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August 9, 2016

Robert Stein, Chairman
Connecticut Siting Council
10 Franklin Square
New Britain, CT 06051

Re: Petition 1227:1975 Line Rebuild
Development and Management Plan

Dear Chairman Stein:

On behalf of Eversource Energy ("Eversource") and pursuant to Condition 1 of the Connecticut Siting Council's May 27, 2016 ruling for the in the subject Petition, enclosed are an original and 15 copies of Eversource's Development and Management Plan for the modifications to the 1975 transmission line ("D&M Plan"). An electronic version on CD-ROM of the D&M Plan is also enclosed.

The D&M Plan is comprised primarily of text and a set of drawings for the proposed modifications to 1975 transmission line, which will take place within Eversource's existing right-of-way in the municipalities of Middletown, Middlefield and Durham.

The D&M Plan for the proposed substation improvements consists of the following volumes:

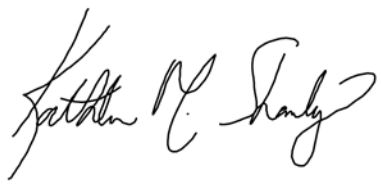
- Volume I: addresses all construction activities for the construction of the 1975 transmission line structure replacement.
- Volume II: addresses all approvals, permits, and best management practices for the 115-kV transmission line work.
- Volume III: consists of maps, drawings and other details relevant to the construction of the 1975 Line structure replacement.

Eversource recently met with Town officials and abutters to discuss the D&M Plan and solicit comments. The D&M Plan reflects Eversource's efforts to address the comments received from the municipalities.

In accordance with Condition 1 of the Council's Decision and Order, Eversource is furnishing a copy of the D&M Plan to the municipal officials in municipalities of Middletown, Middlefield and Durham.

Eversource requests that the Council review and approve the D&M Plan.

Respectfully submitted,



Enclosures

# 1975 LINE STRUCTURE REPLACEMENT PROJECT

# DEVELOPMENT AND MANAGEMENT PLAN

**for**

## MODIFICATIONS TO 1975 TRANSMISSION LINE MIDDLETOWN, MIDDLEFIELD & DURHAM

## VOLUME 1

**JULY 2016**

***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

To improve the reliability of the electrical transmission supply system and safety for maintenance crews, The Connecticut Light and Power Company doing business as Eversource Energy (Eversource or the Company) will replace 115- kilovolt (kV) transmission structures within existing Eversource right-of-way (ROW) in Middlesex County. The line structures in this area primarily consist of wooden H-frame structures originally constructed in the 1920s and 1950s, are now beyond their life expectancy and in critical need of replacement due to the deterioration of poles and cross-arms from natural aging effects.

The 115-kV 1975 transmission line is presently a two-terminal line connecting the East Meriden Substation (located at 300 High Hill Road in Meriden) and the Haddam Substation (1384 Saybrook Road in Haddam) that extends generally in an east to west direction through the City of Middletown and the towns of Middlefield and Durham. The existing circuit in the project area consists of two (2) lines of wood H-frame structures bundled together to electrically operate as a single line. The Project would replace the existing aging wood H-frame structures currently supporting the 1975 Line in the vicinity of the Royal Oaks Subdivision in the Town of Durham and the City of Middletown, for a total distance of approximately 0.8 miles. The new line will consist of a single line of H-Frames aligned generally in the middle of the ROW.

These improvements, referred to collectively as the 1975 Line Structure Replacement Project (Project; refer to Figure 1-1), will consist of the following:

- Removal of 13 115-kV wood H-frame structures.

- Removal of six weathering single-circuit steel structures and foundations. This includes two deadend H-frame structures which support the southerly line and four tap structures which currently facilitate the bundling of the two transmission lines.

- Removal of the existing 4/0 copper conductor and copperweld shield wires on the existing wood structures.

- Installation of five direct-embedded 115-kV H-frame weathering steel structures. Two sets of single-circuit wood pole transmission structures exist along the ROW today. One set would be replaced with single-circuit steel H-frames and the second would be removed. The existing two lines bundled together would be reconfiguration into a single line.

  The heights of the existing structures range between approximately 30 to 61 feet above ground level. The proposed replacement structures would be approximately 5 to 15 feet taller than the existing structures with the tallest proposed structure at 75 feet. The increase in height is required to comply with the 2012 National Electric Safety Code (NESC).

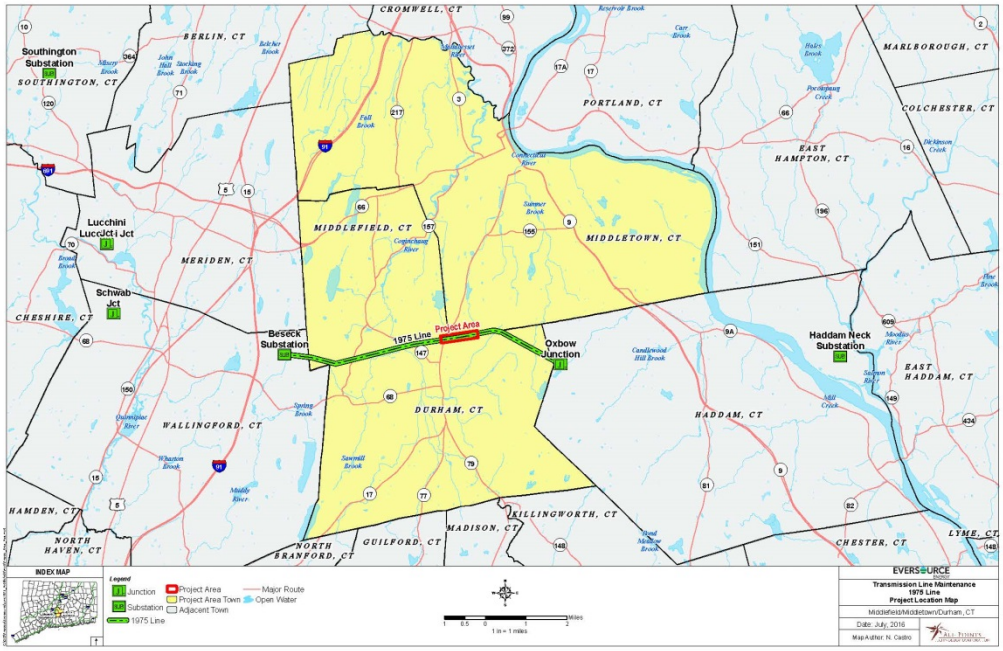
- Installation of new conductor 1590-kcmil aluminum conductor steel supported (ACSS) line conductor on the proposed steel structures.

- Installation of two optical ground wires ("OPGW") on the proposed structures.

On April 7, 2016, Eversource submitted to the Connecticut Siting Council (Council, CSC) a Petition for a declaratory ruling that no Certificate of Environmental Compatibility and Public Need is required for the Project (Council Petition No. 1227). After a technical review and a field visit, the Council issued a determination approving the Project on May 26, 2016. Condition 1 of the Council's Declaratory Ruling approving the Project requires that Eversource prepare and submit for Council's approval 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*).

Accordingly, this D&M Plan addresses the proposed construction activities for replacement of the 115-kV transmission line structures. Figure 1-1 below provides the location of the work subject of this D&M Plan.

**Figure 1-1: Project Location Map**



The reconfiguration of the 115-kV transmission line will occur within an existing ±125-foot wide Eversource ROW that is occupied by two separate sets of 115-kV transmission lines supported on wood H-frame structures. These two lines are bundled together to operate as a single electric line. The full width of this portion of the ROW is actively maintained and is characterized by low-growth vegetation. No expansion of the existing maintained ROW will be required and the structure replacement and line work would take place entirely within the existing ROW.

The proposed structure replacement activities are summarized below.

| Town | ROW Width (feet) and Location | Existing Eversource Transmission Structures | Proposed Replacement Structures |
|---|---|---|---|
| Middlefield | 125<br>Little Lane to Main Street | Structures 3584A, 4502 and 4502A to be Removed<br>Structures 3584, 24529 and 3583 to Remain | No new structures planned |
| Middlefield<br>Middletown | 125<br>Main Street to Ironwood Lane | Structures 4501, 4500 and 3582 to be Removed | Structure 3582 |
| Middletown<br>Durham | 125<br>Ironwood Lane to Black Walnut Drive | Structures 3581, 4499, 3580, 3579 and 4498 to be Removed | Structures 3581 and 3580 |
| Middletown<br>Durham | 125<br>Black Walnut Drive to Eastern Terminus of Project | Structures 3578, 4497, 3577, 4496, 4495, 3575A, 4494 and 4494A to be Removed<br>Structures 3576, 3575 and 25540 to Remain | Structures 3579 and 3577 |

## 1.2 Organization of the D&M Plan

This D&M Plan consists of three volumes:

- **Volume 1** includes information relevant to the Project. The main text of Volume 1 (Sections 1 through 7) includes information and procedures that are pertinent to construction activities, including regulatory requirements, general Project construction procedures and special plans, overall construction schedule, public outreach, and processes for reporting to the Council concerning the Project and notifying and requesting approval from the Council for changes to the D&M Plan.

  Table 1-1 summarizes each of the Council's D&M Plan conditions, pursuant to RCSA Sections 16-50j-60 through 16-50j-62, while Table 1-2 identifies the requirements pertaining to the Project as contained in the Council's Declaratory Ruling 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 Project.

- **Volume 2** includes approvals, permits, and best management practices (BMPs) pertinent to Project construction activities. In particular, Volume 2 includes the following:

  – The Council's Declaratory Ruling regarding the Project (Attachment A).

  – Spill Prevention and Control Plan (Attachment B).

- Snow Removal and De-Icing Procedures (Attachment C).
- Eversource's *BMP Manual: Connecticut (Construction and Maintenance Environmental Requirements)* (Attachment D).
- Vegetation Removal Plan (Attachment E).
- Overhead Transmission Line Standards (Attachment F)

- **Volume 3** consists of maps, drawings, and other details relevant to the construction of the Project, including:
  - Key Map, depicting the route of the 115-kV transmission line (scale 1"=2,000', U.S. Geological Survey topographic map base);
  - Cross-sections depicting the alignment of the reconfigured 115-kV transmission line and structure removals/replacements within Eversource's ROW;
  - Mapsheets, at a scale of 1"=100' showing the location of the existing 115-kV transmission line, on- and off-ROW access roads, structures and work pads in relation to environmental features, as well as a summary of the characteristics of new transmission structures (structure number, type, height, finish, and foundation type);
  - Typical construction drawings of erosion and sedimentation controls and protection measures;
  - Drawings of typical transmission structures, as well as structure foundation and grounding details.

**Table 1-1 D&M Plan Directory - 1975 Line Structure replacement Project (Compliance with RCSA Sections 16-50j-60, -61 and -62, as amended through September 7, 2012)**

| 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 the modification of the existing 115-kV line, including removal and replacement of transmission structures. |
| **(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 construction activities associated with the reconfiguration of the115-kV transmission line and related facilities. |
| **(c )** | **Procedure for preparation**.<br>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 proposed Project construction activities except for the list of contractor personnel as specified in Section 16-50j-61(c)(8). Contact information for the prime contractors for the transmission line work will be provided to the Council in a supplemental submission, after contract awards. |
| **16-50j-61** | **Elements of D&M Plan** | |
| **(a)** | **Key Map**, 1"=2,000' USGS topographic map | Volume 3 |
| **(b)** | **Plan Drawings**, 1"=100' or larger, and supporting documents, which shall contain the following information: | Maps and cross-sections are included in Volume 3. |
| **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 3 |

| R.C.S.A Section | Description | D&M Plan (Section Reference, as Applicable) |
|---|---|---|
| **2.** | Public roads and public land crossings or adjoining the site | Volume 3 |
| **3.** | Approximate location of 50' contours along the site | Volume 3 |
| **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 3 maps and cross-sections. |
| **5.** | Probable points of access to the site, and the route and likely nature of accessways, including alternatives | Volume 3 |
| **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 | Volume 3 maps; Volume 1 Section 3.2 and Volume 2, Attachment E, Vegetation Removal Plan |
| **7.** | Identification of sensitive areas and conditions within and adjoining the site, including but not limited to: | |
| | A. Regulated wetland and watercourse areas and any locations where construction may create drainage problems | Volume 1, Section 5.2; Volume 3 |
| | B. Areas of high erosion potential | Volume 1, Section 5.1; Volume 3 |
| | 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 | No such resources associated with the Project |
| | 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 1, section 5.8; Volume 3 |
| | E. Residences or businesses within or adjoining the site that may be disrupted during construction | Volume 3 |
| | F. Significant environmental, historic and ecological features (significantly large or old trees, buildings, monuments, stone walls or features of local interest) | Volume 3 |
| **(c)** | **Supplemental Information** | |
| **1.** | Plans (if any) to salvage marketable timber, restore habitat and maintain snag trees within or adjoining the site | None anticipated; Volume 2, Attachment E, Vegetation Clearing Plan |
| **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: | |

| R.C.S.A Section | Description | D&M Plan (Section Reference, as Applicable) |
|---|---|---|
| | A. Construction techniques at wetland and watercourse crossings | Volume 1, Section 5.2; Volume 2 Attachment D (Eversource BMP Manual), Volume 3 maps/detail sheets |
| | 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, Section 3, Section 5.1; Volume 2, Attachment D, BMPs; Volume 3 |
| | 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 5.2.3; (no such resources associated with the Project) |
| | D. Plans for modification and rehabilitation of surface, drainage, and other hydrologic features | Volume 1, Section 5.2; Volume 2, Attachment D, BMPs |
| | E. Plans for watercourse bank restoration in accordance with Chapter 440 of the C.G.S. | Volume 1, Section 5.2; (no watercourse bank restoration associated with Project) |
| | 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 5.10 (no cultural resources associated with Project) |
| **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 and Volume 2, Attachment E |
| **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. | No such resources associated with the Project |
| **5.** | Plans for ultimate disposal of excess excavated material, stump removal, and periodic maintenance of the site | Volume 1, Section 5.4 |
| **6.** | Locations of areas where blasting is anticipated | None anticipated; refer to Volume 1, Section 3.4.4.1 |
| **7.** | Rehabilitation plans, including but not limited to reseeding and topsoil restoration | Volume 1, Section 3.4.6; Volume 2, Attachment D BMPs |
| **8.** | Contact information for the personnel of the contractor assigned to the project | To be provided after transmission line contract |

| R.C.S.A Section | Description | D&M Plan (Section Reference, as Applicable) |
|---|---|---|
| | | awards; Volume 1, Section 3.2 |
| **9.** | Such site-specific information as the CSC may require | Refer to Table 1-2: List of Conditions per Petition 1227 Declaratory Ruling |
| **(d)** | **Notice**<br>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 6 |
| **(e)** | **Changes to the Plan**<br>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 Section 6.2 for discussion of Eversource's Change Notice process |
| **16-50j-62** | **Supplemental Reporting Requirements** | |
| **(a)** | **Site Testing and Staging Areas**<br>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 3 identifies work pads for the Project. No site testing is planned. The primary location of the contractor yard and material staging area is 1279 Long Hill Road in Middletown. |
| **(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 6.1 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 6.2 includes Eversource's D&M Plan change process |
| | A. The location of wetland or watercourse crossing | |
| | B. The location of an accessway or structure in a regulated wetland or watercourse area | |

| R.C.S.A Section | Description | D&M Plan (Section Reference, as Applicable) |
|---|---|---|
| | | |
| | 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, Table 6-1 |
| **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 6.1 |
| **(c )** | **Final Report**<br>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, Table 6-1 |
| **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 | |

| R.C.S.A Section | Description | D&M Plan (Section Reference, as Applicable) |
|---|---|---|
| | D. Property acquisition for the site or access to the site | |
| **(d)** | **Protective Order**<br>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. | Not applicable to this D&M Plan |

**Table 1-2 D&M Plan Directory of Docket No. 1277 Declaratory Ruling Conditions - 1975 Line Structure Replacement Project**

| Condition or Page Number | Description | D&M Plan (Section Reference, as Applicable) |
|---|---|---|
| **Condition Number** | **Declaratory Ruling** | |
| **(1)** | The Petitioner shall prepare a Development and Management (D&M) Plan for this site in compliance with Sections 16-50j-60 through 16-50j-62 of the Regulations of Connecticut State Agencies. The D&M Plans shall be served on the Towns of Durham and Middlefield and the City of Middletown for comment and submitted to and approved by the Council prior to the commencement of facility construction and shall include: | D&M Plan, Volumes 1-3; see in particular Volume 1, Section 7 |
| | a. A detailed site plan showing the placement of the access roads, work pads, equipment and materials staging area, pull pad and route to pull conductors, and identifying those areas as temporary; | Volume 3 maps |
| | b. Plan and modification of using helicopter for conductor installation, if applicable; | Volume 1, Sections 3.4.5 and 5.5 |
| | c. Identification of developed areas for staging and equipment lay down, field office trailers, sanitary facilities, and parking; | Volume 1, Section 3.3; Volume 3 maps (Any additional locations to be submitted to the Council separately pursuant to process detailed in Section 6.2) |
| | d. An erosion and sediment control plan, consistent with the 2002 *Connecticut Guideline for Soil Erosion and Sediment Control* as amended; | Section 5.1; Volume 2, Attachments D and E |
| | e. A spill prevention and countermeasures plan; | Volume 2, Attachment B |
| | f. Provisions for crossing inland wetland and watercourses; | Volume 1, Section 5.2; Volume 3 maps and Detail Sheets |
| | g. Vegetative clearing plan and use of organic materials; | Volume 2, Attachment E |
| | h. Mark established or ornamental vegetation for preservation prior to clearing, to the extent practicable; | Volume 3 |
| | i. A wetland and upland restoration plan; | Volume 3, Detail Sheet |
| | j. A schedule of construction hours; | Volume 1, Section 4 |
| | k. Consult with town of Durham on construction traffic during the Durham Fair; | Volume 1, Section 4.2 |
| | | |

| Condition or Page Number | Description | D&M Plan (Section Reference, as Applicable) |
|---|---|---|
| | l. A plan to minimize air quality effects during construction;<br><br>m. Confirm no blasting is necessary;<br><br>n. Identification and protective measures to private wells and septic system; and<br><br>o. Plans and strategies to prevent the use of the right-of-way by off-road vehicles. | Volume 1, Section 5.3<br><br>No blasting is required. See Volume 1, Section 3.4.4.1<br>Volume 1, Section 5.2.5; Volume 3 mapping<br><br>Volume 1, Section 5.9 |
| **(2)** | Unless otherwise approved by the Council, if the facility authorized herein is not fully constructed within three years from the date of the mailing of the Council's decision, this decision shall be void, and the facility owner/operator shall dismantle the facility and remove all associated equipment or reapply for any continued or new use to the Council before any such use is made. The time between the filing and resolution of any appeals of the Council's decision shall not be counted in calculating this deadline. Authority to monitor and modify this schedule, as necessary, is delegated to the Executive Director. The facility owner/operator shall provide written notice to the Executive Director of any schedule changes as soon as is practicable. | Volume 1, Section 6.1 |
| **(3)** | Any request for extension of the time period to fully construct the facility shall be filed with the Council not later than 60 days prior to the expiration date of this decision and shall he served on all parties and intervenors, if applicable, and the Towns of Middlefield, Durham and Middletown. | Volume 1, Section 6.1 |
| **(4)** | Within 45 days after completion of construction, the Council shall be notified in writing that construction has been completed; | Volume 1, Section 6.1 |
| **(5)** | The facility owner/operator shall remit timely payments associated with annual assessments and invoices submitted by the Council for expenses attributable to the facility under Conn. Gen. Stat. §16-50v. | Not applicable to this D&M Plan |
| **(6)** | This Declaratory Ruling may be transferred, provided the facility owner/operator/transferor is current with payments to the Council for annual assessments and invoices under Conn. Gen. Stat. §16-50v and the transferee provides written confirmation that the transferee agrees to comply with the terms, limitations and conditions contained in the Declaratory Ruling, including timely payments to the Council for annual assessments and invoices under Conn. Gen. Stat. §16-50v. | Not applicable to this D&M Plan |
| **(7)** | If the facility owner/operator is a wholly owned subsidiary of a corporation or other entity and is sold/transferred to another corporation or other entity, the Council shall be notified of such sale and/or transfer and of any change in contact information for the individual or representative responsible for management and operations of the facility within 30 days of the sale and/or transfer. | Not applicable to this D&M Plan |

# 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 Petition 1227 regulatory process; and reflects adherence to the conditions of the Council's Declaratory Ruling for the Project and other relevant, previously received or anticipated regulatory approvals. The federal and state permits and approvals needed for the Project are listed in Table 2-1. Volume 2 includes a copy of the Council's Declaratory Ruling for the Project (refer to Volume 2, Attachment A).

## 2.2 Consultations

During the planning of the Project, Eversource consulted with representatives of the three municipalities traversed by the 115-kV transmission line, as well as with representatives of various state and federal agencies, including the U.S. Army Corps of Engineers (USACE), New England District; CT DEEP; State Historic Preservation Office (SHPO), and Connecticut Department of Transportation (ConnDOT). In addition, Eversource met with property owners along the transmission line ROW where the work will occur.

During consultations with town representatives, property owners and lessees, and the interested public, Eversource provided information regarding the D&M Plan process, the planned transmission line construction activities, and Eversource's outreach procedures and points-of-contact prior to and during construction. In accordance with Condition 1 of the Council's Decision and Order, Eversource also issued this D&M Plan to the municipalities that the Project traverses. Additional information regarding Eversource's public outreach process is included in Section 7.

**Table 2-1 Permits, Reviews, and Approvals Required for the Project**

| Agency | Certificate, Permit, Review, Approval or Confirmation | Activity Regulated |
|---|---|---|
| **FEDERAL** | | |
| USACE, New England District | Eligible under USACE CT General Permit as a Category 1 Activity<br><br>(Permit requires conformance with National Historic Preservation Act (NHPA), Section 106; see SHPO, below) | Discharge of dredge or fill material into waters of the U.S. (wetlands or watercourses) |
| U.S. Fish and Wildlife Service | Coordinates with USACE regarding endangered or threatened species | Activities that may affect federally-listed endangered or threatened species |
| U.S. Environmental Protection Agency | Provides input to USACE permit application review | Activities that may affect water, air, or other resources |
| **CONNECTICUT** | | |
| Connecticut Siting Council | Petition for Declaratory ruling that No Certificate of Environmental Compatibility and Public Need is required (Petition1227, May 26, 2016; refer to Volume 2, Attachment A)<br><br>D&M Plan approvals | Transmission line maintenance requiring structure replacements. |
| CT DEEP Public Utilities Regulatory Authority | Approval pursuant to CGS Section 16-243 | Method & Manner of Construction<br>Approval to Energize Line |
| SHPO | Approval of proposed Project consistency with the NHPA; comments during Council and USACE processes | Construction and operation activities that may affect archaeological or historic resources<br>(Note: investigations revealed that no cultural sites will be affected by transmission line facilities; SHPO confirmed in writing) |
| Connecticut Department of Transportation (ConnDOT) | Encroachment permits | Transmission line crossings of state highways |

Eversource consulted with federal and state agencies both as part of permitting efforts and as part of the preparation of resource-specific protection measures included in this D&M Plan. For example, Eversource coordinated with the CT DEEP and the USFWS regarding threatened and endangered species. The results of Eversource's consultations revealed that no such species or critical habitat exists within the Project ROW.

In addition, as specified in the D&M Plan requirements, RCSA Section 16-50j-61(c)(2)(F), Eversource consulted with representatives of the SHPO regarding the potential effects of the reconfiguration of the 115-kV transmission line on archaeological or historic resources and the measures to mitigate such effects, as necessary. No cultural resource sites were identified within the areas proposed for transmission facility construction.

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# 3. GENERAL CONSTRUCTION PROCEDURES

This section describes the typical construction procedures and plans for the Project. Sections 3.1 through 3.3 provide an overview of the proposed activities within the existing Eversource ROW, construction management, and contractor yards / staging areas required to support the Project. Section 3.4 discusses procedures for the construction of the Project.

Additional special construction procedures, plans, or mitigation measures will be implemented to protect or minimize impacts to the public, environmental resources (e.g., wetland resources), and public areas. Such measures are described in Section 5 and appendices to this volume, in Volume 2, and / or in Volume 3 (maps and detail sheets). The Volume 3 maps include site-specific information regarding the transmission line structure characteristics (i.e., structure number, type, height, finish, and removal/installation techniques), environmental features along the ROW, property owners, construction work areas, and the locations where special resource protection measures will be implemented.

## 3.1 Summary of New Transmission Facilities

**Modified Transmission Line: Overview of Existing and Replacement Structures**

The Project portion of the 115-kV transmission line, designated as the 1975 Line, extends for approximately 0.8 mile. The Project consists of replacing a total of 19 structures, including 13 wood H-frame structures and six weathering single-circuit steel structures and foundations. The steel structures proposed for removal include two deadend H-frame structures which support the existing southerly line and four tap structures which currently facilitate the bundling of the two transmission lines. The heights of the existing structures range from 43 feet to 61 feet above grade. In addition to the structures, associated 4/0 copper conductor and copperweld shield wires will also be removed.

To accommodate the conversion from a two-line configuration to a single circuit, five new replacement line structures are required to be fixed within the existing ROW. The replacement structures will consist of weathering steel H-frames to be direct-embedded. Four of the new steel structures will be 65 feet tall; one new structure will rise to a height of 75 feet above ground level. The proposed work also requires installation of new conductor 1590-kcmil aluminum conductor steel supported (ACCSS) and two optical ground wires (OPGW) on the proposed steel structures. Short-term outages of the 115-kV 1975 Line circuit will be required to safely install the new structures, remove the existing conductor and associated structures, and install the 115-kV line on the new structures.

## 3.2 Construction Management and Contact Information

Eversource expects to award contracts for the transmission line work in August 2016. After contract awards, but prior to the commencement of the contractor's on-site work on the Project, 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-mails.

The Project construction will be overseen by personnel from Eversource who will directly monitor construction activities, including adherence to safety and Project plans, including the requirements of environmental permits and other approvals terms and conditions.

## 3.3 Construction Field Offices, Contractor Yards, and Staging Areas

Eversource would utilize its Dooley Substation property located at 1279 Long Hill Road in Middletown as the primary staging area for the Project, including the temporary use of construction trailers and parking for vehicles.

To support the construction activities, additional staging areas could be required. The preferred locations for contractor yards, as well as temporary storage and staging sites, are in the general vicinity of the ROW, including on Eversource property. If Eversource property is not suitable, previously developed lands (for example, parking lots) or vacant land will be considered.

The Project construction contractors will be responsible for identifying proposed locations for any additional staging areas, and for entering into agreements with the property owners for the use of such sites during construction. In accordance with the Change Notice Approval Process described in Section 6.2, Eversource will submit the proposed locations of these construction support areas to the Council staff for review and approval prior to use.

## 3.4 Construction Procedures

### 3.4.1 General Construction Sequence

Eversource will construct the Project in several stages, some overlapping in time. The following summarizes the sequence of construction activities:

- Prepare material staging sites (e.g., storage, staging and laydown areas) to support the construction effort.
- Establish construction field office area(s), typically including space for an office trailer, equipment storage and maintenance, sanitary facilities, and parking.
- Survey and stake the ROW boundaries (where necessary), vegetation clearing boundaries, and new structure locations.
- Mark the boundaries of previously delineated wetland resources.

- Identify and mark areas to be avoided or otherwise protected (e.g., well heads, septic systems, landscape vegetation).
- Identify other areas, as appropriate, where special construction considerations will apply (e.g., areas that require particular construction treatment pursuant to landowner agreements).
- Perform vegetation clearing.
- Install erosion and sedimentation controls.
- Construct new access roads or improve existing roads. Prepare level work pads as necessary at new structure sites and conductor pulling sites.
- During a scheduled outage on the existing 115-kV lines (exact schedule, to be determined), remove the existing conductors and shield wires, install the new replacement structures and install the new conductor for that circuit.
- Install/erect new structures.
- Install structure grounding systems, including counterpoise.
- Remove temporary roads and construction debris and restore disturbed sites. Eversource will recycle all steel demolished and will properly dispose of all other miscellaneous hardware from the existing structures.
- Maintain temporary erosion and sediment controls until vegetation is re-established or disturbed areas are otherwise stabilized.

### 3.4.2 Vegetation Removal

Vegetation removal, the first step in the preparation of the ROW for construction, will be performed within the limits of the ROW where small trees and herbaceous or low-growing scrub/shrub species exist. The Volume 3 maps identify vegetation removal limits for construction along the ROW. A *Vegetation Clearing Plan* is included in Volume 2, Attachment E). Vegetation will only be removed as needed to facilitate Project construction activities along on- and off-ROW access roads. Further, after initial vegetation removal (particularly after the new conductors are installed), trees adjacent to these areas may need to be selectively removed or pruned to achieve clearances from transmission line conductors. Eversource will work with abutting landowners for off-ROW tree removal.

Temporary erosion and sedimentation controls may be installed before vegetation removal, depending on site-specific characteristics. After vegetation removal, soil erosion and sedimentation controls typically will be installed around work limits (e.g., access roads, work pads) and in or near wetland resources. (Refer to the typical drawings of erosion and sedimentation control measures in the BMP Manual [Volume 2, Attachment D] and in Volume 3.)

In addition, during this phase of construction, flagging, exclusion fencing, or other types of boundary markings will typically be installed, if necessary, to demarcate areas of restricted construction access or environmental resource sensitivity.

### 3.4.3 Access Roads and Work Pads

#### 3.4.3.1 Access Roads

On-ROW access roads will provide the principal means for equipment and material to reach transmission line structure locations. The locations of existing and planned on-ROW access roads (including alternative road alignments) are illustrated on the Volume 3 maps. Standards regarding the design and construction of access roads are provided in Volume 2, Appendix F.

In some areas, to avoid traversing along the ROW over rugged terrain or through sensitive environmental or cultural resources, access roads to the ROW will be developed across private property or across land owned by Eversource ("off-ROW access roads"). The Volume 3 maps illustrate the off-ROW access roads to be used during construction and identify the property owner, parcel (line list) number, and the public road from which the road will provide access to the ROW.

To support the heavy construction equipment required to install 115-kV transmission line structures, all access roads (on- or off-ROW) must be sufficiently wide, with a stable base and grades that typically must be 10% or less. Access roads will have a typical 16-to-20-foot-wide travel way and, overall, a 20-to-25-foot-wide footprint (including road shoulders). However, access road widths will vary depending on site-specific conditions (principally slope and presence of wetlands) and on factors such as the amount of grading (cutting and filling) required and on whether a particular section of road must accommodate equipment turning radii and/or equipment passing/turn-out locations.

The Project will utilize existing off-ROW access points to the extent feasible. One new access road is proposed off the terminus of the Evergreen Terrace cul-de-sac in Durham. The new access road is necessary to create construction pads for structure removals and installations and to avoid excessively steep slopes to the east. The new access would extend northwest from the cul-de-sac for a short distance (approximately 40 feet) to reach the existing ROW. Two private well heads were identified in the general area and will be avoided. All construction activities in this area will be carefully performed and set back a minimum of 20 feet from each well to avoid any impacts.

Eversource's existing access roads for maintaining the lines that presently occupy the ROW will be upgraded and widened, as necessary, for the Project. Access road improvements typically will include removing adjacent vegetation and widening roads as needed to provide a minimal travel width (additional width will be necessary as discussed above).

Access roads in upland areas will likely be improved by installing clean processed rock and/or gravel. In some locations, particularly on steep slopes and at intersections with public roads, asphalt millings could be used to improve road stability and vehicle traction. Eversource also will require the construction contractors to use the BMPs as warranted by site-specific conditions to maintain access road stability and minimize the potential for erosion and sedimentation.

Where access roads traverse wetlands, special construction procedures will include the use of timber mats, or equivalent (refer to Section 5.2 and Volume 3, Detail Sheets). Within and near wetlands and watercourses, erosion and sedimentation controls will be installed as necessary before the commencement of any improvements to or development of access roads.

Access roads in uplands will be left in place to facilitate future transmission line maintenance, unless directed to be removed by the landowner. Access roads located within manicured or otherwise improved residential areas will be removed unless the landowner requests that they remain in place.

As part of this Project, work associated with the removal of three structures east of Snell Road (structures 3584, 4502 and 4502A) requires work within wetland resources. As a result, temporary matting will be placed in these areas along the ROW to provide access and a temporary construction pad for equipment. The Project will not require any permanent fill in wetlands as a result of access road construction or improvements.

During construction, at points where on or off-ROW access roads intersect with public roads, Eversource's construction contractors will install signs as needed along the road specifying "construction work zone / entrance ahead" (or equivalent). Signs also will be installed at the access road entrances specifying that the roads are for construction purposes and are restricted from public use. In addition, where on- or off-ROW access roads intersect with public roads, rock aprons or equivalent will be installed to minimize tracking of dirt from the access road onto the public road as a result of construction vehicle movements. Public roads in the vicinity of access roads will also be periodically swept to remove dirt that is tracked from construction activities.

After the completion of Project construction, the ROW will be monitored, pursuant to Eversource's General Stormwater Permit from CT DEEP (refer to Volume 2, Attachment D), until restoration is deemed to be successful, which typically is defined as suitable revegetation or otherwise stabilization of areas affected by construction. Access road conditions will also be monitored during this Project ROW inspection effort.

#### 3.4.3.2 Work Pads

Work pads will be required at each transmission line structure site, as well as at conductor and optical groundwire (OPGW) pulling sites and at locations where temporary guard structures will be erected or boom trucks will be positioned during conductor and OPGW installation. These work pad locations are depicted on the Volume 3 maps. Standards regarding the design and construction of work pads are provided in Volume 2, Appendix F.

At each transmission line structure, a work pad will be required to stage structure components for final on-site assembly and to provide a safe, level base for the construction equipment used to install foundations and erect the structure. The size and dimensions of the work pad at each structure will vary based on site-specific conditions; however, a typical working surface for a tangent structure pad will average about 100 feet by 100 feet and for a deadend structure will average about 200 feet by 100 feet.

A typical (upland) installation of a work pad at a structure location involves several steps, beginning with the removal of vegetation, if necessary. The work pad site then will be graded to create a level work area and, if necessary, the upper 3 to 6 inches of topsoil (which is typically unsuitable to support the necessary construction activities) will be removed. The topsoil will be temporarily stockpiled within the ROW near the work pad. A rock base, which allows drainage, will be layered on top of filter fabric (if used). Additional layers of rock with dirt/rock fines will typically be placed directly over this rock base. Finally, a roller typically will be used to flatten and compact the pad.

Pulling work pads, which will be required in certain locations along the ROW for conductor and OPGW installation, typically will be 100 feet by 200 feet, but can be as large as 100 feet by 300 feet. Pulling work pads will be constructed using similar techniques to those described for the work pads at structure locations.

Temporary guard structures or boom trucks with "bat wings", which will be located at road and other crossings during conductor and OPGW installation, will require work pads of approximately 50 feet by 80 feet, with an associated 20-foot-wide access road.

In areas where work pads must be located in wetlands, timber mats will typically be used to construct the pads.
Upon completion of the transmission line installation, work pads at structure sites in uplands will remain in place, unless directed to be removed by the landowner. Work pads located in active agricultural lands or within manicured or otherwise improved residential, commercial, or industrial areas will typically be removed unless the landowner requests that they remain in place.

All work pads or portions of work pads in wetlands will be removed and the affected wetlands restored, pursuant to Project permits and approvals. Guard structure pads and pulling pads also typically will be removed.

Where work pads remain in place, topsoil stripped from beneath the work pad and stockpiled nearby also typically would remain in place or be spread over nearby upland areas of the ROW and re-seeded. In locations where gravel work pads must be removed, the rock base and fabric materials will be excavated and removed for appropriate off-site disposal or re-use.

### 3.4.4 Structure Installation

#### 3.4.4.1 Foundation Types and Excavation

The new 115-kV transmission line structures will be directly embedded using mechanical excavators. An acceptance canister will be placed in the excavation, and crushed stone will be installed outside the can adjacent to native soil. Then the pole will be set into the can, and the space between the pole and the can will also be backfilled with crushed stone. Structure 3577 will require four guy wires and two anchors. During non-working hours, fencing or other barricades will be placed around or over open foundation excavations for structures.

No blasting is required for the new structure installations and the foundation holes will be dug with an excavator.

Excavated material will either be reused on-site or disposed of off-site in accordance with standard Eversource specifications and applicable regulatory requirements.

Although not anticipated, 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 or other BMPs will be disposed in appropriate upland areas within the ROW (i.e., not in protected resource areas) or at an appropriately designated disposal facility. Where the ROW intersects public roads containing stormwater systems, catch-basin inlet protection will be installed if needed to block sedimentation or construction debris from entering storm sewers.

#### 3.4.4.2 Structure Placement

Structures (weathering steel poles and arms) will be delivered to installation locations in sections, then assembled and installed with a crane. Insulators (typically brown in color) connecting hardware and conductor pulling blocks will be installed on most structures at this time.

#### 3.4.4.3 Structure Grounding

Structure grounding shall consist of a steel culvert or other can set into the earth. This will then be electrically bonded to the pole. The pole's butt plate will not be covered by mastic to provide an electrical interface to the earth. A gradient control ring shall be installed 18 inches below the surface around the can. No additional counterpoise or ground rod installation is anticipated at this time. Details of this installation can be found in drawing 01043-85004 in Volume 3.

### 3.4.5 Conductor Installation

The installation of the overhead line conductors and shield wires will require the use of pulling and tensioning equipment, and reels of conductor, which will be positioned at pre-determined locations (temporary pulling work pads) along the ROW. Helicopters will be used to install pulling ropes at the commencement of the conductor/shield-wire pulling process. To maintain clearance at road and other crossings during conductor and OPGW installation, temporary guard structures or boom trucks will be positioned adjacent to the crossings. Temporary pulling work pad and guard structure pads are illustrated on the Volume 3 maps.

The conductors will be pulled under tension to avoid contacting the ground and other objects. The remaining insulators and hardware will then be installed on the structures. Finally, in accordance with industry standards and design specifications, the conductors and shield wires will be pulled to their design tensions and attached to the hardware. Linemen in bucket trucks will perform this operation.

The Project intends to use helicopters to install pulling ropes on the structures. However, in the unlikely event that helicopters are not available and in order to meet the relatively short outage window to complete the work, Eversource would remove vegetation along the middle of the ROW through the low growing shrub species to facilitate the conductor pulling activity. The path would be 15 to 20 feet wide to accommodate a light duty vehicle to drag in the pulling ropes along the Project alignment and would be required along the length of the Project. Existing/historic access roads would be used along the majority of the ROW. No wetlands or other sensitive environmental resources would be affected should this option be implemented.

### 3.4.6 Cleanup and Restoration

ROW cleanup and restoration activities will include the removal of construction debris, signs, flagging, fencing, temporary access roads, and temporary work pads. Areas affected by construction will be re-graded as practical and stabilized using revegetation or other measures.

Materials used in temporary access road and work-pad construction, as well as other construction debris, will be removed from the ROW. Such materials will either be properly disposed of or otherwise re-purposed.

In most locations, access roads and work pads will not remain in place. Those areas affected by construction generally will be re-graded (back-bladed) or otherwise restored to approximate preconstruction contours, where practical. However, given the rugged terrain along portions of the ROW (e.g., slopes) some areas affected by construction activities cannot be fully restored to original contours. In such situations, localized topographic contours will be modified and the affected areas will be stabilized as warranted by site-specific conditions.

In wetlands and at watercourses, temporary crossings will be removed and the affected areas re-graded to match the contours of areas outside of the construction work zone, to the extent applicable.

After final grading, upland areas affected by construction will be seeded with appropriate seed mixes and fertilized as appropriate. Seed mix(es) will be selected by Eversource to provide a quick vegetative cover until vegetation recolonizes the ROW naturally (refer to Section 5 of Eversource's *BMP Manual* [Volume 2, Attachment D]). In most locations, native vegetative communities are expected to re-establish dominance along the ROW. Supplemental erosion and sedimentation controls (e.g., erosion control blankets, mulch) will be used as appropriate based on site-specific conditions and the time-of-year in which final grading is performed. In some areas, permanent erosion and sedimentation controls, such as water diversion bars or crushed stone, will be installed as appropriate.

Wetland areas affected by construction will be stabilized with annual rye grass, a wetland seed mix, or an equivalent mix (40 pounds/acre, unless standing water is present), which will serve to provide a temporary vegetative cover until wetland species become reestablished. No fertilizer, lime, or mulch will be applied in wetlands unless specified by the USACE or CT DEEP regulatory approvals for the Project.

Temporary erosion and sedimentation controls will be left in place and maintained until final stabilization is achieved. Steep areas may be stabilized with bio-degradable, pre-made erosion and sedimentation control fabric containing seed, mulch, and fertilizer, or the equivalent.

Flagging (or equivalent markers) denoting wetlands, streams, and other environmentally sensitive resource avoidance or protection areas will be maintained (and reflagged or marked as needed), typically until the completion of ROW restoration activities.

Restoration typically will be deemed successful, based on the effectiveness of stabilization measures (such as percent vegetative cover) as defined in accordance with Project-specific permit and certificate requirements. Based on the results of post-construction inspections of ROW stabilization, Eversource will determine the appropriate time frame for removing temporary erosion controls consistent with the requirements.

Vegetative species compatible with the use of the ROW for transmission line purposes are expected to regenerate naturally over time. Eversource will promote the re-growth of desirable species by implementing vegetation management practices to control tall-growing trees, and where practicable, undesirable invasive species, thereby enabling native plants to dominate the ROW. Vegetation management practices along the ROW also will conform to Project-specific conditions regarding habitat restoration and enhancement as may be included in approvals from the Council, CT DEEP, and USACE.

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# 4. CONSTRUCTION SCHEDULE, OUTAGES, AND WORK HOURS

## 4.1 Construction Schedule, Including Outages

The Project is scheduled for construction between September and December 2016. Line outages will be required for the removal of existing structures, installation of new structures and reconfiguration of the transmission line. As currently planned, the general schedule for the construction activities is as follows:

| General Construction Dates* | Transmission Line and Related Line Modification Construction Activity |
|---|---|
| Quarter 3, 2016 | Construction contracts awarded; establish material laydown yards and field offices begin receiving materials. Contractor mobilization, commence vegetation clearing, access road and work pad installation. |
| Quarter 4, 2016 | Perform construction (vegetation removal, access road/work pad installation, structure foundations, structure installation, conductor installation, ROW clean-up and restoration**, etc.), as summarized in Section 3. Line testing and energization. |
| Quarter 4, 2016 | ROW cleanup and restoration. |

* Construction schedule is dependent on the receipt of D&M Plan approval from the Council and the issuance of the USACE permit. Schedule may change in accordance with receipt of these approvals, as well as on approved outage schedules.

**Where feasible, restoration may begin on some portions of the ROW when line installation work is completed.

During Project construction, outages will be required on Eversource's existing 1975 transmission line that occupies the Project ROW. These outages must be coordinated with and approved by the Connecticut Valley Electric Exchange (CONVEX). These outages are expected to occur from October 18 through October 31, 2016.

After Eversource retains construction contractors for the Project and identifies and schedules the outages, a more specific construction schedule will be developed.

## 4.2 Work Hours

Construction work hours will typically be between 7:00 AM and 7:00 PM, five (5) days per week (Monday through Friday). 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-Friday 7:00 AM-7:00 PM**

No Saturday or other weekend work is anticipated. However, certain activities, such as those that must be performed during CONVEX-approved outages, could involve work during non-typical hours, in some cases on a continuous basis (in excess of 12 hours) and/or on Saturdays/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 returning equipment to service as expeditiously as possible.

Pursuant to Condition 1.k of the Council's determination, Eversource will consult with the Town of Durham on construction-related traffic management during the Durham Fair.

In addition, if winter conditions are encountered during construction, snow plowing and de-icing activities (which will be performed pursuant to the plan included in Volume 2, Attachment C) will typically commence, when necessary, prior to 7 AM to assure a safe environment for construction personnel prior to the start of the work day.

# 5. SPECIAL CONSTRUCTION PROTOCOLS AND PROCEDURES

This section provides resource-specific protocols and procedures applicable to the Project including details regarding measures to protect wetlands (refer to the Volume 3 maps and Detail Sheets). No watercourses or waterbodies, vernal pools, threatened, endangered, or special concern species or historic/cultural resources are located proximate to Project-related construction activities. Volume 2 includes plans and guidance for the protection of environmental resources that will apply to all Project construction activities. For example, Volume 2 includes the Project's *Spill Prevention and Control Plan*, Attachment B; *Snow Removal and De-Icing Plan*, Attachment C; BMPs (Attachment D); and *Vegetation Clearing Plan*, Attachment E).

## 5.1 Erosion and Sedimentation Control Plan

Eversource will install erosion and sedimentation control measures during transmission line construction 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 Connecticut Guideline for Erosion and Sediment Control*, as well as with Eversource's BMPs (refer to Volume 2, Attachment D) and USACE permit conditions. Eversource's BMPs incorporate and are consistent with the *2002 Connecticut Guideline for Erosion and Sediment Control* (refer to Volume 2, Attachment D, p. 1-4 for a list of the guidance documents used in preparing Eversource's BMPs).

Volume 3 includes typical drawings regarding erosion and sedimentation control measures (refer to Detail Sheets). The maps also show areas of high erosion potential. These erosion-prone areas were identified based on soil erodibility factor (K-factor) and slope.

## 5.2 Water Resources

### 5.2.1 Surface Water Resource Crossing Summary

As shown on the Volume 3 maps and summarized below, one wetland resource is located along the Project ROW that will be temporarily impacted by the construction. Specifically, the Project will require the following work within wetlands:

- ✓ Temporary wetland impacts are limited to approximately 0.49 acre (27,166 square feet) to provide for the removal of four existing structures between Snell Road and Main Street (Route 17) in the Town of Durham (refer to Volume 3 mapping, Sheet 1). Access and a construction pad, comprised of timber mats, will be temporarily located in wetlands as no upland alternative is available.

No additional wetlands would be affected by the Project.

### 5.2.2 Wetland Crossing Methods

With the exception of installing the temporary construction pad at the west end of the Project, no additional construction activities will occur in wetlands. The activities will conform to the protocols listed in Volume 3, Detail Sheet 2 and will include the following methods:

**"Access routes" across Wetlands** No improvements to existing access roads, or establishment of new temporary and permanent access roads, will require the crossing of wetland resources.

**Permanent Work Pads in Wetlands** No work pads will be left in place in wetlands.

### 5.2.3 Other Environmental Resources

**Flood Zones**

No watercourses, flood zones, aquifers, rare species or historic/cultural resources would be affected by the Project.

### 5.2.4 Drainage

Areas where existing surface drainage patterns could pose concerns during construction were noted during field constructability reviews of the Project ROW. To avoid or minimize erosion and sedimentation and to maintain hydrology and drainage patterns, Eversource will require its construction contractors to assess such areas and implement BMPs as appropriate to site-specific situations. Eversource also will require its contractors to work in accordance with Eversource's BMPs.

### 5.2.5 Wells and Septic Systems

No private wells or septic systems will be affected by the Project. Two well-heads were identified northwest of the Evergreen Terrace cul-de-sac, where a new access road is planned. These wells will marked in the field prior to construction and all construction activities will occur a minimum of 20 feet from the structures.

## 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 typically be graveled[1] 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.

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

**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 vehicles of all kinds, including 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 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 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.

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

Excess soil will be reused on-site. Excess excavated soils will typically be spread along the ROW in upland locations, away from water resources, and residential or commercial land uses.

If obvious polluted or contaminated soil is encountered, it must be reported to Eversource and handled in accordance with the appropriate 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.

If groundwater is encountered during construction, the water will be pumped from the excavated area and discharged to an upland area in a location that does not result in a discharge to wetlands or watercourses. The water may be discharged on-site into an appropriate sediment control basin, filter bag, pumped into a temporary fractionization (frac) tank and then discharged into an appropriate upland area, or pumped into a tanker truck for disposal at appropriate upland sites or wastewater treatment facilities.

Recyclable materials will be removed from the ROW 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, either at designated locations along the ROW or at contractor staging areas or yards. Containers that are not removed or emptied at the end of the work day 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 on the ROW or at contractor staging areas or yards.

## 5.5 Lighting and Noise Mitigation

Project-related 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, including vegetation removal equipment, jackhammers, drilling rigs and cranes.

Helicopters will also be used to install transmission line components.

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 minimized because noise from construction will be relatively short-term and limited primarily to daylight hours (i.e., between 7 AM[2] 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.
There would be no permanent changes to the existing sound levels along the transmission ROW after completion of the project.

Because the Project construction work will be performed principally during daylight hours, 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.

[2] In the Town of Harwinton, on Saturdays, "noisy" construction work will not commence until 8:00 AM pursuant to an agreement between Eversource and the town (refer to Section 4.2).

## 5.6 Site Access, Traffic Control, and Construction Signs

During construction, the access to the Project ROW will be via the public road network. On- and off-ROW access roads will provide direct ingress/egress to construction work sites, as illustrated on the Volume 3 maps.

To minimize the potential for traffic issues during construction, Eversource (or Eversource's construction contractors) will implement access and traffic control measures, working with representatives of the affected municipalities as necessary. Such measures will be implemented by Eversource's construction contractors and will include procedures for safe ingress and egress to the ROW for construction equipment and other vehicles and for informing the public of construction work zones. For example, at construction work sites along public 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)[3]. Flagmen and other traffic control measures may also be used as necessary.

## 5.7 Construction Equipment / Vehicle Washing and Cleaning

No construction equipment or vehicle washing will be allowed on the ROW.

As required pursuant to the wetland invasive species control BMPs (refer to Volume 3, Detail Sheet 2), construction vehicles, equipment, and mats must be cleaned to prevent the transport of invasive wetland species. The cleaning protocol will typically involve the use of shovels, brooms, and/or compressed air to remove visible dirt from construction equipment, vehicles, and timber mats.

## 5.8 Utility Crossings

Above-ground utilities and marked underground utilities are identified on the Volume 3 maps. Eversource's contractors will use "Call Before You Dig" to identify the locations of buried utilities in relation to any sub-surface work. The known buried utilities traversed by the ROW are located within public roads; Project construction will not involve any excavation in the vicinity of underground utilities.

[3] Connecticut has adopted the federal MUTCDs.

## 5.9 Methods to Prevent or Discourage Unauthorized Use of the ROW, Including ATVs

Eversource's existing transmission line easements restrict the types of activities that can be conducted within the ROW, and typically prohibit the on-ROW construction of buildings, pools, and other structures. Eversource also has policies for addressing requests from property owners and other parties external to Eversource. These policies outline an evaluation process and provide guideline for allowing certain uses (e.g., driveways or parking lots) where appropriate. Requests prohibited by the easement agreements, or otherwise posing safety, engineering, environmental, or other concerns are rejected.

Connecticut law prohibits the operation of ATVs on private land without the written permission of the landowner (CGS Section 14-387). Eversource does not grant permission to use ATVs on its properties or easements.[4]

- **Prior to the start of construction, Eversource will send a letter to the police department in each of the three (3) Project municipalities, reaffirming its policy on ATV use of its transmission line ROWs and requesting that the police give particular consideration to enforcing the prohibition on ATV use of the ROW.**

Where Eversource holds an easement as opposed to land ownership in fee, Eversource must receive landowner approval prior to installing fences, gates, etc. along the ROW. Eversource will coordinate with landowners and agencies, as appropriate, to discourage unwarranted access onto and use of its ROW. Accordingly, Eversource will:

- Install signs warning the general public of the hazards posed by contact with the high voltage transmission line and indicating that it is unlawful to operate ATVs on private land without the written permission of the landowner; and

- Consider, based on consultation with and approval of the landowner, the installation of fences, gates, barricades, berms, or vegetative screens to discourage access onto the ROW. The type of measure considered for a particular area will depend on site-specific conditions and landowner preferences.

Eversource will report unlawful ATV use on the Project ROW to the local police.

## 5.10 Winter Work, ROW Stabilization, and ROW Monitoring Protocol

In the event the Project will require work activities during winter months, such activities will be conducted to minimize or avoid adverse environmental impacts. Snow removal and the use of de-icing procedures at construction sites will be in accordance with the *Snow Removal and De-Icing Plan* (Volume 2, Attachment C).

[4] Eversource contractors and employees may use ATVs for construction and maintenance activities.

If, after the installation of the new transmission line, some ROW 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, likely during the following spring.

All erosion and sedimentation control practices and over-winter monitoring will be in accordance with Eversource's BMP Manual, the CT DEEP's *General Permit for the Discharge of Stormwater and Dewatering Wastewaters Associated with Construction Activities*.

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# 6. NOTICES AND REPORTS

## 6.1 Notices to the Council: Start and Completion of Construction (Including Access and Vegetation Clearing)

Pursuant to RCSA Section 16-50j-62(b)(1), Eversource will provide written notification to the Council **a minimum of two weeks in advance** of the work commencement of:

a. Vegetation clearing or access work;

b. Removal of existing structures and installation of new structures; and,

c. Reconfiguration of the ttransmission line.

Pursuant to Condition 2 of this Petition, unless otherwise approved by the Council, if the Project is not fully constructed within three (3) years from Council's declaration (May 27, 2016), this declaration shall be void, and Eversource shall dismantle the facilities and remove all associated equipment or reapply for any continued or new use to the Council before any such use is made. The time between the filing and resolution of any appeals of the Council's decision shall not be counted in calculating this deadline. Authority to monitor and modify this schedule, as necessary, is delegated to the Executive Director. Eversource shall provide written notice to the Executive Director of any schedule changes as soon as is practicable.

Pursuant to Condition 3 of this Petition, any request for extension of the time period to fully construct the facility shall be filed with the Council not later than 60 days prior to the expiration date of this decision and shall he served on all parties and intervenors, if applicable, and the Towns of Middlefield and Durham and the City of Middletown.

Pursuant to RCSA Section 16-50j-62(b)(4) and Condition 4 of this Petition, Eversource also will provide written notification to the Council within 45 days of the completion of construction (including site restoration / rehabilitation).

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

## 6.2 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.

### 6.2.1 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. Eversource (or its agent) 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.*

**Eversource 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, Eversource 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; and,
- Use of additional mitigation measures or elimination of mitigation measures.

In addition to the above criteria, Eversource 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.

### 6.2.2 D&M Plan Change Approval Process

A request for a change to the D&M Plan may originate from the Project team, construction contractors, 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 Eversource. Data to be provided to Eversource by the change originator may include, for example:
    - Description of the change (location, type);
    - Reason/need for the change;

- Date by which the change is required (timing);
- Project schedule and cost implications (if applicable); and,
- Identification of eeffects (if any) on the environment, cultural resources, and the public.

The Project change request will be supported by maps and drawings, as appropriate.

2. **Assess Significance of Proposed Change**. Eversource 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 Eversource approval.

3. **Significant Changes Requiring Notice to and Prior Approval by the Council.** After Eversource 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, Eversource 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, Eversource will provide verbal notification of the change to Council staff and will request that the Council approve the change expeditiously. Eversource 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, Eversource 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, Eversource 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 Eversource determines that a D&M Plan change request is "non-urgent", Eversource 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 Eversource approval prior to implementation, as well as Project documentation. Documentation of minor changes will be provided in the monthly construction progress reports that will be submitted to the Council.

Figure 6-1 provides a flow chart illustrating this change approval process.

### 6.2.3 D&M Plan Change Documentation and Reporting

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

## 6.3 Reports

Table 6-1 identifies the written reports that will be provided to the Council regarding the Project. Eversource will provide general updates regarding the status of the Project in the Monthly Construction Progress Reports.

**Figure 6-1: D&M Plan Change Process**

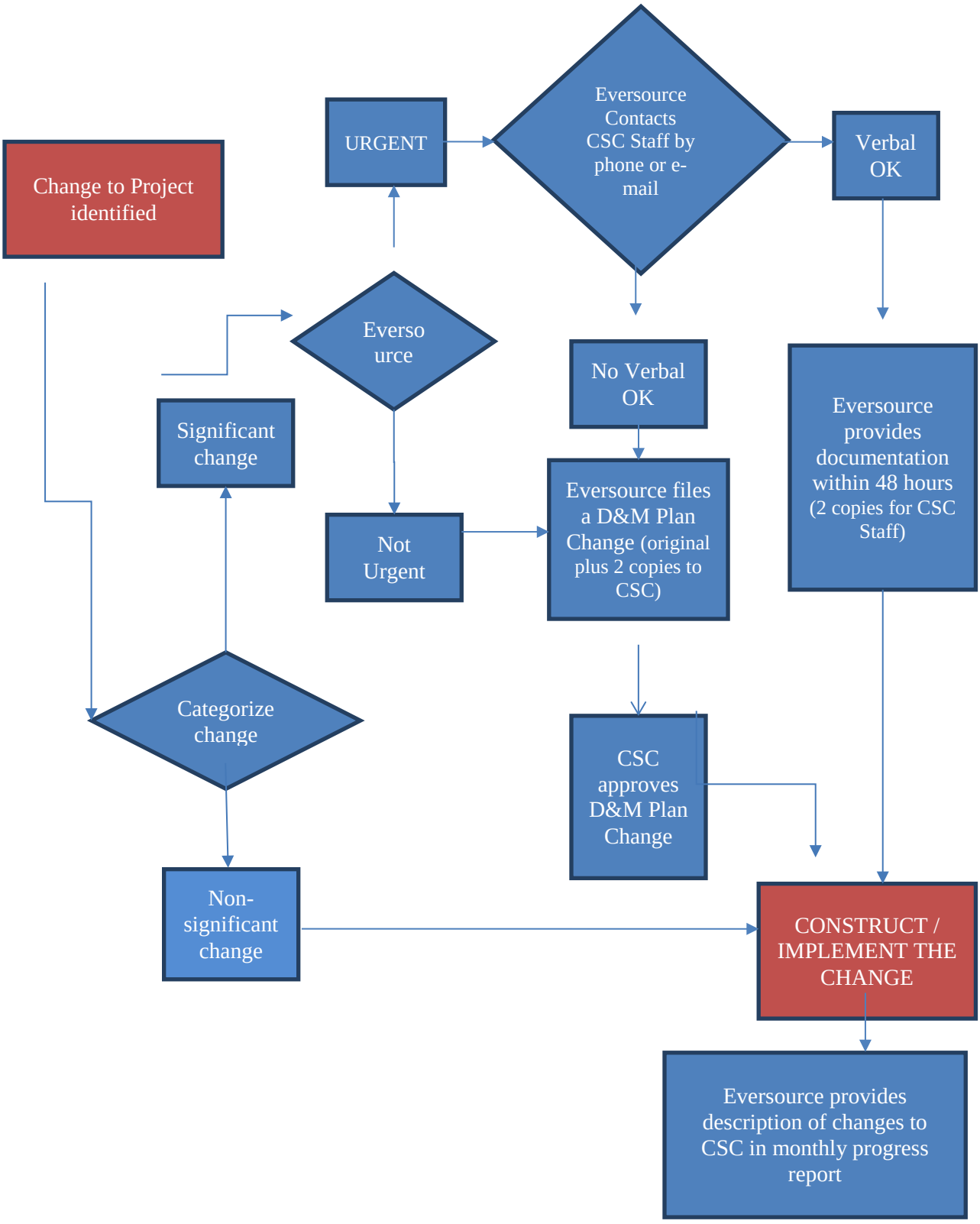

**Table 6-1: Reports to be Provided to the Council**

| Report Type (Regulatory Requirement) | Content |
|---|---|
| **Monthly Construction Progress Report** (RCSA Section 16-50j-62(b)(3)) | Monthly construction progress report will summarize the status of the Project construction (by location, percent complete) and will identify modifications to the approved D&M Plan, including both significant changes involving Council pre-approval and minor changes that did not require Council action. |
| **Final Report** (RCSA Section 16-50j-62(c)) | Eversource 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:<br>1 All agreements with abutters or other property owners regarding special maintenance precautions<br>2 Significant changes to the D&M Plan that were required because of property rights or underlying and adjoining owners or for other reasons<br>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<br>4 The location of areas where special plantings and reseeding have been performed<br>5 The actual construction cost of the facility, including but not limited to the following costs:<br>a. Clearing and access;<br>b. Construction of the facility and associated equipment;<br>c. Rehabilitation; and<br>d. Property acquisition for the site or access to the site. |

# 7. PUBLIC REVIEW AND OUTREACH

## 7.1 Project Planning and D&M Plan

As part of the overall Project planning process, including the development of the Petition to the Council and this D&M Plan, Eversource consulted with officials of the three (3) municipalities traversed by the Project and provided opportunities for town representatives, other agencies, property owners along the ROW, and the public to comment on the Project. Prior to the submission of this D&M Plan to the Council, Eversource also provided draft copies of the Plan to the three (3) municipalities along the Project transmission line route and the service list for the Project, property owners along the ROW (Council Petition No. 1227). Eversource also made a presentation to the Town of Durham First Selectman on May 3, 2016 and discuss specific components of the Project.

Along with the provision of the draft D&M Plan, Eversource extended an invitation for municipal officials to provide comments regarding the Plan and offered to meet with municipal officials to review the Plan. Accordingly, Eversource met with municipal officials from the Town of Durham in July 2016.

During these meetings with the municipal officials, Eversource provided information regarding the general construction process, addressing topics such as construction sequence; vegetation clearing; the size of work pads; permanent vs. temporary access roads and work pads; work hours; use of anti-tracking pads at intersections of the ROW and construction access roads with public roads; structure design and spacing along the ROW; planned work hours; and schedule for construction in each municipality.

In addition to the meetings with the town officials regarding the draft D&M Plan, in conjunction with the submission of the D&M Plan to the Council, Eversource will provide the D&M Plan to the three municipalities traversed by the Project, the service list for the Project (Council Petition No. 1277), and any direct abutters to the Project. Others interested in obtaining Project information or providing comments about the Project may contact Eversource via e-mail (transmissioninfo@eversource.com) or telephone at (800-793-2202).

## 7.2 Public Outreach During Construction

Throughout the Project planning and the Council's siting processes, Eversource conducted extensive community outreach, including direct coordination with landowners, abutters, and municipal officials. Eversource will continue its outreach efforts through the Project's construction phase and will notify affected stakeholders of upcoming construction activities.

Eversource's Project information is currently available via email and telephone, as noted in Section 7.1, for residents, businesses, and other stakeholders to contact Project representatives throughout Project construction.

In addition, Eversource representatives will be available to brief residents affected by 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 to notify them of upcoming construction activities and will be available throughout the construction process to address any specific questions or concerns.

# 8. GLOSSARY OF TERMS

**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)

**CFPA:** Connecticut Forest and Park Association

**CGS:** Connecticut General Statute

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

**ConnDOT:** Connecticut Department of Transportation

**Conduit:** Pipes, usually PVC plastic, typically encased in concrete, for housing underground power and control cables.

**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 466:** Council Docket number for 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.

**Environmental Inspector:** Environmental scientist employed by Eversource to monitor the conformance of Project construction to the environmental requirements

**EPA:** United States Environmental Protection Agency

**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 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

**MUTCD:** Manual of Uniform Traffic Control Devices

**NAAQS:** National Ambient Air Quality Standards

**NDDB:** Connecticut Natural Diversity Data Base (CT DEEP)

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

**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:** 1975 Line Structure Replacement Project

**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

**Rebuild:** Replacement of an existing overhead transmission line with new structures and conductors generally along the same route as the replaced line.

**Reconductor:** Replacement of existing conductors with new conductors, but with little if any replacement or modification of existing structures.

**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

**USDA:** United States Department of Agriculture

**USFWS:** United States Fish and Wildlife Service

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

**Vegetation Clearing:** Removal, 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)

**XLPE:** Cross-linked polyethylene (solid dielectric) insulation for transmission