

December 1, 2016

Mr. Robert Stein, Chairman
Connecticut Siting Council
Ten Franklin Square
New Britain, CT 06051

RE: Docket No. 466: Frost Bridge to Campville 115-kV Project
Development and Management Plan: Change Notice Request
Blasting Plan for Access Road and Structure Work Pad between State Route 8 and the
Naugatuck Railroad/Naugatuck River Crossing, Town of Litchfield

Dear Chairman Stein:

As described in Volume 1, Sections 3.4.4.1 and 5.16 of the *Development and Management (“D&M”) Plan for the Frost Bridge to Campville 115-kV Project (“Project”): D&M Plan for New 115-kV Transmission Line and Related Transmission Line Modifications*, based on the results of borings performed at transmission structure sites prior to the submission of the D&M Plan, The Connecticut Light and Power Company doing business as Eversource Energy (“Eversource”) did not anticipate that blasting would be required for the 115-kV transmission line construction. Nonetheless, Section 5.16 of the D&M Plan summarized the procedures that Eversource would follow in the event that blasting was later deemed necessary to facilitate construction.

Subsequent to the Connecticut Siting Council’s (“Council”) approval of the D&M Plan, Eversource’s contractor for site development (access roads and work pads) determined that blasting will be necessary in one area to remove rock in order to create a safe access road and work pads for three structures located between State Route 8 and the Naugatuck River in the Town of Litchfield (refer to D&M Plan, Volume 3, Mapsheets 31 and 31A). Specifically, blasting will be used to install the two new monopole structures (Structures 3171 and 3236) to separate the 1191 and 1921 lines (currently located in a double-circuit configuration [DCT] on a lattice steel tower); to remove the existing DCT lattice steel tower; and to install Structure 86 for the new 115-kV line.

Pursuant to Condition 2(n) of the Council’s approval of the D&M Plan and in accordance with the Blasting Procedures described in Section 5.16 of the D&M Plan, Eversource hereby submits to the Council for review and approval the *Rock Blasting Plan* for the above-referenced work.

The use of controlled blasting to establish the access road and work pads will limit overall Project impacts by minimizing the duration of this construction process. Blasting is expected to require approximately five weeks, whereas alternative techniques (e.g., hoe ramming) have been determined to require at least three months.

The area in which the use of blasting is proposed is isolated and is bordered by undeveloped forest land. There are no residences or commercial developments in the immediate vicinity¹. The closest residences abut Campville Road (approximately 0.5 mile to the south, south of State Route 8) and Wildcat Hill Road in the Town of Harwinton (approximately 0.4 mile to the north, north of the Naugatuck Railroad and Naugatuck River).

Blasting will be performed in conformance to the attached *Rock Blasting Plan*, which incorporates state and local requirements.

Eversource's community outreach personnel have consulted with the Town of Litchfield and will continue to perform consultations with affected landowners as needed.

Should you or other Council members have any questions regarding this submission, please do not hesitate to contact me via e-mail at kathleen.shanley@eversource.com or telephone at (860) 728-4527.

Sincerely,



Kathleen M. Shanley
Manager, Transmission Siting

Enclosure

Cc: Service list, w/o enclosures
The Honorable Leo Paul, Jr. First Selectman, Town of Litchfield

¹ The Naugatuck Railroad Company seasonally operates a scenic train tour on the railroad tracks approximately 250 feet to the north of the blasting area. In addition, there are recreational hiking trails along the Naugatuck River approximately 1,000 feet to the north of the blasting area. The railroad is aware of the planned blasting activity and has no concerns.



Northern Construction Service, Inc.
1290 Park Street P.O. Box 790 Palmer, MA 01069
800-232-6132 phone 413-283-5132 fax
www.northerntree.com

**ROCK BLASTING PLAN
EVERSOURCE ENERGY
FROST BRIDGE TO CAMPVILLE 115-kV PROJECT
Town of Litchfield, CT**

As part of the Frost Bridge to Campville 115-kV Project (Project), The Connecticut Light and Power Company doing business as Eversource Energy (Eversource) is in the process of constructing a new 10.4-mile 115-kilovolt (kV) transmission line referred to as the 1304 Line, all within Eversource's existing right-of-way (ROW) and separating two adjacent double-circuit transmission (DCT) lines along a 0.4-mile segment of the same ROW (the 1191 and 1921 lines). Eversource received approvals for the Project from the Connecticut Siting Council (Council) and other regulatory agencies.

Pursuant to Condition 2(n) of the Council's approval of the Development and Management (D&M) Plan for the Project, if blasting is required to install the Project facilities, Eversource committed to retain a certified blasting specialist to develop a site-specific blasting plan in compliance with state and local regulations, as well as Eversource guidelines.

Accordingly, Eversource's Project contractor for civil work determined that blasting is required to access and install level work pads in the vicinity of existing DCT 115-kV Structure 3171, south of the Naugatuck River in the Town of Litchfield. In particular, blasting is required to construct access to and to install three work pads (which will be co-joined and tiered) for the removal of this existing structure, as well as for the installation of new 1304 Line Structure 86 and new Structures 3171 and 3236 (i.e., for the separated 1191 and 1921 lines). Figure 1 (attached) illustrates the locations of the proposed blasting along the access road and work pads. The access road and construction work pads also are illustrated on D&M Plan Volume 3, map sheet 31A.

This *Rock Blasting Plan* describes the proposed rock blasting in accordance with the procedures listed in D&M Plan Volume 1, Section 5.16. Please note that the information provided is approximate and subject to change.

General

Baystate Blasting, Inc. (BBI)¹ will perform the blasting work. A licensed blaster, employed by BBI, will procure a Blasting Permit from the Town of Litchfield prior to the start of any blasting work. All blasters assigned to work on the Project are licensed in the State of Connecticut and have received extensive training in the safe use and handling of explosives from the International Society of Explosive Engineers (ISEE).

¹ BBI is under subcontract to Northern Clearing and is a member of the International Society of Explosive Engineers. BBI's offices are located at: 36 Caremelina's Circle, Ludlow, MA. www.baystateblasting.com

Location of Planned Blasting

The portion of the Eversource ROW where rock blasting is required encompasses approximately a total of 28,000 square feet (sf) for the combined work pads for new Structure 3171, existing Structure 3236, and new Structure 86. In addition, blasting will be required along approximately 36,000 sf of access road leading to the aforementioned structures. All proposed blasting locations are in the Town of Litchfield. (Refer to the attached Figure 1.)

The locations where blasting is planned are bordered by State Route 8 to the south and the Naugatuck Railroad and the Naugatuck River (which forms the boundary between the towns of Litchfield and Harwinton) to the north. ATV and hiking trails extend along the south side of the river, north of the railroad tracks, in Litchfield. The topography slopes steeply down to the river from existing Structure 3171 and new Structures 3171, 3236, and 86.

Overall, the area is characterized by undeveloped forest land (there are no homes or businesses nearby) and includes both Eversource-owned and privately-owned land. State Route 8 is approximately 500 feet from the blast site at the closest location, whereas the Naugatuck Railroad (which is situated south of the Naugatuck River) is approximately 90 feet from the blast site at the closest location.

An estimated 25,000 cubic yards of rock will require blasting and excavation for the construction of the access road and three work pads. The blasting would not adversely affect travel along State Route 8. During active blasting only, spotters would clear the area and temporarily close the adjacent ATV / hiking trails and railroad oriented along the south side of the Naugatuck River.

Schedule

The blasting is expected to require approximately five weeks. Work is expected to commence first on the access road and then proceed to the work pad area. No pre-splitting or line-drilling will be required. All blasting will be performed within the Project work hours approved by the Council; that is, during daylight hours between 7 AM and 7 PM, Monday through Saturday. BBI anticipates working 8-hour days within this Council-approved window.

Procedures

Safety meetings will be held at the start of each work day. Topics typically addressed in these meetings will include protection of nearby facilities, safe drilling practices, safe blasting practices, safe matting practices, audible warning signals (communications to others working on the Project), handling of explosive materials, set-up and placement of signs, loading boreholes with explosives, on-site deliveries (explosives and fuel), handling of misfires, and an evacuation plan. Additional safety topics will be discussed as needed as the work progresses.

Test blasts will be performed at the start of the blasting procedures to determine the character of the rock. Test blast design, (i.e., spacing, rounds, and load), will be determined solely by the blaster prior to the start of the test blasts. The design of the test blast will be determined from the characteristics of the rock observed by the blaster during the drilling procedure. From these test blasts, the blaster will be able to better determine the spacing and orientation of the blast production (drill) holes.

Vibration monitoring (seismograph) will be placed at the closest leg of Structure 3171 to where the blasting will take place. All blasts will be monitored by a qualified Baystate Blasting, Inc. employee. Up to two seismographs will be used for each blast. As blasting operations progress, seismographs will be moved to monitor the structure legs closest to the blast. Due to the proximity of the work to existing Structure 3171 which carries the 1191 and 1921 Lines, vibration levels

around this structure will be kept to a maximum Peak Particle Velocity 2 in/sec. (as recommended by the U.S. Bureau of Mines formula for the safe blasting criterion for residential structures).

To further protect the adjacent facilities, 12-foot by 24-foot blasting mats, each weighing approximately 10,800 pounds, will be used for all rounds during blasting. The placement and number of mats will be determined by the blaster in charge.

Description of Production Blast Rounds

1. Drill hole diameter, 3”.
2. Spacing of holes 5’ – 6’, subject to adjustment.
3. Depth of drill holes to be 1’ below proposed grade, elevation will vary depending on proposed grade.
4. Cartridge type: 2” x 16” @ 2.38 lbs./cartridge, BNAT cartridge.
5. ANFO (ammonium nitrate) blasting agent to be used as needed and as the blaster elects.
6. Detonators and lead-in-line, Non-Electric, 25 millisecond delay, delay pattern will vary when actual pattern is developed in the field.
7. Stemming, 3/8” stone used between decks.

Audible Signal System

Access to the blasting area and vicinity (including on the walking/hiking trails along the south side of the Naugatuck River) will be controlled to prevent any unauthorized entry. Each blast will be preceded by a security check of the affected area and then a series of warning whistles will sound.

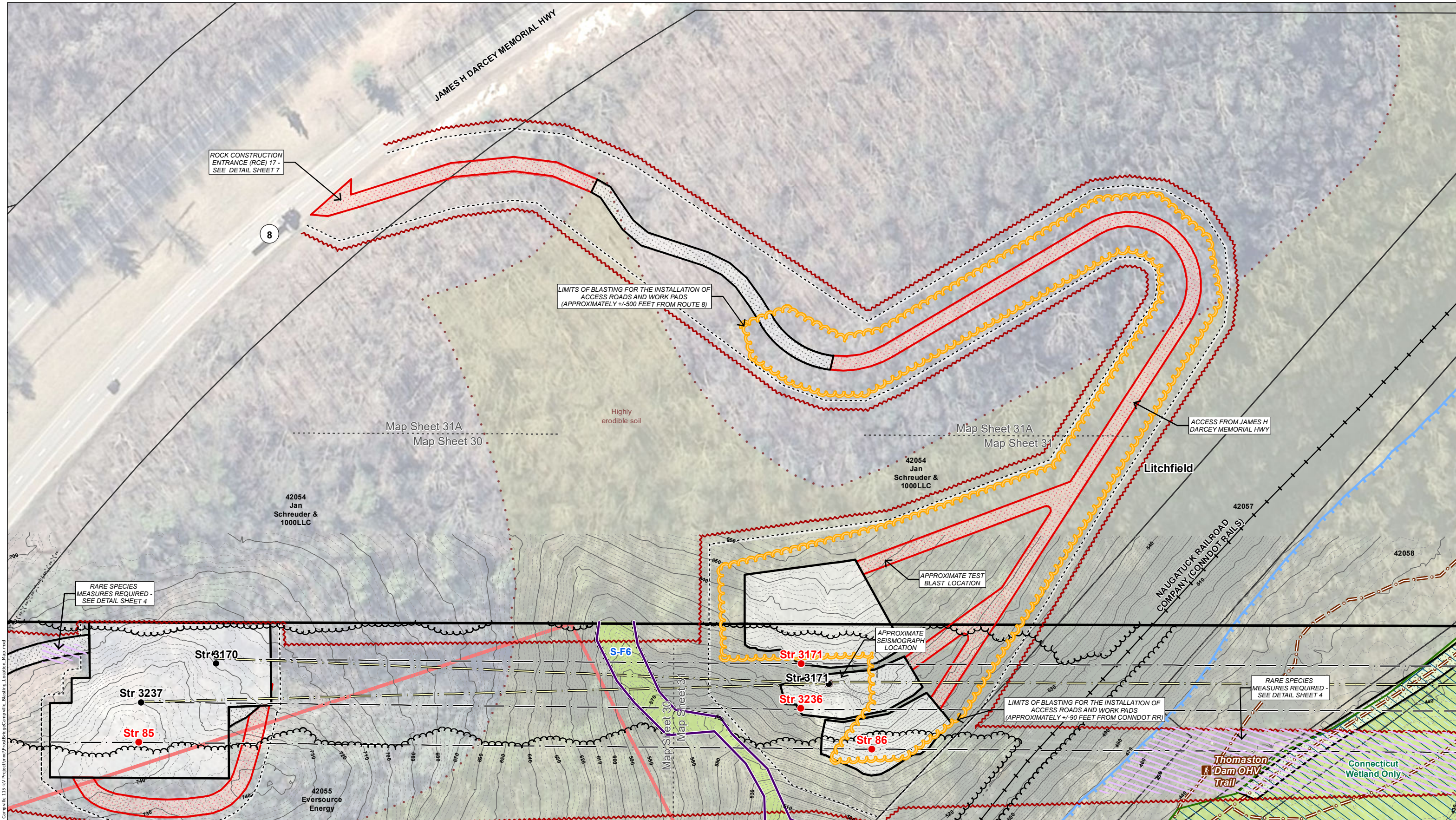
Blasting team personnel will maintain close coordination with other Project personnel, as well as with Town of Litchfield officials (as required) to assure that the schedule for blasting work is well publicized and that all appropriate safety precautions are taken. All personnel in the vicinity of the blast area will be warned. The audible warning signals will be in accordance with the following sequence:

1. 3 whistles – 5 minute per-warning, prior to blast
2. 2 whistles – 1 minute per-warning
3. 1 long whistle – all clear, directly after blast

The blast site will be examined by the blaster in charge prior to the “all clear” signal to determine that it is safe to resume work. No blast will be fired until the blasting area has been secured and determined safe.

Traffic Control

Access to the site will be via State Route 8, as shown on the Volume 3 map sheets. Traffic control measures will be implemented by Northern Clearing at and in the vicinity of the intersection of the access road with State Route 8. Such measures, which will be in accordance with state requirements, may include construction warning signs and flaggers, as needed.



Legend	
● Proposed Structure	○ ○ ○ ○ Stonewall
⊗ Structure to be Removed	⊗ ⊗ ⊗ ⊗ Fence
● Existing Structure	— Gate
— Existing Right-of-Way	~ Tree Line
- - - Proposed 115-kV Line (Centerline)	- - - Limit of Disturbance
— Existing Transmission Line to be Removed	~ Vegetation Removal Limits
- - - 10' Contour Line	— Designated Recreation Trail
- - - 2' Contour Line	⊗ Trail Points
— Railroad	□ Work Pad
— Existing Access Road	⊗ Existing Alternate Access Road
— New Access Road	⊗ New Alternate Access Road
— New Temporary Access Road	⊗ Proposed Substation Expansion
● Culvert (center)	● Intermittent Watercourse
● Perennial Watercourse	● Ordinary High Water Mark
● Wetland Boundary	● Wetland Area
● Connecticut Wetlands Only	● Temporary Wetland Impact
● Permanent Wetland Impact	● Rare Species
● Vernal Pool	● Decoy Vernal Pool
● Highly Erodible Soils	● 100 Year Flood Zone
□ Eversource Owned Property	□ Parcel Boundary
□ Municipal Boundary	□ Limits of Blasting
□ Map Sheet Matchline	

Base Map Source: 2012 Aerial Imagery (CTECO) 0

1 inch = 100 feet

50 100

EVERSOURCE ENERGY

Frost Bridge to Campville 115-kV Project

Blasting Location Map

Litchfield, CT Mapsheet 31A of 35

Date: November, 2016 Map Author: N. Castro

Tighe & Bond **ALL-POINTS TECHNOLOGY CORPORATION**

NO.	DATE	REVISIONS	BY	CHK	APP	APP

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