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Petition No. 1656
The Connecticut Light and Power Company d/b/a Eversource Energy
South Naugatuck Substation to Beacon Falls Junction Rebuild Project
Naugatuck, Beacon Falls and Oxford

Staff Report
August 15, 2025

Notice

On February 4, 2025, the Connecticut Siting Council (Council) received a petition from The Connecticut Light and Power Company d/b/a Eversource Energy (Eversource) for a declaratory ruling pursuant to Connecticut General Statutes (CGS) §4-176 and §16-50k, for the South Naugatuck Substation to Beacon Falls Junction Rebuild Project (Petition or Project) within existing Eversource electric transmission line right-of-way (ROW) in the Borough of Naugatuck, Town of Beacon Falls and Town of Oxford (collectively, the municipalities).

The Project consists of the replacement of electric transmission line structures and conductors, and the replacement of existing shield wire with optical ground wire (OPGW)¹ on the 1142, 1319, 1580, and 1808 Lines along approximately 4.0 miles of existing ROW between South Naugatuck Substation, Beacon Falls Junction, and Beacon Falls Substation; and related electric transmission line and substation improvements.

The Project does not require any significant changes in the general physical characteristics of the existing transmission line facilities, nor does it require any exercise of eminent domain or expansion of any easement.

The 1808 Line extends from Eversource's Beacon Falls Substation in Beacon Falls to United Illuminating Company's (UI) Pootatuck Substation in Shelton.² Eversource notified UI of the proposed Project in 2023 and hosts bi-weekly meetings with UI about the Project.

On February 4, 2025, in compliance with Regulations of Connecticut State Agencies (RCSA) §16-50j-40, Eversource provided notice of the proposed Project to the municipalities and abutting property owners.

On February 5, 2025, the Council sent correspondence to the municipalities stating that the Council has received the Petition and invited the municipalities to contact the Council with any questions or comments by March 6, 2025. No comments were received from the municipalities.

Under RCSA §16-50j-40, neither Eversource nor the Council is required to provide notice to the state agencies listed in CGS §16-50j(i) when a petition for a declaratory ruling for modifications to an *existing facility* is submitted to the Council. However, pursuant to CGS §4-176, there is a 30-day public comment period associated with every petition for a declaratory ruling submitted to the Council. On February 27, 2025, the Council on Environmental Quality submitted comments on the Project.³

¹ OPGW contains a conductor for lightning protection and fiber optics for communications between substations. It would be installed overhead. Shield wire consists of a conductor for lightning protection and can be replaced with OPGW.

² UI's Indian Well Substation in Derby may also be impacted by planned outages associated with the Project.

³ https://portal.ct.gov/-/media/csc/3_petitions-medialibrary/petitions_medialibrary/mediapetitionnos1601-1700/pe1656/sac_municipal_determinations/pe1656_statememo-ceq_commentsrecd_a.pdf?rev=19479d7072b54919b18ace82e26e92a2&hash=16D53AD570CCCBF3DC650FD1597EC624

Under CGS §16-50x, the Council retains exclusive jurisdiction over the existing electric transmission line and substation facility sites. Under RCSA §16-50j-2a(29), “site” means a contiguous parcel of property with specified boundaries, including, but not limited to, the leased area, right-of-way, access and easements on which a facility and associated equipment is located, shall be located or is proposed to be located. The Council cannot delegate its statutory authority to any other entity and it is not required to abide by comments from state agencies.⁴

Pursuant to CGS §4-176(e) of the Uniform Administrative Procedure Act, an administrative agency is required to take action on a petition for a declaratory ruling within 60 days of receipt. During a regular meeting held on March 20, 2025, pursuant to CGS §4-176(e), the Council voted to set the date by which to render a decision on the Petition as no later than August 3, 2025, which was the 180-day statutory deadline for a final decision under CGS §4-176(i).

The Council issued interrogatories to Eversource on June 5, 2025. On June 25, 2025, Eversource requested an extension of time to submit responses to interrogatories to July 10, 2025. On June 25, 2025, the Council granted the extension of time. Eversource submitted responses to the interrogatories on July 10, 2025. Eversource submitted a revised response to interrogatory 24 on August 12, 2025.

On June 27, 2025, pursuant to CGS §4-176(i), the Council requested an extension of time to render a final decision on this Petition to August 22, 2025. Eversource agreed to grant the Council the extension of time. A revised schedule was developed evidencing Eversource’s consent to the Council’s request for a 19-day extension of the final decision deadline under CGS §4-176(i).

Community Outreach

Eversource provided an initial briefing on the Project to the municipalities in October 2024. No concerns were expressed by the municipalities.

Also in October 2024, Eversource initiated outreach to property owners along the Project route. All abutting property owners were notified of the Project and provided information on how to obtain additional information, as well as how to submit comments to the Council. No concerns were expressed by abutting property owners. During the construction phase of the Project, Eversource would maintain contact with the municipalities and abutting property owners to inform them of construction activities.

Existing Facility Site

The existing facility site includes approximately 4.0 miles of Eversource ROW that extends through residential areas, Naugatuck State Forest (NSF) and a Town of Beacon Falls open space/recreational center parcel.

The ROW between South Naugatuck Substation and Beacon Falls Junction (Segment 1) was established in approximately 1923. The ROW between Beacon Falls Junction and Beacon Falls Substation (Segment 2) was established in 1947. Eversource’s easements for the existing ROW grant Eversource rights to enter upon the land and erect, inspect, operate, use, patrol and maintain infrastructure related to the conduction of electricity. The easements also grant rights to trim, cut, and remove vegetation within or projecting into the ROW.

Along Segment 1, the 1142/1580 Lines are supported by two 3-pole single-circuit H-frame wood structures, 21 double-circuit H-frame wood structures, seven 3-pole single-circuit wood structures, one 2-pole single-circuit steel structure, one double-circuit lattice structure, and one quad-circuit lattice structure. Along Segment 2, the 1319/1808 Lines are supported by 9 double-circuit lattice structures and two single-circuit steel

⁴ *Corcoran v. Connecticut Siting Council*, 284 Conn. 455 (2007)

monopoles.⁵ On September 27, 2021, the Council approved sub-petition 1293-OX-02 (as amended on August 15, 2022) for a structure replacement along Segment 1.

The Segment 1 ROW extends south for approximately 2.7 miles from South Naugatuck Substation to Beacon Falls Junction and is approximately 130 feet wide with a maintained width of approximately 120 feet.

The Segment 2 ROW extends west to east for approximately 1.3 miles from Beacon Falls Junction to Beacon Falls Substation. Most of Segment 2 (i.e. from Beacon Falls Junction to Structure 324) is approximately 150 feet wide with a maintained width of approximately 80 feet. From Structure 325 to Beacon Falls Substation (approximately 0.3-mile), the Segment 2 ROW is 80 feet wide and maintained to its full width⁶.

Vegetation management is being performed through September 2025.

Eversource assessed the existing facility site since the flooding that occurred in Oxford in August 2024 and incorporated proposed access road improvements and protections for environmental resources in the stormwater plan that was developed for the Project.

Project Need

The purpose of the proposed Project is to improve system reliability on the 1142, 1319, 1580, and 1808 Lines to address identified asset condition deficiencies by replacing shield wire and older OPGW with new OPGW to facilitate Eversource's long term build out of its fiber optic network; replacing electric transmission line structures due to asset condition issues, structural loading issues and to meet National Electrical Safety Code (NESC) clearance standards; and replacing aging conductor within the Devon-Towantic-South Naugatuck corridor. It is part of a continuing effort to address aging transmission line facilities within this corridor similar to the Projects approved by the Council in Petition Nos. 1527, 1582, 1614, and 1640.⁷

The Project is identified in the 2025 Eversource Forecast of Loads and Resources Report and in the October 2024 Independent System Operator New England, Inc. (ISO-NE) Regional System Plan Asset Condition List.⁸ There are no generation facilities listed on the ISO-NE interconnection queue associated with the proposed Project.

Cost

The total estimated cost of the Project is approximately \$36.8M. The total Project cost would be eligible for regional cost allocation as it is associated with Pool Transmission Facilities.⁹ Pending a final determination from ISO-NE, total costs are expected to be allocated¹⁰ as follows:

Eversource Connecticut ratepayers ¹¹	18.3%	(\$6.7M)
Other Connecticut ratepayers ¹²	5.6%	(\$2.1M)
Other New England ratepayers ¹³	76.1%	(\$28.0M)
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Cost Total	100%	(\$36.8M)

⁵ Segment 2 also includes an approximately 250-foot long sub-segment located west of Beacon Falls Junction.

⁶ Except for a small cluster of mountain laurel located west of Pent Road.

⁷ The Towantic Substation to Beacon Falls Junction Rebuild Project approved by the Council in Petition No. 1640 terminated 250 feet west of Beacon Falls Junction.

⁸ Entry #375.

⁹ ISO-NE defines Pool Transmission Facilities as facilities rated 69-kV or above owned by the participating transmission owners over which ISO-NE has operating authority in accordance with the terms set forth in the Transmission Operating Agreements.

¹⁰ These allocations are estimates based on 2024 actual loads.

¹¹ Electrical service customers of Eversource and located within Connecticut.

¹² Electrical service customers located within Connecticut but outside of Eversource's service territory.

¹³ Electrical service customers located within New England but outside of Connecticut.

Any cost overruns for the Project, as proposed, would become part of the total Project cost, which would be allocated to ratepayers at the same projected percentages as above.

Eversource performed a Life Cycle Cost (LCC) Analysis for the Project. Per the Council's *2022 Life-Cycle Cost Analysis of Overhead and Underground Electric Transmission Lines* (2022 Life Cycle Report), the LCC for a transmission project is the sum of the net present values (NPV) of three components over the study period: first costs, operations and maintenance (O&M) costs and electrical loss costs.¹⁴ The first costs or costs to design, permit and construct a line are used as a comparison to total facility cost.¹⁵

The Project has a projected first cost of approximately \$36.8M, which is equal to the total Project cost.

Annual O&M costs are estimated at about \$94,820 for the approximately 2.75-mile long 1142/1580 Lines and approximately \$44,824 for the approximately 1.3-mile long 1319/1808 Lines with an annual O&M cost escalation rate of 2 percent. Initial electrical loss costs are projected to be \$48,380 per circuit-mile per year with an annual load growth of -0.07 percent and zero energy cost escalation. Utilizing a 40-year study period and 8 percent discount rate¹⁶, the total life cycle cost would be approximately \$55.9M for the proposed Project.

Cost – Conductor Alternatives

Advanced conductors incorporate material, design or technology that improve the electrical performance of electrical conductors in comparison to traditions ACSR conductor and optimizes attributes such as current-carrying capacity, thermal performance, weight, sag, durability, corrosion resistance and efficiency, using materials such as high-conductivity alloys and conductor designs.¹⁷

Eversource prefers aluminum conductor steel supported (ACSS) conductor for the Project due to its ability to operate at high temperatures with less thermal sag. Standard ACSS conductor sizes include 556, 795, 954, 1272, 1590, and 2156 kcmil. Eversource rejected the 556-kcmil ACSS alternative because it may not reliably handle future loads.

The total length of required conductor for the Project (irrespective of size) is approximately 126,720 linear feet. A cost comparison table below includes, but is not limited to, the conductor costs per foot, electrical loss costs and Project life cycle costs.

Conductor Cost Comparison & Project Life Cycle Cost Table				
Conductor Size/Type	Conductor Cost (per foot)	Conductor Length (Total Linear Feet)	Total Conductor Cost	Project Life Cycle Cost ¹
1590-kcmil ACSS	\$8.29	126,720	\$1,050,508.80	\$55,907,844.00
795-kcmil ACSS	\$7.12	126,720	\$902,246.40	\$61,193,114.00
2156-kcmil ACSS	\$12.03	126,720	\$1,524,441.60	\$62,358,288.00
¹ Project Life Cycle Costs are derived from three major components; first costs, operation and maintenance costs, and electrical loss costs, over the 40-year life cycle period, with total values as summarized in the table below for the three conductor types:				
Conductor Size/Type	First Costs	O&M Costs	Electrical Loss Costs	
1590-kcmil ACSS	\$36,767,664	\$2,090,830	\$ 4,667,897	
795-kcmil ACSS	\$37,310,700	\$2,090,830	\$ 9,227,238	
2156-kcmil ACSS	\$42,382,000	\$2,090,830	\$ 3,613,356	
*Carrying costs are included in the total Project Life Cycle Cost, but are <u>not</u> included in the table above, consistent with the 2022 Life Cycle Report.				

¹⁴ 2022 Life Cycle Report, p. 21

¹⁵ O&M costs and electrical loss costs components are not related to the Project cost total.

¹⁶ 2022 Life Cycle Report, p. 21

¹⁷ Public Act 25-173, Section 26, available at <https://www.cga.ct.gov/2025/ACT/PA/PDF/2025PA-00173-R00SB-00004-PA.PDF>

The 795-kcmil ACSS conductor is feasible and is the smallest conductor that could reasonably handle proposed loads. It is also the lowest cost on a per foot (\$7.12 per foot) basis. However, its smaller size (and thus higher resistance) results in greater electrical loss costs over the life cycle. First costs are also higher than the proposed Project because 795-kcmil requires additional structures to maintain horizontal clearances for this lighter conductor under high wind conditions. Thus, the life cycle cost for the Project with 795-kcmil ACSS conductor (\$61.2M) is higher than that of the proposed Project with 1,590-kcmil (\$55.9M).

The 2,156-kcmil ACSS conductor is feasible and is the most expensive conductor because it has the highest cost per foot (\$12.03 per foot) of the three ACSS conductor alternatives. First costs are also higher than the proposed Project because 2,156-kcmil conductor requires increased material and construction costs for structures and foundations to support the higher tensions and heavier conductor. It has the lowest electrical loss costs due to lower resistance (resulting from the conductor size), but the lower electrical loss costs do not offset the increase in first costs. Thus, the Project with 2,156-kcmil ACSS conductor would have the highest life cycle cost (\$62.4M) of the three alternatives.

Eversource projects that life cycle costs for the 954-kcmil and 1272-kcmil ACSS conductors would be roughly between that of 795-kcmil (\$61.2M) and 1,590-kcmil (\$55.9M) ACSS conductors. Thus, 954-kcmil and 1,272-kcmil ACSS conductor alternatives would not be more economic than the proposed 1,590-kcmil ACSS conductor on a life cycle cost basis.

Also, 1,590-kcmil ACSS conductor would match the standard conductor size/type in the Devon-Towantic-South Naugatuck Corridor. It is a slightly heavier conductor than 795, 954 and 1272-kcmil ACSS conductor alternatives, which results in less insulator swing on structures and more clearance to the edge of ROW and adjacent circuits. Thus, Eversource proposes the 1,590-kcmil ACSS conductor as the best option available for the Project.

Proposed Project

The Project includes the replacement of 21 double-circuit wood H-frame structures with 21 double-circuit steel H-frame structures; replacement of two 3-pole single-circuit wood H-frame structures with 2 single-circuit steel H-frame structures; replacement of six 3-pole single-circuit wood structures with six 3-pole single-circuit steel structures; replacement of one 3-pole single-circuit wood structure with one 2-pole single-circuit steel structure; replacement of 4 double-circuit lattice structure with 8 single-circuit monopole structures; replacement of six double-circuit lattice structures with six double-circuit steel monopoles; replacement of one quad-circuit lattice structure with two single-circuit steel H-frame structures for the 1142/1580 Lines¹⁸; installation of one double-circuit steel H-frame structure; installation of three double-circuit monopoles; renumber one existing 2-pole single circuit structure to remain; and renumber two existing single-circuit monopoles to remain.

The Project requires taller structures to meet NESC standards, including, but not limited to, conductor clearance requirements. The NESC is the authoritative code for ensuring the continued practical safeguarding of persons and utility facilities during the installation, operation and maintenance of electric power and communications utility systems, including substations, overhead lines and underground lines.

NESC clearance requirements for conductor sway due to wind (blowout) are based on established horizontal clearance requirements during specific wind events to buildings (9.1 feet of clearance to the ROW edge for 115-kV conductors). Transmission lines are designed with the assumption that a building could be erected at any location along the ROW edge. To provide a buffer for construction tolerance, Eversource typically designs transmission corridors to have 11 feet of clearance to the ROW edge during specific wind events.¹⁹

¹⁸ The 1319/1808 Lines from existing quad-circuit lattice Structure 1540 would be carried on new Structure 19412.

¹⁹ Petition 1614, response to Council interrogatory 10.

NESC clearance requirements for conductor uplift and insulator swing were factored into the transmission line design. Conductor uplift is a condition where wire on a structure pulls up on the hardware instead of hanging down vertically. It typically occurs in spans where structures are located at different ground levels or have different heights. The amount of insulator swing on a transmission line depends on conductor tension, temperature, wind velocity, insulator weight, ratio of weight span to wind span, and line angle. These issues can be mitigated by taller structures in certain locations to increase the load tension of the insulators and the span weight load of the conductors.

The conductor on the 1142/1580 Lines in Segment 1 are approximately 62 years old and would be replaced. The conductor on the 1319/1808 Lines in Segment 2 are approximately 17 years old, but they would also be replaced to avoid the need for multiple splices that would result from shifting the existing conductor onto the new and replacement structures.

1142, 1319, 1580, and 1808 Lines

The 1142/1580 Lines are 115-kV lines supported by single-circuit H-frame wood structures, double-circuit H-frame wood structures, single-circuit 3-pole wood structures, a two-pole single-circuit steel structure, a double-circuit lattice structure, and a quad-circuit lattice structure. The 1580 Line was installed in approximately 1923 and later upgraded in 1954, 1962, 1972, 2014, 2022, and 2024. The 1142 Line was installed in approximately 1960 and later upgraded in 1969, 2017 and 2020. The 1319/1808 Lines are 115-kV lines supported by double-circuit lattice structures and single-circuit monopoles. The 1319/1808 Lines were installed in approximately 1947 and later upgraded in 1954, 1962, 1972, 2008, 2010, 2014, 2022, and 2024.

The older conductors on these lines are all aluminum conductor steel reinforced (ACSR) conductor, and the more recently installed conductors (approximately 17 years ago) are all ACSS conductor.

Segment 1– South Naugatuck Substation to Beacon Falls Junction — 2.7 miles

Project work consists of the following:

- a) Replace 21 double-circuit wood H-frame structures with 21 double-circuit steel H-frame structures for the 1142/1580 Lines;
- b) Replace 2 three-pole single-circuit wood H-frame structures with 2 single-circuit steel H-frame structures for the 1142/1580 Lines;
- c) Replace 6 three-pole single-circuit wood structures with 6 three-pole single-circuit steel structures;
- d) Replace 1 three-pole single-circuit wood structure with 1 two-pole single circuit steel structures;
- e) Replace 1 double-circuit lattice structure with two single-circuit steel monopoles;
- f) Replace 1 quad-circuit lattice structure with two single-circuit steel H-frame structures for the 1142/1580 Lines;
- g) Install 1 new double-circuit steel H-frame mid-span structure (Structure 19372) to provide adequate vertical span clearance due to the heavier conductor;
- h) Renumber 1 existing two-pole single-circuit steel monopole to remain;
- i) Replace 556.5-kcmil ACSR conductor with 1590-kcmil ACSS conductor for the 1142/1580 Lines from South Naugatuck Substation to Structures 19363 and 19363A located west of Beacon Falls Junction; and
- j) Replace 7#8 copperweld shield wire with 0.646-inch 96 fiber OPGW for the 1142 Line from South Naugatuck Substation to Structure 19363A located west of Beacon Falls Junction.

South Naugatuck Substation

Changes necessary to facilitate this Project at this substation include, but are not limited to, upgrading the 1142 Line and 1580 Line terminations and terminating the proposed OPGW for the 1142 Line.

Segment 2– Beacon Falls Junction to Beacon Falls Substation — 1.3 miles

Project work consists of the following:

- a) Replace three double-circuit lattice structures with six single-circuit steel monopoles for the 1319/1808 Lines;
- b) Replace six double-circuit lattice structures with six double-circuit steel monopoles for the 1319/1808 Lines;
- c) Install 1 new double-circuit monopole (Structure 19412) to accommodate line crossovers;
- d) Install 2 new double-circuit monopoles (Structures 19401 and 19403) to shorten span lengths, reduce conductor sag, limit horizontal movement of the lines, and carry the distribution lines in the underbuild;
- e) Renumber two existing single-circuit structures to remain;
- f) Replace 756-kcmil ACSS conductor with 1590-kcmil ACSS conductor for the 1319/1808 Lines from Structures 19413/19413A, west of Beacon Falls Junction, to Beacon Falls Substation;
- g) Replace 7#8 Alumoweld shield wire with 0.646-inch 96 fiber OPGW for the 1319/1808 Lines from Structures 19413/19413A, west of Beacon Falls Junction, to Beacon Falls Substation; and
- h) Replace 24 fiber OPGW for the 1319 Line with 0.646-inch 96 fiber OPGW.

In addition to the structure and OPGW installations/replacements, Project work includes installation of counterpoise and installation or transfer of the existing lightning arrestors to the new and replacement structures, as needed.²⁰

Beacon Falls Substation

Changes necessary to facilitate this Project at this substation include, but are not limited to, terminating the proposed OPGW to the 1319 Line and 1808 Line terminal structures and upgrading the terminal taps to accommodate the new conductor.

Public Health and Safety

There would be no increase of existing ROW sound levels after completion of the Project. Noise associated with construction activities is exempt from DEEP Noise Control Regulations. Notwithstanding, any construction-related noise would be short-term and localized in the vicinity of work sites.

On February 28, 2023, Eversource filed a Notice of Proposed Construction or Alteration with the Federal Aviation Administration (FAA) for all proposed structures. A response from FAA was received on March 3, 2023; however, Eversource requested an extension from FAA on October 7, 2024 due to pending design changes to certain structures at that time. As of July 10, 2025, Eversource has received FAA determinations for all proposed structures, except for those that had height changes since the original FAA filing. Eversource is seeking the final determinations for the remaining structures. Marking or lighting is not expected to be required, but such plans would be submitted if necessary.

Electric fields (EF) are produced whenever voltage is applied to electrical conductors and equipment. Electric fields are typically measured in units of kilovolts/meter (kV/m). As the weight of scientific evidence indicates that exposure to electric fields, beyond levels traditionally established for safety, does not cause adverse health effects, and as safety concerns for electric fields are sufficiently addressed by adherence to the NESC, as amended, health concerns regarding Electric and Magnetic Fields (EMF) focus on magnetic fields (MF) rather than EF. The International Commission on Non-Ionizing Radiation Protection (ICNIRP) has established a guideline of 4.2 kV/m.

²⁰ Counterpoise is typically installed at structure locations at a minimum depth of 18 inches.

The Project route contains an existing transmission line that emits MF. In the United States, no state or federal exposure standards for 60-Hertz MF based on demonstrated health effects have been established, nor are there any such standards established worldwide. However, the ICNIRP has established a level of 2,000 milliGauss (mG), based on extrapolation from scientific experimentation, and the International Committee on Electromagnetic Safety (ICES) has calculated a guideline of 9,040 mG for exposure to workers and the general public, and recognized in the Council's *Electric and Magnetic Field Best Management Practices for the Construction of Electric Transmission Lines in Connecticut*.

MF would increase slightly along the edges of the ROW for Segment 1. This is due to an increase in phase spacing on new structures compared to the existing structures resulting from different requirements for steel poles and climbing clearance requirements. MF would generally decrease slightly along the edges of the ROW for Segment 2, except for the southern edge of the ROW between proposed Structure 19404 and Beacon Falls Substation; this sub-segment would have a small MF increase. The highest calculated MF level at the edge of the ROW for the Project is 11.5 mG along the northern edge of the ROW between proposed Structure 19404 and Beacon Falls Substation.

Environmental Effects and Mitigation Measures

Most of the Project work would occur within maintained ROWs. Approximately 3.91 acres of tree clearing would be performed within the ROW. Tree clearing would convert forestland to shrubland.

Vegetation management would be performed off-ROW on NSF access roads to reclaim the historical approximately 13-foot to 16-foot width. Three sharp angle bends in the access roads for vehicle turnaround areas, consisting of two with a proposed stone surface and one with proposed matting, would require approximately 0.3-acre of off-ROW tree clearing. The total off-ROW tree clearing within the NSF would be approximately 1.91 acres. Of the 1.91 acres, 0.92 acre would be core forest; 0.80 acre would be edge forest; and 0.19 acre would be perforated forest. However, the majority of this clearing area would be shrubs and saplings with limited selected tree removal. Trees would be cut parallel to and close to the ground. Alternatively, DEEP may request allocation of wood material for trees cut in the NSF and specify more specific practices relative to tree clearing.

Eversource submitted a State Land Use Notification to DEEP Land Acquisition for a Special Use License (SUL) on December 9, 2024. As of July 10, 2025, the DEEP SUL remained pending.

Vegetation removal/tree trimming would be accomplished using mechanical methods or manually. Mechanical methods include the use of flat-bed trucks, brush hogs or other types of mowing equipment, skidders, forwarders, bucket trucks, and chippers. Eversource would utilize low impact methods to remove brush vegetation in sensitive resource areas such as wetlands, watercourses and NDDB habitat areas. Vegetation removal activities would be performed in accordance with Eversource BMPs.

A total of 41 wetlands and 25 watercourses are located within the ROW or in adjacent off-ROW areas.

Approximately 109 square feet of permanent wetland impacts would result from the installation of five proposed structures (two within W28 and one each within W14, W27 and W31) which cannot be reasonably avoided. Total tree clearing within wetlands would be approximately 0.30-acre. No permanent impacts to watercourses would result from the Project.

Temporary wetland/watercourse impacts related to Project construction matting would total approximately 1.57 acres. Construction activities within wetlands and across watercourses would be conducted in accordance with Eversource BMPs.

Eversource performed vernal pool surveys in fall 2020 and spring of 2022 and 2024 that identified one cryptic potential vernal pool (PVP1) within W33 and one classic vernal pool (VP2) within W23. The Project would not result in any direct impacts to PVP1 or VP2. Temporary work pads and access roads would be installed within the 100-foot Vernal Pool Envelope (VPE) for PVP1 and VP2. Proposed structures 19374 and 19407 would be located approximately 100 feet from PVP1 and VP2, respectively, to protect the VPEs. Eversource would conduct work in these areas in accordance with Eversource BMPs and a Project-specific Vernal Pool Protection Plan to minimize impacts.

The Project would comply with the USACE self-verification procedures and Eversource's BMPs. An environmental inspector would perform oversight of overall compliance associated with all aspects of project-specific environmental permitting for the duration of Project construction. Specifically, a qualified inspector would be on-site to monitor environmental resource protections as established in Eversource's BMP's, the final DEEP Natural Diversity Database (NDDDB) Determination and in compliance with DEEP General Permit requirements.

Invasive species mitigation measures would be conducted in accordance with Eversource's BMPs. Measures include the cleaning of temporary mats to prevent the introduction of invasive species into wetlands, the cleaning of vehicles, equipment, materials, gear, footwear or clothing of all visible soil and plant material on site known to contain invasives or as near as practical to the invasive area, prior to leaving the Project site.

The Project ROW extends across 500-year Federal Emergency Management Agency (FEMA) designated flood zones associated with Seymour Reservoir #4, Pines Brook, Spruce Brook, and unnamed tributaries to the Naugatuck River. No proposed structures would be located within a 100-year or 500-year flood zone.

Proposed temporary fill would be limited to the placement of matted work pads within the 500-year flood zone of Spruce Brook, unnamed tributaries of the Naugatuck River, and Pine Brook. Temporary mats, construction materials and equipment would be properly secured when located within the flood zones and would be removed from the flood zones immediately upon completion of construction. The proposed activities would not adversely affect flood storage capacity or hydraulic characteristics of FEMA flood zones and are eligible for self-verification under the DEEP General Permit.

The Project is not within a Public Drinking Water Supply Watershed. There are no DEEP-designated Aquifer Protection Areas within the Project ROW. Notwithstanding, to protect subsurface water quality, Eversource would conduct work in accordance with its BMPs which include provisions for the proper storage, secondary containment, and handling of diesel fuel, motor oil, grease, and other lubricants.

On September 13, 2023, DEEP issued a preliminary Natural Diversity Database (NDDDB) Determination, which requested a field survey and habitat assessment for a state-listed Threatened Species at the site. Subsequently, a field survey and habitat assessment report were completed on November 19, 2024 and July 25, 2024, respectively. Although this species was not observed, suitable habitat was identified in the vicinity of proposed Structures 19403 through 19408.

On April 29, 2025, DEEP issued a final NDDDB Determination identifying the state-listed Threatened Species as well as four state-listed Species of Special Concern. Eversource would implement DEEP recommended species-specific protection measures during construction, which include, but are not limited to, time of year best management practices, species sweeps, and use of exclusionary fencing and temporary matting.

Eversource also consulted with the U.S. Fish & Wildlife Service's (USFWS) Information, Planning and Consultation (IPaC) service regarding federally-listed species that may be present within the Project area. IPaC identified the tricolored bat (TCB), a federal proposed Endangered Species and state-listed Endangered Species. However, the TCB was not identified by DEEP NDDDB, and thus no impacts to TCB would be expected.

The northern long-eared bat (NLEB), a federal and state-listed Endangered Species, occurs in Connecticut. There are no known NLEB maternity roost trees within 150 feet of the site, and the nearest known NLEB hibernaculum is located over 7 miles to the northwest in Roxbury.²¹ Additionally, there are no known occurrences of NLEB in Naugatuck, Beacon Falls or Oxford.²² Thus, no impacts to NLEB are expected.

Portions of the ROW traverse New England Cottontail (NEC) focus areas, established by DEEP, USFWS and other conservation groups to preserve NEC habitat. Eversource would implement its NEC BMPs to manage and enhance NEC habitat. Post-construction, gravel pads within the NEC focus areas would be covered with soil or processed stone and reseeded with a pollinator-friendly seed mix. Inspections of the restored areas would be conducted to ensure the seeded areas have been established.

No previously identified archaeological sites, properties/districts listed on the National Register of Historic Places, or inventoried historic structures are located within 500 feet of the Project ROW. A Phase 1A Cultural Resources Assessment (Phase 1A) of the Project area identified 12 locations within the ROW that possess a moderate to high potential for archaeological sensitivity. A Phase 1B Cultural Resources Reconnaissance Survey (Phase 1B) of the Project ROW indicated that the area around existing Structure 318 and proposed Structures 19411 and 19411A contains evidence of diagnostic materials and intact cultural deposits.

A Phase III Archaeological Investigation was completed and by letter dated April 25, 2025, SHPO concurred that there would be no adverse impact to Locus 19411-1 subject to targeted data recovery that was completed as of June 13, 2025.

The nearest publicly-accessible recreational resource is the NSF. Approximately 3.2 miles of the 4.0 mile Project route is located within the NSF. The Project would result in temporary and permanent effects to the NSF. Permanent effects within the NSF include select tree removal for vehicle turnaround areas along existing access roads which would be reclaimed to pre-existing construction road widths for the Project. After Project completion, vegetation within the margins of the reclaimed/improved off-ROW access roads would revegetate, and remaining access width would resume use as a multi-use recreational trails and light duty vehicle access.

The Project ROW crosses the Naugatuck Forest Trail (NFT), a Blue Blazed Trail, near proposed Structures 19376/19376A, and the off-ROW access to be improved also crosses the NFT south of Hunters Mountain Road. Eversource would coordinate with the municipalities and provide signage to inform the public of any required trail closures during construction. Eversource would also follow any applicable BMPs associated with work in the vicinity of trails.

Disturbed areas would be stabilized using temporary E&S controls such as straw mulch, compost filters, and biodegradable erosion control blankets until final stabilization has been achieved.

The Project would require increasing the height of many replacement structures primarily to meet NESC clearance requirements within the existing ROW and also to address differences in ground elevation, maintain clearances from certain underbuilt distribution lines, and address conductor sag. Existing structures to be replaced on the lines range from 47.5 to 97 feet above ground level. The replacement structures on the lines would range from 52 feet to 180 feet above ground level (agl), with an average height increase of 20.5 feet to meet NESC clearance requirements.

Three new mid-span structures and one additional structure ranging in height from 98 to 185 feet agl would be installed. The additional structures would be required to address ground elevation differences, meet vertical clearance requirements, and accommodate underbuilt distribution lines.

²¹ https://portal.ct.gov/-/media/deep/endangered_species/images/nlebmappdf.pdf

²² <https://portal.ct.gov/-/media/deep/nddb/nolongearedbat-map.pdf>

Seven replacement structures would increase in height by 40 feet or more, and of those, one is adjacent to Pleasant Avenue in Naugatuck (increase of 40.5 feet); one is adjacent to Hunters Mountain Road in Naugatuck (increase of 49.5 feet); two are adjacent to Chestnut Tree Hill Road in Oxford (increases of 40 and 44 feet); one is adjacent to Pinesbridge Road in Beacon Falls (increase of 44 feet); and two are adjacent to Pent Road in Beacon Falls (increases of 54 and 99 feet).

Of the four additional structures, two are adjacent to Chestnut Tree Hill Road in Oxford (98 and 120²³ feet tall); one is adjacent to Pent Road in Beacon Falls (185 feet tall); and one is adjacent to Cold Spring Road, Beacon Falls (135 feet tall).

Due to the increase in structure heights and additional structures to comply with NESC clearance criteria, there would be indirect visual impacts to the surrounding area. However, all proposed new and replacement structures would have a weathering steel finish to blend in with the surrounding wooded landscape. Weathering steel poles are more economical than galvanized steel poles because galvanized steel poles cost roughly 4 to 6 percent more. Additionally, the replacement of lattice towers with monopoles would result in a more streamlined appearance. Thus, the visual characteristics are expected to be improved.

Project Construction

Eversource would utilize an existing staging/laydown area for the Project at 12 Division Street in Derby. This staging/laydown area is approximately 3.45 acres and would contain Project equipment, office trailers, and vehicles. This staging/laydown area is located approximately 10 to 13 miles from the site. Eversource would also utilize a small stone surface staging area on an Eversource parcel adjacent to South Naugatuck Substation.

Eversource would utilize existing in-ROW and off-ROW access roads to the extent possible during construction. Where existing access roads are not present, new in-ROW and off-ROW roads would be established. Multiple access roads are required so that equipment can access various construction zones along the ROW without relying on one point of access for long ROW segments. Construction matting would be utilized to install temporary access roads to protect sensitive areas (e.g. wetlands, critical habitats, residential lawns, and driveways) to reach certain structure locations.

Construction areas would be isolated by establishing erosion and sedimentation (E&S) controls in accordance with the *2024 Connecticut Guidelines for Soil Erosion and Sediment Control* and Eversource's April 2022 Best Management Practices Manual for Massachusetts and Connecticut (BMPs).²⁴ Typical E&S control measures include, but are not limited to, biodegradable blankets, straw bales, silt fencing, gravel anti-tracking pads, soil and slope protection, water bars, check dams, berms, swales, and plunge pools. Eversource BMPs prohibit the use of non-biodegradable plastic netting in E&S controls. The Project is eligible for certification through the U.S. Army Corps of Engineers (USACE) Self-Verification Notification process regarding wetland impact. The self-verification notification forms would be submitted to the USACE - New England District prior to the start of Project construction.

At each transmission line structure location, a work pad would be constructed to stage material and equipment for final on-site assembly and/or removal of structures, to install conductors and OPGW and to provide a safe, level work base. Work pads would range in size from approximately 80 feet by 65 feet to 295 feet by 133 feet. Work pad dimensions would vary based on site specific conditions such as terrain. Work pads would typically be composed of gravel. Temporary work pads would be used in sensitive areas such as wetlands, watercourses and lawn areas.

Pull pads, necessary to accommodate machinery needed for pulling conductors and/or OPGW, would typically be 120 feet by 80 feet.

²³ The 120-foot tall additional structure would be installed proximate to Beacon Falls Junction.

²⁴ [2022 Eversource Best Management Practices MA, CT](#)

The proposed structure foundations would be either drilled caisson foundations or direct-embed foundations. Foundation installation work would require the use of equipment such as drill rigs, pneumatic hammers, augers, dump trucks, concrete trucks, grapple trucks, cranes, and light duty trucks. If groundwater is encountered, pumping trucks or other equipment would be utilized. The water would be managed in accordance with Eversource BMPs, the DEEP General Permit and state and local requirements. New structure sections, components and hardware would be delivered by flatbed truck to the structure locations for assembly using a crane, bucket trucks and excavator.

After the new structures are installed, OPGW and new conductor would be installed using wire reels, compressors, pulling and tensioning rigs, guard trucks, and bucket trucks or structures. The removal of conductor and shield wire would take place during the active installation of new conductor and OPGW as the existing conductor and static wire would be used as pulling lines if possible. Helicopters may be used. If helicopters are utilized, Eversource would provide advanced notification to the municipalities and property owners.

Bat wing trucks and guard trucks would be used for protection of roads during line work.

After the new conductors and OPGW are installed, the existing structures would be removed. The existing structures, conductor, shield wire, and hardware would be reused, recycled or properly disposed of.

After completion of construction, ROW restoration activities would commence. Restoration work would include the removal of construction debris, signage, flagging, temporary fencing, and construction mats and work pads that are designated for mitigation. Affected areas would be restored as practical and stabilized with vegetation or other measures before removing temporary E&S controls. ROW restoration would be performed in accordance with Eversource BMPs and in consultation with affected property owners.

Except for concrete trucks, no construction equipment or vehicle washing would be allowed in the ROW. In accordance with Eversource's BMPs, concrete truck wash-out would occur only in upland areas of the ROW (a minimum of 50 feet from wetlands) to avoid or minimize the potential for impacts to water resources. All wash-out areas would include measures to control and contain wash-water and collect the cement wash-off for off-site disposal.

Project-related traffic would be expected to be temporary and highly localized in the vicinity of ROW access points and at the staging area. Due to the phasing of construction work, Project-related traffic is not expected to significantly affect transportation patterns or levels of service on public roads. Construction warning signs along public roads would be installed near work sites and flaggers or police personnel would be used to direct traffic, if necessary.

Construction is expected to begin in late summer 2025 with anticipated completion by the end of April 2026 and full restoration by the end of August 2026. Normal work hours would be Monday through Saturday from 7:00 a.m. to 7:00 p.m. Sunday work hours or evening work (i.e. after 7:00 p.m.) may be necessary due to unforeseen circumstances, delays caused by inclement weather and/or outage constraints.

Eversource initially requests outages from the Connecticut Valley Electric Exchange (CONVEX). CONVEX studies the request and, if it can be accommodated, approves the request. If the outage involves UI, CONVEX notifies UI so UI's switchers can complete the UI portion(s) of the switching. This may affect the final switching times due to availability of crews to perform switching.

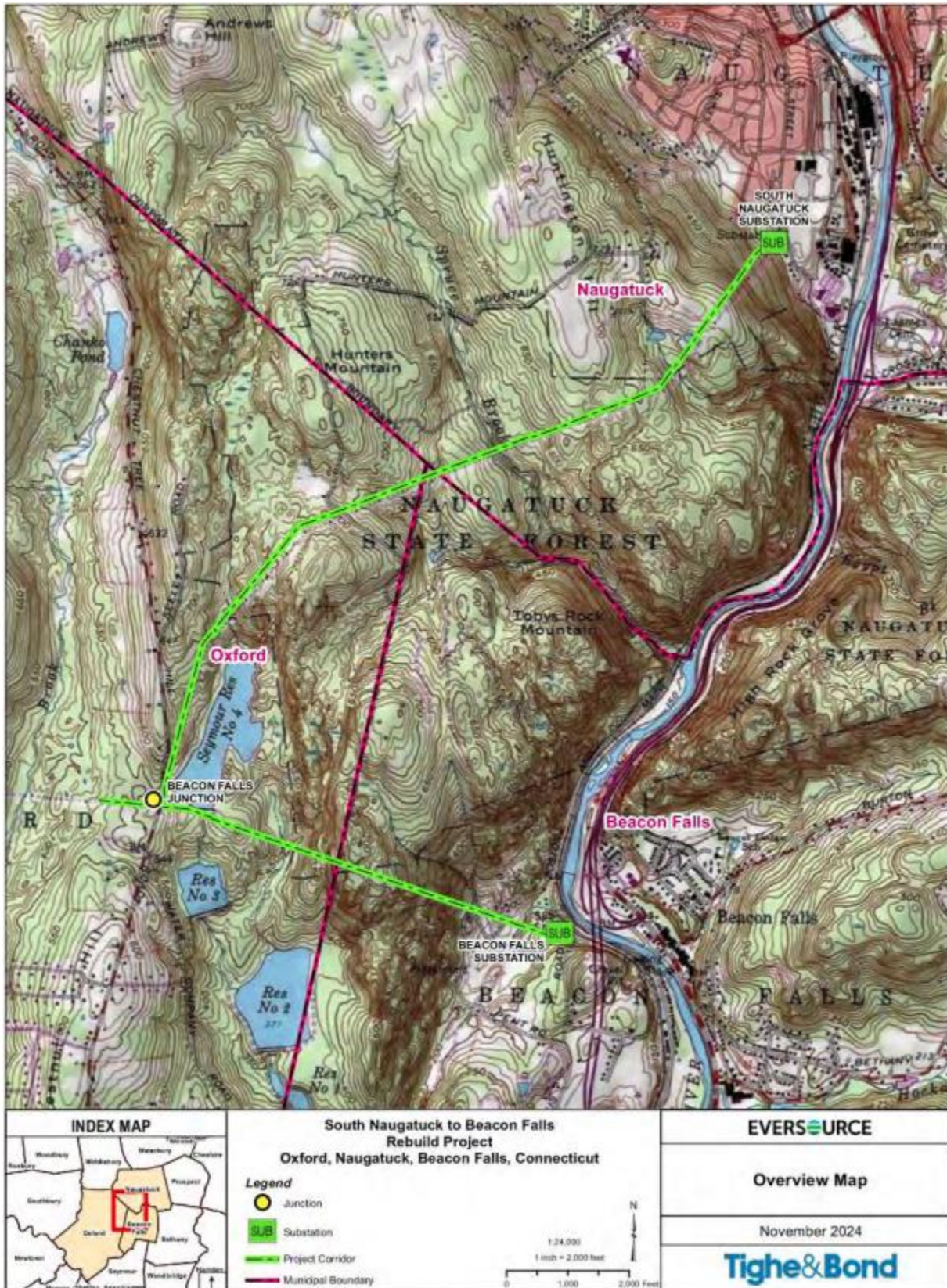
Additionally, during an outage switching, in order to re-energize or de-energize a line, access to substations may be required outside of typical work hours. These substations include, but are not limited to, Eversource's Beacon Falls Substation, Devon Substation, South Naugatuck Substation, Towantic Substation, and Oxford Substation; and UI's Pootatuck Substation and Indian Well Substation.

Conclusion

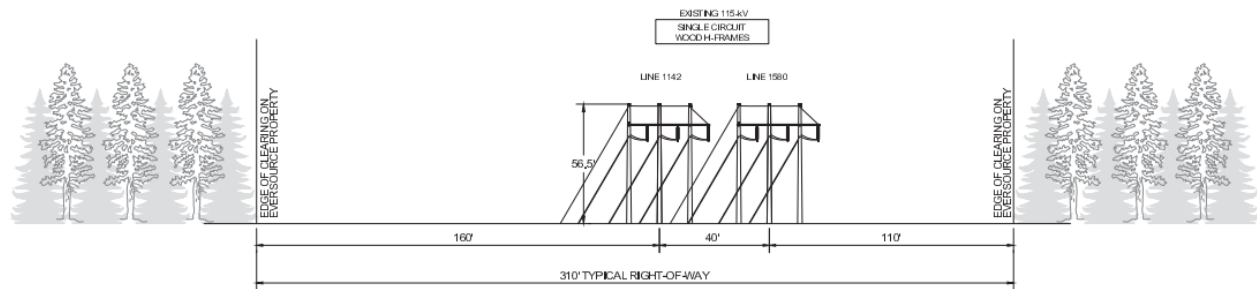
If approved, staff recommends the following conditions:

1. Approval of any Project changes be delegated to Council staff;
2. Submit a copy of the DEEP Stormwater Permit prior to commencement of construction;
3. Incorporate pollinator habitat in the restoration of disturbed areas consistent with CGS §16-50hh, where feasible;
4. Use of net-less E&S controls to prevent wildlife entanglement;
5. Submit the final FAA Determinations for the remaining structures and any marking/lighting plans as necessary;
6. Submit the final Special Use License prior to off-ROW construction within the Naugatuck State Forest; and
7. An environmental monitor shall oversee construction activities in sensitive resource areas that are identified in the Project maps.

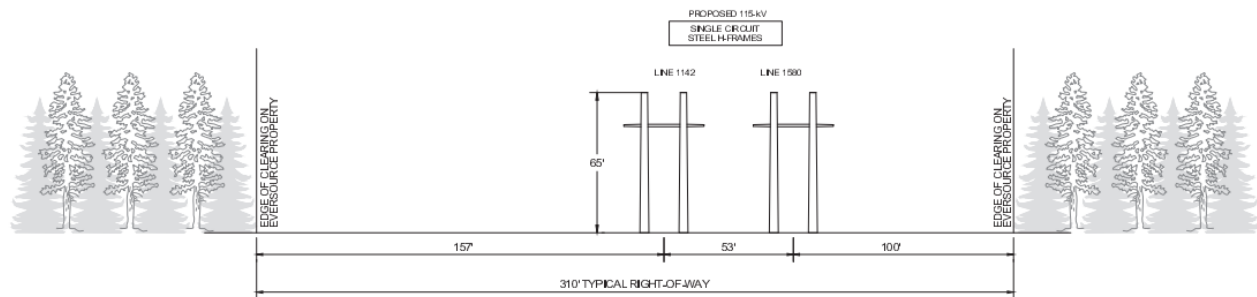
Project Location



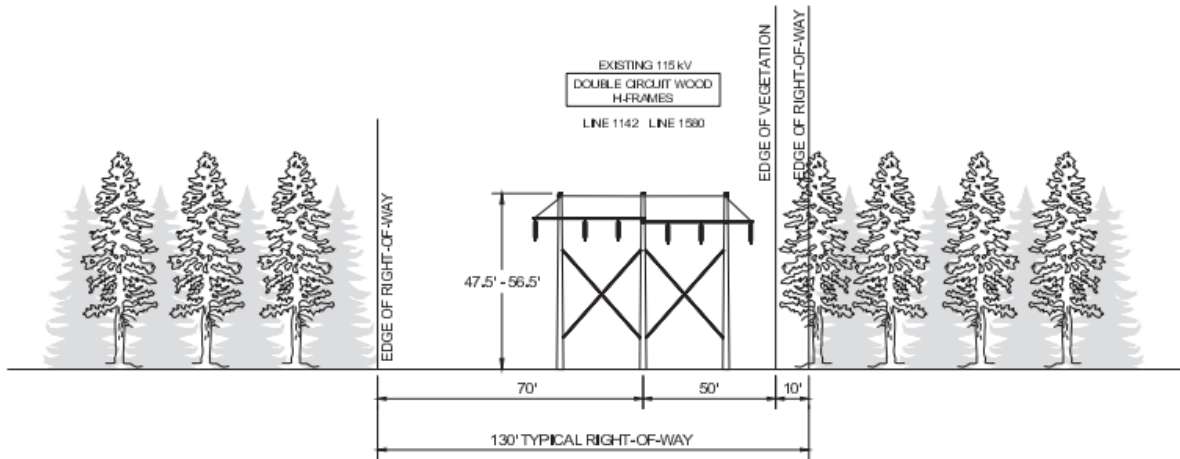
Project ROW Profiles



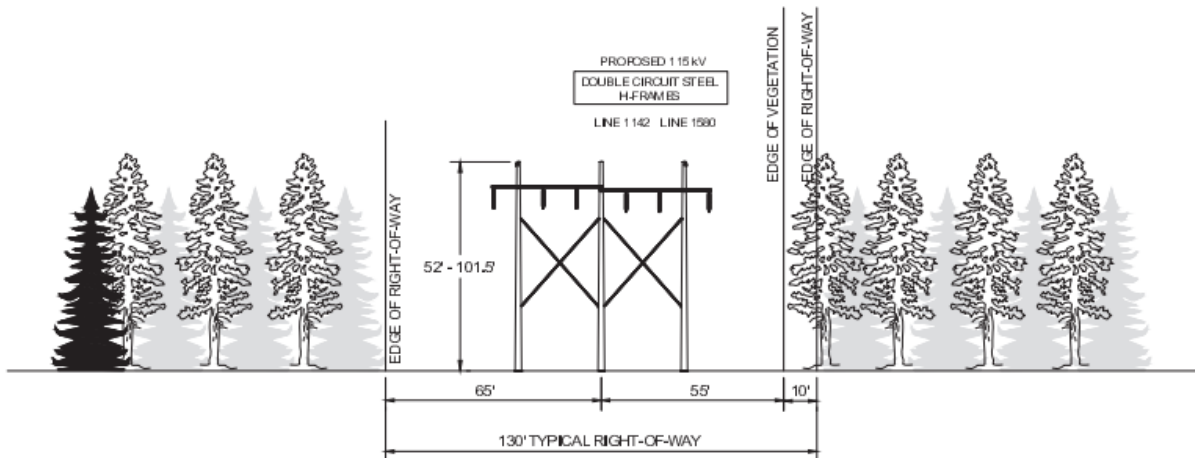
EXISTING R.O.W. CONFIGURATION
SINGLE CIRCUIT WOOD H-FRAME STRUCTURE
LOOKING FROM BEACON FALLS JCT. TO SOUTH NAUGATUCK S/S
IN THE TOWN OF NAUGATUCK, CT
STRS. #1566 & 1566A



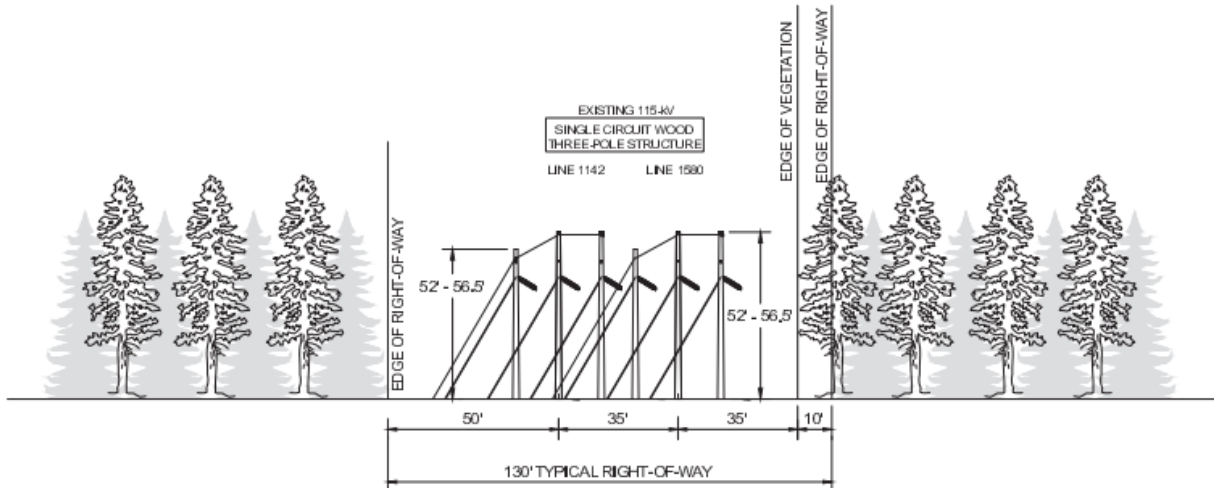
PROPOSED R.O.W. CONFIGURATION
NO ADDITIONAL RIGHT-OF-WAY REQUIRED
SINGLE CIRCUIT STEEL H-FRAME STRUCTURE
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IN THE TOWN OF NAUGATUCK, CT
STRS. # 19392 & 19392A



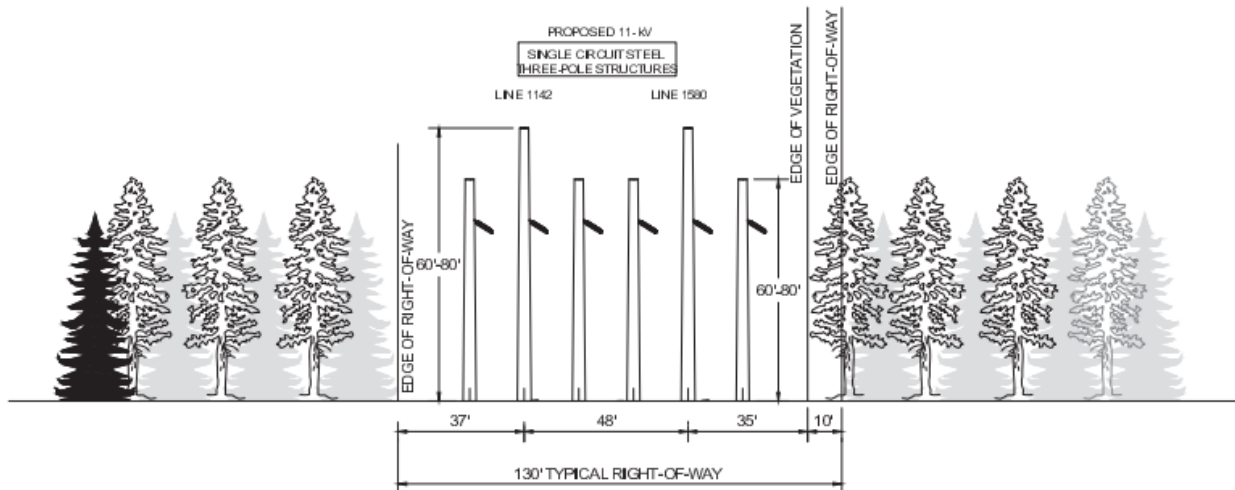
EXISTING R.O.W. CONFIGURATION
DOUBLE CIRCUIT WOOD H-FRAME STRUCTURE
LOOKING FROM BEACON FALLS JCT. TO SOUTH NAUGATUCK S/S IN THE
TOWNS OF OXFORD & NAUGATUCK, CT
STRS. #1542, 1543, 1544, 1545, 1547, 1548, 1549, 1551, 1552, 1553, 1554, 1555,
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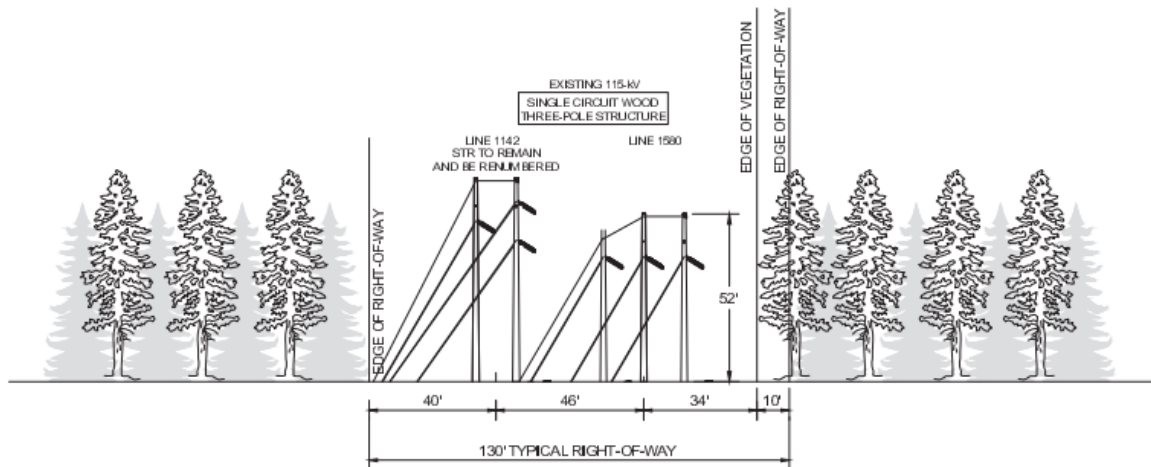
PROPOSED R.O.W. CONFIGURATION
NO ADDITIONAL RIGHT-OF-WAY REQUIRED
DOUBLE CIRCUIT STEEL H-FRAME STRUCTURE
LOOKING FROM BEACON FALLS JCT. TO SOUTH NAUGATUCK S/S
IN THE TOWNS OF OXFORD & NAUGATUCK, CT
STRS. #19367, 19368, 16369, 19370, 19372, 19373, 19374, 19375, 19377, 19378, 19379,
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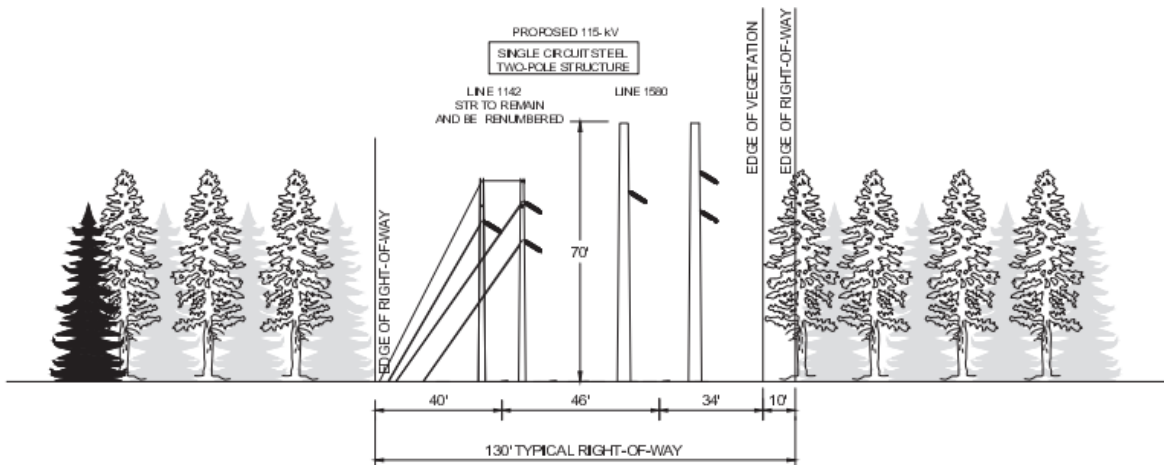
EXISTING R.O.W. CONFIGURATION
SINGLE CIRCUIT WOOD THREE-POLE STRUCTURE
LOOKING FROM BEACON FALLS JCT. NORTH TO SOUTH NAUGATUCK S/S
IN THE TOWNS OF OXFORD & NAUGATUCK, CT
STRS. #1541, 1541A, 1550, 1550A, 1561 & 1561A



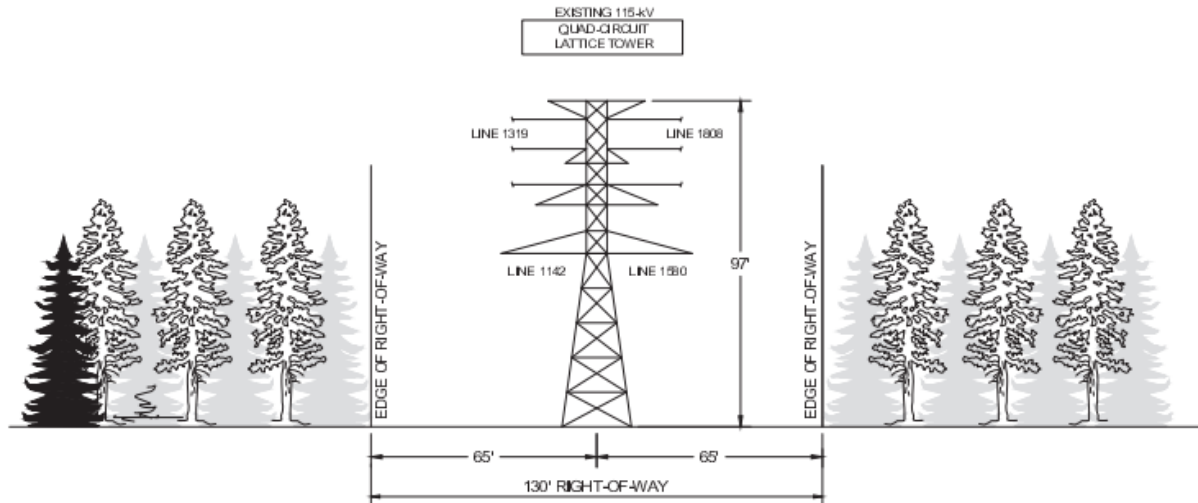
PROPOSED R.O.W. CONFIGURATION
NO ADDITIONAL RIGHT-OF-WAY REQUIRED
SINGLE CIRCUIT STEEL THREE-POLE STRUCTURE
LOOKING FROM BEACON FALLS JCT. NORTH TO SOUTH NAUGATUCK S/S
IN THE TOWNS OF OXFORD & NAUGATUCK, CT
STRS. #19366, 19366A, 19376, 19376A, 19387 & 19387A



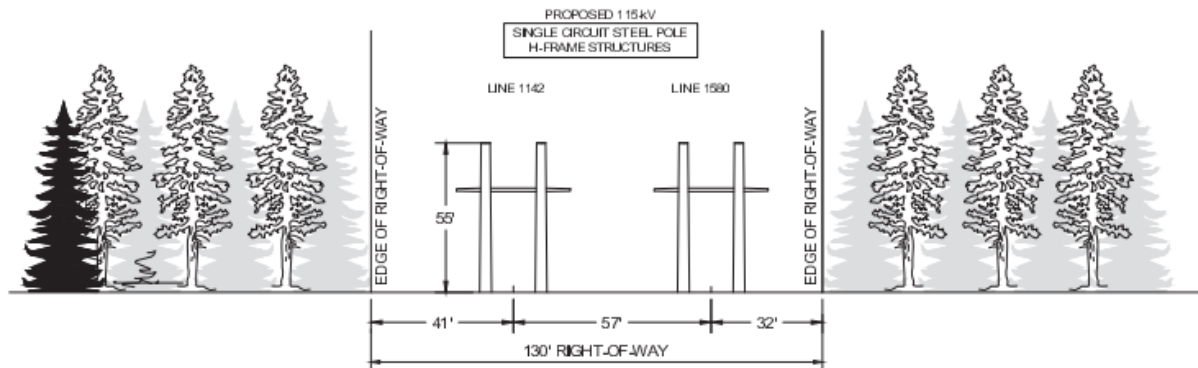
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SINGLE CIRCUIT WOOD TWO-POLE STRUCTURE
LOOKING FROM BEACON FALLS JCT. NORTH TO SOUTH NAUGATUCK S/S
IN THE TOWN OF NAUGATUCK, CT
STRS. #1546 & 1546A**



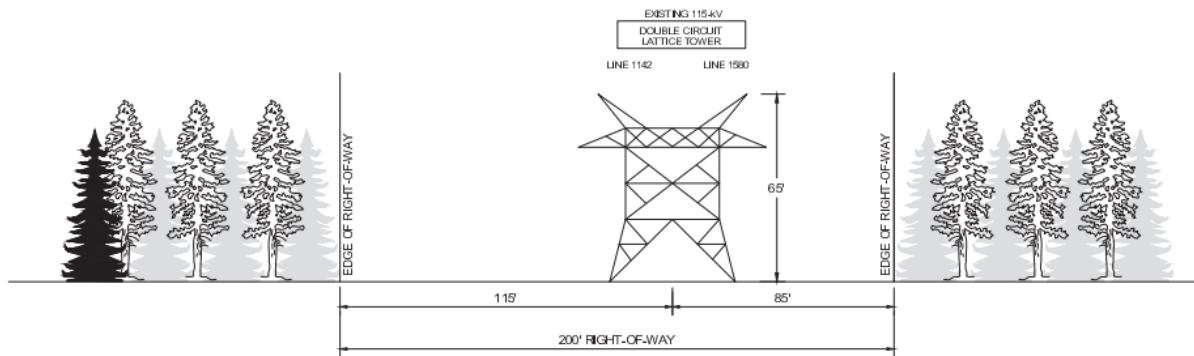
**PROPOSED R.O.W. CONFIGURATION
NO ADDITIONAL RIGHT-OF-WAY REQUIRED
SINGLE CIRCUIT STEEL TWO-POLE STRUCTURE
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IN THE TOWN OF NAUGATUCK, CT
STRS. #19371 & 19371A**



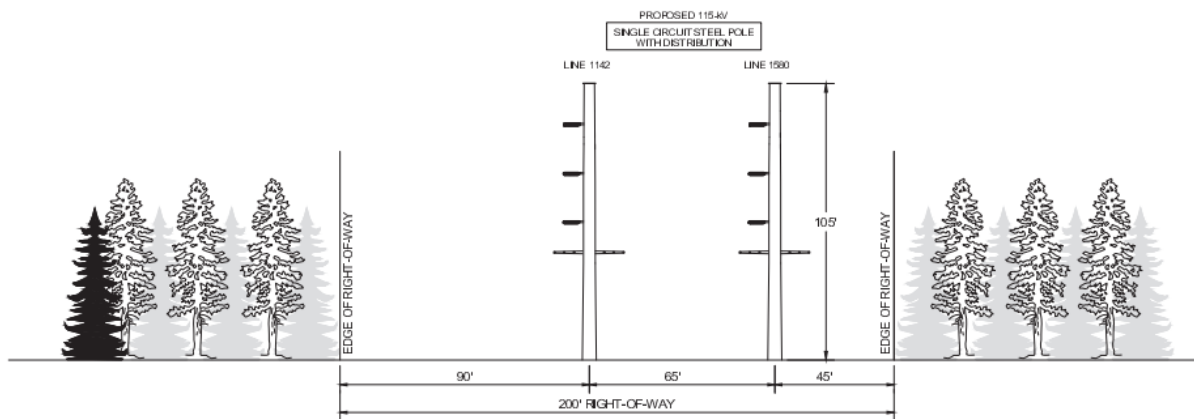
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IN THE TOWN OF OXFORD, CT
STR. #1540



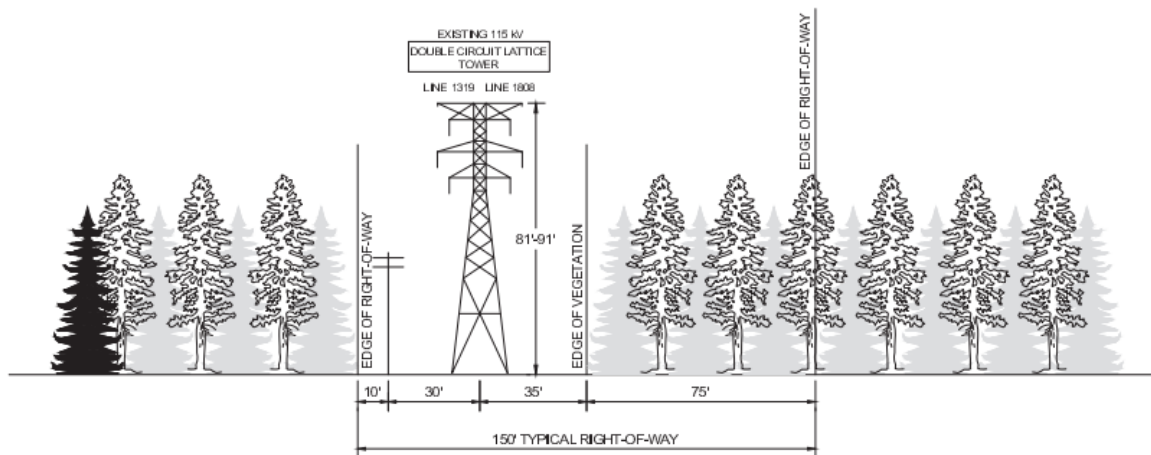
PROPOSED R.O.W. CONFIGURATION
NO ADDITIONAL RIGHT-OF-WAY REQUIRED
SINGLE CIRCUIT STEEL H-FRAME
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IN THE TOWN OF OXFORD, CT
STRS. #19365 & 19365A



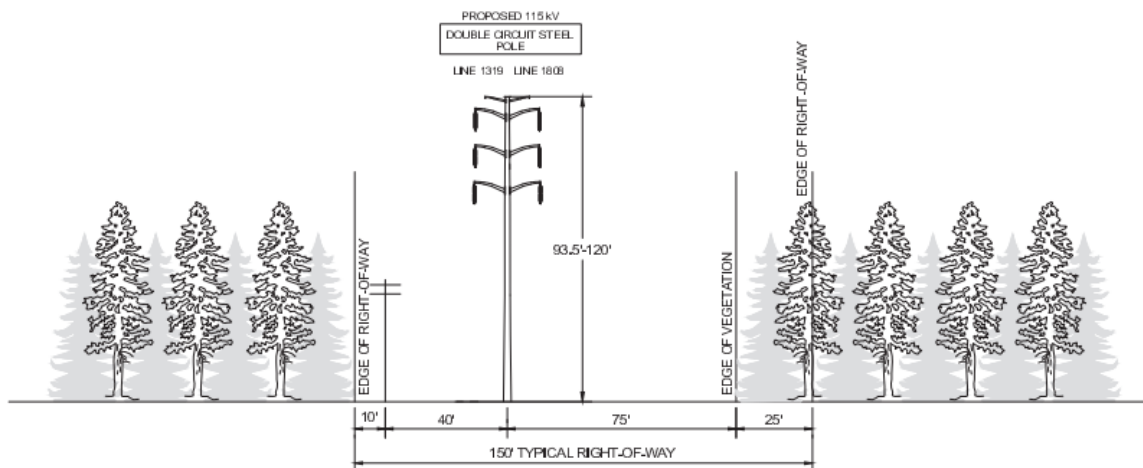
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DOUBLE CIRCUIT STEEL LATTICE HORIZONTAL DESIGN
BEACON FALLS JCT.
IN THE TOWN OF OXFORD, CT
STR. #1588



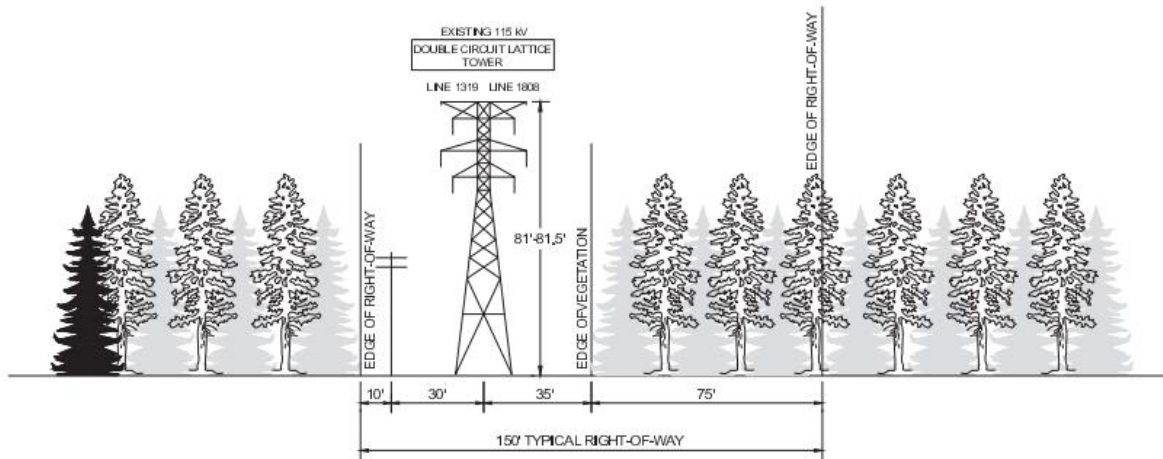
PROPOSED R.O.W. CONFIGURATION
NO ADDITIONAL RIGHT-OF-WAY REQUIRED
SINGLE CIRCUIT STEEL MONOPOLE VERTICAL DESIGN
WITH LOWER ARMS TO SUPPORT LINES 1142 & 1580 INTO JCT.
BEACON FALLS JCT.
IN THE TOWN OF OXFORD, CT
STRS. #19364 & 19364A



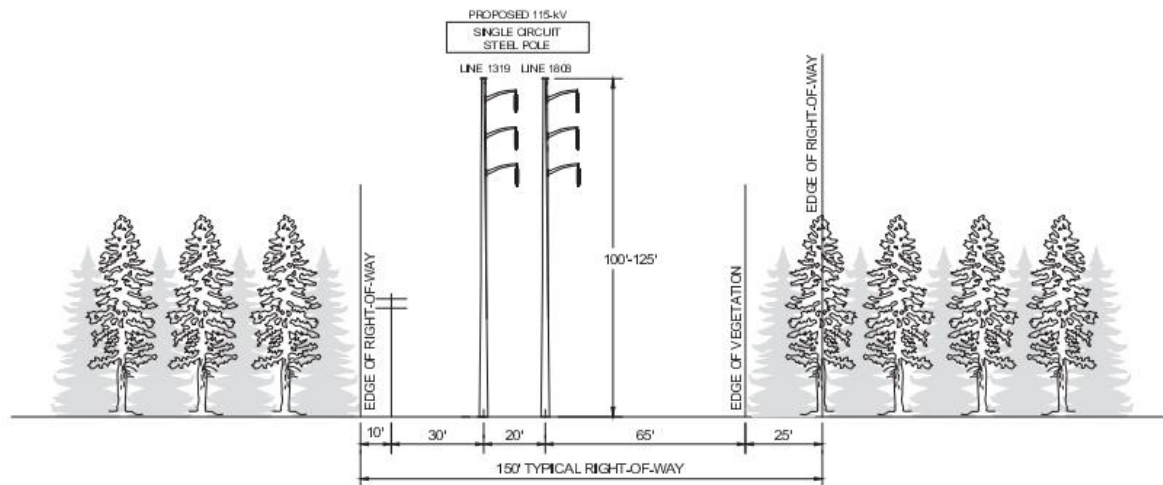
EXISTING R.O.W. CONFIGURATION
DOUBLE CIRCUIT STEEL LATTICE VERTICAL DESIGN
LOOKING FROM BEACON FALLS JCT. EAST TO BEACON FALLS S/S
IN THE TOWNS OF OXFORD & BEACON FALLS, CT
STRS. #319, 322 & 323



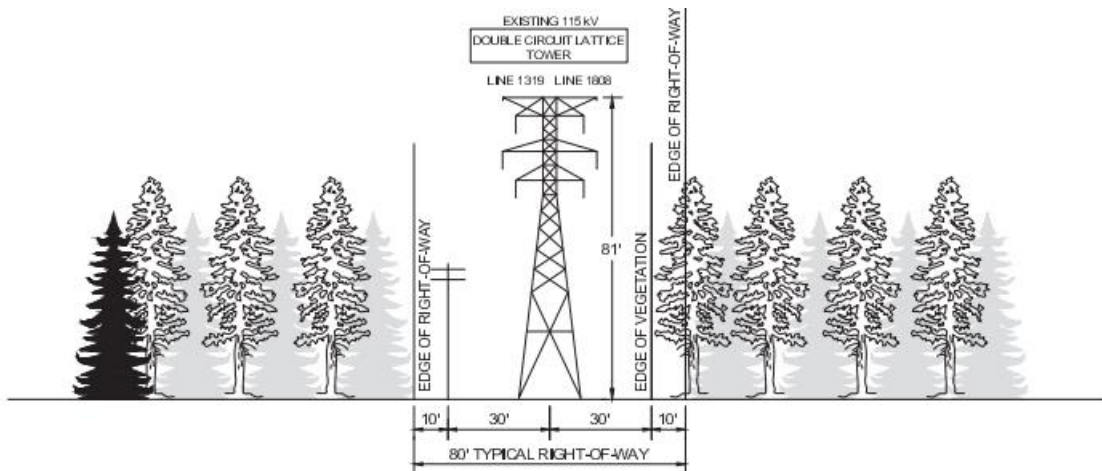
PROPOSED R.O.W. CONFIGURATION
NO ADDITIONAL RIGHT-OF-WAY REQUIRED
DOUBLE CIRCUIT STEEL MONOPOLE VERTICAL DESIGN
LOOKING FROM BEACON FALLS JCT. EAST TO BEACON FALLS S/S
IN THE TOWNS OF OXFORD & BEACON FALLS, CT
STRS. #19412, 19410, 19407 & 19406



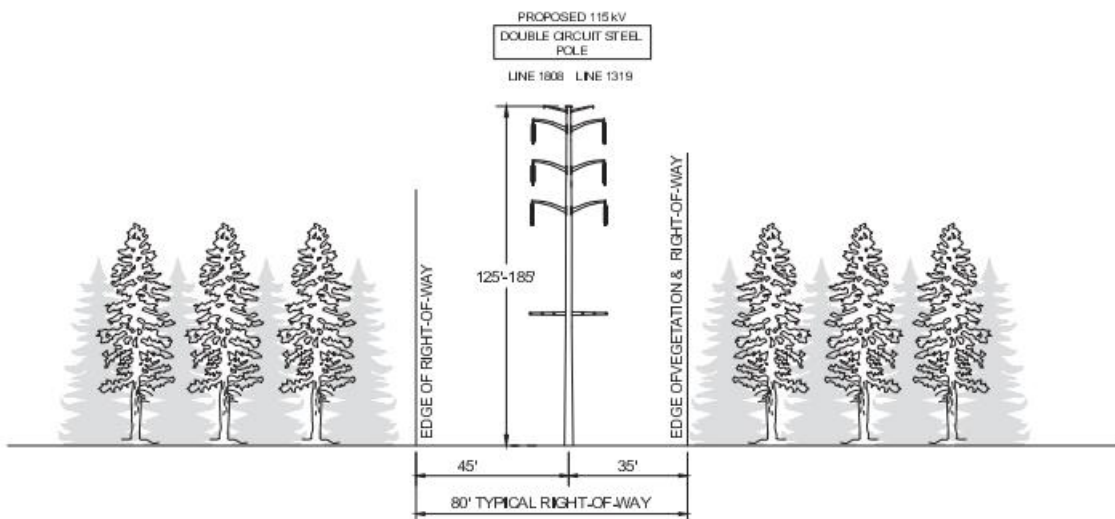
EXISTING R.O.W. CONFIGURATION
DOUBLE CIRCUIT STEEL LATTICE VERTICAL DESIGN
LOOKING FROM BEACON FALLS JCT. EAST TO BEACON FALLS S/S
IN THE TOWNS OF OXFORD & BEACON FALLS, CT
STRS. #318, 320 & 321



PROPOSED R.O.W. CONFIGURATION
NO ADDITIONAL RIGHT-OF-WAY REQUIRED
SINGLE CIRCUIT STEEL MONOPOLE VERTICAL DESIGN
LOOKING FROM BEACON FALLS JCT. EAST TO BEACON FALLS S/S
IN THE TOWNS OF OXFORD & BEACON FALLS, CT
STRS. #19411, 19411A, 19409, 19409A, 19408 & 19408A



EXISTING R.O.W. CONFIGURATION
DOUBLE CIRCUIT STEEL LATTICE VERTICAL DESIGN
LOOKING FROM BEACON FALLS JCT. EAST TO BEACON FALLS S/S
IN THE TOWN OF BEACON FALLS, CT
STRS. #324, 325 & 326



PROPOSED R.O.W. CONFIGURATION
NO ADDITIONAL RIGHT-OF-WAY REQUIRED
DOUBLE CIRCUIT STEEL MONOPOLE VERTICAL DESIGN
WITH LOWER ARMS TO SUPPORT DISTRIBUTION UNDERBUILD
LOOKING FROM BEACON FALLS JCT. EAST TO BEACON FALLS S/S
IN THE TOWN OF BEACON FALLS, CT
STRS. #19405, 19404, 19403, 19402 & 19401