Architecture
Engineering
Environmental
Land Surveying

BL Companies

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

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)

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

Contents

I. INTRODUCTION 1

II. METHODS 2

III. REGULATORY INFORMATION 3

State/Municipal Jurisdiction 3

Federal Jurisdiction 4

IV. FUNCTIONS AND VALUES 4

V. SITE INVESTIGATION 5

VI. RESOURCE DESCRIPTIONS 6

Wetland Complex A 6

West River: USFWS Classification E1UBL 6

State Regulated Tidal Wetland 7

Wetland 1: USFWS Classification E2EM5/SS1P 7

Wetland 2: USFWS Classification E2EM5/SS1P 8

Wetland 3: USFWS Classification PEM5E 10

Wetland 4: USFWS Classification E1UBL 10

Wetland Complex B 11

Pond 1: USFWS Classification PUBHx 11

Wetland Complex C 12

Cove River: USFWS Classification R5UBH 12

Stream 1: USFWS Classification R4SBCh 12

Wetland 5: USFWS Classification PSS1Eh 13

Wetland 6: USFWS Classification PFO1E 144

Wetland Complex D 14

Stream 3: USFWS Classification R4UBCh 14

Wetland 7: USFWS Classification PFO1E 15

Wetland 9: USFWS Classification PSS1E 16

Wetland Complex E 177

Stream 4 and 7: USFWS Classification R4UBC/R4SBC 17
Wetland 8: USFWS Classification PSS1E 17
Stream 5: USFWS Classification R4UBC 18
Connecticut Wetland 1 (CT1) 19
Stream 6: USFWS Classification R4UBC 19
Stream 8: USFWS Classification R4SBC 20
Stream 9: USFWS Classification R4SBC 20
VII. VERNAL POOL INVESTIGATION 20
VIII. SUMMARY 22
IX. PREPARERS 24
REFERENCES 26

Figures

Project Area Location Map 2

Appendices

A. Project Location Mapping
B. Resource Mapping
C. Inland Wetland Delineation Mapping
D. Delineated Coastal Resources Mapping
E. Photographs
F. Wetland Data Sheets
G. CT Wetland 2 Aerials
H. Topographic LiDAR Exhibit

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 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.

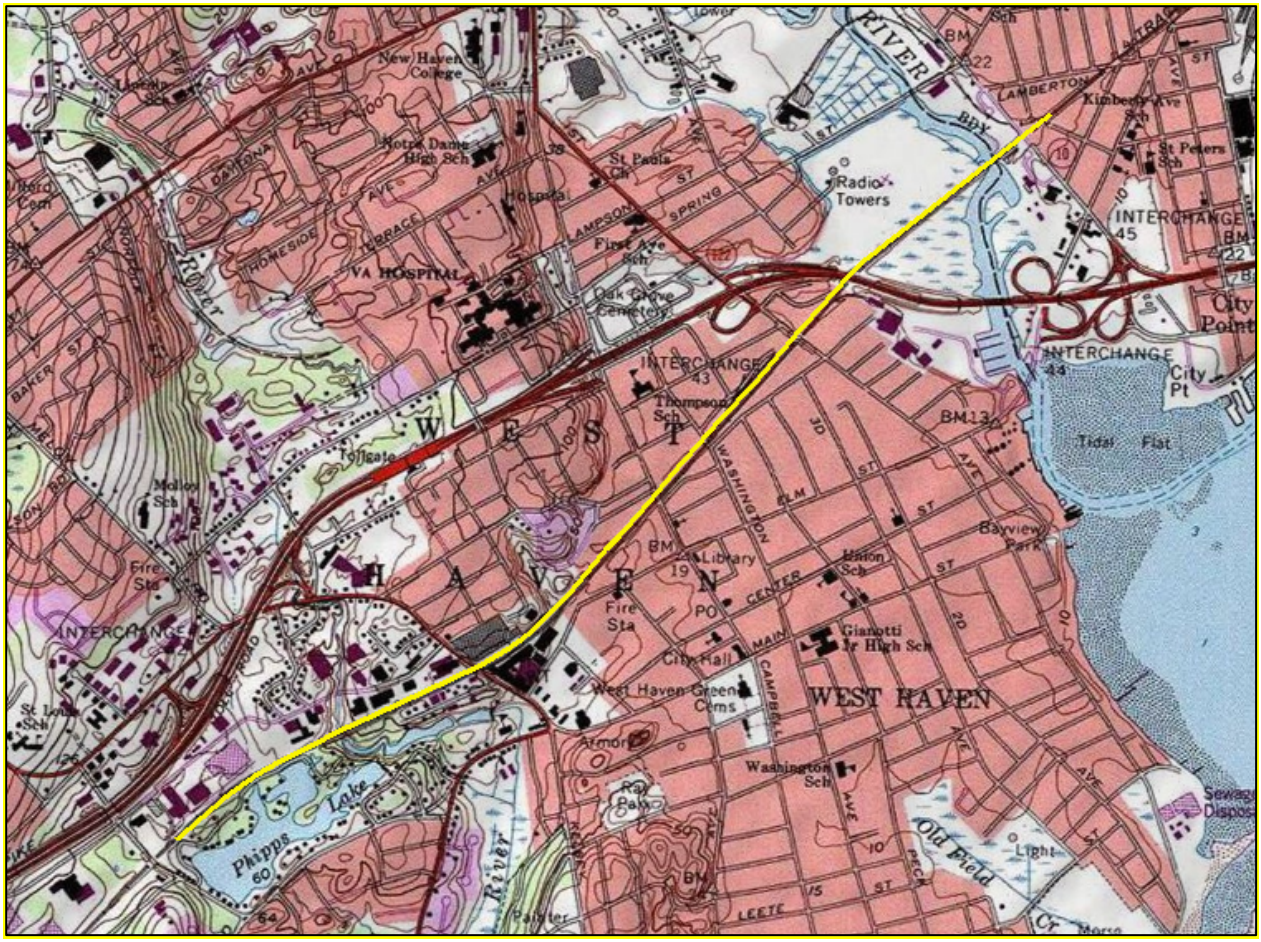


Figure 1 – Project Area Location Map New Haven and West Haven, CT

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 on August 2, 2021 with temperatures in the mid-60's ºF under sunny conditions. Specifically, the Wetland 2 area (see **Wetland 2** narrative below) was re-evaluated in order to delineate between inland and tidal wetlands within this feature.

Areas identified in 2018 and confirmed on April 5, 6, and 7, 2021 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 1, which is part of Complex A was extended in the vicinity of a proposed access road.

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 D**.

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 Cove River, Stream 1, Wetland 5, and Wetland 6.

Cove River: USFWS Classification R5UBH

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. 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 to the south of the ROW flanking either side of Cove River.

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

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 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 the 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 the Cove River, which 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 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 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 the 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 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 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 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 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 Connecticut Wetland 1.

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. Connecticut Wetland 1 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.

Connecticut Wetland 1

Connecticut Wetland 1 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, CT Wetland 1 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, BL conducted field reconnaissance and determined the features identified in 2018 were consistent with current conditions within the study area. One wetland (Wetland 1) was extended in the vicinity of a proposed access road near I-95; however, habitat conditions were consistent with the 2018 evaluation. 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)

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)

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. EBird.org. The Cornell Lab of Ornithology. *Species Maps*. https://ebird.org/map/redkno?neg=true&env.minX=&env.minY=&env.maxX=&env.maxY=&zh=false&gp=false&ev=Z&mr=1-12&bmo=1&emo=12&yr=all&byr=1900&eyr=2018

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

5. General Statutes of Connecticut. Revised January 1, 2017. Chapter 440 Title 22a Section 22a-28 through 22a-45d Wetland and Watercourses. https://www.cga.ct.gov/current/pub/chap_440.htm

6. Lichvar, R.W., D.L. Banks, W.N. Kirchner, and N.C. Melvin. 2018. The National Wetland Plant List: 2016 wetland ratings. Phytoneuron 2016-30: 1-17. Published 28 April 2016. ISSN 2153 733X

7. 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.

8. USACE. 1987. Corps of Engineers Wetlands Delineation Manual. Wetlands Research Program Technical Report Y-87-1. Vicksburg, Mississippi: U.S. Army Engineers Waterways Experiment Station Environmental Laboratory.

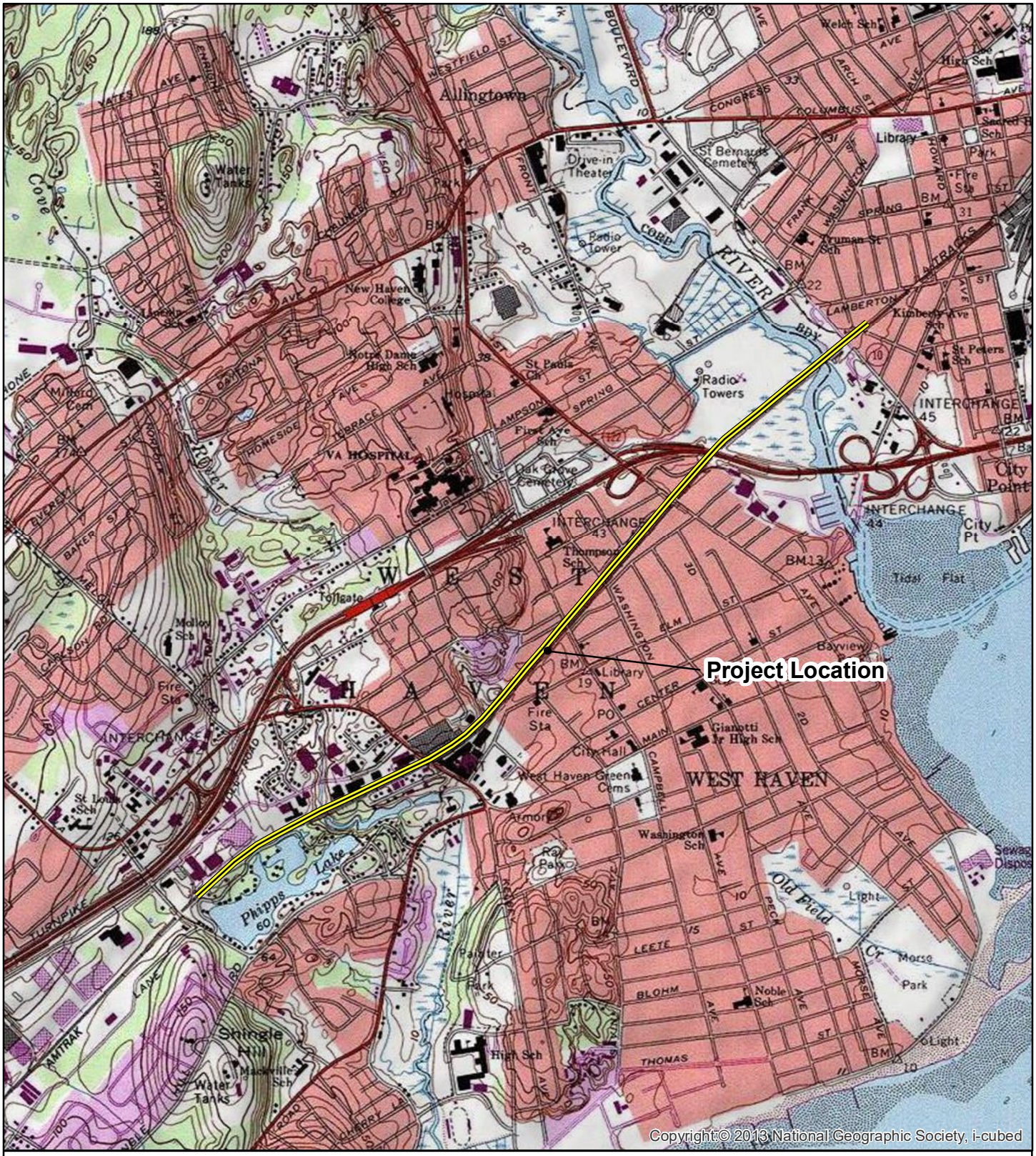
9. USACE. 1993. *The Highway Methodology Workbook*. US Army Corps of Engineers New England Division. 28pp. NEDEP-360-1-30.

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

11. USDA NRCS. April 2021. *Web Soil Survey*. http://websoilsurvey.nrcs.usda.gov/app/

12. USFWS. April 2021. *National Wetlands Inventory: Wetland Mapper V2*. https://www.fws.gov/wetlands/Data/Mapper.html

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: JPK	PROJECT NO: 17S3304
CHECKED BY: RH	
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
0 710 1,420 2,130 2,840
Feet

DRAWN BY: JPK
CHECKED BY: RH
PROJECT NO: 17S3304
SCALE: 1:17,000
1 OF 4

Legend

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

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

0 710 1,420 2,130 2,840

Feet

DRAWN BY: JPK

CHECKED BY: RH

PROJECT NO: 17S3304

SCALE: 1:17,000

2 OF 4

Legend

- West River to Allings Crossing
- Soil Type/Boundary

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\5. 17S3304 - Wetland Report - Soils Map.mxd

WEST RIVER TO ALLINGS CROSSING - WETLAND REPORT - RESOURCE MAP

GRAPHIC SCALE
0 710 1,420 2,130 2,840
Feet

DRAWN BY: JPK
CHECKED BY: RH
PROJECT NO: 17S3304
SCALE: 1:17,000
3 OF 4

Legend

- West River to Allings Crossing
- SubregionalBasins
- Dec 2017 NDDB
- Aquifer Protection Area
- CAM Zone
- **Shellfish Classification**
  - Prohibited

West Haven and New 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\6. 17S3304 - Wetland Report - Resource Map.mxd

WEST RIVER TO ALLINGS CROSSING - WETLAND REPORT - FEMA MAP

GRAPHIC SCALE

0 710 1,420 2,130 2,840

Feet

DRAWN BY: JPK

CHECKED BY: RH

PROJECT NO: 17S3304

Legend

FEMA Zone Subtype

- Floodway
- 100 Year Floodplain
- 500 Year Floodplain

West River to Allings Crossing T Line

New Haven and West Haven, New Haven County, CT

SCALE: 1:17,000

4 OF 4

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

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

0 840 1,680 2,520 3,360

Feet

Legend

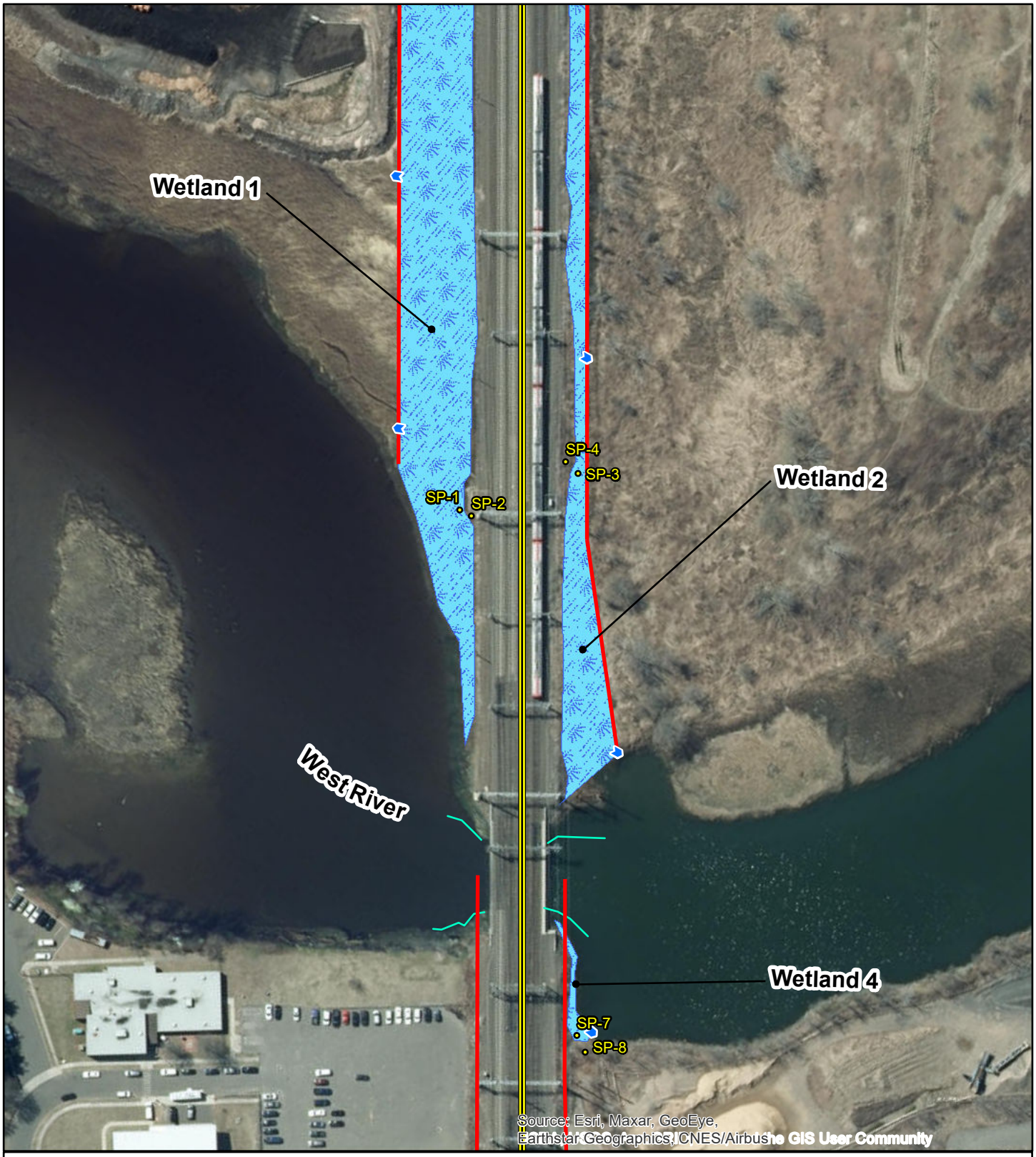
West River to Allings Crossing — Inset Location

New Haven and West Haven, New Haven County, CT

DRAWN BY: JPK	PROJECT NO: 17S3304
CHECKED BY: RH	
SCALE: 1:20,000	1 OF 13

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

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



WEST RIVER TO ALLINGS CROSSING - WETLAND REPORT - INSET A

GRAPHIC SCALE
0 50 100 150 200
Feet

DRAWN BY: JPK
CHECKED BY: RH/DS/SMS
PROJECT NO: 17S3304-D
SCALE: 1:1,800
2 OF 13

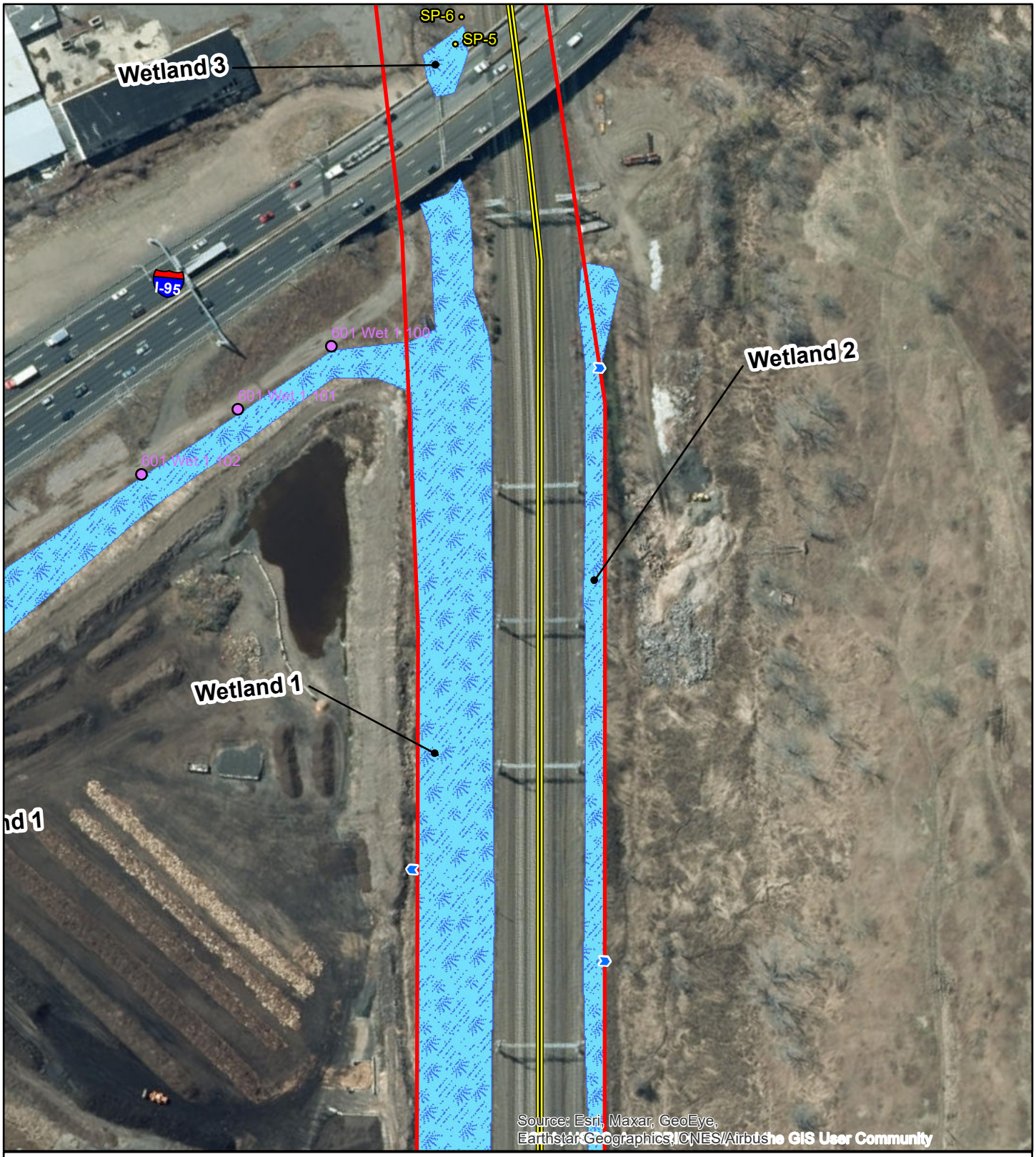
Legend

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

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: \\blcompanies.com\dfs\proj\JOBS17\17S\17S3304-D\GIS\MXD\3. 17S3304-D - Wetland Report - Inset Maps.mxd



WEST RIVER TO ALLINGS CROSSING - WETLAND REPORT - INSET B

GRAPHIC SCALE
0 50 100 150 200
Feet

DRAWN BY: JPK
CHECKED BY: RH/DS/SMS
PROJECT NO: 17S3304-D
SCALE: 1:1,800
3 OF 13

Legend

- 2021 Wetland Flags
- Open Ended Wetland Direction
- Sample Point
- ROW
- West River to Allings Crossing
- Wetlands

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: \\blcompanies.com\dfs\proj\JOBS17\17S\17S3304-D\GIS\MXD\3. 17S3304-D - Wetland Report - Inset Maps.mxd

WEST RIVER TO ALLINGS CROSSING - WETLAND REPORT - INSET C

GRAPHIC SCALE
0 50 100 150 200
Feet

DRAWN BY: JPK
CHECKED BY: RH/DS/SMS
PROJECT NO: 17S3304-D
SCALE: 1:1,800
4 OF 13

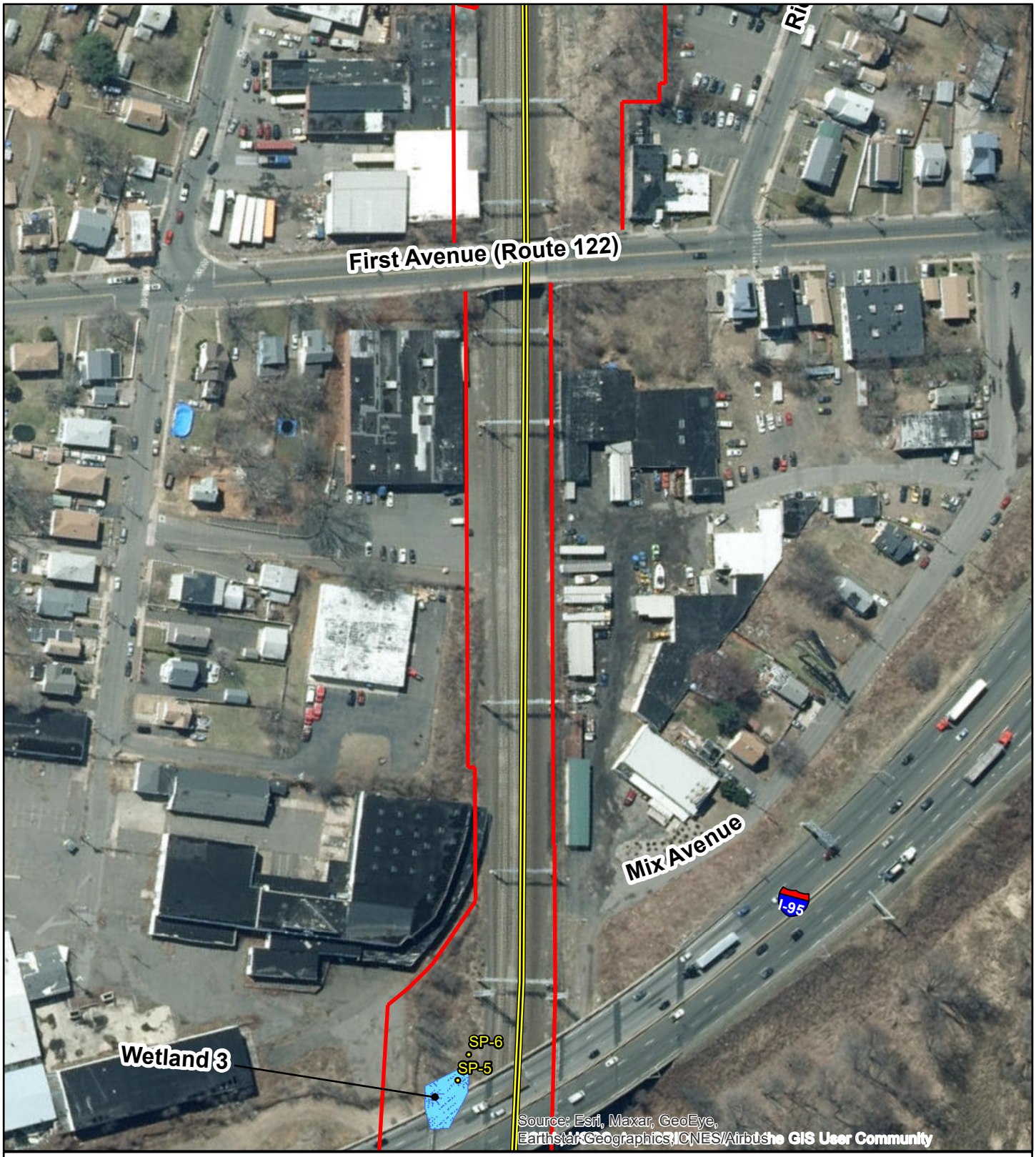
Legend

- 2021 Wetland Flags
- Open Ended Wetland Direction
- Wetlands

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: \\blcompanies.com\dfs\proj\JOBS17\17S\17S3304-D\GIS\MXD\3. 17S3304-D - Wetland Report - Inset Maps.mxd



WEST RIVER TO ALLINGS CROSSING - WETLAND REPORT - INSET D

GRAPHIC SCALE
0 50 100 150 200
Feet

DRAWN BY: JPK
CHECKED BY: RH/DS/SMS
PROJECT NO: 17S3304-D
SCALE: 1:1,800
5 OF 13

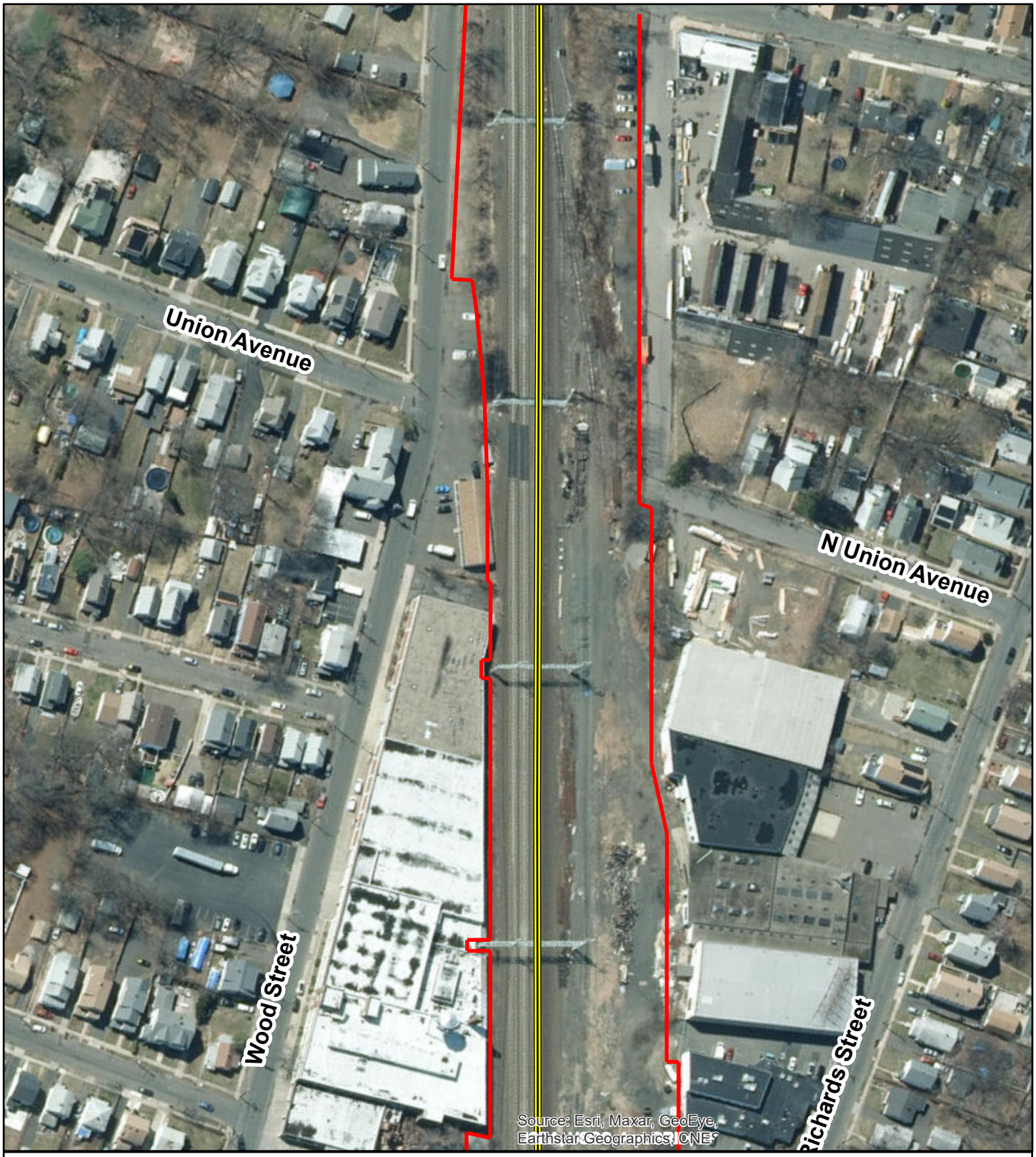
Legend

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

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: \\blcompanies.com\dfs\proj\JOBS17\17S\17S3304-D\GIS\MXD\3. 17S3304-D - Wetland Report - Inset Maps.mxd



WEST RIVER TO ALLINGS CROSSING - WETLAND REPORT - INSET E

GRAPHIC SCALE
0 50 100 150 200
Feet

DRAWN BY: JPK	PROJECT NO: 17S3304-D
CHECKED BY: RH/DS/SMS	
SCALE: 1:1,800	6 OF 13

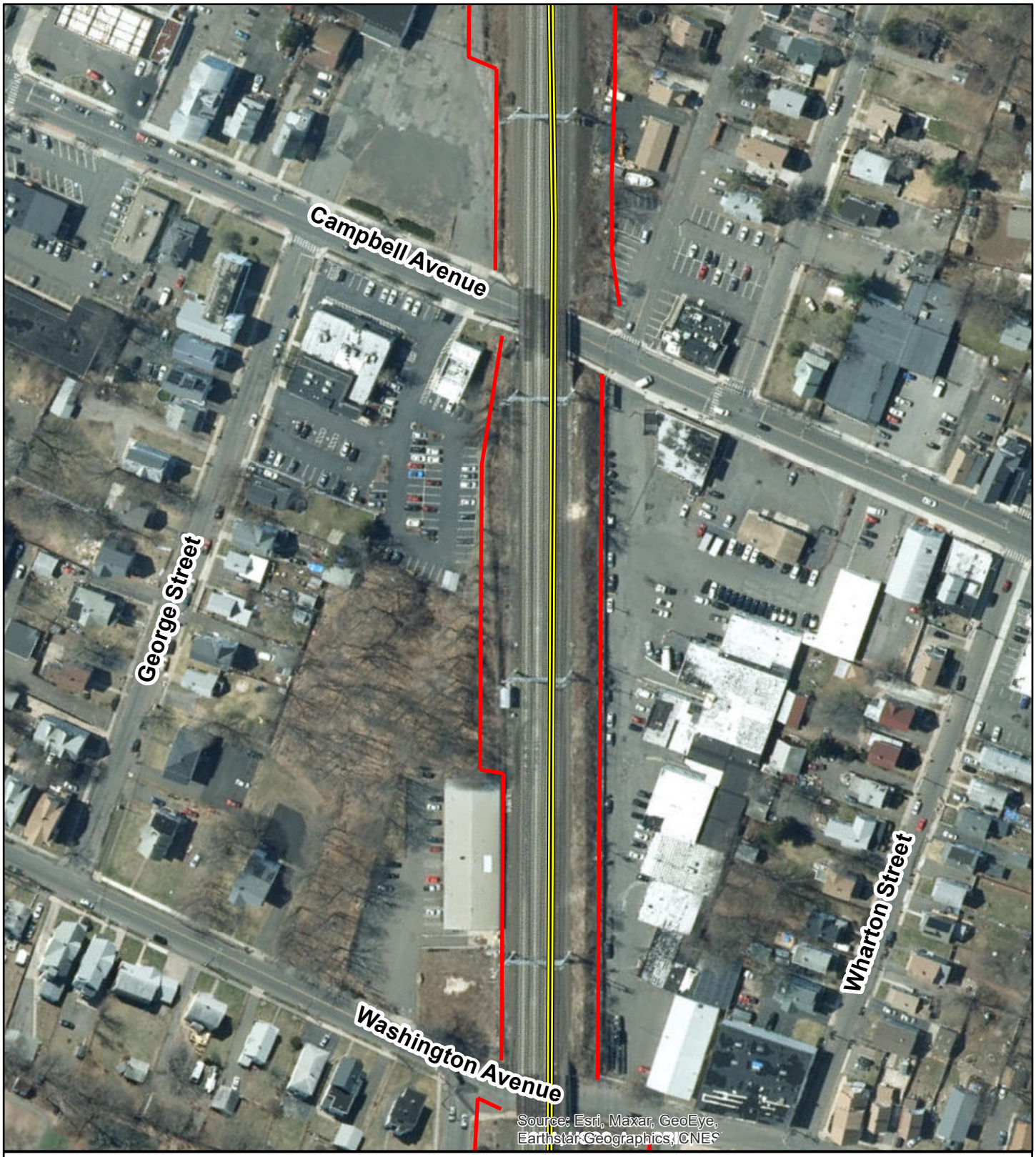
Legend

- ROW
- West River to Allings Crossing

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: \\blcompanies.com\dfs\proj\JOBS17\17S\17S3304-D\GIS\MXD\3. 17S3304-D - Wetland Report - Inset Maps.mxd



WEST RIVER TO ALLINGS CROSSING - WETLAND REPORT - INSET F

GRAPHIC SCALE
0 50 100 150 200
Feet

Legend
- ROW
- ROW
- West River to Allings Crossing

New Haven and West Haven, New Haven County, CT

DRAWN BY: JPK	PROJECT NO: 17S3304-D
CHECKED BY: RH/DS/SMS	
SCALE: 1:1,800	7 OF 13

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

Document Path: \\blcompanies.com\dfs\proj\JOBS17\17S\17S3304-D\GIS\MXD\3. 17S3304-D - Wetland Report - Inset Maps.mxd

WEST RIVER TO ALLINGS CROSSING - WETLAND REPORT - INSET G

GRAPHIC SCALE
0 50 100 150 200
Feet

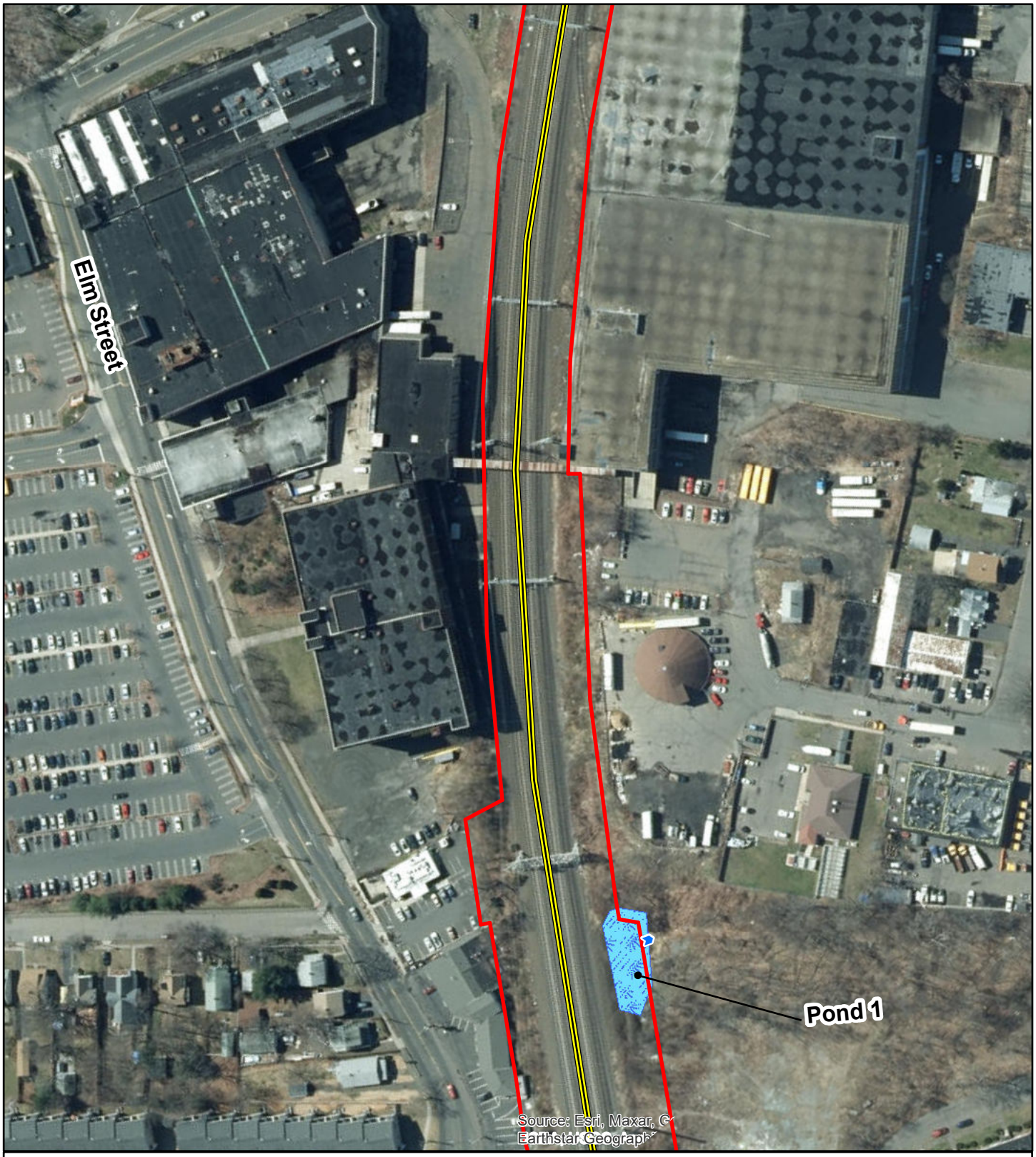
DRAWN BY: JPK
CHECKED BY: RH/DS/SMS
PROJECT NO: 17S3304-D
SCALE: 1:1,800
8 OF 13

Legend
- ROW
- ROW
- West River to Allings Crossing

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: \\blcompanies.com\dfs\proj\JOBS17\17S\17S3304-D\GIS\MXD\3. 17S3304-D - Wetland Report - Inset Maps.mxd



WEST RIVER TO ALLINGS CROSSING - WETLAND REPORT - INSET H

GRAPHIC SCALE
0 50 100 150 200
Feet

DRAWN BY: JPK
CHECKED BY: RH/DS/SMS
PROJECT NO: 17S3304-D
SCALE: 1:1,800
9 OF 13

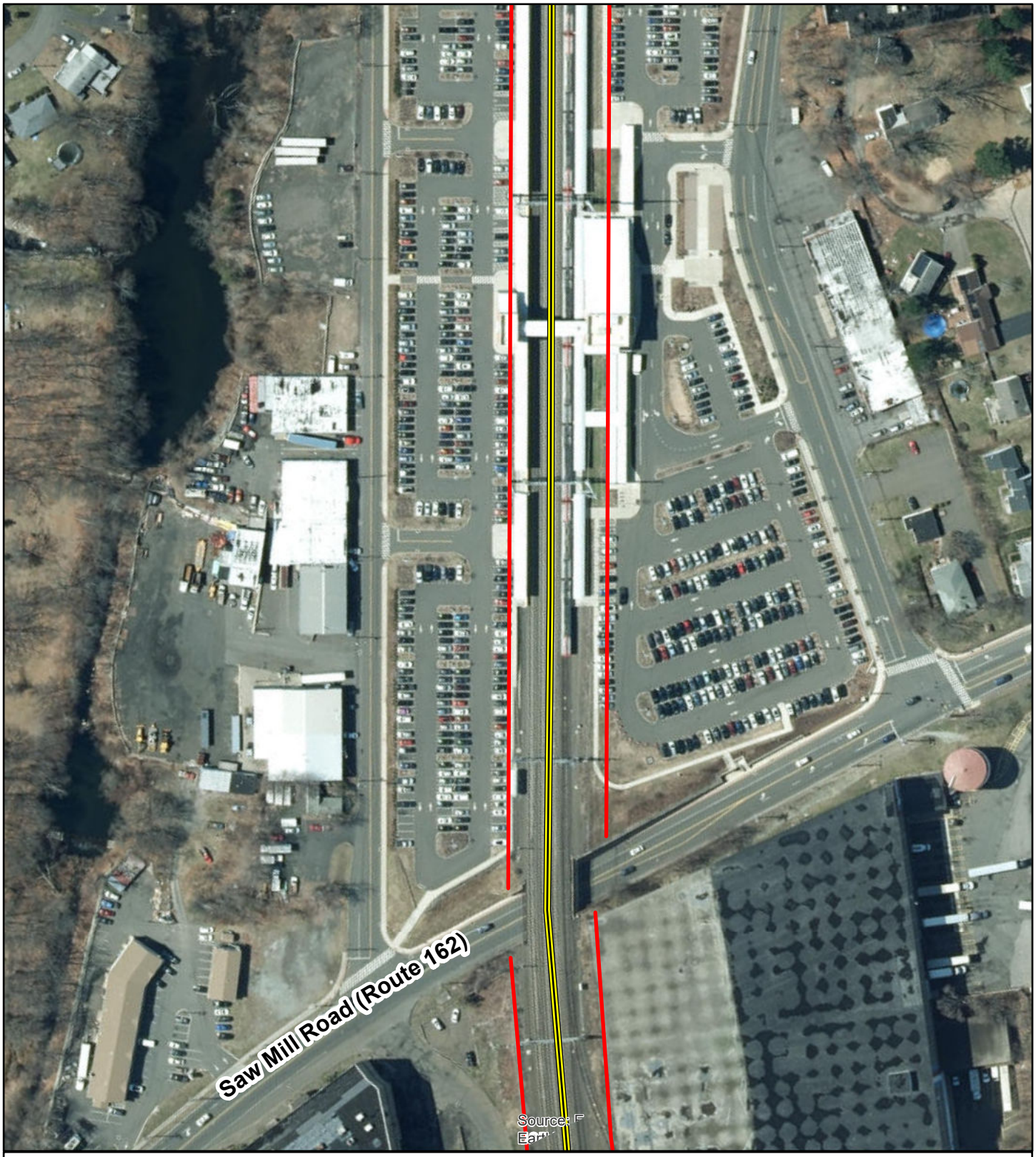
Legend

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

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: \\blcompanies.com\dfs\proj\JOBS17\17S\17S3304-D\GIS\MXD\3. 17S3304-D - Wetland Report - Inset Maps.mxd



WEST RIVER TO ALLINGS CROSSING - WETLAND REPORT - INSET I

GRAPHIC SCALE
0 50 100 150 200
Feet

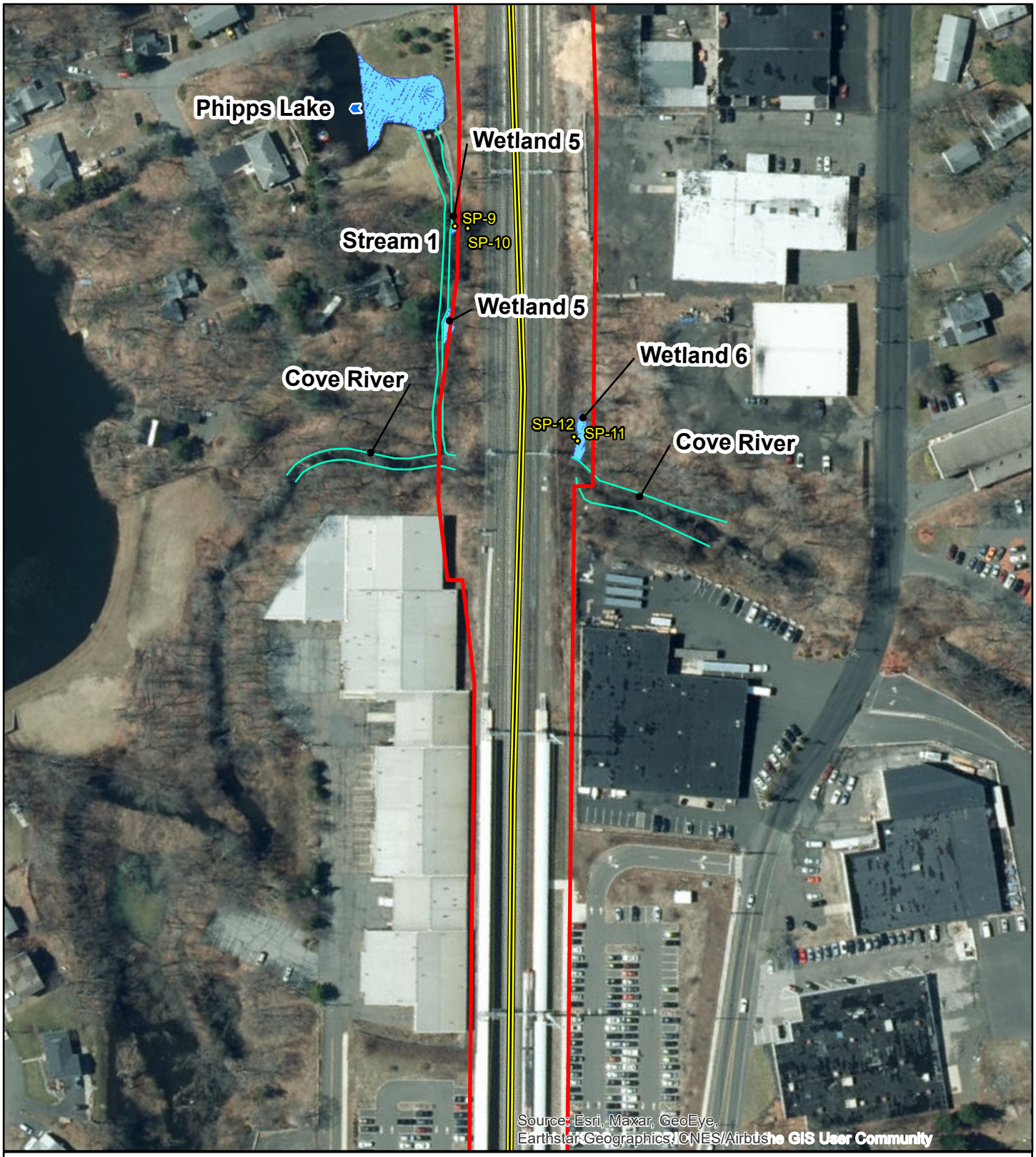
DRAWN BY: JPK
CHECKED BY: RH/DS/SMS
PROJECT NO: 17S3304-D
SCALE: 1:1,800
10 OF 13

Legend
- ROW
- West River to Allings Crossing

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: \\blcompanies.com\dfs\proj\JOBS17\17S\17S3304-D\GIS\MXD\3. 17S3304-D - Wetland Report - Inset Maps.mxd



WEST RIVER TO ALLINGS CROSSING - WETLAND REPORT - INSET J

GRAPHIC SCALE
0 50 100 150 200
Feet

DRAWN BY: JPK	PROJECT NO: 17S3304-D
CHECKED BY: RH/DS/SMS	
SCALE: 1:1,800	11 OF 13

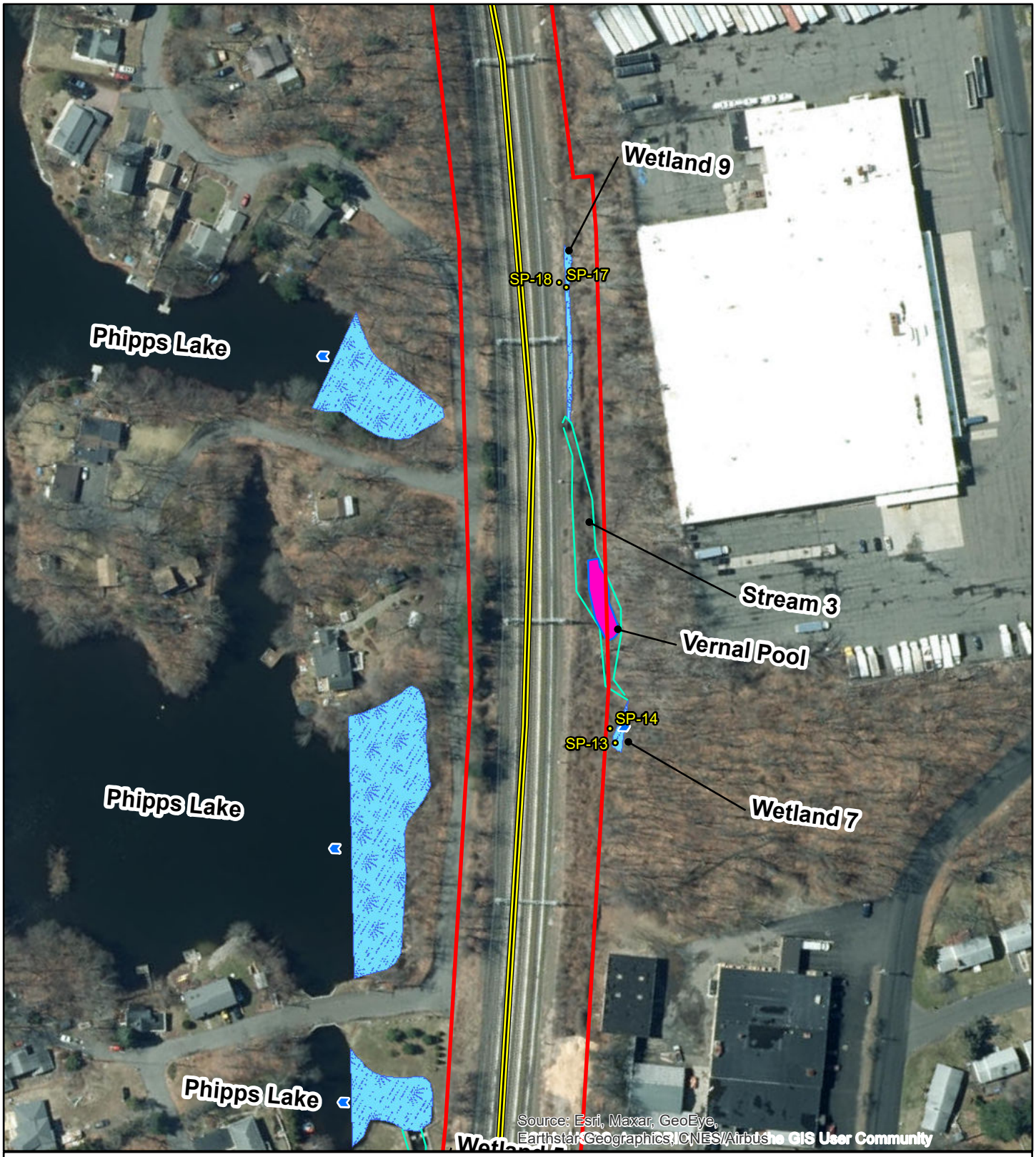
Legend

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

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: \\blcompanies.com\dfs\proj\JOBS17\17S\17S3304-D\GIS\MXD\3. 17S3304-D - Wetland Report - Inset Maps.mxd



WEST RIVER TO ALLINGS CROSSING - WETLAND REPORT - INSET K

GRAPHIC SCALE
0 50 100 150 200
Feet

DRAWN BY: JPK
CHECKED BY: RH/DS/SMS
PROJECT NO: 17S3304-D
SCALE: 1:1,800
12 OF 13

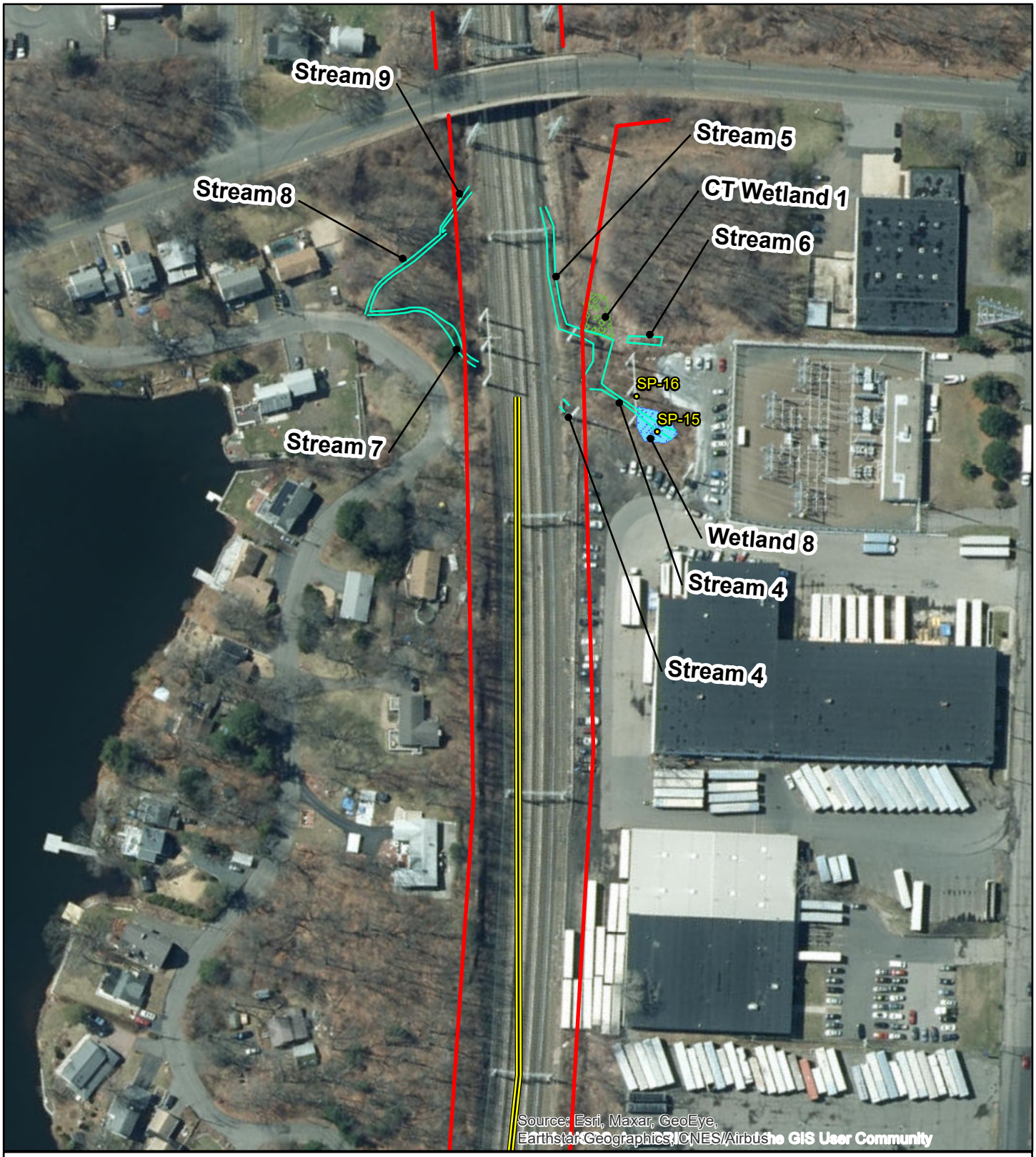
Legend

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

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: \\blcompanies.com\dfs\proj\JOBS17\17S\17S3304-D\GIS\MXD\3. 17S3304-D - Wetland Report - Inset Maps.mxd



WEST RIVER TO ALLINGS CROSSING - WETLAND REPORT - INSET L

GRAPHIC SCALE
0 50 100 150 200
Feet

DRAWN BY: JPK
CHECKED BY: RH/DS/SMS
PROJECT NO: 17S3304-D
SCALE: 1:1,800
13 OF 13

Legend

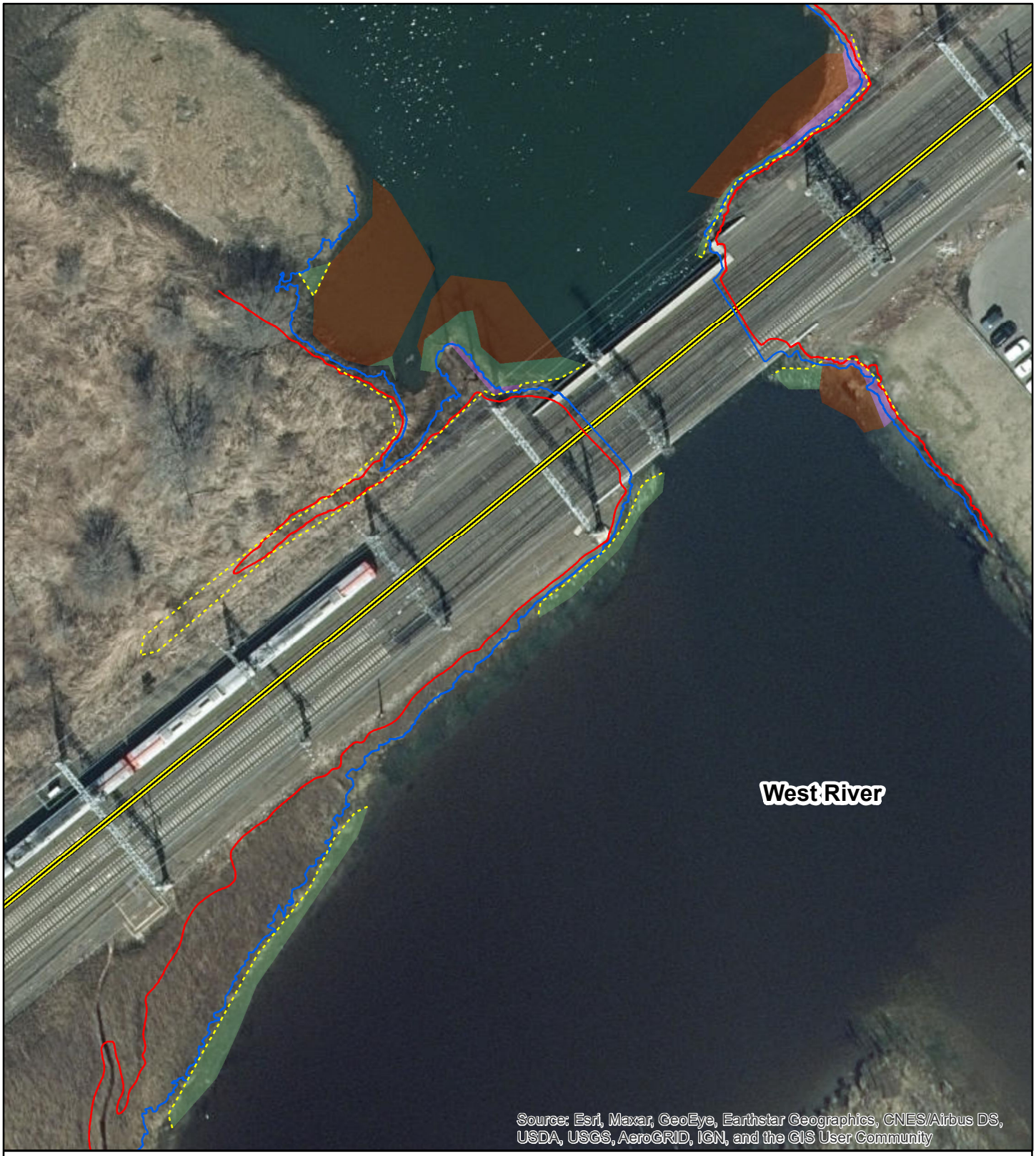
- Sample Point
- ROW
- West River to Allings Crossing
- Streams
- Wetlands
- CT Wetland

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: \\blcompanies.com\dfs\proj\JOBS17\17S\17S3304-D\GIS\MXD\3. 17S3304-D - Wetland Report - Inset Maps.mxd

APPENDIX D: Delineated Coastal Resources Mapping



WEST RIVER TO ALLINGS CROSSING - WETLAND REPORT - DELINEATED COASTAL RESOURCE MAP

GRAPHIC SCALE
0 30 60 90 120
Feet

Legend

- Limit of Tidal Vegetation
- CJL/HTL (4.6')
- MHW
- Intertidal Flat
- Iva
- Spartina
- West River to Allings Crossing

West Haven and New Haven, New Haven County, CT

DRAWN BY: SMS	PROJECT NO: 17S3304
CHECKED BY: WW	
SCALE: 1:900	1 OF 1

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

Document Path: G:\JOBS17\17S\17S3304\GIS\MXD\7. 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 inundated area within Wetland 2, looing northeast.

PHOTO 4: 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 2**

PHOTO 5: View of Wetland 4 at the toe of the slope, looking east.

PHOTO 6: 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 3**

PHOTO 7: View of Stream 1, looking west from the toe of slope.

PHOTO 8: 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 4**

PHOTO 9: Downstream view of Cove River, looking north at the culvert outfall.

PHOTO 10: Upstream view of Cove River, 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 5**

PHOTO 11: View of Wetland 6, a hillside seep, looking west.

PHOTO 12: 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 6**

PHOTO 13: View of Stream 3, looking southwest.

PHOTO 14: 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 7**

PHOTO 15: View of Stream 4, looking southwest from Wetland 8 towards the tracks.

PHOTO 16: 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 8**

PHOTO 17: View of Stream 5, looking north

PHOTO 18: 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** **9**

PHOTO 19: View of Stream 6, looking south.

PHOTO 20: 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** **10**

PHOTO 21: View of Stream 8, looking northwest towards the tracks.

PHOTO 20: View of Stream 9 looking southwest from the tracks towards Stream 8.

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 tidal vegetation and intertidal flats in the northeast quadrant of the West River crossing, looking east.

PHOTO 24: 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 12**

PHOTO 25: View *Spartina*, *Iva*, and intertidal flats in the southeast quadrant of the river crossing, looking north towards the bridge.

PHOTO 26: 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 13**

PHOTO 27: View *Spartina* with interspersed mussel beds in the southwest quadrant of the river crossing, looking west.

PHOTO 28: View of *Spartina* and intertidal flats in the northwest quadrant of the river crossing, 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**

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.)			
1. *Ailanthus altissima*	2	Yes	UPL
2.			
3.			
4.			
5.			
6.			
7.			
	2 = Total Cover		

Herb Stratum (Plot size: 5 ft.)			
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.)			
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 %	Type[1]	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.)			
1. *Elaeagnus umbellata*	15	Yes	NI
2.			
3.			
4.			
5.			
6.			
7.			
	15 = Total Cover		

Herb Stratum (Plot size: 5 ft.)			
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.)			
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 (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					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**
Wetland Hydrology Present?	Yes **X**	No	**within a Wetland?** **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	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	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	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	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	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	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.)			
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.)			
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.)			
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	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	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**
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 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 (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features 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: 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**
Wetland Hydrology Present?	Yes **X**	No	**within a Wetland?** **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: Wet 7
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: **Wet 7**

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: **Wet 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
0-7	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.)			
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.)			
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.)			
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.)			
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.)			
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.)			
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.)			
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.)			
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.)			
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	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	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	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type [1]	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.

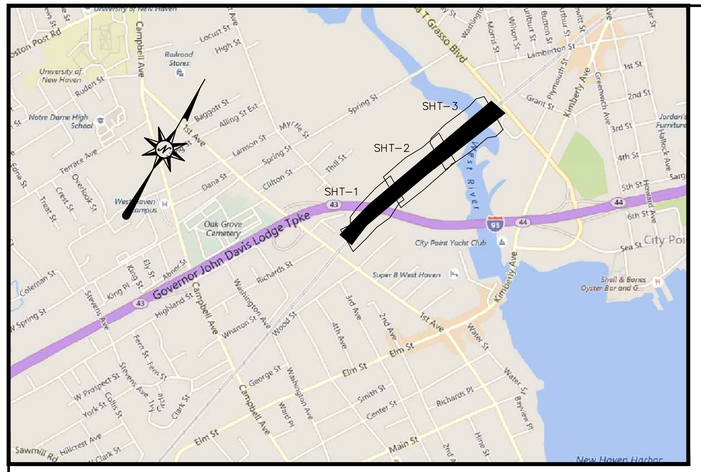
APPENDIX G: CT Wetland 1 Aerials


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

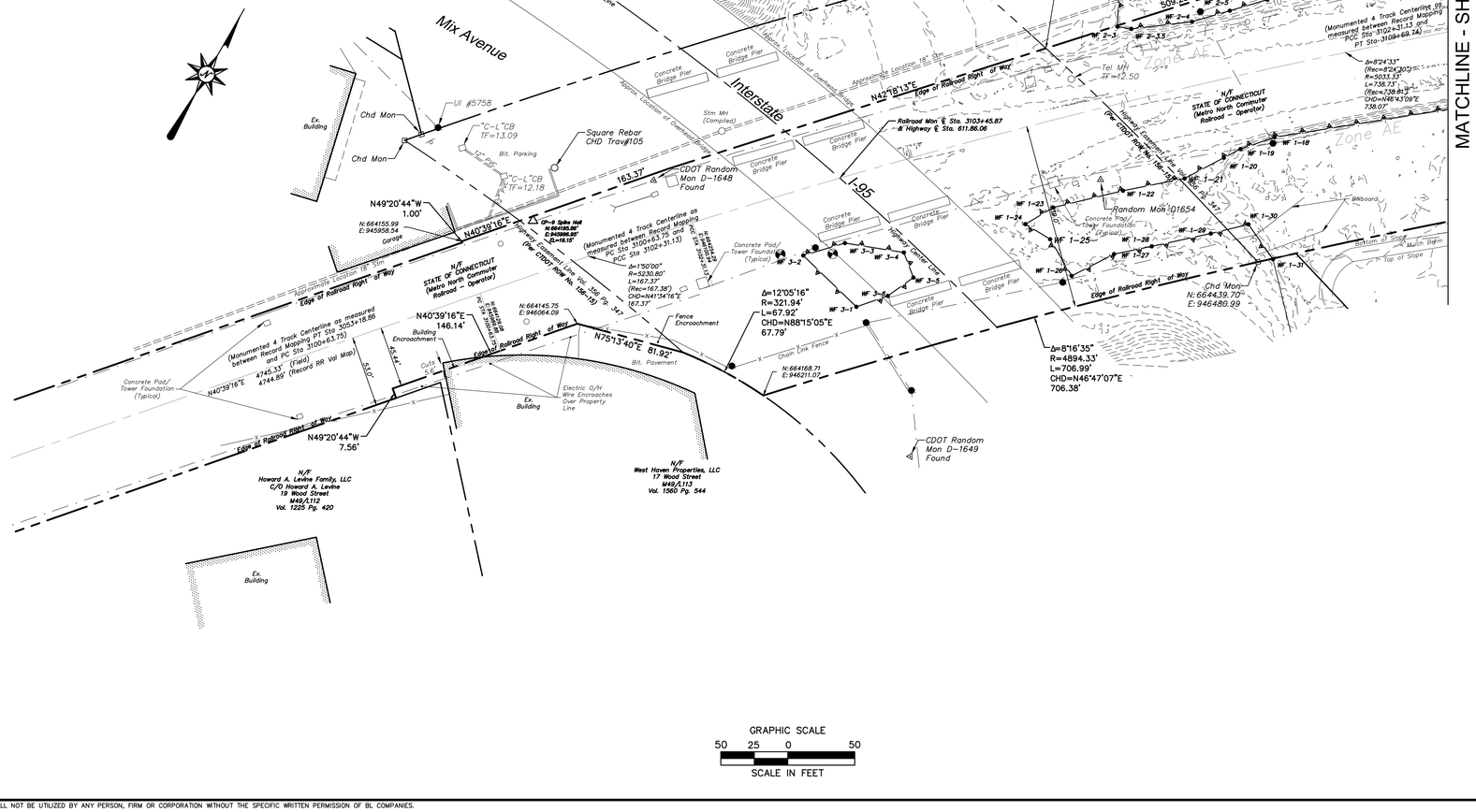


LOCATION MAP & SHEET INDEX

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
- Monitoring Well



MATCHLINE - SHEET 2 OF 3

GRAPHIC SCALE
50 25 0 50
SCALE IN FEET

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.

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
ARCHITECTURE
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

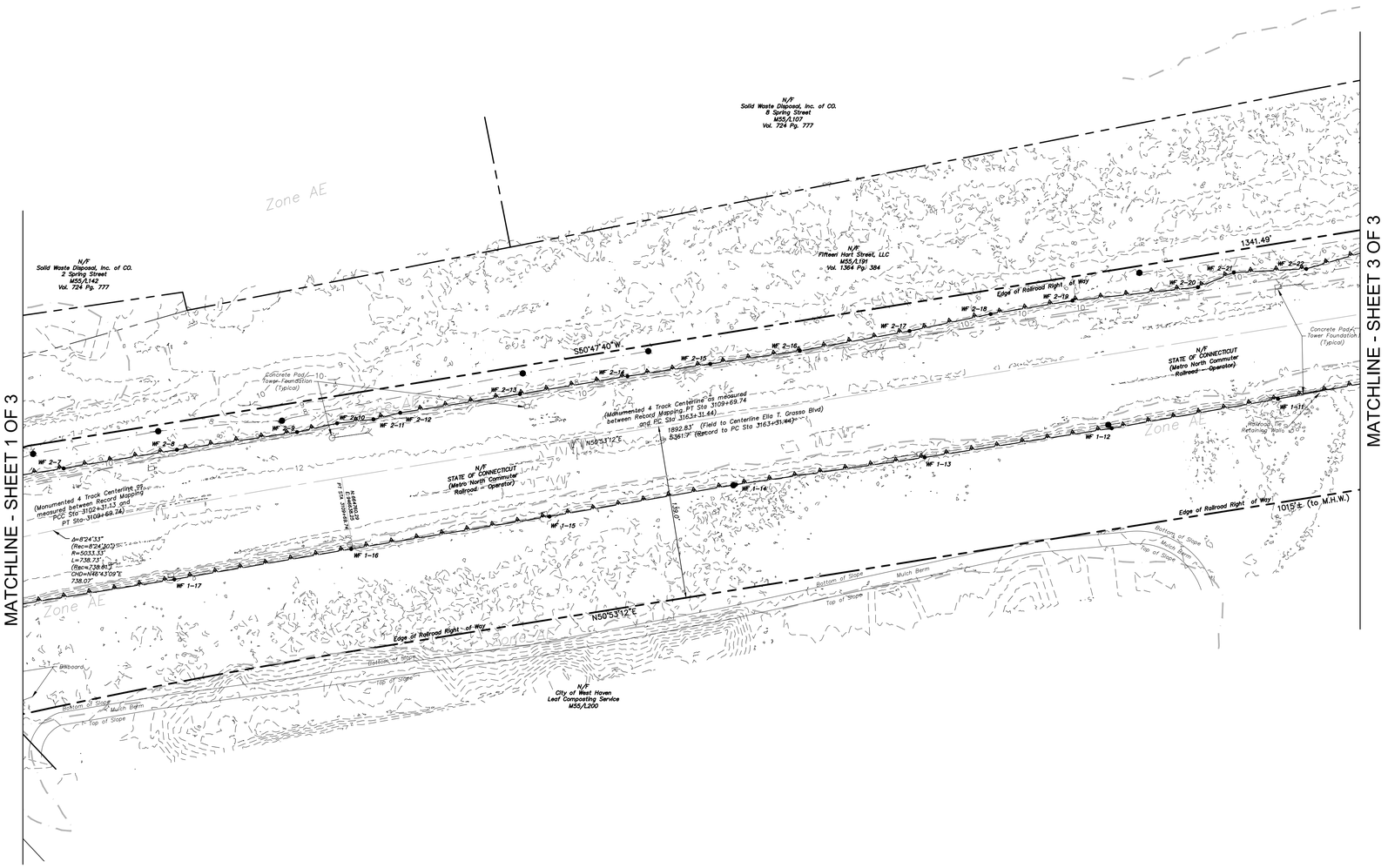
TOPOGRAPHIC SURVEY

Sheet No. 6 OF 9

EX-2

Aug 06, 2021 11:34am wthiel G:\JOBS\17\17S\17S3304A\DWG\EX17S3304A02–EW–WR–Topo.dwg
Layout: EX-2 SHT 1 OF 3 24x36 SOSC

Xref (s): ; XY17S3304–190130–Emwest–WestRiver–LiDAR–Contours ; BD17S3304A02–LiDARTopo



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

BL Companies
ARCHITECTURE
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

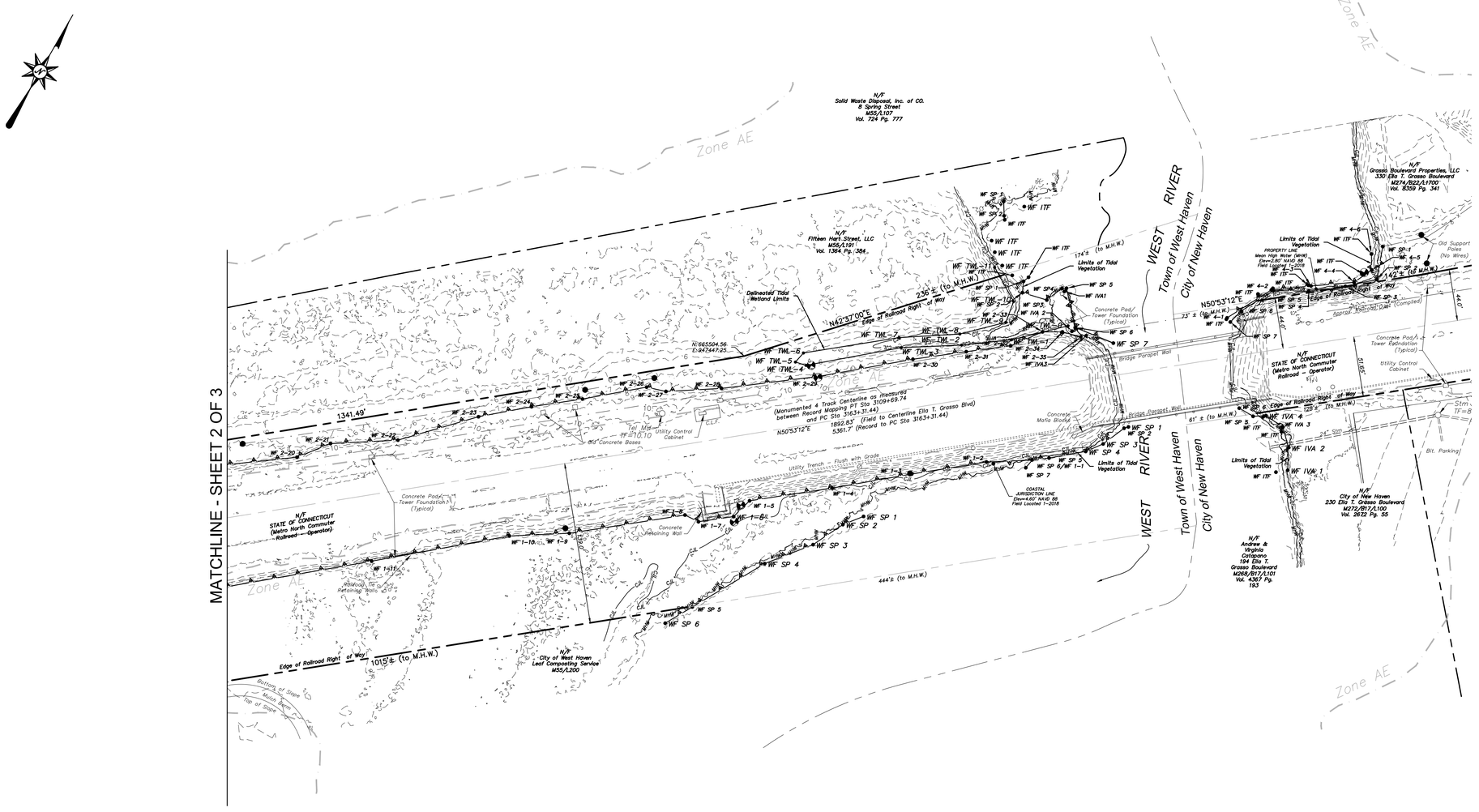
TOPOGRAPHIC SURVEY

Sheet No. 2 OF 3

EX-2

Xref (s): ...\XY17S3304-1901130-Elmwest-WestRiver-LIDAR-Contours ; BD17S3304A02-LIDARTopo

Aug 06, 2021 11:43am wthiel G:\JOBS\17\17S\17S3304\DWG\EX17S3304A02-EW-WR-Topo.dwg
Layout: EX-2 24H 2 OF 3 24x36 SHEET



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
Edge of Water	Guy Wire
Limit of Wetlands	Guy Pole
WF 1–2 — Wetland Flag 1–2	Light Pole
WF IVA — Wetland Flag Iva	Double Light Standard
WF SP — Wetland Flag Spartina	Light on Parapet
WF ITF — Wetland Flag Intertidal Flats	Gas Valve
Stone Wall	CB — Catch Basin
Retaining Wall	CB (R) — Catch Basin Plotted per Record Mapping
Guide Rail	Double Type I Catch Basin
Fence	Double Type II Catch Basin
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

BL Companies
ARCHITECTURE
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. 3 OF 3

EX-2

Xref (s): ...\XY17S3304-1901130-Elmwest-WestRiver-LIDAR-Contours ; BD17S3304A02-LIDARTopo

Aug 06, 2021 12:46pm wthiel G:\JOBS\Y\17S\17S3304\DWG\EX17S3304A02-EW-WR-Topo.dwg
Layout: EX-2 24H 3 OF 3 24x36 SHEET