Connecticut Light & Power
A Northeast Utilities Company

NEW ENGLAND EAST WEST SOLUTION

DEVELOPMENT AND MANAGEMENT PLAN

FOR CONSTRUCTION OF THE

INTERSTATE RELIABILITY PROJECT

MODIFICATIONS TO THE
CARD STREET SUBSTATION,
LAKE ROAD SWITCHING STATION,
AND KILLINGLY SUBSTATION

VOLUME 1

SUBMITTED FOR CONNECTICUT SITING COUNCIL APPROVAL

AUGUST 2013

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1. INTRODUCTION

1.1 PROJECT OVERVIEW AND PURPOSE OF THE PLAN

The Connecticut Light and Power Company (CL&P), a wholly-owned subsidiary of Northeast Utilities (NU), along with The Narragansett Electric Company and New England Power Company (both of which are wholly-owned subsidiaries of National Grid USA [National Grid]), will construct, operate, and maintain approximately 75 miles of new 345-kilovolt (kV) electric transmission lines and perform related modifications and improvements to existing 345-kV and 115-kV transmission lines and substation and switching station facilities in northeastern Connecticut, northwestern Rhode Island, and south-central Massachusetts (refer to Figure 1-1). These electric transmission system modifications, referred to as the Interstate Reliability Project (Project), will improve the bulk power electric transmission system in Southern New England and achieve future compliance with applicable national and regional reliability standards and criteria.

CL&P's portion of the Project, which will extend through 11 towns in northeastern Connecticut (refer to Figure 1-2), will consist of the following facilities:

- Approximately 36.8 miles of new overhead 345-kV electric transmission lines extending between CL&P's Card Street Substation in the Town of Lebanon, Lake Road Switching Station in the Town of Killingly, and the Connecticut/Rhode Island border (in the Town of Thompson). The new 345-kV overhead transmission lines (designated in the CL&P system as the 3271 Line and the 341 Line) will be aligned adjacent to the existing 345-kV overhead transmission lines that presently occupy existing CL&P rights-of-way (ROWs).[1]

- Related equipment additions and modifications at CL&P's existing Card Street Substation, Lake Road Switching Station, and Killingly Substation (in the Town of Killingly).

On December 23, 2011, CL&P submitted to the Connecticut Siting Council (Council) an Application for a Certificate of Environmental Compatibility and Public Need for the Connecticut portion of the Project (Council Docket No. 424). After public meetings, evidentiary hearings, and related technical reviews, the Council approved the Connecticut portion of the Project on December 27, 2012. Condition No. 3 of the Council's Decision and Order approving the Project requires that CL&P prepare a Development and Management (D&M) Plan, in whole or in parts, in compliance with Sections 16-50j-60 through 16-50j-62 of the Regulations of Connecticut State Agencies (RCSA; *Requirements for a D&M Plan, Elements of a D&M Plan, Reporting Requirements*).

[1] The new 3271 Line will extend approximately 29.3 miles from Card Street Substation to Lake Road Switching Station adjacent to CL&P's existing 330 Line, whereas the new 341 Line will extend approximately 7.5 miles from Lake Road Switching Station to the Connecticut / Rhode Island border adjacent to CL&P's existing 3348 Line and then the existing 347 Line.

Figure 1-1: Interstate Reliability Project: General Location Map

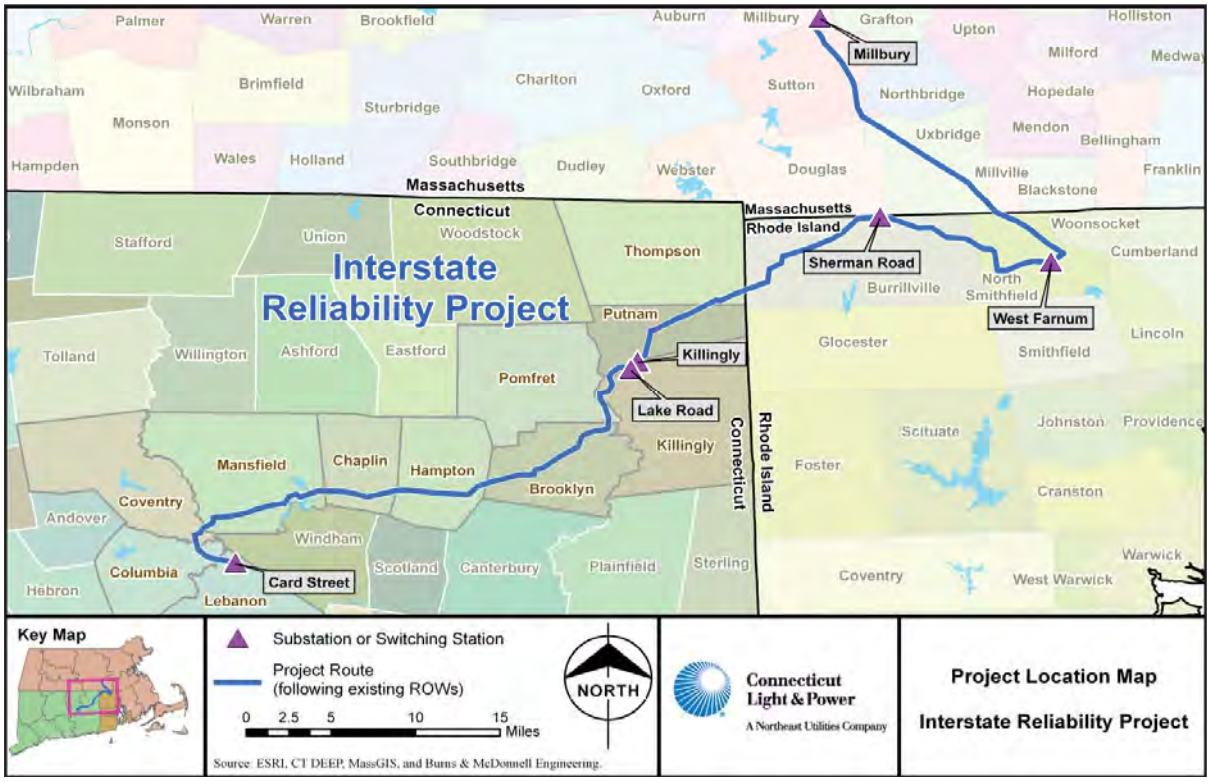
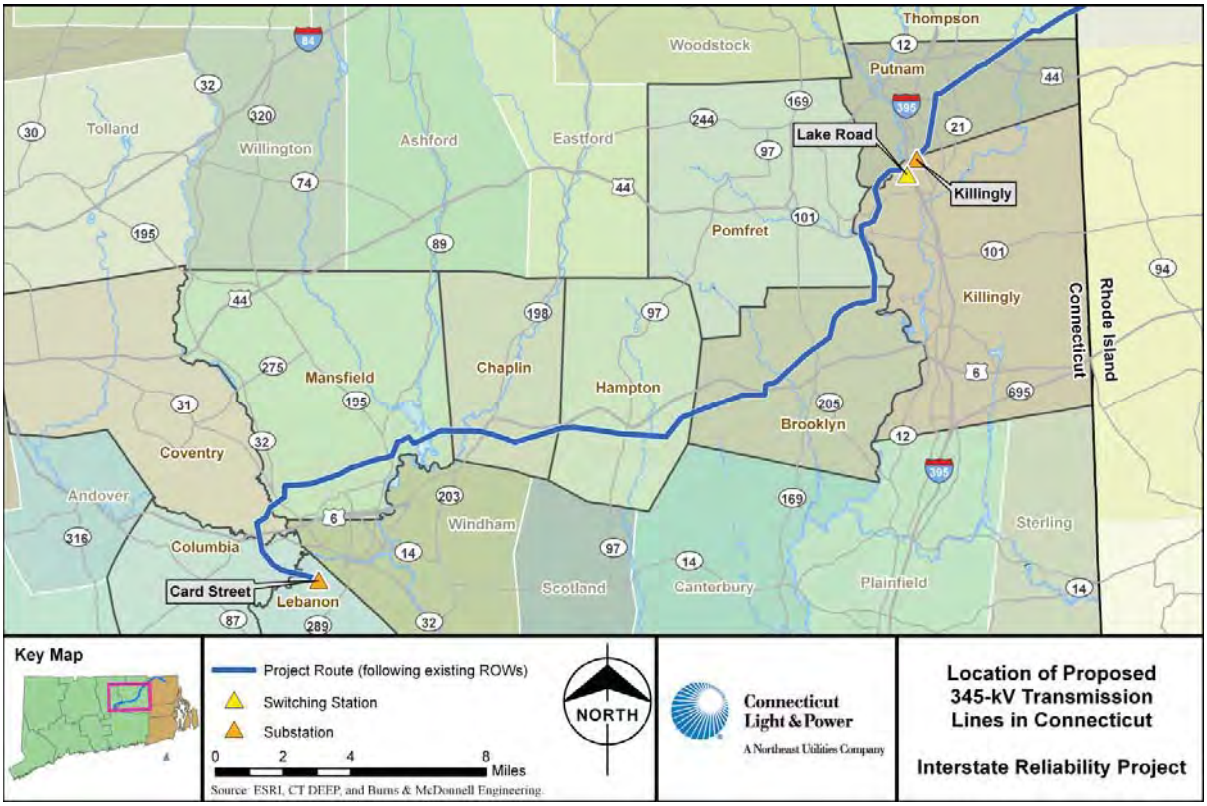


Figure 1-2: Interstate Reliability Project: Connecticut



Accordingly, CL&P has elected to prepare two D&M Plans for the Project, as follows:

- A D&M Plan that addresses all construction activities for the modifications to Card Street Substation, Lake Road Switching Station, and Killingly Substation; and

- A D&M Plan that addresses all construction activities for the overhead transmission lines.

This D&M Plan encompasses construction activities associated with the Project modifications to Card Street Substation, Lake Road Switching Station, and Killingly Substation. The modifications to Card Street Substation and Lake Road Switching Station are required to interconnect the new 345-kV transmission lines to the existing transmission system. Killingly Substation will not be interconnected to the new 345-kV transmission lines, but the new 341 Line will extend over the substation, requiring the installation of two structures within the substation fence line.

None of the Project modifications will require the acquisition of any additional property from private landowners or expansion of the stations' existing developed (fenced) areas. Except for the installation of a second ground-grid wire adjacent to, but outside of, the Lake Road Switching Station fence on two sides, and the use of temporary construction support sites, all of the Project substation and switching station construction activities will be within previously developed (graveled) areas within the existing fenced portions of the stations.

1.2 ORGANIZATION OF THE D&M PLAN

The Project modifications to Card Street Substation, Lake Road Switching Station, and Killingly Substation will involve common Project construction procedures and plans, as well as station-specific work requirements. In addition, the construction activities at the three stations must conform to relevant Project-wide requirements, such as NU's Best Management Practices (BMPs) for environmental protection and the Council's certificate and other permit conditions.

To address both the procedures unique to the substation and switching station modifications and the Project-wide requirements applicable to such work, this D&M Plan consists of two volumes:

- **Volume 1** includes specific information relevant to the Project modifications to the Card Street Substation, Lake Road Switching Station, and Killingly Substation.

  The main text of Volume 1 (Sections 1 through 8) includes general Project data and procedures that are pertinent to work at all three of the stations, including regulatory requirements, general Project construction procedures and plans, overall construction schedule, environmental inspection, public outreach, and a process for notifying and requesting approval from the Council for changes to the D&M Plan.

  Table 1-1summarizes each of the Council's D&M Plan requirements, pursuant to RCSA Sections 16-50j-60 through 16-50j-62, while Table 1-2 identifies the requirements pertaining to stations contained in the Council's Decision and Order and Opinion for the Project. For each D&M Plan requirement, Tables 1-1 and 1-2 either identify the location in this D&M Plan where the requirement is addressed or states why the requirement is not relevant to the

substation and switching station modifications. All of the station modifications will be implemented in upland areas, within or directly abutting presently developed, fenced portions of the three station sites. As a result, certain regulatory requirements (e.g., those pertaining to water resources, forested vegetation clearing, and active farmland protection) are not applicable to the station modifications and thus are not included in this D&M Plan.

Appendices A, B, and C to Volume 1 provide detailed, site-specific construction information, plans, and drawings regarding the modifications to Card Street Substation, Lake Road Switching Station, and Killingly Substation, respectively. Such information includes:

- Station location information (U.S. Geological Survey key map, land ownership, site acreage)

- Key environmental and land-use features

Description of station modifications and construction activities

- Site-specific construction procedures and plans, including locations of construction support areas, site access, traffic control, temporary spoil storage, erosion and sedimentation control measures, spill prevention and control measures, and site restoration

- Detailed drawings

- **Volume 2** includes Project-wide approvals, plans, guidelines, and specifications that apply universally to the construction activities at Card Street Substation, Lake Road Switching Station, and Killingly Substation. In particular, Volume 2 includes the following:

  - The Council's Decision and Order and Opinion for the Project (Attachment A)

  - Spill Prevention and Countermeasures Plan (SPCP) (Attachment B)

  - Guidance for Soils and Groundwater Management (Attachment C)

  - Snow Removal and De-Icing Procedures (Attachment D)

  - NU's *BMP Manual: Connecticut (Construction and Maintenance Environmental Requirements)* (Attachment E)

  - Connecticut Department of Energy and Environmental Protection (CT DEEP) General Permit for the Discharge of Stormwater and Dewatering Wastewaters Associated with Construction Activities (Attachment F)

  - Agency correspondence and public outreach documentation relevant to the D&M Plan process for the station modifications (Attachment G)

Table 1-1
D&M Plan Directory
Card Street and Killingly Substations and Lake Road Switching Station
(Compliance with Regulations of Connecticut State Agencies Sections 16-50j-60, -61 and -62)

R.C.S.A Section	Description	D&M Plan (Section Reference, as Applicable)
16-50j-60	**Requirements for a D&M Plan**	
(a)	**Purpose.** The Council may require the preparation of full or partial D&M Plans for proposed energy facilities, modifications to existing energy facilities, or where the preparation of such a plan would help significantly in balancing the need for adequate and reliable utility services at the lowest reasonable cost to consumers with the need to protect the environment and the ecology of the state.	This D&M Plan applies to modifications at all three stations.
(b)	**When required.** A partial or full D&M plan shall be prepared in accordance with this regulation and shall include the information described in Sections 16-50j-61 to 16-50j-62, inclusive, of the Regulations of Connecticut State Agencies, for any proposed energy facility for which the Council issues a certificate of environmental compatibility and public need, except where the Council provides otherwise at the time it issues the certificate. Relevant information in the Council's record may be referenced.	This D&M Plan includes all information applicable to the construction of the station modifications for the Project. (A separate D&M Plan addresses the construction of the new 345-kV transmission line and related line modifications.)
(c)	**Procedure for preparation**. The D&M plan shall be prepared by the certificate holder or the owner or operator of the proposed facility or modification to an existing facility. The preparer may consult with the staff of the Council to prepare the D&M plan.	This D&M Plan was prepared by CL&P.
(d)	**Timing of plan.** The D&M plan shall be submitted to the Council in one or more sections, and the Council shall approve, modify, or disapprove each section of the plan not later than 60 days after receipt of it. If the Council does not act to approve, modify or disapprove the plan or a section thereof within 60 days after receipt of it, the plan shall be deemed approved. Except as otherwise authorized by the Council, no clearing or construction shall begin prior to approval of applicable sections of the D&M plan by the Council.	This D&M Plan includes all relevant information for the station modifications except for the list of contractor personnel as specified in Section 16-50j-61 (c)(8). Contact information for the prime contractor(s) for the station modification work will be provided to the Council in a supplemental submission, after station contract award, prior to the commencement of construction.
16-50j-61	**Elements of D&M Plan**	
(a)	**Key Map**, 1"=2,000' USGS topographic map	Volume 1, Appendices A, B, and C.
(b)	**Plan Drawings**, 1"=100' or larger, and supporting documents, which shall contain the following information:	Plan drawings, as well as aerial-based maps, included

R.C.S.A Section	Description	D&M Plan (Section Reference, as Applicable)
		for each station in Volume 1, Appendices A, B, and C.
1.	Edges of the proposed site and any existing site contiguous to or crossing the site, portions of the site owned by the company in fee, and the identity of property owners of record of the portions of the site not owned by the company in fee	Volume 1, Appendices A, B, and C
2.	Public roads and public land crossings or adjoining the site	Volume 1, Appendices A, B, and C
3.	Location of 50' contours along the site	Volume 1, Appendices A, B, and C
4.	Probable location, type, and height of the proposed facility and components (including each new transmission structure, position of guys, description of foundations, and locations of any utility or other structures to remain on the site or to be removed	Volume 1, Appendices A, B, and C. Refer to cross-section views.
5.	Probable points of access to the site, and the route and likely nature of accessways, including alternatives	Volume 1, Appendices A, B, and C
6.	Edges of existing and proposed clearing areas, the type of proposed clearing along each part of the site, and the location and species identification of vegetation that would remain for aesthetic and wildlife value	N/A for Killingly Substation. Refer to Volume 1, Appendices A and B for information regarding vegetation removal at Card Street Substation and Lake Road Switching Station, respectively. ***Note:*** Except minor herbaceous / shrub clearing associated with the staging area at Card Street Substation and the installation of the ground bed outside the fence line at Lake Road Switching Station, no vegetation clearing will be required.
7.	Identification of sensitive areas and conditions within and adjoining the site, including but not limited to:	
	A. Wetland and watercourse areas regulated under C.G.S. Chapter 440 and any locations where construction may create drainage problems	No water resources will be affected by the station modifications. Refer to Volume 1, Appendices A, B, and C
	B. Areas of high erosion potential	N/A There are no steep slopes or highly erodible soils within or adjacent to any of the locations where Project work activities will occur at the

R.C.S.A Section	Description	D&M Plan (Section Reference, as Applicable)
		three stations.
	C. Critical habitats or areas identified as having rare, endangered, or threatened, or special concern plant or animal species listed by the state or federal government	N/A No habitat at any of the stations
	D. Location of known underground utilities or resources to be crossed (electric lines, fuel lines, drainage systems and natural or artificial public or private water resources)	N/A except for any underground lines within stations
	E. Residences or businesses within or adjoining the site that may be disrupted during construction	N/A for Lake Road Switching Station and Killingly Substation, which are located in commercial / industrial areas. Refer to Volume 1, Appendix A for Card Street Substation information.
	F. Significant environmental, historic and ecological features (significantly large or old trees, buildings, monuments, stone walls or features of local interest)	N/A
(c)	**Supplemental Information**	
1.	Plans (if any) to salvage marketable timber, restore habitat and maintain snag trees within or adjoining the site	N/A No forest clearing
2.	All construction and rehabilitation procedures with reasonable mitigation that shall be taken to protect areas and conditions identified in 7(b), above, including but not limited to:	
	A. Construction techniques at wetland and watercourse crossings	N/A (No water resource crossings)
	B. S & E control and rehabilitation procedures, consistent with the CT Guidelines for Soil Erosion and Sediment Control, as updated and amended for areas of high erosion potential	Volume 1, Sections 3 and 5, Appendices A, B, and C; Volume 2 NU BMPs (Attachment E)
	C. Precautions and all reasonable mitigation measures to be taken in areas within or adjoining the site to minimize any adverse impacts of such actions or modifications on E, T, or special concern plant or animal species listed by federal or state agencies and critical habitats that are in compliance with federal and state recommended standards and guidelines, as amended	N/A No habitat for listed species is present on the station sites
	D. Plans for modification and rehabilitation of surface, drainage, and other hydrologic features	Volume 1, Appendices A, B, and C
	E. Plans for watercourse bank restoration in accordance with	N/A

R.C.S.A Section	Description	D&M Plan (Section Reference, as Applicable)
	Chapter 440 of the C.G.S. F. Plans for the protection of historic and archaeological resources with review and comment from a state historic preservation officer of the CT DECD or its successor agency	 N/A (Correspondence from SHPO dated February 25, 2013 included in Volume 2, Attachment G)
3.	Plans for the method and type of vegetation clearing and maintenance to be used within or adjacent to the site	N/A at Killingly Substation. Refer to Appendices A and B for discussion of herbaceous / shrub clearing at Card Street Substation and Lake Road Switching Station
4.	Location of public recreation areas or activities known to exist or being proposed in or adjacent to the site, together with copies of agreements between the company and public agencies authorizing the public recreation use of the site to the extent of the company's rights thereto	N/A
5.	Plans for ultimate disposal of excess excavated material, stump removal, and periodic maintenance of the site	Volume 1, Sections 3 and 5, Appendices A, B, and C; Volume 2, Guidance for Soils and Groundwater Management (Attachment C)
6.	Locations of areas where blasting is anticipated	N/A (No blasting anticipated; refer to Volume 1, Section 3.2)
7.	Rehabilitation plans, including but not limited to reseeding and topsoil restoration	Volume 1, Appendices A, B, and C.
8.	Contact information for the personnel of the contractor assigned to the project	To be provided after station contract award(s), prior to commencement of contractor's work on site.
9.	Such site-specific information as the CSC may require	No additional requirements
(d)	**Notice** A copy, or notice of the filing, of the D&M Plan, or a copy, or notice of the filing of any changes to the D&M Plan, or any section thereof, shall be provided to the service list and the property owner of record, if applicable, at the same time the plan, or any section thereof, is submitted to the CSC	Volume 1, Section 7
(e)	**Changes to the Plan** The CSC may order changes to the D&M plan, including but not limited to vegetative screening, paint color, or fence design at any time during the preparation of the plan	As applicable; Refer to Volume 1, Section 7.2 for discussion of CL&P's Change Notice process

R.C.S.A Section	Description	D&M Plan (Section Reference, as Applicable)
16-50j-62	**Supplemental Reporting Requirements**	
(a)	**Site Testing and Staging Areas** The certificate holder, or facility owner or operator, shall provide the CSC with written notice of the location and size of all areas to be accessed or used for site testing or staging areas. If such an area is to be used prior to approval of the D&M plan, the CSC may approve such use on terms as it deems appropriate.	Volume 1, Sections 3.2 and 7.1; Appendices A, B, and C include information regarding staging for the station modification work. No site testing is planned.
(b)	**Notice**	
1.	The certificate holder, or facility owner or operator, shall provide the CSC, in writing with a minimum of two weeks advance notice of the beginning of:	Volume 1, Section 7.1 summarizes notification procedures
	A. Clearing and access work in each successive portion of the site, and	
	B. Facility construction in that same portion	
2.	The certificate holder, or facility owner or operator, shall provide the CSC with advance written notice whenever a significant change of the approved D&M plan is necessary. If advance written notice is impractical, verbal notice shall be provided to the CSC immediately and shall be followed by written notice not later than 48 hours after the verbal notice. Significant changes to the approved D&M plan shall include, but not be limited to, the following:	Volume 1, Section 7.2 includes CL&P's D&M Plan Change Notice process
	A. The location of wetland or watercourse crossing	
	B. The location of an accessway or structure in a regulated wetland or watercourse area	
	C. The construction or placement of any temporary structures or equipment	
	D. A change in structure type or location including, but not limited to, towers, guy wires, associated equipment or other facility structures	
	E. Utilization of additional mitigation measure, or elimination of mitigation measures. The CSC or its designee shall promptly review the changes and shall approve, modify, or disapprove the changes in accordance with subsection (d) of Section 16-50j-60 of the RCSA	
3.	The certificate holder, or facility owner or operator, shall provide the CSC with a monthly construction progress report or a construction progress report at intervals determined by the CSC or its designee, indicating changes and deviations from the approved D&M Plan. The CSC may approve changes and deviations, request corrections, or require mitigation measures.	Volume 1, Section 7.3

R.C.S.A Section	Description	D&M Plan (Section Reference, as Applicable)
4.	The certificate holder, or facility owner or operator, shall provide the CSC with written notice of completion of construction and site rehabilitation.	Volume 1, Section 7.1
(c)	**Final Report** The certificate holder, or facility owner or operator, shall provide the CSC with a final report for the facility not later than 180 days after completion of all site construction and site rehabilitation. The report shall identify:	Volume 1, Section 7.3
1.	All agreements with abutters or other property owners regarding special maintenance precautions	
2.	Significant changes of the D&M plan that were required because of property rights of underlying and adjoining owners for other reasons	
3.	The location of construction materials which have been left in place including, but not limited to, culverts, erosion control structures along watercourses and steep slopes, and corduroy roads in regulated wetlands	
4.	The location of areas where special planting and reseeding have been done	
5.	The actual construction cost of the facility, including but not limited to the following costs:	
	A. Clearing and access	
	B. Construction of the facility and associated equipment	
	C. Rehabilitation; and	
	D. Property acquisition for the site or access to the site	
(d)	**Protective Order** The certificate holder, or facility owner or operator, may file a motion for protective order pertaining to commercial or financial information related to the site or access to the site.	N/A

Table 1-2
D&M Plan Directory of Docket No. 424 Decision and Order and Opinion Requirements
Interstate Reliability Project Station Modifications

Condition or Page Number	Description	D&M Plan (Section Reference, as Applicable)
Condition No.	**Decision and Order**	
(2)	The Certificate Holder shall construct the additions to Card Street Substation, Lake Road Switching Station, and Killingly Substation, as proposed.	Refer to station D&M Plan
(3)	The Certificate Holder shall prepare a Development and Management (D&M) Plan, whole or in parts, for this project in compliance with Sections 16-50j-60 through 16-50j-62 of the Regulations of Connecticut State Agencies. The D&M Plan shall be served on the Towns of Lebanon, Columbia, Coventry, Mansfield, Chaplin, Hampton, Brooklyn, Pomfret, Killingly, Putnam and Thompson for comment, and all parties and intervenors as listed in the service list, and submitted to and approved by the Council prior to the commencement of facility construction and shall include:	Applies to the Towns of Lebanon and Killingly for the stations. Refer to Volume 1, Section 8; Volume 2, Attachment G (Agency Correspondence and Public Outreach Documentation)
	a. A detailed site plan showing the placement of the access roads, structure foundations, equipment and material staging area for the overhead route;	Volume 1, Appendices A, B, and C (site plans for stations)
	b. An erosion and sediment control plan, consistent with the 2002 Connecticut Guidelines for Soil Erosion and Sediment Control as amended;	Volume 1, Appendices A, B, and C; Volume 2, NU BMPS (Attachment E)
	c. A spill prevention and countermeasures plan;	Volume 2, Attachment B
	d. Provisions for crossing inland wetland and watercourses for the route;	N/A
	e. Details of ground disturbance;	Volume 1, Appendices A, B, and C
	f. Vegetative clearing plan;	N/A
	g. A wetland restoration plan;	N/A
	h. Invasive species control plan;	N/A
	i. Provisions to manage the discovery of undocumented Native American Archaeological resources;	Volume 1, Section 5.7
	j. A post-construction electric and magnetic field monitoring plan;	N/A: provided for transmission line only (refer to transmission line D&M Plan, Volume 1, Section 5.17 and Appendix F)

Condition or Page Number	Description	D&M Plan (Section Reference, as Applicable)
	k. A schedule of construction hours during nights and/or weekends and mitigation of lighting and noise; l. A plan to minimize air quality effects during construction; m. A blasting plan, if necessary; n. Identification of developed areas for staging and equipment lay down, field office trailers, sanitary facilities and parking before establishing a new area; o. Plans and strategies to prevent the use of the right-of-way by all-terrain vehicles; p. Details of the configuration of the line structures within the federally-owned Mansfield Hollow State Park and Wildlife Management Area; q. Details of the route and line configuration for the segment of the line that crosses Hawthorne Lane in Mansfield; and r. Details of protection measures for active farmland, including a report of consultations with the owners of agricultural properties to identify active farmland and assess protection of agricultural soils.	Volume 1, Section 4, Section 5.5 Volume 1, Section 5.3 N/A Volume 1, Appendices A, B, and C N/A N/A N/A N/A
(4)	The Certificate Holder shall comply with the Department of Energy and Environmental Protection recommendations, or coordinate with the Department of Energy and Environmental Protection, for construction of the route in the area of endangered, threatened, or special concern species identified along the Interstate route in Connecticut.	N/A
(5)	The Certificate Holder shall conform to the Council's Best Management Practices for Electric and Magnetic Fields.	Project represents BMPs for EMF, per Council Decision and Order
(6)	The Certificate Holder shall comply with all future electric and magnetic field standards promulgated by State or federal regulatory agencies. Upon the establishment of any new standards, the facilities granted in this Decision and Order shall be brought into compliance with such standards.	To be addressed as part of CL&P operations and maintenance.
(7)	The Certificate Holder shall obtain necessary permits from the United States Army Corps of Engineers and the Connecticut Department of Energy and Environmental Protection prior to the commencement of construction, in areas where said permits are required.	N/A No water resources affected. No approvals required from the U.S. Army Corps of Engineers (refer to Volume 1, Section 2). CT DEEP general stormwater permit required (refer to Volume 2, Attachment F)

Condition or Page Number	Description	D&M Plan (Section Reference, as Applicable)
(8)	The Certificate Holder shall hire an independent environmental inspector, subject to Council approval, to monitor and report on the installation of the overhead transmission system and provide a bi-weekly report to the Council.	Volume 1, Section 6.1
(9)	The Certificate Holder shall provide to the Council an operating report within three months after the conclusion of the first year of operation of all facilities herein, and annually thereafter for a period of three years, with information relevant to the overall condition, safety, reliability, and operation of the transmission systems.	Volume 1, Section 7.3
(10)	This Decision and Order shall be void if all construction authorized herein is not completed within four years of the effective date of the Decision and Order, or within four years after all appeals to this Decision and Order have been resolved.	Volume 1, Section 4
Page No.	**Opinion**	
4	**RE: General D&M Plan.** The Council will order CL&P to submit a Development and Management (D&M) Plan for the Connecticut portion of Interstate prior to commencement of construction and that provides details regarding the construction of the project, including transmission structure locations, clearing and access roads.	Volumes 1 - 2
11	**RE: Noise and Air Quality.** Operation of the Interstate lines will not be a significant source of audible noise. Any noise from heavy machinery during construction of Interstate would be short-term. The Council will condition the D&M Plan, however, to schedule construction periods during reasonable day-time hours. Operation of the transmission lines would not impact air quality. Air quality effects from constructing Interstate would be temporary. The Council will condition the D&M Plan so that such effects would be mitigated by properly maintaining vehicles and equipment to limit emissions, watering access roads to suppress fugitive dust, and using crushed stone aprons at access road entrances from public roads to minimize tracking of soil onto pavement.	Volume 1, Sections 5.3, 5.5, and 5.6
15	RE: Independent Environmental Inspector. In order to verify compliance with the Council's Decision and Order, the Council will require the Certificate Holder to hire an independent inspector(s), subject to Council approval, to document compliance with environmental requirements, prepare status reports, and act as a liaison between the Council, and the Certificate holder's environmental inspector and contractors. This independent inspector will provide bi-weekly progress reports in writing to the Council and to the chief elected official, or their representative, of each municipality traversed by the proposed project describing all	Volume 1, Section 6.1

Condition or Page Number	Description	D&M Plan (Section Reference, as Applicable)
	significant construction activities and all associated environmental effects. This independent inspector shall have formal training and experience in civil and environmental engineering and have sufficient oversight and authority to stop construction practices that are inconsistent with the Council's Decision and Order; the approved D&M Plan; or that may cause significant damage or disruption to the environment.	
16	**RE: General D&M Plan Requirements.** To ensure that the proposed project is properly developed, the Council will require the Certificate Holder to submit a D&M Plan which will include, among others, detailed site plans identifying structure locations; an erosion and sediment control plan consistent with the 2002 Connecticut Guidelines for Soil Erosion and Sediment Control; a Spill Prevention, Control, and Countermeasures Plan; provisions for revegetation and maintenance of the proposed ROW; provisions for inspection and monitoring of the proposed ROW; pre-construction and post-construction measurements of electric and magnetic fields.	D&M Plan, both volumes

2. REGULATORY APPROVALS AND CONSULTATIONS FOR SUBSTATION AND SWITCHING STATION MODIFICATIONS

2.1 REGULATORY APPROVALS AND REQUIREMENTS

This D&M Plan conforms to the specifications of Sections 16-50j-60 through 16-50j-62 of the RCSA (*Requirements for a D&M Plan, Elements of a D&M Plan, Reporting Requirements*); incorporates CL&P's commitments as contained in the record of the Council's Docket 424 regulatory process; and reflects adherence to the conditions of the Council's certificate for the Project and other relevant regulatory approvals. Because all of the Project station modification work will be at upland sites, no authorizations pertaining to wetlands or watercourses are required from the U.S. Army Corps of Engineers or the CT DEEP. Consequently, the controlling regulatory approvals for the station construction activities are:

- The Council's Decision and Order (Conditions 2, 3, 4, 5, 6, 7, 8, 9, and 10) and Opinion for the Project (refer to Volume 2, Attachment A); and

- The CT DEEP *General Permit for the Discharge of Stormwater and Dewatering Wastewaters Associated with Construction Activities*, which applies to the management of the discharge of stormwater and dewatering wastewaters from construction sites (Volume 2, Attachment F).

2.2 CONSULTATIONS

During the preparation of this D&M Plan, CL&P consulted with representatives of the Towns of Lebanon and Killingly, providing information regarding the D&M Plan process, the equipment modifications and construction activities at Card Street Substation, Lake Road Switching Station, and Killingly Substation, and CL&P's outreach procedures and points-of-contact prior to and during construction. CL&P also issued a draft of this D&M Plan for public review and comment and held two public open houses to allow further opportunities for public input. Additional information regarding CL&P's public outreach process is included in Section 8 and in Volume 2, Attachment G.

Further, as specified in the D&M Plan requirements, RCSA Section 16-50j-61(c)(2)(F), CL&P also consulted with the State Historic Preservation Officer (SHPO) confirming that the Project modifications to the two substations and the switching station will not affect archaeological or historic resources. Correspondence from the SHPO (dated February 25, 2013) concerning the station construction activities is included in Volume 2, Attachment G, Agency Correspondence.

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3. GENERAL CONSTRUCTION PROCEDURES FOR SUBSTATION AND SWITCHING STATION MODIFICATIONS

The Project modifications to each of the three existing stations will involve a sequential, phased, construction approach. The following summarizes the common construction activities at each of the stations. Construction activities specific to the individual stations are presented in Appendices A, B, and C, along with detailed site-specific construction drawings and plans.

3.1 CONSTRUCTION MANAGEMENT AND CONTACT INFORMATION

CL&P expects to competitively bid and subsequently award portions of the station modification work in 2013; all work will be awarded by the end of the first quarter 2014. After contract award but prior to the commencement of a contractor's station construction work, CL&P will provide the Council with contact information for the prime construction contractor, consisting of the name of the firm, name of primary contact, corporate address, telephone number, and e-mail.

The Project transmission line construction will be overseen by personnel from CL&P and CL&P's construction manager, Burns & McDonnell Engineering (BMcD), as well as subconsultants to CL&P and BMcD. These personnel will supervise the construction of the Project modifications at all three of the stations. BMcD supervisory personnel will directly monitor construction activities, including adherence to engineering, safety, and environmental requirements, and will manage other subconsultants involved in monitoring construction activities.

3.2 GENERAL CONSTRUCTION SEQUENCE

3.2.1 Site and Staging Area Preparation

The type of site preparation work required at each station will vary, in accordance with the characteristics of each facility, the locations of the facility modifications, and the staging areas required to support the work. Site preparation may include:

- Deploying temporary construction office trailers, storage containers, and related equipment and materials to the stations or associated staging areas and setting up temporary services required to support construction (e.g., telephone lines, portable toilets).

- Establishing designated parking areas for construction workers.

- Erecting "construction zone" warning signs on public roads in the immediate vicinity of the stations.

- Installing and maintaining, as necessary, temporary soil erosion and sedimentation controls (e.g., silt fence, hay/straw bales) around areas of planned soil disturbance. (Note: Temporary erosion and sedimentation controls will be maintained until the disturbed areas are satisfactorily stabilized as detailed in the Project's stormwater management permit. (Refer to Volume 2, Attachment F)

- Removing and/or graveling over minimal vegetation (if present) from work areas and equipment staging locations (Card Street Substation and Lake Road Switching Station staging areas and Lake Road Switching Station).[2]

- Installing protective fencing (e.g., chain-link, snow fence) around work sites.

No grading or blasting is expected to be required within the stations for the planned equipment modifications.

In general, site preparation work typically could involve the use of construction equipment such as bulldozers, backhoes, man-lift vehicles, compressors, trucks (various sizes), cranes, and flat-bed trailers.

Staging and support areas for the station work are expected to be located either within the substation or switching station fence lines or on previously disturbed upland sites in the immediate vicinity of each station (refer to Appendices A, B, and C of this volume for details). The use of any staging areas other than those identified in this D&M Plan will require separate notice to and approval by the Council (refer to Section 7 for further information).

3.2.2 Foundations and Equipment Installation

The process for installing structure and equipment foundations will generally involve excavation, form work, steel reinforcement, and concrete placement. No blasting is expected to be required for this work.

Excavated material will either be reused on-site or disposed of off-site in accordance with the specifications of the *Guidance for Soils and Groundwater Management* (refer to Volume 2, Attachment C). All excess material from excavations will ultimately be hauled off-site for disposal. Temporary spoil stockpiles will be protected with appropriate erosion and sedimentation controls as required.

[2] No trees will be removed for any of the station construction work. Vegetation removal, if any, will consist of mowing herbaceous or shrub vegetation at staging areas or immediately outside the fence line at Lake Road Switching Station.

If groundwater is encountered in excavations, the water will be pumped from the excavated area and discharged in accordance with applicable local and state requirements. The water may be discharged on-site into an appropriate sediment control basin; pumped into a temporary fractionization (frac) tank and then discharged into the municipal stormwater system; or pumped into a tanker truck for disposal at appropriate wastewater treatment facilities. Residual silt/sediment collected at the bottom of the frac tanks will be disposed off-site at an appropriately designated disposal facility. Catch basin inlet protection will be installed as needed to prevent disturbed soils excavate and construction debris from entering storm water systems.

After the foundations are installed, construction activities will shift to the erection of structures and equipment as specified for each station modification. Such structures and equipment include steel structures, bus and insulators, circuit breakers, switches, voltage transformers, lightning masts, wave traps, cable trench, ground grid, surge arresters, conduits and cables. In addition, new relay panels, communications equipment, and cable trays will be installed within existing control enclosures, where required.

3.2.3 Testing and Interconnections

The substation and switching station equipment will be commission-tested as required prior to final connection to the transmission grid. New transmission line structures and associated conductors and wires will be installed, as necessary, to connect the new 345-kV facilities at the substations and switching stations.

3.2.4 Final Cleanup and Site Security

As the final step in the construction process, all remaining construction debris will be collected and removed from each station site. Construction debris will be properly disposed of, as detailed in the *Guidance for Soils and Groundwater Management* (Volume 2, Attachment C). Because the station modifications will involve equipment additions within the existing station fence lines, site security will be afforded by the same fencing and other procedures already in place at each station.

Within each station, the areas affected by Project construction are expected to be stabilized using trap rock or gravel. Unless otherwise requested by the landowner, temporary staging areas will be restored to pre-construction conditions, with stabilization (revegetation or gravel) appropriate to each site.

No landscaping will be performed at any of the three stations. The Project modifications will be within the developed (fenced) portion of each station, and will involve equipment additions that will be similar in appearance and height to the existing equipment at each site. Moreover, both Lake Road Switching Station and Killingly Substation are within industrial / commercial areas where the utility stations are consistent with surrounding uses.

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4. CONSTRUCTION SCHEDULE, OUTAGES, AND WORK HOURS

4.1 CONSTRUCTION SCHEDULE, INCLUDING OUTAGES

Line and equipment outages will be required for the modifications to each station. The Connecticut Valley Exchange (CONVEX) - approved timing of these outages will dictate the planned construction schedule. In addition, because the modifications within Killingly Substation consist of the installation of two structures to support the conductors of the new overhead 345-kV transmission line, the schedule for work at this substation will be governed in part by the coincident work on the adjacent overhead transmission lines.

As currently planned, the general schedule for the station modification work[3] is as follows:

Anticipated Construction Dates	Station	Comments
Quarter 4, 2013	Card Street Substation Lake Road Switching Station	Initiation of civil construction work; 1-day outage Material delivery
Quarter 1, 2014	All Stations Card Street Substation	Award all construction work Construction and outages
Quarter 2 - Quarter 4, 2014	All stations	Construction and outages
Quarter 1, 2015	Card Street Substation Lake Road Switching Station	Construction
Quarter 2 – Quarter 4, 2015	All	Completion of construction, including tie-ins to new 345-kV transmission line, short outages as part of final phasing and relaying work to interconnect the CL&P and National Grid systems, and final station site restoration*

* Restoration work will consist of stabilization of disturbed portions of station sites, as well as areas used for station construction staging. Restoration work may be performed on individual sites or portions of sites prior to Quarters 2-4, 2015. Final restoration of portions of the transmission line ROW will be performed in 2016.

[3] This construction schedule is subject to change, depending on outage schedules.

4.2 WORK HOURS

Construction work hours at each station will typically consist of a 10-hour period between the hours of 7:00 AM and 7:00 PM, six days per week (Monday through Saturday). During these hours, some construction activities will generate noise.

Construction workers may arrive for work and leave work outside of these times.

Typical Construction Work Window: Monday-Saturday 7:00 AM-7:00 PM

However, certain activities, such as those that must be performed during CONVEX-approved equipment outages and for additions and modifications within the station control enclosures, will involve work during non-typical hours, in some cases on a continuous (24-hour) basis and/or on Sundays. The performance of these activities during non-typical work hours will be critical for completing the required work within the allowed outage durations.

At each of the stations, all construction activities performed during extended work hours will be confined to the station sites.

5. GENERAL CONSTRUCTION PLANS

Plans and procedures included in this section and in Volume 2 (as referenced in this section) apply to the construction work at all three of the stations.[4]

5.1 SPILL PREVENTION AND COUNTERMEASURES PLAN

The Project *Spill Prevention and Countermeasures Plan* (SPCP) is included in Volume 2, Attachment B.

5.2 EROSION AND SEDIMENTATION CONTROL PLAN AND STORMWATER MANAGEMENT

Erosion and sedimentation control measures will be installed prior to the initiation of soil-disturbing activities and will be inspected and maintained throughout construction at each station. Temporary erosion and sedimentation controls will be left in place until the areas disturbed by construction activities are permanently stabilized.

Permanent stabilization will consist of the application of gravel or pavement (for areas within the station fence lines), or reseeding to establish a uniform vegetative cover of 70% density on disturbed soils that will not otherwise be paved or graveled (e.g., staging areas, the area affected by the ground-grid wire adjacent to the Lake Road Switching Station fence line). After final stabilization is achieved, all temporary erosion and sedimentation controls will be removed and disposed of properly.

All erosion and sedimentation control practices will be in accordance with the *2002 Connecticut Guidelines for Soil Erosion and Sediment Control* (as amended); NU's *Best Management Practices Manual – Construction and Maintenance Environmental Requirements for Connecticut*, and the CT DEEP's *General Permit for the Discharge of Stormwater and Dewatering Wastewaters Associated with Construction Activities* (Refer to Volume 2, Attachments E and F).

5.2.1 Winter Stabilization

Some of the station modification work will be conducted during the winter or will be completed too late in the season to initiate permanent stabilization of disturbed areas (including temporary staging areas that may require reseeding) until the following spring. In such cases, temporary erosion and

[4] None of the station modifications will require blasting, forested vegetation clearing, or work in wetlands, watercourses, active farmlands, threatened or endangered species habitats, or known cultural areas. As a result, no special construction plans pertaining to these topics are included in this D&M Plan.

sedimentation controls will be left in place and augmented if necessary. These measures will be periodically inspected and maintained until permanent site stabilization can be completed.

5.2.2 Site-Specific Erosion and Sedimentation Controls

The planned location of site-specific erosion and sedimentation control measures for each station are included on the drawings in Appendices A, B, and C of this volume.

5.3 AIR QUALITY PROTECTION (MINIMIZATION OF DUST AND VEHICLE IDLING PROTOCOL)

Dust Suppression and Anti-Tracking Pads

To minimize short-term adverse effects to air quality during construction, access roads and staging areas will be graveled and may be watered as necessary to suppress fugitive dust emissions. Additionally, crushed stone aprons will be installed at all gravel or dirt access road entrances to public roadways, with the objective of minimizing tracking of soil onto the roadway. Paved public roads at the intersections with station access roads will be periodically swept as necessary to remove excess dirt tracked onto the pavement from station construction activities.

Construction Equipment: Idling vs. Warm-up during Cold Weather

Vehicle emissions will be limited by requiring contractors to properly maintain construction equipment and vehicles, and by minimizing the idling time of diesel construction equipment in accordance with regulatory standards. Idling requirements are as follows:

Unnecessary construction equipment and vehicle idling expends fuel, increases costs, and causes air pollution. For the Project, pursuant to Connecticut requirements (RCSA 22a-174-18), the allowable idling time for diesel construction equipment is 3 minutes.

However, under winter work conditions (when the ambient temperature is below 20 degrees Fahrenheit) the following apply:

- Construction equipment may require longer periods to warm up after overnight shut down or other extended periods of inactivity. Such “warm up” periods, as required to bring the equipment up to a safe operating temperature (as defined by the equipment manufacturer), are exempt from the idling time limit. However, most diesel engines take 3 minutes or less to warm up (contractors should consult the equipment-specific engine manufacturer’s recommendations).

- Construction equipment may have to idle for longer periods to operate defrosting or heating equipment to ensure the safety or health of the driver.

Note: "Idling" is defined as the period when mobile construction equipment is not in motion or is not otherwise actively performing its designated function. Thus, "idling" does not apply to the use of certain types of mobile construction equipment (e.g., cranes, cement mixers) that may be stationary, but is actively operating, at a work site.

5.4 HANDLING AND DISPOSITION OF EXCAVATED SOIL, GROUNDWATER, RECYCLABLE MATERIALS, AND WASTES

The construction contractor will be responsible for the proper handling and disposal of all excess soils, groundwater, recyclable materials, and other wastes generated during the construction process.

Excavated soil and groundwater (if encountered in excavations) will be handled and disposed of in accordance with the procedures specified in the *Guidance for Soils and Groundwater Management* (refer to Volume 2, Attachment C) and pursuant to any additional measures defined for each station site (refer to Appendices A, B, and C).

The locations of temporary spoil storage at each station site (if required) are indicated on the station-specific plans in Appendices A, B, and C of this volume.

Recyclable materials, including all or portions of equipment to be removed from the stations (e.g., bus supports, switches), will be transported off-site for appropriate re-use or salvage, pursuant to CL&P policies. General waste materials and debris other than soil and groundwater will be collected in secure containers, which will be inspected regularly and removed for off-site disposal at approved, regulated waste disposal sites. In no case will solid or liquid wastes (except for excess soil or groundwater, if appropriate) be buried or otherwise disposed of on the station sites.

5.5 LIGHTING AND NOISE MITIGATION

The station modification work (including staging areas) will be concentrated within and in the immediate vicinity of the existing stations, and will have only minor and short-term effects on noise and light emissions. Further, any temporary construction-related noise and light emissions associated with the station modifications will be mitigated by virtue of the location of Lake Road Switching Station and Killingly Substation within industrial/commercial areas and by the relatively remote location of Card Street Substation (i.e., a 10-acre developed site within CL&P's 150-acre property).

In addition, most Project work and thus construction-generated noise will be limited primarily to daylight hours, as described in Section 4. CL&P will require its contractors to properly maintain and muffle equipment and vehicles to minimize noise emissions.

The existing stations are equipped with maintenance lighting for worker safety at night. Because most Project construction activities will occur during daylight hours, the need for temporary lighting will be limited. However, any temporary lighting that may be required for specific tasks will be

focused on the work area and is expected to be needed only for a limited time. Some new maintenance lighting also will be installed in the vicinity of the Project facilities at Card Street Substation and Lake Road Switching Station. However, this lighting will not be used unless personnel are working at the stations.

5.6 SITE ACCESS, TRAFFIC CONTROL, AND CONSTRUCTION SIGNS

The construction contractor will be responsible for posting and maintaining construction warning signs, in accordance with state and local requirements, along public roads in the vicinity of the substation and switching station work areas. Signs will be consistent with the federal *Manual of Uniform Traffic Control Devices* ([MUTCD], 2009 edition, as revised May 2012, or the latest version)[5]. Flagmen and other traffic control measures may also be used as necessary.

Appendices A, B, and C identify the public roads likely to be used by construction contractors and other construction personnel to access each station.

5.7 UNANTICIPATED CULTURAL RESOURCES DISCOVERY PROCEDURES

The station modifications will entail only limited subsurface excavation and will be located in areas where soils have been disturbed by previous development. Consequently, the potential for locating intact, undocumented archaeological sites during station construction activities is minimal.

CL&P will require all station contractor personnel to attend Project-specific environmental training, a component of which will include procedures for generally identifying and protecting cultural resources. The training will describe the procedures to be followed should potential cultural materials be discovered during the station modifications. Specifically, construction personnel will be instructed to stop the task that resulted in the potential discovery and inform CL&P.

In addition, CL&P will have a professional archaeological consulting firm on-call and available to respond to potential unanticipated cultural resource discoveries. Construction work at the potential cultural resource discovery site will not resume until authorized by the professional archaeologist and CL&P.

5.8 CONSTRUCTION EQUIPMENT / VEHICLE WASHING AND CLEANING

With the exception of cement trucks, no construction equipment or vehicle washing will be allowed on the substation or switching station sites or at associated staging areas.

[5] Connecticut has adopted the federal MUTCDs.

Cement truck wash-out will be allowed only in designated locations, which will be selected to minimize the potential for off-site environmental impacts. All wash-out areas will include measures to control and contain wash-water and to collect the cement wash-off for off-site disposal.

Cement truck wash-out activities will be performed in accordance with the *2002 Connecticut Guidelines for Soil Erosion and Sediment Control* (as amended); NU's *Best Management Practices Manual – Construction and Maintenance Environmental Requirements for Connecticut*, and the CT DEEP's *General Permit for the Discharge of Stormwater and Dewatering Wastewaters Associated with Construction Activities* (Refer to Volume 2, Attachments E and F).

5.9 WATER SOURCES

Water may be required for dust suppression or other construction activities. All water sources must be pre-approved by CL&P.

5.10 SNOW REMOVAL AND DE-ICING PROCEDURES

Some of the station construction activities will be performed during the winter, when snow and ice may have to be removed to allow work to proceed. Project procedures for snow removal and de-icing are provided in Volume 2, Attachment D.

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6. ENVIRONMENTAL INSPECTION

6.1 INDEPENDENT ENVIRONMENTAL CONSULTANT

Pursuant to Council's Decision and Order (Condition 8) and Opinion (page 15), CL&P will hire an independent environmental inspector(s), subject to approval by the Council. The independent environmental inspector(s), who will have formal training and experience in civil and environmental engineering, will perform the following functions:

- Monitor the construction of the Project modifications to the three stations and the new 345-kV transmission line and related line construction including restoration, for consistency with the Council-approved D&M Plans.

- Provide a bi-weekly monitoring report to the Council, with copies to the Chief Elected Officials (or their representatives) of the towns traversed by the Project facilities.

- Coordinate with CL&P's environmental compliance team (refer to Section 6.2).

The independent environmental inspector can notify the CL&P environmental compliance team to stop construction practices that are inconsistent with the Decision and Order or this approved D&M Plan or that may cause significant damage to the environment that is not otherwise approved in the Decision and Order or Project environmental permits.

6.2 CL&P'S ENVIRONMENTAL COMPLIANCE PROGRAM

The Project construction contractor(s) will be required to comply with all applicable environmental regulatory requirements, as well as with the Council-approved D&M Plans. To verify the contractors' environmental compliance, CL&P will dedicate to the Project a team of management and field personnel, who will routinely monitor Project construction activities for conformance to the D&M Plans and to other Project-specific permits and approvals.

The Project's field environmental compliance program will include environmental inspectors, who will be assigned to monitor Project construction. The Project team will coordinate with the Council's independent environmental inspector(s), assist CL&P in preparing required notices and reports to the Council, and provide Project-specific environmental training to all construction contractors and other field personnel.

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7. NOTICES AND REPORTS

7.1 NOTICES TO THE COUNCIL: START AND COMPLETION OF CONSTRUCTION (INCLUDING ACCESS AND VEGETATION CLEARING)

Pursuant to RCSA Section 16-50j-62(b)(1) and (4), CL&P will provide written notification to the Council of each of the steps listed below. In accordance with Section 16-50j-62(b)(1), CL&P will provide such notices **a minimum of two weeks in advance** of the work commencement steps listed in the first two bullets below.

- The commencement of vegetation clearing or access work.
- The commencement of transmission line construction.
- The completion of construction (including site restoration/rehabilitation).

Pursuant to RCSA Section 16-50j-62(a)(1), CL&P also will provide written notification to and seek approval from the Council regarding the location and size of all areas to be accessed or used for site testing or staging and not otherwise included in this D&M Plan.

7.2 NOTICE OF CHANGES TO D&M PLAN

Pursuant to RCSA Section 16-50j-61(d), notice of a filing of changes to the D&M Plan that require Council approval will be provided to the service list and the property owner of record, if applicable, at the time that the filing is made with the Council.

7.2.1 D&M Plan Changes Requiring Notice to the Council

Pursuant to RCSA Section 16-50j-62(b)(2), the Council must pre-approve any significant changes to this D&M Plan. CL&P (or its agent, BMcD) will identify, track, and approve all changes, whether significant or insignificant. *No changes to the D&M Plan will be implemented without such documented approvals.*

CL&P will provide the Council with advance written notice whenever a significant change of the approved D&M Plan is necessary. If advance written notice is impractical, CL&P will provide immediate verbal notice to the Council, followed by written notice no later than 48 hours after the verbal notice.

RCSA Section 16-50j-62(b)(2) defines a "significant" change to the approved D&M Plan as including, but not limited to, Project modifications that entail a change in:

- The location of a wetland or watercourse crossing.
- The location of an accessway or structure in a regulated wetland or watercourse area.
- The construction or placement of any temporary structures or equipment.
- Transmission line structure type or location including, but not limited to, towers, guy wires, associated equipment, or other structures.
- Use of additional mitigation measures or elimination of mitigation measures.

In addition to the above criteria, CL&P proposes to define a "significant" Project change as one that would substantially reduce the amount of protection to the environment, substantially increase potential public concern, or would otherwise potentially result in a meaningful effect on the environment, the public, or other Project permits and approvals.

7.2.2 D&M Plan Change Approval Process

A request for a change to the D&M Plan may originate from the Project team, the construction contractor, or others, or be driven by regulatory agency approvals issued after the Council's approval of the D&M Plan, with which the D&M Plan must be consistent. The following procedures will be used to identify, track, and obtain the approval of the Council, if required, for changes to this D&M Plan.

1. **Identify Proposed Project Change**. A proposed change is identified and described by the change originator and provided to CL&P and BMcD. Data to be provided to CL&P and BMcD by the change originator may include, for example, the specifics of the change (location, type), the reason/need for the change, when the change is required (timing), Project schedule and cost implications (if applicable), and effects (if any) on the environment and on the public. The Project change request will be supported by maps and drawings, as appropriate.

2. **Assess Significance of Proposed Change**. CL&P will evaluate each proposed change to determine whether it either:

   - Qualifies as a significant change to the approved D&M Plan and thus requires advance notification to and approval by the Council; or
   - Constitutes a minor change requiring only CL&P approval.

3. **Significant Changes Requiring Notice to and Prior Approval by the Council.** After CL&P determines that a proposed change represents a significant change to the D&M Plan requiring notification to the Council and the Council's pre-approval, CL&P will categorize each proposed change as either "urgent" or "non-urgent", based on the following:

- ***Urgent.*** A Project change will be considered "urgent" if waiting until the next regularly-scheduled Council meeting to obtain approval of the change would have a negative impact on Project construction costs or scheduling, or if the provision of written notice is impractical for other reasons. For "urgent" changes, CL&P will provide verbal notification of the change to Council staff and will request that the Council approve the change expeditiously. CL&P will promptly implement the D&M Plan change in accordance with the Council's expedited approval (verbal or written). Not later than 48 hours after the provision of verbal notice of the D&M Plan change request to the Council, CL&P will submit written notice to the Council. If the Council elects not to act on the proposed D&M Plan change request pursuant to the urgent (verbal) notice, CL&P will provide the Council with written notice of the proposed Project Change within 48 hours and will defer any construction activities related to the change request pending the Council's determination.

- ***Non-Urgent.*** If CL&P determines that a D&M Plan change request is "non-urgent", CL&P will provide written notice to the Council, seeking the Council's consideration of the proposed D&M Plan change at the next regularly-scheduled Council meeting.

4. **Non-Significant D&M Plan Change: No Council Pre-Approval Required.** Minor changes to the approved D&M Plan will require CL&P approval prior to implementation, as well as Project documentation.

Figure 7-1 provides a flow chart illustrating this change approval process.

7.2.3 D&M Plan Change Documentation and Reporting

Although only significant D&M Plan changes will require the Council's pre-approval, CL&P will document all D&M Plan changes and provide such documentation to the Council in its monthly construction progress reports.

7.3 REPORTS

Table 7-1 identifies the written reports that will be provided to the Council regarding the Project. Except for the bi-weekly Independent Environmental Inspector's report, all reports will be provided by CL&P.

Figure 7-1
D&M Plan Change Process

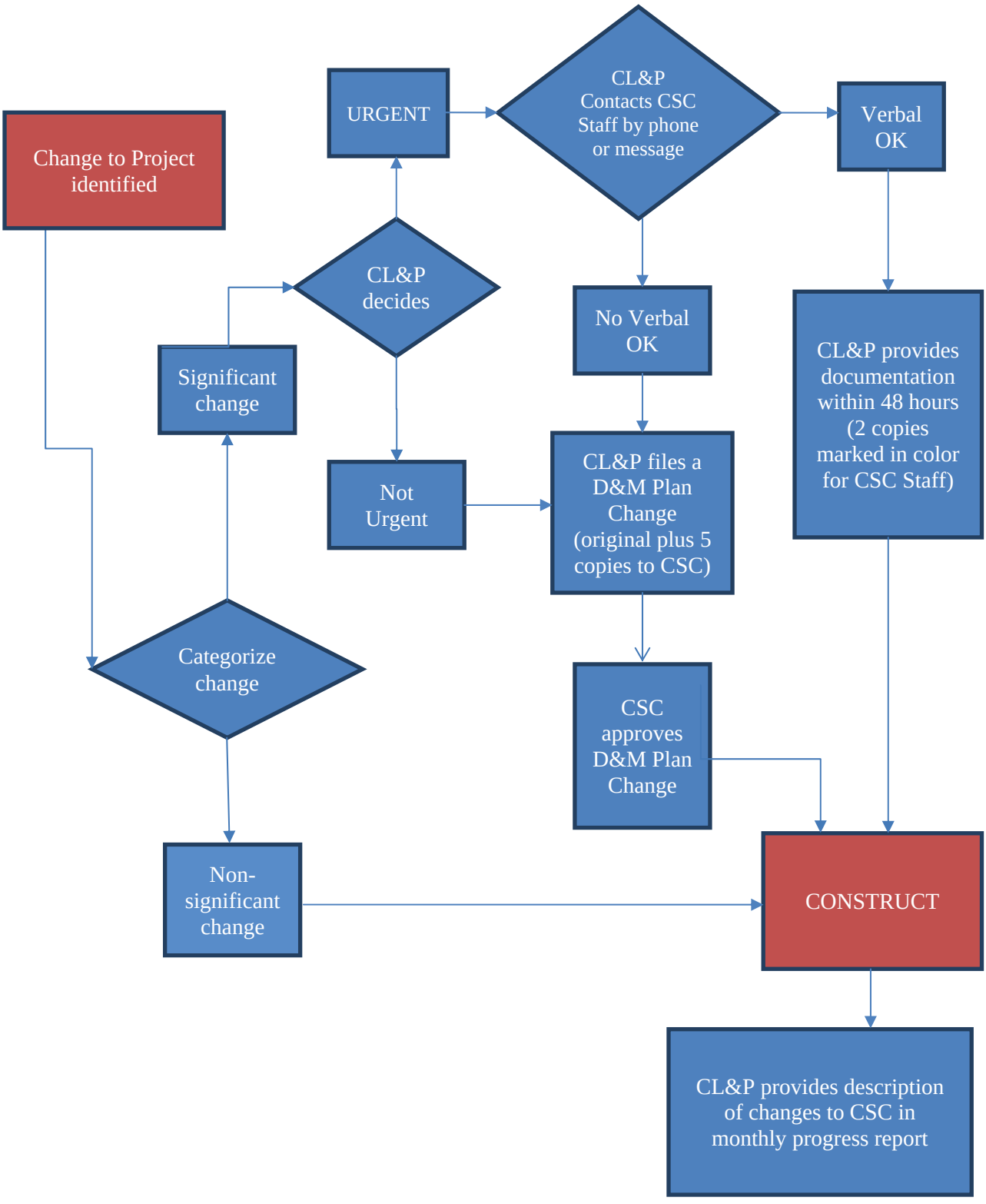

Table 7-1
Reports to be Provided to the Council

Report Type (Regulatory Requirement)	Content
Monthly Construction Progress Report (RCSA Section 16-50j-62(b)(3))	Report will also identify changes and deviations to the approved D&M Plan, including both significant changes involving Council pre-approval and minor changes that did not require Council action.
Bi-Weekly Independent Environmental Inspector Report (Docket No. 424, Decision and Order, Condition 8)	The Independent Environmental Inspector will submit to the Council and the Chief Elected Officials of each involved town (or their designated representatives) a written report regarding the status of construction activities and environmental protection pursuant to the Council's Decision and Order, Certificate, and the D&M Plan.
Final Report (RCSA Section 16-50j-62(c))	CL&P will provide to the Council a final report no later than 180 days after the completion of all site construction and rehabilitation. The report will identify the following: 1 All agreements with abutters or other property owners regarding special maintenance precautions 2 Significant changes to the D&M Plan that were required because of property rights or underlying and adjoining owners or for other reasons 3 The location of construction materials that have been left in place, including but not limited to, culverts, erosion control structures along watercourses and steep slopes, and corduroy roads in regulated wetlands 4 The location of areas where special plantings and reseeding have been performed 5 The actual construction cost of the facility, including but not limited to the following costs: a. Clearing and access; b. Construction of the facility and associated equipment; c. Rehabilitation; and d. Property acquisition for the site or access to the site.
Operating Report (Docket No. 424, Decision and Order, Condition 9)	Within three months after the conclusion of the first year of the operation of all Project facilities, and annually thereafter for three years, CL&P will provide to the Council a report that describes the overall condition, safety, reliability, and operation of the transmission systems.

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8. PUBLIC REVIEW AND OUTREACH

8.1 PUBLIC REVIEW

The stations that will be modified as part of the Project are located in the towns of Lebanon and Killingly. As part of the D&M Plan preparation process, CL&P consulted with officials of these two towns, issued draft D&M Plans[6] for public review, and provided opportunities for town representatives, other agencies, and the public to comment on the Plans.

On June 3, 2013, CL&P provided a draft of the D&M Plans to the Chief Elected Officials (CEOs) of Lebanon and Killingly, as well as to the CEOs of the other towns along the Project transmission line route and to all parties and intervenors in the Project (Council Docket 424). Along with the draft D&M Plans, CL&P extended an invitation for the CEOs and/or other town officials to send written comments regarding the Plans.

In addition, CL&P encouraged public participation in the D&M Plan review process, as follows:

- Two public review sessions were held on June 12 and June 13, 2013, in the towns of Mansfield and Brooklyn, respectively. These public review sessions were designed to solicit public input regarding the draft D&M Plans.

- In mid-May 2013, a postcard (refer to Volume 2, Attachment G) was mailed to the residents and businesses near the stations and along and near the Project route, inviting them to participate in the D&M Plan review process, and providing information regarding the dates and locations of two public review sessions. In addition, notifications about the public review sessions were posted on the Project website, placed in local newspapers, and issued to the media via a press release. Further, signs were placed at the local meeting facility the day of each event.

- Hard copies of the draft D&M Plans also were hand-delivered to the public libraries in all 11 towns traversed by the Project facilities (including Lebanon and Killingly) and posted on the Project website at www.NEEWSprojects.com. A postage-paid comment card (refer to Volume 2, Attachment G) was made available at the local public libraries for members of the public to submit comments on the draft D&M Plan. Comment cards also were provided at the two public review sessions.

[6] The draft D&M Plan for the stations and the draft D&M plan for the new 345-kV transmission line and related line modifications were provided for public review and comment at the same time. Public outreach (i.e., consultations with town CEOs, public open houses) was conducted jointly for both the station and the 345-kV transmission line D&M Plans.

- In May and June 2013, CL&P met with officials of the 11 Project towns, including Lebanon and Killingly, as well as with targeted stakeholders to review the draft D&M Plans.

- The public review comment period on the draft D&M Plans extended for four weeks (to July 1, 2013). The public was encouraged to submit written comments or to otherwise contact Project representatives regarding the draft D&M Plans at any time during this period.

No public or agency comments were received regarding this station D&M Plan, either at the public open houses or during the associated comment period. As a result, Volume 2, Attachment G includes only the public outreach materials provided by CL&P as part of the station D&M Plan review process.

8.2 PUBLIC OUTREACH DURING CONSTRUCTION

Throughout the Project planning and the Council's siting processes, CL&P conducted extensive community outreach, including a series of pubic open houses during both the Municipal Consultation and D&M Plan phases of the siting process. CL&P will continue its outreach efforts through the Project's construction phases and will notify affected stakeholders of upcoming construction activities.

A Project hotline (1-866-99-NEEWS) and dedicated email address (NEEWS@nu.com) are currently in operation and will continue as the primary means for residents, businesses, and other stakeholders to contact Project representatives throughout construction of the Project. The public can also access the Project website (www.NEEWSprojects.com), which provides an overview of the Project, a map of the Project facilities, Project Fact Sheet, and CL&P Project contact information.

Once construction begins, the website will include regular town-by-town construction updates that will be easily accessible by town residents, businesses, and other stakeholders.

In addition, CL&P will offer to brief nearby residents and businesses most affected by Project construction activities and other interested stakeholders regarding the construction process, key construction stages, and expected construction timelines. Project representatives will also contact adjacent and nearby residents and businesses to notify them of upcoming construction activities and will be available throughout the construction process to address any specific questions or concerns.

9. GLOSSARY OF TERMS

Access Road: A road that provides access into and out of the stations, staging areas, or ROW.

Ampere: (Amp): A unit of measure for the flow (current) of electricity. A typical home service capability (i.e., size) is 100 amps; 200 amps is required for homes with electric heat.

Arrester (surge arrester): Protects lines, transformers and equipment from lightning and other voltage surges by carrying the charge to ground. Arresters serve the same purpose as a safety valve on a steam boiler.

BMP: Best Management Practice

Bus: Electrical conductor that serves as a common connection between the source of electric power and the load circuits.

CCVT: Coupling capacitor voltage transformers

CDOT: Connecticut Department of Transportation (also, ConnDOT)

Certificate: Certificate of Environmental Compatibility and Public Need (from the Connecticut Siting Council)

Circuit: A system of conductors (three conductors or three bundles of conductors) through which an electrical current is intended to flow and which may be supported above ground by transmission structures or placed underground.

Circuit Breaker: A switch, located in stations, that automatically disconnects power to the circuit in the event of a fault condition. It performs the same function as a circuit breaker in a home.

CL&P: The Connecticut Light and Power Company

Conductor: A metallic wire, busbar, rod, tube or cable which serves as a path for electric current flow.

Conduit: Pipes, usually PVC plastic, typically encased in concrete, or rigid galvanized steel (RGS) for housing underground power and control cables.

Contingency: The unexpected failure or outage of a system component, such as a generator, transmission line, circuit breaker, switch or other electrical element.

CONVEX: Connecticut Valley Electric Exchange

Council or CSC: Connecticut Siting Council

CT DEEP: Connecticut Department of Energy and Environmental Protection

D&M Plan: Development and Management Plan (required by the Connecticut Siting Council)

dBA: Decibel, on the A-weighted scale.

DECD: Connecticut Department of Economic and Community Development

D&O, Decision and Order: Council approval of the Project

Disconnect Switch: Equipment installed to isolate circuit breakers, transmission lines or other equipment for maintenance or sectionalizing purposes.

Distribution Line or System: Facilities that transport electrical energy from the transmission system to the customer.

Docket 424: Council Docket number for the Project

DPUC: Connecticut Department of Public Utility Control (former agency); now part of the Public Utility Regulatory Authority (PURA), which is part of CT DEEP

During Construction: Construction refers to Project activities commencing with work site / staging area preparation through final restoration and site stabilization.

Electric Field: Produced by voltage applied to conductors and equipment. The electric field is expressed in measurement units of volts per meter (V/m) or kilovolts per meter (kV/m); 1 kV/m is equal to 1,000 V/m.

Electric Transmission: The facilities (69 kV+) that transport electrical energy from generating plants to distribution substations.

EMF: Electric and magnetic fields.

Environmental Inspector, Environmental Monitor: Environmental scientist retained by CL&P to monitor the conformance of Project construction to the environmental requirements

Fault: A failure (short circuit) or interruption in an electrical circuit.

Frac Tank: Fractionization tank, used to temporarily hold water pumped from Project excavations or otherwise used during Project construction activities

Grounding System: Consists of ground rings, placed around transmission line poles and counterpoise as required

Ground Wire: Cable/wire used to connect wires and metallic structure parts to the earth. Sometimes used to describe the lightning shield wire.

Idling: The period when mobile construction equipment is not in motion or is not otherwise actively performing its designated function.

Independent Environmental Inspector(s): Environmental scientist with formal training in civil or environmental engineering, retained by CL&P but reporting to the Council to verify compliance with the Council's Decision and Order

kV: Kilovolt, equals 1,000 volts

kW: Kilowatt, equals 1,000 watts

Lightning Mast: A column or narrow-base structure containing a vertical conductor from its tip to earth, or that is itself a suitable conductor to earth. Its purpose is to intercept lightning strokes so that they do not terminate on objects located within its zone of protection. (Definition taken from IEEE 998)

Lightning Shield Wire: Electric cable located to prevent lightning from striking transmission circuit conductors.

Line: A series of overhead transmission structures which support one or more circuits; or in the case of underground construction, a duct bank housing one or more cable circuits.

Magnetic Field: Produced by the flow of electric currents; however, unlike electric fields, most materials do not readily block magnetic fields. The level of a magnetic field is commonly expressed as magnetic flux density in units called gauss (G), or in milligauss (mG), where 1 G = 1,000 mG.

MF: Magnetic Field

MHG: Material Handling Guidelines

MUTCD: Manual of Uniform Traffic Control Devices

MW: (Megawatts(s)) Megawatt equals 1 million watts, measure of the work electricity can do

MWh: Per megawatt hour

NAAQS: National Ambient Air Quality Standards

National Grid: National Grid, USA, parent company of Narragansett Electric Company and the New England Power Company

NDDB: Connecticut Natural Diversity Data Base (CT DEEP)

NEEWS: New England East – West Solution

NGVD: National Geodetic Survey Datum

NRCS: National Resources Conservation Service (U.S. Department of Agriculture)

NRHP: National Register of Historic Places

NU: Northeast Utilities (NUSCO and CL&P are wholly owned subsidiaries of NU)

NUSCO: Northeast Utilities Service Company

OH (Overhead): Electrical facilities installed above the surface of the earth.

OPGW: Optical groundwire (a shield wire containing optical glass fibers for communication purposes)

OSA: Office of State Archaeology (representing the SHPO for the review of this Project)

Project: Interstate Reliability Project

Protection/Control Equipment: Devices used to detect faults, transients and other disturbances in the

electrical system in the shortest possible time. They are customized or controlled per an entity's operational requirements.

PT: Potential transformer

PURA: Public Utilities Regulatory Authority (part of CT DEEP, formerly DPUC)

RCSA: Regulations of Connecticut State Agencies

Reactive Power: The portion of electricity that establishes and sustains the electric and magnetic fields of alternating-current lines and equipment owing to their inductive and capacitive characteristics. Reactive power is provided by generators, synchronous condensers, and capacitors, absorbed by reactive loads, and directly influences electric system voltage. Shunt capacitor and reactor capacities are usually stated in MVAR.

ROW: Right-of-Way

Shield Wire: See Lightning Shield Wire

SHPO: State Historic Preservation Office (Connecticut)

SPCP: Spill Prevention and Countermeasures Plan

Stormwater Pollution Control Plan: Is a sediment and erosion control plan that also describes all the construction site operator's activities to prevent stormwater contamination, control sedimentation and erosion, and comply with the requirements of the Clean Water Act.

Substation: Part of the electric transmission system, a high-voltage electrical facility with a fenced-in yard containing switches, transformers, line-terminal structures, and other equipment enclosures and structures to regulate and distribute electrical energy, such as receiving power from a generating facility, changing voltage levels, limiting power surges, etc. Adjustments of voltage, monitoring of circuits and other service functions take place in this installation.

Switchgear: General term covering electrical switching and interrupting devices. Device used to close or open, or both, one or more electric circuits.

Switching Station: A station that does not contain transformers and operates only at a single voltage level.

Terminal Structure: Structure typically within a substation that ends a section of transmission line.

T&E: Threatened and endangered species

Transformer: A device used to transform voltage levels to facilitate the efficient transfer of power from the generating plant to the customer. A step-up transformer increases the voltage while a step-down transformer decreases it.

Transmission Line: Any line operating at 69,000 or more volts.

USGS: United States Geological Survey (U.S. Department of the Interior).

VAR: Volt-ampere reactive power. The unit of measure for reactive power.

Vegetation Clearing: Removal of forest vegetation. May also refer to mowing or cutting of scrub-shrub vegetation.

Voltage: A measure of the push or force that transmits energy.

Watercourse: Rivers, streams, brooks, waterways, lakes, ponds, marshes, swamps, bogs, and all other bodies of water, natural or artificial, public or private.

Wave Trap: Part of the Power Line Carrier communication scheme. Prevents loss of communication signal by providing high impedance for the carrier signal and low impedance at the power system frequency.

Wetland: Is an area of land consisting of soil that is saturated with moisture, such as a swamp, marsh, or bog. CT DEEP and the U.S. Army Corps of Engineers have formal definitions of state and federal jurisdictional wetlands, respectively.

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APPENDICES

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APPENDIX A

CARD STREET SUBSTATION

This appendix describes the construction activities, plans, and procedures relevant to the Project modifications to the Card Street Substation. The appendix supplements the overall requirements presented in Sections 1 through 8 of this volume. All oversize figures, plans, and drawings regarding the modifications to Card Street Substation are included at the end of this appendix.

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APPENDIX A
CARD STREET SUBSTATION
TABLE OF CONTENTS

CARD STREET SUBSTATION PLANS AND DRAWINGS

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A.1 SITE LOCATION AND CHARACTERISTICS

A.1.1 Site Description

Card Street Substation is located in the northeastern corner of the Town of Lebanon (New London County) and occupies approximately 10 acres of a 150-acre parcel of CL&P-owned land that fronts on Card Street (refer to Figure A.1, USGS Key Map). There has been a substation at the site since the 1960s, and 345-kV equipment has been in operation there since 1969.

The modifications required to interconnect the Card Street Substation to the new 345-kV transmission line (the 3271 Line) will be accomplished within the developed (fenced) portion of CL&P's property. No expansion or modification to the existing substation fence line will be required for the Project.

In addition to the 150-acre property on which the substation is located, CL&P also owns land on the south side of Card Street, generally opposite the existing substation access road (refer to Figure A.1). This land includes a 0.99-acre vacant lot, as well as land beneath the 310 and 368 Lines, which interconnect to the substation from the southwest. CL&P will use the vacant lot for staging (e.g., material /equipment storage, parking) during the construction of the substation modifications.

A.1.2 Environmental Resources and Land Use

Figure A.2 illustrates the location of the Card Street Substation and the associated staging area in relation to surrounding environmental resources and land uses. Table A-1 summarizes the environmental and land-use features at and near the substation.

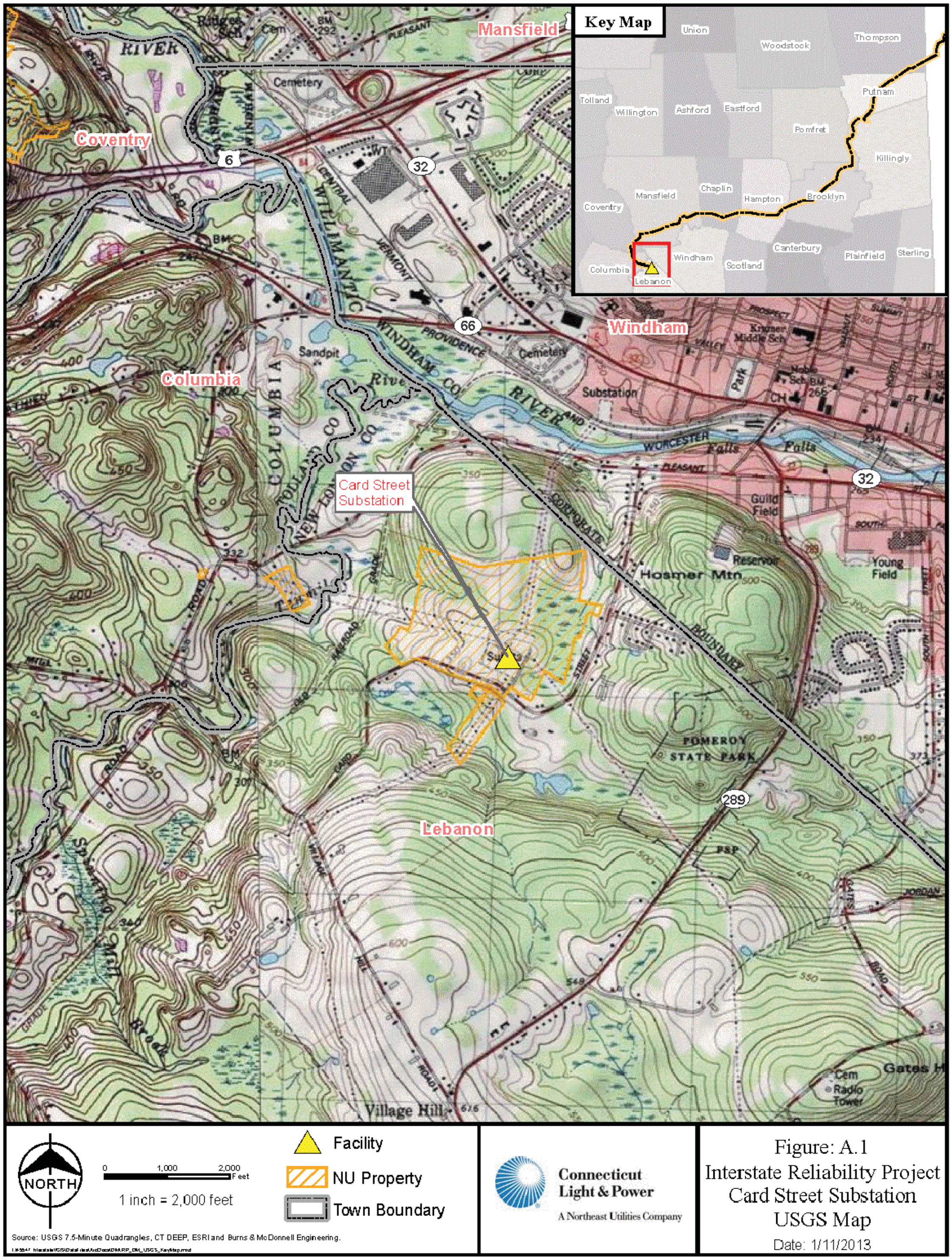

Figure: A.1
Interstate Reliability Project
Card Street Substation
USGS Map
Date: 1/11/2013

N
W E
S

0 200 Feet

Source: CT DEEP, USGS and Bums & McDonnell Engineering.
I:\45547 Interstate\GIS\DataFiles\ArcDocs\DM\IRP_DM_Appendix2_Aerial_Map.mxd

Town Boundary
NU Property

Note: Scale is 1" = 200' when printed at 11" x 17".

Connecticut Light & Power
A Northeast Utilities Company

Figure: A.2
Interstate Reliability Project
Card Street Substation
Lebanon, CT
Aerial Map

Date: 2/22/2013

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Table A-1
Summary of Environmental Resources and Land Uses: Card Street Substation Vicinity

Environmental / Land Use Feature	Description
Geology, Topography, and Soils:	• Topography relatively level; elevation of 350 feet NGVD at the station. • Bedrock typically >60 inches • Soils on substation site are classified as "Urban Land" (i.e., altered by previous electric facility development activities) • Soils on CL&P-owned vacant lot on south side of Card Street and on southern portion of CL&P property near access road outside substation fence are classified as locally-important farmland • No soils on CL&P properties are identified by CT DEEP as being susceptible to erosion
Water Resources	• No streams on CL&P property in vicinity of substation or vacant lot • Five wetlands located on CL&P property, outside of but near the fence line of the developed substation. Of these, three are near the substation fence: wetland W21-14 and W21-15 are located east of the developed portion of the station; wetland W21-15 is located to the northwest and includes a swale that extends along the southern substation fence line. (No wetlands will be affected by the station modification activities.)
Sensitive Biological Resources (Threatened and Endangered Species)	None
Cultural Resources	No known resources; low probability for the presence of intact potentially significant cultural resources
Land Uses	• Zoning of substation site: Rural residential and agricultural • Zoning in vicinity: Rural residential and agricultural • Land uses: Residential along Card Street; forested, shrubland, wetlands on CL&P property surrounding developed substation • Nearest residence: Approx. 400 feet from southern substation fence line • Public lands and recreational areas: None • Statutory facilities nearby: None
Public Road Network	Access to site is via Card Street, a two-lane residential street.
On-Site Access	An existing access road to the substation extends off Card Street.

A.2 DESCRIPTION OF SUBSTATION MODIFICATIONS AND CONSTRUCTION ACTIVITIES

The Project modifications at the Card Street Substation will expand the existing three-position 345-kV ring bus to a five-position ring bus. The expansion includes one new 345-kV transmission line-terminal position for the new 3271 Line and the splitting of the current ring bus position that supports the Line 330 and autotransformer 5X into two separate bus positions. Equipment additions, which are illustrated on the attached drawings, will consist of the following:

- Three new 345-kV circuit breakers;
- One new 345-kV transmission line terminal structure, approximately 110 feet in height;
- Four lightning masts, approximately 110 feet in height;
- Four 345-kV disconnect switches;
- 435 linear feet of 345-kV bus, and 500 feet of control-cable trench;
- Three surge arresters;
- Nine new coupling capacitor voltage transformers (CCVTs), six associated with the new 3271 Line and three associated with 345-kV Bus B (adjacent to the autotransformer); and
- One wave trap and line tuner.

In addition, new protection and control equipment and a new primary battery will be installed within the existing relay/control enclosure, and some other work will occur to ensure that existing primary and backup protection and control equipment in the relay/control enclosure complies with requirements for proper separation. Further, several existing 345-kV disconnect switches will be replaced to increase their current-flow ratings.

As part of the Project, the following will be dismantled and removed from the substation:

- Five three-phase bus supports and foundations; and
- Eight one-phase bus supports and foundations.

Some below grade conduit and cabling to existing equipment also will be either abandoned in place or removed, and the primary batteries in the control enclosure will be replaced. In addition, a 260-foot-long section of temporary bus will be installed during construction to reduce the number of line or equipment outages that would otherwise be necessary to construct the permanent additions. For 210 feet of this length, the temporary bus will consist of conductors supported by two temporary H-frame structures, each approximately 75 feet in height. The temporary bus will be removed after the completion of construction.

Coincident with the Project modifications, 10 disconnect switches also will be replaced. These replacements are part of the standard substation maintenance program.

A.3 SITE-SPECIFIC CONSTRUCTION PROCEDURES AND PLANS

The following procedures and plans supplement those requirements contained in Sections 1 through 8 of this volume. Drawings depicting the locations of construction activities associated with the Card Street Substation modifications are attached to this appendix.

A.3.1 Variations from Project-wide Construction Procedures and Plans

The modifications to the Card Street Substation will be in accordance with the Project-wide construction procedures and plans, as detailed in Sections 1-8 of this Volume and in Volume 2. No deviations from these procedures are anticipated.

A.3.2 Locations of Construction Support Sites

The principal construction support areas will be located within the fenced portion of the existing substation. Such on-site staging areas are expected to be used for temporary construction office trailers, parking, material laydown, and related storage and construction support activities.

In addition to the on-site staging areas, CL&P's property on the opposite side of Card Street will be used as a supplemental staging area. This property will be used for construction-related vehicle and equipment parking, material laydown, and related storage and construction support activities.

A.3.3 Vegetation Clearing (Locations and Methods)

No forest vegetation clearing will be required. Some herbaceous or shrub species on the staging area (CL&P property on the west side of Card Street) may have to be mowed or otherwise covered with gravel to facilitate construction staging and parking.

A.3.4 Substation and Staging Area Access Roads

The existing access to the substation (off Card Street) is adequate to support the Project construction activities. No improvements to this road will be required.

Development of a temporary graveled access road of sufficient width to accommodate the turning radius of construction equipment will be required at the staging area on the west side of Card Street.

A.3.5 Site Access Routes and Traffic Control Measures

Construction vehicles and equipment will access Card Street Substation via the existing station access road off Card Street. Card Street is accessible from the northeast using State Routes 32 and 66, as well as local roads, and from the northwest via State Route 66 and local roads. The construction contractor will post appropriate construction "work zone" signs along Card Street. The signs will posted so as to be visible to those traveling in either direction along Card Street.

A.3.6 Temporary Spoil Storage

Only limited excavation activities will be required for the modifications to Card Street Substation. Potential sites for temporary spoil storage, if required, are identified on the attached drawings. Any temporary spoil stockpiles will be protected with appropriate erosion and sedimentation controls.

A.3.7 Erosion and Sedimentation Control

Erosion and sedimentation control measures will be established and maintained in accordance with NU's BMPs and the CT DEEP permit (refer to Volume 2, Attachments E and F, respectively). Such controls will be deployed to minimize the potential for any sedimentation into the water resources in the vicinity of the substation (refer to Figure A-4).

Erosion and sedimentation control measures will be established and maintained, as required, in accordance with the BMPs and the CT DEEP permit (refer to Volume 2, Attachments E and F, respectively). Such controls will be deployed around areas of disturbed soils to minimize the potential for sedimentation into the water resources in the vicinity of the substation, or off-site erosion (refer to Figure A-4).

A.3.8 Spill Prevention and Countermeasures

The construction activities at Card Street Substation will conform to the Project SPCP (refer to Volume 2, Attachment B). The construction contractor will maintain appropriate and adequate supplies of spill containment and clean-up materials on-site, and will dedicate a storage area for such purposes.

A.3.9 Site Restoration

After the installation of the new equipment at Card Street Substation, the areas affected by construction within the substation will be graveled. All construction debris and temporary construction support supplies and equipment will be removed. Waste materials will be disposed of only at regulated disposal sites.

The temporary staging area located on CL&P's property on the west side of Card Street will be similarly cleaned up. At this staging area, gravel used for the accessway from Card Street and for construction support may be left in place and used for stabilization. Disturbed areas not otherwise stabilized with gravel will be seeded with an upland herbaceous mix.

A.4 NOTIFICATIONS

No special regulatory notifications are required for the Card Street Substation work. However, given the proximity of the substation to residences along Card Street, CL&P will notify nearby property owners regarding the commencement of construction at the substation.

CARD STREET SUBSTATION
PLANS AND DRAWINGS

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APPENDIX B

LAKE ROAD SWITCHING STATION

This appendix describes the construction activities, plans, and procedures relevant to the Project modifications to the Lake Road Switching Station. The appendix supplements the overall requirements presented in Sections 1 through 8 of this volume. All oversize figures, plans, and drawings regarding the modifications to the Lake Road Switching Station are included at the end of this appendix.

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APPENDIX B
LAKE ROAD SWITCHING STATION
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LAKE ROAD SWITCHING STATION PLANS AND DRAWINGS

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B.1 SITE LOCATION AND CHARACTERISTICS

B.1.1 Site Description

The Lake Road Switching Station, which was developed in 2001, is located in the northwestern portion of the Town of Killingly (Windham County), on private property owned by Lake Road Generating Company, L.P. at 56 Alexander Parkway. The switching station is adjacent to and north of the Lake Road Generating Station and occupies an easement area of approximately 3.5 acres within the 60-acre generating station property (refer to Figures B-1 and B-2). The generating station is owned by EquiPower Resources Corporation.

The Project's two new 345-kV transmission lines (i.e., the 3271 Line and the 341 Line) will interconnect to the Lake Road Switching Station. All of the new equipment that will be added to the switching station will be installed within the existing station fence line. A second ground-grid wire will be buried approximately 7 feet outside of the station fence on the west and north.

In addition, due to limited space within the switching station's fenced area, CL&P will use portions of the Lake Road Generating Station property for construction staging and support (e.g., material laydown, equipment and vehicle parking, construction office trailers). These proposed staging and support sites are all within existing easement areas in favor of CL&P. The staging areas, all of which have been subject to disturbance as a result of prior construction activities and have since been revegetated or paved, are illustrated on the attached drawings.

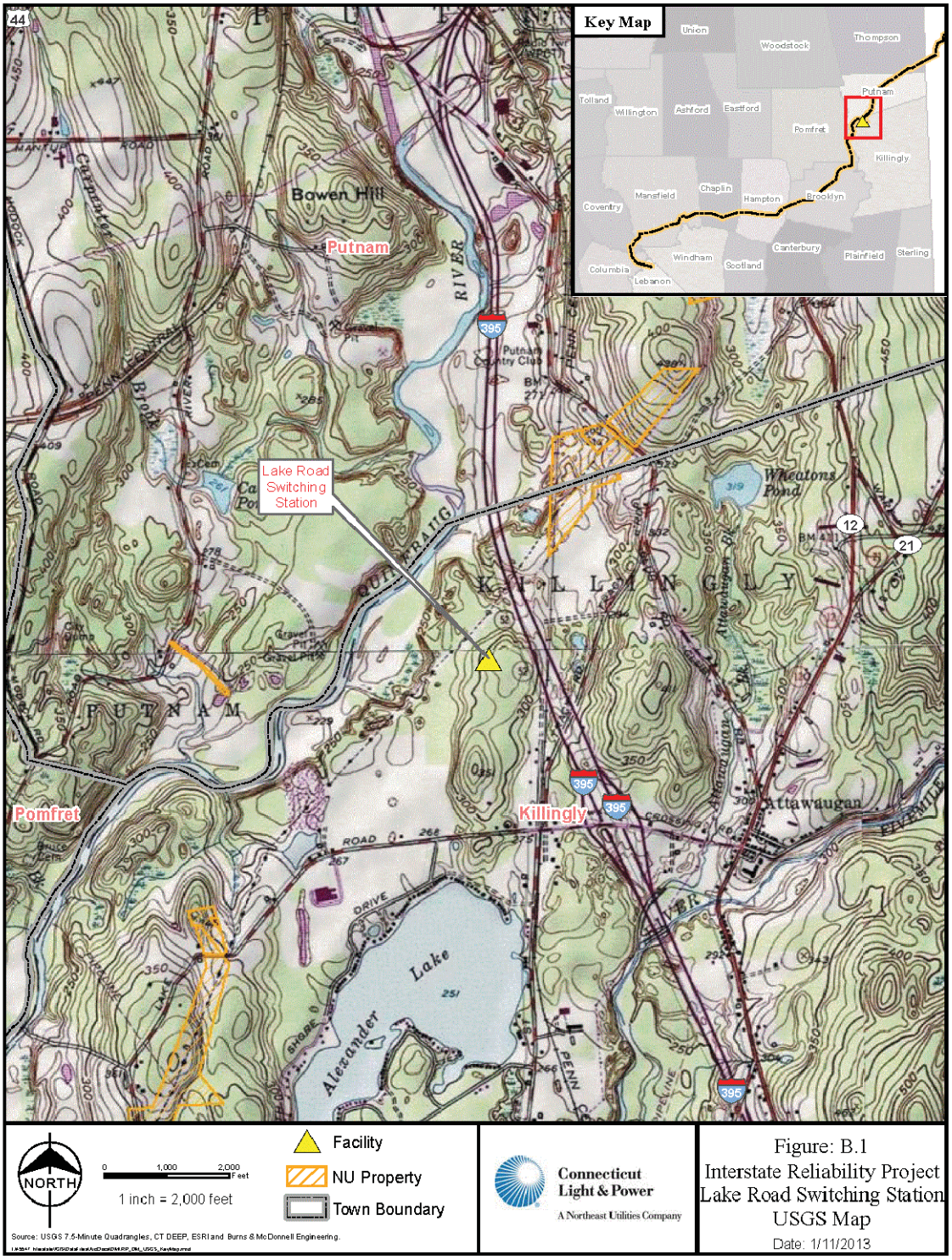
B.1.2 Environmental Resources and Land Use

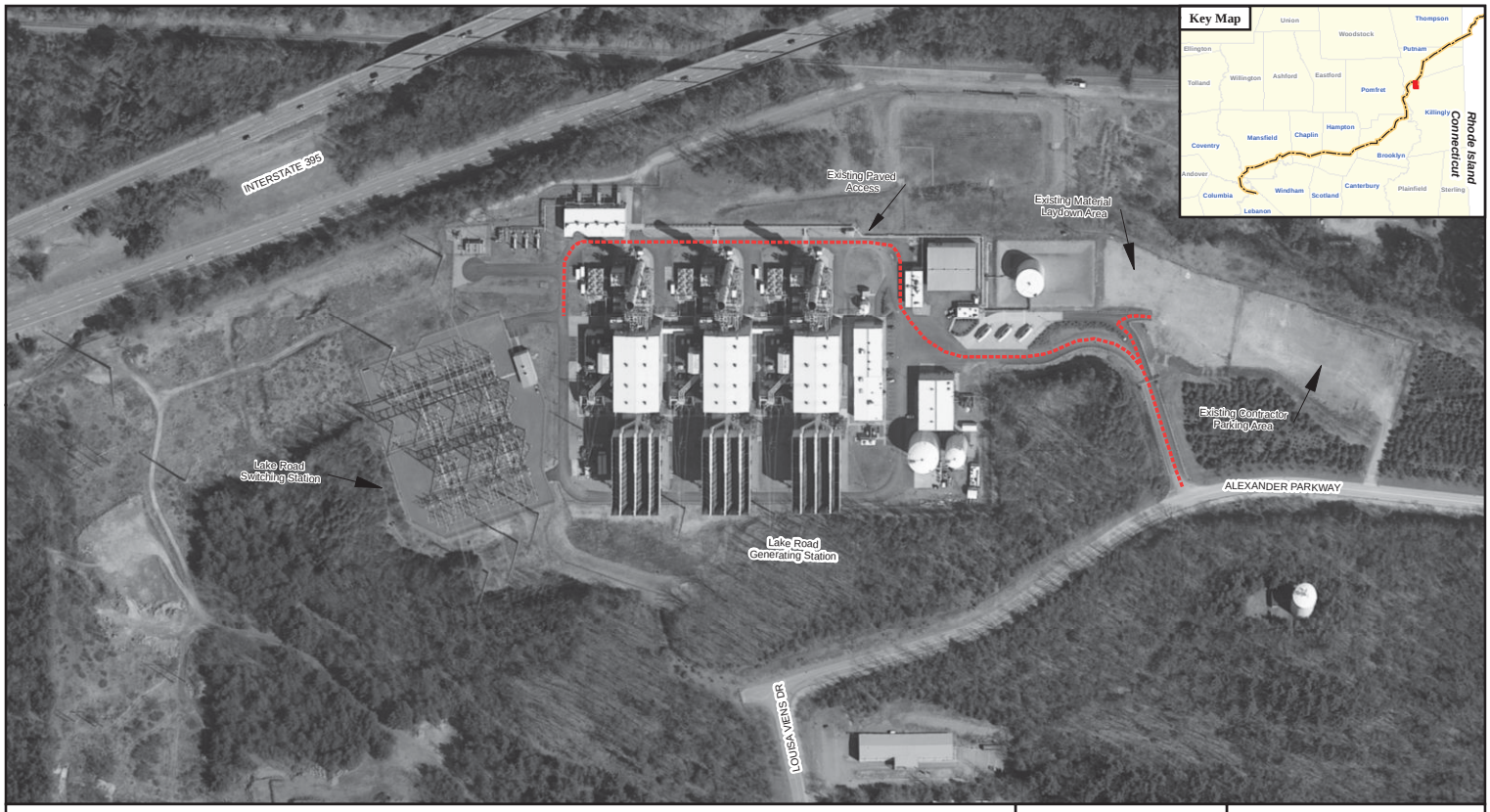
Figure B-2 illustrates the location of the Lake Road Switching Station and the associated staging areas in relation to surrounding environmental resources and land uses. Table B-1 summarizes the environmental and land-use features at and near the switching station.

B.2 DESCRIPTION OF SUBSTATION MODIFICATIONS AND CONSTRUCTION ACTIVITIES

The Project modifications at Lake Road Switching Station are illustrated on the drawings in Section B.5. The modifications include the completion of the existing partial switchyard bay and building a new partial bay to interconnect the new 345-kV lines from Lake Road to Card Street Substation (3271 Line) and Lake Road to National Grid's West Farnum Substation (341 Line). The connection of the existing 330 Line from Card Street Substation will be relocated to the new partial bay. The new 3271 Line will be installed in the former 330 Line position with new protective relays.

The new equipment will be accommodated within the existing switching station fence. The areas immediately outside the fence that will be affected by the addition of a ground-grid wire are presently maintained in low-growth vegetation.


Key Map
Union
Woodstock
Thompson
Putnam
Tolland
Willington
Ashford
Eastford
Pomfret
Killingly
Mansfield
Chaplin
Hampton
Brooklyn
Coventry
Canterbury
Plainfield
Sterling
Windham
Scotland
Columbia
Lebanon
Bowen Hill
Putnam
Lake Road Switching Station
Wheatons Pond
Killingly
Pomfret
Attawaugan
Lake
Alexander
NORTH
0 1,000 2,000 Feet
1 inch = 2,000 feet
Facility
NU Property
Town Boundary
Source: USGS 7.5-Minute Quadrangles, CT DEEP, ESRI and Burns & McDonnell Engineering.
Connecticut Light & Power
A Northeast Utilities Company
Figure: B.1
Interstate Reliability Project
Lake Road Switching Station
USGS Map
Date: 1/11/2013



Town Boundary

NU Property

0 200 Feet

Source: CT DEEP, USGS and Burns & McDonnell Engineering.

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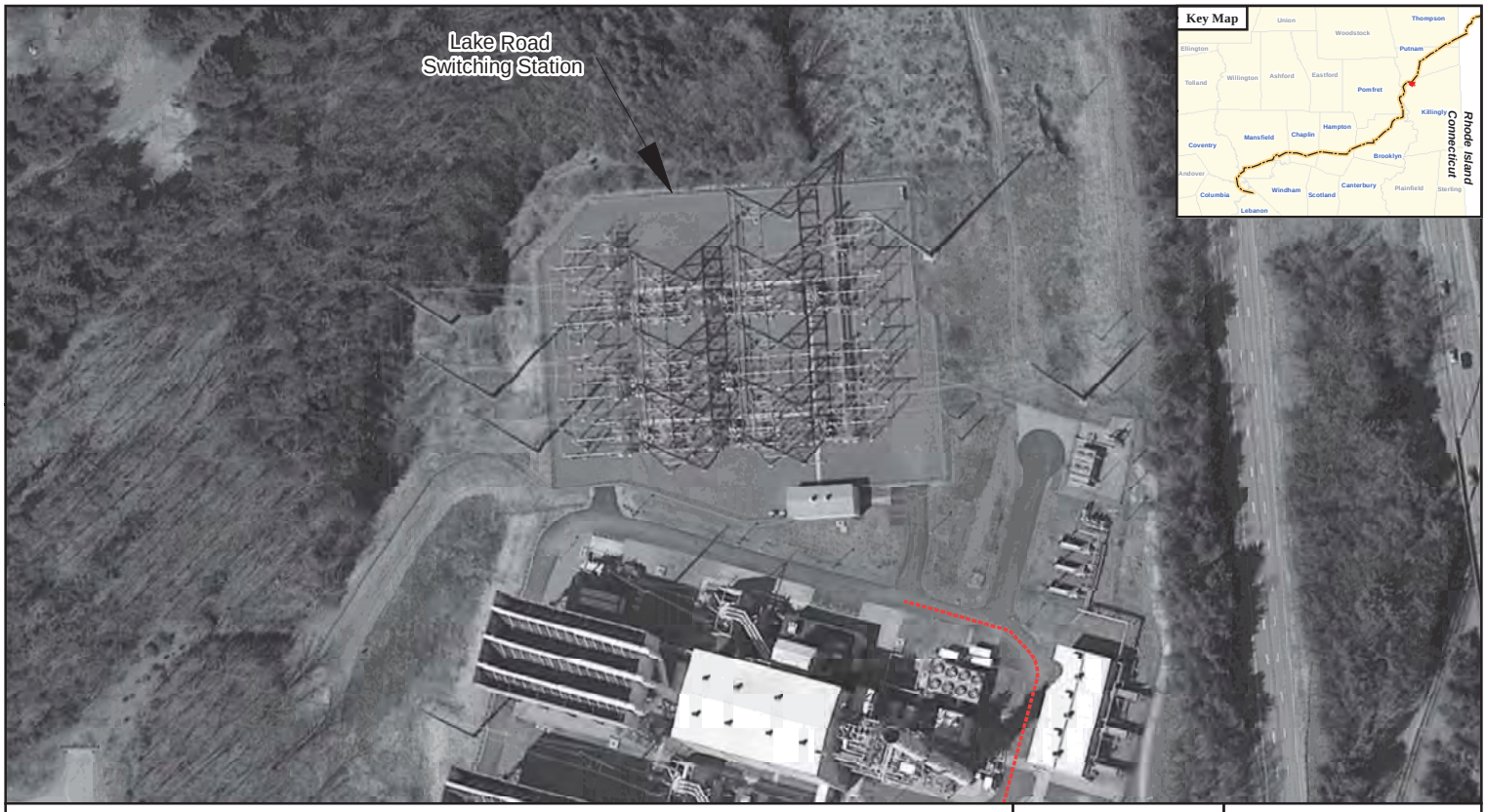
us\45547\GIS\Datafiles\ArcDocs\DM\IRP_DM_Appendix2_Aerial_Map_07_11_2013.mxd

Note: Scale is 1" = 200' when printed at 11" x 17".

Connecticut Light & Power
A Northeast Utilities Company

Figure: B.2
Interstate Reliability Project
Lake Road Switching Station
Killingly, CT
Aerial Map

Date: 7/11/2013



Town Boundary

NU Property

0 100 Feet

Source: CT DEEP, USGS and Bums & McDonnell Engineering.

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Note: Scale is 1" = 100' when printed at 11" x 17".

Connecticut Light & Power
A Northeast Utilities Company

Figure: B.2a
Interstate Reliability Project
Lake Road Switching Station
Killingly, CT
Aerial Map

Date: 2/22/2013

Table B-1
Summary of Environmental Resources and Land Uses: Lake Road Switching Station

Environmental / Land Use Feature	Description
Geology, Topography, and Soils:	• Topography relatively level; elevation of 295 feet NGVD, upland • Depth to bedrock typically >60 inches • Soils on 3.5-acre switching station site are classified as "Urban Land" (i.e., altered by previous development activities)
Water Resources	• No streams or wetlands on or within 200 feet of the switching station site • A 0.6-acre storm water detention basin is located south of the switching station and west of the Lake Road Generating Station, on the generating station property
Sensitive Biological Resources (Threatened and Endangered Species)	• Switching station site is in vicinity of known habitat for two state-listed moth species (Barrens metarranthis moth [*Metarranthis apiciaria*] and the slender clearwing [*Hemaris gracilis*]). Although both species were observed during field surveys along the transmission line ROW north of the switching station, the modifications to the switching station will not affect any habitat for these two species.
Land Uses	• Zoning of switching station site: Industrial • Zoning in vicinity: Industrial • Land uses: Commercial / industrial, Interstate 95 • No residences in vicinity • Statutory facilities nearby: None
Public Lands and Recreational Areas	• None
Cultural Resources	• No known cultural resource sites. Low probability for the presence of undiscovered potentially significant cultural resources. All construction activities will be on previously disturbed portions of the switching station site. Staging areas will be on previously disturbed portions of the generating station property.
Public Road Network	• Access to site is via Alexander Parkway, Louisa Viens Drive, Old Trolley Road, and Lake Road
On-Site Access	• An existing access road to the switching station extends off Alexander Parkway.

The Project will modify the Lake Road Switching Station as follows:

- Three 345-kV circuit breakers;
- Six 345-kV disconnect switches;
- 170 feet of 345-kV bus;
- Six surge arresters;
- 10 coupling capacitor voltage transformers (CCVTs);
- Four potential transformers (PTs); and
- Two wave traps.

In addition, new protection and control equipment will be installed within the switching station's existing relay/control enclosure.

B.3 SITE-SPECIFIC CONSTRUCTION PROCEDURES AND PLANS

B.3.1 Variations from Project-wide Construction Procedures and Plans

The modifications to the Lake Road Switching Station will be in accordance with the Project-wide construction procedures and plans, as detailed in Sections 1-8 of this Volume and in Volume 2. No deviations from these procedures are anticipated.

B.3.2 Locations of Construction Support Sites

Construction support areas will be located either within the fenced portion of the existing switching station or on Lake Road Generating Station property, within areas previously or currently used for similar construction support purposes (refer to Figure B-2 for the locations of staging areas). These staging areas are expected to be used for temporary construction office trailers, parking, material laydown, and related storage and construction support activities.

B.3.3 Vegetation Clearing (Locations and Methods)

No forest vegetation clearing will be required. Some herbaceous or shrub species will have to be mowed or will otherwise be affected by excavation activities required to install the expanded grounding along and immediately outside portions of the switching station fence line.

B.3.4 Switching Station and Staging Area Access Roads

The existing access to the switching station (via the gate at the Lake Road Generating Station) is adequate to support the Project construction activities. No improvements to this road will be required.

Because access to the Lake Road Switching Station is via the security gate maintained by the Lake Road Generating Station, CL&P will coordinate with representatives of the generating station regarding access procedures for construction activities.

B.3.5 Site Access Routes and Traffic Control Measures

Construction vehicles and equipment are expected to access the Lake Road Switching Station via the existing access to the Lake Road Generating Station. The primary public road access to the station includes Alexander Parkway, Lake Road, and Attawaugan Crossing Road. Interstate 395 (Exit 94) is located approximately 0.5 mile to the east of the site. All of the primary access points to the site are through industrial areas.

Because access to the Lake Road Switching Station is via access roads within the Lake Road Generating Station, CL&P will coordinate with representatives of the generating station regarding procedures for traffic control measures, if any. Construction work zone signs may be posted along Alexander Parkway, near the generating station security gate/access road, as appropriate.

B.3.6 Temporary Spoil Storage

Limited excavations will be required to install the new equipment within the switching station and for the new ground-grid wire. Potential sites for temporary spoil storage, if required, are identified on the attached drawings. Any temporary spoil stockpiles will be protected with appropriate erosion and sedimentation controls.

B.3.7 Erosion and Sedimentation Control

Erosion and sedimentation control measures will be established and maintained, as required, in accordance with NU's BMPs and the CT DEEP permit (refer to Volume 2, Attachments E and F, respectively). Such controls will be deployed around areas of disturbed soils to minimize the potential for off-site erosion (refer to Figure B-4).

B.3.8 Spill Prevention and Countermeasures

The construction activities at Lake Road Switching Station will conform to the Project SPCP (refer to Volume 2, Attachment B). The construction contractor will maintain appropriate and adequate supplies of spill containment and clean-up materials on-site, and will dedicate a storage area for such purposes.

B.3.9 Site Restoration

After the installation of the new equipment at the Lake Road Switching Station, the areas affected by construction within the station fence will be graveled. All construction debris and temporary construction support supplies and equipment will be removed. Waste materials will be disposed of only at regulated disposal sites. Disturbed areas located outside the fence line will be reseeded with an appropriate herbaceous seed mix, or will be graveled. Temporary staging areas will be restored to pre-construction conditions or as otherwise specified pursuant to agreement with the Lake Road Generating Station.

B.4 NOTIFICATIONS

In addition to the notice requirements specified in Section 7 of this document, as requested by the Town of Killingly[7], a copy of this final D&M Plan, as approved by the Council, will be provided to the Town of Killingly Planning Department.

[7] Correspondence dated April 19, 2012 from the Town of Killingly to the Council.

LAKE ROAD SWITCHING STATION
PLANS AND DRAWINGS

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APPENDIX C

KILLINGLY SUBSTATION

This appendix describes the construction activities, plans, and procedures relevant to the Project modifications to the Killingly Substation. The appendix supplements the overall requirements presented in Sections 1 through 8 of this volume. All oversize figures, plans, and drawings regarding the modifications to Killingly Substation are included at the end of this appendix.

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APPENDIX C
KILLINGLY SUBSTATION
TABLE OF CONTENTS

KILLINGLY SUBSTATION PLANS AND DRAWINGS

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C.1 SITE LOCATION AND CHARACTERISTICS

C.1.1 Site Description

Killingly Substation is located at 257 Tracy Road, in the northern portion of the Town of Killingly, adjacent to the Town of Putnam border and approximately 0.5 mile northeast of the Lake Road Switching Station. The Killingly Substation, which was completed in 2006, interconnects the 3348 and 347 Lines with an autotransformer that supplies power to a 115-kV switchyard, and from there, to four 115-kV circuits. The substation occupies a fenced area of approximately 5.6 acres, within a 29.4-acre property owned by CL&P. The fenced substation area is graveled and developed entirely for utility use (refer to Figures C-1, C-2, and C-3).

C.1.2 Environmental Resources and Land Use

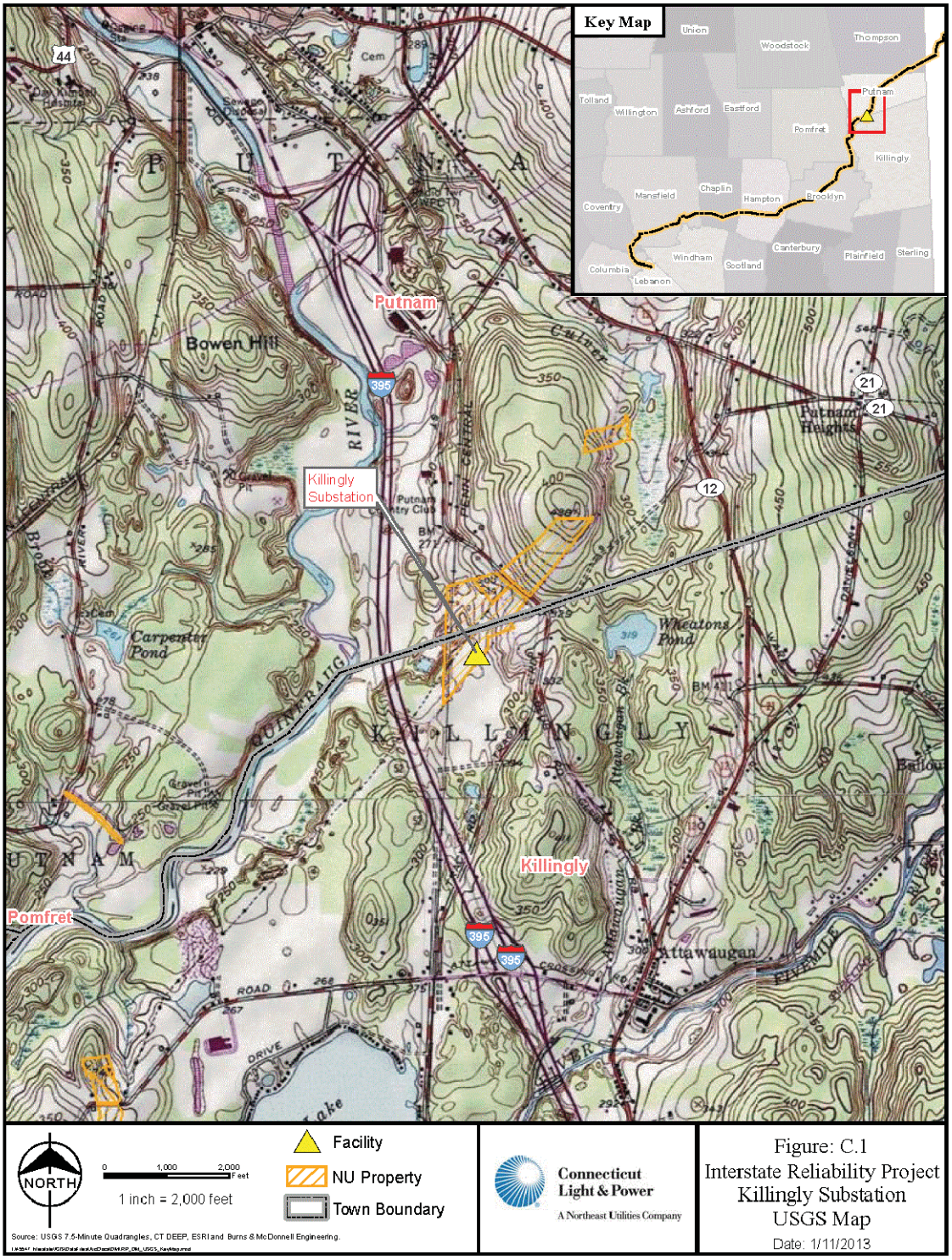
Killingly Substation is located in an industrial/commercial area. Figure C-2 illustrates the location of Killingly Substation in relation to surrounding environmental resources and land uses. Table C-1 summarizes the environmental and land-use features at and near the substation.

C.2 DESCRIPTION OF SUBSTATION MODIFICATIONS AND CONSTRUCTION ACTIVITIES

CL&P's new 345-kV transmission line from Lake Road Switching Station to the Rhode Island border (i.e., the 341 Line) will traverse through Killingly Substation, but will not electrically connect to it. No new switchyard equipment will be added to the substation, and all construction activities will be located within the fenced (developed and graveled) portion of the existing station.

To extend the 341 Line through the substation, CL&P will install two new 345-kV transmission line structures within the fenced substation yard. These structures will be approximately 110 feet in height and will be similar in appearance to the two existing line termination structures at the substation. The new 341 Line conductors will span across the substation, between these two new line structures. From an OPGW splice can mounted on one of these structures, fiber strands will run down the structure and then underground to bring a communications path to a new relay for the 347 Line that will be located in the existing control enclosure.

In addition, a lightning shield wire will be removed between each of two existing 115-kV line terminal structures in the substation and two existing 345-kV line structures outside the yard. One of the two shield wires to be removed extends to existing 345-kV line structure 9267 in the 3348 line, while the second shield wire to be removed extends to existing 345-kV line structure 9268 in the 347 line.


Key Map
Union
Woodstock
Thompson
Putnam
Tolland
Willington
Ashford
Eastford
Pomfret
Killingly
Chaplin
Mansfield
Coventry
Hampton
Brooklyn
Canterbury
Windham
Scotland
Plainfield
Sterling
Columbia
Lebanon
Putnam
Bowen Hill
Killingly Substation
Carpenter Pond
Wheatons Pond
Killingly
Pomfret
Attawaugan
Putnam Heights
395
21
12
44
NORTH
0
1,000
2,000
Feet
1 inch = 2,000 feet
Facility
NU Property
Town Boundary
Source: USGS 7.5-Minute Quadrangles, CT DEEP, ESRI and Burns & McDonnell Engineering.
Connecticut Light & Power
A Northeast Utilities Company
Figure: C.1
Interstate Reliability Project
Killingly Substation
USGS Map
Date: 1/11/2013

Town Boundary

NU Property

0 200 Feet

Source: CT DEEP, USGS and Bums & McDonnell Engineering.

t:\45547 Interstate\GIS\DataFiles\ArcDocs\IDM\IRP_DM_Appendix2_Aerial_Map.mxd

Note: Scale is 1" = 200' when printed at 11" x 17".

Connecticut Light & Power
A Northeast Utilities Company

Figure: C.2
Interstate Reliability Project
Killingly Substation
Killingly, CT
Aerial Map

Date: 2/22/2013

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Table C-1
Summary of Environmental Resources and Land Uses: Killingly Substation

Environmental / Land Use Feature	Description
Geology, Topography, and Soils:	• Topography relatively level; elevation of 280 feet NGVD, upland • Depth to bedrock typically >60 inches • Soils on substation site are classified as "Urban Land" (i.e., altered by previous electric facility development activities) • Soils on and in vicinity of CL&P 29.4-acre property are identified by CT DEEP as having erosion susceptibility
Water Resources	• No streams or wetlands on substation site • Two small wetlands (W20-179 and W20-180) and a stream (S20-59A) associated with W20-180 are located northeast of the substation, on CL&P property near the access road leading to the substation • A 1.3-acre storm water detention pond is located on privately-owned Staples warehouse property east of the substation
Sensitive Biological Resources (Threatened and Endangered Species)	• None on site. Substation is in vicinity of potential habitat for state-listed moths / butterflies (based on CT NDDB data). Field surveys conducted for the Project determined that the developed substation does not provide habitat for these species.
Land Uses	• Zoning of substation site: Industrial • Zoning in vicinity: Industrial • Land uses: Commercial / industrial uses, railroad ROW, transmission line ROWs, CL&P's Tracy Substation • Nearest residence: Approximately 700 feet east of the substation fence line, along the west side of Tracy Road • Statutory facilities nearby: None
Public Lands and Recreational Areas	• Tracey Road Trail, a 1-mile paved trail suitable for walking, hiking, and bicycling, extends along the east side of Tracy Road between Attawaugan Crossing (south of Interstate 395) and the Killingly / Putnam border. The Trail is identified on CT DEEP and ConnDOT trail maps. The substation is not visible from the Trail.
Cultural Resources	• No known cultural resources. Low probability for the presence of potentially significant cultural resources; all work will be on previously disturbed portions of the substation site.
Public Road Network	• Access to site is from the north via Tracy Road (Killingly) and Park Road (Putnam). (Note: The road name changes at the town border.)
On-Site Access	• An existing access road to the substation extends off Park Road.

C.3 SITE-SPECIFIC CONSTRUCTION PROCEDURES AND PLANS

C.3.1 Variations from Project-wide Construction Procedures and Plans

The modifications to the Killingly Substation will be performed in accordance with the Project-wide construction procedures and plans, as detailed in Sections 1-8 of this Volume and in Volume 2. No deviations from these procedures are anticipated.

C.3.2 Locations of Construction Support Sites

All construction support areas for the modifications to Killingly Substation will be located within the fenced area of the existing substation. On-site staging areas are expected to be used for temporary construction office trailers (if required), parking, material laydown, and related storage and construction support activities.

C.3.3 Site Access Routes and Traffic Control Measures

Construction access to Killingly Substation will be via Tracy Road/Park Road to the existing on-site access road, which extends across CL&P property to the substation. The existing access road is designed to support operation and maintenance activities at the Killingly and Tracy substations; no improvements to this access road will be required to support Project construction. The site is accessible from Interstate 395 (Exit 94) via Attawaugan Crossing Road, Tracy Road, and Park Road, and from Interstate 395 (Exit 95) via Kennedy Drive and Park Road.

To inform the public about the use of the access road by Project construction vehicles and equipment, standard construction “work zone” warning signs will be installed by the construction contractor along Tracy and Park roads.

C.3.4 Temporary Spoil Storage

Only limited excavation activities will be required for the addition of the two line structures within Killingly Substation. Potential sites for temporary spoil storage, if required, are identified on the attached drawings. Any temporary spoil stockpiles will be protected with appropriate erosion and sedimentation controls.

C.3.5 Erosion and Sedimentation Control

Erosion and sedimentation control measures will be established and maintained, as required, in accordance with NU’s BMPs and the CT DEEP permit (refer to Volume 2, Attachments E and F, respectively). Such controls will be deployed around areas of disturbed soils to minimize the potential for off-site erosion (refer to Figure C-4).

C.3.6 Spill Prevention and Countermeasures

The construction activities at Killingly Substation will conform to the Project SPCP (refer to Volume 2, Attachment B). The construction contractor will maintain appropriate and adequate supplies of spill containment and clean-up materials on-site, and will dedicate a storage area for such purposes or will verify that spill kits are maintained on construction equipment working at the substation.

C.3.7 Site Restoration

After the installation of the new line structures within Killingly Substation, the areas affected by construction within the substation will be graveled. All construction debris and temporary construction support supplies and equipment will be removed. Waste materials will be disposed of only at regulated disposal sites.

C.4 NOTIFICATIONS

In addition to the notice requirements specified in Section 7 of this document, as requested by the Town of Killingly[8], a copy of this final D&M Plan, as approved by the Council, will be provided to the Town of Killingly Planning Department.

[8] Correspondence dated April 19, 2012 from the Town of Killingly to the Council.

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KILLINGLY SUBSTATION
PLANS AND DRAWINGS

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