Appendix: F

Wetland Report

McFarland Johnson

HVN

TWEED
NEW HAVEN
AIRPORT

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Wetland Delineation Report

Master Plan Implementation Projects

Tweed New Haven Airport
New Haven/East Haven, Connecticut

January 2022

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INTRODUCTION

Tweed New Haven Regional Airport (the "Airport") is a public airport located in the City of New Haven and Town of East Haven, CT, owned and operated by the City of New Haven (see **Figure 1, Overview Map** and **Figure 2, USGS Map** in **Appendix A**). The property is located along the New Haven-East Haven town-line with Long Island Sound approximately ¾-mile to the south, New Haven Harbor ¼ mile to the west, and Morris Cove approximately ¼-mile to the southwest. The Airport has two asphalt runways, Runway 2-20 which is approximately 5,200 feet long by approximately 150 feet wide oriented north-south, and Runway 14-32 (currently not in use) which is approximately 3,600 feet long by 100 feet wide with a northwest – southeast orientation.

According to field observations and a review of recent aerial photographs of the area, the Airport is set within a mixed residential, commercial, and industrial area. To the west of the Airport (between Dean Street and Townsend Avenue), land use is mostly residential whereas to the east (along Proto Drive and Commerce Street), it is mostly industrial. There is undeveloped land (wetlands) to the south of Runway 2-20 and to the southeast of the HVN property boundary.

Taxiways, aprons, parking lots and access driveways comprise the other paved areas on the airport property. Buildings include a terminal building and hangars housing planes and offices for private air carriers and other airport related businesses along with airport maintenance and operations structures including a fire and rescue building. Areas interior to and surrounding the runways and taxiways are comprised of mowed/maintained grasslands. Along the southwestern, southern, and southeastern perimeter of the airport are extensive vegetated tidal wetland systems with constructed channels and areas of open water. Inland wetlands occur at the northwestern, northern, northeastern, and eastern edges of the runway and taxiway areas. Some of the inland wetland areas appear to have been constructed as drainage features as they do not appear on United States Fish and Wildlife Service (USFWS) National Wetland Inventory (NWI) or CT Department of Energy and Environmental Protection (CTDEEP) wetland mapping. Previous wetland delineations by others did not identity wetland resources within these infield areas (ie where Wetlands 4 and 5 and a portion of Wetland 6 were delineated under this field survey). Wetlands 4 and 5 may be viewed by the USACE as isolated and thus may not be subject to USACE jurisdiction. A request for a jurisdictional determination is recommended for these wetlands.

HVN proposes multiple projects to continue advancing the Airport Master Plan Update, including the development of a new terminal area and a runway extension. The Tweed New Haven Airport Authority is preparing an Environmental Assessment for the project in accordance with the National Environmental Policy Act (NEPA) to implement elements of its Airport Master Plan. The wetland and watercourse delineation will be used to inform the NEPA process and permitting requirements.

METHODOLOGY

Historically impacted inland wetlands (some presumably man-made and offering limited functions and values) and one tidal wetland were delineated by FHI Studio soil scientists within the project areas in accordance with State and federal definitions and guidelines.

Tidal wetland limits were delineated in accordance with the State of Connecticut General Statutes (CGS) Section 22a-29 (Tidal Wetlands). Tidal wetlands are "…those areas which border on or lie beneath tidal waters, such as, but not limited to banks, bogs, salt marsh, swamps, meadows, flats, or other lowlands subject to tidal action, including those areas now or formerly connected to tidal waters, and whose surface is at or below an elevation of one foot above local extreme high water; and upon which may grow or be capable of growing…" tidal vegetation.

In 2012, the Connecticut General Assembly passed Public Act No. 12-101, which included a revision to the State's regulatory jurisdiction under CGS Section 22a-359. This revision changed the regulatory jurisdiction limit from the "high tide line" to the area up to and including the elevation of the "coastal jurisdiction line" (CJL) as determined for the State's major tidal waterbodies. The CJL is not delineated in the field, but is a set elevation for each municipality. It also states under CGS Section 22a-359, "For any tidal, coastal or navigable waters of the state located upstream of a tide gate, weir, or other device that modifies the flow of tidal waters, the coastal jurisdiction line for such tidal, coastal or navigable waters shall be the elevation of mean high water as found at the downstream location of such device".

Under CGS Section 22a-39 the identification of Connecticut-regulated inland wetlands is determined by the limit of any of the soil types designated as poorly drained, very poorly drained, alluvial, or floodplain by the National Cooperative Soils Survey, of the Natural Resources Conservation Service (NRCS) of the United States Department of Agriculture (USDA) (§22a-38-15) that are not subject to CGS Section 22a-29 as defined above. NRCS soil surveys were consulted to compare observed soil types to those mapped in the project area. The *Field Indicators for Identifying Hydric Soils in New England Version 4* (2018) and *Field Indicators of Hydric Soils in the United States, Version 8.2* (2018) were used to identify hydric soils, which include both poorly and very poorly drained soils.

Identification of watercourses, as regulated by Connecticut, was based upon the definitions contained in Section 22a-38 of Chapter 440 of the Connecticut General Statutes of Connecticut; including the following hydrological systems under the term "watercourse": rivers, streams, brooks, waterways, lakes, ponds, marshes, swamps, bogs, and all other bodies of water, natural or artificial, vernal or intermittent, public or private.

The Ordinary High Water (OHW) mark as defined by the USACE for the purposes of the Clean Water Act (CWA) lateral jurisdiction at 33 CFR 328.3€ is the "line on the shore established by the fluctuations of water and indicated by physical characteristics such as clear, natural line impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial

vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas". The OHW mark was flagged with sequentially labeled blue flagging and is considered the lateral extent of Federal jurisdiction over non-tidal Waters of the United States (US) in the absence of adjacent wetlands.

Federal wetlands, both tidal and inland, were delineated based on the United States Army Corps of Engineers (USACE) 1987 *Wetland Delineation Manual* and the USACE 2012 *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region – Version 2.0*. Federal wetland boundaries were determined by the presence of dominant hydrophytic vegetation, presence of hydric soils, and evidence of wetland hydrology. In tidally influenced areas, the USACE regulates up to the high tide line (HTL) elevation. USACE Wetland Determination Data Forms were not completed for tidal resource delineations, since the wetlands are tidal, and jurisdiction is defined by the HTL elevation. USACE Field Documentation Forms for the delineated inland wetlands are provided in **Appendix C**.

The limit of the wetland delineation fieldwork was confined to distinct project areas where activities are likely to be proposed at the Airport (see Figures 1 and 2). Field work was conducted over several site visits conducted between August and October 2021. The wetland/upland boundary was marked in the field using consecutively numbered flags, and the locations of the flags were recorded by FHI Studio using a GPS unit capable of achieving sub-meter accuracy (note that FHI Studio is not a licensed surveyor) and subsequently located and documented by a licensed land surveyor. Wetland functions and values were documented in accordance with the USACE *Highway Methodology Supplement* (1999) guidelines (see **Appendix B**). Photographs were taken at representative locations in the wetlands and are included in **Appendix D**.

RESULTS

Seven wetland systems were delineated in the field, numbered 1 to 7 from north to south, within the areas of investigation (see **Figure 3, Wetland Map** in **Appendix A**). Wetlands 1 – 6 are inland wetlands. Wetland 7 is a tidal wetland - a good portion of which, within the project area, has been subject to past alterations and disturbance related to the relocation of Morris Creek sometime prior to 2010. A tide gate is located southwest of Wetland 7, which likely regulates the amount of tidal flow to wetlands upstream of the tide gate.

All wetlands lie within the Southcentral Coast Major Basin No. 5, regional basin 50 and subregional basin 5000 and drain ultimately to Long Island Sound via Morris Creek. Wetland System No. 1 drains west to Tuttle Creek (a tributary of Morris Creek) in Local Basin Number 5000-45 (CT Environmental Conditions Online, Advanced Viewer, 2021). Wetland 7 and a portion of the southwestern limits of Wetland 6 drains to this same basin series. Wetlands 2-5 and a majority of Wetland 6 drain to the east and southeast to Morris Creek in Local Basin Number 5000-46 (CT Environmental Conditions Online, Advanced Viewer, 2021). The confluence of these two drainages lies immediately south of the Airport. The CJL elevation for New Haven is 4.6 feet

NAVD88, while that of East Haven is 4.5 feet NAVD88. According to information provided in an Environmental Assessment for the Taxiway and Drainage Improvement Project, "the CJL for the wetland within the Tweed Airport boundary above the tide gate on Morris Creek is 3.5' NGVD. All wetlands below this elevation for the purpose of the project are considered tidal, and they are therefore under the jurisdiction of CTDEEP.

General descriptions of these seven wetlands are provided below, with additional detailed information for each wetland in **Table 1**.

Wetland 1 is located at the northwestern limit of the airport. It contains a reach of Tuttle Brook and associated bordering vegetated wetlands. The reach of Tuttle Brook originates at a double box culvert (through which Tuttle Brook is conveyed underneath Dodge Avenue) and extends approximately 1,200 linear feet southerly downstream before entering another double box culvert underneath a service road to the airport that is accessed off Dodge Avenue in New Haven. The reach of Tuttle Brook within the project area is best classified as a Riverine Lower Perennial Watercourse characterized by an unconsolidated bottom dominated by sand and organic matter substrate(R2UB2/4). Only the northern-most reach of Tuttle Brook was delineated within the airport boundary. OHW flags were hung in the field to demarcate the limits of Tuttle Brook. The bordering vegetated wetlands along Tuttle Brook consists largely of stands of palustrine emergent persistent vegetation (e.g., Broad-leaved Cattail and Common Reed *Phragmites australis*-dominated stands - PEM1/5. Woody shrubs consisting primarily of American Black Elderberry and an alder sp., occur sporadically.

Wetland 2 is located at the northeastern limit of the airport in the area between the General Aviation Parking and the East Ramp. It consists of a palustrine forested, broad-leaved deciduous, seasonally flooded/saturated, and ditched wetland system (PFO1Ed) with a small palustrine emergent *Phragmites australis*-dominated inclusion that appears to be permanently flooded (PEM5H). Characteristic vegetation includes Red Maple, Black Gum, and Pin Oak in the tree layer, Northern Spicebush and Sweet Pepperbush in the shrub layer. *Phragmites* flanks most of the ditched portion of the wetland in the herbaceous layer.

Wetland 3 is located adjacent to the mowed areas between the Air Traffic Control Tower and the East Ramp's tarmac. It consists of a palustrine emergent, nonpersistent, intermittently flooded/saturated (PEM2J) wetland that collects sheet flow runoff and direct precipitation. It is characterized by Soft Rush, Water Purslane, Broom Sedge, a spike rush sp., and various other rushes, sedges, and hydrophytic grasses (incl. the state-threatened *Paspalum laeve*).

Wetland 4 is a shallow drainage area located north of Runway 32 which forms its southwestern boundary. It is bounded by Taxiway C on the northeast side, and Taxiway H on the southwest side. Wetland 4 consists of a palustrine emergent, nonpersistent, intermittently flooded/saturated (PEM2J) wetland. It is dominated by various species of hydrophytic plant species such as Soft Rush, Straw-colored Sedge, Curly Dock, Calico Aster, and the state-threatened Field Beadgrass. This wetland receives sheet flow runoff from the surrounding

impervious runways and tarmacs. A catch basin serves as the outlet that regulates the surface water level of the wetland when it receives collected stormflows. Based upon its morphology and drainage structures, it appears that this wetland has formed within a drainage area that was constructed with the adjacent Runway 14/32 and Taxiways Band C were built. While it is a routinely mowed lawn, since Runway 14/32 has not been used for years, routine maintenance of the basin has waned which may have allowed for the development of hydrophytic plant community. A suspected high groundwater table in this area may support these hydrophytes. Functions and values are low for this wetland.

Wetland 5 is a similar shallow drainage area bounded by Taxiway C on the northeast and southeast sides, Taxiway H on the northwest side and former Runway 32 on the southwest side. It consists of a palustrine emergent, nonpersistent, intermittently flooded (PEM2J) wetland that also collects sheet flow runoff and direct precipitation. Hydrophytic vegetation observed within this wetland included the following: Soft Rush, Strawcolored Flatsedge, Field Beadgrass, Long-leaved Redtop Panicgrass, Rough Barnyardgrass, Spike Rush, Sharp-fruit Rush, Marsh Seedbox, Swamp Smartweed, Common Threesquare, Yellow Bristlegrass, and Calico aster. A catch basin serves as the outlet that regulates the surface water level of the wetland when it receives stormflows. Based upon its morphology and drainage structures, it appears that this wetland may have also formed within a drainage area that was constructed with the adjacent Runway 14/32 and Taxiways Band C were built, similar to Wetland 4. Similarly, while it is a routinely mowed lawn, since Runway 14/32 has not been used for years, routine maintenance of the basin has waned which may have allowed for the development of a hydrophytic plant community. During field work, high levels of standing water were observed in this catch basin, which may indicate high groundwater levels in this area. Functions and values are low for this wetland.

Although a contiguous wetland system, Wetland 6 is characterized by two different wetland types. Wetland 6A consists of palustrine emergent wetlands within a mowed lawn airfield. Wetland 6B consists of a palustrine forested broad-leaved deciduous, seasonally saturated, wetland (PFO1E), and bordering palustrine emergent wetlands (PEM2) containing non-persistent, persistent and Phragmites-dominated subclasses. An upper reach of Morris Creek bisects the PFO portion of this wetland east of Taxiway C and Runway 32. Sheet flow runoff from the adjacent runways and taxiways and direct precipitation contribute to the hydrology of this wetland, however portions of the wetland are transected by permanently flooded / excavated channels lending evidence of a suspected high groundwater elevation. Seasonal flooding along Morris Creek also likely contributes to the sustaining hydrology of the wetland. Red Maple dominates the PFO portion, while *Phragmites* has significant cover in the PEM portion. Other hydrophytes noted included the following: Northern Spicebush, Highbush Blueberry, Winterberry, Northern Arrowwood, Sweet Pepperbush, Common Reed, Purple Loosestrife, Steeplebush, Spotted Joe Pye-weed, Flat-top Goldenrod, Boneset, and Spike Rush east of Taxiway C (Wetland 6B). To the west of the former runway 14/32 within the mowed portion of the RSA (Wetland 6A), the wetland is dominated by Field Beadgrass, Spike Rush, Brownish Beakrush, and

Yellow Bristlegrass. Functions and values are low for the 6A portion of the wetland due to its maintained nature. Functions and values are slightly higher for the 6B portion of the wetland.

Wetland 7 consists of an estuarine intertidal emergent persistent / *Phragmites*-dominated system (E2EM1/5) bordering estuarine subtidal creeks (Morris Creek and Tuttle Brook) with unconsolidated bottoms and irregularly flooded tidal regimes E1UBL. The tidally influenced dominant vegetation of this wetland includes *Phragmites australis* (an invasive plant species) and several halophytic grasses (e.g., *Spartina alterniflora, Spartina patens, Distichlis spicata,* etc.). The wetland is bordered by a zone of *Baccharis halimifolia* shrubs.

The wetland ID/flagging sequence, wetland type, soil type and characteristic vegetation of each of the seven delineated wetlands is summarized in **Table 1**. Additionally, the United States Fish and Wildlife Service (USFWS), National Wetland Inventory (NWI) map is provided as **Figure 4 in Appendix A**, and the United States Department of Agriculture's Natural Resource Conservation Service (NRCS) Soils Map is provided as **Figure 5 in Appendix A.** Most of the project area is located within the 100-year floodplain limits. The Federal Emergency Management Agency (FEMA) floodplain map is provided as **Figure 6** in **Appendix A**.

NRCS MAPPED AND OBSERVED SOILS

The mapped NRCS soils and observed soils on, and in the vicinity of, the study area are depicted by their soil number on **Figure 5** in **Appendix A**. The mapped NRCS soils and observed soils within the study area are listed in **Table 2** along with their drainage class and NRCS official soil series description.

CONCLUSION

Six of the seven wetlands (Wetland Nos. 1 through 6) delineated among the various project areas on the site are considered inland wetlands and watercourses and were delineated accordingly. The state and federal jurisdictional limits of these six wetlands are coincident. One wetland system (Wetland No. 7) is subject to tidal influence and contains one or more species of tidal wetland vegetation. Thus, Wetland No. 7 is considered a tidal wetland in accordance with the State of Connecticut definition and, as such, is regulated under CGS Section 22a-29 (Tidal Wetlands). These tidal wetlands are also regulated by the USACE. Wetland 1, Wetland 7, and a portion of Wetland 6 drain to the south to Tuttle Brook, a tributary to Morris Creek, which in turn drains to Long Island Sound south of Morris Cove in New Haven, CT. Wetland 3 appears to be an isolated wetland with no apparent direct hydrologic connection to other site wetlands unless it connects through a submerged culvert that was not readily observable at the time of our delineation. Wetlands 4, 5 and a portion of Wetland 6 drain to the southeast – either directly (i.e., via excavated channel) or indirectly (via groundwater discharge) – to an extensive interspersed wetland transected by Morris Creek. In regards to Wetlands 3, 4, and 5, which are

presumed to be constructed drainage areas, one or more of these wetlands may be viewed by the USACE as isolated and thus may not be subject to USACE jurisdiction. A request for a jurisdictional determination is recommended for these wetlands.

Table 1: Wetlands Within the Limit of Wetland Delineation Fieldwork

Wetland ID (flagging sequence)	Wetland Type [a]	General Description	Soil Type (drainage class)	Principal Functions and Values of the Wetland	Characteristic Vegetation (indicator status) [b]
Wetland 1 (OHWA1-A33; OHWB1-B11; E1-E48)	R2UB2/4 and PEM1/5	A relocated reach of Tuttle Brook flanked by bordering vegetated wetland dominated by emergent persistent vegetation.	Walpole (Poorly Drained) and Scarboro (Very Poorly Drained)	Sediment/Toxicant Retention Nutrient Removal Production Export	*Sambucus nigra* (FACW) *Alnus sp.* *Phragmites australis* (FACW) *Typha latifolia* (OBL) *Onoclea sensibilis* (FACW)
Wetland 2 (H1-H32)	PFO1Ed and PEM5H	Red Maple swamp adjacent to an excavated channel that drains easterly and is flanked by stands of Phragmites	Walpole (Poorly drained) and Aquents (poorly drained fill materials)	Sediment/Toxicant Retention Nutrient Removal	*Acer rubrum* (FAC) *Nyssa sylvatica* (FAC) *Quercus palustris* (FACW) *Clethra alnifolia* (FAC) *Lindera benzoin* (FACW) *Vaccinium corymbosum* (FACW) *Phragmites australis* (FACW)
Wetland 3 (B1-B14)	PEM2J	Shallow basin dominated by gramminoids	Aquents (poorly drained fill materials)	Sediment/Toxicant Retention	*Juncus effusus* (OBL) *Juncus tenuis* (FAC) ***Paspalum laeve* (FAC)** *Symphyotrichum lateriflorum* (FAC) *Ludwigia palustris* (OBL)
Wetland 4 (F1-F20)	PEM2J	Routinely mowed lawn area bounded by Taxiway C on the northeast side, and Taxiway H on the southeast side. Low depression with	Aquents (poorly drained fill materials)	Sediment/Toxicant Retention	*Juncus effusus* (OBL) *Cyperus strigosus* (FACW) *Rumex crispus* (FAC) ***Paspalum laeve* (FAC)** *Symphyotrichum lateriflorum*

Wetland ID (flagging sequence)	Wetland Type [a]	General Description	Soil Type (drainage class)	Principal Functions and Values of the Wetland	Characteristic Vegetation (indicator status) [b]
		suspected high groundwater table.			(FAC)
Wetland 5 (G1-G48)	PEM2J	Routinely mowed lawn area bounded by Taxiway C on the northeast and southeast sides, Taxiway H on the northwest side and former Runway 32 on the southwest side. Low depression with high groundwater table.	Aquents (poorly drained fill materials)	Sediment/Toxicant Retention Production Export	*Juncus effusus* (OBL) *Cyperus strigosus* (FACW) ***Paspalum laeve* (FAC)** *Coleataenia longifolia* ssp. *longifolia* (FACW) *Echinochloa muricata* (OBL) *Eleocharis obtusa* (OBL) *Juncus acuminatus* (OBL) *Ludwigia palustris* (OBL) *Persicaria hydropiperoides* (OBL) *Schoenoplectus pungens var. pungens* (OBL) *Setaria pumila* ssp. *pumila* (FAC) *Symphyotrichum lateriflorum* (FAC)
Wetland 6 (A1-A121; D1-D50; D51-D62 & D63 to D-88)	PFO1E PEM2	Forested and scrub-shrub wetland (6B portion) and bordering mowed lawn area (6A portion) transected by permanently flooded excavated channel. Low depressions with apparent high groundwater table in mowed areas.	Aquents (poorly drained fill materials)	Sediment/Toxicant Retention	*Acer rubrum* (FAC) *Lindera benzoin* (FACW) *Vaccinium corymbosum* (FACW) *Ilex verticillata* (FACW) *Viburnum dentatum* (FAC) *Clethra alnifolia* (FAC) *Phragmites australis* (FACW)

Wetland ID (flagging sequence)	Wetland Type [a]	General Description	Soil Type (drainage class)	Principal Functions and Values of the Wetland	Characteristic Vegetation (indicator status) [b]
					Lythrum salicaria (OBL) *Spiraea tomentosa* (FACW) *Euthrochium maculatum* (OBL) *Juncus effusus* (OBL) ***Paspalum laeve* (FAC)** *Euthamia caroliniana* (FAC) *Eupatorium perfoliatum* (FACW) *Rhynchospora capitellata* (OBL) *Setaria pumila* ssp. *pumila* (FAC) *Cyperus strigosus* (FACW)
Wetland 7 (C1-C104)	E2EM1/5 P and E1UBL	The majority of this wetland system consists of a *Phragmites australis*-dominated tidal wetland bordered by a zone of *Baccharis halimifolia* landward.	Aquents (poorly drained fill materials)	Floodflow Alteration Fish and Shellfish Habitat Wildlife Habitat Uniqueness/Heritage	*Phragmites australis* (FACW) *Spartina alterniflora* (OBL) *Spartina patens* (FACW) *Distichlis spicata* (FACW) *Juncus gerardii* (OBL) *Baccharis halimifolia* (FACW) *Iva frutescens* (FACW)

Notes:

(a) Wetland Type (Cowardin, et. al., 1979 and Federal Geographic Data Committee, 2013)
R3UB2/4 – Riverine lower perennial unconsolidated bottom (sand/mud) watercourse
PFO1E – Palustrine Forested Broad-leaved Deciduous seasonally flooded/saturated wetland
PEM5H – Palustrine Emergent *Phragmites australis*-dominated permanently flooded wetland
PEM2 – Palustrine Emergent, non-persistent wetland
PEM2J – Palustrine Emergent, non-persistent intermittently-flooded wetland
E2EM1/5P – Estuarine intertidal emergent, persistent/*Phragmites australis*, irregularly flooded wetland

Wetland ID (flagging sequence)	Wetland Type [a]	General Description	Soil Type (drainage class)	Principal Functions and Values of the Wetland	Characteristic Vegetation (indicator status) [b]
		E1UBL – Estuarine subtidal, unconsolidated bottom, subtidal deepwater habitat (b) Wetland Indicator Status: OBL (Obligate): Almost always occur in wetland FACW (Facultative Wetland): Usually occur in wetland, but may occur in non-wetland FAC (Facultative): Occur in wetland or non-wetland **Bold text** = State listed plant species			

Table 2: NRCS Mapped Soils in the Vicinity of the Project Area

Soil ID	Soil Name	Drainage Class	Official NRCS Soil Series Description
24	Deerfield Loamy Sand	Moderately well-drained	Soils belonging to the Deerfield series consists of loamy sands of glaciofluvial deposits. They are derived from acidic crystalline rocks such as granite, gneiss, and schist. They are recognized as farmland soils of statewide importance.
37	Manchester gravelly sandy loam	Excessively-drained	The soils of the Manchester series consists of gravelly sandy loam that originated from glaciofluvial deposits. They are derived from acidic red sandstone, shale, and conglomerate bedrocks. They are recognized as farmland soils of statewide importance.
98	Westbrook mucky peat	Very poorly drained	The Westbrook series consists of very deep soils formed in organic deposits over loamy mineral material. They are in tidal marshes subject to inundation by salt water twice daily.
306	Udorthents-Urban Land complex	Well drained	This complex consists of soils that have been disturbed by cutting or filling, and areas that are covered by buildings and pavement.
308	Udorthents, smoothed	Moderately well drained	Udorthents, smoothed, consists of areas from which soil material has been excavated, and nearby areas in which this material has been deposited. The original soil material is generally excessively drained to moderately well drained, and ranges from nearly level to very steep.
	Aquents (un-mapped)	Poorly to very poorly drained	Aquents are soils formed in human transported material or on excavated (cut) landscapes. They typically exist as smaller units within Udorthent soil materials.

The larger wetland complexes that are not within the maintained areas around the runways form important habitat systems and wildlife corridors that provide resources for various fish and wildlife species known to occur in tidal marshes and tidal creeks. The tidal wetlands within the maintained areas around the runways provide limited habitat for various wildlife species of conservation concern. *Paspalum laeve*, a characteristic wetland plant of the herbaceous layer in multiple PEM wetlands on the site, is listed in the State of Connecticut Endangered Species Act as Threatened. A "Threatened" designation is given to plants that have been documented by research and scientific inventory to occur at only six to nine locations in the state. Field Beadgrass is primarily restricted to sites within CT's coastal zone such as Old Lyme, East Haddam, Groton

(W. Moorhead, personal communication), in undisclosed sites in New Haven County (Magee and Ahles, 1999); and in a similar biogeographic zone in NY (e.g., on Fisher's Island and in various municipalities of Long Island, based upon FHI's review of New York State Museum specimen labels). The density and distribution of this species on the Airport has not yet been determined. It is recommended that these metrics be completed during the permitting stage of the project.

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Appendix A - Figures

Legend

- Areas of Wetland Investigation
- Tweed Airport Property

Tweed New Haven Airport

Wetland and Watercourse Delineation

Figure 1

Overview Map

Map Produced 11/29/2021

Data Source: USGS The National Map 2021

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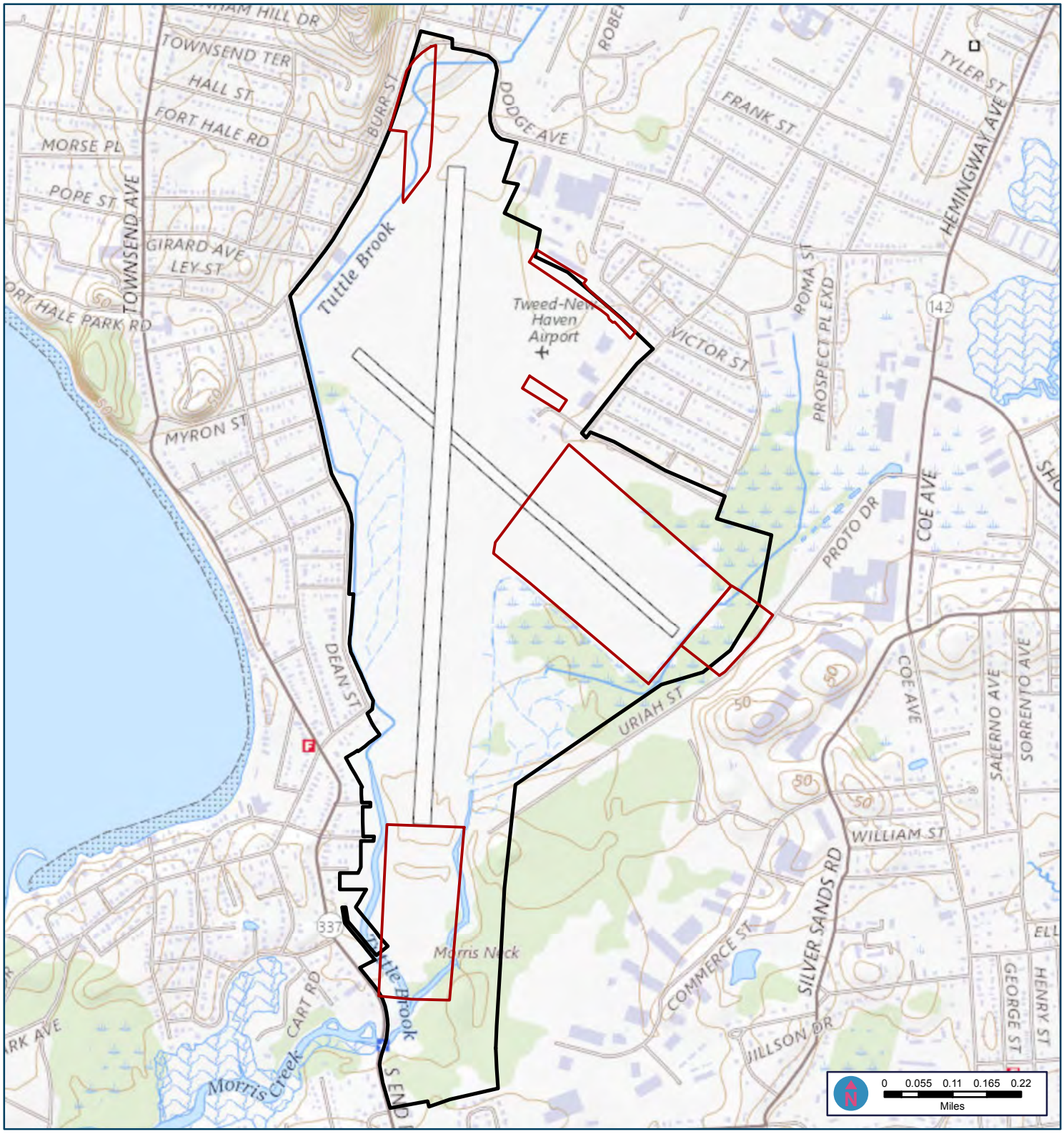
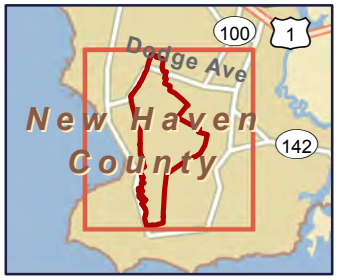




Legend

- Areas of Wetland Investigation
- Tweed Airport Property

Tweed New Haven Airport

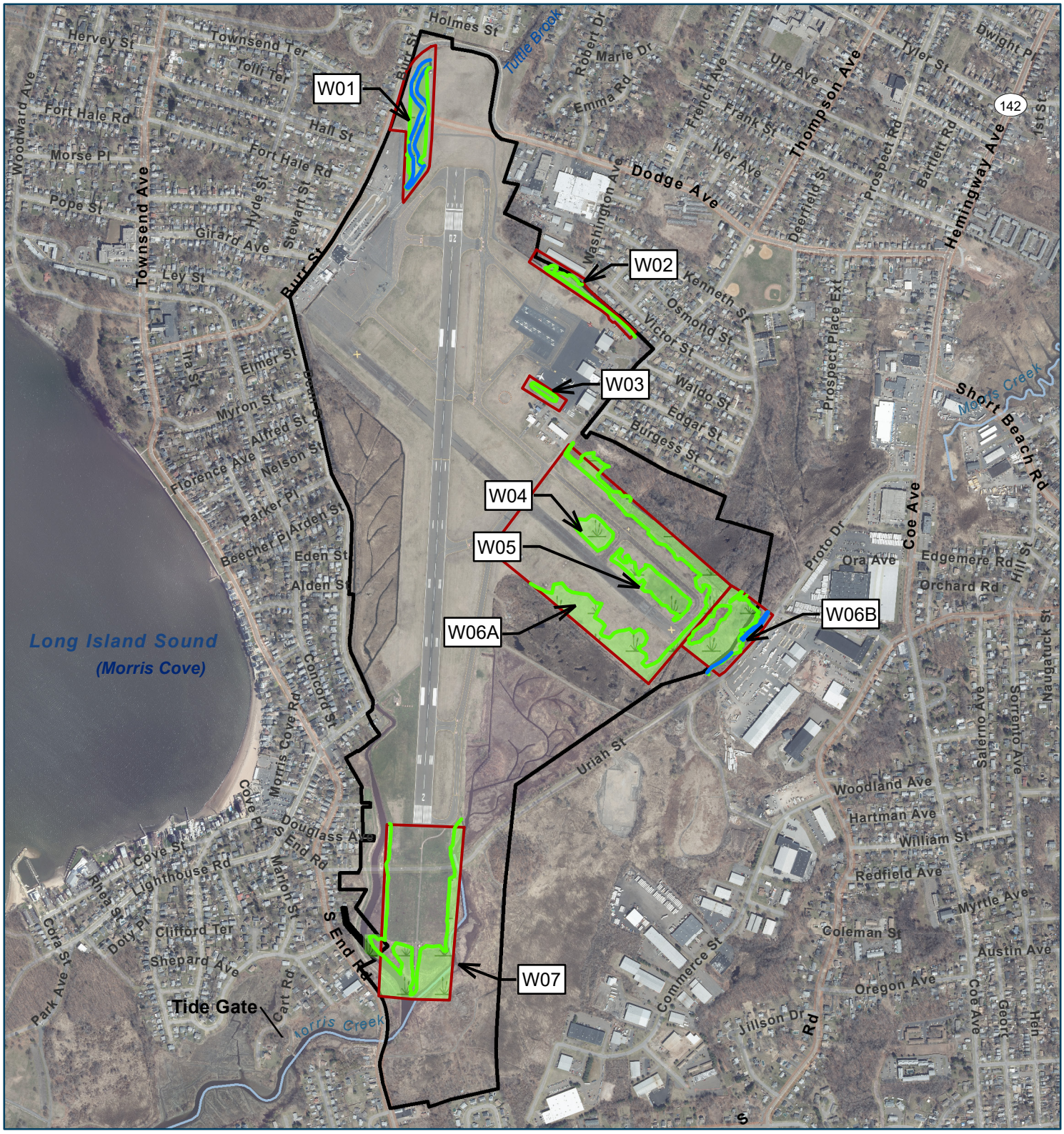
Wetland and Watercourse Delineation

Figure 2

Map Produced 11/29/2021
Data Source: USGS The National Map 2021

USGS Map

FHI studio



Legend

- Delineated Wetland
- Delineated Ordinary High Water (OHW)
- Areas of Wetland Investigation
- Tweed Airport Property

Tweed New Haven Airport

Wetland and Watercourse Delineation

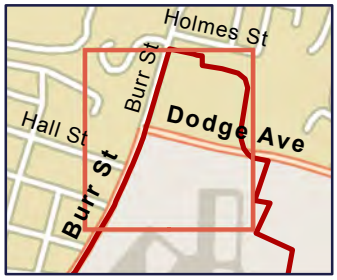
Figure 3A

Map Produced 11/30/2021

Data Source: CTECO 2019 Aerial, ESRI, FHI Studio 2021

Wetland Field Delineation Sketch Map

FHI studio



Map Produced 12/8/2021

Data Source: CTECO 2019 Aerial, FHI Studio 2021

Legend

- Wetland Transect Plot Location
- Ordinary High Water (OHW) Field Flag Location
- Wetland Field Flag Location
- Delineated Ordinary High Water (OHW) Line
- Limits of Wetland Investigation Area
- Field Delineated Wetland 2021
- Tweed Airport Property

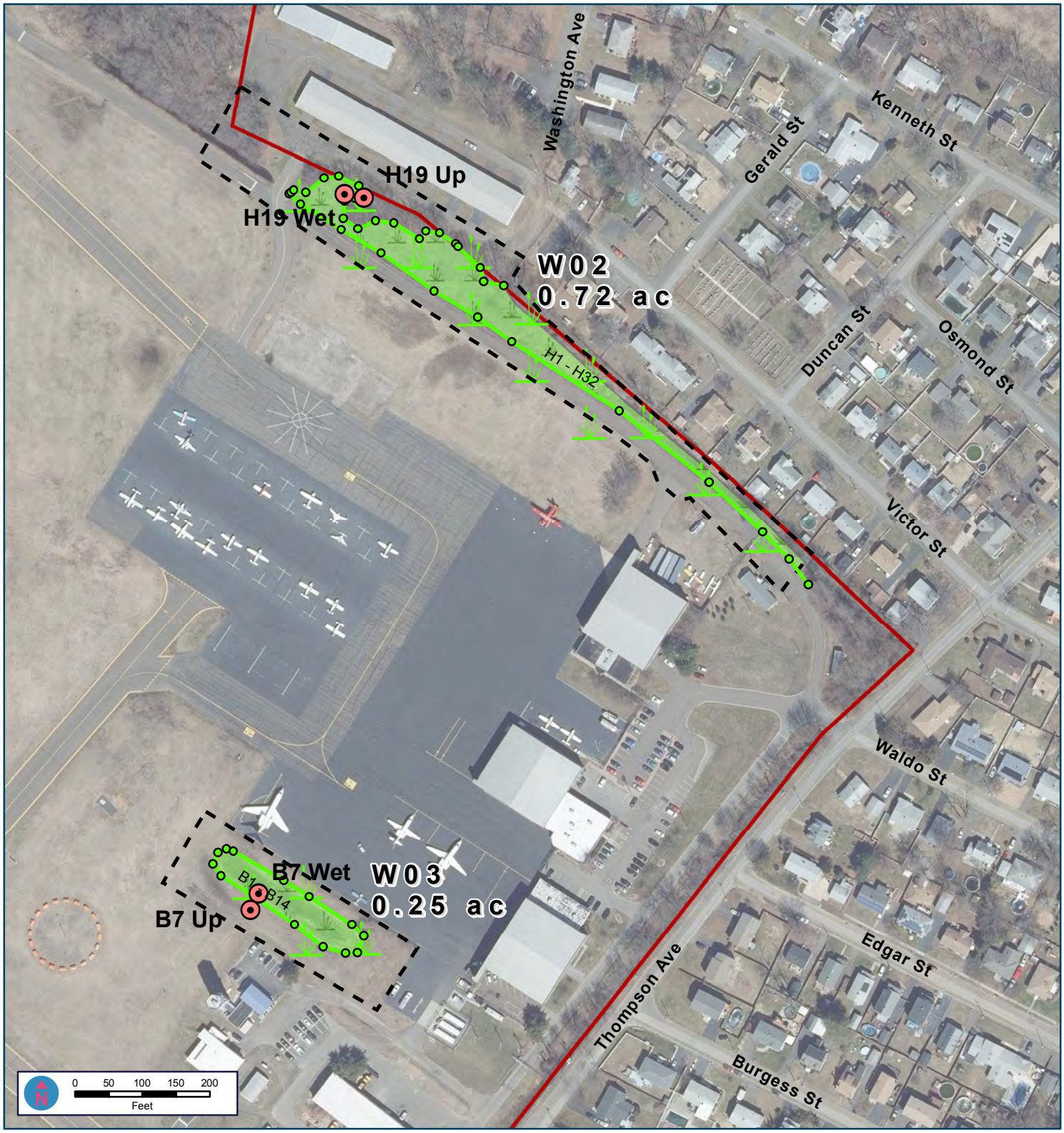
Tweed New Haven Airport

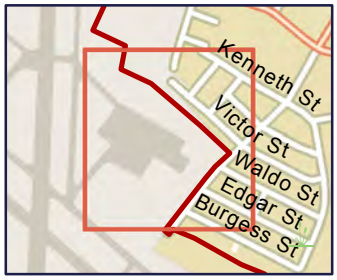
Wetland and Watercourse Delineation

Figure 3b

Detailed Field Delineated Wetland Sketch Map

FHI studio





Legend

- Wetland Transect Plot Location
- Ordinary High Water (OHW) Field Flag Location
- Wetland Field Flag Location
- Delineated Ordinary High Water (OHW) Line
- Limits of Wetland Investigation Area
- Field Delineated Wetland 2021
- Tweed Airport Property

Tweed New Haven Airport

Wetland and Watercourse Delineation

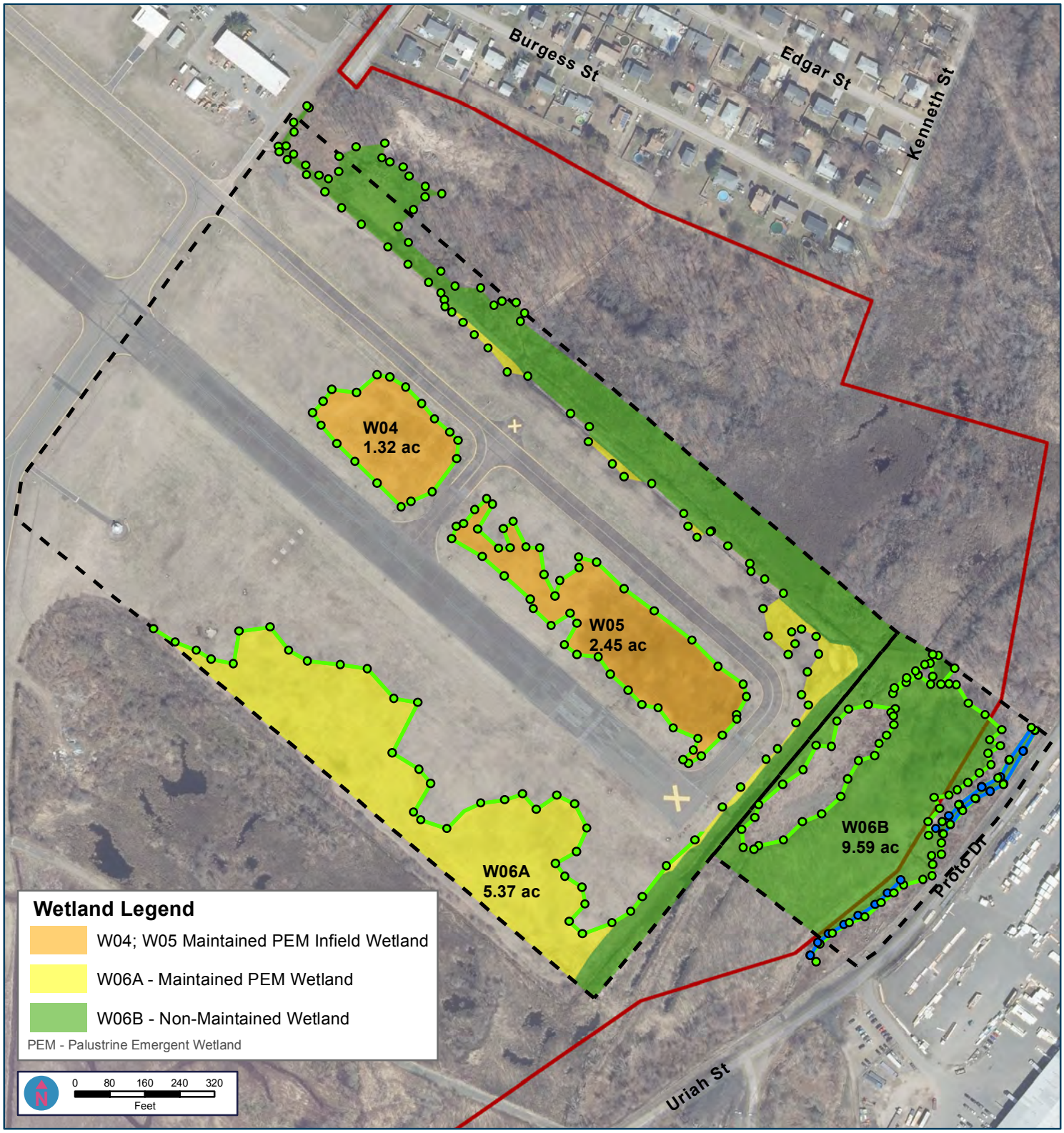
Figure 3c

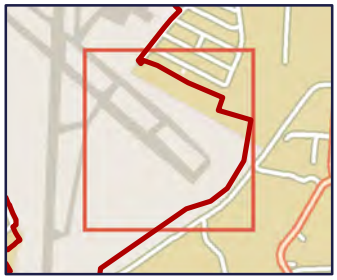
Detailed Field Delineated Wetland Sketch Map

Map Produced 12/8/2021

Data Source: CTECO 2019 Aerial, FHI Studio 2021

FHI studio





Legend

- Tweed Airport Property
- Limits of Wetland Investigation Area
- Wetland Field Flag Location
- Ordinary High Water (OHW) Field Flag Location
- Delineated Wetland Line
- Delineated Ordinary High Water (OHW) Line

Tweed New Haven Airport

Wetland and Watercourse Delineation

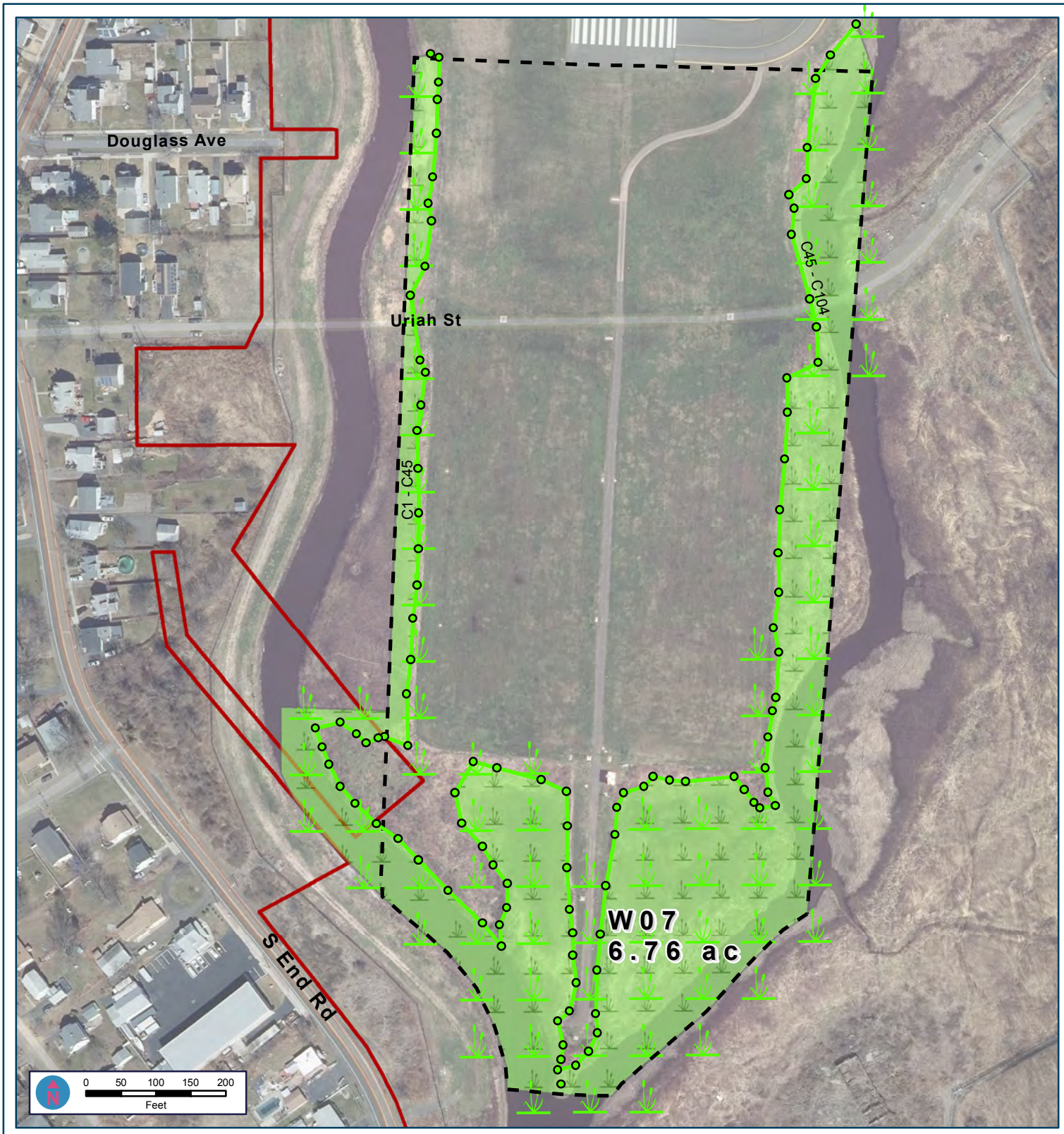
Figure 3d

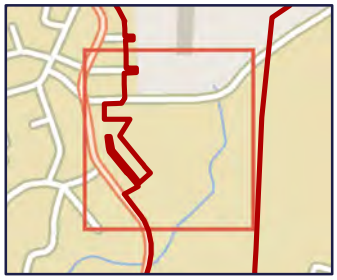
Detailed Field Delineated Wetland Sketch Map

Map Produced 1/5/2022

Data Source: CTECO 2019 Aerial, FHI Studio 2021

FHI studio





Legend

- Wetland Transect Plot Location
- Ordinary High Water (OHW) Field Flag Location
- Wetland Field Flag Location
- Delineated Ordinary High Water (OHW) Line
- Limits of Wetland Investigation Area
- Field Delineated Wetland 2021
- Tweed Airport Property

Tweed New Haven Airport

Wetland and Watercourse Delineation

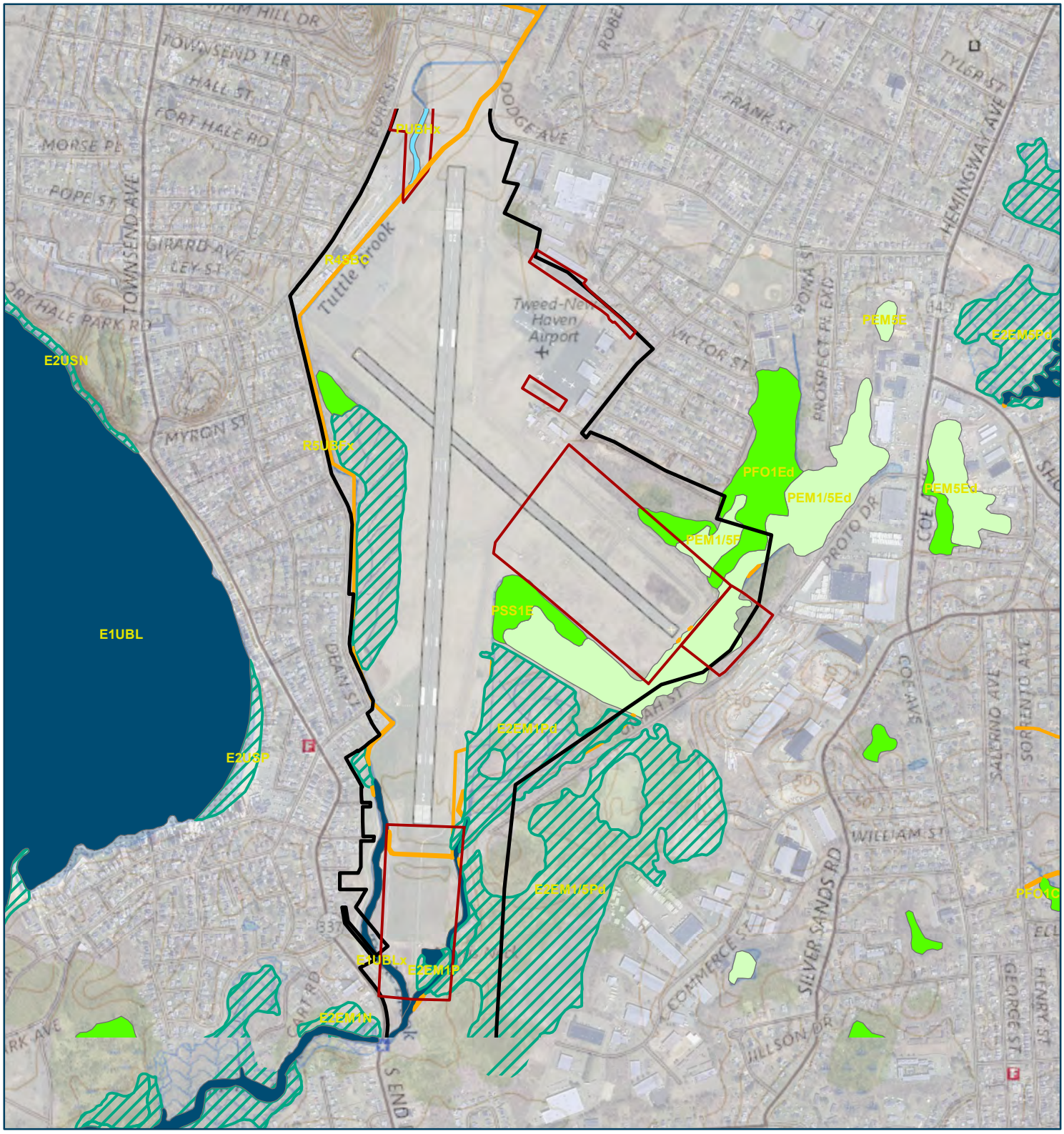
Figure 3e

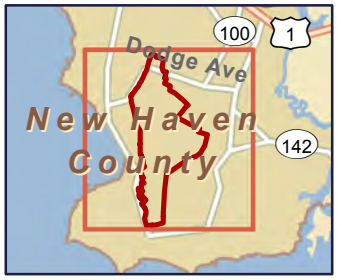
Detailed Field Delineated Wetland Sketch Map

Map Produced 12/8/2021

Data Source: CTECO 2019 Aerial, FHI Studio 2021

FHI studio





Map Produced 12/1/2021
Data Source:USFWS NWI

Legend

- Tweed Airport Property
- Areas of Wetland Investigation
- Estuarine and Marine Deepwater
- Estuarine and Marine Wetland
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Riverine

Tweed New Haven Airport

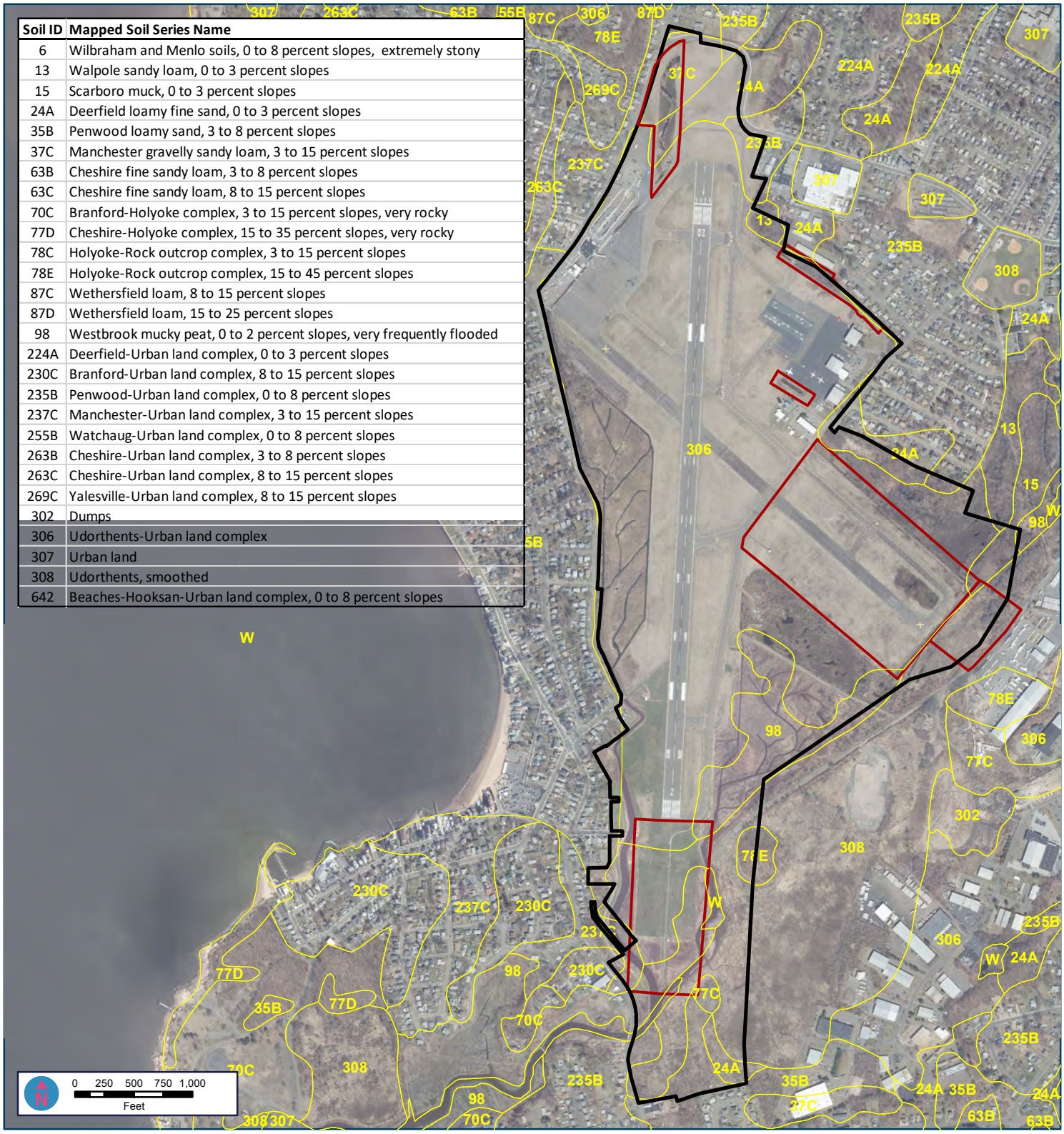
Wetland and Watercourse Delineation

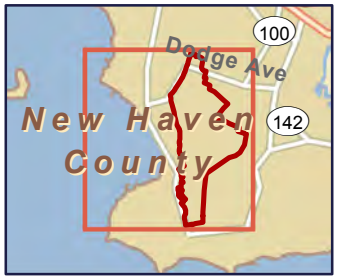
Figure 4

USFWS NWI Map

FHI studio

Soil ID	Mapped Soil Series Name
6	Wilbraham and Menlo soils, 0 to 8 percent slopes, extremely stony
13	Walpole sandy loam, 0 to 3 percent slopes
15	Scarboro muck, 0 to 3 percent slopes
24A	Deerfield loamy fine sand, 0 to 3 percent slopes
35B	Penwood loamy sand, 3 to 8 percent slopes
37C	Manchester gravelly sandy loam, 3 to 15 percent slopes
63B	Cheshire fine sandy loam, 3 to 8 percent slopes
63C	Cheshire fine sandy loam, 8 to 15 percent slopes
70C	Branford-Holyoke complex, 3 to 15 percent slopes, very rocky
77D	Cheshire-Holyoke complex, 15 to 35 percent slopes, very rocky
78C	Holyoke-Rock outcrop complex, 3 to 15 percent slopes
78E	Holyoke-Rock outcrop complex, 15 to 45 percent slopes
87C	Wethersfield loam, 8 to 15 percent slopes
87D	Wethersfield loam, 15 to 25 percent slopes
98	Westbrook mucky peat, 0 to 2 percent slopes, very frequently flooded
224A	Deerfield-Urban land complex, 0 to 3 percent slopes
230C	Branford-Urban land complex, 8 to 15 percent slopes
235B	Penwood-Urban land complex, 0 to 8 percent slopes
237C	Manchester-Urban land complex, 3 to 15 percent slopes
255B	Watchaug-Urban land complex, 0 to 8 percent slopes
263B	Cheshire-Urban land complex, 3 to 8 percent slopes
263C	Cheshire-Urban land complex, 8 to 15 percent slopes
269C	Yalesville-Urban land complex, 8 to 15 percent slopes
302	Dumps
306	Udorthents-Urban land complex
307	Urban land
308	Udorthents, smoothed
642	Beaches-Hooksan-Urban land complex, 0 to 8 percent slopes





Legend

- Areas of Wetland Investigation
- Tweed Airport Property
- NRCS Mapped Soil Unit

Tweed New Haven Airport

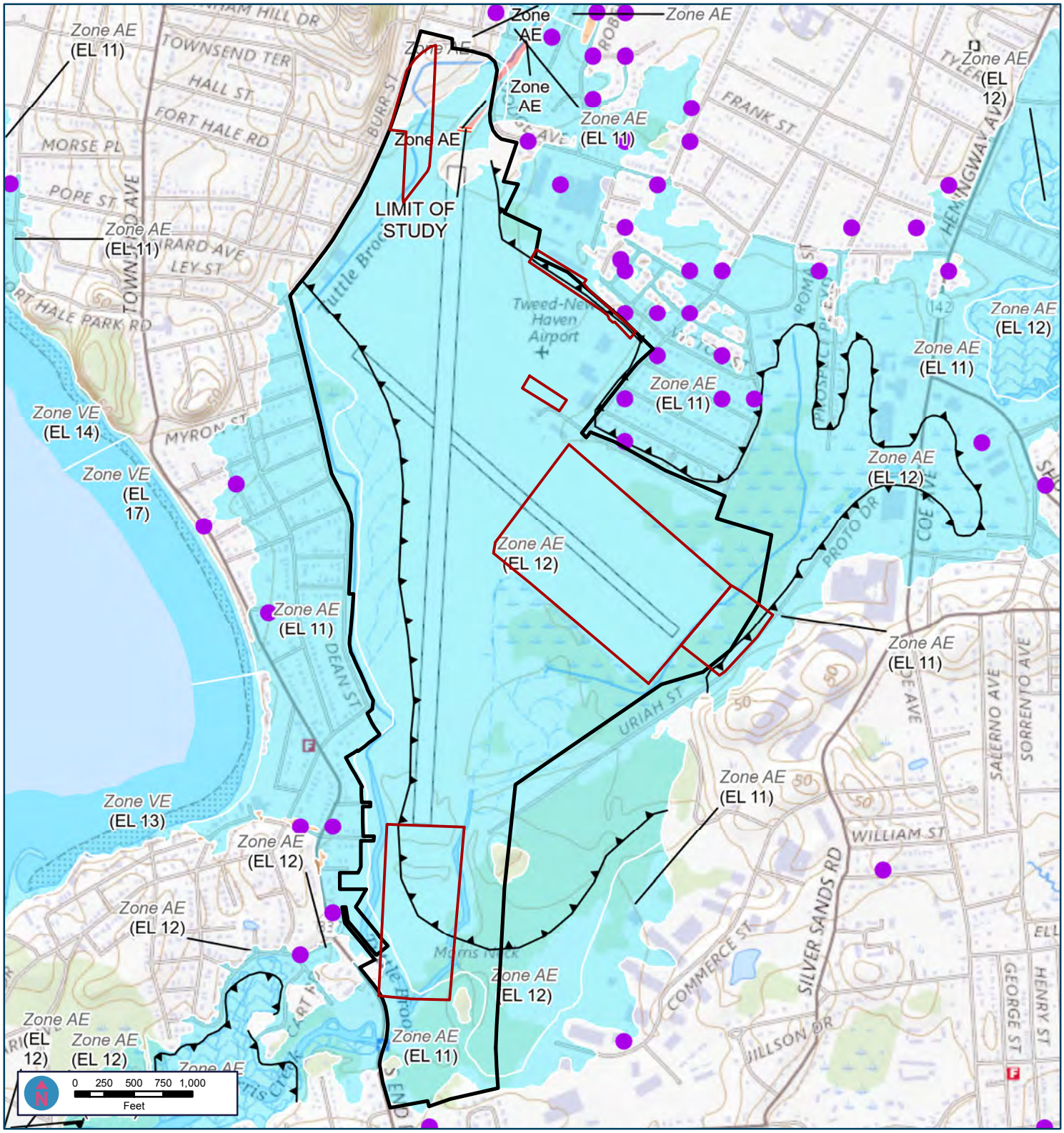
Wetland and Watercourse Delineation

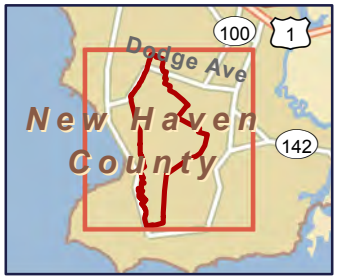
Figure 5

Map Produced 12/1/2021
Data Source: USDA NRCS Soils Mapping 2021

NRCS Soils Series

FHI studio





Map Produced 12/1/2021
Data Source: FEMA

Legend

- Tweed Airport Property
- Areas of Wetland Investigation

Flood Hazard Zones

- 1% Annual Chance Flood Hazard
- Regulatory Floodway
- Special Floodway
- Effective
- LOMAs
- Limit of Moderate Wave Action

Tweed New Haven Airport

Wetland and Watercourse Delineation

Figure 6

FEMA Flood Zones

FHI studio

Appendix B - USACE Wetland Functions and Values Assessment Forms

Wetland Function-Value Evaluation Form

Total area of wetland 3.04ac Human made? Modified Is wetland part of a wildlife corridor? Y or a "habitat island"?

Adjacent land use Airport Runway Safety Area (Lawn) Distance to nearest roadway or other development 80'

Dominant wetland systems present R3UB2/3 Contiguous undeveloped buffer zone present no

Is the wetland a separate hydraulic system? N If not, where does the wetland lie in the drainage basin? Middle

How many tributaries contribute to the wetland? 0 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. W01

Latitude 41.27177811 Longitude -72.88867746

Prepared by: AJZ Date 11-9-21

Wetland Impact:
Type TBD Area TBD

Evaluation based on:
Office X Field X

Corps manual wetland delineation completed? Y X N

Function/Value	Suitability Y	Suitability N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	◉	○	4,7,15		watercourse shows clear evidence of OHW; GW Q sustains base flow
Floodflow Alteration	○	◉	4,5,7,9,10,11,13,16,18		
Fish and Shellfish Habitat	○	◉	4,10,14,16,17		
Sediment/Toxicant Retention	◉	○	1,2,3,4,10,15,16	X	1= road sands; 10=Tuttle Brook (a perennial watercourse)
Nutrient Removal	○	◉	3,4,5,6,7,8,9,10,11	X	4=lawn fertilizer from upstream residences
Production Export	○	◉	1,2,4,7,9,10,11,12,13	X	
Sediment/Shoreline Stabilization	○	◉	1,,2,3,4,5,7,9,12,13,15		1=sedimentation from lateral culvert outlets
Wildlife Habitat	○	◉	7,8,11,13,15,16,17,18		19,20
Recreation	○	◉	12		
Educational/Scientific Value	○	◉	8,9,14		
Uniqueness/Heritage	○	◉	1,7,8,9,11,12,13,17,19		22,24,28 (Paspalum laeve - CT Threatened)
Visual Quality/Aesthetics	○	◉	2,6,9		
ES Endangered Species Habitat	○	◉	1		1 = Paspalum laeve - CT Threatened
Other	◉	○			carbon sequestration

Notes:

* Refer to backup list of numbered considerations.

Wetland Function-Value Evaluation Form

Total area of wetland 0.72ac Human made? Modified Is wetland part of a wildlife corridor? Y or a "habitat island"?

Adjacent land use residential, commercial (Hangars), access rd Distance to nearest roadway or other development adjacent

Dominant wetland systems present PFO1E & PEM 1/5 Contiguous undeveloped buffer zone present N

Is the wetland a separate hydraulic system? N If not, where does the wetland lie in the drainage basin? middle

How many tributaries contribute to the wetland? 0 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. W02

Latitude 41.26904653 Longitude -72.88417179

Prepared by: AJZ Date 11-9-21

Wetland Impact:
Type TBD Area TBD

Evaluation based on:
Office X Field X

Corps manual wetland delineation completed? Y X N

Function/Value	Suitability Y	Suitability N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	◉	○	4,7,15		
Floodflow Alteration	◉	○	3,4,5,6,7,8,9,10,11		
Fish and Shellfish Habitat	○	◉	4,10,14,16?,17		
Sediment/Toxicant Retention	◉	○	1,2,3,4,8,10,12	X	
Nutrient Removal	◉	○	2,3,4,5,6,7,8,9,10,11	X	13 , 14
Production Export	◉	○	1,2,4,7,9,10,11,12,13		
Sediment/Shoreline Stabilization	◉	○	1,2,3,4,5,6,7,9,12,13		15
Wildlife Habitat	○	◉	7,8,11,13,16,18,19,20		
Recreation	○	◉			wetland is not accessible to the public
Educational/Scientific Value	○	◉	1,8,14		
Uniqueness/Heritage	○	◉	1,5,7,8,9,13,14,17,22		
Visual Quality/Aesthetics	○	◉	2		
ES Endangered Species Habitat	○	◉	1		
Other	○	◉			

Notes:

* Refer to backup list of numbered considerations.

Wetland Function-Value Evaluation Form

Total area of wetland 0.25ac Human made? Y Is wetland part of a wildlife corridor? N or a "habitat island"? Y

Adjacent land use East Ramp, ATC, OPS, parking Distance to nearest roadway or other development 30'

Dominant wetland systems present PEM2 Contiguous undeveloped buffer zone present N

Is the wetland a separate hydraulic system? Y If not, where does the wetland lie in the drainage basin?

How many tributaries contribute to the wetland? 0 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. W03

Latitude 41.26619678 Longitude -72.88465694

Prepared by: AJZ Date 11-9-21

Wetland Impact:
Type TBD Area TBD

Evaluation based on:
Office X Field X

Corps manual wetland delineation completed? Y X N

Function/Value	Suitability Y	Suitability N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	○	◉	4,5,8		
Floodflow Alteration	◉	○	3,4,6,7,8?,9,11		4=East Ramp, 7=ponded water
Fish and Shellfish Habitat	○	◉			wetland not associated with a watercourse
Sediment/Toxicant Retention	◉	○	1,2,3,5,7,9	X	
Nutrient Removal	◉	○	2,3,4?,5,7,9,10,11		
Production Export	○	◉	2,7,9		
Sediment/Shoreline Stabilization	○	◉	2,3,5,10,12,13,15		
Wildlife Habitat	◉	○	7,11,16,19		limited suitability for most vertebrate taxon
Recreation	○	◉			no public access available
Educational/Scientific Value	○	◉	1,14		no public access available
Uniqueness/Heritage	◉	○	1,5,15,24,28		Paspalum laeve
Visual Quality/Aesthetics	○	◉	2,6,9,12		
ES Endangered Species Habitat	○	◉	1		1= Paspalum laeve
Other	○	◉			

Notes:

* Refer to backup list of numbered considerations.

Wetland Function-Value Evaluation Form

Total area of wetland 1.3ac Human made? Y Is wetland part of a wildlife corridor? N or a "habitat island"? Y

Adjacent land use Taxiway & Runway Distance to nearest roadway or other development adjacent

Dominant wetland systems present PEM2 Contiguous undeveloped buffer zone present N

Is the wetland a separate hydraulic system? Y If not, where does the wetland lie in the drainage basin?

How many tributaries contribute to the wetland? 0 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. Wetland 4

Latitude 41.26247437 Longitude -72.88275629

Prepared by: AJZ Date 11-9-21

Wetland Impact:
Type TBD Area TBD

Evaluation based on:
Office X Field X

Corps manual wetland delineation completed? Y X N

Function/Value	Suitability Y	Suitability N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	◉	○	4,9,10,15		10=drop inlet catchbasin regulates the maximum heightof impounded water
Floodflow Alteration	◉	○	3,4,5,6,7,8,9,10,12,15		15=drop inlet catchbasin regulates the maximum heightof impounded water
Fish and Shellfish Habitat	○	◉			wetland not directly associated with a Watercourse
Sediment/Toxicant Retention	◉	○	2,3,4,5,7,9	X	
Nutrient Removal	◉	○	2,3,5,7,9,10,11		
Production Export	◉	○	1,2,4,9,10,12,13		
Sediment/Shoreline Stabilization	○	◉	2,5,15		
Wildlife Habitat	◉	○	7,8,9,10,11,12,13,16		18,19,20,21; 8=smartweeds, 11=shallow marsh
Recreation	○	◉			wetland is not accessible or visible to the public
Educational/Scientific Value	○	◉	1,14		
Uniqueness/Heritage	○	◉	1,5,8,12,13,17,19,24		28; 24=Paspalum laeve (CT-Threatened)
Visual Quality/Aesthetics	○	◉	2,4,6		
ES Endangered Species Habitat	◉	○	1		1=Paspalum laeve (CT-Threatened)
Other	○	◉			

Notes:

* Refer to backup list of numbered considerations.

Wetland Function-Value Evaluation Form

Total area of wetland 2.45ac Human made? Y Is wetland part of a wildlife corridor? N or a "habitat island"? Y

Adjacent land use Taxiway, Runway Distance to nearest roadway or other development adjacent

Dominant wetland systems present PEM2 Contiguous undeveloped buffer zone present N

Is the wetland a separate hydraulic system? Y If not, where does the wetland lie in the drainage basin?

How many tributaries contribute to the wetland? 0 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. Wetland 5

Latitude 41.26108729 Longitude -72.88005655

Prepared by: AJZ Date 11-9-21

Wetland Impact:
Type TBD Area TBD

Evaluation based on:
Office X Field X

Corps manual wetland delineation completed? Y X N

Function/Value	Suitability Y	Suitability N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	◉	○	4,8,9,10,15		9=drop inlet catchbasin recharge
Floodflow Alteration	◉	○	3,4,5,6,7,8,9,10,15,18		4=runways, taxiways,tarmac,parking; 7=ponded water; 15=drop inlet catchbasin
Fish and Shellfish Habitat	○	◉			wetland not directly associated with a watercourse
Sediment/Toxicant Retention	◉	○	1,2,3,4,5,7,9	X	4=organic soils
Nutrient Removal	◉	○	2,3,4,5,7,8,9,10,11		2=openwater habitat; 7=organic soils; 9=emergent covert type
Production Export	◉	○	1,2,4,7,9,10,12,13	X	1=e.g.,smartweeds, woolgrass; 4=waterfowl & shorebirds; 10=drop inlet catchbasin
Sediment/Shoreline Stabilization	○	◉	2,5,15		
Wildlife Habitat	◉	○	7,8,11,13,16,18,19,20		8=smartweed, 16=obligate hydrophytes, 19=abundant odonata and mosquito larvae
Recreation	○	◉			area not accessible to the public
Educational/Scientific Value	○	◉	1,14		1=Paspalum laeve
Uniqueness/Heritage	◉	○	1,5,8,12,13,17,19,24		24 & 28=Paspalum laeve
Visual Quality/Aesthetics	○	◉	2,4,6		
ES Endangered Species Habitat	◉	○	1		1=Paspalum laeve
Other	○	◉			

Notes:

* Refer to backup list of numbered considerations.

Wetland Function-Value Evaluation Form

Total area of wetland 14.95ac Human made? N Is wetland part of a wildlife corridor? Y or a "habitat island"?

Adjacent land use Taxiway C, closed RW32 Distance to nearest roadway or other development adjacent

Dominant wetland systems present PFO1E/ PEM 1/5 Contiguous undeveloped buffer zone present

Is the wetland a separate hydraulic system? N If not, where does the wetland lie in the drainage basin? Lower Middle

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

Wetland I.D. Wetland 6

Latitude 41.26058504 Longitude -72.88216529

Prepared by: AJZ Date 11-9-2021

Wetland Impact:
Type YBD Area TBD

Evaluation based on:
Office X Field X

Corps manual wetland delineation completed? Y X N

Function/Value	Suitability Y	Suitability N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	◉	○	4,8,10,15		
Floodflow Alteration	○	◉	4,6,7,9,10		
Fish and Shellfish Habitat	○	◉			wetland not directly associated with a watercourse
Sediment/Toxicant Retention	◉	○	2,4,7,9	X	
Nutrient Removal	◉	○	11,3,5,7,8,9,10,11		9=emergent cover type
Production Export	◉	○	1,4,9,12		
Sediment/Shoreline Stabilization	○	◉	2,5,15		
Wildlife Habitat	◉	○	7,11,16,18,20,21,22		11=wet meadow
Recreation	○	◉			
Educational/Scientific Value	○	◉	1,14		1=Paspalum laeve
Uniqueness/Heritage	◉	○	1,5,8,12,13,17,19,24		24&28=Paspalum laeve
Visual Quality/Aesthetics	○	◉	2,4,6		
ES Endangered Species Habitat	◉	○			1=Paspalum laeve
Other	○	◉			

Notes:

* Refer to backup list of numbered considerations.

Wetland Function-Value Evaluation Form

Total area of wetland 8.4ac Human made? N Is wetland part of a wildlife corridor? Y or a "habitat island"?

Adjacent land use Runway Distance to nearest roadway or other development 250'

Dominant wetland systems present PEM 1/5d Contiguous undeveloped buffer zone present

Is the wetland a separate hydraulic system? N If not, where does the wetland lie in the drainage basin? lower

How many tributaries contribute to the wetland? 1 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. Wetland 7

Latitude 41.252328 Longitude -72.888514

Prepared by: AJZ Date 11-11-21

Wetland Impact:
Type TBD Area TBD

Evaluation based on:
Office X Field X

Corps manual wetland delineation completed? Y X N

Function/Value	Suitability Y	Suitability N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	○	◉	4,7		7=Morris and Tuttle Creeks
Floodflow Alteration	◉	○	4,5,9,10,11,12,13,18	X	13=Morris and Tuttle Creeks
Fish and Shellfish Habitat	◉	○	1,2,3,4	X	
Sediment/Toxicant Retention	◉	○	1,2,3,4,5,8,10,15,16		1=road sands; 2=vehicle fluids, 10=Morris and Tuttle Creeks
Nutrient Removal	◉	○	2,3,4,5,6,7,8,9,10,11		14; 4=residential lawns
Production Export	◉	○	1,2,4,5,6,7,9,10,11,12		13; 5=e.g. Osprey; 9=abundance
Sediment/Shoreline Stabilization	◉	○	1,2,3,4,6,7,9,12,13,15		3&4=road sands; 12=vegetation borders watercourse; 15=Phragmites stands
Wildlife Habitat	◉	○	6,7,8,11,13,16,18,19,	X	21,22,23; 8=e.g., Vitis, Toxicodendron, Paspalum, etc.; 16=waterbirds, hydrophytes; 23=wetland subject to a mitigation project implemented to enhance biodiversity
Recreation	○	◉	7		
Educational/Scientific Value	○	◉	1,5,14		
Uniqueness/Heritage	◉	○	1,4,5,7,12,13,15,24,27	X	28
Visual Quality/Aesthetics	◉	○	2,4,6,8		
ES Endangered Species Habitat	◉	○	1		1= Great Egret, Paspalum laeve (both CT-Threatened)
Other	◉	○			coastal resiliency; Carbon sequestration

Notes:

* Refer to backup list of numbered considerations.

Appendix C - USACE Wetland Documentation Dataforms

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Tweed New Haven (HVN) Airport City/County: New Haven/New Haven Sampling Date: 10-29-21

Applicant/Owner: City of New Haven State: CT Sampling Point: E36U

Investigator(s): AJZ/JJW Section, Township, Range:

Landform (hillside, terrace, etc.): Local relief (concave, convex, none): Slope (%):

Subregion (LRR or MLRA): LRR R Lat: -41.27178354 Long: -72.88871735 Datum:

Soil Map Unit Name: Deerfield Loamy fine sand NWI classification: none

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

Are Vegetation Y, Soil Y, or Hydrology Y significantly disturbed? Are "Normal Circumstances" present? Yes No X

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

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

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

Remarks: (Explain alternative procedures here or in a separate report.)
Much of the upland vegetation was mowed;.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

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

Wetland Hydrology Present? **Yes** **No** X

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

Remarks:

VEGETATION – Use scientific names of plants. Sampling Point: E36U

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	=Total Cover		
Sapling/Shrub Stratum (Plot size:)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	=Total Cover		
Herb Stratum (Plot size:)			
1. *Plantago lanceolata*	38	Yes	FACU
2. *Hypochaeris radicata*	20	Yes	FACU
3. *Andropogon gerardii*	5	No	FACU
4. *Schizachyrium scoparium*	5	No	FACU
5. *Lotus corniculatus*	5	No	FACU
6. *Trifolium pratense*	3	No	FACU
7. *Artemisia vulgaris*	3	No	UPL
8. *Paspalum setaceum*	3	No	FACU
9.			
10.			
11.			
12.			
	82 =Total Cover		
Woody Vine Stratum (Plot size:)			
1.			
2.			
3.			
4.			
	=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: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.0% (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	79	x 4 =	316
UPL species	3	x 5 =	15
Column Totals:	82 (A)		331 (B)
Prevalence Index = B/A =			4.04

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Vegetation Strata:

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

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

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

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

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

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: E36U

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-8	7.5YR 2.5/1						Sandy	
8-12	5YR 4/4						Sandy	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- ___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- ___ High Chroma Sands (S11) (**LRR K, L)**
- ___ Loamy Mucky Mineral (F1) (**LRR K, L**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Marl (F10) (**LRR K, L**)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ___ **No** X

Remarks:

This data form is revised from Northcentral and Northeast Regional Supplement Version 2.0 to reflect the NRCS Field Indicators of Hydric Soils version 7.0 March 2013 Errata. (http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_051293.docx)

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Tweed New Haven (HVN) Airport City/County: New Haven/New Haven Sampling Date: 10-29-21

Applicant/Owner: City of New Haven State: CT Sampling Point: E36W

Investigator(s): AJZ/JJW Section, Township, Range:

Landform (hillside, terrace, etc.): river terrace Local relief (concave, convex, none): concave Slope (%):

Subregion (LRR or MLRA): LRR R Lat: 41.27177811 Long: -72.88867746 Datum:

Soil Map Unit Name: Deerfield Loamy fine sand NWI classification: none

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

Are Vegetation Y, Soil N, or Hydrology Y significantly disturbed? Are "Normal Circumstances" present? Yes No X

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

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

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

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

HYDROLOGY

Wetland Hydrology Indicators:

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

- ___ Surface Water (A1)
- X High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1)
- X 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)
- ___ 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)
- X FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes	No X	Depth (inches):	
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:

VEGETATION – Use scientific names of plants.

Sampling Point: E36W

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	=Total Cover		
Sapling/Shrub Stratum (Plot size:)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	=Total Cover		
Herb Stratum (Plot size:)			
1. *Symphyotrichum lateriflorum*	50	Yes	FAC
2. *Juncus effusus*	12	Yes	OBL
3. *Carex stricta*	12	Yes	OBL
4. *Typha latifolia*	10	No	OBL
5. *Thalictrum thalictroides*	10	No	FACU
6. *Rumex crispus*	8	No	FAC
7. *Rubus hispidus*	5	No	FACW
8. *Dichanthelium clandestinum*	3	No	FACW
9. *Lythrum salicaria*	3	No	OBL
10.			
11.			
12.			
	113 =Total Cover		
Woody Vine Stratum (Plot size:)			
1.			
2.			
3.			
4.			
	=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: 100.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	37	x 1 =	37
FACW species	8	x 2 =	16
FAC species	58	x 3 =	174
FACU species	10	x 4 =	40
UPL species	0	x 5 =	0
Column Totals:	113 (A)		267 (B)

Prevalence Index = B/A = 2.36

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

X 2 - Dominance Test is >50%

X 3 - Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Vegetation Strata:

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

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

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

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

Hydrophytic Vegetation Present? **Yes** X **No** X

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: E36W

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	7.5YR 2.5/1	100					Sandy	
3-7	5YR 3/1	80	2.5YR 3/6	20	C	M	Sandy	Prominent redox concentrations
7-12	5YR 4/1	70	5YR 4/6	30	C	M		Prominent redox concentrations

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- X Sandy Redox (S5)
- ? Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- ? Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- ___ High Chroma Sands (S11) (**LRR K, L)**
- ___ Loamy Mucky Mineral (F1) (**LRR K, L**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Marl (F10) (**LRR K, L**)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** X **No** X

Remarks:

This data form is revised from Northcentral and Northeast Regional Supplement Version 2.0 to reflect the NRCS Field Indicators of Hydric Soils version 7.0 March 2013 Errata. (http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_051293.docx)

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Tweed New Haven (HVN) Airport City/County: East Haven/New Haven Sampling Date: 10-29-21

Applicant/Owner: City of New Haven State: CT Sampling Point: H19U

Investigator(s): AJZ/JJW Section, Township, Range:

Landform (hillside, terrace, etc.): bottomland Local relief (concave, convex, none): concave Slope (%):

Subregion (LRR or MLRA): LRR R Lat: 41.26903380 Long: -72.88407083 Datum:

Soil Map Unit Name: Udorthents - Urban Land Complex NWI classification: none

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

Are Vegetation N, Soil N, or Hydrology Y significantly disturbed? Are "Normal Circumstances" present? Yes No X

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

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

Hydrophytic Vegetation Present?	Yes X	No	**Is the Sampled Area**
Hydric Soil Present?	Yes 0	No	**within a Wetland?** **Yes** **No** X
Wetland Hydrology Present?	Yes X	No	If yes, optional Wetland Site ID:

Remarks: (Explain alternative procedures here or in a separate report.)
much of area recently inundated with stormwater

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Field Observations:

Surface Water Present?	Yes X	No	Depth (inches): 0	
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:
Recent rainfall had resulted in localized inundation of the adjacent wetland

VEGETATION – Use scientific names of plants. Sampling Point: H19U

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Acer rubrum*	50	Yes	FAC
2. *Quercus palustris*	20	Yes	FACW
3. *Nyssa sylvatica*	10	No	FAC
4.			
5.			
6.			
7.			
	80	=Total Cover	
Sapling/Shrub Stratum (Plot size:)			
1. *Clethra alnifolia*	50	Yes	FAC
2. *Vaccinium corymbosum*	15	No	FACW
3. *Kalmia latifolia*	10	No	FACU
4. *Betula populifolia*	8	No	FAC
5.			
6.			
7.			
	83	=Total Cover	
Herb Stratum (Plot size:)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
		=Total Cover	
Woody Vine Stratum (Plot size:)			
1. *Smilax rotundifolia*	20	Yes	FAC
2.			
3.			
4.			
	20	=Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	35	x 2 =	70
FAC species	138	x 3 =	414
FACU species	10	x 4 =	40
UPL species	0	x 5 =	0
Column Totals:	183 (A)		524 (B)

Prevalence Index = B/A = 2.86

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

X 2 - Dominance Test is >50%

X 3 - Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Vegetation Strata:

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

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

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

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

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

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: H19U

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	7.5YR 2.5/1						Sandy	
3-12	7.5YR 4/4						Sandy	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- ___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- ___ High Chroma Sands (S11) (**LRR K, L)**
- ___ Loamy Mucky Mineral (F1) (**LRR K, L**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Marl (F10) (**LRR K, L**)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ___ **No** X

Remarks:

This data form is revised from Northcentral and Northeast Regional Supplement Version 2.0 to reflect the NRCS Field Indicators of Hydric Soils version 7.0 March 2013 Errata. (http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_051293.docx)

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Tweed New Haven (HVN) Airport City/County: East Haven/New Haven Sampling Date: 10-29-21

Applicant/Owner: City of New Haven State: CT Sampling Point: H19W

Investigator(s): AJZ/JJW Section, Township, Range:

Landform (hillside, terrace, etc.): bottomland Local relief (concave, convex, none): concave Slope (%):

Subregion (LRR or MLRA): LRR R Lat: 41.26904653 Long: -72.88417179 Datum:

Soil Map Unit Name: Udorthents - Urban Land Complex NWI classification: none

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

Are Vegetation N, Soil N, or Hydrology Y significantly disturbed? Are "Normal Circumstances" present? Yes No X

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

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

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

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

HYDROLOGY

Wetland Hydrology Indicators:

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

- X Surface Water (A1)
- ___ 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)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- X 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:

VEGETATION – Use scientific names of plants. Sampling Point: H19W

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Acer rubrum*	75	Yes	FAC
2. *Quercus palustris*	15	No	FACW
3. *Nyssa sylvatica*	10	No	FAC
4.			
5.			
6.			
7.			
	100	=Total Cover	
Sapling/Shrub Stratum (Plot size:)			
1. *Clethra alnifolia*	15	Yes	FAC
2. *Vaccinium corymbosum*	10	Yes	FACW
3. *Viburnum dentatum*	5	No	FAC
4.			
5.			
6.			
7.			
	30	=Total Cover	
Herb Stratum (Plot size:)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
		=Total Cover	
Woody Vine Stratum (Plot size:)			
1. *Smilax rotundifolia*	5	Yes	FAC
2.			
3.			
4.			
	5	=Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	25	x 2 =	50
FAC species	110	x 3 =	330
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	135 (A)		380 (B)
Prevalence Index = B/A =			2.81

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

X 2 - Dominance Test is >50%

X 3 - Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Vegetation Strata:

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

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

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

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

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

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: H19W

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	7.5YR 2.5/1	100					Mucky Sand	
3-12	7.5YR 4/2	85	5YR 3/4	15	C	M	Sandy	Distinct redox concentrations

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ? Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- X Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- X Sandy Redox (S5)
- ? Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- ___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- ___ High Chroma Sands (S11) (**LRR K, L)**
- ___ Loamy Mucky Mineral (F1) (**LRR K, L**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Marl (F10) (**LRR K, L**)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** X **No** ___

Remarks:

This data form is revised from Northcentral and Northeast Regional Supplement Version 2.0 to reflect the NRCS Field Indicators of Hydric Soils version 7.0 March 2013 Errata. (http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_051293.docx)

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Tweed New Haven Airport (HVN) City/County: East Haven/New Haven Sampling Date: 10-29-21

Applicant/Owner: City of New Haven State: CT Sampling Point: B7U

Investigator(s): Anthony Zemba; Josh Weiss Section, Township, Range:

Landform (hillside, terrace, etc.): Local relief (concave, convex, none): convex Slope (%):

Subregion (LRR or MLRA): LRR R Lat: 41.26613223 Long: -72.88470274 Datum:

Soil Map Unit Name: Udorthents NWI classification: n/a

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

Are Vegetation Y, Soil Y, or Hydrology Y significantly disturbed? Are "Normal Circumstances" present? Yes No X

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

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

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

Remarks: (Explain alternative procedures here or in a separate report.)
Area augmented with historical fill material?

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

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

Wetland Hydrology Present? **Yes** **No** X

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

Remarks:

VEGETATION – Use scientific names of plants. Sampling Point: B7U

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	=Total Cover		
Sapling/Shrub Stratum (Plot size:)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	=Total Cover		
Herb Stratum (Plot size:)			
1. *Paspalum setaceum*	35	Yes	FACU
2. *Digitaria sanguinalis*	15	Yes	FACU
3. *Dichanthelium*	8	No	
4. *Hypochaeris radicata*	5	No	FACU
5. *Symphyotrichum lateriflorum*	5	No	FAC
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	68 =Total Cover		
Woody Vine Stratum (Plot size:)			
1.			
2.			
3.			
4.			
	=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: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	5	x 3 =	15
FACU species	55	x 4 =	220
UPL species	0	x 5 =	0
Column Totals:	60 (A)		235 (B)
Prevalence Index = B/A =			3.92

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Vegetation Strata:

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

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

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

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

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

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: B7U

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	7.5YR 2.5/1						Sandy	
3-11	7.5YR 3/2						Sandy	
11-15	7.5YR 3/4						Sandy	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- ___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- ___ High Chroma Sands (S11) (**LRR K, L)**
- ___ Loamy Mucky Mineral (F1) (**LRR K, L**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Marl (F10) (**LRR K, L**)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ___ **No** X

Remarks:

V

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Tweed New Haven Airport (HVN) City/County: East Haven/New Haven Sampling Date: 10-29-21

Applicant/Owner: City of New Haven State: CT Sampling Point: B7W

Investigator(s): Anthony Zemba; Josh Weiss Section, Township, Range:

Landform (hillside, terrace, etc.): Local relief (concave, convex, none): convex Slope (%):

Subregion (LRR or MLRA): LRR R Lat: 41.26619678 Long: -72.88465694 Datum:

Soil Map Unit Name: Udorthents NWI classification: n/a

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

Are Vegetation Y, Soil Y, or Hydrology Y significantly disturbed? Are "Normal Circumstances" present? Yes No X

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

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

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

Remarks: (Explain alternative procedures here or in a separate report.)
Area augmented with historical fill material?

HYDROLOGY

Wetland Hydrology Indicators:

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

- X Surface Water (A1)
- X 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)
- X FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes X	No	Depth (inches):	6
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:

VEGETATION – Use scientific names of plants.

Sampling Point: B7W

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	=Total Cover		
Sapling/Shrub Stratum (Plot size:)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	=Total Cover		
Herb Stratum (Plot size:)			
1. *Juncus effusus*	50	Yes	OBL
2. *Hydrophilic grasses*	40	Yes	
3. *Paspalum laeve*	5	No	FAC
4. *Symphyotrichum lateriflorum*	5	No	FAC
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	100 =Total Cover		
Woody Vine Stratum (Plot size:)			
1.			
2.			
3.			
4.			
	=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: 50.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	50	x 1 =	50
FACW species	0	x 2 =	0
FAC species	10	x 3 =	30
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	60 (A)		80 (B)

Prevalence Index = B/A = 1.33

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 Vegetation Strata:

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

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

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

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

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

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: B7W

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	7.5YR 2.5/1						Loamy/Clayey	
6-12	7.5YR 3/3	90	10YR 5/1	10	D	M	Sandy	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ? Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- ___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- ___ High Chroma Sands (S11) (**LRR K, L)**
- ___ Loamy Mucky Mineral (F1) (**LRR K, L**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Marl (F10) (**LRR K, L**)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ___ **No** X

Remarks:

V

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Tweed New Haven Airport (HVN) City/County: East Haven/New Haven Sampling Date: 10-29-21

Applicant/Owner: City of New Haven State: CT Sampling Point: F19U

Investigator(s): Anthony Zemba; Josh Weiss Section, Township, Range:

Landform (hillside, terrace, etc.): Local relief (concave, convex, none): convex Slope (%):

Subregion (LRR or MLRA): LRR R Lat: 41.26242650 Long: -72.88275548 Datum:

Soil Map Unit Name: Udorthents NWI classification: n/a

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

Are Vegetation Y, Soil Y, or Hydrology Y significantly disturbed? Are "Normal Circumstances" present? Yes No X

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

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

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

Remarks: (Explain alternative procedures here or in a separate report.)
Area augmented with historical fill material?

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

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

Wetland Hydrology Present? **Yes** **No** X

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

Remarks:

VEGETATION – Use scientific names of plants. Sampling Point: F19U

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	=Total Cover		
Sapling/Shrub Stratum (Plot size:)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	=Total Cover		
Herb Stratum (Plot size:)			
1. *Unidentified grass*	40	Yes	
2. *Paspalum laeve*	30	Yes	FAC
3. *Krigia biflora*	20	No	FACU
4. *Plantago lanceolata*	10	No	FACU
5. *Paspalum setaceum*	5	No	FACU
6. *Symphyotrichum lateriflorum*	5	No	FAC
7.			
8.			
9.			
10.			
11.			
12.			
	110 =Total Cover		
Woody Vine Stratum (Plot size:)			
1.			
2.			
3.			
4.			
	=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: 50.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	35	x 3 =	105
FACU species	35	x 4 =	140
UPL species	0	x 5 =	0
Column Totals:	70 (A)		245 (B)
Prevalence Index = B/A =			3.50

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Vegetation Strata:

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

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

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

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

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

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: F19U

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
0-12	7.5YR 2.5/2	100					Sandy	
12-14	7.5YR 2.5/2	90	7.5YR 4/6	10	C	M	Sandy	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- ___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- ___ High Chroma Sands (S11) (**LRR K, L)**
- ___ Loamy Mucky Mineral (F1) (**LRR K, L**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Marl (F10) (**LRR K, L**)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ___ **No** X

Remarks:

V

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Tweed New Haven Airport (HVN) City/County: East Haven / New Haven Sampling Date: 10-29-21

Applicant/Owner: City of New Haven State: CT Sampling Point: F19W

Investigator(s): Anthony Zemba; Josh Weiss Section, Township, Range:

Landform (hillside, terrace, etc.): Local relief (concave, convex, none): convex Slope (%):

Subregion (LRR or MLRA): LRR R Lat: 41.26247437 Long: -72.88275629 Datum:

Soil Map Unit Name: Udorthents NWI classification: n/a

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

Are Vegetation Y, Soil Y, or Hydrology Y significantly disturbed? Are "Normal Circumstances" present? Yes No X

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

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

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

Remarks: (Explain alternative procedures here or in a separate report.)
Area augmented with historical fill material?

HYDROLOGY

Wetland Hydrology Indicators:

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

Surface Water (A1)	Water-Stained Leaves (B9)	Surface Soil Cracks (B6)
X High Water Table (A2)	Aquatic Fauna (B13)	Drainage Patterns (B10)
X Saturation (A3)	Marl Deposits (B15)	Moss Trim Lines (B16)
Water Marks (B1)	Hydrogen Sulfide Odor (C1)	Dry-Season Water Table (C2)
Sediment Deposits (B2)	Oxidized Rhizospheres on Living Roots (C3)	Crayfish Burrows (C8)
X Drift Deposits (B3)	Presence of Reduced Iron (C4)	X Saturation Visible on Aerial Imagery (C9)
Algal Mat or Crust (B4)	Recent Iron Reduction in Tilled Soils (C6)	Stunted or Stressed Plants (D1)
Iron Deposits (B5)	Thin Muck Surface (C7)	X Geomorphic Position (D2)
Inundation Visible on Aerial Imagery (B7)	Other (Explain in Remarks)	Shallow Aquitard (D3)
Sparsely Vegetated Concave Surface (B8)		Microtopographic Relief (D4)
		X FAC-Neutral Test (D5)

Secondary Indicators (minimum of two required)

Field Observations:

Surface Water Present?	Yes	No X	Depth (inches):	
Water Table Present?	Yes X	No	Depth (inches):	8
Saturation Present? (includes capillary fringe)	Yes X	No	Depth (inches):	5

Wetland Hydrology Present? **Yes** X **No**

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

Remarks:
Topgraphic depression. Outlet controlled by drop inlet elevation?

VEGETATION – Use scientific names of plants. Sampling Point: F19W

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	=Total Cover		
Sapling/Shrub Stratum (Plot size:)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	=Total Cover		
Herb Stratum (Plot size:)			
1. *Cyperus strigosus*	35	Yes	FACW
2. *Carex scoparia*	15	Yes	FACW
3. *Juncus effusus*	10	No	OBL
4. *Paspalum laeve*	5	No	FAC
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	65 =Total Cover		
Woody Vine Stratum (Plot size:)			
1.			
2.			
3.			
4.			
	=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: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	10	x 1 =	10
FACW species	50	x 2 =	100
FAC species	5	x 3 =	15
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	65 (A)		125 (B)

Prevalence Index = B/A = 1.92

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

X 2 - Dominance Test is >50%

X 3 - Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Vegetation Strata:

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

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

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

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

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

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: F19W

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	7.5YR 3/2	100					Sandy	
5-13	7.5YR 3/2	90	7.5YR 4/6	10	C	M	Sandy	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- X Sandy Redox (S5)
- ? Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- ___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- ___ High Chroma Sands (S11) (**LRR K, L)**
- ___ Loamy Mucky Mineral (F1) (**LRR K, L**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Marl (F10) (**LRR K, L**)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** X **No** ___

Remarks:

V

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Tweed New Haven (HVN) Airport City/County: East Haven / New Haven Sampling Date: 10-29-21

Applicant/Owner: City of New Haven State: CT Sampling Point: G8U

Investigator(s): AJZ/JJW Section, Township, Range:

Landform (hillside, terrace, etc.): Local relief (concave, convex, none): Slope (%):

Subregion (LRR or MLRA): LRR R Lat: 41.261087 Long: -72.879992 Datum:

Soil Map Unit Name: Udorthents NWI classification: none

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

Are Vegetation Y, Soil Y, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes No X

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

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

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

Remarks: (Explain alternative procedures here or in a separate report.)
Much of the upland vegetation was mowed; soils are udorthents

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

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

Wetland Hydrology Present? **Yes** **No** X

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

Remarks:

VEGETATION – Use scientific names of plants. Sampling Point: G8U

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	=Total Cover		
Sapling/Shrub Stratum (Plot size:)			
1. *Rosa multiflora*	5	Yes	FACU
2.			
3.			
4.			
5.			
6.			
7.			
	5 =Total Cover		
Herb Stratum (Plot size:)			
1. *Plantago lanceolata*	30	Yes	FACU
2. *Trifolium pratense*	10	Yes	FACU
3. *Potentilla argentea*	10	Yes	FACU
4. *Taraxacum officinale*	5	No	FACU
5. *Achillea millefolium*	3	No	FACU
6. *Hypochaeris radicata*	3	No	FACU
7. *Paspalum setaceum*	3	No	FACU
8.			
9.			
10.			
11.			
12.			
	64 =Total Cover		
Woody Vine Stratum (Plot size:)			
1.			
2.			
3.			
4.			
	=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: 0.0% (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	69	x 4 =	276
UPL species	0	x 5 =	0
Column Totals:	69 (A)		276 (B)
Prevalence Index = B/A =			4.00

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Vegetation Strata:

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

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

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

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

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

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: G8U

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-7	10YR 3/2	100					Sandy	
7-13	5YR 3/3	60	10YR 3/2	40	C	M	Sandy	Faint redox concentrations

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- ___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- ___ High Chroma Sands (S11) (**LRR K, L**)
- ___ Loamy Mucky Mineral (F1) (**LRR K, L**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Marl (F10) (**LRR K, L**)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ___ **No** X

Remarks:

This data form is revised from Northcentral and Northeast Regional Supplement Version 2.0 to reflect the NRCS Field Indicators of Hydric Soils version 7.0 March 2013 Errata. (http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_051293.docx)

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Tweed (HVN) City/County: East Haven/New Haven Sampling Date: 10-8-21

Applicant/Owner: City of New Haven State: CT Sampling Point: G8W

Investigator(s): Anthony Zemba; Josh Weiss Section, Township, Range:

Landform (hillside, terrace, etc.): basin Local relief (concave, convex, none): concave Slope (%):

Subregion (LRR or MLRA): LRR R Lat: 41.26108729 Long: -72.88005655 Datum:

Soil Map Unit Name: Udorthents NWI classification: PEM

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

Are Vegetation N, Soil Y, or Hydrology Y significantly disturbed? Are "Normal Circumstances" present? Yes No X

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

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

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

Remarks: (Explain alternative procedures here or in a separate report.)
Area mapped as udorthents = graded and smoothed?

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)
- X Water Marks (B1)
- Sediment Deposits (B2)
- X Drift Deposits (B3)
- X Algal Mat or Crust (B4)
- Iron Deposits (B5)
- X Inundation Visible on Aerial Imagery (B7)
- Sparsely Vegetated Concave Surface (B8)
- Water-Stained Leaves (B9)
- X 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)
- X 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)
- Geomorphic Position (D2)
- Shallow Aquitard (D3)
- Microtopographic Relief (D4)
- X FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes	No X	Depth (inches):	
Water Table Present?	Yes X	No	Depth (inches):	1
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:

VEGETATION – Use scientific names of plants.

Sampling Point: G8W

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	=Total Cover		
Sapling/Shrub Stratum (Plot size:)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	=Total Cover		
Herb Stratum (Plot size:)			
1. *Juncus acuminatus*	60	Yes	OBL
2. *Ludwigia palustris*	20	No	OBL
3. *Setaria pumila*	10	No	FAC
4. *Juncus effusus*	5	No	OBL
5. *Persicaria hydropiperoides*	5	No	OBL
6. *Paspalum laeve*	3	No	FAC
7.			
8.			
9.			
10.			
11.			
12.			
	103 =Total Cover		
Woody Vine Stratum (Plot size:)			
1.			
2.			
3.			
4.			
	=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: 100.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	90	x 1 =	90
FACW species	0	x 2 =	0
FAC species	13	x 3 =	39
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	103 (A)		129 (B)
Prevalence Index = B/A =			1.25

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

_X_ 2 - Dominance Test is >50%

_X_ 3 - Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Vegetation Strata:

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

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

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

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

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

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: G8W

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	7.5YR 2.5/1	100					Sandy	
3-12	7.5YR 3/2	90	2.5YR 4/6	10	C	M	Sandy	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- X Sandy Redox (S5)
- ? Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- ___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- ___ High Chroma Sands (S11) (**LRR K, L)**
- ___ Loamy Mucky Mineral (F1) (**LRR K, L**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Marl (F10) (**LRR K, L**)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** X **No** ___

Remarks:

V

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Tweed New Haven Airport (HVN) City/County: East Haven/New Haven Sampling Date: 10-29-21

Applicant/Owner: City of New Haven State: CT Sampling Point: A100U

Investigator(s): Anthony Zemba; Josh Weiss Section, Township, Range:

Landform (hillside, terrace, etc.): Local relief (concave, convex, none): convex Slope (%):

Subregion (LRR or MLRA): LRR R Lat: 41.260675 Long: -72.882200 Datum:

Soil Map Unit Name: Udorthents NWI classification: n/a

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

Are Vegetation Y, Soil Y, or Hydrology Y significantly disturbed? Are "Normal Circumstances" present? Yes No X

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

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

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

Remarks: (Explain alternative procedures here or in a separate report.)
Area contains historical fill material. Located in Wetland 6.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

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

Wetland Hydrology Present? **Yes** **No** X

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

Remarks:

VEGETATION – Use scientific names of plants.

Sampling Point: A100U

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	=Total Cover		
Sapling/Shrub Stratum (Plot size:)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	=Total Cover		
Herb Stratum (Plot size:)			
1. *Hypochaeris radicata*	25	Yes	FACU
2. *Plantago lanceolata*	20	Yes	FACU
3. *Schizachyrium scoparium*	15	Yes	FACU
4. *Rubus flagellaris*	5	No	FACU
5. *Potentilla argentea*	5	No	FACU
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	70 =Total Cover		
Woody Vine Stratum (Plot size:)			
1.			
2.			
3.			
4.			
	=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: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.0% (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	70	x 4 =	280
UPL species	0	x 5 =	0
Column Totals:	70 (A)		280 (B)

Prevalence Index = B/A = 4.00

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Vegetation Strata:

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

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

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

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

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

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: A100U

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	7.5YR 2.5/1						Sandy	
3-8	5YR 3/3						Sandy	
8-13	5YR 4/4						Sandy	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- ___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- ___ High Chroma Sands (S11) (**LRR K, L)**
- ___ Loamy Mucky Mineral (F1) (**LRR K, L**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Marl (F10) (**LRR K, L**)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ___ **No** X

Remarks:

V

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Tweed New Haven Airport (HVN) City/County: East Haven/New Haven Sampling Date: 10-29-21

Applicant/Owner: Eversource State: CT Sampling Point: A100W

Investigator(s): Anthony Zemba; Josh Weiss Section, Township, Range:

Landform (hillside, terrace, etc.): Local relief (concave, convex, none): concave Slope (%):

Subregion (LRR or MLRA): LRR R Lat: 42.26058504 Long: -72.88216529 Datum:

Soil Map Unit Name: Udorthents NWI classification: PEM2J

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

Are Vegetation Y, Soil Y, or Hydrology Y significantly disturbed? Are "Normal Circumstances" present? Yes No X

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

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

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

Remarks: (Explain alternative procedures here or in a separate report.)
Area subjected to potential filling; vegetation subjected to routine mowing, hydrology altered via ditching, culverting and tide gates. Plot within Wetland 6.

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)
- X Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- X FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes	No X	Depth (inches):		
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:

VEGETATION – Use scientific names of plants.

Sampling Point: A100W

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	=Total Cover		
Sapling/Shrub Stratum (Plot size:)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	=Total Cover		
Herb Stratum (Plot size:)			
1. *Juncus effusus*	60	Yes	OBL
2. *unidentified grass*	40	Yes	
3. *Symphyotrichum lateriflorum*	10	No	FAC
4. *Paspalum laeve*	5	No	FAC
5. *Viola lanceolata*	5	No	OBL
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	120 =Total Cover		
Woody Vine Stratum (Plot size:)			
1.			
2.			
3.			
4.			
	=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: 50.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	65	x 1 =	65
FACW species	0	x 2 =	0
FAC species	15	x 3 =	45
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	80 (A)		110 (B)
Prevalence Index = B/A =			1.38

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 Vegetation Strata:

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

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

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

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

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

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: A100W

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	5YR 2.5/1						Mucky Sand	
5-13	5YR 3/1	90	5YR 3/4	10	C	M	Sandy	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- X Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- X Sandy Redox (S5)
- ? Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- ? Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- ___ High Chroma Sands (S11) (**LRR K, L)**
- ___ Loamy Mucky Mineral (F1) (**LRR K, L**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Marl (F10) (**LRR K, L**)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** X **No** ___

Remarks:

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Tweed New Haven Airport (HVN) City/County: East Haven/New Haven Sampling Date: 10-29-21

Applicant/Owner: City of New Haven State: CT Sampling Point: D84U

Investigator(s): Anthony Zemba; Josh Weiss Section, Township, Range:

Landform (hillside, terrace, etc.): Local relief (concave, convex, none): convex Slope (%):

Subregion (LRR or MLRA): LRR R Lat: 41.26093228 Long: -72.87935581 Datum:

Soil Map Unit Name: Udorthents NWI classification: n/a

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

Are Vegetation Y, Soil Y, or Hydrology Y significantly disturbed? Are "Normal Circumstances" present? Yes No X

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

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

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

Remarks: (Explain alternative procedures here or in a separate report.)
Area appeared to be augmented with historical fill material

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

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

Wetland Hydrology Present? **Yes** **No** X

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

Remarks:

VEGETATION – Use scientific names of plants. Sampling Point: D84U

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	=Total Cover		
Sapling/Shrub Stratum (Plot size:)			
1. *Rubus allegheniensis*	35	Yes	FACU
2. *Rhus typhina*	20	Yes	UPL
3. *Elaeagnus umbellata*			UPL
4.			
5.			
6.			
7.			
	55 =Total Cover		
Herb Stratum (Plot size:)			
1. *Phragmites australis*	50	Yes	FACW
2. *Solidago rugosa*	8	No	FAC
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	58 =Total Cover		
Woody Vine Stratum (Plot size:)			
1. *Lonicera japonica*	65	Yes	FACU
2. *Celastrus orbiculatus*	15	No	UPL
3. *Vitis riparia*	15	No	FAC
4.			
	95 =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: 25.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	50	x 2 =	100
FAC species	23	x 3 =	69
FACU species	100	x 4 =	400
UPL species	35	x 5 =	175
Column Totals:	208 (A)		744 (B)
Prevalence Index = B/A =			3.58

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Vegetation Strata:

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

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

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

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

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

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: D84U

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
0-12	7.5YR 4/3						Sandy	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- ___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- ___ High Chroma Sands (S11) (**LRR K, L)**
- ___ Loamy Mucky Mineral (F1) (**LRR K, L**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Marl (F10) (**LRR K, L**)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ___ **No** X

Remarks:

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Tweed New Haven Airport (HVN) City/County: East Haven/New Haven Sampling Date: 10-29-21

Applicant/Owner: City of New Haven State: CT Sampling Point: D84W

Investigator(s): Anthony Zemba; Josh Weiss Section, Township, Range:

Landform (hillside, terrace, etc.): Local relief (concave, convex, none): convex Slope (%):

Subregion (LRR or MLRA): LRR R Lat: 41.26094363 Long: -72.87939637 Datum:

Soil Map Unit Name: NWI classification: PEM1/5

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

Are Vegetation Y, Soil Y, or Hydrology Y significantly disturbed? Are "Normal Circumstances" present? Yes No X

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

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

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

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

HYDROLOGY

Wetland Hydrology Indicators:

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

- X Surface Water (A1)
- 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)
- Geomorphic Position (D2)
- Shallow Aquitard (D3)
- Microtopographic Relief (D4)
- FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes X	No	Depth (inches):	2
Water Table Present?	Yes	No X	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:

VEGETATION – Use scientific names of plants.

Sampling Point: D84W

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	=Total Cover		
Sapling/Shrub Stratum (Plot size:)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	=Total Cover		
Herb Stratum (Plot size:)			
1. *Phragmites australis*	90	Yes	FACW
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	90 =Total Cover		
Woody Vine Stratum (Plot size:)			
1. *Vitis riparia*	15	Yes	FAC
2. *Lonicera japonica*	15	Yes	FACU
3. *Celastrus orbiculatus*	15	Yes	UPL
4.			
	45 =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: 50.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	90	x 2 =	180
FAC species	15	x 3 =	45
FACU species	15	x 4 =	60
UPL species	15	x 5 =	75
Column Totals:	135 (A)		360 (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 Vegetation Strata:

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

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

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

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: D84W

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 3/2						Mucky Sand	
4-12	10YR 3/2	70	10YR 4/2	20	D	M		
			10YR 3/3	10	C	M		Faint redox concentrations

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- X Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ? Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- ___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- ___ High Chroma Sands (S11) (**LRR K, L)**
- ___ Loamy Mucky Mineral (F1) (**LRR K, L**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Marl (F10) (**LRR K, L**)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** X **No** ___

Remarks:

V

Appendix D – Photographs

APPENDIX D: PHOTOGRAPHS

Wetland 1 – PEM Portion Bordering Tuttle Brook

Wetland 2 – PFO1E

Wetland 3 - Looking North from the Grassy Area between the Air Traffic Control Tower and the East Ramp.

Wetland 4 - Looking north from Taxiway H

Wetland 5 - Looking Northwest from Taxiway C

Wetland 6 – PFO1E portion

Wetland 7 Along Tuttle Brook (West of the Runway 2 Approach)

Wetland 7 – Phragmites-dominated Marsh on Either Side of Runway 2 Approach