

# CLA Engineers, Inc.

Civil • Structural • Survey

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May 3, 2021

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

RE: CLA 6639  
Subdivision  
Church Street Brooklyn CT

To the Commission:

CLA Engineers was retained by A. Kausch & Sons LLC to conduct a wetlands investigation and functional assessment on the parcel of land, located on Church Street in Brooklyn CT that is proposed to be developed for a residences. The approximate site location is shown on the cover sheet of the site plans. The purposes of the investigation were to: establish 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 delineated by Robert Russo of CLA Engineers according to the State of Connecticut statutory definition as described in Section 22a of the State Statutes. CLA conducted field work in October of 2020 and March of 2021.

After wetland delineation 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, and described.

## Site Setting

Much of the site had been used for agriculture up until the 20<sup>th</sup> century as demonstrated by abundant stonewalls. The presence of numerous Japanese barberry (*Berberis thunbergii*) Indicates that the site was likely used for cattle grazing in the past as this plant is ignored by cattles and soon takes over. The site currently has two vegetative cover types that were established after farming ceased. Both cover types, wooded upland and wooded swamp, are dominated by mixed hardwoods.

The areas of upland have mixed hardwoods such as red maple, red oak, white oak, black cherry 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 north and south along Church St and to the west along Pomfret Landing Rd. Undeveloped farmland and woodland also occurs surrounds the site to the north, west and south.

Throughout the site slopes vary from moderate to nearly flat. The surface water drains both south westward and south eastward off of the site.. The slopes on the east and west side of the site are gentle at the edge of the wetland and are not prone to erosion.

### **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 site. Connecticut's 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). Only glacial till is present on the site of the proposed residences. soils formed in till deposits typically have sandy loam to silt loam textures and in this case they are the 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.

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

**Table 1 - Soil Types and Properties at the Church Street Site**

| <u>Soil Series</u>     | <u>Parent Material</u> | <u>Drainage Class</u>                  | <u>Texture/Characteristics</u> |
|------------------------|------------------------|--|--------------------------------|
| *2 Ridgebury           | Glacial Till           | Somewhat poorly to very poorly drained | Stony sandy loam               |
| 61 Canton and Charlton | Glacial till           | Well drained                           | Sandy loam                     |
| 46 Woodbridge          | Glacial Till           | Moderately Well Drained                | Sandy loam                     |

\* Wetland soil types

## **Wetland Descriptions and Functions**

In the area of the proposed development there is a wetland system that occupies a broad lowland that stretches from Church Street north westward. The wetland itself varies from approximately 100 to 400 feet wide. It is nearly level but has hummocky micro-topography. Under the USFWS system is a palustrine deciduous swamp (PF01) that is seasonally flooded/saturated. This designation reflects its vegetation which is dominated by mature trees, and its hydrology which has shallow standing water in the winter and after storm events. The wetland lacks standing water in the summer and was not found to contain a perennial stream or vernal pool.

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

The principle functions of this wetland system are typical to local red maple swamps and the wetland is generally undisturbed with an undisturbed wooded upland buffer. The CTDEEP NDDB (December 2020) shows no known habitat of threatened, endangered or special concern species.

The functions were found to include:

- Wildlife habitat
- Floodwater retention/detention
- Groundwater recharge/discharge
- Biomass production export
- Aesthetics

These values associated with the wetland and are supported by several important features of that wetland:

- 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 proposed activities in the inland wetlands. Three wetland crossings are proposed for the driveway that will provide access to the two houses. These activities are limited to impacts necessary to provide the driveway and are purposed

located in the narrowest reaches of wetland in order to minimize impacts. This lot has significant developable area that cannot be accessed without wetland impacts. The width of the driveway has been kept to the minimum required and the use smaller diameter culverts assists in keeping the elevation of the driveway low, minimizing the side slopes needed for the crossing. CLA believes that the proposed driveway crossing is the most feasible and prudent alternative.

As shown on the plans, work in the wetland will include:

- Clearing and grading
- Construction of driveways and placement of culverts
- Installation of erosion and sedimentation controls
- Construction of utilities

The activities in the wetland have been minimized in order to limit wetland disturbance.

As shown on the plans, work in the upland review zone will include:

- Clearing and grading
- Construction of driveways
- 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 storm water 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.

### **Alternatives**

CLA examined alternative to the proposed wetland crossings. Note that the property has frontage on Pomfret Landing Rd, which could be used to gain access via a driveway, but wetland impacts would also be required. CLA conducted a field to determine the feasibility of a driveway crossing walk of this location. CLA determined that a driveway crossing in this location is not the most feasible and prudent alternative based on the following observations.

1. The wetland that would have to be crossed has a perennial stream, indicating that is a more valuable wetland than those to be impacted by coming off of Church Street.

2. The wetland to be crossed is 12 to 14 feet lower in elevation than the access strip off of Pomfret Landing Rd. This would necessitate a wide wetland fill to accomplish the crossing.
3. The wetland to be crossed is over 100 feet wide and continues, north and south, as a wildlife travel corridor. This characteristic is lacking in the wetlands that would be disturbed by gaining access from Church Street.
4. Due to the width of the wetland and elevation change, present, a wetland crossing at the Pomfret Land access would create a substantial fragmentation of the wetland and reduce its habitat values significantly. This would not be the case with the Church Street access.

Based on these field observations, CLA believes that the proposed wetland crossings represent the most feasible and prudent alternative.

### **Summary**

The proposed development activities will directly impact wetlands. The work in the upland review zone can be managed with BMPS so as to not impact wetlands during construction. In summary, if the proposed erosion and sedimentation control measures are adhered to, CLA believes that the wetland impacts will be limited to what is necessary to provide a driveway for the building lost.

Please contact me if you have any questions.

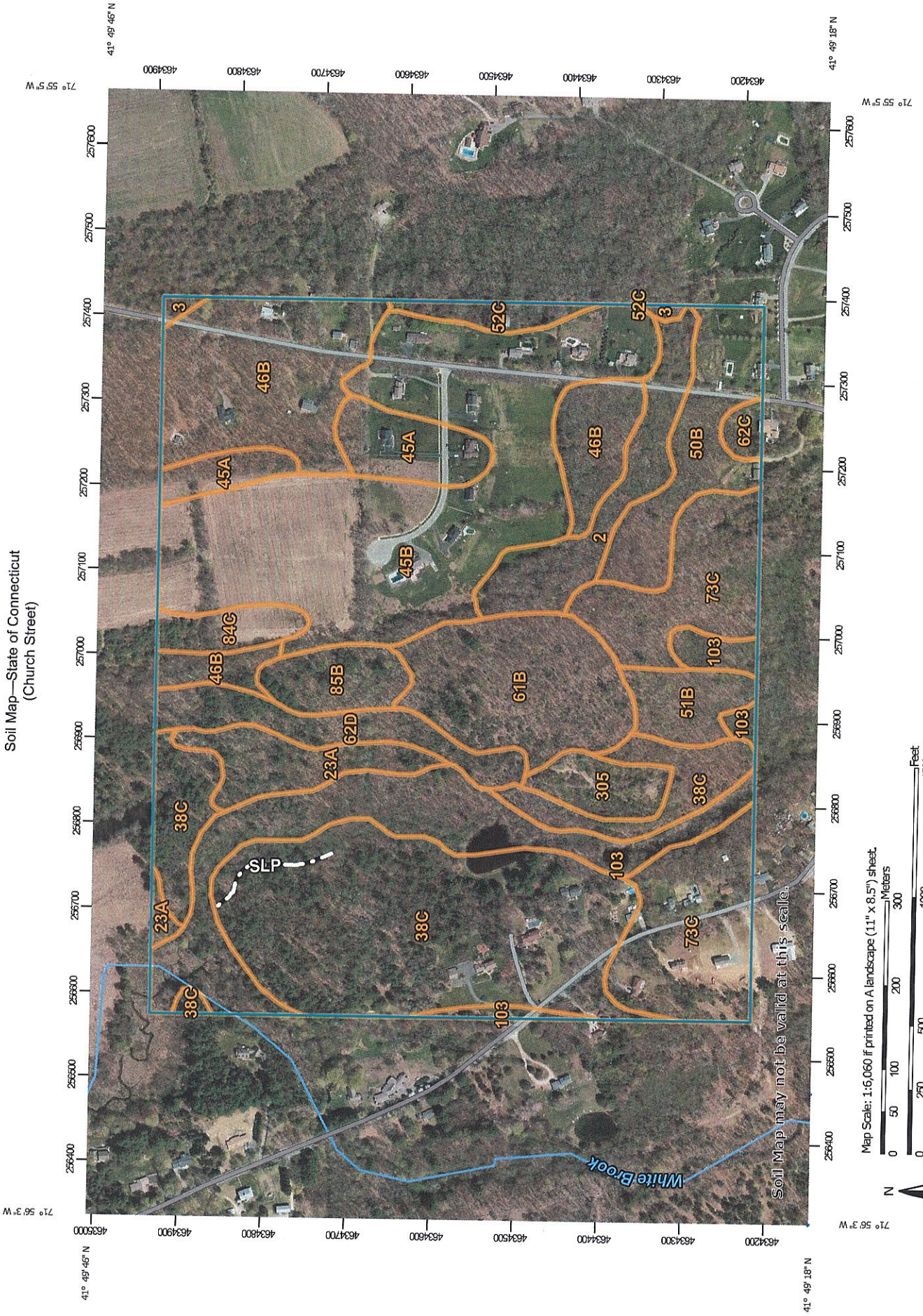
Very truly yours,



Robert C. Russo  
Soil Scientist



Soil Map—State of Connecticut  
(Church Street)



Map Scale: 1:6,060 if printed on A landscape (11" x 8.5") sheet.

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 19N WGS84



## MAP LEGEND

- 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
- Water Features**
  - Streams and Canals
- Transportation**
  - Rails
  - Interstate Highways
  - US Routes
  - Major Roads
  - Local Roads
- Background**
  - Aerial Photography
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

## 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 20, Jun 9, 2020

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

Date(s) aerial images were photographed: Mar 30, 2011—May 1, 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

| Map Unit Symbol | Map Unit Name   | Acres in AOI | Percent of AOI |
|-----------------|---|--------------|----------------|
| 2               | Ridgebury fine sandy loam, 0 to 3 percent slopes                                | 5.6          | 3.8%           |
| 3               | Ridgebury, Leicester, and Whitman soils, 0 to 8 percent slopes, extremely stony | 0.4          | 0.3%           |
| 23A             | Sudbury sandy loam, 0 to 5 percent slopes                                       | 4.1          | 2.8%           |
| 38C             | Hinckley loamy sand, 3 to 15 percent slopes                                     | 29.8         | 19.8%          |
| 45A             | Woodbridge fine sandy loam, 0 to 3 percent slopes                               | 4.9          | 3.3%           |
| 45B             | Woodbridge fine sandy loam, 3 to 8 percent slopes                               | 28.7         | 19.1%          |
| 46B             | Woodbridge fine sandy loam, 0 to 8 percent slopes, very stony                   | 15.4         | 10.2%          |
| 50B             | Sutton fine sandy loam, 3 to 8 percent slopes                                   | 6.5          | 4.3%           |
| 51B             | Sutton fine sandy loam, 0 to 8 percent slopes, very stony                       | 2.8          | 1.9%           |
| 52C             | Sutton fine sandy loam, 2 to 15 percent slopes, extremely stony                 | 1.4          | 0.9%           |
| 61B             | Canton and Charlton fine sandy loams, 0 to 8 percent slopes, very stony         | 9.5          | 6.3%           |
| 62C             | Canton and Charlton fine sandy loams, 3 to 15 percent slopes, extremely stony   | 0.7          | 0.5%           |
| 62D             | Canton and Charlton fine sandy loams, 15 to 35 percent slopes, extremely stony  | 4.6          | 3.0%           |
| 73C             | Charlton-Chatfield complex, 0 to 15 percent slopes, very rocky                  | 14.7         | 9.8%           |
| 84C             | Paxton and Montauk fine sandy loams, 8 to 15 percent slopes                     | 2.0          | 1.3%           |
| 85B             | Paxton and Montauk fine sandy loams, 3 to 8 percent slopes, very stony          | 3.0          | 2.0%           |
| 103             | Rippowam fine sandy loam  | 13.6         | 9.1%           |
| 305             | Udorthents-Pits complex, gravelly   | 2.5          | 1.6%           |



| Map Unit Symbol             | Map Unit Name | Acres in AOI | Percent of AOI |
|-----------------------------|---------------|--------------|----------------|
| Totals for Area of Interest |               | 150.2        | 100.0%         |