APPENDIX A

F107 & 380 & 3162 Lines
Spans 46-58
State of New Hampshire-Fish and Game Department
DURHAM, NH

1. The design and proposed construction of this crossing is shown on the attached Eversource Energy Drawings entitled "Seacoast Reliability Project Structures #46-56, State of NH Property Crossing" (Drawing No. F10799002 Sheet 1 of 2) and "Seacoast Reliability Project Structures #56-61, State of NH Property Crossing" (Drawing No. F10799002 Sheet 2 of 2) marked as Exhibit 2 and Exhibit 3, respectively.

2. The location of this crossing is shown on the attached Location Plan marked as Exhibit 1.

3. Lines F107, 380 and 3162 will cross the public land north of Bennett Road primarily on 1-pole, direct embed, steel tangent suspension structures designated as Type WT-1-UB, and on a direct embed, steel tangent suspension structures designated as Type WT-2-UB. Structure 49 is a 1-pole, steel dead-end structure on a concrete foundation designated as Type SPDE-VUB. Structures 57 and 58 are two-pole, direct embed tangent structures designated as Type RAX-UB. Details of these structures are shown on Exhibit 11. Above ground structure heights (AGH) for each of the crossing structures is shown on Exhibits 2 and 3.

- As shown on Exhibit 11, for the Type WT-1-UB structures the 115kV phase wires have an approximate separation at the structure of 7.5 -15 feet vertically and 0-13 feet horizontally in a delta configuration. The static wire is carried on the structure by a support bracket approximately nine inches down from the top of the structure. The 34.5kV phase wires are arranged horizontally approximately 15 feet below the lowest 115kV conductor and have an approximate separation at the structure of 0-5 feet vertically and 2.5-6 feet horizontally. The neutral wire is carried on the structure by a support bracket approximately 7.5 feet down below the 34.5kV phase wires.

- As shown on Exhibit 11, for the Type WT-2-UB structures the 115kV phase wires have an approximate separation at the structure of 7.5 -15.5 feet vertically and 0-13 feet horizontally in a delta configuration. The static wire is carried on the structure by a support bracket approximately nine inches down from the top of the structure. The 34.5kV phase wires are arranged horizontally approximately 15.5 feet below the lowest 115kV conductor and have an approximate separation at the structure of 0-2.5 feet vertically and 2.5-6 feet horizontally. The neutral wire is carried on the structure by a support bracket approximately seven feet down below the 34.5kV phase wires.

- As shown on Exhibit 11, for the Type SPDE-VUB structures the 115kV phase wires have an approximate separation at the structure of ten feet vertically and zero feet horizontally in a vertical configuration. The static wire is carried on the structure by a support bracket approximately six inches down from the top of the structure. The 34.5kV phase wires are arranged vertically approximately 13 feet below the lowest 115kV conductor and have an approximate separation at the structure of 5 feet vertically and 0 feet horizontally. The neutral wire is carried on the structure by a support bracket approximately six feet down below the 34.5kV phase wires.

- As shown on Exhibit 11, for the Type RAX-UB structures the 115kV phase wires have an approximate separation at the structure of zero feet vertically and 14 feet horizontally in a horizontal configuration. The static wire is carried on the structure by a support bracket approximately nine inches down from the top of the structure. The 34.5kV phase wires are arranged on a bracket in a spacer cable bundle approximately 15 feet below the lowest 115kV conductor and have an approximate separation of 24 inches within the bundle. The neutral wire is carried as the messenger portion of the spacer cable bundle. Structures marked as "Hen" are single wood pole structures used to support the 34.5kV spacer cable on long spans. Only the 34.5kV cables and messenger are attached to the pole on a support bracket located approximately 6 inches from the top of the pole. All NESC clearances at the structure as described in paragraphs 12 and 13of the petition have been met by exceeding the horizontal and/or vertical clearances required.

4. Information for the mapping of property, physical features, adjacent transmission lines and ROW boundaries were collected from various sources as detailed below:

- The property lines are based on information from Town of Durham Tax maps
- The physical features such as the location of railroads were digitized from geo-referenced aerial imagery of the project area, dated 2013.
- The existing and future limits of the electric right-of-way (ROW) as well as the road ROW are based on geo-references information received from NHDOT and ground survey, dated 2015.
- Topography and obstacle survey were from aerial LIDAR survey, dated 2013.

5. PSNH has, through the design and modeling process, investigated a multitude of weather and loading and service conditions to verify that proper NESC and PSNH required clearances will be maintained. The NESC clearance verifications, combined with PSNH standard conductor and shield wire clearance and spacing requirements, ensure minimum clearances will be maintained under all service conditions. These conditions include the maximum operating temperature of each conductor and cable (285^{o}F for 115kV, 212^{o}F for 34.5kv and 120^{o}F for 0kV), and conductor at 32^{o}F with 0.5 inches of radial ice and 32^{o}F with no ice. PSNH used these

design conditions and all combinations thereof to determine the minimum clearance of all conductors to the both ground and aerial obstacles, between the phase conductors and OPGW cable and neutral conductors. All NESC clearances have been met by exceeding the horizontal and/or vertical clearances required. Per PSNH standards, span by span verifications were completed to validate the specified NESC clearance requirements were met. The applicable clearances mandated by the NESC and internal PSNH standards are identified and summarized below:

Table 1-Required Vertical Clearances*

Vertical Clearance Type	NESC Minimum Design Clearance (ft)	PSNH Standard Design Clearance (ft)
115kV to Ground- Vehicle/Horse Access**	20.1	24
34.5kV to Ground- Vehicle/Horse Access**	18.5	19.5
0kV to Ground- Vehicle/Horse Access**	15.5	15.5
115kV to 115kV (At Structure)	5.1	9
34.5kV to 34.5kV (At Structure)	2.3	4.5
115kV to 34.5kV (At Structure)	4.1	8
115kV to 0kV (At Structure)	3.4	8
34.5kV to 0kV (At Structure)	1.4	5.6
115kV to 115kV (In Span)	4.4	9
34.5kV to 34.5kV (In Span)	1.7	4.5
115kV to 34.5kV (In Span)	3.4	8
115kV to 0kV(In Span)	2.0	8
34.5kV to 0kV (In Span)	1.3	1.3

* Clearances defined in paragraphs 12 and 13 of the petition
**PSNH designs all new transmission lines for vehicle access clearance regardless of accessibility
***Because PSNH designs all new lines with a neutral clearance of 18 feet the 34.5kV clearance to ground will always exceed the 18.5 feet required clearance.

Table 2-Required Horizontal Clearances*

Horizontal Clearance Type	NESC Minimum Design Clearance (ft)	PSNH Standard Design Clearance (ft)
115kV to 115kV (At Structure)	4.8	8
34.5kV to 34.5kV (At Structure)	1.9	5
115kV to 34.5kV (At Structure)	3.8	7
115kV to 0kV (At Structure)	3.1	7
34.5kV to 0kV (At Structure)	1.5	1.75
115kV to 115kV (In Span)	6.7	8
34.5kV to 34.5kV (In Span)	4.6	5
115kV to 34.5kV (In Span)	5.9	7
115kV to 0kV(In Span)	5.4	7
34.5kV to 0kV (In Span)	4.2	5

*Clearances defined in paragraph 13 of the petition

Shield wires – Due to the fact that the OPGW wire is located above the phase wires, its clearance to the water surface will always exceed the minimum required NESC distance.

- 115 kV Phase Conductors Vertical Clearance –The 285^{o}F weather condition for the maximum operating temperature of the phase conductors produces the greatest sag in the phase wires and therefore the minimum clearance to the ground. A summary of the clearances as part of this crossing is listed in the table below. These clearances exceed the vertical clearance requirements for 115kV phase conductors over roadways and ground accessible by vehicles as listed above.

Table 3- 115kV Summary of Clearances at Crossing

Structure (Back)	Height (Ft)	Structure (Ahead)	Height (ft)	Span (ft)	Clearance At 285^{o}F (ft)
46	98	47	84	471	44.5
47	84	48	93.5	347	43.7
48	93.5	49	86.5	464	56
49	86.5	50	88.5	217	49.8
50	88.5	51	79	295	47.4
51	79	52	93.5	295	43.8
52	93.5	53	79	325	46.1
53	79	54	88.5	409	42.1
54	88.5	55	93.5	351	44.4
55	93.5	56	88.5	327	45.4
56	88.5	57	78.6	506	40
57	78.6	58	70	381	43.8

- 34.5 kV Phase Conductors Vertical Clearance –The 212^{o}F weather condition for the maximum operating temperature of the phase conductors produces the greatest sag in the phase wires and therefore the minimum clearance to the ground. A summary of the clearances as part of this crossing is listed in the table below. These clearances exceed the vertical clearance requirements for 34.5kV phase conductors over roadways and ground accessible by vehicles as listed above.

Table 4- 34.5kV Summary of Clearances at Crossing

Structure (Back)	Height (Ft)	Structure (Ahead)	Height (ft)	Span (ft)	Clearance At 212^{o}F (ft)
46	98	47	84	471	25.6
47	84	48	93.5	347	25.74
48	93.5	49	86.5	464	32.15
49	86.5	50	88.5	217	30
50	88.5	51	79	295	29.76
51	79	52	93.5	295	26.02
52	93.5	53	79	325	29.5
53	79	54	88.5	409	25.5
54	88.5	55	93.5	351	25.0
55	93.5	56	88.5	327	25.0

56	88.5	57	78.6	506	22.3
57	78.6	58	70	381	24.7

- 0 kV Neutral- For the neutral conductors the 120^{o}F weather condition for the maximum operating temperature of the phase conductors produces the greatest sag in the phase wires and therefore the minimum clearance to the ground. A summary of the clearances as part of this crossing is listed in the table below. These clearances exceed the vertical clearance requirements for 0kV neutral conductors over roadways and ground accessible by vehicles as listed above.

Table 5- 0kV Summary of Clearances at Crossing

Structure (Back)	Height (Ft)	Structure (Ahead)	Height (ft)	Span (ft)	Clearance At 120^{o}F (ft)
46	98	47	84	471	19.15
47	84	48	93.5	347	19.35
48	93.5	49	86.5	464	24.7
49	86.5	50	88.5	217	24.9
50	88.5	51	79	295	23.7
51	79	52	93.5	295	20.56
52	93.5	53	79	325	22.7
53	79	54	88.5	409	19.53
54	88.5	55	93.5	351	18.96
55	93.5	56	88.5	327	19.45
56	88.5	57	78.6	506	24.3
57	78.6	58	70	381	26.75

- Conductors and Cables Horizontal Clearance – PSNH Standard centerline spacing is based upon the geometric configuration of the structures along a line assuming a maximum 800 foot span length under 6 pounds per square foot (“psf”) sustained transverse wind. The F107 Line is spaced apart from adjacent lines as specified by PSNH standard and no span along the PSNH portion of the F107 Line exceeds an 800 foot length. Furthermore, a span by span verification was completed assuming a 9psf sustained transverse wind to ensure the horizontal clearances above were exceeded.

APPENDIX B

F107 & 3162 Lines
Spans 59-61
State of New Hampshire-Fish and Game Department
DURHAM, NH

1. The design and proposed construction of this crossing is shown on the attached Eversource Energy Drawings entitled "Seacoast Reliability Project Structures #56-61, State of NH Property Crossing" (Drawing No. F10799002 Sheet 2 of 2) marked as Exhibit 3.

2. The location of this crossing is also shown on the attached Location Plan marked as Exhibit 1.

3. Lines F107and 3162 will cross the public land north of Bennett Road. Structure 59 is a multipole, steel, running angle structure on a concrete foundation designated as Type C-UB. Structures 60 and 61 are two-pole, direct embed tangent structures designated as Type RAX-UB. Details of these structures are shown on Exhibit 11. Above ground structure heights (AGH) for each of the crossing structures is shown on Exhibit 3. As shown on Exhibit 11, for the Type RAX-UB structures the 115kV phase wires have an approximate separation at the structure of zero feet vertically and 14 feet horizontally in a horizontal configuration. The static wire is carried on the structure by a support bracket approximately nine inches down from the top of the structure. The 34.5kV phase wires are arranged on a bracket in a spacer cable bundle approximately 15 feet below the lowest 115kV conductor and have an approximate separation of 24 inches within the bundle. The neutral wire is carried as the messenger portion of the spacer cable bundle. Structures marked as "Hen" are single wood pole structures used to support the 34.5kV spacer cable on long spans. Only the 34.5kV cables and messenger are attached to the pole on a support bracket located approximately 6 inches from the top of the pole. As shown on Exhibit 11, for the Type C-UB structure the 115kV phase wires have an approximate separation at the structure of zero feet vertically and 14 feet horizontally in a horizontal configuration. The static wire is carried on the structure by a support bracket approximately twelve inches down from the top of the structure. The 34.5kV phase wires are arranged on a bracket in a spacer cable bundle approximately 15.75 feet below the lowest 115kV conductor and have an approximate separation of 24 inches within the bundle. The neutral wire is carried as the messenger portion of the spacer cable bundle. Structures marked as "Hen" are single wood pole structures used to support the 34.5kV spacer cable on long spans. Only the 34.5kV cables and messenger are attached to the pole on a support bracket located approximately 6 inches from the top of the pole. All NESC clearances at the structure as described in paragraphs 12 and 13 of the petition have been met by exceeding the horizontal and/or vertical clearances required.

4. Information for the mapping of property, physical features, adjacent transmission lines and ROW boundaries were collected from various sources as detailed below:

- The property lines are based on information from Town of Durham Tax maps
- The physical features such as the location of railroads were digitized from geo-referenced aerial imagery of the project area, dated 2013.
- The existing and future limits of the electric right-of-way (ROW) as well as the road ROW are based on geo-references information received from NHDOT and ground survey, dated 2015.
- Topography and obstacle survey were from aerial LIDAR survey, dated 2013.

5. PSNH has investigated through the design and modeling process a multitude of weather and loading and service conditions to verify that proper NESC and PSNH required clearances will be maintained. The NESC clearance verifications, combined with PSNH standard conductor and shield wire clearance and spacing requirements, ensure minimum clearances will be maintained under all service conditions. These conditions include the maximum operating temperature of each conductor and cable (285^{o}F for 115kV, 212^{o}F for 34.5kv and 120^{o}F for 0kV), and conductor at 32^{o}F with 0.5 inches of radial ice and 32^{o}F with no ice. PSNH used these design conditions and all combinations thereof to determine the minimum clearance of all conductors to the both ground and aerial obstacles, between the phase conductors and OPGW cable and neutral conductors. All NESC clearances have been met by exceeding the horizontal and/or vertical clearances required. Per PSNH standards, span by span verifications were completed to validate the specified NESC clearance requirements were met. The applicable clearances mandated by the NESC and internal PSNH standards are identified and summarized below:

Table 1-Required Vertical Clearances*

Vertical Clearance Type	NESC Minimum Design Clearance (ft)	PSNH Standard Design Clearance (ft)
115kV to Ground- Vehicle/Horse Access**	20.1	24
34.5kV to Ground- Vehicle/Horse Access**	18.5	19.5
0kV to Ground- Vehicle/Horse Access**	15.5	15.5
115kV to 115kV (At Structure)	5.1	9
34.5kV to 34.5kV (At Structure)	2.3	4.5
115kV to 34.5kV (At Structure)	4.1	8
115kV to 0kV (At Structure)	3.4	8
34.5kV to 0kV (At Structure)	1.4	5.6
115kV to 115kV (In Span)	4.4	9
34.5kV to 34.5kV (In Span)	1.7	4.5
115kV to 34.5kV (In Span)	3.4	8
115kV to 0kV(In Span)	2.0	8
34.5kV to 0kV (In Span)	1.3	1.3

* Clearances defined in paragraphs 12 and 13 of the petition

**PSNH designs all new transmission lines for vehicle access clearance regardless of accessibility
***Because PSNH designs all new lines with a neutral clearance of 18 feet the 34.5kV clearance to ground will always exceed the 18.5 feet required clearance.

Table 2-Required Horizontal Clearances*

Horizontal Clearance Type	NESC Minimum Design Clearance (ft)	PSNH Standard Design Clearance (ft)
115kV to 115kV (At Structure)	4.8	8
34.5kV to 34.5kV (At Structure)	1.9	5
115kV to 34.5kV (At Structure)	3.8	7
115kV to 0kV (At Structure)	3.1	7
34.5kV to 0kV (At Structure)	1.5	1.75
115kV to 115kV (In Span)	6.7	8
34.5kV to 34.5kV (In Span)	4.6	5
115kV to 34.5kV (In Span)	5.9	7
115kV to 0kV(In Span)	5.4	7
34.5kV to 0kV (In Span)	4.2	5

*Clearances defined in paragraph 13 of the petition

Shield wires – Due to the fact that the OPGW wire is located above the phase wires, its clearance to the water surface will always exceed the minimum required NESC distance.

- 115 kV Phase Conductors Vertical Clearance –The 285^{o}F weather condition for the maximum operating temperature of the phase conductors produces the greatest sag in the phase wires and therefore the minimum clearance to the ground. A summary of the clearances as part of this crossing is listed in the table below. These clearances exceed the vertical clearance requirements for 115kV phase conductors over roadways and ground accessible by vehicles as listed above.

Table 3- 115kV Summary of Clearances at Crossing

Structure (Back)	Height (Ft)	Structure (Ahead)	Height (ft)	Span (ft)	Clearance At 285^{o}F (ft)
59	50	60	66	264	32.4
60	66	61	79	393	43.8

- 34.5 kV Phase Conductors Vertical Clearance –The 212^{o}F weather condition for the maximum operating temperature of the phase conductors produces the greatest sag in the phase wires and therefore the minimum clearance to the ground. A summary of the clearances as part of this crossing is listed in the table below. These clearances exceed the vertical clearance requirements for 34.5kV phase conductors over roadways and ground accessible by vehicles as listed above.

Table 4- 34.5kV Summary of Clearances at Crossing

Structure (Back)	Height (Ft)	Structure (Ahead)	Height (ft)	Span (ft)	Clearance At 212^{o}F (ft)
59	50	60	66	264	21.3
60	66	61	79	393	21.15

- 0 kV Neutral- For the neutral conductors the 120^{o}F weather condition for the maximum operating temperature of the phase conductors produces the greatest sag in the phase wires and therefore the minimum clearance to the ground. A summary of the clearances as part of this crossing is listed in the table below. These clearances exceed the vertical clearance requirements for 0kV neutral conductors over roadways and ground accessible by vehicles as listed above.

Table 5- 0kV Summary of Clearances at Crossing

Structure (Back)	Height (Ft)	Structure (Ahead)	Height (ft)	Span (ft)	Clearance At 120^{o}F (ft)
59	50	60	66	264	23.3
60	66	61	79	393	23.15

- Conductors and Cables Horizontal Clearance – PSNH Standard centerline spacing is based upon the geometric configuration of the structures along a line assuming a maximum 800 foot span length under 6 pounds per square foot (“psf”) sustained transverse wind. The F107 Line is spaced apart from adjacent lines as specified by PSNH standard and no span along the PSNH portion of the F107 Line exceeds an 800 foot length. Furthermore, a span by span verification was completed assuming a 9psf sustained transverse wind to ensure the horizontal clearances above were exceeded.

APPENDIX C

F107 & 3162 Lines
Spans 74-80
State of New Hampshire-Fish and Game Department
DURHAM, NH

1. The design and proposed construction of this crossing is shown on the attached Eversource Energy Drawings entitled “Seacoast Reliability Project Structures #74-80, State of NH Property Crossing” (Drawing No. F10799004) marked as Exhibit 5.

2. The location of this crossing is shown on the attached Location Plan marked as Exhibit 4.

3. Lines F107 and 3162 will cross the public land east of Sandy Brook Drive primarily on 1-pole, direct embed, steel tangent suspension structures designated as Type WT-1-UB. Details of these structures are shown on Exhibit 11. Above ground structure heights (AGH) for each of the crossing structures is shown on Exhibit 5. As shown on Exhibit 11, for the Type WT-1-UB structures the 115kV phase wires have an approximate separation at the structure of 7.5 -15 feet vertically and 0-13 feet horizontally in a delta configuration. The static wire is carried on the structure by a support bracket approximately nine inches down from the top of the structure. The 34.5kV phase wires are arranged horizontally approximately 15 feet below the lowest 115kV conductor and have an approximate separation at the structure of 0-5 feet vertically and 2.5-6 feet horizontally. The neutral wire is carried on the structure by a support bracket approximately 7.5 feet down below the 34.5kV phase wires. All NESC clearances at the structure as described in paragraphs 12 and 13 of the petition have been met by exceeding the horizontal and/or vertical clearances required.

4. Information for the mapping of property, physical features, adjacent transmission lines and ROW boundaries were collected from various sources as detailed below:

- The property lines are based on information from Town of Durham Tax maps
- The physical features such as the location of railroads were digitized from geo-referenced aerial imagery of the project area, dated 2013.
- The existing and future limits of the electric right-of-way (ROW) as well as the road ROW are based on geo-references information received from NHDOT and ground survey, dated 2015.
- Topography and obstacle survey were from aerial LIDAR survey, dated 2013.

5. PSNH has investigated through the design and modeling process a multitude of weather and loading and service conditions to verify that proper NESC and PSNH required clearances will be maintained. The NESC clearance verifications,

combined with PSNH standard conductor and shield wire clearance and spacing requirements, ensure minimum clearances will be maintained under all service conditions. These conditions include the maximum operating temperature of each conductor and cable (285°F for 115kV, 212°F for 34.5kv and 120°F for 0kV), and conductor at 32°F with 0.5 inches of radial ice and 32°F with no ice. PSNH used these design conditions and all combinations thereof to determine the minimum clearance of all conductors to the both ground and aerial obstacles, between the phase conductors and OPGW cable and neutral conductors. All NESC clearances have been met by exceeding the horizontal and/or vertical clearances required. Per PSNH standards, span by span verifications were completed to validate the specified NESC clearance requirements were met. The applicable clearances mandated by the NESC and internal PSNH standards are identified and summarized below:

Table 1-Required Vertical Clearances*

Vertical Clearance Type	NESC Minimum Design Clearance (ft)	PSNH Standard Design Clearance (ft)
115kV to Ground- Vehicle/Horse Access**	20.1	24
34.5kV to Ground- Vehicle/Horse Access**	18.5	19.5
0kV to Ground- Vehicle/Horse Access**	15.5	15.5
115kV to 115kV (At Structure)	5.1	9
34.5kV to 34.5kV (At Structure)	2.3	4.5
115kV to 34.5kV (At Structure)	4.1	8
115kV to 0kV (At Structure)	3.4	8
34.5kV to 0kV (At Structure)	1.4	5.6
115kV to 115kV (In Span)	4.4	9
34.5kV to 34.5kV (In Span)	1.7	4.5
115kV to 34.5kV (In Span)	3.4	8
115kV to 0kV(In Span)	2.0	8
34.5kV to 0kV (In Span)	1.3	1.3

* Clearances defined in paragraphs 12 and 13 of the petition

**PSNH designs all new transmission lines for vehicle access clearance regardless of accessibility

***Because PSNH designs all new lines with a neutral clearance of 18 feet the 34.5kV clearance to ground will always exceed the 18.5 feet required clearance.

Table 2-Required Horizontal Clearances*

Horizontal Clearance Type	NESC Minimum Design Clearance (ft)	PSNH Standard Design Clearance (ft)
115kV to 115kV (At Structure)	4.8	8
34.5kV to 34.5kV (At Structure)	1.9	5
115kV to 34.5kV (At Structure)	3.8	7
115kV to 0kV (At Structure)	3.1	7
34.5kV to 0kV (At Structure)	1.5	1.75
115kV to 115kV (In Span)	6.7	8
34.5kV to 34.5kV (In Span)	4.6	5
115kV to 34.5kV (In Span)	5.9	7
115kV to 0kV(In Span)	5.4	7
34.5kV to 0kV (In Span)	4.2	5

*Clearances defined in paragraph 13 of the petition

Shield wires – Due to the fact that the OPGW wire is located above the phase wires, its clearance to the water surface will always exceed the minimum required NESC distance.

- 115 kV Phase Conductors Vertical Clearance –The 285^{o}F weather condition for the maximum operating temperature of the phase conductors produces the greatest sag in the phase wires and therefore the minimum clearance to the ground. A summary of the clearances as part of this crossing is listed in the table below. These clearances exceed the vertical clearance requirements for 115kV phase conductors over roadways and ground accessible by vehicles as listed above.

Table 3- 115kV Summary of Clearances at Crossing

Structure (Back)	Height (Ft)	Structure (Ahead)	Height (ft)	Span (ft)	Clearance At 285^{o}F (ft)
74	93.5	75	84	355	45.19
75	84	76	84	414	50.45
76	84	77	84	415	44.8
77	84	78	84	217	40.6
78	84	79	103	295	42.05
79	103	80	103	295	59.5

- 34.5 kV Phase Conductors Vertical Clearance –The 212^{o}F weather condition for the maximum operating temperature of the phase conductors produces the greatest sag in the phase wires and therefore the minimum clearance to the ground. A summary of the clearances as part of this crossing is listed in the table below. These clearances exceed the vertical clearance requirements for 34.5kV phase conductors over roadways and ground accessible by vehicles as listed above.

Table 4- 34.5kV Summary of Clearances at Crossing

Structure (Back)	Height (Ft)	Structure (Ahead)	Height (ft)	Span (ft)	Clearance At 212^{o}F (ft)
74	93.5	75	84	355	29.3
75	84	76	84	414	34.3
76	84	77	84	415	29.17
77	84	78	84	217	24.75
78	84	79	103	295	24.33
79	103	80	103	295	43.5

- 0 kV Neutral- For the neutral conductors the 120^{o}F weather condition for the maximum operating temperature of the phase conductors produces the greatest sag in the phase wires and therefore the minimum clearance to the ground. A summary of the clearances as part of this crossing is listed in the table below. These clearances exceed the vertical clearance requirements for 0kV neutral conductors over roadways and ground accessible by vehicles as listed above.

Table 5- 0kV Summary of Clearances at Crossing

Structure (Back)	Height (Ft)	Structure (Ahead)	Height (ft)	Span (ft)	Clearance At 120^{o}F (ft)
74	93.5	75	84	355	19.1
75	84	76	84	414	29.45
76	84	77	84	415	22.96
77	84	78	84	217	19.25
78	84	79	103	295	19.98
79	103	80	103	295	38.28

- Conductors and Cables Horizontal Clearance – PSNH Standard centerline spacing is based upon the geometric configuration of the structures along a line assuming a maximum 800 foot span length under 6 pounds per square foot (“psf”) sustained transverse wind. The F107 Line is spaced apart from adjacent lines as specified by PSNH standard and no span along the PSNH portion of the F107 Line exceeds an 800 foot length. Furthermore, a span by span verification was completed assuming a 9psf sustained transverse wind to ensure the horizontal clearances above were exceeded.

APPENDIX D

F107 Lines Spans 123-129
3850 Line Spans 9-15
State of New Hampshire- Department of Transportation
NEWINGTON, NH

1. The design and proposed construction of these crossings are shown on the attached Eversource Energy Drawings entitled “Seacoast Reliability Project Structures #123-129, State of NH Property Crossing” (Drawing No. F10799006 Sheet 1 of 1) and “Seacoast Reliability Project Structures #9-14, State of NH Property Crossing” (Drawing No. 385099001 Sheet 1 of 1) marked as Exhibit 7 and Exhibit 10, respectively.

2. The locations of these crossings are shown on the attached Location Plan marked as Exhibit 6.

3. Line F107 will cross the public land west of the Spaulding Turnpike primarily on 1-pole, direct embed, steel tangent suspension structures designated as Type WT-2-SB. Structures 123 and 124 are a 1-pole, steel running angle structure on a concrete foundation designated as Type SPRA-BP. Structure 128 is a 1-pole, direct embed running angle structure designated as TypeWA-2. Details of these structures are shown on Exhibit 11. Above ground structure heights (AGH) for each of the crossing structures is shown on Exhibits 7 and 10. As shown on Exhibit 11, for the Type WT-2-SB structures the 115kV phase wires have an approximate separation at the structure of 7 - 15.5 feet vertically and 0-13 feet horizontally in a delta configuration. The static wire is carried on the structure by a support bracket approximately nine inches down from the top of the structure. As shown on Exhibit 11, for the Type SPRA-BP structures the 115kV phase wires have an approximate separation at the structure of ten feet vertically and zero feet horizontally in a vertical configuration. The static wire is carried on the structure by a support bracket approximately nine inches down from the top of the structure. As shown on Exhibit 11, for the Type WA-2 structures the 115kV phase wires have an approximate separation at the structure of ten feet vertically and zero feet horizontally in a vertical configuration. The static wire is carried on the structure by a support bracket approximately nine inches down from the top of the structure. All NESC clearances at the structure as described in paragraphs 12 and 13 of the petition have been met by exceeding the horizontal and/or vertical clearances required.

4. Line 3850 will cross the public land west of the Spaulding Turnpike primarily on 1-pole, direct embed, wood or steel tangent structures designated at Type TAN and Type DX. Structure 10 is a 1-pole, wood or steel direct embed dead-end structure designated as Type DEA. Structures 14 and 15 are 1-pole, wood or steel direct embed dead-end structure designated as Type DE. As shown on Exhibit 11, for the Type Tan and Type DX structures the 34.5kV phase wires have an approximate separation at the structure of 0 feet vertically and 4.7 feet horizontally in a horizontal configuration. The neutral wire is carried on the structure by a support bracket approximately five feet down below the 34.5kV phase wires. As shown on Exhibit 11, for the Type DE structures

the 34.5kV phase wires have an approximate separation at the structure of 0 feet vertically and 4.5 feet horizontally in a horizontal configuration. The neutral wire is carried on the structure by a support bracket approximately six feet down below the 34.5kV phase wires. As shown on Exhibit 11, for the Type DEA structures the 34.5kV phase wires have an approximate separation at the structure of 0-5 feet vertically and 4.5 feet horizontally in a horizontal configuration. The neutral wire is carried on the structure by a support bracket approximately five feet down below the lowest 34.5kV phase wires. All NESC clearances at the structure as described in paragraph 13 of the petition have been met by exceeding the horizontal and/or vertical clearances required.

5. Information for the mapping of property, physical features, adjacent transmission lines and ROW boundaries were collected from various sources as detailed below:

- The property lines are based on information from Town of Newington Tax maps
- The physical features such as the location of road were digitized from geo-referenced aerial imagery of the project area, dated 2013.
- The existing and future limits of the electric right-of-way (ROW) as well as the road ROW are based on geo-references information received from NHDOT and ground survey, dated 2015.
- Topography and obstacle survey were from aerial LIDAR survey, dated 2013.

6. PSNH has, through the design and modeling process, investigated a multitude of weather and loading and service conditions to verify that proper NESC and PSNH required clearances will be maintained. The NESC clearance verifications, combined with PSNH standard conductor and shield wire clearance and spacing requirements, ensure minimum clearances will be maintained under all service conditions. These conditions include the maximum operating temperature of each conductor and cable (285^{o}F for 115kV, 212^{o}F for 34.5kv and 120^{o}F for 0kV), and conductor at 32^{o}F with 0.5 inches of radial ice and 32^{o}F with no ice. PSNH used these design conditions and all combinations thereof to determine the minimum clearance of all conductors to the both ground and aerial obstacles, between the phase conductors and OPGW cable and neutral conductors. All NESC clearances have been met by exceeding the horizontal and/or vertical clearances required. Per PSNH standards, span by span verifications were completed to validate the specified NESC clearance requirements were met. The applicable clearances mandated by the NESC and internal PSNH standards are identified and summarized below:

Table 1-Required Vertical Clearances*

Vertical Clearance Type	NESC Minimum Design Clearance (ft)	PSNH Standard Design Clearance (ft)
115kV to Ground- Vehicle/Horse Access**	20.1	24
34.5kV to Ground- Vehicle/Horse Access**	18.5	19.5
0kV to Ground- Vehicle/Horse	15.5	15.5

Access**		
115kV to 115kV (At Structure)	5.1	9
34.5kV to 34.5kV (At Structure)	2.3	4.5
115kV to 34.5kV (At Structure)	4.1	8
115kV to 0kV (At Structure)	3.4	8
34.5kV to 0kV (At Structure)	1.4	5.6
115kV to 115kV (In Span)	4.4	9
34.5kV to 34.5kV (In Span)	1.7	4.5
115kV to 34.5kV (In Span)	3.4	8
115kV to 0kV(In Span)	2.0	8
34.5kV to 0kV (In Span)	1.3	1.3

* Clearances defined in paragraphs 12 and 13 of the petition
**PSNH designs all new transmission lines for vehicle access clearance regardless of accessibility
***Because PSNH designs all new lines with a neutral clearance of 18 feet the 34.5kV clearance to ground will always exceed the 18.5 feet required clearance.

Table 2-Required Horizontal Clearances*

Horizontal Clearance Type	NESC Minimum Design Clearance (ft)	PSNH Standard Design Clearance (ft)
115kV to 115kV (At Structure)	4.8	8
34.5kV to 34.5kV (At Structure)	1.9	5
115kV to 34.5kV (At Structure)	3.8	7
115kV to 0kV (At Structure)	3.1	7
34.5kV to 0kV (At Structure)	1.5	1.75
115kV to 115kV (In Span)	6.7	8
34.5kV to 34.5kV (In Span)	4.6	5
115kV to 34.5kV (In Span)	5.9	7
115kV to 0kV(In Span)	5.4	7
34.5kV to 0kV (In Span)	4.2	5

*Clearances defined in paragraph 13 of the petition

Shield wires – Due to the fact that the OPGW wire is located above the phase wires, its clearance to the water surface will always exceed the minimum required NESC distance.

- 115 kV Phase Conductors Vertical Clearance –The 285^{o}F weather condition for the maximum operating temperature of the phase conductors produces the greatest sag in the phase wires and therefore the minimum clearance to the ground. A summary of the clearances as part of this crossing is listed in the table below. These clearances exceed the vertical clearance requirements for 115kV phase conductors over roadways and ground accessible by vehicles as listed above.

Table 3- 115kV Summary of Clearances at Crossing

Structure (Back)	Height (Ft)	Structure (Ahead)	Height (ft)	Span (ft)	Clearance At 285^{o}F (ft)
123	100	124	100	465	24.8
124	100	125	84	387	49.3
125	84	126	84	506	24.8

126	84	127	66	360	25.5
127	66	128	84	443	26.1
128	84	129	79	430	29.5

- 34.5 kV Phase Conductors Vertical Clearance –The 212^{o}F weather condition for the maximum operating temperature of the phase conductors produces the greatest sag in the phase wires and therefore the minimum clearance to the ground. A summary of the clearances as part of this crossing is listed in the table below. These clearances exceed the vertical clearance requirements for 34.5kV phase conductors over roadways and ground accessible by vehicles as listed above.

Table 4- 34.5kV Summary of Clearances at Crossing

Structure (Back)	Height (Ft)	Structure (Ahead)	Height (ft)	Span (ft)	Clearance At 212^{o}F (ft)
9	66.5	10	70	470	22.9
10	70	11	53	394	50.5
11	53	12	48.5	508	24.5
12	48.5	13	39.5	362	23.9
13	39.5	14	61	420	34.9
14	61	15	56	60	55.9

- 0 kV Neutral- For the neutral conductors the 120^{o}F weather condition for the maximum operating temperature of the phase conductors produces the greatest sag in the phase wires and therefore the minimum clearance to the ground. A summary of the clearances as part of this crossing is listed in the table below. These clearances exceed the vertical clearance requirements for 0kV neutral conductors over roadways and ground accessible by vehicles as listed above.

Table 5- 0kV Summary of Clearances at Crossing

Structure (Back)	Height (Ft)	Structure (Ahead)	Height (ft)	Span (ft)	Clearance At 120^{o}F (ft)
9	66.5	10	70	470	18.5
10	70	11	53	394	42.75
11	53	12	48.5	508	18.6
12	48.5	13	39.5	362	17.7
13	39.5	14	61	420	30.1
14	61	15	56	60	NA

- Conductors and Cables Horizontal Clearance – PSNH Standard centerline spacing is based upon the geometric configuration of the structures along a line assuming a maximum 800 foot span length under 6 pounds per square foot (“psf”) sustained transverse wind. The

F107 Line is spaced apart from adjacent lines as specified by PSNH standard and no span along the PSNH portion of the F107 Line exceeds an 800 foot length. Furthermore, a span by span verification was completed assuming a 9psf sustained transverse wind to ensure the horizontal clearances above were exceeded.

APPENDIX E

F107 Line
Spans 131-133
State of New Hampshire-Department of Transportation
NEWINGTON, NH

1. The design and proposed construction of this crossing is shown on the attached Eversource Energy Drawings entitled "Seacoast Reliability Project Structures #131-133, State of NH Property Crossing" (Drawing No. F10799008 Sheet 1 of 1) marked as Exhibit 9.

2. The location of this crossing is shown on the attached Location Plan marked as Exhibit 8.

3. Line F107 will cross the public land west of the Spaulding Turnpike primarily on 1-pole, direct embed, steel tangent suspension structures designated as Type WT-2-SB. Structure 133 is a 1-pole, direct embed running angle structure designated as TypeWA-2. Details of these structures are shown on Exhibit 11. Above ground structure heights (AGH) for each of the crossing structures is shown on Exhibit 9. As shown on Exhibit 11, for the Type WT-2-SB structures the 115kV phase wires have an approximate separation at the structure of 7 -15.5 feet vertically and 0-13 feet horizontally in a delta configuration. The static wire is carried on the structure by a support bracket approximately nine inches down from the top of the structure. As shown on Exhibit 11, for the Type WA-2 structures the 115kV phase wires have an approximate separation at the structure of ten feet vertically and zero feet horizontally in a vertical configuration. The static wire is carried on the structure by a support bracket approximately nine inches down from the top of the structure. All NESC clearances at the structure as described in paragraphs 12 and 13 of the petition have been met by exceeding the horizontal and/or vertical clearances required.

4. Information for the mapping of property, physical features, adjacent transmission lines and ROW boundaries were collected from various sources as detailed below:

- The property lines are based on information from Town of Newington Tax maps
- The physical features such as the location of road were digitized from geo-referenced aerial imagery of the project area, dated 2013.
- The existing and future limits of the electric right-of-way (ROW) as well as the road ROW are based on geo-references information received from NHDOT and ground survey, dated 2015.
- Topography and obstacle survey were from aerial LIDAR survey, dated 2013.

5. PSNH has, through the design and modeling process, investigated a multitude of weather and loading and service conditions to verify that proper NESC and

PSNH required clearances will be maintained. The NESC clearance verifications, combined with PSNH standard conductor and shield wire clearance and spacing requirements, ensure minimum clearances will be maintained under all service conditions. These conditions include the maximum operating temperature of each conductor and cable (285°F for 115kV, 212°F for 34.5kv and 120°F for 0kV), and conductor at 32°F with 0.5 inches of radial ice and 32°F with no ice. PSNH used these design conditions and all combinations thereof to determine the minimum clearance of all conductors to the both ground and aerial obstacles, between the phase conductors and OPGW cable and neutral conductors. All NESC clearances have been met by exceeding the horizontal and/or vertical clearances required. Per PSNH standards, span by span verifications were completed to validate the specified NESC clearance requirements were met. The applicable clearances mandated by the NESC and internal PSNH standards are identified and summarized below:

Table 1-Required Vertical Clearances*

Vertical Clearance Type	NESC Minimum Design Clearance (ft)	PSNH Standard Design Clearance (ft)
115kV to Ground- Vehicle/Horse Access**	20.1	24
0kV to Ground- Vehicle/Horse Access**	15.5	15.5
115kV to 115kV (At Structure)	5.1	9
115kV to 0kV (At Structure)	3.4	8
115kV to 115kV (In Span)	4.4	9
115kV to 0kV(In Span)	2.0	8

* Clearances defined in paragraphs 12 and 13 of the petition

**PSNH designs all new transmission lines for vehicle access clearance regardless of accessibility

Table 2-Required Horizontal Clearances*

Horizontal Clearance Type	NESC Minimum Design Clearance (ft)	PSNH Standard Design Clearance (ft)
115kV to 115kV (At Structure)	4.8	8
115kV to 0kV (At Structure)	3.1	7
115kV to 115kV (In Span)	6.7	8
115kV to 0kV(In Span)	5.4	7

*Clearances defined in paragraph 13 of the petition

Shield wires – Due to the fact that the OPGW wire is located above the phase wires, its clearance to the water surface will always exceed the minimum required NESC distance.

- 115 kV Phase Conductors Vertical Clearance –The 285°F weather condition for the maximum operating temperature of the phase conductors produces the greatest sag in the phase wires and therefore the minimum clearance to the ground. A summary of the clearances as part of this crossing is listed in the table below. These clearances exceed the vertical clearance requirements for 115kV phase conductors over roadways and ground accessible by vehicles as listed above.

Table 3- 115kV Summary of Clearances at Crossing

Structure (Back)	Height (Ft)	Structure (Ahead)	Height (ft)	Span (ft)	Clearance At 285^{o}F (ft)
131	75	132	79	486	24.1
132	79	133	75	357	29.6

- Conductors and Cables Horizontal Clearance – PSNH Standard centerline spacing is based upon the geometric configuration of the structures along a line assuming a maximum 800 foot span length under 6 pounds per square foot (“psf”) sustained transverse wind. The F107 Line is spaced apart from adjacent lines as specified by PSNH standard and no span along the PSNH portion of the F107 Line exceeds an 800 foot length. Furthermore, a span by span verification was completed assuming a 9psf sustained transverse wind to ensure the horizontal clearances above were exceeded.

LINE LIST	OWNER	MANAGED BY	OWNER ADDRESS	TAX MAP ID
232	STATE OF NEW HAMPSHIRE	NH DEPARTMENT OF FISH AND GAME	11 HAZEN DRIVE, CONCORD NH	MAP 15 LOT 1-0
238	STATE OF NEW HAMPSHIRE	NH DEPARTMENT OF FISH AND GAME	11 HAZEN DRIVE, CONCORD NH	MAP 15 LOT 7-3

200 100 0 200 400 600

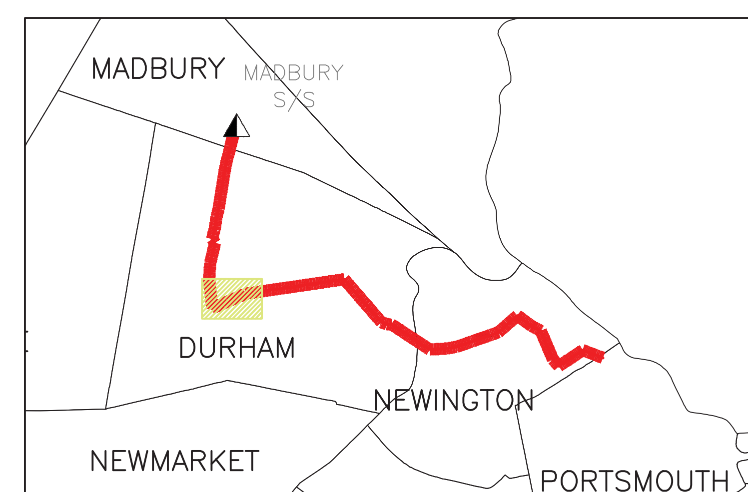
GRAPHIC SCALE
1" = 200'

EXHIBIT 1

LEGEND

PROJECT ROW

PARCEL BOUNDRY



EVERSOURCE ENERGY

NO.	REVISION	DATE	DRWN	CHKD	APPRV.
1	ISSUED FOR PERMITTING	1/22/16	CTS	JRS	–

SEACOAST RELIABILITY PROJECT
LINE LIST 232 & 238
STATE OF NH PROPERTY CROSSING

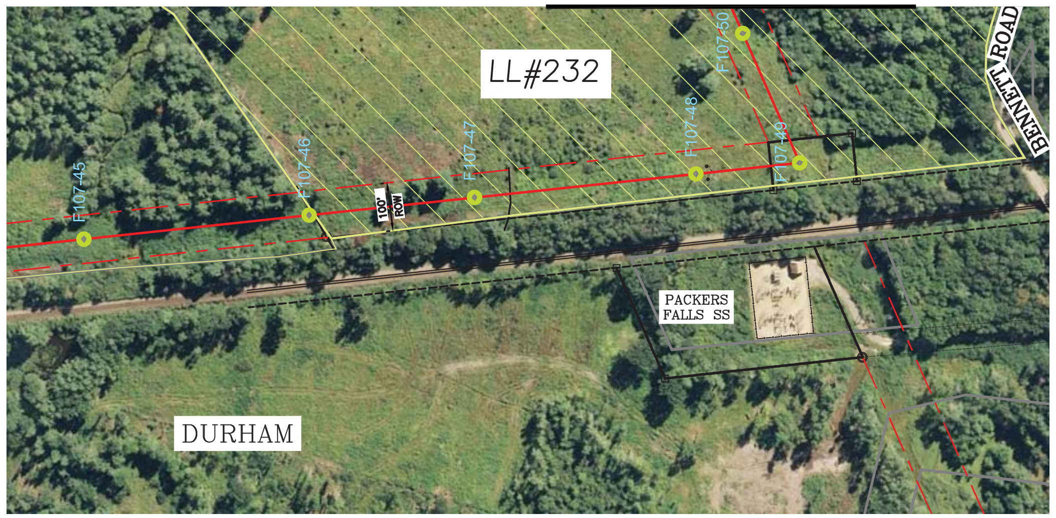
SCALE: AS NOTED

DATE: 01/22/16

DES: – CHK: JRS
DRW: CTS APR: –
TOWN: DURHAM
TRANSMISSION LINE: F107
MILE NO: ––
DISCIPLINE/SHT NO. --
SHEET 1 OF 1
F10799001

2/24/2016 1:37 PM - spensct - N:\dept Work Area\NH Work Area\spensct\F107\F10799001.dwg - LOCATION MAP 1

ES VER: 11/2015



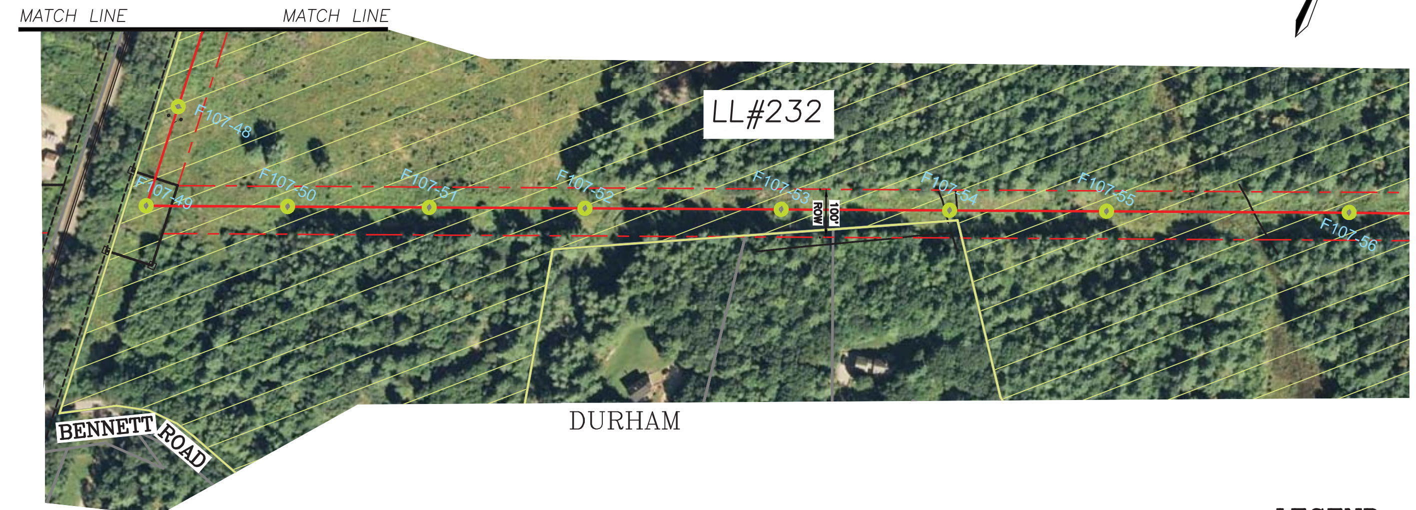


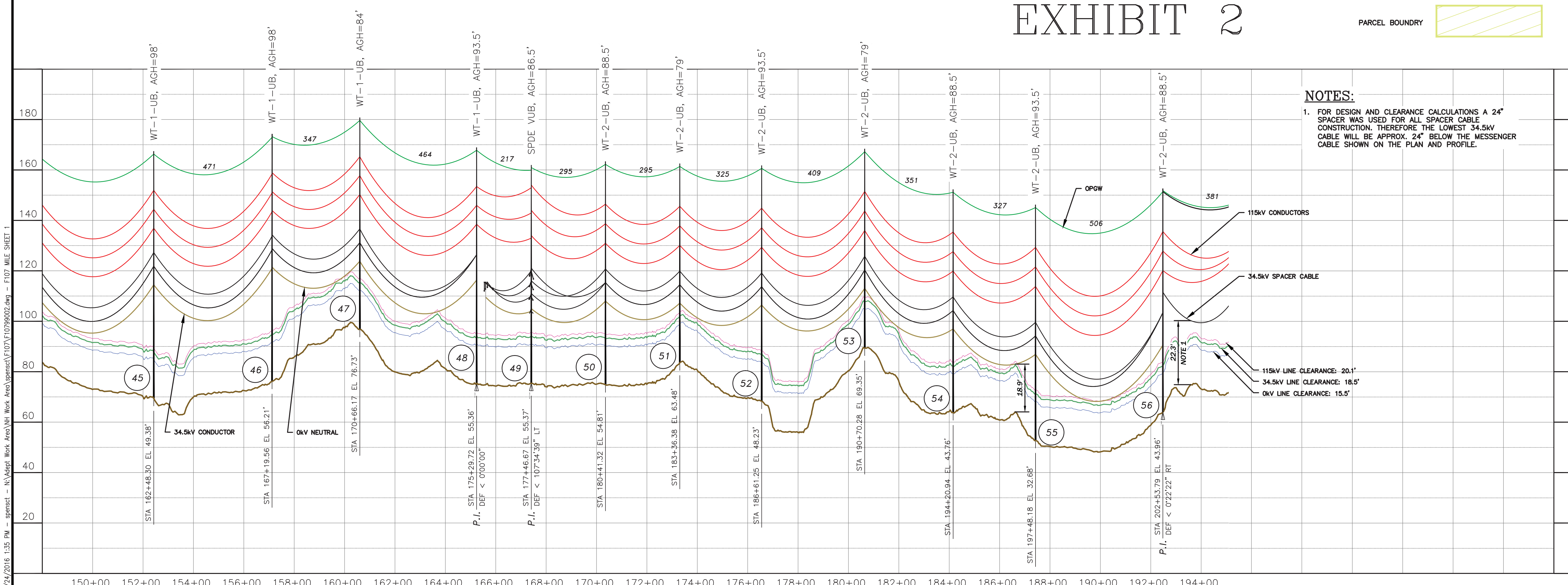
EXHIBIT 2

LEGEND

PROJECT LINE

PROJECT ROW

PARCEL BOUNDRY



NOTES:

1. FOR DESIGN AND CLEARANCE CALCULATIONS A 24" SPACER WAS USED FOR ALL SPACER CABLE CONSTRUCTION. THEREFORE THE LOWEST 34.5kV CABLE WILL BE APPROX. 24" BELOW THE MESSENGER CABLE SHOWN ON THE PLAN AND PROFILE.

NO.	REVISION	DATE	DRWN	CHKD	APPRV.
1	ISSUED FOR PERMITTING	1/22/16	CTS	JRS	–

EVERSOURCE ENERGY

SEACOAST RELIABILITY PROJECT
STRUCTURES #46-56
STATE OF NH PROPERTY CROSSING

SCALE: H 1"=200' V 1"=20' DATE: 01/22/16

DES: – CHK: JRS
DRW: CTS APR: –

TOWN: DURHAM

TRANSMISSION LINE: F107

MILE NO: ––

DISCIPLINE/SHT NO. ––

SHEET 1 OF 2

F10799002

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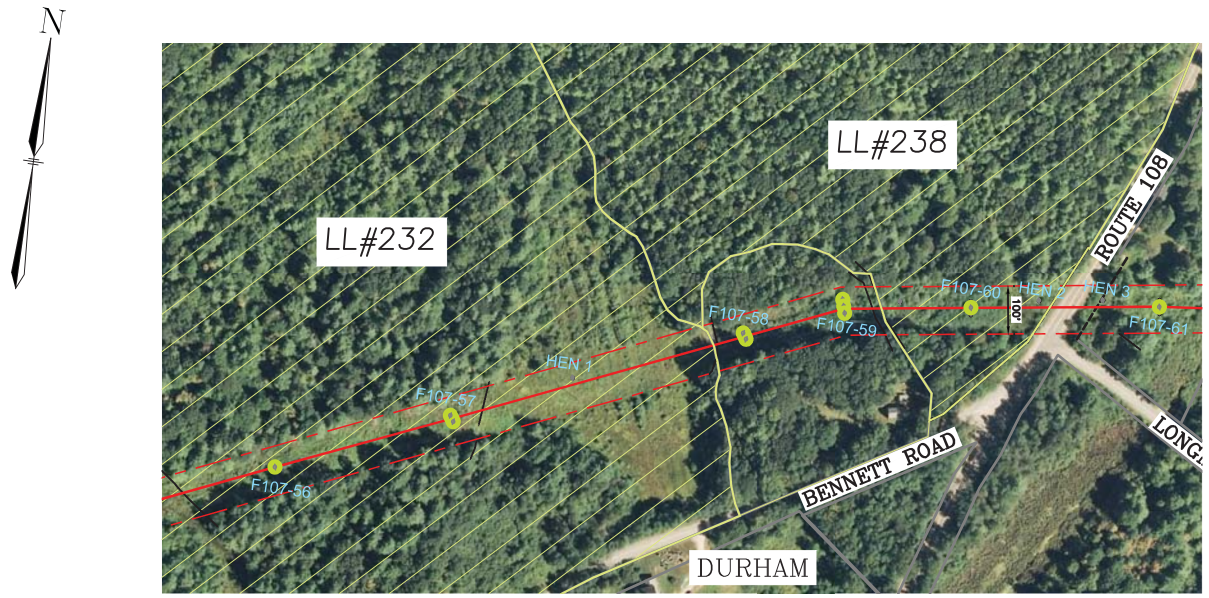
ES VER: 11/2015

ES VER: 11/2015



LEGEND

PROJECT LINE

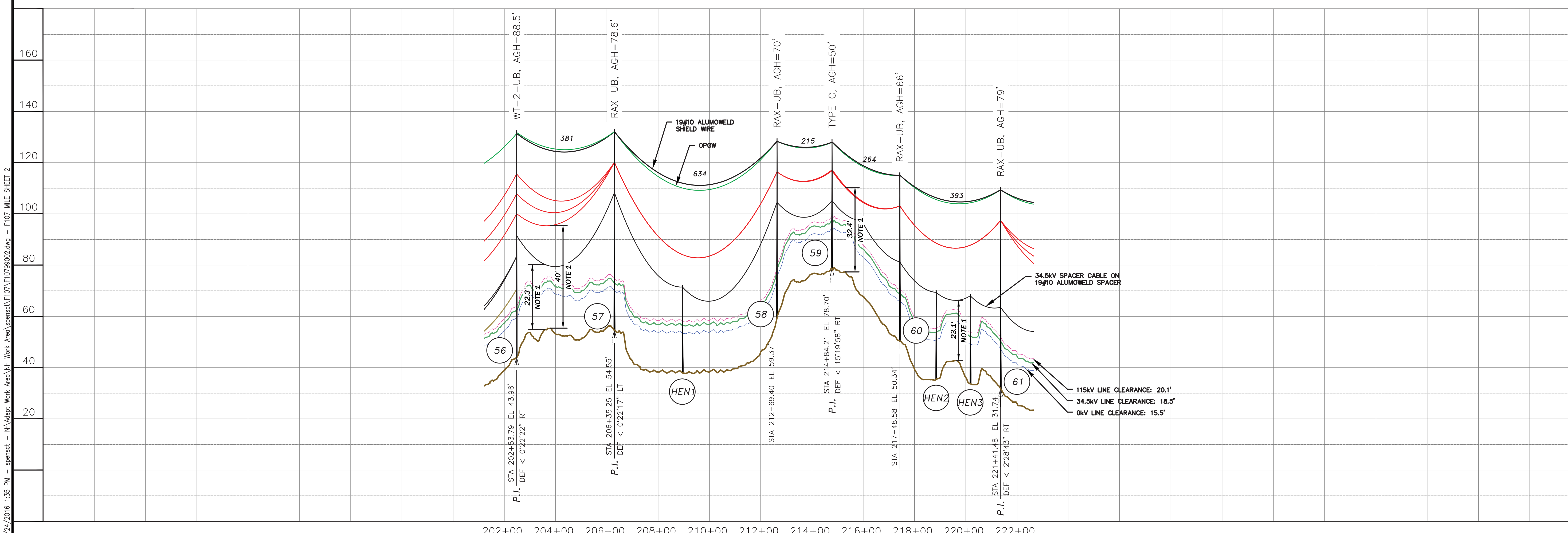
PROJECT ROW

PARCEL BOUNDRY

EXHIBIT 3

NOTES:

1. FOR DESIGN AND CLEARANCE CALCULATIONS A 24" SPACER WAS USED FOR ALL SPACER CABLE CONSTRUCTION. THEREFORE THE LOWEST 34.5kV CABLE WILL BE APPROX. 24" BELOW THE MESSENGER CABLE SHOWN ON THE PLAN AND PROFILE.



NO.	REVISION	DATE	DRWN	CHKD	APPRV
1	ISSUED FOR PERMITTING	1/22/16	CTS	JRS	–

EVERSOURCE ENERGY

T 1

SEACOAST RELIABILITY PROJECT
STRUCTURES #56-61
STATE OF NH PROPERTY CROSSING

SCALE: H 1"=200', V 1"=20'
DATE: 01/22/2016

DES: – CHK: JRS
DRW: CTS APR: –
TOWN: DURHAM
TRANSMISSION LINE: F107
MILE NO: – –
DISCIPLINE/SHT NO. --
SHEET 2 OF 2
F10799002

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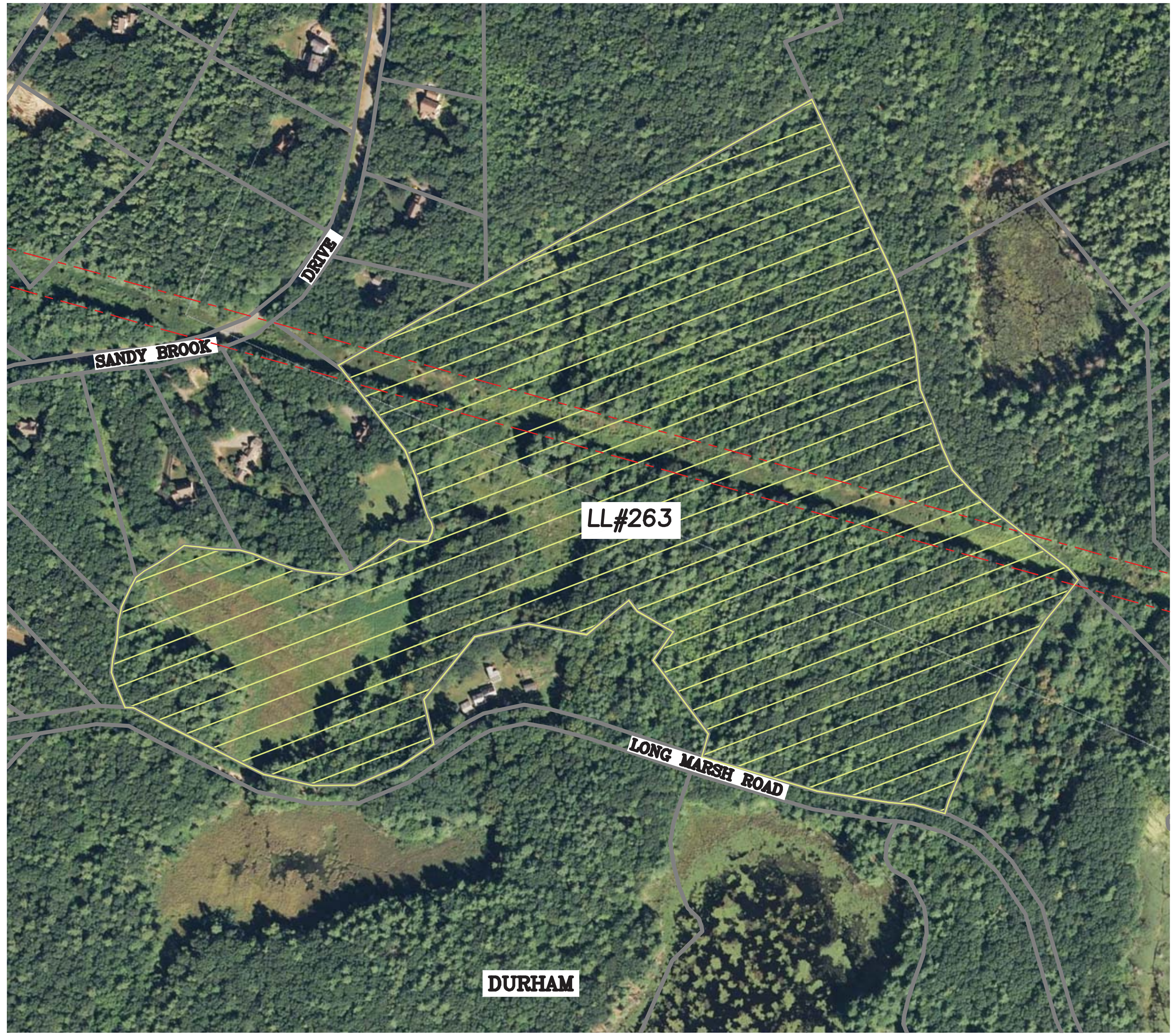
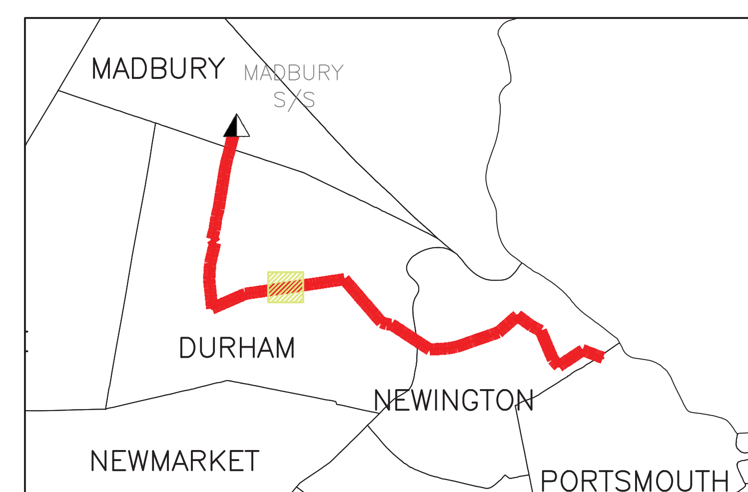


LINE LIST	OWNER	MANAGED BY	OWNER ADDRESS	TAX MAP ID
263	STATE OF NEW HAMPSHIRE	NH DEPARTMENT OF FISH AND GAME	11 HAZEN DRIVE, CONCORD NH	MAP 15 LOT 5-0



200 100 0 200 400 600

GRAPHIC SCALE
1" = 200'

EXHIBIT 4

LEGEND

PROJECT ROW

PARCEL BOUNDRY

NO.	REVISION	DATE	DRWN	CHKD	APPRV.
1	ISSUED FOR PERMITTING	1/22/16	CTS	JRS	-

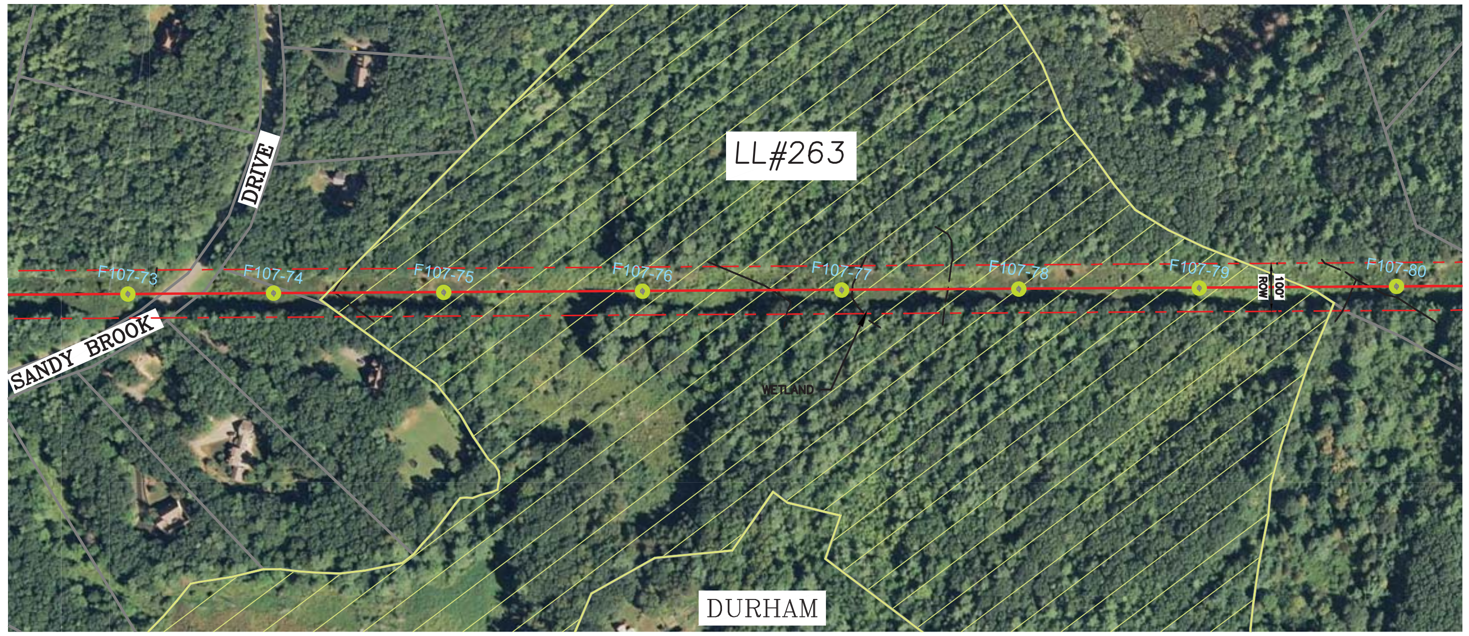
EVERSOURCE ENERGY

SEACOAST RELIABILITY PROJECT
LINE LIST 263
STATE OF NH PROPERTY CROSSING

SCALE: AS NOTED
DATE: 01/22/16
DES: - CHK: JRS
DRW: CTS APR: -
TOWN: DURHAM
TRANSMISSION LINE: F107
MILE NO: ---
DISCIPLINE/SHT NO. --
SHEET 1 OF 1
F10799003

ES VER: 11/2015

N



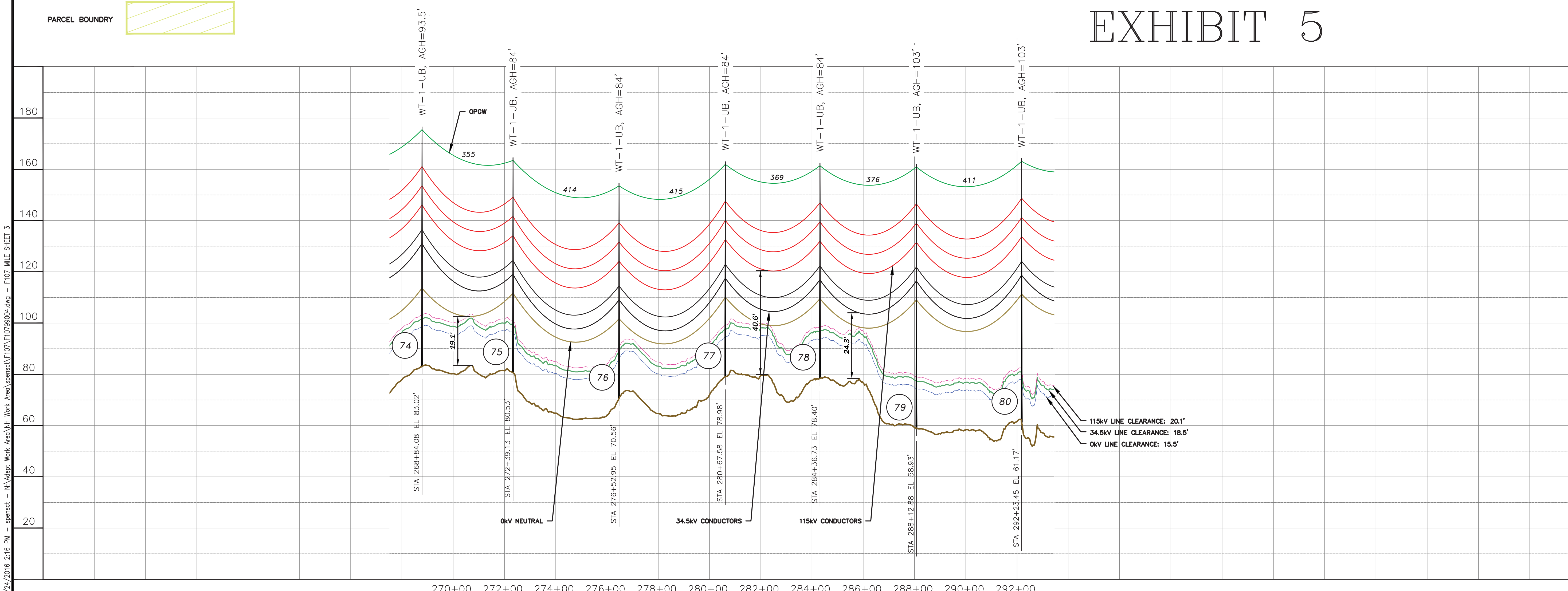
LEGEND

PROJECT LINE

PROJECT ROW

PARCEL BOUNDRY

EXHIBIT 5



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NO.	REVISION	DATE	DRWN	CHKD	APPRV
1	ISSUED FOR PERMITTING			JRS	–

EVERSOURCE ENERGY

T 1

SEACOAST RELIABILITY PROJECT
STRUCTURES #74–80
STATE OF NH PROPERTY CROSSING

DATE: 01/22/16

SCALE: H 1=200', V 1=20'

DES: – CHK: JRS
DRW: CTS APR: –

TOWN: DURHAM

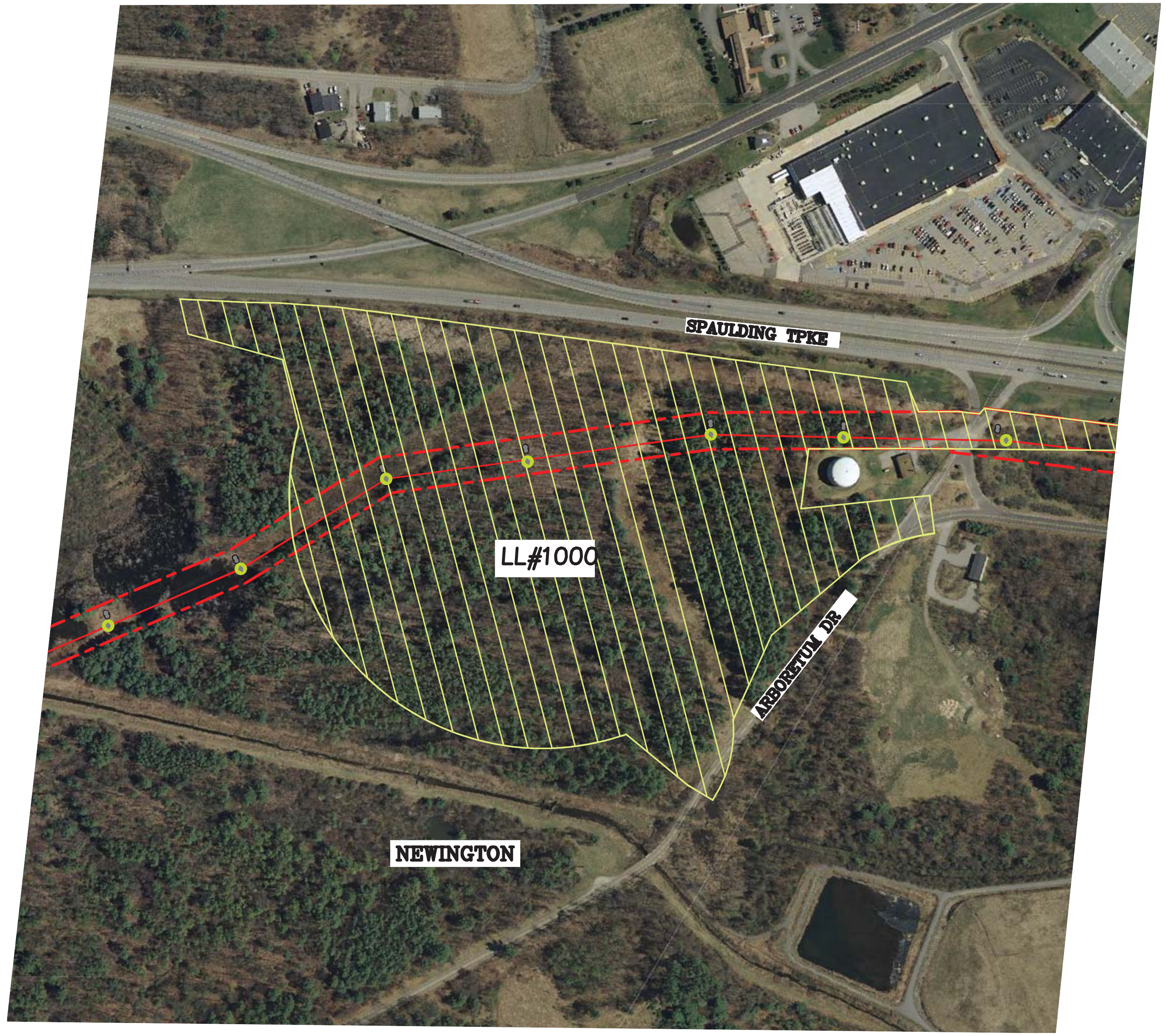
TRANSMISSION LINE: F107

MILE NO: ––

DISCIPLINE/SHT NO. --

SHEET 1 OF 1

F10799004



LINE LIST	OWNER	MANAGED BY	OWNER ADDRESS
1000	STATE OF NEW HAMPSHIRE	NH DEPARTMENT OF TRANSPORTATION	7 HAZEN DRIVE, CONCORD NH

200 100 0 200 400 600

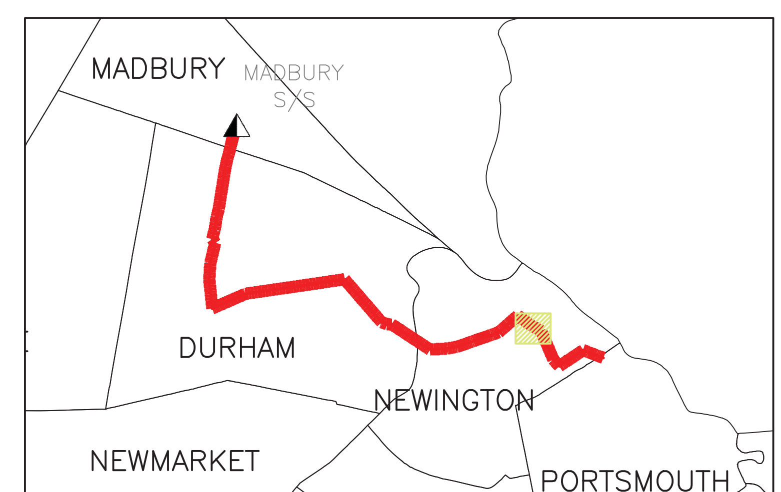
GRAPHIC SCALE
1" = 200'

EXHIBIT 6

LEGEND

PROJECT ROW

PARCEL BOUNDRY



1 ISSUED FOR PERMITTING 1/22/16 CTS JRS —
NO. REVISION DATE DRWN CHKD APPRV.

EVERSOURCE ENERGY

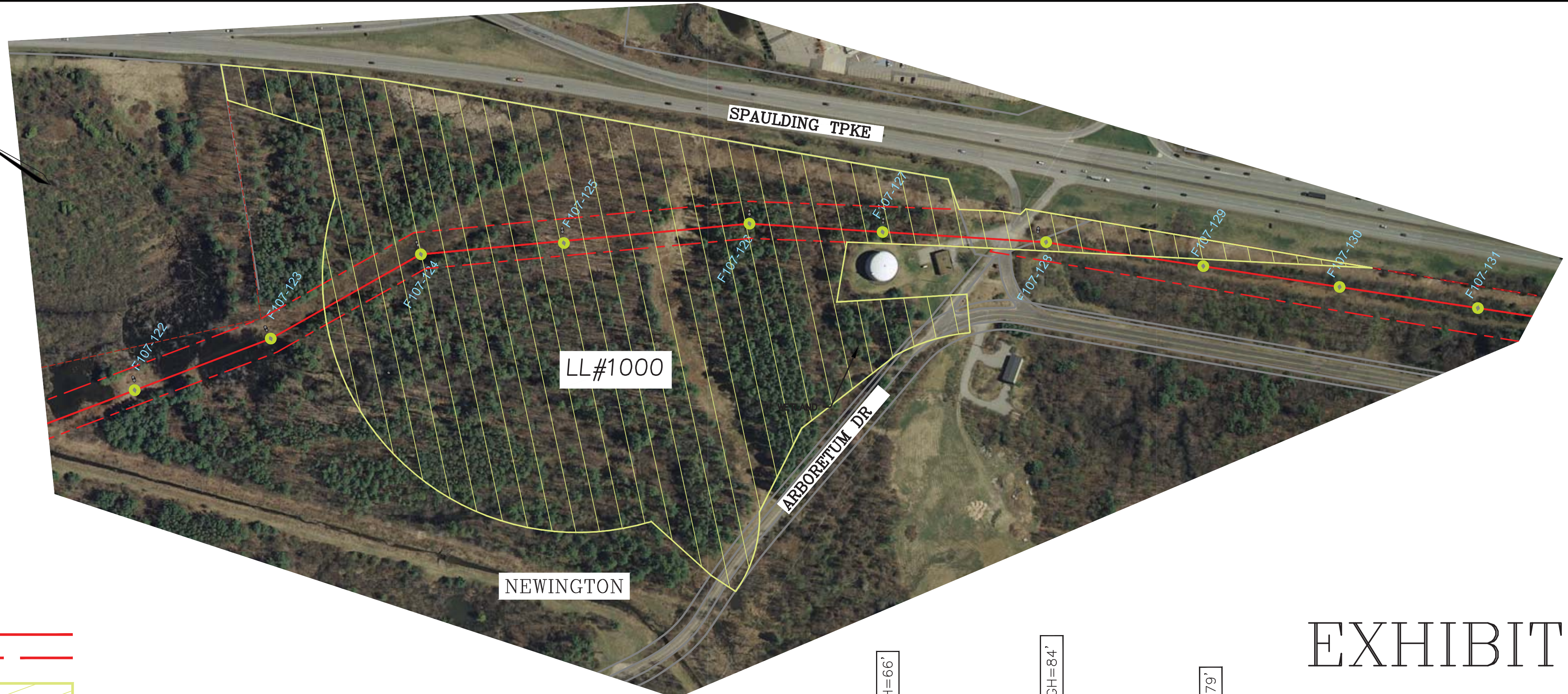
T 1

SEACOAST RELIABILITY PROJECT
LINE LIST 1000
STATE OF NH PROPERTY CROSSING

SCALE: AS NOTED DATE:01/22/16

DES: — CHK:JRS
DRW: CTS APR: —
TOWN: NEWINGTON
TRANSMISSION LINE: F107
MILE NO: — —
DISCIPLINE/SHT NO. --
SHEET 1 OF 1
F10799005

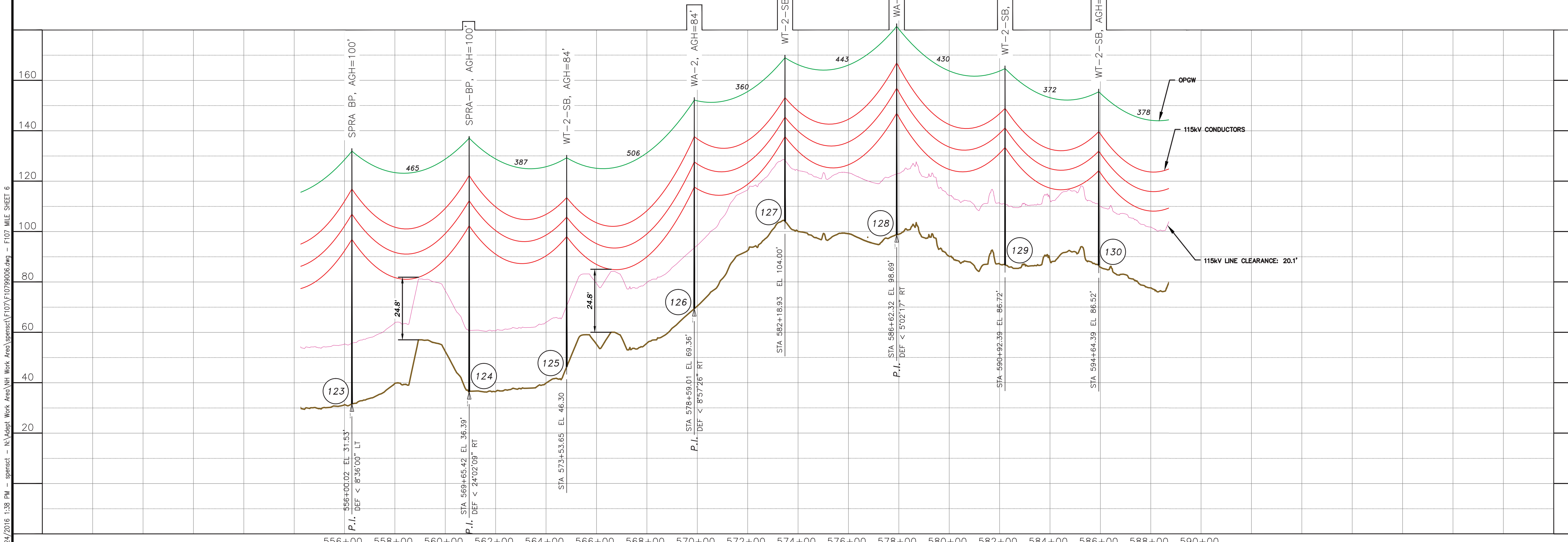
ES VER: 11/2015



LEGEND

PROJECT LINE
PROJECT ROW
PARCEL BOUNDRY

EXHIBIT 7



NO.	REVISION	DATE	DRWN	CHKD	APPRV.
1	ISSUED FOR PERMITTING		CTS	JRS	–

SEAL

EVERSOURCE ENERGY

T 1

SEACOAST RELIABILITY PROJECT
STRUCTURES #123–129
STATE OF NH PROPERTY CROSSING

SCALE: H 1=200", V 1=20' DATE: 01/22/16

DES: – CHK: JRS
DRW: CTS APR: –
TOWN: NEWINGTON
TRANSMISSION LINE: F107
MILE NO: ––
DISCIPLINE/SHT NO. --
SHEET 1 OF 1

F10799006

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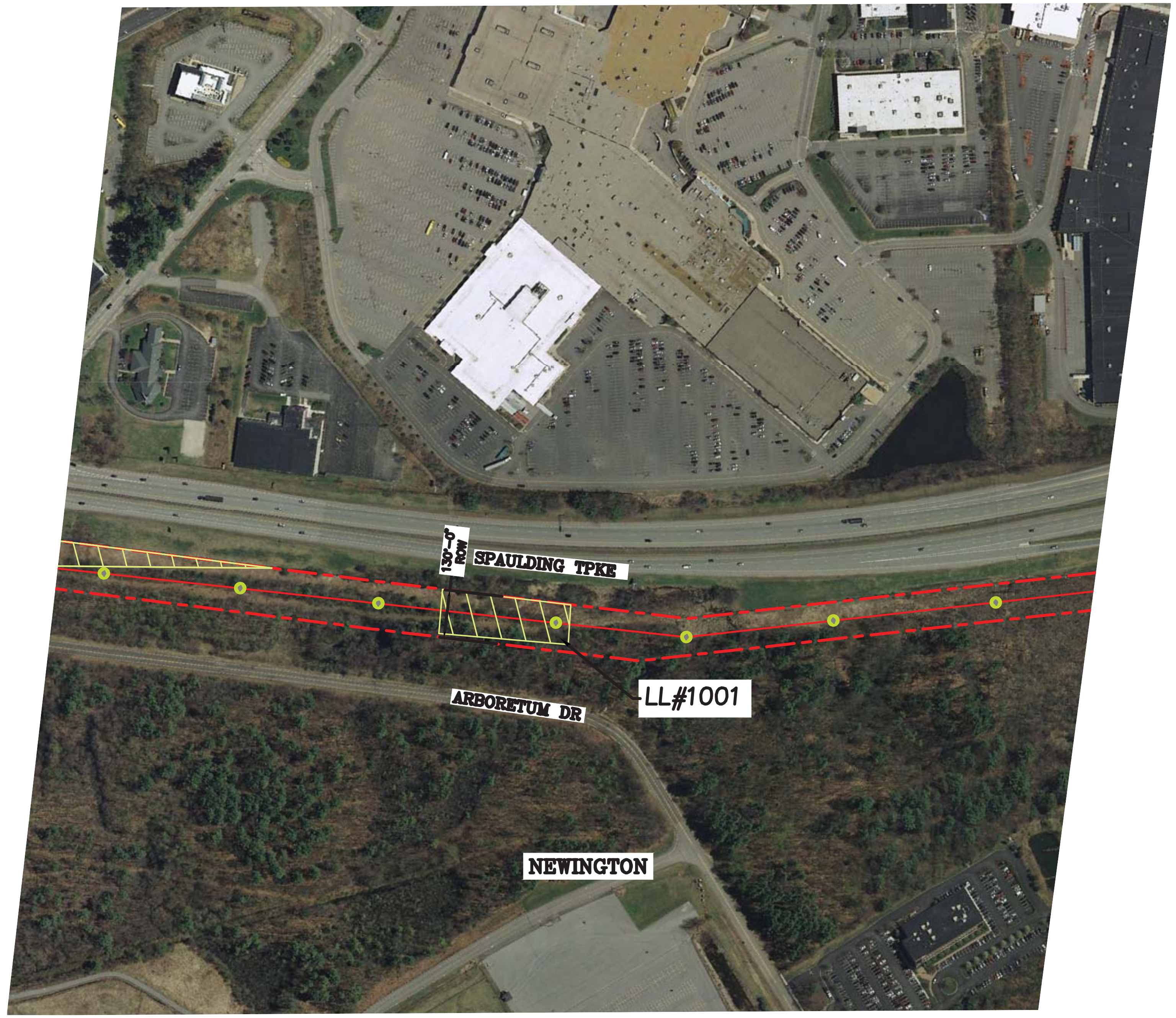

LINE LIST	OWNER	MANAGED BY	OWNER ADDRESS
1001	STATE OF NEW HAMPSHIRE	NH DEPARTMENT OF TRANSPORTATION	7 HAZEN DRIVE, CONCORD NH

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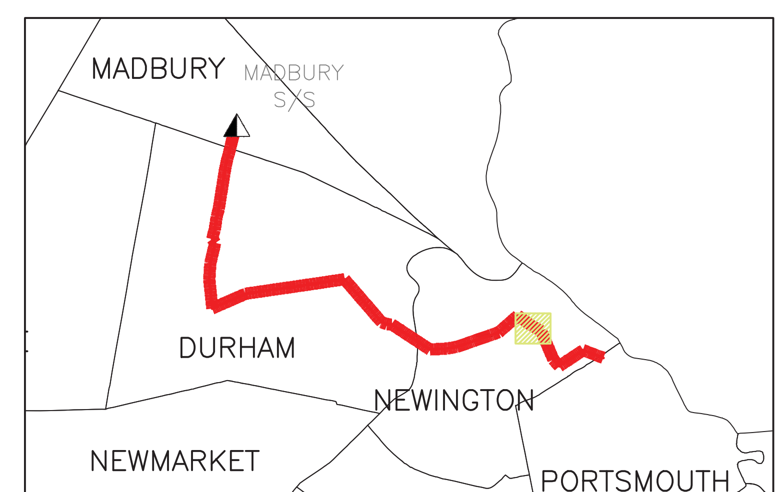
GRAPHIC SCALE
1" = 200'

EXHIBIT 8

LEGEND

PROJECT ROW

PARCEL BOUNDRY



NO.	REVISION	DATE	DRWN	CHKD	APPRV.
1	ISSUED FOR PERMITTING	1/22/16	CTS	JRS	-

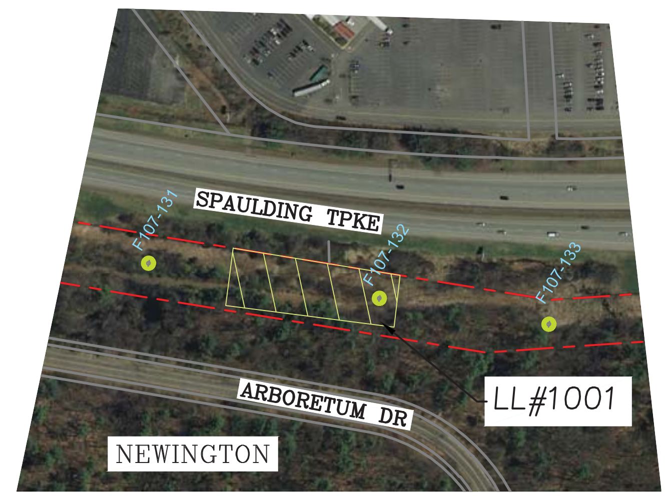
EVERSOURCE ENERGY

SEACOAST RELIABILITY PROJECT
LINE LIST 1001
STATE OF NH PROPERTY CROSSING

SCALE: AS NOTED DATE: 01/22/16

TOWN: NEWINGTON
TRANSMISSION LINE: F107
SHEET 1 OF 1
F10799007

ES VER: 11/2015



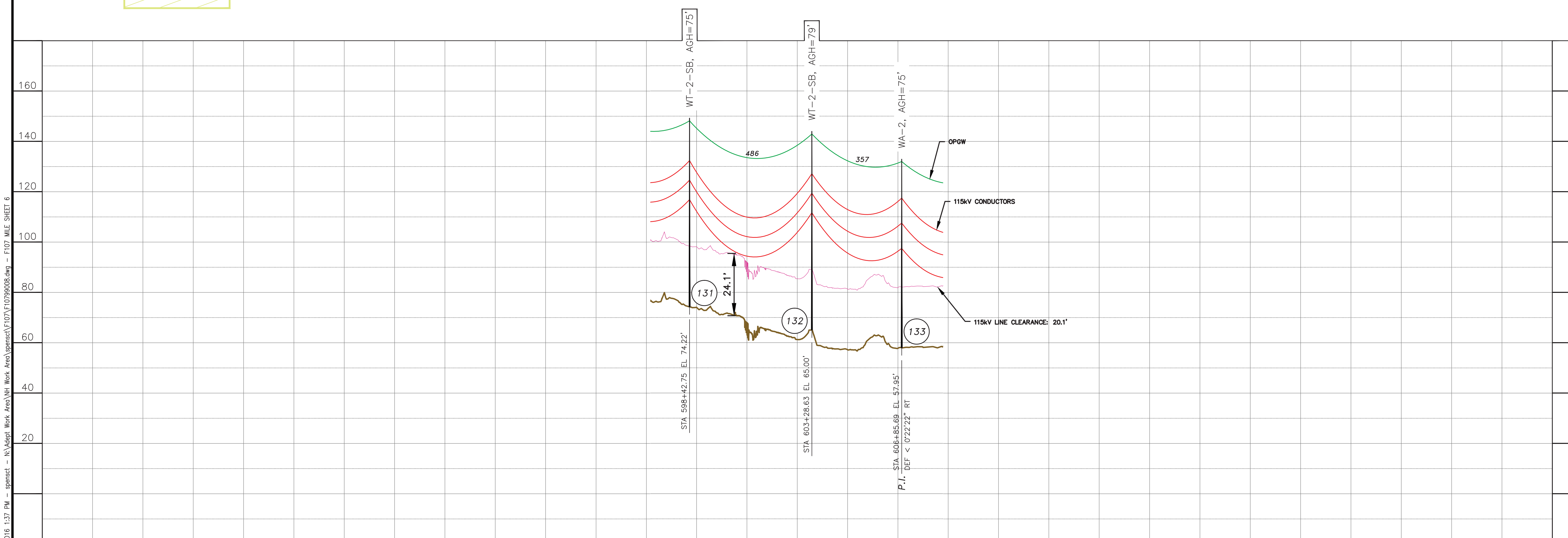
LEGEND

PROJECT LINE

PROJECT ROW

PARCEL BOUNDRY

EXHIBIT 9



1 ISSUED FOR PERMITTING CTS JRS –

NO. REVISION DATE DRWN CHKD APPRV

EVERSOURCE ENERGY

SEACOAST RELIABILITY PROJECT
STRUCTURES #131-133
STATE OF NH PROPERTY CROSSING

SCALE: H 1=200', V 1=20' DATE: 01/22/16

DES: – CHK: JRS
DRW: CTS APR: –

TOWN: NEWINGTON

TRANSMISSION LINE: F107

MILE NO: –

DISCIPLINE/SHT NO. --

SHEET 1 OF 1

F10799008

ES VER: 11/2015

2/24/2016 1:37 PM – spensct – N:\Adept Work Area\NH Work Area\spensct\F107\F10799008.dwg – F107 MILE SHEET 6

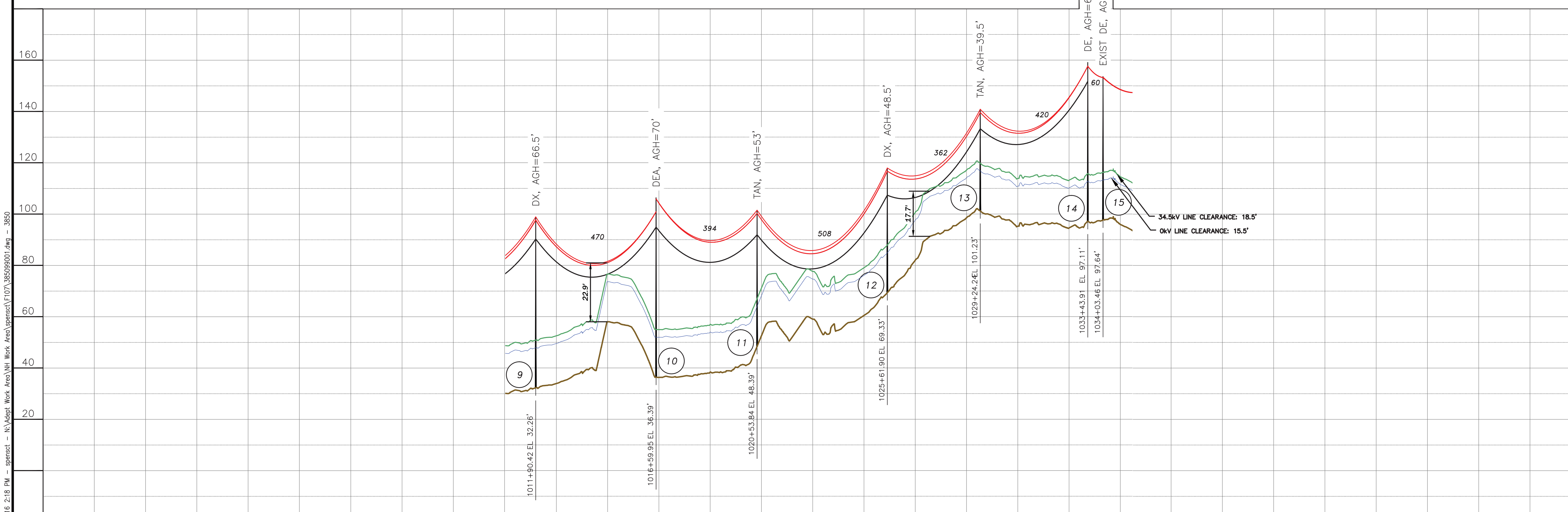
LEGEND

PROJECT LINE

PROJECT ROW

PARCEL BOUNDRY

EXHIBIT 10



ES VER: 11/2015

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NO.	REVISION	DATE	DRWN	CHKD	APPRV.
1	ISSUED FOR PERMITTING		CTS	JRS	-

EVERSOURCE ENERGY

T | 1

SEACOAST RELIABILITY PROJECT
STRUCTURES #9-14
STATE OF NH PROPERTY CROSSING

SCALE: H 1=200", V 1=20' DATE:01/22/16

DES: - CHK:JRS
DRW: CTS APR: -

TOWN: NEWINGTON

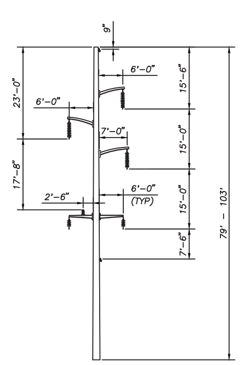
TRANSMISSION LINE: 3850

MILE NO: --

DISCIPLINE/SHT NO. --

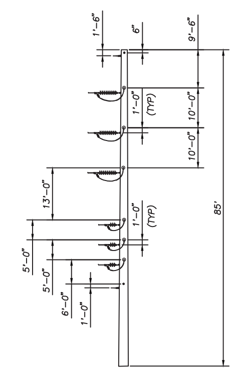
SHEET 1 OF 1

385099001



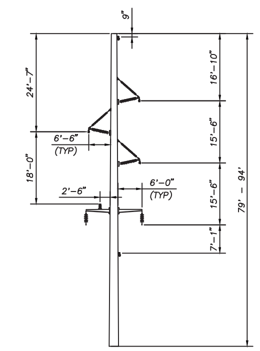
TYPE WT-1-UB

STEEL SINGLE POLE
TANGENT
115 KV WITH 34.5 KV UNDERBUILD
DIRECT EMBED FOUNDATION



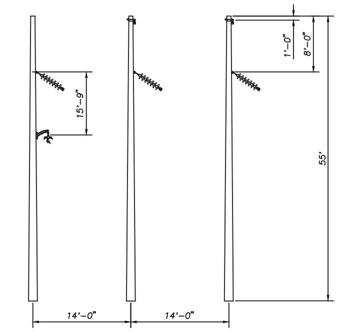
TYPE SPDE-VUB

SELF SUPPORTING STEEL
DEADEND
115 KV WITH 34.5 KV UNDERBUILD
DRILLED PIER FOUNDATION



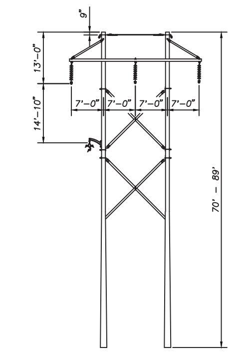
TYPE WT-2-UB-SB

STEEL SINGLE POLE
BRACED POST TANGENT
115 KV WITH 34.5 KV UNDERBUILD
DIRECT EMBED FOUNDATION



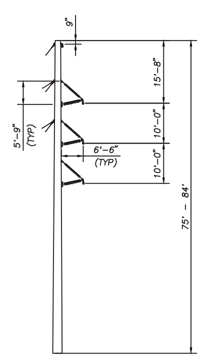
TYPE C-UB

STEEL H-FRAME
12° - 50° ANGLE
115 KV W/ 34.5 KV UB
DRILLED PIER FOUNDATION



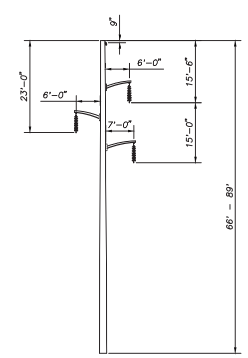
TYPE RAX-UB

STEEL H-FRAME
TANGENT
115 KV W/ 34.5 KV UB
DIRECT EMBED FOUNDATION



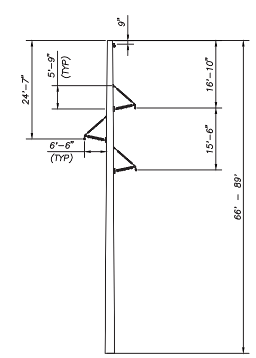
TYPE WA-2

STEEL GUYED SINGLE POLE
2° - 12° ANGLE
115 KV
DIRECT EMBED FOUNDATION



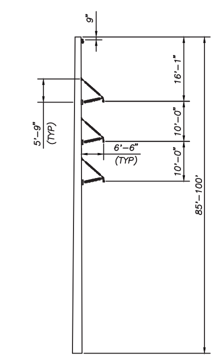
TYPE WT-1

STEEL SINGLE POLE
TANGENT
115 KV
DIRECT EMBED FOUNDATION



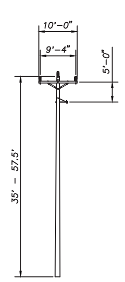
TYPE WT-2-SB

STEEL SINGLE POLE
BRACED POST TANGENT
115 KV
DIRECT EMBED FOUNDATION



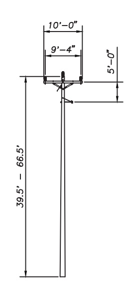
TYPE SPRA-BP

SELF SUPPORTING STEEL
2° - 12° ANGLE
115 KV
DRILLED PIER FOUNDATION



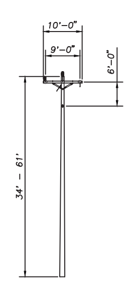
TYPE TAN

ROUNDWOOD OR STEEL SINGLE POLE
TANGENT
34.5 KV
DIRECT EMBED FOUNDATION



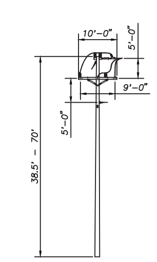
TYPE DX

ROUNDWOOD OR STEEL SINGLE POLE
0° - 12° ANGLE
34.5 KV
DIRECT EMBED FOUNDATION



TYPE DE

ROUNDWOOD OR STEEL SINGLE POLE
0° - 15° DEADEND ANGLE
34.5 KV
DIRECT EMBED FOUNDATION



TYPE DEA

ROUNDWOOD OR STEEL SINGLE POLE
15° - 90° DEADEND ANGLE
34.5 KV
DIRECT EMBED FOUNDATION

EXHIBIT 11

CONTRACT SERVICES						
REV	DESCRIPTION	ENG/PE#	DATE	DRN	CHKD	APPR

DWG REV	EPN/DESCRIPTION	CONT/PE#	DATE	DRN	CHKD	APPR
1	ISSUED FOR PERMITTING		1/25/16	CTS	JRS	–

EVERSOURCE ENERGY

TYPE 115 KV STANDARD
SECTION F107 STRUCTURE INDEX

T	1
DRAWN	CTS
ENGINEER	–
CHECKED	JRS
APPROVED	–
DATE	01/25/16
SCALE	NTS
FILE:	F10799009.DWG
IMAGE:	
DRAWING NO.	F10799009