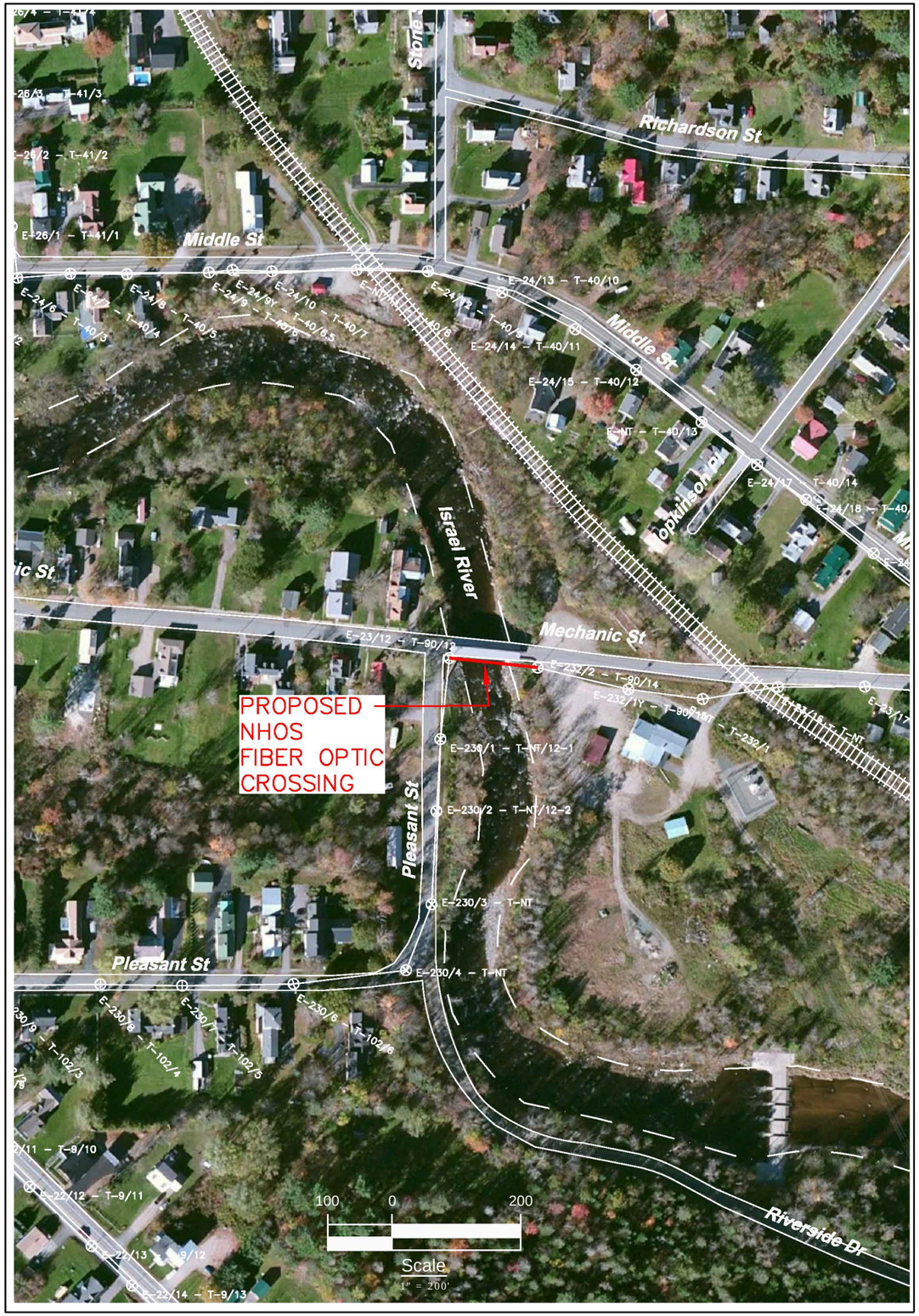

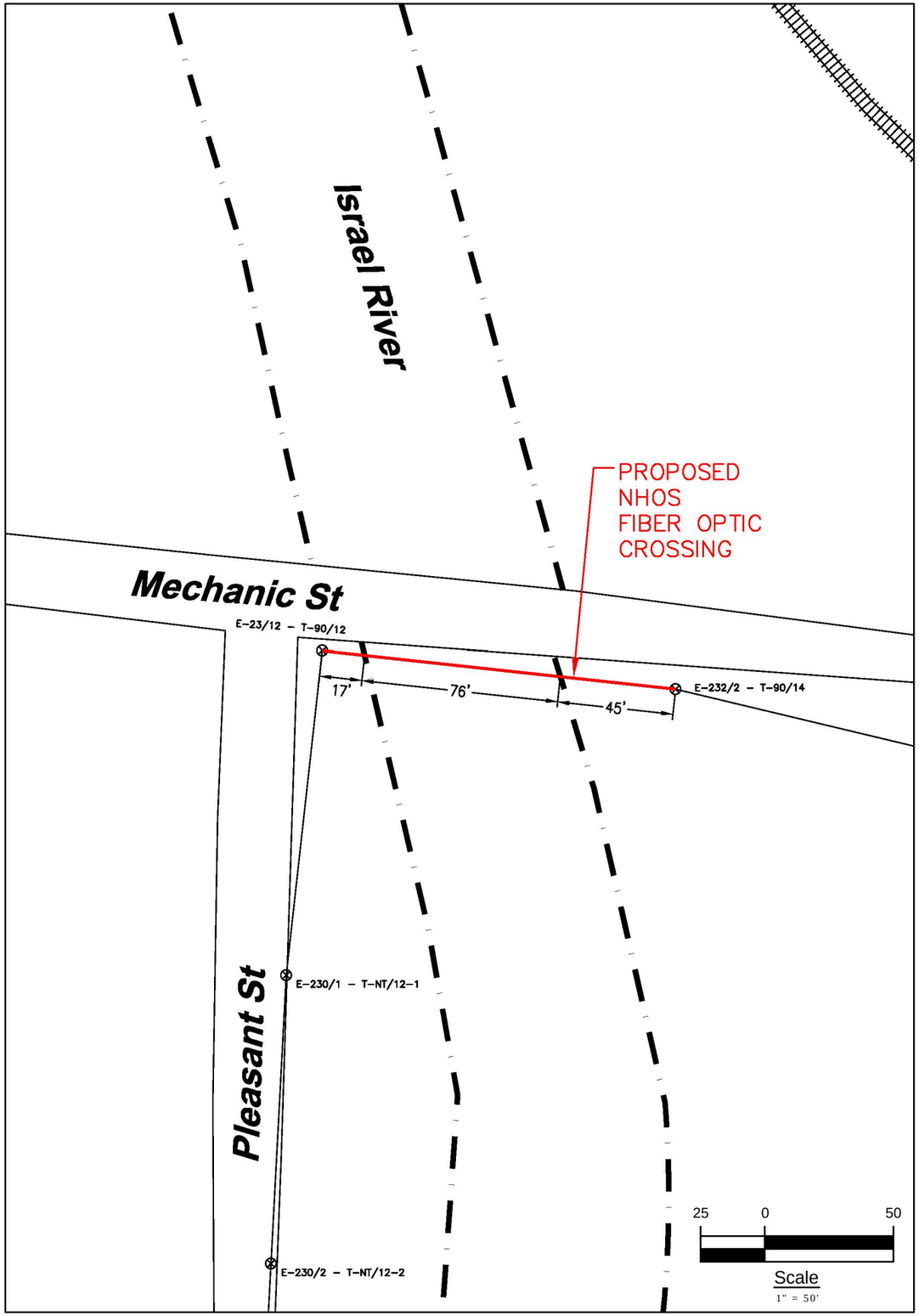

NHOS
New Hampshire Optical Systems
New Hampshire Optical Systems, Inc.
99 Pine Hill Rd.
Nashua, NH 03063
(603-821-6467)

Proposed
River Crossing
Lancaster, NH

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Project # TID-138 - Primary 7
Drawing # AC-LANC-RIV-2

Date: 03/23/12
Revision #

Proposed
River Crossing
Lancaster, NH

Location:
Mechanic St., Lancaster, NH
Nearest cross street- Pleasant St.

Sheet 1 of 2

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LOCUS MAP
(Not to Scale)

CommScope®

Spanmaster ® Release 3.1 Sag / Tension Computations

Waveguide 09/01/11 Waveguide
River and Rail Crossings

Selected Cables	X-SECT AREA (sq.in)	EFF MODULUS (psi)	NOMINAL DIAM (in)	EFF.EXP. COEFF. (1/F)	CABLE WEIGHT (lb/ft)	E*A LOAD BEARING CAPACITY (lbs)	MAX. RATED LOAD (lbs)
1/4"6.6mEHS	0.0352	2.60E+07	0.250	5.60E-06	0.1210	914940	6650
ORF-O-288-LN	0.5782	2.70E+05	0.858	1.13E-05	0.1960	155982	651
Bundle			1.108		0.3170		

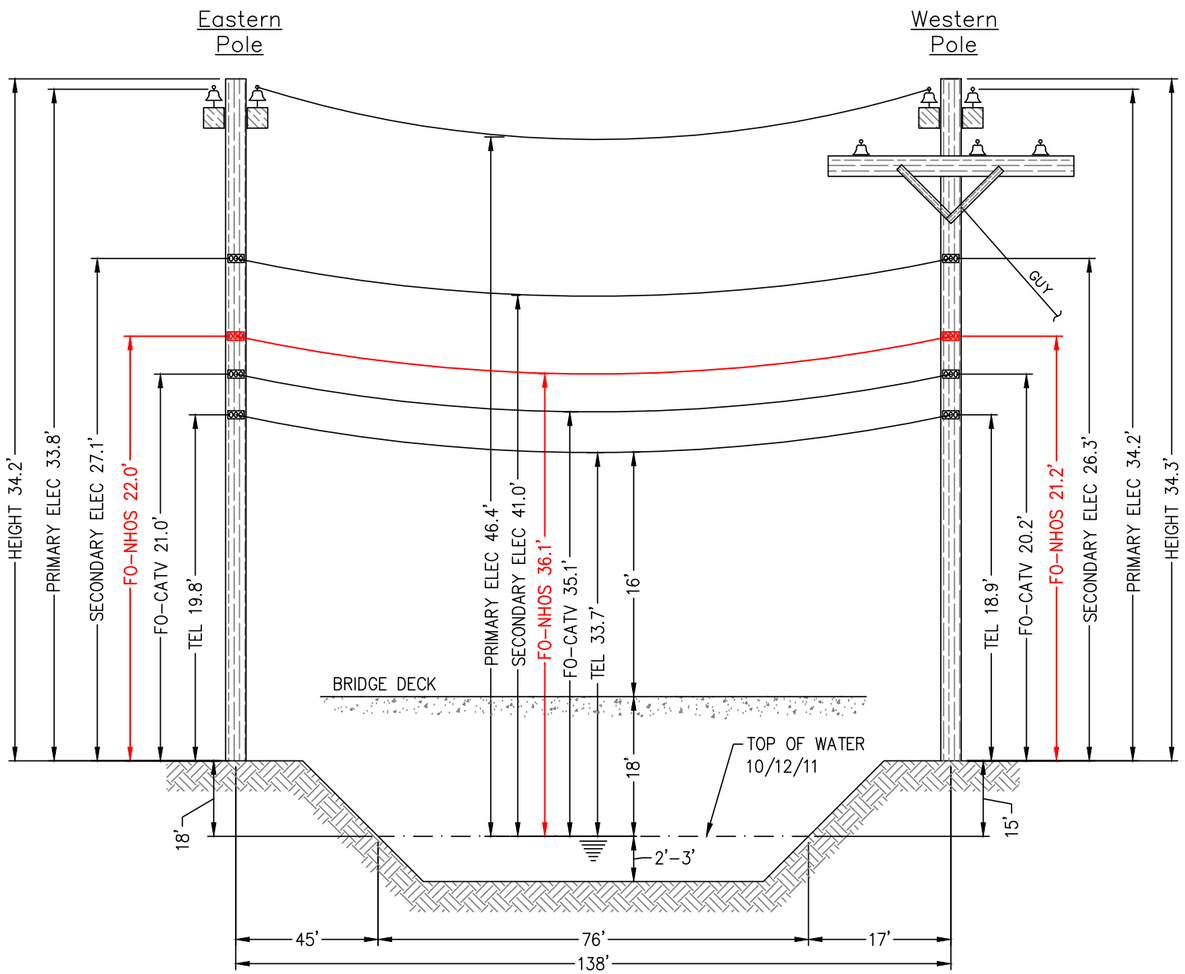
NESC RESULTS

Loading Condition	Temp. (F)	Ice Load lb/ft	Ice Thick in	Wind Constant lb/ft	Horz Wind Load lb/sq ft	Result Load + Const lb/ft	Sag ft	Tension lb	% Len Chg From Input Conditions	Sag @ Point 69 ft	Horz Sag Comp ft	Vert Sag Comp ft	Vector Angle Deg
Rule 251 - Heavy	0.0	1.000	.50	.3	4.0	1.793	2.69	1585	0.07	2.69	1.27	2.37	28.1
232A1	120.0	0.000	.00	.0	0.0	0.317	1.74	434	0.02	1.74	0.00	1.74	0.0

Span Length = 138.00 ft
Span Sag = 1.38 ft (16.6 in)
Span Tension = 547 lb
Max Load = 6,650 lb
Usable load (60%) = 3,990 lb
Catenary Length = 138.037 ft
Stress Free Length @
Installed Temperature = 137.954 ft

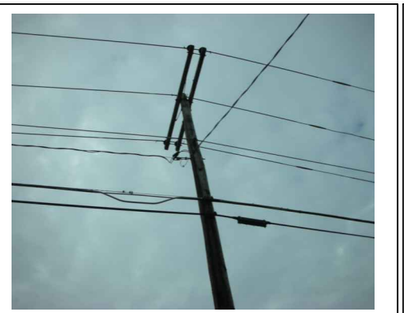
Unloaded Strand
Sag = .76 ft (9.2 in) 0.55 %
Tension = 377 lb

Temp (F)	Midspan Sag (ft)	Tension (lb)	% Length Change	Clearance
-40.0	.80	946	-0.02	N/A
-30.0	.83	903	-0.02	N/A
-20.0	.88	861	-0.02	N/A
-10.0	.92	820	-0.01	N/A
.0	.97	780	-0.01	N/A
10.0	1.02	742	-0.01	N/A
20.0	1.07	705	-0.01	N/A
30.0	1.13	669	-0.01	N/A
40.0	1.19	636	-0.01	N/A
50.0	1.25	604	0.00	N/A
60.0	1.31	574	0.00	N/A
70.0	1.38	546	0.00	N/A
80.0	1.45	520	0.00	N/A
90.0	1.52	496	0.01	N/A
100.0	1.59	474	0.01	N/A
110.0	1.67	453	0.01	N/A
120.0	1.74	434	0.02	N/A
130.0	1.81	416	0.02	N/A
140.0	1.89	400	0.02	N/A



E-232/2 – T-90/14
(Existing joint owned utility pole (PSNH/Fairpoint) in existing Right-of-Way)

E-23/12 – T-90/12
(Existing joint owned utility pole (PSNH/Fairpoint) in existing Right-of-Way)



E-232/2 – T-90/14

Construction Notes:

NHOS proposes to install a ¼ inch metal supporting strand between the existing utility poles shown above that will traverse the river. The strand will be installed at the proposed height (see above). The supporting strand will be secured to each pole using double dead end attachments to prevent any sag in the wire and maintain proper clearances. NHOS will lash a one inch diameter fiber optic cable (PVC jacket) to the strand using a dual lash method to provide security of the fiber over the right of way. The fiber will be tagged with twenty four hour contact information at each pole clamp. NHOS will employ the proper safety personnel during the crossing installation. The proposed install will meet all proper clearances from other Utilities. (see above). Additional pole guys will be added per NESC Rule 264 and as directed by pole owners.

E-23/12 – T-90/12

NHOS
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99 Pine Hill Rd.
Nashua, NH 03063
(603-821-6467)

Proposed River Crossing Lancaster, NH

Notes:

1. The heights of structures shown hereon are based on field measurements taken with a Nikon 362 total station during a site survey on 10/12/11.
2. The horizontal distance between the nearest bridge edge and the existing overhead wires ranges from 5' to 8'.
3. Because of the close horizontal proximity to the existing bridge structure, the simplified drawing is submitted with vertical distances measured to the structure. This process simplifies the preparation and review of the crossing without jeopardizing its intent to protect the safe usage of the waterway
4. The smallest vertical distance from the top of existing bridge deck to the lowest existing overhead wires is 16'.
5. The vertical distance between the top of water and bridge deck is approximately 18'.
6. Vertical distances are representative of attachment heights after utility make ready moves are completed.

Project # TID-138 - Primary 7
Drawing # AC-LANC-RIV-2

Date: 03/23/12
Revision #

Proposed River Crossing Lancaster, NH

Location:
Mechanic St., Lancaster, NH
Nearest cross street- Pleasant St.

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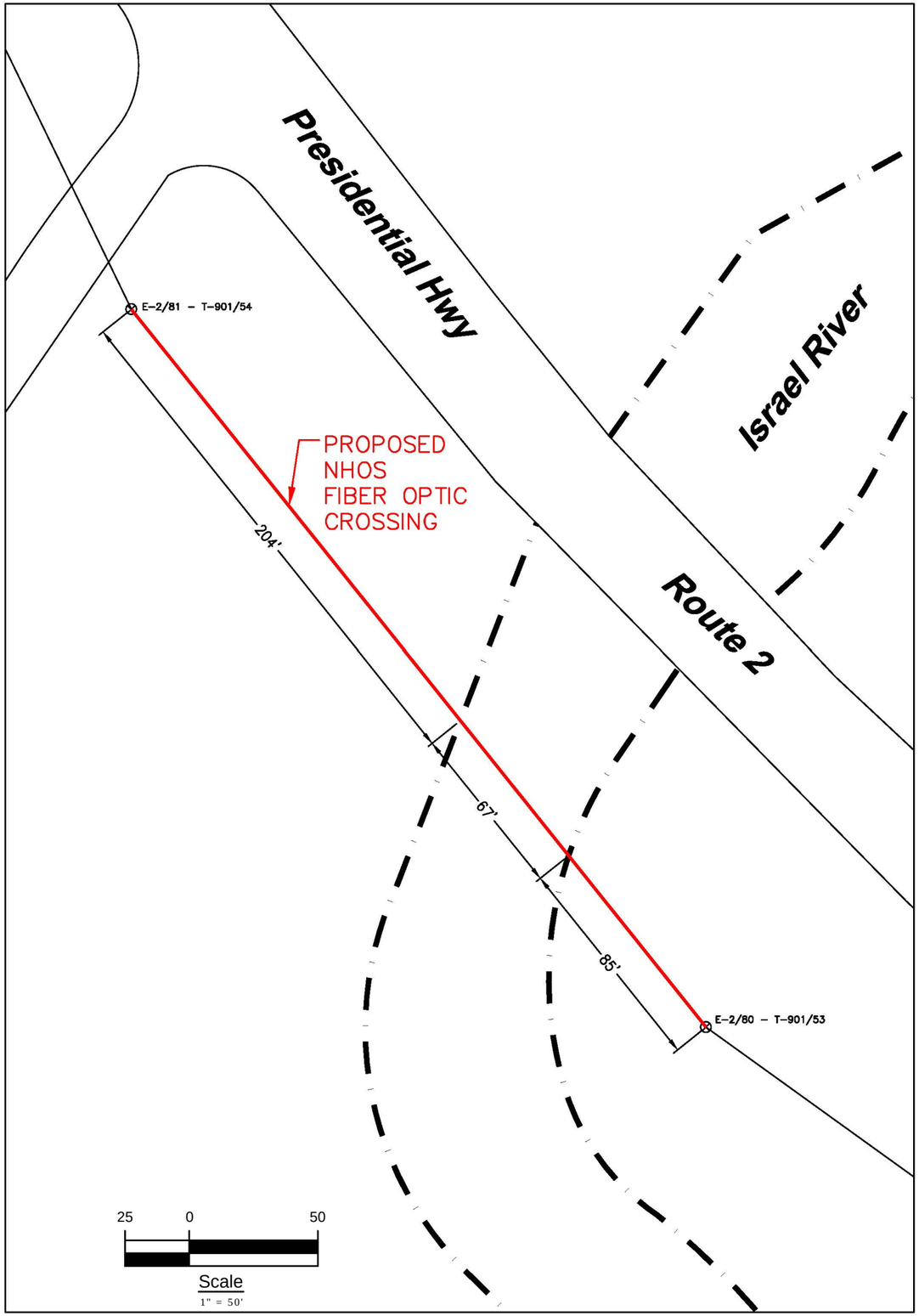

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Proposed
Stream Crossing
Jefferson, NH

N
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Project # TID-140 - Primary 7
Drawing # AC-JEF-RIV-1

Date: 03/23/12
Revision #

Proposed
Stream Crossing
Jefferson, NH

Location:
Presidential Highway, Jefferson, NH
Nearest cross street- Turnpike Rd.

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LOCUS MAP
(Not to Scale)

CommScope®

Spanmaster ® Release 3.1 Sag / Tension Computations

Waveguide
River and Rail Crossings

09/01/11 Waveguide

Selected Cables	X-SECT AREA (sq.in)	EFF MODULUS (psi)	NOMINAL DIAM (in)	EFF.EXP. COEFF. (1/F)	CABLE WEIGHT (lb/ft)	E*A LOAD BEARING CAPACITY (lbs)	MAX. RATED LOAD (lbs)
ORF-O-288-LN	0.5782	2.70E+05	0.858	1.13E-05	0.1960	155982	651
5/16"11.2mEHS	0.0595	2.60E+07	0.313	5.60E-06	0.2050	1545960	11200
Bundle			1.171		0.4010		

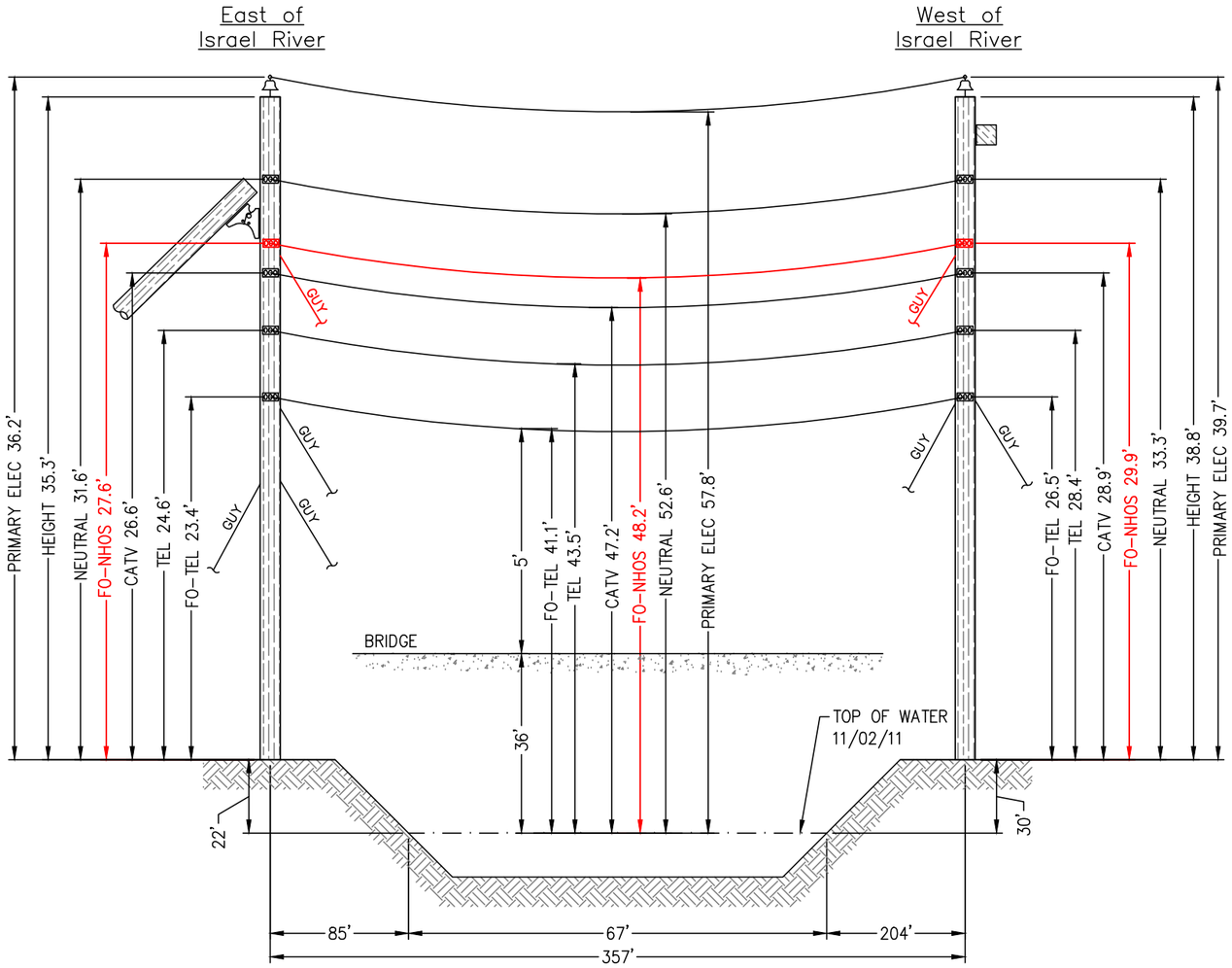
NESC RESULTS

Loading Condition	Temp. (F)	Ice Load lb/ft	Ice Thick in	Wind Constant lb/ft	Horz Wind Load lb/sq ft	Result Load + Const lb/ft	Sag ft	Tension lb	% Len Chg From Input Conditions	Sag @ Point 178.5 ft	Horz Sag Comp ft	Vert Sag Comp ft	Vector Angle Deg
Rule 251 - Heavy	0.0	1.039	.50	.3	4.0	1.912	7.75	3919	0.10	7.77	3.48	6.93	26.7
232A1	120.0	0.000	.00	.0	0.0	0.401	4.21	1516	0.01	4.22	0.00	4.21	0.0

Span Length = 357.00 ft
Span Sag = 3.57 ft (42.8 in)
Span Tension = 1,789 lb
Max Load = 11,200 lb
Usable load (60%) = 6,720 lb
Catenary Length = 357.095 ft
Stress Free Length @
Installed Temperature = 356.682 ft

Unloaded Strand
Sag = 2.14 ft (25.7 in) 0.60 %
Tension = 1,525 lb

Temp (F)	Midspan Sag (ft)	Tension (lb)	% Length Change	Clearance
-40.0	2.52	2,529	-0.01	N/A
-30.0	2.59	2,455	-0.01	N/A
-20.0	2.67	2,382	-0.01	N/A
-10.0	2.76	2,310	-0.01	N/A
.0	2.84	2,240	-0.01	N/A
10.0	2.94	2,171	-0.01	N/A
20.0	3.03	2,103	-0.01	N/A
30.0	3.13	2,036	-0.01	N/A
40.0	3.23	1,971	0.00	N/A
50.0	3.34	1,908	0.00	N/A
60.0	3.45	1,846	0.00	N/A
70.0	3.57	1,786	0.00	N/A
80.0	3.69	1,728	0.00	N/A
90.0	3.81	1,672	0.00	N/A
100.0	3.94	1,618	0.01	N/A
110.0	4.07	1,566	0.01	N/A
120.0	4.21	1,516	0.01	N/A
130.0	4.35	1,467	0.01	N/A
140.0	4.49	1,421	0.02	N/A



E-2/80 – T-901/53
(Existing joint owned utility pole (PSNH/Fairpoint) in existing Right-of-Way)

Not to Scale

E-2/81 – T-901/54
(Existing joint owned utility pole (PSNH/Fairpoint) in existing Right-of-Way)

E-2/80 – T-901/53

Construction Notes:

NHOS proposes to install a ¼ inch metal supporting strand between the existing utility poles shown above that will traverse the river. The strand will be installed at the proposed height (see above). The supporting strand will be secured to each pole using double dead end attachments to prevent any sag in the wire and maintain proper clearances. NHOS will lash a one inch diameter fiber optic cable (PVC jacket) to the strand using a dual lash method to provide security of the fiber over the right of way. The fiber will be tagged with twenty four hour contact information at each pole clamp. NHOS will employ the proper safety personnel during the crossing installation. The proposed install will meet all proper clearances from other Utilities. (see above). Additional pole guys will be added per NESC Rule 264 and as directed by pole owners.

E-2/81 – T-901/54

NHOS
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New Hampshire Optical Systems, Inc.
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Nashua, NH 03063
(603-821-6467)

Proposed Stream Crossing Jefferson, NH

Notes:

1. The heights of structures shown hereon are based on field measurements taken with a Nikon 362 total station during a site survey on 11/02/11.
2. The horizontal distance between the nearest bridge edge and the existing overhead wires ranges from 75' to 78'.
3. The smallest vertical distance from the top of existing bridge deck to the lowest existing overhead wires is 5'.
4. The vertical distance between the top of water and bridge deck is approximately 36'.
5. The waterway is classified as not suitable for sail boating and per NESC Table 232-1 a vertical clearance of 14' must be maintained between the lowest conductor and 10 year floodplain.
6. Based on the FEMA Flood Insurance Rate map 01-16 (Community number 330033C) Effective April 16, 1986, there is no 10 year, or 100 year, flood event information currently available for this area.
7. Vertical distances are representative of attachment heights after utility make ready moves are completed.

Project # TID-140 - Primary 7
Drawing # AC-JEF-RIV-1

Date: 03/23/12
Revision #

Proposed
Stream Crossing
Jefferson, NH

Location:
Presidential Highway, Jefferson, NH
Nearest cross street- Turnpike Rd.

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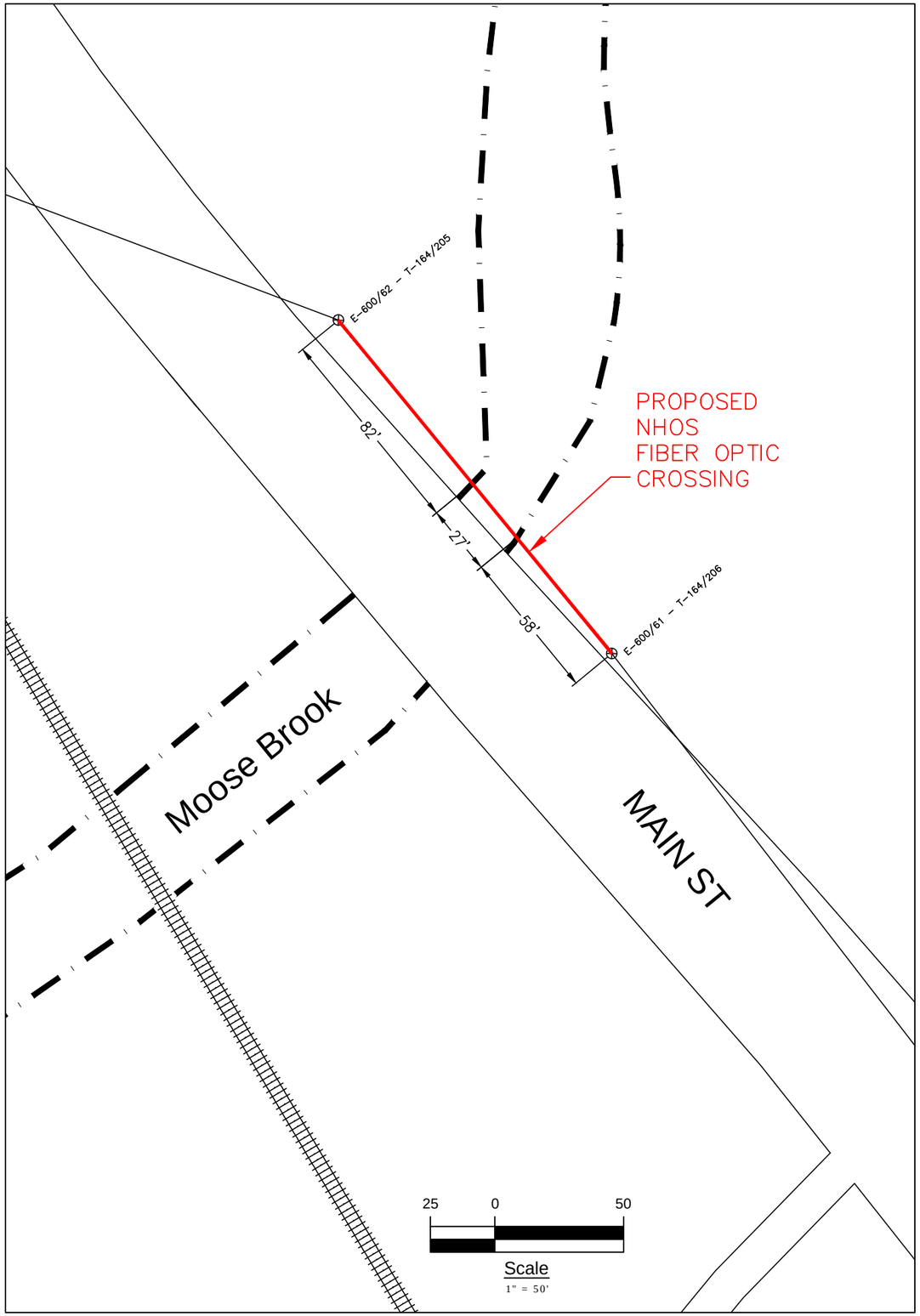

NHOS
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Nashua, NH 03063
(603-821-6467)

Proposed
River Crossing
Gorham, NH

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Project # TID-143 - Primary 7
Drawing # Engineering AC-GOR-RIV-1

Date: 03/23/12
Revision # 1

Proposed
River Crossing
Gorham, NH

Location:
Main St., Gorham, NH
Nearest cross street- Spruce St.

Sheet 1 of 2

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LOCUS MAP
(Not to Scale)

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Waveguide
River and Rail Crossings

09/01/11 Waveguide

Selected Cables	X-SECT AREA (sq.in)	EFF MODULUS (psi)	NOMINAL DIAM (in)	EFF.EXP. COEFF. (1/F)	CABLE WEIGHT (lb/ft)	E*A LOAD BEARING CAPACITY (lbs)	MAX. RATED LOAD (lbs)
1/4"6.6mEHS	0.0352	2.60E+07	0.250	5.60E-06	0.1210	914940	6650
ORF-O-288-LN	0.5782	2.70E+05	0.858	1.13E-05	0.1960	155982	651
Bundle			1.108		0.3170		

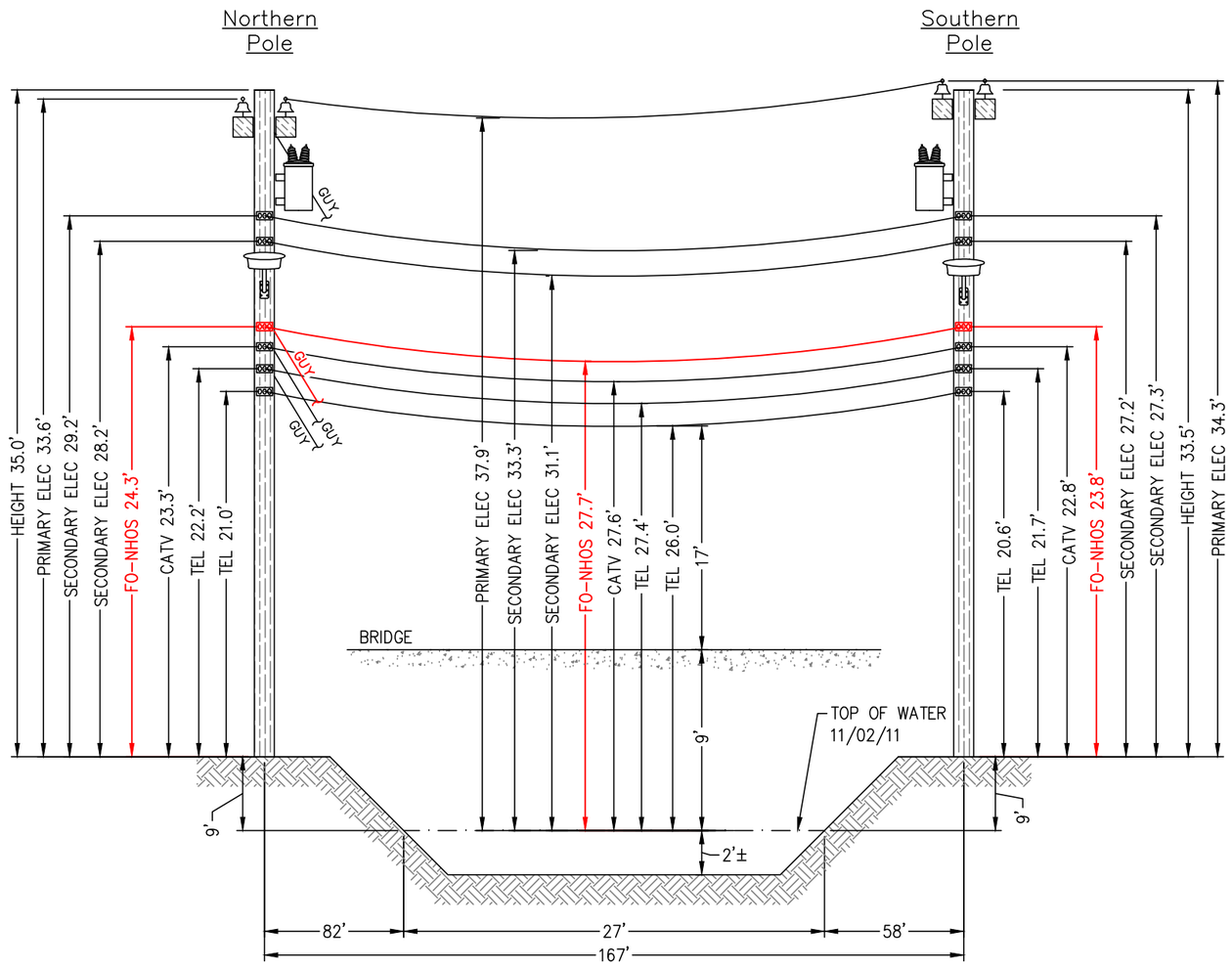
NESC RESULTS

Loading Condition	Temp. (F)	Ice Load lb/ft	Ice Thick in	Wind Constant lb/ft	Horz Wind Load lb/sq ft	Result Load + Const lb/ft	Sag ft	Tension lb	% Len Chg From Input Conditions	Sag @ Point 83.5 ft	Horz Sag Comp ft	Vert Sag Comp ft	Vector Angle Deg
Rule 251 - Heavy	0.0	1.000	.50	.3	4.0	1.793	3.44	1812	0.09	3.45	1.62	3.04	28.1
232A1	120.0	0.000	.00	.0	0.0	0.317	2.07	535	0.01	2.07	0.00	2.07	0.0

Span Length = 167.00 ft
Span Sag = 1.67 ft (20.0 in)
Span Tension = 662 lb
Max Load = 6,650 lb
Usable load (60%) = 3,990 lb
Catenary Length = 167.045 ft
Stress Free Length @
Installed Temperature = 166.924 ft

Unloaded Strand
Sag = .87 ft (10.5 in) 0.52 %
Tension = 484 lb

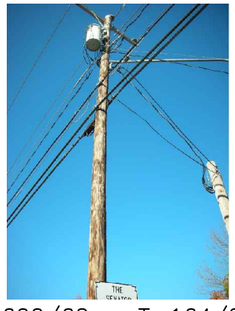
Temp (F)	Midspan Sag (ft)	Tension (lb)	% Length Change	Clearance
-40.0	1.03	1,072	-0.02	N/A
-30.0	1.07	1,029	-0.02	N/A
-20.0	1.12	987	-0.01	N/A
-10.0	1.17	945	-0.01	N/A
.0	1.22	905	-0.01	N/A
10.0	1.27	866	-0.01	N/A
20.0	1.33	828	-0.01	N/A
30.0	1.39	792	-0.01	N/A
40.0	1.46	757	-0.01	N/A
50.0	1.53	723	0.00	N/A
60.0	1.60	691	0.00	N/A
70.0	1.67	661	0.00	N/A
80.0	1.75	633	0.00	N/A
90.0	1.82	606	0.01	N/A
100.0	1.90	580	0.01	N/A
110.0	1.98	557	0.01	N/A
120.0	2.07	535	0.01	N/A
130.0	2.15	514	0.02	N/A
140.0	2.23	495	0.02	N/A



E-600/62 - T-164/205
(Existing joint owned utility pole (PSNH/Fairpoint) in existing Right-of-Way)

Not to Scale

E-600/61 - T-164/206
(Existing joint owned utility pole (PSNH/Fairpoint) in existing Right-of-Way)



E-600/62 - T-164/205

Construction Notes:

NHOS proposes to install a ¼ inch metal supporting strand between the existing utility poles shown above that will traverse the river. The strand will be installed at the proposed height (see above). The supporting strand will be secured to each pole using double dead end attachments to prevent any sag in the wire and maintain proper clearances. NHOS will lash a one inch diameter fiber optic cable (PVC jacket) to the strand using a dual lash method to provide security of the fiber over the right of way. The fiber will be tagged with twenty four hour contact information at each pole clamp. NHOS will employ the proper safety personnel during the crossing installation. The proposed install will meet all proper clearances from other Utilities. (see above). Additional pole guys will be added per NESC Rule 264 and as directed by pole owners.

E-600/61 - T-164/206

NHOS
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Nashua, NH 03063
(603-821-6467)

Proposed River Crossing Gorham, NH

Notes:

1. The heights of structures shown hereon are based on field measurements taken with a Nikon 362 total station during a site survey on 11/02/11.
2. The horizontal distance between the nearest bridge edge and the existing overhead wires is approximately 1' or less.
3. Because of the close horizontal proximity to the existing bridge structure, the simplified drawing is submitted with vertical distances measured to the structure. This process simplifies the preparation and review of the crossing without jeopardizing its intent to protect the safe usage of the waterway
4. The smallest vertical distance from the top of existing bridge deck to the lowest existing overhead wires is 17'.
5. The vertical distance between the top of water and bridge deck is approximately 9'.
6. Vertical distances are representative of attachment heights after utility make ready moves are completed.

Project # TID-143 - Primary 7
Drawing # Engineering AC-GOR-RIV-1

Date: 03/23/12
Revision # 1

Proposed
River Crossing
Gorham, NH

Location:
Main St., Gorham, NH
Nearest cross street- Spruce St.

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