

# STATE OF NEW HAMPSHIRE

## Inter-Department Communication

**DATE:** May 1, 2020

**AT (OFFICE):** NHPUC

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

**SUBJECT:** Docket No. DE 20-011 Public Service New Hampshire d/b/a  
Eversource Energy  
Petition for a License to Construct and Maintain Electric Lines over and  
across the Isinglass River in the Town of Strafford and Land Owned by  
the State in the Towns of Rochester and Raymond, New Hampshire  
**Staff Recommendation**

**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 January 28, 2020, Public Service New Hampshire d/b/a Eversource Energy (ES), filed a petition pursuant to RSA 371:17 for a license to re-construct, maintain and operate the Eversource 391 Line, which is a 345 kV transmission line. This is a project to modify or rebuild (6) six structures on its existing 391 transmission line. No conductors, shield wire or neutral wire will be replaced in the project. All wires shall be transferred from existing structures to new structures replaced at the same locations. The existing Isinglass River crossing in the Town of Strafford had not been previously licensed by the Commission.

The 391 Line crossing of the State's land parcels in the Towns of Rochester and Raymond, New Hampshire had not been previously licensed, as these parcels were in private ownership when the 391 Line was originally constructed, and no Commission license was required. These parcels comprise a portion of the former B&M Railroad right-of-way. B&M Railroad previously granted a license for the Rochester crossing in file FDA 334 and for the Raymond crossing location in file FDA 332. The existing 391 Line structures and associated transmission components are approximately 50 years old, have been subject to environmental damage and require replacement for the line to continue to function safely and reliably. This structure replacement and repair project is part of a capital reliability project - necessary for the 391 Line to continue to meet current as well as future projected electricity demands. See a detailed NHPUC Safety Division map/schematic in the Attachments A, B and C of this recommendation.

In their petition Eversource states that in 2018, Eversource completed (1) one structure replacement, (Str. 92) along the existing 391 Transmission Line impacting the Isinglass River crossing, and that a petition was not submitted prior to this work being completed, and as such, will be licensed under this petition.

In ES Exhibit #2 Structure # 21 will be constructed with 2-95 ft.(OAL) H3 LD steel poles The structure will have conductors for the 345 kv X104 transmission line consisting of (3) 850.8 kcmil ACSR 45/7 cables and (1) 7#8 Alumoweld Static 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 (34.5 feet) over the surface of the state owned land in the Town of Rochester, New Hampshire. Staff verified the computed sags with SAG 10 commercial software using inputs as stated in the petition. Only 25.5 ft. is required by the NESC Table 232-1.

Structure # 22 will be constructed with 2-95 ft.(OAL) H3 LD steel poles The structure will have conductors for the 345 kv X104 transmission line consisting of (3) 850.8 kcmil ACSR 45/7 cables and (1) 7#8 Alumoweld Static wire. The span between str# 21 and str# 22 will be 731 ft.

In ES Exhibit #3 Structure # 92 was constructed with 2-100 ft.(OAL) H3 LD steel poles The structure has conductors for the 345 kv X104 transmission line consisting of (3) 850.8 kcmil ACSR 45/7 cables and (1) 7#8 Alumoweld Static 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 water surface will be maintained at (28.3 feet) over the surface of the Isinglass River in the Town of Strafford, New Hampshire. Staff verified the computed sags with SAG 10 commercial software using inputs as stated in the petition. Only 18.5 ft. is required by the NESC Table 232-1.

Structure # 93 will be constructed with 2-95-100 ft.(OAL) H3 LD steel poles The structure will have conductors for the 345 kv X104 transmission line consisting of (3) 850.8 kcmil ACSR 45/7 cables and (1) 7#8 Alumoweld Static wire.. The span between str# 92 and str# 93 is 954 ft.

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 Isinglass River in the Town of Strafford that are identified on FEMA flood map #33017C0170D. The 100-year flood elevation for the river in this location is approximately 276 feet, and is based on the North American Vertical Datum of 1988 (NAVD88). The Safety Division verified the 276-foot flood level from the FEMA flood map.

In ES Exhibit #4 Structure # 242 will be constructed with 2-75 ft.(OAL) H3 LD steel poles The structure will have conductors for the 345 kv X104 transmission line consisting of (3) 850.8 kcmil ACSR 45/7 cables and (1) 7#8 Alumoweld Static 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 (34.5 feet) over the surface of the state owned land in the Town of Rochester, New Hampshire. Staff verified the computed sags with SAG 10 commercial software using inputs as stated in the petition. Only 25.5 ft. is required by the NESC Table 232-1.

Structure # 243 will be constructed with 2-100 ft.(OAL) H3 LD steel poles The structure will have conductors for the 345 kv X104 transmission line consisting of (3) 850.8 kcmil ACSR 45/7 cables and (1) 7#8 Alumoweld Static wire. The span between str# 242 and str# 243 will be 656 ft.

## **2. 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.

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

This public water crossing license application for the Isinglass River is part of the reliability replacement project on the 391 (345 kv) Transmission Line for ES had not been previously licensed by the Commission.

The Isinglass River, From the outflow of Bow Lake Dam in Strafford to its confluence with the Cocheco River 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.pdf>

A New Hampshire Department of Environmental Services (NHDES) Shoreland Permit by Notification application is required for construction activities in the vicinity of the Isinglass River and State Lands. SPN's have been obtained in: Strafford (2020-00035); Rochester (2020-00036); and Raymond (2020-00037).

The U.S. Army Corps of Engineers (ACOE) does not regulate the subject portion of the Isinglass 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 Isinglass 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 Rochester and Raymond, 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 C2-2012.

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 391 Line over and across the Isinglass River and over Land owned by the State in the Towns of Rochester and Raymond, 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 Rochester and Raymond and without substantially affecting the rights of the public in the public waters of the Isinglass River. Minimum safe line clearances above the river surface 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.

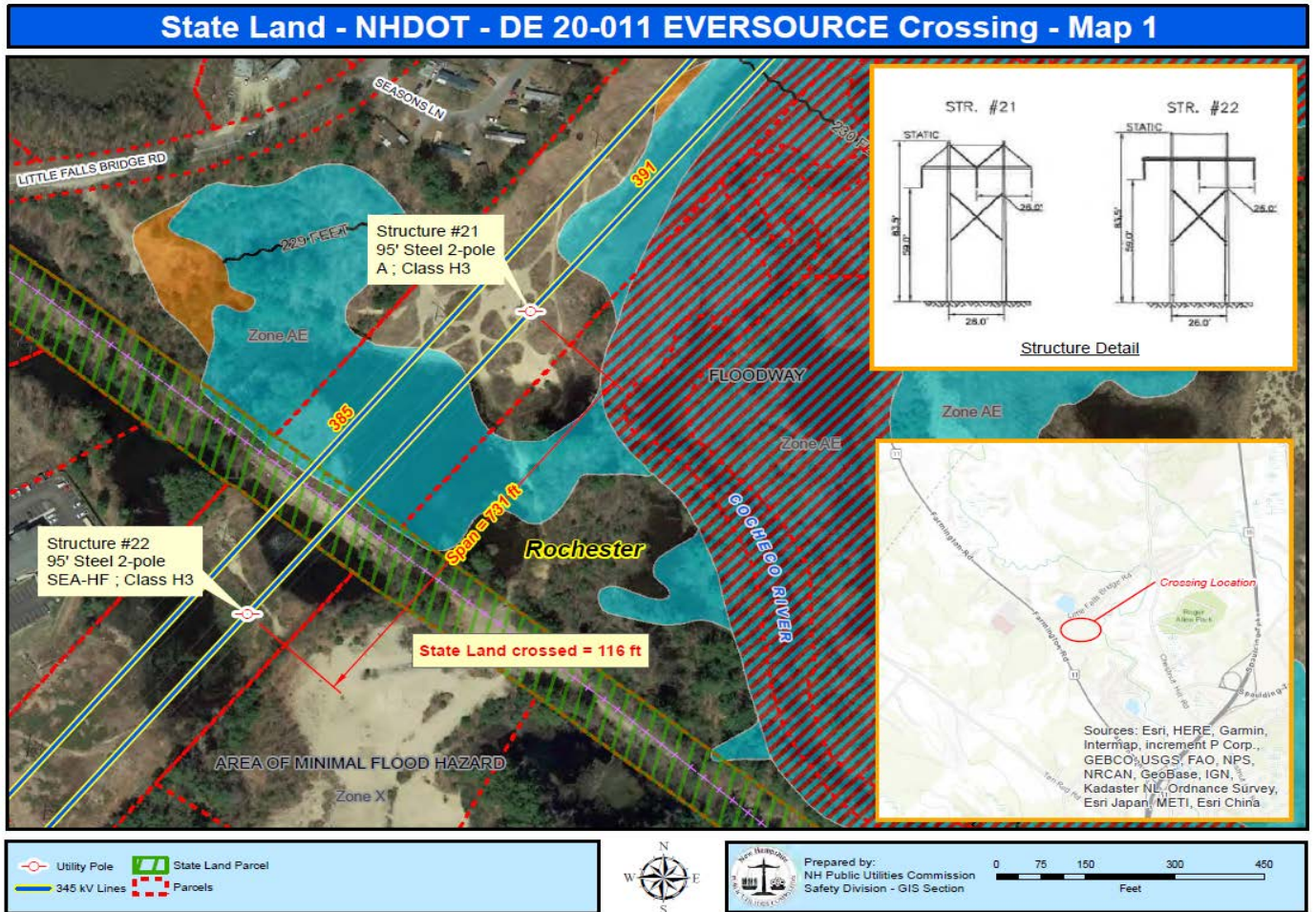
Safety Division Staff concludes the impact to the public will be de minimis and not measurable. The crossing does not appear to affect the rights of the public on the State land because minimum safe line clearances above the land surface will be maintained at all times.

**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:

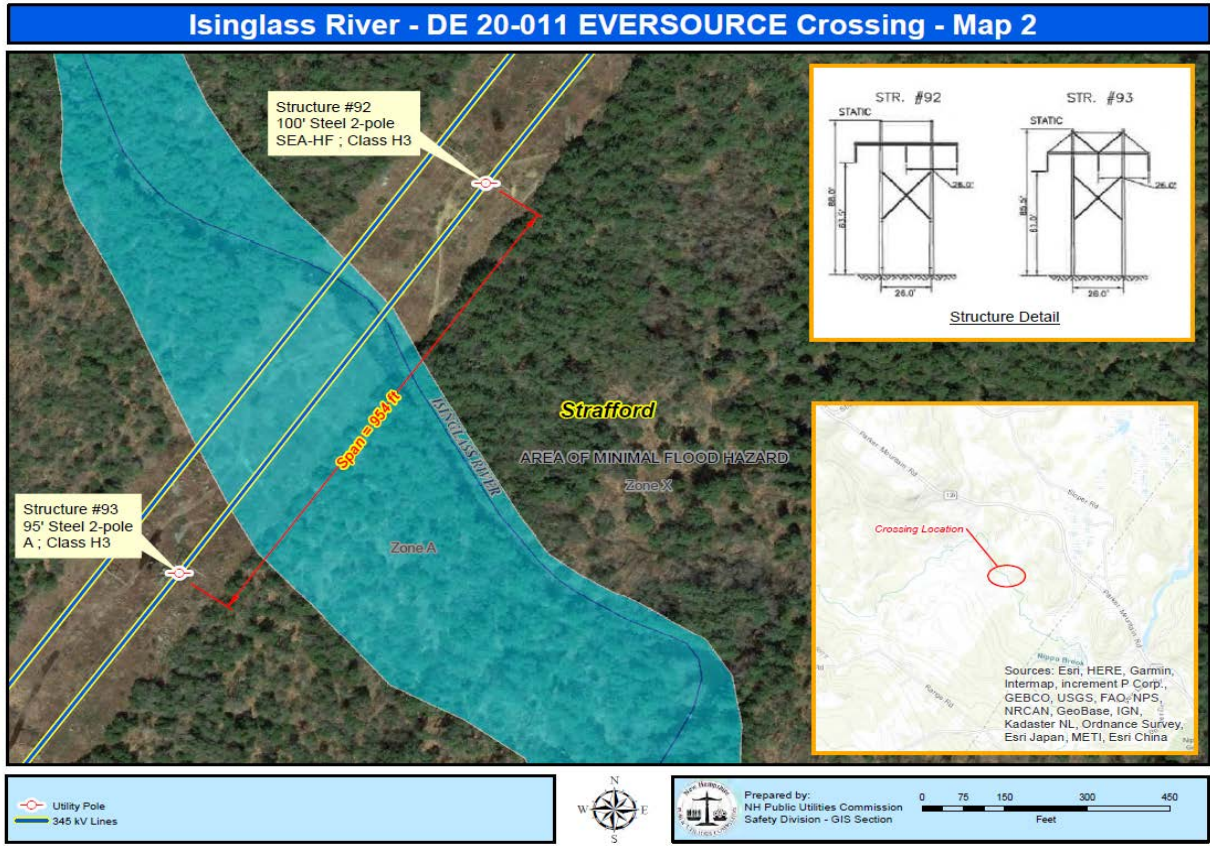
- 1) Find that the licenses ES requests in this docket may be exercised without substantially affecting the public rights in State lands which are the subject of the petition;
- 2) Grant ES a license to construct, operate and maintain electric lines, including neutral wire over and across the State land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

Staff Attachments



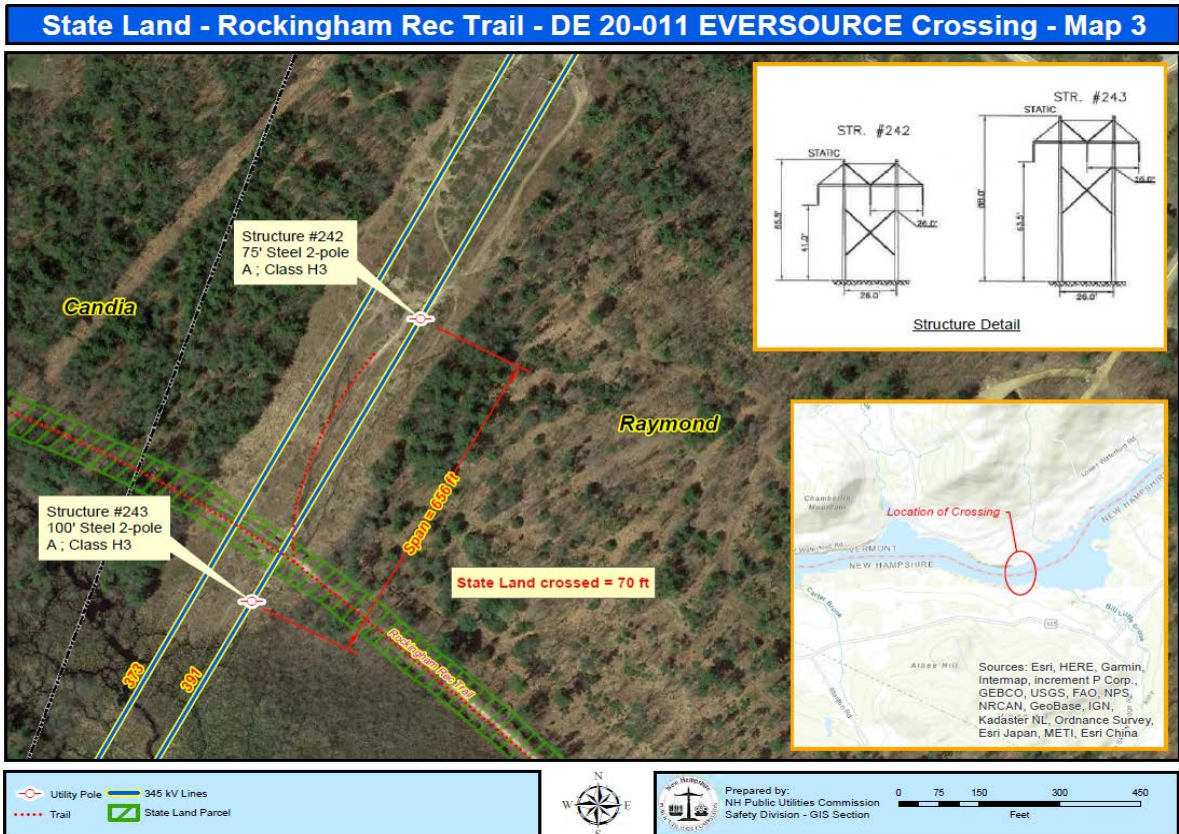
**Figure 1:** 345kV line, designated as the 391 Transmission Line, is a span of approximately 731 feet between structures # 21 and # 22, with a span of approximately 116 across State Land in the Town of Rochester, NH. State owned land is shown above as green hash marks

Attachment B



**Figure 1:** 345kV line, designated as the 391 Transmission Line, is a span of approximately 954 feet between structures # 92 and # 93, across the Isinglass River in the Town of Strafford, NH.





**Figure 1:** 345kV line, designated as the 391 Transmission Line, is a span of approximately 656 feet between structures # 242 and # 243, across State land in the Town of Raymond, NH. State owned land is shown above as green hash marks

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