SOUTHWEST CONNECTICUT RELIABILITY PROJECT

DEVELOPMENT AND MANAGEMENT PLAN

for

MODIFICATIONS TO THE PLUMTREE AND STONY HILL SUBSTATIONS

VOLUMES 1 AND 2

CONSTRUCTION AND MITIGATION PROCEDURES
AND
MAPS AND DRAWINGS

June 2017

Prepared by:

The Connecticut Light and Power Company doing business as Eversource Energy

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1. INTRODUCTION

1.1 PROJECT OVERVIEW AND PURPOSE OF THE PLAN

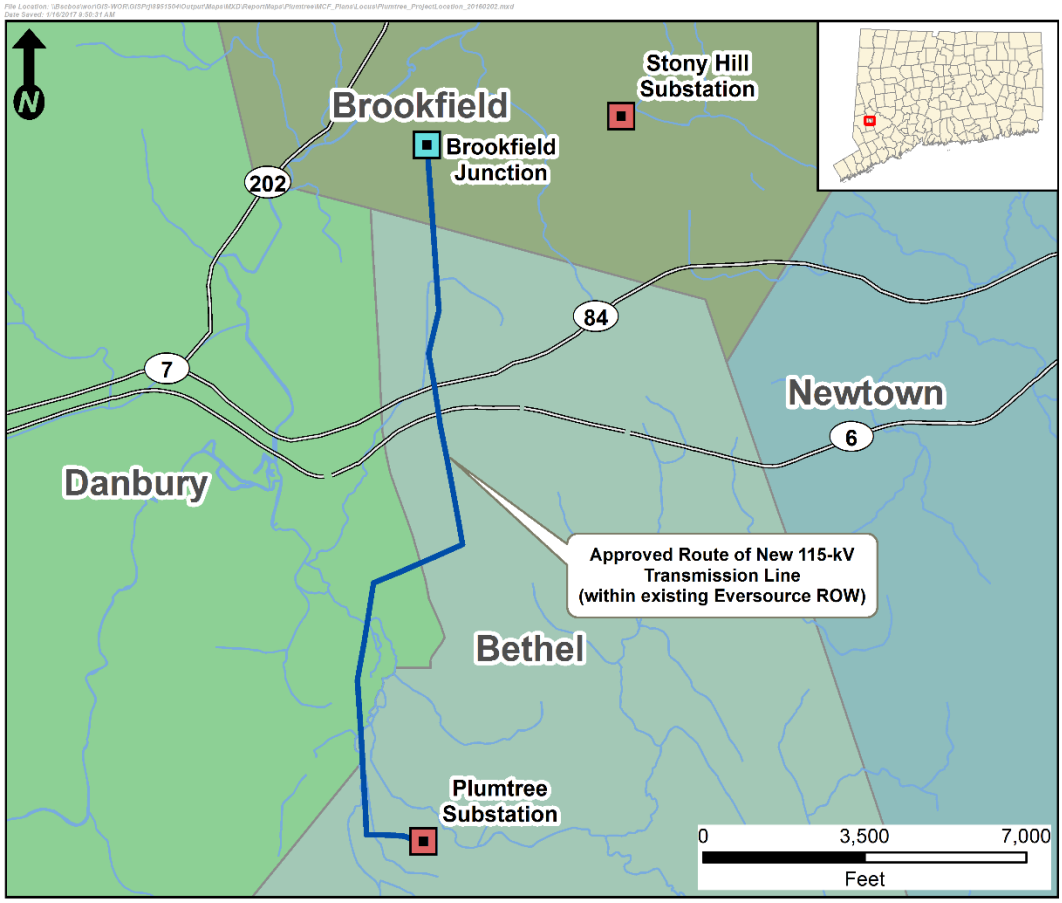
To bring the electric supply system in the Southwest Connecticut (SWCT) area, and within the Housatonic Valley-Norwalk-Plumtree subarea of SWCT in particular, into compliance with applicable national and regional reliability standards and criteria, The Connecticut Light and Power Company doing business as Eversource Energy (Eversource or the Company) will construct, operate, and maintain a new 115-kilovolt (kV) transmission line and related improvements to the electric system in Fairfield County, Connecticut. These improvements, referred to collectively as the Southwest Connecticut Reliability Project (the Project; refer to Figure 1-1), will consist of the following:

- A new approximately 3.4-mile 115-kV overhead electric transmission line, located entirely within an existing Eversource right-of-way (ROW) extending between Eversource's Plumtree Substation in the Town of Bethel, through the eastern portion of the City of Danbury, to Brookfield Junction[1] in the Town of Brookfield. The new 115-kV line, which will be an extension of Eversource's existing 1887 Line, will parallel Eversource's existing overhead 321 (345-kV) and 1770 (115-kV) lines that presently occupy the ROW.
- Modifications within the existing, developed area of Eversource's Plumtree Substation to interconnect the 1887 Line extension to the transmission system.
- Modifications to Eversource's Stony Hill Substation (located in the Town of Brookfield), all within or adjacent to the substation and consisting of: (1) the connection of an existing 115-kV capacitor bank to a different bus; and, (2) the reconfiguration of two existing overhead 115-kV lines, both of which presently connect to the substation, such that after modification, one of the lines will connect to Stony Hill Substation while the other will bypass the substation.

On June 29, 2016, Eversource submitted to the Connecticut Siting Council (Council or CSC) an Application for a Certificate of Environmental Compatibility and Public Need for the Project (Council Docket No. 468). After a public comment and evidentiary hearing, the Council approved the Project on November 10, 2016. Condition No. 2 of the Council's Decision and Order approving the Project requires that Eversource prepare a Development and Management (D&M) Plan, 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*). Eversource elected to prepare one D&M Plan for the new transmission line and a separate D&M Plan for the substation modifications. This D&M Plan addresses all construction activities for the modifications to Plumtree and Stony Hill substations, as well as the related 115-kV line reconfigurations at Stony Hill Substation.

[1] A transmission system "junction" is a location where different transmission lines intersect.

Figure 1-1: SWCT General Location Map



1.2 SUBSTATION LOCATIONS AND GENERAL DESCRIPTION OF MODIFICATIONS

1.2.1 Plumtree Substation

Plumtree Substation, which occupies approximately 4.6 acres of a 13.8-acre Eversource property, is located at 16 Walnut Hill Road, in the western portion of the Town of Bethel (refer to the Volume 2 maps). The substation was constructed approximately 44 years ago.

The substation property is bordered by forested wetlands and uplands associated with the East Swamp Wildlife Management Area (owned by the Connecticut Department of Energy and Environmental Protection [CT DEEP]), as well as by Bennett Memorial Park and Meckauer Park (both owned by the Town of Bethel). Single-family residential uses are located along Walnut Hill Road. Limekiln Brook and East Swamp Brook flow through the area in the vicinity of the substation property (refer to the Volume 2 maps).

The new 115-kV transmission line will connect to Plumtree Substation at a spare position within the developed, fenced substation yard. This spare position already includes equipment and structures to

connect the new 115-kV line, which will be terminated on an existing steel A-frame structure and will tie into the substation between two existing 115-kV circuit breakers. Terminal equipment, including the line disconnect switch and wave trap, will be upgraded to meet the new 115-kV line capacity requirements. In addition, minor excavation will be required within the Plumtree Substation fence to install an underground conduit, which will house fiber required for the line protection systems and will be terminated at a fiber patch panel in an existing communication cabinet located within the substation control house.

The Project modifications to connect the new 115-kV line to Plumtree Substation will not require the acquisition of any additional property from private landowners. All of the Project construction activities at Plumtree Substation will be within previously developed (graveled) areas within the existing fenced portions of the substation.

1.2.2 Stony Hill Substation and Related Transmission Line Modifications

Stony Hill Substation, which was constructed 27 years ago, is located at 49 Stony Hill Road in the southern portion of the Town of Brookfield. The developed (fenced) substation occupies part of an 18.8-acre Eversource property that is otherwise characterized predominantly by forest vegetation. The substation, which is reached via an access road off Stony Hill Road, is bordered to the north by the Housatonic Railroad Company corridor and Eversource's 1770/1887 transmission line ROW, to the west by Stony Hill Road, to the south by residences along Deer Trail Drive, and to the east by undeveloped land.

Stony Hill Substation presently connects to both the existing 115-kV 1770 and 1887 lines, which occupy the same ROW from Shepaug Substation to Brookfield Junction, interconnecting to Stony Hill Substation between these two locations. These two 115-kV lines are supported in a double-circuit configuration on lattice steel towers, which are typically 85 feet in height. The 1770 Line occupies the south position on the towers, while the 1887 Line occupies the north. Stony Hill Substation is located adjacent to and south of the 1770/1887 line ROW. As part of the Project, Stony Hill Substation and its interconnections to the 1770 and 1887 lines will be modified.

1.2.2.1 Reconfigure Capacitor Bank Bus Connections

Within Stony Hill Substation, the existing 115-kV capacitor bank (37.8 megavolt ampere reactive [MVAR]) connection to Bus A1 will be removed and this capacitor bank instead will be connected to Bus A3. This work will be performed within the substation's fenced area[2], and will include the removal and replacement of certain facilities (e.g., rigid bus, bus support structure, associated foundations), as well as the installation of a new 115-kV underground duct bank, disconnect switch, underground pothead structures, and other facilities to connect the existing 22K capacitor bank to the new 115-kV bus A3. Three lightning arrestors will also be installed on each pothead structure.

[2] Eversource plans to expand the Stony Hill Substation prior to the development of this Project. The proposed substation expansion has been approved in a separate filing to the Council (Petition Number 1230).

1.2.2.2 Reconfigure the Existing 1770 and 1887 Lines

As part of the Project, the existing 115-kV 1770 and 1887 line connections to Stony Hill Substation will be modified, requiring work both within the substation and on nearby Eversource property. The reconfiguration will consist of the following:

- The existing 1770 Line will be looped into the substation, creating two terminal lines. After reconfiguration, Eversource will re-number the former 1770 Line as:
  - The 1268 Line, which will extend from Stony Hill Substation to Plumtree Substation; and
  - The 1485 Line, which will extend from Stony Hill Substation to Bates Rock Substation in Southbury.
- The existing 1887 Line tap into the east side of Stony Hill Substation will be removed, eliminating the 1887 Line connection to the substation. After this reconfiguration, the 1887 Line will bypass the substation.
- Three existing wood deadend structures (approximately 55, 75, and 80 feet in height) that presently connect the 1770 and 1887 lines to Stony Hill Substation will be removed. Two new steel structures, approximately 70 and 85 feet in height, will be installed to re-connect the former 1770 Line segments (i.e., the 1268 and 1485 lines) to the substation.

1.3 ORGANIZATION OF THE D&M PLAN

This D&M Plan consists of three volumes:

- **Volume 1** includes specific information relevant to the Plumtree and Stony Hill substation modifications, including the 115-kV line reconfigurations at Stony Hill Substation. The main text of Volume 1 (Sections 1 through 6) includes information and procedures that are pertinent to work at both substations, including regulatory requirements, general Project construction procedures and special plans, overall construction schedule, and public outreach. Table 1-1 summarizes each of the Council's D&M Plan requirements, pursuant to RCSA Sections 16-50j-60 through 16-50j-62; Table 1-2 identifies the requirements pertaining to the substation facilities as contained in the Council's Decision and Order 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 state why the requirement is not relevant to the substation modifications.

- **Volume 2** (bound with Volume 1) consists of maps, plans, and drawings relevant to the modifications to Plumtree and Stony Hill substations and the line reconfigurations at Stony Hill Substation.

- **Volume 3** includes approvals, permits, and best management practices (BMPs) pertinent to all Project construction activities, including not only the substation modifications, but also the new 115-kV transmission line construction. In particular, Volume 3 includes:
  - The Council's Decision and Order and Opinion for the Project (Attachment A.1), as well as Eversource's procedures for environmental compliance and notifications to the Council

during the development of the Project, as required by the Council's regulations and Project-specific conditions (Attachments A.2 through A.4).

- Vegetation Clearing Plan (Attachment B).
- Spill Prevention and Control Plan (Attachment C).
- Snow Removal and De-Icing Procedures (Attachment D).
- Eversource's *Best Management Practices Manual for Massachusetts and Connecticut (Construction and Maintenance Environmental Requirements), September 2016 BMP* (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, 2013* (General Permit, Attachment F).

Table 1-1:
D&M Plan Directory
SWCT Reliability Project: Substation Modifications and Related 115-kV Reconfigurations
(Compliance with RCSA Sections 16-50j-60, -61 and -62, as amended through September 7, 2012)

RCSA 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 the modifications at Plumtree and Stony Hill substations.
(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 RCSA Sections 16-50j-61 to 16-50j-62, inclusive, 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 substation 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 Eversource.
(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 addresses the Council's requirements for the construction of the substation modifications and is provided to the Council in three volumes.
16-50j-61	**Elements of D&M Plan**	
(a)	**Key Map**, 1"=2,000' USGS topographic map	Volume 2
(b)	**Plan Drawings**, 1"=100' or larger, and supporting documents, which shall contain the following information:	Volume 2
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 2
2.	Public roads and public land crossing or adjoining the site	Volume 2

RCSA Section	Description	D&M Plan (Section Reference, as Applicable)
3.	Location of 50' contours along the site	Volume 2
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 2
5.	Probable points of access to the site, and the route and likely nature of accessways, including alternatives	Volume 2
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	Not Applicable (N/A) for Plumtree Substation; for Stony Hill Substation 115-kV line modifications, refer to Volume 3, Attachment B, *Vegetation Clearing Plan*
7.	Identification of sensitive areas and conditions within and adjoining the site, including but not limited to:	
	A. Wetland and watercourse areas regulated under CGS Chapter 440 and any locations where construction may create drainage problems	N/A
	B. Areas of high erosion potential	N/A
	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	Volume 1, Section 5.3
	D. Location of known underground utilities or resources to be crossed (electric line, fuel line, drainage systems and natural or artificial public or private water resources)	Volume 2
	E. Residences or businesses within or adjoining the site that may be disrupted during construction	Volume 2
	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	Volume 1, Section 3.4.2; Volume 2; Volume 3, Attachment B, *Vegetation Clearing Plan*

RCSA Section	Description	D&M Plan (Section Reference, as Applicable)
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
	B. S & E control and rehabilitation procedures, consistent with the CT Guideline for Soil Erosion and Sediment Control, as updated and amended for areas of high erosion potential	Volume 1, Sections 3 and 5.1; Volume 2; Volume 3, Attachment E, BMPs
	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 endangered, threatened, 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 guideline, as amended	Volume 1, Section 5.3
	D. Plans for modification and rehabilitation of surface, drainage, and other hydrologic features	N/A
	E. Plans for watercourse bank restoration in accordance with Chapter 440 of the C.G.S.	N/A
	F. Plans for the protection of historic and archaeological resources with review and comment from a state historic preservation officer of the CT Department of Economic and Community Development (DECD) or its successor agency	Volume 1, Section 5.9
3.	Plans for the method and type of vegetation clearing and maintenance to be used within or adjacent to the site	Volume 1, Section 3.4; Volume 2 (Stony Hill Substation line reconfigurations); Volume 3,, Attachment B
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	Volume 1, Section 5.5; Volume 2
5.	Plans for ultimate disposal of excess excavated material, stump removal, and periodic maintenance of the site	Volume 1, Section 5.6
6.	Locations of areas where blasting is anticipated	None Anticipated
7.	Rehabilitation plans, including but not limited to reseeding and topsoil restoration	Volume 1, Section 3.4.7; Volume 2
8.	Contact information for the personnel of the contractor assigned to the project	To be provided after substation contract award(s)

RCSA Section	Description	D&M Plan (Section Reference, as Applicable)
9.	Such site-specific information as the CSC may require	Refer to Table 1-2: List of requirements per Docket 468 Decision and Order and Opinion
(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	Acknowledged
(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 3, Attachment A.3 (Eversource's Change Notice process)
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, Section 3.3; Volume 2 indicates staging areas. The locations of contractor yards and material staging areas will be identified by the contractor and will be submitted to the Council for review and approval prior to use, pursuant to the Change Notice process described in Volume 3, Attachment A.3.
(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: A. Clearing and access work in each successive portion of the site, and B. Facility construction in that same portion	Acknowledged. Volume 3, Attachment A.3 summarizes notification procedures
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: A. The location of wetland or watercourse crossing	Volume 3, Attachment A.3 includes Eversource's D&M Plan change process

RCSA Section	Description	D&M Plan (Section Reference, as Applicable)
	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.	Acknowledged
4.	The Certificate Holder, or facility owner or operator, shall provide the CSC with written notice of completion of construction and site rehabilitation.	Acknowledged
(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:	Acknowledged Volume 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.	Acknowledged

Table 1-2:
D&M Plan Directory of Docket No. 468 Decision and Order Requirements
SWCT Reliability Project

Condition or Page Number	Description	D&M Plan (Section Reference, as Applicable)
Condition Number	**Decision and Order**	
(1)	The Certificate Holder shall construct the proposed transmission line overhead along the proposed route and perform related Project improvements, as proposed, subject to modifications during final site design and approval of the D&M Plan for the Project.	D&M Plan, Volumes 1-3
(2)	The Certificate Holder shall prepare a Development and Management (D&M) Plan for this Project that shall be in compliance with Sections 16-50j-60 through 16-50j-62 of the RCSA. The D&M Plan shall be served on the municipalities of Bethel, Danbury, and Brookfield for comment, and submitted to and approved by the Council prior to the commencement of facility construction. The D&M Plan shall include:	D&M Plan, Volumes 1-3
	a. Detailed site plans showing the placement of the transmission structures and associated work pads;	Refer to Volume 2 Maps and Drawings for Stony Hill Substation transmission line reconfiguration; Development and Management Plan for New 115-kV Transmission Line, Volume 2
	b. Detailed site plans showing design and the location of temporary and permanent access roads, including provisions for narrower access roads where possible and identification of wider sections for use as designated passing areas;	N/A. Refer to Development and Management Plan for New 115-kV Transmission Line, Volume 2
	c. Detailed site plans for substation improvements; structure foundations, equipment and material staging areas for the overhead route;	D&M Plan, Volumes 1-3
	d. Identification and design of staging and equipment lay down areas, field office trailers, sanitary facilities, and parking;	Volume 2 maps (Contractor yard locations, as applicable, to be submitted to the Council separately)
	e. Identification of wetland and watercourse resources, related temporary and permanent construction impacts and methods to reduce such impacts;	N/A
	f. Details of ground disturbance;	Volume 2

Condition or Page Number	Description	D&M Plan (Section Reference, as Applicable)
	g. Vegetative clearing plan, including identification of areas of scrub-shrub habitat within the ROW that would be retained. Identify methods, including the use of seasonal restrictions where practical, to minimize environmental impacts related to vegetative clearing;	Volume 3, Attachment B
	h. An erosion and sediment control plan, consistent with the *2002 Connecticut Guideline for Soil Erosion and Sediment Control* as amended;	Volume 1, Section 5.1; Volume 2; Volume 3, Attachments E and F
	i. Wetland restoration plan;	N/A
	j. Invasive species control plan;	N/A
	k. A schedule of construction hours;	Volume 1, Section 4
	l. A blasting plan, if necessary;	N/A
	m. A spill prevention and countermeasures plan;	Volume 3, Attachment C
	n. An EMF Monitoring Plan; and	N/A
	o. Plans to prevent post-construction use of the ROW by all-terrain vehicles;	N/A
(3)	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 Project route. Include provisions for the spotted turtle, as State Species of Special Concern.	Volume 1, Section 5.3
(4)	The Certificate Holder shall hire an independent environmental inspector, subject to Council approval, to monitor and provide bi-weekly reports to the Council regarding environmental compliance with the approved D&M Plan.	Volume 3, Attachment A.2
(5)	The Certificate Holder shall obtain necessary permits from the United States Army Corps of Engineers and the CT DEEP prior to the commencement of construction, in areas where said permits are required.	N/A
(6)	The Certificate Holder shall conform to the Council's Best Management Practices for Electric and Magnetic Fields.	N/A
(7)	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.	N/A
(8)	The Certificate Holder shall provide to the Council an operating report within three months after the conclusion of the first year of operation	Acknowledged

Condition or Page Number	Description	D&M Plan (Section Reference, as Applicable)
	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 new transmission line.	
(9)	Unless otherwise approved by the Council, this Decision and Order shall be void if all construction authorized herein is not completed within five years of the effective date of the Decision and Order, or within five years after all appeals to this Decision and Order have been resolved. Authority to monitor or modify the schedule, as necessary, is delegated to the Executive Director. The Certificate Holder shall provide written notice to the Executive Director of any schedule changes as soon as practicable.	Acknowledged
(10)	Any request for extension of the time period referred to in Condition 9 shall be filed with the Council not later than 60 days prior to the expiration date of this Certificate and shall be served on all parties and intervenors, as listed in the service list, and the municipalities of Bethel, Danbury, and Brookfield.	Acknowledged
(11)	This Certificate may be surrendered by the Certificate Holder upon written notification to the Council.	Acknowledged
(12)	In accordance with Section 16-50j-62 of the RCSA, the Certificate Holder shall provide the Council with written notice two weeks prior to the commencement of site construction activities. In addition, the Certificate Holder shall provide the Council with written notice of the completion of site construction, and the commencement of site operation.	Acknowledged
(13)	The Certificate Holder shall remit timely payments associated with annual assessments and invoices submitted by the Council for expenses attributable to the facility under CGS §16-50v.	Acknowledged
(14)	This Certificate may be transferred in accordance with CGS §16-50k(b), provided both the Certificate Holder/transferor and the transferee are current with payments to the Council for their respective annual assessments and invoices under CGS §16-50v. In addition, both the Certificate Holder/transferor and the transferee shall provide to the Council a written agreement as to the entity responsible for any quarterly assessment charges under CGS §16-50v(b)2 that may be associated with this facility.	Acknowledged

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2. REGULATORY APPROVALS AND CONSULTATIONS

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 Eversource's commitments as contained in the record of the Council's Docket 468 regulatory process; and reflects adherence to the conditions of the Council's certificate for the Project and other relevant, previously received or anticipated regulatory approvals. Because all of the Project substation modification work (including line reconfigurations at Stony Hill Substation) will be at upland sites, no authorizations pertaining to wetlands or watercourses are required from the U.S. Army Corps of Engineers (USACE) or the CT DEEP. Table 2-1 lists the permits relevant to the substation portion of the Project. Copies of the following are included in Volume 3:

- The Council's Decision and Order and Opinion for the Project (refer to Volume 3, Attachment A.1); and,
- The CT DEEP *General Permit*, 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 planning of the Project, Eversource consulted with representatives of the two towns in which the substations are located, as well as with representatives of various state and federal agencies, including the U.S. Army Corps of Engineers (USACE), New England District; U.S. Fish and Wildlife Service (USFWS); CT DEEP; and State Historic Preservation Office (SHPO). In addition, Eversource coordinated with municipal representatives, property owners, and the interested public. During consultations, Eversource provided information regarding the Project, including the D&M Plan process, the planned construction activities, and Eversource's outreach procedures and points-of-contact.

In accordance with Condition 2 of the Council's Decision and Order, Eversource issued a draft of this D&M Plan to the chief elected officials of Bethel and Brookfield. Eversource met with municipal representatives to review the draft D&M Plan. The final D&M Plan submitted to the Council also will be provided to these towns, as well as to all parties and intervenors on the service list for this docket. Additional information regarding Eversource's public outreach process is included in Section 6.

Table 2-1:
Permits, Review, and Approvals Relevant to the Substation Modifications for the Project

Agency	Certificate, Permit, Review, Approval or Confirmation	Activity Regulated
FEDERAL		
U.S. Fish and Wildlife Service	Coordinates with regarding endangered or threatened species	Activities that may affect federally-listed endangered or threatened species
Federal Aviation Administration (FAA)	Notice of Proposed Construction or Alteration	New transmission line structures are subject to the notice requirement outlined in 14 CFR Part 77. The FAA issued a "Determination of No Hazard to Air Navigation" for all Project structures. This applies to Structures 4648A and 4647A adjacent to Stony Hill Substation.
CONNECTICUT		
Connecticut Siting Council	Certificate of Environmental Compatibility and Public Need (Docket 468, November 10, 2016; refer to Volume 3, Attachment A.1) D&M Plan approvals	General transmission line need, siting, construction, environmental compatibility, safety, and operation / maintenance and ROW management procedures
CT DEEP	*General Permit* (refer to Volume 3, Attachment F)	Stormwater management during construction
CT DEEP	Threatened, Endangered, and Special Concern Species	Approval of species-specific mitigation plans: Note: Substations and the adjacent 1770/1887 line ROW at Stony Hill Substation do not provide habitat for any listed species, although habitat for listed species does occur near Plumtree Substation. The Project work at Plumtree Substation will be within the substation fence, which will preclude access to construction sites.
SHPO	Concurrence with determination that Project will have no adverse effect on cultural resources	No cultural resources were found in the areas to be affected by Project construction and operation. Report regarding these conclusions submitted to SHPO.
CT DEEP Public Utilities Regulatory Authority	Approval pursuant to CGS Section 16-243	Method & Manner of Construction and Approval to Energize Line. This applies to Structures 4648A and 4647A adjacent to Stony Hill Substation.

3. GENERAL CONSTRUCTION PROCEDURES

The Project modifications to Plumtree and Stony Hill substations will involve a sequential, phased construction approach. Section 3.1 summarizes the modifications that will be performed at each substation, including the related 115-kV transmission line reconfigurations at Stony Hill Substation. Sections 3.2, 3.3, and 3.4 describe construction activities common to the modifications at all three substations and, as appropriate, discuss the work specific to individual substations. Section 3.5 summarizes the 1770/1887 line reconfiguration work at Stony Hill Substation.

Construction drawings and plans for each substation are included in Volume 2. Actual sequences and methods of construction may vary based on the characteristics of each substation and the final engineering designs for each location.

3.1 SUMMARY OF SUBSTATION MODIFICATIONS

3.1.1 Plumtree Substation

The interconnection of the 1887 Line at Plumtree Substation will require terminal upgrades within the substation, as well as the installation of new protection and monitoring control equipment. All of these Project modifications will be located within the existing, fenced portion of the substation.

The new 115-kV line will connect to a spare position at Plumtree Substation. This spare position already has major equipment and structures in place to accept the new line. Thus, the new line will be terminated on an existing steel A-frame structure and will tie into the substation between two existing 115-kV circuit breakers (refer to the Volume 2 maps regarding the location of these planned modifications). Terminal equipment, which includes the line disconnect switch and wave trap, requires upgrading to meet line capacity requirements.

In addition, minor excavation will be required within the Plumtree Substation fence to install an underground conduit. This conduit will extend from the existing A-frame structure, which will be used as the terminal structure for the new 115-kV line, to the Relay and Control Enclosure. The conduit will house fiber required for the line protection systems, which will be terminated at a fiber patch panel in an existing communication cabinet.

3.1.2 Stony Hill Substation and Related 115-kV Transmission Line Reconfigurations

Stony Hill Substation presently connects to both the existing 115-kV 1770 and 1887 lines. Both lines extend from Shepaug Substation to Brookfield Junction, interconnecting to Stony Hill Substation between these two locations. The two 115-kV lines are supported in a double-circuit configuration on lattice steel towers, which are typically 85 feet in height. The 1770 Line occupies the south position on the towers,

while the 1887 Line occupies the north. Stony Hill Substation is located south of the 1770/1887 line ROW.

As part of the SWCT reliability improvements, Stony Hill Substation and its interconnections to the 1770 and 1887 lines will be modified as follows.

3.1.2.1 Reconfigure the Existing 1770 and 1887 Lines

The existing 115-kV 1770 and 1887 line connections to Stony Hill Substation will be modified, requiring work both within the substation and on nearby Eversource property. The reconfiguration will consist of the following:

- The existing 1770 Line will be looped into the substation, thereby creating two terminal lines from the original 1770 Line: the new 1268 Line will extend from Stony Hill Substation to Plumtree Substation and the new 1485 Line will extend from Stony Hill Substation to Bates Rock Substation.
- The existing 1887 Line tap into the east side of Stony Hill Substation will be removed, eliminating the 1887 Line connection to the substation. (After this reconfiguration, the 1887 Line will bypass the substation.)
- Three existing wood deadend structures (75, 80, and 55 feet in height) that presently connect the 1770 and 1887 lines to the Stony Hill Substation will be removed. Two new steel structures, approximately 70 and 85 feet in height, will be installed to re-connect the 1770 Line segments (thereafter designated the 1268 and 1485 lines) to the substation.

3.1.2.2 Reconfiguration of Capacitor Bank Bus Connections

Within the substation, the existing 22K 115-kV capacitor bank (37.8 MVAR) connection to Bus A1 will be removed and the capacitor bank instead will be connected to Bus A3. This work will be performed within the substation fence line,[3] and will include the following:

- Remove rigid bus, bus support structure, and associated foundations between capacitor banks 48C-21K & 48C-22K, which will separate capacitor bank 22K from the 115-kV Bus A1.
- Install new rigid bus, three-phase high bus support structure, 115-kV underground pothead structure and associated foundations to the south of capacitor bank 22K.
- Install 115-kV underground duct bank, 115-kV underground pothead structure, manually-operated vertical break disconnect switch, switch structure, three-phase high & low bus support structures, rigid bus and associated foundations to connect capacitor bank 22K to 115-kV Bus A3.
- Install three lightning arrestors (LAs) on each pothead structure (for a total of six LAs).

[3] Eversource plans to expand the Stony Hill Substation prior to the development of this Project. The proposed substation expansion has been approved in a separate filing to the Council (Petition Number 1230).

3.2 CONSTRUCTION MANAGEMENT AND CONTACT INFORMATION

After Eversource awards construction contracts for the Project, but prior to the commencement of the contractors' on-site work on the new 115-kV transmission line, Eversource will provide the Council with contact information for the prime construction contractors, consisting of the names of the firms, primary contacts, corporate addresses, telephone numbers, and e-mail addresses. Eversource representatives will be assigned to monitor construction activities, including adherence to safety, engineering, and environmental requirements.

3.3 CONSTRUCTION FIELD OFFICES, CONTRACTOR YARDS, AND STAGING AREAS

To support the construction of the substation modifications and related line reconfiguration work at Stony Hill Substation, temporary contractor yards, construction field offices (consisting of trailers or other facilities for contractor and Eversource personnel), and staging areas (including equipment and material staging sites, temporary storage areas, and laydown areas) will be required. These areas are expected to be located on Eversource's property at Plumtree and Stony Hill substations, either within the existing (developed) substation fence lines and/or on adjacent uplands on Eversource property as identified on the maps in Volume 2. After completion of the Project modifications, these sites will be restored or otherwise stabilized in accordance with Eversource requirements.

The construction contractor(s) for the substation work will be responsible for establishing the construction field offices, temporary contractor yards, and staging areas. If a contractor identifies a need for additional support sites outside of what is identified on the maps in Volume 2, Eversource will submit the proposed locations of these construction support areas to the Council staff for review and approval prior to use, in accordance with the Change Notice Approval Process described in Volume 3, Attachment A.3.

3.4 CONSTRUCTION PROCEDURES: SUBSTATIONS

3.4.1 General Construction Sequence

Eversource will construct the substation modifications in several stages, some overlapping in time. The following summarizes the typical sequence of construction activities, as appropriate at each substation:

- Mark the boundaries of previously delineated wetlands.
- Install erosion and sedimentation controls.
- Establish construction field office and yards, typically including space for an office trailer, equipment storage and maintenance, sanitary facilities, and parking.
- Construct work pads and pulling pads (Stony Hill Substation only).
- Prepare storage, staging and laydown areas to support the construction effort.
- Construct duct bank, foundations and erect/assemble new equipment (Stony Hill Substation).
- Install conduit (Plumtree Substation).
- Install grounding systems.

- Install wire and cable for all new equipment
- Remove construction debris and restore disturbed sites.
- Maintain temporary erosion and sediment controls until sites are re-stabilized (e.g., paved, graveled, or revegetated).

3.4.2 Vegetation Removal

Plumtree Substation

No vegetation removal will be required for the new 115-kV line interconnection to Plumtree Substation. All substation modification work will be performed within the existing, graveled, substation yard.

Stony Hill Substation

For the work within Stony Hill Substation, approximately 0.02 acres of tree removal will be required[4]. For the reconfigurations of the 115-kV lines adjacent to the substation, some vegetation clearing will be required. As explained in Section 3.5, such vegetation removal will be performed as described in the *Vegetation Clearing Plan* (refer to Volume 3 Attachment B). In addition, during this phase of construction, exclusion fencing or other types of boundary markings will be installed to demarcate areas of restricted construction access or environmental sensitivity (e.g., the boundaries of wetland W7 will be flagged or otherwise marked as necessary).

3.4.3 Site Preparation

The type of site preparation work required at each substation will vary, in accordance with the characteristics of each facility, the locations of the facility modifications, and the location of staging areas required to support the work (refer to the plans for each substation in Volume 2). Site preparation may include the following activities or BMPs:

- Deploy temporary construction storage containers, and related equipment and materials to the substations or associated staging areas and set up temporary services required to support construction (e.g., portable toilets).
- Identify designated parking areas for construction workers.
- Erect "construction zone" warning signs on the public roads that intersect with substation access roads.
- Install protective fencing (e.g., snow fence) around work sites as needed.
- Install, as necessary, temporary soil erosion and sedimentation controls (e.g., silt fence, straw bales, wattles) near areas of planned soil disturbance that are in proximity to water resources (located outside the substation fence lines). Such controls will be maintained and replaced, as necessary, throughout construction. The primary objective of these controls will be to minimize the potential for erosion and sediment migration away from construction activities and into nearby water resources.
- Maintain temporary erosion and sedimentation controls until the disturbed areas are stabilized.
- Clear vegetation, grade, and otherwise prepare the areas involved in the substation modifications.

[4] The 0.02 acres of tree removal in the vicinity of Structure 4648A will likely be conducted prior to the Stony Hill Substation modifications proposed by this Project under the approved Petition 1230.

- Make minor improvements to existing access roads, if needed.

No blasting is expected to be required for the substation modifications. The existing substation access roads will be used for ingress/egress to the substation work sites. In addition, for the 1770/1887 line reconfiguration at Stony Hill Substation, access along the ROW will be used (refer to the Volume 2 maps).

3.4.4 Erosion and Sediment Controls and Water Resource Protection

To minimize the potential for erosion and sediment migration during construction, the following general construction BMPs will be used:

- Temporary erosion control structures will be installed as necessary to protect nearby water resources, and will be inspected on a regular basis, in accordance with BMPs and regulatory requirements (refer to Volume 3, Attachment F).
- Trench dewatering will not be conducted within 25 feet of a wetland or watercourse, unless a fractionization tank ("frac tank") or similar engineering controls for sediment containment is employed.
- Equipment will not be refueled within 25 feet of any wetland or watercourse, unless appropriate containment procedures are in place.
- Petroleum products will not be stored, mixed, or loaded within 25 feet of a wetland or watercourse.
- In case of an on-site reportable spill, the construction contractor will adhere to the *Spill Prevention and Control Plan* (refer to Volume 3, Attachment C).

In addition to these BMPs, all construction activities will comply with Eversource's *BMP Manual* (refer to Volume 3, Attachment E), which is consistent with the *2002 Connecticut Guideline for Erosion and Sediment Control (2002 CT Guidelines for E&SC).* Additional information related to sediment and erosion controls at the substation sites is provided in Section 5.2 and in Volume 2, Detail Sheets 1 and 2.

Pursuant to CGS Section 22a-430b, construction activities, such as the Project, that will result in the disturbance of 1 or more total acres of land area must comply with the CT DEEP's *General Permit* (refer to Volume 3, Attachment F). Pursuant to the requirements of this *General Permit*, prior to the start of construction, Eversource will submit to CT DEEP a Registration Form and will prepare a *Stormwater Pollution Control Plan* for the Project.

3.4.5 Foundation and Equipment Installation

Plumtree Substation

No foundations or major equipment will be required for the new 115-kV line interconnection to Plumtree Substation. Excavation will be performed for the installation of the conduit for OPGW, which will be routed into the substation control house.

Stony Hill Substation

The process for installing structure and equipment foundations at Stony Hill Substation 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 regulatory requirements. Temporary spoil stockpiles will be protected with appropriate erosion and sedimentation controls as required.

If groundwater is encountered in excavations, the water will be pumped from the excavated area and discharged in accordance with applicable requirements. The water may be discharged on-site into an appropriate sediment control basin or into a dewatering bag; 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.

After the foundations are installed, construction activities will shift to the erection of structures and equipment as specified for each station modification.

3.4.6 Testing and Interconnection

Substation equipment and associated protective and control systems will be installed to connect the new 115-kV transmission line at Plumtree Substation and to connect the re-designated 1268 and 1485 transmission lines to Stony Hill Substation. The new substation equipment will be first tested and then commissioned (i.e., put into service).

3.4.7 Cleanup, Restoration

The final steps in the construction process at each substation will be to collect and remove all remaining construction debris, stabilize/restore disturbed areas, complete site security measures, and remove temporary office trailers and other materials from the sites. Construction debris will be properly disposed of in accordance with local, state, and federal regulations. The contractor will remove all excess soil and rock and dispose of it in accordance with applicable regulations.

Within each substation, areas affected by Project construction are expected to be stabilized using trap rock or gravel. Temporary erosion and sedimentation controls will be left in place and maintained, as necessary, until final stabilization is achieved. Any flagging used to identify water resource protection areas also will typically remain in place until the completion of stabilization activities.

3.4.8 Site Security and Maintenance

The existing site security measures (e.g., fencing, low-level lighting) at Plumtree and Stony Hill substations will be maintained during Project construction. Additional low-level lighting may be installed in the vicinity of the new equipment. Further, additional temporary lighting may be installed to allow for work at night or under emergency conditions.

3.5 CONSTRUCTION PROCEDURES: 115-KV LINE RECONFIGURATIONS (STONY HILL SUBSTATION)

As part of the Stony Hill Substation modifications, the existing 1770 and 1887 line connections to the substation will be reconfigured such that the 1887 Line will bypass the substation, whereas the existing 1770 Line will loop into and out of the substation, thereby creating two renamed terminal lines, referred to as the 1268 and 1485 lines. This will involve both structure removal and new structure installation work. These construction activities will be performed in uplands. Standard overhead transmission line construction procedures, as generally summarized below, will be used to perform these activities[5]:

- Survey and stake the relocated structure locations and mark/flag the boundaries of the previously delineated wetland (wetland W7, refer to Volume 2).
- Clear vegetation from work sites, including less than 0.02 acre of trees[6].
- Install erosion and sedimentation controls, as required, in accordance with the Company's *BMP Manual*.
- Prepare work (crane) pads at the structure removal and installation sites. Work pad installation requires the installation of a stable base (consisting of gravel, timber mats, or equivalent) for drilling and other structure installation equipment, which may involve grading.
- Construct drilled shaft foundation (Structure 4647A only).
- Install new replacement structures (Structures 4648A and 4647A).
- Tie the new facilities to substation ground grid, where needed.
- Install shield wires, OPGW, and conductors.
- Remove existing Structures 4648A, 4647A and 4647B.
- Remove construction debris and restore any disturbed areas according to Eversource BMPs and applicable permit conditions. Remove construction debris off site for disposal.
- Maintain temporary erosion and sediment controls until vegetation is re-established or disturbed areas are otherwise stabilized. After site stabilization is achieved, all temporary erosion and sedimentation controls that are not biodegradable (e.g., geotextile material, twine, stakes) will be removed from Eversource property and disposed of properly.

[5] Construction staging and support for the 115-kV transmission line reconfiguration work is expected to be co-located within the same areas identified for the overall Stony Hill Substation modifications (refer to Volume 2).

[6] The 0.02 acres of trees to be removed in the vicinity of Structure 4648A will likely be removed prior to the Project as part of the clearing necessary for the approved Petition 1230.

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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 substation. Such outages must be approved by the Connecticut Valley Exchange (CONVEX). As currently planned, the substation modifications are scheduled for construction between October 1, 2017 and the end of the third quarter 2018, as follows:

General Construction Dates*	Substation Modification Construction Activity
Quarter 2, 2017 – Quarter 4, 2017	Construction contracts awarded; establish material laydown yards and field offices; begin receiving materials. Contractor mobilization, commence vegetation clearing and site grading.
Quarter 2, 2017 – Quarter 2, 2018	Perform construction as summarized in Section 3.
Quarter 2, 2018	Testing, energization, substation site clean-up and restoration. Final substation revegetation and verification of final stabilization pursuant to regulatory requirements will likely extend into Quarters 3 and 4 of 2018

* Construction schedule is dependent on the receipt of D&M Plan approval from the Council. The schedule for the substation modifications may change in accordance with receipt of this approval, as well as on approval of outage schedules.

This schedule may be refined after Eversource retains construction contractors for the Project and identifies and schedules the outages.

4.2 WORK HOURS

Construction work hours will typically be between 7:00 AM and 7:00 PM, six days per week (Monday through Saturday). During these hours, construction will generate noise, which will vary depending on the type of activity performed. 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 will involve work during non-typical hours, in some cases on a continuous basis and/or on Sundays. The performance of these activities during non-typical work hours can be

critical for completing the required tasks within the allowed outage durations and for returning equipment to service as expeditiously as possible. Examples of such activities include: performing work during CONVEX approved outages; switching, testing and commissioning; and, emergency work in support of storms or customer restoration.

In addition, during winter, snow plowing and de-icing activities (which will be performed pursuant to the plan included in Volume 3, Attachment D) will typically commence, when necessary, prior to 7 AM to ensure a safe environment for construction personnel prior to the start of the work day.

At both Plumtree and Stony Hill substations, all construction activities performed during extended work hours will be confined to Eversource property.

5. SPECIAL CONSTRUCTION PROTOCOLS AND PROCEDURES

Plans and procedures included in this section and in Volume 2 (as referenced in this section) apply to the construction work at both of the substations, including the 115-kV line reconfigurations at Stony Hill Substation.

Neither of the substation modifications will require work in or near watercourses, vernal pools, active farmlands, or culturally-sensitive areas. Similarly, neither blasting nor implosive connections are expected to be required for the substation or related 115-kV line interconnection work. As a result, no special construction procedures pertaining to these topics are included in this D&M Plan.

This section provides resource-specific protocols and procedures applicable to the substation modification construction; additional details are provided in Volume 2. Volume 3 includes standard BMPs, as well as plans and guidance applicable to Project-wide construction activities (e.g., *Spill Prevention and Control Plan*; *Snow Removal and De-Icing Plan*).

5.1 EROSION AND SEDIMENTATION CONTROL PLAN

Eversource will install erosion and sedimentation control measures during substation modification work to avoid or minimize the potential for surface water runoff, erosion, and sedimentation to occur outside of work limits. These measures will comply with the *2002 CT Guidelines for E&SC* and with Eversource's *BMP Manual* (refer to Volume 3, Attachment E). Eversource's BMPs incorporate and are consistent with the *2002 CT Guidelines for E&SC* (refer to the *BMP Manual* in Volume 3, Attachment E, p. 1-5 for a list of the guidance documents used in preparing Eversource's BMPs).

Permanent stabilization will consist of the application of gravel or pavement (for areas within the substation fence lines), or reseeding to establish vegetative cover on disturbed soils that will not otherwise be paved or graveled (i.e., along the 1770/1887 lines ROW segment adjacent to Stony Hill Substation). After final stabilization is achieved, all temporary erosion and sedimentation controls will be removed and disposed of properly.

5.2 WETLANDS AND FLOODPLAINS

Plumtree Substation

As shown on the Volume 2 maps (refer to Exhibit 1.B), Plumtree Substation is located entirely within the 100-year floodplain of Limekiln Brook, as designated by the Federal Emergency Management Agency (FEMA). In addition, the substation is bordered to the north, west, south, and southeast by designated wetland (W1). The planned substation modifications will be located in the upland substation site, and will not directly affect either the wetland or the floodplain.

However, minor excavations for the installation of underground conduit will be performed to minimize the potential for off-site sedimentation into the wetland and in accordance with Eversource's BMP Manual.

Stony Hill Substation

Stony Hill Substation and the associated 1770/1887 line modifications are not located within any FEMA-designated floodplain areas, and will not directly abut any wetlands. As illustrated on the Volume 2 maps (refer to Exhibit 2.B), one wetland (W7) is located east of the planned Project work at the substation. However, this wetland is located outside the expanded substation fence line and thus will not be directly affected by any Project construction activities.

5.3 PROTECTION MEASURES FOR STATE-LISTED SPECIES [7]

Based on a review of CT DEEP Natural Diversity Database (NDDB) information, ongoing consultations with CT DEEP representatives and input from the CSC, and the evaluation of breeding bird data, five state-listed species, as listed below, were identified as potentially occurring in the Project area.

Species Name	State Status
Wood turtle (*Glyptemys insculpta*)	Species of Special Concern
Eastern box turtle (*Terrapene carolina carolina*)	Species of Special Concern
Spotted turtle (*Clemmys guttata*)	Species of Special Concern
Brown thrasher *(Taxostoma rufum)*	Species of Special Concern
American kestrel *(Falco sparverius)*	Threatened

Of these species, three[8] potentially occur in the vicinity of Plumtree Substation. However, all Project construction at Plumtree Substation will be within the developed (graveled or paved) portions of the site, which provides no habitat for the listed species.

No state-listed species were identified through consultations with NDDB in the vicinity of Stony Hill Substation. As a result, the potential for encountering the state-listed species during the performance of the Stony Hill Substation modifications is minimal.

Two state-listed bird species have records of occurrence in the municipalities coinciding with the Project (including the substations). These species require field or scrub-shrub habitat typical of transmission line ROWs, but have not specifically been identified by NDDB or field staff as occurring in the Project area. Vegetation removal in conjunction with the substation modifications will only occur within a small portion of the 1770/1887 line ROW near Stony Hill Substation. As a result, no impacts to state-listed breeding birds are anticipated.

[7] The Project will not affect the two federally-designated threatened species (both species are also listed as Connecticut endangered species) initially identified as having a potential to occur in the Project vicinity.

[8] Spotted turtle was not identified through consultations with NDDB. However, the Condition 3 of the CSC's Decision and Order for the Project requires consideration of the spotted turtle, whose habitat requirements overlap those of the wood turtle. Thus, BMPs and avoidance and minimization measures for these species are the same.

Although work at Plumtree Substation will be located within the existing fence line of the substation yard and would block access for the listed species into the work area, if, incidentally, a state-listed species is encountered during construction, Eversource should be notified immediately to employ standard protocol for encounters with the state-listed turtles and Eversource would notify NDDB of the observation. For work at Plumtree Substation, protection strategies will include a construction contractor awareness program and species-specific avoidance and minimization measures, which will depend on the season in which construction occurs. Exact location information regarding state-listed species habitat along the Project ROW is not provided for public review, in compliance with confidentiality requirements pursuant to Eversource's agreement with CT DEEP NDDB.

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

5.4.1 Dust Suppression and Anti-Tracking Pads

To minimize short-term adverse effects to air quality during construction, access roads and staging areas will typically be graveled[9] 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 roads at the intersection with Project access roads will be periodically swept, as necessary to remove excess dirt tracked onto the pavement from the ROW.

5.4.2 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 equipment and vehicles, including 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 vehicles of all kinds, including diesel construction equipment, is 3 minutes.
- 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 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

[9] Except where timber mats are used (e.g., at wetland crossings).

types of mobile construction equipment (e.g., cranes, cement mixers) that may be stationary, but actively operating, at a work site.

5.5 PUBLIC SAFETY AT ENCHANTED TRAIL CROSSING

There are no public trails or recreational areas on Eversource's Stony Hill Substation property. However, Bethel Land Trust's Enchanted Trail traverses around a portion of the Plumtree Substation fence and crosses the existing substation access road in front of the substation gate (refer to the Volume 2 maps). Because the Plumtree Substation modifications will be performed entirely within the fenced substation, the potential for impacts to trail users is minimal, and will pertain only to the location where the trail crosses the substation access road.

To minimize potential impacts to trail users during the movement of Project construction equipment and vehicles into and out of Plumtree Substation (using the existing, paved access road from Walnut Hill Road), Eversource will consult with the Bethel Land Trust to discuss the schedule for work at Plumtree Substation, as well as to identify the appropriate methods to be used during construction to minimize disruptions to the public while maintaining public safety. Based on the consultations with representatives of the Bethel Land Trust, Eversource will implement specific mitigation measures to minimize disruptions during the Project work at Plumtree Substation.

Potential mitigation may include:

- Installation of construction zone warning signs.
- Temporary trail re-routing or closure during certain periods of active construction.

These consultations with Bethel Land Trust will continue throughout the construction process.

5.6 SOILS AND MATERIALS HANDLING AND DISPOSITION

Eversource's construction contractors will be responsible for the proper handling and disposal of all excess soils, groundwater, recyclable materials, and other wastes generated during the construction process. The contractors also will be responsible for reporting and properly handling and disposing of contaminated soils and groundwater, if any is encountered or generated[10] during construction activities.

Excess excavated soil and groundwater (if encountered in foundation excavations) will be handled and disposed of in accordance with regulatory requirements (depending on the type of material) and Eversource's BMP procedures.

If contaminated soil or groundwater is encountered, it must be reported to Eversource and handled in accordance with the applicable regulatory requirements. If encountered, contaminated soils will be stockpiled on and covered by polyethylene sheeting. Sheeting used to cover the stockpile will be weighted to prevent the wind migration of contaminated dust. The materials will be tested to determine appropriate handling and disposition. Potentially contaminated groundwater, if encountered, will be

[10] If soil or groundwater contamination were caused by construction activities (e.g., a spill), it would be addressed pursuant to the procedures defined in the *Spill Prevention and Control Plan* (refer to Volume 3, Attachment C).

addressed on a case-by-case basis and may involve pumping to a frac tank or water truck prior to off-site disposal or the use of other measures.

Recyclable materials will be removed from the substation sites and transported off-site for appropriate re-use or salvage, pursuant to Eversource policies. General waste materials and debris other than soil and groundwater will be collected in receptacles at the work sites or in secured containers at contractor staging areas or yards. Containers that are not removed or emptied at the end of the workday will be inspected regularly until 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 at the substation sites or at contractor staging areas or yards.

5.7 LIGHTING AND NOISE MITIGATION

Substation modification construction activities will result in localized and short-term increases in ambient noise levels in the vicinity of work sites. Construction-related noise will occur as a result of the operation of equipment and vehicles. Because noise attenuates with distance, the effects of construction-generated noise will depend on the noise source location in relation to noise receptors.

Temporary noise impacts associated with construction will be minimal because the noise from construction will be relatively short-term and limited primarily to daylight hours (i.e., between 7 AM and 7 PM), when human sensitivity to sound is lower. In addition, Eversource will require its contractors to properly maintain and muffle equipment and vehicles to minimize noise emissions.

Because the substation modification work will be performed principally during daylight hours, and because existing lighting is installed in and around each substation for safety and security concerns, temporary lighting is not expected to be required on a routine basis. If needed to accomplish specific tasks that cannot otherwise be suspended at nightfall, construction lighting will be focused on the targeted work areas and will have only a short-term and localized effect.

5.8 SITE ACCESS, TRAFFIC CONTROL AND CONSTRUCTION SIGNS

Access to both substations during construction will be via the public road network and the existing substation access roads. Access to the 1770 and 1887 line reconfiguration work sites also will be via the existing Stony Hill Substation access road and Eversource's ROW (all on Eversource-owned property).

To minimize the potential for traffic issues during construction, Eversource will require its construction contractor(s) to implement access and traffic control measures. Such measures will include procedures for safe ingress and egress to the substation sites for construction equipment and other vehicles and for informing the public of construction work zones. For example, along the public roads that intersect with the substation access roads, signs will be erected to indicate the presence of construction work zones and flaggers or police personnel will be used to direct traffic, as needed.

The construction contractors 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 work areas along

the ROW. Signs will be consistent with the federal *Manual of Uniform Traffic Control Devices* ([MUTCD], 2009 edition, as revised May 2012, or the latest version)[11].

5.9 CULTURAL RESOURCES

No cultural resources were identified on the substation sites or along the 1770/1887 line reconfiguration ROW near Stony Hill Substation. Because the substation modifications and the related 115-kV line modifications at Stony Hill Substation will be performed within areas affected by previous substation and transmission line development, it also is unlikely that unanticipated buried cultural materials will be discovered during construction. However, Eversource will brief Project construction contractor managers regarding the procedures to be followed should unanticipated potential cultural materials be discovered during construction. Specifically, construction personnel will be instructed to stop the task that resulted in the potential discovery and inform Eversource. Construction work at the potential cultural resource discovery site will not resume until authorized by Eversource, after review and approval by a professional archaeologist retained by Eversource.

5.10 CONSTRUCTION EQUIPMENT / VEHICLE WASHING AND CLEANING

Concrete truck wash-out and vehicle washing will be allowed where practical on the substation sites and staging areas. All wash-out and washing areas will include measures to control and contain wash-water and to collect the cement wash-off for off-site disposal. Erosion and sedimentation controls deployed at wash-out areas will conform to the relevant provisions of Eversource's *BMP Manual*, the *2002 CT Guidelines for E&SC)* (as amended), Eversource's *BMP Manual*, and the CT DEEP's *General Permit* (refer to Volume 3, Attachments E and F).

5.11 WINTER WORK, SITE STABILIZATION AND CONTROL MONITORING PROTOCOL

If required, snow removal and the use of de-icing procedures at construction sites will be implemented in accordance with the *Snow Removal and De-Icing Plan* included in Volume 3, Attachment D. If, after the substation modifications are completed, some substation site clean-up or restoration work is completed too late in the season to initiate or complete permanent stabilization of disturbed areas (e.g., temporary staging areas that may require reseeding), temporary erosion and 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. All erosion and sedimentation control practices and over-winter monitoring will be in accordance with Eversource's *BMP Manual* and the CT DEEP's *General Permit*.

[11] Connecticut has adopted the federal MUTCDs.

6. PUBLIC REVIEW AND OUTREACH

6.1 PROJECT PLANNING AND D&M PLAN

As part of the Project planning process, including the development of the Application to the Council and the D&M Plan, Eversource consulted with officials of the towns of Bethel and Brookfield and conducted outreach to property owners abutting the substation properties. Prior to the submission of this D&M Plan to the Council, Eversource also provided draft copies of the Plan to municipal officials and offered to meet with them to review the plan.

During the meetings with the municipal officials in Bethel and Brookfield, Eversource provided information regarding the substation modifications and general Project construction process and activities to be performed at each substation, as well as the planned work hours and anticipated schedule.

In conjunction with the submission of the D&M Plan to the Council, Eversource will post the filed D&M Plan on the Project website and will provide the filed D&M Plan to the towns of Bethel and Brookfield and to the service list for the Project (Council Docket No. 468).

Eversource's Project website is accessible from the Eversource homepage (www.Eversource.com). From this homepage, a list of the Company's ongoing and proposed projects, including this Project, can be accessed by clicking the "About" tab and then the "Major Projects and Infrastructure" tab. Included on the website is an e-mail address (transmissioninfo@eversource.com) and a telephone number (800-793-2202) to contact Eversource for more Project information or to provide comments about the Project.

6.2 PUBLIC OUTREACH DURING CONSTRUCTION

Throughout the Project's planning process and the Council's siting processes, Eversource conducted extensive community outreach, including direct coordination and meetings with abutting property owners and municipal officials. In addition, Eversource held an open house to share Project information with the public during the Municipal Consultation phase of the siting process. Eversource will continue its outreach efforts throughout the Project's construction phase.

Eversource's Project information and email address are currently available via the website noted in Section 6.1 The website will continue to be available for residents, businesses, and other stakeholders to contact Project representatives throughout Project construction.

In addition, Eversource representatives will be available to brief residents and businesses affected by the Project construction activities and other interested stakeholders regarding the construction process, key construction stages and expected construction timeline. 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.

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7. GLOSSARY OF TERMS

TERM / ACRONYM	DEFINITION
Access Road:	A road that provides access into and out of the stations, staging areas, or ROW.
BMP:	Best Management Practice
Certificate:	Certificate of Environmental Compatibility and Public Need (from the Connecticut Siting Council)
CGS:	Connecticut General Statutes
Conductor:	A metallic wire, busbar, rod, tube or cable that serves as a path for electric current flow.
Council or CSC:	Connecticut Siting Council
CWA:	Clean Water Act
CT DEEP:	Connecticut Department of Energy and Environmental Protection
Counterpoise:	Part of grounding system.
D&M Plan:	Development and Management Plan (required by the Connecticut Siting Council)
dBA:	Decibel, on the A-weighted scale.
Deadend Structure:	A line structure that is designed to have the capacity to hold the lateral strain of the conductor in one direction.
DECD:	Connecticut Department of Economic and Community Development
D&O	Decision and Order (Council approval of the Project)
Direct Embed:	Structure installation type in which the bottom section of each pole is placed in an excavated hole. Does not require the use of foundations or concrete. H-frame and guyed pole structures are typically direct embedded.
Docket 468:	Council Docket number for the application proceeding concerning the Project.
Drilled Shaft Foundation:	Structure foundation type involving the use of drilling rigs and pneumatic hammers to excavate an area for the structure foundation. Concrete is used for the foundation.
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.

TERM / ACRONYM	DEFINITION
Environmental Inspector:	Environmental scientist employed by Eversource to monitor the conformance of Project construction to the environmental requirements
Eversource:	Also "the **Company**": The Connecticut Light and Power Company doing business as Eversource Energy
Fault:	A failure (short circuit) or interruption in an electrical circuit.
FEMA:	Federal Emergency Management Agency
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.
H-Frame Structure:	A wood or steel structure constructed of two upright poles with a horizontal cross-arm and bracings.
Idling:	The period when mobile construction equipment is not in motion or is not otherwise actively performing its designated function.
kV:	Kilovolt, equals 1,000 volts
kW:	Kilowatt, equals 1,000 watts
Lightning Shield Wire:	Electric cable located above conductors to prevent lightning from striking transmission circuit conductors.
Line:	A series of overhead transmission structures that 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
MUTCD:	Manual of Uniform Traffic Control Devices
NAAQS:	National Ambient Air Quality Standards
NDDB:	Connecticut Natural Diversity Data Base (CT DEEP)
NRHP:	National Register of Historic Places
NWI:	National Wetlands Inventory
OPGW:	Optical groundwire (a shield wire containing optical glass fibers for communication purposes)
PEM:	Palustrine emergent marsh (wetlands)
PFO:	Palustrine forested (wetlands)
Phases:	Transmission (and some distribution) AC circuits are comprised of three phases that have a voltage differential between them.
Project:	Southwest Connecticut Reliability Project

TERM / ACRONYM	DEFINITION
PSS:	Palustrine scrub-shrub (wetlands
PUB:	Palustrine unconsolidated bottom (wetlands)
PURA:	Public Utilities Regulatory Authority (part of CT DEEP)
RCSA:	Regulations of Connecticut State Agencies
ROW:	Right-of-Way
Shield Wire:	See Lightning Shield Wire
SHPO:	State Historic Preservation Office (Connecticut)
SPCP:	Spill Prevention and Control Plan
SRHP:	State Register of Historic Places
Stormwater Pollution Control Plan:	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.
Terminal Structure:	Structure typically within a substation that ends a section of transmission line.
Transmission Line:	Any line operating at 69,000 or more volts.
USACE:	United States Army Corps of Engineers
USFWS:	United States Fish and Wildlife Service
USGS:	United States Geological Survey (U.S. Department of the Interior).
Vegetation Clearing:	Removal of forest vegetation. May also refer to mowing or cutting of scrub-shrub vegetation.
Watercourse:	Rivers, streams, brooks, waterways, lakes, ponds, marshes, swamps, bogs, and all other bodies of water, natural or artificial, public or private.
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 USACE have formal definitions of state and federal jurisdictional wetlands, respectively.
XS:	Cross section (drawing)

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