters. Waters south of the dam are associated with Milford Harbor, a nearshore water of Long Island Sound. As such, all wetlands and watercourses north of the dam are inland resources under local, state, and potentially federal jurisdiction. BL Companies delineated the Wepawaug River during initial field efforts for the Project. Stantec did not include the Wepawaug River in its investigation area, although connections to the river from onsite wetlands were investigated and assessed during delineation efforts.

1.3 WETLAND AND WATERCOURSE DELINEATION

Stantec delineated one state/locally regulated inland wetland within the investigation area limits. The wetland was considered to have met all three parameters (hydrology, hydrophytic vegetation, and hydric soils) of a wetland subject to the provisions of Section 401 and 404 of the federal Clean Water Act (CWA). However, the wetland was observed to have no direct surface connection between it and adjacent WOTUS and no observable outlet control structure was identified within the wetland that would connect flows from this wetland to the Wepawaug River or other WOTUS via subsurface piping.

Sacket v. Environmental Protection Agency (EPA) (2023) ruled that wetlands must meet two conditions to be subject to CWA jurisdiction: 1) they must be "adjacent" to a WOTUS (e.g. a relatively permanent, federally jurisdictional water such as the Wepawaug River), and 2) they must have a "continuous surface connection", such that it would be difficult to determine where the federally jurisdictional water ends and

the wetland begins. Under March 12, 2025 guidance[13] from the USACE, wetlands qualify as "adjacent" (and thus federally jurisdictional) only if they directly abut a WOTUS, creating that "continuous surface connection". As Prospect Street separates the wetland from the Wepawaug River, a "continuous surface connection" may not exist between the wetland and the river, making it a potentially isolated resource, and therefore potentially not federally jurisdictional under the CWA. However, further consultation with the USACE is recommended to confirm the jurisdictional status of the wetland.

No intermittent or perennial watercourses or potential vernal pools were identified. A short segment of non-regulated drainage swale, extending north to south from a corrugated high-density polyethylene (HDPE) outfall on the northern end of the delineated wetland was flagged for planning purposes. This drainage swale, while having semi-defined banks and presence of standing water outside the duration of a storm event, did not have evidence of scour from storm flows, nor did it support hydrophytic vegetation within the channel. As such, the drainage swale does not meet the definition of an intermittent watercourse per local and state definitions. The drainage swale's centerline was flagged with blue flagging and labeled ES-A1 (Ephemeral Stream - A1) at the HDPE outfall to ES-A3 where the swale dissipates into the wetland.

Table 1 provides further details on the delineated wetland, including hydrology, prevalent and/or dominant vegetation, soils, and observed functions and values. Appendix C includes representative photographs taken within the wetlands and uplands on site.

[13] Department of the Army. *Memorandum to the Field Between the U.S. Department of the Army, U.S. Army Corps of Engineers and the U.S. Environmental Protection Agency Concerning the Proper Implementation of "Continuous Surface Connection" Under the Definition of "Waters of the United States" Under the Clean Water Act*. (March 12, 2025) Robyn S. Colosimo, PE.

Table 1. Delineated Wetland Resources

Wetland Resource Identifier	Wetland Type [a] [14]	Dominant and Characteristic Vegetation [b]	USDA NRCS Mapped Soil Units[c] / In-Field Second Order Soil Survey Units / Hydric Soil Indicator	Evidence of Hydrology	Principal Function and Values	Additional Comments
Wetland A (WA) Flags # WA-1 / WA-20 (Closed System)	PSS1C	**Tree Stratum:** black willow (*Salix nigra)*, pin oak (*Quercus palustris*), silver maple (*Acer saccharinum*), Norway maple (*Acer platanoides*), black tupelo (*Nyssa sylvatica*) **Sapling/Shrub Stratum:** green ash (*Fraxinus pennsylvanica*), American elm (*Ulmus americana*), crabapple (*Malus* sp.), rambler rose (*Rosa multiflora*), smooth arrowwood (*Viburnum recognitum*), silky dogwood (*Cornus amomum*), winged euonymus (*Euonymus alatus*) **Herb Stratum:** spotted touch-me-not (*Impatiens capensis*), wild garlic (*Allium canadense*), sensitive fern (*Onoclea sensibilis)*, Japanese knotweed (*Reynoutria japonica*), sedges (*Carex* sp.*)* **Woody Vine Stratum: o**riental bittersweet (*Celastrus orbiculatus*), poison ivy (*Toxicodendron radicans*), grape (*Vitis* sp.)	**USDA NRCS Mapped Soil Unit(s):** Haven silt loam, 0 to 3 percent slopes (703A) Urban Land (307) **In-Field Second Order Soil Survey Unit(s):** Aquents (1) Raypol silt loam, 0–3 percent slopes (12) **Hydric Indicator:** A11 – Depleted Below Dark Surface A12 – Thick Dark Surface F3 – Depleted Matrix F6 – Redox Dark Surface F8 – Redox Depressions	A1 – Surface water A2 – High water table A3 – Saturation B5 – Iron Deposits	1 – Groundwater Recharge/Discharge 2 – Floodflow alteration 3 – Sediment toxification removal	Wetland A is an isolated, concave depressional, palustrine scrub-shrub (PSS) wetland system functions primarily to retain stormwater from the Spinnaker Prospect Falls Apartments. Several corrugated HDPE pipes bound the northern, eastern, and western edge of the wetland. It appears these pipes convey stormwater from several subsurface stormwater galleys that in turn are fed into from catch basins in the parking lot and roof leaders for the apartments. No outlet control structure was identified within this wetland. Two large black willow trees are located in the center of the wetland, with an understory of green ash saplings. The presence of these larger trees appears to indicate that the wetland pre-dated the apartment complex (built post-2011) and was utilized for stormwater retention following apartment construction. The wetland is also fed by sheet flow off the MNR embankment on its southern boundary. The wetland was observed to have approximately two to three inches of standing water in its southern reach at the time of delineation. Water appears to be stored within the wetland for extended periods of time and slowly infiltrates into underlying groundwater. The wetland is also located within a 100-year floodplain and may receive overflow from the adjacent Wepawaug River during flooding events. The surrounding uplands have an abrupt transition zone with the wetland. The upland soils are dominantly Urban Land (307). Soils within the wetland are a mix of Aquents (newly forming wetland soils) along the perimeter and Raypol silt loam (12) within the interior.

Notes:
Site specific soil conditions may differ from the SSURGO Mapped soils series identified in the table.
(a) Wetland Type (Federal Geographic Data Committee 2013)
PSS1C – Palustrine (P), Scrub-Shrub (SS), Broad-Leaved Deciduous (1), Seasonally Flooded (C)
(b) Names follow U.S. Army Corps of Engineers (2020)
(c) USDA NRCS 2024

[14] Cowardin, L.M., V. Carter, F.C. Golet, and E.T. Laroe, 1979, Classifications of Wetlands and Deepwater Habitats of the United States, U.S. Department of the Interior, Office of Biological Services, Fish and Wildlife Services: Washington, DC.

1.4 MAPPED SOIL UNITS

The USDA NRCS has mapped the soils within the Project area based on distinct characteristics found in the profile. These soil units are representative of soils that can be expected in the area. However, exceptions occur due to disturbance, local topography, and other geomorphologic reasons that may in cases lead to pockets of soils that are better represented with a soil series that is not mapped for that particular location. Stantec conducted an in-field second order soil survey of the Project area to more accurately identify the soil units present within the Project limits. The results of this survey are indicated in Table 2.

Table 2. USDA NRCS Mapped Soil Units Within Investigation Limits

In-Field Second Order Soil Survey Major Component Unit(s)	Parent Material[1]	Depth to Root Restrictive Layer[2]	Drainage Class[3]	Depth to Seasonal Water Table[4]	Hydric Soil[5]
Urban Land (307)					
Urban Land	Undefined	N/A	Not classified	N/A	No
Aquents (1)					
Aquents	Human transported material (HTM)[6]	>72 inches	Poorly drained	24–54 inches	Yes
Raypol Silt Loam (12)					
Raypol	Coarse-loamy eolian[7] deposits over sandy and gravelly glaciofluvial materials[8]	>72 inches	Very poorly drained	0–12 inches	Yes

Notes:

1. Parent Material is the underlying material, be it mineral or organic in origin, in which soil horizons form. The physical, chemical, and mineralogic composition of this material varies throughout the landscape and results in varying soil characteristics.
2. Depth to Root Restrictive Layer refers to the depth to which a continuous restrictive layer within the soil profile that, based on its physical, chemical or thermal properties, impedes the further growth of vegetation roots deeper in the profile.
3. Drainage Class refers to seven distinct classes that refer to the ease in which water is removed within the soil profile under natural conditions. The classes range from excessively drained, in which water is very rapidly removed from the soil profile to very poorly drained in which water is removed so slowly from the soil profile that free water remains at the soil's surface for an extended period of time.
4. Depth to Seasonal Water Table refers to the shallowest depth within the soil profile to water saturation during normal years. It corresponds with the months of the year that on average have the highest precipitation amounts or the months of the year where groundwater is highest in the soil profile due to lack of evapotranspiration by vegetation.
5. Hydric Soils are soils that have formed under conditions of saturation, flooding, or ponding, long enough during the growing season to develop anaerobic conditions in the shallowest horizons of the soil profile. For the purposes of this assessment, hydric soils refer to wetland soils.
6. Human transported material (HTM) is a type of parent materials deposited by anthropic activities. HTM usually involves soils removed from a separate location and placed above the native soils of the area via machinery. Common forms of HTM are fill and dredge.
7. Eolian Materials are a type of parent material derived from fine windblown sediments. In New England, these sediments were deposited as dune landforms in the aftermath of the retreat of the Laurentide glacier above typically glaciofluvial material.

8. Glaciofluvial Materials are a type of parent material derived from sediments deposited from moving melt water from glaciers. These materials typically consist of well sorted, rounded sands and gravels.

2.0 CONCLUSION

Based upon the findings from the wetlands and watercourses delineation conducted on June 3, 2025, one state and locally regulated wetland is located within the investigation area. The wetland is potentially isolated and Stantec recommends coordination with the USACE to confirm the federal jurisdictional status of this wetland. Additionally, one non-regulated drainage swale was identified and flagged in-field for planning purposes. No watercourses or potential vernal pools were identified within the investigation area during the delineation effort.

APPENDICES

Appendix A FIGURES





Legend

Approximate Survey Area

0 2,000 Feet

(At original document size of 8.5x11)
1" = 2,000'

N

Notes

1. Coordinate System: NAD 1983 StatePlane Connecticut FIPS 0600 Feet
2. Data Sources: USGS
3. Backgrourid: Topographic base map provided by USGS National Map Web Mapping Service. Milford Quadrangle.

Stantec

Project Location
Milford, CT

Prepared by PWB on 2025-06-17
TR Review by KWH on 2025-06-17
IR Review by JW on 2025-06-17

Client/Project
195602858
Avangrid Renewables, LLC
UI Milvon to West River Transm

Figure No.
1

Title
Project Location Map

Disclaimer: This document has been prepared based on information provided by others as cited in the Notes section. Stantec has not verified the accuracy and/or completeness of this information and shall not be responsible for any errors or omissions which may be incorporated herein as a result. Stantec assumes no responsibility for data supplied in electronic format, and the recipient accepts full responsibility for verifying the accuracy and completeness of the data

C:\Users\pbarbera\Desktop_cwlg\aUtoProjUI_WetlandDelin\UI_WetlandDelin.aprx Revised: 2025-06-18 By: pbarbera





Legend
- Wetland Flag
- Delineated Wetland
- Approximate Survey Area

0 100 Feet
(At original document size of 8.5x11)
1" = 100'

N

Stantec

Project Location
Milford, CT

Prepared by PWB on 2025-06-17
TR Review by KWH on 2025-06-17
IR Review by JW on 2025-06-17

Client/Project
Avangrid Renewables, LLC
UI Milvon to West River Transm

195602858

Figure No.
2

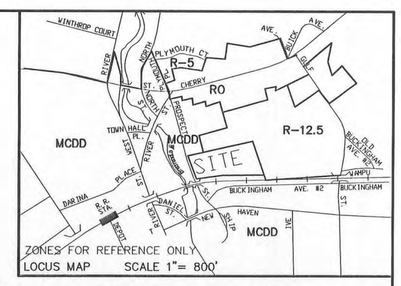
Title
Wetland and Watercourse Survey Map

Notes
1. Wetland boundaries delineated 6/3/2025 by Stantec in accordance with the USACE Wetland Delineation Manual and the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Regional Supplement (Version 2.0)
2. Wetland boundaries and streams were located utilizing an EOS Arrow GNSS/GPS Receiver. Expected accuracy of GPS data is within 1-2 meters of actual position.
3. Coordinate System: NAD 1983 StatePlane Connecticut FIPS 0600 Feet
4. Data Sources: Base data provided by Connecticut Department of Energy and Environmental Protection (DEEP)
5. Background: Aerial orthoimagery provided by CTECO, 2019

Disclaimer: This document has been prepared based on information provided by others as cited in the Notes section. Stantec has not verified the accuracy and/or completeness of this information and shall not be responsible for any errors or omissions which may be incorporated herein as a result. Stantec assumes no responsibility for data supplied in electronic format, and the recipient accepts full responsibility for verifying the accuracy and completeness of the data

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Appendix B UTILITY AS-BUILT PROSPECT FALLS



MAP 54 BLOCK 817 PARCELS 1,2,& 3

N/F MILFORD CEMETERY ASSOCIATION

N/F Smith Craft Real Estate Corporation

N/F FLANNIGAN #44–46 PROSPECT

N/F FLANNIGAN #40 PROSPECT

N/F CITY OF MILFORD

PROSPECT STREET

#47 PROSPECT WOOD DECK

I. PIN SET

WOOD POST 419.63'

S55°15'55"E

BLD #37
BUILDING C
FF=33.0
(3) 1 Bedroom
(4) 2 Bedroom
(1) Efficiency
82'-0"
17'-6" PORCH
COVERED ENTRY
CONCRETE SIDEWALK
SAN CO
RD

BLD #39
BUILDING B
FF=29.5
(4) 1 Bedroom
(8) 2 Bedroom
(4) Efficiency
105'-7¼"
57'-0"

BLD #41
BUILDING A
FF=29.5
(4) 1 Bedroom
(8) 2 Bedroom
(4) Efficiency
105'-7¼"
57'-0"

BLD #35
BLD E
FF=33.8
(1) 3 Bedroom
57.85' LOWER FLOOR EL.32.1
28.08'
22.53' PORCH
12.30'
45.65'

BLD #25
BUILDING D
FF 33.8
CELLAR FLOOR 23.8
(4) 1 Bedroom
(4) 2 Bedroom
63'-1½"
47'-11½"
34'-2"
PORCH AND COVERED ENTRY

S76°11'38"W 148.47'

N13°48'22"W 129.94'

N09°58'48"E 80'-11"

S20°17'59"E 163.85'

S27°31'28"E 45.63'

53.62'

N74°33'17"E 71.90'

N77°05'49"E 271.16'

L=271.45
R=1697.59
Δ=9°09'42"
Tan=136.02

N/F STATE OF CT– RAILROAD

SEE DEED VOLUME 113 PAGE 75 M.L.R. FOR RIGHTS OF NY–NH– & HARTFORD RAILROAD COMPANY ALONG THIS PROPERTY LINE.

N/F MILFORD CEMETERY ASSOCIATION

I. PIN SET

N 142476.82
E 516178.27 NAD27
N 642514.0259
E 916304.2451 NAD83*

Existing I. Pin

N 142397.12
E 515844.65 NAD27
N 642434.3215
E 915970.6202 NAD83*

I. PIN SET

SAN MH TF=29.19 IN IN N 15.12 DROP INV IN E 18.1 INV. OUT 15.04

SAN MH TF=22.8 INV. IN 14.77 IN OUT 14.67

SNET 3561

SNET 3561S

SNET 3562

EXISTING 10" VT @ 0.3% SANITARY

48.0' LF 8"PVC

97.6' LF 8" PVC S=1.08%

67.5' LF 8" PVC S=0.53%

135.4' LF 8" PVC S=1.08%

6" DI FIRE PROTECTION

4" DOM. WATER

4" GAS

WATER METER VAULT

SAN MH TF=30.12 INV. IN = 20.14 INV. OUT = 20.03

SAN MH TF=28.2 45° INV. IN = 20.55 INV. OUT = 20.50

SAN MH TF=31.93 INV. IN 18.98 INV. OUT = 18.83

SAN MH TF=28.45 INV. OUT 22.03

CB TF 29.6 INV. 12" HDPEP 27.6

4 ROW REF 18" CULV. INV. 24.4

CB TF=25.5 INV. OUT 23.0

CB TF=26.1 INV. OUT 23.1

CB TF=21.8 INV. = 19.8

CB TF=25.48 INV. 20.7

STORM MH HYDROWORKS VORTECNICS TOF=26.6 BOT=17.7 INV. =22.7

STORM MH HYDROWORKS VORTECNICS TOF=27.4 BOT=17.9 INV. =22.9

STORM MH TOF=26.86 INV. =22.5

(2) X 40 LF X 48" GALLEY TOP 27.8 INV. OUT 26.8

(2) X 40 LF X 48" GALLEY TOP 25.7 BOT. 21.7 INV. 24.7

(2) X 40 LF X 48" GALLEY TOP 25.8 BOT. 21.8 INV. 24.8

(3) X 60 LF X 48" GALLEY TOP 23.5 BOT 19.5 INV. 22.5

(3) X 36 LF X 48" GALLEY TOP 24.0 BOT 20.0 INV. 23.0

40LF X 36" GALLEY TOP 24.5 BOTTOM 21.5

40LF X 24" GALLEY TOP 22.3 BOTTOM 20.3

(3) X 64 LF X 24" GALLEY TOP 20.8 BOT. 18.6 INV. 19.5

(3) ROWS 36" HANCOR STORAGE PIPE– 48LF=856CF STORAGE TOP=22.0 BOTTOM/INV.=19.0. 18" STONE BETWEEN PROVIDED FOR FLOODPLAIN MANAGEMENT

(10) ROWS 36" HANCOR STORAGE PIPE– 48LF=3394CF STORAGE TOP=22.0 BOTTOM/INV.=19.0. 18" STONE BETWEEN PROVIDED FOR FLOODPLAIN MANAGEMENT

RETAINING WALL

TIMBER GUIDE RAILING

LANDSCAPE RETAINING WALL

RETAINING WALL

12" HDPEP INV. 19.0

INV. 12" HDPEP 20.2

INV. 15" HDPEP 20.2

INV. 12" HDPEP 20.1

INV. 8" HDPEP 19.5

INV. 8" HDPEP 18.5

12" HDPEP IN 20.5

12" HDPEP INV 20.5

12" HDPEP INV 20.5

3–12" HDPEP INV. 19.0

LEVEL SPREADER BOTTOM 19.3 TOP 20.3

LEVEL SPREADER BOTTOM 19.9 TOP 20.4

LEVEL SPREADER BOTTOM 19.0 TOP 19.5

LEVEL SPREADER BOTTOM 18.5 TOP 19,0

WF1 WF2 WF3 WF4 WF5 WF6 WF7 WF8 WF9 WF10 WF11 WF12 WF13 WF14

WETLANDS

COMMUNICATIONS PULL BOX

PORCH AND COVERED ENTRY

DUMPSTER ENCLOSURE

6' WHITE PVC STOCKADE FENCE FENCE MEANDERS AROUND EXISTING TREES

6' WHITE P.V.C. STOCKADE FENCE

YD TF=28.3 INV. 15" OUT XX.X

2–YD TF=27.1 INV. 8" OUT 25.6

NA027

LEGEND

- CATCH BASIN
- SANITARY SEWER MANHOLE
- WATER VALVE
- GAS VALVE
- FIRE HYDRANT
- FENCE or GUIDE RAIL
- STORM DRAIN MANHOLE
- POLE LIGHT
- ELEC. TRANSFORMER

—U/I— UNDERGROUND ILLUMINATION CONDUIT

—U/E— UNDERGROUND ELECTRIC CONDUIT

—U/G— UNDERGROUND GAS CONDUIT

Map References:

A. "Walter E. & Sarah H. Barney– Milford, Conn." Scale 1"=40' Dated 9/23/80. Prepared by HCTedford Associates. (11x17 Files)

B. "Right of Way and Track Map– The New York, New Haven, & Hartford R.R. Co. Operated by The New York, New Haven & Hartford R.R. CO.– Station 2712+80 To Station 2765+60– Town of Milford, State of Conn" Scale 1"=100', Dated June 30, 1915. Office of Valuation Engineer. Map V53/64– /53.

NOTES:

The Parcel is in Zone MCDD.

The 100 Year Flood Elevation is NGVD23 as shown on FEMA Flood Profile 02P– Wepawaug River, FIRM Panel 531 Map 09009C0531H Effective Date Dec. 17, 2010.

North Rotation is based on NAD27.

Elevations are based on U.S.C.G.S. Bench Mark E–3 = 28.632 feet.

Wetlands shown as delineated by David Lord, Soil Scientist, July, 2005.

*Coordinates shown are for reference only. NAD83 as converted from NAD27 using Army Corps of Engineer Datum Shift Software.

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 approximate in nature. Additionally, other such features may exist on the site, the existence of which are unknown to C.C.G. The size, location and existence of all such features must be fied determined and verified by the appropriate authorities prior to construction. Call Before You Dig 1–800–922–4455.

UTILITY AS-BUILT PROSPECT FALLS

#25, 35, 37, 39, 41
PROSPECT STREET
Milford, Connecticut

RECEIVED
DEC 2 0 2011
PLANNING & ZONING
MILFORD, CT 06460

C.C.G. CONNECTICUT CIVIL GROUP
Civil + Structural Engineering · Land Surveying
Designers + Planners
158 RESEARCH DRIVE, MILFORD, CT 06460
(203) 874–8316 ctcivilgroup.com

This survey and map has been prepared pursuant to the Regulations of Connecticut State Agencies Sections 20–300b–1 through 20–300b–20 and the "Standards for Survey and Maps in the State of Connecticut" as adopted by the Connecticut Association of Land Surveyors, Inc. on September 26, 1996.

It is an Improvement Location Survey based upon a Dependent Resurvey and is intended to depict the position, horizontally and, where required, vertically, between particular existing or proposed improvements with respect to applicable municipal or statutory requirements. The purpose is to enable determination of compliance with said improvements.

This survey conforms to Horizontal Accuracy Class A–2.

To my knowledge and belief, this map is substantially correct as noted hereon.

Date 12/16/2011 By _____
Ronald W. Wassmer, PE LS CT Lic. No. 16975

This survey is not valid unless it bears a live signature and live seal.

DATE: DECEMBER 15, 2011	FB: 387/403	DRAWN BY: RW	
20 0 1" = 20' 20 40		PROJECT No.: 05–015	AB-2
		DRAWING No.: 1890	

M:\Land Projects\05-015 Prospect Street\dwg\2010 construction docs\05-015BASE-2011 ASBUILT.dwg, as-built sheet 2, 12/15/2011 3:04:37 PM, 1:1

Appendix C REPRESENTATIVE PHOTOGRAPHS

Stantec

Photographic Log

Client:	**The United Illuminating Company**	**Project:**	**Milvon to West River Railroad Transmission Line 115-kV Rebuild**
Site Name:	**"Prospect Falls"**	**Site Location:**	**Milford Connecticut**

Photograph ID: 1 **Photo Location:** Wetland A **Direction:** NE **Survey Date:** 6/3/2025 **Comments:** Eastern boundary of Wetland A. Note dense stand of green ash saplings are the dominant vegetation within the wetland.	
Photograph ID: 2 **Photo Location:** Wetland A **Direction:** W **Survey Date:** 6/3/2025 **Comments:** Hydrologic indicator B5 - iron deposits present in standing water within Wetland A.	

Client:	**The United Illuminating Company**	**Project:**	**Milvon to West River Railroad Transmission Line 115-kV Rebuild**
Site Name:	**"Prospect Falls"**	**Site Location:**	**Milford Connecticut**

Photograph ID: 3 **Photo Location:** Wetland A **Direction:** NE **Survey Date:** 6/3/2025 **Comments:** Three 12 inch diameter corrugated HDPE pipes along the eastern boundary of Wetland A.	
Photograph ID: 4 **Photo Location:** Wetland A **Direction:** NE **Survey Date:** 6/3/2025 **Comments:** Two 12 inch diameter corrugated HDPE pipes adjacent to the northern boundary of Wetland A. Outfalls dissipate flows over a riprap lined level spreader.	

Client:	**The United Illuminating Company**	**Project:**	**Milvon to West River Railroad Transmission Line 115-kV Rebuild**
Site Name:	**"Prospect Falls"**	**Site Location:**	**Milford Connecticut**

Photograph ID: 5 **Photo Location:** Wetland A **Direction:** N **Survey Date:** 6/3/2025 **Comments:** One 12 inch diameter corrugated HDPE pipe at the northern edge of Wetland A. Note the drainage swale extending south from the pipe, flagged in field as ES-A1 - ES-A3 (non-regulated resource).	
Photograph ID: 6 **Photo Location:** Wetland A **Direction:** NW **Survey Date:** 6/3/2025 **Comments:** Three 12 inch diameter corrugated HDPE pipes adjacent to the western boundary of Wetland A. Outfalls dissipate flows over a riprap lined level spreader.	

Client:	**The United Illuminating Company**	**Project:**	**Milvon to West River Railroad Transmission Line 115-kV Rebuild**
Site Name:	**"Prospect Falls"**	**Site Location:**	**Milford Connecticut**

Photograph ID: 7 **Photo Location:** Wetland A **Direction:** NW **Survey Date:** 6/3/2025 **Comments:** Two 8 inch diameter corrugated HDPE pipes adjacent to the western boundary of Wetland A. Outfalls dissipate flows over a riprap lined level spreader.	
Photograph ID: 8 **Photo Location:** Wetland A **Direction:** E **Survey Date:** 6/3/2025 **Comments:** Interior portion of Wetland A. Note hydrologic indicator A1 - surface water is present. This area abuts the embankment of the MNR ROW.	

Appendix D USACE DATA FORMS

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Milvon to West River Railroad Transmission Line City/County: Milford / New Haven Sampling Date: 6/3/2025

Applicant/Owner: The United Illuminating Company - Avangrid State: CT Sampling Point: WA_U

Investigator(s): Alexander Wojtkowiak, PSS Section, Township, Range: Milford

Landform (hillside, terrace, etc.): Urban Land Local relief (concave, convex, none): Slope Slope (%): 30

Subregion (LRR or MLRA): LRR R, MLRA 144A Lat: 41.224346 Long: -73.054723 Datum: WGS 1984

Soil Map Unit Name: Haven silt loam and urban land NWI classification: NA

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

Are Vegetation Y , Soil Y , or Hydrology Y significantly disturbed? Are "Normal Circumstances" present? Yes Y No ___

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

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

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

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

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface Water Present?	Yes ___	No X	Depth (inches): ___
Water Table Present?	Yes ___	No X	Depth (inches): ___
Saturation Present? (includes capillary fringe)	Yes ___	No X	Depth (inches): ___

Wetland Hydrology Present? **Yes** ___ **No** X

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

Remarks:
Slope adjacent to urban apartment complex. Several HDPE pipes discharging into wetland.

VEGETATION – Use scientific names of plants. Sampling Point: WA_U

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Acer platanoides*	25	Yes	UPL
2. *Quercus palustris*	5	No	FACW
3. *Acer saccharinum*	5	No	FACW
4. *Salix nigra*	2	No	OBL
5.			
6.			
7.			
	37	=Total Cover	
Sapling/Shrub Stratum (Plot size:)			
1. *Fraxinus pennsylvanica*	12	Yes	FACW
2. *Rosa multiflora*	12	Yes	FACU
3. *Euonymus alatus*	10	Yes	UPL
4. *Viburnum dentatum*	5	No	FAC
5.			
6.			
7.			
	39	=Total Cover	
Herb Stratum (Plot size:)			
1. *Allium canadense*	12	Yes	FACU
2. *Reynoutria japonica*	15	Yes	FACU
3. *Impatiens capensis*	8	Yes	FACW
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	35	=Total Cover	
Woody Vine Stratum (Plot size:)			
1. *Celastrus orbiculatus*	20	Yes	UPL
2. *Toxicodendron radicans*	10	Yes	FAC
3.			
4.			
	30	=Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 9 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 33.3% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	2	x 1 =	2
FACW species	30	x 2 =	60
FAC species	15	x 3 =	45
FACU species	39	x 4 =	156
UPL species	55	x 5 =	275
Column Totals:	141 (A)		538 (B)

Prevalence Index = B/A = 3.82

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Vegetation Strata:

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

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

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

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

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

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: WA_U

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-14	10YR 3/2	100					Sandy	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- ___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- ___ High Chroma Sands (S11) (**LRR K, L)**
- ___ Loamy Mucky Mineral (F1) (**LRR K, L**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Marl (F10) (**LRR K, L**)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: Refusal

Depth (inches): 14"

Hydric Soil Present? **Yes** ___ **No** X

Remarks:

This data form is revised from Northcentral and Northeast Regional Supplement Version 2.0 to reflect the NRCS Field Indicators of Hydric Soils version 7.0 March 2013 Errata. (http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_051293.docx)

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Milvon to West River Railroad Transmission Line City/County: Milford / New Haven Sampling Date: 6/3/2025

Applicant/Owner: The United Illuminating Company - Avangrid State: CT Sampling Point: WA_W

Investigator(s): Alexander Wojtkowiak, PSS Section, Township, Range: Milford

Landform (hillside, terrace, etc.): Urban Land Local relief (concave, convex, none): Depression Slope (%): 0

Subregion (LRR or MLRA): LRR R, MLRA 144A Lat: 41.224196 Long: -73.054727 Datum: WGS 1984

Soil Map Unit Name: Haven silt loam and urban land NWI classification: PSS

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

Are Vegetation Y , Soil Y , or Hydrology Y significantly disturbed? Are "Normal Circumstances" present? Yes Y No ___

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

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

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

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

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface Water Present?	Yes X	No ___	Depth (inches):	14"
Water Table Present?	Yes X	No ___	Depth (inches):	8"
Saturation Present? (includes capillary fringe)	Yes X	No ___	Depth (inches):	6"

Wetland Hydrology Present? **Yes** X **No** ___

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

Remarks:
Several HDPE pipes observed designed to discharge into the wetland area. No observable outlet surface or sub grade. Surface water present in center of wetland area.

VEGETATION – Use scientific names of plants. Sampling Point: WA_W

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Salix nigra*	40	Yes	OBL
2. *Quercus palustris*	8	No	FACW
3. *Acer saccharinum*	8	No	FACW
4. *Acer platanoides*	8	No	UPL
5. *Nyssa sylvatica*	2	No	FAC
6.			
7.			
	66	=Total Cover	
Sapling/Shrub Stratum (Plot size:)			
1. *Fraxinus pennsylvanica*	25	Yes	FACW
2. *Ulmus americana*	12	No	FACW
3. *Malus angustifolia*	2	No	UPL
4. *Rosa multiflora*	5	No	FACU
5. *Viburnum dentatum*	5	No	FAC
6. *Cornus amomum*	15	Yes	FACW
7. *Euonymus alatus*	3	No	UPL
	67	=Total Cover	
Herb Stratum (Plot size:)			
1. *Impatiens capensis*	20	Yes	FACW
2. *Allium canadense*	10	Yes	FACU
3. *Onoclea sensibilis*	8	No	FACW
4. *Reynoutria japonica*	8	No	FACU
5. *Carex.*	5	No	FAC
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	51	=Total Cover	
Woody Vine Stratum (Plot size:)			
1. *Celastrus orbiculatus*	15	Yes	UPL
2. *Toxicodendron radicans*	20	Yes	FAC
3. *Vitis riparia*	12	Yes	FAC
4.			
	47	=Total Cover	

Dominance Test worksheet:

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

Total Number of Dominant Species Across All Strata: 8 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 75.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	40	x 1 =	40
FACW species	96	x 2 =	192
FAC species	44	x 3 =	132
FACU species	23	x 4 =	92
UPL species	28	x 5 =	140
Column Totals:	231 (A)		596 (B)

Prevalence Index = B/A = 2.58

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

X 2 - Dominance Test is >50%

X 3 - Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Vegetation Strata:

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

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

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

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

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

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: WA_W

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR 3/1	98	5YR 3/4	2	C	PL	Sandy	Prominent redox concentrations
6-19	10YR 4/2	95	7.5YR 4/6	5	C	M	Sandy	Prominent redox concentrations

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ? Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- X Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ? Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- ___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- ___ High Chroma Sands (S11) (**LRR K, L)**
- ___ Loamy Mucky Mineral (F1) (**LRR K, L**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Marl (F10) (**LRR K, L**)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** X **No** ___

Remarks:

This data form is revised from Northcentral and Northeast Regional Supplement Version 2.0 to reflect the NRCS Field Indicators of Hydric Soils version 7.0 March 2013 Errata. (http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_051293.docx)

Sandy loam / gravely sandy loam - no evidence of alluvial floodplain soils, soils appear to be relativly new aquents, no signs of soil development or structure.

Wetland Function-Value Evaluation Form

Total area of wetland 0.27ac Human made? unknown Is wetland part of a wildlife corridor? No or a "habitat island"? No

Adjacent land use RR and Apartments Distance to nearest roadway or other development 25'

Dominant wetland systems present PSS Contiguous undeveloped buffer zone present No

Is the wetland a separate hydraulic system? Yes If not, where does the wetland lie in the drainage basin? NA

How many tributaries contribute to the wetland? 0 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. Wetland A

Latitude _____ Longitude _____

Prepared by: JW Date 6/16/2025

Wetland Impact:
Type Temporary Area NA

Evaluation based on:
Office X Field X

Corps manual wetland delineation completed? Y X N _____

Function/Value	Suitability Y	Suitability N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	◉	○	4,8,9	X	standing water and moderate organic modified sandy loam
Floodflow Alteration	◉	○	3,5,8,9,10,11,18	X	Within 100-yr floodzone
Fish and Shellfish Habitat	○	◉	2		Isolated wetland disconnected from any streams or rivers, no suitable habitat present
Sediment/Toxicant Retention	◉	○	1,2,5,9	X	several stormwater pipes discharge into wetland area
Nutrient Removal	◉	○	3,4,5,6,7,8		standing water and moderate organic modified sandy loam
Production Export	○	◉	7		Limited vegetation was observed which supports animal or human food/usable products created within this wetland
Sediment/Shoreline Stabilization	◉	○	3,14		Large trees within wetland and potential sediment sources upslope
Wildlife Habitat	○	◉	11,13		The size of this wetland is restrictive for wildlife habitat
Recreation	○	◉	12		No recreational oppurtunities exist within this wetland
Educational/Scientific Value	○	◉	13		Limited oppurtunity for learning or scientific study present within this wetland
Uniqueness/Heritage	○	◉	1,5,10,22		Unknown if any historic or archaeological significance present
Visual Quality/Aesthetics	○	◉	9		Wetland has dense vegetation and is located in a depression with limited aestetics
ES Endangered Species Habitat	○	◉			This wetland does not appear to support any known endangeres species in this location
Other	○	◉			

Notes:

* Refer to backup list of numbered considerations.

Appendix E

Engineering Reports

MOVE YOUR ENVIRONMENT FORWARD

November 1, 2022

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

RE: LWRD LICENSE APPLICATION FORM D (COP)
ATTACHMENT 18 - ENGINEERING REPORT
MILVON TO WEST RIVER RAILROAD TRANSMISSION LINE REBUILD PROJECT
CT DOT CORRIDOR
MILFORD, ORANGE, WEST HAVEN, AND NEW HAVEN, CONNECTICUT

To Whom it May Concern:

We offer the following statements in response to the checklist items for the Engineering Report in association with the LWRD license application for Certificate of Permission for the above-mentioned project. These statements are in reference to project activities occurring in areas up to and including the elevation of the coastal jurisdiction line ("Subject Area").

Stormwater Management
The proposed project does not propose any activities that would significantly affect the stormwater operation of the Subject Area.

Floodway/Floodplain Assessment
The project does not currently propose any ground level engineered structures within the Subject Area in the floodplain or floodway. Overhead transmission lines will span above two floodplain areas but are not anticipated to have any effect on floodplain capacity or operation.

Structures within a Coastal Floodplain
The project does not currently propose any permanent structures within the coastal floodplain.

If you have any questions or require additional information, please feel free to contact HRP at (860) 674-9570.

Sincerely,

Thomas Battles

Thomas Battles, PE
Engineering Practice Leader

November 1, 2022

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

RE: LWRD LICENSE APPLICATION FORM L (PCN)
ATTACHMENT 18 - ENGINEERING REPORT
MILVON TO WEST RIVER RAILROAD TRANSMISSION LINE REBUILD PROJECT
CT DOT CORRIDOR
MILFORD, ORANGE, WEST HAVEN, AND NEW HAVEN, CONNECTICUT

To Whom it May Concern:

We offer the following statements in response to the checklist items for the Engineering Report in association with the LWRD license application including Pre-Construction Notification for USACE General Permits for the above-mentioned project. These statements are in reference to project activities under the United States Army Corps of Engineers jurisdiction and occurring in inland wetland or watercourse areas ("Subject Area").

Stormwater Management
The project does not propose any activities that would significantly affect the stormwater operations of the Subject Area. Proposed final conditions are designed to match existing grades and drainage patterns.

Two culverts are proposed to allow maintenance access to monopole structures P982N and P983N, while continuing existing stormwater operations of an unnamed intermittent stream, identified as Watercourse JA (W-JA) in the Wetland Identification and Delineation Report Update prepared by BL Companies and provided as Attachment 15 of this application. Culvert sizing calculations prepared by Westwood are provided in the attached Milvon – West River T-Line Crossing Sizing Memorandum.

Floodway/Floodplain Assessment
The project does not currently propose any ground level activities within the Subject Area in the floodway. Monopole foundations will be installed within two floodplain areas associated with Long Island Sound; one adjacent to the West River and one adjacent to the Indian River. Due to the coastal nature of these floodplains, it is not anticipated that proposed project activities will significantly affect floodplain operations. Furthermore, proposed earthwork is anticipated to result in a net cut within the floodplain adjacent to the Indian River and net neutral in the floodplain area adjacent to the West River. Therefore, flood conveyance and storage capacity will not be negatively altered by the project.

Structures within a Coastal Floodplain
The project does not include any of the LWRD License Application Engineering Report Cover Sheet listed permanent structures (i.e., seawalls, bulkheads, revetments, berms, jetties, culverts,

tidegates, flood berms/levees, etc.) within the coastal floodplain. Proposed Project activities within the Subject Area are described above.

If you have any questions or require additional information, please feel free to contact HRP at (860) 674-9570.

Sincerely,



Thomas Battles, PE
Engineering Practice Leader

Westwood

12701 Whitewater Drive, Suite 300
Minnetonka, MN 55343

Main (952) 937-5150
Fax (952) 937-5822

westwoodps.com
(888) 937-5150

MEMORANDUM

Date: August 24, 2022

Re: Milvon – West River T-Line Crossing Sizing

This memo serves to document the sizing process for two permanent culverts on the Milvon – West River Transmission Line project. The culverts were sized based on design information provided in the Connecticut Department of Transportation (CTDOT) Drainage Manual. The CTDOT Drainage Manual is applicable due to the contributing drainage areas to analyzed crossings being less than 200 acres, or 0.3 square miles.

The rational method was used to determine flow rates for the 50, 25, 10, and 2-year storm events at these crossing locations based on their drainage areas being less than 1 square mile. Drainage areas were determined based off of publicly available 1-meter Lidar from the USGS National Map. Contributing drainage areas to these crossings contained landcover types of Industrial Heavy areas (C value 0.85), Railroad Yard areas (C value 0.4), and Unimproved areas (C value 0.1). Weighted C values for each contributing drainage area can be seen in Attachment A.

Time of concentration (Tc) was calculated using the equations for sheet flow and shallow concentrated flow as provided in Appendix 6C of the CTDOT Drainage Manual. The equations used to calculate sheet flow Tt and shallow concentrated flow Tt, as well as overall Tc are as follows:

Sheet flow Tc: $T_t = \frac{0.007*(n*L)^{0.8}}{{P_2}^{0.5}* S^{0.4}}$

Where
T_t = Travel time (hours)
n = Manning's roughness coefficient
L = Flow length (feet)
S = Slope of the hydraulic grade line (land slope) (ft/ft)
P_2 = 2-year, 24-hour rainfall depth, (inches)

Shallow concentrated flow Tc: $V = 20.3284 * (s^{0.4})$

$$T_t = \frac{L}{3600 * V}$$

Where
T_t = Travel time (hours)
V = Average Velocity (ft/s)
L = Flow length (feet)
S = Slope of the hydraulic grade line (land slope) (ft/ft)

Overall Tc: $$T_{t\ overall} = T_{t\ sheet\ flow} + T_{t\ shallow\ concentrated\ flow}$$

Where
$T_{t\ overall}$ = Overall time of concentration (minutes)
$T_{t\ sheet\ flow}$ = Sheet flow time of concentration (minutes)
$T_{t\ shallow\ concentrated\ flow}$ = Shallow concentrated flow time of concentration (minutes)

The Tc calculations for each crossing location can be seen in Attachment A

Rainfall intensity was determined from NOAA Atlas 14 data as stated in the CTDOT Engineering Bulletin on Precipitation Frequency Estimates, dated November 3, 2015. The 50-year, 25-year, 10-year, and 2-year rainfall intensities for crossings 13 (16.00 minute time of concentration) and crossing 15 at (17.67 minute time of concentration) can be seen in the Table 1 below.

Table 1: Rainfall Intensities

Crossing Location	50-Year Intensity (inches/hour)	25-Year Intensity (inches/hour)	10-Year Intensity (inches/hour)	2-Year Intensity (inches/hour)
13	5.6	5.0	4.1	2.7
15	5.4	4.8	4.0	2.6

See Attachment B for the NOAA Atlas 14 rainfall intensity table.

Because these crossings are being sized for multiple storms, a frequency factor must be added to the traditional rational method equation for the 25-year and 50-year storm events. The equation used to calculate peak flowrates at these equations is as follows:

$$Q = C * C_F * I * A$$

Where
Q = Maximum rate of runoff (cfs)
C = Runoff coefficient representing a ratio of runoff to rainfall
I = Average intensity for a duration equal to the time of concentration, for a selected return period (inches/hour)
C_f = Frequency factor for adjustment during less frequent, higher intensity storms
A = Drainage area tributary to the design location (acres)

C_f values of 1.2 and 1.1 were utilized for rational method calculation adjustments for the 50-year and 25-year storms, respectively, based on values in Table 6-2 of the CTDOT Drainage Manual. Rational Method equation inputs and peak flowrates for each crossing

location can be seen in Attachment A. The C_f values for the 10-year and 2-year events remained at 1.

Peak flowrates determined by the rational method were utilized to size crossings at each location for the 50, 25, 10, and 2-year storm events, with 1 foot of allowable headwater over the top of pipe elevation. Contributing drainage areas, peak flow rates, and culvert sizing for each location can be seen in the tables below. Three different culvert sizing options are given for each location to provide the contractor with an option that will best fit the existing channel for the 50-year storm event.

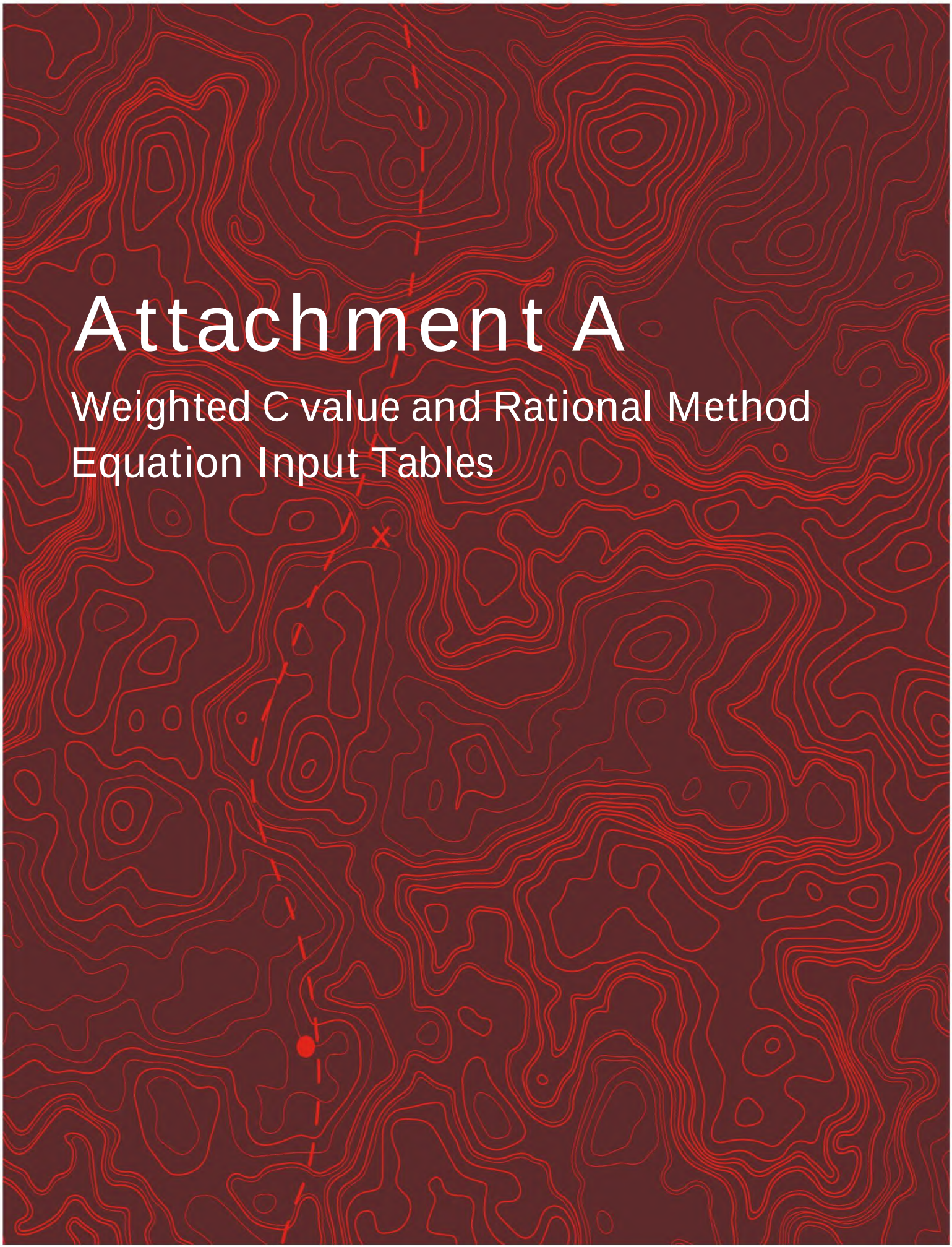
Table 2: Peak Flowrates

Crossing Location	Contributing Drainage Area (Acres)	Peak Flowrate (cfs)			
		50-year	25-year	10-year	2-year
13	30.6	94.8	76.9	57.8	38.3
15	36.8	99.5	80.7	60.7	40.2

Table 3: Culvert Sizes

Crossing Location	Culvert Size recommendation (inches)
	50-year
13	1-54"; 2-42"; 3-36"
15	1-54"; 2-42"; 3-36"

All culverts were sized with an assumed 50 foot length, 0.5% slope, and CMP type in CulvertMaster software. See Attachment D for CulvertMaster reports. Culverts must be field verified to make sure the provided sizes properly match channel geometry before installation. Please see Attachment C for crossing locations.



Attachment A

Weighted C value and Rational Method Equation Input Tables

Weighted C Calculations					
Crossing ID	Total Area (ac)	Industrial: Heavy Area (ac)	Unimproved Area (ac)	Railroad Yard Area (ac)	Weighted C
13	30.6	14.6	15.8	0.2	0.46
15	36.8	14.6	19.9	2.3	0.42

50-Year Peak Flowrate Calculations						
Crossing ID	Total Area (ac)	Weighted C	TC (hours)	50-yr Intensity (inches/hour)	Cf	50-yr Runoff Rate (cfs)
13	30.6	0.5	0.27	5.6	1.2	94.8
15	36.8	0.4	0.29	5.4	1.2	99.5

25-Year Peak Flowrate Calculations						
Crossing ID	Total Area (ac)	Weighted C	TC (hours)	25-yr Intensity (inches/hour)	Cf	25-yr Runoff Rate (cfs)
13	30.6	0.5	0.27	5.0	1.1	76.9
15	36.8	0.4	0.29	4.8	1.1	80.7

10-Year Peak Flowrate Calculations						
Crossing ID	Total Area (ac)	Weighted C	TC (hours)	10-yr Intensity (inches/hour)	Cf	10-yr Runoff Rate (cfs)
13	30.6	0.5	0.27	4.1	1.0	57.8
15	36.8	0.4	0.29	4.0	1.0	60.7

2-Year Peak Flowrate Calculations						
Crossing ID	Total Area (ac)	Weighted C	TC (hours)	2-yr Intensity (inches/hour)	Cf	2-yr Runoff Rate (cfs)
13	30.6	0.5	0.27	2.7	1.0	38.3
15	36.8	0.4	0.29	2.6	1.0	40.2

Time of Concentration Calculations											
Drainage Area	Total Length (ft)	Sheet Flow					Shallow Concentrated Flow				Total TC (hours)*
		Length (ft)	Slope (ft/ft)	n	P2 (inches)	Tt (hours)	Length (ft)	Slope (ft/ft)	Average Velocity (ft/s)	Tt (hours)	
13	1901	100	0.2111	0.400	3.50	0.13	1801	0.0341	3.75	0.13	0.27
15	2301	100	0.2111	0.400	3.50	0.13	2201	0.0348	3.79	0.16	0.29

*Drainage paths are unchanged from existing to proposed so TC is the same for both.

Attachment B

NOAA Atlas 14 Rainfall Intensity Table

NOAA Atlas 14, Volume 10, Version 3
Location name: Orange, Connecticut, USA*
Latitude: 41.2487°, Longitude: -72.997°
Elevation: 90.39 ft**
* source: ESRI Maps
** source: USGS

POINT PRECIPITATION FREQUENCY ESTIMATES

Sanja Perica, Sandra Pavlovic, Michael St. Laurent, Carl Trypaluk, Dale Unruh, Orlan Wilhite

NOAA, National Weather Service, Silver Spring, Maryland

PF_tabular | PF_graphical | Maps_&_aerials

PF tabular

PDS-based point precipitation frequency estimates with 90% confidence intervals (in inches/hour)[1]

Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	**4.16** (3.37-5.11)	**5.02** (4.06-6.17)	**6.41** (5.15-7.91)	**7.55** (6.04-9.37)	**9.13** (7.02-11.8)	**10.3** (7.75-13.7)	**11.6** (8.38-15.9)	**13.0** (8.84-18.3)	**15.0** (9.74-21.8)	**16.6** (10.5-24.7)
10-min	**2.95** (2.39-3.62)	**3.55** (2.87-4.37)	**4.54** (3.65-5.60)	**5.35** (4.28-6.64)	**6.47** (4.97-8.39)	**7.31** (5.49-9.69)	**8.20** (5.93-11.3)	**9.19** (6.26-12.9)	**10.6** (6.91-15.5)	**11.8** (7.45-17.5)
15-min	**2.31** (1.87-2.84)	**2.78** (2.25-3.42)	**3.56** (2.86-4.39)	**4.19** (3.35-5.20)	**5.07** (3.90-6.58)	**5.73** (4.30-7.60)	**6.42** (4.66-8.84)	**7.20** (4.91-10.1)	**8.32** (5.41-12.1)	**9.23** (5.84-13.7)
30-min	**1.60** (1.30-1.97)	**1.93** (1.56-2.38)	**2.47** (1.99-3.04)	**2.91** (2.33-3.61)	**3.52** (2.71-4.57)	**3.98** (2.98-5.27)	**4.46** (3.23-6.13)	**5.00** (3.41-7.04)	**5.78** (3.76-8.42)	**6.41** (4.06-9.53)
60-min	**1.03** (0.831-1.26)	**1.24** (0.999-1.52)	**1.58** (1.27-1.95)	**1.86** (1.49-2.31)	**2.25** (1.73-2.92)	**2.55** (1.91-3.37)	**2.85** (2.07-3.93)	**3.20** (2.18-4.50)	**3.70** (2.40-5.39)	**4.10** (2.60-6.10)
2-hr	**0.666** (0.543-0.813)	**0.803** (0.654-0.981)	**1.03** (0.832-1.26)	**1.21** (0.975-1.49)	**1.47** (1.14-1.89)	**1.66** (1.25-2.19)	**1.86** (1.36-2.55)	**2.09** (1.43-2.93)	**2.43** (1.59-3.52)	**2.72** (1.73-4.01)
3-hr	**0.514** (0.420-0.625)	**0.619** (0.506-0.754)	**0.792** (0.644-0.967)	**0.935** (0.755-1.15)	**1.13** (0.879-1.46)	**1.28** (0.970-1.68)	**1.44** (1.05-1.96)	**1.62** (1.11-2.25)	**1.89** (1.23-2.72)	**2.11** (1.34-3.11)
6-hr	**0.328** (0.270-0.396)	**0.395** (0.325-0.478)	**0.505** (0.413-0.612)	**0.596** (0.484-0.727)	**0.721** (0.564-0.922)	**0.814** (0.622-1.07)	**0.914** (0.674-1.24)	**1.03** (0.709-1.43)	**1.21** (0.791-1.73)	**1.35** (0.862-1.97)
12-hr	**0.203** (0.168-0.243)	**0.245** (0.202-0.294)	**0.313** (0.258-0.377)	**0.369** (0.302-0.448)	**0.447** (0.352-0.568)	**0.505** (0.388-0.656)	**0.567** (0.420-0.767)	**0.640** (0.442-0.880)	**0.749** (0.493-1.07)	**0.840** (0.538-1.22)
24-hr	**0.120** (0.100-0.143)	**0.146** (0.122-0.174)	**0.189** (0.156-0.226)	**0.224** (0.184-0.269)	**0.272** (0.216-0.344)	**0.308** (0.238-0.399)	**0.347** (0.259-0.468)	**0.394** (0.273-0.538)	**0.465** (0.307-0.658)	**0.526** (0.338-0.758)
2-day	**0.067** (0.056-0.079)	**0.083** (0.070-0.098)	**0.109** (0.091-0.130)	**0.131** (0.108-0.156)	**0.160** (0.128-0.202)	**0.182** (0.142-0.235)	**0.206** (0.156-0.278)	**0.236** (0.164-0.321)	**0.283** (0.188-0.398)	**0.324** (0.209-0.464)
3-day	**0.048** (0.041-0.057)	**0.060** (0.051-0.071)	**0.079** (0.066-0.094)	**0.095** (0.079-0.113)	**0.117** (0.094-0.147)	**0.133** (0.104-0.171)	**0.150** (0.114-0.202)	**0.173** (0.120-0.233)	**0.207** (0.138-0.290)	**0.238** (0.153-0.339)
4-day	**0.039** (0.033-0.046)	**0.048** (0.041-0.057)	**0.063** (0.053-0.075)	**0.076** (0.063-0.090)	**0.093** (0.075-0.116)	**0.106** (0.083-0.136)	**0.120** (0.091-0.160)	**0.137** (0.096-0.185)	**0.164** (0.109-0.229)	**0.188** (0.122-0.268)
7-day	**0.027** (0.023-0.031)	**0.032** (0.027-0.038)	**0.042** (0.035-0.049)	**0.049** (0.041-0.058)	**0.060** (0.048-0.074)	**0.068** (0.053-0.086)	**0.076** (0.058-0.101)	**0.087** (0.061-0.116)	**0.103** (0.069-0.143)	**0.117** (0.076-0.165)
10-day	**0.021** (0.018-0.025)	**0.026** (0.022-0.030)	**0.032** (0.028-0.038)	**0.038** (0.032-0.045)	**0.046** (0.037-0.057)	**0.052** (0.041-0.065)	**0.058** (0.044-0.076)	**0.065** (0.046-0.087)	**0.076** (0.051-0.105)	**0.086** (0.056-0.121)
20-day	**0.015** (0.013-0.018)	**0.017** (0.015-0.020)	**0.021** (0.018-0.025)	**0.024** (0.020-0.028)	**0.028** (0.023-0.035)	**0.032** (0.025-0.039)	**0.035** (0.026-0.045)	**0.039** (0.027-0.051)	**0.044** (0.030-0.060)	**0.048** (0.031-0.067)
30-day	**0.013** (0.011-0.014)	**0.014** (0.012-0.016)	**0.017** (0.014-0.019)	**0.019** (0.016-0.022)	**0.022** (0.018-0.026)	**0.024** (0.019-0.030)	**0.026** (0.020-0.034)	**0.029** (0.020-0.038)	**0.032** (0.022-0.044)	**0.035** (0.023-0.048)
45-day	**0.010** (0.009-0.012)	**0.012** (0.010-0.013)	**0.013** (0.011-0.015)	**0.015** (0.013-0.017)	**0.017** (0.014-0.020)	**0.018** (0.015-0.023)	**0.020** (0.015-0.025)	**0.022** (0.015-0.028)	**0.024** (0.016-0.032)	**0.025** (0.017-0.035)
60-day	**0.009** (0.008-0.010)	**0.010** (0.009-0.011)	**0.011** (0.010-0.013)	**0.012** (0.011-0.014)	**0.014** (0.012-0.017)	**0.015** (0.012-0.019)	**0.017** (0.012-0.021)	**0.018** (0.013-0.023)	**0.019** (0.013-0.026)	**0.020** (0.013-0.028)

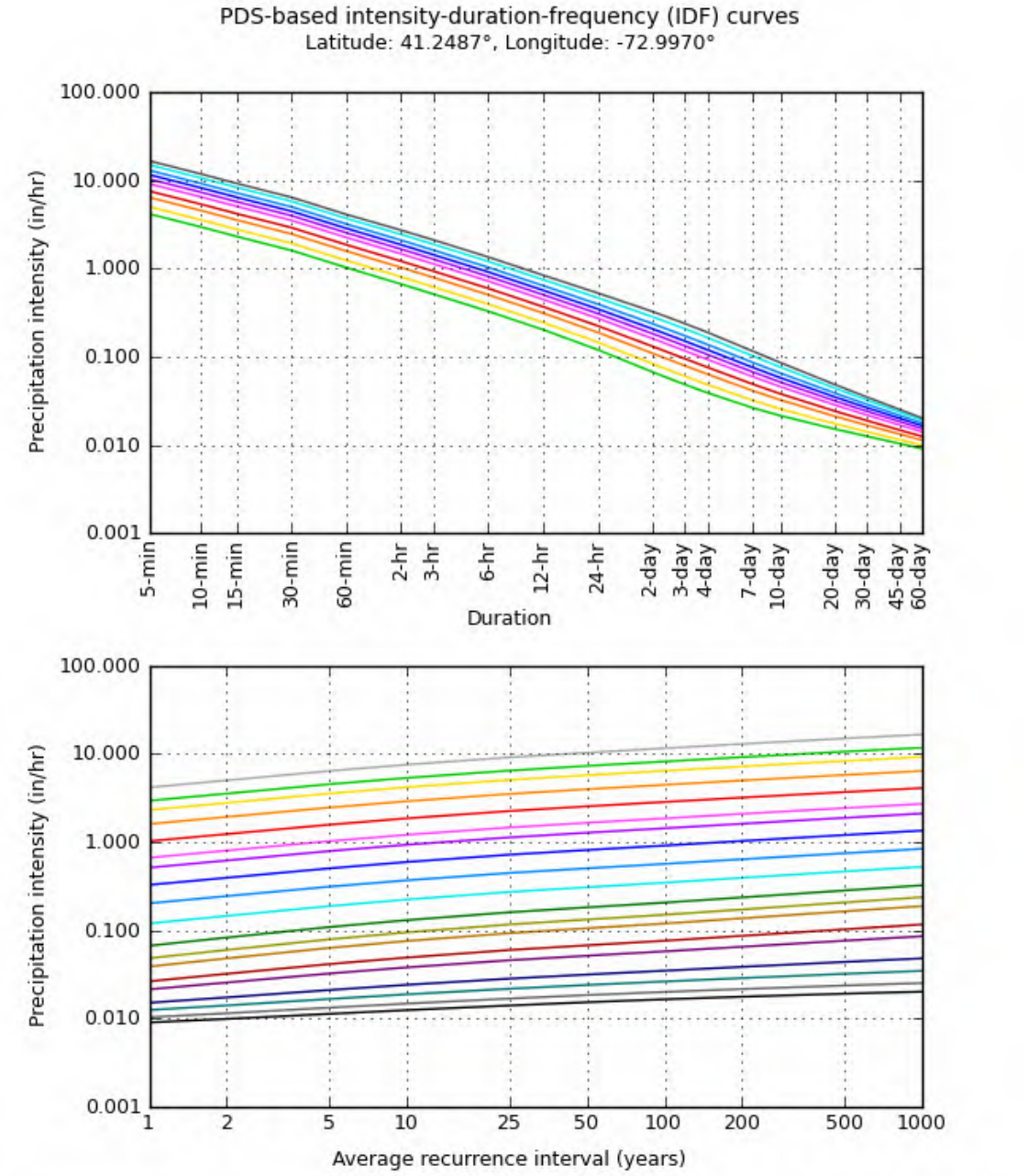
[1] Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS).

Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and average recurrence interval) will be greater than the upper bound (or less than the lower bound) is 5%. Estimates at upper bounds are not checked against probable maximum precipitation (PMP) estimates and may be higher than currently valid PMP values.

Please refer to NOAA Atlas 14 document for more information.

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PF graphical



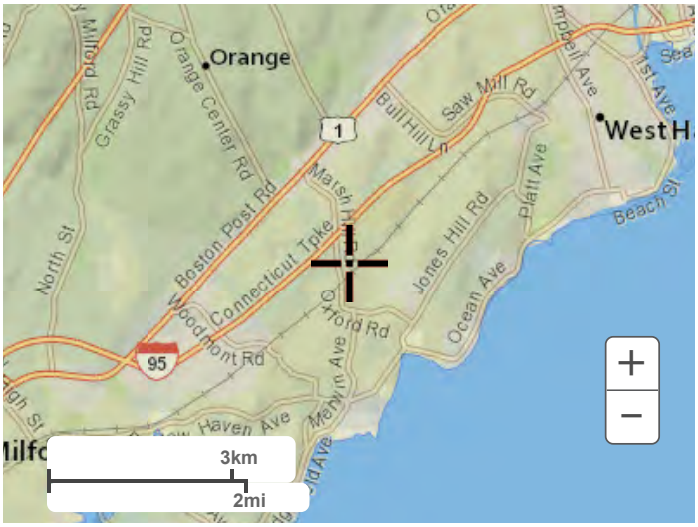
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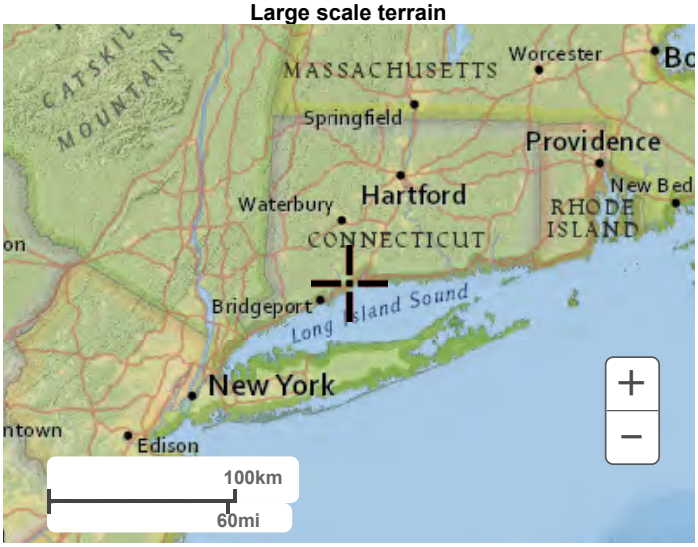
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Maps & aerials

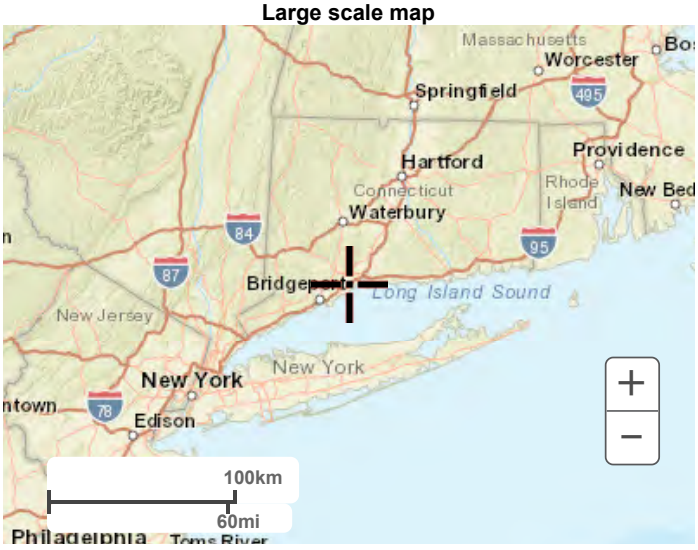
Small scale terrain



Large scale terrain



Large scale map



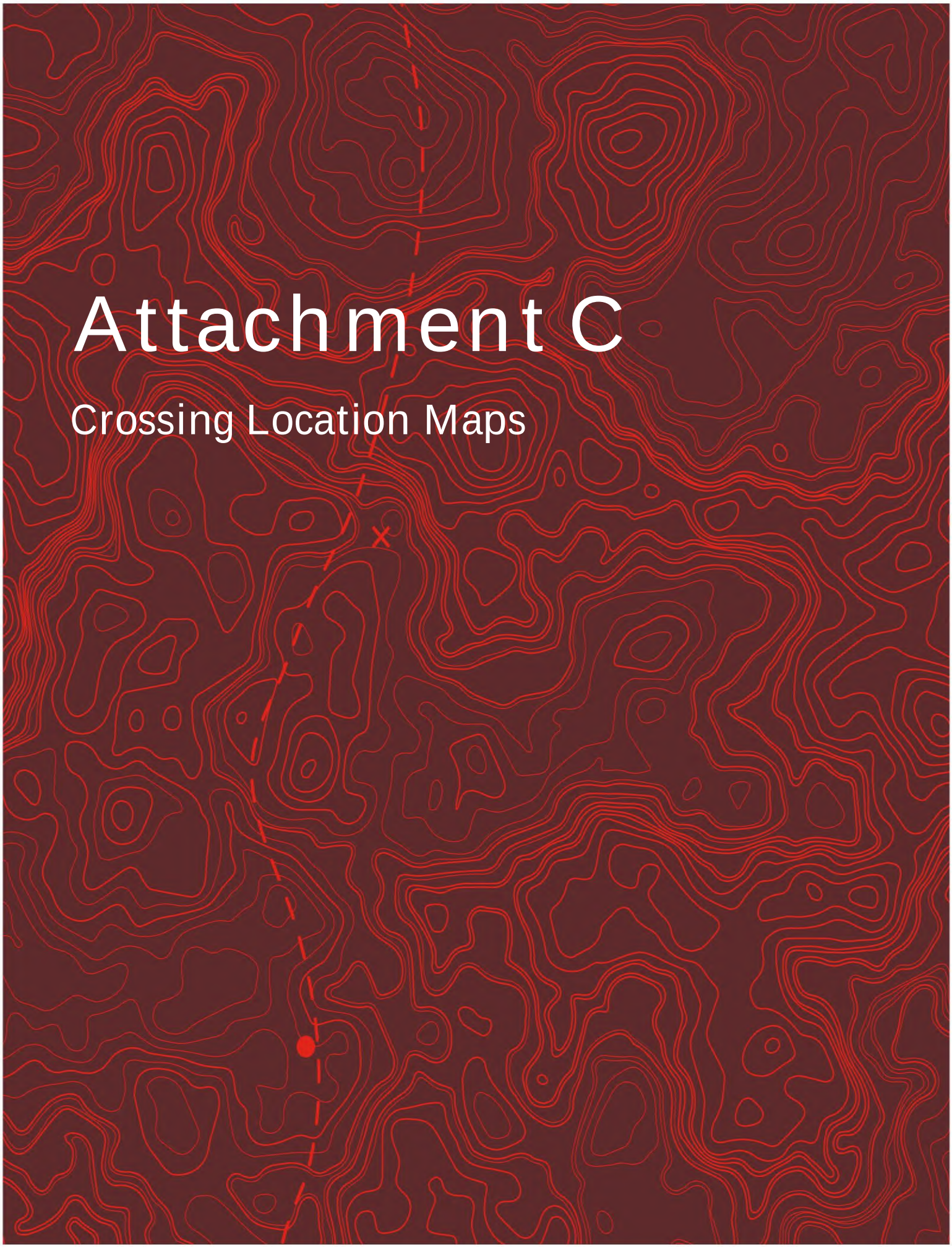
Large scale aerial



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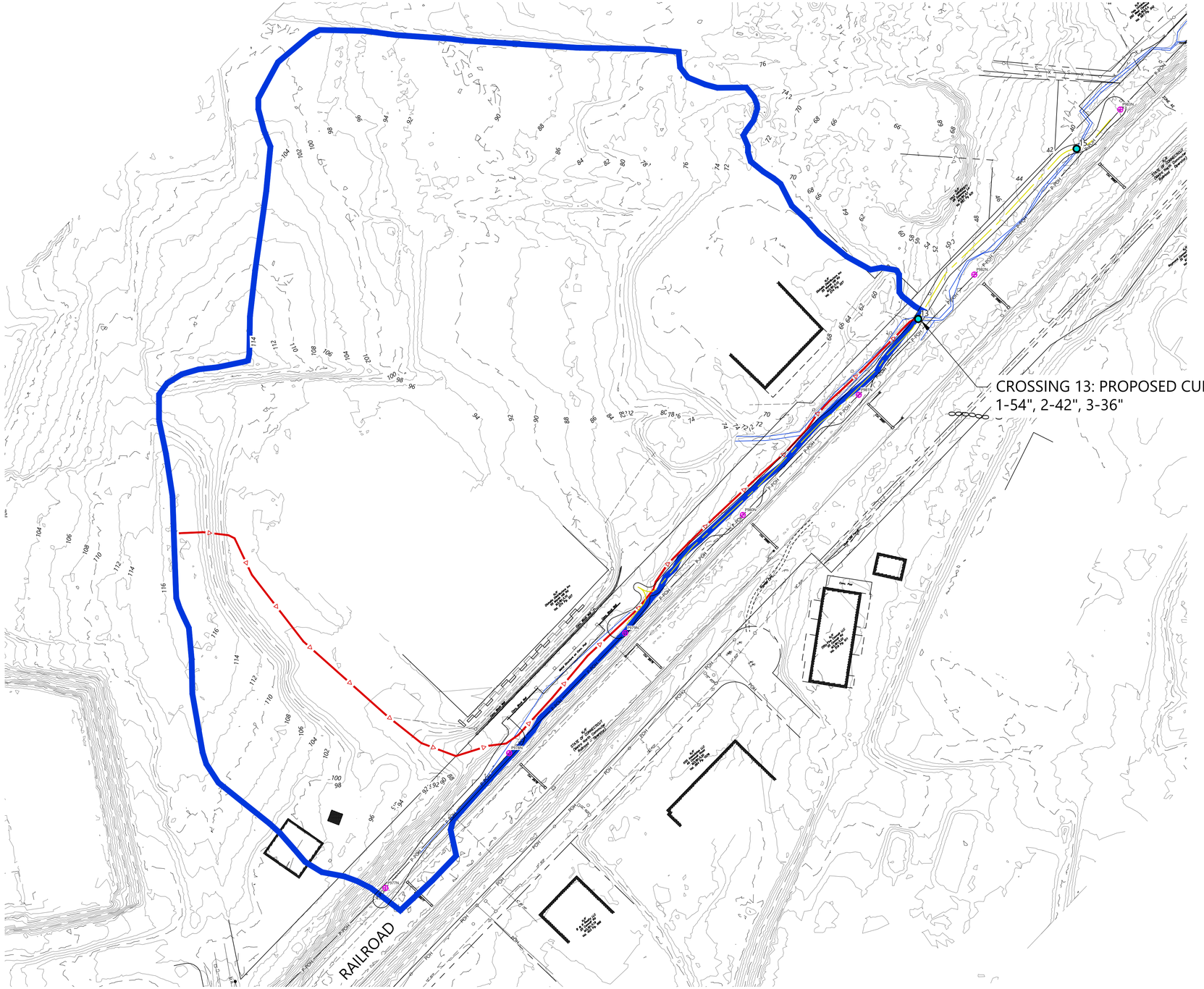
US Department of Commerce
National Oceanic and Atmospheric Administration
National Weather Service
National Water Center
1325 East West Highway
Silver Spring, MD 20910
Questions?: HDSC.Questions@noaa.gov

Disclaimer



Attachment C

Crossing Location Maps



Westwood Surveying & Engineering
Phone (215) 855-7477 1684 South Broad St. Suite #120
Fax (952) 937-5822 Lansdale, PA 19446
Toll Free (888) 937-5150 www.westwoodps.com
Westwood Surveying and Engineering, P.C.

PLAN		BY	DATE
NOTEBOOK NO.	SURVEYED		
	REVIEWED		
	ROW CHKD		

PROFILE		BY	DATE
NOTEBOOK NO.	SURVEYED		
	REVIEWED		
	NOTES REDUCED		

CADD Drawing. DO NOT REVISE MANUALLY

ANSI D

UNDERBUILD CONDUCTOR TYPE	NEUTRAL CONDUCTOR TYPE	OPGW TYPE	CONDUCTOR TYPE
TENSION	TENSION	TENSION	TENSION
DESIGN TEMP.	DESIGN TEMP.	DESIGN TEMP.	DESIGN TEMP.

YR. CONST. W/O

NOTES:
1. PRELIMINARY, NOT FOR CONSTRUCTION

REV.	DATE	BY	DESCRIPTION	APP.

PE Stamp

AVANGRID ENGINEERING
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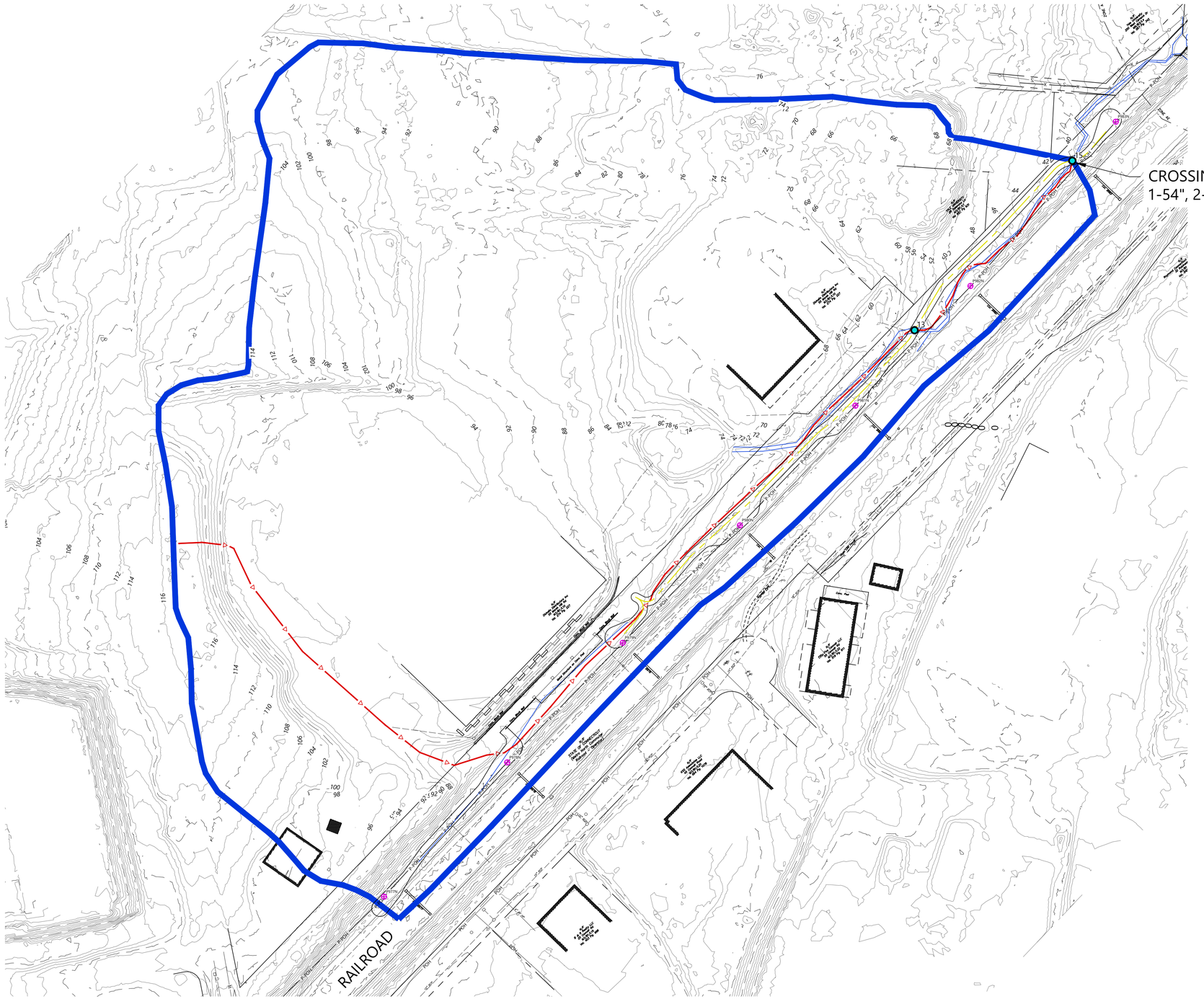
UI AVANGRID

REV.	DATE	BY	DESCRIPTION	APP.

UI 115-kV RR PROJECT MILVON TO WEST RIVER CROSSING 13 CULVERT MAP

1 OF 2

DR.	SFB	SCALE AS SHOWN	FILE:
CK.	JRD	NO.	REV.
APP.	MSP		
DATE:			



CROSSING 15: PROPOSED CULVERT OPTIONS
1-54", 2-42", 3-36"

PLAN	BY	DATE
SURVEYED		
NOTEBOOK NO.	REVIEWED	
	ROW. CHKD	

PROFILE	BY	DATE
SURVEYED		
NOTEBOOK NO.	REVIEWED	
	NOTES REDUCED	

Westwood
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Fax (952) 937-5822 Lansdale, PA 19446
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Westwood Surveying and Engineering, P.C.

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ANSI D

UNDERBUILD CONDUCTOR TYPE	NEUTRAL CONDUCTOR TYPE	OPGW TYPE	CONDUCTOR TYPE
TENSION	TENSION	TENSION	TENSION
DESIGN TEMP.	DESIGN TEMP.	DESIGN TEMP.	DESIGN TEMP.

YR. CONST. W/O

NOTES:
1. PRELIMINARY, NOT FOR CONSTRUCTION

REV.	DATE	BY	DESCRIPTION	APP.

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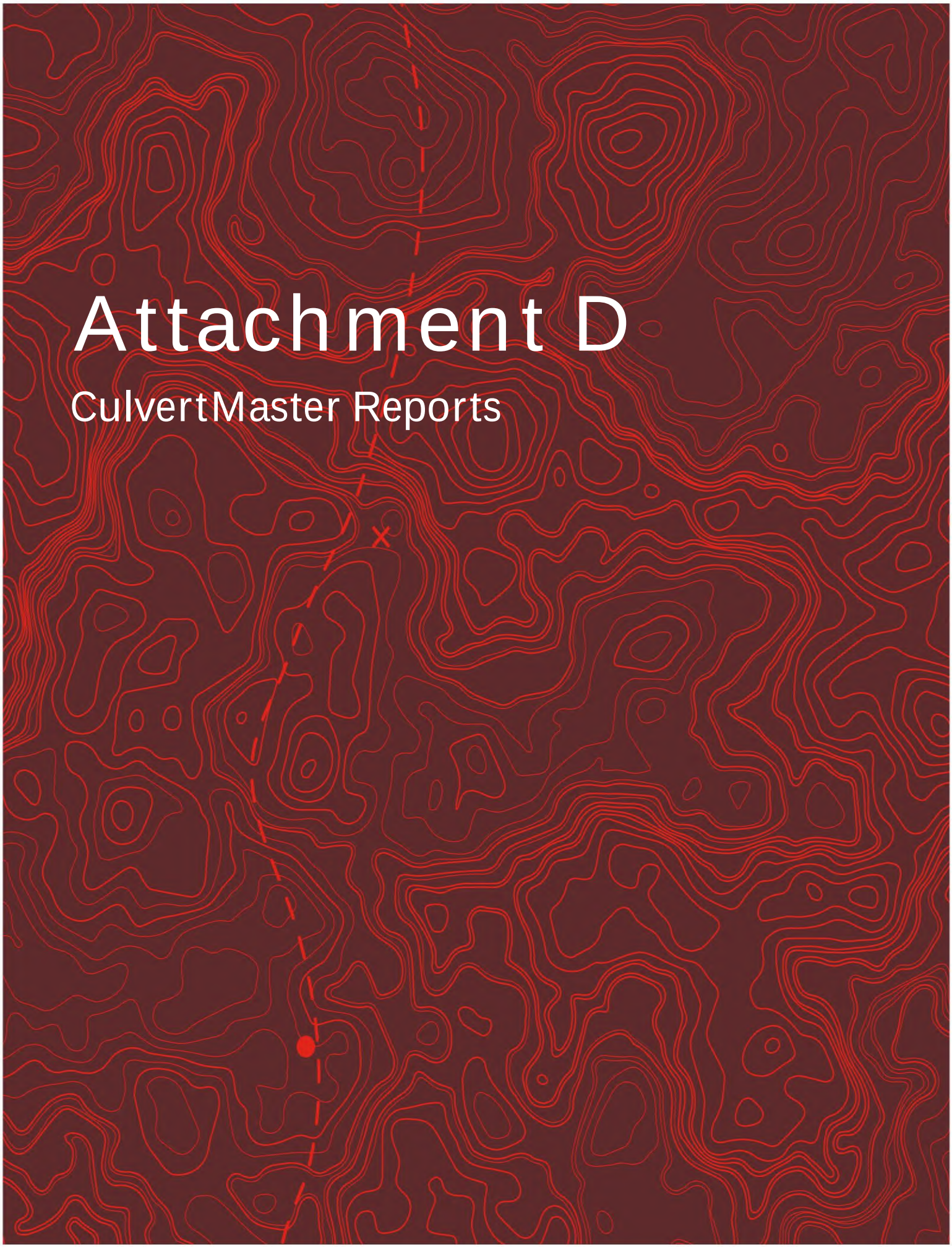
UI AVANGRID

REV.	DATE	BY	DESCRIPTION	APP.

UI 115-kV RR PROJECT MILVON TO WEST RIVER CROSSING 15 CULVERT MAP

2 OF 2

DR.	SFB	SCALE AS SHOWN	FILE:
CK.	JRD	NO.	REV.
APP.	MSP		
DATE:			



Attachment D

CulvertMaster Reports

Culvert Design Report
Crossing 13 10yr

Peak Discharge Method: User-Specified			
Design Discharge	57.80 cfs	Check Discharge	0.00 cfs

Grades Model: Inverts			
Invert Upstream	55.00 ft	Invert Downstream	54.75 ft
Length	50.00 ft	Slope	0.005000 ft/ft
Drop	0.25 ft		

Headwater Model: Unspecified

Tailwater Conditions: Constant Tailwater	
Tailwater Elevation	N/A ft

	Name	Description	Discharge	HW Elev.	Velocity
x	Trial-1	1-54 inch Circular	57.80 cfs	58.69 ft	7.45 ft/s
	Trial-2	2-42 inch Circular	57.80 cfs	57.77 ft	6.43 ft/s
	Trial-3	3-36 inch Circular	57.80 cfs	57.36 ft	5.91 ft/s

Culvert Design Report
Crossing 13 10yr

Design:Trial-1

Solve For: Headwater Elevation

Culvert Summary			
Allowable HW Elevation	N/A ft	Storm Event	Design
Computed Headwater Elevation	58.69 ft	Discharge	57.80 cfs
Headwater Depth/Height	0.82	Tailwater Elevation	N/A ft
Inlet Control HW Elev.	58.40 ft	Control Type	Outlet Control
Outlet Control HW Elev.	58.69 ft		

Grades			
Upstream Invert	55.00 ft	Downstream Invert	54.75 ft
Length	50.00 ft	Constructed Slope	0.005000 ft/ft

Hydraulic Profile			
Profile	M2	Depth, Downstream	2.21 ft
Slope Type	Mild	Normal Depth	2.95 ft
Flow Regime	Subcritical	Critical Depth	2.21 ft
Velocity Downstream	7.45 ft/s	Critical Slope	0.012577 ft/ft

Section			
Section Shape	Circular	Mannings Coefficient	0.024
Section Material	CMP	Span	4.50 ft
Section Size	54 inch	Rise	4.50 ft
Number Sections	1		

Outlet Control Properties			
Outlet Control HW Elev.	58.69 ft	Upstream Velocity Head	0.53 ft
Ke	0.90	Entrance Loss	0.48 ft

Inlet Control Properties			
Inlet Control HW Elev.	58.40 ft	Flow Control	Unsubmerged
Inlet Type	Projecting	Area Full	15.9 ft²
K	0.03400	HDS 5 Chart	2
M	1.50000	HDS 5 Scale	3
C	0.05530	Equation Form	1
Y	0.54000		

Culvert Design Report
Crossing 13 10yr

Design:Trial-2

Solve For: Headwater Elevation

Culvert Summary			
Allowable HW Elevation	N/A ft	Storm Event	Design
Computed Headwater Elevation	57.77 ft	Discharge	57.80 cfs
Headwater Depth/Height	0.79	Tailwater Elevation	N/A ft
Inlet Control HW Elev.	57.54 ft	Control Type	Outlet Control
Outlet Control HW Elev.	57.77 ft		

Grades			
Upstream Invert	55.00 ft	Downstream Invert	54.75 ft
Length	50.00 ft	Constructed Slope	0.005000 ft/ft

Hydraulic Profile			
Profile	M2	Depth, Downstream	1.66 ft
Slope Type	Mild	Normal Depth	2.26 ft
Flow Regime	Subcritical	Critical Depth	1.66 ft
Velocity Downstream	6.43 ft/s	Critical Slope	0.013501 ft/ft

Section			
Section Shape	Circular	Mannings Coefficient	0.024
Section Material	CMP	Span	3.50 ft
Section Size	42 inch	Rise	3.50 ft
Number Sections	2		

Outlet Control Properties			
Outlet Control HW Elev.	57.77 ft	Upstream Velocity Head	0.37 ft
Ke	0.90	Entrance Loss	0.33 ft

Inlet Control Properties			
Inlet Control HW Elev.	57.54 ft	Flow Control	Unsubmerged
Inlet Type	Projecting	Area Full	19.2 ft²
K	0.03400	HDS 5 Chart	2
M	1.50000	HDS 5 Scale	3
C	0.05530	Equation Form	1
Y	0.54000		

Culvert Design Report
Crossing 13 10yr

Design:Trial-3

Solve For: Headwater Elevation

Culvert Summary			
Allowable HW Elevation	N/A ft	Storm Event	Design
Computed Headwater Elevation	57.36 ft	Discharge	57.80 cfs
Headwater Depth/Height	0.79	Tailwater Elevation	N/A ft
Inlet Control HW Elev.	57.15 ft	Control Type	Outlet Control
Outlet Control HW Elev.	57.36 ft		

Grades			
Upstream Invert	55.00 ft	Downstream Invert	54.75 ft
Length	50.00 ft	Constructed Slope	0.005000 ft/ft

Hydraulic Profile			
Profile	M2	Depth, Downstream	1.41 ft
Slope Type	Mild	Normal Depth	1.95 ft
Flow Regime	Subcritical	Critical Depth	1.41 ft
Velocity Downstream	5.91 ft/s	Critical Slope	0.014155 ft/ft

Section			
Section Shape	Circular	Mannings Coefficient	0.024
Section Material	CMP	Span	3.00 ft
Section Size	36 inch	Rise	3.00 ft
Number Sections	3		

Outlet Control Properties			
Outlet Control HW Elev.	57.36 ft	Upstream Velocity Head	0.29 ft
Ke	0.90	Entrance Loss	0.27 ft

Inlet Control Properties			
Inlet Control HW Elev.	57.15 ft	Flow Control	Unsubmerged
Inlet Type	Projecting	Area Full	21.2 ft²
K	0.03400	HDS 5 Chart	2
M	1.50000	HDS 5 Scale	3
C	0.05530	Equation Form	1
Y	0.54000		

Culvert Design Report
Crossing 13 25yr

Peak Discharge Method: User-Specified			
Design Discharge	76.90 cfs	Check Discharge	0.00 cfs

Grades Model: Inverts			
Invert Upstream	55.00 ft	Invert Downstream	54.75 ft
Length	50.00 ft	Slope	0.005000 ft/ft
Drop	0.25 ft		

Headwater Model: Unspecified

Tailwater Conditions: Constant Tailwater	
Tailwater Elevation	N/A ft

	Name	Description	Discharge	HW Elev.	Velocity
x	Trial-1	1-54 inch Circular	76.90 cfs	59.39 ft	8.22 ft/s
	Trial-2	2-42 inch Circular	76.90 cfs	58.29 ft	7.08 ft/s
	Trial-3	3-36 inch Circular	76.90 cfs	57.80 ft	6.51 ft/s

Culvert Design Report
Crossing 13 25yr

Design:Trial-1

Solve For: Headwater Elevation

Culvert Summary			
Allowable HW Elevation	N/A ft	Storm Event	Design
Computed Headwater Elevation	59.39 ft	Discharge	76.90 cfs
Headwater Depth/Height	0.97	Tailwater Elevation	N/A ft
Inlet Control HW Elev.	59.13 ft	Control Type	Outlet Control
Outlet Control HW Elev.	59.39 ft		

Grades			
Upstream Invert	55.00 ft	Downstream Invert	54.75 ft
Length	50.00 ft	Constructed Slope	0.005000 ft/ft

Hydraulic Profile			
Profile	M2	Depth, Downstream	2.56 ft
Slope Type	Mild	Normal Depth	3.78 ft
Flow Regime	Subcritical	Critical Depth	2.56 ft
Velocity Downstream	8.22 ft/s	Critical Slope	0.013581 ft/ft

Section			
Section Shape	Circular	Mannings Coefficient	0.024
Section Material	CMP	Span	4.50 ft
Section Size	54 inch	Rise	4.50 ft
Number Sections	1		

Outlet Control Properties			
Outlet Control HW Elev.	59.39 ft	Upstream Velocity Head	0.64 ft
Ke	0.90	Entrance Loss	0.58 ft

Inlet Control Properties			
Inlet Control HW Elev.	59.13 ft	Flow Control	Unsubmerged
Inlet Type	Projecting	Area Full	15.9 ft²
K	0.03400	HDS 5 Chart	2
M	1.50000	HDS 5 Scale	3
C	0.05530	Equation Form	1
Y	0.54000		

Culvert Design Report
Crossing 13 25yr

Design:Trial-2

Solve For: Headwater Elevation

Culvert Summary					
Allowable HW Elevation	N/A	ft	Storm Event	Design	
Computed Headwater Elevation	58.29	ft	Discharge	76.90	cfs
Headwater Depth/Height	0.94		Tailwater Elevation	N/A	ft
Inlet Control HW Elev.	58.07	ft	Control Type	Outlet Control	
Outlet Control HW Elev.	58.29	ft			

Grades					
Upstream Invert	55.00	ft	Downstream Invert	54.75	ft
Length	50.00	ft	Constructed Slope	0.005000	ft/ft

Hydraulic Profile					
Profile	M2		Depth, Downstream	1.93	ft
Slope Type	Mild		Normal Depth	2.86	ft
Flow Regime	Subcritical		Critical Depth	1.93	ft
Velocity Downstream	7.08	ft/s	Critical Slope	0.014465	ft/ft

Section					
Section Shape	Circular		Mannings Coefficient	0.024	
Section Material	CMP		Span	3.50	ft
Section Size	42 inch		Rise	3.50	ft
Number Sections	2				

Outlet Control Properties					
Outlet Control HW Elev.	58.29	ft	Upstream Velocity Head	0.44	ft
Ke	0.90		Entrance Loss	0.40	ft

Inlet Control Properties					
Inlet Control HW Elev.	58.07	ft	Flow Control	Unsubmerged	
Inlet Type	Projecting		Area Full	19.2	ft²
K	0.03400		HDS 5 Chart	2	
M	1.50000		HDS 5 Scale	3	
C	0.05530		Equation Form	1	
Y	0.54000				

Culvert Design Report
Crossing 13 25yr

Design:Trial-3

Solve For: Headwater Elevation

Culvert Summary			
Allowable HW Elevation	N/A ft	Storm Event	Design
Computed Headwater Elevation	57.80 ft	Discharge	76.90 cfs
Headwater Depth/Height	0.93	Tailwater Elevation	N/A ft
Inlet Control HW Elev.	57.59 ft	Control Type	Outlet Control
Outlet Control HW Elev.	57.80 ft		

Grades			
Upstream Invert	55.00 ft	Downstream Invert	54.75 ft
Length	50.00 ft	Constructed Slope	0.005000 ft/ft

Hydraulic Profile			
Profile	M2	Depth, Downstream	1.63 ft
Slope Type	Mild	Normal Depth	2.47 ft
Flow Regime	Subcritical	Critical Depth	1.63 ft
Velocity Downstream	6.51 ft/s	Critical Slope	0.015133 ft/ft

Section			
Section Shape	Circular	Mannings Coefficient	0.024
Section Material	CMP	Span	3.00 ft
Section Size	36 inch	Rise	3.00 ft
Number Sections	3		

Outlet Control Properties			
Outlet Control HW Elev.	57.80 ft	Upstream Velocity Head	0.36 ft
Ke	0.90	Entrance Loss	0.32 ft

Inlet Control Properties			
Inlet Control HW Elev.	57.59 ft	Flow Control	Unsubmerged
Inlet Type	Projecting	Area Full	21.2 ft²
K	0.03400	HDS 5 Chart	2
M	1.50000	HDS 5 Scale	3
C	0.05530	Equation Form	1
Y	0.54000		

Culvert Design Report
Crossing 13 2yr

Peak Discharge Method: User-Specified			
Design Discharge	38.30 cfs	Check Discharge	0.00 cfs

Grades Model: Inverts			
Invert Upstream	55.00 ft	Invert Downstream	54.75 ft
Length	50.00 ft	Slope	0.005000 ft/ft
Drop	0.25 ft		

Headwater Model: Unspecified

Tailwater Conditions: Constant Tailwater	
Tailwater Elevation	N/A ft

	Name	Description	Discharge	HW Elev.	Velocity
x	Trial-1	1-54 inch Circular	38.30 cfs	57.92 ft	6.54 ft/s
	Trial-2	2-42 inch Circular	38.30 cfs	57.20 ft	5.66 ft/s
	Trial-3	3-36 inch Circular	38.30 cfs	56.87 ft	5.21 ft/s

Culvert Design Report
Crossing 13 2yr

Design:Trial-1

Solve For: Headwater Elevation

Culvert Summary			
Allowable HW Elevation	N/A ft	Storm Event	Design
Computed Headwater Elevation	57.92 ft	Discharge	38.30 cfs
Headwater Depth/Height	0.65	Tailwater Elevation	N/A ft
Inlet Control HW Elev.	57.62 ft	Control Type	Outlet Control
Outlet Control HW Elev.	57.92 ft		

Grades			
Upstream Invert	55.00 ft	Downstream Invert	54.75 ft
Length	50.00 ft	Constructed Slope	0.005000 ft/ft

Hydraulic Profile			
Profile	M2	Depth, Downstream	1.78 ft
Slope Type	Mild	Normal Depth	2.27 ft
Flow Regime	Subcritical	Critical Depth	1.78 ft
Velocity Downstream	6.54 ft/s	Critical Slope	0.011852 ft/ft

Section			
Section Shape	Circular	Mannings Coefficient	0.024
Section Material	CMP	Span	4.50 ft
Section Size	54 inch	Rise	4.50 ft
Number Sections	1		

Outlet Control Properties			
Outlet Control HW Elev.	57.92 ft	Upstream Velocity Head	0.40 ft
Ke	0.90	Entrance Loss	0.36 ft

Inlet Control Properties			
Inlet Control HW Elev.	57.62 ft	Flow Control	Unsubmerged
Inlet Type	Projecting	Area Full	15.9 ft²
K	0.03400	HDS 5 Chart	2
M	1.50000	HDS 5 Scale	3
C	0.05530	Equation Form	1
Y	0.54000		

Culvert Design Report
Crossing 13 2yr

Design:Trial-2

Solve For: Headwater Elevation

Culvert Summary					
Allowable HW Elevation	N/A	ft	Storm Event	Design	
Computed Headwater Elevation	57.20	ft	Discharge	38.30	cfs
Headwater Depth/Height	0.63		Tailwater Elevation	N/A	ft
Inlet Control HW Elev.	56.96	ft	Control Type	Outlet Control	
Outlet Control HW Elev.	57.20	ft			

Grades					
Upstream Invert	55.00	ft	Downstream Invert	54.75	ft
Length	50.00	ft	Constructed Slope	0.005000	ft/ft

Hydraulic Profile					
Profile	M2		Depth, Downstream	1.34	ft
Slope Type	Mild		Normal Depth	1.74	ft
Flow Regime	Subcritical		Critical Depth	1.34	ft
Velocity Downstream	5.66	ft/s	Critical Slope	0.012817	ft/ft

Section					
Section Shape	Circular		Mannings Coefficient	0.024	
Section Material	CMP		Span	3.50	ft
Section Size	42 inch		Rise	3.50	ft
Number Sections	2				

Outlet Control Properties					
Outlet Control HW Elev.	57.20	ft	Upstream Velocity Head	0.28	ft
Ke	0.90		Entrance Loss	0.25	ft

Inlet Control Properties					
Inlet Control HW Elev.	56.96	ft	Flow Control	Unsubmerged	
Inlet Type	Projecting		Area Full	19.2	ft²
K	0.03400		HDS 5 Chart	2	
M	1.50000		HDS 5 Scale	3	
C	0.05530		Equation Form	1	
Y	0.54000				

Culvert Design Report
Crossing 13 2yr

Design:Trial-3

Solve For: Headwater Elevation

Culvert Summary			
Allowable HW Elevation	N/A ft	Storm Event	Design
Computed Headwater Elevation	56.87 ft	Discharge	38.30 cfs
Headwater Depth/Height	0.62	Tailwater Elevation	N/A ft
Inlet Control HW Elev.	56.66 ft	Control Type	Outlet Control
Outlet Control HW Elev.	56.87 ft		

Grades			
Upstream Invert	55.00 ft	Downstream Invert	54.75 ft
Length	50.00 ft	Constructed Slope	0.005000 ft/ft

Hydraulic Profile			
Profile	M2	Depth, Downstream	1.14 ft
Slope Type	Mild	Normal Depth	1.50 ft
Flow Regime	Subcritical	Critical Depth	1.14 ft
Velocity Downstream	5.21 ft/s	Critical Slope	0.013480 ft/ft

Section			
Section Shape	Circular	Mannings Coefficient	0.024
Section Material	CMP	Span	3.00 ft
Section Size	36 inch	Rise	3.00 ft
Number Sections	3		

Outlet Control Properties			
Outlet Control HW Elev.	56.87 ft	Upstream Velocity Head	0.23 ft
Ke	0.90	Entrance Loss	0.20 ft

Inlet Control Properties			
Inlet Control HW Elev.	56.66 ft	Flow Control	Unsubmerged
Inlet Type	Projecting	Area Full	21.2 ft²
K	0.03400	HDS 5 Chart	2
M	1.50000	HDS 5 Scale	3
C	0.05530	Equation Form	1
Y	0.54000		

Culvert Design Report
Crossing 13 50yr

Peak Discharge Method: User-Specified			
Design Discharge	94.80 cfs	Check Discharge	0.00 cfs

Grades Model: Inverts			
Invert Upstream	55.00 ft	Invert Downstream	54.75 ft
Length	50.00 ft	Slope	0.005000 ft/ft
Drop	0.25 ft		

Headwater Model: Unspecified

Tailwater Conditions: Constant Tailwater	
Tailwater Elevation	N/A ft

	Name	Description	Discharge	HW Elev.	Velocity
x	Trial-1	1-54 inch Circular	94.80 cfs	60.02 ft	8.90 ft/s
	Trial-2	2-42 inch Circular	94.80 cfs	58.77 ft	7.65 ft/s
	Trial-3	3-36 inch Circular	94.80 cfs	58.21 ft	7.03 ft/s

Culvert Design Report
Crossing 13 50yr

Design:Trial-1

Solve For: Headwater Elevation

Culvert Summary			
Allowable HW Elevation	N/A ft	Storm Event	Design
Computed Headwater Elevation	60.02 ft	Discharge	94.80 cfs
Headwater Depth/Height	1.12	Tailwater Elevation	N/A ft
Inlet Control HW Elev.	59.80 ft	Control Type	Outlet Control
Outlet Control HW Elev.	60.02 ft		

Grades			
Upstream Invert	55.00 ft	Downstream Invert	54.75 ft
Length	50.00 ft	Constructed Slope	0.005000 ft/ft

Hydraulic Profile			
Profile	M2	Depth, Downstream	2.86 ft
Slope Type	Mild	Normal Depth	N/A ft
Flow Regime	Subcritical	Critical Depth	2.86 ft
Velocity Downstream	8.90 ft/s	Critical Slope	0.014797 ft/ft

Section			
Section Shape	Circular	Mannings Coefficient	0.024
Section Material	CMP	Span	4.50 ft
Section Size	54 inch	Rise	4.50 ft
Number Sections	1		

Outlet Control Properties			
Outlet Control HW Elev.	60.02 ft	Upstream Velocity Head	0.76 ft
Ke	0.90	Entrance Loss	0.68 ft

Inlet Control Properties			
Inlet Control HW Elev.	59.80 ft	Flow Control	N/A
Inlet Type	Projecting	Area Full	15.9 ft²
K	0.03400	HDS 5 Chart	2
M	1.50000	HDS 5 Scale	3
C	0.05530	Equation Form	1
Y	0.54000		

Culvert Design Report
Crossing 13 50yr

Design:Trial-2

Solve For: Headwater Elevation

Culvert Summary			
Allowable HW Elevation	N/A ft	Storm Event	Design
Computed Headwater Elevation	58.77 ft	Discharge	94.80 cfs
Headwater Depth/Height	1.08	Tailwater Elevation	N/A ft
Inlet Control HW Elev.	58.56 ft	Control Type	Outlet Control
Outlet Control HW Elev.	58.77 ft		

Grades			
Upstream Invert	55.00 ft	Downstream Invert	54.75 ft
Length	50.00 ft	Constructed Slope	0.005000 ft/ft

Hydraulic Profile			
Profile	M2	Depth, Downstream	2.15 ft
Slope Type	Mild	Normal Depth	N/A ft
Flow Regime	Subcritical	Critical Depth	2.15 ft
Velocity Downstream	7.65 ft/s	Critical Slope	0.015617 ft/ft

Section			
Section Shape	Circular	Mannings Coefficient	0.024
Section Material	CMP	Span	3.50 ft
Section Size	42 inch	Rise	3.50 ft
Number Sections	2		

Outlet Control Properties			
Outlet Control HW Elev.	58.77 ft	Upstream Velocity Head	0.52 ft
Ke	0.90	Entrance Loss	0.47 ft

Inlet Control Properties			
Inlet Control HW Elev.	58.56 ft	Flow Control	N/A
Inlet Type	Projecting	Area Full	19.2 ft²
K	0.03400	HDS 5 Chart	2
M	1.50000	HDS 5 Scale	3
C	0.05530	Equation Form	1
Y	0.54000		

Culvert Design Report
Crossing 13 50yr

Design:Trial-3

Solve For: Headwater Elevation

Culvert Summary			
Allowable HW Elevation	N/A ft	Storm Event	Design
Computed Headwater Elevation	58.21 ft	Discharge	94.80 cfs
Headwater Depth/Height	1.07	Tailwater Elevation	N/A ft
Inlet Control HW Elev.	58.01 ft	Control Type	Outlet Control
Outlet Control HW Elev.	58.21 ft		

Grades			
Upstream Invert	55.00 ft	Downstream Invert	54.75 ft
Length	50.00 ft	Constructed Slope	0.005000 ft/ft

Hydraulic Profile			
Profile	M2	Depth, Downstream	1.82 ft
Slope Type	Mild	Normal Depth	N/A ft
Flow Regime	Subcritical	Critical Depth	1.82 ft
Velocity Downstream	7.03 ft/s	Critical Slope	0.016300 ft/ft

Section			
Section Shape	Circular	Mannings Coefficient	0.024
Section Material	CMP	Span	3.00 ft
Section Size	36 inch	Rise	3.00 ft
Number Sections	3		

Outlet Control Properties			
Outlet Control HW Elev.	58.21 ft	Upstream Velocity Head	0.42 ft
Ke	0.90	Entrance Loss	0.38 ft

Inlet Control Properties			
Inlet Control HW Elev.	58.01 ft	Flow Control	N/A
Inlet Type	Projecting	Area Full	21.2 ft²
K	0.03400	HDS 5 Chart	2
M	1.50000	HDS 5 Scale	3
C	0.05530	Equation Form	1
Y	0.54000		

Culvert Design Report
Crossing 15 10yr

Peak Discharge Method: User-Specified			
Design Discharge	60.70 cfs	Check Discharge	0.00 cfs

Grades Model: Inverts			
Invert Upstream	37.50 ft	Invert Downstream	37.25 ft
Length	50.00 ft	Slope	0.005000 ft/ft
Drop	0.25 ft		

Headwater Model: Unspecified

Tailwater Conditions: Constant Tailwater	
Tailwater Elevation	N/A ft

	Name	Description	Discharge	HW Elev.	Velocity
x	Trial-1	1-54 inch Circular	60.70 cfs	41.30 ft	7.57 ft/s
	Trial-2	2-42 inch Circular	60.70 cfs	40.36 ft	6.54 ft/s
	Trial-3	3-36 inch Circular	60.70 cfs	39.93 ft	6.01 ft/s

Culvert Design Report
Crossing 15 10yr

Design:Trial-1

Solve For: Headwater Elevation

Culvert Summary			
Allowable HW Elevation	N/A ft	Storm Event	Design
Computed Headwater Elevation	41.30 ft	Discharge	60.70 cfs
Headwater Depth/Height	0.84	Tailwater Elevation	N/A ft
Inlet Control HW Elev.	41.01 ft	Control Type	Outlet Control
Outlet Control HW Elev.	41.30 ft		

Grades			
Upstream Invert	37.50 ft	Downstream Invert	37.25 ft
Length	50.00 ft	Constructed Slope	0.005000 ft/ft

Hydraulic Profile			
Profile	M2	Depth, Downstream	2.26 ft
Slope Type	Mild	Normal Depth	3.06 ft
Flow Regime	Subcritical	Critical Depth	2.26 ft
Velocity Downstream	7.57 ft/s	Critical Slope	0.012712 ft/ft

Section			
Section Shape	Circular	Mannings Coefficient	0.024
Section Material	CMP	Span	4.50 ft
Section Size	54 inch	Rise	4.50 ft
Number Sections	1		

Outlet Control Properties			
Outlet Control HW Elev.	41.30 ft	Upstream Velocity Head	0.55 ft
Ke	0.90	Entrance Loss	0.49 ft

Inlet Control Properties			
Inlet Control HW Elev.	41.01 ft	Flow Control	Unsubmerged
Inlet Type	Projecting	Area Full	15.9 ft²
K	0.03400	HDS 5 Chart	2
M	1.50000	HDS 5 Scale	3
C	0.05530	Equation Form	1
Y	0.54000		

Culvert Design Report
Crossing 15 10yr

Design:Trial-2

Solve For: Headwater Elevation

Culvert Summary			
Allowable HW Elevation	N/A ft	Storm Event	Design
Computed Headwater Elevation	40.36 ft	Discharge	60.70 cfs
Headwater Depth/Height	0.82	Tailwater Elevation	N/A ft
Inlet Control HW Elev.	40.12 ft	Control Type	Outlet Control
Outlet Control HW Elev.	40.36 ft		

Grades			
Upstream Invert	37.50 ft	Downstream Invert	37.25 ft
Length	50.00 ft	Constructed Slope	0.005000 ft/ft

Hydraulic Profile			
Profile	M2	Depth, Downstream	1.70 ft
Slope Type	Mild	Normal Depth	2.34 ft
Flow Regime	Subcritical	Critical Depth	1.70 ft
Velocity Downstream	6.54 ft/s	Critical Slope	0.013637 ft/ft

Section			
Section Shape	Circular	Mannings Coefficient	0.024
Section Material	CMP	Span	3.50 ft
Section Size	42 inch	Rise	3.50 ft
Number Sections	2		

Outlet Control Properties			
Outlet Control HW Elev.	40.36 ft	Upstream Velocity Head	0.38 ft
Ke	0.90	Entrance Loss	0.34 ft

Inlet Control Properties			
Inlet Control HW Elev.	40.12 ft	Flow Control	Unsubmerged
Inlet Type	Projecting	Area Full	19.2 ft²
K	0.03400	HDS 5 Chart	2
M	1.50000	HDS 5 Scale	3
C	0.05530	Equation Form	1
Y	0.54000		

Culvert Design Report
Crossing 15 10yr

Design:Trial-3

Solve For: Headwater Elevation

Culvert Summary			
Allowable HW Elevation	N/A ft	Storm Event	Design
Computed Headwater Elevation	39.93 ft	Discharge	60.70 cfs
Headwater Depth/Height	0.81	Tailwater Elevation	N/A ft
Inlet Control HW Elev.	39.71 ft	Control Type	Outlet Control
Outlet Control HW Elev.	39.93 ft		

Grades			
Upstream Invert	37.50 ft	Downstream Invert	37.25 ft
Length	50.00 ft	Constructed Slope	0.005000 ft/ft

Hydraulic Profile			
Profile	M2	Depth, Downstream	1.44 ft
Slope Type	Mild	Normal Depth	2.02 ft
Flow Regime	Subcritical	Critical Depth	1.44 ft
Velocity Downstream	6.01 ft/s	Critical Slope	0.014287 ft/ft

Section			
Section Shape	Circular	Mannings Coefficient	0.024
Section Material	CMP	Span	3.00 ft
Section Size	36 inch	Rise	3.00 ft
Number Sections	3		

Outlet Control Properties			
Outlet Control HW Elev.	39.93 ft	Upstream Velocity Head	0.30 ft
Ke	0.90	Entrance Loss	0.27 ft

Inlet Control Properties			
Inlet Control HW Elev.	39.71 ft	Flow Control	Unsubmerged
Inlet Type	Projecting	Area Full	21.2 ft²
K	0.03400	HDS 5 Chart	2
M	1.50000	HDS 5 Scale	3
C	0.05530	Equation Form	1
Y	0.54000		

Culvert Design Report
Crossing 15 25yr

Peak Discharge Method: User-Specified			
Design Discharge	80.70 cfs	Check Discharge	0.00 cfs

Grades Model: Inverts			
Invert Upstream	37.50 ft	Invert Downstream	37.25 ft
Length	50.00 ft	Slope	0.005000 ft/ft
Drop	0.25 ft		

Headwater Model: Unspecified

Tailwater Conditions: Constant Tailwater	
Tailwater Elevation	N/A ft

	Name	Description	Discharge	HW Elev.	Velocity
x	Trial-1	1-54 inch Circular	80.70 cfs	42.02 ft	8.36 ft/s
	Trial-2	2-42 inch Circular	80.70 cfs	40.89 ft	7.21 ft/s
	Trial-3	3-36 inch Circular	80.70 cfs	40.39 ft	6.62 ft/s

Culvert Design Report
Crossing 15 25yr

Design:Trial-1

Solve For: Headwater Elevation

Culvert Summary			
Allowable HW Elevation	N/A ft	Storm Event	Design
Computed Headwater Elevation	42.02 ft	Discharge	80.70 cfs
Headwater Depth/Height	1.01	Tailwater Elevation	N/A ft
Inlet Control HW Elev.	41.77 ft	Control Type	Outlet Control
Outlet Control HW Elev.	42.02 ft		

Grades			
Upstream Invert	37.50 ft	Downstream Invert	37.25 ft
Length	50.00 ft	Constructed Slope	0.005000 ft/ft

Hydraulic Profile			
Profile	M2	Depth, Downstream	2.63 ft
Slope Type	Mild	Normal Depth	4.11 ft
Flow Regime	Subcritical	Critical Depth	2.63 ft
Velocity Downstream	8.36 ft/s	Critical Slope	0.013817 ft/ft

Section			
Section Shape	Circular	Mannings Coefficient	0.024
Section Material	CMP	Span	4.50 ft
Section Size	54 inch	Rise	4.50 ft
Number Sections	1		

Outlet Control Properties			
Outlet Control HW Elev.	42.02 ft	Upstream Velocity Head	0.67 ft
Ke	0.90	Entrance Loss	0.60 ft

Inlet Control Properties			
Inlet Control HW Elev.	41.77 ft	Flow Control	Unsubmerged
Inlet Type	Projecting	Area Full	15.9 ft²
K	0.03400	HDS 5 Chart	2
M	1.50000	HDS 5 Scale	3
C	0.05530	Equation Form	1
Y	0.54000		

Culvert Design Report
Crossing 15 25yr

Design:Trial-2

Solve For: Headwater Elevation

Culvert Summary			
Allowable HW Elevation	N/A ft	Storm Event	Design
Computed Headwater Elevation	40.89 ft	Discharge	80.70 cfs
Headwater Depth/Height	0.97	Tailwater Elevation	N/A ft
Inlet Control HW Elev.	40.67 ft	Control Type	Outlet Control
Outlet Control HW Elev.	40.89 ft		

Grades			
Upstream Invert	37.50 ft	Downstream Invert	37.25 ft
Length	50.00 ft	Constructed Slope	0.005000 ft/ft

Hydraulic Profile			
Profile	M2	Depth, Downstream	1.98 ft
Slope Type	Mild	Normal Depth	3.05 ft
Flow Regime	Subcritical	Critical Depth	1.98 ft
Velocity Downstream	7.21 ft/s	Critical Slope	0.014688 ft/ft

Section			
Section Shape	Circular	Mannings Coefficient	0.024
Section Material	CMP	Span	3.50 ft
Section Size	42 inch	Rise	3.50 ft
Number Sections	2		

Outlet Control Properties			
Outlet Control HW Elev.	40.89 ft	Upstream Velocity Head	0.46 ft
Ke	0.90	Entrance Loss	0.41 ft

Inlet Control Properties			
Inlet Control HW Elev.	40.67 ft	Flow Control	Unsubmerged
Inlet Type	Projecting	Area Full	19.2 ft²
K	0.03400	HDS 5 Chart	2
M	1.50000	HDS 5 Scale	3
C	0.05530	Equation Form	1
Y	0.54000		

Culvert Design Report
Crossing 15 25yr

Design:Trial-3

Solve For: Headwater Elevation

Culvert Summary			
Allowable HW Elevation	N/A ft	Storm Event	Design
Computed Headwater Elevation	40.39 ft	Discharge	80.70 cfs
Headwater Depth/Height	0.96	Tailwater Elevation	N/A ft
Inlet Control HW Elev.	40.18 ft	Control Type	Outlet Control
Outlet Control HW Elev.	40.39 ft		

Grades			
Upstream Invert	37.50 ft	Downstream Invert	37.25 ft
Length	50.00 ft	Constructed Slope	0.005000 ft/ft

Hydraulic Profile			
Profile	M2	Depth, Downstream	1.68 ft
Slope Type	Mild	Normal Depth	2.63 ft
Flow Regime	Subcritical	Critical Depth	1.68 ft
Velocity Downstream	6.62 ft/s	Critical Slope	0.015364 ft/ft

Section			
Section Shape	Circular	Mannings Coefficient	0.024
Section Material	CMP	Span	3.00 ft
Section Size	36 inch	Rise	3.00 ft
Number Sections	3		

Outlet Control Properties			
Outlet Control HW Elev.	40.39 ft	Upstream Velocity Head	0.37 ft
Ke	0.90	Entrance Loss	0.33 ft

Inlet Control Properties			
Inlet Control HW Elev.	40.18 ft	Flow Control	Unsubmerged
Inlet Type	Projecting	Area Full	21.2 ft²
K	0.03400	HDS 5 Chart	2
M	1.50000	HDS 5 Scale	3
C	0.05530	Equation Form	1
Y	0.54000		

Culvert Design Report
Crossing 15 2yr

Peak Discharge Method: User-Specified			
Design Discharge	40.20 cfs	Check Discharge	0.00 cfs

Grades Model: Inverts			
Invert Upstream	37.50 ft	Invert Downstream	37.25 ft
Length	50.00 ft	Slope	0.005000 ft/ft
Drop	0.25 ft		

Headwater Model: Unspecified

Tailwater Conditions: Constant Tailwater	
Tailwater Elevation	N/A ft

	Name	Description	Discharge	HW Elev.	Velocity
x	Trial-1	1-54 inch Circular	40.20 cfs	40.50 ft	6.64 ft/s
	Trial-2	2-42 inch Circular	40.20 cfs	39.76 ft	5.74 ft/s
	Trial-3	3-36 inch Circular	40.20 cfs	39.42 ft	5.28 ft/s

Culvert Design Report
Crossing 15 2yr

Design:Trial-1

Solve For: Headwater Elevation

Culvert Summary			
Allowable HW Elevation	N/A ft	Storm Event	Design
Computed Headwater Elevation	40.50 ft	Discharge	40.20 cfs
Headwater Depth/Height	0.67	Tailwater Elevation	N/A ft
Inlet Control HW Elev.	40.20 ft	Control Type	Outlet Control
Outlet Control HW Elev.	40.50 ft		

Grades			
Upstream Invert	37.50 ft	Downstream Invert	37.25 ft
Length	50.00 ft	Constructed Slope	0.005000 ft/ft

Hydraulic Profile			
Profile	M2	Depth, Downstream	1.83 ft
Slope Type	Mild	Normal Depth	2.34 ft
Flow Regime	Subcritical	Critical Depth	1.83 ft
Velocity Downstream	6.64 ft/s	Critical Slope	0.011908 ft/ft

Section			
Section Shape	Circular	Mannings Coefficient	0.024
Section Material	CMP	Span	4.50 ft
Section Size	54 inch	Rise	4.50 ft
Number Sections	1		

Outlet Control Properties			
Outlet Control HW Elev.	40.50 ft	Upstream Velocity Head	0.42 ft
Ke	0.90	Entrance Loss	0.37 ft

Inlet Control Properties			
Inlet Control HW Elev.	40.20 ft	Flow Control	Unsubmerged
Inlet Type	Projecting	Area Full	15.9 ft²
K	0.03400	HDS 5 Chart	2
M	1.50000	HDS 5 Scale	3
C	0.05530	Equation Form	1
Y	0.54000		

Culvert Design Report
Crossing 15 2yr

Design:Trial-2

Solve For: Headwater Elevation

Culvert Summary			
Allowable HW Elevation	N/A ft	Storm Event	Design
Computed Headwater Elevation	39.76 ft	Discharge	40.20 cfs
Headwater Depth/Height	0.64	Tailwater Elevation	N/A ft
Inlet Control HW Elev.	39.52 ft	Control Type	Outlet Control
Outlet Control HW Elev.	39.76 ft		

Grades			
Upstream Invert	37.50 ft	Downstream Invert	37.25 ft
Length	50.00 ft	Constructed Slope	0.005000 ft/ft

Hydraulic Profile			
Profile	M2	Depth, Downstream	1.37 ft
Slope Type	Mild	Normal Depth	1.79 ft
Flow Regime	Subcritical	Critical Depth	1.37 ft
Velocity Downstream	5.74 ft/s	Critical Slope	0.012868 ft/ft

Section			
Section Shape	Circular	Mannings Coefficient	0.024
Section Material	CMP	Span	3.50 ft
Section Size	42 inch	Rise	3.50 ft
Number Sections	2		

Outlet Control Properties			
Outlet Control HW Elev.	39.76 ft	Upstream Velocity Head	0.29 ft
Ke	0.90	Entrance Loss	0.26 ft

Inlet Control Properties			
Inlet Control HW Elev.	39.52 ft	Flow Control	Unsubmerged
Inlet Type	Projecting	Area Full	19.2 ft²
K	0.03400	HDS 5 Chart	2
M	1.50000	HDS 5 Scale	3
C	0.05530	Equation Form	1
Y	0.54000		

Culvert Design Report
Crossing 15 2yr

Design:Trial-3

Solve For: Headwater Elevation

Culvert Summary			
Allowable HW Elevation	N/A ft	Storm Event	Design
Computed Headwater Elevation	39.42 ft	Discharge	40.20 cfs
Headwater Depth/Height	0.64	Tailwater Elevation	N/A ft
Inlet Control HW Elev.	39.21 ft	Control Type	Outlet Control
Outlet Control HW Elev.	39.42 ft		

Grades			
Upstream Invert	37.50 ft	Downstream Invert	37.25 ft
Length	50.00 ft	Constructed Slope	0.005000 ft/ft

Hydraulic Profile			
Profile	M2	Depth, Downstream	1.16 ft
Slope Type	Mild	Normal Depth	1.54 ft
Flow Regime	Subcritical	Critical Depth	1.16 ft
Velocity Downstream	5.28 ft/s	Critical Slope	0.013534 ft/ft

Section			
Section Shape	Circular	Mannings Coefficient	0.024
Section Material	CMP	Span	3.00 ft
Section Size	36 inch	Rise	3.00 ft
Number Sections	3		

Outlet Control Properties			
Outlet Control HW Elev.	39.42 ft	Upstream Velocity Head	0.23 ft
Ke	0.90	Entrance Loss	0.21 ft

Inlet Control Properties			
Inlet Control HW Elev.	39.21 ft	Flow Control	Unsubmerged
Inlet Type	Projecting	Area Full	21.2 ft²
K	0.03400	HDS 5 Chart	2
M	1.50000	HDS 5 Scale	3
C	0.05530	Equation Form	1
Y	0.54000		

Culvert Design Report
Crossing 15 50yr

Peak Discharge Method: User-Specified			
Design Discharge	99.50 cfs	Check Discharge	0.00 cfs

Grades Model: Inverts			
Invert Upstream	37.50 ft	Invert Downstream	37.25 ft
Length	50.00 ft	Slope	0.005000 ft/ft
Drop	0.25 ft		

Headwater Model: Unspecified

Tailwater Conditions: Constant Tailwater	
Tailwater Elevation	N/A ft

	Name	Description	Discharge	HW Elev.	Velocity
x	Trial-1	1-54 inch Circular	99.50 cfs	42.69 ft	9.07 ft/s
	Trial-2	2-42 inch Circular	99.50 cfs	41.39 ft	7.79 ft/s
	Trial-3	3-36 inch Circular	99.50 cfs	40.81 ft	7.16 ft/s

Culvert Design Report
Crossing 15 50yr

Design:Trial-1

Solve For: Headwater Elevation

Culvert Summary			
Allowable HW Elevation	N/A ft	Storm Event	Design
Computed Headwater Elevation	42.69 ft	Discharge	99.50 cfs
Headwater Depth/Height	1.15	Tailwater Elevation	N/A ft
Inlet Control HW Elev.	42.47 ft	Control Type	Outlet Control
Outlet Control HW Elev.	42.69 ft		

Grades			
Upstream Invert	37.50 ft	Downstream Invert	37.25 ft
Length	50.00 ft	Constructed Slope	0.005000 ft/ft

Hydraulic Profile			
Profile	M2	Depth, Downstream	2.93 ft
Slope Type	Mild	Normal Depth	N/A ft
Flow Regime	Subcritical	Critical Depth	2.93 ft
Velocity Downstream	9.07 ft/s	Critical Slope	0.015164 ft/ft

Section			
Section Shape	Circular	Mannings Coefficient	0.024
Section Material	CMP	Span	4.50 ft
Section Size	54 inch	Rise	4.50 ft
Number Sections	1		

Outlet Control Properties			
Outlet Control HW Elev.	42.69 ft	Upstream Velocity Head	0.79 ft
Ke	0.90	Entrance Loss	0.71 ft

Inlet Control Properties			
Inlet Control HW Elev.	42.47 ft	Flow Control	N/A
Inlet Type	Projecting	Area Full	15.9 ft²
K	0.03400	HDS 5 Chart	2
M	1.50000	HDS 5 Scale	3
C	0.05530	Equation Form	1
Y	0.54000		

Culvert Design Report
Crossing 15 50yr

Design:Trial-2

Solve For: Headwater Elevation

Culvert Summary			
Allowable HW Elevation	N/A ft	Storm Event	Design
Computed Headwater Elevation	41.39 ft	Discharge	99.50 cfs
Headwater Depth/Height	1.11	Tailwater Elevation	N/A ft
Inlet Control HW Elev.	41.19 ft	Control Type	Outlet Control
Outlet Control HW Elev.	41.39 ft		

Grades			
Upstream Invert	37.50 ft	Downstream Invert	37.25 ft
Length	50.00 ft	Constructed Slope	0.005000 ft/ft

Hydraulic Profile			
Profile	M2	Depth, Downstream	2.20 ft
Slope Type	Mild	Normal Depth	N/A ft
Flow Regime	Subcritical	Critical Depth	2.20 ft
Velocity Downstream	7.79 ft/s	Critical Slope	0.015963 ft/ft

Section			
Section Shape	Circular	Mannings Coefficient	0.024
Section Material	CMP	Span	3.50 ft
Section Size	42 inch	Rise	3.50 ft
Number Sections	2		

Outlet Control Properties			
Outlet Control HW Elev.	41.39 ft	Upstream Velocity Head	0.54 ft
Ke	0.90	Entrance Loss	0.49 ft

Inlet Control Properties			
Inlet Control HW Elev.	41.19 ft	Flow Control	N/A
Inlet Type	Projecting	Area Full	19.2 ft²
K	0.03400	HDS 5 Chart	2
M	1.50000	HDS 5 Scale	3
C	0.05530	Equation Form	1
Y	0.54000		

Culvert Design Report
Crossing 15 50yr

Design:Trial-3

Solve For: Headwater Elevation

Culvert Summary			
Allowable HW Elevation	N/A ft	Storm Event	Design
Computed Headwater Elevation	40.81 ft	Discharge	99.50 cfs
Headwater Depth/Height	1.10	Tailwater Elevation	N/A ft
Inlet Control HW Elev.	40.61 ft	Control Type	Outlet Control
Outlet Control HW Elev.	40.81 ft		

Grades			
Upstream Invert	37.50 ft	Downstream Invert	37.25 ft
Length	50.00 ft	Constructed Slope	0.005000 ft/ft

Hydraulic Profile			
Profile	M2	Depth, Downstream	1.87 ft
Slope Type	Mild	Normal Depth	N/A ft
Flow Regime	Subcritical	Critical Depth	1.87 ft
Velocity Downstream	7.16 ft/s	Critical Slope	0.016649 ft/ft

Section			
Section Shape	Circular	Mannings Coefficient	0.024
Section Material	CMP	Span	3.00 ft
Section Size	36 inch	Rise	3.00 ft
Number Sections	3		

Outlet Control Properties			
Outlet Control HW Elev.	40.81 ft	Upstream Velocity Head	0.44 ft
Ke	0.90	Entrance Loss	0.39 ft

Inlet Control Properties			
Inlet Control HW Elev.	40.61 ft	Flow Control	N/A
Inlet Type	Projecting	Area Full	21.2 ft²
K	0.03400	HDS 5 Chart	2
M	1.50000	HDS 5 Scale	3
C	0.05530	Equation Form	1
Y	0.54000		

Appendix F

Connecticut Siting Council Final Determination

STATE OF CONNECTICUT
CONNECTICUT SITING COUNCIL
Ten Franklin Square, New Britain, CT 06051
Phone: (860) 827-2935 Fax: (860) 827-2950
E-Mail: siting.council@ct.gov
Web Site: portal.ct.gov/csc

VIA ELECTRONIC MAIL

August 19, 2022

Bruce McDermott, Esq.
Murtha Cullina LLP
One Century Tower
265 Church Street
New Haven, CT 06510-1220
bmcdermott@murthalaw.com

RE: **DOCKET NO. 508** – The United Illuminating Company (UI) application for a Certificate of Environmental Compatibility and Public Need for the Milvon to West River Railroad Transmission Line 115-kV Rebuild Project that consists of the relocation and rebuild of its existing 115- kilovolt (kV) electric transmission lines from the railroad catenary structures to new steel monopole structures and related modifications to facilitate interconnection of the rebuilt 115-kV electric transmission lines at UI's existing Milvon, Woodmont, Allings Crossing, Elmwest and West River substations along approximately 9.5 miles of the Connecticut Department of Transportation's Metro-North Railroad corridor traversing the municipalities of Milford, Orange, West Haven and New Haven, Connecticut.

Dear Attorney McDermott:

By its Decision and Order dated August 18, 2022, the Connecticut Siting Council (Council) granted a Certificate of Environmental Compatibility and Public Need (Certificate) for the Milvon to West River Railroad Transmission Line 115-kV Rebuild Project that consists of the relocation and rebuild of its existing 115- kilovolt (kV) electric transmission lines from the railroad catenary structures to new steel monopole structures and related modifications to facilitate interconnection of the rebuilt 115-kV electric transmission lines at UI's existing Milvon, Woodmont, Allings Crossing, Elmwest and West River substations along approximately 9.5 miles of the Connecticut Department of Transportation's Metro-North Railroad corridor traversing the municipalities of Milford, Orange, West Haven and New Haven, Connecticut.

Enclosed are the Council's Certificate, Findings of Fact, Opinion, and Decision and Order.

Sincerely,



Melanie A. Bachman
Executive Director

MB/MP/lm

Enclosures (4)
c: Service List dated April 21, 2022
State Documents Librarian (csl.cda@ct.gov)

STATE OF CONNECTICUT
CONNECTICUT SITING COUNCIL
Ten Franklin Square, New Britain, CT 06051
Phone: (860) 827-2935 Fax: (860) 827-2950
E-Mail: siting.council@ct.gov
Web Site: portal.ct.gov/csc

CERTIFICATE
OF
ENVIRONMENTAL COMPATIBILITY AND PUBLIC NEED
DOCKET NO. 508

Pursuant to General Statutes § 16-50k, as amended, the Connecticut Siting Council hereby issues a Certificate of Environmental Compatibility and Public Need to The United Illuminating Company (UI) for the Milvon to West River Railroad Transmission Line 115-kV Rebuild Project that consists of the relocation and rebuild of its existing 115-kilovolt (kV) electric transmission lines from the railroad catenary structures to new steel monopole structures and related modifications to facilitate interconnection of the rebuilt 115-kV electric transmission lines at UI's existing Milvon, Woodmont, Allings Crossing, Elmwest and West River substations along approximately 9.5 miles of the Connecticut Department of Transportation's Metro-North Railroad corridor traversing the municipalities of Milford, Orange, West Haven and New Haven, Connecticut. This Certificate is issued in accordance with and subject to the terms and conditions set forth in the Decision and Order of the Council on August 18, 2022.

By order of the Council,

Melanie A. Bachman, Executive Director

August 18, 2022

STATE OF CONNECTICUT
CONNECTICUT SITING COUNCIL
Ten Franklin Square, New Britain, CT 06051
Phone: (860) 827-2935 Fax: (860) 827-2950
E-Mail: siting.council@ct.gov
Web Site: portal.ct.gov/csc

VIA ELECTRONIC MAIL

August 19, 2022

The Honorable Shawn T. Wooden
State Treasurer
Office of the Treasurer
55 Elm Street
Hartford, Connecticut 06106

RE: **DOCKET NO. 508** – The United Illuminating Company (UI) application for a Certificate of Environmental Compatibility and Public Need for the Milvon to West River Railroad Transmission Line 115-kV Rebuild Project that consists of the relocation and rebuild of its existing 115- kilovolt (kV) electric transmission lines from the railroad catenary structures to new steel monopole structures and related modifications to facilitate interconnection of the rebuilt 115-kV electric transmission lines at UI's existing Milvon, Woodmont, Allings Crossing, Elmwest and West River substations along approximately 9.5 miles of the Connecticut Department of Transportation's Metro-North Railroad corridor traversing the municipalities of Milford, Orange, West Haven and New Haven, Connecticut.

Dear Mr. Wooden:

Pursuant to Connecticut General Statutes § 16-50(bb), please be advised that on August 18, 2022 the Connecticut Siting Council (Council) rendered a final decision in the above-referenced proceeding.

The City of Milford participated as a party in this proceeding and is therefore eligible to request reimbursement for expenses from the Municipal Participation Account.

Applications for reimbursement of expenses are to be submitted to Linda McAllister, Cash Management, Office of the State Treasurer, 165 Capitol Avenue, 2nd Floor, Hartford, CT 06106, no later than 60 days after the final decision date.

Please be advised that the City of Milford was the only municipal participant, therefore, the only municipality eligible to receive any funds.

Upon receipt of final reimbursement expenses from the City of Milford, unused portions of the Municipal Participation Account for this proceeding should be returned to the applicant as stated below:

James Yeske
Director – Transmission Line Electric Capital Projects
The United Illuminating Company
100 Marsh Hill Road
Orange, CT 06477

Thank you for your attention to this matter.

Sincerely,



Melanie A. Bachman
Executive Director

c: Service List dated April 21, 2022
Robert Scalise, Assistant Treasurer, Office of the State Treasurer (Robert.Scalise@ct.gov)
Linda McAllister, Cash Management, Office of the State Treasurer
(Linda.McAllister@ct.gov)

STATE OF CONNECTICUT)

: ss. Southington, Connecticut August 19, 2022

COUNTY OF HARTFORD)

I hereby certify that the foregoing is a true and correct copy of the Findings of Fact, Opinion, and Decision and Order issued by the Connecticut Siting Council, State of Connecticut.

ATTEST:



Melanie A. Bachman
Executive Director
Connecticut Siting Council

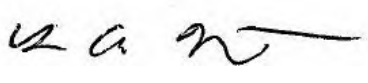
STATE OF CONNECTICUT)

: ss. New Britain, Connecticut August 19, 2022

COUNTY OF HARTFORD)

I certify that a copy of the Findings of Fact, Opinion, and Decision and Order in Docket No. 508 has been forwarded by Certified First Class Return Receipt Requested mail, on August 19, 2022, to all parties and intervenors of record as listed on the attached service list, dated April 21, 2022.

ATTEST:



Lisa A. Mathews
Office Assistant
Connecticut Siting Council

LIST OF PARTIES AND INTERVENORS
SERVICE LIST

Status Granted	Document Service	Status Holder (name, address & phone number)	Representative (name, address & phone number)
Applicant	☒ E-mail	The United Illuminating Company	Bruce McDermott, Esq. Murtha Cullina LLP One Century Tower 265 Church Street, 9th floor New Haven, CT 06510-1220 (203) 772-7787 bmcdermott@murthalaw.com
Party (granted 04/21/22)	☒ E-mail	City of Milford	John W. Knuff, Esq. Sara A. Sharp, Esq. Hurwitz, Sagarin, Slossberg & Knuff, LLC 147 North Broad Street Milford, CT 06460 (203) 877-8000 jknuff@hssklaw.com ssharp@hssklaw.com

DOCKET NO. 508 – The United Illuminating Company (UI) application for a Certificate of Environmental Compatibility and Public Need for the Milvon to West River Railroad Transmission Line 115-kV Rebuild Project that consists of the relocation and rebuild of its existing 115- kilovolt (kV) electric transmission lines from the railroad catenary structures to new steel monopole structures and related modifications to facilitate interconnection of the rebuilt 115-kV electric transmission lines at UI's existing Milvon, Woodmont, Allings Crossing, Elmwest and West River substations along approximately 9.5 miles of the Connecticut Department of Transportation's Metro-North Railroad corridor traversing the municipalities of Milford, Orange, West Haven and New Haven, Connecticut.	}	Connecticut Siting Council August 18, 2022

Findings of Fact

Introduction

1. Pursuant to Connecticut General Statutes (C.G.S.) §16-50g et seq., on February 28, 2022, The United Illuminating Company (UI), applied to the Connecticut Siting Council (Council) for a Certificate of Environmental Compatibility and Public Need for the Milvon to West River Railroad Transmission Line 115-kilovolt (kV) Rebuild Project (Project) that traverses the municipalities of Milford, Orange, West Haven and New Haven and consists of the construction, maintenance and operation of a rebuilt 115-kV overhead electric transmission line entirely within approximately 9.5 miles of the existing Connecticut Department of Transportation's Metro-North Railroad corridor by relocating existing electric transmission lines from railroad catenary structures to new steel monopole structures and related modifications to facilitate the interconnection of the rebuilt 115-kV transmission lines with UI's existing Milvon, Woodmont, Allings Crossing, Elmwest and West River substations. (UI 1, Vol. 1, pp. ES-1 to ES-5)

2. UI's service area consists of the following municipalities in Connecticut: Ansonia, Bridgeport, Derby, East Haven, Easton, Fairfield, Hamden, Milford, New Haven, North Branford, North Haven, Orange, Shelton, Stratford, Trumbull, West Haven, and Woodbridge. (UI 5, response 3)

3. The purpose of the Project is to maintain the reliability of the bulk transmission grid by addressing the age-related physical limitations of the existing transmission lines located on existing railroad catenary structures (catenaries) and rebuild the lines to meet current National Electrical Safety Code (NESC) and UI standards. (UI 1, pp. ES-2 and ES-3)

4. The parties in this proceeding are UI and the City of Milford. (Transcript 1, April 28, 2022, 2:00 p.m. [Tr. 1], p. 5)

5. Pursuant to C.G.S. §16-50*l*(b), UI provided legal service and notice of the application. This included notice to municipalities traversed by the proposed Project; municipalities within 2,500 feet of the proposed Project; federal, state, local and regional agencies, elected officials, and abutters of the substations. UI published notice of the application filing in the New Haven Independent on January 18 and February 11, 2022, New Haven Register on January 18 and February 11, 2022, Milford Mirror on January 20 and February 17, 2022, Orange Town News on February 11, 2022, and the West Haven Voice on January 20 and February 17, 2022. UI included a project information insert in one of its monthly bills to customers within Milford, Orange, West Haven, and New Haven within 60 days before submission of the application to the Council. (UI 1, Vol. 1, p. 8-5; UI 1, Vol. 1A, Appendices – Part II, Appendix F, Affidavit Regarding Notice Provided to Customers)

6. In accordance with the Council's Application Guide for an Electric and Fuel Transmission Line Facility, UI provided notice to a number of community groups including applicable economic development commissions, land trusts, environmental groups, river protection organizations, historic preservation groups, and water companies with watersheds within the Project area. (UI 1, Vol. 1A, Appendices – Part II, Appendix F, Affidavit Regarding Notice to Community Organizations and Water Companies)

7. Pursuant to C.G.S. §16-50*l*(b), UI served a copy of the application for the proposed Project on federal, state, regional and local officials listed therein. (UI 1, Vol. 1A, Appendices – Part II, Appendix F, Affidavit of Service of Application)

Procedural Matters

8. On March 10, 2020, Governor Lamont issued a Declaration of Public Health and Civil Preparedness Emergencies, proclaiming a state of emergency throughout the state as a result of the COVID-19 pandemic. (Council Administrative Notice Item No. 79)

9. On March 12, 2020, Governor Lamont issued Executive Order No. (EO) 7 ordering a prohibition of large gatherings, among other orders and directives. (Council Administrative Notice Item No. 79)

10. On March 14, 2020, and as subsequently extended, Governor Lamont issued EO 7B ordering suspension of in-person open meeting requirements of all public agencies under CGS §1-225. (Council Administrative Notice Item No. 55, CGS §1-200, et seq. (2021))

11. Public Act 22-3 took effect on April 30, 2022. It permits public agencies to hold remote meetings under the Freedom of Information Act (FOIA) and the Uniform Administrative Procedure Act. FOIA defines "meeting" in relevant part as "any hearing or other proceeding of a public agency." (Council Administrative Notice Item No. 79; Council Administrative Notice Item No. 80; CGS §1-200, et seq. (2021))

12. PA 22-3 allows public agencies to hold remote meetings provided that:
    a) The public has the ability to view or listen to each meeting or proceeding in real-time, by telephone, video, or other technology;
    b) Any such meeting or proceeding is recorded or transcribed and such recording or transcript shall be posted on the agency's website within seven (7) days of the meeting or proceeding;
    c) The required notice and agenda for each meeting or proceeding is posted on the agency's website and shall include information on how the meeting will be conducted and how the public can access it any materials relevant to matters on the agenda shall be submitted to the agency and posted on the agency's website for public inspection prior to, during and after the meeting; and
    d) All speakers taking part in any such meeting shall clearly state their name and title before speaking on each occasion they speak.

    (Council Administrative Notice Item No. 80)

13. On March 4, 2022, the Council sent a letter to the State Treasurer, with copies to the Chief Elected Officials of Milford, Orange, New Haven, and West Haven, stating that $25,000 was received from UI as payment to the Municipal Participation Fund (Fund) and deposited in the office of the State Treasurer's department account. The Fund is available for any or all of the municipalities to apply for as reimbursement to defray expenses incurred by the municipalities if they participated as a party in the proceeding, pursuant to C.G.S. §16-50bb. The City of Milford participated as a party in the proceeding. (Record)

14. During a regular Council meeting on March 24, 2022, the application was deemed complete pursuant to Regulations of Connecticut State Agencies (R.C.S.A.) §16-50*l*-1a and the public hearing schedule was approved by the Council. (Record)

15. Pursuant to C.G.S. §16-50m, the Council published legal notice of the date and time of the public hearing in the New Haven Register on March 26, 2022. (Record)

16. Pursuant C.G.S. § 16-50m, on March 25, 2022, the Council sent a letter to the Cities of Milford, West Haven and New Haven and the Town of Orange to provide notification of the scheduled public hearing via Zoom conferencing and to invite each municipality to participate in the proceeding. (Record)

17. On April 6, 2022, the Council held a remote pre-hearing conference on procedural matters for parties and intervenors to discuss the requirements for pre-filed testimony, exhibit lists, administrative notice lists, expected witness lists and filing of pre-hearing interrogatories. Procedures for the remote public hearing via Zoom conferencing were also discussed. (Council Pre-Hearing Conference and remote hearing procedure Memoranda, dated March 30, 2022)

18. On April 14, 2022, in compliance with R.C.S.A. §16-50j-21, UI installed a total of five, four-foot by six-foot signs throughout the Project area. The signs presented information regarding the Project and the Council's public hearing. One sign was installed at each of the following locations:

    a) Milford Train Station* at 1 Railroad Avenue, Milford;
    b) Intersection of Marsh Hill Road and Metro North Railroad, Orange;
    c) UI Operations Building at 100 Marsh Hill Road, Orange;
    d) West Haven Train Station* at 20 Railroad Avenue, West Haven; and
    e) West River Substation at 255 Ella T. Grasso Boulevard (Route 10), New Haven.

    *Railroad station locations for signs were included in order for the signs to be visible to both passenger train traffic and the general public.

    (UI 4; Tr. 1, pp. 17-18)

19. Pursuant to C.G.S. § 16-50m, after giving due notice thereof, the Council held a remote public hearing on April 28, 2022, beginning with the evidentiary session at 2:00 p.m. and continuing with the public comment session at 6:30 p.m. via Zoom conferencing. The Council provided information for video/computer access or audio only telephone access. (Council's Hearing Notice dated March 25, 2022; Tr. 1, p. 1; Transcript 2, April 28, 2022, 6:30 p.m. [Tr. 2], p. 121)

20. On May 20, 2022, the City of Milford submitted a Motion for an Additional Evidentiary Hearing (Motion for Additional Hearing) beyond the scheduled May 24, 2022 continued evidentiary hearing session. (City of Milford Motion for Additional Hearing dated May 20, 2022)

21. The Council continued the remote evidentiary hearing session via Zoom conferencing on May 24, 2022 beginning at 2:00 p.m. (Council Evidentiary Hearing Continuation Memorandum dated April 29, 2022; Transcript 3 – 2:00 p.m. [Tr. 3], p. 143)

22. At the conclusion of the May 24, 2022 continued evidentiary hearing session, the City of Milford's Motion for Additional Hearing was rendered moot because party appearances and cross-examination were not yet complete, and thus, the Council scheduled an additional evidentiary hearing session for June 14, 2022. (Tr. 3, p. 241; Council Evidentiary Hearing Continuation Memorandum dated May 25, 2022)

23. The Council continued the remote evidentiary hearing session via Zoom conferencing on June 14, 2022 beginning at 2:00 p.m. (Council Evidentiary Hearing Continuation Memorandum dated May 25, 2022; Transcript 4 – 2:00 p.m. [Tr. 4], p. 246)

24. In compliance with PA 22-3:
    a) The public had the ability to view and listen to the remote public hearings in real-time, by computer, smartphone, tablet or telephone;
    b) The remote public hearings were recorded and transcribed, and such recordings and transcripts were posted on the Council's website on April 28, 2022 and May 17, 2022; May 24, 2022 and June 8 2022; and June 14, 2022 and June 20, 2022, respectively;
    c) The Hearing Notice, Hearing Program, Citizens Guide for Siting Council Procedures and Instructions for Public Access to the Remote Hearings were posted on the agency's website;
    d) The record of the proceeding is available on the Council's website for public inspection prior to, during and after the remote public hearings; and
    e) The Council, parties and intervenors provided their information for identification purposes during the remote public hearings.

    (Hearing Notice dated March 25, 2021; Tr. 1; Tr. 2; Tr. 3; Tr. 4; Record)

25. Pursuant to C.G.S. §16-50n(f), during a regular meeting held on July 7, 2022 the Council closed the evidentiary record for Docket 508 and established August 6, 2022 as the deadline for the submission of briefs and proposed findings of fact. (Record)

Municipal Consultation and Community Outreach

26. UI began its outreach efforts to the Cities of Milford, West Haven, and New Haven and the Town of Orange in 2020 by meeting with municipal officials. Specifically, UI conducted the following meetings with municipal officials:

    a) UI met with the City of Milford's Planning and Wetlands departments on October 14, 2020 to discuss the Project. A site walk was conducted with a Milford wetlands representative on October 28, 2020. Follow-up meetings were held on February 18, 2021 and January 5, 2022, and a public informational meeting was held on February 28, 2022;
    b) UI met with the City of West Haven Planning, Public Works and Wetlands departments, as well as the Building Official and City Engineer on November 11, 2020 to discuss the Project. UI provided additional information in October 2021 and a follow-up meeting was held on January 19, 2022;
    c) UI requested a meeting with the City of New Haven in November and December 2020 to discuss the Project. Although a specific meeting to discuss the Project was not held, UI introduced the

Project to attendees at the City of New Haven's December 21, 2020 and February 16, 2021 Quarterly Utility Coordination Meetings, and discussed the DEEP temporary Authorization for Project-related survey work in regulated wetlands areas; and

d) UI met with the Town of Orange on November 16, 2020 to discuss the Project. A follow-up meeting was held on December 8, 2021 with the Town Engineer and Inland Wetlands and Zoning Enforcement Officer.

(UI 1, Vol. 1, pp. 8-4 and 8-8)

27. Pursuant to C.G.S. §16-50*l*(e), UI delivered a Municipal Consultation Filing (MCF) to the Cities of Milford, West Haven, and New Haven and the Town of Orange on October 28, 2021 to begin the 60-day municipal consultation process. (UI 1, Vol. 1, p. 8-6)

28. UI created a website (www.UIRailroadTLineUpgrades.com) to provide information to the community about the Project. (UI 1, Vol. 1, p. 8-5)

29. UI mailed a postcard to Project abutters on January 5, 2022. The mailing included a description of the Project and an invitation to a Virtual Open House (VOH) for the Project. The VOH is accessible via the Project website and went live in mid-January 2022. (UI 1, Vol. 1, p. 8-5)

30. UI offered two Zoom appointment sessions in January 2022 to allow the public to ask questions or provide comments to UI representatives. No members of the public signed up to speak for either Zoom session. (UI 1, Vol 1, p. 8-5)

31. UI discussed the Project with the City of Milford Planner, Director of Public Works and Wetlands Officer. Concerns included, but weren't limited to, wetland impacts, disturbance near the Milford Cemetery, visibility at the Milford Train Station, parking impacts and conflicts with a new development approved for construction at 44-64 River Street. (City 4)

32. By letter dated March 16, 2022, the City of Milford requested the following information from UI:

a) Additional information regarding the economic and environmental viability of rebuilding any portion of the transmission line between Beardsley Avenue and River Street (for Structures Nos. P905N to P912N) in an underground configuration;
b) Identify the height of proposed Structure No. P912N;
c) Identify the quantity of additional structures required and the approximate locations of such structures if the maximum heights of Structures Nos. P908N, P910N, P912N, P914N, P915N, P916N, and P918N are listed to 120 feet for each;
d) Additional information regarding the economic and environmental viability of part (c); and
e) Photo-simulations for the area between Beardsley Avenue and River Street to allow for a visual comparison of the Project and the alternative with lower heights identified in part (c).

(UI 1, Bulk Filing 2, Municipal Consultation Filing - UI Letter Regarding Milford Recommendations)

33. On April 11, 2022, UI submitted responses to the City of Milford's request for information. (UI 3)

34. After the application was submitted to the Council, UI received three comments from residents of Milford related to DOT encroachment letters and three comments from residents of West Haven related to potential rail service interruption and Project structures. UI responded to each resident comment. (UI 5, response 2)

35. By letter dated May 12, 2022, the City of West Haven Department of Planning and Development expressed support for the Project and noted that it would strengthen the electrical system and benefit the residents and businesses in West Haven. (City of West Haven Comments dated May 12, 2021)

36. By letter dated May 23, 2022, State Representatives Ferraro, Kennedy and Smith, and Senator Maroney requested consideration of an alternative configuration for the Project to rebuild the existing railroad catenary structures to support the new transmission line. Representatives Kennedy and Smith also provided oral limited appearance statements during the public comment session. (Milford Legislative Delegation comments, dated May 23, 2022; Tr. 2)

State Agency Comment

37. Pursuant to C.G.S. § 16-50j (g), on March 25, 2022, the following state agencies were solicited by the Council to submit written comments regarding the proposed facility: Department of Energy and Environmental Protection (DEEP); Department of Public Health (DPH); Council on Environmental Quality (CEQ); Public Utilities Regulatory Authority (PURA); Office of Policy and Management (OPM); Department of Administrative Services (DAS); Department of Labor (DOL); Department of Economic and Community Development (DECD); Department of Agriculture (DOAg); Department of Transportation (DOT); Connecticut Airport Authority (CAA); Department of Emergency Services and Public Protection (DESPP); and State Historic Preservation Office (SHPO). (Record)

38. The Council received comments from DEEP[1] on April 21, 2022 and CEQ[2] on April 27, 2022; and DOT[3] on June 13, 2022. These comments are addressed in the Environmental Considerations section of this document. (Record)

39. The New Haven Line corridor is one of the busiest railroads in the nation. DOT prefers that UI's transmission lines are removed from the existing catenaries because it would facilitate DOT's maintenance of its equipment by not having to request UI transmission line outages. (DOT Comments dated June 13, 2022)

40. No other state agencies responded with comment on the application. (Record)

41. While the Council is obligated to consult with and solicit comments from state agencies by statute, the Council is not required to abide by the comments from state agencies. (*Corcoran v. Connecticut Siting Council*, 284 Conn. 455 (2007))

System Planning and Mandatory Reliability Standards

42. The Federal Energy Policy Act of 2005 required the Federal Energy Regulatory Commission (FERC) to designate an Electric Reliability Organization (ERO) to develop and enforce a system of mandatory reliability standards for planning and operations of the bulk power electric system. Compliance with

[1] https://portal.ct.gov/-/media/CSC/1_Dockets-medialibrary/1_MEDIA_DO500_600/DO508/PROCEDURALCORRES/DO508-20220422-DEEPrecd-final.pdf

[2] https://portal.ct.gov/-/media/CSC/1_Dockets-medialibrary/1_MEDIA_DO500_600/DO508/PROCEDURALCORRES/do508-sacrcdpi-ceq-20220427.pdf

[3] https://portal.ct.gov/-/media/CSC/1_Dockets-medialibrary/1_MEDIA_DO500_600/DO508/PROCEDURALCORRES/DO508-SACRCDPI_DOT.pdf

the standards is mandatory under federal law and violations are punished by fines. (Council Administrative Notice Item No. 39 – Docket No. 474 Finding of Fact #34)

43. FERC designated the North American Electric Reliability Corporation Inc. (NERC) to be ERO. As the ERO, NERC is charged with improving the reliability of the bulk-power electric system by developing mandatory reliability standards for planning and operations. (Council Administrative Notice Item No. 39 – Docket No. 474 Finding of Fact #35)

44. The Northeast Power Coordinating Council (NPCC) is a regional reliability council that was established to improve the reliability of the interconnected bulk power system in New York, the six New England states, and eastern Canadian provinces. The US systems of the NPCC formed two regional reliability councils to ensure the reliability of their portions of the interconnected bulk-power electric system - ISO-NE, and New York Independent System Operator (NYISO). (Council Administrative Notice Item No. 39 – Docket No. 474 Finding of Fact #36)

45. ISO New England Inc. (ISO-NE) is the not-for-profit corporation responsible for power system planning, as well as grid operation and market administration in the six New England States. ISO-NE uses a ten-year planning horizon. It has adopted planning standards, criteria and procedures consistent with the standards and criteria established by NERC and the NPCC, designed to ensure that New England's electric system will provide adequate and reliable electric power. (Council Administrative Notice Item No. 39 – Docket No. 474 Finding of Fact #37; Council Administrative Notice Item No. 21 – ISO-NE 2022 Regional System Plan, p. iii)

46. As a transmission owner in New England, UI must comply with the reliability standards and criteria adopted by NERC, NPCC, and ISO-NE. These standards and criteria establish a set of performance tests or contingency simulations under which UI's electric transmission system must perform without experiencing overloads or voltage problems. (Council Administrative Notice Item No. 39 – Docket No. 474 Finding of Fact #40)

47. ISO-NE is responsible for the reliable and economical operation of New England's electric power system, which includes managing the comprehensive, long-term planning of the regional power system to identify the region's electricity needs and plans for meeting those needs. The planning process involves the preparation of an annual Regional System Plan (RSP) that provides forecasts of annual energy use and peak loads for a ten-year planning horizon; information about amounts, locations, and characteristics of market responses; and descriptions of transmission projects for the region that could meet the identified needs, as summarized in the RSP Project List. (Council Administrative Notice Item No. 39 – Docket No. 474 Finding of Fact #38)

48. The *2021 ISO- NE Regional System Plan* (RSP21) and the regional system planning process identify the region's electricity needs and plans for meeting these needs for 2021 through 2030. (Council Administrative Notice Item No. 21 – ISO-NE 2021 Regional System Plan, p. iii)

49. The RSP Project List is a summary of projects that have a reliability need based on a criteria violation, e.g. voltage violation. The Project is not listed on the March 2022 ISO-NE RSP Project List. (Council Administrative Notice Item No. 22 – March 2022 ISO-NE RSP Project List; Tr. 1, p. 156)

50. The ISO-NE RSP Asset Condition List is a summary of pool transmission facilities in the region that are being rebuilt or modified due to their condition, age, or physical deterioration and to comply with the updated NESC standards. The Project is listed on the March 2022 ISO-NE RSP Asset Condition List due to the physical deterioration of the structures to which the transmission lines are attached.

(Tr. 1, p. 156; Tr. 3, p. 155; Council Administrative Notice Item No. 21 – ISO-NE 2021 Regional System Plan, p. 86)

Project Need

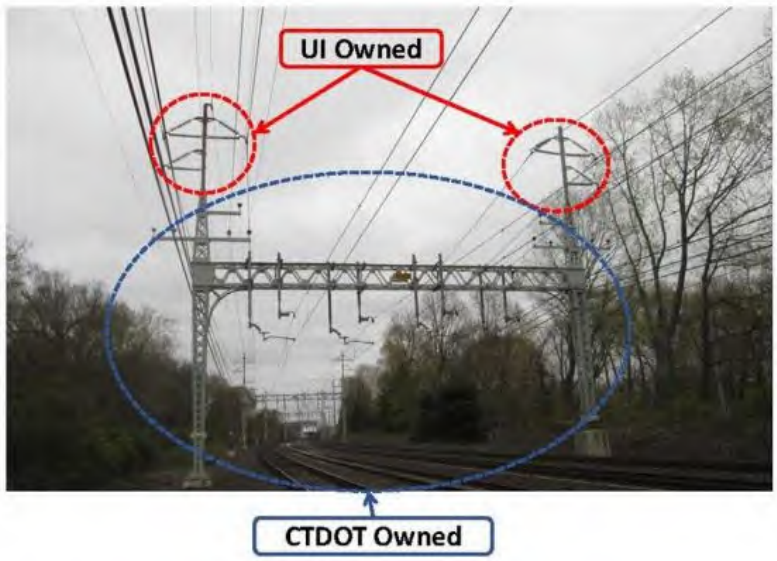
51. UI has a lease agreement with DOT for collocation of electric transmission facilities within the railroad right-of-way (ROW) and a maintenance agreement with Metro-North Railroad (MNR) for the bonnets on the catenary structures. The DOT lease has a 30-year term with two 15-year extensions. The current lease was executed in May 2003. (UI 1, p. 1-4; UI 6, response 5; Tr. 1, p. 109)

52. The existing catenaries along the ROW, which are owned by DOT and operated by MNR, were originally built between 1912 and 1914 to support MNR signal and feeder wires for the electric operation of the trains. The catenaries consist of heavy-duty steel lattice gantries (bridges) that extend above the railroad tracks and support overhead wires that supply electricity to the trains. The catenaries also support an aerial ground wire, which acts as a shield wire and provides lightning protection for the railroad's signal and feeder wires. (UI 1, p. 1-1, 1-3)

53. UI attached 69-kV transmission lines to the catenaries in the 1940s. At that time, UI constructed support columns (bonnets) on the top of both ends of the catenaries and installed the 69-kV transmission lines on the bonnets along with shield wires for lightning protection. (UI 1, Vol. 1, pp. 1-3 and 1-4)

54. UI's transmission lines were upgraded to 115-kV in the 1960s. In the years since the installation of UI's 115-kV facilities, in some locations, changes in the position or configuration of MNR equipment has resulted in UI's shield wire also providing lightning protection to railroad facilities. (UI 1, Vol. 1, p. 1-4)

55. The existing catenaries are approximately 60 feet wide (measured perpendicular to the railroad tracks). The tops of the UI-owned bonnets (with the existing 115-kV transmission attached) reach a typical height of approximately 60 feet above ground level (agl). See figure below.



(UI 1, pp. 1-4 and 1-5; UI 1, Vol. 2)

56. UI's removal of its 115-kV lines from catenary structures along six miles of the MNR corridor between the Cities of Bridgeport and Milford was approved by the Council in Petition Nos. 1110, 1138, 1176, and 1304. (UI 1, p. 1-3; Council Administrative Notice Item 44)

57. The Milvon Substation to West River Substation segment of 115-kV lines is currently located on top of 186 catenary structures. These existing 115-kV lines have circuit designations or line numbers as identified below.

Location (Substation) / Circuit designation	Northern 115-kV Line	Southern 115-kV
Milvon Substation – Woodmont Substation	88005A	89005B
Woodmont Substation – Allings Crossing Substation	8804A	8904B
Allings Crossing Substation –West River Substation	88003A	89003B

(UI 1, pp. 1-3 and 1-4)

58. In 2018, UI conducted engineering analyses that included, but weren't limited to, the 115-kV transmission lines between Milvon Substation and West River Substation. The analyses included field observations of the catenaries and evaluation of the asset condition of the catenaries, given the existing railroad mechanical loading, as well as the age of both the bonnets and the catenaries. (UI 1, Vol. 1, p. 1-7)

59. The engineering analyses found that the existing bonnet support system for the UI transmission line has age-related physical limitations such as loss of structural steel thickness, missing structural members, corrosion expansion, and exposed anchor bolts. As a result, UI identified and evaluated alternative solutions for upgrading the lines, and determined that, to maintain the reliability of the bulk power grid, the 115-kV lines must be relocated off of the bonnets attached to the catenaries and rebuilt using new monopoles, conductor, and optical ground wire (OPGW). (UI 1, p. 1-7; UI 5, response 12)

60. UI also concluded that the 115-kV lines must be rebuilt to meet current NESC and UI standards, which include the ability to withstand extreme weather conditions such as a Category 3 hurricane wind loading*.

*A Category 3 hurricane has a minimum wind speed of 130 miles per hour.

(UI 1, p. 1-7; Tr. 1, p. 22; UI 17, response 10)

61. The Project would adhere to current NESC standards and UI design criteria, e.g. withstand Category 3 wind loads. (UI 1, p. 9-1; UI 17, response 10)

62. The March 2022 ISO-NE Asset Condition List identifies the Project as "Planned" (as of March 2022) which means it is a regulated transmission upgrade that has been approved by ISO-NE. (Council Administrative Notice Item No. 21 – ISO-NE 2022 Regional System Plan; March 2022 Asset Conditions List; June 2022 Asset Conditions List)

63. The Project was listed in UI's March 2021 and March 2022 *Forecast of Loads and Resources Reports* as a planned 115-kV electric transmission line facility upgrade due to asset condition needs. (UI March 2022 Forecast of Loads and Resources Report)

64. The Project is consistent with the *Conservation and Development Policies Plan for Connecticut 2013-2018* (C&D Plan). It will serve a public need for a reliable source of electricity to support development in regional centers, ensure the safety and integrity of infrastructure over its useful life and minimize risks from natural hazards. (Council Administrative Notice Item No. 70 – C&D Plan; UI 1, Vol. 1, p. 5-29)

65. The four municipalities in the Project area are part of the South Central Regional Council of Governments (SCRCOG). The Project is consistent with the policies of SCRCOG by providing resilient utility infrastructure and facilitating the use of renewable and reliable energy sources. (UI 1, Vol. 1, p. 5-29)

66. In January 2022, the U.S Department of Energy launched a "Building a Better Grid" initiative to facilitate deployment of new and upgraded electric transmission lines and work with community and industry stakeholders to identify national transmission needs that are critical for reaching President Biden's goal of 100% clean electricity by 2035 making the U.S. power grid more resilient to the impacts of climate change, increasing access to affordable and reliable clean energy, and boosting electric transmission jobs. (UI 5, response 7)

67. Located along the coast, the Project could potentially support the transmission of energy from offshore wind projects, by supporting power flows and service to Connecticut customers on the proposed UI replacement transmission lines. (UI 5, response 7; Tr. 1, pp. 21-22)

68. Connecticut's Comprehensive Energy Strategy (CES) proposes further investments in grid reliability and identifies three important components to grid reliability: resource adequacy, transmission security and distribution resiliency. (Council Administrative Notice Item 57 – 2018 CES, p. 45)

Project Cost

69. Neither the Project, nor any portion thereof, is proposed to be undertaken by state departments, institutions or agencies or to be funded in whole or in part by the state through any grant or contract. (Tr. 3, p. 156; CGS §22a-1, *et seq*. (2021))

70. The estimated capital cost of the Project is $295,000,000*. Of this total, transmission line costs would be approximately $222,550,000; distribution costs would be approximately $1,250,000; substation work costs would be $3,850,000; and the remaining $67,350,000 would be miscellaneous costs including, but not limited to, bonnet decommissioning. See Figure 15.

*The total cost has an accuracy band of +/- 25 percent.

(UI Late Filed Exhibit 6; Tr. 1, p. 30)

71. The entire cost of the Project (except for distribution costs) is anticipated to be regionalized with Connecticut ratepayers paying approximately 25 percent of the Project cost.* Any incremental costs (cost delta) beyond the least cost alternative as identified by ISO-NE (i.e. the proposed Project) would be expected to be paid by Connecticut ratepayers.

*Connecticut ratepayers are comprised of UI, Eversource and municipal electric energy cooperative customers.

(Council Administrative Notice Item 39, FOF #67; Tr. 3, p. 163-164; UI 11, Late Filed Exhibit No. 4; Tr. 4, pp. 283-284)

72. The life-cycle costs for this project could not be calculated because life-cost cost data on double-circuit transmission configurations are not available. (UI 2; Council Administrative Notice Item 35 – 2017 Life-cycle Report)

73. Project construction is anticipated to begin in the second quarter of 2023 and would be completed by the end of 2028. (UI 1, p. 4-2)

Project Alternatives

74. A "no-action" alternative would not resolve the known asset condition issues, associated with the alignment of the existing 115-kV lines on top of the catenaries; thus, it would not allow conformance with industry codes and UI standards. As a result, the 115-kV lines would continue to be at risk for structural failures associated with mechanical loadings or stress associated with major weather events such as hurricanes. Such structural failures and stress could lead to extended duration outages that would adversely affect electrical customers and the bulk power system. (UI 1, Vol. 1, p. 9-5)

75. UI evaluated four overhead transmission alternatives:

    a) Install new double-circuit monopoles to the north of the railroad tracks to support the 115-kV lines, which is the proposed Project (Alternative 1);
    b) Install single-circuit monopoles such that one circuit is located to the north of the railroad tracks and the other circuit is located to the south of the railroad tracks (Alternative 2);
    c) Rebuild one 115-kV circuit on new single-circuit monopoles and perform structural modifications to the catenaries/bonnets to allow continued support of the other circuit (Alternative 3); and
    d) Rebuild the existing catenaries/bonnets to completely correct all structural deficiencies to continue to support both 115-kV lines (Alternative 4).

    (UI 1, Vol. 1, p. 9-9)

76. UI evaluated an all underground configuration alternative which includes a double-circuit cross-link polyethylene (XLPE) cable configuration between Milvon Substation and West River Substation either within the north side (Option E) or south side (Option F) of the DOT ROW or within public roads (Option G). An all-underground configuration alternative between Structures 905N and 914N would cost approximately $364M if located within streets; $1.4B if located along the southern side of the ROW; or nearly $1.6B if located along the northern side of the ROW. See Finding of Fact No. 82 for Options A through D and H through K. (UI 1, Vol. 1, pp. 9-5 to 9-6; UI 20 – Late-Filed Exhibit June 23, 2022)

77. DOT notes that no longitudinal* underground utility occupations are allowed within the railroad ROW.

    *Longitudinal means parallel to the railroad tracks.

    (DOT Comments dated June 13, 2022; Tr. 4, p. 266)

78. UI evaluated three overhead transmission line rebuild configuration alternatives as follows:

a) install single-circuit monopoles to support the north and south circuits located on either side of the railroad tracks;
b) rebuild one 115-kV circuit on single-circuit monopoles and modify the catenary structures and bonnets to support the other circuit; and
c) rebuild the existing catenary structures and bonnets to support both 115-kV lines.

(UI 1, p. 9-9)

79. Extensive structural modifications would be required to rebuild any portion of the lines on the existing catenary structures. These rebuild alternatives would also have ~200% higher costs than the proposed Project. (UI 1, pp. 9-9, 9-10)

80. Acquisition of more permanent easement acreage would be required to rebuild the line on single circuit monopoles on either side of the railroad tracks. (UI 1, p. 9-13)

81. UI selected the proposed Project among the other alternatives because it maintains reliability and resiliency of the transmission system, uses DOT's existing railroad ROW, minimizes the need to acquire additional property, minimizes environmental impacts and is a cost-effective solution. (UI 1, p. 9-21)

Additional Alternatives Explored During the Proceeding

82. During the proceeding, the following additional alternatives suggested by the Council and the City of Milford were explored:

a) Overhead Transmission Line along the south side of the railroad ROW (Option B);
b) Overhead Transmission Line with reductions in structure heights from 905N to 914N (Milford Overhead Alternative 1/Option C);
c) Overhead Transmission Line shifted to the south side of the railroad ROW from Structures 905N to 914N (Option D);
d) Underground Transmission Line from Structures 905N to 914N within the railroad ROW (Milford Underground Alternative/Option H);
e) Underground Transmission Line from Structures 900N to 914N (Morissette Alternative/Option I);
f) Overhead Transmission Line with reductions in structure heights from Structures 904N to 916N (Milford Overhead Alternative 2/Option J);
g) Overhead Transmission Line on north side of railroad (ROW) shifted to rebuilt catenary structures from Structures 904N to 914N; and
h) Overhead Transmission Line with fewer structures of taller heights. (SHPO Alternative).

*Options E, F and G are identified in Finding of Fact No. 76.

(UI 16, response 15; UI 17; UI 18; UI 20 Late-Filed Exhibit June 23, 2022; Tr. 4, pp. 263-283; UI 18 – SHPO Letter dated June 8, 2022)

83. The total cost estimate for the overhead alternative along the south side of the railroad ROW, or Option B, is $339,800,000. This alternative would require additional permanent easements for approximately 30 structures to be located on private property, as opposed to the 13 structures to be located on private property for the Proposed project. (UI 20)

84. The total cost estimate for Milford Alternative 1/Option C is $296,000,000. This alternative would require 3 additional structures and 6 structures with lower heights, which would result in additional vegetation clearing and land rights. (UI 17; UI 20)

85. The total cost estimate for the overhead alternative with structures 905N to 914N shifted to the south side of the railroad ROW, or Option D, is $306,700,000. This alternative would require two railroad crossings. (UI 17; UI 20)

86. The total cost estimates for the Milford Underground Alternative/Option H and the Morissette Alternative/Option I are $357,887,000 and $413,205,000, respectively. Both underground alternatives would require approval from DOT/MNR to install a cable system within the railroad ROW, may uncover unknown archaeological resources, and the Morissette Alternative/Option I would require a transition station with 2 riser poles and a control enclosure. (UI 20)

87. The total cost estimate for Milford Overhead Alternative 2/Option J is $295,350,000. This alternative would require installation of anti-galloping devices in the span between Structures 914N and 916N to remove Structure 915N, a net increase in 1 additional structure and 7 structures with decreased heights in comparison to the proposed Project. (UI 20)

88. The Milford City Planner prefers an underground configuration through Downtown Milford, or, alternatively, for an overhead configuration, transmission structure heights should be minimized; ~~and~~ Option J would minimize structure heights. See Figure 15. (Tr. 4, pp. 305-306, 311-312)

89. The total cost estimate for the overhead alternative on the north side of the ROW shifted to rebuilt catenary structures from Structures 904N to 914N is $335,340,000. (UI 16, response 15)

90. In correspondence dated June 8, 2022, SHPO concurs that structural reinforcement and installation of larger bonnets would adversely impact the catenaries, which are eligible as contributing resources for listing on the NRHP. It recommended an alternative with fewer structures and taller heights to mitigate the visual impact to historic resources (SHPO Alternative). (UI 18)

91. Rebuilding the electric transmission lines on the existing catenaries would require UI to install its equipment on infrastructure that it does not own and to conduct an analysis of each catenary in coordination with DOT, as well as require extensive railroad outages and four-track crossing at each catenary location for construction. This alternative would fail to meet the overall objective of the Project to add resiliency to the transmission system. (UI 12, response 2; UI 16, response 10)

92. The total cost estimate for the overhead alternative with fewer structures and taller heights (SHPO Alternative) is the same as Option A. (Tr. 4, pp. 263, 283)

Project Description

93. The proposed Project entails the installation of rebuilt 115-kV electric transmission lines and related improvements as listed below:

    a) Rebuild the existing 115-kV lines between Milvon Substation and West River Substation in a double-circuit configuration, supported on galvanized steel monopole structures, and including 72-fiber OPGW shield wire. A total of 142 new double-circuit monopoles would be installed. In addition, 16 new single-circuit monopoles would be installed to either maintain the existing 115-kV line substation interconnections or to support one of the

rebuilt 115-kV lines at locations where existing single-circuit monopoles existing and would remain to support the second rebuilt 115-kV;

b) Interconnect the rebuilt 115-kV lines to UI's existing Milvon, Woodmont, Allings Crossing, Elmwest, and West River Substations, perform minor associated modifications within the substation boundaries and install single-circuit and double-circuit monopoles as necessary to maintain the existing 115-kV connections to the substations and/or support OPGW;
c) Remove, partially remove, or modify (e.g. replace hardware) certain existing steel monopoles that were installed within the Milvon to West River Substation railroad corridor as part of previous UI transmission upgrade projects; and
d) Decommission and remove the existing 115-kV facilities on the catenaries.

Detail of each portion of the Project is described in the following subsections. (UI 1, Vol. 1, pp. 1-7 and 1-8)

Proposed Overhead 115-kV Transmission Lines

94. The proposed 115-kV overhead transmission line would consist of double-circuit monopole structures supporting two sets of three 1,590-kcmil Lapwing phase conductors plus 0.583-inch 72 count fiber OPGW and shield wires. (UI 1, Vol. 1, p. 2-9)

95. The monopoles would support conductors arranged in a vertical configuration. (UI 1, Vol. 1, p. 2-9)

96. UI does not have a policy related to telecommunications equipment collocations on its transmission line structures. The proposed monopoles are not designed to accommodate third party telecommunications equipment. (UI 5, response 9)

97. The monopoles would primarily be installed on drilled pier foundations. Direct embed structures and structures supported by pile type foundations might be installed in certain locations, subject to final engineering analyses. (UI 1, p. 3-10)

98. The new monopoles would range in height from approximately 70 feet to 170 feet. The specific heights of the monopoles would vary by location due to factors such as span length (typically 300 to 400 feet), sensitive environmental resources that could require greater span lengths, and land uses (e.g. parking lots, roadways, railroad spurs, and steep terrain) under the lines. (UI 1, Vol. 1, p. 2-10)

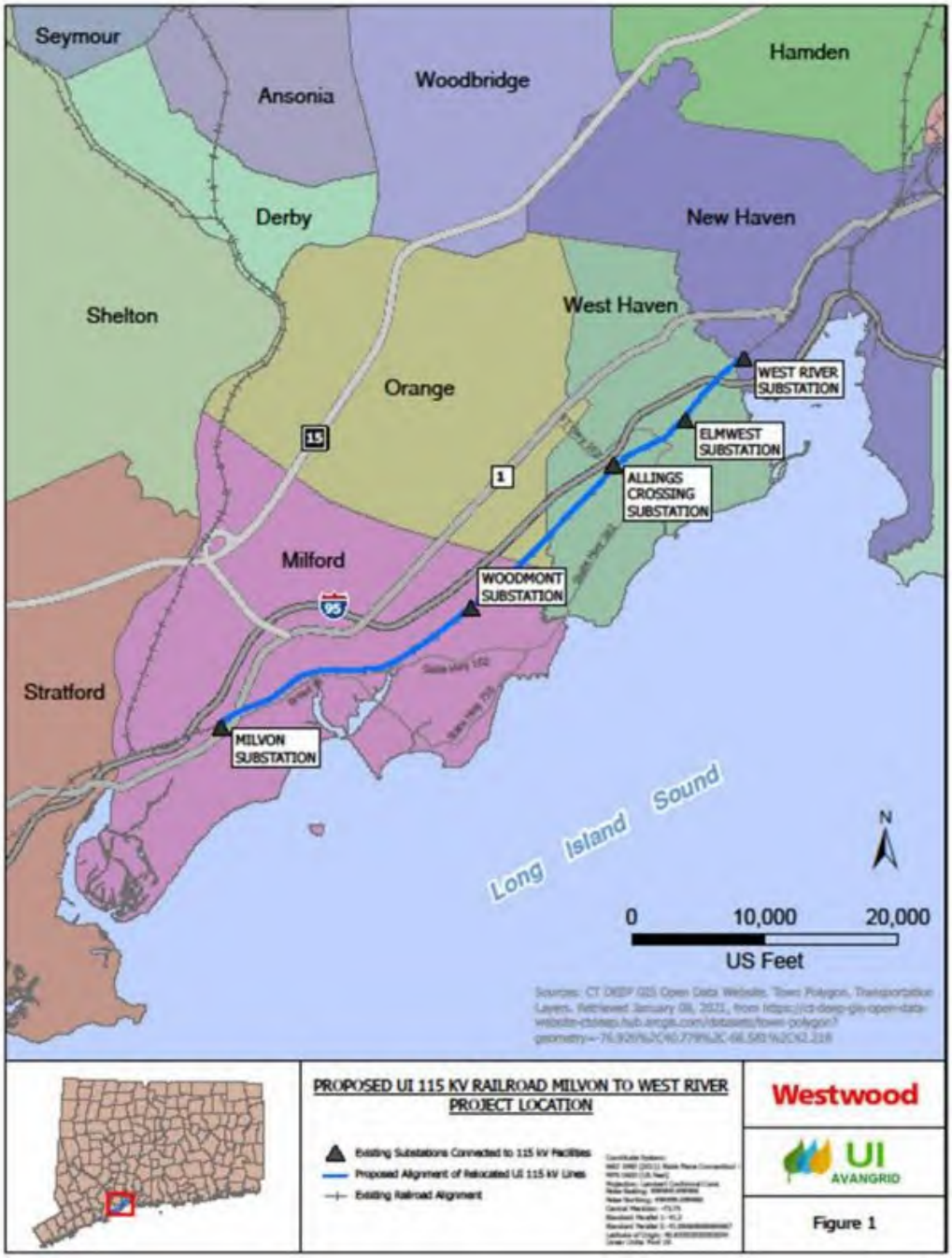
99. The new monopoles would typically be installed slightly offset from other existing UI bonnets in the ROW. (UI 1, Vol. 2)

100. The proposed transmission lines would be located within existing DOT ROW along approximately 9.5 miles through the Cities of New Haven (0.1 mile), West Haven (3.86 miles), Milford (5.03 miles), and the Town of Orange (0.46 mile). (UI 1, Vol. 1, p. 2-3)

101. Sections of the ROW are:

a) Elmwest Substation in West Haven to West River Substation in New Haven;
b) Allings Crossing Substation in West Haven to Elmwest Substation in West Haven;
c) Woodmont Substation in Milford to Allings Crossing Substation in West Haven; and
d) Milvon Substation in Milford to Woodmont Substation in Milford.

Such sections are shown below.



(UI 1, Vol. 1, pp. 1-2, 3-2, 3-5)

Elmwest Substation to West River Substation

102. The existing ROW from Elmwest Substation to West River Substation ranges from 79 to 232 feet wide. This section of ROW extends for approximately 1.25 miles between portions of West Haven and New Haven. (UI 1, Vol. 1, pp. 1-2 and 1-6; UI 1, Vol. 2, 1" = 400' Maps – Maps 8 and 9)

103. The ROW contains two separate UI transmission lines located on bonnets on opposite ends of the catenaries and reaching a typical height of about 60 feet agl. (UI 1, Vol. 2, Sheets XS-12 through XS-14)

104. In this section, UI proposes to install the two relocated transmission lines on 24 new double-circuit vertical monopole structures. (UI 1, Vol. 2, Key Map and Cross Section Dimension Tables)

105. The proposed monopoles would range in height from 95 feet to 125 feet. (UI 1, Vol. 2, Key Map and Cross Section Dimension Tables)

106. Land use adjacent to the ROW includes urban with lawns and landscaping, commercial/industrial buildings with parking areas, an existing closed landfill, and tidal floodplain/waterway. (UI 1, Vol. 2, 1" = 400' Maps – Maps 8 and 9)

Allings Crossing Substation to Elmwest Substation

107. The existing ROW from Allings Crossing Substation to Elmwest Substation ranges from 93 to 240 feet wide. This section of ROW is 1.24 miles in length and extends through a portion of West Haven. (UI 1, Vol. 1, pp. 1-2 and 1-6; UI 1, Vol. 2, 1" = 400' Maps – Maps 8 and 9)

108. The ROW contains two separate UI transmission lines located on bonnets on opposite ends of the catenaries and reaching a typical height of about 60 feet agl. (UI 1, Vol. 2, Sheets XS-9 through XS-11)

109. In this section, UI proposes to install the two relocated transmission lines on 22 new double-circuit vertical monopole structures. (UI 1, Vol. 2, Key Map and Cross Section Dimension Tables)

110. The proposed monopoles would range in height from 85 feet to 155 feet. (UI 1, Vol. 2, Key Map and Cross Section Dimension Tables)

111. Land use adjacent to the ROW includes urban with lawns and landscaping, and commercial/industrial buildings with parking areas. (UI 1, Vol. 2, 1" = 400' Maps – Maps 7 and 8)

Woodmont Substation to Allings Crossing Substation

112. The existing ROW from Woodmont Substation to Allings Crossing Substation ranges from 107 to 276 feet wide. This section of ROW is 2.91 miles in length and extends through portions to Milford, Orange and West Haven. (UI 1, Vol. 1, pp. 1-2 and 1-6; UI 1, Vol. 2, 1" = 400' Maps – Maps 4 through 7)

113. The ROW contains two separate UI transmission lines located on bonnets on opposite ends of the catenaries and reaching a typical height of about 60 feet agl. (UI 1, Vol. 2, Sheets XS-7 through XS-8)

114. In this section, UI proposes to install the two relocated transmission lines on 50 new double-circuit vertical monopole structures. (UI 1, Vol. 2, Key Map and Cross Section Dimension Tables)

115. The proposed monopoles would range in height from 80 feet to 115 feet. (UI 1, Vol. 2, Key Map and Cross Section Dimension Tables)

116. Land use adjacent to the ROW includes urban/suburban with lawns and landscaping, and commercial/industrial buildings with parking areas. (UI 1, Vol. 2, 1" = 400' Maps – Maps 4 through 7)

Milvon Substation to Woodmont Substation

117. The existing ROW from Milvon Substation to Woodmont Substation ranges from 65 to 291 feet wide. This section of ROW is 4.05 miles in length and extends through a portion of Milford. (UI 1, Vol. 1, pp. 1-2 and 1-6; UI 1, Vol. 2, 1" = 400' Maps – Maps 1 through 2)

118. The ROW contains two separate UI transmission lines located on bonnets on opposite ends of the catenaries and reaching a typical height of about 60 feet agl. (UI 1, Vol. 2, Sheets XS-1 through XS-6)

119. In this section, UI proposes to install the two relocated transmission lines on 62 new double-circuit vertical monopole structures. (UI 1, Vol. 2, Key Map and Cross Section Dimension Tables)

120. The proposed monopoles would range in height from 85 feet to 145 feet. (UI 1, Vol. 2, Key Map and Cross Section Dimension Tables)

121. Land use adjacent to the ROW includes urban/suburban with lawns and landscaping, commercial/industrial buildings with parking areas, tidal floodplain/waterways, and deciduous woodlands. (UI 1, Vol. 2, 1" = 400' Maps – Maps 1 through 4)

Substation Modifications

122. The existing Milvon Substation is located in the western section of Milford and is accessed off Bridgeport Avenue (Route 1). (UI 1, Vol. 2, 1" = 400' Maps – Map 1 of 9)

123. The existing Woodmont Substation is located in the eastern section of Milford and is accessed off Quarry Road. (UI 1, Vol. 2, 1" = 400' Maps – Map 4 of 9)

124. The existing Allings Crossing Substation is located in the western section of West Haven and is accessed off Frontage Road. (UI 1, Vol. 2, 1" = 400' Maps – Map 7 of 9)

125. The existing Elmwest Substation is located in the central section of West Haven and is accessed off Elm Street. (UI 1, Vol. 2, 1" = 400' Maps – Map 8 of 9)

126. The existing West River Substation is located in the southwest section of New Haven and is accessed off Plymouth Street. (UI 1, Vol. 2, 1" = 400' Maps – Map 9 of 9)

127. UI proposes to modify the existing Milvon, Woodmont, Allings Crossing, Elmwest and West River substations by performing hardware modifications on the existing structures within and just outside each substation to accommodate the proposed 1590 kcmil conductor size as well as the new OPGW and associated OPGW splice boxes. The hardware modifications would not result in increased structure heights. (UI 1, Vol. 1, pp. 2-4; Tr. 3, pp. 161-162)

128. At all of the five substations, new underground fiber optic cable would be installed to connect the fiber at the OPGW splice box (either located within the substation or at a steel monopole outside the substation) to the control enclosures within the substations. (UI 1, Vol. 1, pp. 2-4 and 2-5)

129. In order to maintain existing 115-kV line substation connections, single-circuit monopoles and/or new monopoles located on the south side of the railroad tracks would be installed directly outside each substation to correctly align the phases of different circuits to the existing line terminal switches in each substation yard. The table below indicates the types and locations of the monopoles to be installed adjacent to each of the five substations.*

Substation	Type, # of Monopoles	Location (N, S of MNR Tracks)
Milvon	1 single-circuit	South
Woodmont	4 single-circuit	South
Allings Crossing	2 single-circuit	North
Elmwest	3 double-circuit; 3 single-circuit	South
West River	1 single-circuit 2 single-circuit	North South

*Two of the new monopoles at West River Substation would be used to support only OPGW. (UI 1, Vol. 1, pp. 1-8 and 2-4)

130. All five substations would remain in service during construction. (Tr. 1, p. 65)

General Project Construction Procedures

131. The following subsections describe the general construction procedures for each portion of the project. If the Project is approved, UI intends to submit one or more partial Development and Management Plans for the Project. (UI 1, Vol. 1, p. ES-9)

132. Pursuant to CGS Section 22a-430b, DEEP retains final jurisdiction over stormwater management and administers permit programs to regulate stormwater discharges. DEEP regulations and guidelines set forth standards for erosion and sedimentation control, stormwater pollution control and best engineering practices. (CGS §22a-430b; DEEP General Permit for the Discharge of Stormwater and Dewatering Wastewaters from Construction Activities. (DEEP-WPED-GP-015)

133. The DEEP General Permit for the Discharge of Stormwater and Dewatering Wastewaters from Construction Activities (General Permit) requires implementation of a Stormwater Pollution Control Plan (SWPCP) to prevent the movement of sediments off construction sites into nearby water bodies and to address the impacts of stormwater discharges from a proposed project after construction is complete. In its discretion, DEEP could require an Individual Permit for discharges and hold a public hearing prior to approving or denying any General or Individual Permit (Stormwater Permit) application. (CGS Section 22a430b; CGS Section 22a-430(b))

134. The SWPCP incorporates project designs consistent with the 2002 Connecticut Guidelines for Soil Erosion and Sediment Control (2002 E&S Guidelines) and the *2004 Connecticut Stormwater Quality Manual* (2004 Stormwater Manual). (DEEP-WPED-GP-015)

135. DEEP has the authority to enforce proposed project compliance with its Individual or General Permit and the SWPCP, including, but not limited to, the installation of site-specific water quality protection measures in accordance with the 2002 E&S Guidelines and 2004 Stormwater Manual. (CGS Section 22a-430b)

136. The project would require a DEEP-issued Stormwater Permit prior to commencement of construction activities as defined in the General Permit. (CGS Section 22a-430b)

137. The DEEP Stormwater Permit requires an assessment of the potential for a proposed development to impact the state's archaeological and historical sites. (DEEP-WPED-GP-015)

138. The Council may impose a condition that requires subsequent compliance with DEEP standards and regulations. (Council Administrative Notice No. 83)

Proposed Overhead 115-kV Transmission Lines

139. UI's proposed general construction sequence is as follows:

a) Survey and stake construction work areas, including the edge of the DOT property and UI easement (where different) and proposed structure locations. Confirm and re-flag environmental resource areas (e.g. wetland and watercourse boundaries) or other sensitive areas to be avoided. Mark vegetation clearing limits and locate and mark utilities;

b) Establish laydown/material staging areas/contractor yard(s) to support the construction;

c) Establish temporary erosion and sedimentation controls as necessary;

d) Remove or mow vegetation where necessary;

e) Install temporary matting in wetlands and install temporary bridges to traverse small watercourses as necessary;

f) Establish or upgrade access roads to reach the proposed monopole locations;

g) Install new structure foundations and assemble new structures;

h) Remove existing 115-kV line (e.g. existing shield wires, conductors, hardware, and steel bonnets) from the north side of the catenaries. Any existing monopoles, lattice towers, and wide flange structures that are no longer required on the north side of the railroad tracks would also be removed;

i) Attach conductors, shield wire and OPGW to the new structures;

j) Install rebuilt 115-kV line connections to UI substations;

k) Place the rebuilt 115-kV lines into service (by segment);

l) Remove existing 115-kV line (e.g. existing shield wires, conductors, hardware, and steel bonnets) from the south side of the catenaries. This activity would include establishing temporary construction access and work pads at the locations of the facilities to be removed. Existing access, upgrades to existing access, or new access roads would be required;

m) Remove existing monopoles, lattice towers and wide flange structures that are no longer required on the south side of the railroad tracks;

n) Construct permanent access roads where necessary and remove temporary construction access and work pads along with temporary wetland matting and watercourse crossing bridges;

o) Perform final cleanup and restoration/stabilization of areas affected by construction and would restore to pre-construction conditions by seeding and revegetating such as areas as necessary; and

p) Maintain erosion and sedimentation controls until areas affected by construction are stabilized.

(UI 1, Vol. 1, p. 3-4)

140. Project construction would be staged from one or more laydown/material staging/contractor yards. Multiple smaller laydown areas could also be used along the 115-kV line route. Field offices would also be required. Final sites would not be determined until a few months prior to commencement of construction, and UI would seek Council approval of these sites prior to use. (UI 1, Vol. 1, p. 3-3)

141. A primary laydown/material storage/contractor yard requires approximately 2 to 5 acres to accommodate field office trailers, parking, project material storage, construction equipment and supplies, fractionization tanks (for temporary storage of water removed from foundation excavations), and temporary stockpiling of existing 115-kV facility materials removed (e.g. bonnets, 115-kV conductor, old monopole structures). (UI 1, Vol. 1, pp. 3-4 and 3-5)

142. The laydown/material staging area/contractor yards also would provide a site for marshalling construction crews, holding daily safety meetings, and assigning daily work. (UI 1, Vol. 1, p. 3-5)

143. The laydown/material staging areas/contractor yard areas would be restored and stabilized to approximate pre-construction conditions in accordance with the UI's SWPCP requirements as necessary. (UI 1, Vol. 1, p. 3-12)

144. UI would utilize a combination of public roads and proposed or existing access road within or adjacent to the DOT railroad corridor. UI would utilize existing (e.g. paved or gravel) access roads where available. Existing paved access would not be expected to require significant upgrades. Existing non-paved access might require the addition of gravel or asphalt patch. (UI 1, Vol. 1, pp. 3-7 and 3-8)

145. Project access roads would generally be approximately 16 feet wide. (UI 1, Vol. 1, p. 3-8)

146. Existing vegetation would be removed from construction sites (including access roads and work pads) and as required both to provide access for construction equipment and to maintain clearance from the rebuilt 115-kV line conductors. Vegetation clearing would be required along portions of both the northern and southern sides of the railroad corridor. (UI 1, Vol. 1, p. 3-6)

147. Clearing and grubbing would be performed via conventional methods such as a combination of chain saws, hand labor, and mechanized equipment. Trees would be directionally felled to minimize impacts. (UI 1, Vol. 1, p. 3-6)

148. Total tree clearing for temporary construction activities would be approximately 6.12 acres. After completion of construction, these areas would be allowed to revegetate naturally, including with trees. The total tree clearing to accommodate the permanent project footprint would be approximately 21.74 acres. This area would be permanently managed in low-growth species consistent with overhead transmission line operation and vegetation maintenance. (UI 1, Vol. 1, p. 6-15)

149. In wetlands, trees and brush would be cut flush to the ground, and stumps would be left in place unless removal is required for Project construction. (UI 1, Vol. 1, p. 3-7)

150. In certain areas, "danger trees" or "hazard trees" (i.e. trees deemed a potential risk to overhead transmission lines) might also need to be trimmed or removed. Such trees would typically be identified after the rebuilt lines are installed. If these trees require trimming or removal and are located on private property, UI would coordinate with the property owner. (UI 1, Vol. 1, p. 3-6; UI 5, response 50)

151. Temporary erosion and sedimentation (E&S) controls would be installed as practicable prior to and/or during vegetation clearing in compliance with the 2002 E&S Guidelines, the DEEP General Permit, and the SWPCP. Temporary controls include, but are not limited to, straw bales and silt fence, to be used during construction involving soil disturbance. (UI 1, Vol. 1, pp. 3-7 and 3-20)

152. Work pads would be required to install the new monopoles as well as to remove the existing 115-kV facilities from the northern and southern side of the catenaries and remove the existing structures (e.g. monopoles, lattice towers, W-flange structures) that would no longer be needed. (UI 1, Vol. 1, p. 3-9)

153. The work pads would be used to provide a safe, level base for construction equipment used to install structure foundations and to erect structures. Specifically, along the 115-kV line route, work pads would be required at each new structure location, at conductor and OPGW pulling sites, and at each location where existing 115-kV facilities would be removed or modified. (UI 1, Vol. 1, p. 3-9)

154. Work pads would consist of gravel or timber construction mats (or equivalent). The size of each work pad would vary based on location and space available within or adjacent to the DOT railroad corridor. Generally, the typical work pad for installing a monopole would approximately 100 feet by 40 feet. In most areas, minimal grading is expected to be necessary to establish work pads. (UI 1, Vol. 1, p. 3-9)

155. For the installation of new foundations within the DOT corridor, UI would coordinate with DOT/MNR to determine appropriate drilling methods to avoid any potential for impacts to the rail bed. (UI 1, Vol. 1, p. 3-11)

156. Generally, auger drilling would be used to perform the excavations for the drilled pier foundations. The size of each excavation would typically be approximately 6 to 10 feet in diameter. Temporary or permanent vibratory casings may be used to provide soil support as needed to complete excavation work and place concrete. The temporary casing may be removed from the pier foundations as concrete is placed or soon thereafter. (UI 1, Vol. 1, pp. 3-10 and 3-11)

157. After the foundation excavation is complete, steel reinforcing bars and an anchor bolt cage would be placed in the excavation and encased in concrete. (UI 1, Vol. 1, p. 3-11)

158. After the structure foundation is in place and the concrete is cured, the transmission monopole would be assembled and erected. Transmission structure components would be delivered to work pads, assembled on the ground and then erected as a complete unit or assembled in pieces with a crane. (UI 1, Vol. 1, p. 3-11)

159. After a structure is erected and framed with support insulators and hardware, it would be ready for the installation of overhead lines. Conductor pulling blocks would typically be installed at this time. (UI 1, Vol. 1, p. 3-11)

160. Pulling and tensioning equipment, as well as reels of conductor, would be located at temporary pulling work pads along the transmission line route for the installation of line conductors and shield wires. Helicopters may be used to install pulling ropes at the commencement of the conductor/OPGW pulling process. (UI 1, Vol. 1, p. 3-12)

161. To maintain clearance at road crossings during conductor and OPGW installation, temporary guard structures or boom trucks would be positioned adjacent to the crossings. (UI 1, Vol. 1, p. 3-12)

162. Conductors and shield wires would be pulled to their design tensions and attached to the hardware. This process would be performed via bucket trucks. (UI 1, Vol. 1, p. 3-12)

163. Localized traffic congestion may occur when heavy construction equipment or large components are transported to the work sites, as well as when construction personnel travel to and from the Project area. However, traffic impacts on local roads during construction are generally expected to be minor and short term. UI would coordinate with impacted landowners and the host municipality to minimize potential traffic impacts on local roads. (UI 1, Vol. 1, p. 6-26)

164. Upon completion of the transmission line installation, most work pads would remain in place in upland areas unless otherwise specified by the landowner. Work pads would be removed from wetland areas. Access roads in wetland areas would be removed. Access roads in upland areas would remain in place unless otherwise specified by the landowner. (UI 1, Vol. 1, pp. 3-12 and 3-13)

165. Following construction of the proposed project, cleanup would include the removal of construction debris, signs, flagging, and fencing, as well as access and work pads from wetland areas. Areas affected by construction and laydown/staging areas would be restored and stabilized, as necessary, to approximately pre-construction conditions (e.g. seeded, graveled, and repaved). Restoration work would be performed in accordance with the SWPCP. (UI 1, Vol. 1, p. 3-12)

166. UI's Vegetation Management would comply with the NERC Reliability Standard FAC-003 to maintain Minimum Vegetation Clearance Distance as outlined in the "Transmission and Vegetation Management Operating Procedure" (TVOP) to prevent vegetation-related outages under various weather and operating conditions. (UI 5, response 49)

167. UI's TVOP are based on the following industry standards and procedures:
    a) OSHA 29 CFR 1910.269 Electric Power Generation, Transmission and Distribution;
    b) ANSI Z133.3 "Pruning, Trimming, Repairing, Maintaining, and Removing Trees, and Cutting Brush Requirements";
    c) ANSI A300 Part 1 "Tree, Shrub, and other Woody Plant Maintenance – Standard Practices;
    d) ANSI A300 Part 7 "Integrated Vegetation Management, Electric Utility Rights-of-way; and
    e) NESC Rule 2018.

    (UI 5, response 49)

168. For the DOT ROW, a minimum of 25-foot clearance from conductors at rest is required per the TVOP. (UI 5, response 49)

169. UI would develop a final Wetland Invasives Species Control Plan (WISCP) to be included in the D&M Plan(s). The WISCP would include standard procedures including, but not limited to, ensuring that temporary timber wetland mats are cleaned prior to bringing them to the site and relocating them from wetland to another during construction. (UI 1, Vol. 1, pp. 3-18 and 3-19)

Environmental Resources

170. The edges of the railroad corridor are interspersed with mature mixed deciduous hardwood trees among narrow strips of primarily non-native, shrub/scrub invasive vegetation, escaped ornamentals associated with residential landscaping, and species common to freshwater and tidal wetlands. (UI 1, Vol. 1A – Appendices – Part II, Appendix C, Visual Assessment, p. 1)

171. Elevations along the railroad corridor range from 5 feet above mean sea level (amsl) to 100 feet amsl. The highest and the lowest elevations are both located in West Haven. (UI 1, Vol. 1A – Appendices – Part II, Appendix C, Visual Assessment, p. 1; UI 1, Vol. 2, 1" = 400' Maps - Maps 7 and 9 of 9)

172. The Project is consistent with the FERC Guidelines for the Protection of Natural, Historic, Scenic and Recreational Values in the Design and Location of Rights-of-Way and Transmission Facilities as it utilizes existing rights-of way within a railroad corridor. (UI 5, response 44; Council Administrative Notice Item No. 11; UI 13, response 2-4)

Watercourses

173. The western portion of the Project area in Milford lies within the Housatonic Drainage Basin, and the remainder of the Project is within the South Central Coast Drainage Basin. (UI 1, Vol. 1, p. 5-6)

174. The Project area extends across a total of 36 watercourses. Of these, 13 are perennial streams, and 23 are intermittent streams. (UI 1, Vol. 1, p. 5-10)

175. Eight proposed monopoles would be installed within the 100-year flood zone, and five proposed monopoles would be installed within the 500-year flood zone. The addition of these structures would have a negligible effect on floodplain storage capacity. (UI 1, Vol. 1, p. 6-5)

176. None of the rivers in the Project area are designated under the Federal Wild and Scenic Rivers Act. (UI 1, Vol. 1, p. 1-3)

177. The rebuilt 115-kV lines would span the Wepawaug River and the Indian River in Milford and the West River on the New Haven/West Haven City Line. Thus, no work would be performed in these watercourses. (UI 1, Vol. 1, p. 6-6; UI 1, Vol. 2)

178. Smaller watercourses, including the narrow streams that parallel the railroad tracks within the DOT corridor, would be crossed using temporary construction mats or equivalent. Construction equipment would be prohibited from directly fording through streams. (UI 1, Vol. 1, p. 6-6)

179. The Project would not affect Phipps Lake in West Haven. However, some vegetation along the DOT corridor adjacent to the lake would be removed to provide access for construction equipment as required to remove UI's existing 115-kV facilities from the southern side of the catenaries. (UI 1, Vol. 1, p. 6-5)

180. The Project would not affect either freshwater or marine fisheries because the rebuilt transmission lines would span all the watercourses that have been identified as potential fisheries habitat. (UI 1, Vol. 1, p. 6-17)

181. UI would install permanent access roads across three un-named intermittent streams that serve as drainage swales within the DOT corridor. These permanent access roads would require the installation of a culvert or equivalent at each stream crossing. Two of the three streams would be traversed twice; thus, there would be a total of five permanent crossings resulting in approximately 0.03 acre of permanent fill. (UI 1, Vol. 1, p. 6-8)

182. The projected impacts to inland watercourses are listed below.

Volume 2 Mapsheet No. (100/400 scale)	Watercourse No. & Flow Type Intermittent (I) or Perennial (P)	Estimated Project Impact, by Type (Acres)		
		Temporary Impacts		Permanent Access Road Impacts
		Access Roads	Work Pads	
City of Milford				
1/1	M-WC2 (I)	0.02	0.03	-
13/4	M-WC4 (I)	0.01	0.01	-
13/4	M-WC5 (P)	0.01	-	-
15/4	M-WC6 (I)	-	0.01	-
16/5	M-WC8 (P)	0.01	0.01	-
18/5	M-WC9 (I)	-	0.01	0.01
18/5	M-WC10 (I)	0.01	-	-
	Subtotal Impacts	0.06	0.07	0.01
Town of Orange				
19/5	O-WC1 (I)	-	0.02	0.01
20/5	O-WC2 (I)	-	-	0.01
	Subtotal Impacts	-	0.02	0.02
City of West Haven				
21/6	WH-WC2 (I)	0.01	0.01	-
21/6	WH-WC3 (I)	0.01	0.01	-
21/6	WH-WC4 (I)	-	0.02	-
22/6-7	WH-WC6 (I)	0.01	0.01	-
25/7	WH-WC9 (P)	-	0.01	-
25/7	WH-WC10 (I)	0.01	0.01	-
25/7	WH-WC11 (I)	-	0.01	-
25/7	WH-WC14 (I)	-	0.05	-
	Subtotal Impacts	0.04	0.13	-
	Total Impacts	0.10	0.22	0.03

(UI 1, Vol. 1, p. 6-7)

183. The Project would not affect any watercourses in the City of New Haven. (UI 1, Vol. 1, p. 6-7)

184. UI would utilize the following measures to minimize potential impacts on watercourses:
    a) Small streams would be spanned with timber mats (or equivalent) to maintain water flows;
    b) Concrete (for structure foundations) would be mixed, poured and disposed of in manner to minimize the risk of concrete materials entering a watercourse;
    c) Installation of new culverts for permanent intermittent stream crossings would be in accordance with the DEEP *Stream Crossing Guidelines* as applicable; and
    d) Existing riparian vegetation within 25 feet of watercourse banks would be maintained or cut selectively to the extent practical.

    (UI 1, Vol. 1, p. 6-8)

185. UI would obtain the necessary permits from State and federal agencies for the permanent watercourse crossings. (UI 1, Vol. 1, p. 6-8)

Wetlands

186. The Inland Wetlands and Watercourses Act (IWWA), CGS §22a-36, *et seq.*, contains a specific legislative finding that the inland wetlands and watercourses of the state are an indispensable and irreplaceable but fragile natural resource with which the citizens of the state have been endowed, and the preservation and protection of the wetlands and watercourses from random, unnecessary, undesirable and unregulated uses, disturbance or destruction is in the public interest and is essential to the health, welfare and safety of the citizens of the state. (CGS §22a-36, et seq.)

187. The IWWA grants regulatory agencies with the authority to regulate upland review areas in its discretion if it finds such regulations necessary to protect wetlands or watercourses from activity that will likely affect those areas. (CGS §22a-42a)

188. The IWWA forbids regulatory agencies from issuing a permit for a regulated activity unless it finds on the basis of the record that a feasible and prudent alternative does not exist. (CGS §22a-41)

189. A total of 41 wetland areas were delineated within the existing DOT ROW. (UI 1, Vol. 1, p. 6-8)

190. Vegetation clearing would impact 23 of the 41 wetlands. (UI 1, Vol. 1, pp. 6-9 and 6-10)

191. The projected impacts to wetlands are listed below.

Volume 2 Mapsheet No. (100/400 scale)	Wetland No.	Estimated Project Impact, by Type (Acres)			
		Temporary Impacts		Permanent Impacts	Wetland Vegetation Clearing*
		Access Roads	Work Pads		
City of Milford					
1/1	Wetland M-W2	-	0.11	-	-
7/2	Wetland M-W4	-	0.08	-	0.09
9/3	Wetland M-W6	-	0.28	-	0.44
10/3	Tidal Wetland M-TW1	-	0.01	-	0.01
10/3	Tidal Wetland M-TW2	-	-	-	0.01
10/3	Tidal Wetland M-TW3	0.13	0.10	-	0.14
13-14/4	Wetland M-W8	0.57	0.38	-	0.42
13-14/4	Wetland M-W9	0.16	0.26	0.002 (pole foundation)	0.21
15/4	Wetland M-W10	-	0.02	-	0.01
16/5	Wetland M-W12	-	-	-	0.02
16-17/5	Wetland M-W13	0.01	0.45	0.002 (pole foundation) & 0.34 (access road)	0.76
17/5	Wetland M-W14	-	0.04	-	0.02
18/5	Wetland M-W16	0.02	0.03	-	-
18/5	Wetland M-W17	-	0.01	-	0.12
Subtotal Inland Wetland Impacts		0.76	1.66	0.344	2.09
Subtotal Tidal Wetland Impacts		0.13	0.11	-	0.16
Town of Orange					
20/6	Wetland O-W1	0.01	-	-	0.01
Subtotal Inland Wetland Impacts		0.01	-	-	0.01
City of West Haven					
21-22/6	Wetland WH-W1	0.19	0.47	0.002 (pole foundation)	0.61
23/6	Wetland WH-W2	0.01	0.11	0.001 (pole foundation)	0.09
24/7	Wetland WH-W3	0.02	0.06	0.05 (access road)	0.08
25/7	Wetland WH-W4	-	0.08	-	0.06
25/7	Wetland WH-W5	-	0.03	-	-
29/8	Wetland WH-W10	-	-	-	0.07
32/9	Wetland WH-W11	0.02	-	-	-
32-33/9	Wetland WH-	0.36	0.32	-	0.03

Volume 2 Mapsheet No. (100/400 scale)	Wetland No.	Estimated Project Impact, by Type (Acres)			
		Temporary Impacts		Permanent Impacts	Wetland Vegetation Clearing*
		Access Roads	Work Pads		
	W12				
32-33/9	Wetland WH-W13	0.06	1.12	0.003 (pole foundation) & 0.69 (access road)	0.41
33-34/9	Tidal Wetland WH-TW1	-	0.01	-	-
Subtotal Inland Wetland Impacts		0.66	2.19	0.746	1.35
Subtotal Tidal Wetland Impacts		-	0.01	-	-
TOTAL INLAND WETLAND IMPACTS		**1.43**	**3.85**	**1.09**	**3.45**
TOTAL TIDAL WETLAND IMPACTS		**0.13**	**0.12**	-	**0.16**

(UI 1, Vol. 1, pp. 6-9 and 6-10)

192. Ten new monopoles would be located within inland wetlands. Additionally, UI would install permanent access roads across three wetlands to provide access to rebuilt structures for operations and maintenance purposes. (UI 1, Vol. 1, p. 6-10)

193. UI would coordinate with DEEP and/or U.S. Army Corps of Engineers and obtain the necessary authorizations for proposed activities in wetlands. (UI 1, Vol. 1, p. 6-10)

194. No vernal pool habitat is located within or proximate to the Project corridor. (UI 1, Vol. 1A, Appendix B, Ecological Assessment Report, p. 7)

195. There are no DEEP-designated Aquifer Protection Areas (APAs) near the Project area. The nearest APA is located in the City of Shelton, approximately 7 miles northwest of the proposed transmission line route. (UI 1, Vol. 1, p. 5-15; Council Administrative Notice Item No. 102 – DEEP Statewide APA Map)

196. If groundwater is encountered during any Project excavations, dewatering would be performed in accordance with applicable local and/or state permitting requirements. (UI 1, Vol. 1, p. 6-5)

Wildlife

197. By letter dated December 27, 2020, DEEP indicated that its review of the Natural Diversity Database (NDDB) identified seven state-listed species that may occur within or proximate to the Project area. The seven state-listed species are listed below:

State-listed Plant Species	Designation
Parker's pipewort	Endangered
Salt marsh bulrush	Special Concern

State-listed Bird Species	Designation
Seaside sparrow	Threatened
Saltmarsh sharp-tailed sparrow	Special Concern
State-listed Amphibian Species	**Designation**
Northern leopard frog	Special Concern
State-listed Reptile Species	**Designation**
Eastern box turtle	Special Concern
Northern diamondback terrapin	Special Concern

(UI 1, Vol. 1A, Appendix A, DEEP NDDB Letter dated December 27, 2020)

198. To be protective of the state-listed plant species, the Parker's pipewort and salt marsh bulrush, DEEP recommends that UI perform the following, including, but not limited to:
    a) Provide a botanical survey for the Indian River section of the ROW to DEEP prior to construction in this area;
    b) Perform structure replacements outside of the growing season; and
    c) Utilize temporary wooden matting when replacing structures in this area.

    (UI 1, Vol. 1A, Appendix A, DEEP NDDB Letter dated December 27, 2020)

199. UI conducted a field botanical survey for the two state-listed plant species in September 2020 when both target species would be expected to be in an identifiable state. The survey included the two saltwater marsh habitats associated with the Indian River in Milford and the West River in West Haven. These species were not identified during the survey, and the survey results were submitted to DEEP. (UI 1, Vol. 1A, Appendix B, Ecological Assessment Report, pp. 10-12)

200. To be protective of the state-listed bird species, the seaside sparrow and the saltmarsh sharp-tailed sparrow, DEEP recommends that UI perform the following, including, but not limited to:
    a) Commence construction before May 1 or after August 31 to avoid impacting an active nest;
    b) Minimize excessive noise between April 15 and August 1; and
    c) If work must occur between May 1 and August 31, perform nest surveys by an ornithologist and provide the results of the surveys to DEEP.

    (UI 1, Vol. 1A, Appendix B, Ecological Assessment Report, pp. 10-12)

201. To be protective of the state-listed amphibian species, the northern leopard frog, UI would implement the following measures during the active season (between March and October), including, but not limited to:
    a) Avoid placing gravel or hard surfaces within floodplain or alluvial marsh habitat;
    b) Provide contractor education regarding this species;
    c) Utilize geotextile silt fence along the perimeter of the Project disturbance limits serve as a barrier for the northern leopard frog;
    d) Notify DEEP if any northern leopard frogs are encountered.

    (UI 1, Vol. 1A, Appendix B, Ecological Assessment Report, p. 17)

202. To be protective of the eastern box turtle (EBT), DEEP recommends that UI implement the following measures during the inactive period (October through March) including, but not limited to:
    a) Keep heavy equipment in the open ROW and utilize hand-felling of trees were possible;
    b) Minimize ground disturbance along the forest edges;
    c) Limit equipment use within 50 feet of streams and brooks;

d) Provide contractor education regarding this species;
e) Notify DEEP if any EBTs are encountered.

(UI 1, Vol. 1A, Appendix A, DEEP NDDB Letter dated December 27, 2020)

203. To be protective of the northern diamondback terrapin (NDT), DEEP recommends that ground disturbance in the vicinity of Golf Pond/Indian River be performed during the NDT's inactive period (November 1 through April 1). (UI 1, Vol. 1A, Appendix A, DEEP NDDB Letter dated December 27, 2020)

204. To be protective of the EBT during the active period (April through September) and/or the NDT during its active period (April through November), DEEP recommends that UI implement the following measures including, but not limited to:
    a) Hire a herpetologist to ensure that protective measures are performed and to monitor areas with heavy equipment in use;
    b) Utilize exclusionary fencing of at least 20 inches tall to isolate construction areas;
    c) Perform turtle sweeps of staging and storage areas;
    d) Avoid parking heavy machinery or vehicles in any turtle habitat;
    e) When felling trees adjacent to brooks and streams, the trees should be felled in a direction away from the waterway;
    f) Limit equipment use within 50 feet of streams and brooks; and
    g) Notify DEEP if any EBTs are encountered.

    (UI 1, Vol. 1A, Appendix A, DEEP NDDB Letter dated December 27, 2020)

205. UI would comply with DEEP recommended protective measures for state-listed bird, amphibian and reptile species. (UI 1, Vol. 1, pp. 6-17 and 6-18)

206. On September 14, 2021, UI consulted with the U.S. Fish and Wildlife Services (USFWS) Information for Planning and Consultation (iPaC) to determine if any federally-listed species may be present within the Project area. The iPaC review identified three species: northern long-eared bat (NLEB), a federally-listed Threatened Species; red knot, a federally-listed Threatened Species; and the monarch butterfly, a candidate for the Federal Endangered Species Act listing (but not currently listed as Threatened or Endangered). (UI 1, Vol. 1, pp. 5-22 and 5-23; UI 1, Vol. 1A, Appendix B, Ecological Assessment Report, p. 18)

207. While the NLEB is currently federally-listed as Threatened, it is also under review by USFWS for possible reclassification as Endangered. (Tr. 1, p. 34)

208. The Project area is not located within 150 feet of a known occupied maternity roost tree or within 0.25-mile of a known NLEB hibernaculum. The nearest NLEB habitat resource to the Project area is located over six miles to the northeast in the Town of North Branford. (UI 1, Vol. 1, p. 5-22; Council Administrative Notice Item No. 104 – DEEP NLEB Map)

209. The red knot is a shorebird that typically forages along the waterline within the intertidal zone. The Project is located within highly developed areas that do not provide suitable foraging habitat for the red knot. Thus, the Project is not expected to impact red knot habitat. (UI 1, Vol. 1, p. 5-22)

210. No critical habitat has been designated for the monarch butterfly at this time. (UI 1, Vol. 1, pp. 5-22 and 5-23)

Scenic, Historic and Recreation Areas

211. A Phase 1A Cultural Resources Assessment Survey was performed by Heritage Consultants (Heritage) and a report dated September 2021 (Phase IA Report) identified five properties/districts listed on the National Register of Historic Places (NHRP)*. The five properties/districts are as follows:
    a) The Academy of Our Lady of Mercy – Lauralton Hall at 200 High Street, Milford;
    b) River Park Historic District between Boston Post Road and Milford Harbor, Milford;
    c) U.S. Post Office – Milford Main at 6 West River Street, Milford;
    d) Saint Peter's Episcopal Church at 61, 71 and 81 River Street, Milford; and
    e) Taylor Memorial Library at 5 Broad Street, Milford.

    *The properties/districts listed on the NRHP are also listed on the State Register of Historic Places (SRHP), but no properties/districts listed only on the SRHP were identified proximate to the DOT rail corridor.
    (UI 1, Vol. 1A, Appendix D, Phase IA Report, pp. 10-12)

212. The Phase IA Report also identified a previously identified archaeological site (Site 107-15) that could be impacted by a Project access road. Thus, the Phase IA Report recommended that a Phase IB Cultural Resources Reconnaissance Survey (Phase IB Survey) be performed. (UI 1, Vol. 1A, Appendix D, Phase IA Report)

213. The MNR railroad corridor, formerly the New York, New Haven & Hartford Railroad, is eligible for listing on the Natural Register under Criteria A, in the area of transportation, as well as in the development of the Connecticut shoreline. (December 22, 2021 SHPO correspondence)

214. By letter dated December 22, 2021, SHPO indicated that all five NRHP resources would be impacted by the Project. UI met with SHPO to discuss mitigation measures. SHPO suggested the production of a pedestrian survey, mapping, and historic research of Charles Island to be codified and submitted in a report to SHPO, as well as the production and installation of interpretive signage based on such report. SHPO requested the Charles Island mitigation measures be included as a requirement for project approval and solidified in an agreement once permitting is secured. (UI 1, Vol. 1A, Appendix A, SHPO Letter dated December 22, 2021)

215. Rather than install interpretive signage at Charles Island, which is located over a mile away and bears no relationship to the historic resources in the Project area, the City recommends mitigation measures that are more closely aligned with the Project, such as building conditions assessments or preservation plans for the Taylor Memorial Library or the Milford Railroad Station, updating the River Park Historic District NRHP nomination or installing historic interpretive signage on the Milford Green. (City 2; City 3)

216. A Phase 1B Survey was performed by Heritage and a report dated December 2021 (Phase IB Report) was submitted to SHPO. The Phase IB Report indicated that Site 107-15 does not extend into the proposed access road location and would not be impacted by the Project. Thus, SHPO concurred with the conclusion in the Phase IB Report that additional archaeological investigations are not warranted. (UI 1, Vol. 1A, Appendix A, SHPO Letter dated December 22, 2021)

217. The City of Milford Historic Commission believes that new monopole structures would affect the image and character of properties on either side of the ROW and would have long-term historic impacts. The Milford Historic Commission also believes that an underground configuration would be consistent with grid resiliency. (Tr. 4, pp. 304-305; City 3)

Visibility

218. UI used a combination of predictive computer modeling, in-field analysis, and a review of various data sources to evaluate the visibility of the proposed facility. (UI 1, Vol. 1A – Appendices – Part II, Appendix C, Visual Assessment, p. 1)

219. Information obtained during the field reconnaissance was incorporated into a viewshed map that depicts areas with year-round and seasonal visibility for areas within a one-mile radius Study Area (14,015 acres) from the route of the proposed structures based on computer modeling and in-field observations from publicly-accessible locations. (UI 1, Vol. 1A – Appendices – Part II, Appendix C, Visual Assessment, p. 1 and Attachment 2, Viewshed Analysis Map Sheet 1 of 3)

220. Based on the final viewshed analysis (refer to Figure Nos. 16 through 18), the existing catenaries are visible year-round from approximately 1,673 acres (12% of the Study Area) and seasonally visible from about 477 acres (3.4% of the Study Area)*.

*These visibility areas do not take into account the heights of the 21 existing UI structures, but the existing viewshed analysis approximates existing conditions.

(UI 5, response 47; Tr. 1, pp. 33-34)

221. Based on the final viewshed analysis (refer to Figure Nos. 19 through 21), the Project would be visible year-round from approximately 1,673 acres (12% of the Study Area) and seasonally visible from about 477 acres (3.4% of the Study Area). (UI 5, response 47)

222. The areas of visibility generally extend to distances of 0.5-mile from the Project route. In some areas undeveloped areas, open water and marsh, it would extend to at least 0.75 mile. (UI 1, Vol. 1A – Appendices – Part II, Appendix C, Visual Assessment, p. 3)

223. The tops of the new transmission line structures would not be prominent features, particularly with the amount of intervening existing infrastructure common within the Project area. (UI 1, Vol. 1A – Appendices – Part II, Appendix C, Visual Assessment, p. 3)

224. While some locations would experience changes in visibility from existing conditions due to the relocation and modified heights of new structures, such areas would also have the removal of bonnets and other supporting infrastructure, particularly along the southern side of the railroad corridor. (UI 1, Vol. 1A – Appendices – Part II, Appendix C, Visual Assessment, p. 3)

225. The most substantial change in visibility would occur at the West River crossing where four 120-foot monopoles would replace the 89-foot tall catenary bonnets (to be removed on the north side). This area contains extensive open marshland on either side of West River; developed portions of this area contain commercial and industrial land uses. (UI 1, Vol. 1A – Appendices – Part II, Appendix C, Visual Assessment, p. 3)

226. There are no state or locally-designated scenic roads located within the one-mile Study Area. (Applicants 1, Bulk File – Town Plan for Conservation and Development)

227. Construction of facilities defined under CGS §16-50i, including but not limited to, electric transmission line facilities, is permissible on ridgelines within the state. (CGS §8-1aa; CGS §8-2; C.G.S. §16-50*x*)

228. There are no "blue-blazed" hiking trails maintained by the Connecticut Forest and Park Association within one-mile of the Project route. (UI 1, Vol. 1A – Appendices – Part II, Appendix C, Visual Assessment, p. 1 and Attachment 2, Viewshed Analysis Map Sheets 1, 2, 3; Council Administrative Notice Item No. 106 – Blue Blazed Hiking Trail System Map)

229. The Project is not located proximate to any National Heritage Corridors or any State designated heritage areas. (UI 1, Vol. 1, p. 5-34)

230. The Project is not located proximate to any DOT designated Scenic Land Strips. (UI 1, Vol. 1, p. 5-34)

231. The Project is not located proximate to any locally-designated scenic roads. (UI 1, Vol. 1, p. 5-34)

232. Option J, with reduced structure heights from P904N to P916N, would have height reductions ranging from 5 to 20 feet and a net increase of one structure for this section in Downtown Milford. (UI 20 Late-Filed Exhibit June 23, 2022)

Noise

233. UI expects only minor and short-term construction-related noise effects from the Project. Typical construction related noise would occur during normal work hours of 7 AM to 7 PM Monday through Saturday. Construction may occur on nights and Sundays as necessary to perform work during non-peak railroad use periods in order to minimize impacts to the rail system. Furthermore, 24/7 work would be necessary during certain critical periods requiring electrical outages on the UI system. (UI 1, p. 6-28)

234. In some areas along the Project route, bedrock will be encountered at a shallow depth. UI anticipates utilizing mechanical means to remove the bedrock as necessary to create level work pads or access. However, based on the depth, extent, and type of bedrock identified, it might be necessary to utilize controlled blasting. Potential impacts from rock removal may include dust, vibration and noise. If blasting is required, UI would consult with DOT and MNR prior to securing approvals for its Blasting Plans. (UI 1, Vol. 1, pp. 3-19 and 6-2; Tr. 4, pp. 267-268)

235. Construction noise is exempt from the State of Connecticut Noise Control Regulations §22a-69-1.8(g), which includes, but is not limited to, "physical activity at a site necessary or incidental to the erection, placement, demolition, assembling, altering, blasting, cleaning, repairing, installing, or equipping of buildings or other structures, public or private highways, roads, premises, parks, utility lines, or other property." (R.C.S.A. §22a-69-1.8(g))

236. UI is utilizing larger conductors for the proposed Project than the existing conductors. This increases the capacity of the lines to transfer power while minimizing noise. (Tr. 1, pp. 35-36)

237. Once completed, operation of the Project would comply with DEEP Noise Control Regulations. (Tr. 1, p. 38)

Electric and Magnetic Fields

238. Electric fields (EF) and magnetic fields (MF) are two forms of energy that surround an electrical device. Transmission lines are a source of both EF and MF. In the United States, electric utilities provide power at 60 hertz (oscillates 60 times per second). (Council Administrative Notice Item No. 30 – Council's Best Management Practices for Electric and Magnetic Fields, p. 1)

239. Electric fields result from voltages applied to electrical conductors and equipment. Appliances within homes and the workplace are the major sources of electric fields indoors, and power lines are the major sources of electric fields outdoors. EF levels decrease rapidly with distance from the source, diminishing even faster when interrupted by conductive materials, such as buildings and vegetation. The scientific community does not regard EF levels to be a concern to the general public, and thus studies of health effects from electrical transmission lines and equipment has focused on MF. (Council Administrative Notice Item No. 30 – Council's Best Management Practices for Electric and Magnetic Fields, p. 1; Council Administrative Notice Item No. 39 – Docket No. 474 Finding of Fact #220)

240. MF are produced by the flow of electric currents. The level of a magnetic field is commonly expressed as magnetic flux density in units called gauss (G), or in milliGauss (mG). The magnetic field level at any point depends on characteristics of the source, which can include the arrangement of conductors, the amount of current flow through the source, and its distance from the point of measurement. MF levels decrease rapidly with distance from the source but are not easily interrupted as they pass through most materials. (Council Administrative Notice Item No. 30 – Council's Best Management Practices for Electric and Magnetic Fields, p. 2; Council Administrative Notice Item No. 39 – Docket No. 474 Finding of Fact #221)

241. In the United States, no state or federal exposure standards for 60-hertz MF based on demonstrated health effects have been established. Nor are there any such standards established world-wide. However, the International Commission on Non-Ionizing Radiation Protection (ICNIRP) has established a level of 2,000 mG, based on extrapolation from scientific experimentation, and the International Committee on Electromagnetic Safety (ICES) has calculated a guideline of 9,040 mG for exposure to workers and the general public. (Council Administrative Notice Item No. 30 – Council's Best Management Practices for Electric and Magnetic Fields, p. 3; Council Administrative Notice Item No. 39 – Docket No. 474 Finding of Fact #222)

242. In accordance to the Council's *Electric and Magnetic Fields Best Management Practices for the Construction of Electric Transmission Lines in Connecticut* guidelines (EMF BMP), UI is required to provide an analysis of recent scientific literature regarding MF exposure, an analysis of pre and post construction MF levels, and investigate 'no cost" and "low cost" transmission line design alternatives to reduce MF levels at the edge of a ROW and in areas of particular interest, as long as such designs do not compromise system reliability or worker safety, or environmental and aesthetic project goals. (Council Administrative Notice Item No. 30 – Council's Best Management Practices for Electric and Magnetic Fields, pp. 4-10; Council Administrative Notice Item No. 39 – Docket No. 474 Finding of Fact #223)

243. As required by the Council's EMF BMPs, UI provided an analysis of recent scientific literature regarding MF exposure and determined there were no relevant changes in current research conclusions or the recommended exposure standards established by ICES and ICNIRP. (UI 1, Vol. 1A, Appendix E – EMF Report, p. 10; Council Administrative Notice Item No. 30 – Council's Best Management Practices for Electric and Magnetic Fields, p. 3)

244. As required by the Council's EMF BMP, UI examined the project route to determine the location of any schools, daycare facilities, playgrounds, hospitals, and residential areas, as defined under C.G.S. § 16-50p(a)(3)(D), for specific MF analysis. Such locations are identified below.

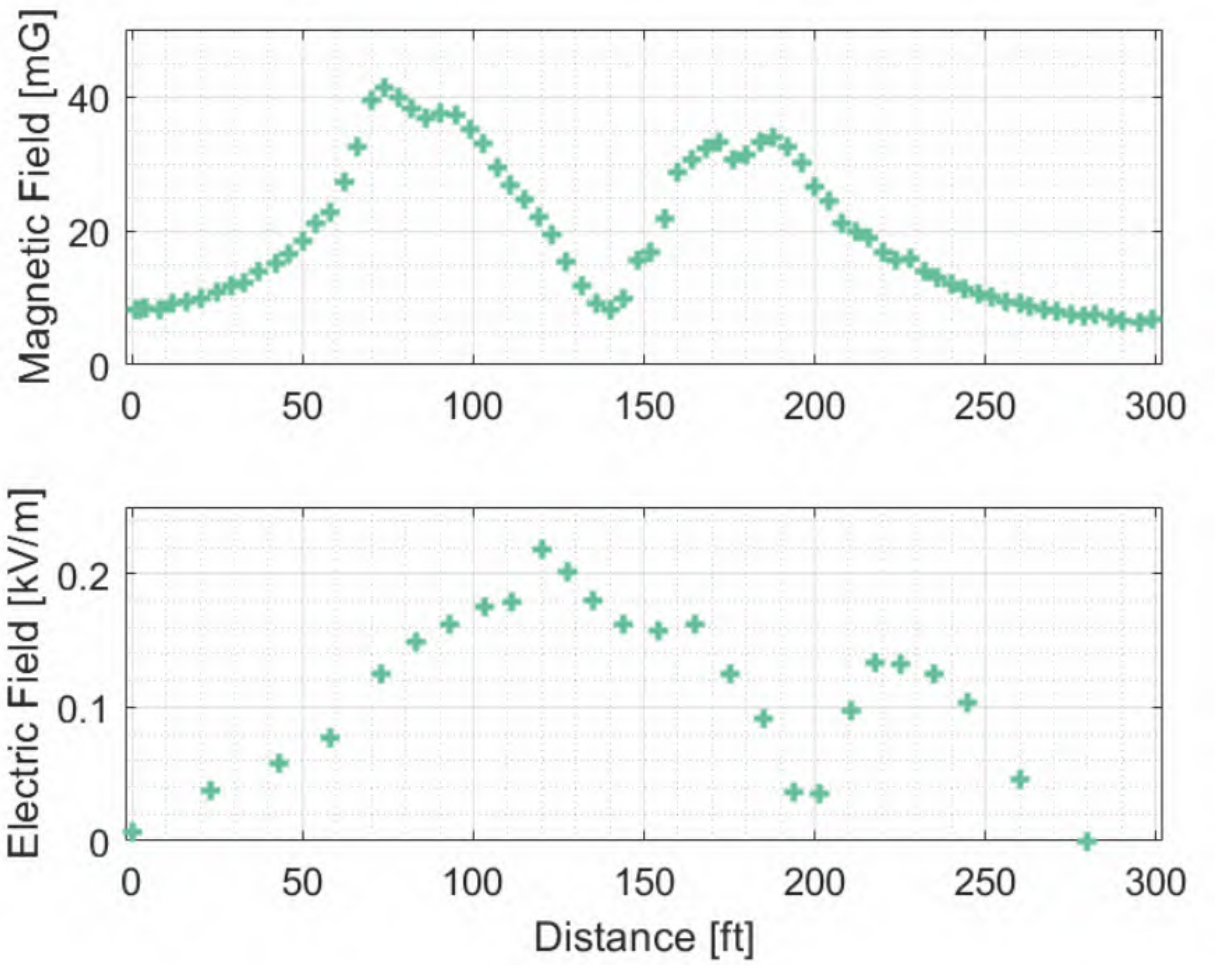
Location Name	Category	Address	Distance from proposed transmission line
Duck Pond Day Care Preschool	Day Care	132 New Haven Avenue, Milford	245 feet south
Gingerbread House of Milford	Day Care	61 River Street, Milford	175 feet north
Day Care	Day Care	37 George Street, West Haven	315 feet south
Great Beginnings Preschool	Day Care	100 Washington Street, Milford	90 to 380 feet north
Beaver Brook Trails	Parks & Recreation	631 West Avenue, Milford	~630 feet north
Playground	Playground	1-11 Hill Street, Milford	165 to 525 feet north
Harborside Middle School	School	175 High Street, Milford	380 feet north
Milford Center for the Arts	Youth Camp	40 Railroad Avenue, Milford	65 feet south

(UI 1, Vol. 1A, Appendix E – EMF Report, p. D-2)

245. The nearest residence to the proposed transmission line is located approximately 40 feet to the north at Clark Street, West Haven. (UI 1, Vol. 1A, Appendix E – EMF Report, p. D-3)

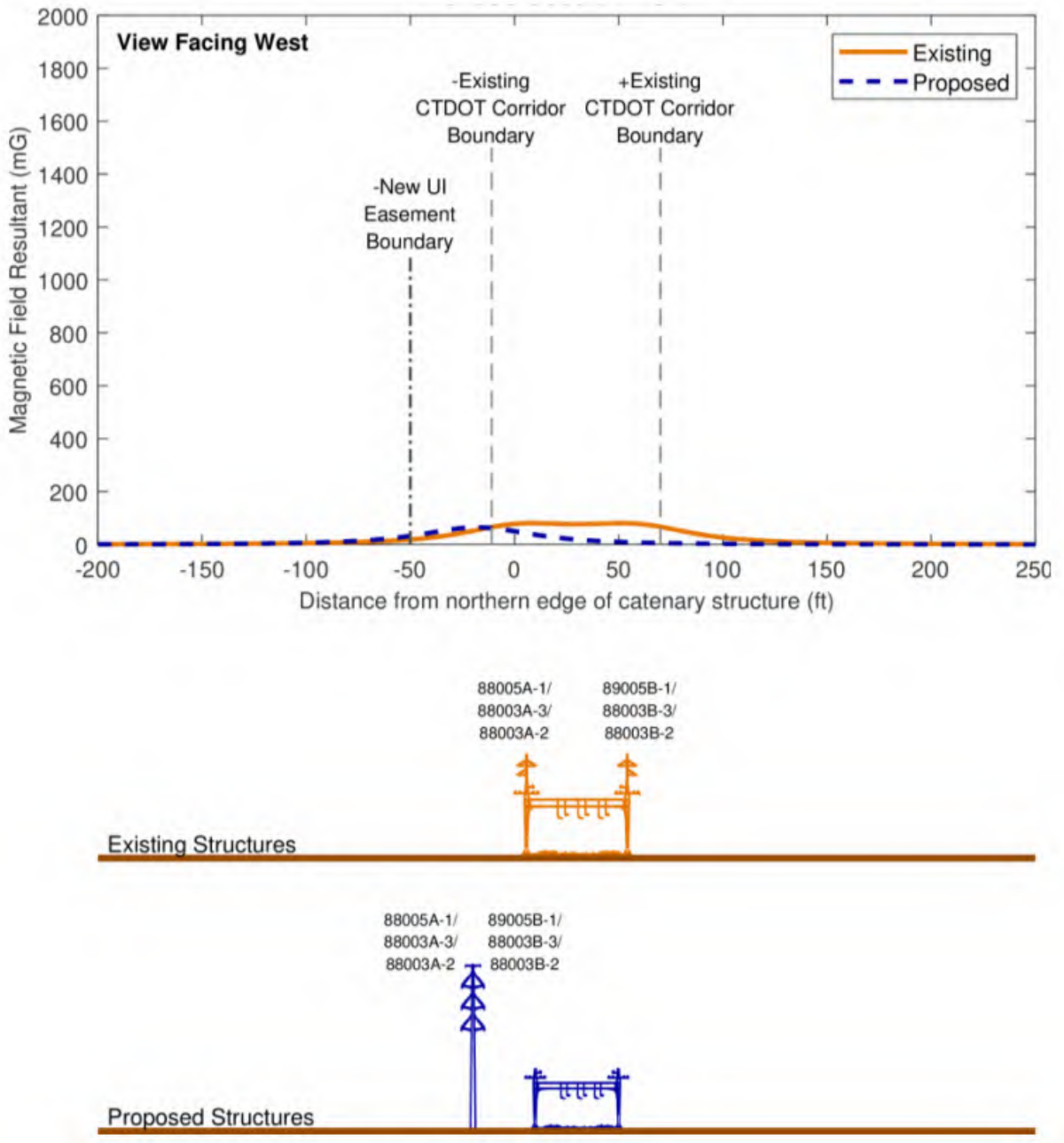
246. Field measurements of existing, preconstruction MF and EF were taken along the existing DOT corridor and along the Woodmont Road overpass in Milford, where it transects the transmission centerlines. (UI 1, Vol. 1A, Appendix E – EMF Report, p. 12)

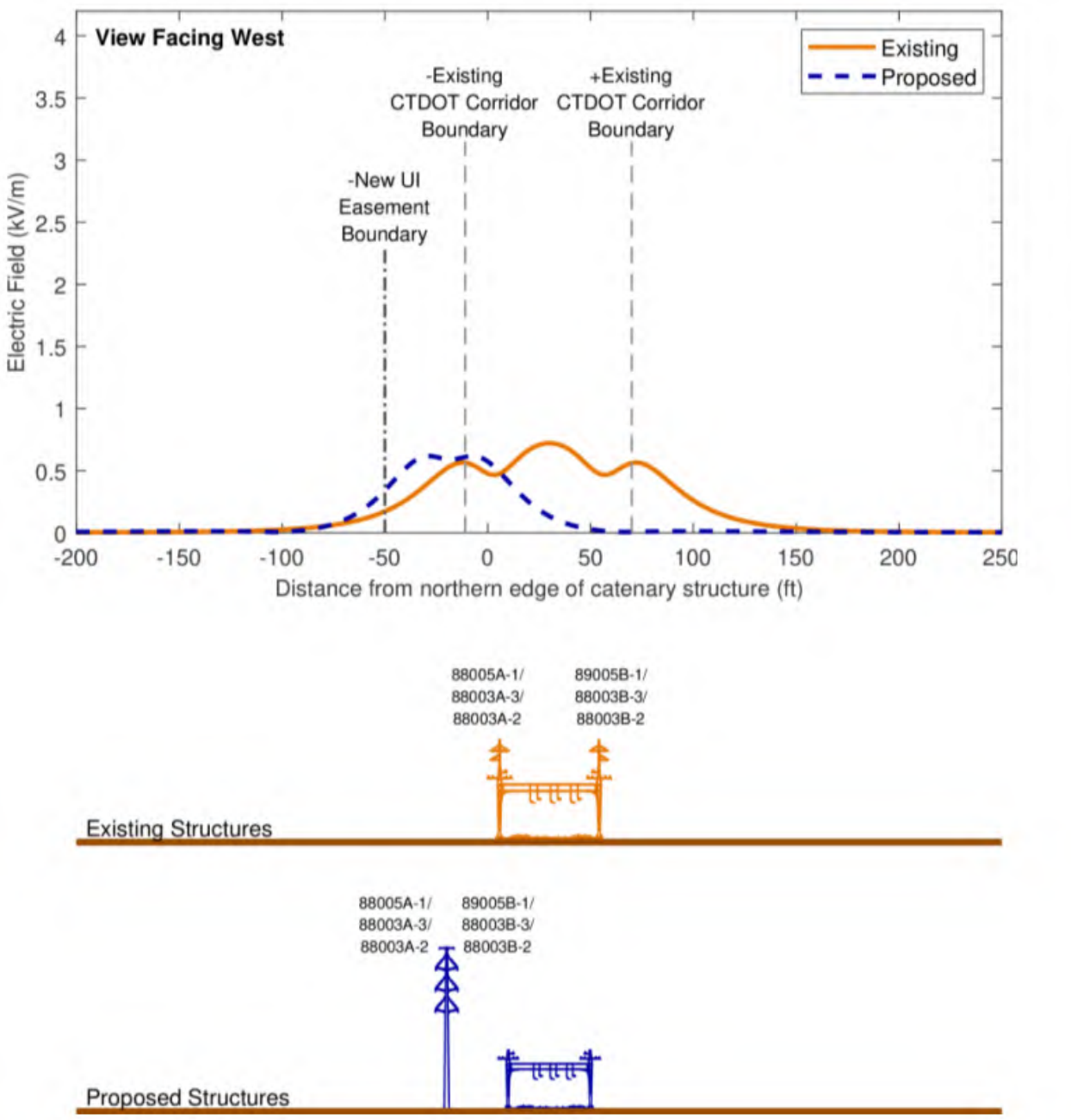
247. Field measurements of existing MF and EF along the Woodmont Road overpass in Milford are listed below.



(UI 1, Vol. 1A, Appendix E – EMF Report, p. D-13)

248. A cross-section of the Project with existing and proposed EMF values is listed below.





(UI 1, Vol. 1A, Appendix E – EMF Report, p. 16)

249. A vertical conductor arrangement was selected by UI to accommodate a double-circuit configuration, i.e. one circuit on each side of the structures and because a horizontal conductor configuration would require nearly double the ROW width. (Tr. 1, p. 31)

250. The EMF BMPs directs an Applicant to initially develop a baseline Field Management Design Plan that incorporates "no-cost" MF mitigation design features. The Applicant shall then study potential design alternatives by adding "low-cost" MF mitigation design features specifically where portions of the project are adjacent to residential areas, public or private schools, licensed child day-care facilities, licensed youth camps, or public playgrounds. The overall cost of "low-cost" design features are to be calculated at four percent of the initial Field Management Design Plan. The four percent guideline for "low-cost" mitigation should aim at a magnetic field reduction of 15 percent or more at the edge of the utility's ROW. This 15 percent reduction should relate specifically to those portions of the project where the expenditures would be made. (Council Administrative Notice Item No. 30 – Council's Best Management Practices for Electric and Magnetic Fields, pp. 4-10

251. UI's base Field Management Design Plan incorporates "no cost/low cost" magnetic field reduction measures, consistent with the Council's EMF BMPs, through the use of the following: distance via the rebuilt lines located farther from the southern DOT boundary and the use the permanent easements (where necessary) north of the DOT boundary; taller structures to raise the heights of the transmission conductors; and double-circuit vertical structures while arranging the conductor phases to achieve substantial MF cancellation. This "no cost/low cost" design was used to develop the pre and post project MF calculations. (UI 1, Appendix E – EMF Report, pp. 10-11)

Public Safety

252. The proposed Project would be constructed in full compliance with the National Electric Safety Code, standards of the Institute of Electrical and Electronic Engineers, the American National Standards Institute, good utility practice, and UI's technical specifications. (UI 1, Vol. 1, p. 3-1)

253. UI would utilize existing protective relaying equipment to automatically detect abnormal operational system conditions and to send a protective trip signal to circuit breakers to isolate the faulted section of the transmission system. (UI 1, Vol. 1, p. 3-21)

254. Fiber optic cable would be installed on the replacement transmission lines to provide a reliable communications path for the existing protective relaying systems. (UI 1, Vol. 1, p. 3-22)

255. Protective relaying and associated equipment, along with a Supervisory Control and Data Acquisition (SCADA) system for 24/7 remote control and equipment monitoring is housed at UI's System Operations Center. (UI 1, Vol. 1, p. 3-22)

256. Smoke detection systems are already in place in the existing relay and control enclosures at the five UI substations. In the event smoke is detected, an alarm would be activated at UI's Electric Control Center, and system operators would take appropriate action. (UI 1, Vol. 1, p. 3-22)

257. The relay and control enclosures at each of the five substations are equipped with both manual and automatic fire suppression systems and methods. Specifically, the substations are equipped with portable manual fire extinguishers and fire alarm system. (UI 1, Vol. 1, p. 3-22; UI 5, response 37)

258. The Project would be consistent with the Council's *White Paper on the Security of Siting Energy Facilities*. The white paper guidelines focused on security issues related to intentional physical destruction of substation equipment. (Council Administrative Notice Item No. 33; UI 1, Vol. 1, p. 3-23)

259. The five substations are equipped with lighting to facilitate work at night under emergency conditions or during inclement weather. (UI 1, Vol. 1, p. 3-22)

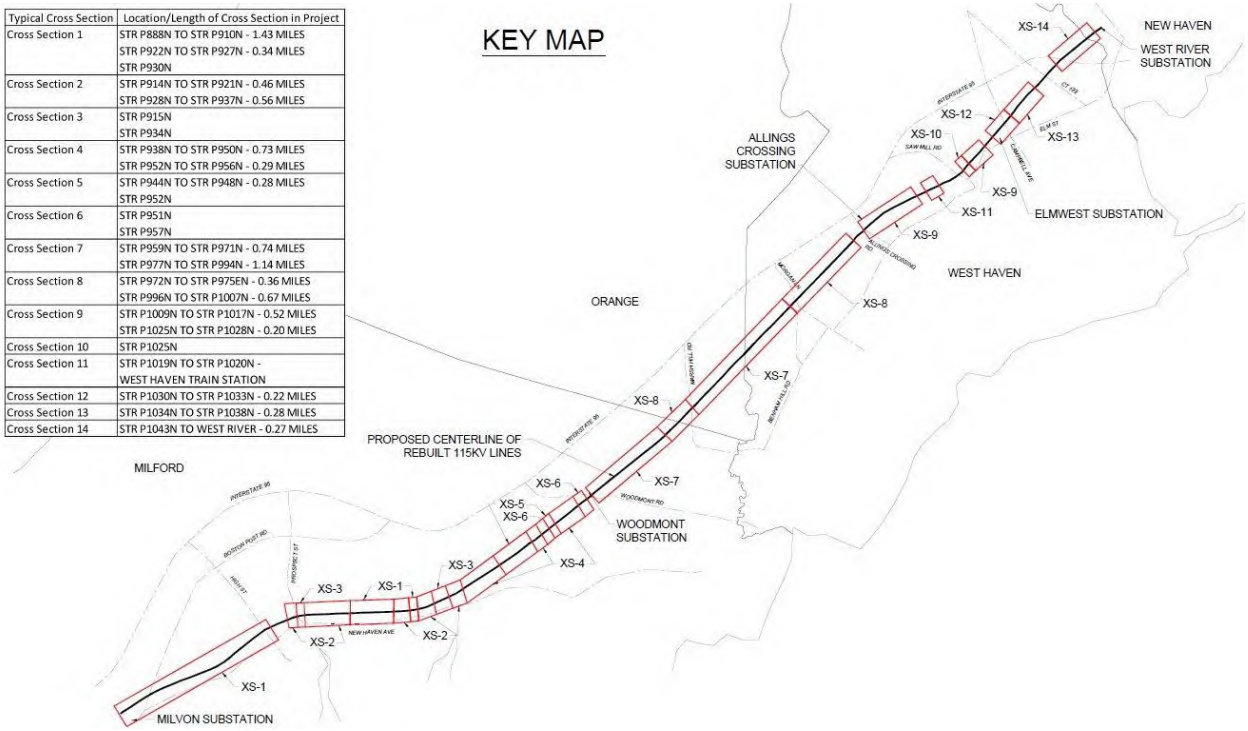
260. Lighting would be required for Project construction activities that must occur during nighttime hours. For such work, temporary portable lighting would be needed. (UI 1, p. 6-29)

261. Operation of the Project would not require any lighting along the replacement 115-kV transmission route or any new lighting at the five substations. (UI 1, Vol. 1, p. 6-29)

262. Signs are installed at each substation to alert the public to the presence of high voltage at the facilities. (UI 1, p. 3-22)

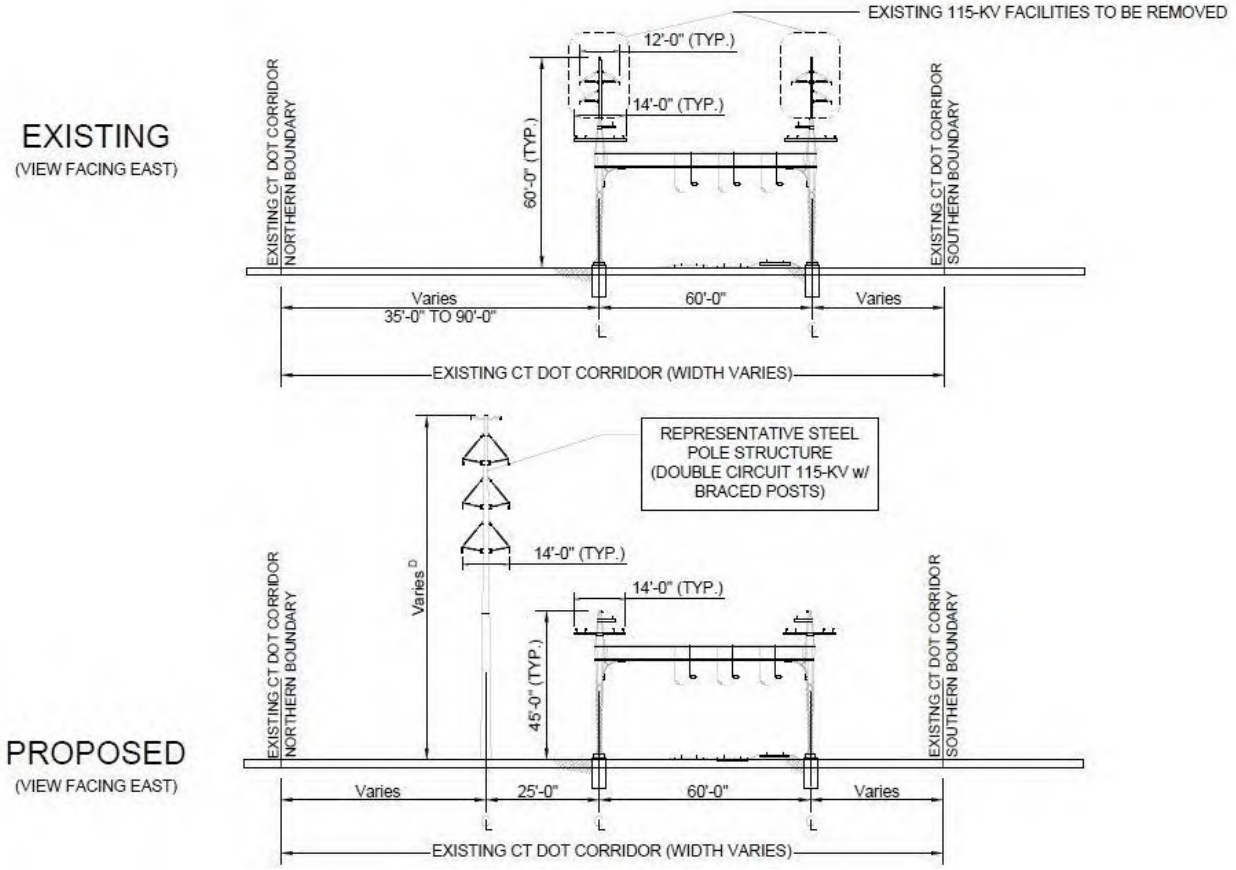
Figure 1 – Map Key

Typical Cross Section	Location/Length of Cross Section in Project
Cross Section 1	STR P888N TO STR P910N - 1.43 MILES STR P922N TO STR P927N - 0.34 MILES STR P930N
Cross Section 2	STR P914N TO STR P921N - 0.46 MILES STR P928N TO STR P937N - 0.56 MILES
Cross Section 3	STR P915N STR P934N
Cross Section 4	STR P938N TO STR P950N - 0.73 MILES STR P952N TO STR P956N - 0.29 MILES
Cross Section 5	STR P944N TO STR P948N - 0.28 MILES STR P952N
Cross Section 6	STR P951N STR P957N
Cross Section 7	STR P959N TO STR P971N - 0.74 MILES STR P977N TO STR P994N - 1.14 MILES
Cross Section 8	STR P972N TO STR P975EN - 0.36 MILES STR P996N TO STR P1007N - 0.67 MILES
Cross Section 9	STR P1009N TO STR P1017N - 0.52 MILES STR P1025N TO STR P1028N - 0.20 MILES
Cross Section 10	STR P1025N
Cross Section 11	STR P1019N TO STR P1020N - WEST HAVEN TRAIN STATION
Cross Section 12	STR P1030N TO STR P1033N - 0.22 MILES
Cross Section 13	STR P1034N TO STR P1038N - 0.28 MILES
Cross Section 14	STR P1043N TO WEST RIVER - 0.27 MILES



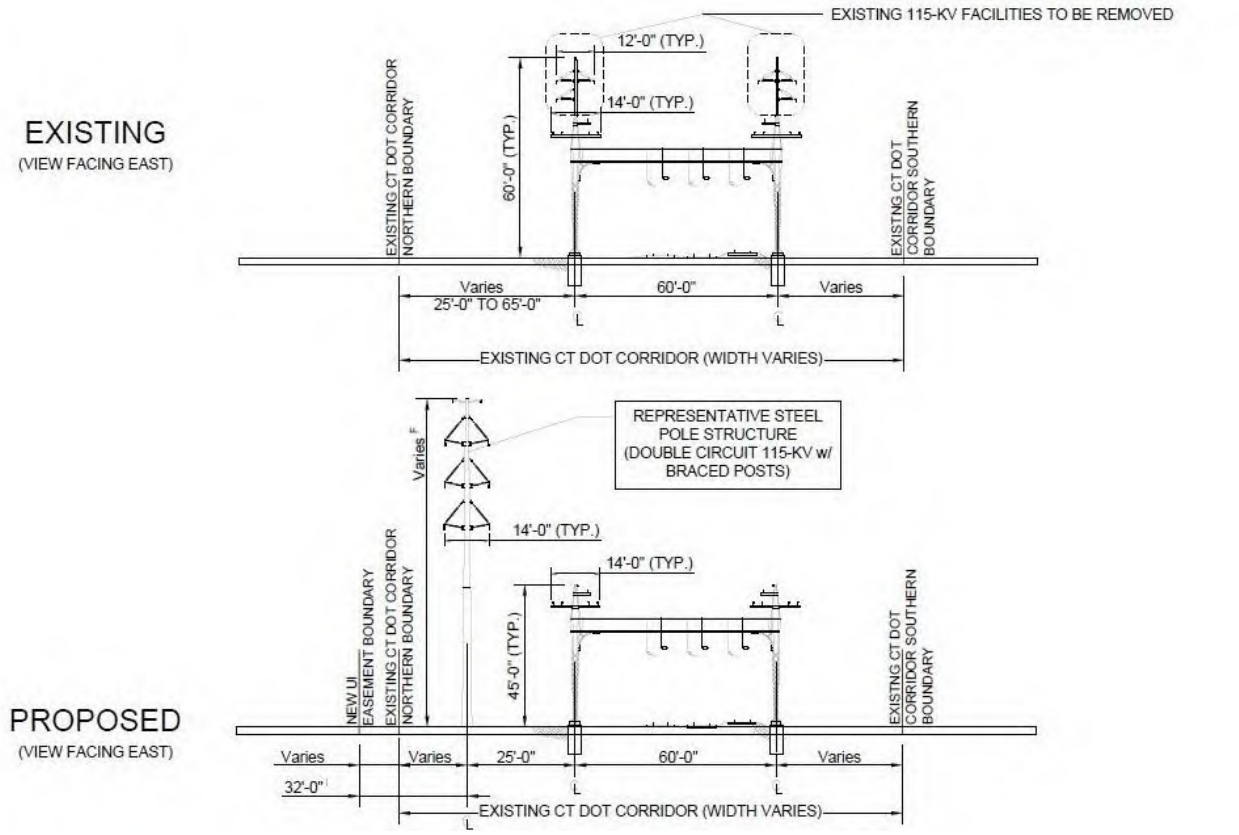
(UI 1, Vol. 2, Attachment V2.2)

Figure 2 – Milvon Substation to Woodmont Substation Structure Nos. P888N to P910N – Cross Section



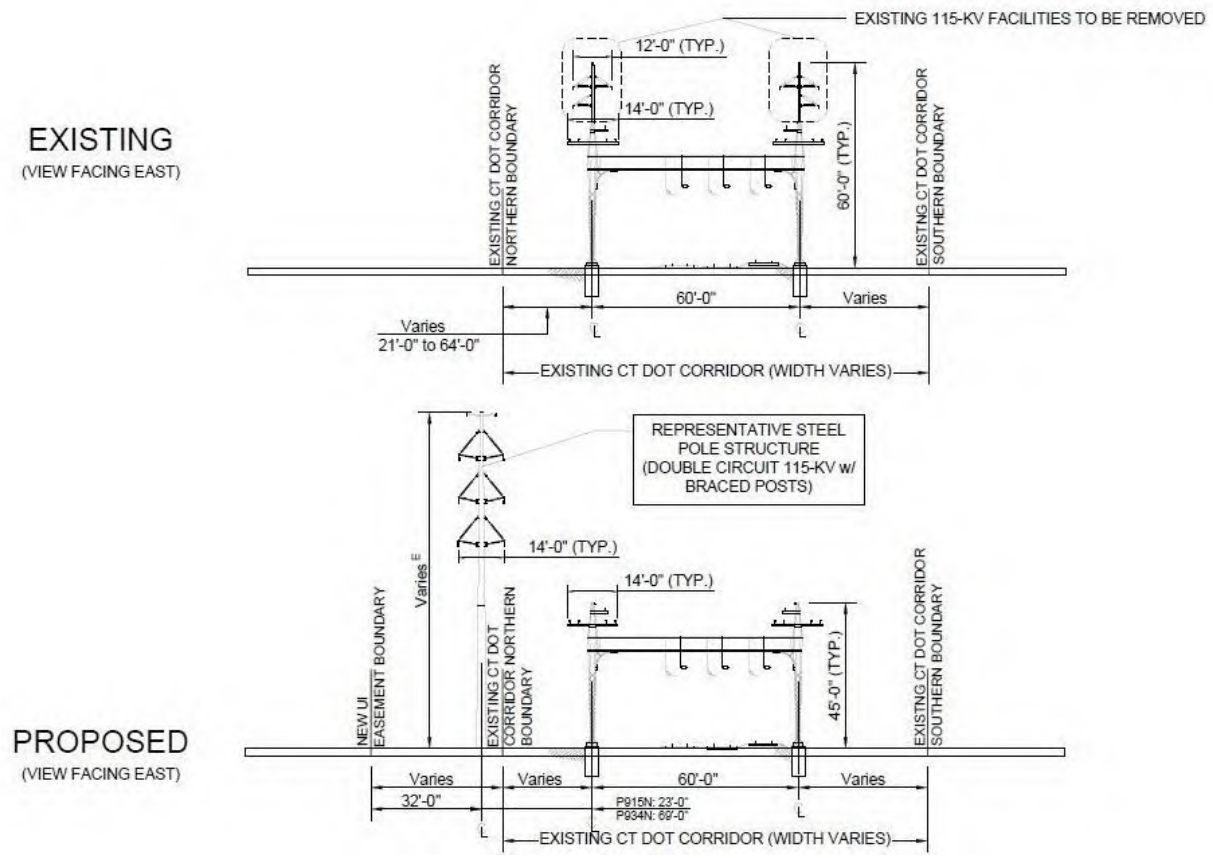
(UI 1, Vol. 2, Attachment V2.2)

Figure 3 – Milvon Substation to Woodmont Substation Structure Nos. P914N to P921N – Cross Section



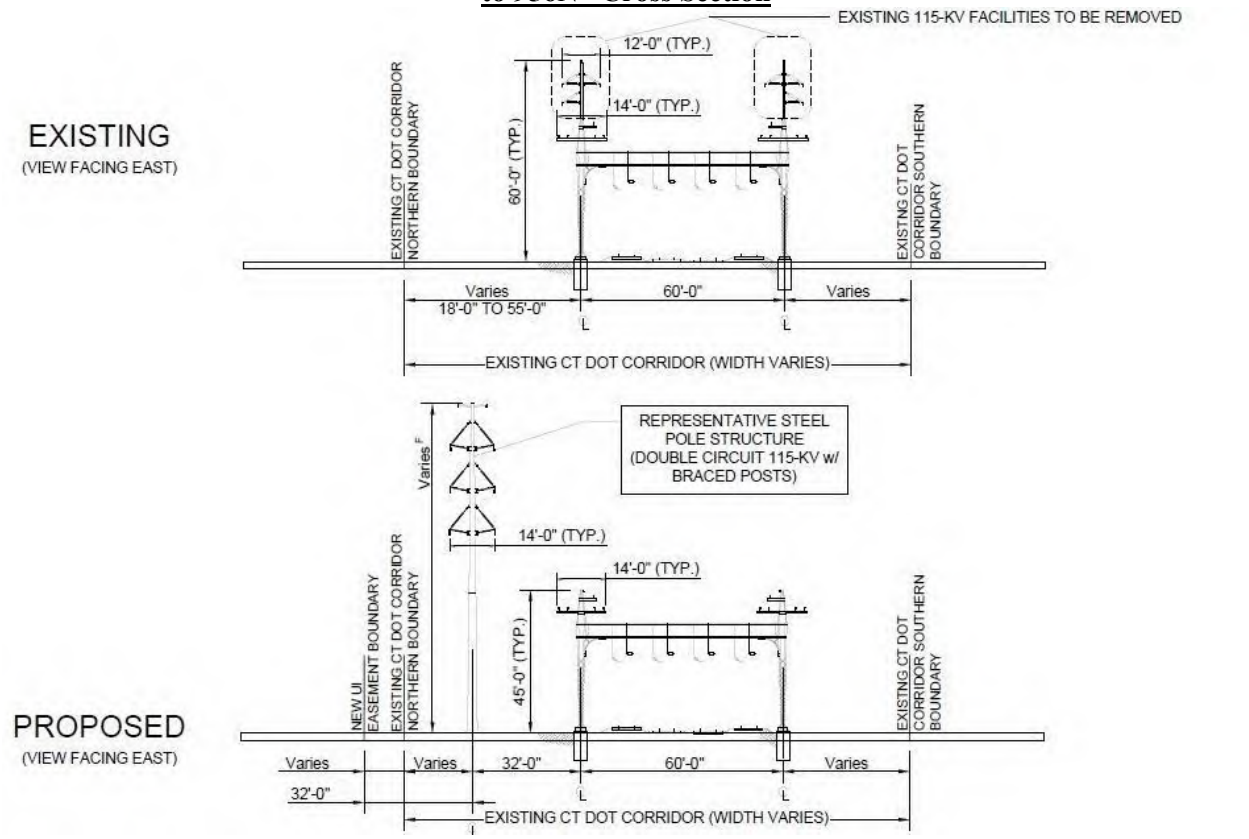
(UI 1, Vol. 2, Attachment V2.2)

Figure 4 – Milvon Substation to Woodmont Substation Structure Nos. P915N and P934N – Cross Section



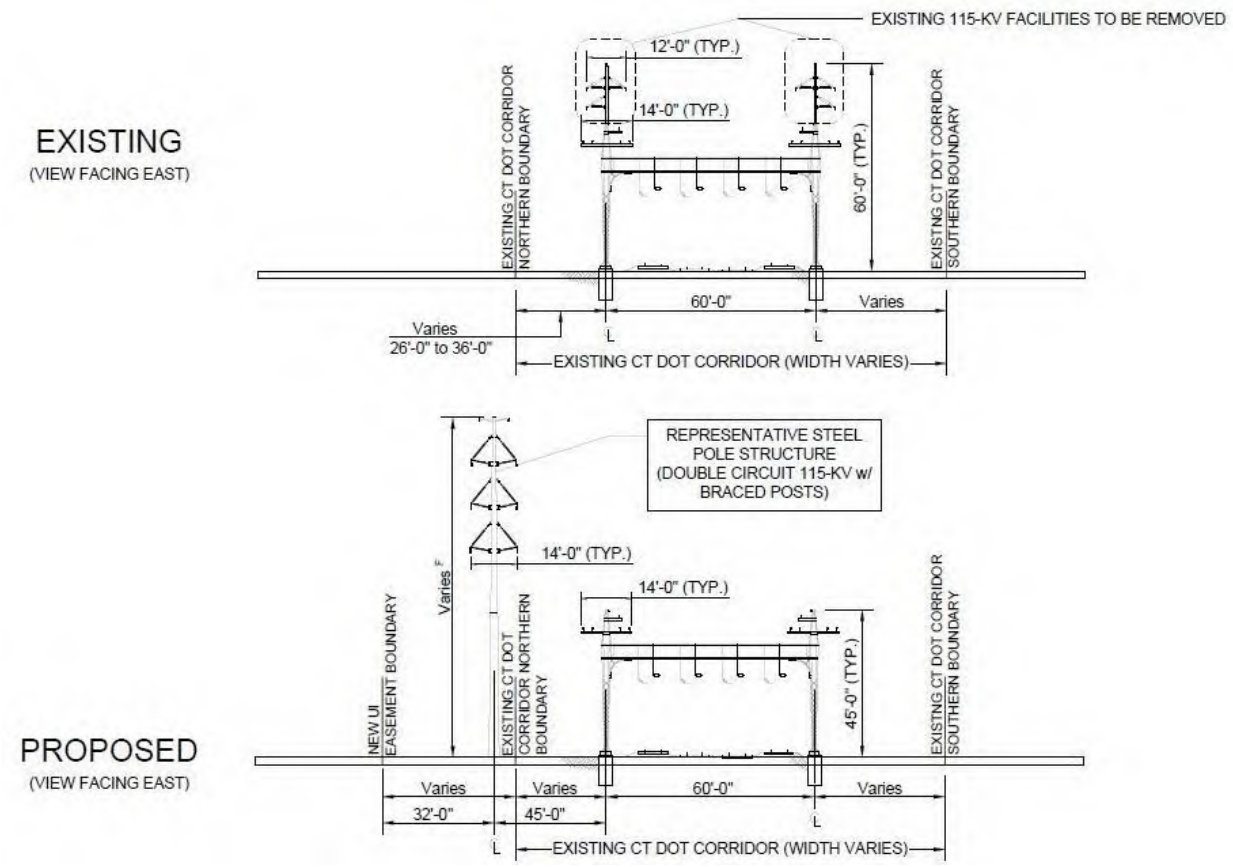
(UI 1, Vol. 2, Attachment V2.2)

Figure 5 – Milvon Substation to Woodmont Substation Structure Nos. P938N to P950N and P952N to 956N– Cross Section



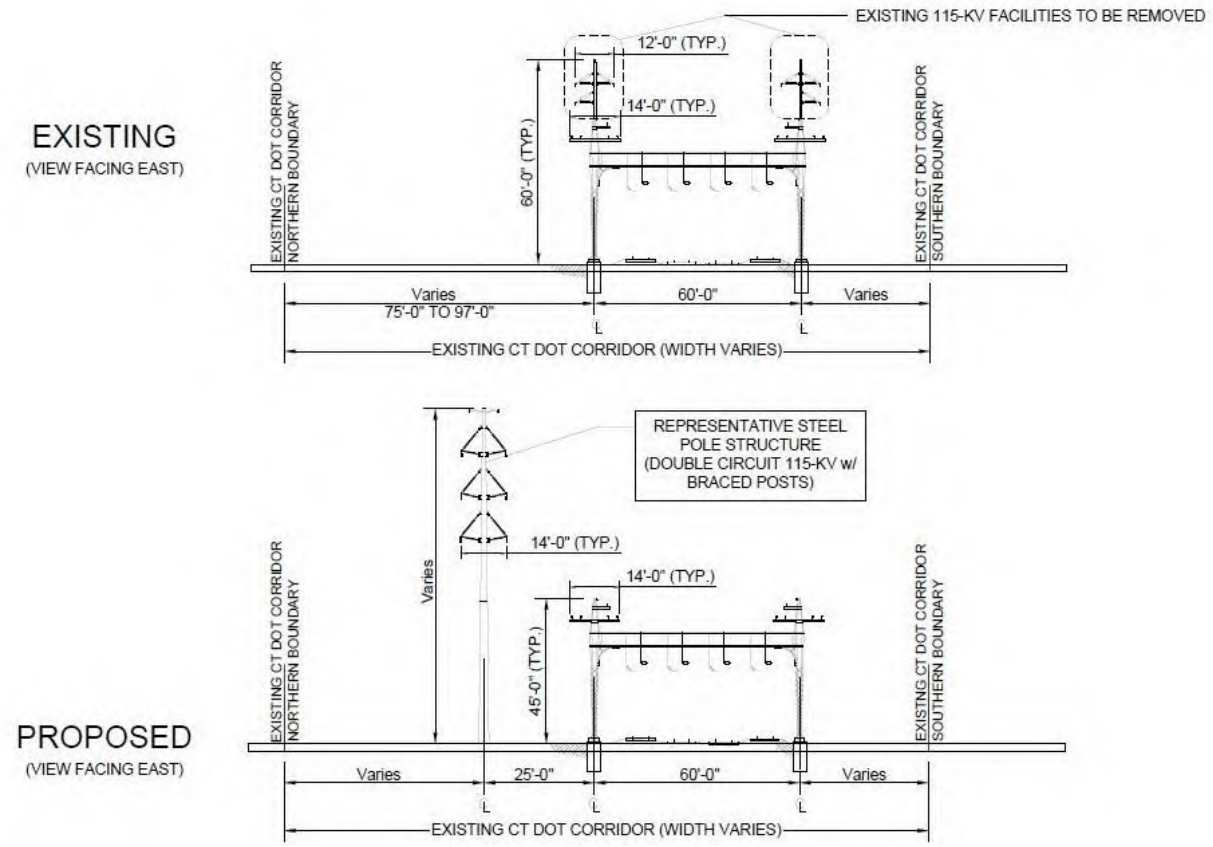
(UI 1, Vol. 2, Attachment V2.2)

Figure 6 – Milvon Substation to Woodmont Substation Structure Nos. P944N to P948N– Cross Section



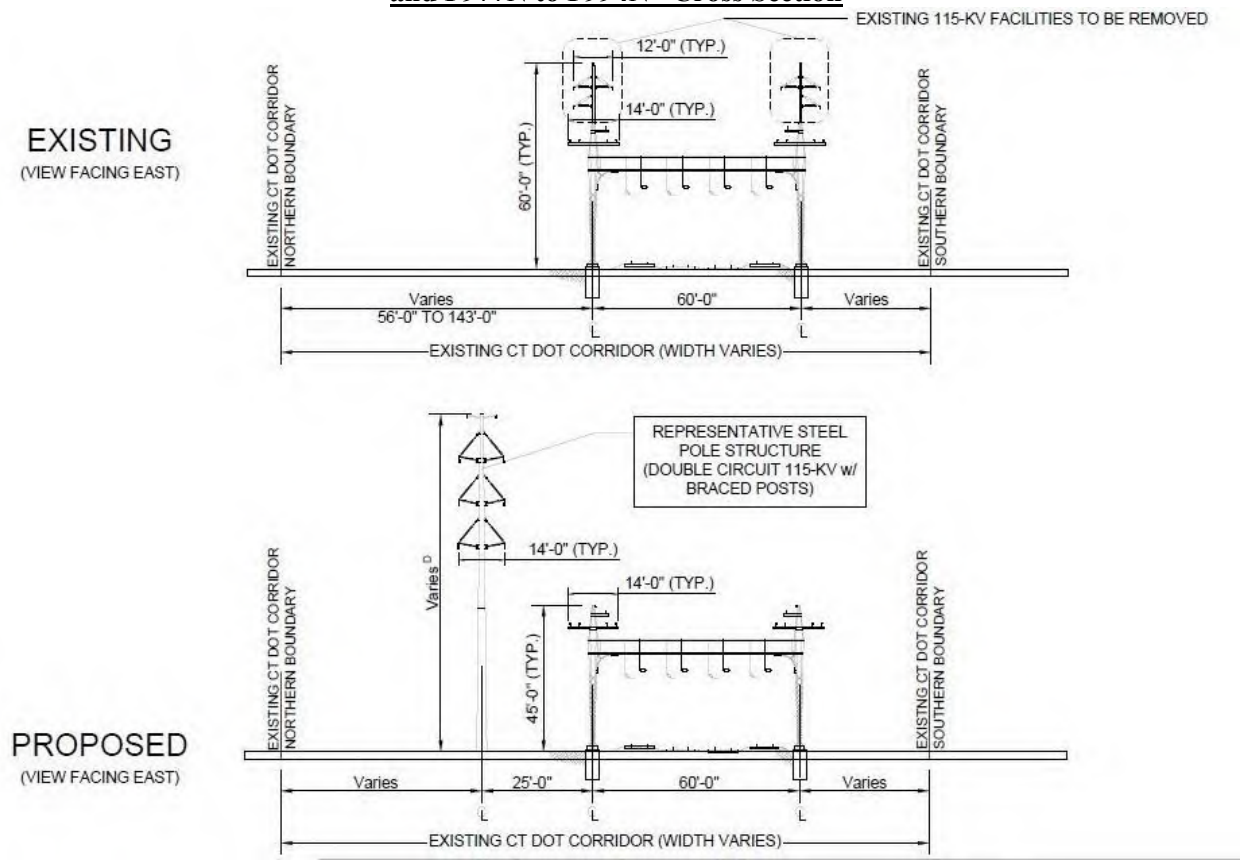
(UI 1, Vol. 2, Attachment V2.2)

Figure 7 – Milvon Substation to Woodmont Substation Structure Nos. P951N and P957N– Cross Section



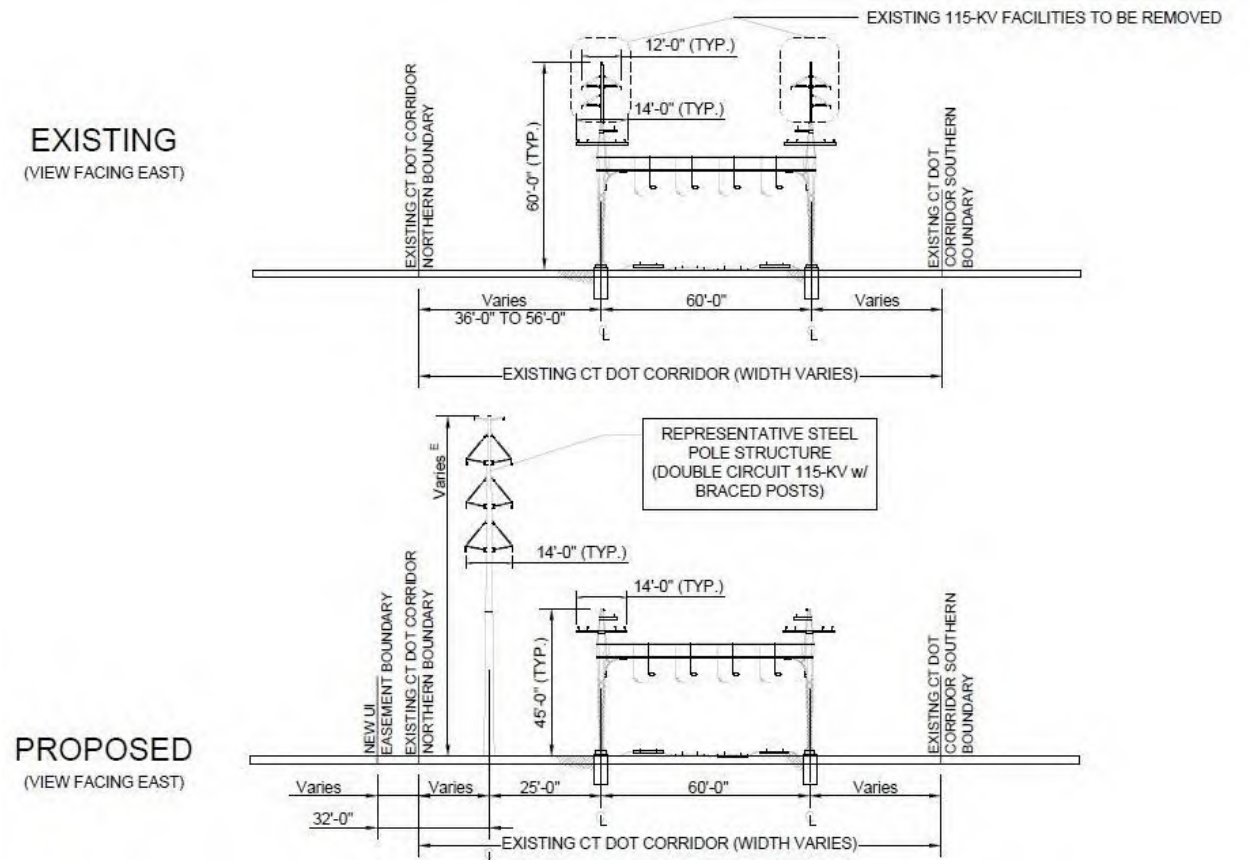
(UI 1, Vol. 2, Attachment V2.2)

Figure 8 –Woodmont Substation to Allings Crossing Substation Structure Nos. P959N to P971N and P977N to P994N– Cross Section



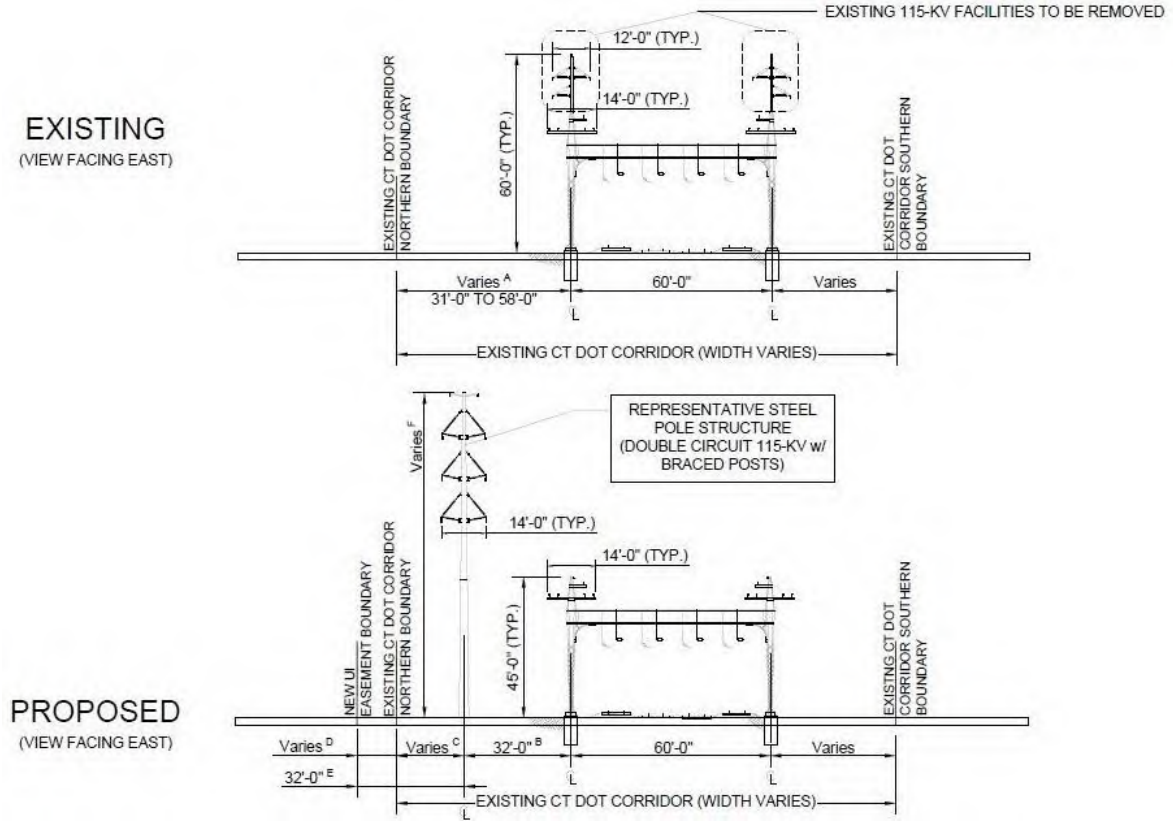
(UI 1, Vol. 2, Attachment V2.2)

Figure 9 –Woodmont Substation to Allings Crossing Substation Structure Nos. P972N to P975EN and P996N to P1007N– Cross Section



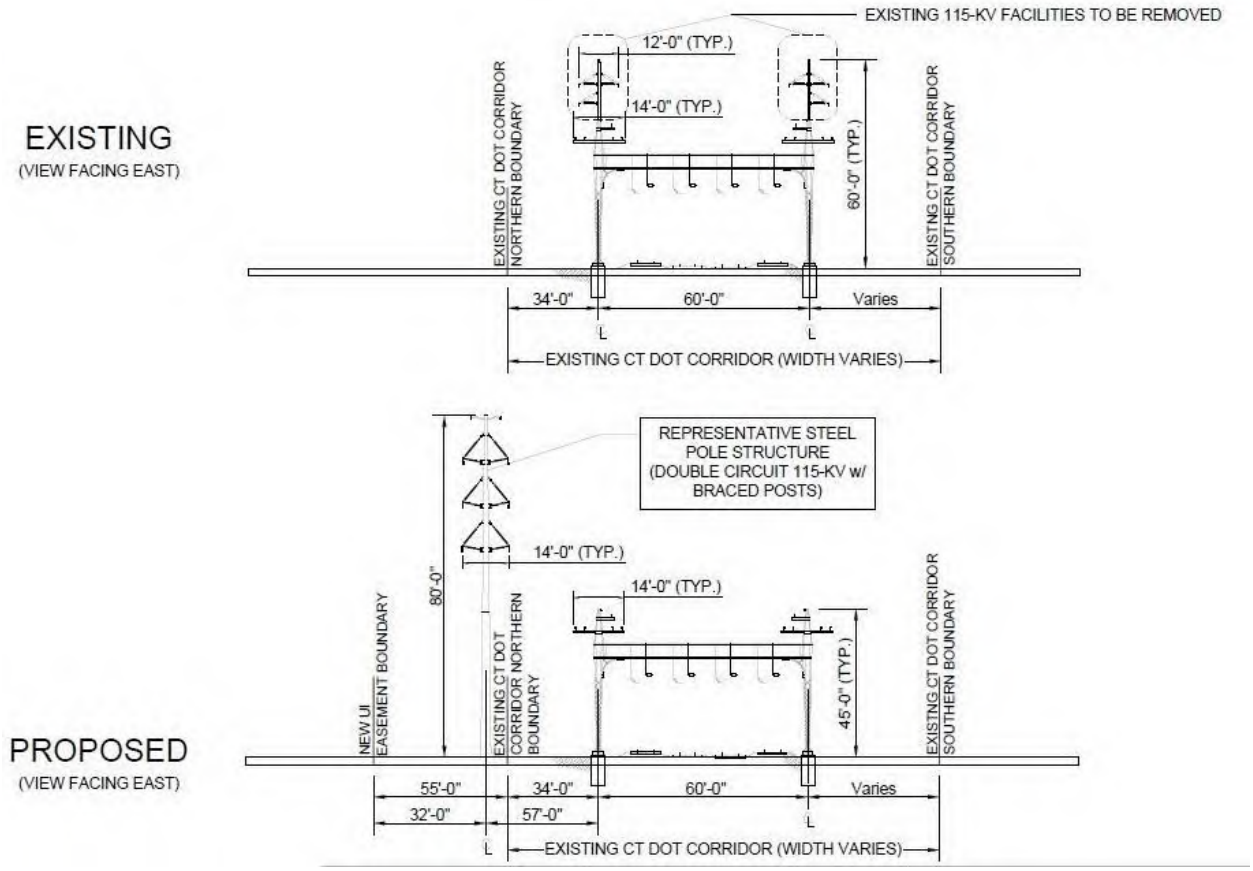
(UI 1, Vol. 2, Attachment V2.2)

Figure 10 –Allings Crossing Substation to Elmwest Substation Structure Nos. P1009N to P1017N and P1025N to P1028N– Cross Section



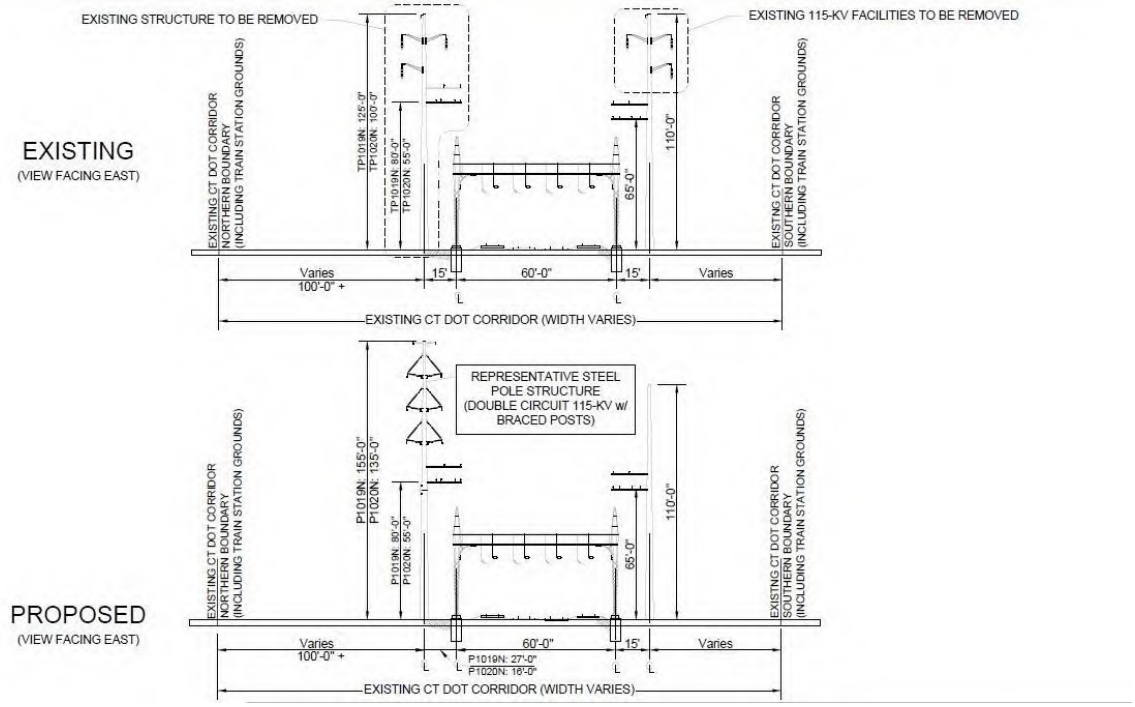
(UI 1, Vol. 2, Attachment V2.2)

Figure 11 –Allings Crossing Substation to Elmwest Substation Structure No. P1025N– Cross Section



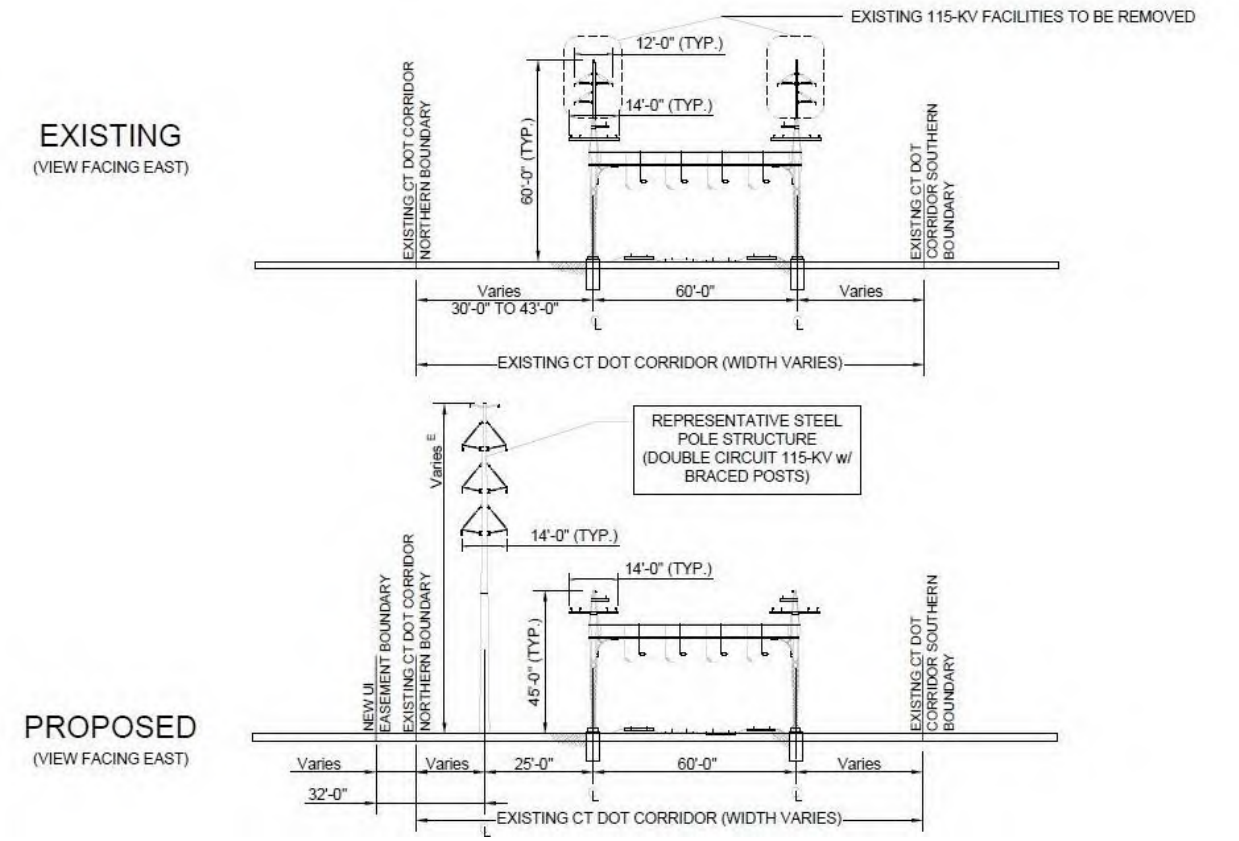
(UI 1, Vol. 2, Attachment V2.2)

Figure 12 –Allings Crossing Substation to Elmwest Substation Structure Nos. P1019N to P1020N – Cross Section



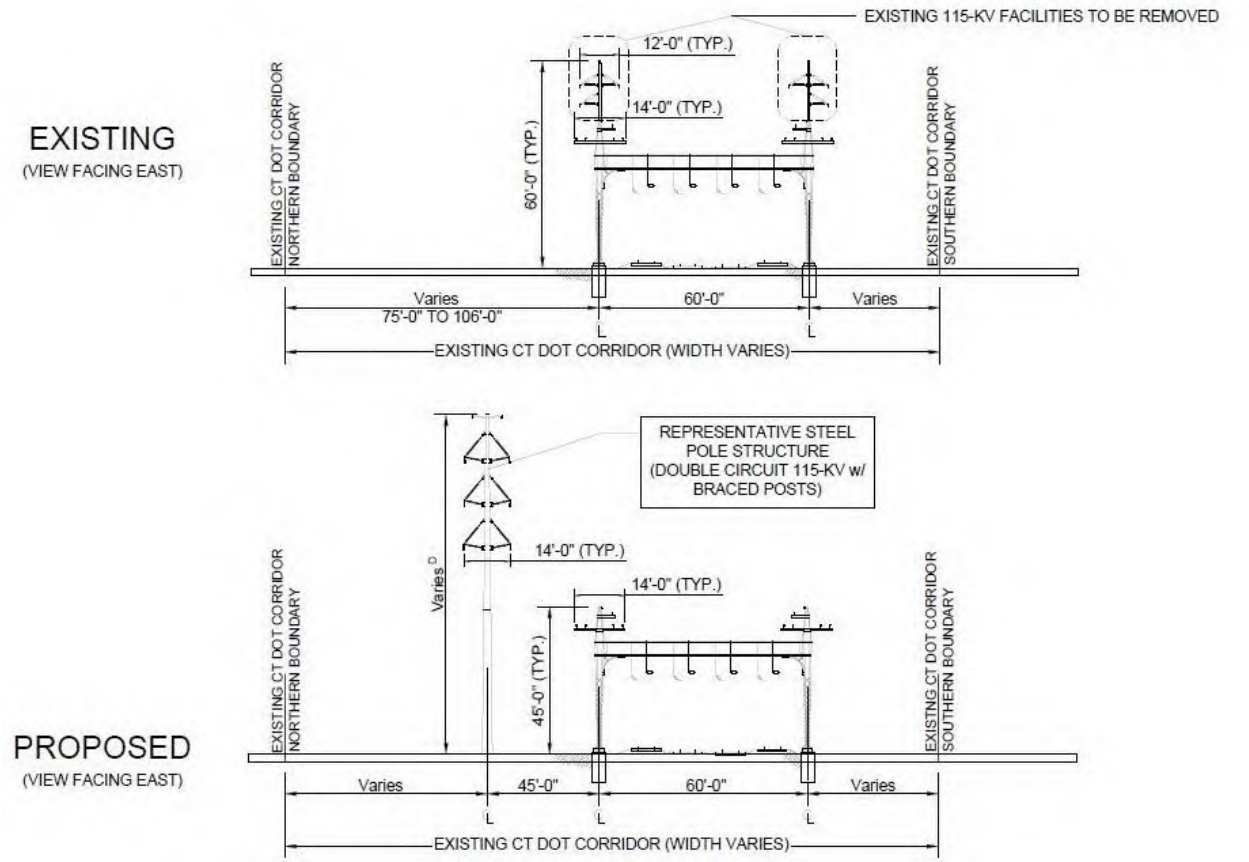
(UI 1, Vol. 2, Attachment V2.2)

Figure 13 –Elmwest Substation to West River Substation Structure Nos. P1030N to P1033N – Cross Section



(UI 1, Vol. 2, Attachment V2.2)

Figure 14 –Elmwest Substation to West River Substation Structure Nos. P1034N to P1038N – Cross Section



(UI 1, Vol. 2, Attachment V2.2)

Figure 15 – Cost Table

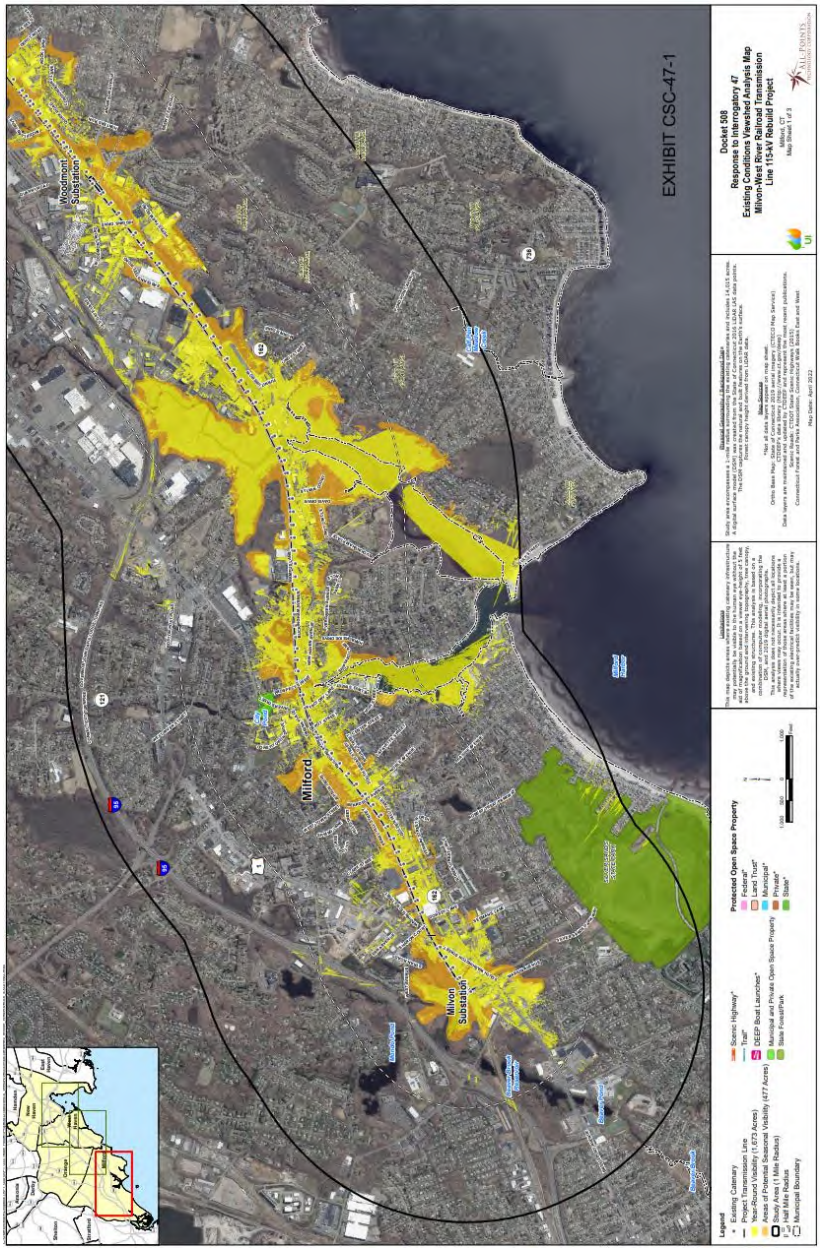
UI MILLVON WEST RIVER TRANSMISSION LINE REBUILD PROJECT (D508) - COST TABLE

Option	Project Component	Section Length in Linear Miles	Transmission Line Costs (A)	Distribution Related Costs (B)	Substation Costs (C)	Transition Station Costs (D)	HDD Costs (E)	Jack & Bore Costs (F)	Misc. Costs (e.g. bonnet decommissioning) (G)	Total Cost Estimate (H)*	Proposed Project Cost for this Section or Alternative (I)	Cost Delta (H-I)
A	Overhead Transmission Line, north side of RR ROW (proposed)	9.5	$222,550,000	$1,250,000	$3,850,000	$0	$0	$0	$67,350,000	$295,000,000	$295,000,000	$0
B	Overhead Transmission Line, south side of RR ROW	9.5	$265,475,000	$3,125,000	$3,850,000	$0	$0	$0	$67,350,000	$339,800,000	$295,000,000	$44,800,000
C	Overhead Transmission Line, Milford Alternative (reduce structure heights from 905N to 914N)	9.5	$223,400,000	$1,400,000	$3,850,000	$0	$0	$0	$67,350,000	$296,000,000	$295,000,000	$1,000,000
D	Overhead Transmission Line, shifted to south side of RR ROW from 905N to 914N	9.5	$234,250,000	$1,250,000	$3,850,000	$0	$0	$0	$67,350,000	$306,700,000	$295,000,000	$11,700,000
E	Underground Transmission Line, north side of RR ROW	9.5	$1,458,630,000	$0	$21,388,000	$0	$19,871,000	$0	$67,350,000	$1,567,239,000	$295,000,000	$1,272,239,000
F	Underground Transmission Line, south side of RR ROW	11.5	$1,291,748,000	$0	$11,458,000	$0	$27,540,000	$6,328,000	$67,350,000	$1,404,424,000	$295,000,000	$1,109,424,000
G	Underground Transmission Line within streets	9.5	$289,822,000	$1,250,000	$3,850,000	$1,522,000	$0	$590,000	$67,350,000	$364,384,000	$295,000,000	$69,384,000
H	Underground Transmission Line, Milford Alternative (from 905N to 914N) – RR ROW	9.5	$300,423,000	$1,250,000	$3,850,000	$1,522,000	$1,492,000	$0	$67,350,000	$357,887,000	$295,000,000	$80,887,000
I	Underground Transmission Line, Morissette Alternative (from 900N to 914N)	9.5	$337,740,800	$1,250,000	$3,850,000	$1,522,000	$1,492,000	$0	$67,350,000	$413,205,000	$295,000,000	$118,205,000
J	Overhead Transmission Line, Milford Alternative (reduce structure heights from 904N to 916N)	9.5	$222,900,000	$1,250,000	$3,850,000	$0	$0	$0	$67,350,000	$295,350,000	$295,000,000	$350,000

*These costs are for the total Project, including the Option described.
Per ISO-NE PP4, Appendix D, these are "Project Initiation" type estimates (-50%/+200% accuracy)
Revision 1 Notes: 1) Option J added to the chart
2) Options E, H, and I have updated transmission costs to include soft digging (~4') with in the railroad corridor per DOT comments
3) Option F is characterized in the above chart as south side of RR tracks. However due to the limited railroad corridor on the south side of the tracks and other constraints, this option is south side of the tracks with public streets
Please see attached Notes and Assumptions documents for further details

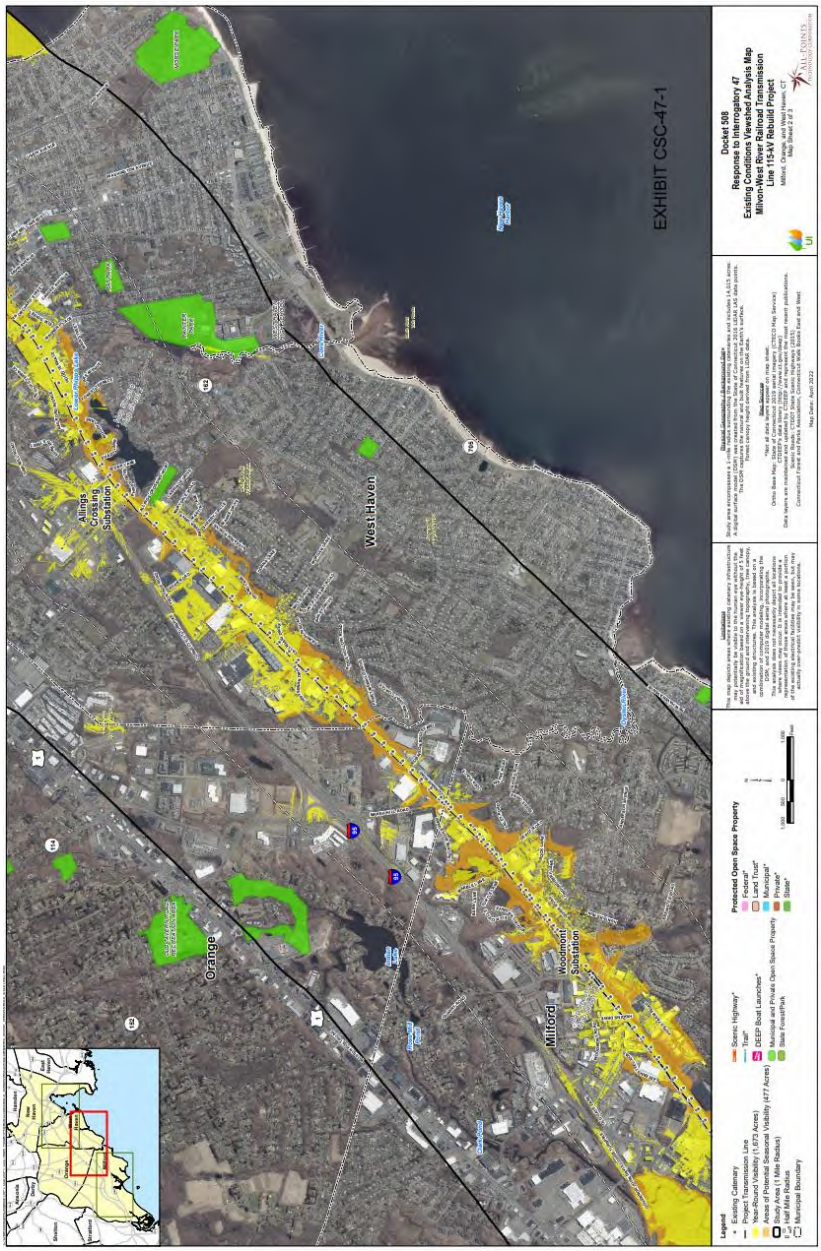
(UI 20 Late-Filed Exhibit June 23, 2022)

Figure 16 – Existing Visibility (Map 1 of 3)



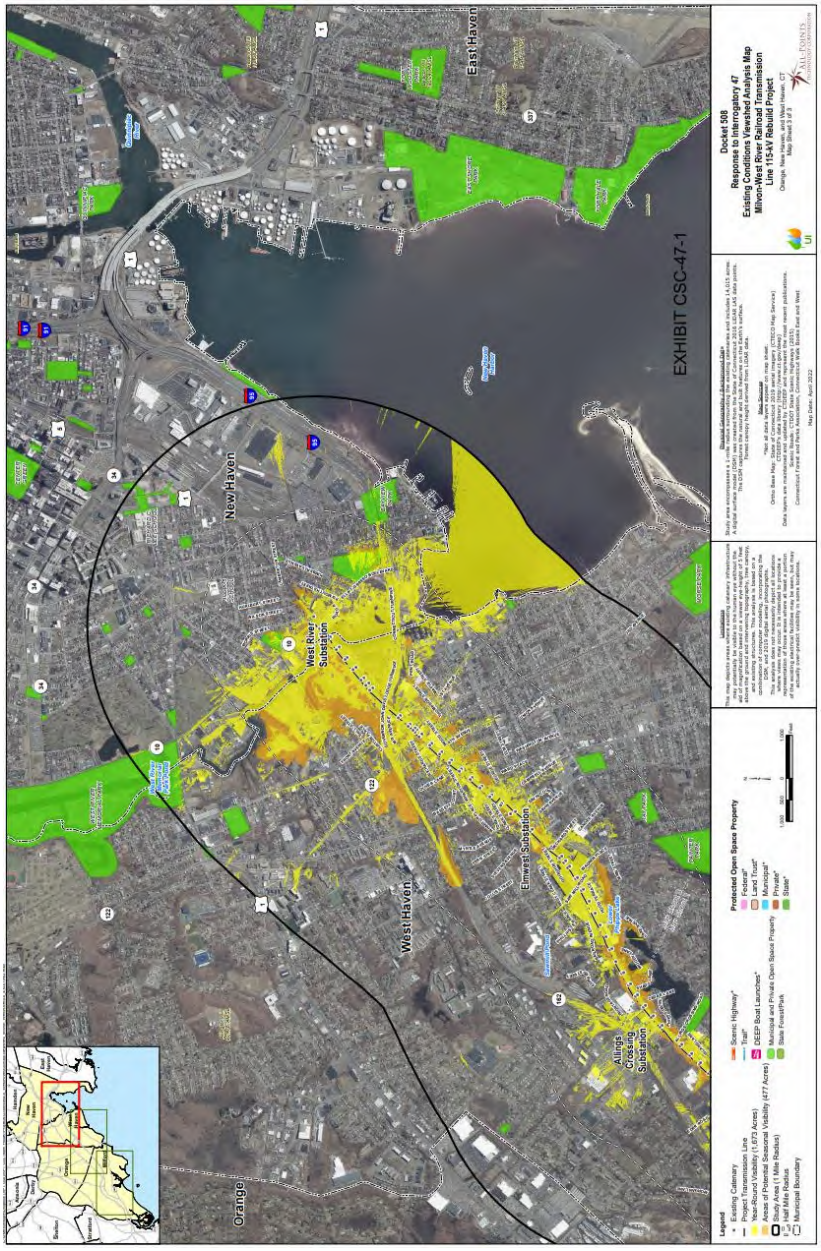
(UI 6, response 47)

Figure 17– Existing Visibility (Map 2 of 3)



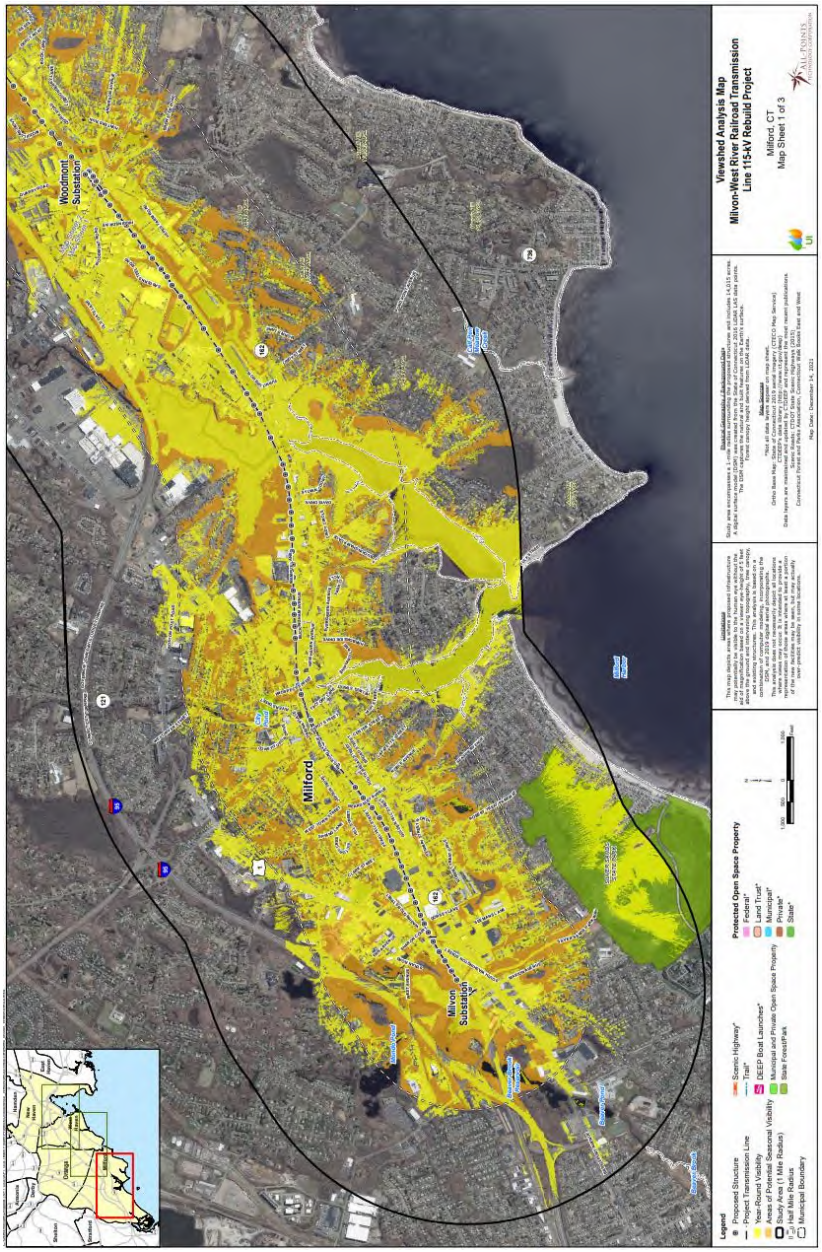
(UI 6, response 47)

Figure 18 – Existing Visibility (Map 3 of 3)



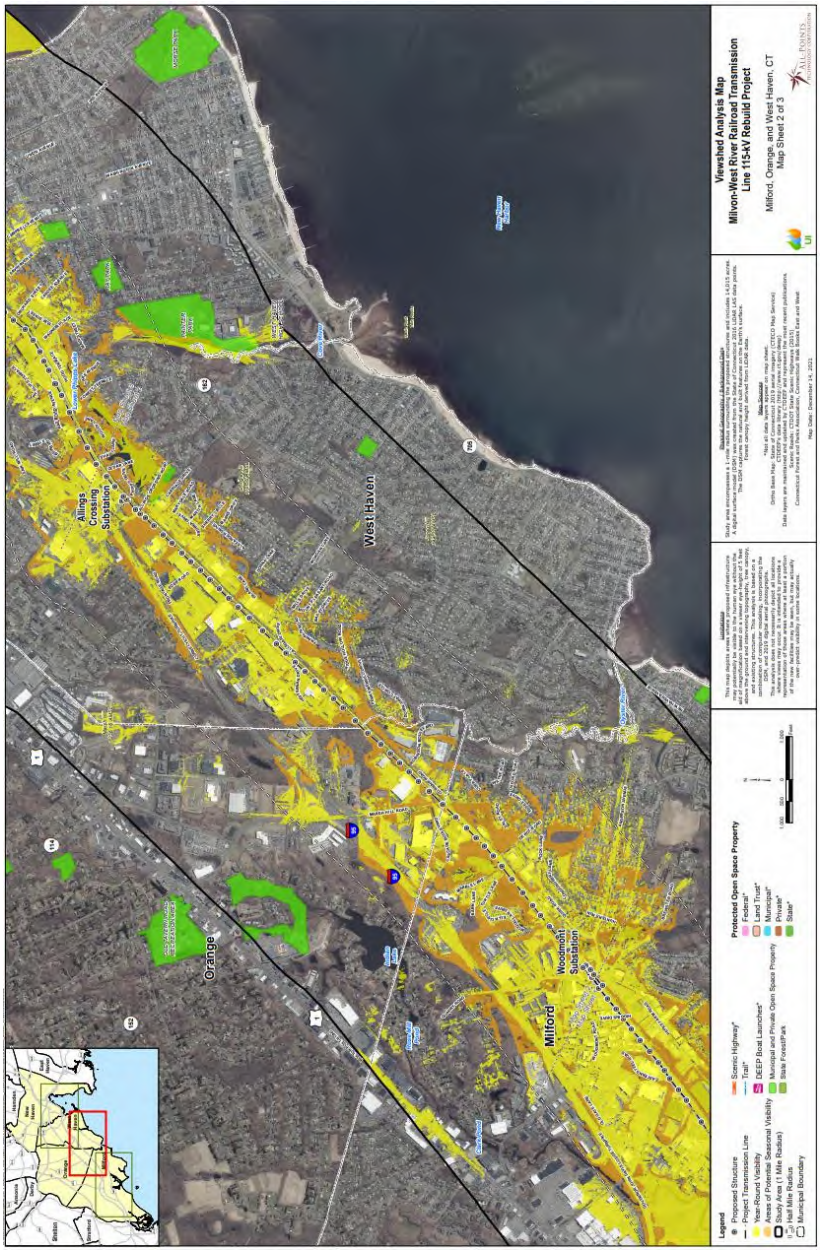
(UI 6, response 47)

Figure 19 – Proposed Visibility (Map 1 of 3)



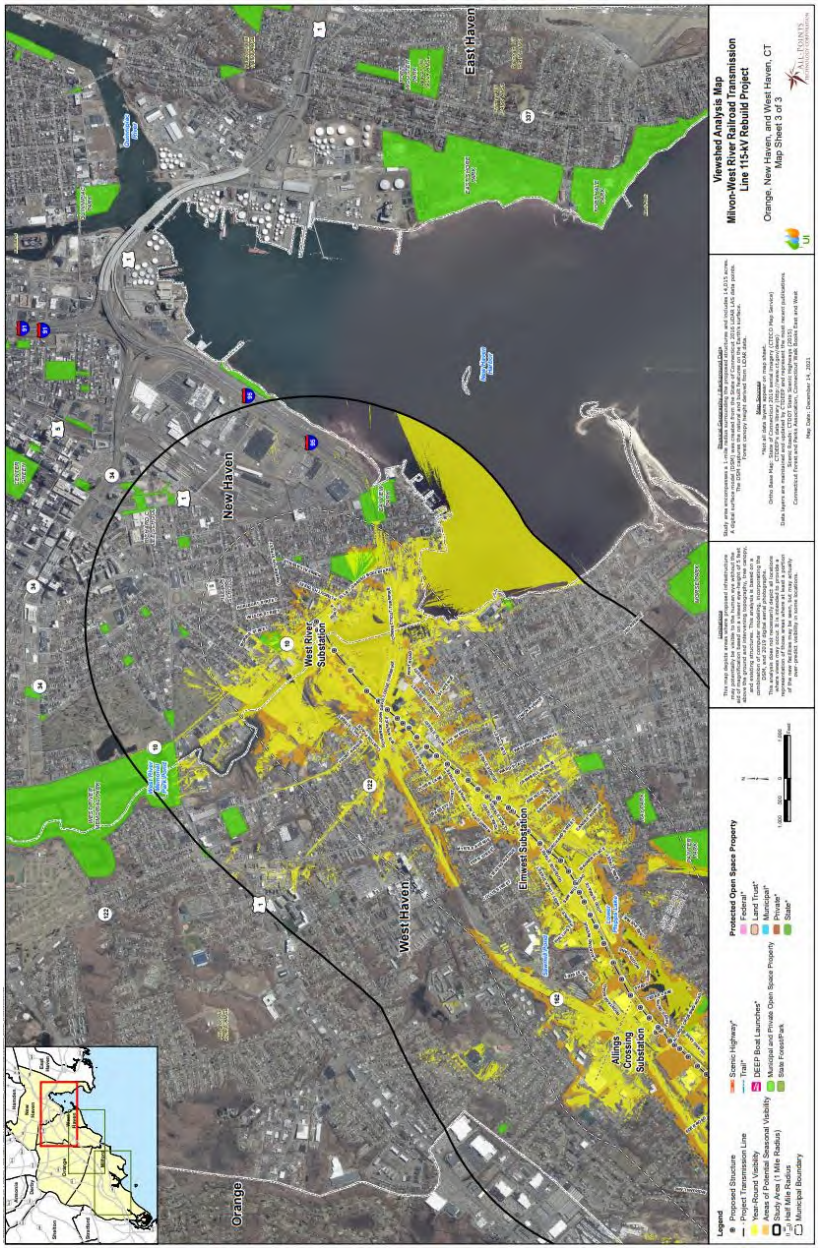
(UI 1, Vol. 1A – Appendices – Part II, Appendix C, Viewshed Analysis Map 1 of 3)

Figure 20 – Proposed Visibility (Map 2 of 3)



(UI 1, Vol. 1A – Appendices – Part II, Appendix C, Viewshed Analysis Map 2 of 3)

Figure 21 – Proposed Visibility (Map 3 of 3)



(UI 1, Vol. 1A – Appendices – Part II, Appendix C, Viewshed Analysis Map 3 of 3)

DOCKET NO. 508 – The United Illuminating Company (UI) application for a Certificate of Environmental Compatibility and Public Need for the Milvon to West River Railroad Transmission Line 115-kV Rebuild Project that consists of the relocation and rebuild of its existing 115- kilovolt (kV) electric transmission lines from the railroad catenary structures to new steel monopole structures and related modifications to facilitate interconnection of the rebuilt 115-kV electric transmission lines at UI's existing Milvon, Woodmont, Allings Crossing, Elmwest and West River substations along approximately 9.5 miles of the Connecticut Department of Transportation's Metro-North Railroad corridor traversing the municipalities of Milford, Orange, West Haven and New Haven, Connecticut.	}	Connecticut Siting Council August 18, 2022

Opinion

Introduction

On February 28, 2022, The United Illuminating Company (UI) applied to the Connecticut Siting Council (Council) for a Certificate of Environmental Compatibility and Public Need for a 115-kilovolt (kV) electric transmission rebuild project that traverses the municipalities of Milford, Orange, West Haven and New Haven and consists of (a) construction maintenance and operation of a rebuilt 115-kV electric transmission line within approximately 9.5 miles of existing Connecticut Department of Transportation's (DOT) Metro-North Railroad (MNR) corridor by relocating existing electric transmission lines from railroad catenary structures to new steel monopole structures; and (b) related modifications to facilitate the interconnection of the rebuilt 115-kV transmission lines with UI's existing Milvon, Woodmont, Allings Crossing, Elmwest, and West River Substations. Collectively, the proposed project is referred to as the Milvon to West River Railroad Transmission Line 115-kV Rebuild Project (Project).

Public Need

The purpose of the Project is to maintain the reliability of the bulk transmission grid by addressing the age-related physical limitations of two existing UI owned and operated electric transmission lines located on bonnets attached to railroad catenary structures that are owned by the Connecticut Department of Transportation (DOT) and operated by the Metro-North Railroad (MNR), and rebuild the electric transmission lines on monopole structures to be owned and operated by UI within the DOT right-of-way (ROW) to meet current National Electrical Safety Code (NESC) and UI standards.

UI conducted engineering analyses in 2018 that included the 115-kV transmission lines between Milvon and West River Substations. The analyses included field observations of the catenaries and evaluation of the asset condition of the catenaries, given the existing railroad mechanical loading, as well as the age of both the bonnets and the catenaries. The engineering analyses found age-related asset condition issues for the existing bonnet support system for the UI transmission lines including, but not limited to, loss of structural steel thickness, missing structural members, corrosion expansion, and exposed anchor bolts.

Subsequently, UI identified and evaluated alternative solutions for upgrading the lines, and determined that, to maintain the reliability of the bulk power grid, the 115-kV lines must be relocated off of the bonnets attached to the catenaries and rebuilt using new monopoles, conductor, and optical ground wire (OPGW). Furthermore, UI concluded that the 115-kV lines must be rebuilt to meet current NESC and UI standards, which include, but are not limited to, the ability to withstand a Category 3 hurricane wind loading, i.e. a minimum wind speed of 130 miles per hour.

The ISO-New England, Inc. (ISO-NE) Regional System Plan (RSP) Asset Condition List is a summary of pool transmission facilities[1] in the region that must be rebuilt or modified due to their condition, age, or physical deterioration to comply with the updated NESC standards.[2] Accordingly, the Project is identified on the March 2022 ISO-NE RSP Asset Condition List[3] due to the physical deterioration of the catenaries and the bonnets to which the transmission lines are attached.

Connecticut's Comprehensive Energy Strategy (CES) proposes further investments in grid reliability and identifies three important components to grid reliability: resource adequacy, transmission security and distribution resiliency. The Council notes that utilizing separate monopole structures for UI's transmission lines to meet applicable codes and harden against Category 3 hurricane wind loading would improve transmission security.

Additionally, the Project has the potential to support the transmission of energy from offshore wind projects, by supporting power flows and service to Connecticut customers on the proposed UI replacement transmission lines.

Project Alternatives

A "no-action" alternative would not resolve the known asset condition issues associated with the existing 115-kV lines on top of the catenaries. It would not comply with industry codes and UI standards, and the existing 115-kV lines would continue to be at risk for structural failures associated with mechanical loadings or stress associated with major weather events. This could lead to extended duration outages that would adversely affect electrical customers and the bulk power system.

UI evaluated four overhead transmission alternatives:

a) Install new double-circuit monopoles to the north of the railroad tracks to support the 115-kV lines, which is the proposed Project (Alternative 1);
b) Install one circuit north of the railroad tracks and the other circuit south of the railroad tracks on all single-circuit monopoles (Alternative 2);
c) Rebuild one 115-kV circuit on new single-circuit monopoles and perform structural modifications to the catenaries/bonnets to allow continued support of the other circuit (Alternative 3); and
d) Rebuild the existing catenaries/bonnets to completely correct all structural deficiencies to continue to support both 115-kV lines (Alternative 4).

Alternatives 2 and 3 were rejected because the acquisition of additional permanent easement acreage would be required to rebuild the line on single circuit monopoles on either side of the railroad tracks. Alternative 4 was rejected because extensive structural modifications would be necessary to rebuild any portion of the lines on the existing catenary structures and would cost on the order of 200 percent greater than the proposed Project.

UI also evaluated an all underground alternative between Milvon Substation and West River Substation either within the north side (Option E) or south side (Option F) of the DOT ROW, or within public roads

[1] ISO-NE defines "pool transmission facilities" as facilities rated 69-kV or above owned and maintained by a utility under a Transmission Operating Agreement with ISO-NE.
[2] See Council Petition No. 1293, *available at* https://portal.ct.gov/CSC/3_Petitions/Petition-Nos-1291-1300/Petition-No-1293Eversource
[3] The Project remains identified on the June 2022 ISO-NE RSP Asset Condition List.

(Option G). These underground alternatives were rejected due to significantly greater costs than the proposed Project and DOT's prohibition on longitudinal underground utility occupations within the railroad ROW.

During the proceeding, the following additional alternatives suggested by the Council and the City of Milford were explored:

a) Overhead Transmission Line along the south side of the railroad ROW (Option B);
b) Overhead Transmission Line with reductions in structure heights from 905N to 914N (Milford Overhead Alternative 1/Option C);
c) Overhead Transmission Line shifted to the south side of the railroad ROW from Structures 905N to 914N (Option D);
d) Underground Transmission Line from Structures 905N to 914N within the railroad ROW (Milford Underground Alternative/Option H);
e) Underground Transmission Line from Structures 900N to 914N (Morissette Alternative/Option I);
f) Overhead Transmission Line with reductions in structure heights from Structures 904N to 916N (Milford Overhead Alternative 2/Option J);
g) Overhead Transmission Line on north side of railroad (ROW) shifted to rebuilt catenary structures from Structures 904N to 914N; and
h) Overhead Transmission Line with fewer structures of taller heights. (SHPO Alternative).

All of these suggested additional alternatives have higher costs than the proposed Project, except for the SHPO Alternative, which is equal in cost to the proposed Project. [4]

Project Cost

The estimated cost of the proposed Project (Alternative 1/Option A) is $295,000,000.

A cost breakdown is as follows:

Transmission line costs	$222,550,000
Distribution costs	$ 1,250,000
Substation costs	$ 3,850,000
Miscellaneous costs*	$ 67,350,000
Total	**$295,000,000**

* Including, but not limited to, bonnet decommissioning.

Neither the Project, nor any portion thereof, is proposed to be undertaken by state departments, institutions or agencies, or to be funded in whole or in part by the state through any grant or contract. The entire cost of the Project (except for distribution costs) is anticipated to be regionalized with Connecticut ratepayers paying approximately 25 percent of the Project cost.[5] Any incremental costs (cost delta) beyond the least cost alternative as identified by ISO-NE (i.e. the proposed Project) would be expected to be paid by Connecticut ratepayers.

An all-underground configuration would cost approximately $364M if located within streets; $1.4B if located along the southern side of the ROW; or nearly $1.6B if located along the northern side of the ROW.

[4] Refer to Figure 15 – Cost Table of the Council's Docket No. 508 Findings of Fact for alternative options detail.
[5] Connecticut ratepayers are comprised of UI, Eversource and municipal electric energy cooperative customers.

The City of Milford prefers an underground configuration through Downtown Milford, or, alternatively, for an overhead configuration, transmission structure heights should be minimized; and Option J would minimize structure heights.

Option J has a cost delta of $350,000, or a total cost of approximately $295,350,000.

Project Description

The proposed Project entails the installation of rebuilt 115-kV electric transmission lines and related improvements as listed below:

a) Rebuild the existing 115-kV lines between Milvon Substation and West River Substation in a double-circuit configuration, supported on galvanized steel monopole structures;
b) Interconnect the rebuilt 115-kV lines to UI's existing Milvon, Woodmont, Allings Crossing, Elmwest, and West River Substations, perform minor associated modifications within the substation boundaries and install single-circuit and double-circuit monopoles as necessary to maintain the existing 115-kV connections to the substations and/or support OPGW;
c) Remove, partially remove, or modify certain existing steel monopoles that were installed within the Milvon to West River Substation railroad corridor as part of previous UI transmission upgrade projects; and
d) Decommission and remove the existing 115-kV facilities on the catenaries.

Substations

UI would modify the existing Milvon, Woodmont, Allings Crossing, Elmwest and West River substations by performing hardware modifications on the existing structures within and just outside each substation to accommodate the proposed 1590 kcmil conductor size as well as the new OPGW and associated OPGW splice boxes. The hardware modifications would not result in increased structure heights.

At all of the five substations, new underground fiber optic cable would be installed to connect the fiber at the OPGW splice box (either located within the substation or at a steel monopole outside the substation) to the control enclosures within the substations.

In order to maintain existing 115-kV line substation connections, 16 monopoles would be installed directly outside each substation to correctly align the phases of different circuits to the existing line terminal switches in each substation yard and/or support OPGW.

Transmission Line

The two existing 115-kV lines located on the UI-owned bonnets on top of the DOT-owned catenaries reach a typical height of approximately 60 feet above ground level (agl). UI would remove the two 115-kV lines from the bonnets and install double-circuit galvanized steel monopoles on the north side of the railroad ROW to accommodate the circuits. Specifically, the double-circuit monopoles would support two sets of three 1,590-kcmil Lapwing phase conductors plus OPGW and shield wires for a distance of approximately 9.5 miles between Milvon Substation in Milford and West River Substation in New Haven. Construction would occur in phases, i.e. one segment at a time between adjacent substations. Continuity of service of the substations would be maintained. UI's existing bonnets on top of the DOT's catenaries would be decommissioned.

Environmental

The Project is located within the MNR rail corridor. The edges of the railroad corridor are interspersed with mature mixed deciduous hardwood trees among narrow strips of primarily non-native, shrub/scrub invasive vegetation, escaped ornamentals associated with residential landscaping, and species common to freshwater and tidal wetlands. Elevations along the railroad corridor range from 5 feet above mean sea level (amsl) to 100 feet amsl, with the highest and lowest points located in West Haven.

Work at the substations would include, but not be limited to, performing hardware modifications on the existing structures within and just outside each substation that would not result in increased structure heights.

Vegetation

UI would manage vegetation in compliance with NERC Transmission and Vegetation Management Operating Procedures to prevent vegetation-related outages under various weather and operating conditions. For the DOT ROW, a minimum of 25-foot clearance from conductors at rest is required.

Total tree clearing for temporary construction activities would be approximately 6.12 acres. After completion of construction, these areas would be allowed to revegetate naturally, including with trees. The total tree clearing to accommodate the permanent project footprint would be approximately 21.74 acres. This area would be permanently managed in low-growth species consistent with overhead transmission line operation and vegetation maintenance.

To minimize potential impacts on watercourses, existing riparian vegetation within 25 feet of watercourse banks would be maintained or cut selectively to the extent practical. Vegetation clearing would impact 23 of 41 wetlands. UI would develop a final Wetland Invasive Species Control Plan to be included in the Development and Management (D&M) Plan. In accordance with C.G.S. §16-50hh, the Council recommends UI incorporate habitat for the benefit of pollinators such as moths, butterflies and bees in its restoration plan for disturbed areas.

Wetlands and Watercourses

A total of 41 wetland areas were identified within the DOT ROW. Ten new monopoles would be located within wetlands. Additionally, three permanent access roads (for operations and maintenance purposes) would cross wetlands. Total permanent wetland impact area for the Project would be approximately 1.09-acre, and total temporary wetland impact area would be approximately 5.53 acres. Total wetland vegetation clearing area would be approximately 3.61 acres. UI would coordinate with DEEP and/or U.S. Army Corps of Engineers and obtain necessary authorizations for proposed activities within wetlands.

No vernal pool habitat is located in the vicinity of the Project area.

The Project area extends across a total of 36 watercourses: 13 perennial streams and 23 and intermittent streams. The Project would span the Wepawaug River and the Indian River in Milford and the West River on the New Haven/West Haven City Line, and thus no work would be performed in these watercourses. Smaller watercourses, including the narrow streams that parallel the railroad tracks, would be crossed via temporary construction mats or equivalent. Permanent access roads would be installed across three un-named intermittent streams. Total temporary impacts to watercourses would be approximately 0.32-acre, and total permanent impacts to watercourses would be approximately 0.03-acre. UI would obtain the required permits from state and federal agencies for the permanent watercourse crossings.

Eight monopoles would be located within the 100-year flood zone, and five monopoles would be located within the 500-year flood zone. The installation of these structures would have a negligible effect on floodplain storage capacity.

Wildlife

Two federally-listed species may be present within the Project area: northern long-eared bat (NLEB), a federally-listed Threatened Species; and the red knot, a federally-listed Threatened Species. The Project area is not located within 150 feet of a known occupied maternity roost tree or within 0.25-mile of a known NLEB hibernaculum. The nearest NLEB habitat resource to the Project area is located over six miles away. Additionally, the Project area does not provide suitable foraging habitat for the red knot. Thus, the Project is not expected to impact red knot habitat.

Based on review of the Natural Diversity Database (NDDB) for state endangered, threatened or special concern species and ongoing consultations with the Department of Energy and Environmental Protection (DEEP), seven state-listed species were identified as potentially occurring within or proximate to the Project area. The seven state-listed species are the Parker's pipework, a state-listed Endangered Species; salt marsh bulrush, a state-listed Species of Special Concern; seaside sparrow, a state-listed Threatened Species; saltmarsh sharp-tailed sparrow, a state-listed Species of Special Concern; northern leopard frog, a state-listed Species of Special Concern; eastern box turtle, a state-listed Species of Special Concern; and the northern diamondback terrapin, a state-listed Species of Special Concern.

UI conducted a field botanical survey for the two state-listed plant species in September 2020, and these species were not identified during the survey.

UI would comply with DEEP-recommended protective measures for the state-listed bird, amphibian and reptile species. The Council will require plans to comply with DEEP NDDB recommendations in the D&M Plan.

Historic and Cultural Resources

A Phase 1A Cultural Resources Assessment Survey was performed in 2021 and identified five properties/districts listed on the National Register of Historic Places (NHRP). The five properties/districts are as follows:

a) The Academy of Our Lady of Mercy – Lauralton Hall at 200 High Street, Milford;
b) River Park Historic District between Boston Post Road and Milford Harbor, Milford;
c) U.S. Post Office – Milford Main at 6 West River Street, Milford;
d) Saint Peter's Episcopal Church at 61, 71 and 81 River Street, Milford; and
e) Taylor Memorial Library at 5 Broad Street, Milford.

The Phase IA Report noted that a previously identified archaeological site (Site 107-15) had potential to be impacted by a Project access road. A Phase 1B Survey was performed, and a report was submitted to SHPO. The Phase IB Report indicated that Site 107-15 does not extend into the proposed access road location and would not be impacted by the Project. SHPO concurred and noted that additional archaeological investigations are not warranted.

By letter dated December 22, 2021, SHPO indicated that all five NRHP resources would be impacted by the Project. UI met with SHPO to discuss mitigation measures. SHPO suggested the production of a pedestrian survey, mapping, and historic research of Charles Island to be codified and submitted in a report

to SHPO, as well as the production and installation of interpretive signage based on such report. SHPO requested the Charles Island mitigation measures be included as a requirement for project approval and solidified in an agreement once permitting is secured.

Rather than install interpretive signage at Charles Island, which is located over a mile away and bears no relationship to the historic resources in the Project area, the City of Milford recommends mitigation measures that are more closely aligned with the Project, such as building conditions assessments or preservation plans for the Taylor Memorial Library or the Milford Railroad Station, updating the River Park Historic District NRHP nomination or installing historic interpretive signage on the Milford Green. Thus, the Council recommends that UI consult with the City of Milford regarding possible mitigation measures for historic resources that are closely aligned with the project.

Option J includes reduced structure heights from P904N to P916N. This particular section spans the historic areas of Downtown Milford (in the vicinity of the five resources listed on the NRHP) and is located between roughly west of Beardsley Avenue to east of Prospect Street. Option J would reduce visual impacts to this historic area with the smallest cost delta of all of the alternatives. With a cost delta of $350,000 beyond the originally proposed $295M Project, these reduced visual impacts to historic areas can be achieved with a very modest cost increase of 0.12 percent.

Visibility

The existing catenaries are visible year-round from approximately 1,673 acres (or 12% of the one-mile Study Area) and seasonally visible from about 477 acres (or 3.4% of the Study Area). Based on the final viewshed analysis, the originally proposed Project would be visible year-round from approximately 1,673 acres (or 12% of the Study Area) and seasonally visible from about 477 acres (or 3.4% of the Study Area). The areas of visibility generally extend to distances of 0.5-mile from the Project route. In some undeveloped areas, open water and marsh, it would extend to at least 0.75 mile.

The tops of the new transmission line structures would not be prominent features, particularly with the amount of intervening existing infrastructure common within the Project area.

While some locations would experience changes in visibility from existing conditions due to the relocation and modified heights of new structures, such areas would also have the removal of bonnets and other supporting infrastructure, particularly along the southern side of the railroad corridor.

The most substantial change in visibility would occur at the West River crossing where four 120-foot monopoles would replace the 89-foot tall catenary bonnets (to be removed). This area contains extensive open marshland on either side of West River; developed portions of this area contain commercial and industrial land uses.

There are no state or locally-designated scenic roads located within the one-mile Study Area.

There are no “blue-blazed” hiking trails maintained by the Connecticut Forest and Park Association within one-mile of the Project route. The Project is not located proximate to any National Heritage Corridors or any state designated heritage areas. The Project is also not located proximate to any DOT designated Scenic Land Strips or locally-designated scenic roads.

The Project is consistent with the FERC Guidelines for the Protection of Natural, Historic, Scenic and Recreational Values in the Design and Location of Rights-of-Way and Transmission Facilities as it utilizes existing rights-of way within a railroad corridor.

Option J, with reduced structure heights from P904N to P916N, would have height reductions ranging from 5 to 20 feet and a net increase of one structure for this section in Downtown Milford. Accordingly, the Council will require that UI utilize the Option J configuration because it would minimize structure heights in Downtown Milford at the smallest cost delta of the alternatives.

The visual impacts associated with the substation modifications are not expected to be significant because equipment heights within the substations are not expected to increase.

DOT/MNR Considerations

According to SHPO, the MNR railroad corridor, formerly the New York, New Haven & Hartford Railroad, is eligible for listing on the Natural Register, under Criteria A, in the area of transportation, as well as in the development of the Connecticut shoreline.

UI has a lease agreement with DOT for collocation of electric transmission facilities within the railroad ROW and a maintenance agreement with MNR for the bonnets on the catenary structures. UI's removal of its 115-kV lines from catenary structures along six miles of the MNR corridor between the Cities of Bridgeport and Milford was approved by the Council in Petition Nos. 1110, 1138, 1176, and 1304.

The New Haven Line corridor is one of the busiest railroads in the nation. DOT prefers that UI's transmission lines are removed from the existing catenaries because it would facilitate DOT's maintenance of its equipment by not having to request UI transmission line outages.

Normal work hours for the proposed Project would be 7 AM to 7 PM Monday through Saturday. Construction may occur on nights and Sundays as necessary to perform work during non-peak railroad use periods in order to minimize impacts to the rail system. For the installation of new foundations within the DOT corridor, UI would coordinate with DOT/MNR to determine appropriate drilling methods to avoid any potential for impacts to the rail bed. If blasting is required, UI would consult with DOT and MNR prior to securing approvals for its Blasting Plans.

Electric and Magnetic Fields

Included in the review of the Project's environmental impact was a review of electric and magnetic fields (EMF). In accordance with the Council's *Electric and Magnetic Fields Best Management Practices for the Construction of Electric Transmission Lines in Connecticut*, UI reviewed current literature to determine if there were new developments or guidelines related to EMF exposure. No changes were identified. Additionally, UI developed a Field Management Design Plan (FMDP) to investigate cost effective ways to minimize MF levels resulting from the rebuilt transmission lines. As part of the FMDP, UI would utilize distance via the rebuilt lines located farther from the southern DOT boundary and the use the permanent easements (where necessary) north of the DOT boundary; and double-circuit vertical structures while arranging the conductor phases to achieve substantial MF cancellation. This "no cost/low cost" design was used to develop the pre and post project MF calculations. Upon review of the MF data provided in the Application, the Council finds the MF levels associated with the project to be well below recommended MF exposure standards from research groups.

Conclusion

The Council finds that there is a public need for the proposed Project as it is necessary for the reliability of the electric power supply of the state, serves the interests of electric system economy and reliability, and

conforms to a long-range plan for resiliency of the electric systems serving the state and interconnected utility systems.

The Council has examined the Project in accordance with the policies of the state concerning the natural environment, ecological balance, public health and safety, scenic, historic and recreational values, agriculture, forests and parks, air and water purity, and fish, aquaculture and wildlife, together with all other environmental concerns, including EMF, and balanced the interests in accordance with Conn. Gen. Stat. § 16-50p(a)(3)(B) and Conn. Gen. Stat. § 16-50p(a)(3)(C). The environmental effects that are the subject of Conn. Gen. Stat. § 16-50p (a)(3)(B) can be sufficiently mitigated and do not overcome the public need for the facility. Furthermore, the Council finds that the location of the rebuilt transmission line will not pose an undue hazard to persons or property along the area traversed by the transmission line pursuant to Conn. Gen. Stat. § 16-50p (a)(3)(E).

The Council will require UI to submit a D&M Plan for the Project in accordance with Sections 16-50j-60 through 16-50j-62 of the Regulations of Connecticut State Agencies (RCSA) to include, but not be limited to: detailed site plans identifying structure and equipment locations as well as access roads; bonnet decommissioning plan; wetland invasive species control plan; plans to comply with DEEP NDDB recommendations to reduce impacts to state-listed endangered, threatened and special concern species; an erosion and sediment control plan consistent with the *2002 Connecticut Guidelines for Soil Erosion and Sediment Control*; a spill prevention control and countermeasures plan; provisions for on-site environmental inspection and monitoring of the ROW and substations during construction; and pre-construction and post-construction measurements of EMF. Pursuant to RCSA Sections 16-50j-60 through 16-50j-62, the Council will require UI to submit quarterly construction progress reports.

With the conditions listed above, the Council will issue a Certificate of Environmental Compatibility and Public Need for the construction, maintenance, and operation of rebuilt 115-kV transmission facilities between Milvon Substation in Milford and West River Substation in New Haven and related substation and line improvements utilizing the Option J Configuration.

DOCKET NO. 508 – The United Illuminating Company (UI) application for a Certificate of Environmental Compatibility and Public Need for the Milvon to West River Railroad Transmission Line 115-kV Rebuild Project that consists of the relocation and rebuild of its existing 115-kilovolt (kV) electric transmission lines from the railroad catenary structures to new steel monopole structures and related modifications to facilitate interconnection of the rebuilt 115-kV electric transmission lines at UI's existing Milvon, Woodmont, Allings Crossing, Elmwest and West River substations along approximately 9.5 miles of the Connecticut Department of Transportation's Metro-North Railroad corridor traversing the municipalities of Milford, Orange, West Haven and New Haven, Connecticut.	}	Connecticut Siting Council August 18, 2022

Decision and Order

Pursuant to Connecticut General Statutes Section 16-50p and the foregoing Findings of Fact and Opinion for the 115-kilovolt (kV) electric transmission line project known as the Milvon to West River Railroad Transmission Line 115-kilovolt (kV) Rebuild Project, the Connecticut Siting Council (Council) finds that there is a public need for the proposed facility and the effects associated with the construction of a rebuilt 115-kV electric transmission line, associated facilities and related improvements to the Milvon and Woodmont Substations in Milford, Allings Crossing and Elmwest Substations in West Haven, and West River Substation in New Haven (Project), including effects on the natural environment, ecological balance, public health and safety, agriculture, forests and parks, scenic, historic, and recreational values, air and water purity, fish, aquaculture and wildlife are not disproportionate either alone or cumulatively with other effects compared to need, are not in conflict with the policies of the state concerning such effects, and are not sufficient reason to deny the application. Therefore, the Council directs that a Certificate of Environmental Compatibility and Public Need, as provided by Connecticut General Statutes §16-50k, be issued to The United Illuminating Company (hereinafter referred to as the Certificate Holder) for the construction, maintenance and operation of the Project.

Unless otherwise approved by the Council, the Project shall be constructed, operated, and maintained substantially as specified in the Council's record in this matter, and subject to the following conditions:

1. The Certificate Holder shall construct the rebuilt electric transmission line along the proposed route utilizing the Option J Configuration and perform related Project improvements, as proposed, subject to modifications during final site design and approval of the Development and Management (D&M) Plan for the project.

2. The Certificate Holder shall prepare a D&M Plan for this Project. The D&M Plan shall be in compliance with Sections 16-50j-60 through 16-50j-62 of the Regulations of Connecticut State Agencies. The D&M Plan shall be provided to the service list and submitted to and approved by the Council prior to the commencement of facility construction and shall include:

    a. Detailed site plans depicting final transmission line structure heights and identification of locations for the access roads, structure foundations, equipment laydown areas; material staging areas; field office trailers, sanitary facilities and parking;
    b. Detailed site plans for equipment installation/modifications at Milvon, Woodmont, Allings Crossing, Elmwest and West River Substations;
    c. Decommissioning plan for bonnets;
    d. An erosion and sediment control plan, consistent with the *2002 Connecticut Guidelines for Soil Erosion and Sediment Control*, as amended;

e. Results of any further consultations with SHPO and/or the City of Milford regarding historic resources;
f. Identification of wetland and watercourse resources, related temporary construction impacts and methods to reduce such impacts;
g. Vegetative clearing plan;
h. Restoration plan of disturbed areas, including incorporation of areas for pollinator habitat consistent with C.G.S. §16-50hh, if feasible;
i. A spill prevention control and countermeasures plan;
j. Wetland Invasive Species Control Plan;
k. Provisions for on-site environmental inspection and monitoring of the ROW and substations during construction;
l. A schedule of construction hours;
m. A blasting plan, if necessary;
n. Plans to comply with DEEP Natural Diversity Database recommendations to reduce impacts to state-listed endangered, threatened and special concern species; and
o. EMF Monitoring Plan.

3. The Certificate Holder shall obtain necessary permits from the United States Army Corps of Engineers and the Connecticut Department of Energy and Environmental Protection and any other state or federal agency with concurrent jurisdiction prior to the commencement of construction, in areas where said permits are required.

4. The Certificate Holder shall comply with all future electric and magnetic field standards promulgated by State or federal regulatory agencies. Upon the establishment of any new standards, the facilities granted in this Decision and Order shall be brought into compliance with such standards.

5. The Certificate Holder shall provide to the Council an operating report within three months after the conclusion of the first year of operation of all facilities herein with information relevant to the overall condition, safety, reliability, and operation of the new transmission line.

6. Unless otherwise approved by the Council, this Decision and Order shall be void if all construction authorized herein is not completed within five years of the effective date of the Decision and Order, or within five years after all appeals to this Decision and Order have been resolved. Authority to monitor and modify this schedule, as necessary, is delegated to the Executive Director. The Certificate Holder shall provide written notice to the Executive Director of any schedule changes as soon as is practicable.

7. Any request for extension of the time period referred to in Condition 6 shall be filed with the Council not later than 60 days prior to the expiration date of this Certificate and shall be served on all parties and intervenors, as listed in the service list, the Cities of West Haven, Milford and New Haven, and the Town of Orange.

8. This Certificate may be surrendered by the Certificate Holder upon written notification to the Council.

9. The Certificate Holder shall comply with Sections 16-50j-60 through 16-50j-62 of the Regulations of Connecticut State Agencies and submit quarterly construction progress reports. The Certificate Holder shall provide the Council with written notice two weeks prior to the commencement of site construction activities. In addition, the Certificate Holder shall provide the Council with written notice of the completion of site construction, and the commencement of site operation.

10. The Certificate Holder shall remit timely payments associated with annual assessments and invoices submitted by the Council for expenses attributable to the facility under Conn. Gen. Stat. §16-50v.

11. This Certificate may be transferred in accordance with Conn. Gen. Stat. §16-50k(b), provided both the Certificate Holder/transferor and the transferee are current with payments to the Council for their respective annual assessments and invoices under Conn. Gen. Stat. §16-50v. In addition, both the Certificate Holder/transferor and the transferee shall provide the Council a written agreement as to the entity responsible for any quarterly assessment charges under Conn. Gen. Stat. §16-50v(b)(2) that may be associated with this facility.

We hereby direct that a copy of the Findings of Fact, Opinion, and Decision and Order be served on each person listed in the Service List, dated April 21, 2022, and notice of issuance published in the New Haven Register.

By this Decision and Order, the Council disposes of the legal rights, duties, and privileges of each party named or admitted to the proceeding in accordance with Section 16-50j-17 of the Regulations of Connecticut State Agencies.

CERTIFICATION

The undersigned members of the Connecticut Siting Council (Council) hereby certify that they have heard this case, or read the record thereof, in **DOCKET NO. 508** – The United Illuminating Company (UI) application for a Certificate of Environmental Compatibility and Public Need for the Milvon to West River Railroad Transmission Line 115-kV Rebuild Project that consists of the relocation and rebuild of its existing 115- kilovolt (kV) electric transmission lines from the railroad catenary structures to new steel monopole structures and related modifications to facilitate interconnection of the rebuilt 115-kV electric transmission lines at UI's existing Milvon, Woodmont, Allings Crossing, Elmwest and West River substations along approximately 9.5 miles of the Connecticut Department of Transportation's Metro-North Railroad corridor traversing the municipalities of Milford, Orange, West Haven and New Haven, Connecticut, and voted as follows to approve the rebuild of the electric transmission line along the proposed route utilizing the Option J Configuration:

Council Members	**Vote Cast**
/s/ John Morissette John Morissette, Presiding Officer	Yes
/s/ Quat Nguyen Chairman Marissa Paslick Gillett Designee: Quat Nguyen	Yes
/s/ Brian Golembiewski Commissioner Katie Dykes Designee: Brian Golembiewski	Yes
/s/ Louanne Cooley Louanne Cooley	Yes
/s/ Robert Silvestri Robert Silvestri	Yes
/s/ Daniel P. Lynch, Jr. Daniel P. Lynch, Jr.	Abstain
/s/ Mark Quinlan Mark Quinlan	Yes

Dated at New Britain, Connecticut, August 18, 2022.

STATE OF CONNECTICUT
CONNECTICUT SITING COUNCIL
Ten Franklin Square, New Britain, CT 06051
Phone: (860) 827-2935 Fax: (860) 827-2950
E-Mail: siting.council@ct.gov
Web Site: portal.ct.gov/csc

VIA ELECTRONIC MAIL

August 19, 2022

TO: Classified/Legal Supervisor
508220325
The New Haven Register
100 Gando Road
New Haven, CT 06513
nhlegals@hearstmediact.com

FROM: Lisa A. Mathews, Office Assistant

RE: **DOCKET NO. 508** – The United Illuminating Company (UI) application for a Certificate of Environmental Compatibility and Public Need for the Milvon to West River Railroad Transmission Line 115-kV Rebuild Project that consists of the relocation and rebuild of its existing 115- kilovolt (kV) electric transmission lines from the railroad catenary structures to new steel monopole structures and related modifications to facilitate interconnection of the rebuilt 115-kV electric transmission lines at UI's existing Milvon, Woodmont, Allings Crossing, Elmwest and West River substations along approximately 9.5 miles of the Connecticut Department of Transportation's Metro-North Railroad corridor traversing the municipalities of Milford, Orange, West Haven and New Haven, Connecticut.

Please publish the attached legal notice for one day on the first day possible from receipt of this notice.

Please send an affidavit of publication and invoice to my attention.

Thank you.

LM

STATE OF CONNECTICUT
CONNECTICUT SITING COUNCIL
Ten Franklin Square, New Britain, CT 06051
Phone: (860) 827-2935 Fax: (860) 827-2950
E-Mail: siting.council@ct.gov
Web Site: portal.ct.gov/csc

NOTICE

Pursuant to General Statutes § 16-50p (a), the Connecticut Siting Council (Council) announces that, on August 18, 2022, the Council issued Findings of Fact, an Opinion, and a Decision and Order approving an application from The United Illuminating Company (UI) for a Certificate of Environmental Compatibility and Public Need for the Milvon to West River Railroad Transmission Line 115-kV Rebuild Project that consists of the relocation and rebuild of its existing 115-kilovolt (kV) electric transmission lines from the railroad catenary structures to new steel monopole structures and related modifications to facilitate interconnection of the rebuilt 115-kV electric transmission lines at UI's existing Milvon, Woodmont, Allings Crossing, Elmwest and West River substations along approximately 9.5 miles of the Connecticut Department of Transportation's Metro-North Railroad corridor traversing the municipalities of Milford, Orange, West Haven and New Haven, Connecticut. This application record is available for public inspection in the Council's office, Ten Franklin Square, New Britain, Connecticut.

MOVE YOUR ENVIRONMENT FORWARD

ADDENDUM
APPENDIX F

To:	CTDEEP
From:	HRP on behalf of UI Illuminating Company
cc:	UI Illuminating Company
Date:	March 31, 2023
Subject:	Milvon-West River Transmission Line 115-Kv Rebuild Project

The Milvon-West River Transmission Line 115-kV Rebuild Project (Project) was reviewed by the Connecticut Siting Council (CSC) for a Certificate of Environmental Compatibility and Public Need under Council Docket No. 508. This review included discussion of the coastal resources within the Project limits. The CSC issued a Decision and Order approving the Project. Furthermore, the Project is currently under review through the CT DEEP Certification of Permission (COP) application process, which includes a review of coastal resource impacts.

Appendix G

NRCS Soils Report

United States Department of Agriculture

NRCS

Natural Resources Conservation Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for State of Connecticut

Milvon-West River WSS Soils Report



January 18, 2021

Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (https://offices.sc.egov.usda.gov/locator/app?agency=nrcs) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, age, disability, and where applicable, sex, marital status, familial status, parental status, religion, sexual orientation, genetic information, political beliefs, reprisal, or because all or a part of an individual's income is derived from any public assistance program. (Not all prohibited bases apply to all programs.) Persons with disabilities who require

alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at (202) 720-2600 (voice and TDD). To file a complaint of discrimination, write to USDA, Director, Office of Civil Rights, 1400 Independence Avenue, S.W., Washington, D.C. 20250-9410 or call (800) 795-3272 (voice) or (202) 720-6382 (TDD). USDA is an equal opportunity provider and employer.

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How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil

scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Custom Soil Resource Report
Soil Map



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 20, Jun 9, 2020

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

Date(s) aerial images were photographed: Jan 1, 1999—Jul 22, 2014

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
17	Timakwa and Natchaug soils, 0 to 2 percent slopes	0.9	1.1%
18	Catden and Freetown soils, 0 to 2 percent slopes	0.2	0.3%
29B	Agawam fine sandy loam, 3 to 8 percent slopes	2.6	3.4%
29C	Agawam fine sandy loam, 8 to 15 percent slopes	0.2	0.2%
60C	Canton and Charlton fine sandy loams, 8 to 15 percent slopes	0.1	0.1%
77C	Cheshire-Holyoke complex, 3 to 15 percent slopes, very rocky	1.9	2.4%
84C	Paxton and Montauk fine sandy loams, 8 to 15 percent slopes	0.1	0.2%
98	Westbrook mucky peat, 0 to 2 percent slopes, very frequently flooded	0.9	1.2%
108	Saco silt loam	0.1	0.2%
229B	Agawam-Urban land complex, 0 to 8 percent slopes	3.8	5.0%
235B	Penwood-Urban land complex, 0 to 8 percent slopes	4.8	6.3%
260B	Charlton-Urban land complex, 3 to 8 percent slopes	0.0	0.0%
260C	Charlton-Urban land complex, 8 to 15 percent slopes	2.1	2.7%
302	Dumps	1.6	2.1%
306	Udorthents-Urban land complex	21.4	27.8%
307	Urban land	31.9	41.5%
308	Udorthents, smoothed	3.1	4.1%
703A	Haven silt loam, 0 to 3 percent slopes	0.5	0.6%
W	Water	0.5	0.7%
Totals for Area of Interest		**76.8**	**100.0%**

Map Unit Descriptions

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

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

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps.

The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

State of Connecticut

17—Timakwa and Natchaug soils, 0 to 2 percent slopes

Map Unit Setting

National map unit symbol: 2t2qx
Elevation: 0 to 1,420 feet
Mean annual precipitation: 36 to 71 inches
Mean annual air temperature: 39 to 55 degrees F
Frost-free period: 140 to 240 days
Farmland classification: Not prime farmland

Map Unit Composition

Timakwa and similar soils: 45 percent
Natchaug and similar soils: 40 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Timakwa

Setting

Landform: Depressions
Landform position (three-dimensional): Tread
Down-slope shape: Concave
Across-slope shape: Concave
Parent material: Herbaceous and woody organic material over sandy and gravelly glaciofluvial deposits

Typical profile

Oa1 - 0 to 12 inches: muck
Oa2 - 12 to 37 inches: muck
2Cg1 - 37 to 47 inches: very gravelly loamy coarse sand
2Cg2 - 47 to 60 inches: gravelly loamy very fine sand

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Very poorly drained
Runoff class: Negligible
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to high (0.14 to 14.17 in/hr)
Depth to water table: About 0 to 12 inches
Frequency of flooding: NoneRare
Frequency of ponding: Frequent
Maximum salinity: Nonsaline (0.0 to 1.9 mmhos/cm)
Available water capacity: Very high (about 14.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 5w
Hydrologic Soil Group: B/D
Ecological site: F144AY042NY - Semi-Rich Organic Wetlands
Hydric soil rating: Yes

Description of Natchaug

Setting

Landform: Depressions, depressions, depressions
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Base slope, tread
Down-slope shape: Concave
Across-slope shape: Concave
Parent material: Highly decomposed organic material over loamy glaciofluvial deposits and/or loamy glaciolacustrine deposits and/or loamy till

Typical profile

Oa1 - 0 to 12 inches: muck
Oa2 - 12 to 31 inches: muck
2Cg1 - 31 to 39 inches: silt loam
2Cg2 - 39 to 79 inches: fine sandy loam

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Very poorly drained
Runoff class: Negligible
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to high (0.01 to 14.17 in/hr)
Depth to water table: About 0 to 12 inches
Frequency of flooding: RareNone
Frequency of ponding: Frequent
Calcium carbonate, maximum content: 25 percent
Maximum salinity: Nonsaline (0.0 to 1.9 mmhos/cm)
Available water capacity: Very high (about 17.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 5w
Hydrologic Soil Group: B/D
Ecological site: F144AY042NY - Semi-Rich Organic Wetlands
Hydric soil rating: Yes

Minor Components

Whitman

Percent of map unit: 7 percent
Landform: Depressions, drainageways
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

Catden

Percent of map unit: 3 percent
Landform: Kettles, depressions, fens, depressions, depressions, swamps, bogs, marshes
Landform position (three-dimensional): Base slope, tread
Down-slope shape: Concave
Across-slope shape: Concave

Hydric soil rating: Yes

Maybid

Percent of map unit: 3 percent
Landform: Depressions, terraces, drainageways
Landform position (three-dimensional): Dip
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

Scarboro

Percent of map unit: 2 percent
Landform: Drainageways, outwash terraces, depressions, outwash deltas
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Base slope, tread, dip
Down-slope shape: Concave
Across-slope shape: Linear, concave
Hydric soil rating: Yes

18—Catden and Freetown soils, 0 to 2 percent slopes

Map Unit Setting

National map unit symbol: 2t2r2
Elevation: 0 to 1,390 feet
Mean annual precipitation: 36 to 71 inches
Mean annual air temperature: 39 to 55 degrees F
Frost-free period: 140 to 240 days
Farmland classification: Not prime farmland

Map Unit Composition

Catden and similar soils: 45 percent
Freetown and similar soils: 35 percent
Minor components: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Catden

Setting

Landform: Depressions, depressions, fens, bogs, depressions, swamps, marshes, kettles
Landform position (three-dimensional): Base slope, tread
Down-slope shape: Concave
Across-slope shape: Concave
Parent material: Highly decomposed herbaceous organic material and/or highly decomposed woody organic material

Typical profile

Oa1 - 0 to 2 inches: muck
Oa2 - 2 to 79 inches: muck

Properties and qualities

Slope: 0 to 2 percent
Surface area covered with cobbles, stones or boulders: 0.0 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Very poorly drained
Runoff class: Negligible
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to high (0.14 to 14.17 in/hr)
Depth to water table: About 0 to 6 inches
Frequency of flooding: NoneRare
Frequency of ponding: Frequent
Maximum salinity: Nonsaline (0.0 to 1.9 mmhos/cm)
Available water capacity: Very high (about 26.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 5w
Hydrologic Soil Group: B/D
Ecological site: F144AY042NY - Semi-Rich Organic Wetlands
Hydric soil rating: Yes

Description of Freetown

Setting

Landform: Swamps, bogs, depressions, marshes, depressions, kettles
Landform position (three-dimensional): Tread, dip
Down-slope shape: Concave
Across-slope shape: Concave
Parent material: Highly decomposed organic material

Typical profile

Oe - 0 to 2 inches: mucky peat
Oa - 2 to 79 inches: muck

Properties and qualities

Slope: 0 to 2 percent
Surface area covered with cobbles, stones or boulders: 0.0 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Very poorly drained
Runoff class: Negligible
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to high (0.14 to 14.17 in/hr)
Depth to water table: About 0 to 6 inches
Frequency of flooding: RareNone
Frequency of ponding: Frequent
Available water capacity: Very high (about 26.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 5w
Hydrologic Soil Group: B/D
Ecological site: F144AY043MA - Acidic Organic Wetlands
Hydric soil rating: Yes

Minor Components

Natchaug

Percent of map unit: 7 percent
Landform: Depressions, depressions, depressions
Landform position (three-dimensional): Base slope, tread
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

Whitman

Percent of map unit: 6 percent
Landform: Depressions, drainageways
Landform position (three-dimensional): Base slope
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

Timakwa

Percent of map unit: 5 percent
Landform: Depressions
Landform position (three-dimensional): Base slope
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

Scarboro

Percent of map unit: 2 percent
Landform: Outwash terraces, outwash deltas, drainageways, depressions
Landform position (three-dimensional): Base slope, tread, dip
Down-slope shape: Concave
Across-slope shape: Concave, linear
Hydric soil rating: Yes

29B—Agawam fine sandy loam, 3 to 8 percent slopes

Map Unit Setting

National map unit symbol: 2tyqx
Elevation: 0 to 820 feet
Mean annual precipitation: 36 to 71 inches
Mean annual air temperature: 39 to 55 degrees F
Frost-free period: 140 to 250 days
Farmland classification: All areas are prime farmland

Map Unit Composition

Agawam and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Agawam

Setting

Landform: Moraines, outwash terraces, kame terraces, kames, outwash plains
Landform position (two-dimensional): Backslope, shoulder, footslope, summit
Landform position (three-dimensional): Side slope, crest, tread, riser, rise, dip
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Coarse-loamy eolian deposits over sandy and gravelly glaciofluvial deposits derived from gneiss, granite, schist, and/or phyllite

Typical profile

Ap - 0 to 11 inches: fine sandy loam
Bw1 - 11 to 16 inches: fine sandy loam
Bw2 - 16 to 26 inches: fine sandy loam
2C1 - 26 to 45 inches: loamy fine sand
2C2 - 45 to 55 inches: loamy fine sand
2C3 - 55 to 65 inches: loamy sand

Properties and qualities

Slope: 3 to 8 percent
Depth to restrictive feature: 15 to 35 inches to strongly contrasting textural stratification
Drainage class: Well drained
Runoff class: Very low
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to high (0.14 to 14.17 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 1.9 mmhos/cm)
Available water capacity: Low (about 3.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2s
Hydrologic Soil Group: B
Ecological site: F145XY008MA - Dry Outwash
Hydric soil rating: No

Minor Components

Sudbury

Percent of map unit: 5 percent
Landform: Terraces, deltas, outwash plains
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Tread, dip
Down-slope shape: Concave
Across-slope shape: Linear
Hydric soil rating: No

Hinckley

Percent of map unit: 5 percent
Landform: Deltas, outwash plains, eskers, kames
Landform position (two-dimensional): Summit, shoulder, backslope

Landform position (three-dimensional): Head slope, nose slope, side slope, crest, rise
Down-slope shape: Convex
Across-slope shape: Convex, linear
Hydric soil rating: No

Merrimac

Percent of map unit: 3 percent
Landform: Kames, eskers, moraines, outwash terraces, outwash plains
Landform position (two-dimensional): Backslope, footslope, shoulder, summit
Landform position (three-dimensional): Side slope, crest, riser, tread
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

Windsor

Percent of map unit: 2 percent
Landform: Deltas, outwash plains, dunes, outwash terraces
Landform position (three-dimensional): Riser, tread
Down-slope shape: Linear, convex
Across-slope shape: Linear, convex
Hydric soil rating: No

29C—Agawam fine sandy loam, 8 to 15 percent slopes

Map Unit Setting

National map unit symbol: 2tyqy
Elevation: 0 to 360 feet
Mean annual precipitation: 36 to 71 inches
Mean annual air temperature: 39 to 55 degrees F
Frost-free period: 140 to 240 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Agawam and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Agawam

Setting

Landform: Outwash terraces, outwash plains, kame terraces, kames, moraines
Landform position (two-dimensional): Backslope, shoulder, footslope, summit
Landform position (three-dimensional): Crest, side slope, tread, riser, rise, dip
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Coarse-loamy eolian deposits over sandy and gravelly glaciofluvial deposits derived from gneiss, granite, schist, and/or phyllite

Typical profile

Ap - 0 to 11 inches: fine sandy loam

Bw1 - 11 to 16 inches: fine sandy loam
Bw2 - 16 to 26 inches: fine sandy loam
2C1 - 26 to 45 inches: loamy fine sand
2C2 - 45 to 55 inches: loamy fine sand
2C3 - 55 to 65 inches: loamy sand

Properties and qualities

Slope: 8 to 15 percent
Depth to restrictive feature: 15 to 35 inches to strongly contrasting textural stratification
Drainage class: Well drained
Runoff class: Very low
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to high (0.14 to 14.17 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 1.9 mmhos/cm)
Available water capacity: Low (about 3.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: B
Ecological site: F145XY008MA - Dry Outwash
Hydric soil rating: No

Minor Components

Merrimac

Percent of map unit: 5 percent
Landform: Outwash plains, kames, moraines, outwash terraces, eskers
Landform position (two-dimensional): Backslope, footslope, shoulder, summit
Landform position (three-dimensional): Side slope, crest, riser, tread
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

Windsor

Percent of map unit: 5 percent
Landform: Deltas, outwash plains, outwash terraces, dunes
Landform position (three-dimensional): Riser, tread
Down-slope shape: Linear, convex
Across-slope shape: Linear, convex
Hydric soil rating: No

Ninigret

Percent of map unit: 5 percent
Landform: Terraces
Down-slope shape: Linear
Across-slope shape: Concave
Hydric soil rating: No

60C—Canton and Charlton fine sandy loams, 8 to 15 percent slopes

Map Unit Setting

National map unit symbol: 2w81z
Elevation: 0 to 1,620 feet
Mean annual precipitation: 36 to 71 inches
Mean annual air temperature: 39 to 55 degrees F
Frost-free period: 140 to 240 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Canton and similar soils: 50 percent
Charlton and similar soils: 35 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Canton

Setting

Landform: Ridges, moraines, hills
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Side slope, nose slope, crest
Down-slope shape: Convex, linear
Across-slope shape: Convex
Parent material: Coarse-loamy over sandy melt-out till derived from gneiss, granite, and/or schist

Typical profile

Ap - 0 to 7 inches: fine sandy loam
Bw1 - 7 to 15 inches: fine sandy loam
Bw2 - 15 to 26 inches: gravelly fine sandy loam
2C - 26 to 65 inches: gravelly loamy sand

Properties and qualities

Slope: 8 to 15 percent
Depth to restrictive feature: 19 to 39 inches to strongly contrasting textural stratification
Drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to high (0.14 to 14.17 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: Very low (about 2.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: B

Ecological site: F144AY034CT - Well Drained Till Uplands
Hydric soil rating: No

Description of Charlton

Setting

Landform: Hills, ground moraines, ridges
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Linear, convex
Across-slope shape: Convex
Parent material: Coarse-loamy melt-out till derived from granite, gneiss, and/or schist

Typical profile

Ap - 0 to 7 inches: fine sandy loam
Bw - 7 to 22 inches: gravelly fine sandy loam
C - 22 to 65 inches: gravelly fine sandy loam

Properties and qualities

Slope: 8 to 15 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to high (0.14 to 14.17 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 1.9 mmhos/cm)
Available water capacity: Moderate (about 6.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: B
Ecological site: F144AY034CT - Well Drained Till Uplands
Hydric soil rating: No

Minor Components

Chatfield

Percent of map unit: 5 percent
Landform: Hills, ridges
Landform position (two-dimensional): Backslope, shoulder, summit
Landform position (three-dimensional): Crest, side slope, nose slope
Down-slope shape: Convex
Across-slope shape: Linear, convex
Hydric soil rating: No

Leicester

Percent of map unit: 5 percent
Landform: Hills, depressions, drainageways, ground moraines
Landform position (two-dimensional): Toeslope, footslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave, linear
Across-slope shape: Concave

Hydric soil rating: Yes

Sutton

Percent of map unit: 5 percent
Landform: Ground moraines, hills, ridges
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave
Across-slope shape: Linear
Hydric soil rating: No

77C—Cheshire-Holyoke complex, 3 to 15 percent slopes, very rocky

Map Unit Setting

National map unit symbol: 9lqs
Elevation: 0 to 1,200 feet
Mean annual precipitation: 40 to 56 inches
Mean annual air temperature: 45 to 55 degrees F
Frost-free period: 140 to 185 days
Farmland classification: Not prime farmland

Map Unit Composition

Cheshire and similar soils: 45 percent
Holyoke and similar soils: 35 percent
Minor components: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Cheshire

Setting

Landform: Hills, till plains
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Coarse-loamy melt-out till derived from basalt and/or sandstone and shale

Typical profile

Ap - 0 to 8 inches: fine sandy loam
Bw1 - 8 to 16 inches: fine sandy loam
Bw2 - 16 to 26 inches: fine sandy loam
C - 26 to 65 inches: gravelly sandy loam

Properties and qualities

Slope: 3 to 15 percent
Surface area covered with cobbles, stones or boulders: 1.6 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 5.95 in/hr)

Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: Moderate (about 7.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6s
Hydrologic Soil Group: B
Ecological site: F145XY013CT - Well Drained Till Uplands
Hydric soil rating: No

Description of Holyoke

Setting

Landform: Hills, ridges
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Loamy eolian deposits over melt-out till derived from basalt and/or sandstone and shale

Typical profile

Oe - 0 to 1 inches: moderately decomposed plant material
A - 1 to 3 inches: silt loam
Bw1 - 3 to 8 inches: silt loam
Bw2 - 8 to 18 inches: gravelly silt loam
2R - 18 to 80 inches: unweathered bedrock

Properties and qualities

Slope: 3 to 15 percent
Surface area covered with cobbles, stones or boulders: 1.6 percent
Depth to restrictive feature: 10 to 20 inches to lithic bedrock
Drainage class: Well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Low to high (0.01 to 1.98 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: Very low (about 2.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6s
Hydrologic Soil Group: D
Ecological site: F145XY011CT - Well Drained Shallow Till Uplands
Hydric soil rating: No

Minor Components

Yalesville

Percent of map unit: 10 percent
Landform: Ridges, hills
Down-slope shape: Convex
Across-slope shape: Linear
Hydric soil rating: No

Rock outcrop
Percent of map unit: 6 percent
Hydric soil rating: No

Wethersfield
Percent of map unit: 1 percent
Landform: Hills, drumlins
Down-slope shape: Linear
Across-slope shape: Convex
Hydric soil rating: No

Watchaug
Percent of map unit: 1 percent
Landform: Till plains, hills
Down-slope shape: Linear
Across-slope shape: Concave
Hydric soil rating: No

Wilbraham
Percent of map unit: 1 percent
Landform: Depressions, drainageways
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

Menlo
Percent of map unit: 1 percent
Landform: Drainageways, depressions
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

84C—Paxton and Montauk fine sandy loams, 8 to 15 percent slopes

Map Unit Setting
National map unit symbol: 2w67b
Elevation: 0 to 1,550 feet
Mean annual precipitation: 36 to 71 inches
Mean annual air temperature: 39 to 55 degrees F
Frost-free period: 145 to 240 days
Farmland classification: Farmland of statewide importance

Map Unit Composition
Paxton and similar soils: 55 percent
Montauk and similar soils: 30 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Paxton

Setting

Landform: Ground moraines, drumlins, hills
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Linear, convex
Across-slope shape: Convex
Parent material: Coarse-loamy lodgment till derived from gneiss, granite, and/or schist

Typical profile

Ap - 0 to 8 inches: fine sandy loam
Bw1 - 8 to 15 inches: fine sandy loam
Bw2 - 15 to 26 inches: fine sandy loam
Cd - 26 to 65 inches: gravelly fine sandy loam

Properties and qualities

Slope: 8 to 15 percent
Depth to restrictive feature: 20 to 39 inches to densic material
Drainage class: Well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.14 in/hr)
Depth to water table: About 18 to 37 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 1.9 mmhos/cm)
Available water capacity: Low (about 4.2 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: C
Ecological site: F144AY007CT - Well Drained Dense Till Uplands
Hydric soil rating: No

Description of Montauk

Setting

Landform: Recessionial moraines, drumlins, hills, ground moraines
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Linear, convex
Across-slope shape: Convex
Parent material: Coarse-loamy over sandy lodgment till derived from gneiss, granite, and/or schist

Typical profile

Ap - 0 to 4 inches: fine sandy loam
Bw1 - 4 to 26 inches: fine sandy loam
Bw2 - 26 to 34 inches: sandy loam
2Cd - 34 to 72 inches: gravelly loamy sand

Properties and qualities

Slope: 8 to 15 percent
Depth to restrictive feature: 20 to 39 inches to densic material

Drainage class: Well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately high (0.00 to 1.42 in/hr)
Depth to water table: About 18 to 37 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 1.9 mmhos/cm)
Available water capacity: Low (about 5.2 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: C
Ecological site: F144AY007CT - Well Drained Dense Till Uplands
Hydric soil rating: No

Minor Components

Woodbridge

Percent of map unit: 6 percent
Landform: Drumlins, hills, ground moraines
Landform position (two-dimensional): Backslope, footslope
Landform position (three-dimensional): Side slope
Down-slope shape: Concave
Across-slope shape: Linear
Hydric soil rating: No

Charlton

Percent of map unit: 5 percent
Landform: Hills
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Linear, convex
Across-slope shape: Convex
Hydric soil rating: No

Ridgebury

Percent of map unit: 3 percent
Landform: Hills, depressions, drumlins, drainageways, ground moraines
Landform position (two-dimensional): Footslope, toeslope
Landform position (three-dimensional): Base slope, head slope
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

Stockbridge

Percent of map unit: 1 percent
Landform: Hills
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Concave
Across-slope shape: Linear
Hydric soil rating: No

98—Westbrook mucky peat, 0 to 2 percent slopes, very frequently flooded

Map Unit Setting

National map unit symbol: 2tyqf
Elevation: 0 to 10 feet
Mean annual precipitation: 36 to 71 inches
Mean annual air temperature: 39 to 55 degrees F
Frost-free period: 140 to 250 days
Farmland classification: Not prime farmland

Map Unit Composition

Westbrook and similar soils: 90 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Westbrook

Setting

Landform: Tidal marshes
Landform position (three-dimensional): Dip
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Partly-decomposed herbaceous organic material over loamy mineral material

Typical profile

Oe - 0 to 19 inches: mucky peat
Cg - 19 to 59 inches: silt loam

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Very poorly drained
Runoff class: Negligible
Capacity of the most limiting layer to transmit water (Ksat): Very low to high (0.00 to 14.17 in/hr)
Depth to water table: About 0 inches
Frequency of flooding: Very frequent
Frequency of ponding: None
Calcium carbonate, maximum content: 5 percent
Maximum salinity: Nonsaline to strongly saline (0.7 to 111.6 mmhos/cm)
Sodium adsorption ratio, maximum: 33.0
Available water capacity: High (about 9.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 8w

Hydrologic Soil Group: B/D
Ecological site: R144AY001CT - Tidal Salt Low Marsh mesic very frequently flooded, R144AY002CT - Tidal Salt High Marsh mesic very frequently flooded
Hydric soil rating: Yes

Minor Components

Pawcatuck
Percent of map unit: 5 percent
Landform: Tidal marshes
Landform position (three-dimensional): Dip
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R144AY001CT - Tidal Salt Low Marsh mesic very frequently flooded, R144AY002CT - Tidal Salt High Marsh mesic very frequently flooded
Hydric soil rating: Yes

Ipswich
Percent of map unit: 5 percent
Landform: Tidal marshes
Landform position (three-dimensional): Dip
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R144AY001CT - Tidal Salt Low Marsh mesic very frequently flooded, R144AY002CT - Tidal Salt High Marsh mesic very frequently flooded
Hydric soil rating: Yes

108—Saco silt loam

Map Unit Setting
National map unit symbol: 9ljv
Elevation: 0 to 1,200 feet
Mean annual precipitation: 43 to 54 inches
Mean annual air temperature: 45 to 55 degrees F
Frost-free period: 140 to 185 days
Farmland classification: Not prime farmland

Map Unit Composition
Saco and similar soils: 80 percent
Minor components: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Saco

Setting
Landform: Flood plains
Down-slope shape: Concave
Across-slope shape: Concave
Parent material: Coarse-silty alluvium

Typical profile

A - 0 to 12 inches: silt loam
Cg1 - 12 to 32 inches: silt loam
Cg2 - 32 to 48 inches: silt loam
2Cg3 - 48 to 60 inches: stratified very gravelly coarse sand to loamy fine sand

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Very poorly drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 1.98 in/hr)
Depth to water table: About 0 to 6 inches
Frequency of flooding: FrequentNone
Frequency of ponding: Frequent
Available water capacity: High (about 10.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6w
Hydrologic Soil Group: B/D
Ecological site: F144AY016MA - Very Wet Low Floodplain
Hydric soil rating: Yes

Minor Components

Lim

Percent of map unit: 5 percent
Landform: Flood plains
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

Limerick

Percent of map unit: 5 percent
Landform: Flood plains
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

Winooski

Percent of map unit: 3 percent
Landform: Flood plains
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Rippowam

Percent of map unit: 3 percent
Landform: Flood plains
Down-slope shape: Linear
Across-slope shape: Concave
Hydric soil rating: Yes

Hadley

Percent of map unit: 2 percent

Landform: Flood plains
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Bash

Percent of map unit: 2 percent
Landform: Flood plains
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

229B—Agawam-Urban land complex, 0 to 8 percent slopes

Map Unit Setting

National map unit symbol: 9lkd
Elevation: 0 to 1,200 feet
Mean annual precipitation: 43 to 56 inches
Mean annual air temperature: 45 to 55 degrees F
Frost-free period: 140 to 185 days
Farmland classification: Not prime farmland

Map Unit Composition

Agawam and similar soils: 40 percent
Urban land: 35 percent
Minor components: 25 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Agawam

Setting

Landform: Outwash plains, terraces
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Coarse-loamy eolian deposits over sandy and gravelly glaciofluvial deposits derived from granite and/or schist and/or gneiss

Typical profile

Ap - 0 to 8 inches: fine sandy loam
Bw1 - 8 to 14 inches: fine sandy loam
Bw2 - 14 to 24 inches: fine sandy loam
2C - 24 to 60 inches: stratified very gravelly coarse sand to fine sand

Properties and qualities

Slope: 0 to 8 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Very low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 5.95 in/hr)
Depth to water table: More than 80 inches

Frequency of flooding: None
Frequency of ponding: None
Available water capacity: Low (about 4.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2e
Hydrologic Soil Group: B
Ecological site: F145XY008MA - Dry Outwash
Hydric soil rating: No

Description of Urban Land

Typical profile

H - 0 to 6 inches: material

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 8
Hydrologic Soil Group: D
Hydric soil rating: Unranked

Minor Components

Hinckley

Percent of map unit: 5 percent
Landform: Kames, outwash plains, terraces, eskers
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

Udorthents

Percent of map unit: 5 percent
Down-slope shape: Convex
Across-slope shape: Linear
Hydric soil rating: No

Merrimac

Percent of map unit: 5 percent
Landform: Kames, outwash plains, terraces
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Walpole

Percent of map unit: 5 percent
Landform: Depressions on terraces, drainageways on terraces
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

Scarboro

Percent of map unit: 3 percent
Landform: Depressions, drainageways, terraces
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

Unnamed, red parent material
Percent of map unit: 2 percent
Hydric soil rating: No

235B—Penwood-Urban land complex, 0 to 8 percent slopes

Map Unit Setting
National map unit symbol: 9lkn
Elevation: 0 to 1,200 feet
Mean annual precipitation: 43 to 56 inches
Mean annual air temperature: 45 to 55 degrees F
Frost-free period: 140 to 185 days
Farmland classification: Not prime farmland

Map Unit Composition
Penwood and similar soils: 40 percent
Urban land: 35 percent
Minor components: 25 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Penwood

Setting
Landform: Outwash plains, terraces
Down-slope shape: Convex
Across-slope shape: Linear
Parent material: Sandy glaciofluvial deposits derived from sandstone and shale

Typical profile
Ap - 0 to 8 inches: loamy sand
Bw1 - 8 to 18 inches: loamy sand
Bw2 - 18 to 30 inches: sand
C - 30 to 60 inches: sand

Properties and qualities
Slope: 0 to 8 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Excessively drained
Runoff class: Very low
Capacity of the most limiting layer to transmit water (Ksat): High to very high (5.95 to 99.62 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: Very low (about 2.8 inches)

Interpretive groups
Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2s

Hydrologic Soil Group: A
Ecological site: F145XY008MA - Dry Outwash
Hydric soil rating: No

Description of Urban Land

Typical profile

H - 0 to 6 inches: material

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 8
Hydrologic Soil Group: D
Hydric soil rating: Unranked

Minor Components

Hartford

Percent of map unit: 5 percent
Landform: Terraces, outwash plains
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Branford

Percent of map unit: 5 percent
Landform: Outwash plains, terraces
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Ellington

Percent of map unit: 5 percent
Landform: Outwash plains, terraces
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Manchester

Percent of map unit: 5 percent
Landform: Kames, outwash plains, terraces, eskers
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

Udorthents

Percent of map unit: 5 percent
Down-slope shape: Convex
Across-slope shape: Linear
Hydric soil rating: No

260B—Charlton-Urban land complex, 3 to 8 percent slopes

Map Unit Setting

National map unit symbol: 2xff7
Elevation: 0 to 1,020 feet
Mean annual precipitation: 36 to 71 inches
Mean annual air temperature: 39 to 55 degrees F
Frost-free period: 140 to 240 days
Farmland classification: Not prime farmland

Map Unit Composition

Charlton and similar soils: 40 percent
Urban land: 35 percent
Minor components: 25 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Charlton

Setting

Landform: Ridges, hills, ground moraines
Landform position (two-dimensional): Shoulder, summit, backslope
Landform position (three-dimensional): Side slope, crest
Down-slope shape: Linear, convex
Across-slope shape: Convex
Parent material: Coarse-loamy melt-out till derived from gneiss, granite, and/or schist

Typical profile

Ap - 0 to 7 inches: fine sandy loam
Bw - 7 to 22 inches: gravelly fine sandy loam
C - 22 to 65 inches: gravelly fine sandy loam

Properties and qualities

Slope: 3 to 8 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to high (0.14 to 14.17 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 1.9 mmhos/cm)
Available water capacity: Moderate (about 6.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2e
Hydrologic Soil Group: B

Ecological site: F144AY034CT - Well Drained Till Uplands
Hydric soil rating: No

Description of Urban Land

Typical profile

M - 0 to 10 inches: cemented material

Properties and qualities

Slope: 3 to 8 percent
Depth to restrictive feature: 0 inches to manufactured layer
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Very low (0.00 to 0.00 in/hr)
Available water capacity: Very low (about 0.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 8
Hydrologic Soil Group: D
Hydric soil rating: Unranked

Minor Components

Chatfield

Percent of map unit: 10 percent
Landform: Ridges, hills
Landform position (two-dimensional): Backslope, shoulder, summit
Landform position (three-dimensional): Crest, side slope, nose slope
Down-slope shape: Convex
Across-slope shape: Convex, linear
Hydric soil rating: No

Leicester

Percent of map unit: 5 percent
Landform: Hills, depressions, drainageways, ground moraines
Landform position (two-dimensional): Toeslope, footslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave, linear
Across-slope shape: Concave
Hydric soil rating: Yes

Sutton

Percent of map unit: 5 percent
Landform: Hills, ground moraines
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave
Across-slope shape: Linear
Hydric soil rating: No

Udorthents

Percent of map unit: 5 percent
Landform: Ridges
Landform position (three-dimensional): Tread
Down-slope shape: Linear, convex
Across-slope shape: Linear, convex
Hydric soil rating: No

260C—Charlton-Urban land complex, 8 to 15 percent slopes

Map Unit Setting

National map unit symbol: 2xff8
Elevation: 0 to 890 feet
Mean annual precipitation: 36 to 71 inches
Mean annual air temperature: 39 to 55 degrees F
Frost-free period: 140 to 240 days
Farmland classification: Not prime farmland

Map Unit Composition

Charlton and similar soils: 40 percent
Urban land: 35 percent
Minor components: 25 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Charlton

Setting

Landform: Hills, ground moraines, ridges
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Linear, convex
Across-slope shape: Convex
Parent material: Coarse-loamy melt-out till derived from gneiss, granite, and/or schist

Typical profile

Ap - 0 to 7 inches: fine sandy loam
Bw - 7 to 22 inches: gravelly fine sandy loam
C - 22 to 65 inches: gravelly fine sandy loam

Properties and qualities

Slope: 8 to 15 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to high (0.14 to 14.17 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 1.9 mmhos/cm)
Available water capacity: Moderate (about 6.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: B

Ecological site: F144AY034CT - Well Drained Till Uplands
Hydric soil rating: No

Description of Urban Land

Typical profile

M - 0 to 10 inches: cemented material

Properties and qualities

Slope: 8 to 15 percent
Depth to restrictive feature: 0 inches to manufactured layer
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Very low (0.00 to 0.00 in/hr)
Available water capacity: Very low (about 0.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 8
Hydrologic Soil Group: D
Hydric soil rating: Unranked

Minor Components

Chatfield

Percent of map unit: 10 percent
Landform: Ridges, hills
Landform position (two-dimensional): Backslope, shoulder, summit
Landform position (three-dimensional): Crest, side slope, nose slope
Down-slope shape: Convex
Across-slope shape: Convex, linear
Hydric soil rating: No

Udorthents

Percent of map unit: 5 percent
Landform: Ridges
Landform position (three-dimensional): Tread
Down-slope shape: Linear, convex
Across-slope shape: Linear, convex
Hydric soil rating: No

Sutton

Percent of map unit: 5 percent
Landform: Hills, ground moraines
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave
Across-slope shape: Linear
Hydric soil rating: No

Leicester

Percent of map unit: 5 percent
Landform: Depressions, drainageways, ground moraines, hills
Landform position (two-dimensional): Toeslope, footslope
Landform position (three-dimensional): Base slope
Down-slope shape: Linear, concave
Across-slope shape: Concave
Hydric soil rating: Yes

302—Dumps

Map Unit Setting

National map unit symbol: 9lmb
Elevation: 0 to 1,200 feet
Mean annual precipitation: 37 to 56 inches
Mean annual air temperature: 45 to 55 degrees F
Frost-free period: 140 to 185 days
Farmland classification: Not prime farmland

Map Unit Composition

Dumps: 95 percent
Minor components: 5 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Dumps

Typical profile

C - 0 to 65 inches: variable

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 8
Hydric soil rating: Unranked

Minor Components

Udorthents

Percent of map unit: 2 percent
Hydric soil rating: No

Unnamed, frequently flooded

Percent of map unit: 1 percent
Landform: Drainageways
Hydric soil rating: Yes

Westbrook

Percent of map unit: 1 percent
Landform: Tidal marshes, salt marshes
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

Rock outcrop

Percent of map unit: 1 percent
Hydric soil rating: No

306—Udorthents-Urban land complex

Map Unit Setting

National map unit symbol: 9lmg
Elevation: 0 to 2,000 feet
Mean annual precipitation: 43 to 56 inches
Mean annual air temperature: 45 to 55 degrees F
Frost-free period: 120 to 185 days
Farmland classification: Not prime farmland

Map Unit Composition

Udorthents and similar soils: 50 percent
Urban land: 35 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Udorthents

Setting

Down-slope shape: Convex
Across-slope shape: Linear
Parent material: Drift

Typical profile

A - 0 to 5 inches: loam
C1 - 5 to 21 inches: gravelly loam
C2 - 21 to 80 inches: very gravelly sandy loam

Properties and qualities

Slope: 0 to 25 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Very low to high (0.00 to 1.98 in/hr)
Depth to water table: About 54 to 72 inches
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: Moderate (about 6.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: B
Hydric soil rating: No

Description of Urban Land

Typical profile

H - 0 to 6 inches: material

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 8
Hydrologic Soil Group: D
Hydric soil rating: Unranked

Minor Components

Unnamed, undisturbed soils

Percent of map unit: 8 percent
Hydric soil rating: No

Udorthents, wet substratum

Percent of map unit: 5 percent
Down-slope shape: Convex
Across-slope shape: Linear
Hydric soil rating: No

Rock outcrop

Percent of map unit: 2 percent
Hydric soil rating: No

307—Urban land

Map Unit Setting

National map unit symbol: 9lmh
Elevation: 0 to 2,000 feet
Mean annual precipitation: 43 to 56 inches
Mean annual air temperature: 45 to 55 degrees F
Frost-free period: 120 to 185 days
Farmland classification: Not prime farmland

Map Unit Composition

Urban land: 80 percent
Minor components: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Urban Land

Typical profile

H - 0 to 6 inches: material

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 8
Hydrologic Soil Group: D
Hydric soil rating: Unranked

Minor Components

Unnamed, undisturbed soils
Percent of map unit: 10 percent
Hydric soil rating: No

Udorthents, wet substratum
Percent of map unit: 10 percent
Down-slope shape: Convex
Across-slope shape: Linear
Hydric soil rating: No

308—Udorthents, smoothed

Map Unit Setting
National map unit symbol: 9lmj
Elevation: 0 to 2,000 feet
Mean annual precipitation: 43 to 56 inches
Mean annual air temperature: 45 to 55 degrees F
Frost-free period: 120 to 185 days
Farmland classification: Not prime farmland

Map Unit Composition
Udorthents and similar soils: 80 percent
Minor components: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Udorthents

Setting
Down-slope shape: Convex
Across-slope shape: Linear

Typical profile
A - 0 to 5 inches: loam
C1 - 5 to 21 inches: gravelly loam
C2 - 21 to 80 inches: very gravelly sandy loam

Properties and qualities
Slope: 0 to 35 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Moderately well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Very low to high (0.00 to 1.98 in/hr)
Depth to water table: About 24 to 54 inches
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: Moderate (about 6.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: C
Hydric soil rating: No

Minor Components

Unnamed, undisturbed soils

Percent of map unit: 7 percent
Hydric soil rating: No

Udorthents, wet substratum

Percent of map unit: 7 percent
Hydric soil rating: No

Urban land

Percent of map unit: 5 percent
Hydric soil rating: No

Rock outcrop

Percent of map unit: 1 percent
Hydric soil rating: No

703A—Haven silt loam, 0 to 3 percent slopes

Map Unit Setting

National map unit symbol: 2y07k
Elevation: 0 to 1,200 feet
Mean annual precipitation: 43 to 54 inches
Mean annual air temperature: 45 to 55 degrees F
Frost-free period: 140 to 185 days
Farmland classification: All areas are prime farmland

Map Unit Composition

Haven and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Haven

Setting

Landform: Outwash terraces, outwash plains
Landform position (three-dimensional): Tread
Down-slope shape: Convex
Across-slope shape: Linear
Parent material: Coarse-loamy eolian deposits over sandy and gravelly glaciofluvial deposits derived from granite and/or schist and/or gneiss

Typical profile

Ap - 0 to 7 inches: silt loam

Bw1 - 7 to 14 inches: silt loam
Bw2 - 14 to 20 inches: silt loam
BC - 20 to 24 inches: fine sandy loam
2C - 24 to 60 inches: stratified very gravelly sand to gravelly fine sand

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: 18 to 36 inches to strongly contrasting textural stratification
Drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 1.98 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: Low (about 4.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 1
Hydrologic Soil Group: B
Ecological site: F144AY023CT - Well Drained Outwash
Hydric soil rating: No

Minor Components

Enfield

Percent of map unit: 5 percent
Landform: Outwash plains, outwash terraces
Landform position (three-dimensional): Tread
Down-slope shape: Convex
Across-slope shape: Linear
Hydric soil rating: No

Tisbury

Percent of map unit: 5 percent
Landform: Deltas, valley trains, outwash terraces, outwash plains
Landform position (three-dimensional): Tread
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: No

Agawam

Percent of map unit: 3 percent
Landform: Moraines, outwash terraces, outwash plains, kame terraces, kames
Landform position (two-dimensional): Shoulder, summit
Landform position (three-dimensional): Side slope, crest, tread
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

Raypol

Percent of map unit: 2 percent
Landform: Depressions, drainageways
Down-slope shape: Concave
Across-slope shape: Concave

Hydric soil rating: Yes

W—Water

Map Unit Composition

Water: 100 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

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Appendix H

SWPC Amendment Log

RECORD OF PLAN AMENDMENTS[1.]

STORMWATER POLLUTION CONTROL PLAN

The United Illuminating Company

NO.	DATE	PLAN AMENDMENT DESCRIPTION	Initials

1. *The Amendment Table should be completed in accordance with Section 10.0 of the Plan, including whenever there is a change in contractors or subcontractors at the site; a change in design, construction, operation, or maintenance at the site which has the potential for the discharge of pollutants to the waters of the state and which has not otherwise been addressed in the Plan, or; if the actions required by the Plan fail to prevent pollution.*

Appendix I

Monopole Locations in GW Treatment Area

Table 4.2 Structure Locations with Groundwater Requiring Treatment Based on Previous Characterization

P888N	P888S	P891N	P892EN
P893N	P894N	P895N	P898N
P899N	P900N	P903N	P904N
P905N	P906N	P908N	P910N
P916N	P922N	P923N	P924N
P925N	P926N	P927N	P928N
P930N	P931N	P932N	P937N
P938N	P950N	P953N	P954N
P955N	P956N	P957N	P957S
P961N	P964N	P965N	P968N
P969N	P970N	P972N	P973NN
P974N	P978N	P979N	P980N
P981N	P982N	P983N	P985N
P986N	P988N	P989N	P991N
P992N	P993N	P996N	P997N
P998N	P999N	P1000N	P1001N
P1002N	P1003N	P1004N	P1007N
P1009NN	P1015N	WH1020N	P1021N
P1023AN	P1028S	P1029WNS	P1029SS
P1029ENS	P1029ES	P1030S	P1034N
P1035N	P1036N	P1037N	P1038N
P1042N	P1045N	P1047N	P1049N
P1049S	P1049EN	P1049ES	

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Appendix J

Notice of Termination Form

Connecticut Department of
Energy & Environmental Protection
Bureau of Materials Management & Compliance Assurance
Water Permitting & Enforcement Division

General Permit for the Discharge of Stormwater and Dewatering Wastewaters from Construction Activities

Notice of Termination Form: Non-Solar Projects

This Notice serves as a request to terminate the below listed permit as well as any applicable Letter(s) of Credit.

Part I: Permittee Information

The below information is required in accordance with Section 6(b) of the General Permit.

1. Permit Number: GSN _____
2. Registrant: _____
3. Site Address: _____

   City/Town: _____ State: _____ Zip Code: _____
4. Date of completion of construction: _____

   Date all storm drainage structures were cleared of construction sediment and debris: _____

   Beginning and Ending Dates of post-construction inspections: _____

   Date of final stabilization inspection(s)*: _____

   Qualified Inspector who conducted the Final Stabilization Inspection: (This person must sign Part III) _____
5. Check the post-construction activity(ies)** at the site (check all that apply):

   ☐ Industrial ☐ Residential ☐ Capped Landfill

   ☐ Commercial ☐ Solar Array ☐ Other: _____

* The Final Stabilization Inspection must occur at least one full growing season after final stabilization has been achieved. A full growing season is defined as the timeframe encompassed by two consecutive full seeding seasons: April 1 through June 15, and August 15 through October 1. If final stabilization is achieved during a seeding season, the following seeding season will be considered the first full seeding season after final stabilization has been achieved.

** If the post-construction activity involves solar arrays, the Department may require that the "Solar Projects: Notice of Termination Form" be used. Any questions regarding the necessity of such a form for the project can be sent via email to DEEP.StormwaterStaff@ct.gov.

Locally Approvable Projects Must Complete the following Part II - *(Attach additional sheets as needed)*

Part II: Locally Approvable Post-Construction Inspection Certification

The below information is required in accordance with Section 5(b)(4)(C)(i) of the General Permit.

Certification by a Qualified Professional Engineer / Qualified Soil Erosion and Sediment Control Professional / District Representative

"I hereby certify that I am a qualified professional engineer / a qualified soil erosion and sediment control professional / a representative of the District in which the site is located as defined in Section 2 of the General Permit for Discharge of Stormwater and Dewatering Wastewaters from Construction Activities (general permit). I am familiar with the site described in this Notice of Termination and the requirements of the general permit. I certify, based on my personal inspection of the site pursuant to Section 6(a) of the general permit that all post-construction measures have been installed as specified in the permittee's Stormwater Pollution Control Plan and in accordance with Section 5(b)(2)(C) of the general permit and that all such measures have been cleaned of construction sediment and debris. I understand that this certification is part of a registration submitted in accordance with section 22a-430b of Connecticut General Statutes and is subject to the requirements and responsibilities for a qualified professional in such statute. I also understand that knowingly making any false statement in this certification may be punishable as a criminal offense, including the possibility of fine and imprisonment, under section 53a-157b of the Connecticut General Statutes and any other applicable law."

Signature of Qualified Professional Engineer / Qualified Soil Erosion and Sediment Control Professional / Representative of the District	Date
Printed Name of Qualified Professional Engineer / Qualified Soil Erosion and Sediment Control Professional / Representative of the District	Title

Check off the qualifications of the signatory of the above part:

☐ Qualified Professional Engineer ☐ Qualified Soil Erosion and Sediment Control Professional ☐ Representative of the District

Locally Exempt Projects Must Complete the following Part II - *(Attach additional sheets as needed)*

Part II: Locally Exempt Post-Construction Inspection Certification

The below information is required in accordance with Section 5(b)(4)(C)(ii) of the General Permit.

Certification by a Qualified Professional Engineer / Qualified Soil Erosion and Sediment Control Professional

"I hereby certify that I am a qualified professional engineer / a qualified soil erosion and sediment control professional as defined in Section 2 of the General Permit for Discharge of Stormwater and Dewatering Wastewaters from Construction Activities (general permit). I am familiar with the site described in this Notice of Termination and the requirements of the general permit. I certify, based on my personal inspection of the site pursuant to Section 6(a) of the general permit that all post-construction measures have been installed as specified in the permittee's Stormwater Pollution Control Plan and in accordance with Section 5(b)(2)(C) of the general permit and that all such measures have been cleaned of construction sediment and debris. I understand that this certification is part of a registration submitted in accordance with section 22a-430b of Connecticut General Statutes and is subject to the requirements and responsibilities for a qualified professional in such statute. I also understand that knowingly making any false statement in this certification may be punishable as a criminal offense, including the possibility of fine and imprisonment, under section 53a-157b of the Connecticut General Statutes and any other applicable law."

Signature of Qualified Professional Engineer / Qualified Soil Erosion and Sediment Control Professional	Date
Printed Name of Qualified Professional Engineer / Qualified Soil Erosion and Sediment Control Professional	Title

Check off the qualifications of the signatory of the above part:

☐ Qualified Professional Engineer ☐ Qualified Soil Erosion and Sediment Control Professional

State Agency Projects Must Complete the following Part II - (Attach additional sheets as needed)

Part II: State Agency Post-Construction Inspection Certification

The below information is required in accordance with Section 5(b)(4)(C)(iii) of the General Permit.

Certification by a DOT District Engineer or his/her designee / a DOT District Environmental Coordinator / a designated employee of another state agency

"I hereby certify that I am a DOT District Engineer or his/her designee / a DOT District Environmental Coordinator / a designated employee of another state agency as defined in Section 2 of the General Permit for Discharge of Stormwater and Dewatering Wastewaters from Construction Activities (general permit). I am familiar with the site described in this Notice of Termination and the requirements of the general permit. I certify, based on my personal inspection of the site pursuant to Section 6(a) of the general permit that all post-construction measures have been installed as specified in the permittee's Stormwater Pollution Control Plan and in accordance with Section 5(b)(2)(C) of the general permit and that all such measures have been cleaned of construction sediment and debris. I understand that this certification is part of a registration submitted in accordance with section 22a-430b of Connecticut General Statutes and is subject to the requirements and responsibilities for a qualified professional in such statute. I also understand that knowingly making any false statement in this certification may be punishable as a criminal offense, including the possibility of fine and imprisonment, under section 53a-157b of the Connecticut General Statutes and any other applicable law."

Signature	Date
Printed Name	Title

Check off the qualifications of the signatory of the above part:

☐ Qualified Professional Engineer ☐ Qualified Soil Erosion and Sediment Control Professional ☐ Representative of the District

All Projects Must Complete the following Part III - *(Attach additional sheets as needed)*

Part III: Final Stabilization Inspection Certification

The below information is required in accordance with Section 5(b)(4)(D) of the General Permit.

Certification by a Qualified Inspector

"I hereby certify that I am a qualified inspector as defined in Section 2 of the General Permit for Discharge of Stormwater and Dewatering Wastewaters from Construction Activities (general permit). I am familiar with the site described in this Notice of Termination and the requirements of the general permit. I certify, based on my personal inspection of the site pursuant to Section 6(a) of the general permit that the site has been stabilized, as defined in Section 2 of the general permit, for a period of no less than one full growing season following the cessation of construction activities. I further certify that there is no active erosion or sedimentation present on site and no disturbed areas remain exposed. I also understand that knowingly making any false statement in this certification may be punishable as a criminal offense, including the possibility of fine and imprisonment, under section 53a-157b of the Connecticut General Statutes and any other applicable law."

Signature of Qualified Inspector	Date
Printed Name of Qualified Inspector	Title

All Projects Must Complete the following Part IV - *(Attach additional sheets as needed)*

Part IV: Permittee Certification

The below information is required in accordance with Section 5(b)(4)(D) of the General Permit.

Certification by the Permittee

"I have personally examined and am familiar with the information submitted in this document and all attachments thereto, and I certify that, based on reasonable investigation, including my inquiry of those individuals responsible for obtaining the information, the submitted information is true, accurate and complete to the best of my knowledge and belief. I understand that a false statement made in this document or its attachments may be punishable as a criminal offense, in accordance with section 22a-6 of the Connecticut General Statutes, pursuant to section 53a-157b of the Connecticut General Statutes, and in accordance with any other applicable statute."

Signature of Permittee	Date
Printed Name of Permittee	Title

All Projects Must Complete the following Part V - *(Attach additional documentation as needed)*

Part V: Additional Submittals

The following attachments are required to be submitted along with the Notice of Termination Form:

☐ Post-Construction Inspection Report (must contain photos with time stamps)

☐ Final Stabilization Inspection Report (must contain photos with time stamps)

Complete and submit this form in accordance with the general permit (DEEP-WPED-GP-015) to ensure the proper handling of the termination. Print or type unless otherwise noted.

Submit this Notice of Termination Form to the address below, as well as via email to DEEP.StormwaterStaff@ct.gov:

WATER PERMITTING AND ENFORCEMENT DIVISION/STORMWATER GROUP
DEPARTMENT OF ENERGY & ENVIRONMENTAL PROTECTION
79 ELM STREET
HARTFORD, CT 06106-5127

Appendix K

Impacted Soils Classification

Monopole Locations with Potentially Impacted Soils

Based on the analytical results from the October through November 2020, April through July 2021, October 2021 through January 2022, and August 2022 soil sampling activities completed by Haley & Aldrich, soil was characterized into one (1) out of four (4) following categories:

- Clean soil;
- Polluted soil;
- Contaminated soil; or
- Potentially hazardous soil.

Based on the soil data collected to date, no potentially hazardous soil has been identified at the Project. The soil samples were then utilized to identify the soil designations for each proposed structure number as follows:

Clean	Polluted	Contaminated
P888N	P891N	P888S
P889N	P892EN	P894N
P892N	P897NN	P895N
P893N	P906N	P896N
P899N	P910N	P898N
P900N	P912N	P903N
P901N	P956N	P905N
P902N	P957N	P936N
P904N	P958ES	P937N
P908N	P959WS	P938N
P916N	P968N	P950N
P918N	P977N	P953N
P919N	P983N	P959S
P920N	P1008NN	P961N
P922N	P1009N	P965N
P923N	P1015N	P969N
P924N	P1033N	P970N
P925N	P1034N	P996N
P926N	P1035N	P1013N
P927N	P1036N	P1023AN
P928N	P1042N	P1025N
P929N	P1047N	P1027N
P930N	P1049EN	P1041N
P931N	WH1017N	P1049N

Clean	Polluted	Contaminated
P932N	WH1020N	P1049S
P934N		P1049ES
P940N		P1050NS
P942N		
P954N		
P955N		
P957S		
P959N		
P960N		
P962N		
P963N		
P964N		
P966AN		
P971N		
P972N		
P973NN		
P974N		
P975EN		
P978N		
P979N		
P980N		
P981N		
P985N		
P986N		
P987NN		
P988N		
P989N		
P990N		
P991N		
P992N		
P993N		
P994N		
P997N		
P998N		
P999N		
P1000N		
P1001N		

Clean	Polluted	Contaminated
P1002N		
P1003N		
P1004N		
P1005N		
P1006N		
P1007N		
P1008WN		
P1009NN		
P1021N		
P1026N		
P1028S		
P1029SS		
P1029WNS		
P1029ENS		
P1029ES		
P1030S		
P1037N		
P1038N		
P1050NN		

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Appendix L

Inspection Report Form

SEDIMENTATION AND EROSION CONTROL INSPECTION REPORT
THE UNITED ILLUMINATING COMPANY
MILVON-WEST RIVER PROJECT (Permit No. GSN00XXXX)
MILFORD, ORANGE, WEST HAVEN, NEW HAVEN, CONNECTICUT

SITE # ALL POLE LOCATIONS

INSPECTION INFORMATION

Date of Inspection: _____
Qualified Inspector: _____
Type of Inspection (check one):
Post Rain Event ☐
Routine ☐
Plan Implementation ☐
Post-Construction ☐
Final Stabilization ☐
Termination ☐

WEATHER INFORMATION

Current Weather: _____
Date of Last Rain Event: _____
Amount of Last Rain Event: _____

GENERAL PROJECT CONFORMANCE

Approx. Current Acres Disturbed: _____		Dust Control Measures Established:	☐Yes ☐ No ☐ N/A
Construction Entrance Installed (As Needed):	☐Yes ☐ No ☐ N/A	Silt Fence Installed & Functional:	☐Yes ☐ No ☐ N/A
Wash Out Area Established:	☐Yes ☐ No ☐ N/A	Inlet Protection Installed & Functional:	☐Yes ☐ No ☐ N/A
Stockpile Areas Contained with Perimeter Controls and Covered when Inactive:	☐Yes ☐ No ☐ N/A	Accumulated Water Controlled and Discharged Through Approved Filtration Method:	☐Yes ☐ No ☐ N/A
Waste Disposal Area Established and Contained:	☐Yes ☐ No ☐ N/A	All Other E&S Controls Installed & Functional:	☐Yes ☐ No ☐ N/A
Inactive Disturbed Areas Stabilized:	☐Yes ☐ No ☐ N/A	Stormwater Discharge Observed?:	☐Yes ☐ No ☐ N/A

Description of Stormwater Discharge: _____

CERTIFICATION

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

I have personally examined and am familiar with the information submitted in this document and all attachments thereto, and I certify that, based on reasonable investigation, including my inquiry of those individuals responsible for obtaining the information, the submitted information is true, accurate and complete to the best of my knowledge and belief. I understand that a false statement made in this document or its attachments may be punishable as a criminal offense, in accordance with Section 22a-6 of the Connecticut General Statutes, pursuant to Section 53a-157b of the Connecticut General Statutes, and in accordance with any other applicable statute.

In my judgement, the site is in ☐ / out ☐ of compliance with the terms and conditions of the Stormwater Pollution Control Plan and permit.

Signature of Qualified Inspector	Date:
Signature of Permitee/Authorized Representative	Date:

ITEMS NOTED IN THIS INSPECTION:
List specific items related to erosion & sediment controls, implementation of the plan, description of stormwater discharges, and any water quality monitoring performed during the inspection.

Item #	Item Noted	Date Identified	Location of Deficiency	Description of Deficiency	Corrective Actions Required	Current Status	In Compliance

Additional Comments or Notes:

Appendix M

NDDB Review Information

Connecticut Department of

ENERGY &
ENVIRONMENTAL
PROTECTION

February 8, 2023

Mr. Kevin McNally
HRP Associates, Inc.
197 Scott Swamp Road
Farmington, CT 06032-3149
Kevin.mcnally@hrpassociates.com

Project: United Illuminating Company Milvon-West River Railroad 115-KV Transmission Line Upgrade in Milford, Orange, West Haven and New Haven, Connecticut
NDDB Determination No.: 202209567 (Previous NDDB # 202073487)
Expiration Date: February 8, 2025

Dear Kevin McNally,

I have re-reviewed Natural Diversity Data Base maps and files regarding the area delineated on the map you provided for the proposed United Illuminating Company Milvon-West River Railroad 115-KV Transmission Line Upgrade in Milford, Orange, West Haven and New Haven, Connecticut. According to our information we have known extant populations of State Endangered *Eriocaulon parkeri* (Parker's pipewort) State Threatened *Ammodramus maritimus* (seaside sparrow) and State Special Concern *Ammodramus caudacutus* (saltmarsh sharp-tailed sparrow), *Rana pipiens* (northern leopard frog), *Terrapene carolina carolina* (eastern box turtle) and *Malaclemys terrapin terrapin* (northern diamondback terrapin) and *Bolboschoenus novae-angliae* (Salt marsh bulrush) in the vicinity of this project.

State Endangered Plant Protection
State Endangered *Eriocaulon parkeri* (Parker's pipewort)
Habitat: Muddy tidal shores of coastal estuaries.
Blooms late July – September.

State Special Concern *Bolboschoenus novae-angliae* (Salt marsh bulrush)
Habitat: Brackish tidal marshes.
Blooms mid-July with seeds through October

We received and reviewed the State-Listed Plant Species Survey The United Illuminating Company Milvon-West River Railroad Transmission Line 115-kV Rebuild Project Indian River, City of Milford West River, Cities of West Haven and New Haven report developed by Davison Environmental and dated October 8, 2021. We accept the report and conclusions and no further surveys are required. Required best management practices include:

1) Do all structure replacements in winter, outside of growing season.
2) Do not expand existing pads or service roads, instead use temporary wooden matting when replacing structures. No additional gravel should be placed within the right-of-way either on roads or on pads in this right-of-way.
3) Remove all wood chips and slash if created by this rebuild of the transmission line. Do not add any wood chips to this right of way.

4) All state listed plant species found during structure replacement or hazardous tree removal must be reported on a special plant form and submitted to the NDDB (deep.nddbrequest@ct.gov) as soon as possible.

State Special Concern *Terrapenne carolina carolina* (eastern box turtle)
Best management practices to protect these turtles should be implemented throughout the entire work area. For all upland work, crushed stone should be avoided as much as possible and temporary mats should be used instead. No wood chips should be placed in any eastern box turtle upland habitat. Instead these wood chips should be removed and used elsewhere (off site). Any sightings of these turtles should be reported to the Natural Diversity Data Base (deep.nddbrequest@ct.gov) using a special animal form along with photographs to ensure proper identification of this species. The link to this form can be found here: https://www.ct.gov/deep/lib/deep/endangered_species/general_information/Vertebrateform.pdf

Protection for Turtles during Inactive Period (October 1st through March 30th):

- Keeping heavy equipment in the open ROW to the greatest extent possible and hand-felling trees to the greatest extent possible will minimize the potential for heavy machinery to crush hibernating turtles located in the forested edges along the ROW (a preferred habitat for box turtles to hibernate in).
- Overall, minimizing ground disturbance along the forest edges will minimize the potential for box turtle mortality during the winter months.
- Avoid and limit any equipment use within 50 feet of streams and brooks (wood turtles may be active in waterways even during the winter months).
- When felling trees adjacent to brooks and streams please cut them to fall away from the waterway and do not drag trees across the waterway or remove stumps from banks.
- No heavy machinery or vehicles may be parked in any turtle habitat.
- All construction personnel working within the turtle habitat must be apprised of the species description and the possible presence of a listed species, and instructed to notify the appropriate authorities to relocate any observed turtle.
- Any confirmed sightings of box, wood or spotted turtles should be reported and documented with the NDDB (nddbrequestdep@ct.gov) on the appropriate special animal form found at (http://www.ct.gov/deep/cwp/view.asp?a=2702&q=323460&depNav_GID=1641)

Protection for Turtles during Active Period (April 1st through September30th):

- Hire a qualified herpetologist to be on site to ensure these protection guidelines remain in effect and prevent turtles from being run over when moving heavy equipment. This is especially important in the month of June when turtles are selecting nesting sites. All construction personnel working within the turtle habitat must be apprised of the species description and the possible presence of a listed species, and instructed to relocate turtles found inside work areas or notify the appropriate authorities to relocate individuals. The Contractor and consulting herpetologist must search the work area each morning prior to any work being done. If a turtle is discovered later in the day after the initial search work should stop until the turtle can be relocated by the qualified herpetologist or educated construction worker. Any turtles encountered within the immediate work area shall be carefully moved to an adjacent area outside of the excluded area and any exclusionary fencing should be inspected to identify and remove access point. The goal is to keep turtles from being unintentionally killed during this project.

- Exclusionary practices will be required to prevent any turtle access into construction areas. These measures will need to be installed at the limits of disturbance.
- Exclusionary fencing must be at least 20 in tall and must be secured to and remain in contact with the ground and be regularly maintained (at least bi-weekly and after major weather events) to secure any gaps or openings at ground level that may let animal pass through. Do not use plastic or netted silt-fence.
- All staging and storage areas, outside of previously paved locations, regardless of the duration of time they will be utilized, must be reviewed to remove individuals and exclude them from re-entry.
- In areas where silt fence is used for exclusion, it shall be removed as soon as the area is stable to allow for reptile and amphibian passage to resume.
- No heavy machinery or vehicles may be parked in any turtle habitat.
- Special precautions must be taken to avoid degradation of wetland habitats including any wet meadows and seasonal pools.
- When felling trees adjacent to brooks and streams please cut them to fall away from the waterway and do not drag trees across the waterway or remove stumps from banks.
- Avoid and limit any equipment use within 50 feet of streams and brooks.
- Any confirmed sightings of box, wood or spotted turtles should be reported and documented with the NDDB (nddbrequestdep@ct.gov) on the appropriate special animal form found at (http://www.ct.gov/deep/cwp/view.asp?a=2702&q=323460&depNav_GID=1641)

State Special Concern *Rana pipiens* (northern leopard frog):
The northern leopard frog is a species of special concern frog that utilize open, grassy habitats either along the floodplain of a large stream or river, in wetlands around the margins of large lakes, or in meadows adjoining tidal wetlands. Leopard frogs are active from late March to mid-October. We have records of this frog from the wetlands surrounding the West River in New Haven.

Protection Measures for State Special Concern Northern Leopard Frog:
Most work should occur during the frog's active period (between March and October). Additional protection strategies that protect and enhance wetland habitat should be implemented in all areas where floodplain and alluvial marsh and wet meadow habitat will be impacted. No gravel or hard surface should be placed in any floodplain or alluvial marsh habitat. Construction personnel should also be notified of the presence of this species and provide information to assist in the identification of leopard frogs. During disturbance, geotextile silt fence is required be installed along the perimeter of the project disturbance limits and would will serve as a barrier for the northern leopard frog to access the work area. Any sightings of these frogs should be reported to the Natural Diversity Data Base (deep.nddbrequest@ct.gov) using a special animal form along with photographs to ensure proper identification of this species. The link to this form can be found here:
https://www.ct.gov/deep/lib/deep/endangered_species/general_information/Vertebrateform.pdf
No gravel should be placed in any floodplain or alluvial marsh habitat. Construction personnel should also be notified of the presence of this species and provide information to assist in the identification of leopard frogs. I do not anticipate any adverse impacts to the northern leopard frog population from this project if activities are confined to fall and winter months (October through February) if temporary matting is used and removed promptly once the project is finished.

State Special Concern *Malaclemys t. terrapin* (Northern Diamondback Terrapin)
The Northern diamondback terrapin is a turtle that inhabits salt marshes and salt or brackish tidal waters. They can also be found in mud flats, shallow bays, coves, and tidal estuaries. Adjacent sandy dry upland

areas are required for nesting. Nesting takes place in June-July on salt marshes and adjacent beach areas. The peaks of hatching occurrences are April – June and September – November. This species overwinters in depressions in the bottom of estuaries, creeks, and salt marsh channels. We have records of this turtle in Golf Pond and Indian River in Milford.

Recommended Protection Measures for Northern Diamondback Terrapin:

To protect Northern diamondback terrapin any ground disturbance in the area of **Golf Pond/Indian River** should be done during the turtle's inactive periods (November 1st to April 1st).

In the event that construction cannot be completed during the winter months then the work may be performed between April - November in accordance with the protection measures and Best Management Practices below:

1. **Hire a qualified herpetologist to be on site to ensure these protection guidelines remain in effect and prevent turtles from being run over when moving heavy equipment.** This is especially important in the month of June when turtles are selecting nesting sites. All construction personnel working within the turtle habitat must be apprised of the species description and the possible presence of a listed species and instructed to relocate turtles found inside work areas or notify the appropriate authorities to relocate individuals. The Contractor and consulting herpetologist must search the work area each morning prior to any work being done. If a turtle is discovered later in the day after the initial search work should stop until the turtle can be relocated by the qualified herpetologist or educated construction worker. Any turtles encountered within the immediate work area shall be carefully moved to an adjacent area outside of the excluded area and any exclusionary fencing should be inspected to identify and remove access point. The goal is to keep turtles from being unintentionally killed during this project.
2. Daily inspections should be conducted during the construction period to monitor for any turtles or terrapins. All construction workers should be advised and educated about these turtles and protection strategies.
3. Silt Fencing should be installed around the work area prior to commencement of construction and will be inspected daily.
4. A visual inspection should be conducted once silt fencing is in-place and prior to start of any work activity to locate any potential turtles.
5. All work personnel will be notified to be alert for the potential presence of the turtles and will be provided with a description of the species. Any turtle that may be discovered will be carefully moved, without harm, to a location outside the work area, and positioned in the same orientation that it had been moving. NO turtles will be removed or relocated from the area.
6. No vehicles or machinery should be parked in any identified turtle habitat that has not been confined by silt fencing and cleared of turtles.
7. Special care to avoid harm to basking or foraging individuals should be taken for any work conducted in the early morning and evening hours.
8. Report any observations of these turtles to our DEEP-NDDB Program at deep.nddbrequest@ct.gov as soon as possible.

State Threatened *Ammodramus maritimus* (Seaside sparrow) and State Special Concern *Ammodramus caudacutus* (saltmarsh sharp-tailed sparrow)

The State Threatened *Ammodramus maritimus* (Seaside sparrow) and State Special Concern *Ammodramus caudacutus* (saltmarsh sharp-tailed sparrow) are two wetland bird species that nest in salt

marsh complexes and are most susceptible to human disturbance during the breeding season (approximately April through August). We have records of these birds in the salt marshes surrounding the Indian River in Milford. Adults return to set up territories as early as April. Nests for these species are usually not established until May 1st but can be started as late as August 1st.

Recommended Protection Measures for Seaside Sparrow and Saltmarsh Sharp-tailed Sparrow
• Begin work before May 1st or after August 31st to avoid impacting an active nest. Do not introduce any new excessive noise between April 15th and August 15th.

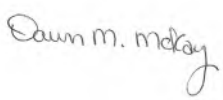
• If work must occur between May 1st and August 31st, before initiating work, nest surveys must occur to determine if nests are present impacted by project activities. Nest surveys must be conducted by an ornithologist familiar with the identification and the habitat requirements of this species. A report summarizing the results of such surveys should include habitat descriptions, survey results species list and a statement/resume giving their qualifications. Please forward the results of these surveys to the NDDB Program (deep.nddbrequest@ct.gov) within 14 days of this survey. If a nest is discovered all work should halt until after August 31st.

If the above protection strategies are followed then the proposed activities will lessen the impact on these state-listed species. This determination is good for two years. Please re-submit an NDDB Request for Review if the scope of work changes or if work has not begun on this project by February 8, 2025.

Natural Diversity Data Base information includes all information regarding critical biological resources available to us at the time of the request. This information is a compilation of data collected over the years by the Department of Energy and Environmental Protection's Natural History Survey and cooperating units of DEEP, private conservation groups and the scientific community. This information is not necessarily the result of comprehensive or site-specific field investigations. Consultations with the Data Base should not be substitutes for on-site surveys required for environmental assessments. Current research projects and new contributors continue to identify additional populations of species and locations of habitats of concern, as well as,enhance existing data. Such new information is incorporated into the Data Base as it becomes available.

Please contact me if you have further questions at dawn.mckay@ct.gov . Thank you for consulting the Natural Diversity Data Base.

Sincerely,



Dawn M. McKay
Environmental Analyst 3

Natural Diversity Data Base Areas

MILFORD, CT

December 2022

State and Federal Listed Species

Critical Habitat

Town Boundary

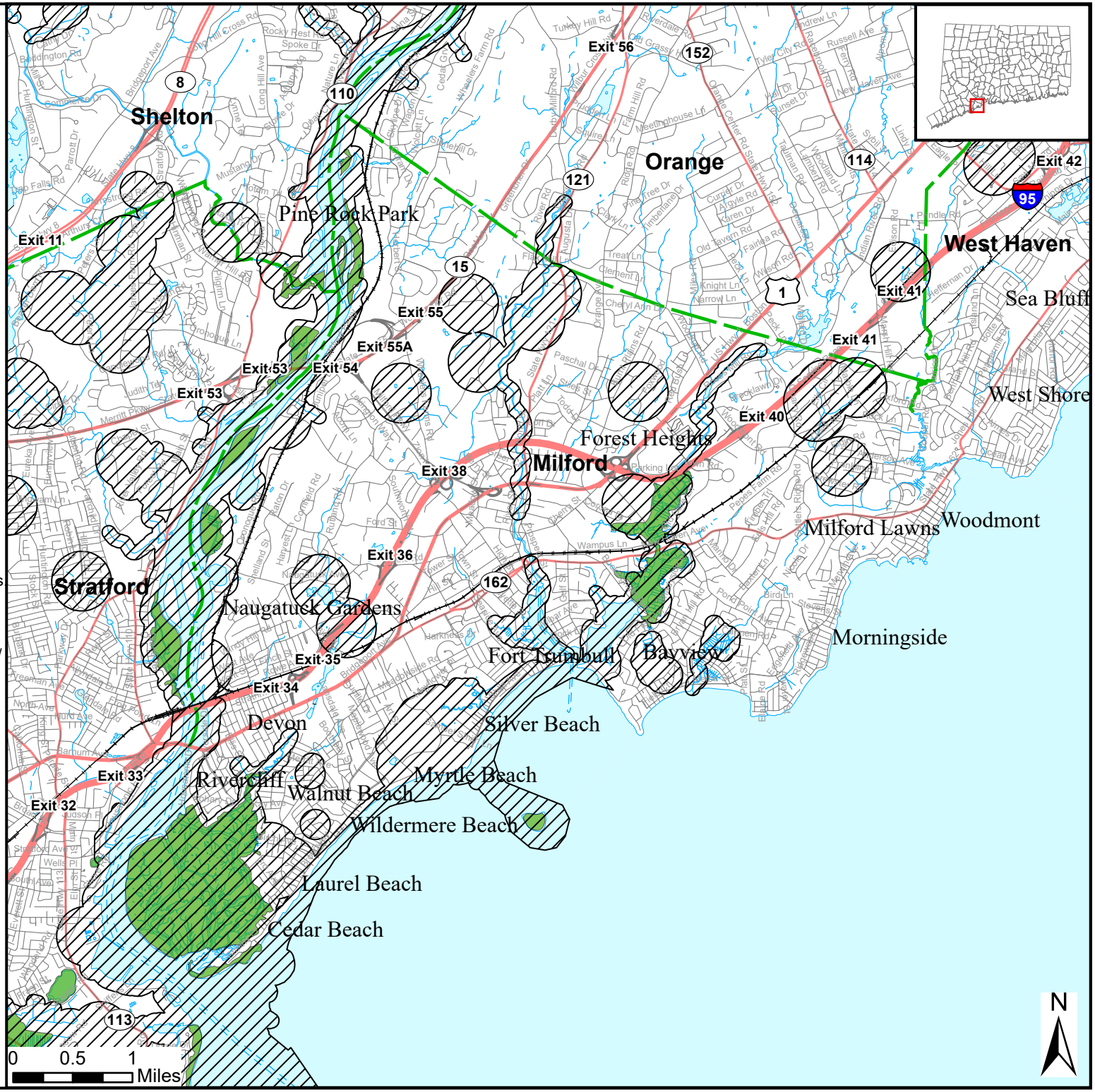
NOTE: This map shows known locations of State and Federal Listed Species and Critical Habitats. Information on listed species is collected and compiled by the Natural Diversity Data Base (NDDB) from a variety of data sources . Exact locations of species have been buffered to produce the generalized locations.

This map is intended for use as a preliminary screening tool for conducting a Natural Diversity Data Base Review Request. To use the map, locate the project boundaries and any additional affected areas If the project is within a hatched area there may be a potential conflict with a listed species. For more information, use DEEP ezFile https://filings.deep.ct.gov/DEEPPortal/ to submit a Request for Natural Diversity Data Base State Listed Species Review or Site Assessment. More detailed instructions are provided along with the request form on our website. https://portal.ct.gov/deep-nddbrequest

Use the CTECO Interactive Map Viewers at http://cteco.uconn.edu to more precisely search for and locate a site and to view aerial imagery with NDDB Areas.

QUESTIONS: Department of Energy and Environmental Protection (DEEP)
79 Elm St, Hartford, CT 06106
email: deep.nddbrequest@ct.gov
Phone: (860) 424-3011

Connecticut Department of Energy & Environmental Protection
Bureau of Natural Resources
Wildlife Division



Natural Diversity Data Base Areas

ORANGE, CT

December 2022

State and Federal Listed Species

Critical Habitat

Town Boundary

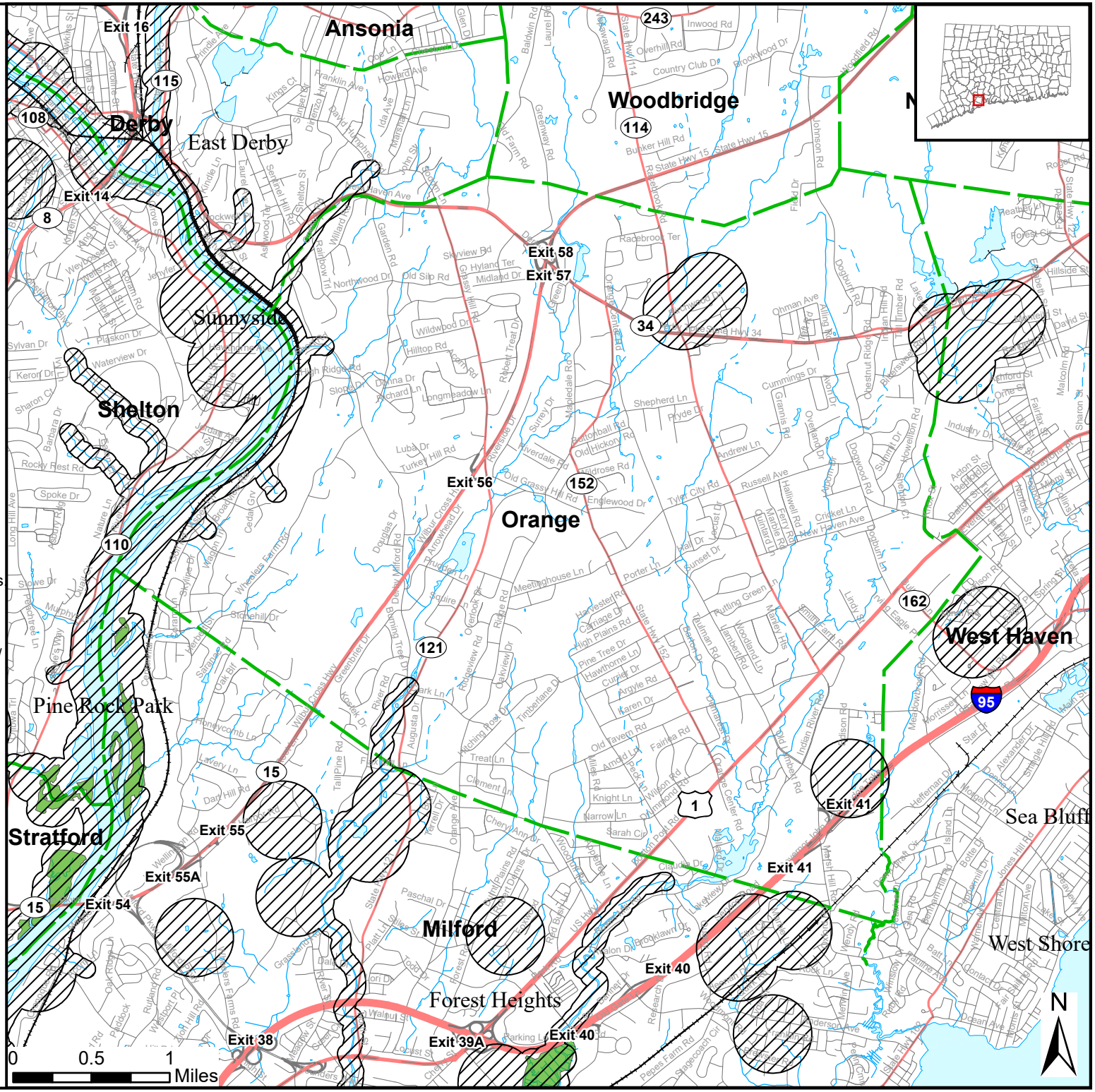
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Connecticut Department of Energy & Environmental Protection
Bureau of Natural Resources
Wildlife Division



Natural Diversity Data Base Areas

WEST HAVEN, CT

December 2022

State and Federal Listed Species

Critical Habitat

Town Boundary

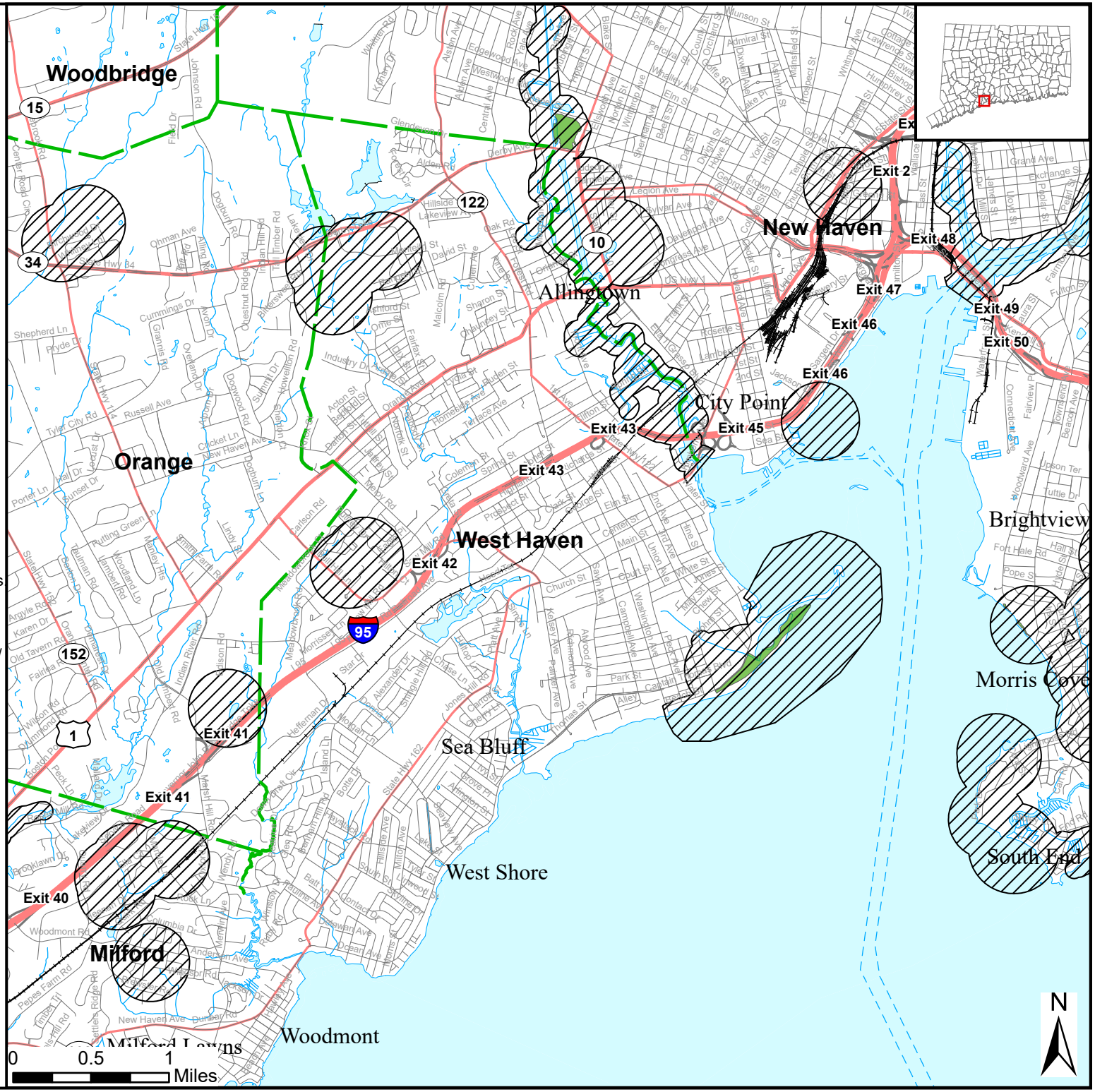
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79 Elm St, Hartford, CT 06106
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Connecticut Department of Energy & Environmental Protection
Bureau of Natural Resources
Wildlife Division



Natural Diversity Data Base Areas

NEW HAVEN, CT

December 2022

State and Federal Listed Species

Critical Habitat

Town Boundary

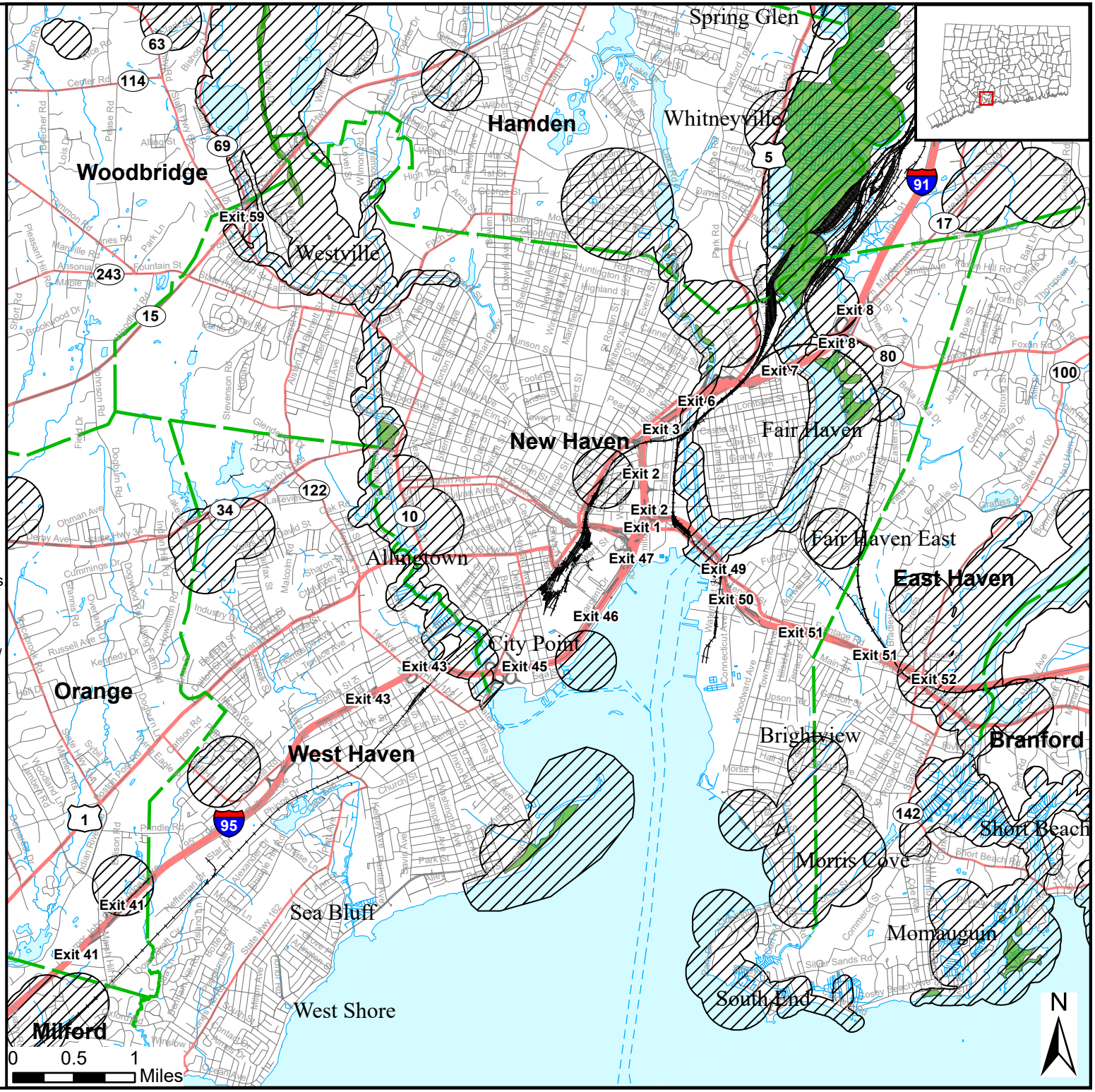
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79 Elm St, Hartford, CT 06106
email: deep.nddbrequest@ct.gov
Phone: (860) 424-3011

Connecticut Department of Energy & Environmental Protection
Bureau of Natural Resources
Wildlife Division



MOVE YOUR ENVIRONMENT FORWARD

September 26, 2022

Central Permit Processing Unit
Connecticut Department of Energy and Environmental Protection
79 Elm Street
Hartford, CT 06106

RE: The United Illuminating Company
Request for NDDB State Listed Species Review Renewal
Milford, Orange, West Haven, and New Haven, Connecticut
HRP No. UNI9209.EE

To Whom it May Concern:

On behalf of The United Illuminating Company (UI), HRP Associates, Inc. (HRP) has prepared the attached *Request for Natural Diversity Data Base (NDDB) State Listed Species Review Renewal* related to the UI Milvon-West River Railroad Transmission Line 115-Kv Rebuild Project located in Milford, Orange, West Haven, and New Haven, Connecticut. The above-mentioned project received a prior CT DEEP NDDB Response (Determination No.: 202073487) on December 27, 2020. As less than two years have passed since the issuance of that determination, the attached request is being submitted as a Renewal/Extension of a NDDB Request, without modifications. While the proposed activities, including equipment, methods, etc., are equivalent with the previous submittal, proposed pole locations and access measures contained within the site may vary slightly from the previous design phases of the project. Therefore, updated site plans are included with this renewal request, which consist of 1"=100' scale plans from the 70% design phase, as provided in the project application to the Connecticut Siting Council.

If you have any questions or require additional information, please feel free to contact us at 860-674-9570.

Sincerely,

Kevin McNally, PE
Project Manager

cc Todd Berman, The United Illuminating Company
Correne Auer, The United Illuminating Company
Richard Chandler, HRP Associates, Inc.
Andrew Berman, HRP Associates, Inc.

MOVE YOUR ENVIRONMENT FORWARD

REQUEST FOR NATURAL DIVERSITY DATA BASE (NDDB) STATE LISTED SPECIES REVIEW RENEWAL

CONNECTICUT DEPARTMENT OF ENERGY & ENVIRONMENTAL PROTECTION – BUREAU OF NATURAL RESOURCES WILDLIFE DIVISION

MILVON-WEST RIVER RAILROAD TRANSMISSION LINE 115-KV REBUILD PROJECT
Milford, Orange, West Haven, and New Haven, Connecticut

Prepared For:

THE UNITED ILLUMINATING COMPANY
100 Marsh Hill Road
Orange, Connecticut 06477

Prepared By:

HRP Associates, Inc.
197 Scott Swamp Road
Farmington, CT 06032

HRP #: UNI9209.EE

Issued On: September 26, 2022

TABLE OF CONTENTS

FORMS

Request for Natural Diversity Data Base (NDDB) State Listed Species Review

ATTACHMENTS

Attachment B – Detailed Site Map
Attachment C – Supplemental Information
State-Listed Plant Species Survey

Connecticut Department of
Energy & Environmental Protection
Bureau of Natural Resources
Wildlife Division

CPPU USE ONLY
App #:_____
Doc #:_____
Check #: No fee required
Program: Natural Diversity Database Endangered Species
Hardcopy _____ Electronic _____

Request for Natural Diversity Data Base (NDDB) State Listed Species Review

Please complete this form in accordance with the instructions (DEEP-INST-007) to ensure proper handling of your request.
There are no fees associated with NDDB Reviews.

Part I: Preliminary Screening & Request Type

Before submitting this request, you must review the most current Natural Diversity Data Base "State and Federal Listed Species and Significant Natural Communities Maps" found on the DEEP website. These maps are updated twice a year, usually in June and December.

Does your site, including all affected areas, fall in an NDDB Area according to the map instructions:

☒ Yes ☐ No **Enter the date** of the map reviewed for pre-screening: June 2022

This form is being submitted for a :

☐ *New* NDDB request ☒ *Renewal/Extension* of a NDDB Request, ***without*** *modifications and within* ***two years*** *of issued NDDB determination* (no attachments required) [*CPPU Use Only - NDDB-Listed Species Determination #* 1736]	☐ *New* **Safe Harbor Determination** (optional) must be associated with an application for a GP for the Discharge of Stormwater and Dewatering Wastewaters from Construction Activities ☐ *Renewal/Extension* of an existing Safe Harbor Determination ☐ With modifications ☐ Without modifications (no attachments required) [*CPPU Use Only - NDDB-Safe Harbor Determination #* 1736]
Enter NDDB Determination Number for Renewal/Extension: 202073487	Enter Safe Harbor Determination Number for Renewal/Extension:

Part II: Requester Information

If the requester is a corporation, limited liability company, limited partnership, limited liability partnership, or a statutory trust, it must be registered with the Secretary of State. If applicable, the name shall be stated **exactly as it is registered with the Secretary of State. Please note, for those entities registered with the Secretary of State, the registered name will be the name used by DEEP. This information can be accessed at the Secretary of the State's database CONCORD.* (www.concord-sots.ct.gov/CONCORD/index.jsp)

If the requester is an individual, provide the legal name (include suffix) in the following format: First Name; Middle Initial; Last Name; Suffix (Jr, Sr., II, III, etc.).

If there are any changes or corrections to your company/facility or individual mailing or billing address or contact information, please complete and submit the Request to Change company/Individual Information to the address indicated on the form.

1. Requester*

Company Name: HRP Associates, Inc. on behalf of The United Illuminating Company

Contact Name: Kevin McNally, PE

Address: 197 Scott Swamp Road

City/Town: Farmington State: CT Zip Code: 06032

Business Phone: 860.674.9570 ext. 1128

**E-mail: kevin.mcnally@hrpassociates.com

**By providing this email address you are agreeing to receive official correspondence from the department, at this electronic address, concerning this request. Please remember to check your security settings to be sure you can receive emails from "ct.gov" addresses. Also, please notify the department if your e-mail address changes

a) Requester can best be described as:

☐ Individual ☐ Federal Agency ☐ State agency ☐ Municipality ☐ Tribal

☒ *business entity (* if a business entity complete i through iii):

i) Check type ☒ corporation ☐ limited liability company ☐ limited partnership ☐ limited liability partnership ☐ statutory trust ☐ Other:

ii) Provide Secretary of the State Business ID #: This information can be accessed at the Secretary of the State's database (CONCORD). (www.concord-sots.ct.gov/CONCORD/index.jsp)

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

b) Acting as (Affiliation), pick one:

☐ Property owner ☒ Consultant ☐ Engineer ☐ Facility owner ☐ Applicant

☐ Biologist ☐ Pesticide Applicator ☐ Other representative:

2. List Primary Contact to receive Natural Diversity Data Base correspondence and inquiries, if different from requester.

Company Name: The United Illuminating Company

Contact Person: Todd Berman Title: Manager of Environmental Programs & Projects

Mailing Address: 100 Marsh Hill Road

City/Town: Orange State: CT Zip Code: 06477

Business Phone: 860.395.8297 ext.

**E-mail: todd.berman@uinet.com

Part III: Site Information

This request can only be completed for one site. A separate request must be filed for each additional site.

1. SITE NAME AND LOCATION

Site Name or Project Name: The United Illuminating Company's Milvon-West River Railroad 115-kV Transmission Line Upgrade

Town(s): Milford, Orange, West Haven, and New Haven

Street Address or Location Description: The coordinates for the beginning and end points of this linear project are 41.21236, -73.08095; and 41.28854, -72.93820 respectively. The project site is a linear corridor (i.e., an existing rail road), approximately 10 miles long and 50 feet wide on the north and south sides of the Metro North railway from UI's Milvon Substation to UI's West Haven Substation.

Size in acres, or site dimensions: 108.2

Latitude and longitude of the center of the site in decimal degrees (e.g., 41.23456 -71.68574):

Latitude: 41.247575 Longitude: -72.997273

Method of coordinate determination (check one):

☐ GPS ☐ Photo interpolation using CTECO map viewer ■ Other (specify): CAD/GIS Files

2a. Describe the current land use and land cover of the site.

The project is primarily in the CT DOT Railroad Corridor, a transportation corridor constructed over 100 years ago and has been in continuous use since construction. The current land use consists of mostly light urban-residential and light commercial. Occasional forested tracts and estuary crossings are present, as well. The proposed project crosses 12 waterbodies including the Wepawaug, Indian, Oyster, Cove, and West Rivers.

b. Check all that apply and enter the size in acres or % of area in the space after each checked category.

■ Industrial/Commercial 10%	■ Residential 20%	■ Forest 12%
■ Wetland 2%	■ Field/grassland 2%	☐ Agricultural _____
■ Water 2%	■ Utility Right-of-way 2%	
■ Transportation Right-of-way 50%	☐ Other (specify): _____	

Part IV: Project Information

1. PROJECT TYPE:

Choose Project Type: Utility construction/modification , If other describe: _____

2. Is the subject activity limited to the maintenance, repair, or improvement of an existing structure within the existing footprint? ☐ Yes ■ No If yes, explain.

Part IV: Project Information (continued)

3. Give a detailed description of the activity which is the subject of this request and describe the methods and equipment that will be used. Include a description of steps that will be taken to minimize impacts to any known listed species.

To maintain the reliability of the bulk transmission grid in Connecticut and regionally, The United Illuminating Company (UI or the Company) proposes to rebuild its two existing single-circuit 115-kilovolt (kV) overhead lines that extend southwest-northeast within the Connecticut DOT (CT DOT) - Metro-North Railroad (MNR) corridor between UI's Milvon Substation (located in the City of Milford) and UI's West River Substation (located in the City of New Haven), all in New Haven County, Connecticut.

Recent engineering analyses, commissioned by UI, of the existing 115-kV lines along the MNR corridor between Milvon and West River substations determined that, to maintain the reliability of the bulk transmission grid, the transmission support structures need to be upgraded to meet current electrical codes and to withstand extreme weather conditions (e.g., hurricanes). Based on these engineering analyses, UI proposes to rebuild the 115-kV lines on double-circuit monopoles, expected to be located parallel to and mostly along the north side of the railroad corridor, on property mostly owned by CT DOT. A more complete project description is provided in Attachment C of this information request.

Anticipated construction equipment includes but is not limited to cranes, bucket trucks, pulling mechanisms for new wires, excavators, loaders, and construction support vehicles. Wetland resources will be field delineated and will be avoided to the maximum extent practicable. Prior to the commencement of construction along a Project segment, UI will perform surveys to mark the boundaries of work areas, including new structure locations and permanent easements, as well as to clearly flag or otherwise demarcate the boundaries of sensitive environmental resources (e.g., wetlands, watercourses). UI's contractor will utilize Soil Erosion and Sediment Control (SESC) Best Management Practices (BMPs) and a General Permit for the Discharge of Stormwater from Construction Activities will be submitted. In accordance with that General Permit, inspections will be performed including an initial inspection by a qualified Environmental Professional, weekly inspections during construction, and inspections following rain events if there are discharges. Timber matting will be utilized as a means of temporary access and the erosion control measures will be consistent with the 2002 Connecticut Guidelines for Erosion and Sediment Control (DEEP Bulletin 34).

Any temporary or permanent project impacts to wetlands and watercourses will be permitted and approved under a CT DEEP Certificate of Permission, a Section 401 Water Quality Certificate, and/or the USACE General Permits for

4. If this is a renewal or extension of an existing Safe Harbor request *with* modifications, explain what about the project has changed.

N/A

5. Provide a contact for questions about the project details if different from Part II primary contact.

Name: Correne Auer, PE

Phone: 860.558.6947

E-mail: cauer@uinet.com

Part V: Request Requirements and Associated Application Types

Check *one* box from either Group 1, Group 2 *or* Group 3, indicating the appropriate category for this request.

Group 1. If you check one of these boxes, complete Parts I – VII of this form and submit the required attachments A and B.

- ☐ Preliminary screening was negative but an NDDB review is still requested
- ☐ Request regards a municipally regulated or unregulated activity (no state permit/certificate needed)
- ☐ Request regards a preliminary site assessment or project feasibility study
- ☐ Request relates to land acquisition or protection
- ☑ Request is associated with a *renewal* of an existing permit or authorization, with no modifications

Group 2. If you check one of these boxes, complete Parts I – VII of this form and submit required attachments A, B, *and* C.

- ☐ Request is associated with a *new* state or federal permit or authorization application or registration
- ☐ Request is associated with modification of an existing permit or other authorization
- ☐ Request is associated with a permit enforcement action
- ☑ Request regards site management or planning, requiring detailed species recommendations
- ☐ Request regards a state funded project, state agency activity, or CEPA request

☐ **Group 3.** If you are requesting a **Safe Harbor Determination**, complete Parts I-VII and submit required attachments A, B, and D. Safe Harbor determinations can only be requested if you are applying for a GP for the Discharge of Stormwater and Dewatering Wastewaters from Construction Activities

If you are filing this request as part of a state or federal permit application(s) enter the application information below.

Permitting Agency and Application Name(s):
CT Siting Council Review and Permitting - CSC Docket #508 Approved 8/18/2022

Related State DEEP Permit Number(s), if applicable: _____

State DEEP Enforcement Action Number, if applicable: _____

State DEEP Permit Analyst(s)/Engineer(s), if known: _____

Is this request related to a previously submitted NDDB request? ■ Yes ☐ No

If yes, provide the previous NDDB Determination Number(s), if known: 202073487

Part VI: Supporting Documents

Check each attachment submitted as verification that *all* applicable attachments have been supplied with this request form. Label each attachment as indicated in this part (e.g., Attachment A, etc.) and be sure to include the requester's name, site name and the date. **Please note that Attachments A and B are required for all new requests and Safe Harbor renewals/extensions with modifications.** Renewals/Extensions with no modifications do not need to submit any attachments. Attachments C and D are supplied at the end of this form.

☐ Attachment A:	**Overview Map:** an 8 1/2" X 11" print/copy of the relevant portion of a USGS Topographic Quadrangle Map clearly indicating the exact location of the site.
■ Attachment B:	**Detailed Site Map:** fine scaled map showing site boundary and area of work details on aerial imagery with relevant landmarks labeled. (Site and work boundaries in GIS [ESRI ArcView shapefile, in NAD83, State Plane, feet] format can be substituted for detailed maps, see instruction document)
■ Attachment C:	**Supplemental Information, Group 2 requirement (attached, DEEP-APP-007C)** ■ Section i: Supplemental Site Information and supporting documents ■ Section ii: Supplemental Project Information and supporting documents
☐ Attachment D:	**Safe Harbor Report Requirements, Group 3 (attached, DEEP-APP-007D)**

Part VII: Requester Certification

The requester *and* the individual(s) responsible for actually preparing the request must sign this part. A request will be considered incomplete unless all required signatures are provided.

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

Kevin McNally	9/26/2022
Signature of Requester (a typed name will substitute for a handwritten signature)	Date
Kevin McNally, PE	Project Manager
Name of Requester (print or type)	Title (if applicable)
Signature of Preparer (if different than above)	Date
Name of Preparer (print or type)	Title (if applicable)

Note: Please submit the completed Request Form and all Supporting Documents to:

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

Or email request to: **deep.nddbrequest@ct.gov**

ATTACHMENT C
SUPPLEMENTAL INFORMATION

Attachment C: Supplemental Information, Group 2 requirement

Section i: Supplemental Site Information

1. Existing Conditions

Describe all natural and man-made features including wetlands, watercourses, fish and wildlife habitat, floodplains and any existing structures potentially affected by the subject activity. Such features should be depicted and labeled on the site plan that must be submitted. Photographs of current site conditions may be helpful to reviewers.

The proposed Project will be constructed along the existing CT DOT railroad corridor, a transportation corridor constructed over 100 years ago and has been in continuous use since construction. The portion of the rail way ROW that the proposed Project will parallel is largely surrounded by developed land including residential, commercial and industrial development at various intensities. The developed land is interrupted with the occasional forested tract and wetland or waterbody. The proposed Project ROW crosses 12 waterbody features, some of which have an associated floodplain. Several wetlands have been mapped on both sides of the proposed Project ROW. The proposed Project ROW crosses four Natural Diversity Areas that are associated with wetlands, waterbodies and floodplains. In addition, the proposed Project ROW crosses one threatened and endangered species designated critical habitat.

☐ **Site Photographs (optional) attached**

☒ **Site Plan/sketch of existing conditions attached**

2. Biological Surveys

Has a biologist visited the site and conducted a biological survey to determine the presence of any endangered, threatened or special concern species ☒ Yes ☐ No

If yes, complete the following questions and submit any reports of biological surveys, documentation of the biologist's qualifications, and any NDDB survey forms.

Biologist(s) name: Davison Environmental, LLC

Habitat and/or species targeted by survey: Parker's Pipewort, New England Tuber-Bulrush

Dates when surveys were conducted: September 1, 16, 22, and 28, 2021

☒ **Reports of biological surveys attached**

☒ **Documentation of biologist's qualifications attached**

☐ **NDDB Survey forms for any listed species observations attached**

Section ii: Supplemental Project Information

1. Provide a schedule for all phases of the project including the year, the month and/or season that the proposed activity will be initiated and the duration of the activity.

Construction is anticipated to begin Q3 of 2023 and be completed by Q2 of 2028. However, as detailed design progresses, the anticipated schedule is subject to changes.

2. Describe and quantify the proposed changes to existing conditions and describe any on-site or off-site impacts. In addition, provide an annotated site plan detailing the areas of impact and proposed changes to existing conditions.

See Attachment C, Supplemental Project Information for further project details.
Changes to existing conditions are limited to temporary impacts associated with construction access (temporary matting and temporary vegetation clearing) and permanent impacts associated with continued access and maintenance of the transmission line (monopole foundations, permanent access roads, and vegetation conversion from treed to scrub-shrub and/or management as low growth inside of the transmission line ROW). 70% Civil Access Plans, as provided in the Project CSC application, serve as the Annotated Site Plans and are included as Attachment B.

☒ **Annotated Site Plan attached**

Attachment D: Safe Harbor Report Requirements

Submit a report, as Attachment D, that synthesizes and analyzes the information listed below. Those providing synthesis and analysis need appropriate qualifications and experience. A request for a safe harbor determination shall include:

1. **Habitat Description and Map(s), including GIS mapping overlays, of a scale appropriate for the site, identifying:**

    - wetlands, including wetland cover types;
    - plant community types;
    - topography;
    - soils;
    - bedrock geology;
    - floodplains, if any;
    - land use history; and
    - water quality classifications/criteria.

2. **Photographs** - The report should include photographs of the site taken from the ground and also all reasonably available aerial or satellite photographs and an analysis of such photographs.

3. **Inspection** - A visual inspection(s) of the site should be conducted, preferably when the ground is visible, and described in the report. This inspection can be helpful in confirming or further evaluating the items noted above.

4. **Biological Surveys** - The report should include all biological surveys of the site where construction activity will take place that are reasonably available to a registrant. A registrant shall notify the Department's Wildlife Division of biological studies of the site where construction activity will take place that a registrant is aware of but are not reasonably available to the registrant.

5. **Based on items #1 through 4 above, the report shall include a Natural Resources Inventory of the site of the construction activity.** This inventory should also include a review of reasonably available scientific literature and any recommendations for minimizing adverse impacts from the proposed construction activity on listed species or their associated habitat.

6. **In addition, to the extent the following is available at the time a safe harbor determination is requested, a request for a safe harbor determination shall include and assess:**

    - Information on Site Disturbance Estimates/Site Alteration information
    - Vehicular Use
    - Construction Activity Phasing Schedules, if any; and
    - Alteration of Drainage Patterns

REQUEST FOR NDDB STATE LISTED SPECIES REVIEW ATTACHMENT C SUPPLEMENTAL PROJECT INFORMATION

Project Background

To maintain the reliability of the bulk transmission grid in Connecticut and regionally, The United Illuminating Company (UI or the Company) proposes to rebuild its two existing single-circuit 115-kilovolt (kV) overhead lines that extend southwest-northeast within the Connecticut Department of Transportation (CT DOT) – Metro-North Railroad (MNR) corridor between UI's Milvon Substation (located in the City of Milford) and UI's West River Substation (located in the City of New Haven), all in New Haven County, Connecticut.

UI's existing 115-kV lines between Milvon and West River substations, which encompass approximately 19 circuit miles or 9.5 miles per line, traverse portions of southern Milford, the Town of Orange, City of West Haven, and City of New Haven. The lines also connect to UI's Woodmont Substation (located adjacent to the railroad corridor in the City of Milford) and to UI's Allings Crossing and Elmwest substations, situated adjacent to the railroad corridor in the City of West Haven.

Currently, the Milvon-West River 115-kV lines are located within the railroad corridor, on top of catenary structures that span the MNR and Amtrak rail lines. These lattice-type catenary structures, which are owned by CT DOT and operated by MNR, were originally built between 1912 and 1914 to support MNR signal and feeder wires for the electric operation of the trains.

UI attached transmission lines to the catenary structures in the 1940s. The UI transmission lines are supported on columns, referred to as "bonnets", located on top of the CT DOT catenary structures. One of the 115-kV lines is situated on the bonnets on the northern catenary support columns, while the other line is located on bonnets on the south side of the catenary support columns.

CT DOT owns the railroad corridor, which includes three tracks, in fee. Under a lease agreement between UI and CT DOT/MNR, the catenary structures support UI-owned bonnet/pole extensions, along with conductors, shield wires, insulators, and insulator hardware. According to UI engineering analyses, there are 130 catenary structures along the railroad corridor between Milvon and West River substations.

Between the Milvon and West River substations, the railroad corridor varies in width, but generally ranges from approximately 130 to 160 feet. From the northern bonnet structure, the width of the CT DOT ROW to the north varies from 5 to 140 feet in width, depending on location.

Over the years, UI's transmission lines on the catenary structures have been modified. Originally constructed at 69 kV in the 1940s, the lines were upgraded to 115 kV in the 1960s. In the 1980s, UI re-conductored the 115-kV lines; since then, various modifications have been made to the lines and to the catenary structures. Over the past 20 years, to maintain

conformance with national electric reliability codes, at certain locations (e.g., near Milvon and Allings Crossing substations, West Haven Train Station), UI removed small portions of the 115-kV lines from specific catenary structures and instead installed the line on monopoles within the railroad corridor.

Project General Description

Recent engineering analyses, commissioned by UI, of the existing 115-kV lines along the MNR corridor between Milvon and West River substations determined that, to maintain the reliability of the bulk transmission grid, the transmission support structures need to be upgraded to meet current electrical codes and to withstand extreme weather conditions (e.g., hurricanes).

Based on these engineering analyses, UI proposes to rebuild the 115-kV lines on double-circuit monopoles, expected to be located parallel to and mostly along the north side of the railroad corridor, on property mostly owned by CT DOT. Referred to as the Milvon-West River Railroad Transmission Line 115-kV Rebuild Project (Project), the primary components of the Project will include:

- Rebuild the two 115-kV lines in a double-circuit configuration, supported on galvanized steel monopole structures, between Milvon and West River substations. The new monopoles will be offset from the catenary structures based on the railroad corridor width and clearance requirements specified by CT DOT/MNR and electrical standards. This offset will vary based on location, but typically is expected to be 25 feet. The centerline of the new monopoles will be approximately 15 feet from the edge of the ROW (i.e., the edge of the CT DOT ROW, where space is available within that ROW, or from the edge of the new UI easement (to be acquired)).
- Modify existing 115-kV connections, based on the configuration of the rebuilt 115-kV lines, to the Milvon and West River substations and to four other existing UI substations located adjacent to the railroad corridor (Woodmont, Allings Crossing, Elmwest, and West River) between Milvon and West River substations.
- Remove or modify certain steel monopoles that were installed as part of previous recent UI transmission upgrade projects.
- Decommission and remove the existing 115-kV facilities on the railroad catenary structures (the bonnets may remain in place if CT DOT accepts ownership of them).

Construction and Right-of-Way Requirements

The Project will involve first constructing the new monopoles to support the double-circuit 115-kV lines, after which the existing 115-kV transmission line facilities will be removed from the top of the catenary structure bonnets. Proposed monopole locations, means of temporary and permanent access, as well as areas of temporary vegetation clearing and permanent vegetation conversion to scrub-shrub vegetation within the right-of-way in accordance with electric transmission clearances are presented in Attachment B, the Detailed Site Map.

Access to construct and to operate/maintain the rebuilt 115-kV lines is expected to be via the existing public road network, CT DOT/MNR access, or new temporary or permanent access roads. Temporary access and work pads will be constructed of temporary timber matting. Most of the ROW will be on undeveloped portions of the CT DOT property abutting the railroad tracks. However, some private easement acquisition will be required for the installation of the proposed transmission line structures and/or to maintain mandated operational clearances between the electric lines and nearby vegetation.

Land Use and Environmental Features

The proposed right-of-way (ROW) for the rebuilt 115-kV lines will extend adjacent to a mix of land uses (residential, recreational, commercial, industrial) and will be near or will cross certain environmental resources (inland/tidal wetlands, rivers, flood zones, and coastal zone boundaries in Milford, West Haven, and New Haven). The following table summarizes key features in the Project area, by municipality:

Feature/ Municipality	Milford	Orange	West Haven	New Haven
Miles (of route)	4.05 miles (Milvon-Woodmont) 0.98 mile (Woodmont to Allings Crossing) Total = 5.03 miles	Total = 0.46 miles (along Woodmont-Allings Crossing segment)	1.47 miles (Woodmont- Allings Crossing) 1.24 miles (Allings Crossing – Elmwest) 1.15 miles (Elmwest-New Haven) Total = 3.86 miles	Total = 0.10 miles
Substations	Milvon SS (a 115-kV to 13.8-kV distribution substation located at 772 Bridgeport Avenue) Woodmont SS	None	Allings Crossing SS Elmwest SS	West River SS
Nearby Environmental & Other Features	Beaver Brook wetlands/Trails/ Milford Harbor Indian River/Gulf Pond (tidal wetlands) Coastal zone (southwest portion) Milford Train Station	Oyster River Yale University West Campus Coastal zone	Phipps Lake Coastal zone West River (Boundary with New Haven, coastal, wetlands) Yale University West Campus West Haven Train Station	West River (boundary with West Haven) Coastal zone
State Road Crossings	US Route 1	None	State Route 162 I-95	State Route 10

Appendix N

CT SHPO Correspondence

Department of Economic and Community Development

State Historic Preservation Office

June 8, 2022

Mr. David R. George
Heritage Consultants
PO Box 310249
Newington, CT 06131

Subject: Request for Additional Information, Visual Impacts
Milvon-West River Railroad Transmission Line 115-kV Rebuild Project
Milford, Orange, West Haven, New Haven, Connecticut
ENV-22-0382

Dear Mr. George:

The State Historic Preservation Office (SHPO) has reviewed the additional information prepared by Heritage Consultants, LLC (Heritage), dated May 25, 2022, in response to a request from our office, dated May 13, 2022. The proposed activities are under the jurisdiction of the Connecticut Siting Council and are subject to review by this office pursuant to the Connecticut Environmental Policy Act (CEPA). The proposed project includes the rebuilding of two single-circuit 115-kilovolt (kV) overhead lines along the Connecticut Department of Transportation (CT DOT) corridor between the Milvon and West River substations, within the municipalities of Milford, Orange, West Haven, and New Haven. The project includes moving utility lines from existing catenary structures, to new, freestanding structures. The catenaries are to remain, with the bonnets (c. 1940) to be removed.

In our letter of May 13, 2022, our office asked for information regarding potential alternatives to the proposed action, as well as clarification of the height and frequency of the new structures.

Regarding reuse of the catenary structures, this office concurs that the required structural reinforcement, coupled with the installation of larger bonnets, would adversely impact the catenaries, which are eligible as contributing resources to this segment of the New York, New Haven, & Hartford Railroad linear district, eligible for listing on the National Register of Historic Places. The current proposal avoids a direct impact to a historic resource. This office further acknowledges that leaving critical infrastructure within an active rail line, on property it does not own, does not meet the project objective of "reliability and resiliency of UI's electrical system."

After viewing the requested photosimulations, it is the opinion of this office that the introduction of additional structures would exacerbate the visual impact to historic resources. Therefore, this office would recommend the proposal for taller, but fewer, pole structures.

As previously stated, the proposed action will visually adversely impact resources within the area of potential affect, an indirect effect. SHPO still believes a comprehensive archaeological survey of Charles Island, coupled with interpretive signage, would constitute adequate mitigation, and would resolve the adverse, indirect impact. However, this office would consider other alternative mitigation measures, appropriate to the project's effect on historic properties, proposed by the project sponsor, or other interested parties. Regardless, SHPO requests that any agreed upon mitigation be a requirement of project approval, and be codified in an agreement document.

SHPO appreciates the cooperation of all interested parties in the professional management of Connecticut's cultural resources. These comments are provided in accordance with the Connecticut Environmental Policy Act. For additional information, please contact Marena Wisniewski, Environmental Reviewer, at (860) 500-2357 or marena.wisniewski@ct.gov.

Sincerely,

Jonathan Kinney
State Historic Preservation Officer

Andrew Berman

From: David George <dgeorge@heritage-consultants.com>
Sent: Friday, November 5, 2021 10:53 AM
To: James Quinn
Cc: CORRENE AUER; Andrew Berman
Subject: Project Notification - United Illuminating Milvon-West River Railroad Transmission Line 115-kV Rebuild Project in Milford, Orange, West Haven, and New Haven, Connecticut
Attachments: Mohegan Tribe of Connecticut Indians - Project Notification.pdf; 20-3373 UI Milvon to West River Fact SheetFINAL91.pdf

Mr. Quinn,

Please find attached a Project Notification letter and Fact Sheet associated with the United Illuminating Milvon-West River Railroad Transmission Line 115-kV Rebuild Project in Milford, Orange, West Haven, and New Haven, Connecticut. The attached materials provide and introduction and overview of the proposed project. Please feel free to contact me with any questions you may have about the project. Thank you for your time and consideration.

David

David R. George
Heritage Consultants, LLC
55 East Cedar Street
Newington, Connecticut 06111
860.299.6328
dgeorge@heritage-consultants.com

HERITAGE CONSULTANTS

Andrew Berman

From: David George <dgeorge@heritage-consultants.com>
Sent: Friday, November 5, 2021 10:52 AM
To: MTurnbull@mptn-nsn.gov
Cc: cauer@ui.net; Andrew Berman
Subject: Project Notification - United Illuminating Milvon-West River Railroad Transmission Line 115-kV Rebuild Project in Milford, Orange, West Haven, and New Haven, Connecticut
Attachments: Mashantucket Pequot Tribal Nation - Project Notification.pdf; 20-3373 UI Milvon to West River Fact SheetFINAL91.pdf

Ms. Turnbull,

Please find attached a Project Notification letter and Fact Sheet associated with the United Illuminating Milvon-West River Railroad Transmission Line 115-kV Rebuild Project in Milford, Orange, West Haven, and New Haven, Connecticut. The attached materials provide and introduction and overview of the proposed project. Please feel free to contact me with any questions you may have about the project. Thank you for your time and consideration.

David

David R. George
Heritage Consultants, LLC
55 East Cedar Street
Newington, Connecticut 06111
860.299.6328
dgeorge@heritage-consultants.com

HERITAGE CONSULTANTS

Appendix O

Milford Conservation Area Correspondence

Department of Economic and Community Development

State Historic Preservation Office

June 8, 2022

Mr. David R. George
Heritage Consultants
PO Box 310249
Newington, CT 06131

Subject: Request for Additional Information, Visual Impacts
Milvon-West River Railroad Transmission Line 115-kV Rebuild Project
Milford, Orange, West Haven, New Haven, Connecticut
ENV-22-0382

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Sincerely,

Jonathan Kinney
State Historic Preservation Officer

Appendix P

National Pollutant Discharge Elimination System General Permit for the Discharge of Stormwater from Construction Activities

National Pollutant Discharge Elimination System General Permit for the Discharge of Stormwater from Construction Activities

Permit No.: CTR100000

This National Pollutant Discharge Elimination System *General Permit for the Discharge of Stormwater from Construction Activities* is issued in accordance with Section 22a-430 of Chapter 446k, Connecticut General Statutes ("Conn. Gen. Stat."), and Regulations of Connecticut State Agencies ("Regs. Conn. State Agencies") adopted thereunder, as amended, and Section 402(b) of the Clean Water Act ("CWA"), as amended, 33 USC 1251, et. seq., and pursuant to an approval dated September 26, 1973, by the Administrator of the United States Environmental Protection Agency for the State of Connecticut to administer a NPDES permit program. Persons shall comply with all conditions of this permit.

This permit becomes effective January 1, 2026. This permit and the authorization to discharge shall expire sixty (60) months (five (5) years) from the effective date. This permit expires on December 31, 2030.

Issued: January 1, 2026

Emma Cimino

Emma Cimino
Deputy Commissioner

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General Permit for the Discharge of Stormwater from Construction Activities

Section 1 Authority

This general permit is issued under the authority of Section 22a-430b of the Connecticut General Statutes ("Conn. Gen. Stat.").

Section 2 Authorization Under This General Permit

2.1 Eligible Activities

This general permit authorizes the discharge of stormwater from construction activities, as defined in this general permit as "any activity and discharges associated with construction at a site or the site's preparation for construction including, but not limited to, clearing, grubbing, pile driving, soil disturbance, soil compaction by construction equipment, staging and stockpiling, storage, cleaning and washout, grading, excavation, and dewatering," with a total disturbance of one (1) or more acres of land area for the entire project regardless of project phasing to waters of the State of Connecticut provided the requirements of this section are satisfied and the activity is conducted in accordance with this permit.

In the case of a larger plan of development (such as a subdivision), the estimate of total acres of site disturbance shall include, but is not limited to, road and utility construction, individual lot construction (e.g. house, driveway, septic system, etc.), and all other construction associated with the overall plan, regardless of the individual parties responsible for construction of these various elements.

2.1.1 Allowable non-stormwater discharges

The following non-stormwater discharges associated with the construction activity are authorized under this permit provided that, with the exception of water used to control dust and to irrigate vegetation in stabilized areas, these discharges are not routed to areas of exposed soil on the site, are included in the Stormwater Pollution Control Plan, and the Permittee complies with the applicable requirements of Section 5.2:

- uncontaminated discharges from construction dewatering operations in accordance with requirements of Section 5.2.2.8.
- uncontaminated and non-turbid discharges from natural springs or naturally occurring groundwater.
- foundation or footing drains where flows are not contaminated with process materials such as solvents or contaminated ground water.
- discharges from emergency fire-fighting activities.
- landscape irrigation.
- water used to control dust.
- potable water including uncontaminated water line or fire hydrant flushing.
- uncontaminated air conditioning or compressor condensate.

All other non-stormwater discharges except those specifically listed are not authorized by this permit. Such discharges to surface water must be authorized under a different permit issued by the Commissioner (pursuant to Section 22a-430 or 22a-430b of the Conn. Gen. Stat.).

2.1.2 Emergency Construction Activity Exception

The general permit authorizes short-term discharges of stormwater from construction activities in response to a public emergency as determined by the Commissioner (e.g., mud slides, earthquake, extreme flooding conditions, widespread disruption in essential public services), when the related work requires immediate authorization to avoid imminent endangerment to human health, public safety, or the environment, or to reestablish essential public services.

2.2 Requirements for Authorization

This general permit authorizes the discharge of stormwater from construction activity and associated discharges listed in the Section 2.1 "Eligible Activities" of this general permit provided the following conditions are met:

2.2.1 Limitations of Coverage

2.2.1.1 Prohibited discharges

The following discharges are prohibited:

- wastewater from washout of concrete, unless managed in accordance with Section 5.2.2.11.b of this general permit and the Connecticut Guidelines for Soil Erosion and Sediment Control ("the Guidelines").
- wastewater from washout and/or cleanout of stucco, paint, form release oils, curing compounds, and other construction materials.
- fuels, oils, or other pollutants used in vehicle and equipment operation and maintenance.
- soaps, solvents, or detergents used in vehicle and equipment washing or external building washdown.
- toxic or hazardous substances from a spill or other release.
- discharges from dewatering activities, including discharges from dewatering of trenches and excavations, are prohibited unless managed by appropriate Control Measures.
- discharges containing or resulting in a visible oil sheen, floating solids, or foam.
- discharge of litter, debris, building materials, hardened concrete waste, or similar materials from the site.
- process wastewater as defined by 40 Code of Federal Regulations ("CFR") 122.2.
- slurry materials and waste from shaft drilling, including process wastewater from shaft drilling for construction of building, road, and bridge foundations unless managed to prevent discharge to surface water.
- wheel wash wastewater, unless managed in accordance with Section 5.2.2.11.c of this general permit and the Guidelines.
- discharges of water, substance, or material into the waters of the State other than eligible discharges specified in this general permit.
- eligible discharges to publicly or privately owned storm sewers or conveyances without notification being provided to the owner.
- the stormwater discharge resulting from an activity classified by the Standard Industrial Classification 10 and 12 through 14 (the mining industry) is not eligible to be authorized by this general permit and is regulated under the General Permit for the Discharge of Stormwater Associated with Industrial Activity.
- discharges of dewatering waters known to contain pollutants other than sediment.
- discharges of polychlorinated biphenyl ("PCB") compounds.
- discharges of mercury compounds.

2.2.2 Complete Application

A complete application pursuant to Section 3 of this general permit shall be filed with the Commissioner.

2.2.3 Coastal Management Act

Such construction activity must be consistent with all applicable goals and policies in Section 22a-92 of the Conn. Gen. Stat. and must not cause adverse impacts to coastal resources as defined in Section 22a-93(15) of the Conn. Gen. Stat. Please refer to the Appendix D for additional guidance.

2.2.4 Endangered and Threatened Species

Such construction activity must not threaten the continued existence of any species listed pursuant to Section 26-306 of the Conn. Gen. Stat. as endangered or threatened and must not result in the destruction or adverse modification of habitat designated as essential to such species. See Appendix A for permit terms and conditions.

2.2.5 Aquifer Protection Areas

Such construction activity, if it is located within an aquifer protection area as mapped under Section 22a-354b of the Conn. Gen. Stat., must comply with regulations adopted pursuant to Section 22a-354i of the Conn. Gen. Stat. Please refer to the Appendix C for guidance. For any construction activity regulated pursuant to the Aquifer Protection Regulations in Sections 22a-354i-8(c) and 9(b) of the Regs. Conn. State Agencies, the Stormwater Pollution Control Plan ("SPCP") must provide sufficient information to assure that stormwater discharge generated from the construction activity is (i) managed in a manner so as to prevent pollution of groundwater, and (ii) complies with all the requirements of this general permit.

2.2.6 Conservation and Preservation Restrictions

Such construction activity, if located within a conservation or preservation restriction area, complies with Section 47-42d of the Conn. Gen. Stat., by providing the following documentation to the Commissioner: proof of written notice to the holder of such restriction of the proposed activity's application pursuant to this general permit or a letter from the holder of such restriction verifying that the proposed activity is in compliance with the terms of the restriction.

2.2.7 Historic Preservation

Such construction activity, in accordance with the criteria in Appendix G, complies with state Historic Preservation statutes, regulations, and policies including identification of any potential impacts on property listed or eligible for listing on the Connecticut Register of Historic Places. A review conducted for an Army Corps of Engineers Section 404 wetland permit would meet this qualification. Refer to Appendix G for guidance on conducting the required review.

2.2.8 Wild and Scenic Rivers Act

Such construction activity must be consistent with the Wild and Scenic Rivers Act (16 U.S.C. 1271-1287) for those river components and tributaries which have been designated as Wild and Scenic by the United States Congress. Further, such construction activities must not have a direct and adverse effect on the values for which such river designation was established. Please refer to Appendix H for guidance.

2.2.9 Antidegradation

2.2.9.1 New or Increased Discharges to High Quality Waters

Any new or increased discharge of stormwater to a High Quality Water (as identified by the Commissioner consistent with the Water Quality Standards shall be discharged in accordance with the Connecticut Anti-Degradation Implementation Policy in the Water Quality Standards regulation (Section 22a-426 of the Regs. Conn. State Agencies). Before commencing any new or increased discharge, the Permittee must identify in its Stormwater Pollution Control Plan ("SPCP"), the Control

Measures it will implement to ensure compliance with anti-degradation provisions and the terms of this permit. At a minimum, the Permittee shall evaluate and implement measures and practices consistent with Best Available Technology Economically Achievable ("BAT") that will prevent the discharge of the Water Quality Volume ("WQV") to a surface water body or other practices necessary to protect and maintain designated uses and meet standards and criteria contained in the Water Quality Standards.

2.2.9.2 Discharges to Impaired Waters

For any portion of the site that discharges stormwater into a waterbody that is listed as impaired for sediment or a sediment-related impairment in the State's Integrated Water Quality Report as of the effective date of this general permit, the Permittee shall comply with the requirements of Section 5.2.3 of this permit. Additionally, the Commissioner may require new or enhanced Control Measures or outfall monitoring, as necessary to protect instream water quality standards. These Control Measures may include those necessary for the stormwater discharge to be consistent with the assumptions of any available load allocation in any applicable TMDL or Watershed Action Plan.

2.2.9.3 For discharges to other impaired waters or waters with an established TMDL

If the Permittee discharges stormwater into a waterbody that is impaired for a parameter other than a sediment or sediment-related parameter, the Commissioner may inform the Permittee if any additional measures are necessary for the discharge to be controlled as necessary to protect the instream water quality standards. These Control Measures may include those necessary for the discharge to be consistent with the assumptions of any available load allocation in any applicable TMDL or Watershed Action Plan. In addition, the Commissioner may require the Permittee to apply for and obtain coverage under an individual permit.

2.2.10 Cold Water Stream Habitat

Unless otherwise authorized in writing by the Commissioner, a Permittee shall maintain a one-hundred (100) foot buffer of undisturbed soil and well-established vegetation between any construction activity and any stream, river, or tributary that is included within a cold water stream habitat as defined in regulation and accessible on DEEPs website here: https://portal.ct.gov/DEEP/Water/Inland-Water-Monitoring/Cold-Water-Stream-Habitat-Map.

2.2.11 Discharge to POTW

The stormwater is not discharged to a privately or Publicly Owned Treatment Works ("POTW").

2.2.12 Discharge to Groundwater

The stormwater is not discharged entirely to groundwater.

2.2.13 Certification Requirements for Applicants and other Individuals

As part of the application for this general permit, the applicant and any other individual or individuals responsible for preparing the application submits to the Commissioner a written certification which, at a minimum, complies with the following requirements:

2.2.13.1 Review

The applicant and any other individual or individuals responsible for preparing the application and signing the certification has completely and thoroughly reviewed, at a minimum, this general permit and the following regarding the activities to be authorized under such general permit:

a. All application information provided in accordance with Section 3.3 of this general permit.

b. The project site, based on a site inspection.

c. The Stormwater Pollution Control Plan.

d. Any plans and specifications and any Department approvals regarding such Stormwater Pollution Control Plan.

2.2.13.2 Affirmative Determination

The applicant and any other individual or individuals responsible for preparing the application and signing the certification pursuant to this general permit has, based on the review described in Section 2.2.13.1 of this general permit, made an affirmative determination to:

a. Comply with the terms and conditions of this general permit.

b. Maintain compliance with all plans and documents prepared pursuant to this general permit including, but not limited to, the Stormwater Pollution Control Plan.

c. Properly implement and maintain the elements of the Stormwater Pollution Control Plan.

d. Properly operate and maintain all stormwater management systems in compliance with the terms and conditions of this general permit to protect the waters of the State from pollution.

2.2.13.3 The applicant and any other individual or individuals responsible for preparing the application certifies to the following statement:

"I hereby certify that I am making this certification in connection with an application under the General Permit for the Discharge of Stormwater from Construction Activities (general permit), submitted to the Commissioner by [INSERT NAME OF APPLICANT] for an activity located at [INSERT ADDRESS OF PROJECT OR ACTIVITY] and that all terms and conditions of the general permit will be met for all discharges which will be initiated and such activity is eligible for authorization under such permit. I further certify that a system is in place to ensure that all terms and conditions of this general permit will continue to be met for all discharges authorized by this general permit at the site. I certify that the application filed pursuant to this general permit is on complete and accurate forms as prescribed by the Commissioner without alteration of their text. I certify that I have personally examined and am familiar with the information that provides the basis for this certification, including but not limited to all information described in Section 2.2.13.1 of such general permit, and I certify, based on reasonable investigation, including my inquiry of those individuals responsible for obtaining such information, that the information upon which this certification is based is true, accurate and complete to the best of my knowledge and belief. I certify that I have made an affirmative determination in accordance with Section 2.2.13.2 of this general permit. I understand that the application filed in connection with such general permit is submitted in accordance with and shall comply with the requirements of Section 22a-430b of Conn. Gen. Stat. I also understand that knowingly making any false statement in the submitted information and in this certification may be punishable as a criminal offense, including the possibility of fine and imprisonment, under Section 53a-157b of the Conn. Gen. Stat. and any other applicable law."

2.2.14 Designing Professional Engineer or Landscape Architect Certification

The applicant submitted to the Commissioner a written certification by a professional engineer or, where appropriate, a landscape architect licensed in the State of Connecticut for the preparation, planning and design of the Stormwater Pollution Control Plan ("SPCP") and stormwater management systems.

The professional engineer or landscape architect shall certify to the following statement:

"I hereby certify that I am a [professional engineer] [landscape architect] licensed in the State of Connecticut. I am making this certification in connection with a application under the General Permit for the Discharge of Stormwater from Construction Activities (general permit), submitted to the Commissioner by [INSERT NAME OF APPLICANT] for an activity located at [INSERT ADDRESS OF PROJECT OR ACTIVITY]. I certify that I have thoroughly and completely reviewed the Stormwater Pollution Control Plan for the project or activity covered by this certification. I further certify, based on such review and on the standard

of care for such projects, that the Stormwater Pollution Control Plan has been prepared in accordance with the Connecticut Guidelines for Soil Erosion and Sediment Control, as amended, the Stormwater Quality Manual, as amended, and the conditions of the general permit, and that the controls required for such SPCP are appropriate for the site. I further certify, based on reasonable investigation, including my inquiry of those individuals responsible for obtaining such information, that the information upon which this certification is based is true, accurate and complete to the best of my knowledge and belief. I also understand that knowingly making any false statement in this certification may subject me to sanction by the Department and/or be punishable as a criminal offense, including the possibility of fine and imprisonment, under Section 53a-157b of the Conn. Gen. Stat. and any other applicable law."

2.2.15 Stormwater Pollution Control Plan Review and Certification by a District for Locally Approvable Projects

For Locally Approvable Projects, any Stormwater Pollution Control Plan ("SPCP" or "Plan") not reviewed in accordance with Section 2.2.16 below, the applicant has submitted to the Commissioner a written certification by the appropriate regional Soil and Water Conservation District ("District"), as defined in this general permit, for the review of the Stormwater Pollution Control Plan pursuant to Appendix E, which, at a minimum, complies with the following requirements:

2.2.15.1 Plan Review Certification

The Plan Review Certification must be signed by an authorized representative of the District. Information on the District review process is outlined in the Memorandum of Agreement provided in Appendix E. In cases where the District is unable to complete the review of the SPCP within the time limits specified in the Memorandum of Agreement in Appendix E, a notice to that effect signed by an authorized representative of the District may be submitted in lieu of the certification.

2.2.15.2 Stormwater Pollution Control Plan

The Stormwater Pollution Control Plan has been prepared in accordance with the requirements of Section 5.2 of the general permit.

2.2.16 Stormwater Pollution Control Plan Review and Certification by a Qualified Professional for Locally Approvable Projects

For the purposes of this section, a "Qualified Professional" is either a Qualified Soil Erosion and Sediment Control Professional or a Qualified Professional Engineer licensed in the state of Connecticut and in good standing.

2.2.16.1 Qualified Professional Criteria

a. Projects with an engineered stormwater management system

For projects with an engineered stormwater management system, if the SPCP is not reviewed in accordance with Section 2.2.15 above, the applicant shall submit to the Commissioner a signed certification by a Qualified Professional engineer.

b. Projects without an engineered stormwater management system

For projects without an engineered stormwater management system, if the SPCP is not reviewed in accordance with Section 2.2.15 above, the applicant shall submit to the Commissioner a written certification by a qualified soil erosion and sediment control professional or Qualified Professional engineer.

2.2.16.2 Certification by Qualified Professional

All projects shall submit a signed certification by a Qualified Professional to the Commissioner in accordance with the following requirements:

a. For projects disturbing more than one acre and less than twenty (20) acres, such Qualified Professional:

i. Is not an employee, as defined by the Internal Revenue Service in the Internal Revenue Code of 1986, of the applicant.

ii. Has no ownership interest or monetary investment of any kind in the project for which the application is being submitted.

b. For projects disturbing twenty (20) acres or more, such Qualified Professional:

i. Is not an employee, as defined by the Internal Revenue Service in the Internal Revenue Code of 1986, of the applicant.

ii. Has no ownership interest or monetary investment of any kind in the project for which the application is being submitted.

iii. Did not engage in any activities associated with the preparation, planning, designing or engineering of such plan for soil erosion and sediment control or plan for stormwater management systems on behalf of such applicant.

iv. Is not under the same employ as any person who engaged in any activities associated with the preparation, planning, designing or engineering of such plans and specifications for soil erosion and sediment control or plans and specifications for stormwater management systems on behalf of such applicant.

2.2.16.3 The Qualified Professional signing the certification has, at a minimum, completely and thoroughly reviewed this general permit and the following regarding the discharges to be authorized under such general permit:

a. All application information provided in accordance with Section 3.3 of this general permit.

b. The site, based on a site inspection.

c. The Stormwater Pollution Control Plan.

d. The Guidelines.

e. The Stormwater Quality Manual, if applicable.

f. All non-engineered and engineered stormwater management systems, including any plans and specifications and any approvals by the Commissioner regarding such stormwater management systems.

2.2.16.4 Affirmative Determination

a. Qualified Soil Erosion & Sediment Control Professional

The qualified soil erosion and sediment control professional signing the certification must have made an affirmative determination, based on the review described in Section 2.2.13.1 of this general permit that:

i. The Stormwater Pollution Control Plan prepared and certified pursuant to the application is adequate to assure that the project or activity authorized under this general permit, if implemented in accordance with the Stormwater Pollution Control Plan, will comply with the terms and conditions of such general permit.

ii. All non-engineered stormwater management systems:

- have been designed to control pollution using measures that reflect the Best Available Technology economically achievable ("BAT"), and that conform to the Guidelines and the Stormwater Quality Manual.

- will function properly as designed and constructed.
- are adequate to ensure compliance with the terms and conditions of this general permit.
- will not cause or contribute to violations of the instream water quality standards and protect the waters of the State from pollution.

iii. There are no engineered stormwater management systems for the site.

b. Qualified Professional Engineer

The Qualified Professional engineer, licensed in the state of Connecticut and in good standing, signing the certification must have made an affirmative determination, based on the review described in Section 2.2.13.1 of this general permit that:

i. The Stormwater Pollution Control Plan prepared and certified pursuant to the application is adequate to assure that the activity authorized under this general permit, if implemented in accordance with the Stormwater Pollution Control Plan, will comply with the terms and conditions of such general permit.

ii. All non-engineered and engineered stormwater management systems:

- have been designed to control pollution to the BAT and that conform to those in the Guidelines and the Stormwater Quality Manual.
- will function properly as designed.
- are adequate to ensure compliance with the terms and conditions of this general permit. and
- will protect the waters of the State from pollution.

2.2.16.5 The Qualified Professional shall, provided it is true and accurate, certify to the following statement:

"I hereby certify that I am a Qualified Professional engineer licensed in the state of Connecticut and in good standing or a qualified soil erosion and sediment control professional, or both, as defined in the General Permit for Discharge of Stormwater from Construction Activities (general permit) and as further specified in Sections 2.2.16.1.a and 2.2.16.1.b of the general permit. I am making this certification in connection with an application under such general permit, submitted to the Commissioner by [INSERT NAME OF APPLICANT] for an activity located at [INSERT ADDRESS OF PROJECT OR ACTIVITY]. I have personally examined and am familiar with the information that provides the basis for this certification, including but not limited to all information described in Section 2.2.16.3 of such general permit, and I certify, based on reasonable investigation, including my inquiry of those individuals responsible for obtaining such information, that the information upon which this certification is based is true, accurate and complete to the best of my knowledge and belief. I further certify that I have made the affirmative determination in accordance with Sections 2.2.13.2 and 2.2.16.4 of this general permit. I understand that this certification is part of an application submitted in accordance with Section 22a-430b of Conn. Gen. Stat. and is subject to the requirements and responsibilities for a Qualified Professional in such statute. I also understand that knowingly making any false statement in this certification may be punishable as a criminal offense, including the possibility of fine and imprisonment, under Section 53a-157b of the Conn. Gen. Stat. and any other applicable law."

2.2.17 Plan Review and Certification for Projects Conducted by State Agencies

For construction activity owned or operated by a state of Connecticut agency (e.g. Department of Transportation (CTDOT), Department of Administrative Services (DAS), etc.), the applying agency has submitted to the Commissioner a signed certification by a Qualified Professional in accordance with the following requirements:

2.2.17.1 The applying agency or another state agency has developed a process to establish a list of Qualified Professionals for which the process to qualify has been approved in writing by the Commissioner.

2.2.17.2 The Qualified Professional reviewing and certifying the SPCP is included on the list prepared by a state agency and for which the process to establish the list has been approved by the Commissioner pursuant to Section 2.2.17.1, above.

2.2.17.3 The Qualified Professional signing the certification has, at a minimum, completely and thoroughly reviewed this general permit and the following regarding the discharges to be authorized under such general permit:

a. All application information provided in accordance with Section 3.3 of such general permit.

b. The site, based on a site inspection.

c. The Stormwater Pollution Control Plan.

d. The Guidelines.

e. The Stormwater Quality Manual, if applicable.

f. All non-engineered and engineered stormwater management systems, including any plans and specifications and any Department approvals regarding such stormwater management systems.

2.2.17.4 Affirmative Determination

a. A qualified soil erosion and sediment control professional signing the certification must have made an affirmative determination, based on the review described in Section 2.2.13.1 of this general permit that:

i. The Stormwater Pollution Control Plan prepared and certified pursuant to the application is adequate to assure that the project or activity authorized under this general permit, if implemented in accordance with the Stormwater Pollution Control Plan, will comply with the terms and conditions of such general permit.

ii. All non-engineered stormwater management systems:

- have been designed to control pollution to the BAT and that conform to those in the Guidelines and the Stormwater Quality Manual.
- will function properly as designed.
- are adequate to ensure compliance with the terms and conditions of this general permit.
- will protect the waters of the State from pollution.

iii. There are no engineered stormwater management systems for the site.

b. A Qualified Professional engineer signing the certification must have made an affirmative determination, based on the review described in Section 2.2.13.1 of this general permit that:

i. The Stormwater Pollution Control Plan prepared and certified pursuant to the application is adequate to assure that the activity authorized under this general permit, if implemented in accordance with the Stormwater Pollution Control Plan, will comply with the terms and conditions of such general permit.

ii. All non-engineered and engineered stormwater management systems:

- have been designed to control pollution to the BAT and that conform to those in the Guidelines and the Stormwater Quality Manual.
- will function properly as designed.

- are adequate to ensure compliance with the terms and conditions of this general permit.
- will protect the waters of the State from pollution.

2.2.17.5 The Qualified Professional shall, provided it is true and accurate, certify to the following statement:

"I hereby certify that I am a Qualified Professional engineer licensed in the state of Connecticut and in good standing or qualified soil erosion and sediment control professional, or both, as defined in the General Permit for Discharge of Stormwater from Construction Activities and as further specified in Sections 2.2.16.1.a and 2.2.16.1.b of such general permit. I am making this certification in connection with an application under such general permit, submitted to the Commissioner by [INSERT NAME OF APPLICANT] for an activity located at [INSERT ADDRESS OF PROJECT OR ACTIVITY]. I have personally examined and am familiar with the information that provides the basis for this certification, including but not limited to all information described in Section 2.2.17.3 of such general permit, and I certify, based on reasonable investigation, including my inquiry of those individuals responsible for obtaining such information, that the information upon which this certification is based is true, accurate and complete to the best of my knowledge and belief. I further certify that I have made the affirmative determination in accordance with Sections 2.2.13.2 and 2.2.17.4 of this general permit. I understand that this certification is part of an application submitted in accordance with Section 22a-430b of Conn. Gen. Stat. and is subject to the requirements and responsibilities for a Qualified Professional in such statute. I also understand that knowingly making any false statement in this certification may be punishable as a criminal offense, including the possibility of fine and imprisonment, under Section 53a-157b of the Conn. Gen. Stat. and any other applicable law."

2.2.17.6 Applications for construction activities conducted by a state agency under this subparagraph may be submitted in accordance with the requirements in Sections 3.3.2.

2.2.18 Solar Arrays

For constructions activities associated with the development of a Solar Array that is categorized as Locally Exempt, as defined in Section 10 of this general permit, the applicant shall also comply with the requirements in Appendix I.

2.3 Geographic Area

This general permit applies throughout the State of Connecticut.

2.4 Effective Date and Expiration Date of this General Permit

This general permit is effective on the date it is issued by the Commissioner and expires five (5) years from such date. The general permit may be administratively continued in effect until the Department has reissued the permit in accordance with the Conn. Gen. Stat. and Regs. Conn. State Agencies. If the permit is administratively continued, Permittees are required to comply with all permit terms and conditions, including the monitoring requirements and submittal of reports at the original frequency during the continuance of the permit.

2.5 Effective Date of Authorization

2.5.1 Authorization to Discharge for Existing Permittees

Upon the effective date of this general permit, Permittees that had existing authorization to discharge under the *General Permit for the Discharge of Stormwater and Dewatering Wastewaters from Construction Activities*, issued December 31, 2020, ("Existing Permittees") shall have continued authorization to discharge under the terms and conditions of this general permit, provided the Permittee is in compliance with the terms and conditions of this general permit and a complete application for this general permit is submitted to the Commissioner in accordance with Section 3 of this general permit on or before ninety (90) days after the effective date of this general permit until the Commissioner makes a final determination regarding such application.

If the Existing Permittee does not submit an appropriate, complete, and accurate application requesting authorization to discharge under this general permit or a Notice of Termination, if applicable, on or before ninety (90) days following the effective date of this permit, authorization under this permit will terminate on such due date. The Permittee must then submit a new application in compliance with the full terms and conditions of this permit. The Commissioner will review and approve, reject, or deny such applications in writing.

2.5.2 Emergency Construction Activity Exception

For emergency construction activities (pursuant to Section 2.1.2) resulting in short-term discharges of stormwater from construction activities in response to a public emergency (e.g., mud slides, earthquake, extreme flooding conditions, widespread disruption in essential public services), when the related work requires immediate authorization to avoid imminent endangerment to human health, public safety, or the environment, or to reestablish essential public services, the date of authorization is the day the discharge initiated.

2.5.3 Locally Approvable Small Construction Activity

No application or SPCP review is required for Small Construction Locally Approvable Projects that will disturb an area equal to or greater than one (1) and less than five (5) acres, regardless of phasing, provided a land-use commission of the municipality (i.e. planning/zoning, wetland, conservation, etc.) reviews and issues a written approval of the proposed erosion and sediment Control Measures, pursuant to the requirements of Section 22a-329 of the Conn. Gen. Stat. The owner or operator shall adhere to the erosion and sediment control land use regulations of the municipality in which the construction activity is conducted, as well as the Guidelines and the Stormwater Quality Manual. The date of authorization is the day written approval is obtained.

In the absence of a municipal commission to review and approve such activity, the Permittee shall apply with the DEEP under the requirements for a "Locally Exempt Project" and comply with all applicable conditions of this general permit.

2.5.4 Authorization to Discharge for New Permittees

2.5.4.1 A new construction activity that has never been authorized to discharge under this general permit ("New Permittee") is authorized to discharge in accordance with the terms and conditions of this general permit upon submittal of a complete application and after receiving a Notice of Coverage from the Commissioner in accordance with the following timelines:

a. Standard Authorization Timelines:

i. For Locally Approvable Projects: sixty (60) days after submission of a complete application form.

ii. For Locally Exempt Projects with a total disturbed area of under twenty (20) acres: sixty (60) days after submission of a complete application form.

iii. For Locally Exempt Projects with a total disturbed area equal to or more than twenty (20) acres: ninety (90) days after submission of a complete application form.

2.5.4.2 Exceptions to the Standard Authorization Timelines

If either of the criteria apply below, authorization timelines shall supersede those in Subsection 2.5.4.1 above:

a. For sites where the application and the Stormwater Pollution Control Plan (SPCP) availability and review provisions in Section 3.10 of this general permit are fulfilled prior to the expiration of the authorization timelines referenced in Subsection 2.5.4.1.a above, the Commissioner may grant authorization to discharge upon completion of those requirements.

b. For sites where conditions of Section 2.2.4, 2.2.9 or Section 5.1.2 of the general permit apply, the construction activity is authorized only upon the date of the Commissioner's affirmative determination and/or Notice of Coverage.

c. For Locally Exempt Projects conducted by a state agency, the construction activity may be authorized sixty (60) days after submission of a complete application form, regardless of the total disturbed area.

2.6 Transition to and from an Individual Permit

No person shall operate or conduct an activity authorized by both this general permit and an individual permit or an alternative general permit issued by the Commissioner. The requirements for transitioning authorization are as follows:

2.6.1 Transition from an Individual Permit to Authorization Under this General Permit

If an activity meets the requirements of authorization of this general permit and such operation or activity is presently authorized by an individual permit, the Permittee may seek a modification to the individual permit to exclude such operation or activity from that permit. If the operation or activity is the sole operation or activity authorized by such permit, the Permittee shall surrender its permit in writing to the Commissioner. In either event, such Permittee's individual permit shall continue to apply and remain in effect until authorization of such operation or activity under this general permit takes effect.

2.6.2 Transition from Authorization Under this General Permit to an Individual Permit

If an activity or operation is authorized under this general permit and the Commissioner subsequently issues an individual permit for the same activity, then on the date any such individual permit is issued by the Commissioner, the authorization issued under this general permit shall automatically expire.

Section 3 Application Requirements

3.1 Who Must File an Application

An application form is not required for an Emergency Construction Activity (Section 2.5.2) or "Small Construction Locally Approvable Activities" (Section 2.5.3).

For all other eligible construction activities, any person, municipality, or state agency that initiates, creates, originates, or maintains a discharge of stormwater from or associated with construction activities that disturb one (1) or more acres shall file with the Commissioner an application form that meets the requirements of this Section of this general permit. Such form shall be submitted along with the applicable fee within the timeframes and in the amounts specified in this Section.

3.2 Scope of Application

An applicant shall submit one (1) application for all discharges taking place at the site for which the application seeks authorization under this general permit. Discharges or activities taking place at more than one (1) site may not be consolidated on one (1) application form.

3.2.1 Application Fees

3.2.1.1 For Existing Permittees, construction activities that were authorized to discharge under the previous iteration of the general permit, the renewal fee shall be $1,250.

3.2.1.2 For new Locally Approvable projects and Locally Exempt projects conducted by a state agency, the application fee shall be $1,250.

3.2.1.3 New Locally Exempt Projects

For new Locally Exempt projects the application fee shall be as follows:

a. For sites with total disturbance of one (1) or more acres, but less than twenty (20) acres, the fee shall be $3,000.

b. For sites with total disturbance equal to or greater than twenty (20) acres and less than fifty (50) acres, the fee shall be $4,000.

c. For sites with total disturbance equal to or greater than fifty (50) acres, the fee shall be $5,000.

3.2.1.4 The fees for municipalities shall be half of those indicated, pursuant to Section 22a-6(b) of the Conn. Gen. Stat. State and Federal agencies shall pay the full fees specified in this subsection.

3.2.1.5 The application fee shall be paid to the Department of Energy & Environmental Protection.

3.2.1.6 An application shall not be deemed complete, and no activity shall be authorized by this general permit unless the application fee has been paid in full.

3.2.1.7 The application fee is non-refundable.

3.3 Application Requirements

All applications must be electronically submitted, along with all required elements. Failure to submit a complete application form with all the required components of the application may result in the rejection of the application and/or significant delay in the processing of the application.

3.3.1 Permittees with Existing Authorization to Discharge

3.3.1.1 Permittees Authorized Under Previous General Permit

Upon the effective date of this general permit, existing Permittees authorized under the previous version of this general permit shall submit a complete application electronically for authorization to discharge under this general permit to the Commissioner in accordance with the requirements of this general permit on or before ninety (90) days after the effective date of this general permit. The Permittee submitting such application is not required to submit stormwater management design information included in Sections 5.2.1.2.g and 5.2.2.9. For such Permittees subject to Appendix I for solar projects, the Permittee will not be required to modify any existing Letters of Credit to meet the provisions of Section 1.0(8)(d)(ii) of Appendix I.

3.3.1.2 Permittees Submitting New Application for Change of Permittee

For permittees submitting a new application for a construction activity with existing coverage authorized after the effective date of this permit, pursuant to Section 3.7 (Change of Permittee), the new permittee shall submit a complete application electronically for authorization to discharge under this general permit to the Commissioner in accordance with the requirements of Section 3.7. The Notice of Termination of the previous permittee's authorization shall be submitted in accordance with Section 4.2.2. If the new application includes any change of construction activities from those authorized in the existing application, the new Permittee is not eligible for authorization under this Section and a complete application must be submitted in accordance with the requirements of Section 3.3.2. or 3.3.3, as appropriate.

3.3.1.3 Permittees Authorized Under a Site Preparation Phase Permit for a Design-Build Project

For state or federal agencies submitting an application for a Final Design Phase Permit to supersede a Site Preparation Phase Permit previously authorized for a design-build project, the permittee shall submit a complete application electronically for authorization to discharge under this general permit to the Commissioner in accordance with the requirements of this general permit at least thirty (30) days prior to the termination of the Site Preparation Phase Permit authorization pursuant to Section 4.2.3.

3.3.2 Applicants for New Locally Approvable Projects

For applications for new Locally Approvable projects and Locally Exempt projects conducted by a state agency, the application shall:

3.3.2.1 Be submitted to the Commissioner at least sixty (60) days prior to the planned commencement of the construction activity.

3.3.2.2 Include all of the information that may be required pursuant to Section 2.2, "Requirements for Authorization" of the general permit regarding compliance and/or consistency with the Coastal Management Act, NDDB Determination Letter, Discharges to Impaired Waters and TMDL requirements, Fisheries Consultation, and Aquifer Protection Areas. *Failure to include these components may result in the rejection of the Application.*

3.3.2.3 Include a copy of the Stormwater Pollution Control Plan. The electronic SPCP shall be in Adobe™ PDF format or similar publicly available format in common use. The SPCP should not include any pages or other material that do not pertain to stormwater management or erosion and sediment control (such as electrical and lighting plans, boundary or lot surveys, building plans, non-stormwater related detail sheets, etc.). *The submission of these additional pages in the SPCP will delay the Department's review of the Application.*

3.3.2.4 Include a Plan Review Certification in accordance with the plan review certification requirements of either Section 2.2.15, 2.2.16, or 2.2.17 of the general permit.

3.3.3 Applications for New Locally Exempt Projects

Applications for new Locally Exempt projects (except those projects conducted by a state agency pursuant to Section 3.3.2), shall:

3.3.3.1 Be submitted at least:

a. Sixty (60) days prior to the planned commencement of the construction activity if the site has a total disturbance of between one (1) and twenty (20) acres.

b. Ninety (90) days prior to the planned commencement of construction activity if the site:

i. Has a total disturbance greater than twenty (20) acres.

ii. Discharges to a tidal wetland (that is not a fresh-tidal wetland) within 500 feet of the discharge point.

iii. Or is subject to the impaired waters provisions of Section 2.2.9.2 of the general permit.

3.3.3.2 Include all of the additional information that may be required pursuant to Section 2.2 of the general permit, "Requirements of Authorization", regarding compliance and/or consistency with the Coastal Management Act, NDDB Determination Letter, Discharges to Impaired Waters including TMDL requirements, Fisheries Consultation, Historic Preservation Review, Solar Array provisions, and Aquifer Protection.

3.3.3.3 Include an electronic copy of the Stormwater Pollution Control Plan (SPCP) for the Commissioner's review. The electronic SPCP shall be in Adobe™ PDF format. The SPCP should not include any pages or other material that does not pertain to stormwater management or erosion and sediment control (such as electrical and lighting plans, A-2 boundary or similar lot surveys, building plans, non-stormwater related detail sheets, etc.). *The submission of these additional pages in the SPCP will delay the Departments review of the application*.

3.4 Contents of Application

3.4.1 Standard Application Form

Applications shall be filed electronically on forms prescribed and provided by the Commissioner and include the following:

3.4.1.1 Legal name, mailing address, email address, and telephone number of the applicant. If the applicant is a person as defined in this permit transacting business in Connecticut and is registered with the Connecticut Secretary of the State, provide the exact name as registered with the Connecticut Secretary of the State.

3.4.1.2 Name, address, telephone number, contact's name, title, phone number, and email address for the following, if different than the applicant:

- Owner of the property on which the construction activity will take place.
- Primary contact for departmental correspondence and inquiries, if different from the applicant.
- Developer of the property on which the construction activity is to take place.
- General contractor(s) or other representative(s), if different from the developer (day and night).
- Qualified Professionals, engineer(s) or landscape architect(s) retained by the Permittee to prepare the application and/or the Stormwater Pollution Control Plan.

3.4.1.3 Physical address or description of the site for which the application is filed. If the site does not have a mailing address, provide the nearest crossroads, mile markers, latitude/longitude, or permanent structures to identify the location.

3.4.1.4 For Existing Permittees, the previously issued permit number.

3.4.1.5 The estimated duration of the construction activity.

3.4.1.6 Indication of the normal working hours at the site.

3.4.1.7 A brief description of the construction activity, including, but not limited to

a. Total number of acres to be disturbed, regardless of phasing.

b. Indication or Narrative description that construction is in accordance with The Guidelines and Stormwater Quality Manual and local erosion and sediment control ordinances, where applicable.

c. Assurances

Assurance that the Stormwater Pollution Control Plan is consistent with the requirements of this general permit and the following provisions of state statutes and regulations, as appropriate:

i. For sites in the Coastal Boundary, documentation that the DEEP Land and Water Resources Division or local governing authority has issued a coastal site plan approval or a determination that the project is exempt from coastal site plan review (see Appendix D) in accordance with Section 22a-92 and 22a-93(15) of the Conn. Gen. Stat.

ii. Documentation that the construction activity will not threaten the continued existence of any species listed pursuant to Section 26-306 of the Conn. Gen. Stat. as endangered or threatened and will not result in the destruction or adverse modification of habitat designated as essential to such species (see Appendix A). For sites located within a "listed species" habitat, applications must include a valid National Diversity Database Determination Letter Identification number.

iii. For sites discharging to impaired waters or waters that have a TMDL or specific load allocation for the site, as specified in Section 2.2.9.3 of the general permit, documentation that the construction activity meets the requirements of that section and Section 5.2.3 of the general permit for authorization under this general permit.

iv. Indication or documentation to determine if the construction activity is located within an aquifer protection area (see Appendix C) as mapped under Section 22a-354b of the Conn. Gen. Stat. If the site is partially or wholly in an aquifer protection area or public water supply watershed, provide a copy of correspondence with the local water company demonstrating that the construction activity will comply with regulations adopted pursuant to Section 22a-354i of the Conn. Gen. Stat.

v. Documentation that the proposed construction activity has been reviewed for consistency with state Historic Preservation statutes, regulations, and policies including identification of any potential impacts on property listed or property eligible for listing on the Connecticut Register of Historic Places. A review conducted for an Army Corps of Engineers Section 404 wetland permit would meet this qualification. Refer to Appendix G for guidance on conducting the required review.

d. For a Locally Approvable project, a plan review certification from the appropriate and authorized District, qualified soil erosion and sediment control professional, and/or Qualified Professional engineer in accordance with Section 2.2.15.1 or Section 2.2.16.4.a or Section 2.2.16.4.b or a notice from the District that they were unable to complete the SPCP review within the time limits specified in the Memorandum of Agreement in Appendix E.

e. For construction activities within one hundred (100) feet of any stream, river, or tributary that is included within a Cold Water Stream Habitat, as may be authorized by the Commissioner pursuant to Section 2.2.10 of this general permit, a completed Fisheries Consultation Form or, for projects conducted by state agencies, documentation of official interagency coordination between the Fisheries Division and other state agency staff. An email is not considered official coordination.

3.4.1.8 Stormwater discharge information

a. Name and waterbody ID of receiving stream(s) or waterbody(ies) to which the construction activity discharges and indication of whether or not a receiving stream is listed as an impaired water with or without a TMDL, including identification of the impairment in the most recent State of Connecticut Integrated Water Quality Report or identification of the receiving stream as a high quality water in the Connecticut Water Quality Standards.

b. Number, type (e.g., swale or pipe), material (e.g., concrete or metal pipe, grass swale), and size of all outfalls that convey stormwater runoff from the site.

c. Unique identifier (001, 002) and location of all stormwater discharge(s) including latitude and longitude.

d. If the discharge enters a private or publicly owned storm sewer system, provide the name of the owner of the system.

e. Indication whether or not the site discharges within 500 feet of a tidal wetland (not a fresh tidal wetland).

f. Type of structural and nonstructural treatment practice used at each outfall or upgradient from each outfall if one exists.

3.4.1.9 The total effective impervious cover for the site before and after the proposed construction activity.

3.4.1.10 Stormwater Pollution Control Plan

a. An electronic copy of the Stormwater Pollution Control Plan. The electronic SPCP shall be in Adobe™ PDF format.

Provide an internet address (URL) where the Pollution Control Plan is accessible for public review. The internet address shall remain available and accessible during the term of the permit.

b. The SPCP should not include any pages or other material that do not pertain to stormwater management or erosion and sediment control (such as electrical and lighting plans, boundary or lot surveys, building plans, non-stormwater related detail sheets, etc.). Also, the full calculation sheets for peak flow analysis (e.g. HydroCAD), other than sheets providing a brief summary of peak flow and Water Quality Volume analyses, should not be included in the SPCP. The full calculation sheets shall be available upon request by the Commissioner. *The submission of these additional pages in the SPCP will delay the Departments review of the application.*

c. SPCPs submitted for application must comply with all requirements listed in Section 5.2.1.2 of this general permit.

3.4.1.11 Certifications

a. The certification of the applicant and of the individual or individuals responsible for preparing the application, in accordance with Section 2.2.13 of the general permit.

b. A design certification must be signed by a professional engineer or, where appropriate, a landscape architect in accordance with Section 2.2.14 of the general permit.

c. For Locally Approvable projects a signed certification must be submitted by either:

i. An authorized representative of the District in accordance with Section 2.2.15 of the general permit.

ii. A qualified soil erosion and sediment control professional and/or Qualified Professional engineer in accordance with either Section 2.2.16 of the general permit.

d. The training certification(s) obtained by the Qualified Inspector.

3.4.2 Application for State or Federal Agency Design-Build Projects

3.4.2.1 Application for Site Preparation Projects

For a state or federal agency submitting an application for Early Release Construction (ERC) work for the Site Preparation Phase of a design-build project, the Permittee shall include in their application all information included in Section 3.4.1, above, except the peak flow and Water Quality Volume analyses in Section 3.4.1.10.b. The Permittee shall also not be subject to the Post-Construction Performance Standards in Section 5.2.2.9.

3.4.2.2 Application for Final Design Projects

For a state or federal agency submitting an application for the Final Design Phase of a design-build project, the Permittee shall include in their application all information included in Section 3.4.1, including identification of the Site Preparation Phase Permit number pursuant to Section 3.4.1.4.

3.5 Notice of Change

The Permittee shall submit a Notice of Change to the Commissioner electronically to the Department at: DEEP.StormwaterConstruction@ct.gov if any of the following criteria are met:

- To correct inaccurate or misleading information previously submitted to DEEP.
- Change of contractor.
- Changes to name of the project or site.
- Changes to the disturbed area on the site that reduces the distance to impaired waters, high quality waters, cold water habitat, endangered or threatened species habitat, or aquifer protection areas from those in the original SPCP. For increases of the disturbed area, see Section 3.6.
- Changes to engineered or non-engineered construction or post-construction Control Measures that have the potential to increase the rate or volume of stormwater discharged.

The Notice of Change shall be submitted before any such increases or changes are implemented. Changes to the SPCP documented under this section as well as those not requiring notice under this section shall continue to follow the provisions of Section 5.2.5, Keeping Pollution Control Plans Current.

3.6 New Application Required

For sites that increase the amount of disturbed area by more than one (1) acre from the amount specified in the application approved by the Commissioner, a new application shall be submitted to the Commissioner in accordance with Section 3 of the general permit.

3.7 Change of Permittee

Permit coverage is **not transferable.** When there is a change to the site's Permittee, the new Permittee must submit a new application to the Commissioner in accordance with Section 3 of this general permit within thirty (30) days following the date of transfer and the previous Permittee must submit a Notice of Termination (NOT) in accordance with Section 4 of this general permit.

3.8 Additional Information

The Commissioner may require an applicant to submit additional information that the Commissioner reasonably deems necessary to evaluate the consistency of the subject activity with the requirements for authorization under this general permit. A response to the Commissioner's request for additional information shall be submitted to the Department within fifteen (15) days of the Commissioner's request.

3.9 Where to File an Application and Stormwater Construction Pollution Plan

An application (available at: www.ct.gov/deep/stormwater) shall be filed electronically with the Commissioner in accordance with Section 3.4 of the general permit. If a permittee is not capable of submitting electronically, contact the DEEP stormwater staff at DEEP.StormwaterConstruction@ct.gov.

3.10 Availability of Application and Stormwater Pollution Control Plan

3.10.1 Application Availability

The application shall be made available for public review and comments by both the Permittee and the Commissioner.

3.10.1.1 Availability by the Permittee

a. No later than five (5) days after submitting an application to the Commissioner, the Permittee shall make their application available to the following parties:

   i. For discharges authorized by this general permit to a privately or publicly owned separate storm sewer system, a copy of the application that was submitted to the Department shall also be submitted to the owner and operator of that system.

   ii. For discharges authorized by this general permit to a CTDOT separate storm sewer system, a copy of the application and all attachments thereto shall also be submitted to the CTDOT.

   iii. For discharges within a public drinking water supply watershed or aquifer protection area, a copy of the application and the SPCP described in Section 5.2 of this general permit shall be submitted to the water company.

   iv. For discharges to river components and tributaries which have been designated as Wild and Scenic under the Wild and Scenic Rivers Act, a copy of the application and the SPCP described in 5.2 of this general permit shall be submitted to the applicable Wild and Scenic Coordinating Committee. Please refer to Appendix H for additional guidance.

b. A completed application shall be provided to the following persons immediately upon request:

   i. The municipal planning commission, zoning commission and/or inland wetlands agency, or its respective enforcement officer or designated agent.

c. Following approval of the application by the Commissioner, the Permittee shall make a copy of the application available to the public pursuant to the Notice of Construction Activities requirements in Section 5.1.7.

3.10.1.2 Availability by the Commissioner

The Commissioner shall post on the DEEP website a list of applications submitted. SPCPs shall be posted electronically, or a link to such plans provided, with the corresponding application. On or before thirty (30) days from the date such application is accessible to the public through posting by the Commissioner, members of the public may review and comment on an application and/or SPCP. This provision shall not apply to Permittee's submitting a Permit renewal for sites applied under any previous version of this general permit and for which no Notice of Termination has been submitted pursuant to the "Termination Requirements" in Section 4 of the general permit.

3.10.2 Stormwater Pollution Control Plan Availability

The Stormwater Pollution Control Plan ("SPCP") shall be made available for public review and comments by both the Permittee and the Commissioner.

3.10.2.1 Availability by the Permittee

The Stormwater Pollution Control Plan shall be provided to the following persons immediately upon request:

a. The municipal planning commission, zoning commission and/or inland wetlands agency, or its respective enforcement officer or designated agent.

b. If the stormwater discharges through a municipal separate storm sewer system, the municipal operator of the system.

c. If the stormwater discharge is located within a public drinking water supply watershed or aquifer protection area, the water company or entity responsible for that water supply.

d. Following approval of the application by the Commissioner, the Permittee shall make a copy of the SPCP available to the public for the duration of construction pursuant to the Notice of Construction Activities requirements of Section 5.1.7.

3.10.2.2 Availability by the Commissioner

a. On or before thirty (30) days of receipt of an application and SPCP, the Commissioner shall post the SPCP on the DEEP website.

b. On or before thirty (30) days from the date of posting of the list by the Commissioner, members of the public may submit written comments to the Commissioner. Comments shall be sent via email to DEEP.StormwaterConstruction@ct.gov with the subject line "Construction GP Comments [INSERT NAME OF PERMITTEE]."

3.11 Actions by Commissioner

3.11.1 Approval with Permit Conditions

The Commissioner may approve an application with reasonable permit conditions. If the Commissioner approves the application with conditions, the Permittee shall be bound by such conditions as if they are part of this general permit.

3.11.2 Rejection or Denial

The Commissioner may reject or deny without prejudice an application if it is determined that it does not satisfy the application requirements in Section 3 of this general permit, or if more than fifteen (15) days have elapsed since the Commissioner requested the Permittee submit additional information to determine eligibility for permit coverage for authorization to discharge under this general permit. Any application refiled after such a rejection shall be accompanied by the fee specified in Section 3.2.1 of this general permit.

3.11.3 Require Individual Permit

The Commissioner may require that a Permittee obtain an individual permit for any discharge authorized by this permit in accordance with Section 22a-430b(c) of the Conn. Gen. Statutes.

3.11.4 Activity Inconsistent with Authorization Requirements

The Commissioner may reject or deny an application if he or she finds that the subject activity is inconsistent with the "Requirements for Authorization" in Section 2.2 of this general permit, or for any other reason provided by law.

3.11.5 Notice to Applicant

Denial or rejection of an application under this subsection shall constitute notice to the applicant that the subject activity may not lawfully be conducted or maintained without the issuance of an individual permit in accordance with Section 22a-430 of Regs. Conn. State Agencies.

3.11.6 Notice in Writing

Rejection or denial of an application shall be provided to the applicant in writing and state the reasons for such rejection or disapproval.

Section 4 Termination Requirements

4.1 Notice of Termination

A Notice of Termination (NOT) must be submitted to the Commissioner on a prescribed form under the following conditions: at the completion of the construction project; or, for projects for which there is a Change of Permittee pursuant to Section 3.7, upon approval of a new permit authorized pursuant to Section 3.3.1.2; or for a state or federal agency with a Site Preparation Phase Permit authorized pursuant to Sections 3.3.2 and 3.4.2.1, upon approval of a Final Design Phase Permit authorized pursuant to Sections 3.3.2 and 3.4.2.2.

For Solar Array Projects, also refer to Appendix I for additional requirements.

4.2 Termination Requirements

4.2.1 Standard Termination

A project shall be considered complete after all post-construction measures have been installed, cleaned, functioning, inspected, and the site has achieved final stabilization as defined in Section 10 for all phases of construction for at least one (1) year following the Final Stabilization Inspection. The termination process for a project for which the Permittee has completed construction and is obtaining a Notice of Termination shall include the following information:

4.2.1.1 A Notice of Termination form shall include the following:

- The permit number as provided to the Permittee on the Notice of Coverage.
- The name of the Permittee as reported on the general permit application form.
- The address of the completed construction site.
- A description of the post-construction activities at the site.
- A copy of the Termination Inspection.

4.2.1.2 The dates when:

- Construction was completed.
- All storm drainage structures were cleaned of construction debris pursuant to the "Other Controls" in Section 5.2.2.11 of this general permit.
- The Post-Construction Inspection was completed pursuant to Section 5.2.4.3.
- The Final Stabilization Inspection was completed pursuant to Section 5.2.4.4.
- The Termination Inspection was completed pursuant to Section 5.2.4.5.

4.2.1.3 Certifications and Signatures for the following:

- The Permittee.
- The person who conducted the Post-Construction Inspection pursuant to Section 5.2.4.3 of the general permit.
- The person who conducted the Final Stabilization Inspection pursuant to Section 5.2.4.4 of the general permit.
- The person who conducted the Termination Inspection pursuant to Section 5.2.4.5 of the general permit.

4.2.2 Termination Upon Change of Permittee

For termination of a permit for which there is a change of Permittee (pursuant to Section 3.7), the original Permittee shall submit their Notice of Termination on or before thirty (30) days following the approval of an application filed by the new Permittee pursuant to Section 3.3.1.2. The original Permittee shall include the following information in their Notice of Termination:

4.2.2.1 A Notice of Termination form shall include the following:

- The permit number as provided to the original Permittee on their Notice of Coverage.
- The name of the original Permittee as reported on their general permit application form.
- The address of the construction site.
- The permit number as provided to the new Permittee on their Notice of Coverage.
- The name of the new Permittee as reported on their general permit application form.

4.2.2.2 The dates when:

- The date of transfer of ownership or assignment of the project to the new Permittee.
- The date the new Permittee obtained authorization as provided on their Notice of Coverage.

4.2.2.3 Certifications and Signatures for the following:

- The original Permittee.
- The new Permittee.

4.2.3 Termination of Site Preparation Phase for Design-Build Projects by a State or Federal Agency

For termination of a Site Preparation Phase Permit authorized pursuant to Sections 3.3.2 and 3.4.2.1, the original Permittee shall include the following information in their Notice of Termination following the approval of an application for a Final Design:

4.2.3.1 A Notice of Termination form shall include the following:

- The permit number as provided to the Permittee on the Notice of Coverage for the Site Preparation Phase Permit.
- The address of the construction site.
- The permit number as provided to the Permittee on the Notice of Coverage for the Final Design Phase Permit.

4.2.3.2 The date when the Permittee obtained authorization as provided on their Notice of Coverage for the Final Design Phase Permit.

4.2.3.3 Certifications and Signatures for the Permittee.

4.3 Where to File a Termination Form

A termination form shall be filed electronically with the Commissioner at the following address:

DEEP.StormwaterConstruction@ct.gov with the subject line "Construction GP Termination [INSERT NAME OF PERMITTEE]."

Section 5 Conditions of this General Permit

The Permittee shall, at all times, continue to meet the requirements for authorization set forth in this general permit. In addition, the Permittee shall ensure that authorized activities are conducted in accordance with the conditions in this section and the federal Effluent Limitation Guidelines 40 CFR§450—Construction and Development Point Source Category.

In the absence of information demonstrating otherwise, DEEP expects that compliance with the conditions in this permit will result in stormwater discharges being controlled as necessary to meet applicable water quality standards. If at any time the Permittee becomes aware, or DEEP determines, that discharges are not being controlled as necessary to meet applicable water quality standards, the Permittee must take corrective actions and document those actions. If during coverage under a previous permit, the Permittee was required to install and maintain stormwater controls specifically to meet the assumptions and requirements of an EPA-approved or established TMDL (for any parameter) or to otherwise control discharges to meet water quality standards, the Permittee must continue to implement such controls as part of their coverage under this permit. Failure to implement necessary corrective actions is considered a violation of this permit.

5.1 General Conditions

5.1.1 Structures and Dredging in Coastal and Tidal Areas

Any person or municipality who discharges stormwater into coastal tidal waters for which a permit is required under Section 22a-361 of the Conn. Gen. Stat. (structures and dredging) or Section 22a-32 of the Conn. Gen. Stat. (Tidal Wetlands Act), shall obtain such permit(s) from the Commissioner. A tidal wetland permit is required for any regulated activity conducted within a tidal wetland, including, but not limited to, the placement of any sediment upon a tidal wetland, whether it is deposited directly or indirectly.

5.1.2 Discharges to Tidal Wetlands

Any site which has a post-construction stormwater discharge to a tidal wetland (that is not a fresh-tidal wetland) where such discharge is within 500 feet of the tidal wetland, shall discharge such stormwater through a system designed to retain and infiltrate the Water Quality Volume ("WQV"), as defined in Section 10, on the site. If there are site constraints that would prevent retention of this volume on-site (e.g., brownfields, capped landfills, bedrock, elevated groundwater, etc.), documentation must be submitted, for the Commissioner's review and written approval, explaining the site limitations and offering an alternative retention volume for consideration. In such cases, the portion of the WQV that cannot be retained must be provided with additional stormwater treatment to protect water quality. Any such treatment shall be designed, installed and maintained in accordance with the Stormwater Quality Manual.

For sites unable to comply with this section, the Commissioner, at the Commissioner's sole discretion, may require the submission of an individual permit in lieu of authorization under this general permit.

5.1.3 Quality of Discharge

The discharge shall not contain visible floating scum, oil, trash, or other matter contained in the stormwater discharge.

5.1.4 Toxicity to Aquatic and Marine Life/Risk to Human Health

The discharge shall not result in pollution which may cause or contribute to acute or chronic toxicity to aquatic life, impair the biological integrity of aquatic or marine ecosystems, result in unacceptable bioaccumulation, risk to human health, or ecological communities.

5.1.5 Water Quality Standards

The stormwater discharge shall not cause or contribute to an exceedance of the applicable Water Quality Standards or Criteria in the receiving water.

5.1.6 Inspections and Certifications

The following initial inspections and certifications shall apply to all projects:

5.1.6.1 Pre-Construction Meeting

Prior to commencement of any construction activity, the Permittee shall conduct a pre-construction meeting with the Qualified Professional who designed the project, the Qualified Inspector who will be conducting inspections, and all site contractors and subcontractors to be involved in construction activity. Such meeting shall convey the design, stormwater Control Measures, erosion and sediment controls, plan implementation and routine site inspections, and contract requirements for the project prior to earth disturbance. Such a meeting shall also include a site walk of the project site.

a. For Solar Arrays subject to Appendix I and any other project that may be reviewed and/or inspected by a representative of the District, the pre-construction meeting and site walk shall also include the appropriate District personnel.

b. For State of CT Agencies, the CTDOT District Engineer, District Environmental Coordinator, or the designated employee of another state agency shall conduct the pre-construction inspection

The Permittee shall develop and retain in the SPCP a pre-construction meeting report. The report shall, at a minimum, include the date, time, names and titles of attendees, company names, phone and email addresses for each attendee and their signature confirming the Permittee held a pre-construction meeting and that they understand the design, stormwater Control Measures erosion and sediment controls, plan implementation, routine site inspections and contract requirements for the project.

5.1.6.2 Contractor Certifications

The Permittee shall obtain signed certifications for all contractors and subcontractors that will perform construction activities on the site and that have the potential to cause pollution of the waters of the State. Such signed certifications shall be retained in the SPCP. Contractors and subcontractors shall certify the following:

"I certify under penalty of the law that I have read and understand the terms and conditions of the General Permit for the Discharge of Stormwater from Construction Activities and the site-specific Stormwater Pollution Control Plan ("SPCP"). I understand that as a contractor or subcontractor at the site, I must comply with the terms and conditions of this general permit and the SPCP."

5.1.6.3 Construction Inspections

All construction site inspections shall be conducted in accordance with Section 5.2.4 of this general permit.

5.1.7 Post Notice of Construction Activities

Upon commencement of construction activities, the Permittee shall post a sign of permit coverage at a safe, publicly accessible location in close proximity to the construction site. The sign must be at least two (2) feet by three (3) feet in dimension, weatherproof, and in English and Spanish, located so it is visible and legible from the public road nearest to the active part of the construction. The notice shall include:

- the name of the Permittee.
- the DEEP permit number.
- the site address.
- a contact name.

- contact email and phone number.
- the estimated start date and completion date.
- the Permittee-hosted website or email where the SPCP and application are available or can be obtained.
- the following statement: "If you observe indicators of stormwater pollutants in the discharge from this site or in the receiving water, please contact the CT DEEP through the link for Reporting Water Pollution at: www.ct.gov/deep/stormwater".

For linear projects, such as roadways or utility rights-of-way, the Permittee shall post a sign at roadway crossings, public access points, and other areas where the public may reasonably view the notice.

The notice must be maintained on-site from the time construction activities begin until a Notice of Termination is approved.

5.2 Stormwater Pollution Control Plan

All Permittees shall develop and maintain on-site a Stormwater Pollution Control Plan ("SPCP") for the discharge of stormwater for the construction activity authorized by this general permit. Once the construction activity begins, the Permittee shall perform all actions required by such SPCP and shall maintain compliance with the SPCP at all times. The Permittee shall ensure that the design and implementation of the SPCP minimizes: (1) soil erosion and sedimentation during and after construction; and (2) stormwater pollution from the site after construction is completed.

5.2.1 Development and Required Elements of the Plan

5.2.1.1 The SPCP shall consist of site plan drawings, selected Best Management Practices ("BMPs"), Control Measures and a narrative described in this section. The SPCP shall be prepared in accordance with sound engineering practices, and shall be consistent with the Guidelines, the Stormwater Quality Manual (available at http://www.ct.gov/deep/stormwater) and any applicable requirements of this general permit. The SPCP shall also be consistent with any remedial action plan, closure plan or other plan required by any other DEEP permit.

5.2.1.2 The SPCP shall, at a minimum, take into account and include the following items:

a. Account for the following factors in designing stormwater controls:

- The expected amount, frequency, intensity, and duration of precipitation.
- The nature of stormwater runoff (i.e., flow) and run-on at the site, including factors such as expected flow from impervious surfaces, slopes, and site drainage features.
- The proximity to wetlands, vernal pools, and surface waters.
- The Permittee must design stormwater controls to control stormwater volume, velocity, and peak flow rates to minimize discharges of pollutants in stormwater and to minimize channel and streambank erosion and scour in the immediate vicinity of discharge points.
- The soil type and range of soil particle sizes that are expected to be present on the site.

b. Project Description and Construction Sequencing

The SPCP shall provide a detailed description of the entire project, including the expected phasing or sequence of all construction activities on the site, names of corresponding erosion and sediment Control Measures for each phase of the project, and an estimated timeline for all construction activities. The timeline must be revised as necessary to keep the SPCP current. Wherever practicable, site construction activities shall be phased to avoid the disturbance of over five (5) acres at one time (or a lesser area of disturbance as required in Section 5.2.3 of the general permit regarding "Impaired Waters"). In addition, perimeter Control Measures and permanent

stormwater Control Measures, including, but not limited to, stormwater basins should be constructed in the early phases of the construction sequence prior to large-scale site disturbance. The SPCP shall clearly show the estimated limits of total disturbance for the construction activity and for each phase.

The SPCP shall provide a detailed description of how each phase of construction will be conducted, including, but not limited to:

- commencement of construction activities in each portion of the site, including clearing and grubbing, mass grading, demolition activities, site preparation (i.e., excavating, cutting and filling), final grading, and creation of soil and vegetation stockpiles requiring stabilization.
- temporary or permanent cessation of construction activities in each portion of the site.
- temporary or final stabilization of exposed areas for each portion of the site.
- removal of temporary stormwater controls and construction equipment or vehicles.
- the cessation of construction-related pollutant-generating activities.

c. Site Description, including, but not limited to:

- a narrative description of the nature of the construction activity.
- an estimate of the total area of the site and the total area of the site that is expected to be disturbed by construction activities.
- an estimate of the average runoff coefficient of the site after construction activities are completed.
- the name of the immediate receiving water(s) and the ultimate receiving water(s) of the discharges authorized by this general permit.
- extent of the wetland acreage on the site.

d. Site plan drawings indicating:

- drainage patterns and approximate slopes anticipated after major grading activities.
- areas of soil disturbance.
- the location of major structural and non-structural controls as specified in Subsection 5.2.2.
- the location of areas where stabilization practices are expected to occur.
- areas of existing vegetation.
- areas which will be vegetated following construction.
- the locations of test pits and infiltration tests for stormwater Control Measures.
- surface waters, impaired waters (identifying those with and without a TMDL), high quality waters, inland wetlands, tidal wetlands, fresh-tidal wetlands.
- discharge locations and serial numbers where stormwater will be discharged to surface water (both during and post-construction).
- other surface or subsurface conditions that may affect design considerations regarding potential environmental impact.

e. Pollutants of Concern

The SPCP shall include a list and description of all pollutant-generating activities on the site, include an inventory of pollutants or pollutant constituents (e.g., sediment, fertilizers, pesticides, paints, caulks, sealants, fluorescent light ballasts, contaminated substrates, solvents, fuels)

associated with that activity, which could be discharged in stormwater from the construction site. The Permittee shall address the need for proper containment and/or storage of such potential pollutants to minimize the potential for the discharge of such pollutants from the site. The Permittee must consider where potential spills and leaks could occur that contribute pollutants to stormwater discharges, and any known hazardous or toxic substances, such as PCBs and asbestos, that will be disturbed or removed during construction.

f. Control Measures

The SPCP shall include detailed descriptions of all the Control Measures that will be implemented at the site, both in a separate narrative and on the site plan drawings, to prevent and minimize the discharge of pollutants to the BAT. Control Measures shall be implemented in accordance with Section 5.2.2 of the general permit. In addition, the following information shall be provided in the narrative for each Control Measure:

- calculations supporting the design of sediment and floatables removal controls pursuant to Section 5.2.2.10.b of the general permit.
- calculations supporting the design of velocity dissipation controls pursuant to Section 5.2.2.10.c of the general permit.

g. Runoff Reduction and Low Impact Development (LID) Information

Where runoff reduction practices and/or LID measures are utilized, the following information shall be included in the site plan and narrative description:

- the location of the site's existing streams, floodplains, wetlands, riparian buffers, slopes 3:1 and steeper, and the vegetation identified for preservation and non-disturbance during construction such as forested areas, hay fields, and other old agricultural fields.
- natural drainage patterns, swales, and other drainage ways, that are not streams, floodplains, or wetlands.
- the location of all areas with soils suitable for infiltration and areas of the site best suited for infiltration for the siting of runoff reduction practices and LID design measures.
- the location of all areas unsuitable or least suitable for infiltration for the siting of areas of development/building.
- the location of all test pits and infiltration tests in accordance with the Stormwater Quality Manual.
- the location of all post-construction stormwater management measures, runoff reduction practices, and LID design measures developed pursuant to Subsection 5.2.2.10 of the general permit.
- identification of areas inappropriate for the infiltration of stormwater runoff from land uses with a significant potential for groundwater pollution (e.g. brownfields sites).
- a description of the nature, purpose, implementation, and long-term maintenance of the post-construction stormwater management measures, runoff reduction practices, and LID design measures. Identify who will be responsible for the management of the post-construction stormwater Control Measures and the timeline for such management.
- calculations, for Control Measures developed pursuant to Section 5.2.2.9 of the general permit, illustrating the retention of the Water Quality Volume or half the Water Quality Volume for the site, as applicable, including a discussion of the impact of any runoff reduction and/or LID practices on these calculations.
- a narrative description for all site constraints that may prevent retention of the required Water Quality Volume specified in Section 5.2.2.9 of the general permit including: site limitations;

a description of the runoff reduction practices implemented; a demonstration and explanation that the amount retained is the Best Available Technology; an alternative retention volume; and a description of the measures used to provide additional stormwater treatment for sediment, floatables, bacteria, nutrients and metals above the alternate volume up to the Water Quality Volume.

- calculations showing the proposed effective impervious cover for the site and, where required or proposed for linear projects pursuant to Section 5.2.2.9.b of the general permit, each outfall drainage area.

h. Site Inspections

All inspections shall comply with the requirements and conditions of Section 5.2.4 of the general permit.

i. Plan Implementation Inspections

The SPCP shall include the following information for all completed inspections:

- Plan Implementation Inspection Checklist.
- a schedule for conducting inspections.
- name, credentials, and responsibilities for each inspector.
- name, credentials, and responsibilities of the designing Qualified Professional (and District personnel, as appropriate) conducting such inspections, and required procedures pursuant to Section 5.2.4 of the general permit.
- inspection findings.
- corrective actions required.
- signature of the inspector.
- for additional inspection requirements for Solar Arrays Projects see Appendix I.

ii. Routine Inspections

The SPCP shall include the following information for all complete inspections:

- a routine inspection checklist.
- schedule for conducting inspections.
- identification and qualifications of the Qualified Inspector(s) conducting the routine inspections and their responsibilities and procedures pursuant to Subsection 5.2.4.2 of the general permit.
- inspection findings.
- corrective actions required.
- signature of the Qualified Inspector.
- For additional inspection requirements for Solar Arrays Projects see Appendix I.

i. Contractors

i. The SPCP shall clearly identify each contractor and subcontractor that will perform construction activities on the site that have the potential to cause pollution of the waters of the State. The SPCP shall retain a signed and dated copy of each certification statement in accordance with Section 5.1.6.2 of the general permit.

ii. Subdivisions

Where individual lots in a subdivision or other common plan of development are conveyed or otherwise the responsibility of another person or municipality, the Permittee is responsible to ensure that those individual lot contractors comply with the provisions of this general permit and the Stormwater Pollution Control Plan, regardless of the lot size or disturbed area. In such cases, the Permittee shall provide a copy of the SPCP to each individual lot contractor, obtain their signed certification, and retain the documentation in the SPCP.

j. Impaired Waters

For construction activities that discharge to impaired waters, as specified in Section 2.2.9, the SPCP shall include a description of the provisions for controlling the preconstruction, active construction, and post-construction stormwater discharges to these waters pursuant to Section 5.2.3 below.

5.2.2 Stormwater Control Measures

Control Measures are required Best Management Practices ("BMPs") that the Permittee must implement to prevent or minimize, as defined in this permit, the discharge of pollutants from the permitted activity. The Permittee shall comply with all of the BMPs in this section.

Control Measures shall be designed in accordance with the Guidelines, the Stormwater Quality Manual or the CTDOT Qualified Products List (CTDOT QPL). Use of Control Measures to comply with Section 5.2.2.1 of this general permit ("Erosion and Sediment Controls"), that are not included in such references must be approved by the Commissioner. The narrative and drawings of controls shall address the following minimum components:

5.2.2.1 Erosion and Sediment Controls

a. Soil Stabilization and Protection

The SPCP shall include a narrative description and drawings of interim and permanent soil stabilization practices for managing disturbed areas and soil stockpiles, including a schedule for implementing the practices. The Permittee shall ensure that existing vegetation is preserved to the BAT and disturbed portions of the site are minimized and stabilized throughout the duration of the construction activity at the site.

b. Erosion Control Barriers

In addition to requirements for erosion control barriers prescribed in the Guidelines, the Permittee shall ensure that two (2) rows of erosion control barriers are installed and maintained on sites with slopes equal to or greater than eight percent (8%) within the contributing drainage area to such barrier.

Notwithstanding the foregoing, use of two (2) rows of erosion control barriers shall not be required on the sites specified in this paragraph when:

i. The Commissioner determines, for a limited section or portion of such erosion control barriers, that it is necessary to accommodate animal crossing or animal movement.

ii. The Commissioner approves a SPCP that includes an erosion control system whose performance is equivalent to, or exceeds, two rows of erosion control barriers.

iii. For linear projects, the Commissioner has determined that two rows of erosion control barriers, when compared to one row, will cause greater adverse impact to wetlands, waters, or other sensitive resources.

In such a situation the Commissioner may approve of a SPCP with one row of erosion control barriers or an alternative erosion control system. When implementing this paragraph, the Commissioner may consider the contributing disturbed area, drainage area, length of the slope,

flow conditions to maintain sheet flow, the efficacy of the proposed barrier, any adverse impacts and any other reasonable factor as determined by the Commissioner.

5.2.2.2 Soil Stabilization Timeline

Where construction activities have permanently ceased or when final grades are reached in any portion of the site, stabilization and protection practices as specified in the Guidelines or as approved by the Commissioner shall be initiated immediately and completed within seven (7) days. Notwithstanding any provisions of the Guidelines, areas that will remain disturbed but inactive for at least fourteen (14) calendar days shall receive temporary seeding or soil protection within seven (7) days in accordance with the Guidelines unless site conditions warrant shorter time periods for these provisions.

Areas that will remain disturbed beyond the seeding season as identified in the Guidelines, shall receive long-term, non-vegetative stabilization and protection sufficient to protect the site through the winter and spring when vegetative stabilization can resume. In all cases, stabilization and protection measures shall be implemented as soon as possible in accordance with the Guidelines or as approved by the Commissioner. In drought-stricken areas, alternative stabilization measures must be employed, as necessary, in accordance with the Guidelines.

5.2.2.3 Maintenance of Vegetation

To prevent erosion and soil compaction during construction activities, temporary or permanent vegetation or other ground cover shall be maintained at all times in all areas of the site, except those undergoing active disturbance. All new temporary and permanent vegetation shall consist of native plant species. With respect to such vegetation, the Permittee shall not use chemical fertilization, herbicides, or pesticides except as necessary to establish such vegetation in accordance with the manufactures label. The application of chemical pesticides and herbicides shall fully comply with all applicable laws and regulations. The Commissioner encourages the use of pollinator-friendly plant species and integrated pest management practices.

5.2.2.4 Slope Benches

A reverse slope bench is required for any slope steeper than 3:1 (horizontal: vertical) that exceeds 15 feet vertically, except when engineered slope stabilization structures or measures are included or a detailed soil mechanics analysis has been conducted to verify stability. Engineered analyses and measures must be designed by a Qualified Professional engineer with experience in geotechnical engineering or soil mechanics. The qualifications, engineered analysis, and measures shall be included in the SPCP.

5.2.2.5 Wetland Protection

The Commissioner encourages the use of a one hundred (100) foot buffer from any wetland or watercourse. Where site disturbance occurs within fifty (50) feet upgradient of a wetland or waters a double row of sediment barriers (e.g. hay bales, silt fence, wattles, etc.) shall be installed in accordance with the Guidelines between the disturbed area and any such downgradient wetland or waters.

5.2.2.6 Structural Measures

The SPCP shall include a narrative description and drawings of structural measures to divert flows away from exposed soils, store flows or otherwise limit runoff and minimize the discharge of pollutants from the site. Unless otherwise specifically approved in writing by the Commissioner, or if otherwise authorized by another State of Connecticut or federal permit, structural measures shall be installed on upland soil.

For points of discharge from disturbed sites with a total contributing drainage area of between two (2) to five (5) acres, a temporary sediment trap or temporary sediment basin shall be designed and installed in accordance with the Guidelines. For points of discharge from disturbed sites with a total contributing

drainage area greater than five (5) acres, a temporary sediment basin shall be designed and installed in accordance with the Guidelines. Such trap(s) or basin(s) shall utilize outlet structures that withdraw water from the surface (surface outlet), if feasible, and must be maintained until final stabilization of the contributing area.

The requirement for sediment traps or basins shall not apply to flows from off-site areas and flows from areas of the site that are either undisturbed or have undergone final stabilization, provided such flows are diverted around the temporary sediment trap or basin and are approved in writing by the Commissioner.

5.2.2.7 Maintenance

The SPCP shall include a narrative of the procedures to maintain, in good and effective operating condition, all erosion and sediment BMPs and Control Measures, including vegetation, and all other protective measures identified in the SPCP. Maintenance of all erosion and sediment controls shall be performed in accordance with the Guidelines, or more frequently as necessary.

5.2.2.8 Dewatering

a. Dewatering shall be managed in accordance with the Guidelines. Stormwater discharged to surface waters shall be discharged in a manner that minimizes the discoloration of the receiving waters. The SPCP shall include a narrative description and identify in the drawings the operational and structural measures that will be used to ensure that dewatering waters will not cause scouring or erosion or contain suspended solids in amounts that could reasonably be expected to cause pollution of surface waters of the State or cause or contribute to instream water quality violations. Unless otherwise specifically approved in writing by the Commissioner, or if otherwise authorized by another state or federal permit, dewatering measures shall be installed on upland soil. If turbidity or discoloration or other pollutants are observed in the discharge from dewatering Control Measures, additional or alternate Control Measures or other corrective actions must be implemented in accordance with Section 5.2.4.2.c.i and the Guidelines. The Permittee shall document any corrective actions taken in their SPCP.

   No discharge of stormwater shall contain or cause a visible oil sheen, turbidity, floating solids, debris, trash, or foaming in the receiving water.

b. Turbidity Monitoring

   For construction activities with dewatering operations, the Permittee shall carry out initial and weekly monitoring for turbidity from each dewatering discharge point for the duration of dewatering operations. Samples shall be taken after the dewatering water has been treated by any treatment device or control measure. The Permittee shall measure turbidity in accordance with 40 CFR 136. The Permittee shall take the first turbidity measurement within 30 minutes of initiating the dewatering discharge. Following this initial monitoring, the Permittee shall conduct weekly monitoring during the Routine Inspection pursuant to Section 5.2.4.2. A record of the turbidity monitoring results shall be kept on-site with the SPCP and submitted to the Commissioner pursuant to Section 5.3.2.2.

c. In the absence of information demonstrating otherwise, DEEP expects that compliance with the conditions in this permit will result in stormwater discharges being controlled as necessary to meet applicable water quality standards. If the Permittee is aware of, or becomes aware of, or has reasonable suspicion of contamination onsite from historical activities or the site may have contaminated groundwater, or if any pollutants are known or believed present in the proposed dewatering discharge water, the applicant or Permittee shall apply for coverage under the appropriate permit for authorization to discharge to surface water, ground water, or a POTW. That permit will only cover the treatment and discharge of the contaminated water and will remain active until the cessation of dewatering activities.

d. For the purposes of this condition, a pollutant may be verified as "known present" if measured above the analytical detection limit using a sufficiently sensitive test method in an environmental sample, and "believed present" if a pollutant has not been measured in an environmental sample but will be added or generated prior to discharge, such as through a treatment process. Consequently, a pollutant may be verified as "known absent" if measured as non-detect relative to the analytical detection limit using a sufficiently sensitive test method in an environmental sample, and "believed absent" if a pollutant has not been measured in an environmental sample but will not be added or generated prior to discharge and is not a parameter that applies to the applicable activity category for a site. If any pollutants are known or believed present in the proposed dewatering discharge water, the applicant shall test one sample of the proposed dewatering discharge water for the pollutants known or believed to be present.

5.2.2.9 Post-Construction Performance Standards

The SPCP shall include a narrative description and drawings of measures that will be installed during the construction process to minimize the discharge of pollutants in stormwater discharges that will occur after construction operations have been completed. Permittees are encouraged to consider the potential need for future resiliency measures to minimize impacts from stormwater discharges from major storm events such as hurricanes, storm surge, extreme/heavy precipitation, and flooding events. Post-construction stormwater management measures shall be designed and implemented in accordance with the Stormwater Quality Manual, the CTDOT Qualified Products List, or as approved by the Commissioner. Unless otherwise specifically provided by the Commissioner in writing, or authorized by another state or federal permit, structural measures shall be placed on upland soils. The SPCP shall include provisions to address the long-term maintenance of any postconstruction stormwater management measure installed.

The Permittee shall utilize runoff reduction practices as defined in Section 10 of this general permit to meet runoff volume requirements based on the conditions below.

a. Redevelopment

For sites that are currently developed with an effective impervious cover of forty percent or more and for which the Permittee is proposing redevelopment, the Permittee shall design the site in such a manner as to retain on-site half the water quality volume (as defined in Section 10 of the general permit) for the site and provide additional stormwater treatment without retention for discharges up to the full Water Quality Volume for sediment, floatables and nutrients to BAT. In cases where the Permittee is not able to retain half the Water Quality Volume (e.g., brownfields, capped landfills, bedrock, elevated groundwater, etc.), the Permittee shall design the redevelopment to retain a runoff volume to the BAT. In such cases, additional stormwater treatment up to the full Water Quality Volume is still required. Any such treatment shall be designed, installed and maintained in accordance with the Stormwater Quality Manual. If retention of half the Water Quality Volume is not achieved, the Permittee shall submit a report for the Commissioner's review and written approval describing: the measures taken to maximize runoff reduction practices on the site; the reasons why those practices constitute the BAT; the alternative retention volume; and a description of the measures used to provide additional stormwater treatment above the alternate volume up to the Water Quality Volume.

For sites falling under this subsection, where redevelopment only impacts a portion of a previously developed site, the retention of half the Water Quality Volume shall be calculated based on the area of the site and stormwater management system that is disturbed as part of the redevelopment.

b. Linear Redevelopment

In the case of linear redevelopment projects (e.g. roadway reconstruction or widening or public utility rights of way) for the developed portion of the right of way: (1) for projects that may be unable to comply with the retention of the appropriate portion of the Water Quality Volume

specified in subparagraphs (a) and (c) of this subsection, the alternate retention and treatment provisions may also be applied as specified in such subparagraphs, or (2) for projects that will not increase the effective impervious cover within a given watershed, the Permittee shall implement the additional stormwater treatment measures referenced in Subsections (a) and (c) of this subsection, but will not be required to retain the appropriate portion of the Water Quality Volume specified in such paragraphs.

c. Other Development

The following performance standard applies to all sites that are currently undeveloped or are currently developed with less than forty percent effective impervious cover. For these sites, the Permittee shall design the site to retain the Water Quality Volume for the site. If there are site constraints that would prevent retention of this volume on-site (e.g., brownfields, capped landfills, bedrock, elevated groundwater, etc.), documentation must be submitted, for the Commissioner's review and written approval, which: explains the site limitations; provides a description of the runoff reduction practices implemented; provides an explanation of why this constitutes the BAT; offers an alternative retention volume; and provides a description of the measures used to provide additional stormwater treatment for sediment, floatables and nutrients above the alternate volume up to the Water Quality Volume. In the case of linear projects that do not involve impervious surfaces (e.g. electrical transmission rights-of-way or natural gas pipelines), retention of the Water Quality Volume is not required as long as the post-development runoff characteristics do not differ significantly from pre-development conditions.

For redevelopment sites falling under this subsection, where redevelopment only impacts a portion of a previously developed site, the retention of the Water Quality Volume shall be calculated based on the area of the site and stormwater management system that is disturbed as part of the redevelopment.

5.2.2.10 Post-Construction Control Measures

a. Runoff Reduction and Low Impact Development ("LID") Practices

The site design shall incorporate runoff reduction practices, low impact development ("LID") practices or other post-construction Control Measures to meet the performance standards in Section 5.2.2.9 above, promote groundwater recharge and minimize post-construction impacts to water quality.

b. Suspended Solids and Floatables Removal

The Permittee shall install post-construction stormwater Control Measures designed to minimize the discharge of suspended solids and floatables (e.g. oil and grease, other floatable liquids, floatable solids, trash, etc.) from stormwater. A goal of 80 percent removal of the annual sediment load from the stormwater discharge shall be used in designing and installing such stormwater Control Measures. The SPCP shall provide calculations supporting the capability of such measures in achieving this goal and any third-party verification, as applicable, of the sediment removal efficiencies of such measures. This goal is not intended to limit local approval authorities from requiring a higher standard pursuant to local requirements.

c. Velocity Dissipation

Velocity dissipation devices shall be placed at discharge locations and along the length of any outfall channel as necessary to provide a non-erosive velocity flow to receiving waters so that the natural physical and biological characteristics and functions of such waters are maintained and protected.

5.2.2.11 Other Controls

The following additional controls shall be implemented:

a. Waste Disposal

Best management practices shall be implemented to minimize the discharge of litter, debris, building materials, hardened concrete waste, or similar materials to waters of the State. The Permittee shall ensure that waste storage containers, including, but not limited to, dumpsters or tanks, be covered and leak proof to prevent stormwater from coming into contact with solid or liquid waste. A narrative of these practices shall be provided in the SPCP. In addition, the dumping of liquid wastes in storm sewers is prohibited.

b. Washout Areas

Washout of applicators, containers, vehicles and equipment for concrete, paint and other materials shall be conducted in a designated washout area. There shall be no surface discharge of washout wastewater from this area. Such a washout shall be conducted:

- outside of any buffers.
- as far away as possible, but at least fifty (50) feet, from any stream, wetland, storm drain inlet, or other sensitive resource.
- in an area directed into a leak-proof container or leak-proof and lined pit designed so no overflows can occur due to inadequate sizing or precipitation in accordance with 40 CFR 450.21(e).

The Permittee shall clearly flag off and designate areas to be used for washing and conduct such activities only in these areas. The Permittee shall direct all wash water into a container or pit designed such that no overflows can occur during rainfall or after snowmelt. At least once per week, the Permittee shall inspect all the containers or pits used for washout to ensure structural integrity, adequate holding capacity, and to check for leaks or overflows. If there are signs of leaks, holes or overflows in the containers or pits that could lead to discharge, the Permittee shall repair them prior to further use.

For concrete washout areas, the Permittee shall remove hardened concrete waste whenever the hardened concrete has accumulated to a height of ½ of the container or pit or as necessary to avoid overflows. The Permittee shall remove and dispose of such hardened concrete waste in accordance with the practices developed for "Waste Disposal" (see Section 5.2.2.11.a of this general permit).

A narrative of maintenance procedures and a record of maintenance and inspections shall be included in the SPCP.

c. Off-site Vehicle Tracking & Dust Suppression

i. Off-site vehicle tracking of sediments and the generation of dust shall be minimized. A construction entrance shall be installed and maintained in accordance with the Guidelines, including appropriately configured measures for vehicle washdown.

ii. Where sediment has been tracked-out from the site onto paved roads, sidewalks, or other paved areas outside of the site, the Permittee shall remove the deposited sediment by the end of the same business day in which the track-out occurs or by the end of the next business day if track-out occurs on a non-business day. The Permittee shall remove the track-out by sweeping, shoveling, or vacuuming these surfaces, or by using other similarly effective means of sediment removal. The Permittee is prohibited from hosing or sweeping tracked-out sediment into any constructed or natural site drainage feature, storm drain inlet or receiving water.

iii. Wet dust suppression shall be used, in accordance with Section 22a-174-18(c) of the Regs. Conn. State Agencies, for any construction activity that causes airborne particulates. The volume of water sprayed for controlling dust shall be minimized to prevent the runoff of water. No discharge of dust control water shall contain or cause a visible oil sheen, floating

solids, visible discoloration, or foaming agents in any receiving waters. Additionally, water used in dust suppression shall not contain contaminants that could violate water quality standards.

d. Cleaning

All post-construction stormwater structures shall be cleaned of construction sediment and any remaining silt fence shall be removed upon stabilization of the site.

e. Storage of Chemicals, Petroleum Products, and Other Potential Pollutant Sources

All chemical and petroleum product containers stored on the site (excluding those contained within vehicles and equipment) shall be stored within an impermeable containment system that is free of gaps and cracks, can contain any leaks or spills and accumulated precipitation until the collected materials are detected and removed, and which can hold at least 110% of the volume of the largest container, or 10% of the total volume of all containers in the area, whichever is larger, without overflow from the containment system. In addition, all chemicals and petroleum products shall be stored under a roofed area except for those chemicals stored in containers of 100-gallon capacity or more, in which case a roof is not required. Double-walled tanks satisfy the requirements of this paragraph for containment and roofing.

Covered storage shall be provided for all non-liquid potential pollutant sources such as fertilizers, pesticides, caulks, sealants, fluorescent light ballasts, contaminated substrates, solvents, and other potential pollutant sources stored on-site. For liquid pollutants, including, but not limited to, paints and solvents, containment shall be considered adequate if it meets the requirements for chemical and petroleum storage in the previous paragraph.

f. Emergency Spill Response

Spills of oil, grease, or other harmful chemicals must immediately be cleaned by the removal of and containment of contaminated soil or emergency spill kit. An emergency spill kit, or alternative proprietary device, must be present and accessible on site for emergency removal of oil, grease, or chemical spills. For reportable spills per Regs. Conn. State Agencies 22a-430-3 subsection (p), the Permittee shall call the DEEP Emergency Response Unit at (860)424-3338.

g. Cold Water Stream Habitat

For construction activities within one hundred (100) feet of any stream, river, or tributary that is included within a Cold Water Stream Habitat, as may be authorized by the Commissioner pursuant to Section 2.2.10 of this general permit, any mitigation strategies authorized by the Commissioner must be verified post-construction by the designing qualified professional.

5.2.3 Additional Conditions for Impaired Waters

For construction activities that discharge directly to impaired waters for sediment or sediment-related impairments, as specified in "Discharges to Impaired Waters" in Section 2.2.9.2 of this general permit, the SPCP shall include the following provisions:

- Where an applicable TMDL sets specific load allocations or requirements for discharges authorized by this permit, discharges shall be consistent with any specific load allocations or requirements established by the applicable TMDL.
- Where an applicable TMDL has been established**,** but no specific requirements have been identified, compliance with this permit will be assumed to be consistent with the approved TMDL.
- The SPCP shall document that Control Measures are in place to ensure there will be no discharge to the waterbody that may impact or exceed the allocations.

5.2.4 Inspections

All construction activities authorized by this general permit shall be inspected initially for SPCP implementation as describe in Section 5.1.6, and then routinely pursuant to Section 5.2.4.2. Upon project completion and prior to submission of a Notice of Termination, post-construction, final stabilization, and Termination Inspections shall also be conducted. For Solar Array inspections, see additional requirements in Appendix I.

5.2.4.1 Plan Implementation Inspections

Prior to commencement of each phase of the construction activity on the site, the Permittee shall contact the designing Qualified Professional and, for Locally Exempt projects including, but not limited to, Solar Arrays subject to Appendix I, the appropriate District, to ensure that all required inspections are conducted. For each phase of construction, the site shall be inspected at least once within the first thirty (30) days of construction activity and at least three times, with seven (7) or more days between inspections, within the first ninety (90) days of construction activity to confirm compliance with the general permit and proper initial implementation of all Control Measures designated in the SPCP for each phase of construction. The following conditions shall apply:

a. For all projects not conducted by a state agency and which disturb more than one (1) acre, the inspector shall be someone who:

   i. Is not an employee, as defined by the Internal Revenue Service in the Internal Revenue Code of 1986, of the applicant, and

   ii. Has no ownership interest of any kind in the project for which the application is being submitted.

b. For projects conducted by a state agency and which disturb more than one (1) acre, the inspector shall be someone who:

   i. Meets the requirements in subparagraph (a), above, or

   ii. Is included in the list of Qualified Professionals specified in Section 2.2.17.1 of the general permit.

5.2.4.2 Routine Inspections

The Permittee shall routinely inspect the site for compliance with the general permit, including, but not limited to, compliance with the SPCP for the site, until a Notice of Termination under Section 4 of the general permit has been submitted to the Commissioner. Inspection procedures for these routine inspections shall comply with the following:

a. The Permittee shall maintain a rain gauge on-site to document rainfall amounts. At least once a week and within 24 hours of the end of a storm that generates a discharge, a Qualified Inspector (provided by the Permittee), shall inspect, at a minimum, the following: disturbed areas of the construction activity that have not been finally stabilized; site discharge outfalls; dewatering discharges; all erosion and sediment Control Measures; all structural Control Measures; all soil stockpile areas; all washout areas, and locations where vehicles enter or exit the site. If at all possible, the inspection shall be conducted during an active rain event. For storms that end on a weekend, holiday or other time after which normal working hours will not commence within 24 hours, a routine inspection is required within 24 hours only for storms that equal or exceed 0.5 inches. For storms of less than 0.5 inches, an inspection shall occur immediately upon the start of the subsequent normal working hours.

   In areas of the site where temporary stabilization has been implemented, a routine inspection shall be conducted at least weekly until final stabilization has been achieved. Once all post-construction stormwater measures have been installed in accordance with the Post-Construction Stormwater Management and cleaned of any construction sediment or debris, a Post-Construction Inspection shall be conducted. For sites that have achieved final stabilization pursuant to Section 5.2.4.4, routine inspections shall then be conducted at least monthly.

b. During each routine inspection the Qualified Inspector(s) shall, among other things, evaluate the effectiveness of erosion and sediment controls, structural controls, stabilization practices, and any other controls implemented to prevent pollution and determine if it is necessary to install, maintain, or repair such controls and/or practices to improve the quality of stormwater discharge(s). In addition, during each routine inspection, the site, including but not limited to, all of the areas noted in the preceding paragraph, shall be inspected for evidence of, or the potential for, the discharge of pollutants (such as sediment, discoloration, floatables, sheen, etc.) to waters or entering the drainage system, and impacts to the receiving waters. Turbidity monitoring pursuant to Section 5.2.2.8.b may also be conducted during these inspections. Locations where vehicles enter or exit the site shall also be inspected for evidence of off-site sediment tracking.

c. The Qualified Inspector conducting routine inspections shall prepare a report on each inspection. Each such report shall be retained in the SPCP. This report shall summarize: the scope of the inspection; name(s) and qualifications of personnel conducting the inspection; the date(s) of the inspection; weather conditions including precipitation information; major observations relating to erosion and sediment controls and the implementation of the SPCP; a description of the stormwater discharge(s) from the site, including any evidence of pollutant discharge; and any water quality monitoring performed during the inspection.

   The report shall be signed by the Permittee or his/her authorized representative in accordance with the Certification of Documents this general permit. The report shall include a statement that, in the judgment of the Qualified Inspector(s) conducting the site inspection, the site is either in compliance or out of compliance with the terms and conditions of the SPCP and permit. If the site inspection indicates that the site is out of compliance, the Permittee shall implement corrective actions pursuant to subsection i, below.

   i. Corrective Actions

      If the site inspection indicates that the site is out of compliance, the inspection report shall include a summary of the corrective actions required to bring the site back into compliance. Non-engineered corrective actions (as identified in the Guidelines) shall be implemented on site within 24 hours and incorporated into a revised SPCP within three (3) calendar days of the date of inspection unless another schedule is specified in the Guidelines. Engineered corrective actions (as identified in the Guidelines) shall be implemented on site within seven (7) calendar days and incorporated into a revised SPCP within ten (10) calendar days of the date of inspection, unless another schedule is specified in the Guidelines or is approved by the Commissioner. During the period in which any corrective actions are being developed and have not yet been fully implemented, interim measures shall be implemented to minimize the potential for the discharge of pollutants from the site. If the Permittee must repeatedly (i.e., three (3) or more times) make the same routine maintenance fixes to the same control at the same location, even if the fix can be completed within the time periods prescribed above, the designing Qualified Professional shall investigate and develop a revised control measure to remedy the failure. A record of all corrective actions shall be maintained in the SPCP.

d. For solar projects under Appendix I, or other projects at the Commissioner's request, a copy of each inspection report shall be submitted electronically to the Department at: DEEP.StormwaterConstruction@ct.gov

e. Inspectors from DEEP and the appropriate District, where applicable, may inspect the site to verify compliance with this general permit at any time construction activities are ongoing, and upon completion of construction activities, until a Notice of Termination has been accepted by the Commissioner pursuant to Section 4 of the general permit.

5.2.4.3 Post-Construction Inspection

a. For Locally Approvable projects, once all post-construction stormwater measures have been installed in accordance with Section 5.2.2.10 of the general permit, Post-Construction Stormwater

Management, and cleaned of any construction sediment or debris, the Permittee shall ensure that the appropriate Conservation District or a Qualified Professional, as appropriate, inspects the site to confirm site stabilization and compliance with the post-construction stormwater management requirements. The Permittee shall ensure that the person inspecting the site pursuant to this paragraph is not an employee, as defined by the Internal Revenue Service in the Internal Revenue Code of 1986, of the Permittee and that such person has no ownership interest of any kind in the project for which the site's application was submitted. A report shall be prepared and certified in accordance with Sections 4.2.2, 5.1.6, and 5.2.1.2.h of the general permit to indicate compliance with this requirement on the Notice of Termination form.

b. For Locally Exempt Projects except those conducted by state agencies, once all post-construction stormwater measures have been installed in accordance with the Section 5.2.2.10 of the general permit, "Post-Construction Control Measures" and cleaned of any construction sediment or debris, the Permittee shall ensure that a qualified soil erosion and sediment control professional or a Qualified Professional Engineer inspects the site to confirm site stabilization and compliance with the post-construction stormwater management requirements of the general permit. A report shall be prepared and certified in accordance with Sections 4.2.2, 5.1.6, and 5.2.1.2.h of the general permit to indicate compliance with this requirement on the Notice of Termination form.

c. For projects conducted by state agencies, once all post-construction stormwater measures have been installed in accordance with the Post-Construction Stormwater Management in Subsection 5.2.2.10 and cleaned of any construction sediment or debris, the CTDOT District Engineer or his/her designee and/or CTDOT District Environmental Coordinator, or the designated employee of another state agency, will inspect the site to confirm site stabilization and compliance with the post-construction stormwater management requirements of the general permit.

5.2.4.4 Final Stabilization Inspection

For all projects, once the site has achieved final stabilization, as defined in Section 10, the Permittee shall have the site inspected by a Qualified Professional Engineer (and, for Solar Array Projects subject to Appendix I, the appropriate District). This inspection shall confirm that all temporary erosion and sedimentation measures (silt fence, haybales, etc.) have been removed, all areas of the site are fully stabilized and vegetated, and that all post-construction stormwater management measures are implemented and functioning as designed. The inspection report shall include ground and/or aerial photographs to document final stabilization. All photographs must be clear and in focus, and in the original format and resolution; and include the date each photograph was taken, and a brief description of the area of the site captured by the photograph (e.g., photo shows full establishment of vegetation on northeast corner of site).

5.2.4.5 Termination Inspection

For all projects, except Solar Array Projects conducted pursuant to Appendix I, once the site has maintained final stabilization for at least one (1) year following the Final Stabilization Inspection, the Permittee shall have the site inspected by a Qualified Inspector to confirm such stabilization has been maintained. The inspection report shall include ground or aerial photographs to document final stabilization. All photographs must be clear and in focus, and in the original format and resolution; and include the date each photograph was taken, and a brief description of the area of the site captured by the photograph (e.g., photo shows application of seed and erosion control mats to remaining exposed surfaces on northeast corner of site). The Permittee shall submit the Termination Inspection report with the Notice of Termination form.

a. No Termination Inspection is required for permits terminated by a Change of Permittee pursuant to Section 3.7 or for Site Preparation Phases authorized under a state or federal agency design-build project.

5.2.5 Keeping Pollution Control Plan Current

The Permittee is responsible for keeping the SPCP in compliance with this general permit at all times. This may involve any or all of the following:

5.2.5.1 The Permittee shall amend the SPCP if the actions required by the SPCP fail to prevent pollution or unauthorized discharges to the waters of the State or fail to comply with any other provision of this general permit. The SPCP shall also be amended whenever there is an addition of or change in contractors or subcontractors at the site, the designing Qualified Professional, District personnel, or a change in design, construction, operation, or maintenance at the site which has not otherwise been addressed in the SPCP. The Permittee shall comply with Section 3.5 if submission of a Notice of Change is required pursuant to that section.

5.2.5.2 The Commissioner may notify the Permittee at any time that the SPCP or the site does not meet one or more requirements of this general permit. Within seven (7) days of such notice, or such other time as the Commissioner may allow, the Permittee shall make the required changes to the SPCP and perform all actions required by such revised SPCP. Within fifteen (15) days of such notice, or such other time as the Commissioner may allow, the Permittee shall submit to the Commissioner a written certification that the requested changes have been made and implemented and such other information as the Commissioner requires. Any such certification or information shall be submitted in accordance with the 'Duty to Provide Information" and "Certification," Sections 8.9 and 8.21.4 of this general permit.

5.2.5.3 The Permittee shall ensure qualified persons maintain this SPCP at all times.

5.2.5.4 The Permittee shall retain as part of the SPCP all modifications, and any documentation associated with each modification, made under this section.

5.2.5.5 Failure to Prepare, Maintain or Update Plan

In no event shall failure to complete, maintain or update a SPCP, in accordance with the "Development and Required Elements of the Plan" in Subsections 5.2.1 and 5.2.5 of this general permit, excuse non-compliance or relieve a Permittee of responsibility to implement any actions required to protect the waters of the State or comply with the requirements of this permit.

5.2.5.6 Plan Signature

The SPCP shall be signed and certified as follows:

a. The SPCP shall be signed by the Permittee in accordance with Section 8.21.4 of this general permit.

b. The SPCP shall include certification by all contractors and subcontractors in accordance with Section 5.2.1.2.i of this general permit.

c. The SPCP shall include a copy of the certification by a professional engineer or landscape architect made in accordance with Section 2.2.14 of this general permit.

5.2.5.7 Plan Review Certification

For a Locally Approvable project pursuant to Section 3.3.2 of this general permit, a copy of the SPCP Review Certification made in accordance with Section 2.2.15 or 2.2.16 of this general permit, as applicable, shall be maintained with the SPCP. (Note: Construction activities reviewed and certified pursuant to those Sections are still subject to the local erosion and sediment control and stormwater management regulations of the municipality in which the activity is conducted.)

5.3 Reporting and Record Keeping Requirements

5.3.1 Record Keeping

5.3.1.1 For a period of at least five (5) years from the date the Notice of Termination is accepted by the Commissioner, the Permittee shall retain copies of the SPCP and all reports required by this general permit, and records of all data used to complete the application for this general permit, unless the Commissioner specifies another time period in writing.

5.3.1.2 The Permittee shall retain an updated copy of the SPCP required by this general permit at the construction site from the date construction is initiated at the site until the date construction at the site is completed and the site is fully stabilized.

5.3.1.3 Inspection records must be retained as part of the SPCP for a period of five (5) years after the date of inspection. In addition, the following inspection reports shall be kept on-site with the SPCP and shall be submitted to the Commissioner upon request:

a. Plan Implementation Inspections conducted in accordance with Section 5.1.6.3 and recorded on checklist forms prepared pursuant to Section 5.2.1.2.h.i.

b. Routine Inspections conducted in accordance with Section 5.2.4.2 and recorded on checklist forms prepared pursuant to Section 5.2.1.2.h.ii.

5.3.1.4 Plan Modification

SPCP modifications made pursuant to Section 5.2.5.4 of this general permit and any documentation associated with such modification shall be kept on-site with the SPCP.

5.3.2 Reporting

5.3.2.1 All reports requested by the Commissioner, except turbidity monitoring reports pursuant to Section 5.2.2.8.b, shall be provided to the Commissioner within the timeframe specified in any request by the Commissioner, and if no timeframe is specified, no later than thirty (30) days after the date of any such request. If requested by the Commissioner, the reports shall be submitted to the Commissioner by email to DEEP.StormwaterConstruction@ct.gov. Solar Array Projects subject to Appendix I shall also submit the reports prescribed in that Section of the permit by email.

5.3.2.2 Turbidity Monitoring Reports

Records of turbidity monitoring conducted pursuant to Sections 5.2.2.8.b. shall be submitted to the Commissioner on the first day of each month following the initiation of the dewatering discharge for as long as the discharge exists. Turbidity Monitoring Reports shall be submitted by email to DEEP.StormwaterConstruction@ct.gov with the subject line “Construction turbidity monitoring” on forms prescribed by the Commissioner.

Section 6 Duty to Correct, Record, and Report Violations

6.1 Corrective Actions

Immediately upon learning of a violation of a condition of this general permit, the permittee shall immediately take all reasonable actions to determine the cause of the violation, correct the violation, mitigate the impact of the violation, and prevent its recurrence.

6.2 Reporting Violations

6.2.1 Noncompliance with Permit Terms or Conditions

In accordance with Section 22a-430-3(j)(8), 22a-430-3(j)(11)(D), 22a-430-3(k)(4), and 22a-430-3(i)(3) of the RSCA, the Permittee shall notify the Commissioner of the following actual or anticipated noncompliance with the terms or conditions of this permit within two hours of becoming aware of the circumstances. All other actual or anticipated violations of the permit shall be reported to the Commissioner within 24 hours of becoming aware of the circumstances:

- a noncompliance that is greater than two times an effluent limitation.
- a noncompliance of any minimum or maximum daily limitation or excursion beyond a minimum or maximum daily range.
- any condition that may endanger human health or the environment.
- a failure or malfunction of monitoring equipment used to comply with the monitoring requirements of this permit.
- any actual or potential bypass of the Permittee's collection system or treatment facilities.
- expansions or significant alterations of any wastewater collection, treatment components, or its method of operation for the purpose of correcting or avoiding a permit violation.

Notifications shall be submitted via the Commissioner's online Noncompliance Notification Form:

https://portal.ct.gov/deep/water-regulating-and-discharges/stormwater/stormwater-management

6.2.2 Five-Day Follow Up Report

Within five (5) days of any notification of noncompliance in accordance with this permit, the Permittee shall submit a follow-up report within five days of the noncompliance using the Commissioner's online Noncompliance Follow-up Report Form:

https://portal.ct.gov/deep/water-regulating-and-discharges/stormwater/stormwater-management

The follow-up report shall contain, at a minimum, the following information:

- a description of the noncompliance and its cause.
- the period of noncompliance, including exact dates and times.
- if the noncompliance has not been corrected, the anticipated time it is expected to continue.
- steps taken or planned to correct the noncompliance and reduce, eliminate and prevent recurrence of the noncompliance.

Notification of an actual or anticipated noncompliance or site modification does not stay any term or condition of this permit.

6.2.3 Additional Notification Requirements

In accordance with Section 22a-430-3(j)(11)(ED) of the RSCA, the Permittee shall notify the Commissioner within seventy-two (72) hours and in writing within 30 days when he or she knows or has reason to believe that the concentration in the discharge of any substance listed in the application, or any toxic substance as listed in Appendix B or D of RSCA Section 22a-430-4, has exceeded or will exceed the highest of the following levels:

- one hundred micrograms per liter.
- two hundred micrograms per liter for acrolein and acrylonitrile, five hundred micrograms per liter for 2,4-dinitrophenol and for 2-methyl-4, 6-dinitrophenol; and one milligram per liter for antimony.
- an alternative level specified by the Commissioner, provided such level shall not exceed the level which can be achieved by the permittee's treatment system.

The 72-hour initial notifications and thirty (30) day follow-up reports shall be submitted via the Commissioner's online Noncompliance Follow-up Report Form. The Forms are available on the DEEP website here:

https://portal.ct.gov/deep/water-regulating-and-discharges/stormwater/stormwater-management

Section 7 Regs. Conn. State Agencies Incorporated into this General Permit

The Permittee shall comply with all laws applicable to the subject discharges, including but not limited to, the following Regs. Conn. State Agencies which are hereby incorporated into this general permit, as if fully set forth herein:

7.1 Section 22a-430-3

Subsection (b) General
Subsection (c) Inspection and Entry
Subsection (d) Effect of a Permit
Subsection (e) Duty to Comply
Subsection (f) Proper Operation and Maintenance
Subsection (g) Sludge Disposal
Subsection (h) Duty to Mitigate
Subsection (i) Facility Modifications, Notification
Subsection (j) Monitoring, Records and Report Requirements
Subsection (k) Bypass
Subsection (m) Effluent Limitation Violations
Subsection (n) Enforcement
Subsection (p) Spill Prevention and Control
Subsection (q) Instrumentation, Alarms, Flow Recorders
Subsection (r) Equalization

7.2 Section 221-430-4

Subsection (a) Duty to Apply
Subsection (b) Duty to Reapply
Subsection (c) Application Requirements
Subsection (0) Permit or Application Transfer
Subsection (p) Revocation, Denial, Modification
Subsection (q) Variances
Subsection (t) Prohibitions

Section 8 Standard Conditions

The following standard conditions have been included in this general permit for the convenience of the permittee and are generally duplicative of the incorporated regulations in Section 6 of this general permit. If there are conflicting requirements, the regulations in Section 22a-430 take precedence.

8.1 Inspection and Entry

The Commissioner or his or her authorized representative may take any actions authorized by Sections 22a-6 (5), 22a-425 or 22a-336 of the Conn. Gen. Stat. as amended.

8.2 Reliance on Application

When evaluating an application, the Commissioner relies on information provided by the applicant. If such information proves to be false or incomplete, the authorization issued under this general permit may be suspended or revoked in accordance with law, and the Commissioner may take any other legal action provided by law.

8.3 Submission of Documents

Any document, other than a DMR, required to be submitted to the Commissioner under this Section of the permit will, unless otherwise specified in writing by the Commissioner or through this general permit, be directed to DEEP.StormwaterConstruction@ct.gov with the subject line: "ATTN: Construction Stormwater GP".

8.4 Violations

Violations of any of the terms, conditions, or limitations contained in this permit may subject the permittee to enforcement action including, but not limited to, seeking penalties, injunctions and/or forfeitures pursuant to applicable Sections of the Conn. Gen. Stat. and Regs. Conn. State Agencies.

8.5 Enforcement

The Commissioner may take any enforcement action provided by law, including but not limited to seeking injunctions, penalties and forfeitures as provided in Sections 22a-6, 22a-7, 22a-430, 22a-432, 22a-435, 22a-438 and 22a-471 of the Conn. Gen. Stat. as amended, for any violations or acts of noncompliance with chapter 446k of the Conn. Gen. Stat. or any regulation, order, permit or approval issued there under.

8.6 Need to Halt or Reduce Activity Not a Defense

It shall not be a defense for a permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of the permit.

8.7 No Assurance

No provision of this permit and no action or inaction by the Commissioner shall be construed to constitute an assurance by the Commissioner that the actions taken by the permittee pursuant to this permit will result in compliance or prevent or abate pollution.

8.8 Relief

Nothing in this permit shall relieve the permittee of other obligations under applicable federal, state, and local law.

8.9 Duty to Provide Information

The Commissioner may require any permittee to provide within a reasonable time (30 days) any information which the Commissioner may request to determine whether cause exists for modifying or revoking the permit or to determine compliance with the permit, including but not limited to copies of records required to be kept by the permittee.

8.10 Duty to Comply

The permittee shall comply with all terms and conditions of the permit. Any permit noncompliance constitutes a violation of Chapter 446k of the Conn. Gen. Stat. Permit noncompliance is grounds for enforcement action, permit revocation or modification, or denial of a permit renewal application.

The permittee shall comply with effluent limitations, standards or prohibitions established under Section 307 (a) CWA which are adopted in Subsection (l) of section 22a- 430-4 of the Regs. Conn. State Agencies for toxic substances upon adoption, even if the permit has not yet been modified to incorporate the requirement.

Except for any toxic effluent standards and prohibitions imposed under Section 307 CWA, compliance with a permit during its term shall constitute compliance, for purposes of enforcement, with Sections 301, 302, 306, 307, 318, 403 and 405 of the Clean Water Act.

The Commissioner may modify or revoke a permit during its term for cause as provided in Section 22a-430-4 of the Regs. Conn. State Agencies.

It shall not be a defense for a permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of the permit.

8.11 Duty to Mitigate

The permittee shall take all reasonable steps to minimize or prevent any discharge in violation of the permit or any discharge which has a reasonable likelihood of adversely affecting human health or the environment.

8.12 Sludge Disposal

The permittee shall dispose of screenings, sludges, chemicals, and oils and any solid or liquid wastes resulting from the wastewater treatment processes at locations approved by the Commissioner for disposal of such materials, or by means of a waste hauler licensed under the provisions of the Conn. Gen. Stat.

8.13 Resource Conservation

All permittees shall implement and maintain practices and/or facilities which, to the maximum extent practicable, result in the minimum amount of wastewater discharged. Such results may be achieved by methods including but not limited to water conservation, resource recovery, waste recycling, wastewater reuse, and material or product substitution. Excessive use of water or the addition of water to dilute an effluent in order to meet any permit limitations or conditions is prohibited.

8.14 Spill Prevention and Control

The permittee shall maintain practices, procedures and facilities designed to prevent, minimize and control spills, leaks, or such other unplanned releases of all toxic or hazardous substances and any other substances as the Commissioner deems necessary to prevent pollution of the waters of the State. Such requirements shall, unless otherwise allowed by the Commissioner, apply to all facilities used for storing, handling transferring, loading, or unloading such substances, including manufacturing areas.

The requirements of this Section do not apply to site components or systems already covered by plans prepared or approved under the Resource Conservation and Recovery Act and the Spill Prevention, Control and Countermeasure program.

8.15 Duty to Reapply

The permit shall be effective for a fixed term not to exceed five (5) years unless administratively extended. The Department will provide permit renewal directions.

8.16 Equalization

All treatment facilities shall be designed to prevent upsets, malfunctions or instances of noncompliance resulting from variations in wastewater strength or flow rate, and shall include, as the Commissioner deems necessary, equalization facilities separate from the treatment facilities.

8.17 Effect of an Upset

An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventive maintenance, or careless or improper operation. In any enforcement proceeding the permittee seeking to establish the occurrence of an upset has the burden of proof.

A permittee who wishes to establish the affirmative defense of upset shall demonstrate, through properly signed, contemporaneous operating logs, or other relevant evidence that:

- an upset occurred and that the permittee can identify the cause(s) of the upset.
- the permitted site was at the time being properly operated.
- the permittee submitted notice of the upset timely as required in Section 6.2 of this general permit.
- the permittee complied with all remedial measures.

8.18 Bypass

The permittee shall not at any time bypass the collection system or treatment facilities or any part thereof unless such bypass is unanticipated, unavoidable, and necessary to prevent loss of life, personal injury or severe property damage, and there were no feasible alternatives to the bypass, including but not limited to the use of auxiliary or back- up treatment facilities, retention of untreated wastes, stopping the discharges, or maintenance during normal periods of equipment downtime; or the permittee receives prior written approval of the bypass from the Commissioner in order to perform essential maintenance, and the bypass does not cause effluent limitations to be exceeded.

8.18.1 Necessary Bypass

In the event such a bypass is necessary, the permittee shall to the extent possible minimize or halt production and/or all discharges until the site is restored or an alternative method of treatment is provided.

8.18.2 Bypass Prevention

In order to prevent a bypass, the permittee may schedule maintenance during periods when no discharge is occurring or employ any necessary means, including but not limited to duplicate units and systems or alternative collection and treatment or pretreatment schemes. Any such means shall insure that the effluent limitations specified in the permit are achieved; be approved by DEEP in writing prior to its use, which approval shall include an alternative schedule for monitoring if appropriate; and be discontinued upon completion of the performance of the essential maintenance.

8.18.3 Notification to DEEP

8.18.3.1 The permittee shall provide notice to DEEP not less than twenty-four (24) hours prior to the use of any alternative scheme and monitor and record the quality and quantity of the discharge in accordance with permit terms and conditions or an approved alternative schedule. Such monitoring shall be submitted with the next monitoring report required by the permit and shall not be used to meet routine scheduled monitoring report requirements of the permit.

8.18.3.2 If any bypass occurs or may occur, the permittee shall, within two hours of becoming aware of such condition or need, notify DEEP's 24-hour Emergency Response Unit at 860-424-3338 or 866-337-7745 and submit within five days a written report including the cause of the problem, duration

including dates and times and corrective action taken or planned to prevent other such occurrences. Information about incident reporting can be found on DEEP's Emergency Response and Spill Prevention website https://portal.ct.gov/deep/emergency-response-and-spill-prevention/emergency-response-and-spill-prevention.

8.18.3.3 If the permittee has reason to believe that any effluent limitation specified in the permit may be violated, the permittee shall immediately take steps to prevent or correct such violation, including but not limited to employing an alternative scheme of collection or treatment, and/or control the production of the wastewater and shall monitor and record the quality and quantity of the discharge in accordance with the permit terms and conditions or an approved alternative schedule. Such monitoring shall be submitted with the next monitoring report required by the permit and shall not be used to meet the routine monitoring requirements of the permit.

8.19 Proper Operation and Maintenance

The permittee shall at all times properly operate and maintain all facilities and systems and parts thereof for wastewater collection, storage, treatment, and control which are installed or used by the permittee to achieve compliance with the terms and conditions of the permit. Proper operation and maintenance includes, but is not limited to, effective performance, adequate funding, and adequate operator staffing and training, including the employment of certified operators as may be required by the Commissioner pursuant to Sections 22a-416-1 through 22a-416-10 of the Regs. Conn. State Agencies, as amended, and adequate laboratory and process controls, including appropriate quality assurance procedures.

In accordance with Sections 22a-416 through 22a-471 of the Conn. Gen. Stat. as amended, the permittee is required to install and operate a back-up or auxiliary facilities or similar systems or the inventory of spare parts and appurtenances.

8.20 Instrumentation, Alarms, and Flow Records

Except for batch treatment systems unless required by the Commissioner, process wastewater treatment systems shall include instrumentation to automatically and continuously indicate, record and/or control those functions of the system and characteristics of the discharge which the Commissioner deems necessary to assure protection of the waters of the State.

8.21 Signatory Requirements

8.21.1 Signatory

All permit applications and permit modification requests submitted to the Commissioner shall be signed as follows:

8.21.1.1 For a corporation, the signatory shall be a responsible corporate officer.

For the purposes of this Section, a responsible corporate officer means a president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function; any other person who performs similar policy or decision-making functions for the corporation; or the manager of one or more manufacturing, production, or operating facilities employing more than 250 persons or having gross annual sales or expenditures exceeding twenty-five million dollars (in second quarter 1980 dollars), if authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures.

8.21.1.2 For a partnership or sole proprietorship, the signatory shall be a general partner or the proprietor, respectively.

8.21.1.3 For a municipality, State, Federal, or other public agency, the signatory shall be either a principal executive officer or a ranking elected official.

For purposes of this Section, a principal executive officer of a federal agency includes the chief executive officer of the agency, or a senior executive officer having responsibility for the overall operations of a principal geographic unit of the agency.

8.21.2 Duly Authorized Representative

All reports required by permits, and other information submitted to the Commissioner shall be signed by a person described in Section 8.21.1 of this general permit or by a duly authorized representative of that person. A person is a duly authorized representative only if:

8.21.2.1 The authorization is made in writing by a person described in Section 8.21.1 of this general permit,

8.21.2.2 The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated site or activity, such as the position of plant manager, operator of a well or well field, superintendent, position of equivalent responsibility, or an individual or position having overall responsibility for environmental matters for the company. A duly authorized representative may thus be either a named individual or any individual occupying a named position; and

8.21.2.3 The written authorization is submitted to the Commissioner.

8.21.3 Notification to DEEP

If an authorization under this subsection is no longer accurate because a different individual or position has assumed the applicable responsibility, a new authorization satisfying the requirements of this section must be submitted to the Commissioner prior to or together with any reports or other information to be signed by an authorized representative.

8.21.4 Certification

Any person signing a document under this section shall make the following certifications:

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

"I have personally examined and am familiar with the information submitted in this document and all attachments thereto, and I certify that, based on reasonable investigation, including my inquiry of those individuals responsible for obtaining the information, the submitted information is true, accurate and complete to the best of my knowledge and belief. I understand that a false statement made in the submitted information may be punishable as a criminal offense, in accordance with Section 22a- 6 of the Conn. Gen. Stat., pursuant to Section 53a-157b of the Conn. Gen. Stat., and in accordance with any other applicable statute."

8.22 Date of Filing

For purposes of this general permit, the date of filing with the Commissioner of any document is the date such document is received by the Commissioner.

8.23 False Statements

Any false statement in any information submitted pursuant to this general permit may be punishable as a criminal offense, in accordance with Section 22a-6 of the Conn. Gen. Stat., pursuant to Section 53a-157b of the Conn. Gen. Stat., and in accordance with any other applicable statute.

8.24 Correction of Inaccuracies

Within fifteen (15) days after the date a permittee becomes aware of a change in any of the information submitted pursuant to this general permit, becomes aware that any such information is inaccurate or misleading, or that any relevant information has been omitted, such permittee shall correct the inaccurate or misleading information or supply the omitted information in writing to the Commissioner. Such information shall be certified in accordance with Section 8.21.4 of this general permit. A Notice of Change shall be submitted for any changes made pursuant to Section 3.5 of this general permit.

8.25 Transfer of Authorization

Any authorization under this general permit shall not be transferable.

8.26 Other Applicable Law

Nothing in this general permit shall relieve the permittee of the obligation to comply with any other applicable federal, state, and local law, including but not limited to the obligation to obtain any other authorizations required by such law.

8.27 Duty to Reapply

The permit will be effective for a fixed term not to exceed five (5) years unless administratively extended. The general permit will provide instructions on how and when to reapply.

8.28 Other Rights

This general permit is subject to and does not derogate any present or future rights or powers of the State of Connecticut and conveys no rights in real or personal property nor any exclusive privileges and is subject to all public and private rights and to any federal, state, and local laws pertinent to the property or activity affected by such general permit. In conducting any activity authorized hereunder, the permittee may not cause pollution, impairment, or destruction of the air, water, or other natural resources of this state. The issuance of this general permit shall not create any presumption that this general permit should or will be renewed.

8.29 Effect of a Permit

The issuance of a permit does not convey any property rights of any sort, or any exclusive privilege, authorize any injury to persons or property or invasion of other private rights, authorize any infringement of the Conn. Gen. Stat., Regs. Conn. State Agencies or municipal ordinances, or affect the responsibility of the permittee to obtain all applicable federal, State and municipal authorizations or permits for the discharge and activities which generate the discharge.

Section 9 Commissioner's Powers

9.1 Abatement of Violations

The Commissioner may take any action provided by law to abate a violation of this general permit, including but not limited to penalties of up to $25,000 per violation per day under Chapter 446k of the Conn. Gen. Stat., for such violation. The Commissioner may, by summary proceedings or otherwise and for any reason provided by law, including violation of this general permit, revoke a Permittee's authorization hereunder in accordance with Sections 22a-3a-2 through 22a-3a-6, inclusive, of the Regs. Conn. State Agencies. Nothing herein shall be construed to affect any remedy available to the Commissioner by law.

9.2 General Permit Revocation, Suspension, or Modification

The Commissioner may, for any reason provided by law, by summary proceedings or otherwise, revoke or suspend this general permit or modify to establish any appropriate conditions, schedules of compliance, or other provisions which may be necessary to protect human health or the environment.

9.3 Filing of an Individual Permit Application

If the Commissioner notifies a Permittee in writing that such Permittee must obtain an individual permit, the Permittee shall file an application for an individual permit within thirty (30) days of receiving the Commissioner's notice or such other time that the Commissioner specified in the notice to the Permittee. While such application is pending before the Commissioner, the Permittee shall continue to comply with the terms and conditions of this general permit. Nothing herein shall affect the Commissioner's power to revoke a Permittee's authorization under this general permit at any time.

Section 10 Definitions

The definitions of terms used in this general permit shall be the same as the definitions contained in Section 22a-423 of the Conn. Gen. Stat. and Section 22a-430-3(a) of the Regs. Conn. State Agencies. All references to an Appendix in this general permit means the applicable Appendix of this general permit. As used in this general permit, the following definitions shall apply:

"*x-year, 24-hour rainfall event"* means the maximum 24-hour precipitation event with a probable recurrence interval of once in the given number of years (i.e. x=2, 25 or 100), as defined by the National Oceanic and Atmospheric Administration (NOAA) Atlas 14, Volume 10, Version 2, Point Precipitation Frequency Estimates (as amended), or equivalent regional or state rainfall probability information developed therefrom.

"*Annual sediment load"* means the total amount of sediment carried by stormwater runoff on an annualized basis.

"*Applicant"* means a person or municipality which files a complete application.

"*Application"* means an application filed with the Commissioner pursuant to this general permit.

"*Aquifer protection area"* means that term as defined in Section 22a-354 of the Conn. Gen. Stat.

"*Authorized Activity"* means any activity authorized by this general permit.

"*Best Management Practice"* or *"BMP"* means a schedule of activities, practice (and prohibitions of practices), structure, vegetation, maintenance procedure, and other management practices to prevent or reduce the discharge of pollutants to waters of the State consistent with state, federal or other equivalent and technically supported guidance. BMPs also include treatment requirements, operating procedures, and practices to control site runoff, spillage or leaks, sludge or waste disposal, or drainage from material storage.

"*CFR"* means the Code of Federal Regulations.

"*Clean Water"* means water which, in the judgment of the Commissioner, is of a quality substantially similar to that occurring naturally in the receiving stream under consideration. Clean water may include minor cooling waters, residential swimming pool water, and stormwater.

"*Coastal area"* means coastal area as defined in Section 22a-93(3) of the Conn. Gen. Stat.

"*Coastal waters"* means those waters of Long Island Sound and its harbors, embayments, tidal rivers, streams and creeks which contain a salinity concentration of at least five hundred parts per million under low flow conditions.

"*Commissioner"* means Commissioner as defined by Section 22a-2(a) of the Conn. Gen. Stat.

"*Control Measures"* means any BMPs, or other methods used to prevent or reduce the discharge of pollutants to waters of the State.

"*Construction Activity"* means any activity and discharges associated with construction at a site or the site's preparation for construction, including, but not limited to, clearing, grubbing, pile driving, soil disturbance, soil compaction by construction equipment, staging and stockpiling, storage, cleaning and washout, grading, excavation, and dewatering.

"*Construction and Development Effluent Limitations and New Source Performance Standards"* (C&D Rule), as published in 40 CFR§450, means the regulation requiring effluent limitations guidelines (ELGs) and new source performance standards (NSPS) for controlling the discharge of pollutants from construction sites.

"*Day*" means the calendar day; if any date specified in the general permit falls on a Saturday, Sunday, or legal holiday, such deadline shall be the next business day thereafter.

"*DOT*" means the State of Connecticut Department of Transportation.

"*DOT MS4*" means conveyances for stormwater including, but not limited to, roads with drainage systems, streets, catch basins, curbs, gutters, ditches, man-made channels, or storm drains owned or operated by the Connecticut Department of Transportation and discharging directly to surface waters of the State.

"*Department*" or "*DEEP*" means the Department of Energy and Environmental Protection.

"*Design-Build Project*" is an alternative project delivery method in which a developer selects a design and build team to complete the design and construction of a project rather than separate contracts with the designer and contractor. With such a project, the design and construction phases can be overlapped, so that site preparation and investigation can proceed before a final design is developed.

"*Designing Qualified Professional*" means the Qualified Professional engineer or qualified soil erosion and sediment control professional, as defined below, who developed the original Stormwater Pollution Control Plan for which authorization was granted under this general permit.

"*Developer*" means a person, municipality, or state or federal agency that is responsible, either solely or partially through contract, for the design and construction of a project site.

"*Dewatering water*" means water associated with the construction activity generated from the lowering of the groundwater table, the pumping of accumulated uncontaminated stormwater or uncontaminated groundwater from an excavation, the pumping of surface water from a cofferdam, or pumping of other surface water that has been diverted into a construction site.

"*Discharge*" means the emission of any water, substance, or material into the waters of the State, whether or not such substance causes pollution as defined in Section 22a-423 of the Conn. Gen. Stat.

"*District*" means a Soil and Water Conservation District established pursuant to Section 22a-315 of the Conn. Gen. Stat. Appendices E and F list the Districts, their geographic delineations, and contact information.

"*Disturbance*" means the area on a site where soil will be exposed or susceptible to erosion during any construction activity.

"*Drought-Stricken Area*", for the purposes of this permit, means an area in which the National Oceanic and Atmospheric Administration's U.S. Seasonal Drought Outlook indicates for the period during which the construction will occur that any of the following conditions are likely: (1) "Drought to persist or intensify", (2) "Drought ongoing, some improvement", (3) "Drought likely to improve, impacts ease", or (4) "Drought development likely". See http://www.cpc.ncep.noaa.gov/products/expert_assessment/sdo_summary.php.

"*Early Release Construction*" or "*ERC*" means the preliminary construction activity for a design-build project conducted in order to investigate site conditions and obtain the information necessary to develop the final design for the project.

"*Effective Impervious Cover*" is the area of impervious cover that is hydraulically connected to a water or wetland by means of continuous paved surfaces, gutters, swales, ditches, drain pipes, or other conventional conveyance and detention structures that do not reduce runoff volume.

"*Engineered stormwater management system*" means any control measure and related appurtenances which requires engineering analysis and/or design by a professional engineer.

"*Erosion"* means the detachment and movement of soil or rock fragments by water, wind, ice and gravity.

"*Final Design Phase"* means the final design phase of a design-build project. This phase of the design-build project follows the Site Preparation Phase.

"*Final stabilization"* means that no disturbed areas remain exposed and there are no signs of erosion or sedimentation on site; the vegetation must be at least 6 inches tall with a minimum of one hundred (100) plants per square foot across all seeded areas, or a permanent non-vegetative ground cover has been fully established over the entire site.

"*Fresh-tidal wetland"* means a tidal wetland located outside of coastal waters.

"*General Permit"* or *"this permit"* means the *General Permit for the Discharge of Stormwater from Construction Activities* issued by the Commissioner.

"*Groundwater"* means those waters of the State that naturally exist or flow below the surface of the ground.

"*Guidelines"* means the Connecticut Guidelines for Soil Erosion and Sediment Control, as amended, established pursuant to Section 22a-328 of the Conn. Gen. Stat.

"*High Quality Waters"* means those waters defined as high quality waters in Regs. Conn. State Agencies Section 22a-426-1, as may be amended.

"*Impaired water(s)"* for the purposes of this permit, means any waterbody that does not meet applicable water quality standards, including but not limited to waters listed in categories 5 or 4b on the Connecticut Integrated Report of waters listed pursuant to Clean Water Act Section 303(d) and 305(b). Impaired Waters are also known as *"Water Quality Limited Waters."*

"*Impervious Cover"* means hard surfaces which prevent or impede the infiltration of water. Such surfaces include, but are not limited to, roof areas, compacted gravel, paved walkways, paved parking areas, paved driveways, and other paved surfaces.

"*In Responsible charge"* means professional experience for which the Commissioner determines that a professional's primary duties consistently involve a high level of responsibility and decision making in the planning and designing of engineered stormwater management systems or in the planning and designing of soil erosion and sediment controls for residential and commercial construction projects. The Commissioner shall consider the following in determining whether a professional's experience qualifies as responsible charge experience:

(i) The level of independent decision-making exercised.

(ii) The number of individuals and the disciplines of the other professionals that the professional supervised or coordinated.

(iii) The extent to which a professional's responsibilities consistently involved the review of work performed by other professionals involved the planning and designing of engineered stormwater management systems or the planning and designing of soil erosion and sediment controls for residential and commercial construction projects.

(iv) The extent to which a professional's responsibilities consistently involved the planning and designing of engineered stormwater management systems or the planning and designing of soil erosion and sediment controls for residential and commercial construction projects and whether such responsibilities were an integral and substantial component of the professional's position.

(v) The nature of a professional's employer's primary business interests and the relation of those interests to planning and designing of engineered stormwater management systems or to planning and designing of soil erosion and sediment controls for residential and commercial construction projects.

(vi) The extent to which a professional has engaged in the evaluation and selection of scientific or technical methodologies for planning and designing of engineered stormwater management systems or for planning and designing of soil erosion and sediment controls for residential and commercial construction projects.

(vii) The extent to which a professional drew technical conclusions, made recommendations, and issued opinions based on the results of planning and designing of engineered stormwater management systems or of planning and designing of soil erosion and sediment controls for residential and commercial construction projects.

(viii) Any other factor that the Commissioner deems relevant.

"*Individual permit*" means a permit issued to a named person under Section 22a-430 of the Conn. Gen. Stat.

"*Infeasible*" means not technologically possible, or not economically practicable and achievable in light of best industry practices.

"*Inland wetland*" means wetlands as defined in Section 22a-38 of the Conn. Gen. Stat.

"*Landscape Architect*" means a person with a currently effective license issued in accordance with chapter 396 of the Conn. Gen. Stat.

"*Linear Project*" includes the construction of roads, railways, bridges, bikeways, conduits, substructures, pipelines, sewer lines, towers, poles, cables, wires, connectors, switching, regulating and transforming equipment and associated ancillary facilities in a long, narrow area.

"*Locally Approvable Project*" or "*Locally Approvable*" means a construction activity that is not carried out by or on behalf of a municipal, state or federal entity and is required to obtain municipal approval for the project.

"*Locally Exempt Project*" or "*Locally Exempt*" means a construction activity which is either; (i) carried out by or on behalf of a municipal, state, or federal entity; or (ii) is not subject to local (municipal) approval.

"*Low Impact Development*" or "*LID*" means a site design and stormwater management strategy that maintains, mimics or replicates pre-development hydrology through the use of numerous site design principles and small-scale structural stormwater practices distributed throughout a site to manage runoff volume and water quality at the source.

"*Minimize*" means to reduce and/or eliminate to the extent achievable using stormwater controls that are technologically available and economically practicable and achievable in light of best industry practices.

"*Municipal separate storm sewer system*" or "*MS4*" means conveyances for stormwater (including roads with drainage systems, streets, catch basins, curbs, gutters, ditches, man-made channels or storm drains) owned or operated by any municipality, DOT, or by any other state or federal institution.

"*Municipality*" means any metropolitan district, town, consolidated town and city, consolidated town and borough, city, borough, village, fire and sewer district, sewer district and each municipal organization having authority to levy and collect taxes or make charges for its authorized function as defined by Section 22a-423 of the Conn. Gen. Stat.

"*New discharger*" means any building, structure, facility, or installation:

(a) From which there is or may be a "discharge of pollutants."

(b) That did not commence the "discharge of pollutants" at a particular "site" prior to August 13, 1979.

(c) Which is not a "new source."

(d) Which has never received a finally effective NPDES permit for discharges at that "site."

"*New or Increased Discharge"* means new discharge or activity as defined in Section 22a-426-8(b)(3) and increased discharge or activity as defined in Section 22a-426-8(b)(2), as referenced to the Regs. Conn. State Agencies.

"*New source"* means any building, structure, facility, or installation from which there is or may be a "discharge of pollutants," the construction of which commenced after February 1, 2010.

"*Normal Working Hours"* are considered to be, at a minimum, Monday through Friday, between the hours of 8:00 am and 6:00 pm, unless additional working hours are specified by the Permittee.

"*Notice of Termination"* (NOT) means the form (electronic or paper) required for terminating coverage under the Construction General Permit.

"*NPDES Permit"* means a permit authorizing a discharge to the surface waters of the State either directly, or indirectly by means other than through a POTW or the ground waters, which is issued by the Commissioner pursuant to Section 22a-430 of the Conn. Gen. Stat.

"*Permittee"* means any person who or municipality which initiates, creates or maintains a discharge in accordance with this general permit.

"*Person"* means person as defined in Section 22a-2(b) of the Conn. Gen. Stat.

"*Phase"* means a portion of a project possessing a distinct and complete set of activities that have a specific functional goal wherein the work to be completed in the phase is not dependent upon the execution of work in a later phase in order to make it functional.

"*Point Source"* means any discernible, confined and discrete stormwater conveyance (including but not limited to, any pipe, ditch, channel, tunnel, conduit, discrete fissure, container, rolling stock, concentrated animal feeding operation, landfill leachate collection system, vessel or other floating craft) from which pollutants are or may be discharged. Point source does not include agricultural stormwater discharges and return flows from irrigated agriculture.

"*Professional Engineer"* or *"P.E."* means a person with a currently effective license issued in accordance with chapter 391 of the Conn. Gen. Stat.

"*Qualified Inspector"* means an individual possessing either (1) a professional license or certification issued by EPA (https://www.epa.gov/npdes/construction-general-permit-inspector-training) or a professional organization recognized or approved by the Commissioner related to civil engineering, landscape architecture, soil science, and two years of demonstrable and focused experience in erosion and sediment control plan review, installation, inspection and/or report writing for residential and commercial construction projects in accordance with the Guidelines; or (2) certification by the CTDOT.

"*Qualified Professional engineer"* means a professional engineer who has, for a minimum of eight years, engaged in the planning and designing of engineered stormwater management systems for residential and commercial construction projects in accordance with the Guidelines and the Stormwater Quality Manual including, but not limited to, a minimum of four years in responsible charge of the planning and designing of engineered stormwater management systems for such projects. Such Qualified Professional engineer shall remain in good standing with the Connecticut Department of Consumer Protection and the Commissioner.

"*Qualified soil erosion and sediment control professional"* means a landscape architect or a professional engineer who: (1) has for a minimum of eight years engaged in the planning and designing of soil erosion and sediment controls for residential and commercial construction projects in accordance with the Guidelines including, but not limited to, a minimum of four years in responsible charge of the planning and designing of soil erosion and sediment controls for such projects; or (2) is currently certified as a professional in erosion and sediment control as designated by EnviroCert International, Incorporated (or other certifying organization acceptable to the Commissioner) and has, for a minimum of six years, engaged in the planning and designing of soil erosion and sediment controls for residential and commercial construction projects in accordance with the Guidelines including, but not limited to, a minimum of four years in responsible charge in the planning and designing of soil erosion and sediment controls for such projects. Such qualified soil erosion and sediment control professional shall remain in good standing with the Connecticut Department of Consumer Protection and the Commissioner.

"*Regs. Conn. State Agencies"* means the Regulations of Connecticut State Agencies.

"*Regulated Municipal Separate Storm Sewer System"* or *"Regulated MS4"* means any MS4 (as defined above) authorized by the most recently issued General Permit for the Discharge of Stormwater from Small Municipal Separate Storm Sewer Systems, as well as the separate storm sewer system of the CTDOT and the City of Stamford.

"*Retain"* means to hold runoff on-site to promote vegetative uptake and groundwater recharge through the use of runoff reduction or LID practices or other measures. In addition, it means there shall be no subsequent point source release to surface waters from a storm event defined in this general permit or as approved by the Commissioner.

"*Runoff reduction practices"* means those post-construction stormwater management practices used to reduce post-development runoff volume delivered to the receiving water, as defined by retaining the volume of runoff from a storm up to the Water Quality Volume, as defined in the Stormwater Quality Manual, as amended. Runoff reduction is quantified as the total annual post-development runoff volume reduced through canopy interception, soil amendments, evaporation, rainfall harvesting, engineered infiltration, extended filtration or evapo-transpiration.

"*Sediment"* means solid material, either mineral or organic, that is in suspension, is transported, or has been moved from its site of origin by erosion.

"*Site"* means geographically contiguous land on which a construction activity takes place or on which a construction activity for which authorization is sought under this general permit is proposed to take place. Non-contiguous land or water owned by the same person shall be deemed the same site if such land is part of a linear project or is otherwise connected by a right-of-way, which such person controls.

"*Site Preparation Phase"* means the initial Early Release Construction activity of a design-build project. This phase of a design-build project is followed by the Final Design Phase.

"*Small Construction"* or *"Small Construction Activity"* defined at 40 CFR §122.26(b)(15) and incorporated here by reference, means a small construction activity, including clearing, grading, and excavating, resulting in a land disturbance equal to or greater than one (1) acre and less than five (5) acres of land or which will disturb less than one (1) acre of total land area but is part of a larger common plan of development or sale that will ultimately disturb equal to or greater than one (1) acre but less than five (5) acres. Small construction activity does not include routine maintenance that is performed to maintain the original line and grade, hydraulic capacity, or original purpose of the site.

"*Soil"* means any unconsolidated mineral and organic material of any origin.

"*Soil Scientist"* shall be as defined in Conn. Gen. Stat. § 22a-38.

"*Solar Array"* or *"Soil Array Project"* means an on-the-ground installation of arrays of photovoltaic cell panels, supporting structures and related equipment for the production of electricity.

"*Stabilize"* means the use of measures as outlined in the Connecticut Guidelines for Soil Erosion and Sediment Control, as amended, or as approved by the Commissioner, to prevent the visible movement of soil particles and development of rills. A site or area of a site is stabilized when there is no evidence of erosion or sedimentation and temporary or permanent vegetative and/or non-vegetative measures have been applied to all disturbed areas.

"*Standard of care",* as used in Section 2.2, means to endeavor to perform in a manner consistent with that degree of care and skill ordinarily exercised by members of the same profession currently practicing under similar circumstances.

"*Stormwater"* means waters consisting of rainfall runoff, including snow or ice melt during a rain event.

"*Stormwater Pollution Control Plan"* or *"SPCP",* means a site-specific, written document that, at a minimum: (1) identifies potential sources of stormwater pollution at the construction site; (2) describes stormwater controls to reduce or eliminate pollutants in stormwater discharges from the construction site; and (3) identifies procedures to be implemented to comply with the terms and conditions of this general permit.

"*Storm Sewer System"* means a conveyance or system of conveyances (including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, manmade channels, or storm drains) designed or used for collecting or conveying stormwater.

"*Stormwater Quality Manual"* means the Connecticut Stormwater Quality Manual published by the Connecticut Department of Energy & Environmental Protection, as amended, and maintained at http://www.ct.gov/deep/stormwaterqualitymanual.

"*Surface water"* means those waters of the State which are not ground water and the waters of Long Island Sound, its harbors, embankments, tidal wetlands, and creeks; rivers and streams, brooks, waterways, lakes, ponds, marshes, swamps, bogs, federal jurisdictional wetlands, and other natural or artificial, public or private, vernal or intermittent bodies of water. Surface water does not include ground water.

"*Structural measure"* means a measure constructed for the temporary storage and/or treatment of stormwater runoff.

"*Tidal wetland"* means a wetland as that term is defined in Section 22a-29(2) of the Conn. Gen. Stat.

"*Total disturbance"* means the total area of disturbance on a site during all phases of construction activity.

"*Total Maximum Daily Load"* or *"TMDL"* means a calculation of the maximum amount of a pollutant that a waterbody can receive and still meet water quality standards, and an allocation of that amount to the pollutant's sources. A TMDL includes wasteload allocations ("WLAs") for point source discharges, load allocations ("LAs") for nonpoint sources and/or natural background, and must include a margin of safety ("MOS") and account for seasonal variations.

"*Upland soils"* means soils which are not designated as poorly drained, very poorly drained, alluvial, or flood plain by the National Cooperative Soils Survey, as may be amended, of the Natural Resources Conservation Service of the United States Department of Agriculture and/or the inland wetlands agency of the municipality in which the project will take place.

"*Water company"* means water company as defined in Section 25-32a of the Conn. Gen. Stat.

"*Waters"* shall be as defined in § 22a-423, Conn. Gen. Stat., and for clarification shall include vernal pools and intermittent waters.

"*Water Quality Standards"* means those water quality standards or classifications contained in Sections 22a-426-1 through 22a-426-9, inclusive, of the Regs. Conn. State Agencies and the Classification Maps adopted pursuant to Section 22a-426 of the Conn. Gen. Stat., which together constitute the Connecticut Water Quality Standards, as may be amended.

"*Water Quality Volume"* or "*WQV"* means the volume of runoff generated on a site by the Water Quality Storm as defined in the Connecticut Stormwater Quality Manual, as amended.

"*Watercourse"* means a watercourse as that term is defined in Section 22a-38 of the Conn. Gen. Stat.

"*Wetland"* shall mean and include both *"wetland"* as defined in § 22a-29, Conn. Gen. Stat., and *"wetlands"* as defined in § 22a-38, Conn. Gen. Stat.

Section 11 Appendices

The following appendices are incorporated into this general permit.

11.1 Appendix A – Endangered and Threatened Species

11.2 Appendix B – RESERVED

11.3 Appendix C – Aquifer Protection Guidance Information

11.4 Appendix D – Coastal Management Act Determination Form

11.5 Appendix E & F – Memoranda of Agreement Between DEEP and Conservation Districts

11.6 Appendix G – Historic Preservation Review

11.7 Appendix H – Wild & Scenic Rivers Guidance

11.8 Appendix I – Stormwater Management at Solar Array Construction Projects

11.9 Appendix J – CT DEEP Financial Assurance Irrevocable Letter of Credit