



**Connecticut
Light & Power**

The Northeast Utilities System

NEW ENGLAND
EAST  **WEST
SOLUTION**

**EX.3: Wetland and Watercourse Report – Loop of the
Manchester to Millstone Line into Card Street Substation
– 2008**



Municipal Consultation Filing for the
Interstate Reliability Project

Wetland & Watercourse Report

**Loop of the Manchester to Millstone Line into Card Street Substation
Portion of
The Interstate Reliability Project**

Connecticut

Prepared For:

**The Connecticut Light & Power Company
d/b/a Northeast Utilities System
107 Selden Street
Berlin, Connecticut 06037**

Prepared By:

**ENSR
11 Phelps Way
P.O. Box 506
Willington, Connecticut 06279**

August 2008

TABLE OF CONTENTS

<u>SECTION</u>		<u>PAGE</u>
Section 1.0	Introduction and Methods.....	1
Section 2.0	Wetland and Watercourse Descriptions.....	3
TABLES:		
Table 2.0–1	Delineated Wetlands along the 310 Line Loop and in the Vicinity of the Card Street Substation	
Table 2.0–2	Delineated Watercourses along the 310 Line Loop and in the Vicinity of the Card Street Substation	
ATTACHMENTS:		
Attachment A	Wetland Boundary Mapping	
Attachment B	Wetland and Watercourse Representative Photographs	
Attachment C	Wetland Data Forms	
Attachment D	Hydric Soil and Wetland Mapping Resources	

Section 1.0 Introduction and Methods

ENSR was retained by Burns & McDonnell Engineering Company, Inc. on behalf of Northeast Utilities to perform wetland delineations on the subject right-of-way (ROW) along the Loop of the Manchester to Millstone Line into the Card Street Substation (310 Line Loop), and in the vicinity of the Card Street Substation¹ in the Town of Lebanon, Connecticut, as shown on the Project Index Map in Attachment A.

The 310 Line Loop is the rearrangement of an existing Connecticut Light and Power Company (CL&P) line from Manchester Substation to Millstone Substation to connect to the Card Street Substation. This component of the Interstate Reliability Project (IRP or the Project) includes adding two 345 kV line segments to “Loop” the 310 circuit through the substation and extends approximately 1.7 miles west of the substation to the Village Hill Road Junction. This component of the Project would be located almost entirely within an existing 300 foot ROW in the Town of Lebanon, Connecticut. Some additional ROW would also need to be acquired off of the northwest corner of CL&P’s existing ROW at Card Street. Additional engineering and other studies will be required to quantify any potential impacts associated with this component of the Project.

The field surveys were performed on the subject areas January 17 through January 23, 2008 and April 30, 2008. The purpose of the field surveys was to define the boundaries of state and federal jurisdictional wetlands along the existing CL&P ROW. The wetlands delineated during the field surveys are depicted on the Wetland Boundary Mapping included in Attachment A.

The Inland Wetlands and Watercourses Act (The Act) (Sections 22a-36 through 22a-45a of the Connecticut General Statutes) defines inland wetlands as “land including submerged land...which consists of any soil types designated as poorly drained, very poorly drained, alluvial, and floodplain”. Watercourses are defined in The Act as “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.” The Act defines

¹ Wetlands were delineated within 100 feet of the existing substation fence line.

Intermittent Watercourses as having a defined permanent channel, bed, bank and the occurrence of two of the following: A) evidence of scour or deposits of recent alluvium or detritus, B) the presence of standing or flowing water for a duration longer than a particular storm incident, and C) the presence of hydrophytic vegetation.

In accordance with the Army Corps of Engineers 1987 *Wetlands Delineation Manual*, 1987 (Manual), hydrophytic vegetation, hydric soils, and wetland hydrology must all be present for a wetland to be subject to jurisdiction under Section 404 of the Clean Water Act. While both state and federal methodologies were employed in the field during the course of the delineations, state and federal wetland boundaries are concurrent throughout the subject ROW.

ENSR personnel located and flagged wetland and watercourse boundaries in the field while simultaneously using a Trimble Global Positioning System (GPS) unit, capable of sub meter accuracy, to locate the boundaries, which are shown on the Wetland Boundary Maps (Attachment A). Each wetland and watercourse was subsequently assigned a unique identification number based on geographic location. During the course of field surveys, representative photographs of the wetlands were taken (Attachment B) and Wetland Summary Field Data Forms were completed (Attachment C).

Database and mapping resources used prior to field activities included the use of Geographic Information System (GIS), published wetland maps (e.g. National Wetland Inventory (NWI) maps, Connecticut Department of Environmental Protection (DEP) wetland mapping), soil surveys depicting hydric soil locations, and the examination of recent aerial photographs of the Project ROW. Examples of these database and mapping resources are provided in Figures 1 through 3 (Attachment D).

Concurrent with the delineations, wetland functions and values were also assessed using the thirteen parameter U.S. Army Corps of Engineers Highway Methodology Workbook and The Highway Methodology Workbook supplement. The thirteen functions and values incorporated into this approach are: Groundwater Recharge/Discharge, Floodflow Alteration, Fish and Shellfish Habitat, Sediment and Toxicant Retention, Nutrient Removal, Production Export, Sediment/Shoreline Stabilization, Wildlife habitat,

Recreation, Educational/Scientific Value, Uniqueness/Heritage, Visual Quality/Aesthetics and Endangered Species Habitat. Functions and values form the basis from which potential impacts to wetlands are assessed. Functions are defined as self sustaining properties of a wetland system that exist in the absence of society while values are benefits derived from either one or more functions and the physical characteristics of the wetland itself. This approach is acceptable to the U.S. Army Corps New England District Regulatory Program and may be used for any project where the characterization of wetland resources is necessary for Section 404 permit requirements. This information is included with each of the sixteen wetland descriptions included in this report.

Section 2.0 Wetland and Watercourse Descriptions

A total of 16 wetlands, one perennial watercourse and one intermittent watercourse were identified and delineated on the ROW. As described in the wetland descriptions below, an additional five intermittent stream channels were also documented in the ROW. These features are listed in Table 2.0-1 and in Table 2.0-2 respectively.

Table 2.0-1 Delineated Wetlands Along the 310 Line Loop and in the Vicinity of the Card Street Substation³					
Municipality	Wetland Number¹	Wetland Map ID Number	Wetland Class²	Acres of Wetland in ROW Easement³	Comments
Lebanon	W01NL001	W21-13	PSS/PFO	1.66	Continues off ROW Vernal Pool/ amphibian breeding habitat
Lebanon	W01NL002	W21-12	PEM	0.65	Continues off ROW
Lebanon	W01NL003	W21-11	PSS	0.09	Continues off ROW
Lebanon	W01NL004	W21-10	PEM	0.03	Within ROW
Lebanon	W01NL005	W21-9	PFO	0.40	Continues off ROW Vernal Pool/ amphibian breeding habitat
Lebanon	W01NL006	W21-8	PFO/PSS	0.60	Continues off ROW
Lebanon	W01NL007	W21-7	PFO	0.05	Continues off ROW
Lebanon	W01NL008	W21-6	PSS	0.13	Within ROW
Lebanon	W01NL009	W21-5	PSS/PFO	0.23	Continues off ROW
Lebanon	W01NL010	W21-4	PEM/PSS	0.41	Within ROW
Lebanon	W01NL011	W21-3	PEM/PSS	0.25	Continues off ROW
Lebanon	W01NL012	W21-2	PSS	0.10	Continues off ROW
Lebanon	W01NL013	W21-1	PEM/PFO	7.16	Continues off ROW
Lebanon	W01NL014	W21-14	PFO	0.47	On NU Property ³

Table 2.0-1 Delineated Wetlands Along the 310 Line Loop and in the Vicinity of the Card Street Substation³					
Municipality	Wetland Number¹	Wetland Map ID Number	Wetland Class²	Acres of Wetland in ROW Easement³	Comments
Lebanon	W01NL015	W21-16	PFO	0.28	On NU Property ³
Lebanon	W01NL016	W21-15	PFO	1.07	On NU Property ³
1) Wetland series number was generated by ENSR to identify wetlands within and adjacent to the Project corridor. 2) Wetlands classification according to Cowardin et al 1979: PEM = Palustrine Emergent Wetland, PFO = Palustrine Forested Wetland, and PSS = Palustrine Scrub Shrub Wetland. 3) W01NL014 through W01NL016 are located adjacent to the Card Street Substation on property owned by NU. These wetlands were only surveyed within 100-feet of the substation fence line & acreages presented only include this area.					

Table 2.0-2 Delineated Watercourses Along the 310 Line Loop and in the Vicinity of the Card Street Substation					
Municipality	Stream Number¹	Stream Map ID Number	Water Quality Classification* / Fisheries Information Where Applicable	Type²	Comments
Lebanon	S01NL001	S21-70	N/A	P	Unnamed & associated with wetland W01NL002
Lebanon	S01NL002	S21-69	N/A	I	Unnamed & associated with wetland W01NL013
1) Stream series number was generated by ENSR to identify streams within and adjacent to the project corridor. 2) P = Perennial & I = Intermittent					

310 Line Loop into Card Substation

Wetland W-01-NL-001 (W21-13)

Wetland W-01-NL-001 is located on the subject ROW, approximately 600 linear feet southwest of Card Street (Mapsheet 04 of 05, Attachment A). This wetland is located in a low lying area. This wetland is part of a larger system which extends off the ROW. Palustrine scrub shrub (PSS) wetland occupies the majority of the ROW, with palustrine forested (PFO) wetland along the edges and off the ROW (See representative Photo, Attachment B). A portion of the wetland consists of open water.

Vegetation in this wetland consisted of red maple (*Acer rubrum*), yellow birch (*Betula alleghaniensis*), and white oak (*Quercus alba*) trees with understory vegetation consisting of witch-hazel (*Hamamelis virginiana*), red cedar (*Juniperus virginiana*), red-osier dogwood (*Cornus stolonifera*), maleberry (*Lyonia ligustrina*), multiflora rose (*Rosa multiflora*), soft rush (*Juncus effusus*), sensitive fern (*Onoclea sensibilis*), cinnamon fern (*Osmunda cinnamomea*), common reed (*Phragmites australis*), reed canary grass (*Phalaris arundinacea*), wool-grass (*Scirpus cyperinus*), goldenrods (*Solidago spp.*), meadowsweet (*Spiraea latifolia*), and steple bush (*Spiraea tomentosa*). Signs of beaver and fox were noted in this area. Overland flow from adjacent uplands around this wetland influence the hydrology of this area. Hydrologic indicators noted within this wetland included standing water, water-stained leaves, water marks, and inundated soils. Mineral and organic hydric soils were noted in this area (See Wetland Summary Field Data Form, Attachment C).

Functions and values associated with this wetland include groundwater recharge/discharge, floodflow alteration, sediment and toxicant retention, nutrient removal, production export, sediment/shoreline stabilization, and wildlife habitat.

Wetland W-01-NL-002 (W21-12)

Wetland W-01-NL-002 is located in the subject ROW, approximately 1,000 linear feet southwest of Card Street (Mapsheet 03 of 05, Attachment A). This wetland is located in a low lying area which is part of a larger system extending off the ROW (See representative Photo, Attachment B). Perennial stream (S-01-NL-001) flows through the wetland, which influences the hydrology of this wetland. A berm at the centerline of the ROW causes water to pond east of the ROW.

Vegetation in this palustrine emergent (PEM) wetland includes maleberry, soft rush, sensitive fern, and wool-grass. This wetland extends west of the ROW as a PFO wetland. Hydrologic indicators noted within this wetland included water-stained leaves, drainage patterns, and inundated soils. Mineral hydric soils were noted in this area (See Wetland Summary Field Data Form, Attachment C).

Functions and values associated with this wetland include groundwater recharge/discharge, floodflow alteration, sediment and toxicant retention, nutrient removal, production export, sediment/shoreline stabilization, and wildlife habitat.

Watercourse S-01-NL-001 (S21-70)

Watercourse S-01-NL-001 is an unnamed perennial tributary which flows west through Wetland W-01-NL-002 to its confluence with the Ten Mile River. This watercourse is shown on Mapsheet 03 of 05 in Attachment A (See representative Photo, Attachment B). This stream receives flow from an adjacent unnamed pond to the southwest.

Wetland W-01-NL-003 (W21-11)

Wetland W-01-NL-003 is a PSS wetland located on the subject ROW approximately 1,200 linear feet southwest of Card Street (Mapsheet 03 of 05, Attachment A). Although part of a larger wetland complex, this PSS wetland has been delineated as being isolated (See representative Photo, Attachment B).

Vegetation in this wetland included silky dogwood (*Cornus amomum*), witch-hazel, sensitive fern, and reed canary grass. Overland flow from adjacent uplands to the south and east influence the hydrology of this area. Hydrologic indicators noted within this wetland included water-stained leaves and inundated soils. Mineral hydric soils were noted in this area (See Wetland Summary Field Data Form, Attachment C).

As a relatively small, isolated wetland, the functions and values associated with Wetland W-01-NL-003 are limited amounts of groundwater recharge/discharge, floodflow alteration, sediment and toxicant retention, nutrient removal and wildlife habitat.

Wetland W-01-NL-004 (W21-10)

Wetland W-01-NL-004 is located on the subject ROW approximately 1,200 linear feet southwest of Card Street (Mapsheet 03 of 05, Attachment A). This PEM wetland is adjacent to Wetland W-01-NL-003 (See representative Photo, Attachment B).

Vegetation in this area included sensitive fern, reed canary grass, and steeple bush. Overland flow from adjacent uplands to the south influence the hydrology of this area. Hydrologic indicators noted within this wetland included standing water and water-stained leaves. Mineral hydric soils were noted in this area (See Wetland Summary Field Data Form, Attachment C).

As a relatively small, isolated wetland, the functions and values associated with Wetland W-01-NL-004 are limited amounts of groundwater recharge/discharge, floodflow alteration, sediment and toxicant retention, nutrient removal and wildlife habitat.

Wetland W-01-NL-005 (W21-9)

Wetland W-01-NL-005 is located on the subject ROW approximately 1,200 linear feet southwest of Card Street and adjacent to Wetland W-01-NL-004 (Mapsheet 03 of 05, Attachment A). This wetland is part of a larger system which extends off the ROW and eventually connects to Wetland W-01-NL-002 (See representative Photo, Attachment B).

Vegetation in this PFO wetland included red maple, yellow birch, and beech (*Fagus grandifolia*) trees and understory vegetation consisting of American hornbeam (*Carpinus caroliniana*), witch-hazel, red-osier dogwood, honeysuckle (*Lonicera sp.*), multiflora rose, highbush blueberry (*Vaccinium corymbosum*), sensitive fern, cinnamon fern, sphagnum moss (*Sphagnum sp.*), Japanese barberry (*Berberis thunbergii*), and sedges (*Carex spp.*). Overland flow from adjacent uplands to the south influence the hydrology of this area. Two intermittent stream channels were noted in this wetland, which convey flows

northward off of the ROW. Hydrologic indicators noted within this wetland included pockets of standing water, surface scouring, drainage patterns, water-stained leaves, and inundated soils. Mineral hydric soils were noted in this area (See Wetland Summary Field Data Form, Attachment C).

Functions and values associated with this wetland include groundwater recharge/discharge, floodflow alteration, sediment and toxicant retention, nutrient removal, production export, sediment/shoreline stabilization, and wildlife habitat.

Wetland W-01-NL-006 (W21-8)

Wetland W-01-NL-006 is located on the subject ROW approximately 1,600 linear feet southwest of Card Street and adjacent to Wetland W-01-NL-005 (Mapsheet 03 of 05, Attachment A). This PFO/PSS wetland is part of a larger system which extends off the ROW and eventually connects to Wetland W-01-NL-002 (See representative Photo, Attachment B).

Vegetation in this area included red maple, silky dogwood, sensitive fern, cinnamon fern, and sphagnum moss. Hydrologic indicators noted in the wetland included water-stained leaves and drainage patterns. Overland flow from adjacent uplands to the south influence the hydrology of this area. An intermittent stream channel was present within the wetland, which conveys flows northward off of the ROW. Mineral hydric soils were noted in this area (See Wetland Summary Field Data Form, Attachment C).

Functions and values associated with this wetland include groundwater recharge/discharge, floodflow alteration, sediment and toxicant retention, nutrient removal, production export, sediment/shoreline stabilization, and wildlife habitat.

Wetland W-01-NL-007 (W21-7)

Wetland W-01-NL-007 is located on the subject ROW approximately 2,000 linear feet southwest of Card Street and south of Wetland W-01-NL-006 (Mapsheet 03

of 05, Attachment A). This PFO wetland is part of a larger system which extends off the ROW (See representative Photo, Attachment B).

Vegetation in this wetland included hemlock (*Tsuga canadensis*), silky dogwood, witch-hazel, sensitive fern, cinnamon fern, and sphagnum moss. Overland flow from adjacent uplands to the south influence the hydrology of this area. An intermittent stream channel was present within the wetland, which conveys flows northward across the ROW and is the main source of hydrology for this wetland. Hydrologic indicators noted included water-stained leaves, surface scouring, and drainage patterns within the wetland. Mineral hydric soils were noted in this area (See Wetland Summary Field Data Form, Attachment C).

Functions and values associated with this wetland include groundwater recharge/discharge, floodflow alteration, sediment and toxicant retention, nutrient removal, production export, sediment/shoreline stabilization, and wildlife habitat.

Wetland W-01-NL-008 (W21-6)

Wetland W-01-NL-008 is located on the subject ROW approximately 2,000 linear feet southwest of Card Street and south of Wetland W-01-NL-006 (Mapsheet 03 of 05, Attachment A). This PSS wetland is adjacent to W-01-NL-009.

Vegetation in this area included red cedar, silky dogwood, honeysuckle, blackberry (*Rubus sp.*), sensitive fern, reed canary grass, meadowsweet, steeple bush, and broad-leaf cattail (*Typha latifolia*) (See representative Photo, Attachment B). Hydrologic indicators noted within this wetland included standing water, water-stained leaves, and inundated soils. Overland flow from adjacent uplands to the south influence the hydrology in this wetland. Mineral hydric soils were noted in this area (See Wetland Summary Field Data Form, Attachment C).

As a relatively small, isolated wetland, the functions and values associated with Wetland W-01-NL-008 are limited amounts of groundwater recharge/discharge, floodflow alteration, sediment and toxicant retention, nutrient removal and wildlife habitat.

Wetland W-01-NL-009 (W21-5)

Wetland W-01-NL-009 is located on the subject ROW approximately 800 linear feet northeast of Village Hill Road (Mapsheet 02 of 05, Attachment A). This PSS wetland is part of a larger system which extends off the ROW as a PFO wetland (See representative Photo, Attachment B).

Vegetation in this wetland included silky dogwood, honeysuckle, blackberry, sensitive fern, cinnamon fern, and goldenrods. Overland flow from adjacent uplands to the south influence the hydrology in this wetland. An intermittent stream channel was present within the wetland, which conveys flows northward across the ROW and is the main source of hydrology to this area. Hydrologic indicators noted included water-stained leaves, surface scouring, and drainage patterns within the wetland. Mineral hydric soils were noted in this area (See Wetland Summary Field Data Form, Attachment C).

Functions and values associated with this wetland include groundwater recharge/discharge, floodflow alteration, sediment and toxicant retention, nutrient removal, production export, sediment/shoreline stabilization, and wildlife habitat.

Wetland W-01-NL-010 (W21-4)

Wetland W-01-NL-010 is located on the subject ROW approximately 800 linear feet northeast of Village Hill Road (Mapsheet 02 of 05, Attachment A). This PEM wetland is adjacent to Wetland W-01-NL-009, but is a PSS wetland at the edges of the ROW (See representative Photo, Attachment B).

Vegetation in this wetland included silky dogwood, red cedar, multiflora rose, sedges, rush (*Juncus sp.*), sensitive fern, goldenrods, and steeple bush. Overland flow from adjacent uplands to the south influence the hydrology in this wetland. Hydrologic indicators noted included standing water, water-stained leaves, and drainage patterns within the wetland. Mineral hydric soils were noted in this area (See Wetland Summary Field Data Form, Attachment C).

As a relatively small, isolated wetland, the functions and values associated with Wetland W-01-NL-008 are limited amounts of groundwater recharge/discharge, floodflow alteration, sediment and toxicant retention, nutrient removal and wildlife habitat.

Wetland W-01-NL-011 (W21-3)

Wetland W-01-NL-011 is located on the subject ROW approximately 600 linear feet northeast of Village Hill Road (Mapsheet 02 of 05, Attachment A). This PEM wetland is part of a larger system which extends off the ROW as a PSS wetland (See representative Photo, Attachment B).

Vegetation in this wetland included sedges, rushes, sensitive fern and goldenrods. Overland flow from adjacent uplands to the south influence the hydrology in this wetland. Hydrologic indicators noted included standing water, water-stained leaves and drainage patterns within the wetland. Mineral hydric soils were noted in this area (See Wetland Summary Field Data Form, Attachment C).

Functions and values associated with this wetland include groundwater recharge/discharge, floodflow alteration, sediment and toxicant retention, nutrient removal, production export, sediment/shoreline stabilization, and wildlife habitat.

Wetland W-01-NL-012 (W21-2)

Wetland W-01-NL-012 is located on the subject ROW adjacent to, and north of, Village Hill Road (Mapsheet 02 of 05, Attachment A). This PSS wetland is associated with a channelized area conveying runoff under Village Hill Road.

Vegetation in this wetland included speckled alder (*Alnus rugosa*), American hornbeam, silky dogwood, sensitive fern, cinnamon fern, and common reed (See representative Photo, Attachment B). Overland flow and side slope seepage from adjacent uplands to the east influence the hydrology in this wetland. Hydrologic indicators noted included water-stained leaves and drainage patterns

within the wetland. A culvert under Village Hill Road carries flow from this wetland to Wetland W-01-NL-013. Mineral hydric soils were noted in this area (See Wetland Summary Field Data Form, Attachment C).

Functions and values associated with this wetland include groundwater recharge/discharge, floodflow alteration, sediment and toxicant retention, nutrient removal, production export, sediment/shoreline stabilization, and wildlife habitat.

Wetland W-01-NL-013 (W21-1)

Wetland W-01-NL-013 is located on the subject ROW adjacent to, and south of, Village Hill Road (Mapsheet 01 and 02 of 05, Attachment A). This PEM wetland is part of a larger system which extends off the ROW as a PFO wetland.

Vegetation in this wetland consists primarily of common reed (See representative Photo, Attachment B). Other species present included silky dogwood, spicebush (*Lindera benzoin*), multiflora rose, and sensitive fern. Watercourse S-01-NL-002 flows across this area and is a source of hydrology to this wetland, along with overland flow from adjacent uplands to the west and east of this wetland area. Hydrologic indicators noted within this wetland included drainage patterns and water-stained leaves. Mineral hydric soils were noted in this area (See Wetland Summary Field Data Form, Attachment C).

Functions and values associated with this wetland include groundwater recharge/discharge, floodflow alteration, sediment and toxicant retention, nutrient removal, production export, sediment/shoreline stabilization, and wildlife habitat.

Watercourse S-01-NL-002 (S21-69)

Watercourse S-01-NL-002 is an unnamed intermittent tributary which flows northwest through Wetland W-01-NL-013 to the Ten Mile River (Mapsheet 01 of 05, Attachment A). This stream receives flow from an adjacent unnamed pond to the southwest (See representative Photo, Attachment B).

Wetland W-01-NL-014 (W21-14)

Wetland W-01-NL-014 is located within 100 linear feet of the southeast corner of the Card Street Substation (Mapsheet 05 of 05, Attachment A). This PFO wetland area is part of a larger system which extends eastward.

Vegetation in this wetland included red maple and yellow birch trees and an understory of American hornbeam, highbush blueberry, and sensitive fern (See representative Photo, Attachment B). Overland flow from adjacent uplands influence the hydrology in this wetland. Hydrologic indicators noted within this wetland included standing water, water-stained leaves, drainage patterns, and inundated soils. A culvert under the entrance way to the substation hydrologically connects this wetland with Wetland W-01-NL-016. Mineral hydric soils were noted in this area (See Wetland Summary Field Data Form, Attachment C).

Functions and values associated with this wetland include groundwater recharge/discharge, floodflow alteration, sediment and toxicant retention, nutrient removal, production export, sediment/shoreline stabilization, and wildlife habitat.

Wetland W-01-NL-015 (W21-16)

Wetland W-01-NL-015 is located within 100 linear feet of the northeast corner of the Card Street Substation (Mapsheet 05 of 05, Attachment A). This PFO wetland is part of a larger system which extends northward and eastward.

Vegetation in this wetland included red maple and yellow birch trees and an understory consisting of American hornbeam, spicebush, highbush blueberry, and sensitive fern (See representative Photo, Attachment B). Overland flows from adjacent uplands influence the hydrology in this wetland. Hydrologic indicators noted within this wetland included water-stained leaves. Mineral hydric soils were noted in this area (See Wetland Summary Field Data Form, Attachment C).

Functions and values associated with this wetland include groundwater recharge/discharge, floodflow alteration, sediment and toxicant retention, nutrient removal, production export, sediment/shoreline stabilization, and wildlife habitat.

Wetland W-01-NL-016 (W21-15)

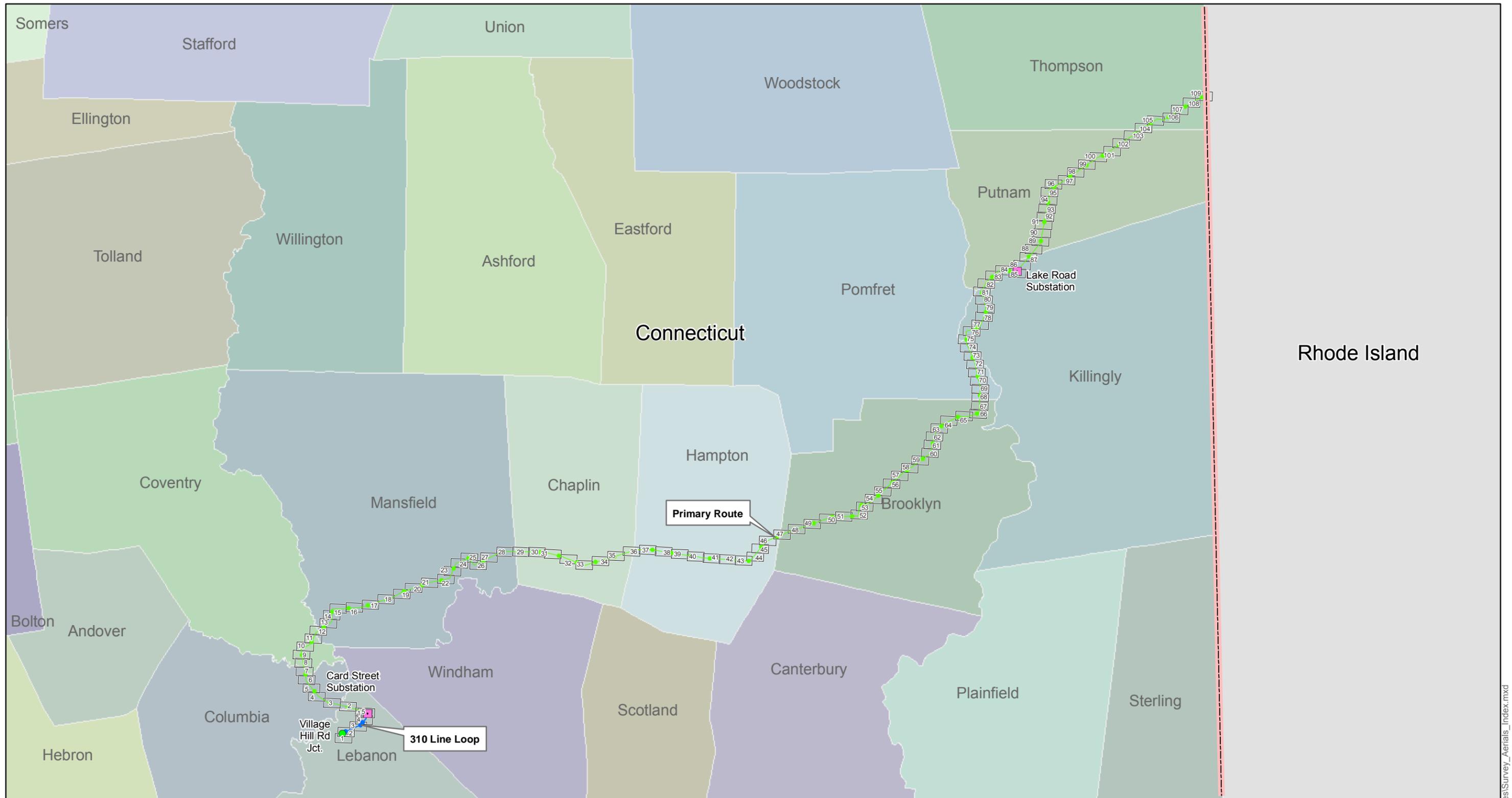
Wetland W-01-NL-016 is located along the western and southern edges of the Card Street Substation (Mapsheet 05 of 05, Attachment A). This PFO wetland consists of a narrow rock lined channel along the southern extent of the substation, which carries runoff to the western side of the substation. This PFO wetland area is part of a larger system which extends off the ROW to the west.

The vegetation in this wetland included red maple and yellow birch trees with an understory consisting of witch-hazel, silky dogwood, spicebush, multiflora rose, highbush blueberry, sensitive fern, cinnamon fern, sphagnum moss and skunk cabbage (*Symplocarpus foetidus*) (See representative Photo, Attachment B). Overland flows from adjacent uplands influence the hydrology in this wetland. A culvert under the entrance way to the substation hydrologically connects this wetland with Wetland W-01-NL-014, conveying flows from that area. Hydrologic indicators noted within this wetland included standing water, drainage patterns, and water-stained leaves. Mineral hydric soils were noted in this area (See Wetland Summary Field Data Form, Attachment C).

Functions and values associated with this wetland include groundwater recharge/discharge, floodflow alteration, sediment and toxicant retention, nutrient removal, production export, sediment/shoreline stabilization, and wildlife habitat.

Attachment A

Wetland Boundary Mapping



Legend

- Substation
- Junction
- Primary Route
- 310 Line Loop
- Index Map

0 2.5 5 7.5 10 Miles

1:160,000
1 inch equals 2.5 miles

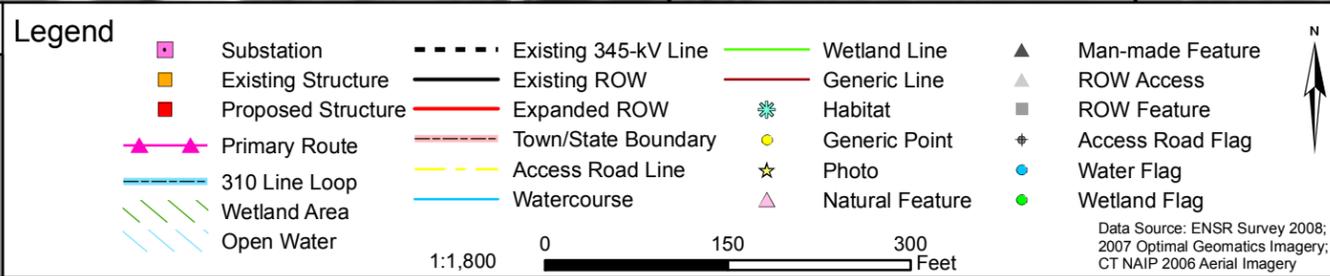
**CT Interstate Reliability Project
Survey Aerials
Index Map
Primary Route
and 310 Line Loop**

CT DEP GIS, Town Boundary, 2005.

Connecticut Light & Power
The Northeast Utilities System

ENSR | AECOM

Date: July 2008



CT Interstate Reliability Project
Survey Aerial Maps
 310 Line Loop
 Mapsheet 01 of 05


Connecticut Light & Power
 The Northeast Utilities System



Date: July 2008

V:\Projects\Northeast\Utilities\CT_Interstate\Map\Survey_Figures\Survey_Aerials_NU_Numbering.mxd



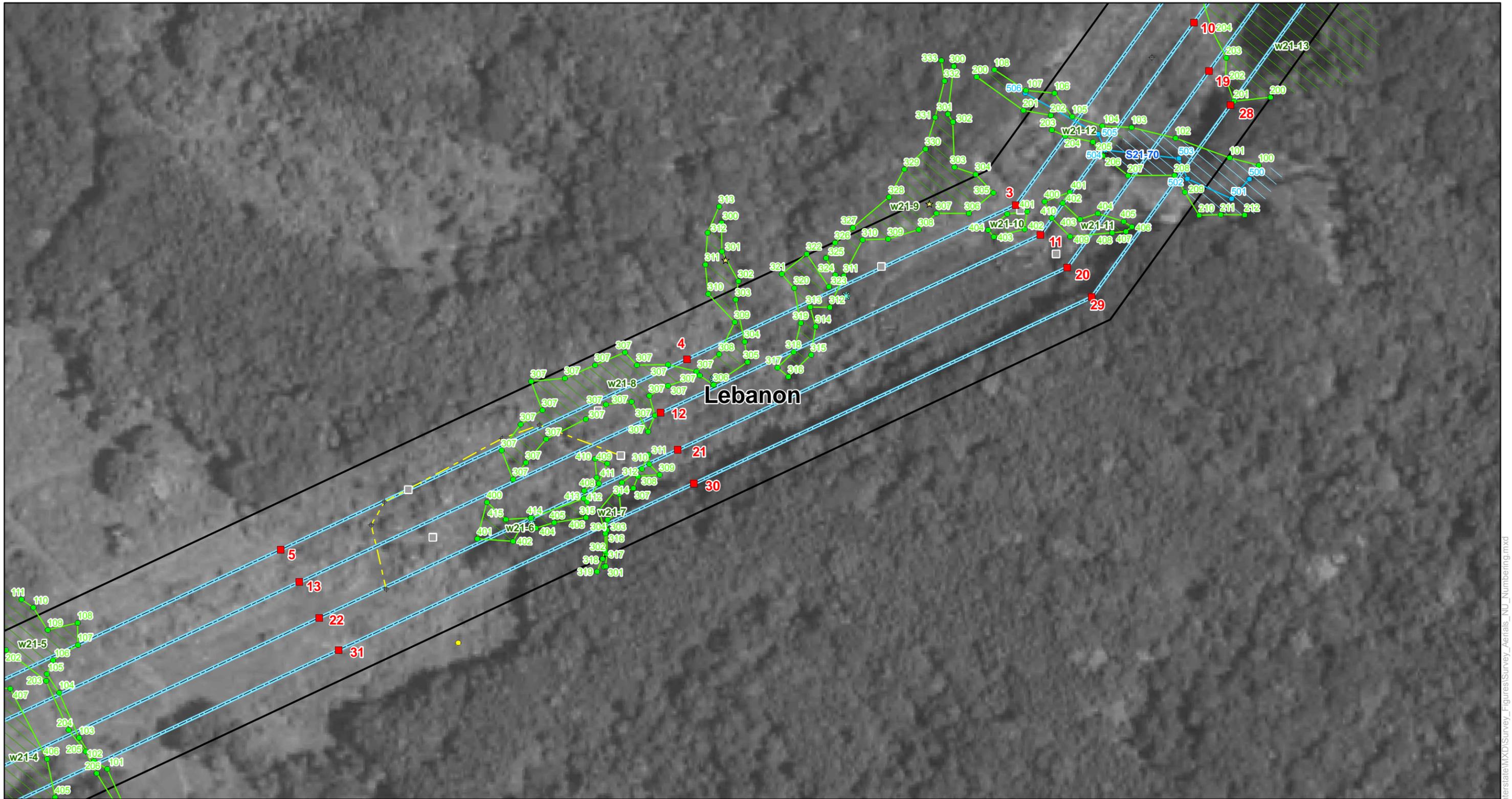
CT Interstate Reliability Project
Survey Aerial Maps
 310 Line Loop
 Mapsheet 02 of 05

Connecticut Light & Power
The Northeast Utilities System

ENSR | AECOM

Date: July 2008

I:\Projects\Northeast\Utilities\CT_Interstate\Map\Survey_Figures\Survey_Aerials_NU_Numbering.mxd



CT Interstate Reliability Project
Survey Aerial Maps

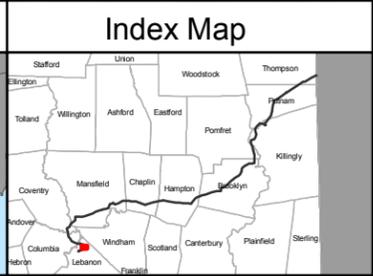
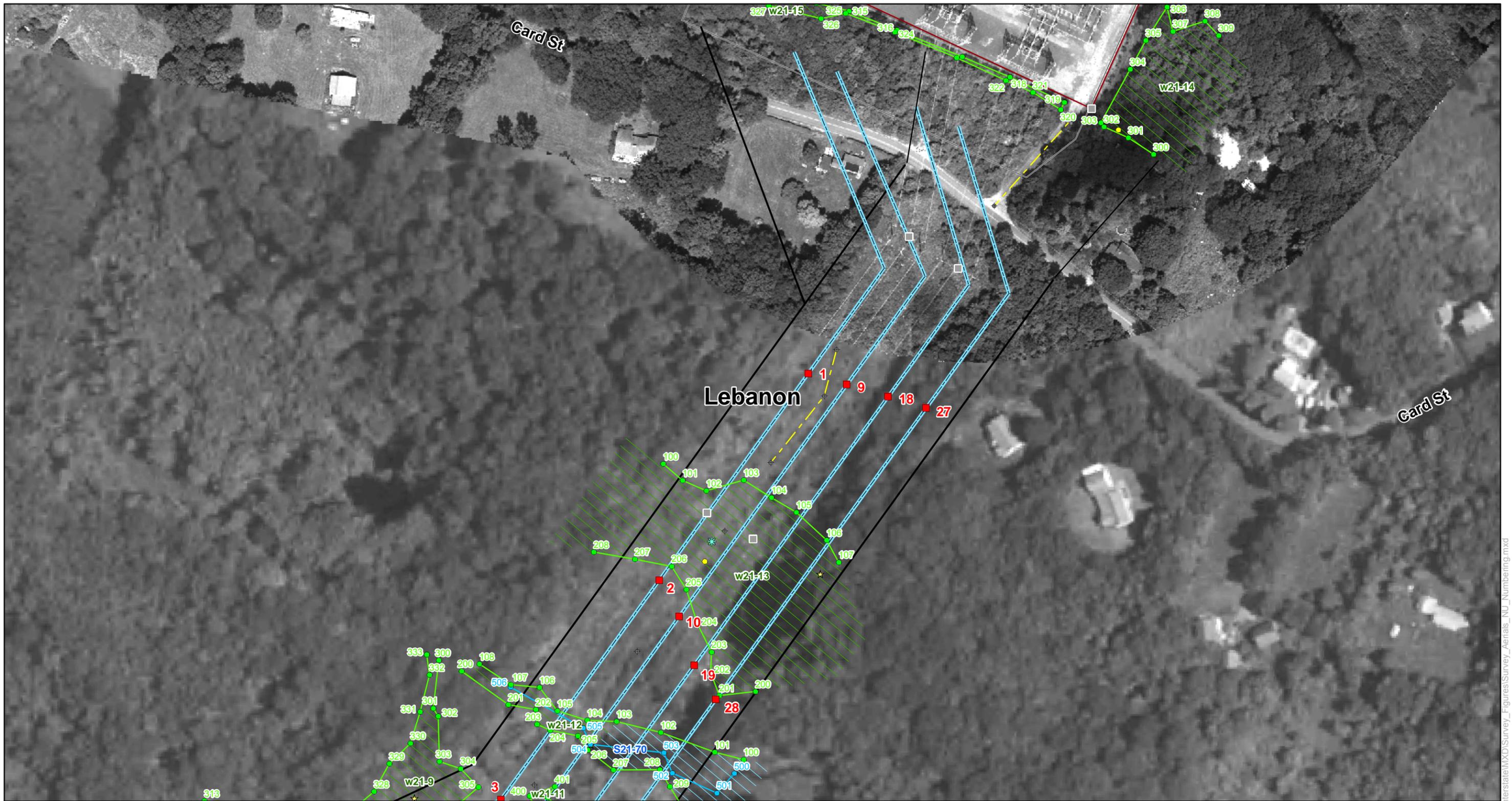
310 Line Loop
 Mapsheet 03 of 05

Connecticut Light & Power
The Northeast Utilities System

ENSR | AECOM

Date: July 2008

\\Projects\Northeast\Utilities\CT_Interstate\Map\Survey_Figures\Survey_Aerials_NU_Numbering.mxd



Legend

<ul style="list-style-type: none"> ■ Substation ■ Existing Structure ■ Proposed Structure ▲ Primary Route 310 Line Loop Wetland Area Open Water 	<ul style="list-style-type: none"> Existing 345-kV Line Existing ROW Expanded ROW Town/State Boundary Access Road Line Watercourse 	<ul style="list-style-type: none"> Wetland Line Generic Line ✱ Habitat ● Generic Point ★ Photo ▲ Natural Feature 	<ul style="list-style-type: none"> ▲ Man-made Feature ▲ ROW Access ■ ROW Feature + Access Road Flag ● Water Flag ● Wetland Flag
--	---	--	--

1:1,800

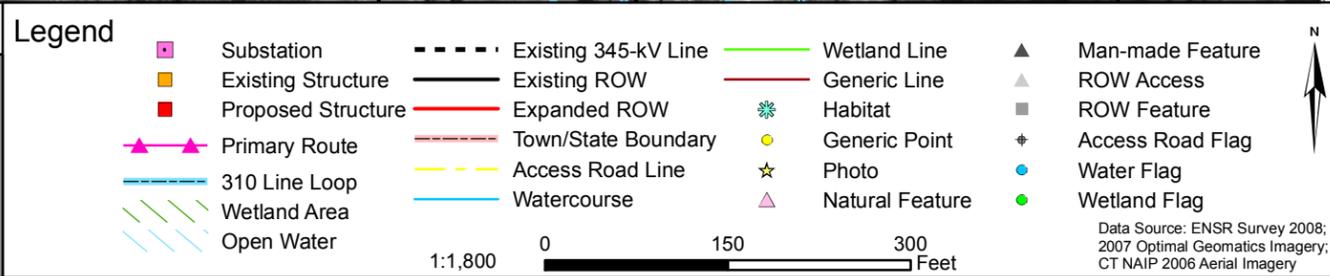
0 150 300
Feet

CT Interstate Reliability Project
Survey Aerial Maps
 310 Line Loop
 Mapsheet 04 of 05

Connecticut Light & Power
The Northeast Utilities System

Date: July 2008

Y:\Projects\Northeast\Utilities\CT_Interstate\MXD\Survey_Figures\Survey_Aerials_NU_Numbering.mxd



CT Interstate Reliability Project
Survey Aerial Maps

310 Line Loop
Mapsheet 05 of 05

Data Source: ENSR Survey 2008;
2007 Optimal Geomatics Imagery;
CT NAIP 2006 Aerial Imagery

Connecticut Light & Power
The Northeast Utilities System

ENSR | AECOM

Date: July 2008

X:\Projects\Northeast\Utilities\CT_Interstate\Map\Survey_Figures\Survey_Aerials_NU_Numbering.mxd

Attachment B

Wetland and Watercourse Representative Photographs



Wetland W-01-NL-001 looking south along right-of-way, Photo taken 05/06/08



Wetland W-01-NL-002 (Watercourse S-01-NL-001) looking southeast from right-of-way, Photo taken 05/06/08



Wetland W-01-NL-003 looking east from right-of-way, Photo taken 05/06/08



Wetland W-01-NL-004 looking southwest along right-of-way, Photo taken 05/06/08



Wetland W-01-NL-005 looking southwest along right-of-way, Photo taken 05/06/08



Wetland W-01-NL-006 looking northeast along right-of-way, Photo taken 05/06/08



Wetland W-01-NL-007 looking north along right-of-way, Photo taken 05/06/08



Wetland W-01-NL-008 looking west on right-of-way, Photo taken 05/06/08



Wetland W-01-NL-009 looking southeast from right-of-way, Photo taken 05/06/08



Wetland W-01-NL-010 looking northeast along right-of-way, Photo taken 05/06/08



Wetland W-01-NL-011 looking northeast along right-of-way, Photo taken 05/06/08



Wetland W-01-NL-012 looking southeast along right-of-way, Photo taken 05/06/08



Wetland W-01-NL-013 looking west along right-of-way, Photo taken 05/06/08



Watercourse S-01-NL-002 looking northeast, Photo taken 07/17/08



Wetland W-01-NL-014 looking southeast from substation, Photo taken 05/06/08



Wetland W-01-NL-015 looking southeast from substation, Photo taken 05/06/08



Wetland W-01-NL-016 looking northwest across right-of-way, Photo taken 05/06/08

Attachment C

Wetland Data Forms

WETLAND SUMMARY FIELD DATA FORM

Project: Connecticut Interstate – 310 Loop _____ Wetland ID: W01NL001/ W21-13 _____
 Flag Series: 100 – 107 & 200 - 208 _____ Town: Lebanon, CT _____
 Observers: T. Ramborger/J. Berg _____ Weather: 15 degrees, cloudy _____
 Date: January 17, 2008 _____ Time: 9 AM _____

Dominant NWI Class: PSS _____ Other NWI Classes: PFO _____

Representative Vegetation: (Record Species and Occurrence Percentage*) & [USFWS Wetland Indicator Status**]:

Trees:	Acer rubrum	C [FAC]	Shrubs:	Cornus stolonifera	C [FACW+]
	Betula alleghaniensis	C [FAC]		Lyonia ligustrina	C [FACW]
	Quercus alba	C [FACU]		Rosa multiflora	C [FACU]
Saplings/Lianas:			Herbs/Forbes:	All C	
	Hamamelis virginiana	C [FAC-]		Juncus effuses [FACW+], Onoclea sensibilis [FACW],	
	Juniperus virginiana	C [FACU]		Osmunda cinnamomea [FACW],	
				Phalaris arundinacea [FACW+],	
				Phragmites australis [FACW],	
				Scirpus cyperinus [FACW+],	
				Spiraea latifolia [FAC], Spiraea tomentosa [FACW], &	
				Solidago spp. [various]	

* Species Occurrence Percentage (Noted Day of Site Visit): D = Dominant (>50%), A = Abundant (26-50%), C = Common (6-25%), S = Sparse (<5%)

** USFWS Wetland Indicator Status: OBL = Occur almost always (>99%) under normal conditions in wetlands; FACW = Usually occur in wetlands (67% - 99%); FAC = Equally likely to occur in wetlands or non-wetlands (34% - 66%); FACU = Usually occur in non-wetlands (1% - 33% occurrence in wetlands); UPL = Almost always occur under natural conditions in non-wetlands (<1% occurrence in wetlands).

Representative Hydrologic Characteristics (Circle where appropriate)

Non-Tidal:	Perm. Flooded	Semi Perm. Flooded	Seasonally Flooded -- X		Tidal:	Subtidal	Irregularly Exposed
	Saturated	Intermittently Flooded	Artificially Flooded			Reg. Flooded	Irregularly Flooded
Hydrologic Indicators:	Silt Deposition		Water-Stained Leaves -- X		Water Marks -- X		
	Surface Scouring		Drift Lines		Drainage Patterns -- X		
	Buttressed Trees		Depth of Inundation: surface		Depth to Soil Saturation:		

Representative Soil Characteristics: X** Mineral Organic

Depth (inches)	Horizon	Texture	Matrix Color	Redox Features/Notes
0 - 16	A	Mucky sandy loam	10 YR 2/1	Oxidized rhizospheres
16+	R			

*** Soils sampled on the day of the site visit as either poorly drained, very poorly drained, alluvial, or floodplain (State of Connecticut definition of a jurisdictional wetland.)

Other Soil Observations: Soil type mapped: 17 – Timakwa and Natchaug soils (Both very poorly drained soils)

River/Stream Data: N/A Perennial Intermittent

Depth @ Center:		Bank Height:		Channel Width		Notes:		
Flow Rate:	Slow	Moderate	Fast	Bank Configuration:		Undercut	Vertical	Gradual
Substrate %:	Peat-Muck	Silt-Mud	Sand	Gravel		Cobbles	Boulders	Artificial

WETLAND SUMMARY FIELD DATA FORM

Project: Connecticut interstate – 310 Loop_____ Wetland ID: W01NL002/ W21-12 _____
 Flag Series: 100 – 108 & 200 - 211 _____ Town: Lebanon, CT _____
 Observers: T. Ramborger/J.Berg _____ Weather: 25 degrees, cloudy _____
 Date: January 17, 2008 _____ Time: 11 AM _____

Dominant NWI Class: PEM _____ Other NWI Classes: _____

Representative Vegetation (Record Species and Occurrence Percentage):

Trees: Quercus rubrum on upland banks _____ Shrubs: Lyonia ligustrina C [FACW]

Saplings/Lianas: _____ Herbs/Forbes: All C
 none _____ Juncus effuses [FACW+]
 _____ Onoclea sensibilis [FACW]
 _____ Scirpus cyperinus [FACW+]

* Species Occurrence Percentage (Noted Day of Site Visit): D = Dominant (>50%), A = Abundant (26-50%), C = Common (6-25%), S = Sparse (<5%)

** USFWS Wetland Indicator Status: OBL = Occur almost always (>99%) under normal conditions in wetlands; FACW = Usually occur in wetlands (67% - 99%); FAC = Equally likely to occur in wetlands or non-wetlands (34% - 66%); FACU = Usually occur in non-wetlands (1% - 33% occurrence in wetlands); UPL = Almost always occur under natural conditions in non-wetlands (<1% occurrence in wetlands).

Representative Hydrologic Characteristics (Circle where appropriate)

Non-Tidal:	Perm. Flooded	Semi Perm. Flooded	Seasonally Flooded -- X		Tidal:	Subtidal	Irregularly Exposed
	Saturated	Intermittently Flooded	Artificially Flooded			Reg. Flooded	Irregularly Flooded
Hydrologic Indicators:		Silt Deposition		Water-Stained Leaves -- X		Water Marks -- X	
		Surface Scouring		Drift Lines		Drainage Patterns -- X	
		Buttressed Trees		Depth of Inundation: 7"		Depth to Soil Saturation:	

Representative Soil Characteristics: X*** _____ Mineral _____ Organic

Depth (inches)	Horizon	Texture	Matrix Color	Redox Features/Notes
0 - 7	A	Mucky sandy loam	10 YR 2/1	Oxidized rhizospheres
7 - 20+	C	Sand	10 YR 2/1	--

*** Soils sampled on the day of the site visit as either poorly drained, very poorly drained, alluvial, or floodplain (State of Connecticut definition of a jurisdictional wetland.)

Other Soil Observations: Soil type mapped: 17 – Timakwa and Natchaug soils (Both very poorly drained soils)

River/Stream Data: ID# S01NL001 X _____ Perennial _____ Intermittent

Depth @ Center: 1-2'		Bank Height:		Channel Width 4-6'		Notes:		
Flow Rate:	Slow- X	Moderate	Fast		Bank Configuration:	Undercut	Vertical	Gradual X
Substrate %:	Peat-Muck	Silt-Mud	Sand 70		Gravel	Cobbles 30	Boulders	Artificial

WETLAND SUMMARY FIELD DATA FORM

Project: Connecticut Interstate – 310 Loop _____ Wetland ID: W01NL003/ W21-11 _____
 Flag Series: 400 – 410 _____ Town: Lebanon, CT _____
 Observers: T. Ramborger/J. Berg _____ Weather: 30 degrees, cloudy _____
 Date: January 17, 2008 _____ Time: 1 PM _____

Dominant NWI Class: PSS _____ Other NWI Classes: _____

Representative Vegetation (Record Species and Occurrence Percentage):

Trees: none _____ Shrubs: Cornus amomum C [FACW]
 _____ Hamamelis virginiana C [FAC-]

Saplings/Lianas: none _____ Herbs/Forbes: Onoclea sensibilis C [FACW]
 _____ Phalaris arundinacea C [FACW+]

* Species Occurrence Percentage (Noted Day of Site Visit): D = Dominant (>50%), A = Abundant (26-50%), C = Common (6-25%), S = Sparse (<5%)

** USFWS Wetland Indicator Status: OBL = Occur almost always (>99%) under normal conditions in wetlands; FACW = Usually occur in wetlands (67% - 99%); FAC = Equally likely to occur in wetlands or non-wetlands (34% - 66%); FACU = Usually occur in non-wetlands (1% - 33% occurrence in wetlands); UPL = Almost always occur under natural conditions in non-wetlands (<1% occurrence in wetlands).

Representative Hydrologic Characteristics (Circle where appropriate)

Non-Tidal:	Perm. Flooded	Semi Perm. Flooded	Seasonally Flooded -- X		Tidal:	Subtidal	Irregularly Exposed
	Saturated	Intermittently Flooded	Artificially Flooded			Reg. Flooded	Irregularly Flooded
Hydrologic Indicators:		Silt Deposition		Water-Stained Leaves -- X		Water Marks	
		Surface Scouring		Drift Lines		Drainage Patterns	
		Buttressed Trees		Depth of Inundation:		Depth to Soil Saturation:	

Representative Soil Characteristics: **X** Mineral _____ Organic

Depth (inches)	Horizon	Texture	Matrix Color	Redox Features/Notes
0 - 14	A	Mucky sandy loam	10 YR 2/1	--
14 – 20+	C	Sandy loam	10 YR 5/2	Many fine 10 YR 5/6 redoximorphic features

*** Soils sampled on the day of the site visit as either poorly drained, very poorly drained, alluvial, or floodplain (State of Connecticut definition of a jurisdictional wetland.)

Other Soil Observations: Soil type mapped: 61B – Canton and Charlton soils, 3 to 8 percent slopes, very stony

River/Stream Data: N/A _____ Perennial _____ Intermittent

Depth @ Center:		Bank Height:		Channel Width		Notes:		
Flow Rate:	Slow	Moderate	Fast	Bank Configuration:		Undercut	Vertical	Gradual
Substrate %:	Peat-Muck	Silt-Mud	Sand	Gravel		Cobbles	Boulders	Artificial

WETLAND SUMMARY FIELD DATA FORM

Project: Connecticut Interstate – 310 Loop____ Wetland ID: W01NL004/ W21-10_____
 Flag Series: 400 - 404_____ Town: Lebanon, CT _____
 Observers: T. Ramborger/J. Berg_____ Weather: 32 degrees, cloudy_____
 Date: January 17, 2008_____ Time: 3 PM_____

Dominant NWI Class: PEM_____ Other NWI Classes: _____

Representative Vegetation (Record Species and Occurrence Percentage):

Trees: none_____ Shrubs: none_____

Saplings/Lianas: none_____ Herbs/Forbes:

 Onoclea sensibilis C [FACW]
 Phalaris arundinacea C [FACW+]
 Spiraea tomentosa C [FACW]

* Species Occurrence Percentage (Noted Day of Site Visit): D = Dominant (>50%), A = Abundant (26-50%), C = Common (6-25%), S = Sparse (<5%)

** USFWS Wetland Indicator Status: OBL = Occur almost always (>99%) under normal conditions in wetlands; FACW = Usually occur in wetlands (67% - 99%); FAC = Equally likely to occur in wetlands or non-wetlands (34% - 66%); FACU = Usually occur in non-wetlands (1% - 33% occurrence in wetlands); UPL = Almost always occur under natural conditions in non-wetlands (<1% occurrence in wetlands).

Representative Hydrologic Characteristics (Circle where appropriate)

Non-Tidal:	Perm. Flooded	Semi Perm. Flooded	Seasonally Flooded -- X		Tidal:	Subtidal	Irregularly Exposed
	Saturated	Intermittently Flooded	Artificially Flooded			Reg. Flooded	Irregularly Flooded
Hydrologic Indicators: Standing water	Silt Deposition		Water-Stained Leaves -- X		Water Marks		
	Surface Scouring		Drift Lines		Drainage Patterns		
	Buttressed Trees		Depth of Inundation:		Depth to Soil Saturation:		

Representative Soil Characteristics: **X***** _____ Mineral _____ Organic

Depth (inches)	Horizon	Texture	Matrix Color	Redox Features/Notes
0 - 10	A	Mucky sandy loam	10 YR 3/2	--
10 - 12	Ab	Sandy loam	10 YR 2/1	--
12 - 20	Bb	Sandy loam	2.5 Y 5/2	Many fine 10 YR 5/6 redoximorphic features

*** Soils sampled on the day of the site visit as either poorly drained, very poorly drained, alluvial, or floodplain (State of Connecticut definition of a jurisdictional wetland.)

Other Soil Observations: Soil type mapped – 61B – Canton and Charlton soils, 3 to 8 percent slopes, very stony

River/Stream Data: N/A _____ Perennial _____ Intermittent

Depth @ Center:	Bank Height:			Channel Width	Notes:		
Flow Rate:	Slow	Moderate	Fast	Bank Configuration:	Undercut	Vertical	Gradual
Substrate %:	Peat-Muck	Silt-Mud	Sand	Gravel	Cobbles	Boulders	Artificial

WETLAND SUMMARY FIELD DATA FORM

Project: Connecticut Interstate – 310 Loop____ Wetland ID: W01NL005/ W21-09_____
 Flag Series: 300 – 333_____ Town: Lebanon, CT_____
 Observers: T. Ramborger/J. Berg_____ Weather: 10 degrees, overcast_____
 Date: January 17, 2008_____ Time: 8 AM_____

Dominant NWI Class: PFO_____ Other NWI Classes: _____

Representative Vegetation (Record Species and Occurrence Percentage):

Trees:	Acer rubrum	A [FAC]	Shrubs:	Cornus stolonifera	C [FACW+]
	Betula alleghaniensis	C [FAC]		Lonicera sp.	C [various]
	Fagus grandifolia	C [FACU]		Rosa multiflora	C [FACU]
	_____	_____		Vaccinium corymbosum	C [FACW-]
Saplings/Lianas:			Herbs/Forbes:	All C	
	Carpinus caroliniana	C [FAC]		Berberis thunbergii	[FACU]
	Hamamelis virginiana	C [FAC-]		Carex spp.	[various]
	_____	_____		Onoclea sensibilis	[FACW]
	_____	_____		Osmunda cinnamomea	[FACW]
	_____	_____		Sphagnum spp.	[OBL]

* Species Occurrence Percentage (Noted Day of Site Visit): D = Dominant (>50%), A = Abundant (26-50%), C = Common (6-25%), S = Sparse (<5%)

** USFWS Wetland Indicator Status: OBL = Occur almost always (>99%) under normal conditions in wetlands; FACW = Usually occur in wetlands (67% - 99%); FAC = Equally likely to occur in wetlands or non-wetlands (34% - 66%); FACU = Usually occur in non-wetlands (1% - 33% occurrence in wetlands); UPL = Almost always occur under natural conditions in non-wetlands (<1% occurrence in wetlands).

Representative Hydrologic Characteristics (Circle where appropriate)

Non-Tidal:	Perm. Flooded	Semi Perm. Flooded	Seasonally Flooded -- X		Tidal:	Subtidal	Irregularly Exposed
	Saturated	Intermittently Flooded	Artificially Flooded			Reg. Flooded	Irregularly Flooded
Hydrologic Indicators: Standing Water	Silt Deposition		Water-Stained Leaves -- X		Water Marks		
	Surface Scouring -- X		Drift Lines		Drainage Patterns -- X		
	Buttressed Trees		Depth of Inundation: surface		Depth to Soil Saturation:		

Representative Soil Characteristics: **X*****_____ Mineral _____ Organic

Depth (inches)	Horizon	Texture	Matrix Color	Redox Features/Notes
0 - 10	A	Mucky sandy loam	10 YR 2/1	--
10 +	R			

*** Soils sampled on the day of the site visit as either poorly drained, very poorly drained, alluvial, or floodplain (State of Connecticut definition of a jurisdictional wetland.)

Other Soil Observations: Soil types mapped: 61B – Canton & Charlton soils, 3-8% slopes, very stony & 62D – Canton & Charlton soils, 15 – 35% slopes, extremely stony

River/Stream Data: _____ Perennial _____ 2 _____ Intermittent

Depth @ Center: 1-2"		Bank Height:		Channel Width 2-3'		Notes:		
Flow Rate:	Slow- X	Moderate	Fast	Bank Configuration:		Undercut	Vertical	Gradual X
Substrate %:	Peat-Muck	Silt-Mud	Sand 20	Gravel		Cobbles 80	Boulders	Artificial

WETLAND SUMMARY FIELD DATA FORM

Project: Connecticut Interstate – 310 Loop _____ Wetland ID: W01NL006/ W21-08 _____
 Flag Series: 300 – 316 & 307 (1-20) _____ Town: Lebanon, CT _____
 Observers: T. Ramborger/J. Berg _____ Weather: 22 degrees, overcast _____
 Date: January 22, 2008 _____ Time: 10 AM _____

Dominant NWI Class: PFO _____ Other NWI Classes: PSS _____

Representative Vegetation (Record Species and Occurrence Percentage):

Trees: Acer rubrum A [FAC] _____ Shrubs: Cornus amomum C [FACW] _____

Saplings/Lianas: _____ Herbs/Forbes: All C
 none _____ Onoclea sensibilis [FACW]
 _____ Osmunda cinnamomea [FACW]
 _____ Sphagnum spp. [OBL]

* Species Occurrence Percentage (Noted Day of Site Visit): D = Dominant (>50%), A = Abundant (26-50%), C = Common (6-25%), S = Sparse (<5%)

** USFWS Wetland Indicator Status: OBL = Occur almost always (>99%) under normal conditions in wetlands; FACW = Usually occur in wetlands (67% - 99%); FAC = Equally likely to occur in wetlands or non-wetlands (34% - 66%); FACU = Usually occur in non-wetlands (1% - 33% occurrence in wetlands); UPL = Almost always occur under natural conditions in non-wetlands (<1% occurrence in wetlands).

Representative Hydrologic Characteristics (Circle where appropriate)

Non-Tidal:	Perm. Flooded	Semi Perm. Flooded	Seasonally Flooded -- X		Tidal:	Subtidal	Irregularly Exposed
	Saturated	Intermittently Flooded	Artificially Flooded			Reg. Flooded	Irregularly Flooded
Hydrologic Indicators:		Silt Deposition		Water-Stained Leaves -- X		Water Marks	
		Surface Scouring		Drift Lines		Drainage Patterns -- X	
		Buttressed Trees		Depth of Inundation:		Depth to Soil Saturation:	

Representative Soil Characteristics: **X***** _____ Mineral _____ Organic

Depth (inches)	Horizon	Texture	Matrix Color	Redox Features/Notes
0 - 12	A	Sandy loam	10 YR 2/1	--
12 – 20+	B	Sandy loam	2.5 Y 5/2-5/3	Many fine 10 YR 5/6 redoximorphic features

*** Soils sampled on the day of the site visit as either poorly drained, very poorly drained, alluvial, or floodplain (State of Connecticut definition of a jurisdictional wetland.)

Other Soil Observations: Soil type mapped: 61C – Canton and Charlton soils, 8 to 15 percent slopes, very stony

River/Stream Data: _____ Perennial **X** _____ Intermittent

Depth @ Center: 6-12"		Bank Height:		Channel Width 4-5'		Notes:		
Flow Rate:	Slow	Moderate	Fast	Bank Configuration:		Undercut	Vertical	Gradual - X
Substrate %:	Peat-Muck	Silt-Mud	Sand 20	Gravel		Cobbles 80	Boulders	Artificial

WETLAND SUMMARY FIELD DATA FORM

Project: Connecticut Interstate – 310 Loop _____ Wetland ID: W01NL007/ W21-07 _____
 Flag Series: 300 – 319 _____ Town: Lebanon, CT _____
 Observers: T. Ramborger/J. Berg _____ Weather: 32 degrees, overcast _____
 Date: January 22, 2008 _____ Time: 12 Noon _____

Dominant NWI Class: PFO _____ Other NWI Classes: _____

Representative Vegetation (Record Species and Occurrence Percentage):

Trees: Tsuga canadensis C [FACU] _____ Shrubs: Cornus amomum C [FACW]
 _____ Hamamelis virginiana C [FAC-]

Saplings/Lianas: _____ Herbs/Forbes: All C
 none _____ Onoclea sensibilis [FACW]
 _____ Osmunda cinnamomea [FACW]
 _____ Sphagnum spp. [OBL]

* Species Occurrence Percentage (Noted Day of Site Visit): D = Dominant (>50%), A = Abundant (26-50%), C = Common (6-25%), S = Sparse (<5%)

** USFWS Wetland Indicator Status: OBL = Occur almost always (>99%) under normal conditions in wetlands; FACW = Usually occur in wetlands (67% - 99%); FAC = Equally likely to occur in wetlands or non-wetlands (34% - 66%); FACU = Usually occur in non-wetlands (1% - 33% occurrence in wetlands); UPL = Almost always occur under natural conditions in non-wetlands (<1% occurrence in wetlands).

Representative Hydrologic Characteristics (Circle where appropriate)

Non-Tidal:	Perm. Flooded	Semi Perm. Flooded	Seasonally Flooded -- X		Tidal:	Subtidal	Irregularly Exposed
	Saturated	Intermittently Flooded	Artificially Flooded			Reg. Flooded	Irregularly Flooded
Hydrologic Indicators:		Silt Deposition		Water-Stained Leaves -- X		Water Marks	
		Surface Scouring -- X		Drift Lines		Drainage Patterns -- X	
		Buttressed Trees		Depth of Inundation:		Depth to Soil Saturation:	

Representative Soil Characteristics: **X***** _____ Mineral _____ Organic

Depth (inches)	Horizon	Texture	Matrix Color	Redox Features/Notes
0 - 6	A	Sandy loam	10 YR 3/2	Center of stream bed
6 – 20+	B	Sandy loam	10 YR 4/3	Center of stream bed

*** Soils sampled on the day of the site visit as either poorly drained, very poorly drained, alluvial, or floodplain (State of Connecticut definition of a jurisdictional wetland.)

Other Soil Observations: Soil type mapped: 62D – Canton and Charlton soils, 15 to 35 percent slopes, extremely stony

River/Stream Data: _____ Perennial _____ **X** _____ Intermittent

Depth @ Center: 0"	Bank Height: 1-2'			Channel Width 2-3'		Notes:		
Flow Rate:	Slow	Moderate	Fast	Bank Configuration:		Undercut	Vertical	Gradual - X
Substrate %:	Peat-Muck	Silt-Mud	Sand	Gravel		Cobbles	Boulders	Artificial

WETLAND SUMMARY FIELD DATA FORM

Project: Connecticut Interstate – 310 Loop _____ Wetland ID: W01NL008/ W21-06 _____
 Flag Series: 400 – 415 _____ Town: Lebanon, CT _____
 Observers: T. Ramborger/J. Berg _____ Weather: 32 degrees, overcast _____
 Date: January 22, 2008 _____ Time: 2 PM _____

Dominant NWI Class: PSS _____ Other NWI Classes: _____

Representative Vegetation (Record Species and Occurrence Percentage):

Trees: none _____ Shrubs: Cornus amomum C [FACW]
 _____ Lonicera sp. C [various]
 _____ Rubus sp. C [various]

Saplings/Lianas: _____ Herbs/Forbes: All C
 Juniperus virginiana C [FACU] Onoclea sensibilis [FACW]
 _____ Phalaris arundinacea [FACW+]
 _____ Spiraea latifolia [FAC]
 _____ Spiraea tomentosa [FACW]
 _____ Typha latifolia [OBL]

* Species Occurrence Percentage (Noted Day of Site Visit): D = Dominant (>50%), A = Abundant (26-50%), C = Common (6-25%), S = Sparse (<5%)

** USFWS Wetland Indicator Status: OBL = Occur almost always (>99%) under normal conditions in wetlands; FACW = Usually occur in wetlands (67% - 99%); FAC = Equally likely to occur in wetlands or non-wetlands (34% - 66%); FACU = Usually occur in non-wetlands (1% - 33% occurrence in wetlands); UPL = Almost always occur under natural conditions in non-wetlands (<1% occurrence in wetlands).

Representative Hydrologic Characteristics (Circle where appropriate)

Non-Tidal:	Perm. Flooded	Semi Perm. Flooded	Seasonally Flooded -- X		Tidal:	Subtidal	Irregularly Exposed
	Saturated	Intermittently Flooded	Artificially Flooded			Reg. Flooded	Irregularly Flooded
Hydrologic Indicators: Standing water	Silt Deposition		Water-Stained Leaves -- X		Water Marks		
	Surface Scouring		Drift Lines		Drainage Patterns		
	Buttressed Trees		Depth of Inundation: surface		Depth to Soil Saturation:		

Representative Soil Characteristics: **X***** _____ Mineral _____ Organic

Depth (inches)	Horizon	Texture	Matrix Color	Redox Features/Notes
0 - 12	A	Mucky sandy loam	10 YR 2/1	--
12+	R			

*** Soils sampled on the day of the site visit as either poorly drained, very poorly drained, alluvial, or floodplain (State of Connecticut definition of a jurisdictional wetland.)

Other Soil Observations: Soil type mapped: 62D – Canton and Charlton soils, 15 to 35 percent slopes, extremely stony

River/Stream Data: N/A _____ Perennial _____ Intermittent

Depth @ Center:	Bank Height:			Channel Width		Notes:		
Flow Rate:	Slow	Moderate	Fast	Bank Configuration:		Undercut	Vertical	Gradual
Substrate %:	Peat-Muck	Silt-Mud	Sand	Gravel		Cobbles	Boulders	Artificial

WETLAND SUMMARY FIELD DATA FORM

Project: Connecticut Interstate – 310 Loop _____ Wetland ID: W01NL009// W21-05 _____
 Flag Series: 100 – 111 & 200 - 207 _____ Town: Lebanon, CT _____
 Observers: T. Ramborger/J. Berg _____ Weather: 32 degrees, snowing _____
 Date: January 22, 2008 _____ Time: 3 PM _____

Dominant NWI Class: PSS _____ Other NWI Classes: PFO _____

Representative Vegetation (Record Species and Occurrence Percentage):

Trees: none _____ Shrubs: Cornus amomum A [FACW]
 _____ Lonicera sp. C [various]
 _____ Rubus sp. C [various]

 Saplings/Lianas: Herbs/Forbes: All C
 none _____ Onoclea sensibilis [FACW]
 _____ Osmunda cinnamomea [FACW]
 _____ Solidago spp. [various]

* Species Occurrence Percentage (Noted Day of Site Visit): D = Dominant (>50%), A = Abundant (26-50%), C = Common (6-25%), S = Sparse (<5%)

** USFWS Wetland Indicator Status: OBL = Occur almost always (>99%) under normal conditions in wetlands; FACW = Usually occur in wetlands (67% - 99%); FAC = Equally likely to occur in wetlands or non-wetlands (34% - 66%); FACU = Usually occur in non-wetlands (1% - 33% occurrence in wetlands); UPL = Almost always occur under natural conditions in non-wetlands (<1% occurrence in wetlands).

Representative Hydrologic Characteristics (Circle where appropriate)

Non-Tidal:	Perm. Flooded	Semi Perm. Flooded	Seasonally Flooded -- X		Tidal:	Subtidal	Irregularly Exposed
	Saturated	Intermittently Flooded	Artificially Flooded			Reg. Flooded	Irregularly Flooded
Hydrologic Indicators:	Silt Deposition		Water-Stained Leaves -- X		Water Marks		
	Surface Scouring -- X		Drift Lines		Drainage Patterns -- X		
	Buttressed Trees		Depth of Inundation:		Depth to Soil Saturation:		

Representative Soil Characteristics: **X***** _____ Mineral _____ Organic

Depth (inches)	Horizon	Texture	Matrix Color	Redox Features/Notes
0 - 14	A	Sandy loam	10 YR 2/1	--
14 – 20+	B	Sandy loam	2.5 Y 5/2-5/3	Many fine 10 YR 5/6 redoximorphic features

*** Soils sampled on the day of the site visit as either poorly drained, very poorly drained, alluvial, or floodplain (State of Connecticut definition of a jurisdictional wetland.)

Other Soil Observations: Soil type mapped: 3 – Ridgebury, Leicester, and Whitman soils, extremely stony (Poorly drained, poorly drained, and very poorly drained soils, respectively)

River/Stream Data: _____ Perennial _____ **X** _____ Intermittent

Depth @ Center: 1-2"	Bank Height:			Channel Width 5-6'	Notes:		
Flow Rate:	Slow- X	Moderate	Fast	Bank Configuration:	Undercut	Vertical	Gradual - X
Substrate %:	Peat-Muck	Silt-Mud	Sand-20	Gravel	Cobbles 80	Boulders	Artificial

WETLAND SUMMARY FIELD DATA FORM

Project: Connecticut Interstate – 310 Loop _____ Wetland ID: W01NL010/ W21-04 _____
 Flag Series: 400 – 407 _____ Town: Lebanon, CT _____
 Observers: T. Ramborger/J. Berg _____ Weather: 28 degrees, overcast _____
 Date: January 23, 2008 _____ Time: 8 AM _____

Dominant NWI Class: PEM _____ Other NWI Classes: PSS _____

Representative Vegetation (Record Species and Occurrence Percentage):

Trees: none _____ Shrubs: Cornus amomum A [FACW]
 _____ Juniperus virginiana C [FACU]
 _____ Rosa multiflora C [FACU]

 Saplings/Lianas: _____ Herbs/Forbes: _____
 none _____ Carex spp. C [various]
 _____ Juncus sp. C [various]
 _____ Onoclea sensibilis A [FACW]
 _____ Solidago spp. C [various]
 _____ Spiraea tomentosa A [FACW]

* Species Occurrence Percentage (Noted Day of Site Visit): D = Dominant (>50%), A = Abundant (26-50%), C = Common (6-25%), S = Sparse (<5%)

** USFWS Wetland Indicator Status: OBL = Occur almost always (>99%) under normal conditions in wetlands; FACW = Usually occur in wetlands (67% - 99%); FAC = Equally likely to occur in wetlands or non-wetlands (34% - 66%); FACU = Usually occur in non-wetlands (1% - 33% occurrence in wetlands); UPL = Almost always occur under natural conditions in non-wetlands (<1% occurrence in wetlands).

Representative Hydrologic Characteristics (Circle where appropriate)

Non-Tidal:	Perm. Flooded	Semi Perm. Flooded	Seasonally Flooded		Tidal:	Subtidal	Irregularly Exposed
	Saturated	Intermittently Flooded	Artificially Flooded			Reg. Flooded	Irregularly Flooded
Hydrologic Indicators:	Silt Deposition		Water-Stained Leaves -- X		Water Marks		
Standing water	Surface Scouring		Drift Lines		Drainage Patterns -- X		
	Buttressed Trees		Depth of Inundation:		Depth to Soil Saturation:		

Representative Soil Characteristics: **X***** _____ Mineral _____ Organic

Depth (inches)	Horizon	Texture	Matrix Color	Redox Features/Notes
0 - 12	A	Sandy loam	10 YR 2/1	--
12 – 20+	B	Sandy loam	10 YR 4/2	Many 10 YR 5/6 redoximorphic features

*** Soils sampled on the day of the site visit as either poorly drained, very poorly drained, alluvial, or floodplain (State of Connecticut definition of a jurisdictional wetland.)

Other Soil Observations: Soil type mapped: 3 – Ridgebury, Leicester, and Whitman soils, extremely stony (Poorly drained, poorly drained, and very poorly drained soils, respectively)

River/Stream Data: N/A _____ Perennial _____ Intermittent

Depth @ Center:	Bank Height:			Channel Width		Notes:		
Flow Rate:	Slow	Moderate	Fast	Bank Configuration:		Undercut	Vertical	Gradual
Substrate %:	Peat-Muck	Silt-Mud	Sand	Gravel		Cobbles	Boulders	Artificial

WETLAND SUMMARY FIELD DATA FORM

Project: Connecticut Interstate – 310 Loop _____ Wetland ID: W01NL011/ W21-03 _____
 Flag Series: 300 – 315 _____ Town: Lebanon, CT _____
 Observers: T. Ramborger/J. Berg _____ Weather: 30 degrees, overcast _____
 Date: January 23, 2008 _____ Time: 9 AM _____

Dominant NWI Class: PEM _____ Other NWI Classes: PSS _____

Representative Vegetation (Record Species and Occurrence Percentage):

Trees: none _____ Shrubs: Juniperus virginiana – off ROW __
 _____ Rosa multiflora – off ROW _____

 Saplings/Lianas: _____ Herbs/Forbes: _____
 none _____ Osmunda cinnamomea – off ROW
 _____ Onoclea sensibilis A [FACW]
 _____ Carex spp. C [various]
 _____ Juncus sp. C [various]
 _____ Solidago spp. C [various]

* Species Occurrence Percentage (Noted Day of Site Visit): D = Dominant (>50%), A = Abundant (26-50%), C = Common (6-25%), S = Sparse (<5%)

** USFWS Wetland Indicator Status: OBL = Occur almost always (>99%) under normal conditions in wetlands; FACW = Usually occur in wetlands (67% - 99%); FAC = Equally likely to occur in wetlands or non-wetlands (34% - 66%); FACU = Usually occur in non-wetlands (1% - 33% occurrence in wetlands); UPL = Almost always occur under natural conditions in non-wetlands (<1% occurrence in wetlands).

Representative Hydrologic Characteristics (Circle where appropriate)

Non-Tidal:	Perm. Flooded	Semi Perm. Flooded	Seasonally Flooded -- X		Tidal:	Subtidal	Irregularly Exposed
	Saturated	Intermittently Flooded	Artificially Flooded			Reg. Flooded	Irregularly Flooded
Hydrologic Indicators: Standing water	Silt Deposition		Water-Stained Leaves -- X		Water Marks		
	Surface Scouring		Drift Lines		Drainage Patterns -- X		
	Buttressed Trees		Depth of Inundation:		Depth to Soil Saturation:		

Representative Soil Characteristics: **X***** _____ Mineral _____ Organic

Depth (inches)	Horizon	Texture	Matrix Color	Redox Features/Notes
0 - 14	A	Sandy loam	10 YR 2/1	--
14 – 20+	B	Sandy loam	10 YR 4/2-3/2	--

*** Soils sampled on the day of the site visit as either poorly drained, very poorly drained, alluvial, or floodplain (State of Connecticut definition of a jurisdictional wetland.)

Other Soil Observations: Soil type mapped: 3 – Ridgebury, Leicester, and Whitman soils, extremely stony (Poorly drained, poorly drained, and very poorly drained soils, respectively)

River/Stream Data: N/A _____ Perennial _____ Intermittent

Depth @ Center:	Bank Height:			Channel Width		Notes:		
Flow Rate:	Slow	Moderate	Fast	Bank Configuration:		Undercut	Vertical	Gradual
Substrate %:	Peat-Muck	Silt-Mud	Sand	Gravel		Cobbles	Boulders	Artificial

WETLAND SUMMARY FIELD DATA FORM

Project: Connecticut Interstate – 310 Loop____ Wetland ID: W01NL012/ W21-02____
 Flag Series: 300 – 310 _____ Town: Lebanon, CT _____
 Observers: T. Ramborger/J. Berg _____ Weather: 30 degrees, overcast _____
 Date: January 23, 2008 _____ Time: 10 AM _____

Dominant NWI Class: PSS _____ Other NWI Classes: _____

Representative Vegetation (Record Species and Occurrence Percentage):

Trees: none _____ Shrubs: Cornus amomum C [FACW]

Saplings/Lianas: Herbs/Forbes: All C
 Alnus rugosa C [FACW+] Onoclea sensibilis [FACW]
 Carpinus caroliniana C [FAC] Osmunda cinnamomea [FACW]
 _____ Phragmites australis [FACW]

* Species Occurrence Percentage (Noted Day of Site Visit): D = Dominant (>50%), A = Abundant (26-50%), C = Common (6-25%), S = Sparse (<5%)

** USFWS Wetland Indicator Status: OBL = Occur almost always (>99%) under normal conditions in wetlands; FACW = Usually occur in wetlands (67% - 99%); FAC = Equally likely to occur in wetlands or non-wetlands (34% - 66%); FACU = Usually occur in non-wetlands (1% - 33% occurrence in wetlands); UPL = Almost always occur under natural conditions in non-wetlands (<1% occurrence in wetlands).

Representative Hydrologic Characteristics (Circle where appropriate)

Non-Tidal:	Perm. Flooded	Semi Perm. Flooded	Seasonally Flooded -- X		Tidal:	Subtidal	Irregularly Exposed
	Saturated	Intermittently Flooded	Artificially Flooded			Reg. Flooded	Irregularly Flooded
Hydrologic Indicators:	Silt Deposition		Water-Stained Leaves -- X		Water Marks		
	Surface Scouring		Drift Lines		Drainage Patterns -- X		
	Buttressed Trees		Depth of Inundation:		Depth to Soil Saturation:		

Representative Soil Characteristics: _____ **X***** _____ Mineral _____ Organic

Depth (inches)	Horizon	Texture	Matrix Color	Redox Features/Notes
0 - 8	A	Sandy loam	10 YR 3/1	--
8 - 18	B	Sandy loam	10 YR 2/1	--
18+	R			

*** Soils sampled on the day of the site visit as either poorly drained, very poorly drained, alluvial, or floodplain (State of Connecticut definition of a jurisdictional wetland.)

Other Soil Observations: Soil type mapped: 84D – Paxton and Montauk fine sandy loams, 15 to 25 percent slopes

River/Stream Data: N/A _____ Perennial _____ Intermittent

Depth @ Center:		Bank Height:		Channel Width	Notes:		
Flow Rate:	Slow	Moderate	Fast	Bank Configuration:	Undercut	Vertical	Gradual
Substrate %:	Peat-Muck	Silt-Mud	Sand	Gravel	Cobbles	Boulders	Artificial

WETLAND SUMMARY FIELD DATA FORM

Project: Connecticut Interstate – 310 Loop _____ Wetland ID: W01NI014/ W21-14 _____
 Flag Series: 300 – 309 _____ Town: Lebanon, CT _____
 Observers: T. Ramborger/J. Berg _____ Weather: 32 degrees, overcast _____
 Date: January 23, 2008 _____ Time: 12 noon _____

Dominant NWI Class: PFO _____ Other NWI Classes: _____

Representative Vegetation (Record Species and Occurrence Percentage):

Trees: Acer rubrum A [FAC] Shrubs: Vaccinium corymbosum C [FACW]
 Betula allahaniensis C [FAC]

Saplings/Lianas: Carpinus caroliniana C [FAC] Herbs/Forbes: Onoclea sensibilis C [FACW]
 _____ Impatiens capensis C [FACW]
 _____ Maianthemum canadense C [FAC-]

* Species Occurrence Percentage (Noted Day of Site Visit): D = Dominant (>50%), A = Abundant (26-50%), C = Common (6-25%), S = Sparse (<5%)

** USFWS Wetland Indicator Status: OBL = Occur almost always (>99%) under normal conditions in wetlands; FACW = Usually occur in wetlands (67% - 99%); FAC = Equally likely to occur in wetlands or non-wetlands (34% - 66%); FACU = Usually occur in non-wetlands (1% - 33% occurrence in wetlands); UPL = Almost always occur under natural conditions in non-wetlands (<1% occurrence in wetlands).

Representative Hydrologic Characteristics (Circle where appropriate)

Non-Tidal:	Perm. Flooded	Semi Perm. Flooded	Seasonally Flooded -- X		Tidal:	Subtidal	Irregularly Exposed
	Saturated	Intermittently Flooded	Artificially Flooded			Reg. Flooded	Irregularly Flooded
Hydrologic Indicators:	Silt Deposition		Water-Stained Leaves -- X		Water Marks		
Standing water	Surface Scouring		Drift Lines		Drainage Patterns -- X		
	Buttressed Trees		Depth of Inundation: surface		Depth to Soil Saturation:		

Representative Soil Characteristics: _____ **X**** _____ Mineral _____ Organic

Depth (inches)	Horizon	Texture	Matrix Color	Redox Features/Notes
0 - 10	A	Sandy loam	10 YR 2/1	--
10 – 20+	C	Sand	10 YR 6/1	--

*** Soils sampled on the day of the site visit as either poorly drained, very poorly drained, alluvial, or floodplain (State of Connecticut definition of a jurisdictional wetland.)

Other Soil Observations: Soil type mapped: 17 – Timakwa and Natchaug soils (Both very poorly drained soils)

River/Stream Data: N/A _____ Perennial _____ Intermittent

Depth @ Center:	Bank Height:			Channel Width	Notes:		
Flow Rate:	Slow	Moderate	Fast	Bank Configuration:	Undercut	Vertical	Gradual
Substrate %:	Peat-Muck	Silt-Mud	Sand	Gravel	Cobbles	Boulders	Artificial

WETLAND SUMMARY FIELD DATA FORM

Project: Connecticut Interstate – 310 Loop____ Wetland ID: W01NL015/ W21-16____
 Flag Series: 300 – 305_____ Town: Lebanon, CT_____
 Observers: T. Ramborger/J. Berg_____ Weather: 35 degrees, overcast_____
 Date: January 23, 2008_____ Time: 1 PM_____

Dominant NWI Class: PFO_____ Other NWI Classes: _____

Representative Vegetation (Record Species and Occurrence Percentage):

Trees: Acer rubrum A [FAC] Shrubs: Lindera benzoin C [FACW-]
 Betula alleghaniensis C [FAC] Vaccinium corymbosum C [FACW-]

Saplings/Lianas:

Carpinus caroliniana C [FACU]

Herbs/Forbes:

Onoclea sensibilis C [FACW]
 Osmunda cinnamomea C [FACW]
 Parthenocissus quinquefolia A [FACU]
 Symplocarpus foetidus A [OBL]

* Species Occurrence Percentage (Noted Day of Site Visit): D = Dominant (>50%), A = Abundant (26-50%), C = Common (6-25%), S = Sparse (<5%)

** USFWS Wetland Indicator Status: OBL = Occur almost always (>99%) under normal conditions in wetlands; FACW = Usually occur in wetlands (67% - 99%); FAC = Equally likely to occur in wetlands or non-wetlands (34% - 66%); FACU = Usually occur in non-wetlands (1% - 33% occurrence in wetlands); UPL = Almost always occur under natural conditions in non-wetlands (<1% occurrence in wetlands).

Representative Hydrologic Characteristics (Circle where appropriate)

Non-Tidal:	Perm. Flooded	Semi Perm. Flooded	Seasonally Flooded -- X		Tidal:	Subtidal	Irregularly Exposed
	Saturated	Intermittently Flooded	Artificially Flooded			Reg. Flooded	Irregularly Flooded
Hydrologic Indicators:	Silt Deposition		Water-Stained Leaves -- X		Water Marks		
	Surface Scouring		Drift Lines		Drainage Patterns		
	Buttressed Trees		Depth of Inundation:		Depth to Soil Saturation:		

Representative Soil Characteristics: **X***** Mineral Organic

Depth (inches)	Horizon	Texture	Matrix Color	Redox Features/Notes
0 - 8	A	Sandy loam	10 YR 2/1	--
8 - 20+	B	Sandy loam	7.5 YR 6/1	Many fine 10 YR 5/6 redoximorphic features

*** Soils sampled on the day of the site visit as either poorly drained, very poorly drained, alluvial, or floodplain (State of Connecticut definition of a jurisdictional wetland.)

Other Soil Observations: Soil type mapped: 51B – Sutton fine sandy loam, 2 to 8 percent slopes, very stony

River/Stream Data: N/A Perennial Intermittent

Depth @ Center:	Bank Height:			Channel Width	Notes:		
Flow Rate:	Slow	Moderate	Fast	Bank Configuration:	Undercut	Vertical	Gradual
Substrate %:	Peat-Muck	Silt-Mud	Sand	Gravel	Cobbles	Boulders	Artificial

WETLAND SUMMARY FIELD DATA FORM

Project: Connecticut Interstate – 310 Loop _____ Wetland ID: W01NL016/ W21-15 _____
 Flag Series: 300 – 340 _____ Town: Lebanon, CT _____
 Observers: T. Ramborger/J. Berg _____ Weather: 35 degrees, overcast _____
 Date: January 23, 2008 _____ Time: 2 PM _____

Dominant NWI Class: PFO _____ Other NWI Classes: _____

Representative Vegetation (Record Species and Occurrence Percentage):

Trees:	Acer rubrum	A [FAC]	Shrubs:	Cornus amomum	C [FACW]
	Betula alleghaniensis	C[FAC]		Lindera benzoin	C [FACW-]
	_____			Rosa multiflora	C [FACU]
	_____			Vaccinium corymbosum	C [FACW-]
Saplings/Lianas:			Herbs/Forbes:	All C	
	Hamamelis virginiana	C [FAC-]		Onoclea sensibilis	[FACW]
	_____			Osmunda cinnamomea	[FACW]
	_____			Sphagnum spp.	[OBL]
	_____			Symplocarpus foetidus	[OBL]

* Species Occurrence Percentage (Noted Day of Site Visit): D = Dominant (>50%), A = Abundant (26-50%), C = Common (6-25%), S = Sparse (<5%)

** USFWS Wetland Indicator Status: OBL = Occur almost always (>99%) under normal conditions in wetlands; FACW = Usually occur in wetlands (67% - 99%); FAC = Equally likely to occur in wetlands or non-wetlands (34% - 66%); FACU = Usually occur in non-wetlands (1% - 33% occurrence in wetlands); UPL = Almost always occur under natural conditions in non-wetlands (<1% occurrence in wetlands).

Representative Hydrologic Characteristics (Circle where appropriate)

Non-Tidal:	Perm. Flooded	Semi Perm. Flooded	Seasonally Flooded -- X		Tidal:	Subtidal	Irregularly Exposed
	Saturated	Intermittently Flooded	Artificially Flooded			Reg. Flooded	Irregularly Flooded
Hydrologic Indicators:	Silt Deposition		Water-Stained Leaves -- X		Water Marks -- X		
Standing water	Surface Scouring		Drift Lines		Drainage Patterns -- X		
	Buttressed Trees		Depth of Inundation:		Depth to Soil Saturation:		

Representative Soil Characteristics: _____ **X***** _____ Mineral _____ Organic

Depth (inches)	Horizon	Texture	Matrix Color	Redox Features/Notes
0 - 4	A	Sandy loam	10 YR 2/1	--
4 - 12	B	Sandy loam	10 YR 5/1	Many fine 10 YR 5/6 redoximorphic features
12+	R			

*** Soils sampled on the day of the site visit as either poorly drained, very poorly drained, alluvial, or floodplain (State of Connecticut definition of a jurisdictional wetland.)

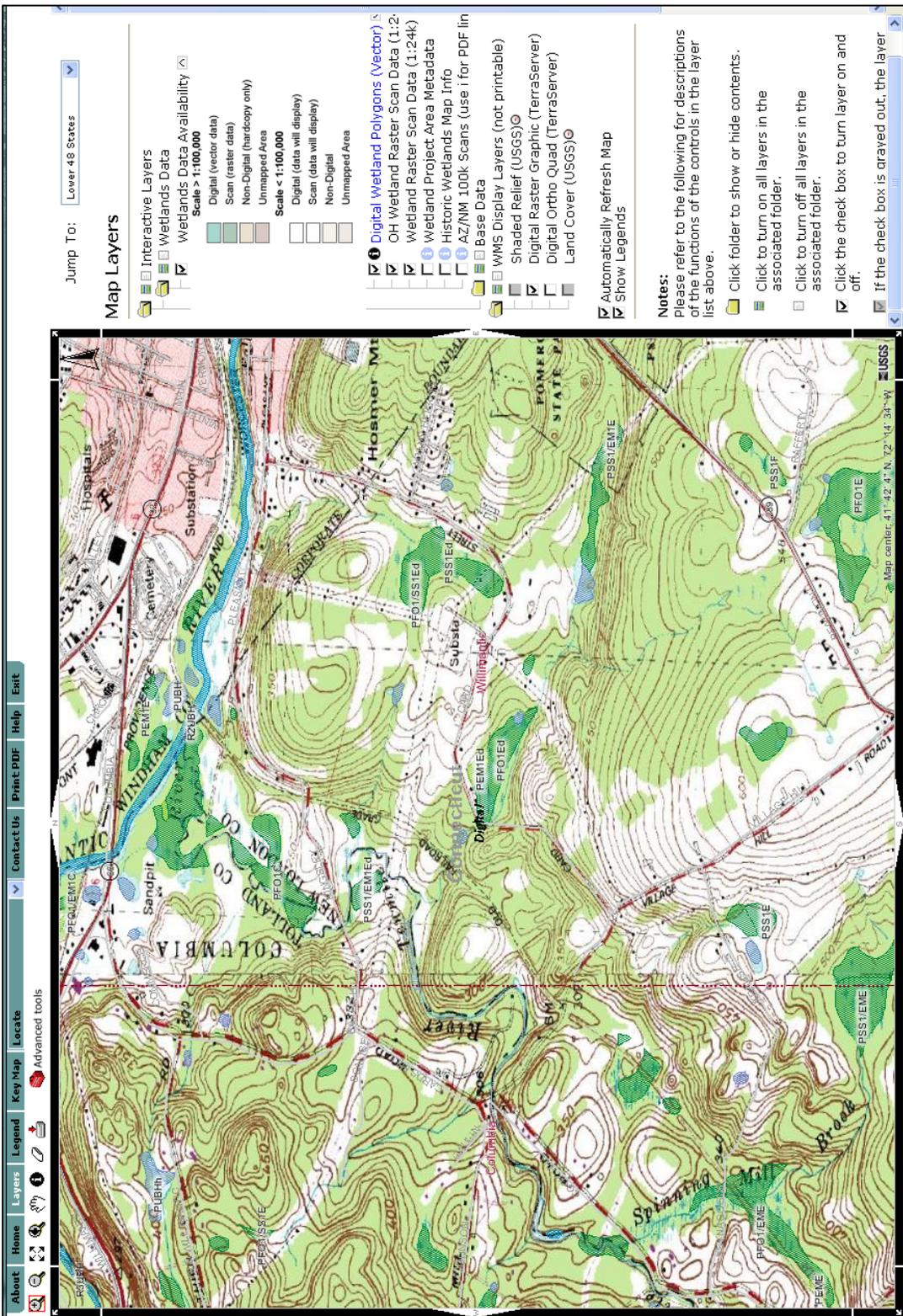
Other Soil Observations: Soil types mapped: 73C – Charlton-Chatfield complex, 3-15% slopes, very rocky & 307-Urban land

River/Stream Data: N/A _____ Perennial _____ Intermittent

Depth @ Center:	Bank Height:			Channel Width		Notes:		
Flow Rate:	Slow	Moderate	Fast	Bank Configuration:		Undercut	Vertical	Gradual
Substrate %:	Peat-Muck	Silt-Mud	Sand	Gravel		Cobbles	Boulders	Artificial

Attachment D

Hydric Soil and Wetland Mapping Resources



Legend

NWI Wetland



Figure 1
Example of NWI Information
Source: USFWS, Geocortex Internet Mapping



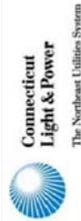
Legend

- Substation
- 1000 ft Study Corridor
- Blue Route
- Brown Route
- Card Street to Village Hill Road Jct.

- CT DEP Wetlands
- NWI Wetlands
- Rivers
- Lakes



Figure 2
 Example of CT DEP Information
 Source: ENSR 2007; State of Connecticut GIS Data



ENSR | AECOM

Area of Interest (AOI)

Soil Map

Soil Data Explorer

Shopping Cart

Printable Version

Add to Shopping Cart

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
3	Ridgebury, Leicester, and Whitman soils, extremely stony	38.8	8.4%
17	Timakwa and Natchaug soils	33.1	7.1%
34A	Merrimac sandy loam, 0 to 3 percent slopes	1.7	0.4%
38C	Hinckley gravelly sandy loam, 3 to 15 percent slopes	0.5	0.1%
45B	Woodbridge fine sandy loam, 3 to 8 percent slopes	13.9	3.0%
46B	Woodbridge fine sandy loam, 2 to 8 percent slopes, very stony	13.9	3.0%
47C	Woodbridge fine sandy loam, 2 to 15 percent slopes, extremely stony	17.9	3.9%
51B	Sutton fine	13.1	2.8%
Totals for Area of Interest (AOI)		463.4	100.0%

Soil Map

Legend



Legend

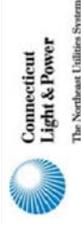
17 Map Unit Symbol



Figure 3

Example of Soil Survey Information

Source: NRCS, Web Soil Survey 2.0



The Northeast Utilities System

