

# STATE OF NEW HAMPSHIRE

## Inter-Department Communication

**DATE:** February 16, 2021

**AT (OFFICE):** NHPUC

**FROM:** Kenneth Walsh *KGW*  
Utility Analyst IV – Safety Division

**SUBJECT:** Docket No. DE 20-191 Public Service New Hampshire d/b/a  
Eversource Energy  
Petition for License to Construct and Maintain Electric Lines Over and  
Across Public Waters in Antrim and Hillsborough and State Owned  
Land in Antrim, New Hampshire  
**Staff Recommendation**

**TO:** Debra Howland, Executive Director  
Thomas Frantz, Director, Electric Division  
Richard Chagnon, Assistant Director, Electric Division  
Lynn Fabrizio, Staff Attorney  
Randall Knepper, Director, Safety Division  
Paul Kasper, Assistant Director, Safety Division

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

- Petition contents and Replacement Petition contents and history;
- Applicable State Statute;
- Review of the existing crossing(s) previously 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 December 3, 2020, Public Service New Hampshire d/b/a Eversource Energy (ES), filed a petition for a license pursuant to RSA 371:17 to construct, maintain and operate the Eversource X104 line, which is a three phase 115kV transmission line, over a number of public waters and state owned lands in Antrim and Hillsborough.

On February 2, 2021, ES filed a replacement petition resulting from errors identified by Safety Staff in the Company's December 3, 2020 original petition.

On February 8, 2021, ES filed a second replacement petition resulting from an error identified by Safety Staff in the Company's February 1<sup>st</sup> replacement petition.

There are six public water crossing spans, which include three crossings of the North Branch River in Antrim and Hillsborough, one crossing of Steels Pond in Antrim, and two crossings of Franklin Pierce Lake in Antrim. There is one State owned land crossing span, which is in Antrim.

Prior licensing by the PUC in Docket 19-149 pursuant to Order 26,355, include three crossings of the North Branch River in Antrim and Hillsborough (structures #3, #4, #5, #38, #39), one crossing of Steels Pond in Antrim (structures #44, #45), and one State owned land parcel in Antrim (structures #38, #39).

Prior licensing by the PUC in Docket 19-134 pursuant to Order 26,334 include one of the two crossings of Franklin Pierce Lake in Antrim (structures #26, #27).

Additional crossings in the petition as submitted by ES for water and land crossings involved were either in private ownership when the line was constructed or due to oversight by ES, but will be fully licensed under this petition.

It is also noted Structure #5, which ES petitioned under Docket 19-149 to be replaced from wood to steel had not been replaced and is therefore to be replaced under this petition.

This is a project to replace three (3) wood structures (structures #5, #35, #36) with steel structures as ES asserts these 1954 wood structures require replacement in order to maintain system reliability. The three (3) existing conductors will be transferred to the new steel structures. This project also includes replacement of the two existing static wires with communications fiber optical ground wire (OPGW) with both being vertically attached above the conductors. Throughout the petition spans, the existing underbuilt communication fiber cable (ADSS 72F) will be removed.

Common to all these noted structures, all three (3) existing ACSR 336.4 kcmil conductors will be transferred to the new steel structures. Two existing static wires will be replaced with communications one (1) 48 fiber optical ground wire (OPGW) and one (1) 144 fiber (OPGW) with both being vertically attached above the conductors. The conductor cable clearance requirements were met using the National Electrical Safety Code (NESC) conditions at 285 deg F. for all crossings within this petition. This scenario was the governing condition, which yielded the greatest sag and lowest clearance. Only 18.6 feet clearance is required by the NESC Table 232-1 for water areas not suitable for sail boating. Only 20.1 feet clearance is required by the NESC Table 232-1 for other areas traversed by vehicles, such as cultivated, grazing, forest, and orchard lands, industrial sites, commercial sites, etc. Only 30.1 feet clearance is required for water areas suitable for sail boating including lakes over 20 to 200 acres. Staff verified the computed sags with SAG 10 commercial software using inputs as stated in the petition.

Analysis of this final revised replacement petition will divide the X104 line into six segments for review: (S1) the North Branch River in Hillsborough (ES Exhibit 2), (S2) Franklin Pierce Lake in Antrim (ES Exhibit 3), (S3) Franklin Pierce Lake in Antrim (ES

Exhibit 4), (S4) the North Branch River in Antrim (ES Exhibit 5), (S5) State owned land in Antrim (ES Exhibit 5 and 6), (S6) Steels Pond in Antrim (ES Exhibit 7). See detailed NHPUC Safety Division maps/schematics in the Attachment of this recommendation.

The table provided after the segment information provides the summary of this petition with all crossings to include structure numbers and types, spans, ES design criteria, and NESC compliance.

**Segment 1 North Branch River, Hillsborough Crossings, ES Exhibit 2 – Structures #3 to #4 and #4 to #5:**

The scope of this project in Hillsborough begins at Structure #3, which is approximately 700 feet southwest where the X104 line crosses Saw Mill Road then traversing southwest across the North Branch River to Structures #4 and #5.

This crossing spans 537 feet between Structures #3 and #4 with 84.2 feet spanning public waters.

This crossing spans 565 feet between Structures #4 and #5 with 150 feet spanning public waters. See PUC Safety Map #1.

**Segment 2 Franklin Pierce Lake, Antrim Crossing, ES Exhibit 3 – Structures #26 to #27:**

The scope of this project in Antrim begins at Structure #26 along the eastern shoreline approximately 4200 feet southwest from the X104 line crossing over Mountain Side Drive then heading southwest crossing Franklin Pierce Lake ending at Structure #27.

This crossing spans 510 feet between Structures #26 and #27 with 71.4 feet spanning public waters. See PUC Safety Map #2.

**Segment 3 Franklin Pierce Lake, Antrim Crossing, ES Exhibit 4 – Structures #35 to #36:**

The scope of this project in Antrim begins at Structure #35 along the eastern shoreline approximately 1450 feet southwest from where Pierce Lake Road changes from pavement to dirt then heading southwest crossing Franklin Pierce Lake ending at Structure #36.

This crossing spans 510 feet between Structures #26 and #27 with 71.4 feet spanning public waters. See PUC Safety Map #3.

**Segment 4 North Branch River, Antrim Crossing, ES Exhibit 5 – Structures #38 to #39:**

The scope of this project in Antrim begins at Structure #38 approximately 325 feet southwest from Winklemans Point Road then heading southwest crossing the North Branch River ending at Structure #39.

This crossing spans 723 feet between Structures #38 and #39 with 44.3 feet spanning public waters. See PUC Safety Map #4.

**Segment 5 State Owned Land, Antrim Crossing, ES Exhibit 5 and 6 – Structures #38 to #41:**

The scope of this project in Antrim begins at Structure #38 described above then heading southwest crossing over Elm Ave. ending at Structure #41.

This crossing spans 1589.2 feet between Structures # 38 and #41 with 902.7 feet spanning state owned lands. See PUC Safety Map #4.

**Segment 6 Steels Pond, Antrim Crossing, ES Exhibit 7 – Structures #44 to #45:**

The scope of this project in Antrim begins at Structure #44 approximately 1475 feet southwest from where the X104 line crosses Elm Ave. then heading southwest crossing Steels Pond ending at Structure #45.

This crossing spans 628 feet between Structures #44 and #45 with 458.3 feet spanning public waters. See PUC Safety Map #5.

**PUC Safety Division Summary Table**

Structure	Type	Span (Pole to Pole)	Distance (feet)	Minimum NESC Table 232-1 Clearance (ft.)	ES Vertical Design Clearance (ft.)	Complies with NESC Table 232-1 (Y/N)
3	56.5' steel 3 pole, BA, CLH1	3-4	537	18.6	23.5	Y
4	61.0' steel 2 pole, SRAX, CLH1					
5	56.5' steel 2 pole, T, CLH3	4-5	565	18.6	31.4	Y
26	84.0' steel 1 pole, CLH9	26-27	510	30.1	45.1	Y
27	70.0' steel 3 pole, SRC2, CLH1					
35	61.0' steel 3 pole, ADS-2, CLH1	35-36	995	30.1	41.0	Y
36	56.5' steel 3 pole, ADS-1, CLH1					
38	61.0' steel 2 pole, T, CLH1	38-39	723.2	18.6	80.7	Y
39	52.0' steel 3 pole, P, CLH1					

Structure	Type	Span (Pole to Pole)	Distance (feet)	Minimum NESC Table 232-1 Clearance (ft.)	ES Vertical Design Clearance (ft.)	Complies with NESC Table 232-1 (Y/N)
40	Steel 2 pole, T, CLH1	39-40	326	20.1	29.7	Y
41	65.5' steel 2 pole, SRAX, CLH1	40-41	540	20.1	36.7	Y
44	72.2' steel 2 pole, T-MOD, CLH1	44-45	628	18.6	39.5	Y
45	80.5' steel 3 pole, SRC-3, CLH1					

The water clearances to the projected 100-year flood elevations were confirmed by Safety Division staff. 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 18 to Table 232-1).

## 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 these locations of the North Branch River in Hillsborough and Antrim, Franklin Pierce Lake in Antrim, and State owned land in Antrim.

The public water crossings over the North Branch River in Hillsborough and Antrim were licensed in DE19-149 pursuant to Order 26,355. One of the two public water

crossings over Franklin Pierce Lake was licensed in DE19-134 pursuant to Order 26,334 and the other lake crossing was never licensed.

A portion of a span across state owned land in Antrim was licensed in DE19-149 pursuant to Order 26,355. The balance within this petition was never licensed.

In Antrim and Hillsborough, the North Branch River, from the outflow of Robb Reservoir in Stoddard is listed under the category “Public Rivers and Streams” in the Official List of Public Waters (OLPW).

In Antrim, Franklin Pierce Lake is designated as an Artificial Impoundment under the category “Public Lakes and Ponds” in the Official List of Public Waters (OLPW). The entire list of public waters can be accessed through the following web link:

<https://www.des.nh.gov/sites/g/files/ehbemt341/files/documents/olpw.pdf>

ES asserts environmental impacts from this project will require permits from the NH Department of Environmental Services and that ES will obtain these before commencing work.

The U.S. Army Corps of Engineers (USACOE) does not regulate the subject portions of the North Branch River in Hillsborough and Antrim, Franklin Pierce Lake in Antrim, and Steels Pond in Antrim, as federal-designated navigable waters. Therefore, no crossing permit is required from USACOE.

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

In its petition, ES specifies that the replacement of the structures and static wires with OPGW is over public waters and state owned lands in the Towns of Hillsborough and Antrim, New Hampshire.

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

Under N.H. Code Admin. Rules Puc 306, each utility is required to 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 that 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 the NESC C2-2012.

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

## **6. Review of public need and public impact**

In order to meet the reasonable requirements of electric service to the public, ES proposes to replace existing wood structures with steel structures, transfer existing conductors, replace two static wires with fiber optic communication cables, remove the fiber optic cable underbuilt, and maintain a three-phase 115 kV transmission line designated as the X104 line over and across public waters in Hillsborough and Antrim and across state owned land in Antrim, 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 existing crossings will be exercised without substantially affecting the rights of the public in the public waters of the North Branch River in Hillsborough and Antrim, the public waters of Franklin Pierce Lake in Antrim, and the state owned land in Antrim. Minimum safe line clearances above the river and lake surfaces and affected shorelines and lands will be maintained at all times. The use and enjoyment of the rivers, lakes, and the state owned lands by the public will not be diminished in any material respect as a result of the overhead line crossings.

Safety Division Staff concludes the impact to the public will be de minimis and not measurable. The crossings do not appear to affect the rights of the public in the public waters and state owned lands because minimum safe line clearances above the water and land surfaces 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:

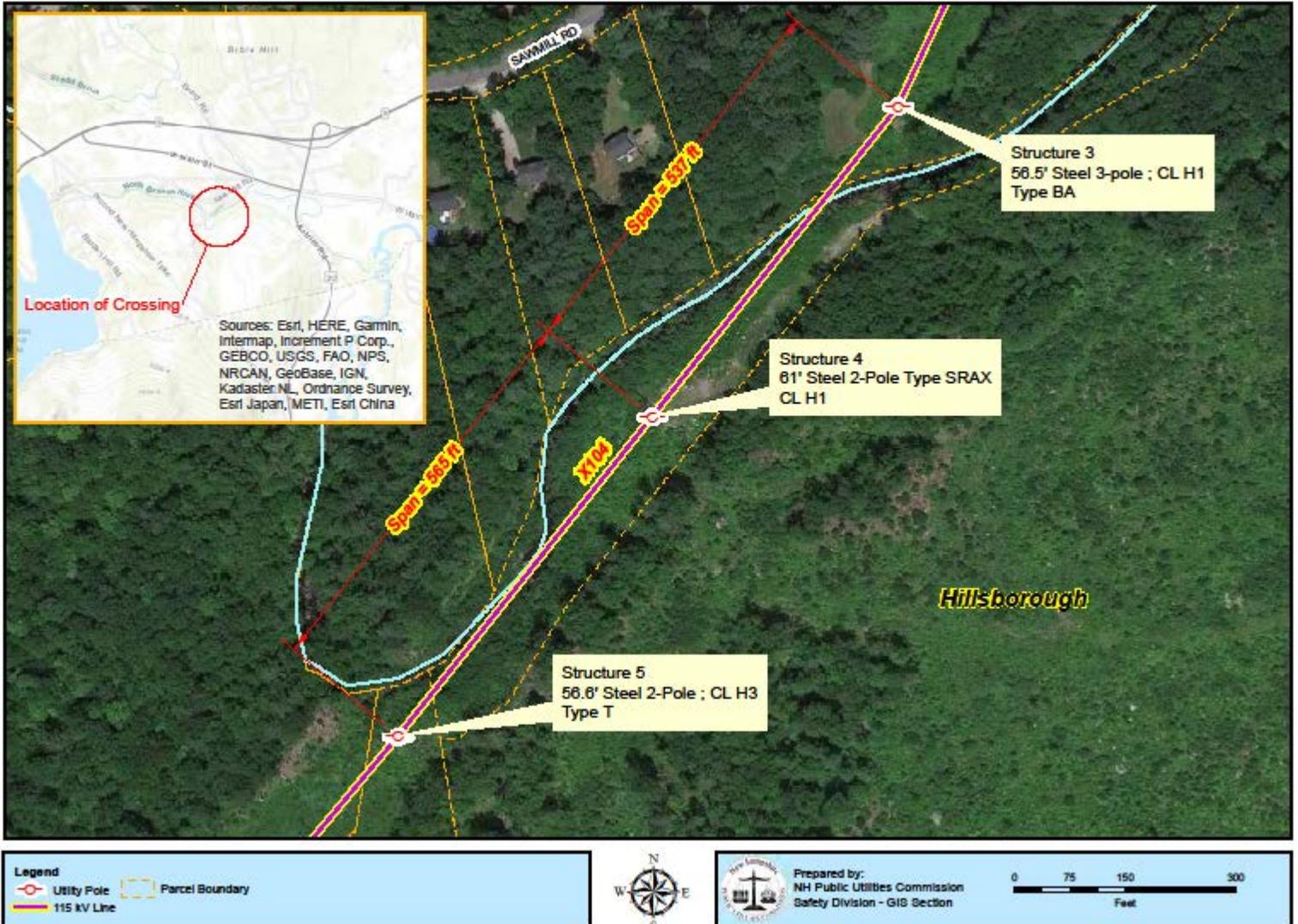
- 1) Find that the license ES requests in this docket may be exercised without substantially affecting the public rights in public waters and state owned lands, which are the subject of the petition;
- 2) Grant ES a license to construct, operate and maintain electric lines and telecommunication cables over and across the public waters of the North Branch River in the Towns of

Hillsborough and Antrim, over and across the public waters of Franklin Pierce Lake in Antrim, over and across the public waters of Steels Pond in Antrim, and State owned land in the Town of Antrim, New Hampshire, as specified in the petition;

- 3) Issue an Order Nisi and orders for its publication.

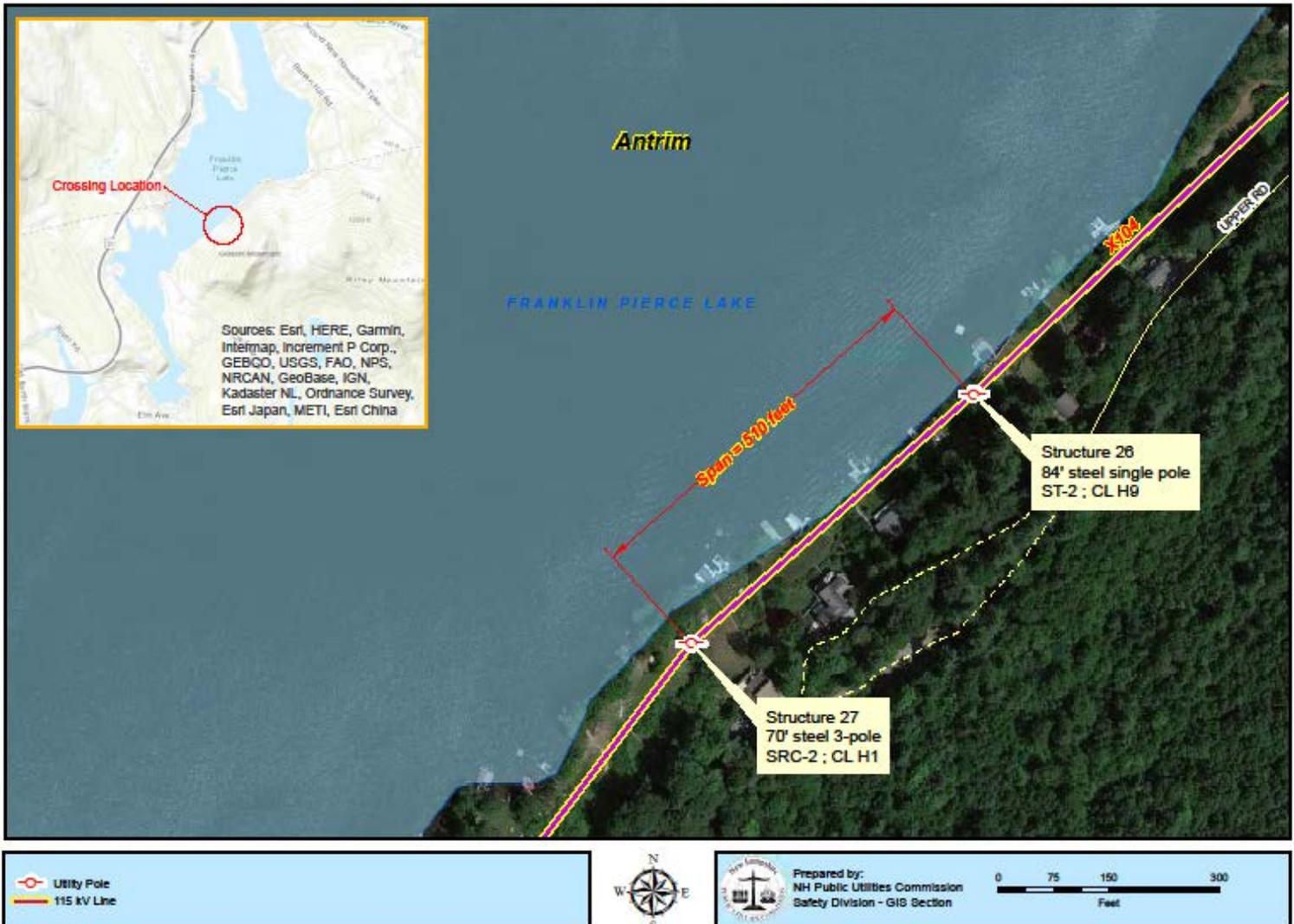
Attachment

## North Branch River (Map 1) - DE 20-191 EVERSOURCE Crossing



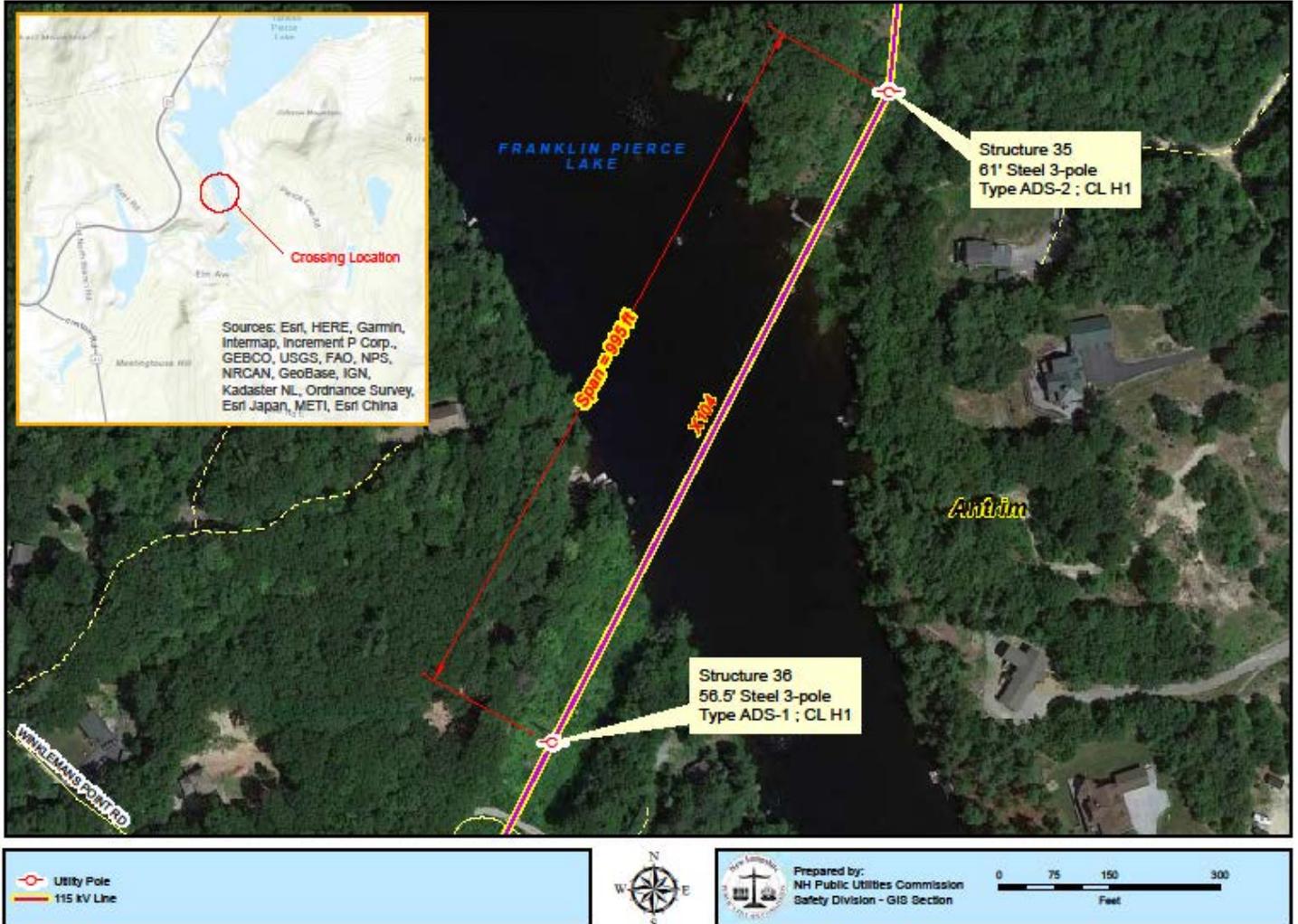
**Public Water** as shown above identified in the petition and engineering drawings as State of New Hampshire and located in the Town of Hillsborough. The project will require the Commission to grant a water crossing license related to this project. The license will be for the 115 kV X104 transmission line from Structure #3 southwest to Structure #5. These crossings span approximately 1,102 feet with 234.2 feet crossing public waters over the North Branch River.

## Franklin Pierce Lake - DE 20-191 Eversource Crossing Map 2



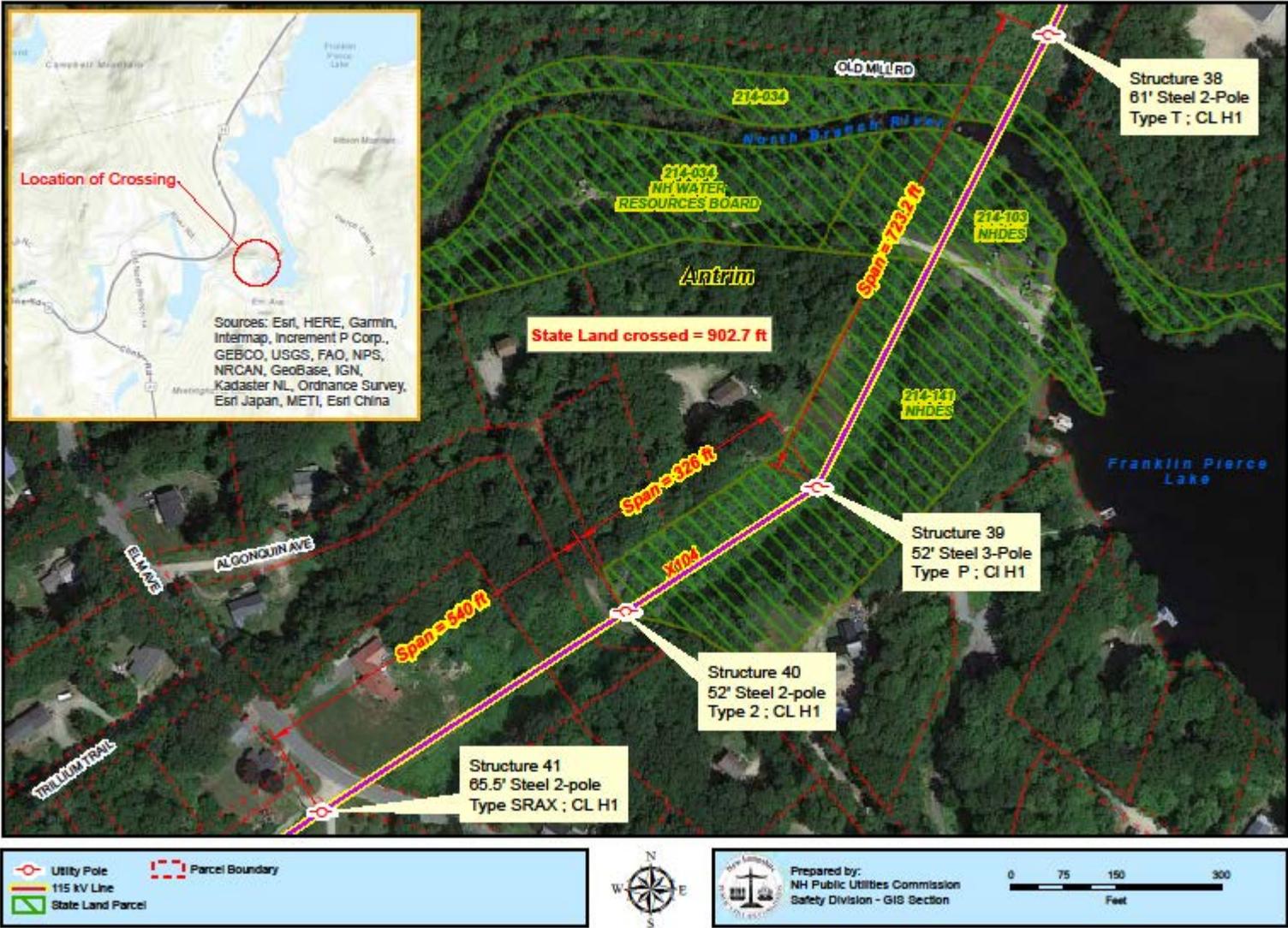
**Public Water** as shown above identified in the petition and engineering drawings as State of New Hampshire and located in the Town of Antrim. The project will require the Commission to grant a water crossing license related to this project. The license will be for the 115 kV X104 transmission line from Structure #26 southwest to Structure #27. This crossing spans approximately 510 feet with 71.4 feet crossing public waters on Franklin Pierce Lake.

## Franklin Pierce Lake - DE 20-191 Eversource Crossing Map 3



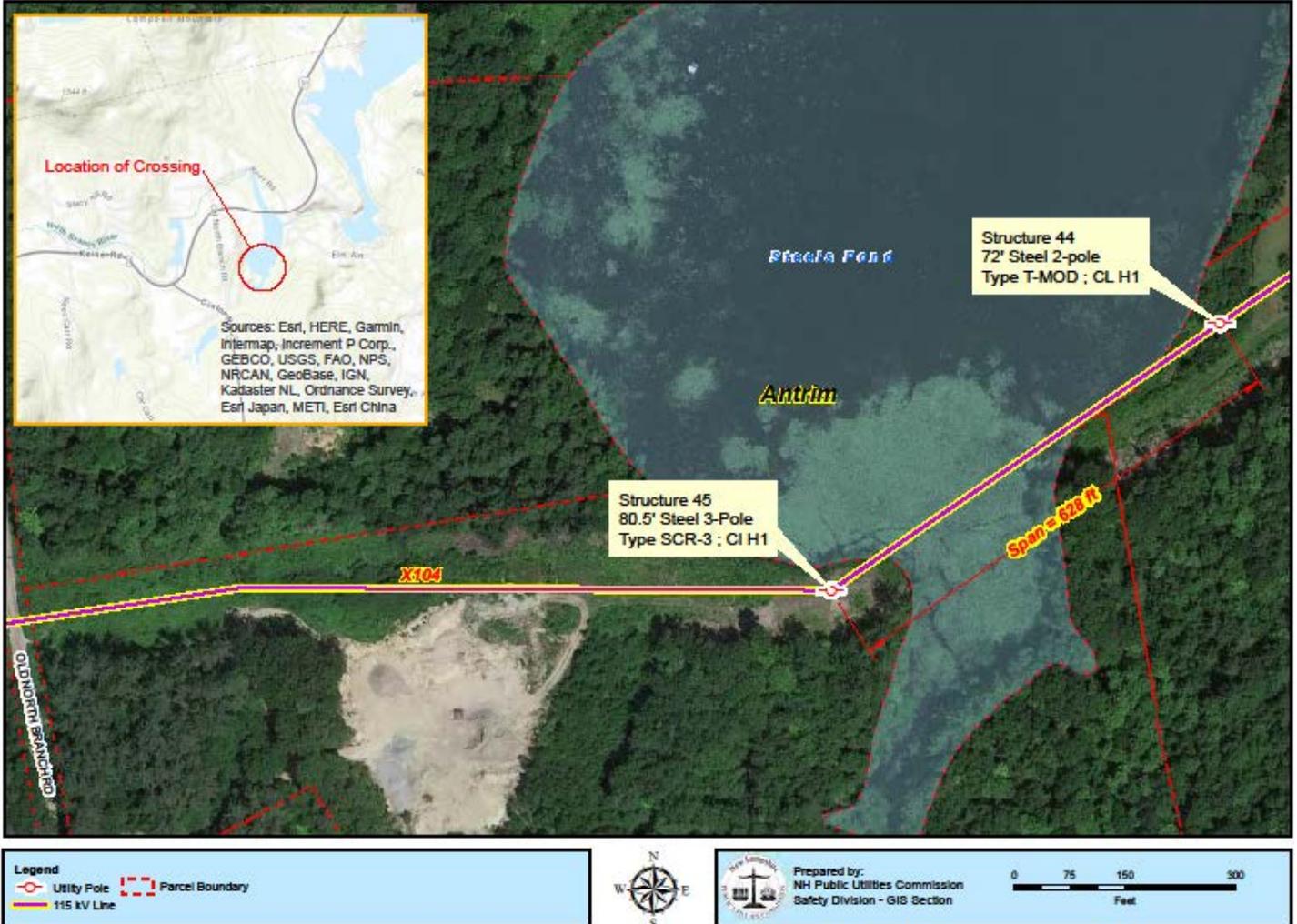
**Public Water** as shown above identified in the petition and engineering drawings as State of New Hampshire and located in the Town of Antrim. The project will require the Commission to grant a water crossing license related to this project. The license will be for the 115 kV X104 transmission line from Structure #35 southwest to Structure #36. This crossing spans approximately 995 feet with 485.2 feet crossing public waters on Franklin Pierce Lake.

# North Branch River/State Land (Map 4) - DE 20-191 EVERSOURCE Crossing



**Public Water and State Owned Land** as shown above identified in the petition and engineering drawings as State of New Hampshire and located in the Antrim. The project will require the Commission to grant a license related to this project. The license will be for the 115 kV X104 transmission line from Structure #38 southwest to Structure #41. This crossing spans approximately 1589.2 feet with 44.3 feet crossing the North Branch River and 902.7 feet crossing state owned land.

## Steels Pond (Map 5) - DE 20-191 EVERSOURCE Crossing



**Public Water** as shown above identified in the petition and engineering drawings as State of New Hampshire and located in the Town of Antrim. The project will require the Commission to grant a water crossing license related to this project. The license will be for the 115 kV X104 transmission line from Structure #44 southwest to Structure #45. This crossing spans approximately 628 feet with 458.3 feet crossing public waters on Steels Pond.

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