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November 30, 2022

VIA EMAIL

Wengell, McDonnell & Castello, Inc.
87 Holmes Road
Newington, CT 06111

ATTN: Keegan O. Elder, P.E., Vice President

RE: WETLANDS REPORT

Replacement of Pleasant Valley Road Bridge over Podunk River, South Windsor, CT

REMA Job No.: 21-2469-SWN120

Dear Mr. Elder:

At your request, REMA Ecological Services, LLC (REMA) presents herein our findings during inland wetland delineations, and resource characterizations associated with the above-referenced site.

1.0 INTRODUCTION

This *Wetlands Report*, represents the effort by REMA, to conduct wetland delineations and resource characterizations on the subject site (“the site,” “the study area”), during November 2022. This effort included the in-field delineation of regulatory and jurisdictional wetlands and watercourses, based on both State Statutes and Federal guidelines. It also included the delineation of Ordinary High Water (OHW).

Attachment A, includes a site locus and a recent aerial photograph of study area, showing the wetland delineations (i.e., Figures 1 and A). Attachment B, provides a *Wetland Delineation & Characterization Field Form*. Attachment C provides annotated photographs (i.e., Photos 1 through 9) taken during the 2022 fieldwork. Attachment D provides the USDA-NRCS Web Soil Survey, showing the mapped soil types in the vicinity. Attachment E provides the *Wetland Function-Value Evaluation Form*, based the US Army Corps of Engineers, Wetland Functions & Values assessment methodology, as well as the *Wetland Determination Data Forms*, for the verification of jurisdictional (federal) wetlands at the subject site.



2.0 STUDY AREA SETTING

The study area (or “site”), is located approximately 0.6 miles easterly of CT Route 5 (i.e., John Fitch Boulevard), in the southwestern section of South Windsor (see Figure 1, Attachment A). The dominant land use in the immediate vicinity of the study area is moderate-density residential development, and a municipal park (i.e., Veteran’s Memorial Park), located immediately to the southeast of the Pleasant Valley Road Bridge over the Podunk River.

3.0 WETLAND DELINEATIONS & DOMINANT SOIL TYPES

Wetland delineations were conducted in accordance with the Connecticut General Statutes governing inland wetlands (i.e., CGS Sec. 22a-36 ff). Federal jurisdictional wetlands were delineated pursuant to the Regional Supplement to the Corps of Engineers Wetland Delineation Manual (1987): Northcentral and Northeast Region, Version 2.0 (2012). It should be noted that in all cases the “Connecticut wetlands” and the “Federal wetlands” were coincident.

The observed *wetland* soil types within the study area were derived from alluvial till (i.e., stratified sand and silt) deposits. The following soil series were observed:

Fluvaquents-Udifulvents (109). This soil map unit consists of relatively recently formed, poorly drained, moderately well drained, and well drained, floodplain-type soils. Fluvaquents are typically found in disturbed landscapes on floodplains where two or more feet of the original soil surface has been filled over or excavated, eroded and/or deposited. Most areas of Fluvaquents flood each year for short periods, mainly in the spring. The Fluvaquents soil mapping unit is a miscellaneous unit which includes a large variety of soil materials. Common locations of Fluvaquents include disturbed areas for community development and sand and gravel operations situated in the floodplains of rivers and major streams.

Limerick and Lim silt loams (107). The Limerick series consists of deep, poorly drained soils formed in coarse-silty, alluvial sediments. They are nearly level soils on floodplains along low gradient rivers and streams, subject to frequent flooding. They are in relatively low areas. The soils formed in recent alluvium derived from a variety of crystalline and acid rocks. Typically, the Limerick soil has a very dark grayish brown silt loam surface layer 8 inches thick. The substratum from 8 to 60 inches consists of olive gray and dark gray, mottled layers of silt loam and very fine sandy loam.

The Lim series consists of very deep, poorly drained loamy soils formed in alluvial sediments. They are nearly level soils on flood plains and are subject to frequent flooding. Slope ranges from 0 to 3 percent. Saturated hydraulic conductivity ranges from moderately low to moderately high in the solum and high or very high in the sandy substratum, which typically begins below 29 inches. Lim soils formed in recent alluvium derived from mixed crystalline and sedimentary rocks.



The observed dominant upland soil types within the study area were predominately disturbed and are:

Udorthents-Urban Land complex (304). This soil mapping unit consists of well drained to moderately well drained soils that have been altered by cutting, filling, or grading. The areas either have had two feet or more of the upper part of the original soil removed or have more than two feet of fill material on top of the original soil. *Udorthents* or Made Land soils can be found on any soil parent material but are typically fluvial on glacial till plains and outwash plains and stream terraces.

4.0 SURFACE WATER RESOURCES & WETLANDS

4.1 Introduction

The study area's wetlands and surface waters were first characterized by examining Federal and State wetlands maps and by conducting detailed site investigations of vegetation, soils, and hydrology to demarcate tidal and inland wetland boundaries. Attachment A of this *Wetland Report*, provides a 2019 aerial photograph with annotations showing each of the wetland segments delineated in November 2022 (i.e., Figure A). Attachment B provides representative annotated photographs of the regulated resource areas. This report section briefly describes the overall inland wetland resources associated with the study area.

4.2 Podunk River

The site's perennial watercourse, namely the Podunk River, is classified as a *riverine, unknown perennial¹, unconsolidated bottom, permanently flooded* resource (R5UBH), per the National Wetlands Inventory (NWI) classification system (see Figure B, Attachment A). The in-stream habitat in the vicinity of the bridge structure is characterized by a low-gradient channel (i.e., run). The substrate is mucks, fine to medium sand, and silt, consistent with the wetland type soils observed within the study area.

4.2 Wetland Communities

The wetland vegetated cover types associated with the riparian corridor are dominated by wooded swamp, classified as *palustrine, forested, broad-leaved deciduous, seasonally flooded/seasonally saturated* (PFO1E) per NWI. The forested wetland in the vicinity of the bridge structure is characterized as a red maple swamp, dominated by spicebush and skunk cabbage in the understory. The attached *Wetland Delineation & Characterization Field Form* (see Attachment C), provides additional detailed information regarding the wetland communities within the study

¹ NWI should have classified the Podunk River at this site as "lower perennial."



area. It should be noted, however, that other wetland cover types proximal to the bridge structure include scrub shrub (PSS), dominated by silky dogwood, and emergent (PEM), dominated by reed canary grass. However, the NWI does not call these out and considers them inclusions within the dominant forested riparian corridor.

5.0 WETLAND FUNCTIONS AND VALUES

Wetland/watercourse functions and values were formally assessed, using the rationales of a standardized evaluation methods [e.g., US Army Corps of Engineers' *Descriptive Approach* (1995)]. Wetland and upland baseline data provide the basis for the assessment, and includes off-site contiguous wetland habitat which was also inventoried, in part, for this assessment.

The wetland assessment unit includes contiguous wetland habitat both upstream and downstream of the study area (see Figure B, Attachment A). According to the National Wetlands Inventory (NWI) and corroborated also by USDA-NRCS Web Soil Survey (Attachment D), the contiguous wetland assessment unit is fairly extensive and consists of at least 33.5 acres of mostly forested and riverine habitat, from Ellington Road (CT Route 30) upstream, to John Fitch Boulevard (CT Route 5) downstream. As can be readily seen in Table 1, the Podunk River riparian wetland system was found to offer 11 *principal* functions and values.

Table 1: Summary of Wetland Function-Value Assessment

Function/Value	WA
1. Groundwater Recharge/ Discharge	P
2. Floodflow Alteration	P
3. Fish and Shellfish Habitat	P
4. Sediment/Toxicant/ Pathogen Retention	P
5. Nutrient Removal/Retention/Transformation	P
6. Production Export	P
7. Sediment/Shoreline Stabilization	P
8. Wildlife Habitat	P
9. Recreation (Passive, Active	P
10. Educational/Scientific Value	Y
11. Uniqueness/Heritage	P
12 Visual Quality/Aesthetics	Y
13. Endangered (Listed) Species Habitat	P
14. Fish & Shellfish habitat (Marine)	n/a

Notes: P = Principal function; Y = function present; N = function not appreciably present



This overall high functional value is due to a variety of factors, including size, the presence of a perennial stream, diversity of hydrophytic vegetation, the relative lack of past disturbance (overall), including a low incidence of invasive plant species (overall), good interspersions of water and vegetative cover types, the presence of “listed species,”² and more.

Please feel free to contact us with any questions on the above.

Respectfully submitted,

REMA ECOLOGICAL SERVICES, LLC

George T. Logan, MS, PWS, CSE

Registered Soil Scientist/Professional Wetland Scientist

Certified Senior Ecologist

Attachments: A: Figures 1, A, and B
 B: Annotated photographs (1 through 9)
 C: Wetland Delineation & Characterization Field Form
 D: USDA-NRCS Web Soil Survey
 E: USACE Wetland Function-Value Evaluation & Wetland Determination Data Forms

² Based on review of online GIS data (i.e. CT Environmental Conditions Online), the subject site falls within estimated habitat for CT-listed species (i.e., endangered, threatened, special concern).

Attachment A

Figures
(1, A and B)

FIGURE 1:
SITE LOCUS
Pleasant Valley Road Bridge over
Podunk River
South Windsor, CT



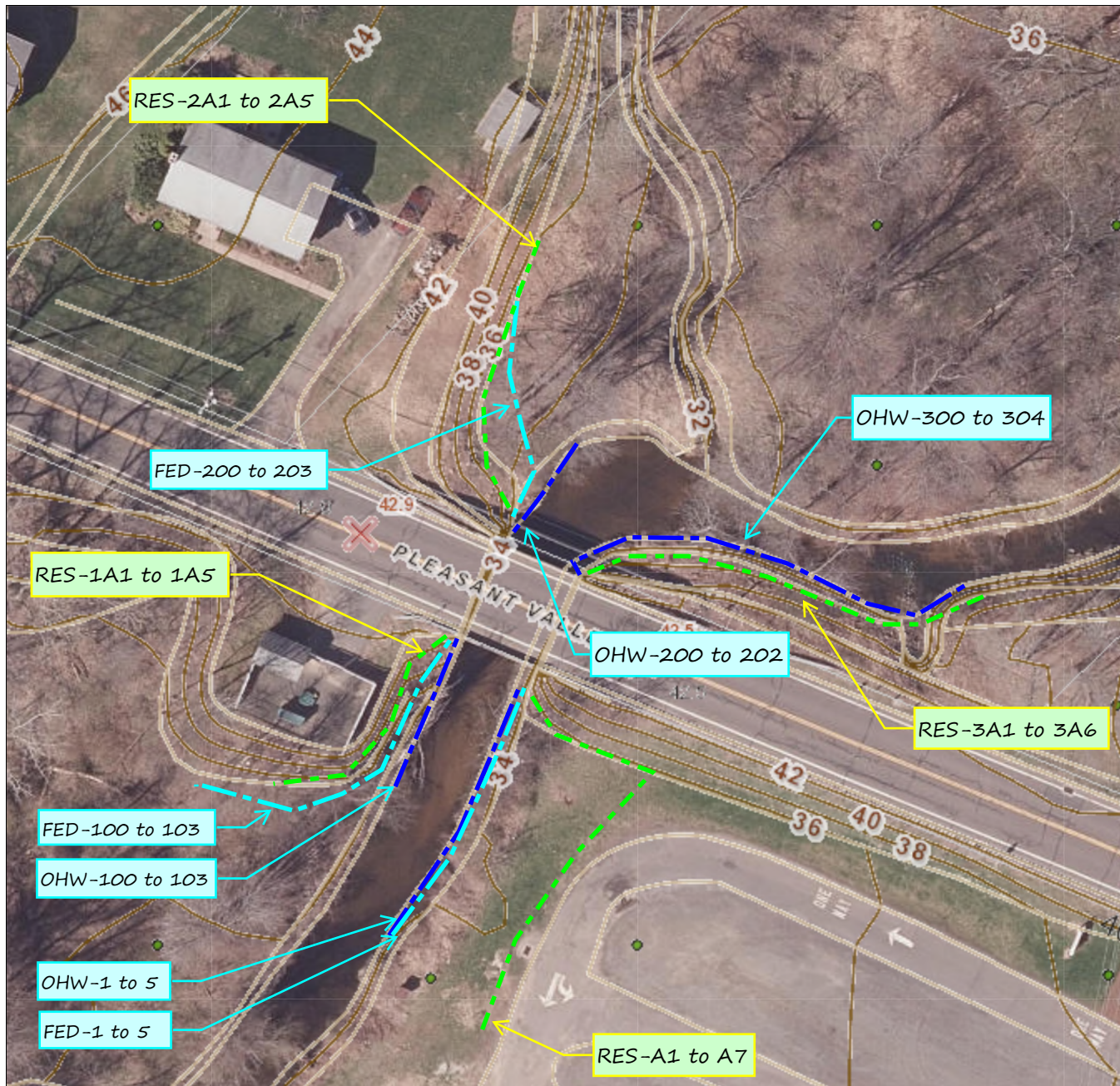
Town of South Windsor

Geographic Information System (GIS)



FIGURE A: WETLAND DELINEATIONS SKETCH MAP

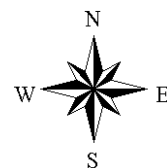
Pleasant Valley Road Bridge over the Podunk River



MAP DISCLAIMER - NOTICE OF LIABILITY

This map is for assessment purposes only. It is not for legal description or conveyances. All information is subject to verification by any user. The Town of South Windsor and its mapping contractors assume no legal responsibility for the information contained herein.

Approximate Scale: 1 inch = 50 feet





U.S. Fish and Wildlife Service

National Wetlands Inventory

FIGURE B: WETLANDS EVALUATION UNIT LIMITS

Pleasant Valley Road Bridge over the Podunk River,
South Windsor, Connecticut



U.S. Fish and Wildlife Service, National Standards and Support Team,
wetlands_team@fws.gov

November 30, 2022

Wetlands

- Estuarine and Marine Deepwater
- Estuarine and Marine Wetland

- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond

- Lake
- Other
- Riverine

This map is for general reference only. The US Fish and Wildlife Service is not responsible for the accuracy or currentness of the base data shown on this map. All wetlands related data should be used in accordance with the layer metadata found on the Wetlands Mapper web site.

Attachment B

Annotated Photographs
(1 to 9)

Pleasant Valley Road Bridge over Podunk River, South Windsor, CT
Photos taken November 6 and 7, 2022



Photo 1: Podunk River downstream of Pleasant Valley Road bridge; facing northerly



Photo 2: Upstream view of Pleasant Valley Road Bridge; facing southerly (downstream)

Pleasant Valley Road Bridge over Podunk River, South Windsor, CT
Photos taken November 6 and 7, 2022



Photo 3: Podunk River downstream of Pleasant Valley Road bridge; facing southerly



Photo 4: This mowed lawn is a CT-regulated, moderately well drained, alluvial wetland (i.e., non-jurisdictional, federal); facing southerly (downstream)

Pleasant Valley Road Bridge over Podunk River, South Windsor, CT
Photos taken November 6 and 7, 2022



Photo 5: Podunk River upstream of Pleasant Valley Road bridge; note emergent wetland cover type; facing northeasterly



Photo 6: Podunk River upriver of bridge structure; facing westerly

Pleasant Valley Road Bridge over Podunk River, South Windsor, CT
Photos taken November 6 and 7, 2022



Photo 7: Mile-a-minute invasive infestation smothering native vegetation, upriver segment; facing easterly



Photo 8: Podunk River upriver of bridge structure; note bivalve (freshwater mussel), an Eastern Elliptio

Pleasant Valley Road Bridge over Podunk River, South Windsor, CT
Photos taken November 6 and 7, 2022



Photo 9: Location of Transect/Plot U1, for jurisdictional wetland boundary determination; Plot W1 is within the river channel; downriver of bridge; facing westerly

Attachment C

Wetland Delineation & Characterization Field Form *(Wetland A)*

WETLAND DELINEATION & CHARACTERIZATION FIELD FORM

Project: <i>Replacement of Pleasant Valley Road Bridge over Podunk River, South Windsor, CT</i>	Wetland ID: A
Inspection Dates: <i>11/6 & 11/7/2022</i>	Wetland Flag Series: <i>RES-A1 to A7, RES-1A1 to 1A5, RES-2A1 to 2A5, RES-3A1 to 3A6, FED-1 to 5, FED-100 to 103, FED-200 to 203</i>
Inspector(s): <i>G. Logan</i>	NWI Classification Codes: ¹ PFO1/R5UBH

Weather/Field Conditions: <i>40s, sunny</i>	Snow/Frost Depth: <i>n/a</i>
Soil Moisture: <input checked="" type="checkbox"/> Wet <input type="checkbox"/> Moist <input type="checkbox"/> Dry	
Type of Wetland Delineation: <input checked="" type="checkbox"/> State <input checked="" type="checkbox"/> Federal <input type="checkbox"/> Other	

HGM Classification

<input checked="" type="checkbox"/> Surface Water Slope	<input type="checkbox"/> Surface Water Depression
<input checked="" type="checkbox"/> Groundwater Slope	<input type="checkbox"/> Groundwater Depression

NWI Classification

System:

<input checked="" type="checkbox"/> Palustrine	<input type="checkbox"/> Lacustrine	<input checked="" type="checkbox"/> Riverine	<input type="checkbox"/> Estuarine
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Class:

<input checked="" type="checkbox"/> Forested	<input checked="" type="checkbox"/> Scrub Shrub	<input checked="" type="checkbox"/> Emergent
<input type="checkbox"/> Aquatic Bed	<input type="checkbox"/> Unconsolidated Bottom	<input type="checkbox"/> Unconsolidated Shore

Subclass:

<input checked="" type="checkbox"/> Broad-leaved deciduous	<input type="checkbox"/> Needle-leaved evergreen	<input checked="" type="checkbox"/> Persistent
<input type="checkbox"/> Non-persistent	<input type="checkbox"/> Sand	<input type="checkbox"/> Mud
<input type="checkbox"/> Other: _____		

Wetland Hydrology

<input checked="" type="checkbox"/> Seasonally Flooded	<input checked="" type="checkbox"/> Temporarily Flooded	<input type="checkbox"/> Semi-permanently Flooded
<input checked="" type="checkbox"/> Seasonally Saturated	<input type="checkbox"/> Saturated	<input checked="" type="checkbox"/> Permanently Flooded

Watercourse Type

<input type="checkbox"/> Intermittent	<input checked="" type="checkbox"/> Perennial	<input type="checkbox"/> Tidal
Comments: <i>Podunk River</i>		

Special Aquatic Habitats

<input type="checkbox"/> Vernal Pool	<input type="checkbox"/> Bog	<input type="checkbox"/> Fen
Comments: <i>n/a</i>		

¹ The wetland unit could include more than one cover type. The dominant cover type is first.

Mapped Soil Series/Units

Soil Series (Map Unit Symbol)	WET	UP	DRAINAGE CLASS	NRCS MAPPED	FIELD CONFIRMED
Fluvaquents-udifluvents (109)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	PD	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Limerick & Lim (107)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	PD, VPD	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Udorthents-Urban Land complex (304)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	MWD, WD	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

ED=excessively drained; SED=somewhat excessively drained; WD=well drained; MWD=moderately well drained; SPD=somewhat poorly drained; PD=poorly drained; VPD=very poorly drained

Observed Plants²

TREES:	<u>Red maple</u>	<u>Catalpa</u>	<u>American elm</u>
	<u>Tree of Heaven</u>	<u>Silver maple</u>	<u>Red oak</u>
	<u>Crabapple</u>	<u>Boxelder</u>	
SHRUBS:	<u>Sweet pepperbush</u>	<u>Winterberry</u>	<u>Speckled alder</u>
	<u>Silky dogwood</u>	<u>Blackberries/raspberries</u>	<u>Spicebush</u>
	<u>Morrow's honeysuckle</u>	<u>Multi-flora rose</u>	<u>Northern arrowwood</u>
	<u>Willows</u>	<u>Japanese barberry</u>	<u>Japanese knotweed</u>
HERBS/MOSSES:	<u>Sedges</u>	<u>Fringed sedge</u>	<u>Stinging nettle</u>
<u>Water milfoil</u>	<u>Skunk cabbage</u>	<u>Jewelweed</u>	<u>Sensitive fern</u>
<u>Mugwort</u>	<u>Bedstraws</u>	<u>False nettle</u>	<u>New York fern</u>
<u>Barnyard grass</u>	<u>Garlic mustard</u>	<u>Soft sedge</u>	<u>Purple loosestrife</u>
<u>New York ironweed</u>	<u>Wood ferns</u>	<u>Purple willowherbs</u>	<u>Sticktight</u>
<u>Bushy aster</u>	<u>Enchanter's nightshade</u>	<u>Yellow foxtail</u>	<u>Sweet cicely</u>
<u>Tall goldenrod</u>	<u>White avens</u>	<u>Roughstem goldenrod</u>	<u>Poison ivy</u>
<u>Reed canary grass</u>	<u>Wild onion</u>	<u>Stout wood reedgrass</u>	<u>Burreed</u>
VINES:	<u>Poison ivy</u>	<u>Fox grape</u>	<u>Virginia Creeper</u>
	<u>Mile-a-minute-vine</u>	<u>Virgin's bower</u>	<u>River grape</u>
	<u>Asiatic bittersweet</u>		

Observed Wildlife & Wildlife sign (within wetland or nearby)

<u>Grackles (flock)</u>	<u>White-tailed deer</u>	<u>Raccoon</u>	<u>Green frog</u>	<u>Eastern elliptio</u>
<u>Carolina wren</u>				

Notes

This is a low gradient stretch of the Podunk River, with a sandy/mud/silt bottom

² Dominant plant species are underlined. Invasive species are double underlined. (s) = saplings/seedlings. (e) edge

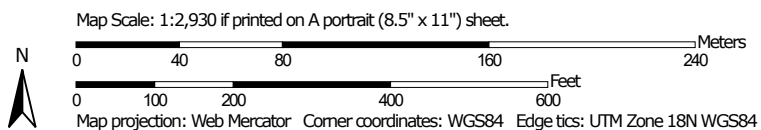
Attachment D

USDA-NRCS Web Soil Survey

Soil Map—State of Connecticut
(Pleasant Valley Road Bridge, South Windsor, CT)



Soil Map may not be valid at this scale.



Natural Resources
Conservation Service


Web Soil Survey
National Cooperative Soil Survey

11/6/2022
Page 1 of 3


Soil Map—State of Connecticut
(Pleasant Valley Road Bridge, South Windsor, CT)


MAP LEGEND

Area of Interest (AOI)

 Area of Interest (AOI)

Soils

 Soil Map Unit Polygons

 Soil Map Unit Lines

 Soil Map Unit Points

Special Point Features



Blowout



Borrow Pit



Clay Spot



Closed Depression



Gravel Pit



Gravelly Spot



Landfill



Lava Flow



Marsh or swamp



Mine or Quarry



Miscellaneous Water



Perennial Water



Rock Outcrop



Saline Spot



Sandy Spot



Severely Eroded Spot



Sinkhole



Slide or Slip



Sodic Spot



Spoil Area



Stony Spot



Very Stony Spot



Wet Spot



Other



Special Line Features

Water Features



Streams and Canals

Transportation



Rails



Interstate Highways



US Routes



Major Roads



Local Roads

Background



Aerial Photography

MAP INFORMATION

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

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

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

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

Source of Map: Natural Resources Conservation Service

Web Soil Survey URL:

Coordinate System: Web Mercator (EPSG:3857)

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

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

Soil Survey Area: State of Connecticut

Survey Area Data: Version 22, Sep 12, 2022

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

Date(s) aerial images were photographed: Jul 15, 2019—Aug 29, 2019

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

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
25C	Brancroft silt loam, 8 to 15 percent slopes	1.6	4.0%
36A	Windsor loamy sand, 0 to 3 percent slopes	6.2	15.9%
36B	Windsor loamy sand, 3 to 8 percent slopes	2.5	6.4%
107	Limerick and Lim soils	8.8	22.5%
236B	Windsor-Urban land complex, 0 to 8 percent slopes	3.3	8.5%
304	Udorthents, loamy, very steep	13.7	34.9%
306	Udorthents-Urban land complex	3.0	7.5%
W	Water	0.1	0.3%
Totals for Area of Interest		39.3	100.0%

Attachment E

Wetland Function-Value Evaluation Form
&
Wetland Determination Data Form
(for Jurisdictional Wetland Boundary)

Wetland Function-Value Evaluation Form

Total area of wetland **33.5** Human made? **N** Is wetland part of a wildlife corridor? **Y** or a "habitat island"? _____

Adjacent land use **Roadway, residential, park** Distance to nearest roadway or other development **~6**

Dominant wetland systems present **PFO1E, R5UBH** 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? **LOW**

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

Wetland I.D. **A**













Latitude **41°48'56.20"N** Longitude **72°35'55.20"W**

Prepared by: **G. Logan** Date **11/30/22**

Wetland Impact:
Type **Bridge Replacement** Area _____

Evaluation based on:
Office **x** Field **x**

Corps manual wetland delineation completed? **Y** **x** **N** _____

Function/Value	Suitability Y / N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
 Groundwater Recharge/Discharge	Y	2,3,4,5,7,11,15,16	Y	both recharge and discharge are expected depending on the season
 Floodflow Alteration	Y	1,4,5,6,8,10,11,13,17,18	Y	
 Fish and Shellfish Habitat	Y	2,3,4,5,7,8,9,10,12,14,16,17	Y	
 Sediment/Toxicant Retention	Y	1,2,3,4,7,8,10,12,14,16	Y	
 Nutrient Removal	Y	1,3,4,7,9,11,12	Y	
 Production Export	Y	1,2,4,5,6,7,9,10,11,12,13	Y	
 Sediment/Shoreline Stabilization	Y	1,3,4,5,6,7,8,9,12,14,15	Y	
 Wildlife Habitat	Y	1,2,3,5,6,7,8,9,11,12,13,15,17,19,20,21	Y	
 Recreation	Y	1,5,6,7,8,10,12	Y	Municipal park enhances opportunity for recreation at this wetland
 Educational/Scientific Value	Y	1,4,5,8,11,14	N	
 Uniqueness/Heritage	Y	3,4,5,7,9,11,12,14,16,18,19,22,24	Y	principal function mostly due to its association with a municipal park
 Visual Quality/Aesthetics	Y	2,3,7,8,	N	
ES Endangered Species Habitat	Y	1	Y	subject wetland/watercourse at site is within CT DEEP NDDB estimated habitat area
Other				

Notes: *** Refer to backup list of numbered considerations.**

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Replacmnt. of Pleasant Valley Brdg./Podunk Rvr. City/County: South Windsor/Hartford Sampling Date: 11/6/22
Applicant/Owner: Town of South Windsor, CT State: CT Sampling Point: W1
Investigator(s): George Logan, MS, PWS, CSE Section, Township, Range: _____
Landform (hillslope, terrace, etc.): riverbank, river channel Local relief (concave, convex, none): _____
Slope (%): 45 Lat: 41°48'56.20"N Long: 72°35'55.20"W Datum: WGS84
Soil Map Unit Name: Limerick and Lim (107) NWI classification: R5UBH

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No _____ (If no, explain in Remarks.)
Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No _____
Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No _____ If yes, optional Wetland Site ID: _____
Hydric Soil Present? Yes <input checked="" type="checkbox"/> No _____	
Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____	
Remarks: (Explain alternative procedures here or in a separate report.)	

HYDROLOGY

Wetland Hydrology Indicators:		Secondary Indicators (minimum of two required)
Primary Indicators (minimum of one is required; check all that apply)		_____ Surface Soil Cracks (B6)
<input checked="" type="checkbox"/> Surface Water (A1)	_____ Water-Stained Leaves (B9)	_____ Drainage Patterns (B10)
_____ High Water Table (A2)	<input checked="" type="checkbox"/> Aquatic Fauna (B13)	_____ Moss Trim Lines (B16)
_____ Saturation (A3)	_____ Marl Deposits (B15)	_____ Dry-Season Water Table (C2)
<input checked="" type="checkbox"/> Water Marks (B1)	_____ Hydrogen Sulfide Odor (C1)	_____ Crayfish Burrows (C8)
<input checked="" type="checkbox"/> Sediment Deposits (B2)	_____ Oxidized Rhizospheres on Living Roots (C3)	_____ Saturation Visible on Aerial Imagery (C9)
<input checked="" type="checkbox"/> Drift Deposits (B3)	_____ Presence of Reduced Iron (C4)	_____ Stunted or Stressed Plants (D1)
_____ Algal Mat or Crust (B4)	_____ Recent Iron Reduction in Tilled Soils (C6)	_____ Geomorphic Position (D2)
_____ Iron Deposits (B5)	_____ Thin Muck Surface (C7)	_____ Shallow Aquitard (D3)
<input checked="" type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	_____ Other (Explain in Remarks)	_____ Microtopographic Relief (D4)
_____ Sparsely Vegetated Concave Surface (B8)		_____ FAC-Neutral Test (D5)
Field Observations:		Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____
Surface Water Present? Yes <input checked="" type="checkbox"/> No _____ Depth (inches): <u>22</u>		
Water Table Present? Yes _____ No _____ Depth (inches): _____		
Saturation Present? Yes _____ No _____ Depth (inches): _____ (includes capillary fringe)		
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:		
Remarks:		

Sampling Point: W1

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: 10' x 20')				
1.	Myriophyllum spicatum	50	Y	OBL
2.	Sparganium fluctuas	20	Y	OBL
3.	_____	_____	_____	_____
4.	_____	_____	_____	_____
5.	_____	_____	_____	_____
6.	_____	_____	_____	_____
7.	_____	_____	_____	_____
8.	_____	_____	_____	_____
9.	_____	_____	_____	_____
10.	_____	_____	_____	_____
11.	_____	_____	_____	_____
12.	_____	_____	_____	_____
		70 = Total Cover		
Woody Vine Stratum (Plot size: _____)				
1.	_____	_____	_____	_____
2.	_____	_____	_____	_____
3.	_____	_____	_____	_____
4.	_____	_____	_____	_____
		_____ = Total Cover		
Remarks: (Include photo numbers here or on a separate sheet.)				

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 (A/B)

Prevalence Index worksheet:	
Total % Cover of:	Multiply by:
OBL species 70	x 1 = 70
FACW species _____	x 2 = _____
FAC species _____	x 3 = _____
FACU species _____	x 4 = _____
UPL species _____	x 5 = _____
Column Totals: 70 (A)	70 (B)
Prevalence Index = B/A = 1	

Hydrophytic Vegetation Indicators:	
_____ Rapid Test for Hydrophytic Vegetation	
<input checked="" type="checkbox"/> Dominance Test is >50%	
<input checked="" type="checkbox"/> Prevalence Index is ≤3.0 ¹	
_____ 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 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 <input checked="" type="checkbox"/>	No _____

SOIL

Sampling Point: W1

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

[illegible]

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

Hydric Soil Indicators:

<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
<input type="checkbox"/> Histic Epipedon (A2)	
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Thin Dark Surface (S9) (LRR R, MLRA 149B)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (LRR K, L)
<input type="checkbox"/> Stratified Layers (A5)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Matrix (F3)
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Dark Surface (F6)
<input checked="" type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)
<input checked="" type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox Depressions (F8)
<input type="checkbox"/> Sandy Redox (S5)	
<input type="checkbox"/> Stripped Matrix (S6)	
<input type="checkbox"/> Dark Surface (S7) (LRR R, MLRA 149B)	

Indicators for Problematic Hydric Soils³:

☐ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
☐ Coast Prairie Redox (A16) (**LRR K, L, R**)
☐ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
☐ Dark Surface (S7) (**LRR K, L**)
☐ Polyvalue Below Surface (S8) (**LRR K, L**)
☐ Thin Dark Surface (S9) (**LRR K, L**)
☐ Iron-Manganese Masses (F12) (**LRR K, L, R**)
☐ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
☐ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
☐ Red Parent Material (TF2)
☐ Very Shallow Dark Surface (TF12)
☐ Other (Explain in Remarks)

³Indicators 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: Replacmnt. of Pleasant Valley Brdg./Podunk Rvr. City/County: South Windsor/Hartford Sampling Date: 11/6/22
Applicant/Owner: Town of South Windsor, CT State: CT Sampling Point: U1
Investigator(s): George Logan, MS, PWS, CSE Section, Township, Range: _____
Landform (hillslope, terrace, etc.): riverbank, river channel Local relief (concave, convex, none): _____
Slope (%): 45 Lat: 41°48'56.20"N Long: 72°35'55.20"W Datum: WGS84
Soil Map Unit Name: Limerick and Lim (107) NWI classification: R5UBH

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No _____ (If no, explain in Remarks.)
Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No _____
Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Yes _____ No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland? Yes _____ No <input checked="" type="checkbox"/> If yes, optional Wetland Site ID: _____
Hydric Soil Present? Yes _____ No <input checked="" type="checkbox"/>	
Wetland Hydrology Present? Yes _____ No <input checked="" type="checkbox"/>	
Remarks: (Explain alternative procedures here or in a separate report.)	

HYDROLOGY

Wetland Hydrology Indicators:		Secondary Indicators (minimum of two required)
Primary Indicators (minimum of one is required; check all that apply)		_____ Surface Soil Cracks (B6)
_____ Surface Water (A1)	_____ Water-Stained Leaves (B9)	_____ Drainage Patterns (B10)
_____ High Water Table (A2)	_____ Aquatic Fauna (B13)	_____ Moss Trim Lines (B16)
_____ Saturation (A3)	_____ Marl Deposits (B15)	_____ Dry-Season Water Table (C2)
_____ Water Marks (B1)	_____ Hydrogen Sulfide Odor (C1)	_____ Crayfish Burrows (C8)
_____ Sediment Deposits (B2)	_____ Oxidized Rhizospheres on Living Roots (C3)	_____ Saturation Visible on Aerial Imagery (C9)
_____ Drift Deposits (B3)	_____ Presence of Reduced Iron (C4)	_____ Stunted or Stressed Plants (D1)
_____ Algal Mat or Crust (B4)	_____ Recent Iron Reduction in Tilled Soils (C6)	_____ Geomorphic Position (D2)
_____ Iron Deposits (B5)	_____ Thin Muck Surface (C7)	_____ Shallow Aquitard (D3)
_____ Inundation Visible on Aerial Imagery (B7)	_____ Other (Explain in Remarks)	_____ Microtopographic Relief (D4)
_____ Sparsely Vegetated Concave Surface (B8)		_____ FAC-Neutral Test (D5)
Field Observations:		Wetland Hydrology Present? Yes _____ No <input checked="" type="checkbox"/>
Surface Water Present? Yes _____ No <input checked="" type="checkbox"/> Depth (inches): _____	Water Table Present? Yes _____ No <input checked="" type="checkbox"/> Depth (inches): _____	
Saturation Present? Yes _____ No <input checked="" type="checkbox"/> Depth (inches): _____ (includes capillary fringe)		
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:		
Remarks:		

VEGETATION – Use scientific names of plants.

 Sampling Point: U1

Tree Stratum (Plot size: <u>15' x 30'</u>)	Absolute % Cover	Dominant Species?	Indicator Status															
1. <u>Acer negundo</u>	<u>10</u>	<u>Y</u>	<u>FAC</u>	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>3</u> (A) Total Number of Dominant Species Across All Strata: <u>6</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>50</u> (A/B)														
2. _____	_____	_____	_____															
3. _____	_____	_____	_____															
4. _____	_____	_____	_____															
5. _____	_____	_____	_____															
6. _____	_____	_____	_____															
7. _____	_____	_____	_____															
<u>10</u> = Total Cover																		
Sapling/Shrub Stratum (Plot size: <u>15' x 15'</u>)																		
1. <u>Rosa multiflora</u>	<u>8</u>	<u>Y</u>	<u>FACU</u>	Prevalence Index worksheet: <table style="width: 100%;"> <tr> <td style="width: 50%;">Total % Cover of:</td> <td style="width: 50%;">Multiply by:</td> </tr> <tr> <td>OBL species _____</td> <td>x 1 = _____</td> </tr> <tr> <td>FACW species <u>5</u></td> <td>x 2 = <u>10</u></td> </tr> <tr> <td>FAC species <u>18</u></td> <td>x 3 = <u>54</u></td> </tr> <tr> <td>FACU species <u>28</u></td> <td>x 4 = <u>112</u></td> </tr> <tr> <td>UPL species <u>7</u></td> <td>x 5 = <u>35</u></td> </tr> <tr> <td>Column Totals: <u>58</u> (A)</td> <td><u>211</u> (B)</td> </tr> </table> Prevalence Index = B/A = <u>3.63</u>	Total % Cover of:	Multiply by:	OBL species _____	x 1 = _____	FACW species <u>5</u>	x 2 = <u>10</u>	FAC species <u>18</u>	x 3 = <u>54</u>	FACU species <u>28</u>	x 4 = <u>112</u>	UPL species <u>7</u>	x 5 = <u>35</u>	Column Totals: <u>58</u> (A)	<u>211</u> (B)
Total % Cover of:	Multiply by:																	
OBL species _____	x 1 = _____																	
FACW species <u>5</u>	x 2 = <u>10</u>																	
FAC species <u>18</u>	x 3 = <u>54</u>																	
FACU species <u>28</u>	x 4 = <u>112</u>																	
UPL species <u>7</u>	x 5 = <u>35</u>																	
Column Totals: <u>58</u> (A)	<u>211</u> (B)																	
2. <u>Swida amomum</u>	<u>5</u>	<u>Y</u>	<u>FACW</u>															
3. _____	_____	_____	_____															
4. _____	_____	_____	_____															
5. _____	_____	_____	_____															
6. _____	_____	_____	_____															
7. _____	_____	_____	_____															
<u>13</u> = Total Cover																		
Herb Stratum (Plot size: <u>6' diam.</u>)																		
1. <u>Artemisia vulgaris</u>	<u>7</u>	<u>Y</u>	<u>UPL</u>	Hydrophytic Vegetation Indicators: <input type="checkbox"/> Rapid Test for Hydrophytic Vegetation <input type="checkbox"/> Dominance Test is >50% <input type="checkbox"/> Prevalence Index is ≤3.0 ¹ <input type="checkbox"/> Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.														
2. <u>Alliaria petiolata</u>	<u>20</u>	<u>Y</u>	<u>FACU</u>															
3. <u>Setaria pumila</u>	<u>8</u>	<u>Y</u>	<u>FAC</u>															
4. <u>Allium canadense</u>	<u>3</u>	<u>N</u>	<u>FACU</u>															
5. <u>Echinochloa crus-galli</u>	<u>5</u>	<u>N</u>	<u>FAC</u>															
6. <u>Carex laxiflora</u>	<u>5</u>	<u>N</u>	<u>UPL</u>															
7. _____	_____	_____	_____															
8. _____	_____	_____	_____															
9. _____	_____	_____	_____															
10. _____	_____	_____	_____															
11. _____	_____	_____	_____															
12. _____	_____	_____	_____															
<u>48</u> = Total Cover																		
Woody Vine Stratum (Plot size: _____)																		
1. _____	_____	_____	_____	Hydrophytic Vegetation Present? Yes _____ No <u>X</u>														
2. _____	_____	_____	_____															
3. _____	_____	_____	_____															
4. _____	_____	_____	_____															
_____ = Total Cover																		
Remarks: (Include photo numbers here or on a separate sheet.)																		

SOIL

Sampling Point: U1

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

[illegible]

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

Hydric Soil Indicators:

<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Polyvalue Below Surface (S8) (LRR R,
<input type="checkbox"/> Histic Epipedon (A2)	MLRA 149B)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Thin Dark Surface (S9) (LRR R, MLRA 149B)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (LRR K, L)
<input type="checkbox"/> Stratified Layers (A5)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Matrix (F3)
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Dark Surface (F6)
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox Depressions (F8)
<input type="checkbox"/> Sandy Redox (S5)	
<input type="checkbox"/> Stripped Matrix (S6)	
<input type="checkbox"/> Dark Surface (S7) (LRR R, MLRA 149B)	

Indicators for Problematic Hydric Soils³:

☐ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
☐ Coast Prairie Redox (A16) (**LRR K, L, R**)
☐ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
☐ Dark Surface (S7) (**LRR K, L**)
☐ Polyvalue Below Surface (S8) (**LRR K, L**)
☐ Thin Dark Surface (S9) (**LRR K, L**)
☐ Iron-Manganese Masses (F12) (**LRR K, L, R**)
☐ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
☐ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
☐ Red Parent Material (TF2)
☐ Very Shallow Dark Surface (TF12)
☐ Other (Explain in Remarks)

³Indicators 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: