

# STATE OF NEW HAMPSHIRE

## Inter-Department Communication

**DATE:** September 14, 2020  
**AT (OFFICE):** NHPUC

**FROM:** Paul Kasper PGK  
Assistant Director – Safety Division

**SUBJECT:** Docket No. DE 20-066 Public Service New Hampshire d/b/a Eversource Energy  
Petition for a License to Construct and Maintain Electric Lines and Telecommunication Wire over and across the Souhegan River in Greenville and Across Land Owned by the State of New Hampshire in the Towns of Mason, and Greenville  
**Staff Recommendation for Three Licenses**

**TO:** Debra Howland, Executive Director  
Thomas Frantz, Director, Electric Division  
Richard Chagnon, Assistant Director, Electric Division  
Lynn Fabrizio, Senior Staff Attorney

**CC:** Randall Knepper, Director, Safety Division

The Safety Division's review of the above petition consisted of the following elements:

- Petition contents and history;
- Applicable State Statute;
- Review of the existing crossing(s) not licensed by the PUC;
- Review of land ownership of existing pole structures;
- Review of NESC code requirements as described in Puc 300;
- Review of public need and public impact, including applicability of other State regulations; and
- Conclusions and Recommendations.

### **1. Petition contents and history**

On May 04, 2020, Public Service New Hampshire d/b/a Eversource Energy (ES), filed a petition pursuant to RSA 371:17 for (3) licenses to re-construct, maintain and operate the Eversource 367 Line, which is a 345 kV transmission line. This petition is intended to consolidate (2) previously filed petitions: (1) Docket DE 19-113, for 367 Line crossing of State owned land in Mason and Greenville; and (2) Docket DE 19-115 for 367 Line crossing the Souhegan River in Greenville. This is a project to modify or rebuild (18) eighteen structures on its existing 367 transmission line. No conductors will be replaced all wires shall be transferred from existing structures to

new structures replaced at the same locations. The existing Souhegan River crossing in the Town of Greenville had been previously licensed by the Commission under PUC Order 9886 dated February 24, 1970 in Docket D-E5813.

The 367 Line crossings of the State's land parcels in the Towns of Mason, and Greenville, New Hampshire depicted in ES Exhibits # 2-12 had been previously licensed. A PUC License (Order No. 9965) was granted on June 5, 1970 for the crossing in Mason Assessor parcel Map A. The crossings in Greenville of Assessor Map 3 and in Mason of Map A had not been licensed due to either oversight, or because the lands involved were in private ownership at the time of the original construction of the existing 367 Line and no crossing license was required, but will be fully licensed pursuant to this petition. This structure replacement and repair project is part of a capital reliability project - necessary for the 367 Line to continue to meet current as well as future projected electricity demands. See a detailed NHPUC Safety Division map/schematic in the Staff Attachments 1, 2, and 3 of this recommendation.

In their petition Eversource states they completed (2) structure replacements (Str # 251 and # 252) in 2015 and in 2018 replaced (3) structures in Mason (Strs: 237, 238, & 239), and in early 2020 replaced Structure 258 and that petitions were not submitted prior to this work being completed, and as such, will be licensed under this petition.

#### **1. Public Lands Parcel (see Staff Attachment 1)**

This Public Land Crossing of the Russell-Abbott State Forest starts with Structure # 233 and # 234 east of Prattpond Road in the Town of Mason and goes in a westerly direction to Structure # 239

##### **License 1.**

In ES Exhibits #2, 3, 4, and 5 Structure # 233 will be constructed with 2-85 ft. (OAL) Type A CL H1 steel poles. The structure will have conductors for the 345 kV 367 transmission line consisting of (3) 851 kcmil ACSR 45/7 cables, (1) 7#8 Alumoweld Static wire and (1) .236 AFL OPGW DNO-7840 fiber wire. The conductor clearance requirements were met using the NESC conditions at 285 deg F. This scenario was the governing condition, which yielded the greatest sag and lowest clearance. In its petition, ES provides sufficient detail to show how the required clearance from the conductors to the land surface will be maintained at (29.3 feet) over the surface of the state owned land in the Town of Mason, New Hampshire. Staff verified the computed sags with SAG 10 commercial software using inputs as stated in the petition. Only 20.8 ft. is required by the NESC Table 232-1.

Structure # 234 is constructed with 2-90 ft. (OAL) Type EA-1 CL 1 wood poles. The structure will have conductors for the 345 kV 367 transmission line consisting of (3) 851 kcmil ACSR 45/7 cables, (1) 7#8 Alumoweld Static wire and (1) .236 AFL OPGW DNO-7840 fiber wire. The conductor clearance requirements were met using the NESC conditions at 285 deg F. This scenario was the governing condition, which yielded the greatest sag and lowest clearance. In its petition, ES provides sufficient detail to show how

the required clearance from the conductors to the land surface will be maintained at (30.7 feet) over the surface of the state owned land in the Town of Mason, New Hampshire. Staff verified the computed sags with SAG 10 commercial software using inputs as stated in the petition. Only 20.8 ft. is required by the NESC Table 232-1.

Structure # 235 is constructed with 2-95 ft. (OAL) Type EA-1 CL 1 wood poles. The structure will have conductors for the 345 kV 367 transmission line consisting of (3) 851 kcmil ACSR 45/7 cables, (1) 7#8 Alumoweld Static wire and (1) .236 AFL OPGW DNO - 7840 fiber wire. The conductor clearance requirements were met using the NESC conditions at 285 deg F. This scenario was the governing condition, which yielded the greatest sag and lowest clearance. In its petition, ES provides sufficient detail to show how the required clearance from the conductors to the land surface will be maintained at (23 feet) over the surface of the state owned land in the Town of Mason, New Hampshire. Staff verified the computed sags with SAG 10 commercial software using inputs as stated in the petition. Only 20.8 ft. is required by the NESC Table 232-1.

Structure # 236 is constructed with 2-95 ft. (OAL) Type EA-1 CL 1 wood poles. The structure will have conductors for the 345 kV 367 transmission line consisting of (3) 851 kcmil ACSR 45/7 cables, (1) 7#8 Alumoweld Static wire and (1) .236 AFL OPGW DNO - 7840 fiber wire. The conductor clearance requirements were met using the NESC conditions at 285 deg F. This scenario was the governing condition, which yielded the greatest sag and lowest clearance. In its petition, ES provides sufficient detail to show how the required clearance from the conductors to the land surface will be maintained at (22.6 feet) over the surface of the state owned land in the Town of Mason, New Hampshire. Staff verified the computed sags with SAG 10 commercial software using inputs as stated in the petition. Only 20.8 ft. is required by the NESC Table 232-1.

Structure # 237 is constructed with 2-95 ft. (OAL) Type EA-2 CL 2 steel poles. The structure will have conductors for the 345 kV 367 transmission line consisting of (3) 851 kcmil ACSR 45/7 cables, (1) 7#8 Alumoweld Static wire and (1) .236 AFL OPGW DNO - 7840 fiber wire. The conductor clearance requirements were met using the NESC conditions at 285 deg F. This scenario was the governing condition, which yielded the greatest sag and lowest clearance. In its petition, ES provides sufficient detail to show how the required clearance from the conductors to the land surface will be maintained at (21 feet) over the surface of the state owned land in the Town of Mason, New Hampshire. Staff verified the computed sags with SAG 10 commercial software using inputs as stated in the petition. Only 20.8 ft. is required by the NESC Table 232-1.

Structure # 238 is constructed with 2-105 ft. (OAL) Type SEA-HF CL H3 steel poles. The structure will have conductors for the 345 kV 367 transmission line consisting of (3) 851 kcmil ACSR 45/7 cables, (1) 7#8 Alumoweld Static wire and (1) .236 AFL OPGW DNO - 7840 fiber wire. The conductor clearance requirements were met using the NESC conditions at 285 deg F. This scenario was the governing condition, which yielded the greatest sag and lowest clearance. In its petition, ES provides sufficient detail to show how the required clearance from the conductors to the land surface will be maintained at (46.4 feet) over the surface of the state owned land in the Town of Mason, New Hampshire. Staff

verified the computed sags with SAG 10 commercial software using inputs as stated in the petition. Only 20.8 ft. is required by the NESC Table 232-1.

Structure # 239 is constructed with 2-85 ft. (OAL) Type SEA-HF CL H1 steel poles. The structure will have conductors for the 345 kV 367 transmission line consisting of (3) 851 kcmil ACSR 45/7 cables, (1) 7#8 Alumoweld Static wire and (1) .236 AFL OPGW DNO - 7840 fiber wire. The span between STR# 233 and STR# 239 will be 4,077 ft. of which 3,403.7 ft. will span public land.

## **2. Public Lands Parcel (see Staff Attachment 2)**

This Public Land Crossing of State of New Hampshire owned land is north of Nutting Hill Road in the Town of Mason and goes in a westerly direction from Structure # 242 to Structure # 244.

### **License 2.**

In ES Exhibit #6 Structure # 242 will be constructed with 2-85 ft. (OAL) Type A CL H1 steel poles. The structure will have conductors for the 345 kV 367 transmission line consisting of (3) 851 kcmil ACSR 45/7 cables, (1) 7#8 Alumoweld Static wire and (1) .236 AFL OPGW DNO - 7840 fiber wire. The conductor clearance requirements were met using the NESC conditions at 285 deg F. This scenario was the governing condition, which yielded the greatest sag and lowest clearance. In its petition, ES provides sufficient detail to show how the required clearance from the conductors to the land surface will be maintained at (28.1 feet) over the surface of the state owned land in the Town of Mason, New Hampshire. Staff verified the computed sags with SAG 10 commercial software using inputs as stated in the petition. Only 20.8 ft. is required by the NESC Table 232-1.

Structure # 243 will be constructed with 2-90 ft. (OAL) Type A CL H1 steel poles. The structure will have conductors for the 345 kV 367 transmission line consisting of (3) 851 kcmil ACSR 45/7 cables, (1) 7#8 Alumoweld Static wire and (1) .236 AFL OPGW DNO - 7840 fiber wire. The conductor clearance requirements were met using the NESC conditions at 285 deg F. This scenario was the governing condition, which yielded the greatest sag and lowest clearance. In its petition, ES provides sufficient detail to show how the required clearance from the conductors to the land surface will be maintained at (28.1 feet) over the surface of the state owned land in the Town of Mason, New Hampshire. Staff verified the computed sags with SAG 10 commercial software using inputs as stated in the petition. Only 20.8 ft. is required by the NESC Table 232-1.

Structure # 244 will be constructed with 2-100 ft. (OAL) Type A Cl H3 steel poles. The structure will have conductors for the 345 kV 367 transmission line consisting of (3) 851 kcmil ACSR 45/7 cables, (1) 7#8 Alumoweld Static wire and (1) .236 AFL OPGW

DNO - 7840 fiber wire. The span between STR# 242 and STR# 244 will be 1,031 ft. of which 535.1 ft. will span public land.

### **3. Public Lands Parcel / Public Water Crossing (see Staff Attachment 3)**

This Public Crossing of the Souhegan River and State of New Hampshire owned land starts with Structure # 251 east of Fitchburg Road in the Town of Greenville and goes in a westerly direction to Structure # 258.

#### **License 3.**

In ES Exhibit #7, 8, 9, 10, 11, and 12 Structure # 251 is constructed with 2-100/95 ft. (OAL) Type HF steel poles. The structure will have conductors for the 345 kV 367 transmission line consisting of (3) 851 kcmil ACSR 45/7 cables, (1) 7#8 Alumoweld Static wire and (1) .236 AFL OPGW DNO - 7840 fiber wire. The conductor clearance requirements were met using the NESC conditions at 285 deg F. This scenario was the governing condition, which yielded the greatest sag and lowest clearance. In its petition, ES provides sufficient detail to show how the required clearance from the conductors to the land surface will be maintained at (69 feet) over the surface of the state owned land known as the Mason Railroad Trail in the Town of Greenville, New Hampshire. Staff verified the computed sags with SAG 10 commercial software using inputs as stated in the petition. Only 32.75 ft. is required by the NESC Table 232-1. ES also provided sufficient detail to show how the required clearance from the conductors to the water surface will be maintained at (117.9 feet) over the surface of the Souhegan River in the Town of Greenville, New Hampshire. Staff verified the computed sags with SAG 10 commercial software using inputs as stated in the petition. Only 23 ft. is required by the NESC Table 232-1.

The water clearances are taken from the projected 100 year flood levels. This is more conservative than the 10 year flood levels allowed by the NESC (note 12 to Table 232-i). ES uses floodwater elevations for the Souhegan River in the Town of Greenville that are identified on FEMA flood map #33011C0439D. The 100-year flood elevation for the river in this location is approximately 685 feet, and is based on the North American Vertical Datum of 1988 (NAVD88). The Safety Division verified the 6 ft. flood level from the FEMA flood map.

Structure # 252 is constructed with 2-95 ft. (OAL) Type HF steel poles. The structure will have conductors for the 345 kV 367 transmission line consisting of (3) 851 kcmil ACSR 45/7 cables, (1) 7#8 Alumoweld Static wire and (1) AFL OPGW DNO - 7840 fiber wire. The conductor clearance requirements were met using the NESC conditions at 285 deg F. This scenario was the governing condition, which yielded the greatest sag and lowest clearance. In its petition, ES provides sufficient detail to show how the required clearance from the conductors to the land surface will be maintained at (33.4 feet) over

the surface of the state owned land in the Town of Greenville, New Hampshire. Staff verified the computed sags with SAG 10 commercial software using inputs as stated in the petition. Only 20.8 ft. is required by the NESC Table 232-1

Structure # 253 will be constructed with 2-100/90 ft. (OAL) Type A CLASS H3 steel poles. The structure will have conductors for the 345 kV 367 transmission line consisting of (3) 851 kcmil ACSR 45/7 cables, (1) 7#8 Alumoweld Static wire and (1) AFL OPGW DNO - 7840 fiber wire. The conductor clearance requirements were met using the NESC conditions at 285 deg F. This scenario was the governing condition, which yielded the greatest sag and lowest clearance. In its petition, ES provides sufficient detail to show how the required clearance from the conductors to the land surface will be maintained at (26.2 feet) over the surface of the state owned land in the Town of Greenville, New Hampshire. Staff verified the computed sags with SAG 10 commercial software using inputs as stated in the petition. Only 20.8 ft. is required by the NESC Table 232-1

Structure # 254 is constructed with 2-85 ft. (OAL) Type A CLASS H3 steel poles. The structure will have conductors for the 345 kV 367 transmission line consisting of (3) 851 kcmil ACSR 45/7 cables, (1) 7#8 Alumoweld Static wire and (1) AFL OPGW DNO - 7840 fiber wire. The conductor clearance requirements were met using the NESC conditions at 285 deg F. This scenario was the governing condition, which yielded the greatest sag and lowest clearance. In its petition, ES provides sufficient detail to show how the required clearance from the conductors to the land surface will be maintained at (24.5 feet) over the surface of the state owned land in the Town of Greenville, New Hampshire. Staff verified the computed sags with SAG 10 commercial software using inputs as stated in the petition. Only 20.8 ft. is required by the NESC Table 232-1

Structure # 255 is constructed with 3-90 ft. (OAL) Type EC-1 CLASS 1 wood poles. The structure will have conductors for the 345 kV 367 transmission line consisting of (3) 851 kcmil ACSR 45/7 cables, (1) 7#8 Alumoweld Static wire and (1) AFL OPGW DNO - 7840 fiber wire. The conductor clearance requirements were met using the NESC conditions at 285 deg F. This scenario was the governing condition, which yielded the greatest sag and lowest clearance. In its petition, ES provides sufficient detail to show how the required clearance from the conductors to the land surface will be maintained at (21.7 feet) over the surface of the state owned land in the Town of Greenville, New Hampshire. Staff verified the computed sags with SAG 10 commercial software using inputs as stated in the petition. Only 20.8 ft. is required by the NESC Table 232-1

Structure # 256 is constructed with 2-80 ft. (OAL) Type HF CLASS 1 steel poles. The structure will have conductors for the 345 kV 367 transmission line consisting of (3) 851 kcmil ACSR 45/7 cables, (1) 7#8 Alumoweld Static wire and (1) AFL OPGW DNO - 7840 fiber wire. The conductor clearance requirements were met using the NESC conditions at 285 deg F. This scenario was the governing condition, which yielded the greatest sag and lowest clearance. In its petition, ES provides sufficient detail to show how the required clearance from the conductors to the land surface will be maintained at

(21.7 feet) over the surface of the state owned land in the Town of Greenville, New Hampshire. Staff verified the computed sags with SAG 10 commercial software using inputs as stated in the petition. Only 20.8 ft. is required by the NESC Table 232-1.

Structure # 257 will be constructed with 2-105 / 100 ft. (OAL) Type A CLASS H3 steel poles. The structure will have conductors for the 345 kV 367 transmission line consisting of (3) 851 kcmil ACSR 45/7 cables, (1) 7#8 Alumoweld Static wire and (1) AFL OPGW DNO - 7840 fiber wire. The conductor clearance requirements were met using the NESC conditions at 285 deg F. This scenario was the governing condition, which yielded the greatest sag and lowest clearance. In its petition, ES provides sufficient detail to show how the required clearance from the conductors to the land surface will be maintained at (40.2 feet) over the surface of the state owned land in the Town of Greenville, New Hampshire. Staff verified the computed sags with SAG 10 commercial software using inputs as stated in the petition. Only 20.8 ft. is required by the NESC Table 232-1

Structure # 258 is constructed with 2-110 ft. (OAL) Type A C1 H3 steel poles. The structure will have conductors for the 345 kV 367 transmission line consisting of (3) 851 kcmil ACSR 45/7 cables, (1) 7#8 Alumoweld Static wire and (1) .236 AFL OPGW DNO - 7840 fiber wire. The span between STR# 251 and STR# 258 will be 5,030 ft. of which 3,743.6 ft. will span public land and 38 ft. over public water.

#### **4. New Hampshire statute referenced in petition**

**371:17 Licenses for New Poles.** – Whenever it is necessary, in order to meet the reasonable requirements of service to the public, that any public utility should construct a pipeline, cable, or conduit, or a line of poles or towers and wires and fixtures thereon, over, under or across any of the public waters of this state, or over, under or across any of the land owned by this state, it shall petition the commission for a license to construct and maintain the same. For the purposes of this section, "public waters" are defined to be all ponds of more than 10 acres, tidewater bodies, and such streams or portions thereof as the commission may prescribe. Every corporation and individual desiring to cross any public water or land for any purpose herein defined shall petition the commission for a license in the same manner prescribed for a public utility.

**Source.** 1921, 82:1. PL 244:8. RL 294:16. 1951, 203:48 par.17. 1953, 52:1, eff. March 30, 1953. 2013, 82:1, eff. June 19, 2013.

## **5. Review of existing license(s) and permissions previously granted by the PUC for this location of the Souhegan River**

This public water crossing license application for the Souhegan River is part of the reliability replacement project on the 367 (345 kV) Transmission Line for ES had been previously licensed by the Commission under PUC Order 9886 dated February 24, 1970 in Docket D-E5813.

The Souhegan River, From the confluence of the south and west branches in New Ipswich to the confluence with the Merrimack is listed under the category “Public Rivers And Streams” in the Official List of Public Waters (OLPW). under the category “List of freshwater Public Rivers and Streams.

The entire list of public waters can be accessed through the following web link:

<http://des.nh.gov/organization/commissioner/pip/publications/wd/documents/olpw.pd>

A New Hampshire Department of Environmental Services (NHDES) statutory permit by notification (SPN) is required for temporary impacts to nontidal wetlands and will be obtained prior to commencement of replacement to structures 233, 242, 243, 244, 253 and 257. Previous structure replacement related impacts were approved by the NHDES in UMN# 2019-00275 (Greenville) and UMN# 2019- 00324 (Mason).

The U.S. Army Corps of Engineers (ACOE) does not regulate the subject portion of the Souhegan River as navigable waters and does not require a crossing permit from ACOE.

ES asserts in the petition that the existing crossing will be exercised without substantially affecting the rights of the public in the public waters of the Souhegan River. Minimum safe line clearances above the river surface and affected shorelines will be maintained at all times. The use and enjoyment of the river by the public will not be diminished in any material respect as a result of the overhead line crossings.

### **Review of land ownership of proposed pole structures**

In its petition, ES specifies that the re-construction of these land crossings are on the State of New Hampshire owned land in the Towns of Mason and Greenville, New Hampshire

### **Review of NESC code requirements as described in Puc 300**

N.H. Code of Administrative Rules Puc 306 requires:



each utility shall construct, install, operate and maintain its plant, structures and equipment and lines, as follows:

In accordance with good utility practice;

After weighing all factors, including potential delay, cost and safety issues, in such a manner to best accommodate the public; and

To prevent interference with other underground and above ground facilities, including facilities furnishing communications, gas, water, sewer or steam service.

For purposes of this section, “good utility practice” means in accordance with the standards established by:

The National Electrical Safety Code C2-2012....

ES states that the current crossings have been designed and will be re-constructed, maintained and operated in accordance with 2012 National Electrical Safety Code C2-2017.

Safety Division Staff reviewed the specifications related to the design and re-construction of this crossing project as provided in the petition, the attachments, and all supplemental support documents, and found them to be in conformance with the applicable sections of NESC code C2-2012 and Puc 300.

#### Review of public need and public impact

In order to meet the reasonable requirements of electric service to the public, ES proposes to re-construct and maintain a three-phase 345 kV transmission line, designated as the 367 Line over and across the Souhegan River, and over Land owned by the State in the Towns of Mason and Greenville, New Hampshire. This transmission line is an integral part of ES’s electric transmission system in this area.

ES asserts in the petition that the proposed licenses for these crossings may be exercised without substantially affecting the rights of the public in the State land in the Towns of Mason and Greenville and without substantially affecting the rights of the public in the public waters of the Souhegan River. Minimum safe line clearances above the river surfaces and affected shorelines will be maintained at all times. The use and of which is the subject of this petition. Minimum safe line clearances above the land surfaces will be maintained at all times. The use and enjoyment by the public of these lands will not be diminished in any material respect as a result of the modification and replacement of the existing overhead line crossings.

This project does not require use and occupancy agreements be in place prior to construction of this crossing from the New Hampshire Department of Transportation.

Safety Division Staff concludes the impact to the public will be de minimis and not measurable. The crossing does not appear to affect the rights of the public on the State land because minimum safe line clearances above the land surface will be maintained at all times.

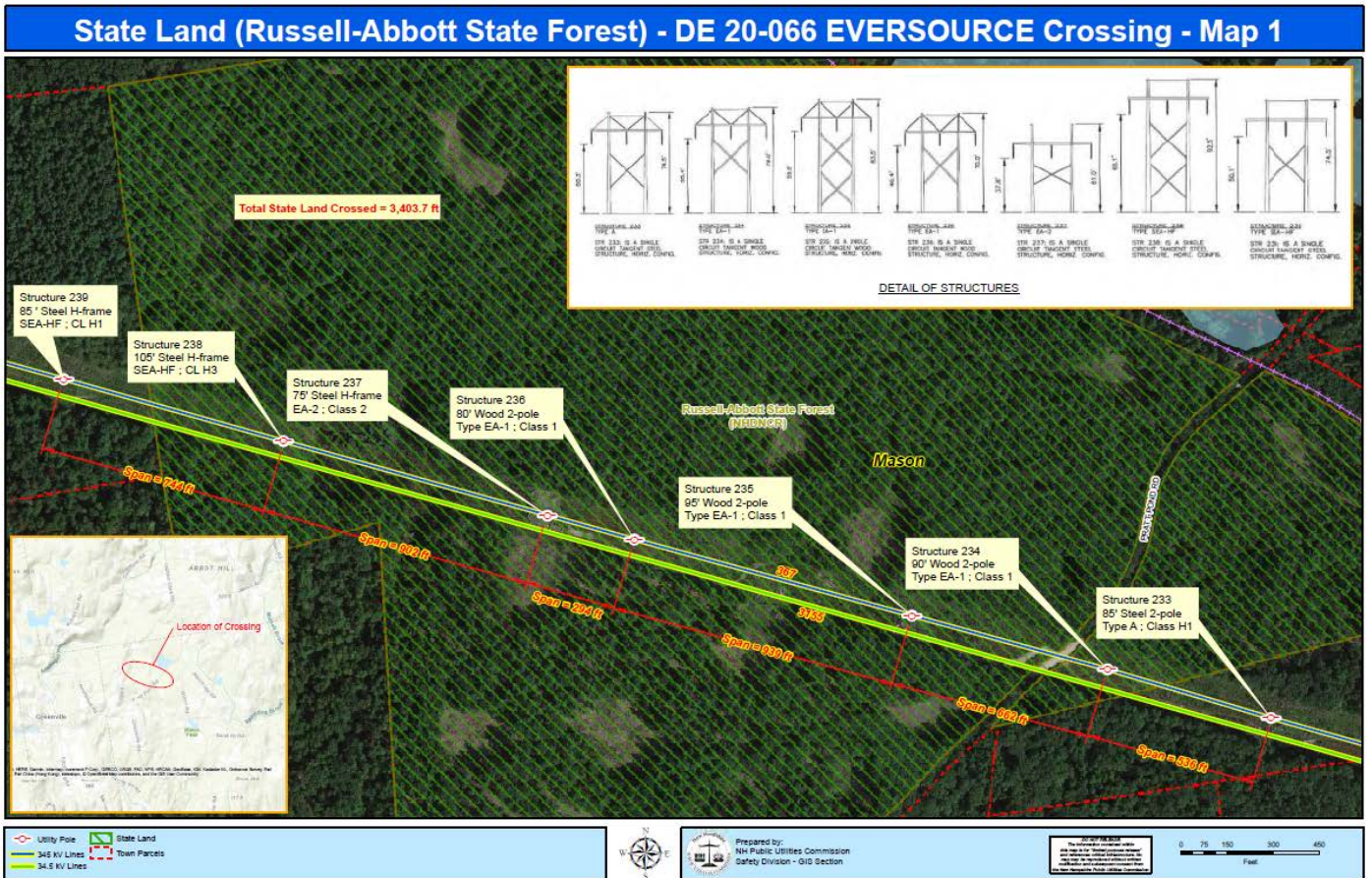
**Staff Recommendation:**

Based on the results of its review of the petition, its attachments, and all other supporting documents filed to this docket, the Safety Division Staff recommends that the Commission:

- 1) Find that the licenses ES requests in this docket may be exercised without substantially affecting the public rights in State lands which are the subject of the petition;
- 2) Grant ES licenses to construct, operate and maintain electric lines, including neutral wire and telecommunication wire over and across the State land in the Towns of Mason and Greenville, New Hampshire, as specified in the petition; and
- 3) Find that the license ES requests in this docket may be exercised without substantially affecting the public rights in the public waters which are the subject of the petition;
- 4) Grant ES licenses to construct, operate and maintain electric lines, including neutral wire and telecommunication wire over and across the public waters of the Souhegan River in the Town of Greenville, New Hampshire, as specified in the petition;
- 5) Issue an Order Nisi and orders for its publication.

Staff Attachments

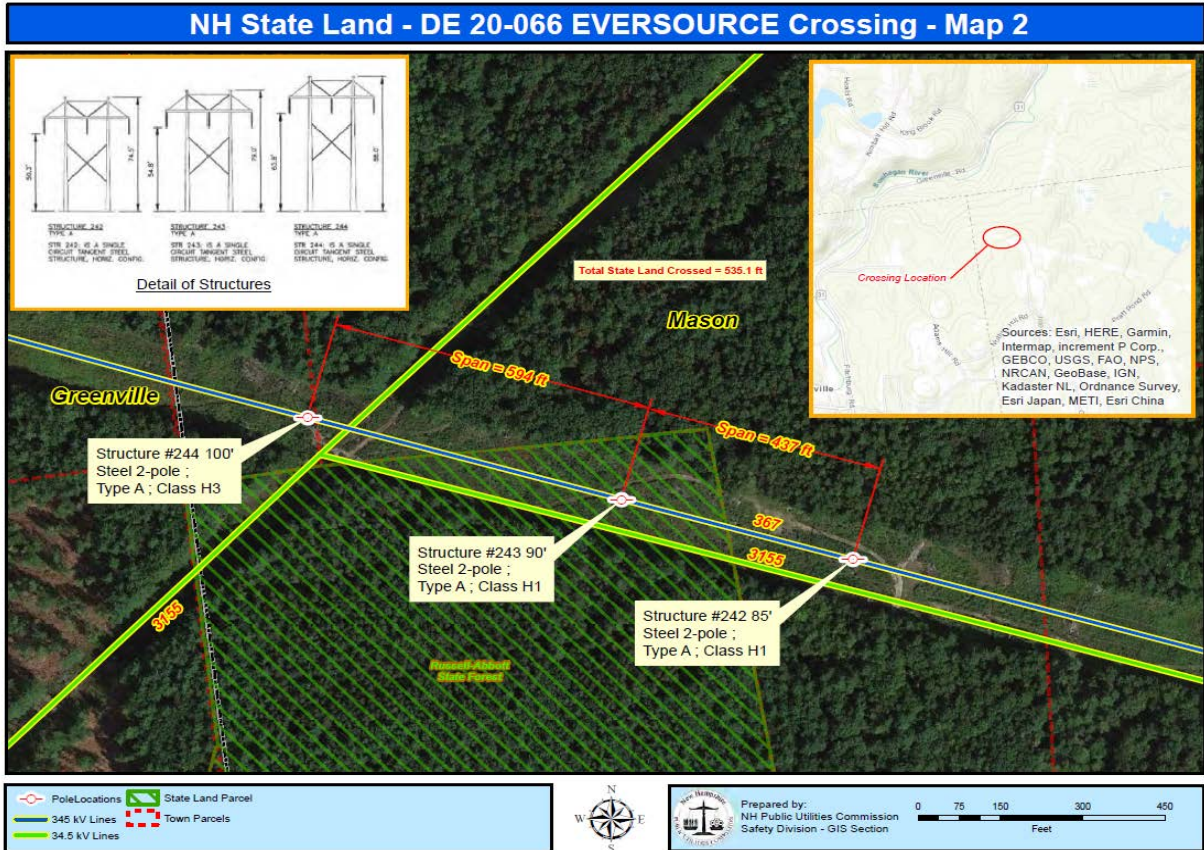
Staff Attachment 1



**Figure 1:** 345kV line, designated as the 367 Transmission Line, is a span of approximately 4,077 feet between Structure # 233 and #239, with a span of approximately 3,403.7 ft. crossing State Land in the Town of Mason, NH. State owned land is shown above as green hash marks

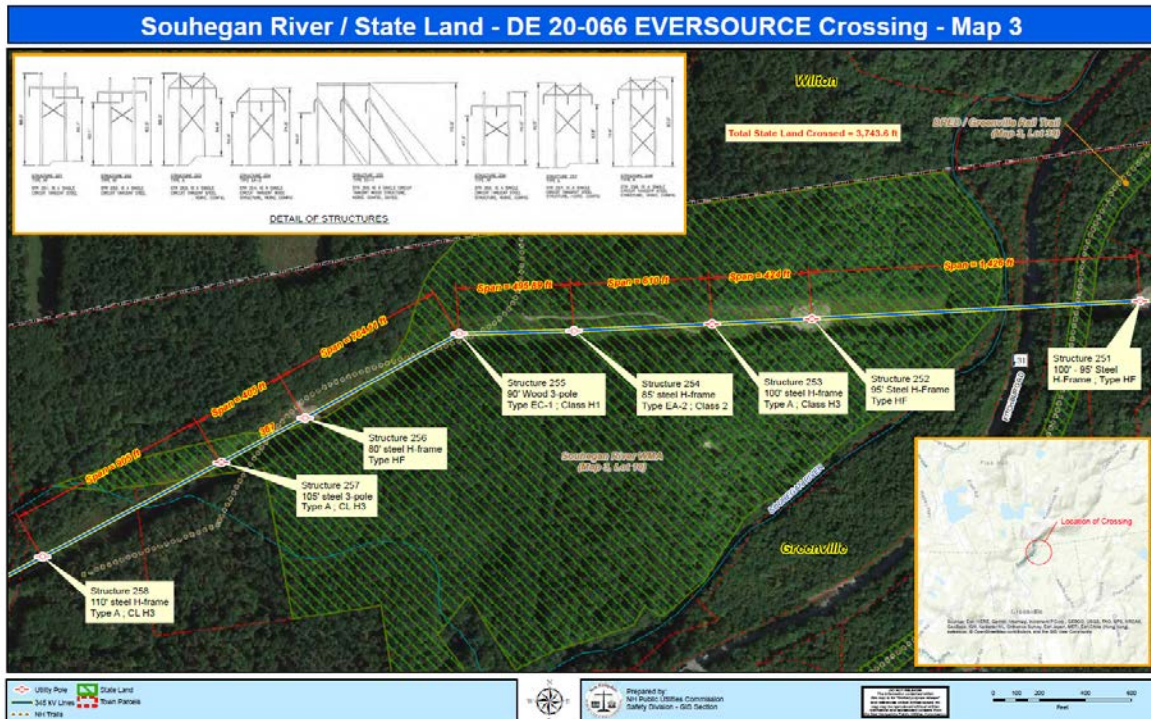


Staff Attachment 2



**Figure 2:** 345kV line, designated as the 367 Transmission Line, is a span of approximately 1,031 feet between Structures # 242 and # 244, with a span of approximately 535.1 ft. crossing State Land in the Town of Mason, NH. State owned land is shown above as green hash marks

Staff Attachment 3



**Figure 3:** 345kV line, designated as the 367 Transmission Line, is a span of approximately 5,030 feet between Structures # 251 and # 258, with a span of approximately 3,743.6 ft. crossing State Land, and 38 ft. crossing the public water of the Souhegan River in the Town of Greenville, NH. State owned land is shown above as **green** hash marks

Executive.Director@puc.nh.gov  
catherine.marsellos@puc.nh.gov  
Erik.newman@eversource.com  
Jeremy.Fennell@eversource.com  
lynn.fabrizio@puc.nh.gov  
melissa.price@eversource.com  
ocalitigation@oca.nh.gov  
Paul.Kasper@puc.nh.gov  
randy.knepper@puc.nh.gov  
richard.chagnon@puc.nh.gov  
susan.gagne@puc.nh.gov  
tom.frantz@puc.nh.gov