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Memorandum

To: Nicole Emmons (HH)

From: Jim Nash (AKRF)

Date: August 10, 2012

Re: EPT Concord Resort – STP investigation area - Wetland Delineation

cc: C. Robbins (AKRF), N. Bourne (AKRF)

Summary:

This memorandum presents the results of a wetland delineation conducted by AKRF on June 7th, 2012 at the site of the STP connection for the EPT Concord Resort project.

The investigation area consists of an unimproved dirt/grass roadway which traverses a large NYSDEC and USACE regulated wetland previously delineated as part of the 2006 CALP Project. The purpose of this effort was to demarcate the boundaries of any upland exclusion areas (non-wetland) along the path of this existing dirt roadway. This roadway is the intended path of the proposed utility connection to the Town's existing Sewage Treatment Plant (STP) necessary to serve the proposed Concord Resort project. This wetland investigation effort was not intended to delineate the overall boundaries of the floodplain wetlands that encompass this area (NYSDEC Wetland MO-56) because they are largely located offsite.

Two small upland exclusion areas were identified within the existing dirt roadway in regions adequately filled for roadway maintenance to preclude the growth of hydrophytic plants. These two upland exclusion areas were flagged B1-B11 and C1-C8. The attached sketch (Figure 1) shows the approximate location of these flags for your surveyors to survey-locate in the field. Other portions of the roadway contain hydrophytic vegetation and are contiguous with the larger, surrounding wetland (NYSDEC-mapped Wetland MO-56).

Wetland boundaries were identified and delineated in accordance with the U.S. Army Corps of Engineers (USACE) and New York State Department of Environmental Conservation (NYSDEC) delineation methodologies.[1]

[1] Environmental Laboratory. 1987. "Corps of Engineers Wetlands Delineation Manual," Technical Report Y-87-1, US Army Engineer Waterways Experiment Station, Vicksburg, Miss.;

U.S. Army Corps of Engineers. 2009. Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region, ed. J.S. Wakeley, R.W. Lichvar, and C.V. Noble. ERDC/EL TR-09-19. Vicksburg, MS: U.S. Army Engineer Research and Development Center.

Findings:

The dirt/grass roadway identified is infrequently maintained to access the STP outfall located at the confluence of Kiamesha Creek, Tannery Brook, and an unnamed tributary. The roadway traverses a large NYSDEC-mapped wetland that encompasses the region at the convergence of these three watercourses. The roadway appears to have been created by the placement of a layer of reddish sandstone/shale from local sources. Despite be a disturbed habitat, the roadway is infrequently maintained and therefore exhibits patches of hydrophytic vegetation, soil saturation, and positive hydric soil indicators. Two discrete portions of the roadway lack these positive wetland indicators and were flagged as "upland exclusion areas" as shown in Figure 1.

The onsite wetland that surrounds the roadway is a diverse floodplain wetland with forested, scrub/shrub and emergent/graminoid portions. Immediately beyond the confines of the roadway such species as speckled alder (*Alnus rugosa*) FACW+, broadleaf meadowsweet (*Spirea latifolia*) FAC+, silky willow (*Salix sericea*) OBL, tussock sedge (*Carex stricta*) OBL, highbush blueberry (*Vaccinium corymbosum*) FACW, and sensitive fern (*Onoclea sensibilis*) FACW occur.

Wetland potions of the roadway contain patches of sedge/rush species including broom sedge (*Carex scoparia*) FACW, soft rush (*Juncus effusus*) FACW+, fox sedge (*Carex vulpinoidea*) OBL, and dark green bulrush (*Scirpus atrovirens*) OBL. Additional species identified in wet portions of the roadway include marsh bedstraw (*Galium palustre*) OBL, reed canarygrass (*Phalaris arundinacea*) FACW+, swamp dewberry (*Rubus hispidus*) FACW, and deertongue grass (*Panicum clandestinum*) FAC+. Soils meet hydric soil indicator F3: Depleted Matrix (typically 0-6" 7.5YR 4/2; 6-10 7.5 YR 4/2 with 5/6 mottles >10%). Saturated soil, small areas of ponding, and oxidized rhizospheres were observed hydrology indicators.

The two upland exclusion areas are located within slightly higher portions of the roadway with hard, confining soils comprised of the shale/sandstone fill (7.5YR 4/6 to 5/6). No hydric soil characteristics or wetland hydrology indicators are present. Dominant vegetation in these two upland exclusion areas includes sweet vernal grass (*Anthoxanthum odoratum*) FACU, Kentucky bluegrass (*Poa pratensis*) FACU, lesser stitchwort (*Stellaria graminea*) FACU-, common cinquefoil (*Potentilla simplex*) FACU-, ground ivy (*Glechoma hederacea*) FACU, orchard grass (*Dactylis glomerata*) FACU, red fescue (*Festuca rubra*) FACU, wrinkle leaf goldenrod (*Solidago rugosa*) FAC, choke cherry (*Prunus virginiana*) FACU, mugwort (*Artemisia vulgaris*) NL, and intermediate wood fern (*Dryopteris intermedia*) FACU. These two areas were flagged B1-B11 and C1-C8 in closed loops.

NWI and NYDEC Mapped Wetlands:

As shown in Figure 2, wetlands within the investigation area are mapped by the U.S. Fish and Wildlife Service's National Wetlands Inventory (NWI) as:

- PSS1C: Palustrine scrub-shrub, broad-leaved deciduous, seasonally flooded.

Site inspection confirms this mapped wetland type.

As shown in Figure 3, the wetlands within the investigation area are mapped by NYSDEC as State-regulated wetland MO-56.

NRCS Mapped Soils:

As shown in Figure 4, soils within the wetland area are mapped as Fu: Fluvaquents-Udifluvents complex, frequently flooded. This is a "poorly drained" soil. This soil mapping unit is also classified as a hydric (wetland) soil by the National Technical Committee for Hydric Soils (NTCHS).

Additional Information from JD Checklist:

- *Description of any current and/or historic land uses on the site:*

  The investigation area consists of a floodplain wetland located at the convergence of three stream – which joint to form Kiamesha Creek. Past use of the area is likely limited to incidental farming/pasture. It may have been disturbed with construction of the adjacent sewage treatment plant outfall and golf course in the 1950's. But is a successional habitat subject to erosion/deposition from the watercourses and is therefore sustained in an early state of wetland succession, dominated floodplain tolerate herbaceous and woody vegetation.

- *Watershed size, drainage area size (for each stream reach), average annual rainfall/snowfall*:

  Average annual rainfall for Monticello NY is 49 inches. The contributing watershed to the wetland investigation area encompasses many hundreds of acres as it includes much of the project site and lands to the south and west, all tributary to either Tannery Brook, Kiamesha Creek, and the Unnamed Stream which converge at large floodplain wetlands flanking these streams, including NYSDEC Wetland MO-56 within which the two small upland exclusion areas were flagged.

- *Discussion of whether tributaries (streams) on the site are TNWs, perennial RPWs, seasonal RPWs, or non-RPWs. Include a description of general flow patterns, volume and frequency:*

  As shown in Figure 5, the investigation area is located in a floodplain wetland immediately adjacent to Kiamesha Creek (RPW) just north of the confluence of Kiamesha with Tannery Brook (RPW). From the investigation area, Kiamesha Creek flows northwards approximately 4.5 miles until its confluence with Sheldrake Stream (RPW). From Sheldrake Stream, flows travel southwards approximately 2.5 miles to the Neversink River (TNW) and a further 37 miles until the confluence with the Delaware River.

- *Description of whether each wetland on the site either abuts or is adjacent to a tributary, identify which tributary (e.g. Wetland A directly abuts an unnamed tributary to Kayaderosseras Creek), and provide a discussion of the justification for this determination.*

  The wetland adjacent to the two upland exclusion areas is a floodplain wetland, dominated by emergent and scrub shrub vegetation, which his directly adjacent to Tannery Brook and Kiamesha Creek – both perennial RPW's.

- *Identify potential pollutants:*

  There are no known pollutants in the delineated wetlands. Immediately adjacent to the two flagged upland exclusion areas, there is an existing, NYSDEC-permitted outfall of treated wastewater to Kiamesha Creek generated from the Town of Thompson's sewage treatment plant.

- *Identify potential habitat for species:*

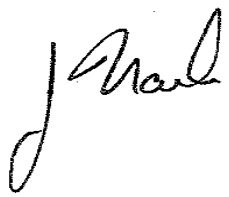
  Green frogs (*Rana clamitans)* and painted turtle (*Chrysemys picta*) were noted within the STP wetland investigation area. Other herpetiles found elsewhere on the EPT Concord Project site are discussed in the EPT Concord DGEIS (7/24/12 Completeness, Lead Agency - Town of Thompson, NY).

Figures:

1. Approximate Wetland Flag Locations

2. NWI Mapped Wetlands
3. NYSDEC Mapped Wetlands
4. NRCS Mapped Soils
5. Tributaries Map
6. Representative Site Photos

If you have any questions please don't hesitate to call.



James Nash

Wetland Ecologist – Technical Director

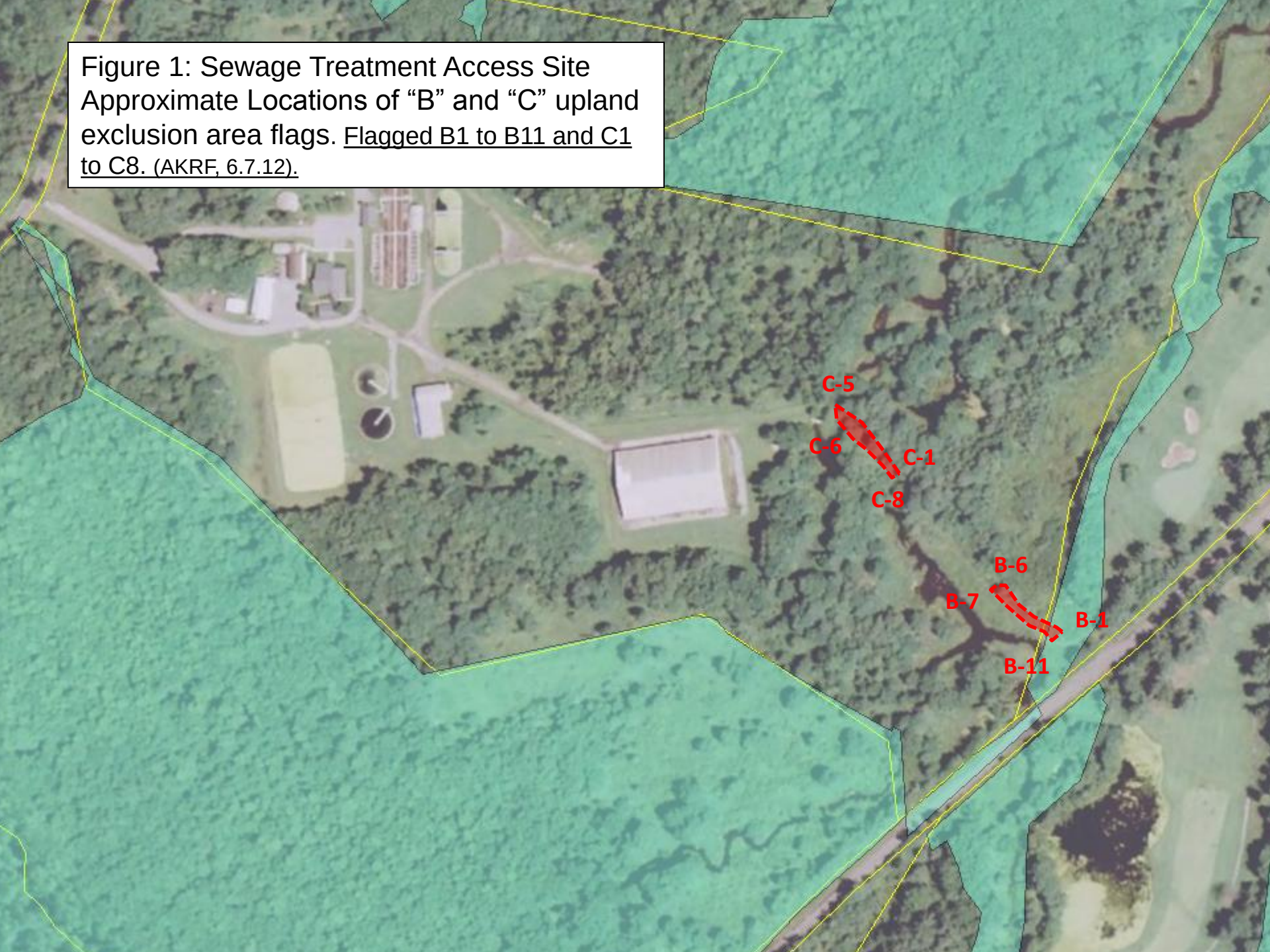


Figure 1: Sewage Treatment Access Site Approximate Locations of “B” and “C” upland exclusion area flags. Flagged B1 to B11 and C1 to C8. (AKRF, 6.7.12).

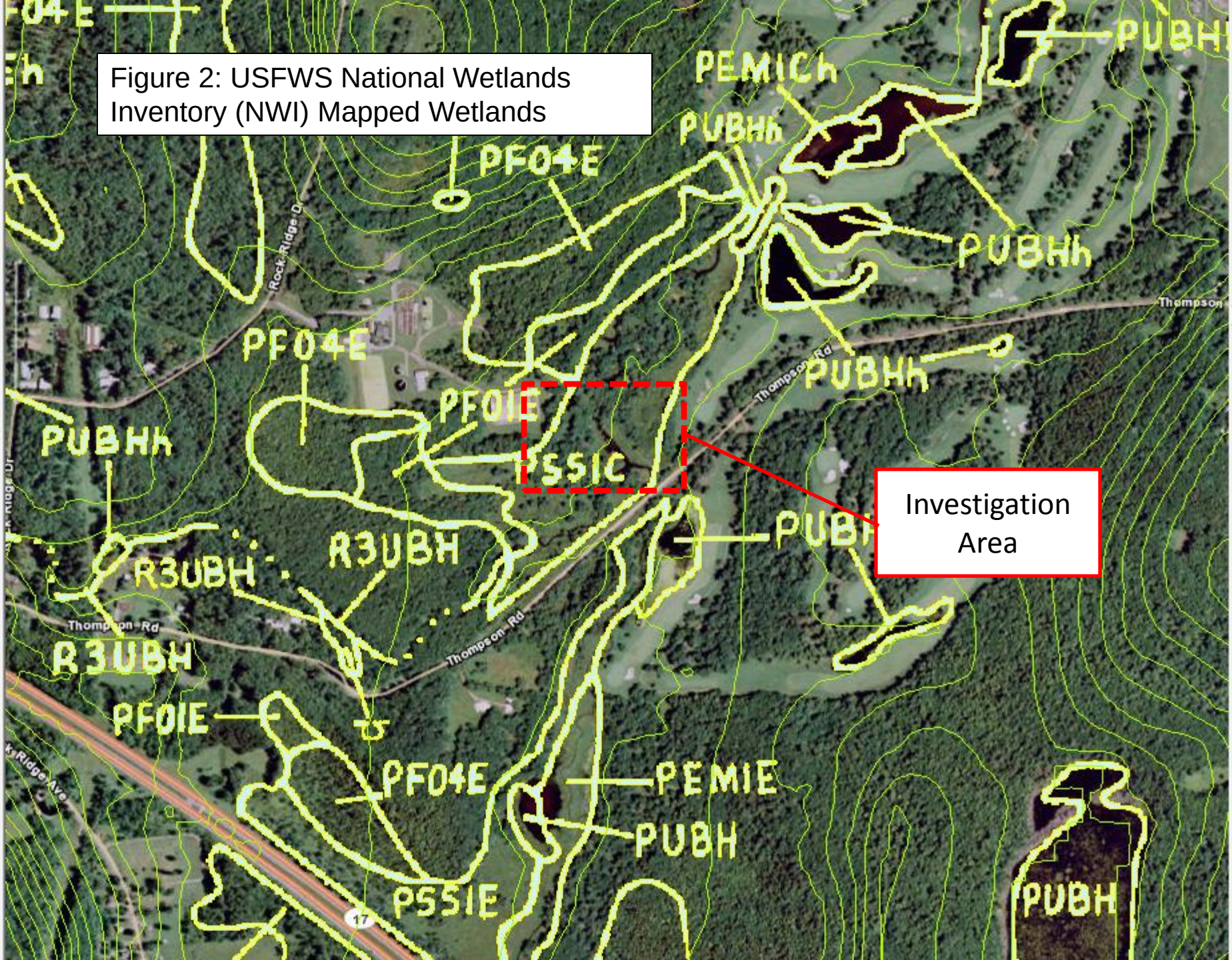


Figure 2: USFWS National Wetlands Inventory (NWI) Mapped Wetlands

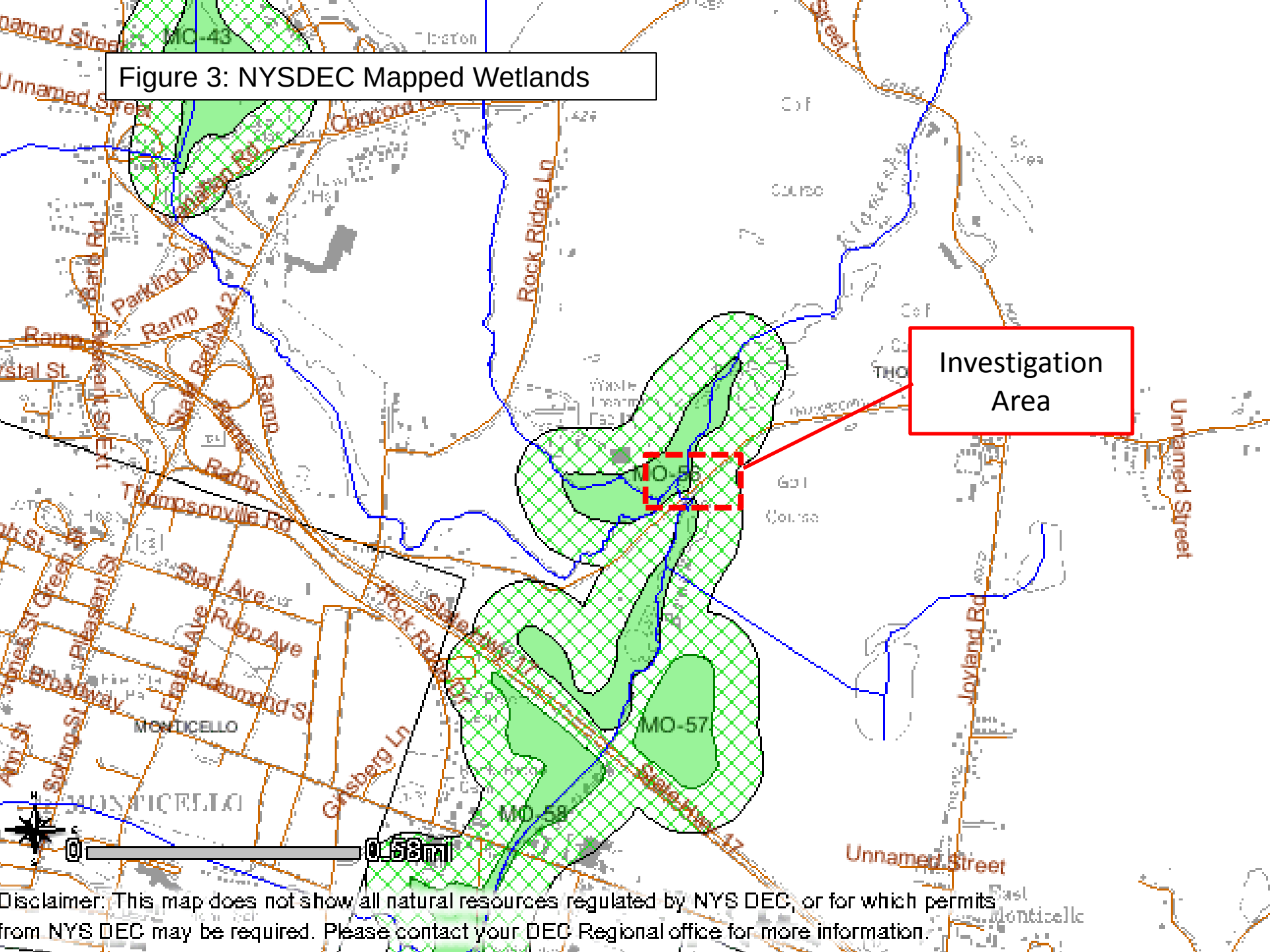
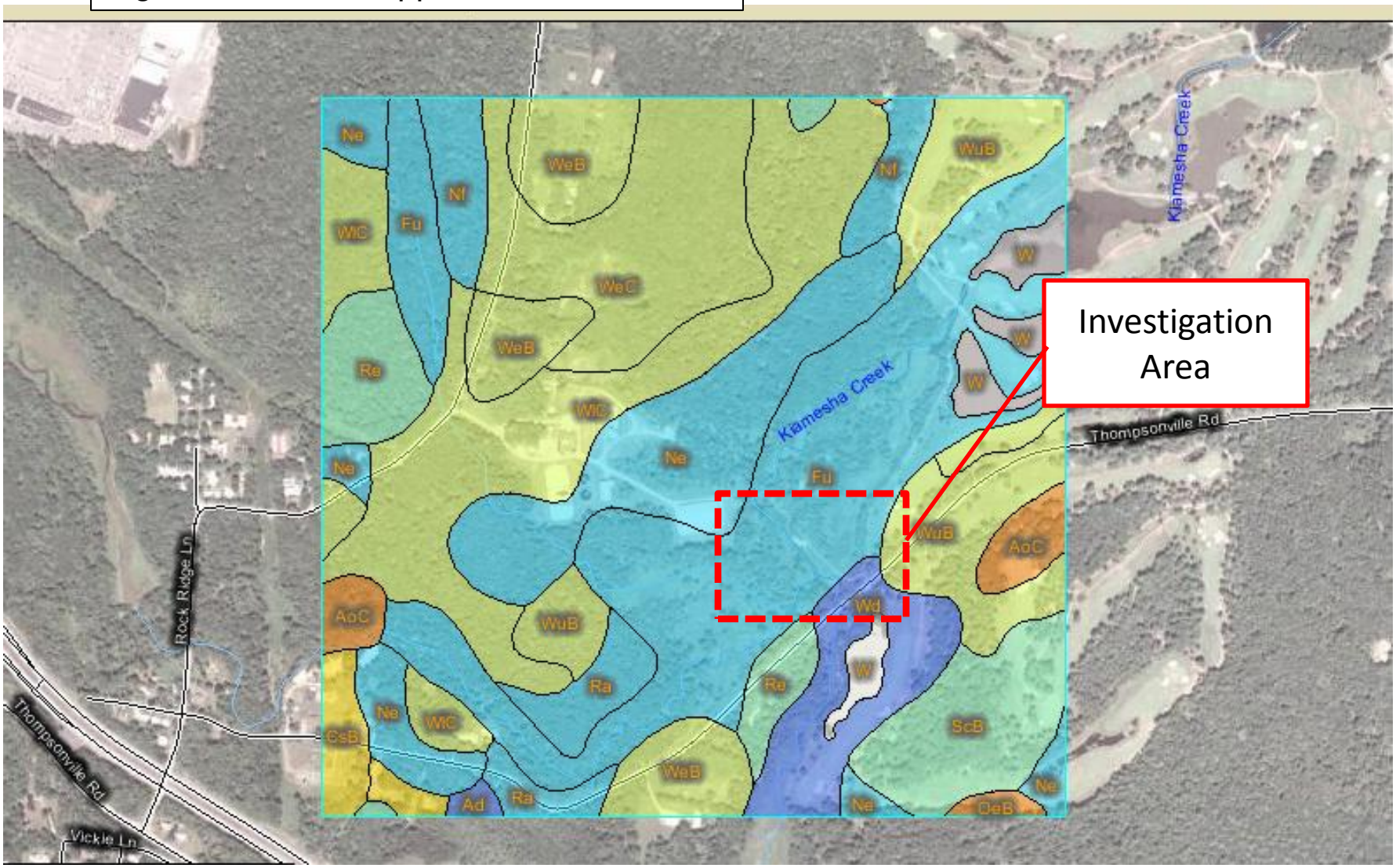
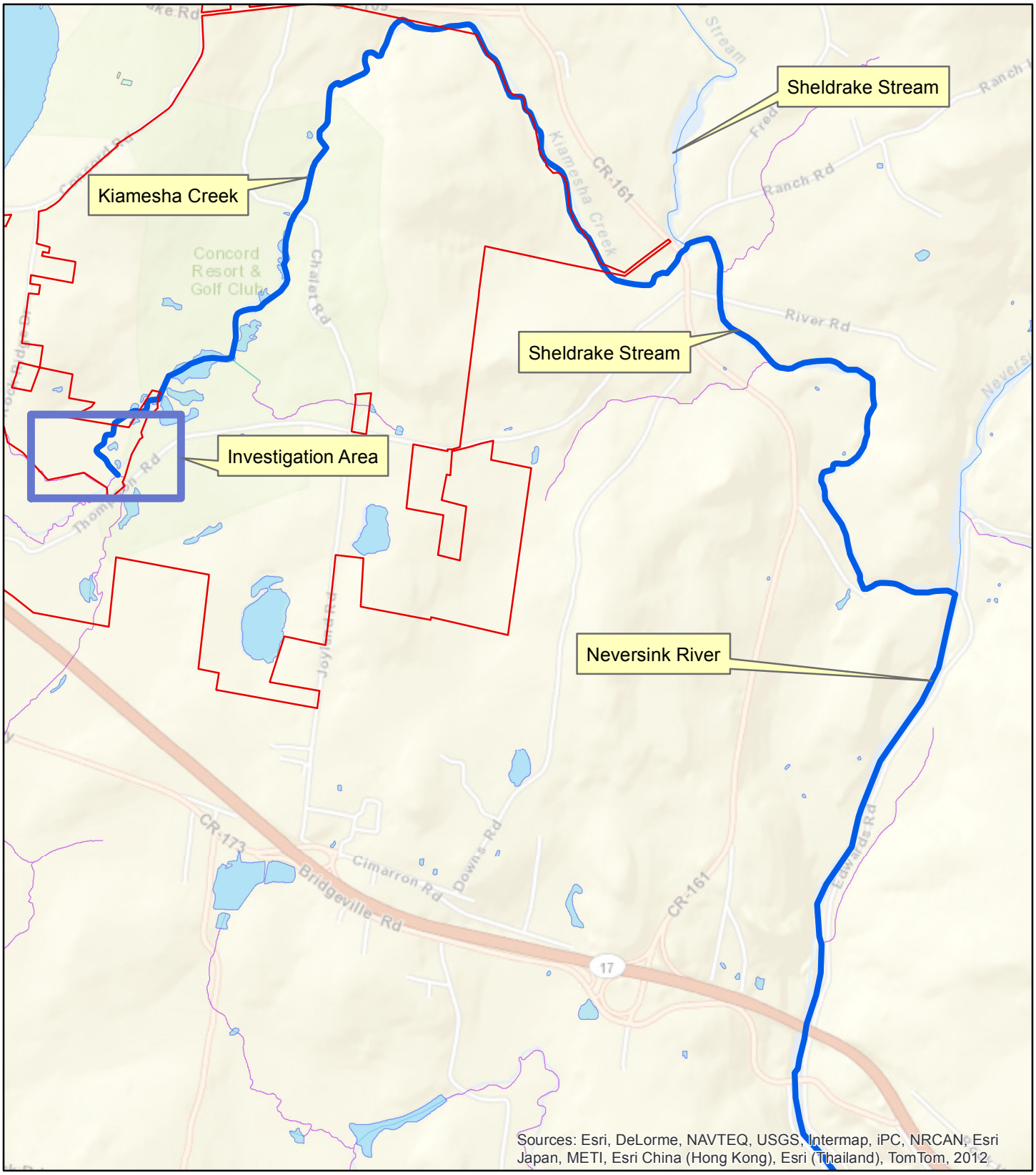


Figure 3: NYSDEC Mapped Wetlands
Investigation Area
MO-43
MO-56
MO-57
MO-58
Rock Ridge Ln
Concord
Thompsonville Rd
Star Ave
Rupp Ave
Broadway
MONTICELLO
Unnamed Street
Joyland Rd
0
0.55mi
Disclaimer: This map does not show all natural resources regulated by NYS DEC, or for which permits from NYS DEC may be required. Please contact your DEC Regional office for more information.

Figure 4: NRCS Mapped Soils





EPT Concord Resort Boundary

N

0 1,500 3,000 Feet

Figure 5

Watershed and Tributaries

Photograph 1: Portion of access roadway – showing wetland area.

Photograph 2: Floodplain of adjacent streamcourse – at confluence of Kiamesha Creek/Tannery Brook.

Photograph 3: Stream (Tannery Brook) adjacent to dirt/grass roadway.

Photograph 4: Typical scrub-shrub of DEC Wetland MO-56.

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Concord - STP City/County: Sullivan Sampling Date: 6/7/12

Applicant/Owner: EDT State: NY Sampling Point: B/C

Investigator(s): J. Nash Section, Township, Range: Thompson

Landform (hillslope, terrace, etc.): floodplain Local relief (concave, convex, none): _____

Slope (%): 0-2 Lat: _____ Long: _____ Datum: _____

Soil Map Unit Name: FU: Fluvaquent-Udifluvents complex NWI classification: PSSIC

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No X	**Is the Sampled Area within a Wetland?** Yes _____ No X
Hydric Soil Present?	Yes _____	No X	If yes, optional Wetland Site ID: _____
Wetland Hydrology Present?	Yes _____	No X	

Remarks: (Explain alternative procedures here or in a separate report.)

Two Upland exclusion areas flagged in larger wetland (NYSDEC wetland NO-56). B1-B11 and C1-C8

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No ✓	Depth (inches): _____
Water Table Present?	Yes _____	No ✓	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No ✓	Depth (inches): _____

Wetland Hydrology Present? Yes _____ No ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Compacted / rocky fill in dirt roadway.

VEGETATION – Use scientific names of plants.

Sampling Point: B/C

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size:)			
1. Prunus virginiana	15	Y	FACU
2.			
3.			
4.			
5.			
6.			
7.			
	15 = Total Cover		
Herb Stratum (Plot size:)			
1. Poa pratensis	30	Y	FACU
2. Dactylis glomerata	20	Y	FACU
3. Festuca rubra	20	Y	FACU
4. Solidago rugosa	10	N	FAC
5. Potentilla Osimplex	30	Y	FACU-
6. Artemisia vulgaris	20	Y	NL
7. Dryopteris glomerata	5	N	FACU
8.			
9.			
10.			
11.			
12.			
	135 = Total Cover		
Woody Vine Stratum (Plot size:)			
1.			
2.			
3.			
4.			
	= Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ☐ Rapid Test for Hydrophytic Vegetation
- ☐ Dominance Test is >50%
- ☐ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub – Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ____ No X

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: B/C

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-1	7.5YR 3/1						loam	thin root mat
1-4	7.5YR 4/6						sandy loam	
5-6	7.5 YR 5/6						coarse material - rock	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) (**LRR R, MLRA 149B**)
- ☐ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- ☐ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- ☐ Loamy Mucky Mineral (F1) (**LRR K, L**)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ☐ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ☐ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ☐ Dark Surface (S7) (**LRR K, L**)
- ☐ Polyvalue Below Surface (S8) (**LRR K, L**)
- ☐ Thin Dark Surface (S9) (**LRR K, L**)
- ☐ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ☐ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ☐ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: fill - coarse material

Depth (inches): 6"

Hydric Soil Present? Yes ____ No X

Remarks:

Imported road shale used as road bed material - restrictive layer at 6" or shallower.