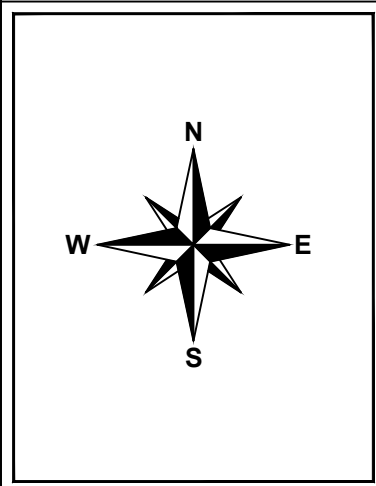


New Hampshire Optical Systems, Inc.  
 99 Pine Hill Rd.  
 Nashua, NH 03063  
 (603-821-6467)

**Proposed  
 Railroad Crossing  
 Whitefield, NH**



Project # TID-127 - Primary 6  
 Drawing # AC-WHI-RR-1

Date: 04/25/13  
 Revision # 2

**Proposed  
 Railroad Crossing  
 Whitefield, NH**

Location:  
 Littleton Brook Rd, Whitefield NH  
 Nearest cross street- Daniel Webster Hwy.





LOCUS MAP  
(Not to Scale)



Spanmaster® Release 3.1 Sag / Tension Computations  
09/01/11 Waveguide

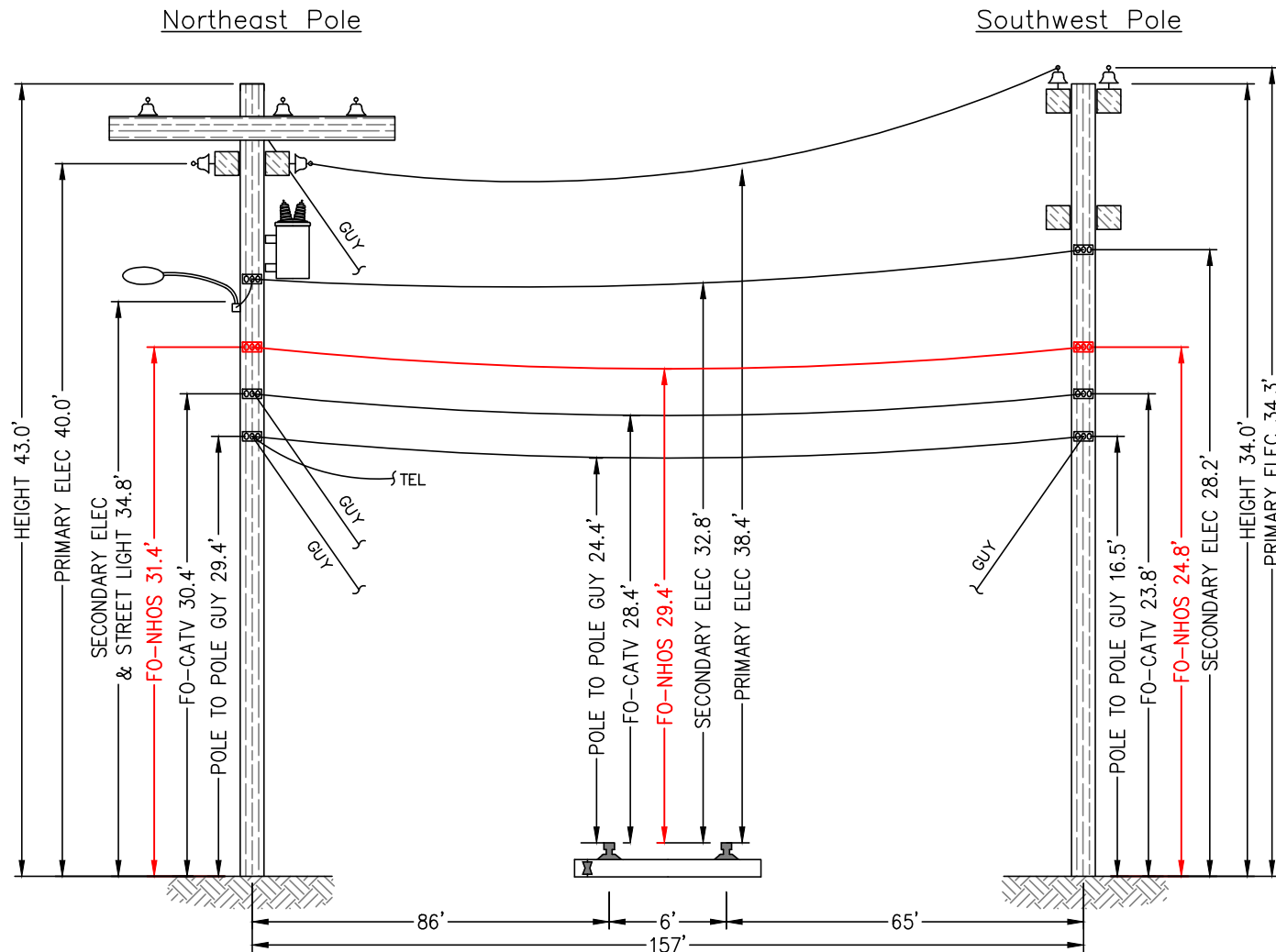
Waveguide  
River and Rail Crossings

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-144-LN Bundle	0.4307	3.50E+05	0.741	1.09E-05	0.1520	150720	640

**NESC RESULTS**

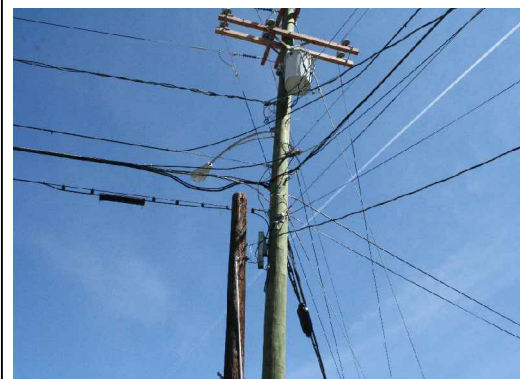
Loading Condition	Temp. (F)	Ice Load (lb/ft)	Ice Thick (in)	Wind Constant (lb/ft)	Horz Wind Load (lb/sq ft)	Result Load + Const (lb/ft)	Sag (ft)	Tension (lb)	% Len Chg From Input Conditions	Sag @ 78.5 ft	Horz Sag Comp (ft)	Vert Sag Comp (ft)	Vector Angle (Deg)
Rule 251 - Heavy	0.0	0.927	.50	.3	4.0	1.671	3.15	1632	0.08	3.16	1.53	2.76	28.9
232A1	120.0	0.000	.00	.0	0.0	0.273	1.98	424	0.02	1.98	0.00	1.98	0.0

Temp (F)	Midspan Sag (ft)	Tension (lb)	% Length Change	Clearance
Span Length = 157.00 ft				
Span Sag = 1.57 ft (18.8 in)				
Span Tension = 536 lb				
Max Load = 6,650 lb				
Usable load (60%) = 3,990 lb				
Catenary Length = 157.042 ft				
Stress Free Length @ Installed Temperature = 156.950 ft				
Unloaded Strand				
Sag = .97 ft (11.6 in) 0.62 %				
Tension = 385 lb				
10.0	1.15	730	-0.01	N/A
20.0	1.21	693	-0.01	N/A
30.0	1.28	658	-0.01	N/A
40.0	1.35	624	-0.01	N/A
50.0	1.42	593	0.00	N/A
60.0	1.49	563	0.00	N/A
70.0	1.57	535	0.00	N/A
80.0	1.65	510	0.00	N/A
90.0	1.73	486	0.01	N/A
100.0	1.81	464	0.01	N/A
110.0	1.90	443	0.01	N/A
120.0	1.98	424	0.02	N/A
130.0	2.07	407	0.02	N/A
140.0	2.15	391	0.02	N/A



E-42/19 - T-196/1  
(Existing joint owned utility pole (PSNH/Fairpoint) in existing Right-of-Way)

E-42/20 - T-196C/2  
(Existing joint owned utility pole (PSNH/Fairpoint) in existing Right-of-Way)



E-42/19 - T-196/1

**Construction Notes:**

NHOS proposes to install a 1/4 inch metal supporting strand between the existing utility poles shown above that will traverse the railroad. 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-42/20 - T-196C/2



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**Notes:**

- 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.
- Vertical distances are representative of attachment heights after utility make ready moves are completed.

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