



Martin Brogie, Inc.
ENVIRONMENTAL SERVICES

- Environmental Site Investigations
 - Building Contaminant Surveys
 - Wetlands Consulting
- Remediation Contract Management

November 28, 2022

Rachel Boots, P.E.
Senior Development Engineer
Community Power Group

RE: Wetland Delineation Report
24 Middle Road
Ellington, CT

Dear Rachel:

Martin Brogie, Inc. (MBI) is pleased to submit the following information regarding a wetland delineation performed in association with a proposed solar array project at the above-referenced property. It is our understanding that Community Power Group is seeking to construct a solar array and associated infrastructure within an existing agricultural field. Connecticut inland wetlands are located in the eastern and western portions of the project area.

SITE DESCRIPTION

The subject property consists of a 60.5+/- acre property occupied approximately 60% by cornfields including an approximate 4-acre cornfield in the southeastern portion of the site, bordered to the east by Pinney Street and an approximate 32-acre cornfield occupying the majority of the central portion of the site. Mature wooded land is located along the western and northwestern portion of the property. Pinney Brook flows from north to south through the wooded western portion of the property and forms a shallow pond in the southwestern portion of the site. A lightly wooded to partially open area occupies the area between the two cornfields up to the northern property boundary and along the east side of the larger corn field.

Residences along the south side of Middle Road border the site to the north and northeast. Wooded land and cultivated farm fields border the site to the south and west.

28 Arbor Lane
Madison, CT 06443

martinbrogieinc@gmail.com
860-208-0360

A site location map is provided as Figure 1. An aerial view of the property is provided as Figure 2. Photographs of the wetland areas are provided as Attachment A.

WETLAND DELINEATION

On August 25th, October 5th, and November 16th 2022 MBI's Soil Scientist Martin Brogie, LEP reported to the site to assess the presence of wetlands and watercourses/intermittent watercourses in accordance with the definitions provided in Connecticut General Statutes Section 22a-38 definitions (15) and (16) including: soil types designated as poorly drained, very poorly drained, alluvial, and floodplain by the National Cooperative Soils Survey; and, rivers, streams, brooks, waterways, lakes, ponds, marshes, swamps, bogs and all other bodies of water, natural or artificial, vernal or intermittent. In addition, intermittent watercourses defined as having a permanent channel and bank and the occurrence of two or more of the following characteristics: evidence of scour or deposits of recent alluvium or detritus; the presence of standing or flowing water for a duration longer than a storm incident; and/or the presence of hydrophytic vegetation.

In August, corn had not been harvested so the cornfield areas could not be fully investigated. On October 3rd the remainder of the delineation was completed and on November 16th additional data was collected for an area in the central portion of the large cornfield that exhibited potential seepage in aerial views from 1990 to 2018.

EASTERN WETLANDS

There is a small intermittent wetland system that extends from north to south in the eastern portion of the site, between the two cornfields. It extends from Middle Road (at two culverts that intercept stormwater from a low spot in the road) and consists of a narrow channel extending approximately 325 feet south of the road to a lightly wooded area where the channel broadens and then narrows before terminating at a small open meadow. The system dissipates among dense vegetation and flat ground. Given the systems' hydrologic origin, consisting only of stormwater inputs from Middle Road, the dissipation of wetland features further from the source is expected and is consistent with the findings in the field. The USGS topographic map for the area (Figure 1) depicts a larger, more pronounced drainage feature through this area which may have existed prior to the significant agricultural disturbances on the site.

MBI first accessed the site off of Pinney Road and evaluated the southeastern portion of the site in the area of the smaller cornfield. The field was bordered by mature upland forest and exhibited no evidence of wetland conditions. Crossing into the area between the two site cornfields MBI encountered a dense stand of Giant Ragweed (*Ambrosia trifida*) bordered by Red Maples (*Acer rubrum*) and Sweet Birch (*Betula lenta*) with Honeysuckle (*Lonicera morrowii*) and Multi-flora Rose (*Rosa multiflora*) in the

understory. In this wooded area MBI observed evidence of generally north to south, intermittent surface flows including small rack lines and some small areas of sediment accumulation. No defined channel or bank were noted and no wetland soils were identified in the area. Jewelweed (*Impatiens capensis*) and Pennsylvania Smartweed (*Persicaria pensylvanica*) were noted in the areas of apparent surface flow-through.

Further to the south, near the southern boundary, an incised channel was noted but there was no evidence of recent flow-through which was substantiated by significant upgradient disturbances which blocked the channel. The southern end of the channel terminates along a grassed yard area associated with an adjacent, offsite farmhouse.

Further to the north and just offsite to the east was an open area dominated by a thick stand of Reed Canary Grass (*Phalaris arundinacea*) and included Tearthumb (*Persicaria sagittate*), Smartweed, and Elderberry (*Sambucus canadensis*) along with several Narrow-leaved Cattails (*Typha angustifolia*). Silky Dogwood (*Cornus Amomum*) and Cottonwoods (*Populus deltoides*) were located along the northern border. No wetland soils were noted and no defined channel or other evidence of surface flows were evident. The soil consisted of a generally dark brown silt loam. It appears the silty soil conditions and thick grass cover capture and hold run-off entering the area from the north. The moist soil conditions are adequate for supporting the noted hydrophytic vegetation.

An intermittent watercourse (IWC) was identified north of the open meadow. It exhibited a defined channel and bank, evidence of scour and deposition and wetland vegetation including Jewelweed, Soft Rush (*Juncus effusus*) and Beggars Tick (*Bidens frondosa*). The IWC consisted of a narrow channel from IWC#1 to IWC#5 and then broadened as captured by wetland flags WF#1 through WF#14 and was then picked up again as a narrow, linear channel north of the broad area with flags IWC# 5 through IWC #8. Although the IWC feature extended up to Middle Road, wetland flags were not hung as it appeared the area was off site based on lawn mowing and maintenance that was associated with the adjacent residence to the northeast. After reviewing survey plans, it became evident that the remainder of the IWC was onsite. Since the remainder of the IWC consists of a narrow, linear channel picked up on the site topographic survey, additional flags did not appear warranted. The extent of the IWC is shown on Figure 2.

WESTERN WETLANDS

The western wetlands system is associated with Pinney Brook which originates north of Middle Road and passes through the western portion of the property forming an elongated man-made pond just north of the southern property boundary.

MBI commenced the western wetland delineation southwest of the central cornfield. The wetland line, commencing with WF#15 was determined to be the edge of highwater along the east side of the pond.

This line along the pond was heavily overgrown with Multi-Flora Rose and included Jewelweed along the water line. The pond occupies approximately one acre and appears to be shallow (2-4 feet deep). It was covered with Duckweed (*Lemna minor*) and likely provides some function as amphibian breeding habitat.

The wetland area north of the pond exhibited poorly-drained wetland soils along with Red Maple, Silky Dogwood, Grape Vine (*vitus spp.*), Multi-flora Rose, and Jewelweed. Further north vegetation along the eastern wetland border included Eastern Hemlock (*Tsuga canadensis*), Red Maple, Winterberry (*Ilex verticillata*), Cinnamon Fern (*Osmunda cinnamomea*) and Jewelweed. This wetland line included flags WF#28 through WF# 39 terminating southwest of the residential property abutting the northwestern portion of the site .

CENTRAL CORNFIELD

Aerial views (*Google Earth*) of the site from 1990 to 2018 depict an approximate 200 foot long by 100 foot wide overgrown/lightly forested area in the central portion of the larger cornfield. These unplowed areas typically represent bedrock outcropping or wet areas. A surficial drainage channel emanating from the area and dissipating in the southeast portion of the larger cornfield suggested the area was likely an area of groundwater exfiltration. Detailed exploration of the area on November 16th, shortly after a rainfall event, indicated the presence of saturated soil and some areas of standing water at the surface of the soil. Subsurface soil exploration indicated sandy matrices with high chroma mottles on the outer fringes of the area and more silty, dense soils with Chroma 3 matrices and some high chroma mottles in the central core. The entire area had been plowed and planted with corn. Given the lack of poorly-drained soils in the area, it was not delineated as a wetland.

USDA SOIL SURVEY

The USDA Natural Resource Conservation Service Soil Survey of the site indicates the presence of silt loam to very fine sandy loam mapped across the site.

The area of the smaller eastern cornfield and the central portion of the large onsite cornfield are mapped as Narragansett Silt Loam, which is a very deep, well drained loamy soil formed in medium-textured deposits overlying till. The majority of the remainder of the site is mapped as Wapping Very Fine Sandy Loam, which is a very deep, moderately well drained loamy soil formed in a silty-mantled friable or firm till on uplands. The Soil survey identifies the pond in the southwestern portion of the site. No wetland soils or other wetland features are mapped.

The USDA mapping is provided in Attachment B.

CONCLUSIONS

MBI completed a wetland delineation of the site in the Summer and Fall of 2022. Two distinct wetland areas were identified in the eastern and western portions of the property and were generally oriented and flowing from north to south. The eastern wetland area consists of an intermittent, disturbed wetland area originating from stormwater run-off along Middle Road to the north. Wetland features diminish and are lost further to the south in a disturbed area between the two cornfields although evidence of historic flow-through conditions was apparent.

The western wetlands are associated with Pinney Brook which has its origins not far from the northern property boundary. The brook appears to be intermittent as no flowing channel was noted during the delineation. Stormwater from Middle Road also contributes to this system. The man-made pond in the southern portion of the system appears to be supported by groundwater seepage as well as surface flows.

Connecticut wetlands identified included an IWC, a surface water body and a wooded wetland containing poorly drained soils.

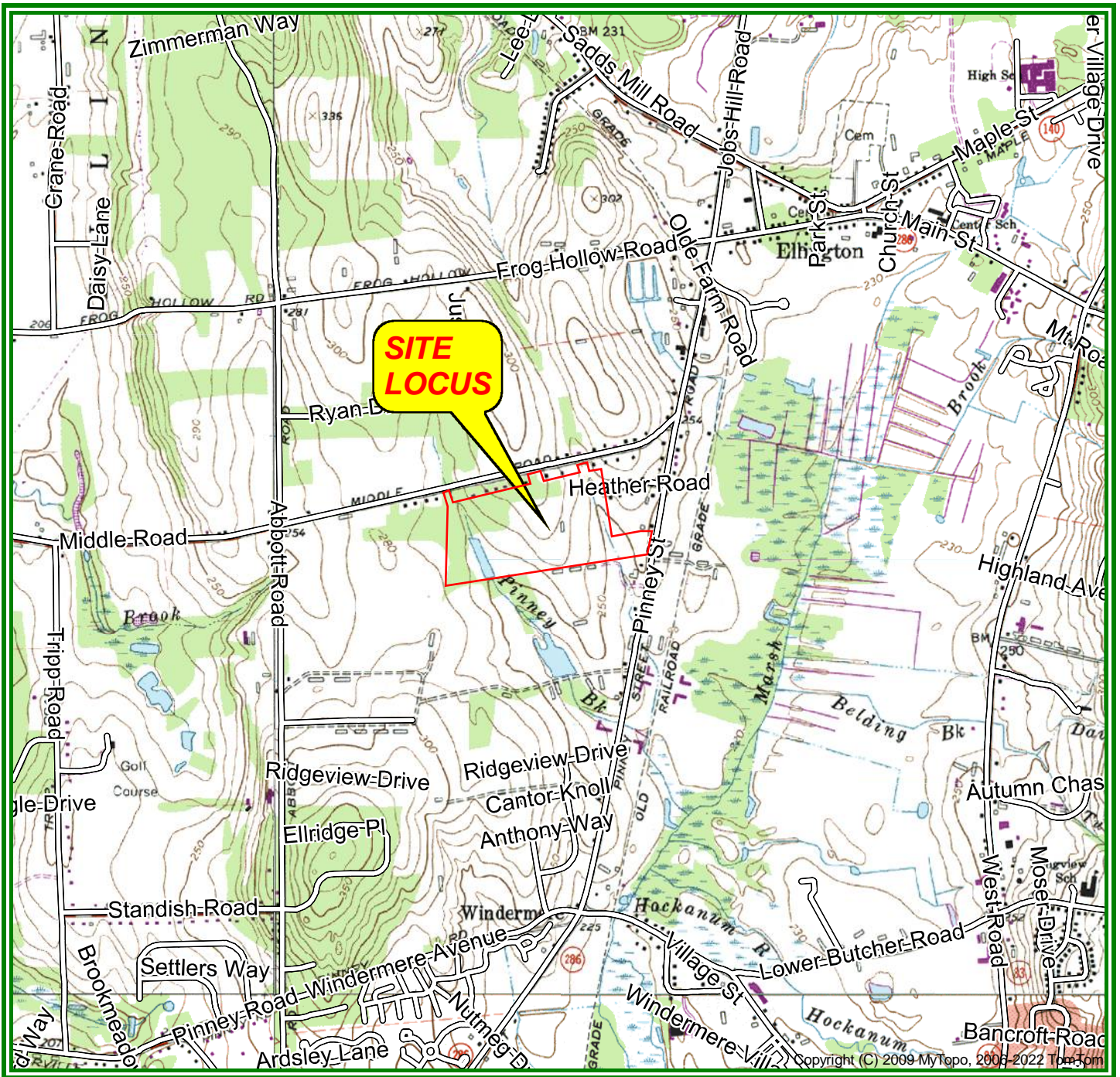
Please contact the undersigned at 860-208-0360 if you have any questions or require further information. Thank you for the opportunity to be of service.

Sincerely,

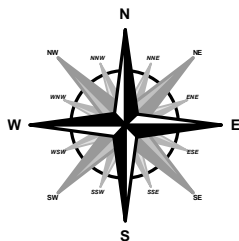


Martin Brogie, LEP
Soil Scientist

w/attachments



ELLINGTON Topographic 1967 41072-H4-TF-024 National Geodetic Vertical Datum 1929



SCALE 1:24000



Site Coordinates:
041° 53' 30.17" N, 072° 29' 09.38" W

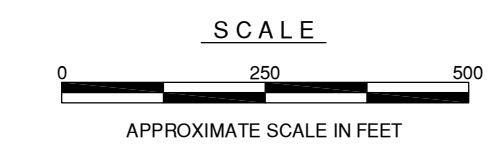
Project:
24 Middle Road

Site Location:
24 Middle Road
Ellington, Connecticut



28 Arbor Lane, Madison, Connecticut 06443
ph: (860) 208-0360
email: martinbrogieinc@gmail.com

Figure 1
Site Locus Map



 **Martin Brogie, Inc.**
 ENVIRONMENTAL SERVICES

28 Arbor Lane
 Madison, Connecticut 06443
 ph: (860) 208-0360
 email: martinbrogieinc@gmail.com

Figure 2 - Aerial Site Plan

24 Middle Road
 Ellington, Tolland County, Connecticut

Project:	24 Middle Road
Drawn by:	K. Hazel
Date:	11/13/22
Scale:	AS SHOWN



View of large, central cornfield looking south from Middle Road



Area south of Eastern Wetland IWC (between the two cornfields) where evidence of surficial flows were noted, but the area did not meet wetland definitions.



Area directly below Eastern IWC containing hydrophytic vegetation but no wetland soil or channelized areas.



Eastern IWC – area of narrow channel near IWC#7.



Eastern IWC – area of broad channel within WF#1-14.

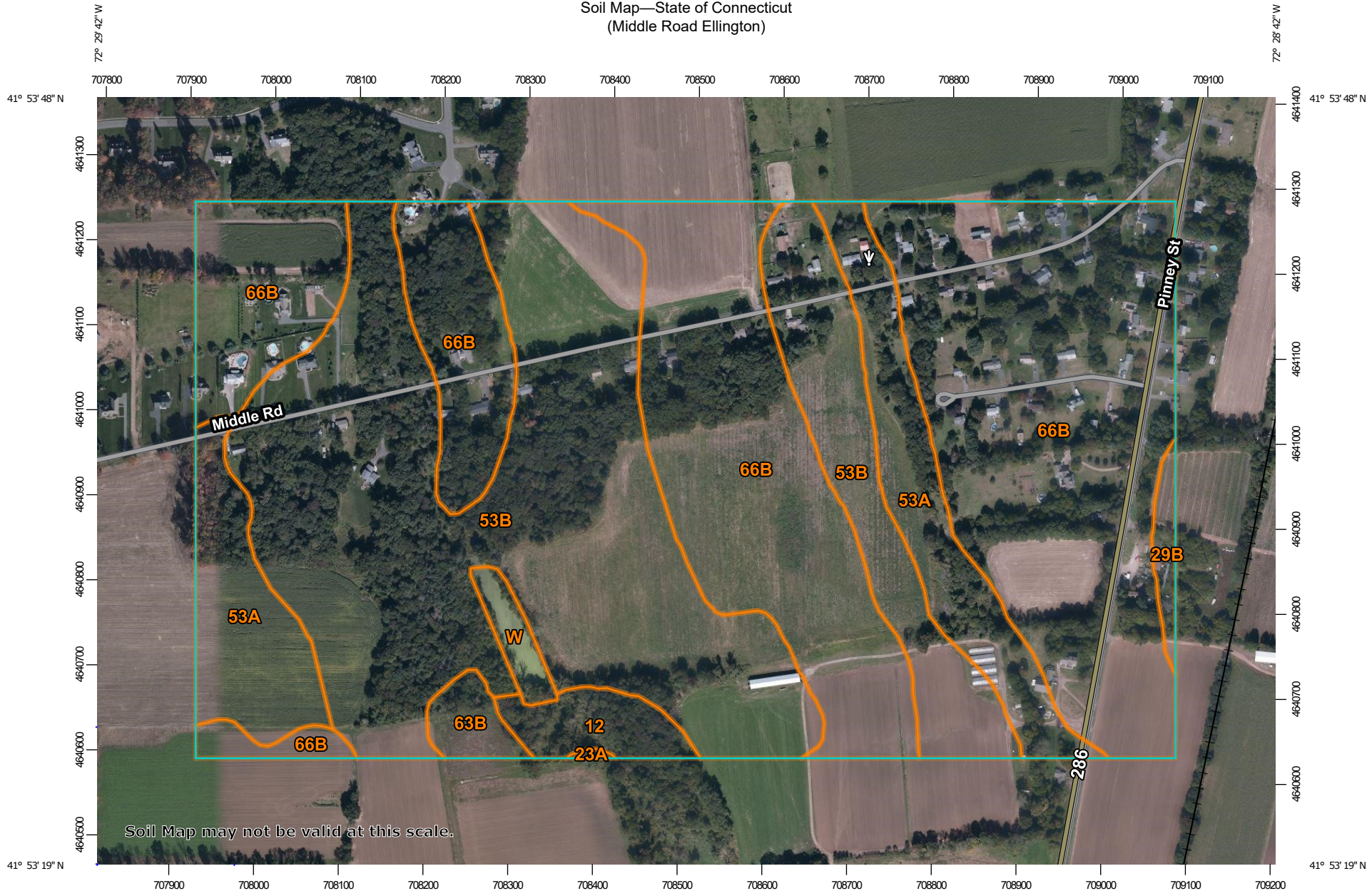


Shallow pond in southwestern portion of site/southern end of western wetlands



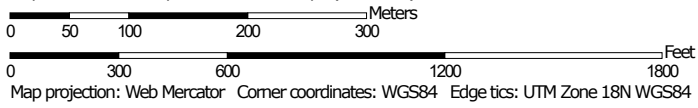
View looking north along northern portion of western wetland boundary near flag WF#35

Soil Map—State of Connecticut
(Middle Road Ellington)



Soil Map may not be valid at this scale.

Map Scale: 1:6,360 if printed on A landscape (11" x 8.5") sheet.



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: Aug 24, 2019—Oct 24, 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
12	Raypol silt loam	3.5	1.9%
23A	Sudbury sandy loam, 0 to 5 percent slopes	0.1	0.1%
29B	Agawam fine sandy loam, 3 to 8 percent slopes	1.3	0.7%
53A	Wapping very fine sandy loam, 0 to 3 percent slopes	19.3	10.2%
53B	Wapping very fine sandy loam, 3 to 8 percent slopes	73.3	39.0%
63B	Cheshire fine sandy loam, 3 to 8 percent slopes	2.0	1.1%
66B	Narragansett silt loam, 2 to 8 percent slopes	86.7	46.2%
W	Water	1.7	0.9%
Totals for Area of Interest		187.9	100.0%