STATE OF NEW HAMPSHIRE

Inter-Department Communication

DATE: July 6, 2020
AT (OFFICE): NHPUC

FROM: Paul Kasper PGK
Assistant Director – Safety Division

SUBJECT: Docket No. DE 20-014 Public Service New Hampshire d/b/a Eversource Energy
Petition for a License to Construct and Maintain Electric Lines over and across the Blackwater River in Andover, Cascade Brook in Wilmot and Land Owned by the State of New Hampshire in Springfield and Franklin
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 30, 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 M127 Line, which is a 115 kV transmission line. This is a project to modify or rebuild (9) nine structures on its existing M127 transmission line. No conductors will be replaced but one of the (2) shield wires will be replaced with optical ground wire in this project. All wires shall be transferred from existing structures to new structures replaced at the same locations. The existing Blackwater River crossing in the Town of Andover and the Cascade Brook crossing in the Town of Wilmot had not been previously licensed by the Commission.

The M127 Line crossing of the State's land parcels in the Town of Springfield, New Hampshire had not been previously licensed, as the M127 Line was originally constructed in 1967, and no Commission license was required. The crossing of the Northern Rail Trail in the Town of Franklin, New Hampshire was previously licensed under Order No. 26,025 issued June 16, 21017 in Dockets DE 15-460, DE 15-461, DE 15-462 and DE 15-463 This structure replacement and repair project is part of a capital reliability project - necessary for the M127 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, C and D of this recommendation.

In ES Exhibit #2 Structure # 0.5 is constructed with 2-60 ft.(OAL) CL3 wood poles The structure has conductors for the 115 kV M127 transmission line consisting of (3) 795 kcmil ACSR 36/1 cables, (1) 7#8 Alumoweld Static wire and (1) .457 OPGW 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 (48 feet) over the surface of the state owned land in the Town of Franklin, New Hampshire. Staff verified the computed sags with SAG 10 commercial software using inputs as stated in the petition. Only 20.1 ft. is required by the NESC Table 232-1.

Structure # 1 is constructed with 3-55 ft.(OAL) CL3 wood poles The structure has conductors for the 115 kV M127 transmission line consisting of (3) 795 kcmil ACSR 36/1 cables, (1) 7#8 Alumoweld Static wire and (1) .457 OPGW wire.. The span between the ES Webster Substation and STR# 1 via STR# 0.5 will be 282 ft.

In ES Exhibit #3 Structure # 76 will be constructed with 2-60 ft.(OAL) H1 LD steel poles The structure will have conductors for the 115 kV M127 transmission line consisting of (3) 795 kcmil ACSR 36/1 cables, (1) 7#8 Alumoweld Static wire and (1) .457 OPGW 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 (41.1 feet) over the surface of the Blackwater River in the Town of Andover, New Hampshire. Staff verified the computed sags with SAG 10 commercial software using inputs as stated in the petition. Only 18.6 ft. is required by the NESC Table 232-1.

Structure # 77 is constructed with 3-65 ft.(OAL) H1 LD steel poles The structure has conductors for the 115 kV M127 transmission line consisting of (3) 795 kcmil ACSR 36/1 cables, (1) 7#8 Alumoweld Static wire and (1) .457 OPGW wire. The span between STR# 76 and STR# 77 is 629 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 Blackwater River in the Town of Andover that are identified on FEMA flood map #33013C0140E. The 100-year flood elevation for the river in this location is approximately 607.6 feet, and is based on the North American Vertical Datum of 1988 (NAVD88). The Safety Division verified the 607.6-foot flood level from the FEMA flood map.

In ES Exhibit #4 Structure # 153 will be constructed with 2-75 ft.(OAL) H1 LD steel poles The structure will have conductors for the 115 kV M127 transmission line consisting of (3) 795 kcmil ACSR 36/1 cables, (1) 7#8 Alumoweld Static wire and (1) .457 OPGW 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 (41.2 feet) over the surface of the water of the Cascade Brook in the Town of Wilmot, New Hampshire. Staff verified the computed sags with SAG 10 commercial software using inputs as stated in the petition. Only 18.6 ft. is required by the NESC Table 232-1.

Structure # 154 will be constructed with 2-75 ft. (OAL) H 1 LD steel poles. The structure will have conductors for the 115 kV M127 transmission line consisting of (3) 795 kcmil ACSR 36/1 cables, (1) 7#8 Alumoweld Static wire and (1) .457 OPGW wire. The span between STR# 153 and STR# 154 is 393 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 Cascade Brook in the Town of Wilmot that are identified on FEMA flood map #33013C0120E. The 100-year flood elevation for the river in this location is approximately 654.3 feet, and is based on the North American Vertical Datum of 1988 (NAVD88). The Safety Division verified the 654.3 ft. flood level from the FEMA flood map.

In ES Exhibit #5 Structures (#231 – #236) will not be replaced in this petition. The structures are constructed with (2) 50-65 ft. (OAL) Cl 3 wood poles. The structures have conductors for the 115 kV M127 transmission line consisting of (3) 795 kcmil ACSR 36/1 cables, (1) 7#8 Alumoweld Static wire and will have (1) .457 OPGW 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 a minimum of (21.8 feet) over the state owned land in the Town of Springfield, New Hampshire. Staff verified the computed sags with SAG 10 commercial software using inputs as stated in the petition.

Only 20 ft. is required by the NESC Table 232-1. The span between STR# 231 and STR# 237 is 2505 ft.

In ES Exhibit #6 Structure # 237 will be constructed with 2-65 ft.(OAL) H 1 LD steel poles The structure will have conductors for the 115 kV M127 transmission line consisting of (3) 795 kcmil ACSR 36/1 cables, (1) 7#8 Alumoweld Static wire and (1) .457 OPGW 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 (34.4 feet) over the surface of the state owned land in the Town of Springfield, New Hampshire. Staff verified the computed sags with SAG 10 commercial software using inputs as stated in the petition. Only 20.1 ft. is required by the NESC Table 232-1.

Structure # 238 will be constructed with 2-90 ft.(OAL) H 1 LD steel poles. The structure will have conductors for the 115 kV M127 transmission line consisting of (3) 795 kcmil ACSR 36/1 cables, (1) 7#8 Alumoweld Static wire and (1) .457 OPGW wire.

Structure # 239 will be constructed with 2-85 ft.(OAL) H 1 LD steel poles The structure will have conductors for the 115 kV M127 transmission line consisting of (3) 795 kcmil ACSR 36/1 cables, (1) 7#8 Alumoweld Static wire and (1) .457 OPGW 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 (47.8 feet) over the surface of the state owned land in the Town of Springfield, New Hampshire. Staff verified the computed sags with SAG 10 commercial software using inputs as stated in the petition. Only 20.1 ft. is required by the NESC Table 232-1.

Structure # 240 will be constructed with 2-70 ft.(OAL) H 1 LD steel poles. The structure will have conductors for the 115 kV M127 transmission line consisting of (3) 795 kcmil ACSR 36/1 cables, (1) 7#8 Alumoweld Static wire and (1) .457 OPGW wire.

Structure # 241 will be constructed with 2-75 ft.(OAL) H 1 LD steel poles The structure will have conductors for the 115 kV M127 transmission line consisting of (3) 795 kcmil ACSR 36/1 cables, (1) 7#8 Alumoweld Static wire and (1) .457 OPGW 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 (29.8 feet) over the surface of the state owned land in the Town of Springfield, New Hampshire. Staff verified the computed sags with SAG 10 commercial software using inputs as stated in the petition. Only 20.1 ft. is required by the NESC Table 232-1.

Structure # 242 will be constructed with 2-75 ft.(OAL) H 1 LD steel poles. The structure will have conductors for the 115 kV M127 transmission line consisting of (3) 795 kcmil ACSR 36/1 cables, (1) 7#8 Alumoweld Static wire and (1) .457 OPGW wire. The span between STR# 237 and STR# 242 is 2362 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.
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> **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 Blackwater River is part of the reliability replacement project on the M127 (115 kV) Transmission Line for ES had not been previously licensed by the Commission.

The Blackwater River, From the Juncture of Cascade and Frazier Brook 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.

This public water crossing license application for the Cascade Brook is part of the reliability replacement project on the M127 (115 kV) Transmission Line for ES had not been previously licensed by the Commission.

The Cascade Brook, From the Juncture of unnamed 4th order stream 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) Shoreland Permit by Notification application is required for construction activities in the vicinity of the Blackwater River and Cascade Brook. ES asserts the permits by notification were approved by NHDES on October 15, 2019 (NHDES File # 2019-03243 and 2019-03241) and will be renewed prior to construction.

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 Blackwater River and Cascade Brook. Minimum safe line clearances above the river and brook water surfaces and affected shorelines will be maintained at all times. The use and enjoyment of the river and brook 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 Springfield and Franklin, 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 C2-2017….

ES states that the current crossings have been designed and will be re-constructed, maintained and operated in accordance with 2017 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 C2-2017 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 115 kV transmission line, designated as the M127 Line over and across the Blackwater River, Cascade Brook and over Land owned by the State in the Towns of Springfield and Franklin, 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 Springfield and Franklin and without substantially affecting the rights of the public in the public waters of the Blackwater River and Cascade Brook. Minimum safe line clearances above the river and brook 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 Springfield and Franklin, 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 Blackwater River in the Town of Andover and the Cascade Brook in the Town of Wilmot, New Hampshire, as specified in the petition;

5) Issue an Order Nisi and orders for its publication.

Staff Attachments

Attachment A

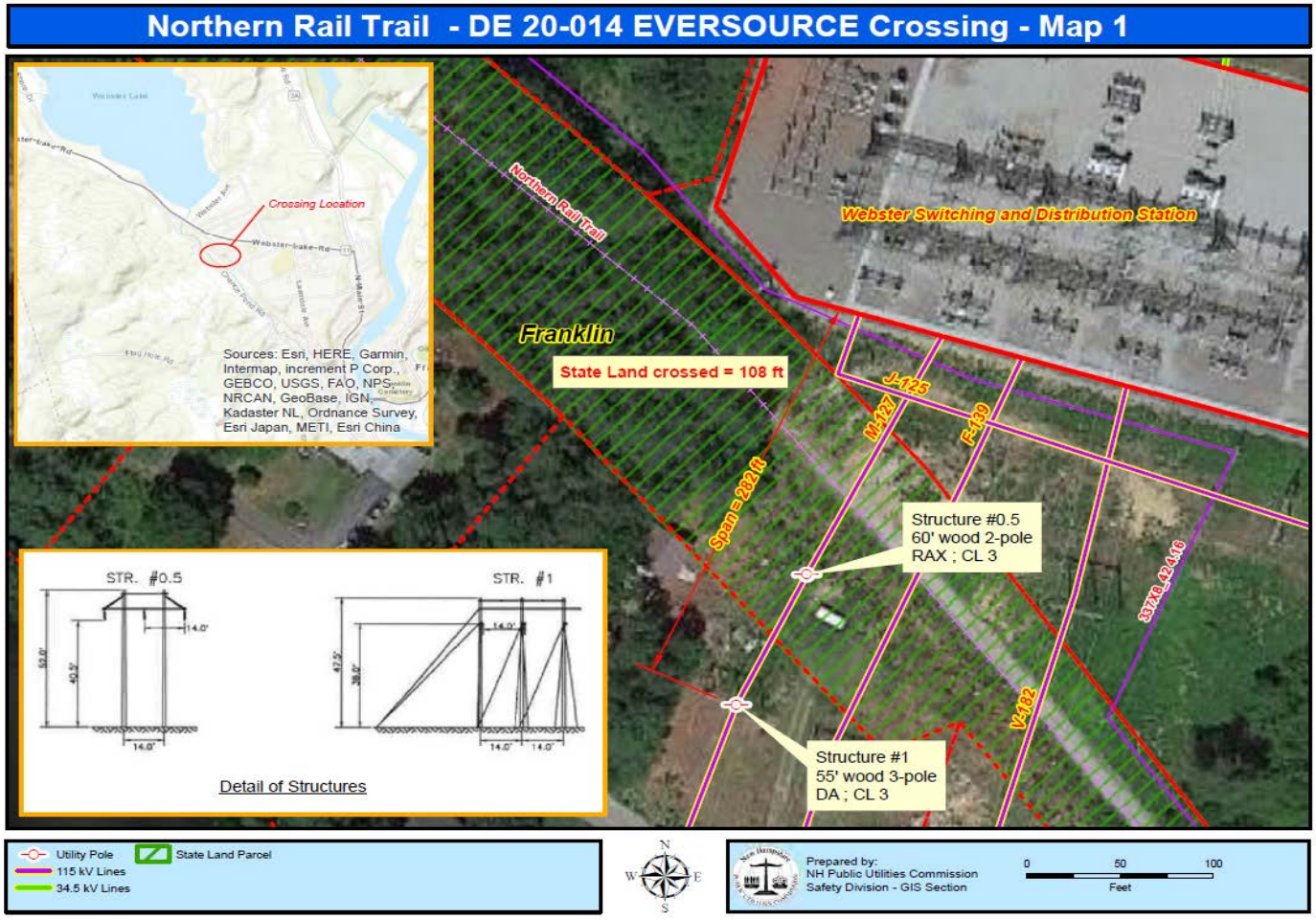

Figure 1: 115kV line, designated as the M127 Transmission Line, is a span of approximately 282 feet between Webster Substation and Structure # 1, with a span of approximately 108 ft. crossing State Land in the Town of Franklin, NH. State owned land is shown above as green hash marks

Attachment B

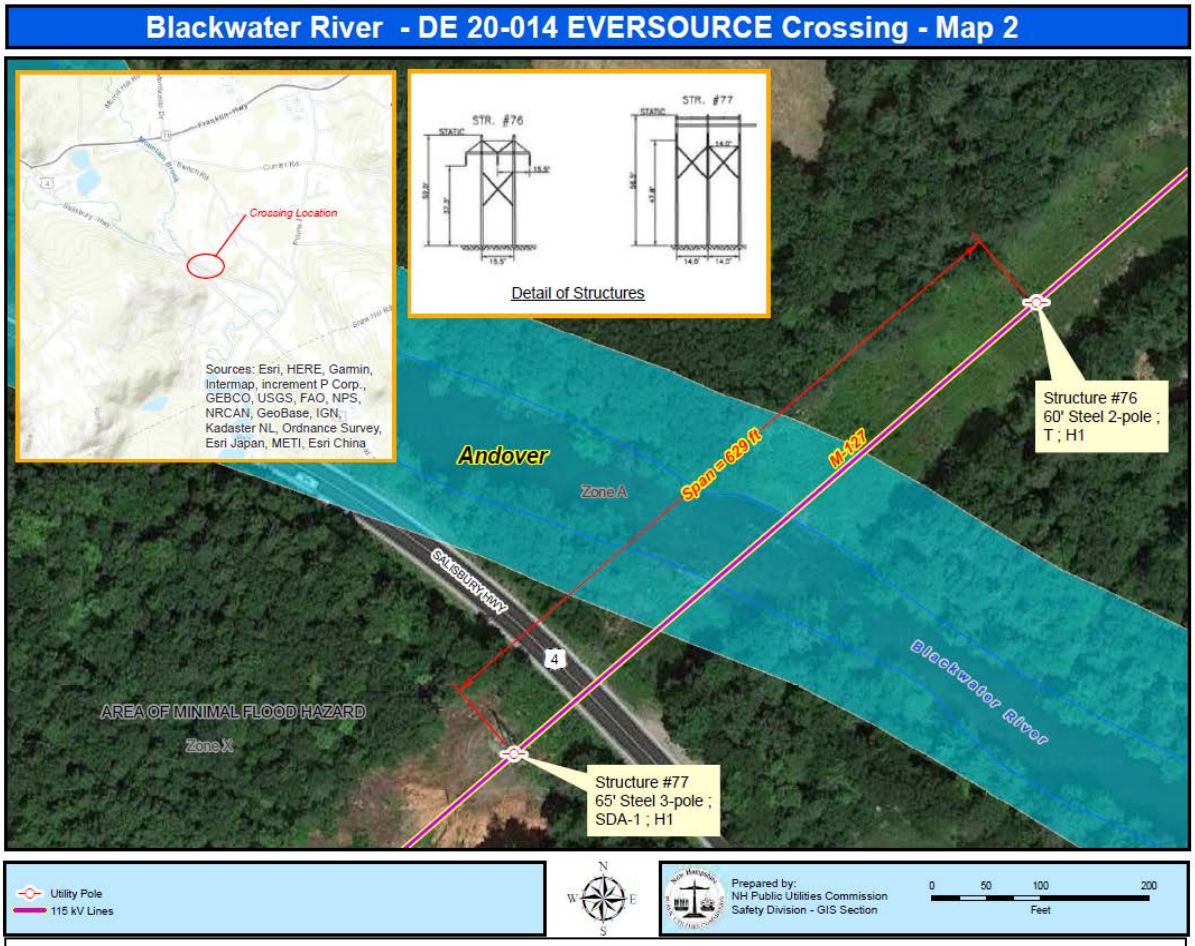

Figure 1: 115kV line, designated as the M127 Transmission Line, is a span of approximately 629 feet between structures # 76 and # 77, across the Blackwater River in the Town of Andover, NH.

Attachment C

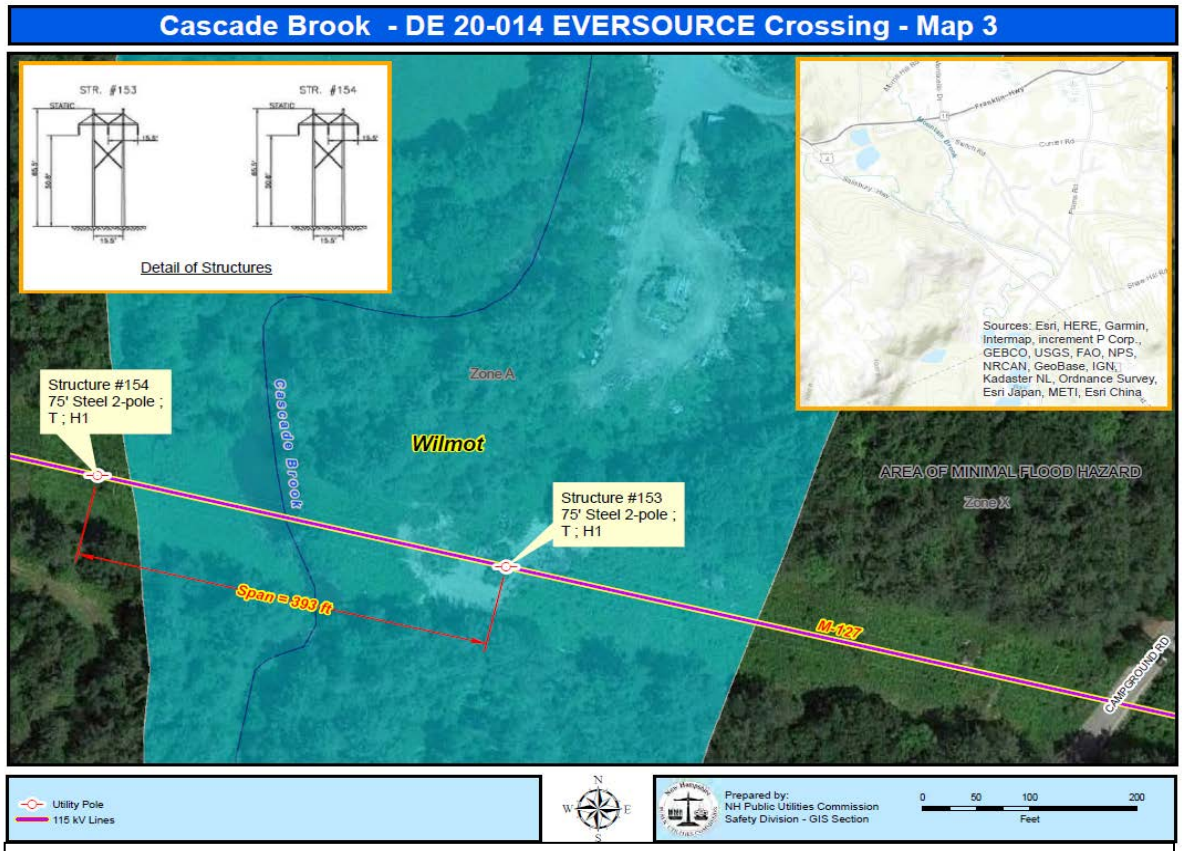

Figure 1: 115kV line, designated as the M127 Transmission Line, is a span of approximately 393 feet between structures # 153 and # 154, across the Cascade Brook in the Town of Wilmot, NH.

Attachment D

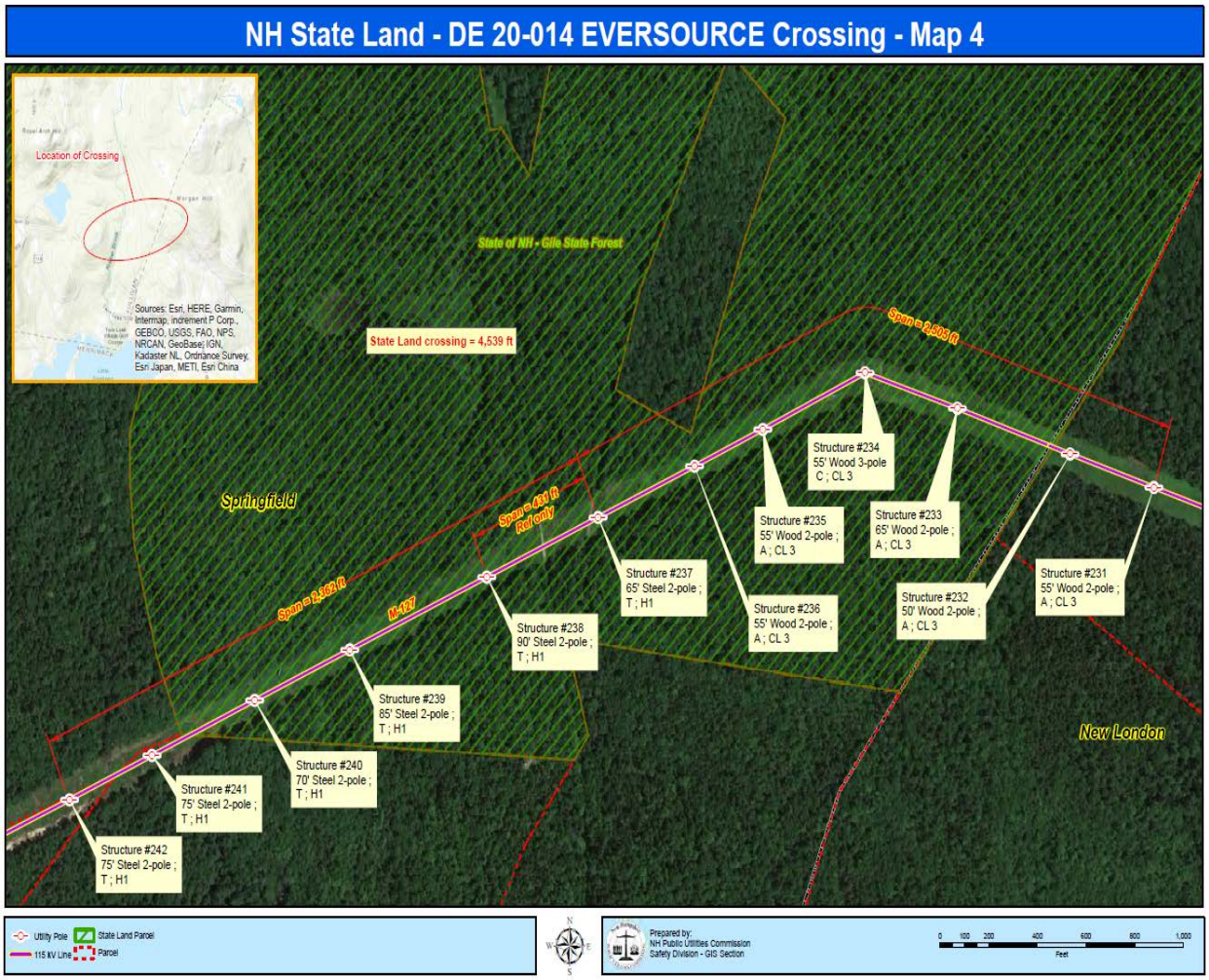

Figure 1: 115kV line, designated as the M127 Transmission Line, is a span of approximately 4867 feet between structures # 231 and # 242, crossing approximately 4539 ft. of State land in the Towns of Springfield and Franklin, NH. State owned land is shown above as green hash marks

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