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# KLEINFELDER

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July 20, 2007

Mr. Paul Lusitani  
Clough Harbour & Associates, LLP.  
2139 Silas Deane Highway  
Suite 212  
Rocky Hill, CT 06067-2336

**RE: Wetland & Watercourse Delineation Report  
Rich Road  
Thompson, Connecticut**

Dear Mr. Lusitani:

Kleinfelder completed an on-site investigation to determine the presence or absence of wetlands and/or watercourses on the above-referenced property, as requested and authorized. This delineation was completed by a qualified staff soil scientist and conducted in accordance with the principles and practices noted in the United States Department of Agriculture (USDA) *Soil Survey Manual* (1993). The classification system of the National Cooperative Soil Survey was used in this investigation to identify the soil map units identified on the project site.

## INVESTIGATION

The project site was investigated on April 17, 2007 temperatures were in the high 30s under overcast conditions with rain showers. There was no snow cover and frost was not observed at any location. Wetland and watercourse boundaries were identified with flags and hung from vegetation. These flags are labeled "Wetland Delineation" and generally spaced a maximum of about 50 feet apart, as well as numbered consecutively. It is important to note that flagged wetland and watercourse boundaries are subject to change until adopted by local, state, or federal regulatory agencies.

## REGULATORY INFORMATION

The Inland Wetlands and Watercourses Act (§22a-38 CGS) defines *inland wetlands* as "land, including submerged land...which consists of any soil types designated as poorly drained, very poorly drained, alluvial, and floodplain." Wetland determinations are based on the presence of poorly drained, very poorly drained, alluvial, or floodplain soils and submerged land (e.g. a pond). Soil types are identified by observing soil morphology (soil texture, color, structure, etc.). To observe the morphology of the soils, numerous test pits and/or hand borings (generally to a depth of at least two feet) are completed.

*Watercourses* are "rivers, streams, brooks, waterways, lakes, ponds, marshes, swamps, bogs and all other bodies of water, natural or artificial, vernal or intermittent, public or private, which are contained within, flow through or border upon the state or any portion thereof." Intermittent watercourse determinations are made based on the presence of a defined permanent channel and bank, and two of the following characteristics: (1) evidence of scour or deposits of recent alluvium or detritus, (2) the presence of standing or flowing water for a duration longer than a particular storm incident, and (3) the presence of hydrophytic vegetation.

The United States Army Corps of Engineers (ACOE) regulate "Waters of the United States" under Section 404 of the Clean Water Act, which includes adjacent/tributary wetlands and watercourses. The New England Region of the ACOE has issued guidance documents discussing how wetlands and/or watercourses can be as much as 500 or more feet from regulated Waters of the U.S. and still be regulated if the Corps finds scientific indicators (e.g. ecological/biological/hydrological) that provide connections to the jurisdictional wetland. This guidance distance has been developed by the Corps New England Region based on research suggesting home range and migratory distances of 54 palustrine/riparian (wetland and watercourse) reptiles, amphibians and mammals. Discontinuities between jurisdictional Waters of the U.S. and neighboring wetlands can cause isolation of those wetlands

or watercourse, which in turn can eliminate federal jurisdiction. The Corps use a three (3) parameter approach to wetland delineation that includes soils, hydrology and vegetation. It is necessary to successfully observe all three in order for the area to be considered a federal wetland. Disturbed and atypical conditions allow for some modification of this requirement and invoke professional judgment.

### **WETLAND AND WATERCOURSE SITE DESCRIPTION**

Wetland classifications used to identify the type of wetland(s) occurring on the project site is based on the U.S. Fish and Wildlife Service (USFWS) (Cowardin et.al. 1979). These are further qualified with the Hydrogeomorphic Method of wetland classification (Brinson, 1993).

This project site is located along Rich Road southeast of the intersection of Rich Road and Juliette Avenue. The upland ecological community consisted of a mixed mature second-growth deciduous-coniferous forest. One wetland system was identified and delineated at the Site and is presented below.

**Wetland 1**-This is a palustrine forested - emergent wetland system (USFWS class: PFO1 and PEM1) that was delineated using sequentially numbered flags 1 through 13 with open ends on each end (See Wetland Sketch Map). This wetland area is situated along a ponded area at the base of a large slope immediately adjacent to the west of the proposed tower location. The wetland line is approximately 194 feet from the proposed project area. As indicated by its classification, this wetland is along and includes the area within a shallow pond system which is fed by a drainage stream that appears to be connected to another water resource offsite. The wetland consists of the immediate edges of the ponded area, as well as, the ponded area itself. It is most likely that along with the off-site source this wetland is fed by groundwater when the water table is high, as is the case now due to snow melt and the occurrence of a significant rain event on April 16, 2007. The ponded area consisted of approximately for to 12 inches of water across the delineated area. There was a predominance of facultative wet and obligate plants that made up the edges and interiors of the wetland areas.

The edges of this wetland included a tree canopy of red maple (*Acer Rubrum*) with an understory of northern spice bush (*Lindera benzoin*). Within the ponded area highbush blueberry (*Vaccinium corymbosum*), spice bush, silky dogwood (*Cornus amomum*), and tussock sedge (*Carex stricta*) were the dominant species. The upland topography of this area is rolling with many rocky outcrops and a very steep slope to the east of the wetland area. Along the southern portion of the proposed Site location there is a sloping depression area, which at the time of the Site visit did have some standing water and saturated area in the lowest portions; however the soils did not have the characteristics of wetland soils. The upland soils observed were a Charlton-Chatfield complex and Hollis-Chatfield-Rock outcrop complex. The wetland soil types observed were Catden and Freetown soils. All soils observed were a sandy loam.

### **SOIL TYPES**

The following soils were observed on the project site (further information on these and other soils can be found on the internet at <http://soils.usda.gov/technical/classification/osd/index.html>):

#### **Upland Soils**

Charlton-Chatfield complex, 3 to 15 percent slopes and 15 to 45 percent slopes, very rocky

Charlton Soils - The Charlton series consists of very deep, well drained loamy soils formed in till. They are nearly level to very steep soils on till plains and hills. Slope ranges from 0 to 50 percent. Saturated hydraulic conductivity is moderately high or high. The diagnostic horizons and features recognized in this pedon include an ochric epipedon in the zone from 0 to 4 inches (Oe & A horizon) and a cambic horizon in the zone from 4 to 27 inches (Bw horizons). The particle-size class of this series is described as coarse-loamy with sizes in the control section from 10 to 40 inches.

Chatfield Soils - The Chatfield series consists of moderately deep, well drained, and somewhat excessively drained soils formed in till. They are nearly level to very steep soils on glaciated plains, hills, and ridges. Slope ranges from 0 to 70 percent. Crystalline bedrock is at depths of 20 to 40 inches. Saturated hydraulic conductivity is moderately high to high in the mineral soil. The diagnostic horizons

and features recognized in this pedon are an ochric epipedon in the zone from 1 to 8 inches (A and AB horizons) and a cambic horizon in the zone from 8 to 25 inches (Bw horizon). Below this horizon is a lithic contact with bedrock at 25 inches (R horizon).

Hollis-Chatfield-Rock outcrop complex, 3 to 15 percent slopes

Hollis Soils - The Hollis series consists of shallow, well drained and somewhat excessively drained soils formed in a thin mantle of till derived mainly from gneiss, schist, and granite. They are nearly level to very steep upland soils on bedrock-controlled hills and ridges. Slope ranges from 0 to 60 percent. Permeability is moderate or moderately rapid. Depth to hard bedrock ranges from 10 to 20 inches. The diagnostic horizons and features recognized in this pedon include ochric epipedon in the zone from 0 to 7 inches (O and A horizons) and a cambic horizon in the zone from 7 to 16 inches (Bw1 and Bw2 horizons). There is a lithic contact which consists of hard bedrock at 16 inches (2R horizon). The soils are generally loamy to coarse-loamy with clay averaging less than 35 percent within the control section from 10 to 16 inches and the soil is in a lithic subgroup. There is also a lithologic discontinuity in that till with rock fragments from mixed sources are overlying a single kind of bedrock at 16 inches.

Chatfield Soils- See above.

### **Wetland Soils**

#### **Catden Soils**

The Catden series consists of very deep, very poorly drained soils formed in woody and herbaceous organic materials in depressions on lake plains, outwash plains, moraines, and flood plains. Saturated hydraulic conductivity ranges from moderately low to high. Slope ranges from seen range from 0 to 2 percent. This soil is very mucky with black to very dark brown chromas. The feature that distinguishes this soil is a Sapric material in the zone from the surface to 61 inches (Oa1, Oa2, Oa3, Oa4 and Oa5 horizons).

#### **Freetown Soils**

The Freetown series consists of very deep, very poorly drained organic soils formed in more than 51 inches of highly decomposed organic material. They are in depressions or on level areas on uplands and outwash plains. Slope ranges from 0 to 1 percent. Saturated hydraulic conductivity is moderately high or high. This soil is very mucky with black to dark reddish brown chromas. Also, the zone from 30 cm. to 90 cm is comprised dominantly of sapric material within the Oa 4 and Oa5 horizons.

### **POTENTIAL WETLAND IMPACTS**

Based on the distance of the wetland from the proposed project area, as well as, the nature of the construction, it is not expected that the proposed project will impact the on-site wetlands.

### **REFERENCES**

1. Brinson, M.M. 1993. A Hydrogeomorphic Classification for Wetlands. Tech. Rpt.WRP-DE-4, U.S. Army Engineer Waterways Experiment Station, Vicksburg, MS.
2. Cowardin, L.M., V. Carter, F.C. Golet, E.T. LaRoe. 1979. Classification of Wetland and Deepwater Habitats of the United States. US Government Printing Office. Washington D.C. GPO 024-010-00524-6.103 pp.

**CLOSING**

Thank for the opportunity to work with you on this project. Please contact me at (860) 683-4200 if you have any questions or require additional assistance.

Very truly yours,  
Kleinfelder

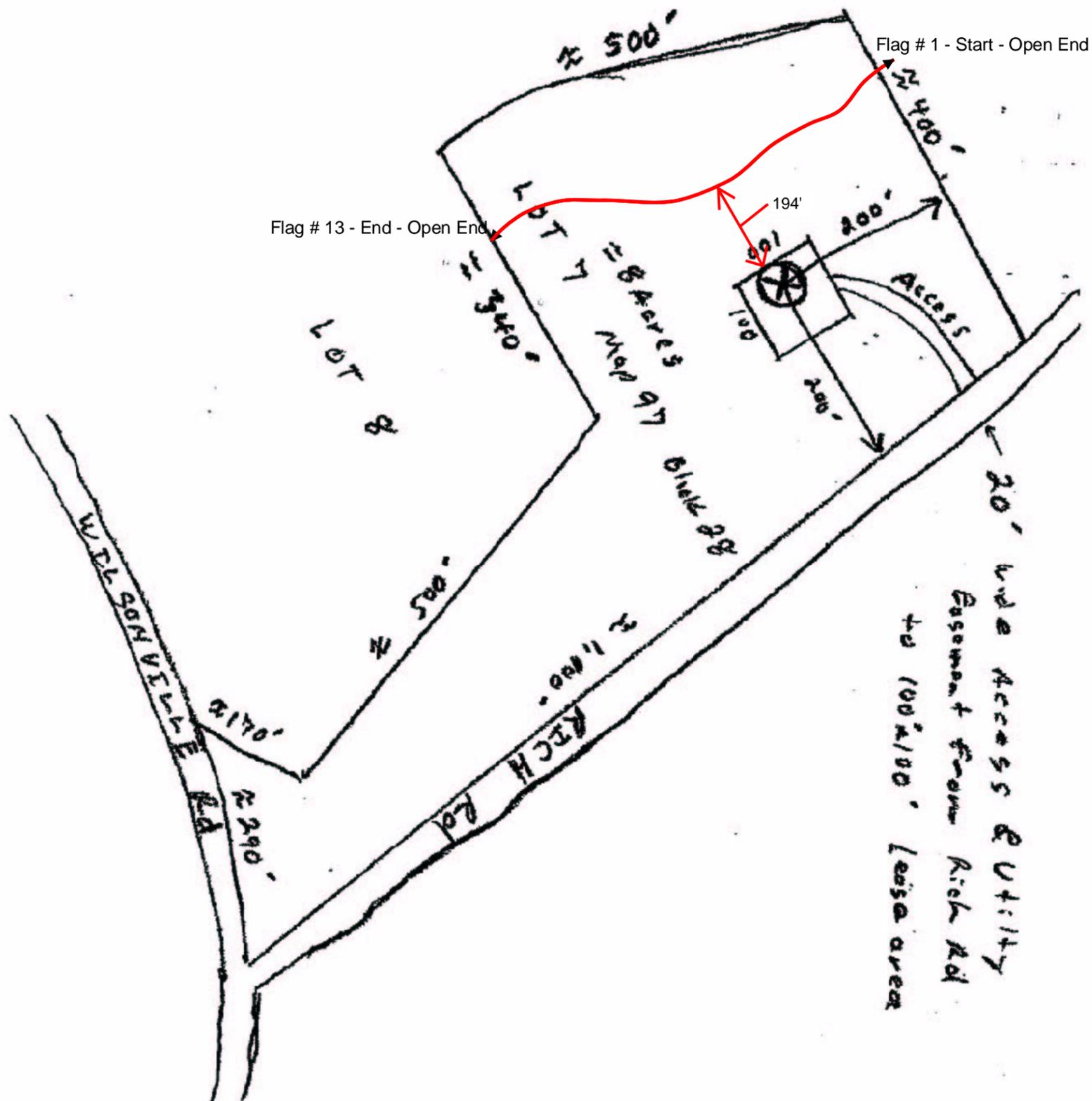
A handwritten signature in black ink, appearing to read "Paul Wheeler".

Paul Wheeler  
Project Environmental Scientist

A handwritten signature in black ink, appearing to read "Jeffrey R. Shamas".

Jeffrey R. Shamas, CE, SS, PWS  
Environmental Planning Program Manager

Attachments

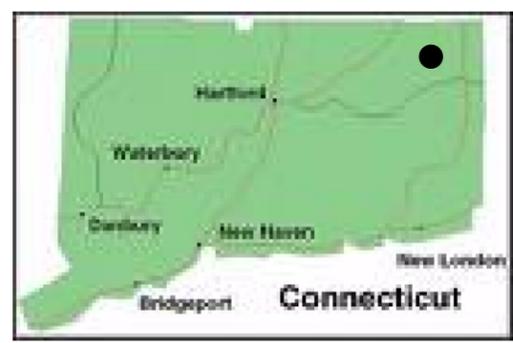


**Legend**

-  Site Boundary
-  Wetland Boundary

LATITUDE: 42° 00.691' N  
 LONGITUDE: 71° 51.119' W

NOT TO SCALE



SITE LOCATION

DRAWN BY: PW	
REVISED BY: PW	
CHECKED BY: JS	
DATE: 4/19/07	APPROVED BY: JS

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Site Plan and  
 Wetland Sketch Map

CLOUGH HARBOUR AND ASSOCIATES LLP  
 RICH ROAD SITE  
 THOMPSON, CONNECTICUT

FIGURE  
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