Wetland Delineation Report

Reconstruction of Route 177
Route 177/South Main Street
Farmington, Connecticut

April 2016
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Prepared for:
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Public Works Department
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## APPENDIX

Natural Resources Conservation Service (NRCS) Soil Survey Map
1.0 INTRODUCTION

On December 28, 2015, William A. Root, a certified soil scientist, and Kelly Kerrigan, soil scientist in training, with Milone & MacBroom, Inc. (MMI) conducted a site inspection of the subject property as it is depicted on Figure 1. Inland wetlands and watercourses on the site were delineated in accordance with the regulations of the Town of Farmington, Connecticut and the State of Connecticut Inland Wetlands and Watercourses Act, CGS 22a-36 through 45. Regulated wetland areas consist of any of the soil types designated by the National Cooperative Soils Survey as poorly drained, very poorly drained, alluvial, or floodplain. Regulated watercourses consist of rivers; watercourses; brooks; waterways; lakes; ponds; marshes; swamps; bogs; and all other bodies of water, natural or artificial, vernal or intermittent, public or private, not regulated pursuant to sections 22a-28 to 22a-35, inclusive (tidal wetlands).

Weather conditions were clear and dry. Site conditions were suitable for wetland delineation work. Soils were inspected using a Dutch auger. Geospatial data was accessed via the United States Department of Agriculture – Natural Resources Conservation Service (USDA-NRCS) web soil survey mapping. The soil survey mapping is appended. The survey identifies the following soil mapping units on the property.
2.0 EXISTING SOILS

Please note that our investigations were only conducted within the proposed road reconstruction corridor and extended approximately 150 feet beyond the reconstruction area (town-regulated upland review area for wetlands and watercourses). The upland soil series and complexes were not fully delineated in the field. The following soils descriptions pertain to the project area.

**Upland Soils**

The **Hinckley** series consists of very deep, excessively drained soils formed in glaciofluvial materials. They are nearly level through very steep soils on outwash terraces, outwash plains, outwash deltas, kames, kame terraces, and eskers. Saturated hydraulic conductivity is high or very high. Slope ranges from 0 to 60 percent. Mean annual temperature is about 7 degrees C, and mean annual precipitation is about 1,143 millimeters (mm). The taxonomic class is sandy-skeletal, mixed, mesic typic Udorthents. Typical vegetative cover includes northern red, black, white, scarlet, and scrub oak; eastern white and pitch pine; eastern hemlock; grey birch; hardhack; little bluestem; bracken and sweet fern; and lowbush blueberry.

The **Windsor** series consists of very deep, excessively drained soils formed in sandy outwash or eolian deposits. They are nearly level through very steep soils on glaciofluvial landforms. Slope ranges from 0 through 60 percent. Saturated hydraulic conductivity is high or very high. Mean annual temperature is about 10 degrees C, and mean annual precipitation is about 1,092 mm. The taxonomic class is mixed, mesic typic Udipsamments. Typical vegetative cover includes white, black, and northern red oak; eastern white and pitch pine; grey birch; poplar; and red and sugar maple.

The **Merrimac** series consists of very deep, somewhat excessively drained soils formed in outwash. They are nearly level through very steep soils on outwash terraces and plains and other glaciofluvial landforms. Slope ranges from 0 through 35 percent. Saturated hydraulic conductivity is high or very high. Mean annual temperature is about 48 degrees F (9 degrees C), and mean annual precipitation is about 42 inches (1,067 mm). The taxonomic class is sandy, mixed typic Dystrudepts. Typical vegetative cover includes white pine; grey birch; hemlock; red maple; and red, black, white, and scarlet oaks.

The **Udorthent-Urban Land** complex consists of soils that have either been filled and/or cut by more than 2 feet, do not exhibit a natural soil horizon profile, and may be covered by buildings and/or pavement. These soils can range in drainage classification from somewhat poorly drained to well drained. Udorthents cannot be taxonomically classified. Due to the nature of Udorthents, the parent material of the soils may be difficult to ascertain.

**Wetland Soils**

The soil resource mapping indicates that a small area of very poorly drained soils occurs along the southwest portion of the site.
The Fluvaquents-Udifluvents complex consists of poorly drained to well-drained alluvium soils. They are typically found on floodplains. Slopes range from 0 to 3 percent. Saturated conductivity is moderately high to very high. These soils are frequently flooded.

Our investigations confirmed the presence of floodplain soils on this property along the Farmington River. The limits of the wetland were marked with blue flagging in the field, with the sequence "W-#." Wetland flags included W-1 through W-5. Ordinary high water (OHW) was also flagged in the field along the banks of the Farmington River with the flagging sequence "OHW-#." OHW flags included OHW-1 through OHW-8 and OHW-52 through OHW-61.
3.0 FIELD INVESTIGATIONS

The proposed roadway reconstruction area is predominately developed with commercial and residential structures, associated landscaped areas, and pavement. The Farmington River flows perpendicularly beneath Route 177. A small forested floodplain area is present along the southeastern bank of the river.

Wetland Hydrology

The wetland and watercourse are supported by base flow from the surface land runoff and groundwater discharge located within the watershed.

Wetland Cover Type and Vegetation

The wetland resources present on and adjacent to the project site are described herein using the U.S. Fish and Wildlife Service's wetland classification system described in Classification of Wetlands and Deepwater Habitats of the United States (Cowardin, et al., 1979). The Farmington River is a riverine, lower perennial, unconsolidated bottom, permanently flooded watercourse. The adjacent floodplain wetland is classified as palustrine, forested, broad-leaved deciduous, temporary flooded.

Watercourse – Farmington River

The Farmington River flows in an easterly direction through the project area. This watercourse has been given a water quality designation by the Connecticut Department of Energy & Environmental Protection (CT DEEP) of Class B. This designation denotes that the water is of fishable and swimmable condition and may be good to excellent quality. Designated uses include fishing, swimming, recreation, healthy aquatic habitat, industrial supply, and agricultural use. These resource types generally include rivers and large streams with point wastewater discharges. The watercourse is approximately 180 feet wide and has a channel substrate consisting of unconsolidated materials such as cobbles, coarse sand, and silts.

Wetland W – Palustrine Forested Floodplain

The palustrine forested wetland is a small floodplain area adjacent to the Farmington River. The wetland is topographically flat with slopes ranging from 1 to 2 percent. The dominant overstory trees are...
include cottonwood, sycamore, and red maple, which range in size from 3 to 12 inches in diameter at breast height. The understory consists of very low-density vegetation including red-osier dogwood. Herbaceous vegetation was not observed due to time-of-year constraints.

**Palustrine forested wetland and Farmington River, facing northwest**

A functional evaluation of the forested wetland based on MMI field observations is summarized in Table 1. The first column lists the functions generally ascribed to wetlands; the second column summarizes the rationale used to determine whether these functions are being performed within the subject wetland and/or watercourse.

**TABLE 1**

<table>
<thead>
<tr>
<th>Functions and Values</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Groundwater Recharge / Discharge</td>
<td>Yes – The watercourse does obtain base flow from groundwater discharge due to its topographic positioning.</td>
</tr>
<tr>
<td>Flood flow Alteration (Storage &amp; Desynchronization)</td>
<td>Yes – The Farmington River is mapped in a flood zone by the Federal Emergency Management Agency (FEMA) and does provide localized flood flow alteration.</td>
</tr>
<tr>
<td>Fish &amp; Shellfish Habitat</td>
<td>Yes – The Farmington River is perennial and large enough to support a fish population. No fish were observed during delineation activities.</td>
</tr>
<tr>
<td>Sediment / Toxicant Retention</td>
<td>Yes – Some sediment accumulation occurs during flooding events within the floodplain wetland.</td>
</tr>
<tr>
<td>Nutrient Removal / Retention / Transformation</td>
<td>Yes – The dense floodplain vegetation incorporates nutrients into additional biomass.</td>
</tr>
<tr>
<td>Production Export (Nutrient)</td>
<td>Yes – The wetland and riparian areas of the Farmington River are vegetated, and the watercourse provides a mechanism to export the allochthonous organic matter to downstream habitats. Wildlife supports higher trophic species.</td>
</tr>
<tr>
<td>Functions and Values</td>
<td>Comments</td>
</tr>
<tr>
<td>-----------------------------------------</td>
<td>----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Sediment / Shoreline / Watercourse</td>
<td>Yes – The banks and floodplain area of the Farmington River are clearly defined and stabilized by the forest vegetation.</td>
</tr>
<tr>
<td>Bank Stabilization</td>
<td></td>
</tr>
<tr>
<td>Wildlife Habitat</td>
<td>Yes – The Farmington River and associated wetland provide wildlife habitat for reptiles, amphibians, mammals, and insects.</td>
</tr>
<tr>
<td>Recreation (Consumptive &amp; Non-Consumptive)</td>
<td>Yes – The watercourse is utilized for recreational opportunities such as canoeing and fishing. However, there is a lack of formal river access at this site.</td>
</tr>
<tr>
<td>Educational Scientific Value</td>
<td>Yes – The watercourse and wetland may provide learning opportunities for nearby schools.</td>
</tr>
<tr>
<td>Uniqueness / Heritage</td>
<td>Yes – This reach of the Farmington River is just south of the southern extent of the Wild &amp; Scenic designated portion of the river. Additionally, it is a larger river for Connecticut, and there are many historical structures along this river.</td>
</tr>
<tr>
<td>Visual Quality / Aesthetics</td>
<td>Yes – The Farmington River is a large river for Connecticut, and its mix of historical buildings, bridges, and wilderness sections is visually appealing.</td>
</tr>
<tr>
<td>Endangered Species</td>
<td>Yes – The watercourse and wetland are located within an identified Natural Diversity Data Base (NDDB) area as outlined by the CT DEEP. No listed species were identified during the course of this assessment. A Preliminary NDDB Assessment was requested. Floodplain forest critical habitat and Whip-poor-will (Caprimulgus vociferous), Bald eagle (Haliaeetus leucocephalus), and Eastern box turtle (Terrapene carolina carolina) were listed species. The project is not anticipated to have any effect on this critical habitat or these listed species.</td>
</tr>
</tbody>
</table>

The principal functions and values of the wetland system at this location include the following:

- Fish & Shellfish Habitat
- Floodflow Alteration
- Production Export
- Wildlife Habitat
- Recreation
FIGURES
APPENDIX

NRCS SOIL SURVEY MAP
MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- 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
- Spoil Area

Stony Spot
- Stony Spot

Very Stony Spot
- Very Stony Spot

Wet Spot
- Wet Spot

Other
- Other

Special Line Features
- Special Line Features

Water Features
- Water Features
  - Streams and Canals

Transportation
- Transportation
  - Rails
  - Interstate Highways
  - US Routes
  - Major Roads
  - Local Roads

Background
- 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
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 14, Sep 22, 2015

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

Date(s) aerial images were photographed: Mar 28, 2011—Apr 18, 2011

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

<table>
<thead>
<tr>
<th>Map Unit Symbol</th>
<th>Map Unit Name</th>
<th>Acres in AOI</th>
<th>Percent of AOI</th>
</tr>
</thead>
<tbody>
<tr>
<td>32B</td>
<td>Haven and Enfield soils, 3 to 8 percent slopes</td>
<td>0.1</td>
<td>0.2%</td>
</tr>
<tr>
<td>34A</td>
<td>Merrimac fine sandy loam, 0 to 3 percent slopes</td>
<td>1.2</td>
<td>3.0%</td>
</tr>
<tr>
<td>36A</td>
<td>Windsor loamy sand, 0 to 3 percent slopes</td>
<td>0.5</td>
<td>1.2%</td>
</tr>
<tr>
<td>38A</td>
<td>Hinckley loamy sand, 0 to 3 percent slopes</td>
<td>0.2</td>
<td>0.4%</td>
</tr>
<tr>
<td>38C</td>
<td>Hinckley loamy sand, 3 to 15 percent slopes</td>
<td>5.1</td>
<td>12.4%</td>
</tr>
<tr>
<td>38E</td>
<td>Hinckley loamy sand, 15 to 45 percent slopes</td>
<td>6.7</td>
<td>16.2%</td>
</tr>
<tr>
<td>68C</td>
<td>Narragansett silt loam, 3 to 15 percent slopes, extremely stony</td>
<td>0.1</td>
<td>0.2%</td>
</tr>
<tr>
<td>109</td>
<td>Fluvaquents-Udifluvents complex, frequently flooded</td>
<td>0.6</td>
<td>1.3%</td>
</tr>
<tr>
<td>306</td>
<td>Udorthents-Urban land complex</td>
<td>11.7</td>
<td>28.3%</td>
</tr>
<tr>
<td>307</td>
<td>Urban land</td>
<td>12.9</td>
<td>31.2%</td>
</tr>
<tr>
<td>W</td>
<td>Water</td>
<td>2.3</td>
<td>5.5%</td>
</tr>
<tr>
<td><strong>Totals for Area of Interest</strong></td>
<td></td>
<td><strong>41.3</strong></td>
<td><strong>100.0%</strong></td>
</tr>
</tbody>
</table>