

CLA Engineers, Inc.

Civil • Structural • Survey

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July 8, 2020

Inland Wetlands Commission
Town of Brooklyn
69 South Main Street
Suite 22
Brooklyn, CT 06234

RE: CLA 6382
VBL Properties LLC Subdivision
Beecher Rd

To the Commission:

CLA Engineers was retained by VBL Properties LLC to conduct a wetlands investigation and functional assessment on the parcel of land, located at Beecher and Rukstella Roads that is proposed to be developed for a residential subdivision. The 14.68 acre site is located within the Town of Brooklyn and is currently a combination of farm field and wooded undeveloped land. The approximate site location is shown on the cover sheet of the site plans. The purposes of the investigation were to: confirm the wetland delineation, provide background data in the form of determining wetland functions, and assess the potential for wetland impacts due to the proposed development.

Wetlands were previously delineated by John Ianni of Highland Soils according to the State of Connecticut statutory definition as described in Section 22a of the State Statutes. CLA conducted field work in June and July of 2020 and confirmed that the previous wetland delineation is substantially correct. Several old wetland flags were found and re-flagged and new flags were hung along virtually the same line that was previously determined.

After wetland delineation confirmation was complete, the wetland resources of the site were surveyed by conducting a deliberate walk through of the site, traversing each wetland in order to collect data characteristic of that wetland. During the walk through, vegetation identifiable was noted, described and divided into communities.

Site Setting

The VBL site has several vegetative cover types that were established by past land use. Portions of the site have been used for agriculture and a farm fields is still present. Other areas were used for agriculture and then allowed to revert to woodland at various times in

the past. The abundant stonewalls indicate that nearly all of the land was previously cleared and used (as was most of Connecticut) for farm fields until the early 20th century.

The upland forest type is mixed hardwood uplands and the wetland is a combination of floodplain forest and red maple swamp. The areas of upland have mixed hardwoods such as red maple, red oak, locust and black birch. The wetlands are dominated by red maple trees with other species such as yellow birch and pin oak in lesser numbers.

The land uses surrounding the site include residential, agricultural and woodland. The residential development is primarily located to the east. Undeveloped farmland and woodland surrounds the site to the north, west and south.

Throughout the site slopes vary from moderate to nearly flat. The surface water drains to Blackwell's Brook on the eastern side of the site and to an on-site wetland on the western side of the site. The slopes on the east and west side of Blackwell's Brook are abrupt at the edge of the wetland and indicate the transition from upland soils to the edge of the alluvial soils that flank the brook.

Surficial Geology and Soils

Southern New England was overlain by glacial ice as recently as 12,000-15,000 years ago. The materials that the glaciers deposited over top the local bedrock determine the surficial geology of the region and of the VBL site. Glacial deposits are generally divided into three categories: glacial till (un-stratified sand, silt and rock), glaciofluvial (water sorted, stratified sand and gravel), and glaciolacustrine (stratified sand, silt and clay that settled out in lakebeds). The type of glacial deposits present on the site includes both glacial till and glacial outwash. In addition, the soils along Blackwell's Brook were deposited by that stream after the glacier retreated and are regulated by the State of Connecticut as wetland soils.

The soils formed in till deposits typically have sandy loam to silt loam textures and in this case they are coarser, sandy loams. The slopes are moderate to flat throughout the site and this leads to differences in soil mapping classification as listed by the NRCS.

The soils formed in glacial outwash are stratified and contain layers of sand and gravel.

The alluvial soils on this site are also all either poorly or very poorly drained and have variable textures that include layers of sand, gravel, silt and organic matter. All of these soils have been delineated as wetland.

Table 1 is a summary table of the soils found on the site.

Table 1 - Soil Types and Properties at the VBL Site

<u>Soil Series</u>	<u>Parent Material</u>	<u>Drainage Class</u>	<u>Texture/Characteristics</u>
*108 Saco	Alluvium	Very Poorly Drained	Fine Sandy Loam Extremely Stony
*17 Scarboro muck	Decayed organic matter	Very poorly drained	Mucky
*3 Ridgebury, Leicester and Whitman	Glacial Till	Somewhat poorly to very poorly drained	Stony sandy loam
60 Canton and Charlton	Glacial Till	Well Drained	Fine sandy loam
701 Ninigret	Glacial Outwash	Moderately Well Drained	Sandy loam
38 Hinckley	Glacial Outwash	Excessively drained	Loamy sand
*13 Walpole	Glacial Outwash	Poorly	Sandy loam

* Wetland soil types

Wetland Descriptions and Functions

This VBL site site has one wetland system that surrounds Blackwell's Brook and a second system that occupies a depression on the site's west side. Under the USFWS system, the Blackwell's Brook system is classified as Riverine, upper perennial (RU) with a rock bottom while the western wetland is a palustrine deciduous swamp (PF01) that is seasonally flooded/saturated. It has gentle slopes and is sparsely vegetated.

The typical vegetation of both wetlands includes: trees such as red maple trees and saplings, yellow birch trees and saplings; shrubs such as spice bush, highbush blueberry, winterberry holly, sweet pepperbush, clammy azalea, and alder and plants such as skunk cabbage, cinnamon fern, sphagnum, royal fern, and sensitive fern.

The principle functions of these wetlands are numerous, especially those associated with Blackwell's Brook .The CTDEEP NDDB (December 2019) shows no known habitat of threatened, endangered or special concern species. The functions were found to include:

- Wildlife habitat
- Fish/shellfish habitat
- Floodwater retention/detention
- Groundwater recharge/discharge
- Biomass production export
- Sediment/toxicant reduction
- Nutrient processing
- Shoreline stabilization
- Recreation
- Aesthetics
- Educational opportunities

These values are mainly associated with the Blackwell's Brook wetland and are supported by several important features of that wetland:

- Presence of a perennial stream
- Areas of undeveloped buffer
- Limited development within the watershed
- Evidence of use by a diversity of wildlife species.

Potential for Impacts

As shown on the project plans there are no proposed activities in the inland wetlands. However, work in the upland review zone will include:

- Clearing and grading
- Construction of driveways, houses and septic systems
- Installation of erosion and sedimentation controls
- Construction of utilities

These activities in the upland review zone present limited potential for wetland impacts. The site has only moderate slopes and short length of slope. CLA believes that the Best Management Practices (BMPs) measures shown on the plans for erosion and sediment control and stormwater management will be adequate in preventing wetland impacts if properly installed and maintained.

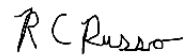
CLA notes that in order to minimize the potential for impacts to wetlands, the E&S has been designed in compliance with the CTDEEP 2002 E&S Manual.

Summary

The proposed development activities will not directly impact wetlands. The work in the upland review zone can be managed with BMPS so as to not impact wetlands during construction. The post construction stormwater treatment is protective of the wetlands. In summary, if the proposed erosion and sedimentation control measures are adhered to, CLA believes that there will be no adverse wetland impacts.

Please contact me if you have any questions.

Very truly yours,

A handwritten signature in black ink that reads "RC Russo". The letters are cursive and somewhat stylized.

Robert C. Russo
Soil Scientist

Appendix A

Soils Data

(108) The Saco series consists of very deep, very poorly drained soils formed in silty alluvial deposits. They are nearly level soils on flood plains, subject to frequent flooding. Slope ranges from 0 to 2 percent. Permeability is moderate in the silty layers and rapid or very rapid in the underlying sandy materials. Mean annual temperature is about 50 degrees F. and mean annual precipitation is about 47 inches.

(17) The Scarboro series consists of very deep, very poorly drained soils in sandy glaciofluvial deposits on outwash plains, deltas, and terraces. They are nearly level soils in depressions. Slope ranges from 0 through 3 percent. Saturated hydraulic conductivity is high or very high. Mean annual temperature is about 49 degrees F. (9 degrees C.) and the mean annual precipitation is about 44 inches (1118 millimeters).

(3) The Ridgebury series consists of very deep, somewhat poorly and poorly drained soils formed in lodgment till derived mainly from granite, gneiss and/or schist. They are commonly shallow to a densic contact. They are nearly level to gently sloping soils in depressions in uplands. They also occur in drainageways in uplands, in toeslope positions of hills, drumlins, and ground moraines, and in till plains. Slope ranges from 0 to 15 percent. Saturated hydraulic conductivity is moderately high or high in the solum and very low to moderately low in the substratum. Mean annual temperature is about 9 degrees C. and the mean annual precipitation is about 1143 mm.

(60) The Canton series consists of very deep, well drained soils formed in a loamy mantle underlain by sandy till. They are on nearly level to very steep moraines, hills, and ridges. Slope ranges from 0 to 45 percent. Saturated hydraulic conductivity is moderately high or high in the solum and high or very high in the substratum. The mean annual temperature is about 9 degrees C and the annual precipitation is about 1205 mm.

(701) The Ninigret series consists of very deep, moderately well drained soils formed in loamy over sandy and gravelly glacial outwash. They are nearly level to strongly sloping soils on glaciofluvial landforms, typically in slight depressions and broad drainage ways. Slope ranges from 0 through 15 percent. Saturated hydraulic conductivity is moderately high or high in the solum and high or very high in the substratum. Mean annual temperature is about 49 degrees F. and mean annual precipitation is about 48 inches.

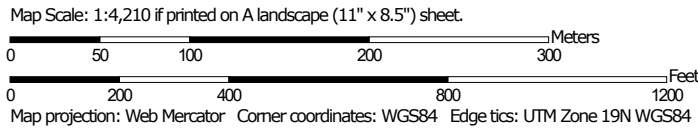
(38) The Hinckley series consists of very deep, excessively drained soils formed in glaciofluvial materials. They are nearly level through very steep soils on outwash terraces, outwash plains, outwash deltas, kames, kame terraces, and eskers. Saturated hydraulic conductivity is high or very high. Slope ranges from 0 to 60 percent. Mean annual temperature is about 7 degrees C, and mean annual precipitation is about 1143 mm.

(13) The Walpole Series consists of very deep, poorly drained sandy soils formed in outwash and stratified drift. They are nearly level to gently sloping soils in low-lying positions on terraces and plains. Slope ranges from 0 to 8 percent. Saturated hydraulic conductivity is moderately high or high in the surface layer and subsoil, and high or very high in the substratum. Mean annual temperature is about 48 degrees F., and mean annual precipitation is about 43 inches.

Soil Map—State of Connecticut
(Beecher Rd)



Soil Map may not be valid at this scale.



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 19, Sep 13, 2019

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

Date(s) aerial images were photographed: Apr 14, 2011—Aug 27, 2016

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
3	Ridgebury, Leicester, and Whitman soils, 0 to 8 percent slopes, extremely stony	3.3	6.3%
13	Walpole sandy loam, 0 to 3 percent slopes	3.2	6.1%
15	Scarboro muck, 0 to 3 percent slopes	2.8	5.3%
17	Timakwa and Natchaug soils, 0 to 2 percent slopes	1.4	2.7%
34B	Merrimac fine sandy loam, 3 to 8 percent slopes	0.2	0.3%
38C	Hinckley loamy sand, 3 to 15 percent slopes	10.5	20.0%
38E	Hinckley loamy sand, 15 to 45 percent slopes	1.9	3.6%
60B	Canton and Charlton fine sandy loams, 3 to 8 percent slopes	10.2	19.5%
73C	Charlton-Chatfield complex, 0 to 15 percent slopes, very rocky	0.7	1.4%
75E	Hollis-Chatfield-Rock outcrop complex, 15 to 45 percent slopes	5.3	10.2%
108	Saco silt loam	6.2	11.8%
701B	Ninigret fine sandy loam, 3 to 8 percent slopes	6.7	12.8%
Totals for Area of Interest		52.3	100.0%

Appendix B

Photographs



Photograph 1 Typical floodplain wetland along Blackwell's Brook



Photograph 2 Blackwell's Brook at northern end of site