



56 Prospect Street,
P.O. Box 270
Hartford, CT 06103

John Morissette
Project Manager – Transmission Siting
Tel: (860) 728-4532

February 27, 2015

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

Re: Barbour Hill Substation to Manchester Substation and 1763 Line Reconductoring Project

Dear Chairman Stein:

Attached are an original and fifteen (15) copies of a petition on behalf of The Connecticut Light and Power Company doing business as Eversource Energy ("Eversource" or the "Company") requesting a Determination that no Certificate of Environmental Compatibility and Public Need is required for the proposed modifications to the Manchester Substation, Barbour Hill Substation and 1763 Line in the towns of Manchester and South Windsor, Connecticut.

Prior to submitting this petition, representatives from Eversource briefed municipal officials in both South Windsor and Manchester of the project. Written notice was provided to all abutters notifying them of the proposed work and the Petition being filed with the Council.

A check in the amount of \$625 for the required filing fee is also attached.

Sincerely,

A handwritten signature in blue ink, appearing to read "John Morissette", with a stylized flourish at the end.

John Morissette
Project Manager – Transmission Siting

Attachment: Petition

cc: Mayor Jay Moran, Town of Manchester
Mayor M. Saud Anwar, Town of South Windsor

THE CONNECTICUT LIGHT AND POWER COMPANY doing business as
EVERSOURCE ENERGY

PETITION TO THE CONNECTICUT SITING COUNCIL
FOR A DECLARATORY RULING OF
NO SUBSTANTIAL ADVERSE ENVIRONMENTAL EFFECT
FOR THE PROPOSED MODIFICATIONS TO EXISTING
SUBSTATIONS AND 1763 LINE RECONDUCTORING IN
THE TOWNS OF SOUTH WINDSOR AND MANCHESTER, CONNECTICUT

1. The Connecticut Light and Power Company doing business as Eversource Energy ("Eversource" or the "Company") hereby petitions the Connecticut Siting Council ("Council") for a Determination that no Certificate of Environmental Compatibility and Public Need ("Certificate") is required pursuant to Section 16-50g et seq. of the Connecticut General Statutes for the modifications to Barbour Hill and Manchester Substations and to a transmission line within an existing right-of-way ("ROW") in South Windsor and Manchester (the "Project") that are described herein. Eversource submits that no such Certificate is required because the proposed modifications would not have a substantial adverse environmental effect.
2. The purpose of the Project is to eliminate potential transmission system thermal and voltage criteria violations caused by the over-lapping loss of two of the four transmission elements serving the Manchester-Barbour Hill area. The worst voltage and thermal violations are caused by the loss of the existing Barbour Hill 345- to 115-kV autotransformer followed by another transmission element.
3. The Project consists of three components: 1) modifications to Barbour Hill Substation, which is located on the Company's property at 124 Barber Hill Road in South Windsor, Connecticut; 2) modifications to Manchester Substation, which is located on the Company's property at 250 Olcott Street in Manchester, Connecticut; and 3) the replacement of conductors on the 115-kV 1763 Line within the Company's ROW in South Windsor and Manchester, Connecticut ("Reconductoring"). The new conductors installed for the Reconductoring would be supported on 74 existing transmission structures that extend from the Barbour Hill Substation to Manchester Substation, a distance of approximately eight miles.

I. Barbour Hill Substation

The existing Barbour Hill Substation is a 345- to 115-kV bulk substation with three (3) 345- to 115-kV single-phase 200-Megavolt Ampere (MVA) autotransformers, a spare 345- to 115-kV single-phase 200 MVA autotransformer, two (2) 345-kV transmission lines, six (6) 115-kV transmission lines, and two (2) 23-kV distribution circuits. The Barbour Hill Substation modifications would include the following:

- a) Installation of three (3) new 345- to 115-kV single-phase autotransformers with vibration isolation pads. The new autotransformers would be placed in approximately the same location as the existing spare transformer (which will be moved to another location within the substation yard). The existing firewalls, foundations, and oil containment for the spare autotransformer would be replaced to accommodate the new autotransformers.
- b) Installation of one (1) 345-kV circuit breaker and two (2) 115-kV circuit breakers.
- c) Installation of one (1) 345-kV disconnect switch, five (5) 115-kV disconnect switches and the removal of one (1) 115-kV disconnect switch.
- d) Installation of two (2) 345-kV motor-operated disconnect switches.
- e) Installation of six (6) 345-kV coupling capacitor voltage transformers.
- f) Installation of two (2) 345-kV strain-bus structures and strain bus.
- g) Installation of three (3) 115-kV potential transformers.
- h) Installation of six (6) 60 foot lightning masts.
- i) Installation of one (1) 345-kV A-Frame terminal structure and the relocation of the 3557 Line from the existing structure to this new structure.
- j) Relocation of one (1) 345- to 115-kV spare autotransformer with new foundation and oil containment system.
- k) Relocation of a distribution line supplying power to the substation.
- l) Removal of existing structure 8529 on the 3557 Line (a 345-kV three-pole guyed wired wood pole structure) which would be replaced with a new 345-kV self-supported three pole steel structure on drilled shaft foundations. The new structure would be located approximately 50 feet north from the existing structure's location

on Company property outside of the Barbour Hill Substation perimeter fence. The height of the new structure would be approximately 20 feet taller than the existing structure.

- m) Removal of two (2) existing 60 foot lightning masts and one (1) existing 45 foot lightning mast.
- n) Installation of foundations for the equipment and structures listed in a. through l. (except for the strain bus, distribution line and 345-kV line) and underground conduits, wave trap, lightning arrestors, mounting and support beams, relay/controls and cables to accommodate the new equipment.

Except for the removal of the 8529 structure (item l), all of the modifications would be made within the Barbour Hill Substation's existing fenced area. All new equipment would be no taller than the tallest existing equipment within the Barbour Hill Substation.

The proposed modifications are shown on Attachment A, Drawing No. 23202-92001 Barbour Hill General Arrangement – Plan & Sections – CSC and Attachment B, Barbour Hill Substation Modifications Structure 8529 Cross Section.

II. Manchester Substation

The existing Manchester Substation is a 345- to 115-kV bulk substation with three (3) 345- to 115-kV transformers, five (5) 345-kV transmission lines, six (6) 115-kV transmission lines and twelve 23-kV distribution circuits. The Manchester Substation modifications would include the following:

- a) Relocation of one (1) 345-kV circuit breaker next to its existing location to create space for the installation of one (1) additional 345-kV circuit breaker on a new foundations.
- b) Installation of one (1) battery control enclosure (approximately 42 feet long by 14 feet wide by 14 feet high) on new foundation.

The Manchester Substation modifications would be made within the substation's existing fenced area. The proposed modifications are shown on Attachment C, Drawing No. 17701-92001 Manchester General Arrangement – Plan & Sections.

III. 1763 Line Reconductoring

The Reconductoring would include the following:

- a) Replacement of 795-kcmil 45/7 ACSR conductor with 795-kcmil 26/7 ACSS conductor for approximately eight miles which would be supported on existing double-circuit lattice towers from Manchester Substation to structure 6273 and on existing double-circuit H-frame structures from structure 6272 to the steel transition monopole (structure 6220D) on Eversource's property.
- b) Replacement of the underground 2000-kcmil copper ethylene propylene rubber cable with 3500-kcmil copper cross-linked polyethylene copper cable from structure 6220D to the termination structure inside the Barbour Hill Substation, approximately 900 feet long.

During construction, the existing transmission line support structures would be evaluated to ensure that their structural integrity complies with Eversource's storm hardening requirements. If the structures do not comply with those requirements, any identified damaged structure components, such as damaged/overstressed structure members (i.e. angle braces, cross arms, x-braces) or shield wire hardware, would be replaced during the Reconductoring.

The proposed modifications are shown on Attachment D, Manchester to Barbour Hill Substations 1763 Line Reconductoring Project Maps.

4. The proposed modifications would not have a substantial adverse environmental effect because:

- a) Radio and Television Interference at the Substations and along the Reconductoring

There would be no measureable changes to radio or television interference from the modifications of the Project at the Barbour Hill, Manchester Substations or along the Reconductoring corridor.

- b) Sound Levels at the Substations and along the Reconductoring

- Substations - Sound levels at all points along property lines at both Barbour Hill and Manchester Substations would continue to meet local ordinances and state regulations specified in Regulations of Connecticut State Agencies §§ 22a-69-3.3, -3.5(a), -3.7, -4(g).
- Reconductoring - There would be no measureable changes to the sound levels along the transmission corridor after completion of the Project.

c) Appearance of Substations

All new equipment would be no taller than the tallest existing equipment within each of the substations. The new equipment to be installed in each substation would be similar in appearance to existing equipment in the applicable substation and would not cause significant or adverse changes in the physical or environmental characteristics of the substations.

There would be no expansion of the fenced areas at either the Barbour Hill or Manchester Substations.

d) Lighting

The Barbour Hill and Manchester Substations have existing low level lighting for safety and security purposes. Additional low level lighting may be added in the vicinity of the new equipment installations. Additional lighting may also be installed to allow for work at night under abnormal or emergency conditions.

e) Access Roads and Work Pads

Eversource plans to use existing access roads during the Reconductoring. However, direct access to eighteen of the existing line structures would require the construction of short spurs from the primary existing access roads as shown on the maps in Attachment D. The spurs would range from approximately 50 to 300 feet in length and are proposed to be permanent in upland areas on Eversource's property. Construction of the eighteen spurs would be within upland and wetland areas and may require limited grading, including the placement of compacted gravel material in upland areas, mowing and the placement of temporary construction mats. Access to four additional structures would require the use of construction matting to access from local roads. A small number of existing access roads may require additional gravel as needed to level and/or stabilize the road bed.

Work around existing structures would consist of placing construction mats in wetlands and/or gravel in the upland areas to create a level work pad, covering an approximate area of 65 feet by 65 feet. Conductor pull pads would involve placing construction mats in wetland areas and gravel in the upland locations,

covering an area of approximately 65 feet by 150 feet. See the maps in Attachment D.

f) Clearing

There would be no expansion of the existing cleared portion of the ROW. For the majority of the proposed clearing work for the Reconductoring, the Project would use methods similar to those that are currently conducted in the ROW for routine vegetation management and structure maintenance. Some additional selective vegetation clearing would be required as follows:

- to clear overgrowth at the base of existing structures, work pad and conductor pull pad locations, providing unobstructed access for the safe operation of construction equipment; and
- to facilitate the construction of the spur access road to existing structure locations.

Eversource would minimize vegetation clearing activities to the extent practicable and restore temporarily disturbed areas in accordance with the Company's December 2011 *Best Management Practices Manual: Connecticut* ("BMPs").

g) Environmental Effects

Construction and operation of the Project would not result in a substantial adverse environmental effect. The Reconductoring would be constructed entirely within existing transmission ROW and no expansion of the existing maintained ROW would be required. Limited off ROW access may be required along existing access roads as shown on the maps in Attachment D.

Wetlands, Watercourses and FEMA Flood Zones

Water resources in the vicinity of the Project route include various wetlands and watercourses (intermittent and perennial streams). Wetland systems and watercourses were identified and delineated within the Project route as shown on the maps in Attachment D. No excavation or tree clearing within wetlands or watercourses would occur.

Potential vernal pools were also identified and would be confirmed during a survey to be conducted in the spring of 2015. However, based on a review of the Project activities, no direct impacts to vernal pools are anticipated.

Specifically, the Project would not adversely impact vernal pools for the following reasons:

- Eversource has identified potential vernal pools in proximity to structures 6256, 6257, 6263 and 6285, but the proposed construction activities would not result in any direct physical impact to the vernal pools in these areas. Vernal pool surveys would be conducted in the spring of 2015 to confirm vernal pool locations.
- No matting is proposed within a vernal pool area, and no permanent alteration of habitat would occur within 100 feet of the vernal pool boundary. Eversource would minimize the removal of low-growing vegetation surrounding vernal pools by utilizing construction mats where access is needed.
- No tree clearing or grading is proposed in the upland habitat within 750 feet of the vernal pools.
- Where vernal pools are confirmed, Eversource would identify and implement the appropriate measures to ensure that there are no impediments to amphibian migration into and out of the vernal pools such as the use of elevated matting, appropriate silt fencing and/or other appropriate measures. Construction mats would be utilized for work pads at the above referenced structures in place of gravel to minimize impacts to the vegetation.
- Eversource would install appropriate erosion and sediment controls ("E&S") around work pad areas and along access roads to minimize the potential for sediment deposition into wetlands, and remove such controls after final site stabilization.

Temporary wetland impacts would be limited to installation of mats within the existing maintained ROW where required to gain access to existing structures. Any work within wetland system or within the vicinity of vernal pools would be conducted in accordance with the BMPs. No in stream work is proposed as Eversource intends install a temporary bridge to span Plum Gulley Brook to access the adjacent structures (6255 and 6254) as shown on the maps in Attachment D.

Permanent fill material (gravel) may be installed within existing access roads and new access spurs located on Eversource property.

A portion of the Reconductoring work is located within the 100-year flood zone/floodway of Hop Brook and the Hockanum River; however, no new structures are proposed in the zone/floodway. The Company would utilize the BMPs to minimize any impacts in these areas including the use of construction mats for access in floodplains/floodways to ensure that hydrology is not affected.

Prior to significant storm events, Eversource will secure the construction mats to impede lateral movement during temporary flooding. All construction mats would be removed after the Project is complete. Areas of disturbance would be promptly stabilized in order to minimize the potential for soil erosion and the flow of sediments into nearby resource areas.

Endangered Species Review

Eversource's review of the Connecticut Department of Energy and Environmental Protection's ("CT DEEP") Natural Diversity Data Base identified state-listed endangered, threatened, or special concern species in the vicinity of the Reconductoring. According to a data sharing agreement with the CT DEEP, Eversource is unable to publically identify the protected species. However, Eversource has consulted with the CT DEEP Wildlife Division and would adhere to the recommendations of the CT DEEP during the construction and restoration activities.

A portion of the Project falls within a CT DEEP mapped critical habitat area (Floodplain Forest) associated with the Hockanum River. However, no tree clearing is proposed within this mapped habitat and Project activities would occur entirely within the maintained ROW or an existing off-ROW access road. Therefore, this habitat would not be impacted by the Project.

Soil Erosion and Sediment Control

Construction of the Project would conform to best management practices for E&S control, including those provided in the *2002 Connecticut Guidelines for Soil Erosion and Sediment Control* and the Company's BMPs.

Typical E&S control measures include, but are not limited to straw blankets, hay bales, silt fencing, check dams, berms, swales, and sediment basins. Silt fence would be installed prior to construction to demarcate the line of construction and prevent migration of sediment or construction materials into the wetland. Temporary soil E&S control measures would be maintained and inspected throughout the Project to ensure their integrity and effectiveness. Following the completion of construction, seeding and mulching would occur to permanently stabilize previously disturbed areas. The temporary E&S control measures would remain in place until the Project work is complete and all disturbed areas have been stabilized.

Archaeological, Historical, Forests, Parks and Trails

A desktop archaeological assessment of the Reconductoring area was conducted by Heritage Consultants, LLC ("Heritage") in December 2014. The review identified areas of moderate to high potential for archaeological sensitivity along the Project route. As recommended by Heritage, Eversource would implement avoidance and protection measures to avoid or mitigate ground disturbance in these areas through the use of construction matting.

Field sampling for archaeological or historically significant areas is not required for work at the substations because the ground was previously disturbed by construction.

Two municipal parks (Wapping Park in South Windsor and Leber Baseball Field in Manchester) and several Town of South Windsor Open Space parcels were identified by Eversource along the Project route. A portion of the Reconductoring work is along a section of the Hockanum River Trail. The Company would utilize appropriate BMPs to minimize any impacts in these areas.

Ground Water and Surface Water

The Project would not affect groundwater or surface water resources and the Project would not cross any aquifer protection areas. No public supply reservoirs are in the vicinity of the Project. Lastly, the Project would not affect public/private water supply wells.

Electric and Magnetic Fields

Electric and Magnetic Field levels (“EMF”) at the boundary of Manchester Substation would not change as a result of the modifications.

EMF would be reduced in the southwest corner of the Barbour Hill Substation property as a result of the relocation of 3557 Line. EMF would remain the same along the other edges of the property.

Along the transmission line, there would be slight changes directly underneath the reconducted 1763 Line because of the change in the height above ground. However, any changes to the EMF at and beyond the edge of the ROW would be negligible.

Waste Management

After removal, the existing 115-kV conductor would be disposed of in accordance with Eversource’s BMPs.

Inspections

Eversource would monitor the construction compliance on a daily basis.

h) Staging Area

The proposed staging area, located in an area zoned as Industrial according to South Windsor's Zoning Map (updated October 2010), would be at 653 Nutmeg Road N in South Windsor. The proposed staging area would utilize approximately 2.9 acres of an existing 4.8-acre parcel that is owned by Eversource and adjacent to Eversource's South Windsor Substation (See Figure 1).

This staging area would be used by the Project to store construction materials, equipment, tools, and supplies (including conductors, insulators, hardware, poles and construction mats). One office trailer would be located at the staging area in South Windsor, and removed conductor, hardware and insulators may be temporarily accumulated and stored here prior to off-site removal and/or disposal. The staging area would also be used by construction crew members for parking personal vehicles as well as construction vehicles, and for performing minor maintenance, when needed, on construction equipment. All E&S controls would be installed, as necessary, at the staging area and maintained until Project completion.

Primary access to the staging area for the Reconductoring work would be from Nutmeg Street. Eversource has informed South Windsor's Town Manager of the plans to use the site as the Project's staging area.

Figure 1: Proposed Staging Area



i) Substation Security Measures

Barbour Hill and Manchester Substations both have existing security measures including security fencing, access controls on the substation control houses, security cameras and control house door alarm systems. In addition to these measures, Manchester has a thermal camera video analytics based IDS (Intrusion Detection System). These alarms are centrally monitored at the Company's security monitoring station. As part of the Company's on-going review of physical security for substations, a security assessment is under way to determine what, if any, additional measures need to be installed. No additional measures are proposed at this time but would be filed separately when the assessment is complete, if required.

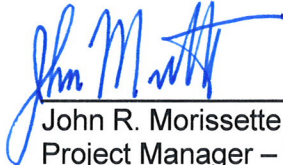
j) Municipal Outreach

Eversource has consulted with the General Manager of Manchester and Town Manager of South Windsor. Eversource also provided written notice of the Project to the municipal chief elected official of the Towns of Manchester and of South Windsor and all property owners with parcels that abut the ROW or either Substation site (see Attachment E).

5. Eversource proposes to begin construction during spring 2015 and expects that the construction would be completed during December 2016.
6. Section 16-50k(a) of the Connecticut General Statutes provides that a Certificate of Environmental Compatibility and Public Need is needed for proposed modifications of a facility that the Council determines would have a "substantial adverse environmental effect." Eversource respectfully submits that the proposed modifications would not result in a substantial adverse effect on the environment or ecology, nor would they damage existing scenic, historical or recreational values. Accordingly, Eversource requests that the Council issue a declaratory ruling that the proposed modifications would have no substantial adverse environmental effect and, therefore, no Certificate is required.
7. Communications regarding this Petition for a Declaratory Ruling should be directed to:

Mr. John R. Morissette
Project Manager - Transmission Siting
Eversource Energy
PO Box 270
Hartford, CT 06141-0270
Telephone: (860) 728-4532

By: _____


John R. Morissette
Project Manager – Transmission Siting

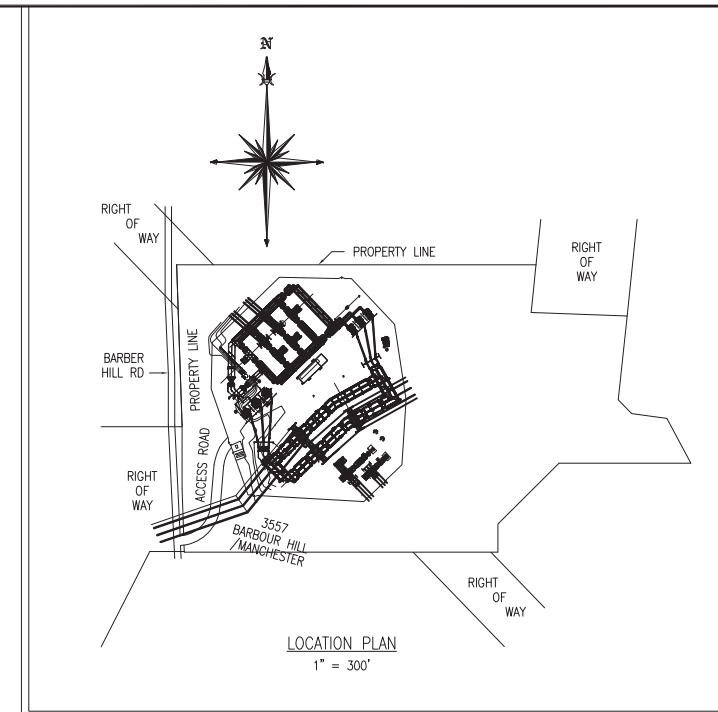
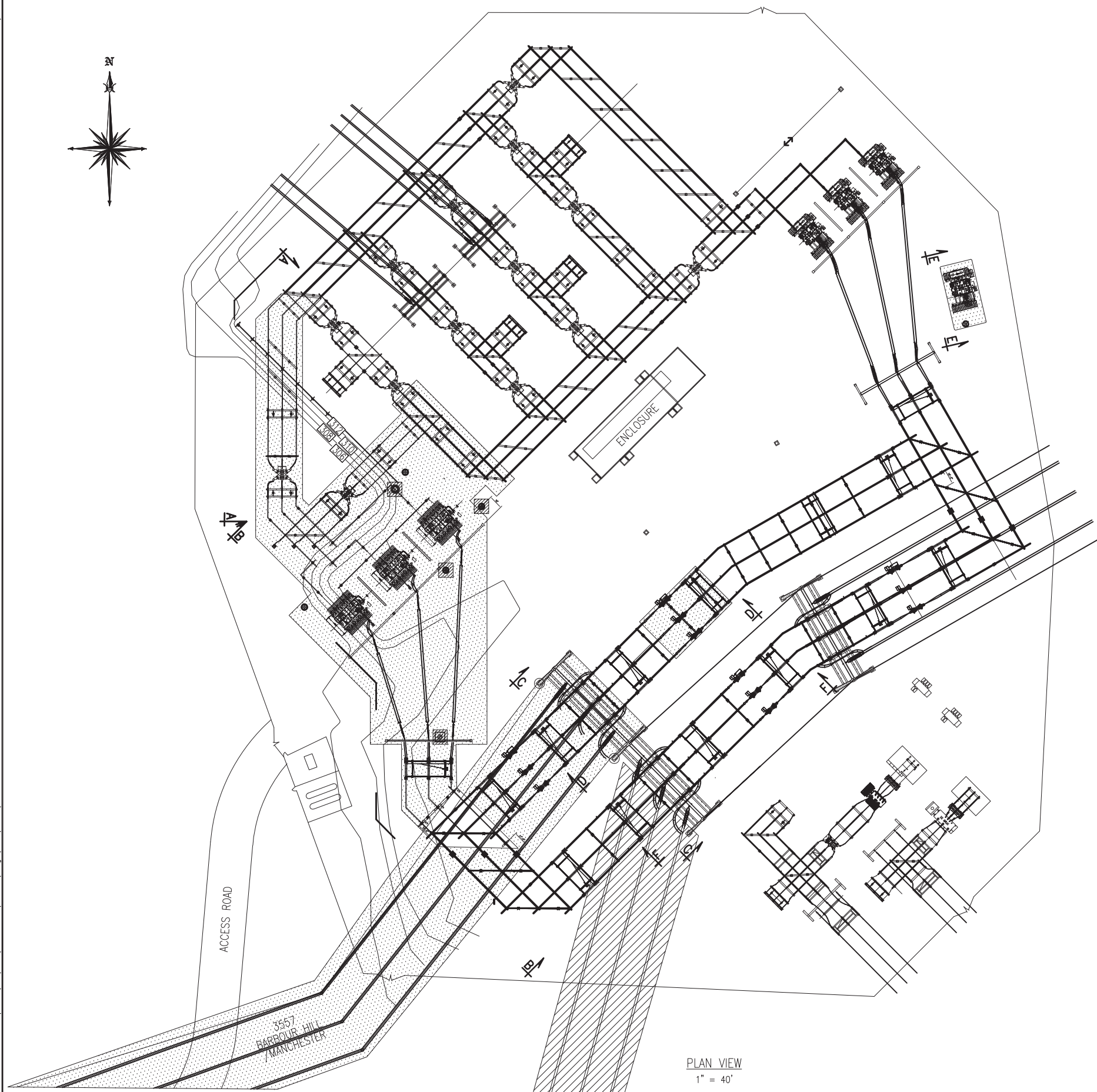
Attachments:




Attachment A: Drawing No. 23202-92001 – Barbour Hill General Arrangement – Plan & Sections

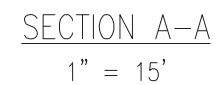
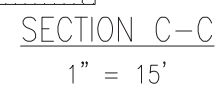
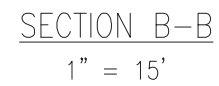
Attachment B: Barbour Hill Substation Modifications Structure 8529 Cross Section.

Attachment C: Drawing No. 17701-92001 Manchester General Arrangement – Plan & Sections
Attachment D: Manchester to Barbour Hill Substations - 1763 Line Reconductoring Project
Maps
Attachment E: Heritage Archeological Assessment
Attachment F: Letter to the Abutters and Affidavit

ATTACHMENT A



2015 ADDITIONS										2015 REMOVALS										CONSTRUCTION-ALL									
																													



UPPER FINISH GRADE
LOWER FINISH GRADE

2015 REMOVALS

SECTION A-A B-B C-C

REVISIONS DURING CONSTRUCTION					

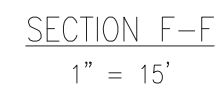
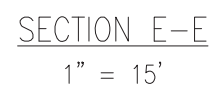
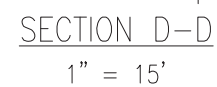
EVERSOURCE
ENERGY

BARBOUR HILL 23J
GENERAL ARRANGEMENT PLAN & SECTIONS - CSC
CONNECTICUT SITING COUNCIL
SOUTH WINDSOR, CT

BY	JMW	CHKD	TLG	APP	JPR	APP	
DATE	12/16/14	DATE	12/14	DATE	12/14	DATE	

H-SCALE	AS NOTED	SIZE	D	FIELD BOOK & PAGES
V-SCALE	AS NOTED	V.S.		R.E. DWG

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REVISIONS DURING CONSTRUCTION

REVISIONS DURING CONSTRUCTION						

EVERSOURCE
ENERGY

TITLE BARBOUR HILL 23J
GENERAL ARRANGMENT PLAN & SECTIONS - CSC
CONNECTICUT SITING COUNCIL
SOUTH WINDSOR, CT

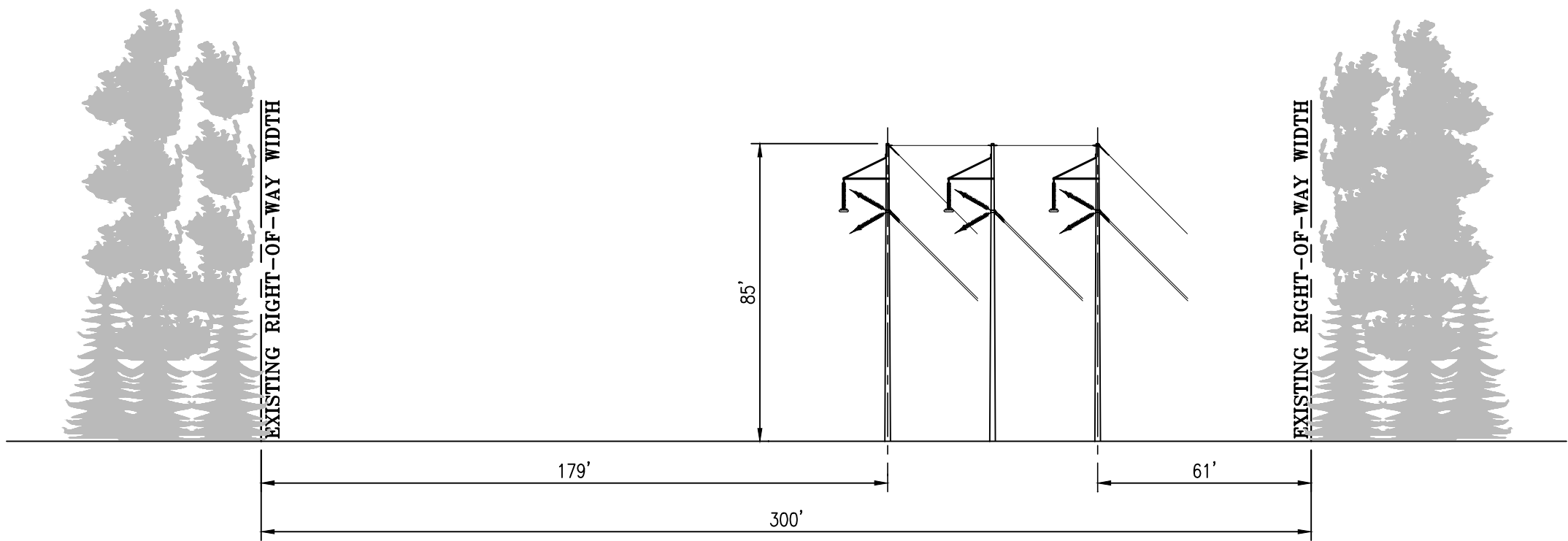
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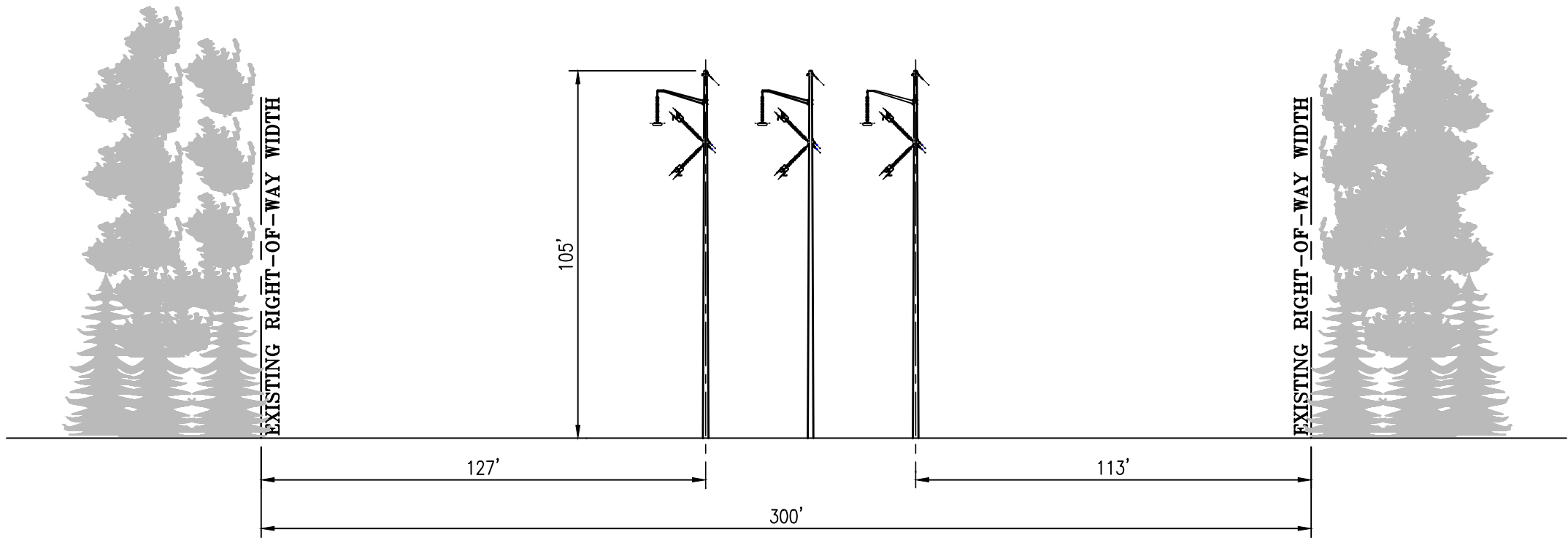
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ATTACHMENT B



EXISTING STRUCTURE

HEIGHT (85')



PROPOSED STRUCTURE

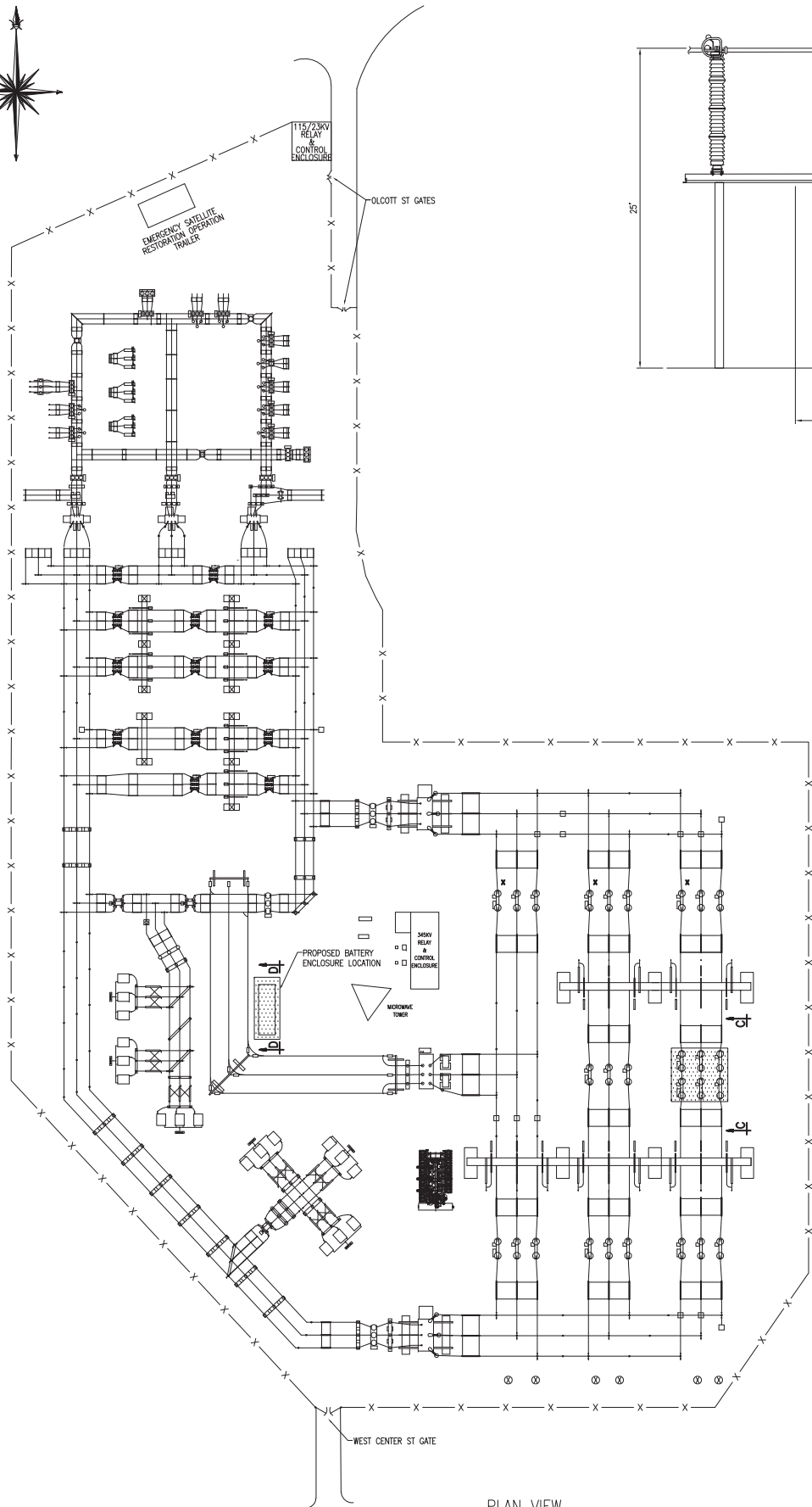
HEIGHT (105')

EVERSOURCE
ENERGY

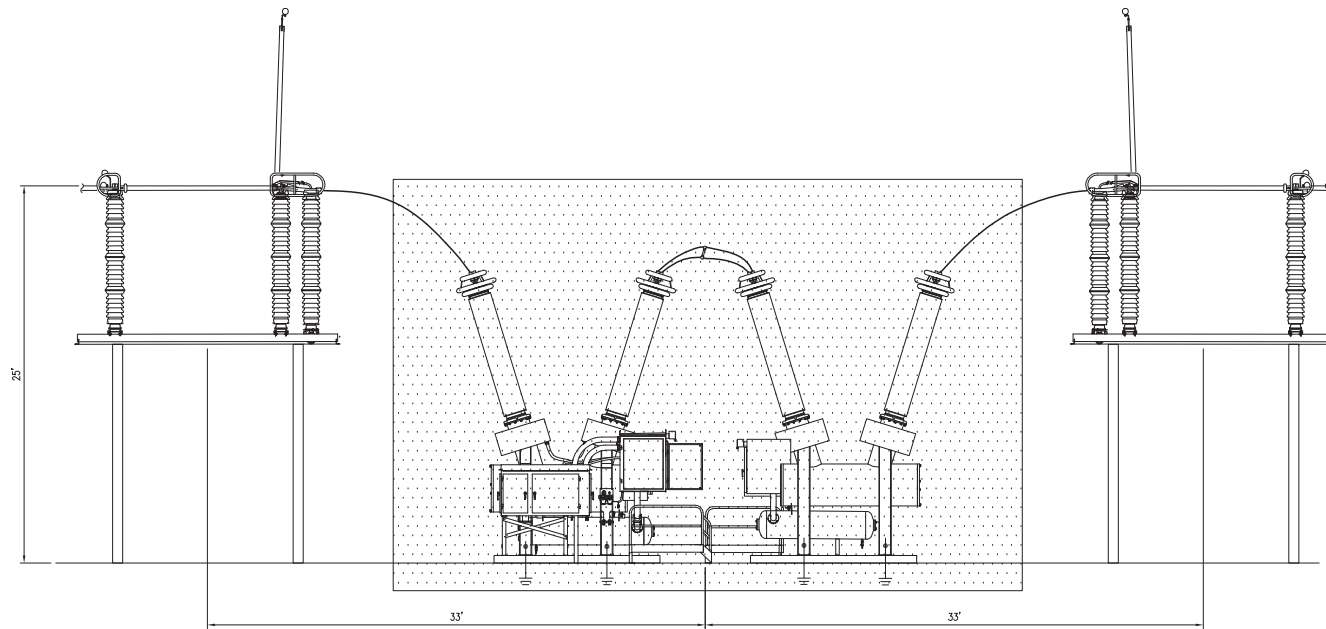
TITLE: BARBOUR HILL SUBSTATION MODIFICATIONS
STRUCTURE 8529 CROSS SECTION
EXISTING AND PROPOSED STRUCTURE

BY	RRH	CHKD	EQ	APP	APP
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V-SCALE	1"=40'	V.S.		R.E. DWG	
R.E. PROJ. NUMBER		NUSCO		ATTACHMENT B	

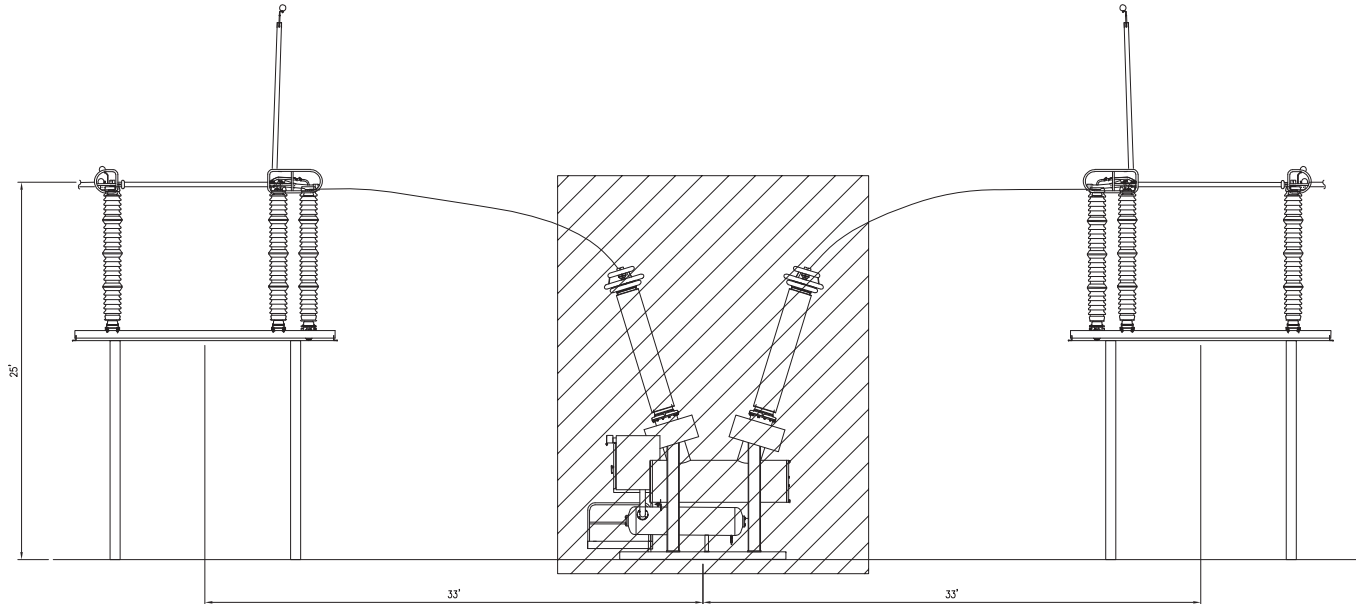
ATTACHMENT C



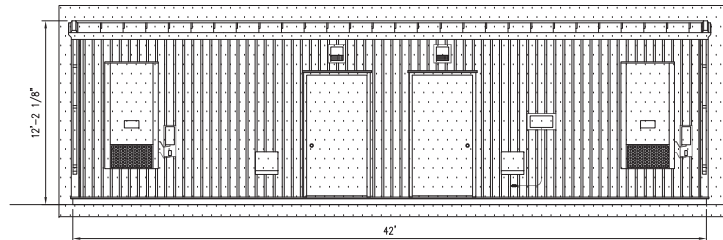
PLAN VIEW
SCALE: 1"=50'



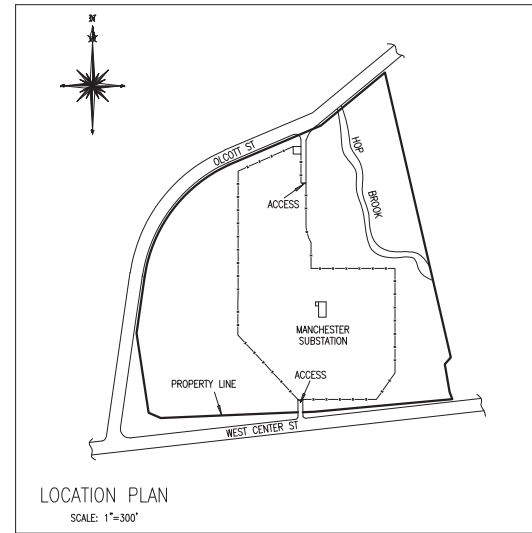
SECTION C-C (ADDITION)
345KV BATTERY ENCLOSURE
SCALE: 1" = 5'



SECTION C-C (REMOVAL)
345KV BATTERY ENCLOSURE
SCALE: 1" = 5'



SECTION D-D (ADDITION)
345KV BATTERY ENCLOSURE
SCALE: 1" = 5'



LOCATION PLAN
SCALE: 1"=300'

2015 ADDITION
2015 REMOVAL

REV AE ADDITIONS

REVISIONS DURING CONSTRUCTION

EVERSOURCE
ENERGY

MANCHESTER 3A GENERAL ARRANGEMENT - PLAN & SECTIONS - CSC PLAN & SECTIONS MANCHESTER, CT					
BY	KPK	DWD	RJT	APP	PSM
DATE	2/88	DATE	3/88	DATE	3/88
BY-SCALE	AS NOTED	DATE	F	DATE	3/88
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REV. PROJ. NUMBER				17701-92001	