FROST BRIDGE TO CAMPVILLE 115-kV PROJECT

DEVELOPMENT & MANAGEMENT PLAN

for

MODIFICATIONS TO THE FROST BRIDGE SUBSTATION AND CAMPVILLE SUBSTATION

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 OF THE PLAN

To bring the electric supply system in northwest Connecticut into compliance with applicable national and regional reliability standards and criteria, The Connecticut Light and Power Company doing business as Eversource Energy (Eversource or the Company) will construct, operate, and maintain a new 115-kilovolt (kV) transmission line and related improvements to the electric system in Litchfield County, Connecticut. These improvements, referred to collectively as the Frost Bridge to Campville 115-kV Project (Project; refer to Figure 1-1), will consist of the following:

- A new 10.4-mile 115-kV predominantly overhead[1] electric transmission line, to be located entirely within an existing Eversource right-of-way (ROW) and extending between Eversource's Frost Bridge Substation in the Town of Watertown and its Campville Substation in the Town of Harwinton.

- Related improvements to both Frost Bridge and Campville substations to accommodate the new 115-kV line interconnection.

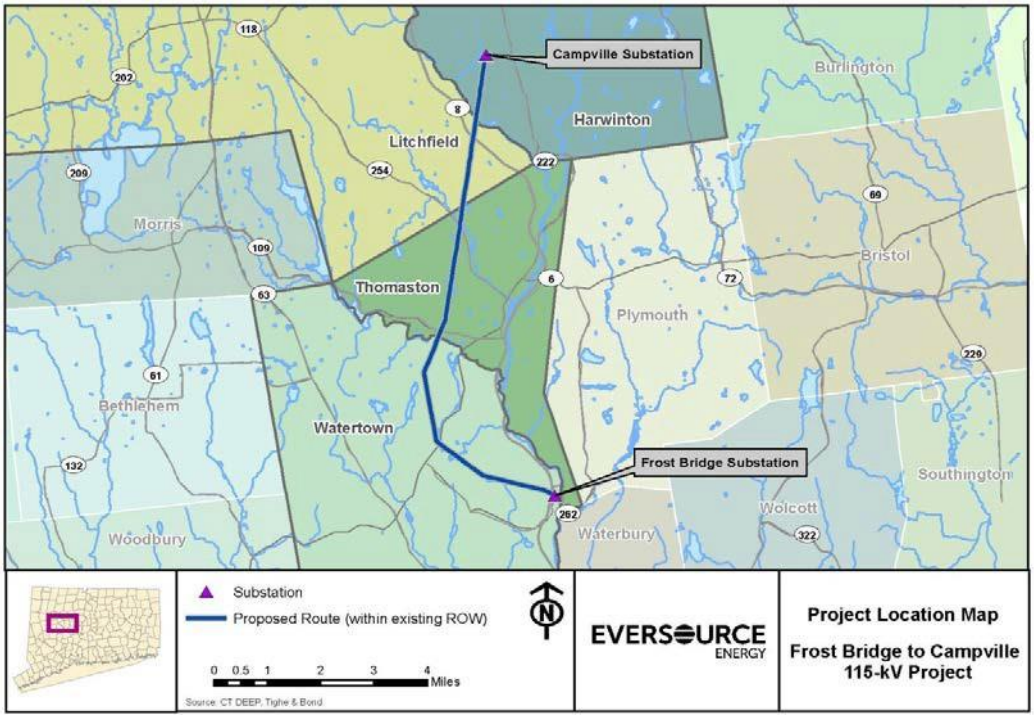
- Reconfiguration of a short (0.4-mile) double-circuit (DCT) segment of two 115-kV circuits (i.e., Eversource's 1191 and 1921 lines), located within a portion of the same ROW as the new 115-kV line. Along this short ROW segment, the two 115-kV lines are supported together on common transmission structures. After the double-circuit reconfiguration, each 115-kV line will be supported by its own set of structures for the entire distance between Frost Bridge and Campville substations (the 1191 Line) and between Thomaston and Campville substations (the 1921 Line).

On December 23, 2015, Eversource submitted to the Connecticut Siting Council (Council, CSC) an Application for a Certificate of Environmental Compatibility and Public Need for the Project (Council Docket No. 466). After public meetings, evidentiary hearings, and technical reviews, the Council approved the Project on April 14, 2016. Condition No. 2 of the Council's Decision and Order approving the Project requires that Eversource prepare two Development and Management (D&M) Plans (one for the new transmission line and double circuit separation and one for the improvements to the substations), 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 all construction activities for the modifications to Frost Bridge Substation and Campville Substation (collectively referred to as "Frost Bridge and Campville substations"). These modifications are required to interconnect the new 115-kV transmission line to the existing transmission system.

[1] An approximately 0.1-mile portion of the 115-kV line exit from Frost Bridge Substation will consist of an underground cable system.

Figure 1-1: Project Location Map



Frost Bridge Substation is located in the southeastern portion of the Town of Watertown, on approximately 5.7 acres of a 128.5-acre property owned by Eversource. The Project modifications at Frost Bridge Substation will not require the acquisition of any additional property from private landowners. All of the Project construction activities at Frost Bridge Substation will be within previously developed (graveled) areas within the existing fenced portions of the station.

Campville Substation is located in the southwestern portion of the Town of Harwinton and currently occupies approximately 1.65 acres of a 42.33-acre Eversource property. The Project modifications at Campville Substation will require the expansion of the developed portion of the substation by approximately 0.4 acre, involving an extension of the existing station fence to the east by approximately 90 feet. The modifications will be located on Eversource property.

1.2 ORGANIZATION OF THE D&M PLAN

This D&M Plan consists of two volumes:

- **Volume 1** includes specific information relevant to the Frost Bridge and Campville substation modifications. The main text of Volume 1 (Sections 1 through 8) includes information and procedures that are pertinent to work at both substation, including regulatory requirements, general Project construction procedures and special plans, overall construction schedule, environmental inspection, public outreach, and a process for reporting to the Council concerning the Project and for notifying and requesting approval from the Council for changes to the D&M Plan. For both Frost Bridge Substation and Campville Substation, Volume 1 also includes a description of station modifications and construction activities and site-specific construction procedures and plans, including locations of construction support areas, site access, traffic control, temporary spoil storage, erosion and sedimentation control measures, spill prevention and control measures, and site restoration.

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

  Appendix A consists of maps, plans, and drawings relevant to the modifications to Frost Bridge Substation, including a conceptual landscaping plan.

  Appendix B consists of maps, plans, and drawings relevant to the modifications to Campville Substation.

- **Volume 2** includes approvals, permits, and best management practices (BMPs) pertinent to all Project construction activities, including not only the new 115-kV transmission line construction and double circuit separation, but also (as applicable) the modifications at Frost Bridge and Campville Substations. In particular, Volume 2 includes the following:

  - The Council's Decision and Order and Opinion for 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).
  - Connecticut Department of Energy and Environmental Protection (CT DEEP) General Permit for the Discharge of Stormwater and Dewatering Wastewaters Associated with Construction Activities (Attachment E).
  - Vegetation Clearing Plan (Attachment F).

Table 1-1
D&M Plan Directory
Frost Bridge to Campville 115-kV Project: Substation Modifications
(Compliance with Regulations of Connecticut State Agencies [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 modifications at Frost Bridge Substation and Campville Substation.
(b)	**When required.** A partial or full D&M plan shall be prepared in accordance with this regulation and shall include the information described in RCSA Sections 16-50j-61 to 16-50j-62, inclusive, for any proposed energy facility for which the Council issues a certificate of environmental compatibility and public need, except where the Council provides otherwise at the time it issues the certificate. Relevant information in the Council's record may be referenced.	This D&M Plan includes all information applicable to the substation modifications.
(c)	**Procedure for preparation**. The D&M plan shall be prepared by the certificate holder or the owner or operator of the proposed facility or modification to an existing facility. The preparer may consult with the staff of the Council to prepare the D&M plan.	This D&M Plan was prepared by Eversource.
(d)	**Timing of plan.** The D&M plan shall be submitted to the Council in one or more sections, and the Council shall approve, modify, or disapprove each section of the plan not later than 60 days after receipt of it. If the Council does not act to approve, modify or disapprove the plan or a section thereof within 60 days after receipt of it, the plan shall be deemed approved. Except as otherwise authorized by the Council, no clearing or construction shall begin prior to approval of applicable sections of the D&M plan by the Council.	This D&M Plan addresses the Council's requirements for the construction of the substation modifications except for the list of contractor personnel as specified in Section 16-50j-61 (c)(8). Contact information for the prime contractor(s) for the substation work will be provided to the Council in a supplemental submission, after contract award, prior to the commencement of construction.
16-50j-61	**Elements of D&M Plan**	
(a)	**Key Map**, 1"=2,000' USGS topographic map	Appendices A & B, Exhibit 1
(b)	**Plan Drawings**, 1"=100' or larger, and supporting documents, which shall contain the following information:	Appendices A & B, Exhibit 3

R.C.S.A Section	Description	D&M Plan (Section Reference, as Applicable)
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	Appendices A & B
2.	Public roads and public land crossing or adjoining the site	Appendices A & B
3.	Location of 50' contours along the site	Appendices A & B
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	Appendices A & B
5.	Probable points of access to the site, and the route and likely nature of accessways, including alternatives	Appendices A & B
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	Appendices A & B; Volume 2 Attachment F
7.	Identification of sensitive areas and conditions within and adjoining the site, including but not limited to:	
	A. Wetland and watercourse areas regulated under CGS Chapter 440 and any locations where construction may create drainage problems	N/A (See Section 2.1)
	B. Areas of high erosion potential	Volume 1, Section 5.1; Appendices A & B
	C. Critical habitats or areas identified as having rare, endangered, or threatened, or special concern plant or animal species listed by the state or federal government	N/A
	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)	Appendices A & B
	E. Residences or businesses within or adjoining the site that may be disrupted during construction	Appendices A & B
	F. Significant environmental, historic and ecological features (significantly large or old trees, buildings, monuments, stone walls or features of local interest)	Volume 1, Section 5.6 (cultural resources)
(c)	**Supplemental Information**	

R.C.S.A Section	Description	D&M Plan (Section Reference, as Applicable)
1.	Plans (if any) to salvage marketable timber, restore habitat and maintain snag trees within or adjoining the site	Volume 1, Section 3.4.2; Volume 2 Attachment F, 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:	
	A. Construction techniques at wetland and watercourse crossings	N/A
	B. S & E control and rehabilitation procedures, consistent with the CT Guideline for Soil Erosion and Sediment Control, as updated and amended for areas of high erosion potential	Volume 1, Section 3, Section 5.1, Appendix A; Volume 2, Attachment D, BMPs
	C. Precautions and all reasonable mitigation measures to be taken in areas within or adjoining the site to minimize any adverse impacts of such actions or modifications endangered, threatened, or special concern plant or animal species listed by federal or state agencies and critical habitats that are in compliance with federal and state recommended standards and guideline, as amended	N/A
	D. Plans for modification and rehabilitation of surface, drainage, and other hydrologic features	N/A
	E. Plans for watercourse bank restoration in accordance with Chapter 440 of the C.G.S.	N/A
	F. Plans for the protection of historic and archaeological resources with review and comment from a state historic preservation officer of the CT Department of Economic and Community Development (DECD) or its successor agency	Volume 1, Section 5.6
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; Appendices A & B; Volume 2, Attachment F
4.	Location of public recreation areas or activities known to exist or being proposed in or adjacent to the site, together with copies of agreements between the company and public agencies authorizing the public recreation use of the site to the extent of the company's rights thereto	N/A
5.	Plans for ultimate disposal of excess excavated material, stump removal, and periodic maintenance of the site	Volume 1, Section 5.3
6.	Locations of areas where blasting is anticipated	None Anticipated (see Volume 1 Section 3.7)
7.	Rehabilitation plans, including but not limited to reseeding and topsoil restoration	Volume 1, Section 3.4.7; Volume 2, Attachment D

R.C.S.A Section	Description	D&M Plan (Section Reference, as Applicable)
8.	Contact information for the personnel of the contractor assigned to the project	To be provided after substation contract award(s), prior to commencement of construction.
9.	Such site-specific information as the CSC may require	Refer to Table 1-2: List of requirements per Docket 466 Decision and Order and Opinion
(d)	**Notice** A copy, or notice of the filing, of the D&M Plan, or a copy, or notice of the filing of any changes to the D&M Plan, or any section thereof, shall be provided to the service list and the property owner of record, if applicable, at the same time the plan, or any section thereof, is submitted to the CSC	Volume 1, Section 7
(e)	**Changes to the Plan** The CSC may order changes to the D&M plan, including but not limited to vegetative screening, paint color, or fence design at any time during the preparation of the plan	As applicable; refer to Volume 1, Section 7.2 for discussion of Eversource's Change Notice process
16-50j-62	**Supplemental Reporting Requirements**	
(a)	**Site Testing and Staging Areas** The certificate holder, or facility owner or operator, shall provide the CSC with written notice of the location and size of all areas to be accessed or used for site testing or staging areas. If such an area is to be used prior to approval of the D&M plan, the CSC may approve such use on terms as it deems appropriate.	Volume 1, Section 3.3; Appendices A & B indicate staging areas. The locations of contractor yards and material staging areas will be identified by the contractor and will be submitted to the Council for review and approval prior to use, pursuant to the Change Notice process described in Section 7.2
(b)	**Notice**	
1.	The certificate holder, or facility owner or operator, shall provide the CSC, in writing with a minimum of two weeks advance notice of the beginning of:	Volume 1, Section 7.1 summarizes notification procedures
	A. Clearing and access work in each successive portion of the site, and	
	B. Facility construction in that same portion	
2.	The certificate holder, or facility owner or operator, shall provide the CSC with advance written notice whenever a significant change of the approved D&M plan is necessary. If advance written notice is impractical, verbal notice shall be provided to the CSC immediately and shall be followed by written notice not later than 48 hours after	Volume 1, Section 7.2 includes Eversource's D&M Plan change process

R.C.S.A Section	Description	D&M Plan (Section Reference, as Applicable)
	the verbal notice. Significant changes to the approved D&M plan shall include, but not be limited to, the following:	
	A. The location of wetland or watercourse crossing	
	B. The location of an accessway or structure in a regulated wetland or watercourse area	
	C. The construction or placement of any temporary structures or equipment	
	D. A change in structure type or location including, but not limited to, towers, guy wires, associated equipment or other facility structures	
	E. Utilization of additional mitigation measure, or elimination of mitigation measures. The CSC or its designee shall promptly review the changes and shall approve, modify, or disapprove the changes in accordance with subsection (d) of Section 16-50j-60 of the RCSA	
3.	The certificate holder, or facility owner or operator, shall provide the CSC with a monthly construction progress report or a construction progress report at intervals determined by the CSC or its designee, indicating changes and deviations from the approved D&M Plan. The CSC may approve changes and deviations, request corrections, or require mitigation measures.	Volume 1, Section 7.3
4.	The certificate holder, or facility owner or operator, shall provide the CSC with written notice of completion of construction and site rehabilitation.	Volume 1, Section 7.1
(c)	**Final Report** The certificate holder, or facility owner or operator, shall provide the CSC with a final report for the facility not later than 180 days after completion of all site construction and site rehabilitation. The report shall identify:	
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	Volume 1, Section 7.3
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	

R.C.S.A Section	Description	D&M Plan (Section Reference, as Applicable)
5.	The actual construction cost of the facility, including but not limited to the following costs:	
	A. Clearing and access	
	B. Construction of the facility and associated equipment	
	C. Rehabilitation; and	
	D. Property acquisition for the site or access to the site	
(d)	**Protective Order** The certificate holder, or facility owner or operator, may file a motion for protective order pertaining to commercial or financial information related to the site or access to the site.	N/A

Table 1-2
D&M Plan Directory of Docket No. 466 Decision and Order and Opinion Requirements
Frost Bridge to Campville 115-kV Project: Substation Modifications

Condition or Page Number	Description	D&M Plan (Section Reference, as Applicable)
Condition Number	**Decision and Order**	
(1)	The Certificate Holder shall construct the proposed transmission line overhead along the proposed route and perform related Project improvements, as proposed, subject to modifications during final site design and approval of the D&M Plan for the Project.	Volume 1, Section 3 and Appendix A
(2)	The Certificate Holder shall prepare two Development and Management (D&M) Plans for this Project; one specific to the proposed substation improvements and one specific to the proposed construction of the new transmission line and improvements to the existing transmission lines. Both D&M Plans shall be 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 Watertown, Thomaston, Litchfield, Harwinton, and Plymouth and the City of Waterbury for comment, and all parties and intervenors as listed in the service list, and submitted to and approved by the Council prior to the commencement of facility construction. The D&M Plans shall include:	Refer to Volume 1, Section 8; Volume 2, Attachment I (Agency Correspondence and Public Outreach Documentation)
	a. Detailed site plans showing the placement of the access roads, structure foundations, equipment and material staging areas for the overhead route;	N/A
	b. A site plan that includes fencing detail for the replacement fence at Campville Substation with the recommendation of less than 2-inch mesh fencing;	Volume 1, Section 3.4
	c. Identification of areas for staging and equipment lay down, field office trailers, sanitary facilities, and parking;	Volume 1, Appendix A
	d. A site plan including landscaping at Frost Bridge Substation;	Volume 1, Section 3.4 and Appendix A
	e. An erosion and sediment control plan, consistent with the 2002 *Connecticut Guideline for Soil Erosion and Sediment Control* as amended;	Volume 1, Section 5.1; Volume 2, Attachment E, BMPs
	f. Identification of wetland and watercourse resources, related temporary and permanent construction impacts and methods to reduce such impacts;	N/A (See Section 2.1)
	g. Details of ground disturbance;	Volume 1, Appendix A
	h. Vegetative clearing plan;	Volume 1, Appendix B
	i. Wetland restoration plan;	N/A

Condition or Page Number	Description	D&M Plan (Section Reference, as Applicable)
	j. A spill prevention and countermeasures plan; k. Invasive species control plan l. Provisions to manage the discovery of undocumented Native American Archaeological resources; m. A schedule of construction hours; n. A blasting plan, if necessary; o. Plans and strategies to prevent post-construction the use of the right-of-way by all-terrain vehicles; p. Provisions for site specific measures to reduce impacts to State listed endangered, threatened, and special concern species; and q. EMF Monitoring Plan.	Volume 2, Attachment B N/A Volume 1, Section 5.6 Volume 1, Section 4 N/A N/A N/A N/A
(3)	The Certificate Holder shall comply with the Department of Energy and Environmental Protection recommendations, or coordinate with the Department of Energy and Environmental Protection, for construction of the route in the area of endangered, threatened, or special concern species identified along the Interstate route in Connecticut.	N/A
(4)	The Certificate Holder shall hire an independent environmental inspector, subject to Council approval, to monitor and provide a bi-weekly report to the Council regarding environmental compliance with the approved D&M Plan.	Volume 1, Section 6.1
(5)	The Certificate Holder shall obtain necessary permits from the United States Army Corps of Engineers and the Connecticut Department of Energy and Environmental Protection prior to the commencement of construction, in areas where said permits are required.	N/A
(6)	The Certificate Holder shall conform to the Council's Best Management Practices for Electric and Magnetic Fields.	N/A
(7)	The Certificate Holder shall comply with all future electric and magnetic field standards promulgated by State or federal regulatory agencies. Upon the establishment of any new standards, the facilities granted in this Decision and Order shall be brought into compliance with such standards.	N/A
(8)	The Certificate Holder shall provide to the Council an operating report within three months after the conclusion of the first year of operation of all facilities herein, and annually thereafter for a period of three years, with information relevant to the overall condition, safety, reliability, and operation of the new transmission line.	Volume 1, Section 7.3

Condition or Page Number	Description	D&M Plan (Section Reference, as Applicable)
(9)	This Decision and Order shall be void if all construction authorized herein is not completed within four years of the effective date of the Decision and Order, or within four years after all appeals to this Decision and Order have been resolved.	Volume 1, Section 4 (schedule for Project construction)
(10)	This Certificate may be surrendered by the Certificate Holder upon written notification to the Council.	N/A
(11)	In accordance with Section 16-50j-62 of the RCSA, the Certificate Holder shall provide the Council with written notice two weeks prior to the commencement of site construction activities. In addition, the Certificate Holder shall provide the Council with written notice of the completion of site construction, and the commencement of site operation.	Volume 1, Section 7
(12)	The Certificate Holder shall remit timely payments associated with annual assessments and invoices submitted by the Council for expenses attributable to the facility under CGS §16-50v.	N/A
(13)	This Certificate may be transferred in accordance with CGS §16-50k(b), provided both the Certificate Holder/transferor and the transferee are current with payments to the Council for their respective annual assessments and invoices under CGS §16-50v. In addition, both the Certificate Holder/transferor and the transferee shall provide to the Council a written agreement as to the entity responsible for any quarterly assessment charges under CGS §16-50v(b)2 that may be associated with this facility.	N/A
Page No.	**Opinion**	
3	**RE: Landscaping at Frost Bridge Substation**. The Council will require Eversource to consider landscaping at Frost Bridge Substation.	Volume 1, Section 3.4.8
4	**RE: Decoy Vernal Pools**. The Council is aware decoy pools may result in harm to amphibian fauna because they may not hold water long enough to allow amphibians to develop. The Council will order Eversource to include a measure to allow the natural removal of decoy pools by providing appropriate road drainage features.	N/A
4	**RE: Trail Crossings**. Eversource would coordinate with CT DEEP and other mangers of the affected trails to ensure public notification of construction activities and temporary closure of trails.	N/A
5	**RE: Visibility of Structures**. The Council recognizes Eversource's effort to minimize visibility and encourages Eversource to investigate decreasing the height of the proposed transmission line structures to the greatest extent possible as part of the D&M Plan for the Project.	N/A
6	**RE: Status Reports**. In order to verify consistency with the Council's Decision and Order, the Council will require the Certificate Holder to document compliance with environmental requirements and prepare periodic status reports.	Volume 1, Sections 6 and 7

2. REGULATORY APPROVALS AND CONSULTATIONS

2.1 REGULATORY APPROVALS AND REQUIREMENTS

This D&M Plan conforms to the specifications of Sections 16-50j-60 through 16-50j-62 of the RCSA (*Requirements for a D&M Plan, Elements of a D&M Plan, Reporting Requirements*); incorporates Eversource's commitments as contained in the record of the Council's Docket 466 regulatory process; and reflects adherence to the conditions of the Council's certificate for the Project and other relevant, previously received or anticipated regulatory approvals. Because all of the Project substation modification work will be at upland sites, no authorizations pertaining to wetlands or watercourses are required from the U.S. Army Corps of Engineers or the CT DEEP.

Consequently, the controlling regulatory approvals for the substation construction activities are:

- The Council's Decision and Order and Opinion for the Project (see Volume 2, Attachment A); and
- The CT DEEP *General Permit for the Discharge of Stormwater and Dewatering Wastewaters Associated with Construction Activities*, which applies to the management of the discharge of stormwater and dewatering wastewaters from construction sites (Volume 2, Attachment E).

2.2 CONSULTATIONS

During Project planning, Eversource consulted with representatives of the towns within which the substations lie (Watertown and Harwinton), as well as with representatives of various state and federal agencies, including the U.S. Army Corps of Engineers (USACE), New England District; U.S. Fish and Wildlife Service (USFWS); CT DEEP; State Historic Preservation Office (SHPO), and Connecticut Department of Transportation (ConnDOT).

During consultations with town representatives and the interested public, Eversource provided information regarding the D&M Plan process, the planned substation modifications, and Eversource's outreach procedures and points-of-contact prior to and during construction. In accordance with Condition 2 of the Council's Decision and Order, Eversource also issued this D&M Plan to the four municipalities that the Project traverses, as well as to the City of Waterbury, the Town of Plymouth, and all parties and intervenors on the service list for this docket. Additional information regarding Eversource's public outreach process is included in Section 8.

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 and the involved Native American tribes regarding the potential

effects of the Project on archaeological or historic resources and the measures to mitigate such effects, as necessary.

3. GENERAL CONSTRUCTION PROCEDURES

The Project modifications to Frost Bridge and Campville Substations will involve sequential, phased construction. The following summarizes construction activities common to both substations and describes construction activities specific to the individual substations. Detailed site-specific construction drawings and plans are included in Volume 1, Appendix A. Actual sequences and methods of construction may vary based on the characteristics observed at each substation and the final engineering designs for each location.

3.1 SUMMARY OF SUBSTATION MODIFICATIONS

3.1.1 Frost Bridge Substation

Frost Bridge Substation is located at 620 Frost Bridge Road, Watertown, Connecticut (see Appendix A, Exhibits 1 and 2). The substation is situated on the central-western portion of the parcel, east of and adjacent to Frost Bridge Road. The Eversource parcel is bordered by Frost Bridge Road and State Route 8 to the west; the Naugatuck Railroad and the Naugatuck River to the east; State Route 262 to the north; and open land and transmission line infrastructure to the south.

The Frost Bridge Substation property was acquired for utility use and the substation has been in operation for decades. Seven 115-kV and two 345-kV transmission lines presently connect to the Frost Bridge Substation.

All Project modifications at Frost Bridge Substation will be located within the substation's existing fenced area.

The following modifications will be constructed to interconnect the new 115-kV line to Frost Bridge Substation:

- Install one new 115-kV breaker for the new line in an existing vacant position within the substation's breaker-and-a-half bay. Although a 115-kV line terminal structure exists, there is currently no transmission line exiting the substation in this position.
- Connect the new 115-kV transmission line to the existing vacant terminal structure position.
- Install one motor-operated disconnect switch, one ground switch, three lightning arrestors, three capacitor-coupled voltage transformers (CCVTs), and one wave trap. Appropriate junction boxes and yard control boxes will be installed and connected to existing and new conduit raceway for control cable.
- Install a conduit for fiber-optic cable from the transmission line terminal structure to the existing control enclosure.

3.1.2 Campville Substation

Eversource's Campville Substation is located at 420 Wildcat Hill Road, Harwinton, Connecticut (see Appendix A, Exhibits 1b and 2b). The Eversource property is bordered by Wildcat Hill Road on the west,

Hayden Road on the south, and private property on the north and east. The substation property was acquired for utility use in 1926, with additional lands acquired in 1928 and 1936. The Campville Substation has been in operation for decades.

To accommodate the modifications required to interconnect the new 115-kV transmission line, the substation's fenced area will be expanded by approximately 0.4 acre. The substation fence will be expanded by approximately 90 feet to the east to enclose the expansion area. Appendix B Exhibits 2 and 3 depict the area to be cleared for the substation expansion, and associated limits of disturbance. Appendix B Exhibit 3 also depicts detailed post-construction contours, cut-and-fill areas, and drainage features. Appendix B Exhibit 4 depicts the larger proposed substation components.[2]

The following modifications will be constructed to interconnect the new 115-kV line to Campville Substation:

- Expand the existing ring bus to accommodate five new 115-kV breakers and one new transmission line-terminal position. The expansion will require the demolition of one existing breaker and one disconnect switch, and the connection of the new equipment in its place. A new transmission line terminal structure will be required to connect the new 115-kV transmission line from Frost Bridge to the Campville Substation line position. Also, one existing mobile transformer connection switch will be removed and replaced in a new location.
- Install the new 115-kV line terminal structure, which will have an overall height (including lightning air terminal) of approximately 68 feet. Install one motor operated disconnect switch, one ground switch, three lightning arrestors, three CCVTs, and one wave trap. Appropriate junction boxes and yard control boxes will be installed and connected to a new conduit raceway (a combination of ductbanks and cable trench) for control cable.
- Install a total of four 115-kV disconnect switches, approximately 555 feet of aluminum tube conductor, five 115-kV breakers, two 60-foot-tall lightning masts, and steel support structures and foundations for all new equipment.
- Install a new battery enclosure.
- Extend the existing substation ground grid, grading as necessary to manage stormwater flows, and install an extension of the substation fence.

In addition, as part of the Project, Eversource will implement minor improvements to the substation's drainage system, including the installation of an underdrain and drainage pipe in the existing station yard and the development of a new drainage swale around the east and south sides of the expanded substation fence. The drainage system will discharge to uplands located on the south side of the substation fence. The site plans in Appendix B include drawings of the planned drainage improvements.

[2] Item 17 of the Council's *Eversource Pre-hearing Interrogatories Set 1* for Docket No. 466, dated February 5, 2016 requested that if detailed contour maps of the Campville Substation were available, clearing, cut-and-fill areas, drainage features, and identification of "the larger proposed substation components" be provided.

3.2 CONSTRUCTION MANAGEMENT AND CONTACT INFORMATION

Eversource expects to award multiple construction contracts for the substation modifications in the third and fourth quarters of 2016. After contract award but prior to the commencement of the contractor's on-site work at the substations, Eversource will provide the Council with contact information for the prime construction contractor, consisting of the name of the firm, name of primary contact, corporate address, telephone number, and e-mail.

The construction of the substation modifications will be overseen by personnel from Eversource and Eversource's Project manager, Burns & McDonnell Engineering (Burns & McDonnell). Eversource and/or Burns & McDonnell personnel will directly monitor construction activities, including adherence to safety, engineering, and environmental requirements.

3.3 CONSTRUCTION FIELD OFFICES, CONTRACTOR YARDS, AND STAGING AREAS

To support the construction of the substation modifications, temporary contractor yards, construction field offices (consisting of trailers or other facilities for contractor and Eversource personnel), and staging areas (including equipment and material staging sites, temporary storage areas, and laydown areas) will be required. For the substation modifications, these areas will be located on Eversource's property at the Frost Bridge and Campville substations, either within the existing (developed) substation fence line or on adjacent uplands (refer to Appendix A).

Staging and support areas for the Project will be temporary and be used only during Project construction. After completion of the substation modifications at Frost Bridge Substation, these sites will be restored and stabilized in accordance with the Eversource BMP Manual (Volume 2, Attachment D). At Campville substation, graveled areas used for staging and support may remain for future maintenance use by Eversource.

The construction contractor(s) for the substation work will be responsible establishing the field offices, yards, and staging areas on Eversource properties. If the contractor identifies a need for additional support sites, in accordance with the Change Notice Approval Process described in Section 7.2, 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: SUBSTATIONS

3.4.1 General Construction Sequence

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

- Survey and stake vegetation clearing boundaries, and limits of disturbance for Project substation modification activities.
- Mark the boundaries of previously delineated wetland areas.
- Identify and mark areas to be avoided or otherwise protected (e.g., sensitive cultural or environmental resource areas).
- Identify other areas, as appropriate, where special construction considerations will apply.
- Perform vegetation clearing and site preparation (grading) as needed (NOTE: Campville Substation only).
- Install erosion and sedimentation controls.
- 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 office trailers, equipment storage and maintenance, sanitary facilities, and parking. These areas will be within the substation sites or on adjacent Eversource property.
- Construct new access roads or improve existing roads.
- Construct foundations and erect/assemble new equipment.
- Install grounding systems.
- Install wire and cable for all new equipment
- Remove temporary roads and construction debris and restore disturbed sites.
- Install vegetative plantings (NOTE: Frost Bridge Substation only).
- Maintain temporary erosion and sediment controls until sites are re-stabilized (e.g., paved, regraveled, or revegetated).

3.4.2 Vegetation Removal

Frost Bridge Substation

No vegetation removal will be required for the modifications to Frost Bridge Substation; all substation modification work will be performed within the existing, graveled, substation yard.

Campville Substation

Vegetation removal will be performed as described in the *Vegetation Clearing Plan* (refer to Volume 2 Attachment F), within the clearing limits as shown on the maps in Appendix A.

Temporary erosion and sedimentation controls may be installed before vegetation removal, depending on site-specific characteristics. After vegetation removal, soil erosion and sedimentation controls will be installed and maintained throughout construction around work limits (see Appendix A). Refer to the typical drawings of erosion and sedimentation control measures in the Eversource BMP Manual (Volume 2, Attachment D).

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

3.4.3 Site Preparation

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

a. Deploy temporary construction storage containers, and related equipment and materials to the substations or associated staging areas and setting up temporary services required to support construction (e.g., portable toilets).

b. Establish designated parking areas for construction workers.

c. Erect "construction zone" warning signs on the public roads that intersect with substation access roads.

d. Install protective fencing (e.g., snow fence) around work sites as needed.

e. Install and maintain, as necessary, temporary soil erosion and sedimentation controls (e.g., silt fence, straw bales, wattles) near areas of planned pavement/soil disturbance that are in proximity to water resources (located outside the substation fence lines). Such controls will be maintained and replaced, as necessary, throughout construction. The primary objective of these controls will be to minimize the potential for erosion and sediment migration away from construction activities and into water resources.

f. Maintain temporary erosion and sedimentation controls until the disturbed areas are stabilized.

g. Clear vegetation, grade, and otherwise prepare the Campville Substation expansion area and any other work areas and equipment staging locations located outside the substation fence lines. To install the drainage improvements (e.g., underdrain, pipe, drainage ditch), minor grading also will be performed within the existing Campville Substation yard; in addition to installing the drainage pipes, this will involve removing the existing crushed stone surface and re-grading to provide a gradual slope away from existing foundations into the underdrain.

h. Improving existing access, as needed.

No blasting will be required for the substation modifications. In general, site preparation work typically will involve the use of construction equipment such as backhoes, excavators, trucks (various sizes), compressors, and flatbed trailers.

3.4.4 Erosion and Sediment Controls and Water Resource Protection

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

a. Temporary erosion control structures will be installed as necessary to protect nearby water resources, and will be inspected on a routine basis, in accordance with regulatory requirements (refer to Volume 2, Attachment E).
b. Trench dewatering will not be conducted within 25 feet of a wetland or watercourse, unless a fractionization tank ("frac tank") or similar engineering controls for sediment containment is employed.
c. Equipment will not be refueled within 25 feet of any wetland or watercourse, unless appropriate containment procedures are in place.
d. Petroleum products will not be stored, mixed, or loaded within 25 feet of a wetland or watercourse.
e. In case of an on-site reportable spill, the construction contractor will adhere to the Spill Prevention and Control Plan (refer to Volume 2, Attachment B).

In addition to these BMPs, all construction activities will comply with Eversource's BMPs (refer to Volume 2, Attachment D), which are consistent with the *2002 Connecticut Guideline for Erosion and Sediment Control*. Additional information related to sediment and erosion controls at the substation sites is provided in Appendix A, Exhibit 3 (Frost Bridge Substation) and Appendix B, Exhibit 3 (Campville Substation) of this Volume. Additional information pertaining to the anticipated erosion and sediment controls is located in Section 5.2.

Pursuant to CGS Section 22a-430b, construction activities, such as the Project, that will result in the disturbance of 1 or more total acres of land area must comply with the CT DEEP's *General Permit for the Discharge of Stormwater and Dewatering Wastewaters Associated with Construction Activities* ([General Permit]; refer to Volume 2, Attachment E). Pursuant to the requirements of this General Permit, prior to the start of construction, Eversource will submit to CT DEEP a Registration Form and will prepare a - *Stormwater Pollution Control Plan* specific to the substation work.

3.4.5 Foundation and Equipment Installation

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

Excavated material will either be reused on-site or disposed of off-site in accordance with the regulatory requirements. All excess material from excavations will ultimately be hauled off-site for disposal. Temporary spoil stockpiles will be protected with appropriate erosion and sedimentation controls as required.

If groundwater is encountered in excavations, the water will be pumped from the excavated area and discharged in accordance with applicable requirements, including the procedures. The water may be discharged on-site into an appropriate sediment control basin or into a dewatering bag; pumped into a temporary frac tank and then discharged into the municipal stormwater system, or pumped into a tanker truck for disposal at appropriate wastewater treatment facilities. Residual silt/sediment collected at the bottom of the frac tanks will be disposed off-site at an appropriately designated disposal facility. Catch

basin inlet protection will be installed as needed to prevent disturbed soils excavate and construction debris from entering storm water systems.

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

3.4.6 Testing and Interconnection

Substation equipment and associated control cable will be installed, as necessary, to connect the new 115-kV transmission line at Frost Bridge Substation and at Campville Substation. All of the substation equipment will be tested and commissioned prior to putting into service.

3.4.7 Cleanup, Restoration

The final steps of the construction process at each substation will be the collection and removal of all remaining construction debris from each substation site, stabilization/restoration of disturbed areas, completion of site security measures, and demobilization of temporary office trailers and other materials from the sites. At Frost Bridge Substation, landscaping outside the fence line also will be planted (refer to Section 3.4.8).

Construction debris will be properly disposed of in accordance with local, state, and federal regulations. The contractor will remove all excess soil and rock and dispose of it in accordance with local, state and federal regulations.

Within each substation, areas affected by Project construction are expected to be stabilized using trap rock or gravel. Temporary staging and support areas will typically be restored to pre-construction conditions, with stabilization (revegetation or gravel) appropriate to each site. At Campville substation, graveled areas used for staging and support may remain for future maintenance use by Eversource. In addition, the new drainage ditch outside the Campville Substation fence will be stabilized with a combination of seed and temporary erosion controls; a riprap apron will be installed around the outlet of the drainage pipe and check dams may be installed within the ditch as needed (refer to Appendix B).

Temporary erosion and sedimentation controls will be left in place and maintained until final stabilization is achieved. Steep areas may be stabilized with biodegradable, pre-made erosion and sedimentation control fabric containing seed, mulch, and fertilizer, or the equivalent. Flagging denoting environmentally or culturally sensitive resource protection areas will remain in place as needed, typically until the completion of stabilization / restoration activities.

Restoration typically will be deemed successful, based on the stabilization measures as defined in accordance with Project-specific permit and certificate requirements.

3.4.8 Landscaping

Frost Bridge Substation

Pursuant to the Council's Decision & Order, Condition 2d, Eversource will develop and implement a landscaping plan for the portion of the Eversource property located outside the substation fence that abuts Frost Bridge Road. In this area, existing landscaping will be assessed and new landscaping will be installed as needed. Prior to implementation, Eversource will provide the landscaping plan to the Council for approval. Eversource anticipates that the landscaping will be performed subsequent to the completion of the substation modifications, during appropriate seasonal windows for planting.

Campville Substation

As part of Project station modifications, no landscaping is proposed for the Campville Substation.

3.4.9 Site Security

Frost Bridge Substation

Because all of the Frost Bridge Substation modifications will involve equipment additions within the existing substation fence line, the existing fencing and other procedures already in place at the substation will continue to provide site security.

Campville Substation

Pursuant to the Council's Decision & Order, Condition 2b, Eversource will install fencing with less than a 2-inch mesh for the sections of fence to be installed as part of the Project modifications at Campville Substation, including the section of fence to enclose the substation expansion area. The height of these sections of the fencing will be 7 feet tall, with three strands of barbed wire above the top of the fence, consistent with the existing fencing at the substation.

4. CONSTRUCTION SCHEDULE, OUTAGES, AND WORK HOURS

4.1 CONSTRUCTION SCHEDULE, INCLUDING OUTAGES

The substation modifications are scheduled for construction between October 2016 and June 2018. As currently planned, the general schedule for the construction of the substation modifications is as follows:

General Construction Dates*	Substation Modification Construction Activity
Quarter 4, 2016	Construction contracts awarded; establish material laydown yards and field offices; begin receiving materials. Contractor mobilization, commence vegetation clearing and site grading.
Quarter 1, 2017 – Quarter 2, 2018	Perform construction (foundations, equipment installation, landscaping, clean-up and restoration, etc.), as summarized in Section 3.
Quarter 2, 2018	Testing, energization, substation site clean-up and restoration. Final substation revegetation and verification of final stabilization pursuant to regulatory requirements will likely extend into Quarters 3 and 4 of 2018)

* Construction schedule is dependent on the receipt of D&M Plan approval from the Council and the issuance of the CT DEEP Section 401 water quality certification and the USACE Section 404 permit, both of which are required for portions of the transmission line work. The schedule for the substation modifications may change in accordance with receipt of these approvals, as well as on approved outage schedules.

During Project construction, outages will be required on some of Eversource's existing transmission lines that occupy the Project ROW and connect to the Frost Bridge and Campville substations. The outages, which must be coordinated with and approved by the Connecticut Valley Electric Exchange (CONVEX), will be required for certain construction activities, including cutovers into the Frost Bridge and Campville substations.

After Eversource retains construction contractors for the Project and identifies and schedules the outages, a more specific construction schedule will be developed. The CONVEX- and Eversource-approved substation work, will dictate parts of the planned construction schedule.

4.2 WORK HOURS

Construction work hours will typically be between 7:00 AM and 7:00 PM, six days per week (Monday through Saturday). During these hours, construction will generate noise, which will vary depending on the type of activity performed. Construction workers may arrive for work and leave work outside of these times.

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

However, certain activities, such as those that must be performed during CONVEX-approved outages, will involve work during non-typical hours, in some cases on a continuous basis (in excess of 12 hours) and/or on Sundays. The performance of these activities during non-typical work hours can be critical for completing the required tasks within the allowed outage durations and returning equipment to service as expeditiously as possible.

In addition, during winter, 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.

At both Frost Bridge and Campville substations, all construction activities performed during extended work hours will be confined to the substation sites.

Further, at the request of the Town of Harwinton, on Saturdays, noisy Project construction activities that must be performed in the town will not commence until 8:00 AM (rather than 7:00 AM). "Noisy work", as defined by the town and Eversource, shall be work that requires the use of tri-axle equipment, vehicles with back-up alarms, and drilling activities. Other construction activities, including crew show-up and mobilization at work sites, tailboard discussions, and conductor and wire work, do not constitute "noisy work" and may be performed commencing prior to 8:00 AM on Saturdays in Harwinton.

5. SPECIAL CONSTRUCTION PROTOCOLS AND PROCEDURES

Plans and procedures included in this section and in Volume 2 (as referenced in this section) apply to the construction work at both of the substations.[3]

This section provides resource-specific protocols and procedures applicable to the substation modification construction; additional details are provided within Appendix A. In addition, appendices to this volume present related plans for the protection of environmental and cultural resources during construction (e.g., *Vegetation Clearing Plan*, Volume 2 Attachment F).

Volume 2, Attachment D, includes standard BMPs that will apply to Project construction, as well as plans and guidance applicable to Project-wide construction activities (e.g., *Spill Prevention and Control Plan*, Attachment B; *Snow Removal and De-Icing Plan*, Attachment C).

5.1 EROSION AND SEDIMENTATION CONTROL PLAN

Eversource will install erosion and sedimentation control measures during substation modification work to avoid or minimize the potential for surface water runoff, erosion, and sedimentation to occur outside of work limits. These measures will comply with the *2002 Connecticut Guideline for Erosion and Sediment Control* and with Eversource's BMPs (refer to Volume 2, Attachment D). 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).

Pursuant to CGS Section 22a-430b, construction activities, such as the Project, that will result in the disturbance of 1 or more total acres of land area must comply with the CT DEEP's *General Permit for the Discharge of Stormwater and Dewatering Wastewaters Associated with Construction Activities* ([General Permit]; refer to Volume 2, Attachment E). Pursuant to the requirements of this General Permit, prior to the start of construction, Eversource will submit to CT DEEP a Registration Form and will prepare a *Stormwater Pollution Control Plan* specific to the substation modification work.

Permanent stabilization will consist of the application of gravel or pavement (for areas within the substation fence lines), or reseeding to establish vegetative cover on disturbed soils that will not otherwise be paved or graveled. The new drainage ditch outside the Campville Substation fence will be stabilized with a mix of seed, temporary erosion controls, and riprap; check dams may be installed in the ditch if necessary (refer to Appendix B). After final stabilization is achieved, all temporary erosion and sedimentation controls will be removed and disposed of properly.

[3] Neither of the substation modifications will require blasting, work in wetlands, watercourses, active farmlands, threatened or endangered species habitats, or in or near public recreational areas. As a result, no special construction procedures pertaining to these topics are included in this D&M Plan.

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

Dust Suppression

To minimize short-term adverse effects to air quality during construction, access roads and staging areas not already paved or graveled will be graveled and may be watered, as necessary, to suppress fugitive dust emissions. The public, paved roads at the intersection with the substation access roads will be periodically swept, as necessary to remove excess dirt tracked onto the pavement from the substation work areas.

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

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

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

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.

5.3 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 substation modification construction process.

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

Excess soil will be reused on-site. Excess excavated soils will typically be spread on Eversource property in upland locations, away from water resources, state-listed species habitats, agricultural areas, and residential or commercial land uses.

If groundwater is encountered in excavations, 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.

If obvious polluted or contaminated soil or groundwater is encountered, it must be reported to Eversource and handled in accordance with the applicable regulatory requirements. If encountered, contaminated soils will be stockpiled on and covered by polyethylene sheeting. Sheeting used to cover the stockpile will be weighted to prevent the wind migration of contaminated dust. The materials will be tested to determine appropriate handling and disposition. Potentially contaminated groundwater, if encountered, will be addressed on a case-by-case basis and may involve pumping to a frac tank prior to off-site disposal or the use of other measures.

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

In no case will solid or liquid wastes (except for excess soil or groundwater, if appropriate) be buried or otherwise disposed of at the substation sites or at contractor staging areas or yards.

5.4 LIGHTING AND NOISE MITIGATION

Substation modification construction activities will result in localized and short-term increases in ambient noise levels in the vicinity of work sites. Construction-related noise will occur as a result of the operation of equipment and vehicles, including vegetation removal equipment, jackhammers, drilling rigs, and cranes.

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

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

5.5 SITE ACCESS, TRAFFIC CONTROL, AND CONSTRUCTION SIGNS

Access to both substations during construction will be via the public road network and the existing substation access roads.

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

The construction contractors will be responsible for posting and maintaining construction warning signs, in accordance with state and local requirements, along public roads in the vicinity of the work areas along the ROW. Signs will be consistent with the federal *Manual of Uniform Traffic Control Devices* ([MUTCD], 2009 edition, as revised May 2012, or the latest version)[4]. Flagmen and other traffic control measures may also be used as necessary.

5.6 CULTURAL RESOURCES

5.6.1 Protection Measures

Eversource and its cultural resource consultant (Heritage Consultants, LLC [Heritage]) coordinated with representatives of the SHPO and involved Native American Tribes regarding the Project, and Heritage performed baseline historical research and archaeological field reviews of the areas to be modified at both the Frost Bridge and Campville substations. In March 2016, a field walkover with Native American Tribal representatives also was conducted; field surveys (including archaeological tests) were performed in April 2016.

This research and field testing revealed that there are no standing historical structures listed on the National or State Registers of Historic Places (NRHP/SRHP) in the vicinity of the substations. Further, because the soils at and in the vicinity of both substations have been generally disturbed by prior development activities,

[4] Connecticut has adopted the federal MUTCDs.

Heritage's cultural resource field surveys resulted in the identification of only one potential archaeological site that would be affected by the planned substation modifications.[5]

To assess whether this archaeological site was potentially significant and eligible for the NRHP/SRHP, Heritage determined that additional, more detailed field investigations (archaeological testing) would be required. Heritage performed these field investigations in May 2016. A Native American Tribal representative also observed the more detailed field work.

Based on the results of these investigations, Heritage determined that the site was not significant and thus not eligible for listing on the National or State Registers of Historic Places (NRHP/SRHP). Therefore, the planned substation modifications were found to have no significant adverse effect on cultural resources. Heritage's report documenting the results of these investigations is being submitted to both the SHPO and the involved Native American Tribes.

5.6.2 Unanticipated Cultural Resources Discovery Procedures

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

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

The Project training for construction contractor managers (refer to Section 6.2) will review the procedures to be followed should unanticipated potential cultural materials be discovered during construction. Specifically, construction personnel will be instructed to stop the task that resulted in the potential discovery and inform Eversource or Burns & McDonnell.

Eversource will have a professional archaeological consulting firm available to respond to potential unanticipated cultural resource discoveries. Construction work at the potential cultural resource discovery site will not resume until authorized by the professional archaeologist and Eversource.

5.7 CONSTRUCTION EQUIPMENT / VEHICLE WASHING AND CLEANING

Concrete truck wash-out and vehicle washing will be allowed where practical on the substation sites and staging areas. All wash-out and washing areas will include measures to control and contain wash-water and to collect the cement wash-off for off-site disposal.

[5] The exact location of this archaeological site is not provided in this D&M Plan, in accordance with Eversource's standard practice for protecting such sensitive resource information from general public dissemination.

Erosion and sedimentation controls deployed at wash-out areas will conform to the relevant provisions of the *2002 Connecticut Guideline for Soil Erosion and Sediment Control* (as amended), Eversource's *BMP Manual,* and the CT DEEP's *General Permit for the Discharge of Stormwater and Dewatering Wastewaters Associated with Construction Activities* (refer to Volume 2, Attachments D and E).

5.8 WINTER WORK, ROW STABILIZATION, AND ROW MONITORING PROTOCOL

Because the substation modification construction will require approximately 18 months to complete, work activities will be conducted during the winter months. Winter work 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* included in Volume 2, Attachment C.

If, after the substation modifications are completed, some substation site clean-up or restoration work is completed too late in the season to initiate or complete permanent stabilization of disturbed areas (e.g., temporary staging areas that may require reseeding), temporary erosion and sedimentation controls will be left in place and augmented if necessary. These measures will be periodically inspected and maintained until permanent site stabilization can be completed, likely during the following spring.

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

6. ENVIRONMENTAL INSPECTION

6.1 INDEPENDENT ENVIRONMENTAL CONSULTANT

Pursuant to Council's Decision and Order (Condition 4) for the Project, Eversource will retain an independent environmental inspector, subject to approval by the Council. The independent environmental inspector will perform the following functions:

- Monitor the construction of the new 115-kV transmission line, double circuit separation, and substation modifications, including restoration, for consistency with the Council-approved D&M Plans for the Project.
- Provide a bi-weekly monitoring report to the Council.
- Coordinate with Eversource's environmental compliance monitor (refer to Section 6.2).

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

6.2 EVERSOURCE'S ENVIRONMENTAL COMPLIANCE PROGRAM

The Project construction contractors will be required to comply with all applicable environmental regulatory requirements, as well as with the Council-approved D&M Plans. Eversource will require construction contractors' management personnel to attend training regarding Project-specific requirements, including the specifications of this D&M Plan.

To verify the contractors' compliance with the applicable siting and permitting requirements, Eversource will assign to the Project an environmental compliance monitor who will routinely monitor Project construction activities for conformance to the D&M Plans and to other Project-specific permits and approvals. The compliance monitor also may coordinate with the independent environmental inspector, assist in preparing required notices and reports to the Council as appropriate, and support other aspects of Project development.

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7. NOTICES AND REPORTS

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

Pursuant to RCSA Section 16-50j-62(b)(1) and Condition 11 of the Council's Decision and Order, 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; and

b. Substation modification construction.

Pursuant to RCSA Section 16-50j-62(b)(4) and Condition 11 of this Docket, Eversource also will provide written notification to the Council of the completion of construction (including site restoration / rehabilitation) and the commencement of site operation.

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 testing or staging and not otherwise included in this D&M Plan.

7.2 NOTICE OF CHANGES TO D&M PLAN

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

7.2.1 D&M Plan Changes Requiring Notice to the Council

Pursuant to RCSA Section 16-50j-62(b)(2), the Council must pre-approve any significant changes to this D&M Plan. 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.
- 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.

7.2.2 D&M Plan Change Approval Process

A request for a change to the D&M Plan may originate from the Project team, 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 effects (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 7-1 provides a flow chart illustrating this change approval process.

7.2.3 D&M Plan Change Documentation and Reporting

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

7.3 REPORTS

Table 7-1 identifies the written reports that will be provided to the Council regarding the Project. Eversource will provide general updates regarding the status of the Project in the Monthly Construction Progress Reports.

Figure 7-1
D&M Plan Change Process

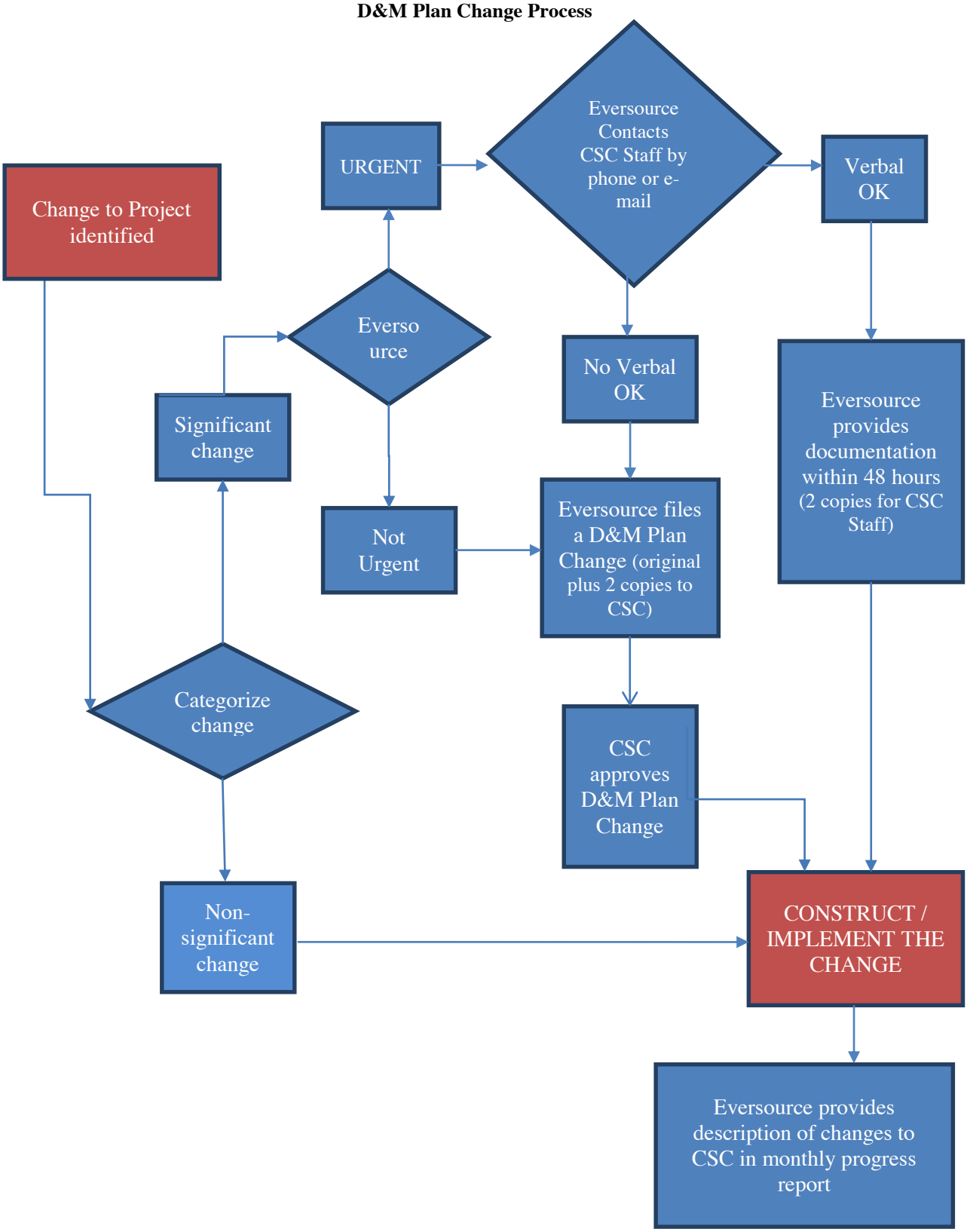

Table 7-1
Reports to be Provided to the Council

Report Type (Regulatory Requirement)	Content
Monthly Construction Progress Report (RCSA Section 16-50j-62(b)(3))	Monthly construction progress report will summarize the status of the Project construction (by location, percent complete) and will also identify changes and deviations to the approved D&M Plan, including both significant changes involving Council pre-approval and minor changes that did not require Council action.
Bi-Weekly Independent Environmental Inspector Report (Docket No. 466, Decision and Order, Condition 4)	The Independent Environmental Inspector will submit to the Council a written report regarding the status of construction activities and environmental protection pursuant to the Council's Decision and Order, Certificate, and the D&M Plan.
Final Report (RCSA Section 16-50j-62(c))	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: 1 All agreements with abutters or other property owners regarding special maintenance precautions 2 Significant changes to the D&M Plan that were required because of property rights or underlying and adjoining owners or for other reasons 3 The location of construction materials that have been left in place, including but not limited to, culverts, erosion control structures along watercourses and steep slopes, and corduroy roads in regulated wetlands 4 The location of areas where special plantings and reseeding have been performed 5 The actual construction cost of the facility, including but not limited to the following costs: a. Clearing and access; b. Construction of the facility and associated equipment; c. Rehabilitation; and d. Property acquisition for the site or access to the site.
Operating Report (Docket No. 424, Decision and Order, Condition 9)	Within three months after the conclusion of the first year of the operation of all Project facilities, and annually thereafter for three years, Eversource will provide to the Council a report that describes the overall condition, safety, reliability, and operation of the transmission systems.

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8. PUBLIC REVIEW AND OUTREACH

8.1 PROJECT PLANNING AND D&M PLAN

As part of the overall Project planning process, including the development of the Application to the Council and this D&M Plan, Eversource consulted with officials of the four towns traversed by the Project and provided opportunities for town representatives, other agencies, 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 four towns along the Project transmission line route, as well as to the City of Waterbury and the Town of Plymouth, and all parties and intervenors on the service list for the Project (Council Docket No. 466).

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 Harwinton on June 6, 2016 and with representatives of the towns of Watertown and Litchfield on June 13, 2016.[6]

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 town. Town of Litchfield officials also inquired about the construction process for the installation of the Project facilities at and across the Naugatuck River and the type of USACE permit required for the Project.

In addition, representatives of the Town of Watertown asked that Eversource:

1. Provide a link to the Company website on which the D&M Plan will be posted so that the town can post the link on their website or otherwise notify residents; and

2. Provide the town with copies of the Council's bi-weekly independent environmental consultant's reports and Eversource's monthly construction progress report to the Council.

Eversource indicated that the bi-weekly independent environmental inspector reports and the monthly construction progress report regarding the Project will be provided to the involved municipalities.

Officials from the Town of Harwinton requested that noisy construction work on Saturdays commence at 8:00 AM, rather than 7:00 AM; this request has been incorporated into the D&M Plan (refer to Section 4.2).

[6] Representatives of the Town of Thomaston elected not to meet with Eversource to discuss the draft D&M Plan.

In addition, Harwinton representatives asked for, and Eversource agreed to, the following relevant to the Campville Substation modifications:

- Access to Campville Substation (for truck traffic only) should be to the southeast along Wildcat Hill Road.

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 post the filed D&M Plan on the Project web site and will provide the D&M Plan to the four towns traversed by the Project, the Town of Plymouth, the City of Waterbury, and the service list for the Project (Council Docket No. 466). This website is accessible from the Eversource homepage (www.Eversource.com). From this homepage, Project information can be accessed by clicking the "About" tab and then the "Major Projects and Infrastructure" tab to view a list of the Company's ongoing and proposed projects, including this Project. Included on the website is an e-mail address (transmissioninfo@eversource.com) and a telephone number (800-793-2202) to contact Eversource for more Project information or to provide comments about the Project.

8.2 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, as well as two public open houses during the Municipal Consultation phase of the siting process. 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 and email address are currently available, via the website noted in Section 8.1, and the website will continue as the primary means for residents, businesses, and other stakeholders to contact Project representatives throughout Project construction. As referenced in Section 8.1, the public can also access the Project website, which provides an overview of the Project, a map of the Project facilities, and Eversource contact information.

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

9. GLOSSARY OF TERMS

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

BMP: Best Management Practice

CCVT: Capacitor-Coupled Voltage Transformer

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

CGS: Connecticut General Statutes

Conductor: A metallic wire, busbar, rod, tube or cable 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.

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

Docket 466: Council Docket number for the Project.

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.

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

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

NRHP: National Register of Historic Places

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

Project: Frost Bridge to Campville 115-kV Project

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 of forest vegetation. May also refer to mowing or cutting of scrub-shrub vegetation.

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

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

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APPENDIX A

Drawings, Plans, and Photographs

Frost Bridge Substation

Exhibit 1:	Key Map/Site Locus
Exhibit 2:	Aerial Photograph
Exhibit 3:	General Arrangement Plans
Exhibit 4:	Sedimentation and Erosion Control Details
Exhibit 5:	Conceptual Landscaping Plan

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Exhibit 1

Key Map/Site Locus

Frost Bridge Substation

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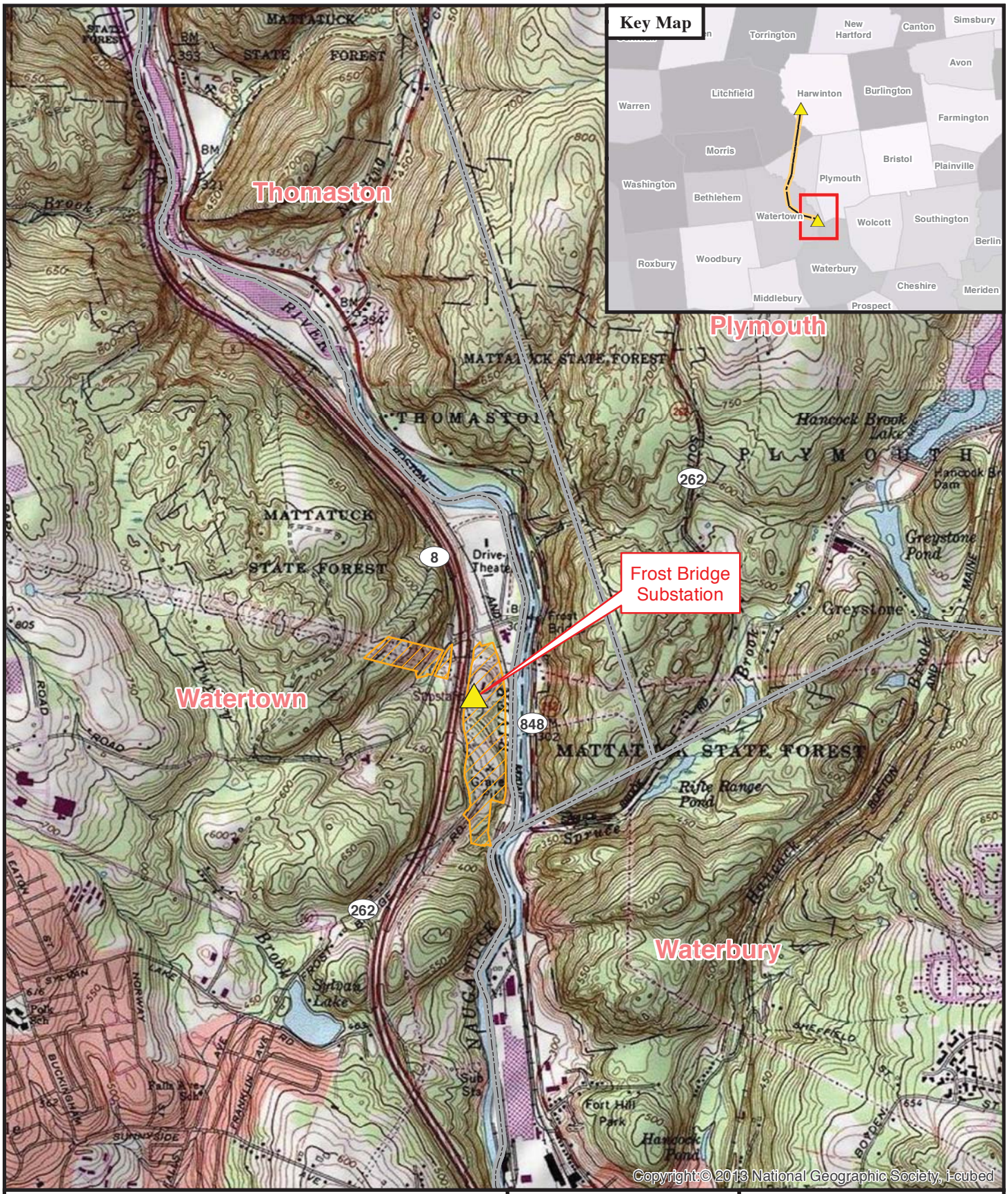

NORTH

0 1,000 2,000 Feet

1 inch = 2,000 feet

Facility

Eversource Property

Town Boundary

Source: USGS 7.5-Minute Quadrangles, CT DEEP, ESRI and Burns & McDonnell Engineering.

EVERSOURCE ENERGY

Exhibit 1: Key Map/Site Locus
Frost Bridge Substation
Frost Bridge-Campville
115-kV Project

Date: April 2016

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Exhibit 2

Aerial Photograph

Frost Bridge Substation and Surroundings

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Line List Number	Town	Site Address	Owner Name
40000	Watertown	Frost Bridge Road	The Connecticut Light & Power Co.
40000.01	Watertown	Frost Bridge Road	Town of Harwinton (Town Road)
40001	Watertown	James H. Darcey Memorial Hwy (State Route 8)	Connecticut Department of Transportation

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

NORTH

Eversource Property
Wetland
Approx. Landscaping Area

0 50 100 200 Feet

EVERSOURCE ENERGY

Exhibit 2: Aerial Photograph
Frost Bridge Substation and Surroundings
Watertown, CT
Frost Bridge-Campville 115-kV Project

Date: April 2016

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Exhibit 3

General Arrangement Plans

Frost Bridge Substation

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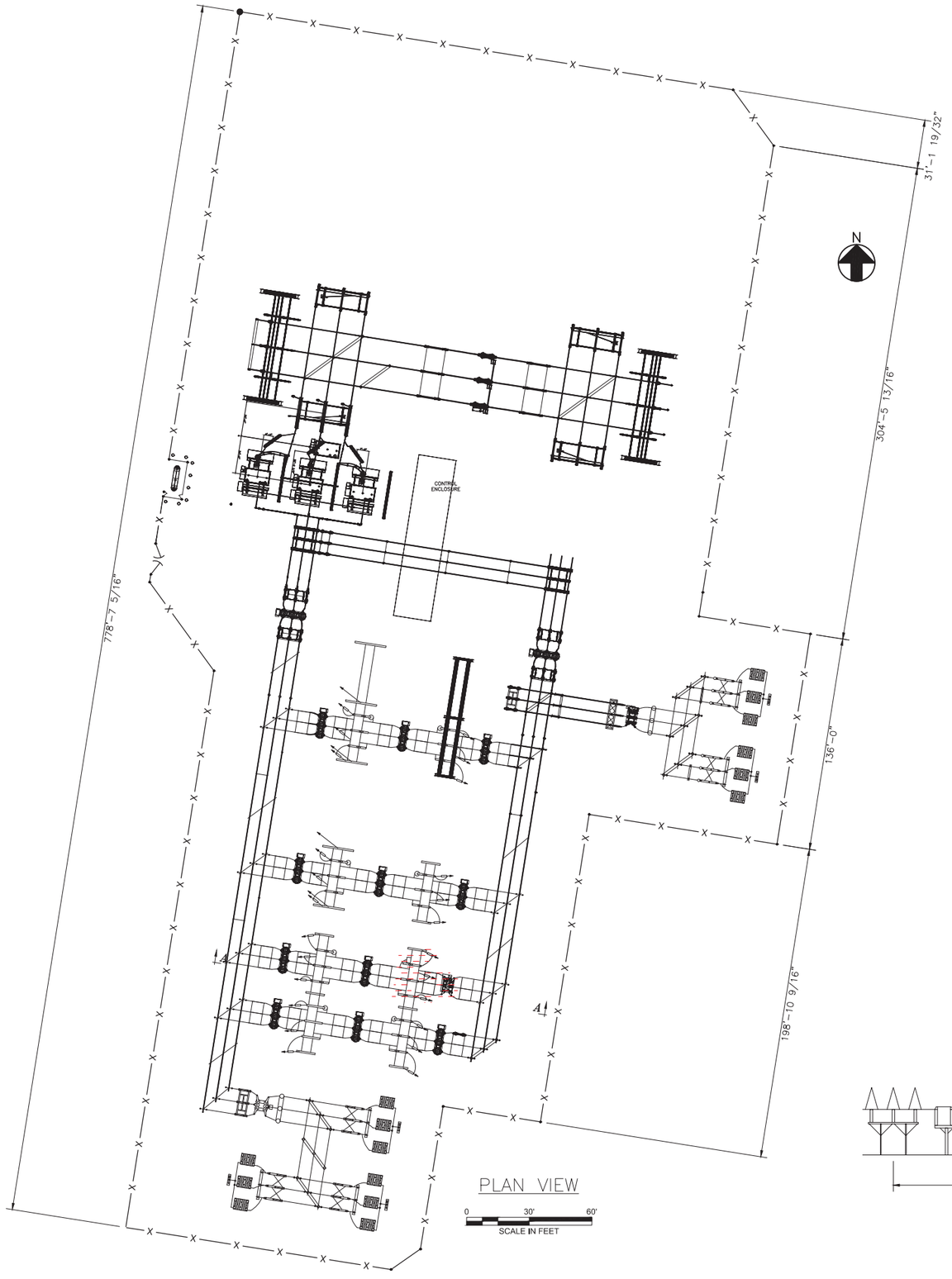
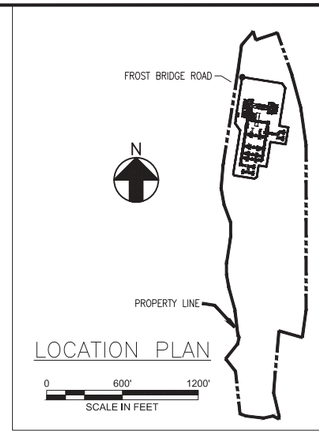
NU VER: 02/2012a



PLAN VIEW

0 30' 60'

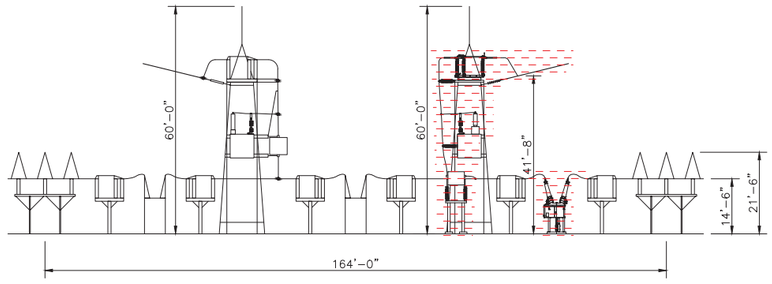
SCALE IN FEET



LOCATION PLAN

0 600' 1200'

SCALE IN FEET



SECTION A-A

0 10' 20' 40'

SCALE IN FEET

LEGEND

X EXISTING SUBSTATION FENCE

2016 ADDITION

REV. 1 – 5/29/15
SUBSTATION ADDITION

REVISIONS DURING CONSTRUCTION			

EVERSOURCE ENERGY

TITLE

FROST BRIDGE SUBSTATION
YARD ARRANGEMENT – PLAN & SECTIONS
CONNECTICUT SITING COUNCIL
WATERTOWN, CT

BY	WSP	CHKD	WSP	APP	RJP	APP	RJP
DATE	6/14/07	DATE	6/14/07	DATE	6/15/07	DATE	6/15/07
H-SCALE	AS NOTED	SIZE	D	FIELD BOOK & PAGES			
V-SCALE	N/A	V.S.		R.E. DWG			
R.E. PROJ. NUMBER				HUSCO	25306-92001		

5/22/2015 11:36 AM – fosterrondeau – Z:\Clients\TNDV\HUSCO\89056_GHCC-FIRSTBRIDGE\Design\Substation\2400\Sketch\25306-92001.DWG – REV – AA

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Exhibit 4

Sediment and Erosion Control Details

Frost Bridge Substation

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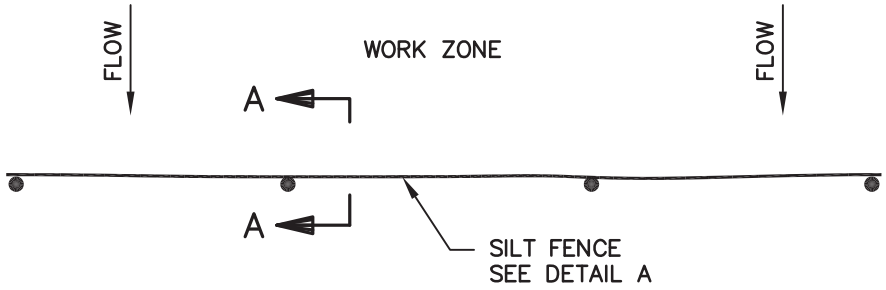
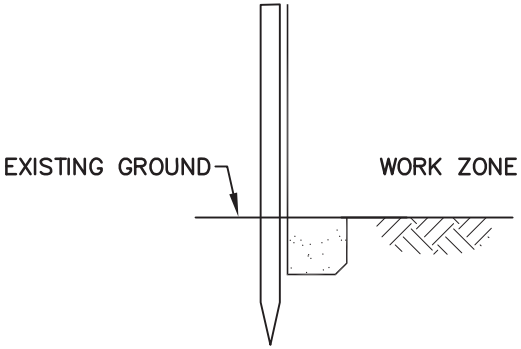
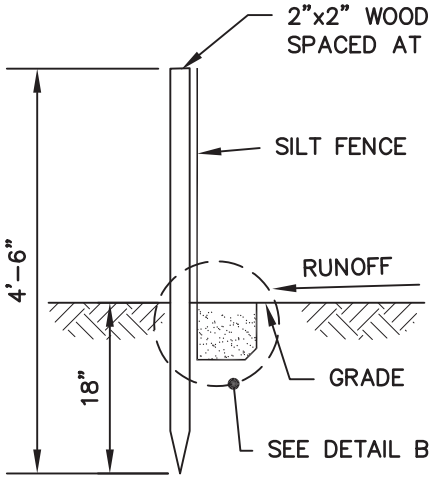


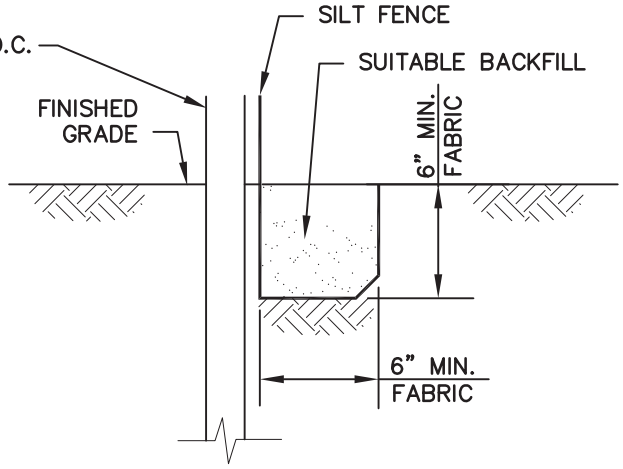
PLAN



SECTION A–A

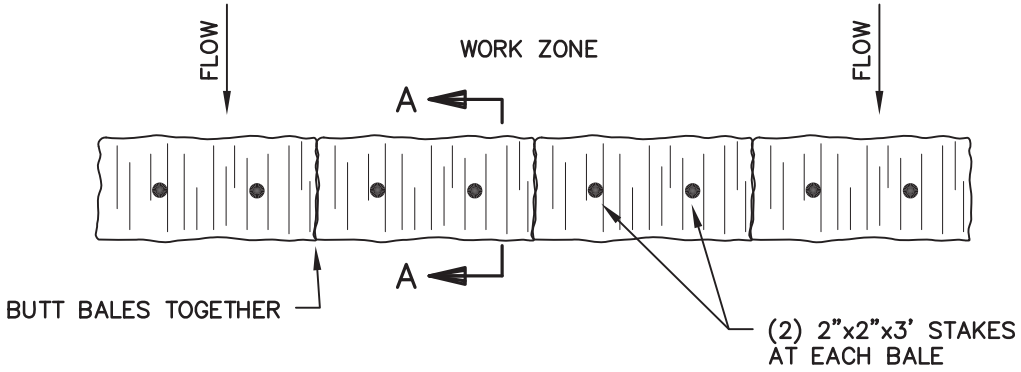


DETAIL A

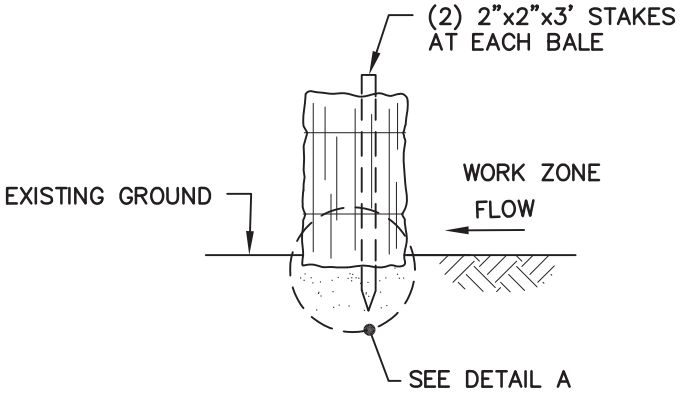


DETAIL B

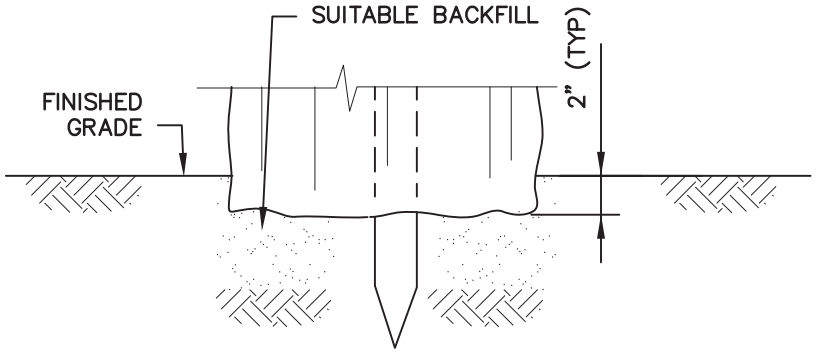
TYPICAL SILT FENCE USAGE	
TIGHE & BOND CONSULTING ENGINEERS WESTFIELD, MASSACHUSETTS	
SCALE: NONE	DATE: 2007



PLAN



SECTION A–A



DETAIL A

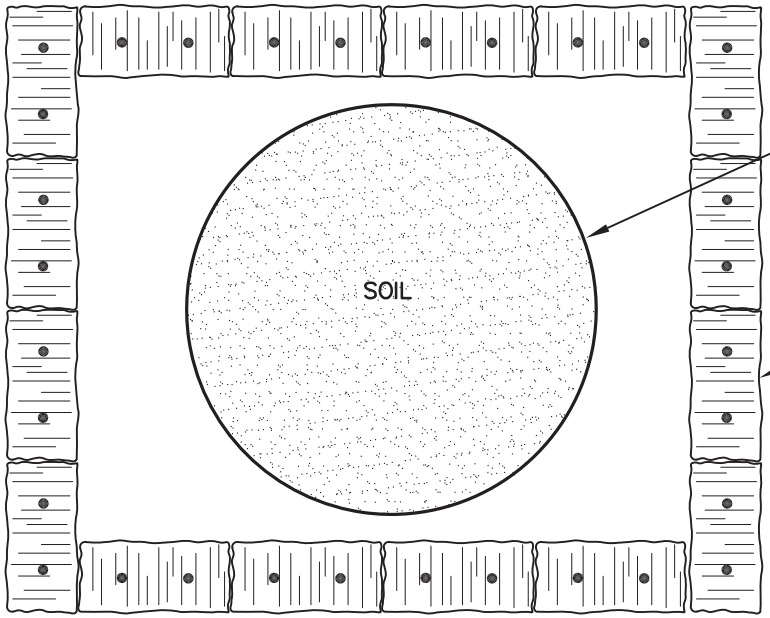
NOTE:
STRAW BALES MAY BE SUBSTITUTED FOR HAY BALES.

TYPICAL
HAY BALES USAGE

TIGHE & BOND CONSULTING ENGINEERS
WESTFIELD, MASSACHUSETTS

SCALE: NONE

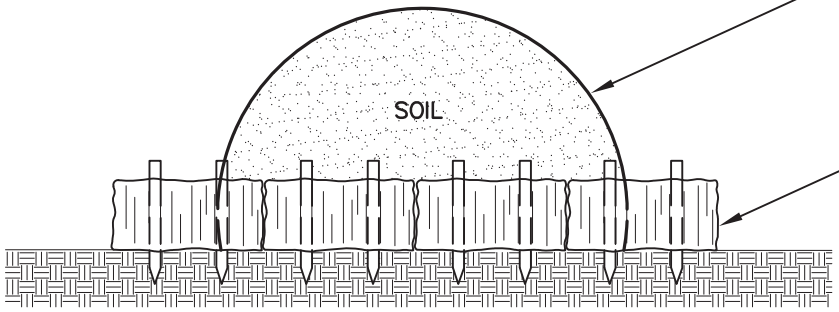
DATE: 2007



CONTAMINATED SOILS MUST BE COVERED WITH POLYETHYLENE SHEETING TO LIMIT EROSION. SHEETING NOT REQUIRED FOR NON-CONTAMINATED SOILS IF SEDIMENTATION AND EROSION CONTROLS COMPLETELY ENCLOSE STOCKPILE

HAY BALES AND/OR SILT FENCE

PLAN VIEW



CONTAMINATED SOILS MUST BE COVERED WITH POLYETHYLENE SHEETING TO LIMIT EROSION. SHEETING NOT REQUIRED FOR NON-CONTAMINATED SOILS IF SEDIMENTATION AND EROSION CONTROLS COMPLETELY ENCLOSE STOCKPILE

HAY BALES AND/OR SILT FENCE

ELEVATION VIEW

TYPICAL SOIL STOCKPILE MANAGEMENT

TIGHE & BOND CONSULTING ENGINEERS
WESTFIELD, MASSACHUSETTS

SCALE: NONE

DATE: 2011

01/30/11 B0449\FIGURES2011\SOIL_STPL_MGMT

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Exhibit 5

Conceptual Landscaping Plan

Frost Bridge Substation

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Line List Number	Town	Site Address	Owner Name
40000	Watertown	Frost Bridge Road	The Connecticut Light & Power Co.
40000.01	Watertown	Frost Bridge Road	Town of Harwinton (Town Road)
40001	Watertown	James H. Darcey Memorial Hwy (State Route 8)	Connecticut Department of Transportation

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

NORTH

Eversource Property
Wetland
Approx. Landscaping Area

0 50 100 200 Feet

EVERSOURCE ENERGY

Preliminary Landscaping Plan
Frost Bridge Substation
Watertown, CT
Frost Bridge-Campville 115-kV Project

Date: June 2016

Note: This page left blank intentionally

APPENDIX B

Drawings, Plans, and Photographs

Campville Substation

Exhibit 1:	Key Map/Site Locus
Exhibit 2:	Aerial Photograph
Exhibit 3:	General Arrangement Plans
Exhibit 4:	Sedimentation and Erosion Control Plan & Details

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Exhibit 1

Key Map/Site Locus

Campville Substation

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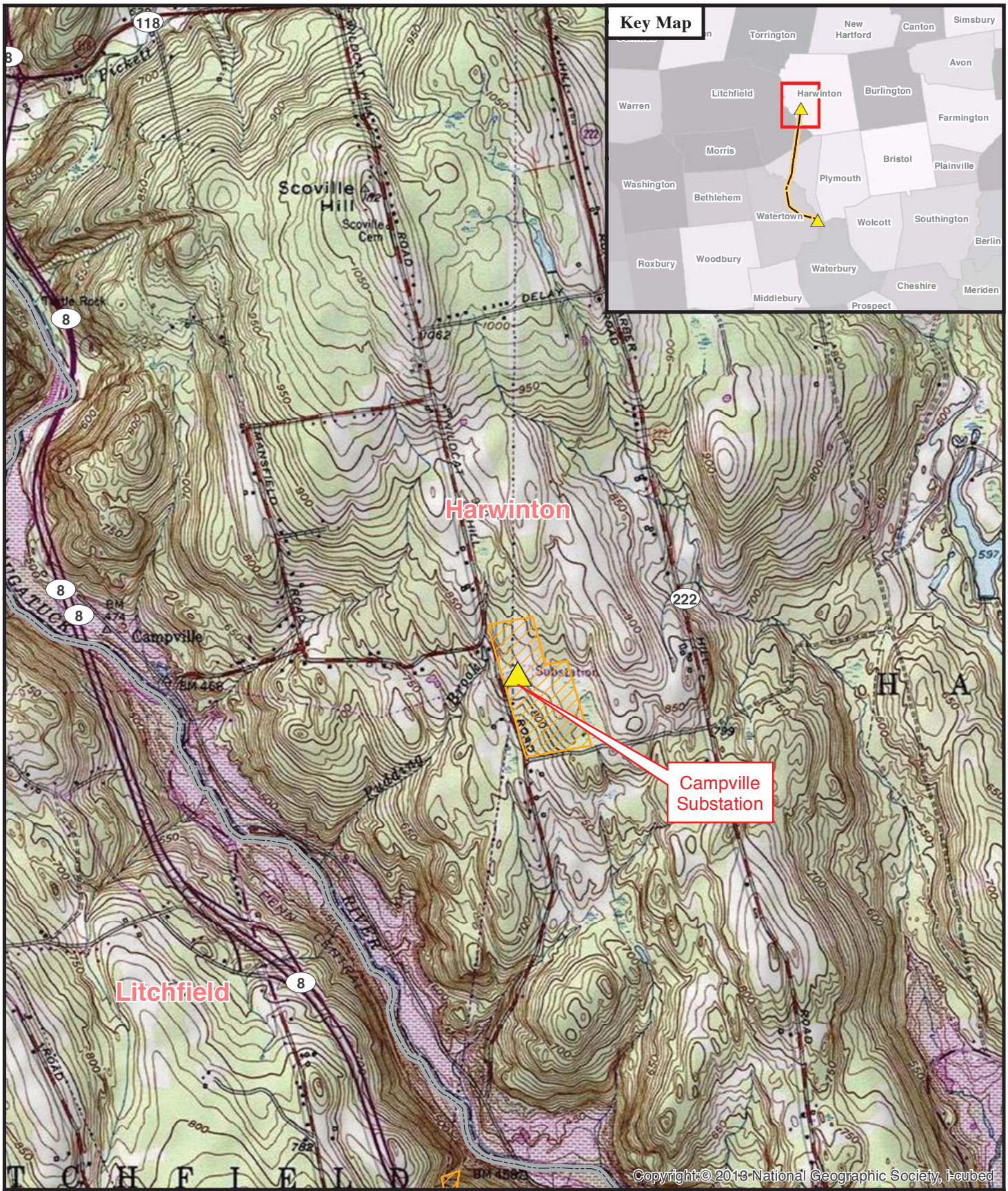

NORTH

0 1,000 2,000 Feet

1 inch = 2,000 feet

Facility

Eversource Property

Town Boundary

Source: USGS 7.5-Minute Quadrangles, CT DEEP, ESRI and Burns & McDonnell Engineering.

EVERSOURCE ENERGY

Exhibit 1: Key Map/Site Locus
Campville Substation
Frost Bridge-Campville
115-kV Project

Date: April 2016

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Exhibit 2

Aerial Photograph

Campville Substation and Surroundings

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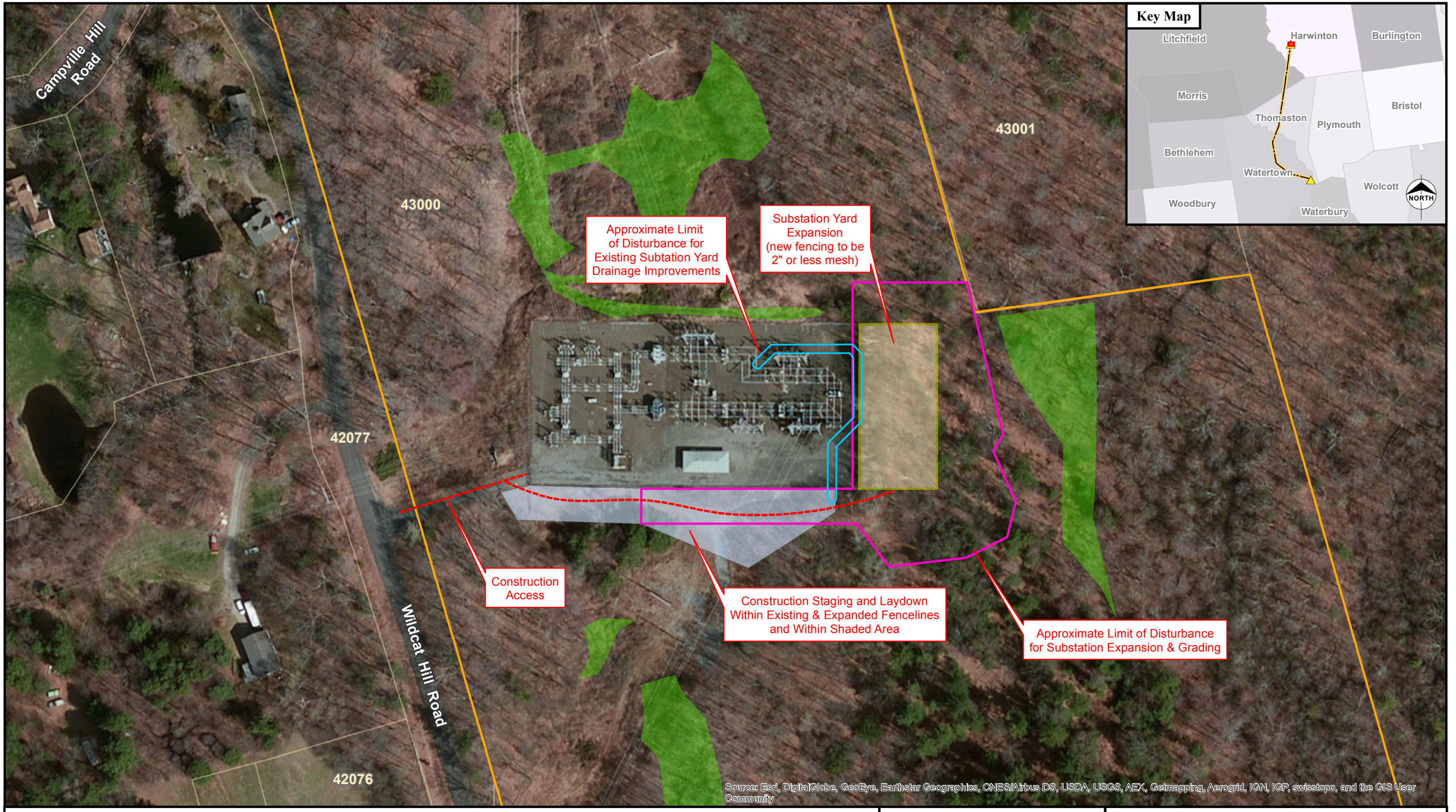

Line List Number	Town	Site Address	Owner Name
42076	Harwinton	471 Wildcat Hill Road	Keith & Elizabeth Wilcox
42077	Harwinton	Wildcat Hill Road	Town of Harwinton (Town Road)
43000	Harwinton	420 Wildcat Hill Road	The Connecticut Light & Power Co.
43001	Harwinton	370 Wildcat Hill Road	John C & Joyce L McNabney

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

NORTH

Eversource Property

Wetlands

0 50 100 200 Feet

EVERSOURCE ENERGY

Exhibit 2: Aerial Photograph
Campville Substation and Surroundings
Harwinton, CT
Frost Bridge-Campville 115-kV Project

Date: July 2016

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Exhibit 3

General Arrangement Plans

Campville Substation

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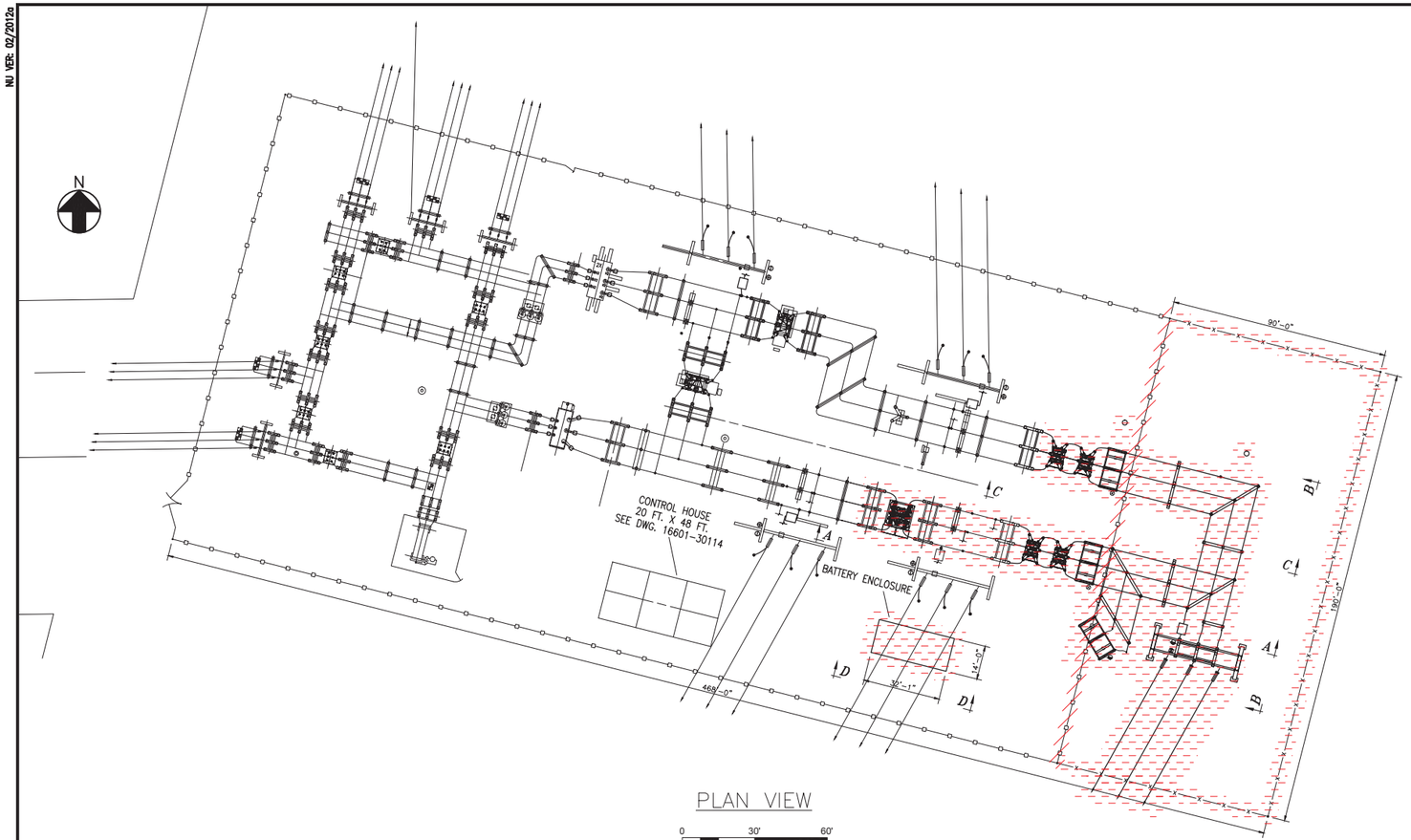
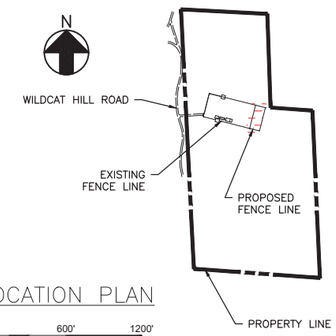


PLAN VIEW

0 30' 60'
SCALE IN FEET



LOCATION PLAN

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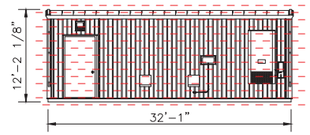
SCALE IN FEET

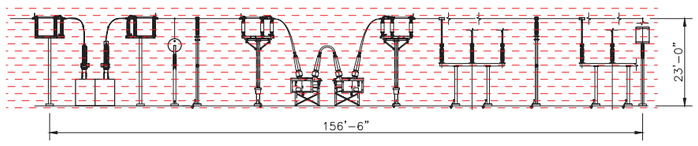


SECTION D–D

0 10' 20'
SCALE IN FEET

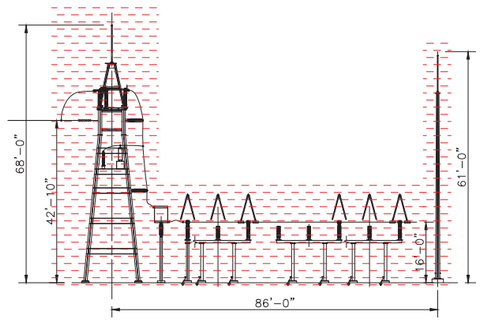
LEGEND

- EXISTING SUBSTATION FENCE
- EXPANDED SUBSTATION FENCE
- 2018 ADDITION
- 2018 REMOVAL



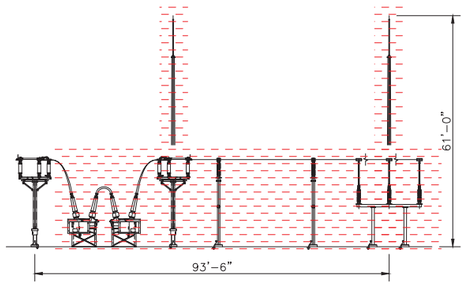
SECTION A–A

0 10' 20' 40'
SCALE IN FEET



SECTION B–B

0 10' 20' 40'
SCALE IN FEET



SECTION C–C

0 10' 20' 40'
SCALE IN FEET

REV. 4 – 12/14/15
SUBSTATION ADDITION

REVISIONS DURING CONSTRUCTION			

EVERSOURCE ENERGY

TITLE
CAMPVILLE SUBSTATION
YARD ARRANGEMENT – PLAN & SECTIONS
CONNECTICUT SITING COUNCIL
HARWINTON, CT

BY AJM (BMcD)	CHKD MC (BMcD)	APP DPK (BMcD)	APP JWM (BMcD)
DATE 5/27/15	DATE	DATE	DATE
H-SCALE AS NOTED	SIZE D	FIELD BOOK & PAGES	
V-SCALE N/A	V.S.	R.E. DWG	
R.E. PROJ. NUMBER		NUSCO 16601-92001	

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Exhibit 4

Sediment and Erosion Control Plan & Details

Campville Substation

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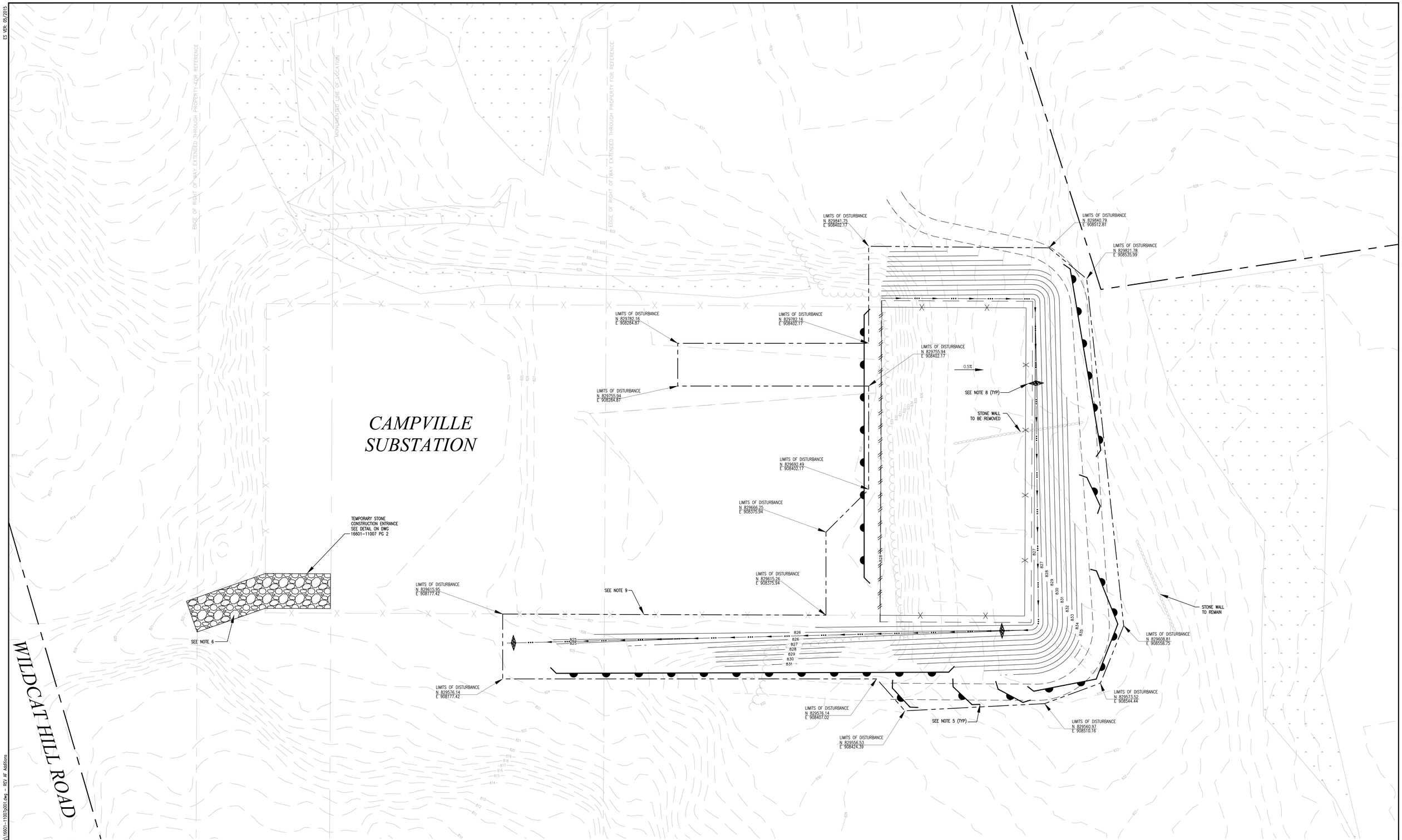
ES VER: 05/2015



NOTES:

1. ELEVATIONS INDICATED ARE TO TOP OF FINISH GRADE, TOP OF CRUSHED ROCK SURFACING
2. ALL SIDE SLOPES ARE 3' HORIZONTAL TO 1' VERTICAL (3:1), EXCEPT WHERE INDICATED
3. CONTRACTOR SHALL FIELD VERIFY ALL BURIED UTILITIES PRIOR TO EARTHMOVING ACTIVITIES. NOTIFY OWNER AND ENGINEER OF UNDOCUMENTED OR RELOCATED UTILITIES.
4. ALL COORDINATES ARE IN CONNECTICUT STATE PLANE COORDINATE SYSTEM, NAD 83. ALL ELEVATIONS ARE IN THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD 88)
5. CONTRACTOR SHALL ADJUST TO MAINTAIN SEDIMENTATION AND EROSION CONTROL. SEE SILT FENCE DETAIL DRAWING 16601-11007 PG 2
6. TEMPORARY STONE GRADATION SHALL CONFORM TO EVERSOURCE STANDARD SUB 010 – SUBSTATION SITE DEVELOPMENT
7. CONTRACTOR SHALL INSTALL SLOPE STABILIZATION MEASURES ON ALL 3H:1V GRADED SLOPES. SEE EROSION CONTROL BLANKET INSTALLATION DETAIL DRAWING 16601-11007 PG 2
8. CONTRACTOR SHALL INSTALL 18" CHECK DAMS WITH A MAXIMUM SPACING OF 300' ALONG DITCH FLOWLINE. SEE CHECK DAM DETAIL DRAWING 16601-11007 PG 2
9. CONTRACTOR TO GRUB AND CLEAR VEGETATION LOCATED WITHIN THE LIMITS OF DISTURBANCE
10. THIS DRAWING PREPARED IN ACCORDANCE WITH CONNECTICUT GUIDELINES FOR SOIL EROSION AND SEDIMENT CONTROL
11. SITE IS LOCATED IN FEMA CLASS C FLOOD ZONE – AREAS OF MINIMAL FLOODING OUTSIDE OF A 100-YEAR FLOOD ZONE.
12. CONTRACTOR SHALL INSTALL 4-INCHES OF TOPSOIL AND SEED IN ACCORDANCE WITH EVERSOURCE STANDARD SUB 010 IN AREAS WITHIN THE LIMITS OF DISTURBANCE THAT ARE NOT OTHERWISE SURFACED WITH GRAVEL.

LEGEND:

- PROPERTY LINE
- EXISTING FENCE LINE
- EXISTING FENCE TO BE REMOVED
- EXPANSION FENCE LINE
- 306 EXISTING CONTOUR
- 306 PROPOSED CONTOUR
- SILT FENCE
- TOP/TOE OF SLOPE
- WETLANDS
- EXISTING TREELINE
- STONE WALL
- DITCH FLOW LINE
- LIMITS OF DISTURBANCE
- CHECK DAM
- RELOCATED TRANSMISSION LINE ACCESS PATH
- EXISTING TRANSMISSION LINE ACCESS PATH

N

0 10' 20' 40'
SCALE IN FEET

REFERENCE DRAWINGS

16601-11001	GRADING PLAN
16601-11002	FOUNDATION PLAN
16601-11006 PG 1	SITE EXPANSION PLAN
16601-11006 PG 2	EXPANSION GRADING PLAN
16601-11007 PG 2	SEDIMENTATION AND EROSION CONTROL DETAILS
16601-11012	FOUNDATION PLAN
16601-33001	SUBSTATION ARRANGEMENT
16601-33003	CONDUIT PLAN

REV AF NEW DRAWING

BURNS McDONNELL

FOR D&M PLAN USE ONLY
REVISION(S) AF

no.	date	revisions	det	dsn	chk	app
AF-2	7/01/16	ISSUED FOR EVERSOURCE 70% REVIEW	CLD	CJJ	MEB	
AF-1	5/04/2016	ISSUED FOR EVERSOURCE 30% REVIEW	CLD	CJJ	MEB	

BURNS McDONNELL

89058

date APRIL 1, 2016 | detailed C. DEHART

designed C. JERGENSEN | checked M. BIRD

NO.	DATE	AS BUILT REVISIONS	BY	CHK	APP	APP
–	–	–	–	–	–	–

REVISIONS DURING CONSTRUCTION

AF	XX/XX	115kV YARD EXPANSION, WO#404323CE/404284CE (BMcD)	CLD	CJJ	PRS

EVERSOURCE ENERGY

TITLE
CAMPVILLE 14R
SEDIMENTATION AND EROSION CONTROL PLAN
CIVIL PLAN & DETAILS
HARWINTON, CT

BY	CLD(BMcD)	CHKD	CJJ(BMcD)	APP	MEB(BMcD)	APP	.
DATE	04/16	DATE	04/16	DATE	4/16	DATE	
H-SCALE	1" = 20'	SIZE	E	FIELD BOOK & PAGES			
V-SCALE	–	K.S.		R.E. DWG	–		
E.E. PROJ. NUMBER				DWG NO.	16601-11007 PG1		

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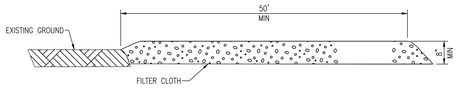
ES VER: 05/2015

TEMPORARY STONE CONSTRUCTION ENTRANCE CONSTRUCTION SPECIFICATIONS

1. THE AREA OF THE ENTRANCE MUST BE EXCAVATED A MINIMUM OF 3 INCHES AND MUST BE CLEARED OF ALL VEGETATION, ROOTS, AND OTHER OBJECTIONABLE MATERIAL. THE FILTER FABRIC UNDERLINER WILL THEN BE PLACED THE FULL WIDTH AND LENGTH OF THE ENTRANCE.
2. FOLLOWING THE INSTALLATION OF THE FILTER CLOTH, THE STONE SHALL BE PLACED TO THE SPECIFIED DIMENSIONS. ANY DRAINAGE FACILITIES REQUIRED BECAUSE OF WASHING SHALL BE CONSTRUCTED ACCORDING TO SPECIFICATIONS. CONVEYANCE OF SURFACE WATER UNDER ENTRANCE, THROUGH CULVERTS, SHALL BE PROVIDED AS REQUIRED. IF SUCH CONVEYANCE IS IMPOSSIBLE, THE CONSTRUCTION OF A"MOUNTABLE" BERM WITH 5:1 SLOPES WILL BE PERMITTED.
3. THE FILTER CLOTH UTILIZED SHALL BE A NONWOVEN FABRIC CONSISTING ONLY OF CONTINUOUS CHAIN POLYMERIC FILAMENTS OR YARNS OF POLYESTER. THE FABRIC SHALL BE INERT TO COMMONLY ENCOUNTERED CHEMICALS AND HYDROCARBONS, BE MILDEW AND ROT RESISTANT.

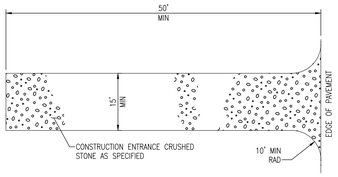
MAINTENANCE

1. THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOW OF MUD ONTO PUBLIC RIGHTS-OF-WAY. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE OR THE WASHING AND REWORKING OF EXISTING STONE AS CONDITIONS DEMAND AND REPAIR AND/OR CLEANOUT OF ANY STRUCTURES USED TO TRAP SEDIMENT. ALL MATERIALS SPILLED, DROPPED, WASHED, OR TRACKED FROM VEHICLES ONTO ROADWAYS OR INTO STORM DRAINS MUST BE REMOVED IMMEDIATELY. THE USE OF WATER TRUCKS TO REMOVE MATERIALS DROPPED, WASHED, OR TRACKED ONTO ROADWAYS WILL NOT BE PERMITTED UNDER ANY CIRCUMSTANCES.
2. CONTRACTOR IS RESPONSIBLE FOR MAINTAINING ALL PUBLIC STREETS FREE OF CONSTRUCTION DEBRIS AND SEDIMENT.



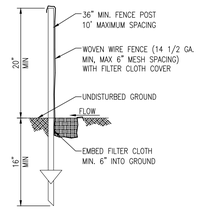
SIDE ELEVATION

NOT TO SCALE



TEMPORARY STONE CONSTRUCTION ENTRANCE

NOT TO SCALE



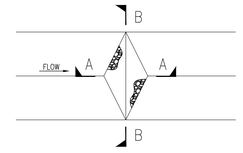
SILT FENCE

NOT TO SCALE

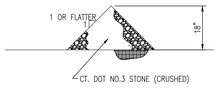
CONSTRUCTION NOTES FOR FABRICATED SILT FENCE:

1. WOVEN WIRE FENCE TO BE FASTENED SECURELY TO FENCE POSTS WITH WIRE TIES OR STAPLES.
2. FILTER CLOTH TO BE FASTENED SECURELY TO WOVEN WIRE FENCE WITH TIES SPACED EVERY 24" AT TOP AND MID SECTION.
3. WHEN TWO SECTIONS OF FILTER CLOTH ADJOIN EACH OTHER THEY SHALL BE OVERLAPPED BY 6" AND FOLDED.
4. MAINTENANCE SHALL BE PERFORMED AS NEEDED AND MATERIAL REMOVED WHEN "BULGES" DEVELOP IN THE SILT FENCE.

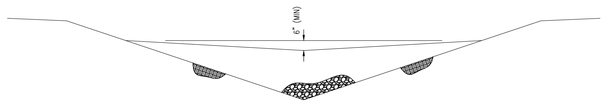
POSTS:	STEEL EITHER "T" OR "U" TYPE OR 2" HARDWOOD
FENCE:	WOVEN WIRE 14 1/2 GA. 6" MAX MESH OPENING
FILTER CLOTH:	FILTER X, MIRAFI 100X, STABILINKA T140 OR APPROVED EQUAL
PREFAB. UNIT:	GEOFAB, ENVIROFENCE OR APPROVED EQUAL



PLAN VIEW



SECTION A-A



SECTION B-B

CHECK DAM

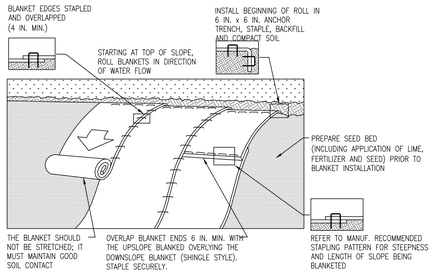
NOT TO SCALE

MAINTENANCE

1. SEDIMENT SHALL BE REMOVED WHEN ACCUMULATIONS REACH ½ THE HEIGHT OF THE CHECK DAM
2. REPLACE OR REPAIR THE CHECK DAM WITHIN 24 HOURS OF OBSERVED FAILURES INCLUDING:
   2.1. MOVEMENT OF PLACED STONES
   2.2. EROSION OF SOILS AROUND OR UNDER THE CHECK DAM REDUCING ITS FUNCTIONAL CAPACITY
   2.3. TRAPPED SEDIMENTS OVERTOPPING THE CHECK DAM
3. UPON STABILIZATION OF CHANNEL, INSTALLER SHALL REMOVE ACCUMULATED SEDIMENT, ROCK FILTER, AND STABILIZE DISTURBED AREAS.

EROSION CONTROL BLANKET INSTALLATION

NOT TO SCALE



NOTES:

1. SEED AND SOIL AMENDMENTS SHALL BE APPLIED ACCORDING TO THE RATES IN THE PLAN DRAWINGS PRIOR TO INSTALLING THE BLANKET.
2. PROVIDE ANCHOR TRENCH AT TOE OF SLOPE IN SIMILAR FASHION AS AT TOP OF SLOPE.
3. SLOPE SURFACE SHALL BE FREE OF ROCKS, CLODS, STICKS, AND GRASS.
4. BLANKET SHALL HAVE GOOD CONTINUOUS CONTACT WITH UNDERLYING SOIL THROUGHOUT ENTIRE LENGTH. LAY BLANKET LOOSELY AND STAKE OR STAPLE TO MAINTAIN DIRECT CONTACT WITH SOIL. DO NOT STRETCH BLANKET.
5. THE BLANKET SHALL BE STAPLED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.
6. BLANKETED AREAS SHALL BE INSPECTED WEEKLY AND AFTER EACH RUNOFF EVENT UNTIL PERENNIAL VEGETATION IS ESTABLISHED TO A MINIMUM UNIFORM 70% COVERAGE THROUGHOUT THE BLANKETED AREA. DAMAGED OR DISPLACED BLANKETS SHALL BE RESTORED OR REPLACED WITHIN 4 CALENDAR DAYS.

REFERENCE DRAWINGS

16601-11007 PG 1 SEDIMENTATION AND EROSION CONTROL PLAN

REV AF NEW DRAWING

FOR D&M PLAN USE ONLY
REVISION(S) AF

REVISIONS DURING CONSTRUCTION					
AF	XX/XX	115kV YARD EXPANSION, WO#404323CE/404284CE (BMcD)	CLD	PRS	-

no.	date	revisions	det	dsn	chk	app
AF-2	7/01/16	ISSUED FOR EVERSOURCE 70% REVIEW	CLD	CJJ	MEB	.
AF-1	5/04/16	ISSUED FOR EVERSOURCE 30% REVIEW	CLD	CJJ	MEB	.

BURNS McDONNELL

89058

date APRIL 1, 2015

detailed C. DEHART

designed C. JERGENSEN

checked M. BIRD

NO.	DATE	AS BUILT REVISIONS	BY	CHK	APP	APP

EVERSOURCE ENERGY

TITLE
CAMPVILLE 14R
SEDIMENTATION AND EROSION CONTROL DETAILS
CIVIL PLAN & DETAILS
HARWINTON, CT

BY	CLD(BMcD)	CHKD	CJJ(BMcD)	APP	MEB(BMcD)
DATE	4/16	DATE	4/16	DATE	4/16
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V-SCALE	NONE	K.L.		K.L. DWG	
E.C. PROJ. NUMBER				DWG NO.	16601-11007 PG 2

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