GROTON UTILITIES

At Your Service

October 27, 2020

Melanie Bachman, Esq
Executive Director
Connecticut Siting Council
Ten Franklin Square
New Britain, CT 06051

Re: 1410/400/1280 Line Structure Replacement Project

Dear Ms. Bachman:

Groton Utilities, in its capacity as a municipal electric utility and Department of the City of Groton, is hereby requesting a Declaratory Ruling that no Certificate of Environmental Compatibility and Public Need is required for the proposed modifications to an existing 115-killovolt double-circuit and single circuit transmission lines, the 1410/400/1280 Structure Replacement Project, located in the City of Groton, Town of Groton and the Town of Ledyard, Connecticut ("Petition").

Prior to submitting this Petition, representatives from Groton Utilities briefed municipal officials in the Town of Groton about the Project. Information was also submitted to the Town of Ledyard about the Project, but they declined a briefing at that time. Groton Utilities provided written notice of the proposed work to all abutters and of the filing of this Petition with the Council. Maps and line lists identifying the abutting property owners who were notified of the Project are provided in the Petition as Attachment A: 1410/400/1280 Structure Replacement Project – Aerial Maps.

Per the Council's instructions in response to COVID-19, Groton Utilities is electronically filing a Motion for Protective Order, Protective Order, Non-disclosure Agreement and Affidavit in connection with a discussion in Section 2. of the Petition addressing the Purposes of the Project as it relates to ISO-NE Needs Assessment that have been designated CEII by ISO-NE.

Per the Council's instructions in response to COVID-19, Groton Utilities is submitting this filing electronically and will be providing one hard copy for the Council's records. Groton Utilities further understands that the Council will invoice the Company for the requisite $625 filing fee.

295 Meridian Street
Groton, Connecticut 06340
T 860-446-4000 F 860-446-4098

Sincerely,

On behalf of Groton Utilities

Robin Kipnis Digitally signed by Robin Kipnis Date: 2020.10.27 13:07:29 -04'00'

Robin Kipnis, Esquire
General Counsel
Connecticut Municipal Electric Energy Cooperative
30 Stott Avenue
Norwich, CT 06360

Enclosure

cc: The Honorable Patrice Granatasky, Town of Groton

The Honorable Fred Allyn III, Town of Ledyard

The Honorable Keith Hedrick, City of Groton

GROTON UTILITIES

PETITION TO THE CONNECTICUT SITING COUNCIL
FOR A DECLARATORY RULING OF
NO SUBSTANTIAL ADVERSE ENVIRONMENTAL EFFECT
FOR THE PROPOSED MODIFICATIONS TO THE EXISTING
1410/400/1280 LINE IN THE TOWN OF GROTON, CONNECTICUT

1. Introduction

Groton Utilities, in its capacity as a municipal electric utility and department of the City of Groton, Connecticut , ("Groton Utilities hereby petitions the Connecticut Siting Council ("Council") for a Declaratory Ruling 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 the 115-kilovolt ("kV") Line 1410, 69kV/ Line 400 and /115kV Line 1280 transmission lines ("1410/400/1280 Line"), a 115-kilovolt ("kV") double-circuit and single-circuit transmission line, located within an existing shared transmission line rights-of-way ("ROWs") in the Town of Groton, Connecticut ("Town") as described herein (the "Project"). Groton Utilities submits that a Certificate is not required because the proposed modifications would not have a substantial adverse environmental effect.

2. Purpose of the Project

In support of its Petition and for the purposes of the Project as it relates to the 1410 and 1280 transmission lines, Groton Utilities has filed a Motion for a Protective Order for ISO-NE's Eastern Connecticut 2029 Needs Assessment ("ECT") The ECT, is designated as containing CEII by ISO-NE. The ECT assessment, initiated due to changes in forecasted load, was performed for the area in eastern Connecticut that was not covered by the SWCT or the GHCC studies. The ECT evaluated the reliability performance and the identification of reliability-based transmission needs in the ECT study area for the year 2029 under two scenarios. All of the needs identified in the study were deemed time sensitive. The assessment found a

number of thermal and voltage violations under both scenarios. These findings with respect to the 1410 and 1280 transmission lines are the subject of this Petition.

Consistent with the findings in the ECT, a recent maintenance inspection of the 1410/400 and 1280 Lines, confirmed that 36 structures along the 1.7 mile City of Groton ROW have significant defects and are in need of replacement. The 1410/400 Line was originally constructed in 1950s on mostly wood structures. The 1280 Line was originally constructed in the 1974 on mostly wood structures. Recent assessment of the lines revealed that all 36 structures are in immediate need of replacement based on the following deficiencies: rotting, cracks, split tops and/or woodpecker damage.

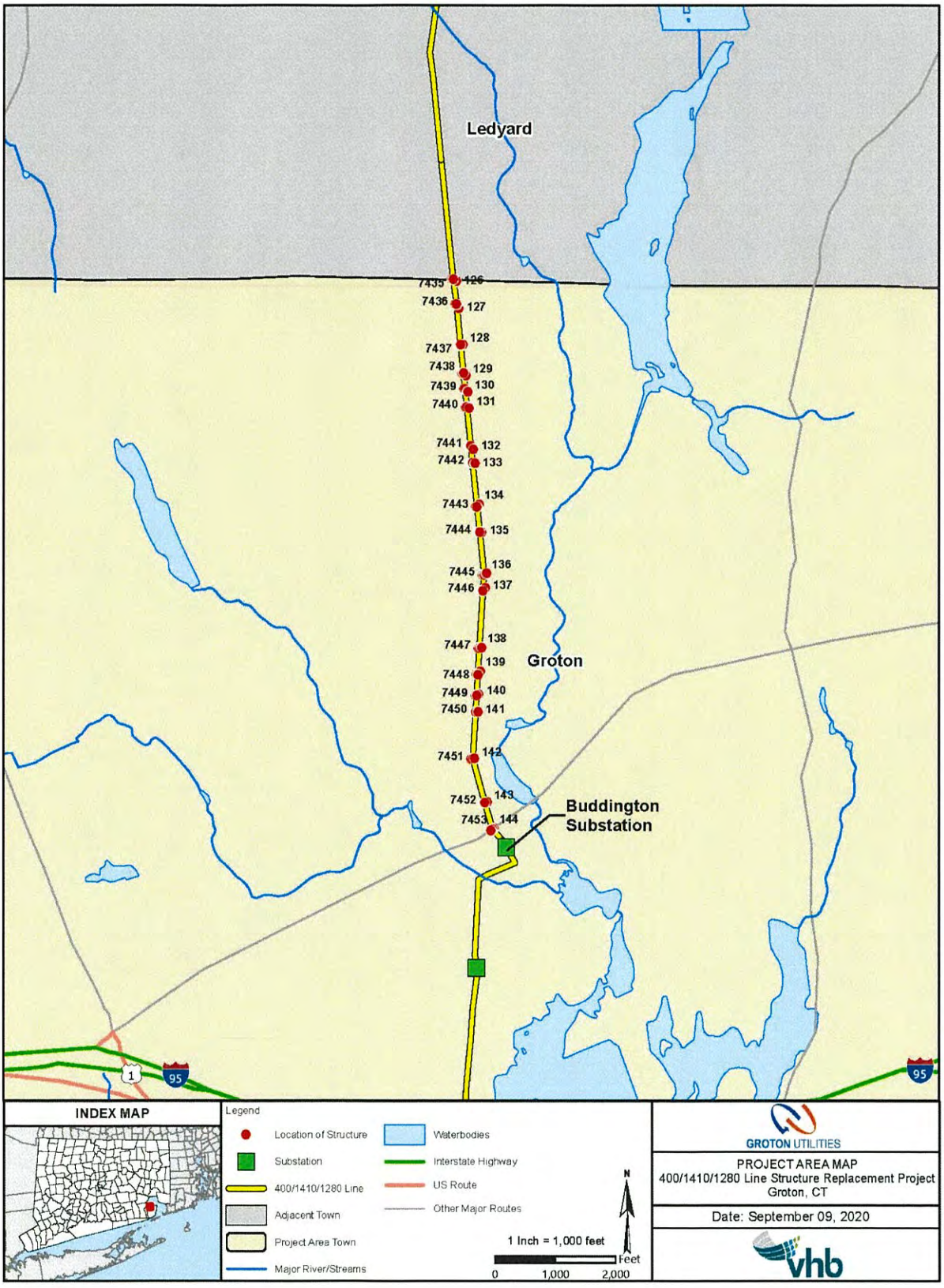
The purpose of this Project is to improve the reliability of the electric transmission system, by replacing the 36 structures within the ROW from the Groton/Ledyard municipal line to Buddington Substation, just north of Gold Star Highway in Groton, CT. In total, the Project will replace all 18 transmission structures on the double circuit 1410/400 Lines, and all of the 18 transmission structures on the single circuit 1280 Line.

Additionally, as part of improving the reliability of the electric transmission system, Groton Utilities is providing a transmission line protection scheme that includes backup communications from the Buddington substation splice box to the Ledyard-Groton town boundary where a connection will be made to the Eversource communications line. This protection scheme involves replacing the existing aerial shieldwire with a new Optical Ground Wire (OPGW) when replacing the structures. The existing 0.343" aluminum shieldwire will be replaced with 0.646" OPGW on both the 1410/400 and 1280 Lines. OPGW splice will be made at the Groton-Ledyard town line and at the termination point in Buddington substation. The installation of OPGW is not expected to have an impact in the Project construction, mobility,

environment, or the overall reliability of the transmission line. The existing line conductors will be maintained.

Figure 1 below illustrates the general location of the proposed Project area.

Figure 1: Project Area Map



3. Project Description

The Project scope consists of replacing 36 wood and steel structures on the 115- kV and 69 kV 1410/400 Lines and the 115kV 1280 Line between the Groton/Ledyard municipal line and the Buddington Substation, which is a distance of approximately 1.7 miles. All proposed new structures would be tubular steel poles and have direct embedded foundations. Six of the structures would also be guyed. The existing conductors on all 3 lines will be reused. The replacement of all structures in the Project limits will allow for the Lines in their entirety to be upgraded to current standards and address the deficiencies identified in the ECT, including clearance and strength requirements.

The proposed scope of work is summarized as follows:

- Replace 18 double-circuit wood h-frame structures on the 1410/400 Line (Structures: 7436 - 7450) with 17 weathered steel double circuit h-frame structures and 3 weathered steel monopole structures;
- Replace 18 single-circuit wood monopole guyed structures on the 1280 Line (Structures: 127 - 144) with 18 weathered steel monopole structures;
- Install approximately 1.7 circuit-miles of 0.646" 24-Core OPGW on the 1410/400 proposed structures;
- Install approximately 1.7 circuit-miles of 0.646" 24-Core OPGW on the 1280 proposed structures;
- Install new structure connection hardware, insulators, counterpoise and lightning arresters.

Access roads and ROW improvements will be required to support the proposed scope of work. The Project work will include some tree clearing and vegetation removal/mowing to accommodate access road installations and for the wider footprint proposed for the replacement structures to allow for the upgrade to current standards and also improvements and work pads to facilitate structure replacement work. Construction is expected to begin the first quarter of 2021 with an in-service date of all the lines in 2023.

The maps in Attachment A: "1410/400/1280 Line Structure Replacement Project – Aerial Maps" depicts the locations of existing and proposed structures and work pads to be used for the Project. Attachment A also shows the wetland areas and other ROW features, access roads and other Project elements. The cross-section drawings in Attachment B – "Line 1410/400/1280 Right of Way Cross Section" depict typical views along the ROW of the existing and proposed structures and the existing and proposed limits of managed and unmanaged ROW areas. Attachment C – "List of Structure Replacements" provides structure-by-structure information on structure heights and the type of foundation for the replacement structures. The heights of the existing structures range from 60 to 90 feet above ground level and some of the replacement structures must be taller to meet current National Electrical Safety Code clearance requirements. As Attachment C demonstrates, the replacement structures would generally be taller that the existing structures by 10 feet, with 12 structures more than 10 feet taller than the existing structures with the replacement structures ranging in height from 65 feet to 110 feet above ground level. The existing structure height and replacement structure height and the proposed difference in height can be found on Attachment C, List of Structure Replacement. **Existing Environment, Environmental Effects and Mitigation**

The Project would be constructed entirely within Groton Utilities ROW between the Groton/Ledyard municipal boundary and just north of Goldstar Highway in Groton, CT. No

expansion of the existing ROW would be required for the Project. The Project would not have a substantial adverse environmental effect, for reasons explained below.

Land Use

Land uses adjacent to the Project area consist of a mix of rural, residential, agricultural lands, and undeveloped lands, such as forests and successional habitats.

Though the Project would be traversing through some of these areas, it would not impact adjacent land uses due to the work occurring solely within the existing ROW. Groton Utilities would work with any affected property owners on any restoration needed upon completion of the Project.

Clearing and Vegetation Removal

The existing Project ROW width is 200 feet and is currently maintained to a cleared width of approximately125-145 feet. Clearance along the ROW would occur for the full width of the ROW. The Project is not anticipated to require significant tree clearing; however, minor tree clearing and side trimming would be conducted in select areas where additional temporary workspace is necessary for construction of the Project, or to maintain the required safety setbacks from the 1410/400/1280 Line wire zone. Some vegetation removal (including tree trimming) is required within the maintained ROW to accommodate access road installation and improvements or to remove incompatible species. Groton Utilities will retain the services of a professional licensed arborist to supervise the vegetation removal activities for the 400/1410/1280 Project. The same arborist is also being consulted by Eversource Energy in connection with their adjacent 400/1410-line structure replacement project in Ledyard.

Scenic, Recreational and Cultural Resources

No local, state or federally designated scenic or recreational resources were identified within the Project Area. No public open space properties or trails were identified through a desktop review of the Connecticut Department of Energy and Environmental Protection ("CT DEEP") GIS data, the Town of Groton trail mapping, and the National Park Service trail mapping, as well as field investigations.

a) A Phase 1A assessment review of previously recorded cultural resources on file with the Connecticut State Historic Preservation Office conducted by Heritage Consultants, LLC ("Heritage") did not identify any National or State Register of Historic Places properties/districts (built or above ground resources) located within 500 feet of the Work Areas. Based on a review of historic maps, aerial photographs and available soil profiles, three of the proposed structure replacement work pads and ten of the OPGW work pads were identified to possess a potential for moderate to high archaeological sensitivity. These locations were evaluated in the field with a pedestrian survey by Heritage. Heritage confirmed that 9 of the 13 locations retained the potential for moderate to high archaeological sensitivity and completed a Phase 1B cultural reconnaissance survey (soil pit testing) at the locations. The shovel pit testing found no physical evidence of archaeological significance, therefore, Heritage determined that no further investigation was warranted.

Wetlands, Watercourses, Waterbodies, Vernal Pools and Flood Zones

Groton Utilities identified and delineated water resources in the vicinity of the Project area in the summer of 2020 (see Attachment D: Wetlands and Watercourses Summary Report). Water resources within the Project area include inland wetlands and watercourses (perennial and intermittent streams). All work in or near these areas would be conducted in accordance with

2002 Connecticut Guidelines for Soil Erosion and Sediment Control ("*CT SESC Guidelines*") and with the conditions of applicable regulatory permit conditions and approvals. Details on each of these resource areas is provided below.

Wetlands

Wetlands in the Project area were identified and delineated in accordance with industry standard methodology (please refer to Attachment D for the Wetland and Watercourse Delineation Report). A total of nine (9) wetlands were identified in or proximate to the Project area. The Project will result in temporary impacts to five of the wetlands in the project area due to portions of access roads and work pads. Temporary timber matting will be used as temporary access and work pads and will be removed upon Project completion and wetland areas will be restored. There are no proposed permanent impacts to these wetlands as a result of the Project.

Wetland No.	Temporary Impacts (sf)
W9	641.00
W7	773.00
W4-WP	8,356.00
W4-AR	1,088.00
Total	**10,858.00**
AR=Access Road WP= Workpad	

Watercourses and Waterbodies

One intermittent and one ephemeral stream were identified within the Project area. (See to Attachment D for the Wetland and Watercourse Delineation Report). There are no proposed impacts to watercourses from the project activities.

Vernal Pools

No vernal pools were identified within or adjacent to the existing maintained ROW; therefore, no adverse impact to vernal pools would result from the proposed Work Activities.

FEMA Flood Zones

No 100-year FEMA flood zones were identified to the existing maintained ROW; therefore, no adverse impact to 100-year flood would occur from the proposed Work Activities.

Water Supply

Based on Aquifer Protection Areas ("APA") mapping maintained by CT DEEP, there are no APAs within or proximate to the Project ROW. A Public Water Supply Watershed (as provided by Connecticut Department of Public Health), owned by Groton Utilities was identified within the project area. Residences within the Project area are generally served by municipal water or private water supply wells. Therefore, no adverse impact to the water supply would occur.

Groton Utilities would require its contractors to employ best practices for the proper storage, secondary containment, and handling of diesel fuel, motor oil, grease and other lubricants, to protect water quality within the Project area. Construction activities would conform to *CT SESC Guidelines.*

Wildlife and Habitat

As a result of Groton Utilities' review of the Connecticut Department of Energy and Environmental Protection's ("CTDEEP") Natural Diversity Database ("NDDB"), only the Work Areas associated with access and work pads for Structures 142, 143, 144, 7451, 7452, and 7453 are proposed within a NDDB buffered area and therefore would be subject to a NDDB

review request. Groton Utilities is currently in consultation with CT DEEP regarding Groton Utilities' proposed work in these areas and will adhere to any state listed species protection measures recommended by CT DEEP, as necessary. The 1410/400/1280 Line, in its entirety, is in New England Cottontail (NEC) Habitat Area. Contractors shall be educated on NEC, their habitat preferences and vegetation to be removed vs. remain prior to beginning work. Work would be conducted to avoid or minimize impact to terrestrial habitats that may support rare species and New England Cottontail. Consequently, no adverse impact to rare species will result from activities proposed in the Work Areas.

Virtually all proposed work would occur within areas that have been subject to historic and ongoing disturbance associated with the operation and maintenance of the transmission line.

Visual Effects

The Project will result in some change to the visual character of the line, though Groton Utilities does not believe that the change will result in a significant impact. Minimal tree clearing is required within the ROW for the Project to meet operational clearance requirements and accommodate the installation of work pads. With the exception of Structures 7444 and 7447, which are being relocated approximately 100 feet south and 175 feet north respectively, replacement structures are proposed to be located as close as possible to the existing structures in accordance with engineering design constraints. The large displacement of the aforementioned structures is primarily a result of design efforts to reduce uneven spans on either side of the structures, thus increasing the structures reliability. In some cases, the proposed structure locations were driven by the required minimum clearance to ground – i.e. strategically spotting structures per terrain conditions to meet required ground clearances. All proposed structure locations have been optimized to maintain adequate working and installation clearances, wire clearance to ground, wire clearance to edge of right of way, and general constructability clearances.

Although the average structure's height above ground have increased for all proposed structures by 10-15 feet, the new structure locations are generally at lower elevations such that the overall conductor attachment elevations are not significantly altered which limits adverse visual effects. Visual effects are further mitigated by utilizing weathering steel for the new structures which is colored similarly to the existing wood poles. As a result, the new structures would not change the existing visual character of the Project area.

Sound Levels

The Project construction would result in short-term and localized noise, as is typical of any similar construction project, from the operation of equipment and other vehicles. There would be no permanent changes to the sound levels along the transmission ROW from the Project.

Air Quality

Short-term, localize d effects on air quality may result from the Project construction work, primarily from fugitive dust and equipment emissions. Compliance with the *CT SESC GUILDELINES* would minimize the amount of dust generated by construction activities by following proper erosion and sediment (E&S) control practices. Temporary gravel anti-tracking pads would be installed at points of construction vehicle ingress/egress from the ROW to minimize the potential for equipment to track dirt onto local roads. To further minimize dust, water may be used to wet down disturbed soils or work areas with heavy tracking as needed. Vehicle emissions will be limited by requiring contractors to properly maintain construction equipment and vehicles, and by minimizing the idling time of equipment and vehicles, including diesel construction equipment, in accordance with Connecticut regulatory requirements[1].

[1] Regulations of Connecticut State Agencies (RCSA) Section 22a-174-18(b)(3)(C) generally prohibits the idling of motor vehicles for more than three consecutive minutes when not in motion.

Radio and Television Interference

There will be no increase in radio interference or audible noise from the operation of the new transmission facilities.

4. Traffic Management

Construction vehicles and equipment used for the work would include pickup trucks, bucket trucks, flat-bed trucks, concrete trucks, drill rigs, front loaders, bulldozers, woodchippers, forklifts, side booms, dump trucks and cranes.

Construction-related vehicular and equipment movements would utilize public roads in the Project area to access the ROW. However, the Project-related traffic is generally expected to be temporary and highly localized in the vicinity of the ROW access points and at the staging areas. Due to phasing of construction work, these Project-related traffic movements are not expected to significantly affect transportation patterns or levels of service on public roads.

To safely move construction vehicles and equipment onto and off of the ROW while minimizing disruptions to vehicular traffic along public roads, Groton Utilities or its Project contractor would, as appropriate, work with the Towns and the Connecticut Department of Transportation ("CTDOT") to develop and implement traffic management procedures, as needed. The construction contractor is typically responsible for posting and maintaining construction warning signs along public roads near work sites and for coordinating the use of flaggers or police personnel to direct traffic, as necessary.

5. Construction Sequence

Project construction would include the following activities:

Establishing Staging Areas

The Project is proposing to utilize properties located at 931 Route 32 in North Franklin and 252 Butlertown Road in Oakdale for the staging and laydown areas. The North Franklin staging area is approximately 8.3 acres in size and located within the existing cleared areas identified in Figure 2 below. The Oakdale (Montville) staging area is approximately 4.1 acres in size and located within the existing cleared areas identified in Figure 3 below Other staging areas may be identified by the contractors and Groton Utilities would request Council authorization for any additional or alternative laydown areas for the Project.

The staging areas would be used for surface storage of construction materials, equipment, tools, and supplies (including, insulators, hardware, poles and mats) for the Project. Two office trailers and Conex storage containers may be located at the staging areas. Components removed during the work (structures, conductor, hardware and insulators) may be temporarily accumulated and stored at the staging areas prior to removal off-site for salvage and/or disposal. The staging areas may also be used by construction crews for parking personal vehicles as well as for construction vehicles and equipment storage, and for performing minor maintenance, when needed, on construction equipment. Appropriate E&S controls would be installed and maintained until completion of the work in accordance with Project permits and *CT SESC Guidelines.*

Figure 2: Proposed Staging and Laydown Area- 931 Rt. 32 North Franklin, CT

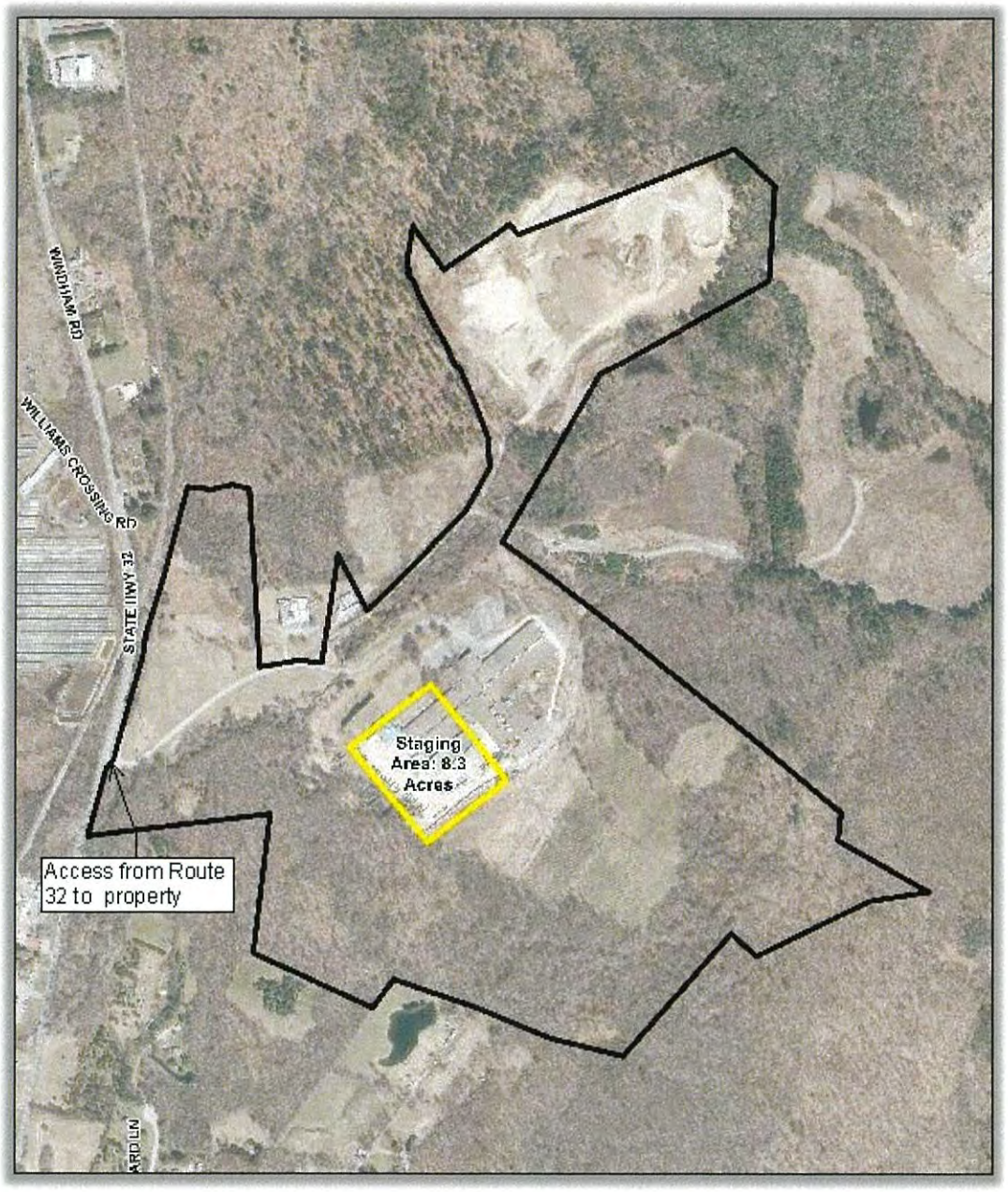


Figure 3: Proposed Oakdale (Montville) Staging and Laydown Area- 252 Butlertown Rd, Oakdale, CT.

Clearing and Vegetation Removal

The entire project line within New England Cottontail (NEC) Focus Area and clearing and vegetation removal will be limited to low impact clearing methods where practicable. Therefore, Groton Utilities will work in accordance with the proposed NEC Best Management Practices (BMPs) (please refer to Attachment G). The NEC BMPs provide a detailed description of protection measures, however presented below are some of the highlighted items, which have been adopted from the Eversource Energy NEC BMP protocol, with their permission.

Broad, non-selective mowing and the use of a feller-buncher or other mechanized land clearing equipment shall not be employed unless prior authorization is received from Groton Utilities. Mechanical methods may require the use of flat-bed trucks, brush hogs or other types of mowing equipment, skidders, forwarders, bucket trucks for canopy trimming, feller bunchers for mechanical tree cutting, woodchippers, log trucks, and chip vans.

Groton Utilities would require the clearing contractor to use low-impact clearing methods to remove brush vegetation to protect wetlands, watercourses, state-listed species and their habitats, NECs, and cultural resources. Low-impact clearing incorporates a variety of approaches, techniques, and equipment to minimize site disturbance. Groton Utilities would require the contractor to use some or all of the following low impact clearing methods, depending on site-specific considerations:

- Take into consideration soil and weather conditions when scheduling vegetation removal activities, such as during periods of heavy rainfall.
- Maximize the use of uplands for clearing access routes.
- Use appropriately sized equipment for the site conditions, where possible, to minimize impacts.

- Where practical, cut brush close to the ground, leaving root systems and stumps, to retain soil stability.
- Vegetation removal shall be limited to non-compatible species for NECs.
- All wood chips shall be removed from the ROW unless otherwise approved.
- Where not in conflict with any other permits, policies, or commitments, a portion of cut woody debris shall be left within the ROW to provide cover/structure for NECs.

Soil Erosion and Sediment Control Installation

Project construction would conform to best management practices for E&S control, including those provided in the *CT SESC*.

Typical E&S control measures include, but are not limited to, straw blankets, hay bales, silt fencing, gravel anti-tracking pads, soil and slope protection, water bars, check dams, berms, swales, plunge pools, and sediment basins. Silt fence would be installed prior to construction to intercept and retain sediment and/or construction materials from disturbed areas and prevent such materials from discharging to water resources or off ROW. Temporary E&S control measures would be maintained and inspected for the duration of the Project to ensure their integrity and effectiveness and for compliance with the *CT SESC Guidelines*. Following completion of construction, seeding and mulching or hydroseeding would be completed to permanently stabilize the areas disturbed by the work. The temporary E&S control measures would remain in place until the Project work is complete and all disturbed areas are stabilized.

Access Roads and Work Pads

Access to each proposed transmission structure location will be required during Project construction. As a result of maintenance activities, all access roads are already established;

Groton Utilities will utilize these existing access roads to the extent possible. The access roads expected to be used for the proposed Project are illustrated on the maps in Attachment A.

Existing access roads may need to be improved (graded, widened, and/or reinforced) with additional stone material in order to accommodate the safe passage of construction vehicles and equipment. Access road improvements typically include trimming adjacent vegetation and widening roads, as needed, to provide a minimum travel surface that is approximately 12 to 16 feet wide (additional width may be needed at turning or passing locations). Since the Project Area is within NEC Habitat Area, roads with long straightaways will be minimized and not exceed 13 feet where possible. Road widths may need additional widths at turns to accommodate equipment, turning, or passing locations. Access roads would typically be graveled.

At each transmission line structure site, a work pad is required to stage material for final on-site assembly and/or removal, and to provide a safe, level work base for the construction equipment. Typical work pads would be approximately 100 feet by 100 feet. Stonework pad sizes shall be minimized to the extent practicable.

A typical (upland) installation of a work pad at a structure location involves several steps: (1) removal of vegetation, (2) grading to create a level work area, and (3) removal of the upper three to six inches of topsoil (which is usually unsuitable to support the necessary construction activities). The removed topsoil would be temporarily stockpiled within the ROW, typically near the work pad. A rock base, which allows drainage, would be layered on top of filter fabric, if necessary. Additional layers of rock with dirt/rock fines (processed gravel) are typically placed over the rock base.

To facilitate future transmission line maintenance, access roads and structure work pads in uplands would be left in place, unless the property owner requests their removal. Access roads

and work pads located within improved areas would typically be removed and the area restored, unless the property owner requests that they remain in place. No new permanent access roads or work pads are proposed in water resource areas. The preliminary locations and configuration of the work pads, as determined based on the environmental field studies and constructability reviews, are shown on Attachment A.

Foundation Installation

All structures would have direct embedded foundations. Foundation installation work would require the use of equipment such as pneumatic hammers, augers, drill rigs, and dump trucks. If groundwater is encountered, pumping (vacuum) trucks or other suitable equipment would be used to pump water from the excavated areas as the shaft is being drilled or as the structure is being set. The water would then be discharged in accordance with applicable local, state and federal requirements.

Excavated soils that are generated during construction activities would not be stored or stockpiled inside of a wetland, or adjacent to a watercourse. Materials that cannot be utilized as backfill would be disposed in accordance with applicable state and local regulations.

Structure Assembly/Installation

Structure sections, structure components and hardware would be delivered to the individual structure locations using flat-bed trucks and assembled on-site using a crane and bucket trucks. After assembly, the area around direct embed foundations would be backfilled with processed gravel. Excavated soils will be spread in upland areas within the Project area, as needed.

Optical Ground Wire Installation

The new OPGW would be installed after the new structures are installed and the existing shield wire and conductor are transferred over. The shield wire to be replaced with the OPGW will

also be transferred to the new structures. It will be pulled out along the line and be replaced with a pulling rope as it is pulled out. The new OPGW will then be attached to the pulling rope and pulled in. The equipment required for these activities would include the same equipment as the conductor and shield wire transfers as well as reel trucks and bullwheel pullers.

Restoration

Restoration activities will be completed in accordance with the NEC BMP measures. Once the new structures have been erected, the conductor and shield wire transferred, OPGW installed, and the line is energized, the existing structures would be demolished and removed. ROW restoration activities would also include the removal of construction debris, signage, flagging, and temporary fencing, as well as the removal of construction mats and structure work pads that are designated for removal. Areas affected by construction would be re-graded as practical and stabilized using revegetation or other measures before removing temporary E&S controls.

Waste Management

Waste materials, such as structure components (i.e., wood and steel from the removed structures, associated hardware, etc.) and any other construction debris would be disposed of in accordance with state applicable regulations or recycled consistent with applicable rules and regulations and Groton Utilities policies. Excess soils would be managed in accordance with applicable state regulations and disposal facility policies. Dewatering during construction activities would be conducted in accordance with the *CT SESC Guidelines* and applicable regulations.

6. Construction Schedule and Work Hours

Groton Utilities proposes to begin construction in the first quarter of 2021. Normal work hours would be Monday through Saturday from 7:00 AM to 7:00 PM. Sunday work hours may be

necessary due to delays caused by inclement weather and/or outage constraints. Multiple crews may work concurrently on different sections of the line.

7. Electric and Magnetic Fields

Groton Utilities prepared calculations of the Existing and Proposed Electric and Magnetic Fields ("EMF") for the 1410/400 and 1280 Structure Replacement Project. The calculations were based on average annual loading conditions as these values are most representative of typical conditions. The calculations are made relative to the centerline of the existing and proposed transmission circuits. For the existing EMF calculations, the conductor clearance to ground are based on surveyed conductor positions. For the proposed EMF calculations, the conductor clearance to ground are the designed minimum clearance to ground – 32 feet above ground for the 1410/400 Line and 35 feet above ground for the 1280 Line.

For the 1410/400 and 1280 Line Structure Replacement Project, Groton Utilities proposes to replace the 1410/400 double-circuit wood structures with double-circuit tubular steel structures and replace the 1280 Line single-circuit wood monopole structures with single-circuit tubular steel monopole structures. Both the existing and proposed structure dimensions were used to determine the conductor distance to edge of right-of-way. By comparison, the largest difference between the existing and proposed structures are in the 1410/400 double-circuit structure width, where the overall structure width has increased by 17 feet. The proposed 1280 single-circuit structure width has decreased by one foot.

Due to an increase in the average structure height, there is a slight decrease in the maximum Electric and Magnetic Fields from the existing to proposed configurations. The decrease can be attributed to both changes in phase spacing on the proposed structures as well as differences in conductor elevations. Additionally, due to the phase conductors moving closer

to the edge of the ROW with the wider structure footprints, there is also a slight increase in Electric and Magnetic Fields and the edge of the ROW.

Table 1 summarizes the calculated Electric Fields at the ROW edges before and after the proposed modifications.

Table 1 - Summary of Calculated Electric Fields

Electric Field Calculation Summary						
Line Section	East Edge of ROW		Max in ROW		West Edge of ROW	
	Existing	Proposed	Existing	Proposed	Existing	Proposed
Groton Town Line to Buddington Substation	0.182	0.203	1.262	1.122	0.130	0.268

Table 2 summarizes the calculated Magnetic Fields at the ROW edges before and after the proposed modifications.

Table 2 - Summary of Calculated Magnetic Fields

Magnetic Field Calculation Summary						
Line Section	East Edge of ROW		Max in ROW		West Edge of ROW	
	Existing	Proposed	Existing	Proposed	Existing	Proposed
Groton Town Line to Buddington Substation	0.97	1.12	32.69	24.47	0.77	2.72

The results of the calculations show that the proposed modifications would not substantially increase Electric or Magnetic Fields at the edge of the ROW. See Attachment E: EMF Graphs.

Comparison of Calculated Fields to International Guidelines

The anticipated EMF resulting from the proposed Project would be well below the internationally established exposure limits for 60-Hz electric and magnetic fields. Specifically, these established exposure limits are the guideline limits identified by the International Council on Electromagnetic Safety ("ICES") and the International Council on Non-Ionizing Radiation Protection ("ICNIRP") as summarized below in Table 3.

Table 3 - International Guidelines for EMF Exposure

	EF (kV/m)	MF (mG)
ICES	5 - 10	9,040
ICNIRP	4.2	2,000

8. Municipal and Property Owner Outreach

Beginning in August of 2020, Groton Utilities provided municipal officials in the City and Town of Groton and Ledyard with information on the proposed Project. Additionally, in October 2020, Groton Utilities provided representatives of the Cities and Towns with written notice of the Petition filing.

Beginning in October 2020 Groton Utilities conducted outreach to property owners proximate to where the work activities will take place. In conjunction with the submission of this Petition all abutting property owners were notified of the filing and provided information on how to obtain additional information on the Project, as well as how to submit comments to the Council. Groton Utilities representatives will continue contact with adjacent property owners to provide advance notification as to the start of construction activities and will continue to update property owners throughout construction and restoration.

9. Conclusion

Based on the foregoing, Groton Utilities respectfully submits that the proposed modifications would not result in a substantial adverse effect on the environment, nor would they damage existing scenic, historical or recreational values. Accordingly, Groton Utilities requests that the Council issue a declaratory ruling that the proposed modifications would have no substantial adverse environmental effect.

Respectfully submitted,
Groton Utilities

By: Robin Kipnis Digitally signed by Robin Kipnis Date: 2020.10.27 13:09:21 -04'00'

Robin Kipnis, Esq.
General Counsel
Connecticut Municipal Electric Energy Cooperative
30 Stott Avenue
Norwich, CT 06360
860.383.1042
Its Attorney

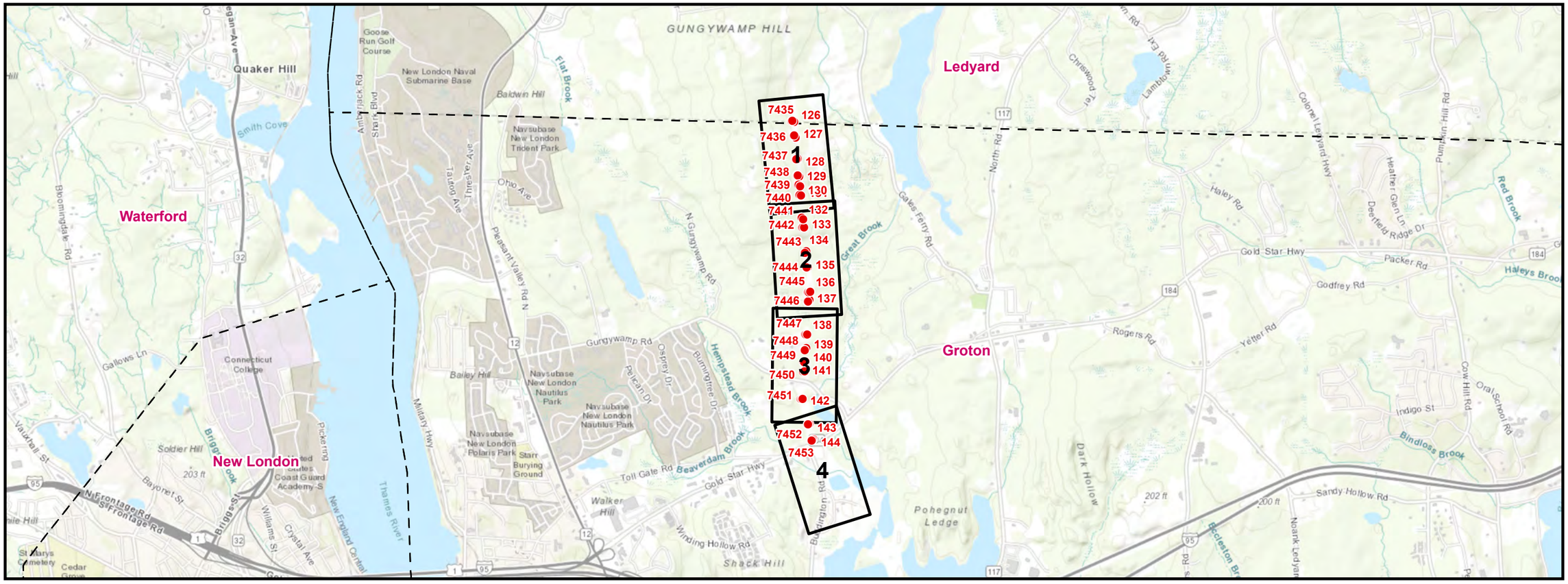
List of Attachments

Attachment A: 1410/400/1280 Line Structure Replacement Project – Aerial Maps
Attachment B: Line 1410/400/1280 – Right-of-Way Cross Sections
Attachment C: List of Structure Replacements
Attachment D: Wetland and Watercourses Delineation Report
Attachment E: EMF Graphs
Attachment F: Letter to the Abutters and Affidavit
Attachment G: New England Cottontail Best Management Practices

Attachment A: 400/1410/1280 Line Structure Replacement Project – Aerial Maps

400/1410/1280 Line Structure Replacement Project

Groton, CT
Overview Map
Petition Plan Set
October 13, 2020



● Structrure to be Replaced

0 0.75 1.5 3 Miles

N

PREPARED FOR:

GROTON UTILITIES

295 Meridian Street
Groton, CT 06340

INDEX OF FIGURES

T1 - Title Sheet
1-4 - Plan Sheets

NO.	DATE	REVISIONS	BY	CHK	APP	APP

PREPARED BY:

vhb

100 Great Meadow Road
Suite 200
Wethersfield, CT 06109

Mapsheet 1 of 4
Groton Utilities 400/1410/1280 Line Structure Replacement Project
Line 1280 Structures 126 -131 and Line 400/1410 Structures 7435- 7440
Town of Groton, Connecticut

AREA OF DESCRIPTION
Existing Land Use & Resource Areas
o Residential
o Undeveloped, Forest
o CT New England Control Focus Areas

AREA OF DESCRIPTION
Right-of-Way Land Use & Resource Areas
o Maintained Right-of-Way

Water Resources
o Wetland - W-5, W-6, W-7, W-8, W-9, W-10
o Wetland Cover Type - PSS1E, PSS/EM1E
o Watercourse - S-9, S-7
o Vernal Pool - None

Wetland and Watercourse Crossing
o None

Right-of-Way Vegetation
o Forest
o Scrub-Shrub

Access
o Existing Access from Giordano Driveway
o Existing Access from Gungywamp Road

Road Crossings
o None

Existing Maintained Right-of-Way Width
o Utility ROW is approximately 200 feet

ABUTTERS TO PROJECT RIGHT-OF-WAY

Line List	Owner First Name	Owner Last Name	Parcel Address	Town	State
100	Gale Michael & Gary Emil	Giordano	0 Gales Ferry Rd	Groton	CT

CT New England Cottontail Focus Area

TEMPORAY WETLAND IMPACT OF:
+/- 641 SF

TEMPORAY WETLAND IMPACT OF:
+/- 68 SF

TEMPORARY WETLAND IMPACT OF:
+/- 773 SF

Ledyard

LLN #100 Groton

Map Sheet 2

125 126 127 128 129 130 131

7434 7435 7436 7437 7438 7439 7440

W-5 W-6 W-7 W-8 W-9 W-10

S-6 S-7

1280 Line 1410 Line 400 Line

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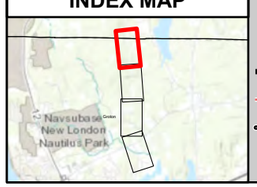
INDEX MAP



- Existing Structure Str
- Existing Structure to be Removed
- Proposed Structure Str
- Existing Right-of-Way (ROW)
- Overhead Line
- Existing Access (all necessary rights in place)
- Temporary Construction Matting
- Stone Work Pad
- Delineated Wetland Boundary Outline
- Delineated Ephemeral Watercourse
- Delineated Intermittent Watercourse
- Field Delineated Wetland
- FEMA 100-Year Flood Zone
- CT New England Cottontail Focus Area
- Rare Species Area (NDDB June 2020)
- Gate
- 10' Contour Line
- 2' Contour Line
- Map Sheet Match Line
- Parcel Boundary
- City of Groton Owned Parcel
- Municipal Boundary

Base Map Source:
2016 Aerial Imagery (CTDEP)

N

1 Inch = 200 feet

0 100 200 Feet

NO.	DATE	REVISIONS	BY	CHK	APP	APP

GROTON UTILITIES

400/1410/1280 Line Structure Replacement Project

Date: October 13, 2020 | Map Author: S.Pelletier

Ledyard, CT | Map Sheet 1 of 4

vhb

Mapsheet 2 of 4
Groton Utilities 400/1410/1280 Line Structure Replacement Project
Line 1280 Structures 132 -137 and Line 400/1410 Structures 7441- 7446
Town of Groton, Connecticut

AREA OF DESCRIPTION
Existing Land Use & Resource Areas
o Eversource Owned Property
o Undeveloped, Forest
o CT New England Control Focus Areas

AREA OF DESCRIPTION
Right-of-Way Land Use & Resource Areas
o Maintained Right-of-Way
o Eversource Owned Property 400/1410 Str. 133-135

Water Resources
o Wetland - W-3, W-4, W-5, W-6
o Wetland Cover Type - PSS1E
o Watercourse - S-4
o Vernal Pool - None

Wetland and Watercourse Crossing
o Access Crossing W-4 and S-4

Right-of-Way Vegetation
o Forest
o Scrub-Shrub

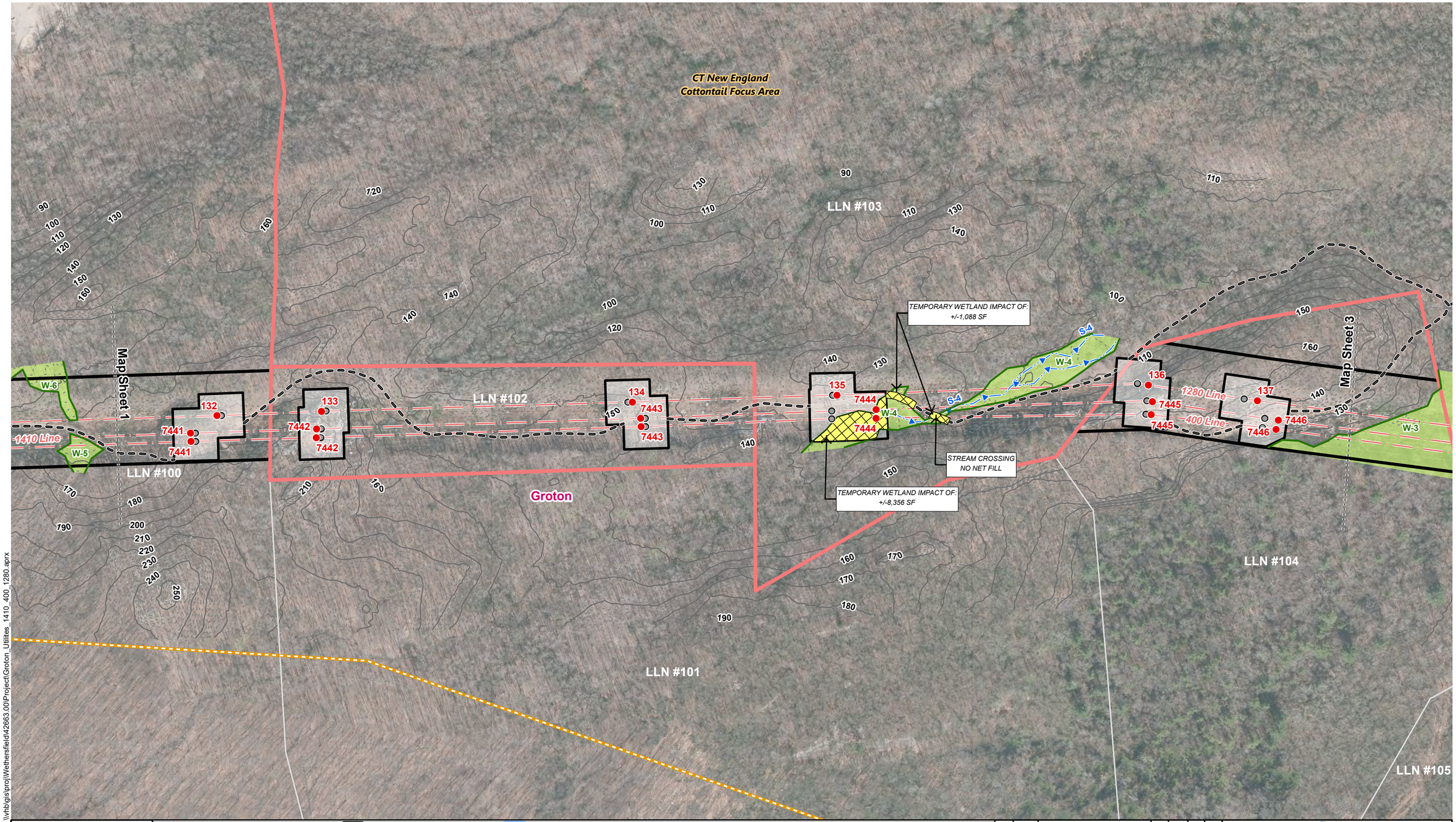
Access
o Existing Access from Giordano Driveway
o Existing Access from Gungywamp Road

Road Crossings
o None

Existing Maintained Right-of-Way Width
o Utility ROW is approximately 200 feet

ABUTTERS TO PROJECT RIGHT-OF-WAY

Line List	Owner First Name	Owner Last Name	Parcel Address	Town	State
100	Gale Michael & Gary Emil	Giordano	0 Gales Ferry Rd	Groton	CT
101	The Burrows Family LLC	N/A	0 Gungywamp Rd	Groton	CT
102	City of Groton Water Pump Station	N/A	0 Gungywamp Rd	Groton	CT
103	City of Groton	N/A	0 Gales Ferry Rd	Groton	CT
104	State of Connecticut - Dept. of Energy and Env Protection	N/A	0 Gungywamp Rd	Groton	CT
105	Joseph & Krisanne E	Scheetz	744 Gungywamp Rd	Groton	CT



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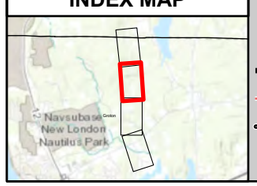
INDEX MAP



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- City of Groton Owned Parcel
- Municipal Boundary

Base Map Source:
2016 Aerial Imagery (CTDEP)

N

1 Inch = 200 feet

0 100 200 Feet

NO.	DATE	REVISIONS	BY	CHK	APP	APP

GROTON UTILITIES

400/1410/1280 Line Structure Replacement Project

Date: October 14, 2020 | Map Author: S.Pelletier

Ledyard, CT

vhb

Map Sheet 2 of 4

Mapsheet 3 of 4
Groton Utilities 400/1410/1280 Line Structure Replacement Project
Line 1280 Structures 138-142 and Line 400/1410 Structures 7447-7451
Town of Groton, Connecticut

AREA OF DESCRIPTION

Existing Land Use & Resource Areas
o Residential
o Eversource Owned Property
o Undeveloped, Forest
o CT New England Control Focus Areas
o 100-Year Flood Zone of Great Brook
o Natural Diversity Database Area

AREA OF DESCRIPTION

Right-of-Way Land Use & Resource Areas
o Maintained Right-of-Way
o Natural Diversity Database Area 400/1410 Str. 142
o Eversource Owned Property 400/1410 Str. 138-142

Water Resources
o Wetland - W-2, W-3
o Wetland Cover Type - PSS1E
o Watercourse - None
o Vernal Pool - None

Wetland and Watercourse Crossing
o None

Right-of-Way Vegetation
o Forest
o Scrub-Shrub

Access
o Existing Access from Gungywamp Road
o Existing Access from Gold Star Highway

Road Crossings
o Gungywamp Road

Existing Maintained Right-of-Way Width
o Utility ROW is approximately 200 feet

ABUTTERS TO PROJECT RIGHT-OF-WAY

Line List	Owner First Name	Owner Last Name	Parcel Address	Town	State
103	City of Groton	N/A	0 Gales Ferry Rd	Groton	CT
104	State of Connecticut - Dept. of Energy and Env Protection	N/A	0 Gungywamp Rd	Groton	CT
105	Joseph & Krisanne E	Scheetz	744 Gungywamp Rd	Groton	CT
106	City of Groton	N/a	0 Gold Star Hwy	Groton	CT

CT New England Cottontail Focus Area (Entire Map Sheet)

NDDB Area

LLN #103

LLN #104

LLN #105

LLN #106

Groton

Great Brook

GUNGYWAMP RD

Map Sheet 2

Map Sheet 4

W-2

W-3

138 139 140 141 142

7447 7448 7449 7450 7451

1280 Line
1410 Line
400 Line

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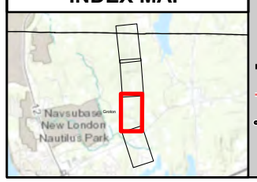
INDEX MAP



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Base Map Source: 2016 Aerial Imagery (CTDEP)

1 Inch = 200 feet

0 100 200 Feet

NO.	DATE	REVISIONS	BY	CHK	APP	APP

GROTON UTILITIES

400/1410/1280 Line Structure Replacement Project

Date: October 13, 2020 | Map Author: S.Pelletier

Ledyard, CT

vhb

Map Sheet 3 of 4

Mapsheet 4 of 4
Groton Utilities 400/1410/1280 Line Structure Replacement Project
Line 1280 Structures 143-144 and Line 400/1410 Structures 7452-7453
Town of Groton, Connecticut

AREA OF DESCRIPTION

Existing Land Use & Resource Areas

o Residential
o Utility Substation
o Commercial
o Eversource Owned Property
o Undeveloped, Forest
o CT New England Control Focus Areas
o 100-Year Flood Zone of Great Brook
o Natural Diversity Database Area

AREA OF DESCRIPTION

Right-of-Way Land Use & Resource Areas

o Maintained Right-of-Way
o Natural Diversity Database Area 400/1410 Str. 142 -143
o Eversource Owned Property 400/1410 Str. 143-144

Water Resources

o Wetland - W-3, W-4, W-5, W-6
o Wetland Cover Type - PSS1E
o Watercourse - S-4
o Vernal Pool - None

Wetland and Watercourse Crossing

o Access Crossing W-4 and S-4

Right-of-Way Vegetation

o Forest
o Scrub-Shrub

Access

o Existing Access from Giordano Driveway
o Existing Access from Gungywamp Road

Road Crossings

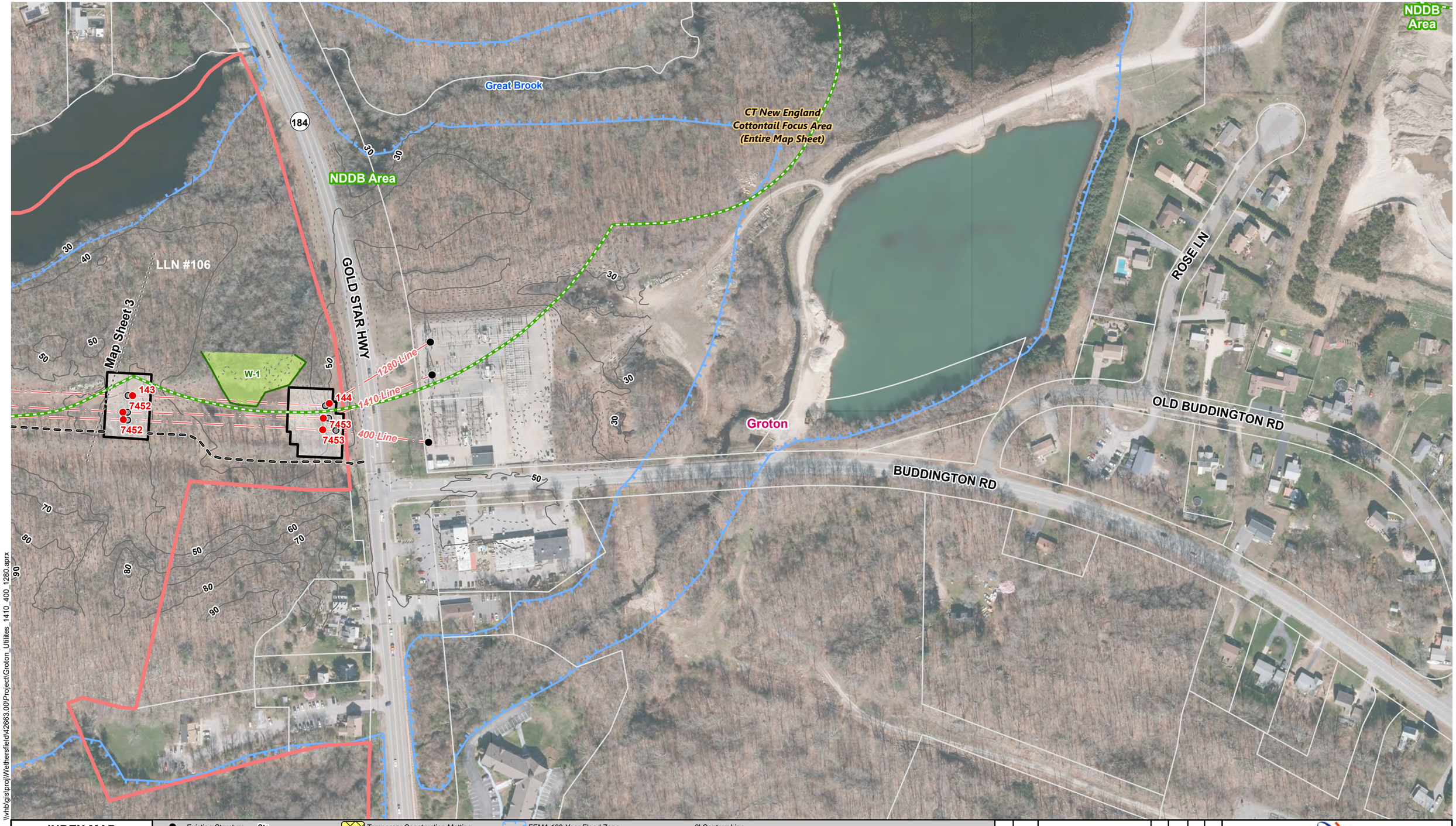
o None

Existing Maintained Right-of-Way Width

o Utility ROW is approximately 200 feet

ABUTTERS TO PROJECT RIGHT-OF-WAY

Line List	Owner First Name	Owner Last Name	Parcel Address	Town	State
106	City of Groton	N/a	0 Gold Star Hwy	Groton	CT



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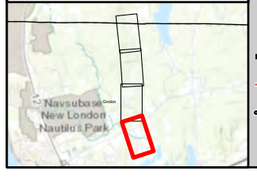
INDEX MAP



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1 Inch = 200 feet

0 100 200 Feet

NO.	DATE	REVISIONS	BY	CHK	APP	APP

GROTON UTILITIES

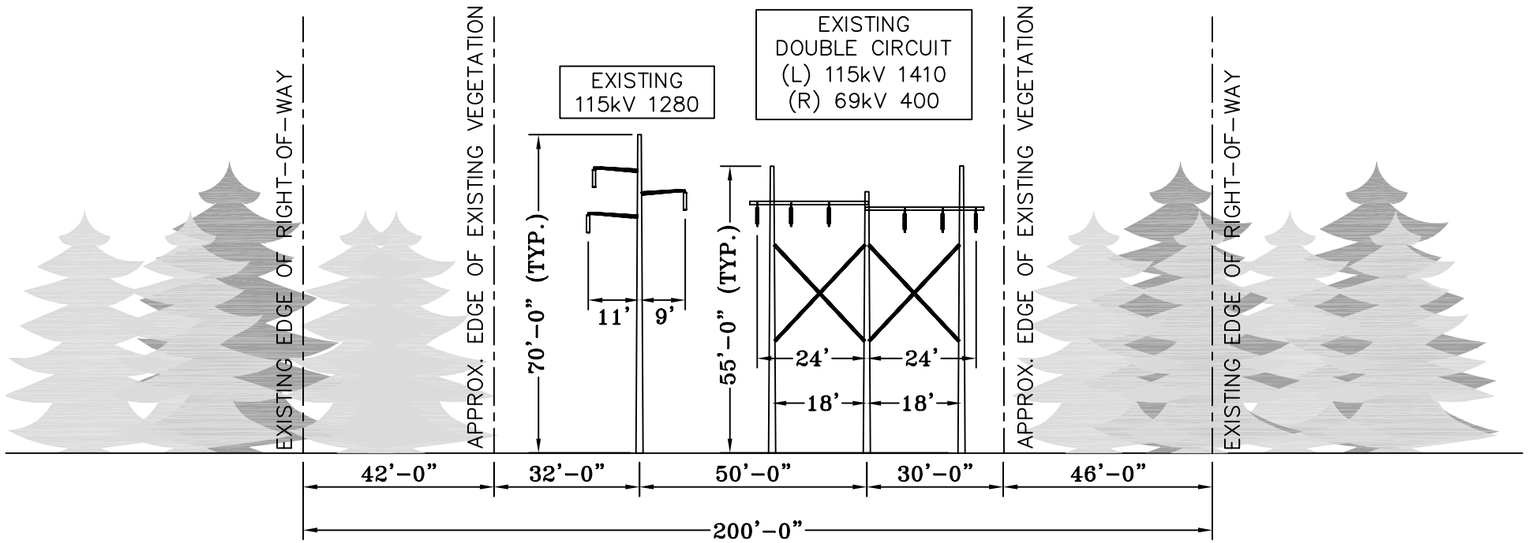
400/1410/1280 Line Structure Replacement Project

Date: October 13, 2020 | Map Author: S.Pelletier

Ledyard, CT | Map Sheet 4 of 4

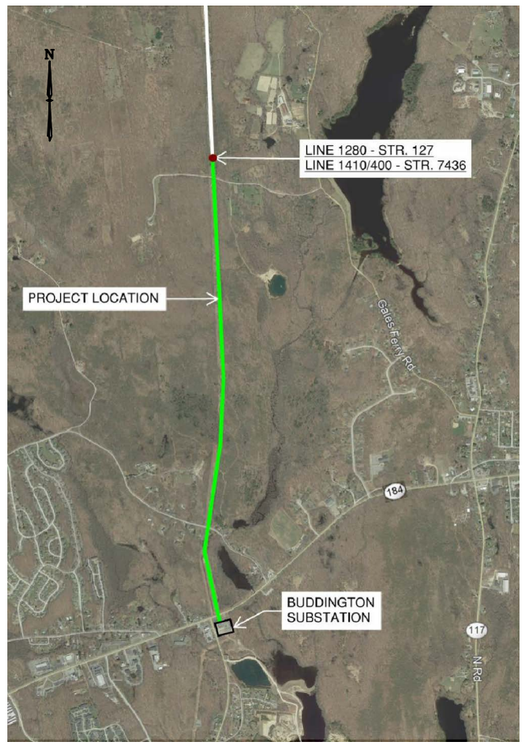
vhb

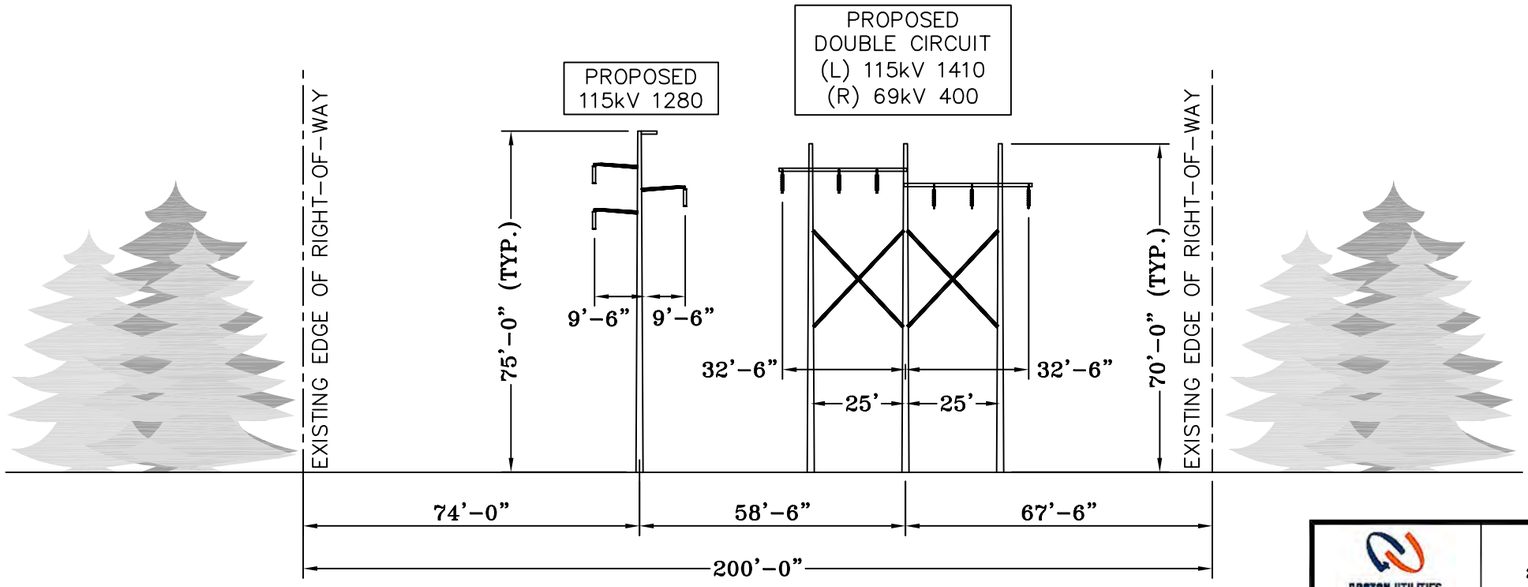
Attachment B: 400/1410/1280 Line – Right-of-Way Cross Sections



EXISTING R.O.W. CONFIGURATION
LOOKING SOUTH TOWARD BUDDINGTON SUBSTATION
TOWN OF GROTON, CT

PROJECT SPAN





PROPOSED R.O.W. CONFIGURATION
LOOKING SOUTH TOWARD BUDDINGTON SUBSTATION
TOWN OF GROTON, CT

leidos

DWG REV	EPN/DESCRIPTION	CONT/PE#	DATE	DRN	CHKD	APPR
0	ISSUED FOR REVIEW	LEIDOS	10/16/20	GEB	DWW	JFH

GROTON UTILITIES
BOZRAH LIGHT & POWER
"let your service"

GROTTON UTILITIES
295 MERIDIAN STREET
GROTON, CT 06340
PHONE: (860)446-400

T 1

1410/400 & 1280 TRANSMISSION LINE STRUCTURE REPLACEMENT
RIGHT-OF-WAY CROSS SECTION
TOWN OF GROTON, CT

DRAWN	GEB
ENGINEER	MIG
CHECKED	DWW
APPROVED	JFH
DATE	10/16/2020
SCALE	N.T.S.
FILE:	CROSS SECTIONS.DWG
IMAGE:	
DRAWING NO.	001-ROW

Attachment C: List of Structure Replacements

400/1410 Trasnimssion Line Structure Replacement Project								
Structure Number	**Existing Structure Type Line 400**	**Existing Structure Type Line 1410**	**Existing Height Line 400 (ft)**	**Existing Height Line 1410 (ft)**	**Proposed Structure Type**	**Foundation Type**	**Proposed Height (ft)**	**Height Difference (ft)**
7436	Wood Pole	DC Wood Pole	55/55/55		DC Tubular Steel	Direct Imbed	65/65/65	10/10/10
7437	Wood Pole	DC Wood Pole	65/60/65		DC Tubular Steel	Direct Imbed	75/75/75	10/15/10
7438	Wood Pole	DC Wood Pole	55/55/55		DC Tubular Steel	Direct Imbed	65/65/65	10/10/10
7439	Wood Pole	DC Wood Pole	55/55/55		DC Tubular Steel	Direct Imbed	65/65/65	10/10/10
7440	Wood Pole	DC Wood Pole	65/65/65		DC Tubular Steel	Direct Imbed	85/85/85	20/20/20
7441	Wood Pole	DC Wood Pole	65/60/65		DC Tubular Steel	Direct Imbed	80/80/80	15/20/15
7442	Wood Pole	DC Wood Pole	65/65/65		DC Tubular Steel	Direct Imbed	65/65/65	0/0/0
7443	Wood Pole	DC Wood Pole	65/60/65		DC Tubular Steel	Direct Imbed	75/75/75	10/5/10
7444	Wood Pole	DC Wood Pole	65/60/65		DC Tubular Steel	Direct Imbed	90/90/90	25/30/25
7445 LINE 400	Wood Pole	DC Wood Pole	65/60		DC Tubular Steel	Direct Imbed	85/85/85	10/15
7445 LINE 1410	Wood Pole	DC Wood Pole		65/60	DC Tubular Steel	Direct Imbed	85/85/85	10/15
7446	Wood Pole	DC Wood Pole	65/65/65		DC Tubular Steel	Direct Imbed	85/85/85	10/10/10
7447	Wood Pole	DC Wood Pole	65/60/65		DC Tubular Steel	Direct Imbed	90/90/90	25/30/25
7448	Wood Pole	DC Wood Pole	65/60/66		DC Tubular Steel	Direct Imbed	80/80/80	15/20/14
7449	Wood Pole	DC Wood Pole	55/50/55		DC Tubular Steel	Direct Imbed	60/60/60	5/10/5
7450	Wood Pole	DC Wood Pole	55/55/55		DC Tubular Steel	Direct Imbed	70/70/70	15/15/15
7451 LINE 400	Wood Pole	DC Wood Pole	65/60		DC Tubular Steel	Direct Imbed	105	40
7451 LINE 1410	Wood Pole	DC Wood Pole		65/60	DC Tubular Steel	Direct Imbed	105	40
7452	Wood Pole	DC Wood Pole	65/65/65		DC Tubular Steel	Direct Imbed	90/90/90	25/25/25
7453 LINE 400	Wood Pole	DC Wood Pole	65/65		DC Tubular Steel	Direct Imbed	90/90/90	25/25
7453 LINE 1410	Wood Pole	DC Wood Pole		90	DC Tubular Steel	Direct Imbed	110	20

DC= Double-Circuit

1280 Transmission Line Structure Replacement Project						
Structure Number	**Existing Strucure Type**	**Existing Height AGL (ft)**	**Proposed Structure Type**	**Foundation Type**	**Proposed Height AGL (ft)**	**Height Difference (ft)**
127	Wood Monopole	70.00	Steel Monopole	Direct Imbed	74.5	4.5
128	Wood Monopole	75.0	Steel Monopole	Direct Imbed	74.5	-0.5
129	Wood Monopole	60.0	Steel Monopole	Direct Imbed	65.5	5.5
130	Wood Monopole	60.0	Steel Monopole	Direct Imbed	65.5	5.5
131	Wood Monopole	75.0	Steel Monopole	Direct Imbed	83.5	8.5
132	Wood Monopole	60.0	Steel Monopole	Direct Imbed	74.5	14.5
133	Wood Monopole	60.0	Steel Monopole	Direct Imbed	65.5	5.5
134	Wood Monopole	60.0	Steel Monopole	Direct Imbed	70.0	10
135	Wood Monopole	75.0	Steel Monopole	Direct Imbed	83.5	8.5
136	Wood Monopole	85.0	Steel Monopole	Direct Imbed	86	1
137	Wood Monopole	80.0	Steel Monopole	Direct Imbed	84	4
138	Wood Monopole	80.0	Steel Monopole	Direct Imbed	84	4
139	Wood Monopole	65	Steel Monopole	Direct Imbed	70.0	5
140	Wood Monopole	60.0	Steel Monopole	Direct Imbed	61.0	1
141	Wood Monopole	60.0	Steel Monopole	Direct Imbed	70.0	10
142	Wood Monopole	75.0	Steel Monopole	Direct Imbed	83.0	8
143	Wood Monopole	90.0	Steel Monopole	Direct Imbed	96.0	6
144	Wood Monopole	70.0	Steel Monopole	Direct Imbed	78.0	8

Attachment D: Wetland and Watercourses Delineation Report

October 14, 2020

Ref: 42663.00

Mr. Randall Surprenant
Acting Manager of Operations
Groton Utilities
295 Meridian Street
Groton, CT 06340
(860) 446-4000

Re: Wetland & Watercourse Delineation Report
1410/400/1280 Line, Groton, CT

Dear Mr. Surprenant,

VHB completed an on-site investigation to determine the presence or absence of wetlands and/or watercourses on the 1410/400/1280 Line right-of-way (ROW), from Structure 7435 to the Buddington Substation south of Gold Star Highway in Groton, CT and as requested and authorized. This investigation involved a wetland/watercourse delineation that was completed by a qualified staff soil scientist and conducted in accordance with the principles and practices noted in the United States Department of Agriculture (USDA) Soil Survey Manual (1993). The soil classification system of the National Cooperative Soil Survey was used in this investigation to identify the soil map units present on the project site.

INVESTIGATION

The project Site was investigated on July 13 and 14, 2020 with a temperature average of 80 °F under partly cloudy conditions. Soil types were identified by observing soil morphology (soil texture, color, structure, etc.). Soil morphology was evaluated through numerous test pits and/or hand borings (generally to a depth of at least two feet). If a wetland and/or watercourse was present, the boundaries were identified with vinyl flagging tape and hung from vegetation or small wire stakes if in fields or grass communities. These flags are labeled “Wetland Delineation” and generally spaced a maximum of approximately 50 feet apart. It is important to note that flagged wetland and watercourse boundaries are subject to change until verified by local, state, or federal regulatory agencies.

100 Great Meadow Road
Wethersfield, Connecticut 06109
P 860.807.4300
F 860.372.4570

REGULATORY INFORMATION

Wetlands and watercourses are regulated by both state and federal law each with different definitions and regulatory requirements. Accordingly, the State may regulate waters that fall outside of federal jurisdiction; however, where federal jurisdiction exists concurrent State jurisdiction is almost always present.

State Regulation

Wetland determinations are based on the presence of poorly drained, very poorly drained, alluvial, or floodplain soils and submerged land. *Watercourses* are defined as "rivers, streams, brooks, waterways, lakes, ponds, marshes, swamps, bogs and all other bodies of water, natural or artificial, vernal or intermittent, public or private, which are contained within, flow through or border upon the state or any portion thereof." *Intermittent watercourse* determinations are made based on the presence of a defined permanent channel and bank, and two of the following characteristics: (1) evidence of scour or deposits of recent alluvium or detritus, (2) the presence of standing or flowing water for a duration longer than a particular storm incident, and (3) the presence of hydrophytic vegetation. (See Inland Wetlands and Watercourses Act §22a-38 CGS.)

WETLAND AND WATERCOURSE SITE DESCRIPTION

Wetland classifications used to identify the type of wetland(s) occurring on the project site are based on guidance from the U.S. Fish and Wildlife Service (USFWS) (Cowardin et.al. 1979). These are further qualified with the Hydrogeomorphic Method of wetland classification (Brinson, 1993).

Wetland/Watercourse Descriptions

The following nine (9) on-site wetlands were delineated during the July 13 and 14, 2020 visit:

- Wetland 1 consists of a palustrine scrub-shrub wetland system (USFWS class: PSS1E) that was delineated using sequentially numbered flags 1-100 through 1-110 with open ends on each end (See Map Sheet 4 of 4). Wetland 1 is situated north of Gold Star Highway on the east side of the ROW between Structures 7453 and 7452 (1410 Line). The wetland is fed by groundwater discharge. During the delineation only the western edge of the wetland was flagged as the eastern side is located outside of the ROW. The off-ROW portion of the wetland consists of a palustrine forested wetland system (USFWS class: PFO1E).

- Wetland 2 consists of a palustrine scrub-shrub wetland system (USFWS class: PSS1E) that was delineated using sequentially numbered flags 2-100 through 2-105 with open ends on each end (See Map Sheet 3 of 4). Wetland 2 is situated south of Gungywamp Road and north of Structure 7451 (1410 Line) on the east side of the ROW. The wetland is fed by groundwater discharge,

with saturated conditions in the center of the wetland and a small intermittent stream channel that forms outside the ROW. During the delineation the eastern edge of the wetland was not flagged as it is located outside of the ROW. The off-ROW portion of the wetland consists of a palustrine forested wetland system (USFWS class: PFO1E).

- Wetland 3 consists of a palustrine scrub-shrub wetland system (USFWS class: PSS1E) that was delineated using sequentially numbered flags 3-100 through 3-111 along the southern edge with open ends on each end, and sequentially numbered flags 3-200 through 3-212 along the northern edge with open ends on each end (See Map Sheets 2/3 of 4). Wetland 3 is situated north of Gungywamp Road and spans the entire width of the ROW between Structures 7447 and 7446 (1410 Line). The wetland is fed by groundwater discharge. The off-ROW portion of the wetland consists of a palustrine forested wetland system (USFWS class: PFO1E).

- Wetland 4 consists primarily of a palustrine scrub-shrub wetland system (USFWS class: PSS1E), with a portion of palustrine emergent wetland system (USFWS class: PEM1E) within. The wetland was delineated using sequentially numbered flags 4-100 through 4-118 along the western edge with open ends on each end, and sequentially numbered flags 4-200 through 4-224 along the eastern edge with open ends on each end (See Map Sheet 2 of 4). Wetland 4 is situated north of Gungywamp Road a spans the entire width of the ROW between Structures 7444 and 7445 (1410 Line). The wetland is fed by groundwater discharge. Wetland 4 is associated with an unnamed intermittent stream that originates within the northwestern portion of the wetland and flows off-ROW to the southeast. The off-ROW portion of the wetland consists of a palustrine forested wetland system (USFWS class: PFO1E).

- Wetland 5 consists of a dominant palustrine scrub-shrub wetland system (USFWS class: PSS1E), with a portion of palustrine emergent wetland system (USFWS class: PEM1E) within, that was delineated using sequentially numbered flags 5-100 through 5-110 with open ends on each end (See Map Sheets 1/2 of 4). Wetland 5 is situated north of Gungywamp Road on the west side of the ROW between Structures 7441 and 7440 (1410 Line). The wetland is fed by groundwater discharge, which becomes impounded along the access road at the downgradient edge of the wetland. During the delineation the western edge of the wetland was not flagged as it is located outside of the ROW. The off-ROW portion of the wetland consists of a palustrine forested wetland system (USFWS class: PFO1E).

- Wetland 6 consists of a dominant palustrine scrub-shrub wetland system (USFWS class: PSS1E), with a portion of palustrine emergent wetland system (USFWS class: PEM1E) within, that was delineated using sequentially numbered flags 6-100 through 6-130 with open ends on each end (See Map Sheets 1/2 of 4). Wetland Area 6 is situated is situated north of Gungywamp Road on the east side of the ROW between Structures 7441 and 7440 (1410 Line). The wetland is fed by groundwater discharge. Portions are situated on a slope downgradient of the access road across from Wetlands 5 and 8, and another portion is downgradient of Wetland 7. During the delineation the eastern edge of the wetland was not flagged as it is located outside of the ROW.

The off-ROW portion of the wetland consists of a palustrine forested wetland system (USFWS class: PFO1E).

- Wetland 7 consists of a palustrine scrub-shrub wetland system (USFWS class: PSS1E) that was delineated using sequentially numbered flags 7-100 through 7-105 (See Map Sheet 1 of 4). Wetland Area 7 is situated north of Gungywamp Road on the west side of the ROW at the base of Structure 7440 (1410/400 Line). The wetland is fed by groundwater. Wetland 7 is associated with Unnamed ephemeral Stream 7, which begins at the southeastern corner of the wetland and runs in a narrow steep channel down the existing slope and offsite to the southeast before connecting to Wetland 6.

- Wetland 8 consists of a small isolated mixed palustrine scrub-shrub wetland system (USFWS class: PSS1E) and palustrine emergent wetland system (USFWS class: PEM1E), that was delineated using sequentially numbered flags 8-100 through 8-106 with open ends on each end (See Map Sheet 1 of 4). Wetland Area 8 is situated is situated north of Gungywamp Road on the west side of the ROW between Structures 7441 and 7440 (1410 Line). The wetland is fed by groundwater discharge, which becomes impounded along the access road at the downgradient edge of the wetland.

- Wetland 9 consists of a palustrine scrub-shrub wetland system (USFWS class: PSS1E) that was delineated using sequentially numbered flags 9-103 through 9-112 (See Map Sheet 1 of 4). Wetland Area 9 is situated north of Gungywamp Road on the east side of the ROW, immediately south of Structure 7436 (1410 Line). The wetland is fed by groundwater discharge. Wetland 9 is associated with ephemeral Stream 9, which begins at the southeastern end of the wetland and flows off-ROW to the southeast. The centerline of the stream channel was delineated with flags 9-102 through 9-100.

The following three (3) on-Site freshwater watercourses were delineated during the July 13 and 14, 2020 visit. Each stream is associated with a wetland and is numbered according:

- Stream 4 is located within Wetland 4 and consists of a Riverine Unnamed Intermittent Unconsolidated Muddy Bottom system (USFWS class: R4UB3) that was delineated using sequentially numbered flags 4-300 through 4-318 and 4-400 to 4-405. The stream begins as a narrow channel and broadens out into a series of braided channels before flowing off the ROW. The centerline of the stream was delineated with flags 4-318 to 4-307; the boundaries of the braided channels in the lower portion of the stream were delineated with flags 4-306 to 4-300 and 4-405 to 4-400. Flags are open ended where the stream flows off the ROW in the southeastern portion of Wetland 4 (Map Sheet 2 of 4). This riverine system is fed by groundwater discharge and surface runoff.

- Stream 7 consists of a Riverine Unnamed Ephemeral Unconsolidated Organic system that was delineated using sequentially numbered flags 7-106 through 7-109 before connecting to

Wetland 6 downgradient where the stream goes off the ROW (See Map Sheet 1 of 4). The centerline of the stream channel connects to Wetland 7 upgradient. The watercourse begins from the southeastern corner of Wetland 7 and flows off-ROW in a southeasterly direction. This riverine system is fed mainly by surface runoff and groundwater discharge.

- Stream 9 consists of a Riverine Unnamed Ephemeral Unconsolidated Sandy Bottom system that was delineated using sequentially numbered flags 100 through 102 with an open end on the eastern side where the stream goes off the ROW (See Map Sheet 1 of 4). The centerline of the stream channel connects to Wetland 9 upgradient. The watercourse begins from the southeastern corner of Wetland 9 and flows off-ROW in a southeasterly direction. This riverine system is fed mainly by surface runoff.

TABLE 1: Dominant Vegetation within and adjacent to the wetlands (Common (*Scientific)* names.)

TREES & SAPLINGS				
Scientific	**Common**	**Indicator**	**Upland**	**Wetland**
Acer rubrum	Red Maple (W2, 3, 5, 6)	FAC	X	X
Betula alleghaniensis	Yellow Birch (W6)	FAC	X	X
Fagus Grandifolia	American Beech (W6)	FACU	X	-
Fraxinus pennsylvanica	Green Ash	FACW	-	X

SHRUBS				
Scientific	**Common**	**Indicator**	**Upland**	**Wetland**
Clethra alnifolia	Sweet Pepperbush (W1, 3, 4, 7)	FAC	X	X
Lindera benzoin	Northern Spicebush (W2, 4)	FACW	-	X
Vaccinium corymbosum	Highbush Blueberry (W3, 4)	FACW	-	X
Rosa palustris	Swamp Rose (W4)	OBL	-	X
Spiraea tomentosa	Steeplebush (W4)	FACW	-	X
*Rosa multiflora**	Multiflora Rose* (W5, 6, 7, 9)	FACU	X	-

HERBS & VINES				
Scientific	**Common**	**Indicator**	**Upland**	**Wetland**
Sphagum sp.	Peat Moss (W1, 3, 4, 5, 6, 8)	OBL	-	X
Scirpus cyperinus	Woolgrass (W1, 3, 4, 5, 6)	OBL	-	X
Onoclea sensibilis	Sensitive Fern (W2, 4, 5, 6, 7, 8, 9)	FACW	-	X
Symplocarpus foetidus	Eastern Skunk Cabbage (W2, 3, 6, 8)	OBL	-	X
Osmunda cinnamomea	Cinnamon Fern (W2, 3, 8, 9)	FACW		X

HERBS & VINES				
Scientific	**Common**	**Indicator**	**Upland**	**Wetland**
Circaea canadensis	Broad-leaved Enchanter's Nightshade (W2)	FACU	X	-
Typha latifolia	Broad-leaf Cattail (W4)	OBL	-	X
*Phragmites australis**	Common Reed* (W4, 8)	FACW	-	X
Impatiens capensis	Common Jewelweed (W4)	FACW	-	X
Carex intumescens	Bladder Sedge (W4)	FACW	-	X
Carex lurida	Shallow Sedge (W4, 7)	OBL	-	X
Smilax rotundifolia	Greenbrier (W4, 5, 6, 8)	FAC	X	X
Leersia oryzoides	Rice Cutgrass (W4)	OBL	-	X
Thelypteris noveboracensis	New York Fern (W5, 6, 8)	FAC	X	X
Osmunda claytoniana	Interrupted Fern (W5, 6)	FAC	X	X
Dichanthelium clandestinum	Deer Tongue Rosette Grass (W9)	FACW	-	X
Dennstaedtia punctilobula	Hay-Scented Fern (W9)	UPL	X	-

*Connecticut State non-native invasive species

SOIL MAP TYPES

A brief description of each soil map unit identified on the project site is presented below including information from the United States Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) soil descriptions. Further information on these and other soils, please refer to the internet site at https://soilseries.sc.egov.usda.gov/.

Upland Soils

Agawam fine sandy loam, 0 to 3 percent slopes (29A)

The Agawam series consists of very deep, well drained soils formed in sandy, water deposited materials. They are level to steep soils on outwash plains and high stream terraces. Slope ranges from 0 to 15 percent. Saturated hydraulic conductivity is moderately high or high in the upper solum and high or very high in the lower solum and substratum. Diagnostic features recognized in this pedon include ochric epipedon (Ap horizon) and cambic horizon (Bw horizons).

Hinckley loamy sand, 3 to 15 percent slopes (38C)

The Hinckley series consists of very deep, excessively drained soils formed in glaciofluvial materials. They are nearly level through very steep soils on outwash terraces, outwash plains, outwash deltas, kames,

kame terraces, and eskers. Saturated hydraulic conductivity is high or very high. Slope ranges from 0 to 60 percent. Diagnostic horizons and features recognized in this pedon include an ochric epipedon (Ap horizon) and sandy skeletal feature (Bw, BC and C horizons).

Canton and Charlton fine sandy loams, 3 to 15 percent slopes, extremely stony (62C) & 15 to 35 percent slopes, extremely stony (62D)

Canton Soils

The Canton series consists of very deep, well drained soils formed in a loamy mantle and underlain by sandy till. The series is typically found on nearly level to very steep glaciated plains, hills, and ridges with slopes that range from 0 to 45 percent. Saturated hydraulic conductivity is moderately high or high in the solum and high or very high in the substratum. Diagnostic horizons and features recognized in this pedon include an ochric epipedon (Oi and A horizons), cambic horizon (Bw1, Bw2, and Bw3 horizons), and lithologic discontinuity (2C horizon).

Charlton Soils

The Charlton series consists of very deep, well drained soils formed in loamy melt-out till. They are nearly level to very steep soils on moraines, hills, and ridges. Slope ranges from 0 to 60 percent. Saturated hydraulic conductivity is moderately high or high. Diagnostic features recognized in this pedon include ochric epipedon (Ap horizon) and cambic horizon (Bw1, Bw2, and Bw3 horizons).

Narragansett silt loam, 3 to 8 percent slopes, very stony (67B) & 3 to 15 percent slopes, extremely stony (68C)

The Narragansett series consists of very deep, well drained loamy soils formed in a mantle of medium-textured deposits overlying till. They are nearly level to moderately steep soils on till plains, low ridges and hills. Slope ranges from 0 to 25 percent. Permeability is moderate in the surface layer and subsoil and moderately rapid or rapid in the substratum. Diagnostic horizons and features recognized in this pedon include an ochric epipedon (Ap horizons), cambic horizon (Bw horizons), and lithologic discontinuity (2C horizon).

75C – Hollis-Chatfield-Rock outcrop complex, 3 to 15 percent slopes (75C) & 15 to 45 percent slopes (75E)

Hollis Soils

The Hollis series consists of well drained and somewhat excessively drained soils formed in a thin mantle of till. They are shallow to bedrock. They are nearly level to very steep upland soils on bedrock-controlled hills and ridges. Slope ranges from 0 through 60 percent. Saturated hydraulic conductivity is moderately high or high. Depth to hard bedrock ranges from 25 to 50 cm. Diagnostic horizons and features recognized in this pedon include an ochric epipedon (O and A horizons), cambic horizon (Bw1 and Bw2 horizons), lithological discontinuity and lithic contact (2R horizon).

Rock outcrop-Hollis complex, 3 to 45 percent slopes (76E)

Hollis Soils
The Hollis series has been described in the previous section.

Narragansett-Hollis complex, 3 to 15 percent slopes, very rocky (74C)

Narragansett Soils
The Narragansett series has been described in the previous section.

Hollis Soils
The Hollis series has been described in the previous section.

Charlton-Chatfield complex, 15 to 45 percent slopes, very rocky (73E)

Charlton Soils
The Charlton series has been described in the previous section.

Chatfield Soils
The Chatfield series consists of well drained soils formed in loamy melt-out till. They are moderately deep to bedrock. They are nearly level to very steep soils on bedrock-controlled hills and ridges. Slope ranges from 0 to 70 percent. Crystalline bedrock is at depths of 50 to 100 cm. Saturated hydraulic conductivity is moderately high or high in the mineral soil. Diagnostic horizons and features recognized in this pedon include an ochric epipedon (Oi and A horizons), cambic horizon (Bw1 and Bw2 horizons), and lithic contact (2R horizon).

Haven silt loam, 3 to 8 percent slopes (703B)

The Haven series consists of very deep, well drained soils formed in loamy over sandy and gravelly outwash. They are nearly level through moderately sloping soils on outwash plains, valley trains, terraces, and water-sorted moraine deposits. Saturated hydraulic conductivity is moderately high or high in the mineral solum and very high in the substratum. Slope ranges from 0 through 15 percent. Diagnostic horizons and features recognized in this pedon include an ochric epipedon (O and A horizons), cambic horizon (Bw1, Bw2, and BC horizons), and lithologic discontinuity.

Wetland Soils

Ridgebury, Leicester, and Whitman soils, 0 to 8 percent slopes, extremely stony (3)

Ridgebury soils
The Ridgebury series consists of very deep, somewhat poorly and poorly drained soils formed in lodgment till derived mainly from granite, gneiss and/or schist. They are commonly shallow to a densic contact. They are nearly level to gently sloping soils in depressions in uplands. They also

occur in drainageways in uplands, in toeslope positions of hills, drumlins, and ground moraines, and in till plains. Slope ranges from 0 to 15 percent. Saturated hydraulic conductivity is moderately high or high in the solum and very low to moderately low in the substratum. Diagnostic horizons and features recognized in this pedon include an ochric epipedon (A horizon), aeric feature (Bw1 horizon), cambic horizon (Bw and Bg horizons), densic contact root limiting material (Cd horizon), and endosaturation zone (Bw2).

Leicester soils

The Leicester series consists of very deep, poorly drained soils formed in coarse-loamy till. They are nearly level or gently sloping soils in drainageways and low-lying positions on hills. Slope ranges from 0 to 8 percent. Permeability is moderate or moderately rapid in the surface layer and subsoil and moderate to rapid in the substratum. Diagnostic horizons and features recognized in this pedon include an ochric epipedon (Oe and A horizons), cambic horizon (Bg horizons) and aquic moisture regime as indicated by 2 chroma matrix with redox concentrations at 18 cm (Bg horizons).

Whitman Soils

The Whitman series consists of very deep, very poorly drained soils formed in lodgment till derived mainly from granite, gneiss, and schist. They are shallow to a densic contact. These soils are nearly level or gently sloping soils in depressions and drainageways on uplands. Saturated hydraulic conductivity is moderately high or high in the solum and very low to moderately low in the substratum. Diagnostic horizons and features in this pedon include an umbric epipedon (Ap horizon), cambic horizon (Bg horizon), aquic conditions (Bg horizon), and shallow depth class (Cdg begins at approximately 46 cm).

Scarboro muck, 0 to 3 percent slopes (15)

The Scarboro series consists of very deep, very poorly drained soils in sandy glaciofluvial deposits on outwash plains, deltas, and terraces. They are nearly level soils in depressions. Slope ranges from 0 through 3 percent. Saturated hydraulic conductivity is high or very high. Diagnostic horizons and features recognized in this pedon include an histic epipedon from the soil surface to a depth of 8 inches (Oi and Oa horizons) and aquic conditions (Cg2 horizon).

Timakwa and Natchaug soils, 0 to 2 percent slopes (17)

Natchaug Soils

The Natchaug series consists of very deep, very poorly drained soils formed in woody and herbaceous organic materials overlying loamy deposits in depressions on lake plains, outwash plains, till plains, moraines, and flood plains. Saturated hydraulic conductivity is moderately high or high in the organic layers and moderately low to high in the loamy material. Slope ranges from 0 to

2 percent. Diagnostic horizons and features recognized in this pedon include sapric soil materials (Oa1 and Oa2 horizons) and terric feature (2Cg1 and 2Cg2 horizons).

Timakwa Soils
The Timakwa series consists of very deep, very poorly drained soils formed in woody and herbaceous organic materials over sandy deposits in depressions on lake plains, outwash plains, till plains, moraines, and flood plains. Saturated hydraulic conductivity is moderately high or high in the organic layers and high or very high in the sandy material. Slope ranges from 0 to 2 percent. Diagnostic features and horizons in this pedon include sapric material (Oa1, Oa2, Oa3, and Oa4 horizons) and terric feature (2Cg horizons).

REFERENCES

1. Brinson, M.M. 1993. *A Hydrogeomorphic Classification for Wetlands*. Tech. Rpt.WRP-DE-4, U.S. Army Engineer Waterways Experiment Station, Vicksburg, MS.

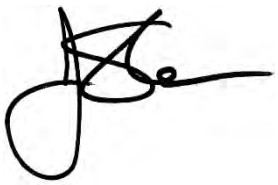
2. Cowardin, L.M., V. Carter, F.C. Golet and E.T. LaRoe, 1979. Classification of Wetlands and Deepwater Habitats of the United States. U.S. Fish and Wildlife Service. Washington, D.C. FWS/OBS-79/31.

3. United States Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) soil descriptions. Internet site: https://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/survey/).

CLOSING

Thank for the opportunity to work with you on this project. Please contact me at 860-807-4388 if you have any questions or require additional assistance.

Sincerely,
Vanasse Hangen Brustlin, Inc.



Jeffrey R Shamas, CSS, PWS, CE
Director of Environmental Services

jshamas@vhb.com

Photographic Log

vhb Engineers | Scientists | Planners | Designers

PHOTOGRAPHIC LOG

Client Name: Groton Utilities	Site Location: Groton, CT	Project No: 42663.00

Photo No.: 1 | Date: 07/13/20

Description:

View facing southeast along boundary of Wetland 1. Dense sweet pepperbush (*Clethra alnifolia*) in wetland. Structure 1144 (1280 Line) in background on left and Structures 7453 (1410 and 400 Lines) in background in center and on right.

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PHOTOGRAPHIC LOG

Client Name: Groton Utilities	Site Location: Groton, CT	Project No: 42663.00

Photo No. : 2 | Date: 07/13/20

Description:

View facing southeast along boundary of Wetland 2. Saturated conditions and surface water are present in the wetland.

vhb Engineers | Scientists | Planners | Designers

PHOTOGRAPHIC LOG

Client Name: Groton Utilities	Site Location: Groton, CT	Project No: 42663.00

Photo No. : 3 | Date: 07/13/20

Description:

View facing southwest of Wetland 3. Structure 138 (1280 Line) in background on left and Structure 7447 (1410 and 400 Lines) in background on right.

vhb Engineers | Scientists | Planners | Designers

PHOTOGRAPHIC LOG

Client Name: Groton Utilities	Site Location: Groton, CT	Project No: 42663.00

Photo No. : 4 | Date: 07/13/20

Description:

View facing south of PEM portion of Wetland 4. Structure 136 (1280 Line) in background on left and Structure 7445 (1410 and 400 Lines) in background on right.

vhb Engineers | Scientists | Planners | Designers

PHOTOGRAPHIC LOG

Client Name: Groton Utilities	Site Location: Groton, CT	Project No: 42663.00

Photo No. : 5 | Date: 07/13/20

Description:

View facing south of a PSS portion of Wetland 4. Structure 136 (1280 Line) in background on left and Structure 7445 (1410 and 400 Lines) in background on right.

vhb Engineers | Scientists | Planners | Designers

PHOTOGRAPHIC LOG

Client Name: Groton Utilities | Site Location: Groton, CT | Project No: 42663.00

Photo No. : 6 | Date: 07/14/20

Description:

View facing southeast Stream 4 within the ROW between Structures 7444 and 7445 (1410 Line).

vhb Engineers | Scientists | Planners | Designers

PHOTOGRAPHIC LOG

Client Name: Groton Utilities	Site Location: Groton, CT	Project No: 42663.00

Photo No. : 7	Date: 07/14/20

Description:

View facing northwest of Stream 4 inside the forested portion of Wetland 4 between Structures 7444 and 7445 (1410 Line).

vhb Engineers | Scientists | Planners | Designers

PHOTOGRAPHIC LOG

Client Name: Groton Utilities	Site Location: Groton, CT	Project No: 42663.00

Photo No. : 8	Date: 07/14/20

Description:

View facing southeast of the PEM portion of Wetland 5 located between Structures 7441 and 7440 (1410 Line). Structures 132 (1280 Line) and Structure 7441 (1410 and 400 Lines) in background.

vhb Engineers | Scientists | Planners | Designers

PHOTOGRAPHIC LOG

Client Name: Groton Utilities	Site Location: Groton, CT	Project No: 42663.00

Photo No. : 9	Date: 07/14/20

Description:

View facing southwest of a PSS portion of Wetland 5 with the off-ROW forested portion in background.

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PHOTOGRAPHIC LOG

Client Name: Groton Utilities	Site Location: Groton, CT	Project No: 42663.00

Photo No. : 10	Date: 07/14/20

Description:

View facing south of a PSS portion of Wetland 6 located between Structures 7441 and 7440 (1410 Line). Structures 132 (1280 Line) and Structure 7441 (1410 and 400 Lines) in background.

PHOTOGRAPHIC LOG

vhb Engineers | Scientists | Planners | Designers

Client Name: Groton Utilities	Site Location: Groton, CT	Project No: 42663.00

Photo No. : 11 | Date: 07/14/20

Description:

View facing west of a PEM portion of Wetland 6.

PHOTOGRAPHIC LOG

vhb Engineers | Scientists | Planners | Designers

Client Name: Groton Utilities	Site Location: Groton, CT	Project No: 42663.00

Photo No. : 12 | Date: 07/14/20

Description:

View facing northwest of Wetland 7 located at the base of Structure 7440 (1410/400 Line).

vhb Engineers | Scientists | Planners | Designers

PHOTOGRAPHIC LOG

Client Name: Groton Utilities	Site Location: Groton, CT	Project No: 42663.00

Photo No. : 13 | Date: 07/14/20

Description:

View facing north of Wetland 8 located on the west side of the ROW between Structures 7441 and 7440 (1410 Line).

vhb Engineers | Scientists | Planners | Designers

PHOTOGRAPHIC LOG

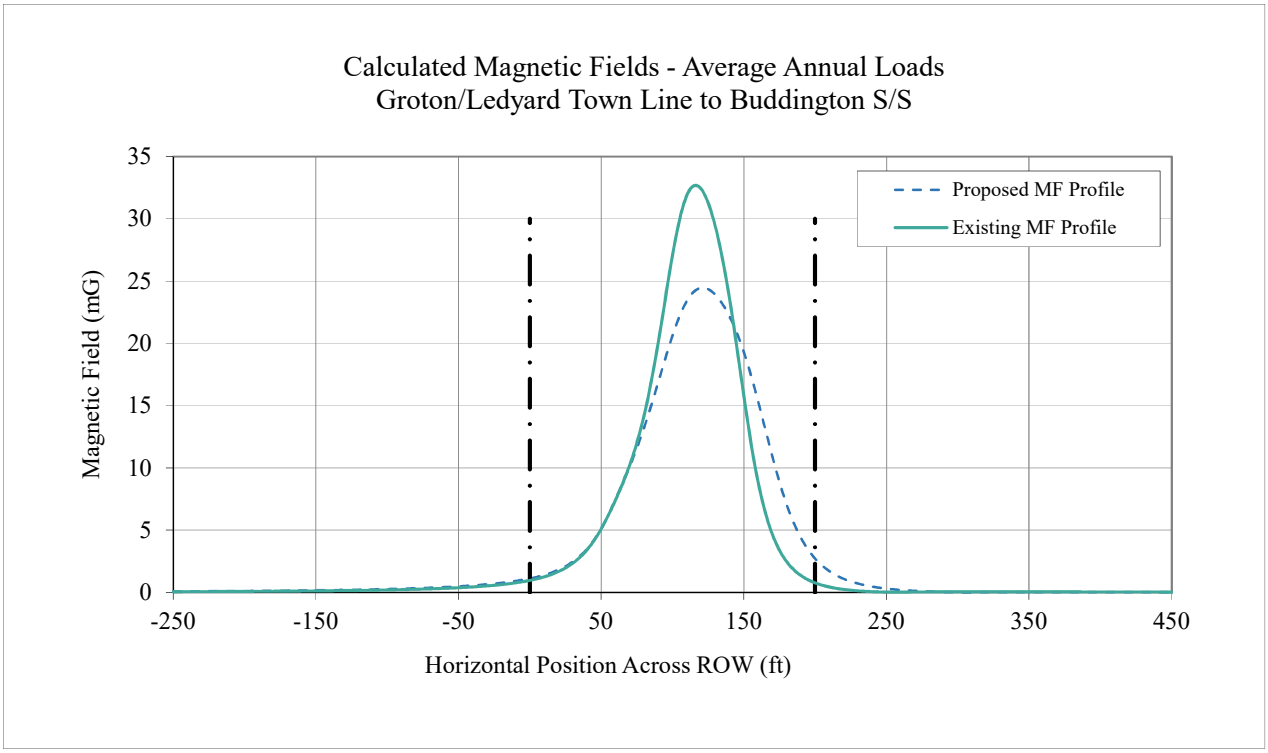
Client Name: Groton Utilities	Site Location: Groton, CT	Project No: 42663.00

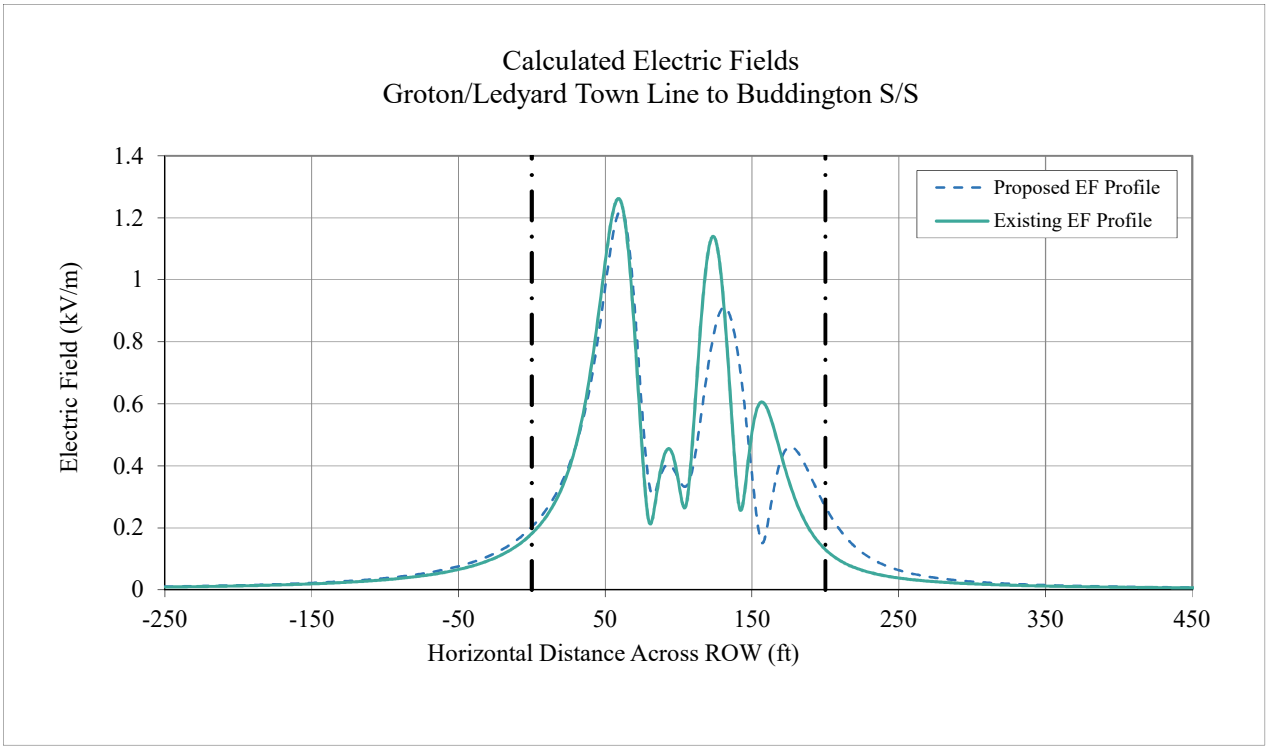
Photo No. : 14 | Date: 07/14/20

Description:

View facing southeast of Wetland 9 located on the east side of the ROW, immediately south of Structure 7436 (1410 Line).

Attachment E: EMF Graphs


Calculated Magnetic Fields - Average Annual Loads
Groton/Ledyard Town Line to Buddington S/S
Magnetic Field (mG)
35
30
25
20
15
10
5
0
-250
-150
-50
50
150
250
350
450
Horizontal Position Across ROW (ft)
Proposed MF Profile
Existing MF Profile


Calculated Electric Fields
Groton/Ledyard Town Line to Buddington S/S
Electric Field (kV/m)
1.4
1.2
1
0.8
0.6
0.4
0.2
0
-250
-150
-50
50
150
250
350
450
Horizontal Distance Across ROW (ft)
Proposed EF Profile
Existing EF Profile

Attachment F: Letter to the Abutters and Affidavit

GROTON UTILITIES

At Your Service

Mr. Keith Hedrick, Mayor
City of Groton
295 Meridian Street
Groton, CT 06340

October 27, 2020

Dear Mayor,

Please be advised that the City of Groton's Department of Utilities has this day filed with the Connecticut Siting Council (CSC) a petition for a declaratory ruling for approval of its transmission upgrade project and for a determination that no Certificate of Environmental Compatibility and Public Need is required.

Description of the Transmission Upgrade

The upgrade, known as the 1410/400/1280 Project, involves replacing 36 existing deteriorating wooden pole structures with tubular steel poles with direct embedded foundations and Optical Ground Wire. The upgrade is being made to replace deteriorated structures with structures that will provide additional electric reliability benefits that enhance the operation of the transmission system.

The work on the transmission system will all occur within the existing right of way that currently serves the power line corridor for approximately 1.7 miles between the Groton/Ledyard municipal line to Buddington Substation just north of Gold Star Highway in Groton.

If the Connecticut Siting Council approves this Petition, it is anticipated that the work would commence on or about early 2021 with completion scheduled for 2023.

Contact Information for Further Questions

Please do not hesitate to reach out with any questions you may have. Please call Randall Surprenant, Manager, Electric Engineering, Groton Utilities, 295 Meridian St. Groton, CT 06340 or 860.446.4037] or email him at surprenantr@grotonutilities.com

You have the right to send your comments for consideration by the Connecticut Siting Council. You may do this by sending an email to the following address: sitingcouncil@ctgov.org or a letter to Melanie Bachman, Executive Director, Connecticut Siting Council, 10 Franklin Square, New Britain, CT 06051. Please reference the Groton Utilities 400/1280/1180 in any correspondence.

295 Meridian Street
Groton, Connecticut 06340
T 860-446-4000 F 860-446-4098

The full application for this Petition may be viewed at the offices of Groton Utilities, 295 Meridian St. Groton, CT. 06340. The offices may be open on a limited basis due to Covid-19.

Sincerely,

Randall Surprenant
Manager, Electric Engineering

GROTON UTILITIES

At Your Service

Ms. Patrice Granatosky, Mayor
Town of Groton
30 Prospect Street
Groton, CT 06340

October 27, 2020

Dear Mayor,

Please be advised that the City of Groton's Department of Utilities has this day filed with the Connecticut Siting Council (CSC) a petition for a declaratory ruling for approval of its transmission upgrade project and for a determination that no Certificate of Environmental Compatibility and Public Need is required.

Description of the Transmission Upgrade

The upgrade, known as the 1410/400/1280 Project, involves replacing 36 existing deteriorating wooden pole structures with tubular steel poles with direct embedded foundations and Optical Ground Wire. The upgrade is being made to replace deteriorated structures with structures that will provide additional electric reliability benefits that enhance the operation of the transmission system.

The work on the transmission system will all occur within the existing right of way that currently serves the power line corridor for approximately 1.7 miles between the Groton/Ledyard municipal line to Buddington Substation just north of Gold Star Highway in Groton.

If the Connecticut Siting Council approves this Petition, it is anticipated that the work would commence on or about early 2021 with completion scheduled for 2023.

Contact Information for Further Questions

Please do not hesitate to reach out with any questions you may have. Please call Randall Surprenant, Manager, Electric Engineering, Groton Utilities, 295 Meridian St. Groton, CT 06340 or 860.446.4037] or email him at surprenantr@grotonutilities.com

You have the right to send your comments for consideration by the Connecticut Siting Council. You may do this by sending an email to the following address: sitingcouncil@ctgov.org or a letter to Melanie Bachman, Executive Director, Connecticut Siting Council, 10 Franklin Square, New Britain, CT 06051. Please reference the Groton Utilities 400/1280/1180 in any correspondence.

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Sincerely,

Randall Surprenant
Manager, Electric Engineering

GROTON UTILITIES

At Your Service

Mr. Fred Ally III, Mayor
Town of Ledyard
741 Colonel Ledyard Highway
Ledyard, CT 06339-1511

October 27, 2020

Dear Mayor,

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Sincerely,

Randall Surprenant
Manager, Electric Engineering

GROTON UTILITIES

At Your Service

Gale Michael & Gary Emil Giordano
Or Current Resident
570 Gales Ferry Road
Groton, CT 03640

October 27, 2020

Dear Neighbor,

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Sincerely,

Randall Surprenant
Manager, Electric Engineering

GROTON UTILITIES

At Your Service

The Burrows Family, LLC
Or Current Resident
7501 Greenwood Ave. N
Apt. 301
Seattle, WA 98103

October 27, 2020

Dear Neighbor,

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Sincerely,

Randall Surprenant
Manager, Electric Engineering

GROTON UTILITIES

At Your Service

State of Connecticut
Dept. of Energy and Environmental Protection
79 Elm Street
6th Floor
Hartford, CT 06106

October 27, 2020

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Sincerely,

Randall Surprenant
Manager, Electric Engineering

GROTON UTILITIES

At Your Service

Joseph & Krisanne Scheetz
Or Current Resident
744 Gungywamp Road
Groton, CT 06340

October 27, 2020

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Sincerely,

Randall Surprenant
Manager, Electric Engineering

AFFIDAVIT OF SERVICE OF NOTICE

STATE OF CONNECTICUT)
) ss. Groton
COUNTY OF NEW LONDON)

Sec. 16-50j-40 of the Regulations of Connecticut State Agencies ("RCSA") provides that proof of notice to the affected municipalities, property owners and abutters shall be submitted with a petition for declaratory ruling to the Connecticut Siting Council. In accordance with that RCSA section, I hereby certified that I caused notice of the proposed modifications to be served by mail on upon the following municipal officials:

- Mr. Keith Hedrick, Mayor
  City of Groton
  295 Meridian St.
  Groton, CT 06340

- Ms. Patrice Granatosky, Mayor
  Town of Groton
  30 Prospect St.
  Groton, CT 06340

- Mr. Fred Allyn, III, Mayor
  Town of Ledyard
  741 Colonel Ledyard Highway
  Ledyard, CT 06339-1511

I also certify I that caused notice of the proposed modifications to be served by mail upon the owners of abutting properties owners whose name is shown on the maps in Attachment A to the Petition.

Randall Surprenant
Manager, Electric Engineering

On this the 27 day of October 2020 before me the undersigned representative personally appeared, Randall Surprenant, to be the person whose name is subscribed to the foregoing instrument and acknowledged that he executed the same for the purposes therein contained.

In witness whereof, I hereunto set my hand and official seal.

Noemi Walencewicz
Notary Public
My Commission Expires

NOEMI LYNN WALENCEWICZ
NOTARY PUBLIC
MY COMMISSION EXPIRES JAN. 31, 2025

Attachment G: New England Cottontail Best Management Practices

New England Cottontail Best Management Practices

The entire project line is in New England Cottontail (NEC) Habitat Area and will require the following BMPs:

1. Contractors shall be educated on NEC, their habitat preferences and vegetation to be removed vs. remain prior to work beginning in NEC areas.

2. Vegetation removal shall be limited to non-compatible species. Unless deemed necessary by the designated representative, all non-compatible vegetation shall be cut manually. Broad, non-selective mowing and the use of a feller-buncher or other mechanized land clearing equipment shall not be employed unless prior authorization is received from the designated representative.

3. Use of targeted, foliar herbicide and manual cutting are favored over mowing.

4. Unless suitable vegetation is available elsewhere in the ROW, as verified by the designated representative, invasive shrubs that are designated as compatible species on transmission and distribution line corridors e.g. multiflora rose, autumn olive, etc. may remain.

5. Green briar shall remain within the ROW as it provides valuable, native cover, unless it hinders access to facilities or travel down the ROW. In these instances, minimal removal as deemed necessary by the designated representative, shall be completed to gain access or allow travel.

6. In areas where clearing of shrubs in the managed ROW exceeds 50% of total vegetation cover, as determined by the designated representative, mitigation options such as brush piles, corridors and removal strategies shall be reviewed with Eversource Licensing & Permitting to minimize impact to NEC. Clearing extent shall be generally evaluated from Structure to Structure and not on the entire project.

7. Where not in conflict with any other permits, policies, or commitments, a portion of cut woody debris shall be left within the ROW to provide cover/structure for NECs. The portion of material to remain shall be determined by the designated representative on a project by project basis.

8. All wood chips shall be removed from the ROW unless otherwise approved by the designated representative.

9. Where not in conflict with other permits, agreements or listed species BMPs, vegetation removal activities shall be minimized from December 1 to March 1 in order to maintain protective cover during the non-growing season.

10. Stonework pad sizes shall be minimized to the extent practicable.

11. Roads with long straightaways should be minimized and not exceed 13 feet where possible. Road width can be widened at turns to accommodate equipment.

Acronym's

1. BMP: Best Management Practice
2. CT DEEP: Connecticut Dept. of Energy and Environmental Protection.
3. Designated Representative: Groton Utilities Project Manager or Designated Representative
4. NDDB: Natural Diversity Database
5. NEC: New England Cottontail
6. ROW: Right-of-Way

Source: This document has been adopted with minor modifications and permission from Michelle Ford of Eversource Energy.