



SCHERER DESIGN GROUP, LLC
Consulting Engineers • Construction Inspectors

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December 4, 2020

Re: Site Name: JS Seaside Park 12 SC
144 K St
Seaside Park, NJ 08752

To Whom It May Concern,

Scherer Design Group, LLC (SDG) has performed a Structural Assessment for the replacement of an existing wooden utility pole at the above-referenced site. The proposed equipment loading is depicted within the Construction Documents, by SDG, Revision B, dated 11/30/20.

This analysis was performed using O-Calc Pro Version 5.03 modeling software. The loads considered in this analysis are in accordance with the requirements of the National Electric Safety Code (NESC) 17 (250B), Grade C, Heavy Load. The proposed pole embedment was checked using O-Calc Pro, by comparing the overturning moment with the groundline moment.

The proposed wooden utility pole was designed based on the following specifications:

- Class 2 Southern Pine
- 45' wooden pole with 6.5' embedment depth
- Assumed Soil Class: Class 6 – Loose to medium dense fine to coarse sand, firm to stiff clays and silts

All proposed pole specifications and existing loading are based upon information provided by Tilson and field verified measurements. Soil parameters were assumed based upon location. A site-specific geotechnical investigation was not performed. This analysis assumes the information provided is correct and the proposed pole is installed plumb and free of unreasonable defects. SDG should be notified if any discrepancies are discovered between the actual conditions and the assumptions stated above.

When installed per the above-mentioned design specifications, the proposed utility pole is structurally adequate to support the proposed antenna and equipment installations.

Should you have any questions regarding any of the above information, please call me at 908-323-2513.

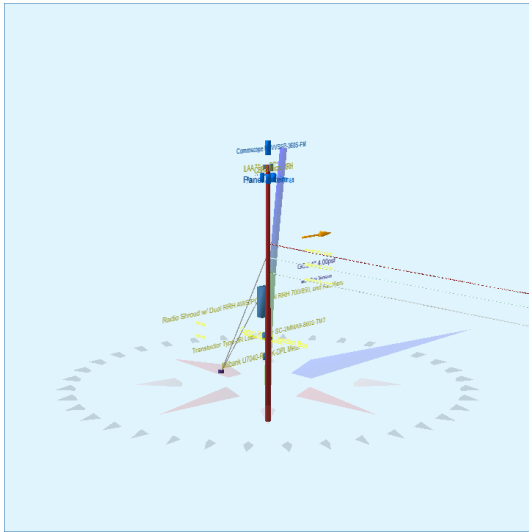
Regards,



Colleen Connolly, P.E.
NJ PE#24GE04133700

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Pole Num:	JS Seaside Park 12 SC	Pole Length / Class:	45 / 2	Code:	NESC	Structure Type:	Deadend
Aux Data 1	Unset	Species:	SOUTHERN PINE	NESC Rule:	Rule 250B	Status	Guy Wires Adequate
Aux Data 2	Unset	Setting Depth (ft):	6.50	Construction Grade:	C	Pole Strength Factor:	0.85
Aux Data 3	Unset	G/L Circumference (in):	40.30	Loading District:	Heavy	Transverse Wind LF:	1.75
Aux Data 4	Unset	G/L Fiber Stress (psi):	8,000	Ice Thickness (in):	0.50	Wire Tension LF:	1.30
Aux Data 5	Unset	Allowable Stress (psi):	2,461	Wind Speed (mph):	39.53	Vertical LF:	1.90
Aux Data 6	Unset	Fiber Stress Ht. Reduc:	No	Wind Pressure (psf):	4.00		
Latitude:	39.931407 Deg	Longitude:	-74.079618 Deg	Elevation:	0 Feet		



Pole Capacity Utilization (%)	Height (ft)	Wind Angle (deg)
Maximum	0.0	0.7
Groundline	0.0	0.7
Vertical	20.3	90.0

Pole Moments (ft-lb)	Load Angle (deg)	Wind Angle (deg)
Max Cap Util	20.5	0.7
Groundline	20.5	0.7
GL Allowable		
Overturn		

Guy System Component Summary				Load From Worst Wind Angle on Pole		Individual Maximum Load	
Description	Lead Length (ft)	Lead Angle (deg)	Height (ft)	Nominal Capacity (%)	Wind Angle (deg)	Max Load Capacity (%)	Wind Angle (deg)
Single - 8" - Soil Class 6	12.0	270.0		67.1	0.7	80.7	90.0
EHS 3/8 (Down)			22.6	34.5	0.7	42.1	90.0
EHS 3/8 (Down)			17.8	28.5	0.7	33.7	90.0
System Capacity Summary:				Adequate		Adequate	

Groundline Load Summary - Reporting Angle Mode: Load - Reporting Angle: 20.5°										
	Shear Load* (lbs)	Applied Load (%)	Bending Moment (ft-lb)	Applied Moment (%)	Pole Capacity (%)	Bending Stress (+/- psi)	Vertical Load (lbs)	Vertical Stress (psi)	Total Stress (psi)	Pole Capacity (%)
Powers	358	54.0	8,087	52.1	19.0	521	161	1	522	21.2
Comms	1,437	216.7	28,061	180.7	66.0	1,806	283	2	1,808	73.5
GuyBraces	-1,496	-225.7	-27,227	-175.3	-64.1	-1,752	11,386	88	-1,664	-67.6
GenericEquipments	145	21.8	2,780	17.9	6.5	179	919	7	186	7.6
Pole	220	33.1	3,825	24.6	9.0	246	2,633	20	267	10.8
Insulators	0	0.0	6	0.0	0.0	0	28	0	1	0.0
Pole Load	663	100.0	15,531	100.0	36.5	1,000	15,411	119	1,119	45.5
Pole Reserve Capacity			26,969		63.5	1,461			1,342	54.5

Load Summary by Owner - Reporting Angle Mode: Load - Reporting Angle: 20.5°										
	Shear Load* (lbs)	Applied Load (%)	Bending Moment (ft-lb)	Applied Moment (%)	Pole Capacity (%)	Bending Stress (+/- psi)	Vertical Load (lbs)	Vertical Stress (psi)	Total Stress (psi)	Pole Capacity (%)
Proposed	1,015	153.0	20,117	129.5	47.3	1,295	1,287	10	1,305	53.0
Existing	-571	-86.1	-8,411	-54.2	-19.8	-541	11,491	89	-452	-18.4
Pole	220	33.1	3,825	24.6	9.0	246	2,633	20	267	10.8
Totals:	663	100.0	15,531	100.0	36.5	1,000	15,411	119	1,119	45.5

Detailed Load Components:

Power	Owner	Height (ft)	Horiz. Offset (in)	Cable Diameter (in)	Sag at Max Temp (ft)	Cable Weight (lbs/ft)	Lead/Span Length (ft)	Span Angle (deg)	Wire Length (ft)	Tension (lbs)	Tension Moment* (ft-lb)	Offset Moment* (ft-lb)	Wind Moment* (ft-lb)	Moment at GL* (ft-lb)
Secondary	DUPLEX 6 AWG	Proposed	24.97	7.33	0.5370	0.071	172.0	90.0	172.0			17	474	490
Overlashed Bundle	6M	Proposed	25.00	7.33	0.2420	1.57	172.0	90.0	172.0	600	6,832	18	1,649	8,499
										Totals:	6,832	35	2,122	8,989

Comm	Owner	Height (ft)	Horiz. Offset (in)	Cable Diameter (in)	Sag at Max Temp (ft)	Cable Weight (lbs/ft)	Lead/Span Length (ft)	Span Angle (deg)	Wire Length (ft)	Tension (lbs)	Tension Moment* (ft-lb)	Offset Moment* (ft-lb)	Wind Moment* (ft-lb)	Moment at GL* (ft-lb)
Overlashed Bundle	6M	Existing	22.58	7.49	0.2420	0.23	172.0	90.0	172.0	1,900	19,544	21	1,349	20,913
Overlashed Bundle	6M	Proposed	20.00	7.65	0.2420	1.51	172.0	90.0	172.0	930	8,472	19	1,352	9,843
Fiber	Fiber	Proposed	19.96	7.65	0.6250	0.190	172.0	90.0	172.0			23	411	434
										Totals:	28,015	63	3,112	31,190

Generic Equipment		Owner	Height (ft)	Horiz. Offset (in)	Offset Angle (deg)	Rotate Angle (deg)	Unit Weight (lbs)	Unit Height (in)	Unit Depth (in)	Unit Diameter (in)	Unit Length (in)	Offset Moment* (ft-lb)	Wind Moment* (ft-lb)	Moment at GL* (ft-lb)
Cylinder	Commscope NNVVSSP-360S-FM	Proposed	41.42	0.21	270.0	0.0	26.70	28.70	--	12.00	--	0	652	653
Box	CBRS Micro RRH	Proposed	38.08	9.08	90.0	0.0	18.64	13.91	4.15	--	8.55	9	162	171
Box	LAA Micro RRH	Proposed	38.08	8.51	270.0	0.0	11.00	9.10	3.00	--	8.90	-5	77	72
Box	Panel Antenna	Proposed	36.25	13.17	10.0	0.0	35.00	18.50	6.90	--	9.60	72	475	547
Box	Panel Antenna	Proposed	36.25	13.17	130.0	0.0	35.00	18.50	6.90	--	9.60	-24	368	344
Box	Panel Antenna	Proposed	36.25	13.17	250.0	0.0	35.00	18.50	6.90	--	9.60	-47	371	324
Box	Transtector Type-3R Load Center SC-2MMA9-8602-TM3	Proposed	8.62	9.03	270.0	0.0	20.00	14.85	6.32	--	9.20	-10	59	49
Box	Carlson NS664 Junction Box	Proposed	8.25	7.89	0.0	0.0	2.38	6.00	4.00	--	6.00	3	22	24
Box	Milbank U7040-RL-KK-DPL Meter	Proposed	5.00	8.16	270.0	0.0	25.00	14.56	4.13	--	11.00	-11	22	11
Box	Radio Shroud w/ Dual RRH AWS/PCS, Dual RRH 700/850, and Rectifiers	Proposed	14.67	13.49	270.0	0.0	275.00	64.00	16.00	--	23.00	-206	1,101	896
Totals:												-220	3,310	3,090

Insulator		Owner	Height (ft)	Horiz. Offset (in)	Offset Angle (deg)	Rotate Angle (deg)	Unit Weight (lbs)	Unit Diameter (in)	Unit Length (in)	Offset Moment* (ft-lb)	Wind Moment* (ft-lb)	Moment at GL* (ft-lb)	
Bolt	Single Bolt	Proposed	25.00	0.00	90.0	90.0	5.00	3.00	0.00	2	0	2	
Bolt	Single Bolt	Existing	22.58	0.00	90.0	90.0	5.00	3.00	0.00	2	0	2	
Bolt	Single Bolt	Proposed	20.00	0.00	90.0	90.0	5.00	3.00	0.00	2	0	2	
Totals:											6	0	6

Guy Wire and Brace		Owner	Attach Height (ft)	End Height (ft)	Lead/Span Length (ft)	Wire Diameter (in)	Percent Solid (%)	Lead Angle (deg)	Incline Angle (deg)	Wire Weight (lbs/ft)	Rest Length (ft)	Stretch Length (in)
EHS 3/8	Down	Existing	22.58	0.00	12.00	0.375	75.00	270.0	61.8	0.273	31.31	0.94
EHS 3/8	Down	Existing	17.83	0.00	12.00	0.375	75.00	270.0	55.9	0.273	26.94	0.67

Guy Wire and Brace (Loads and Reactions)		Elastic Modulus (psi)	Rated Tensile Strength (lbs)	Guy Strength Factor	Allowable Tension (lbs)	Initial Tension (lbs)	Loaded Tension ² (lbs)	Maximum Tension ² (lbs)	Applied Tension ³ (lbs)	Vertical Load (lbs)	Shear Load In Guy Dir (lbs)	Shear Load At Report Angle (lbs)	Moment at GL ³ (ft-lb)
EHS 3/8	Down	2.30e+7	15,400	0.90	13,860	700	5,836	5,306	4,788	4,219	2,264	-793	-17,036
EHS 3/8	Down	2.30e+7	15,400	0.90	13,860	700	4,672	4,247	3,944	3,264	2,214	-776	-13,228
Totals:										7,483	4,478	-1,569	-30,264

Anchor/Rod Load Summary	Owner	Rod Length AGL (in)	Lead Length (ft)	Lead Angle (deg)	Strength of Assembly (lbs)	Anchor/Rod Strength Factor	Allowable Load (lbs)	Max Load² (lbs)	Load at Pole MCU³ (lbs)	Max Required Capacity² (%)
Single - 8" - Soil Class 6	Existing	0.00	12.00	270.0	13,000	1.00	13,000	10,494	8,720	80.7

Pole Buckling													
Buckling Constant	Buckling Column Height* (ft)	Buckling Section Height (% Buckling Col. Hgt.)	Buckling Section Diameter (in)	Minimum Buckling Diameter at GL (in)	Diameter at Tip (in)	Diameter at GL (in)	Modulus of Elasticity (psi)	Pole Density (pcf)	Ice Density (pcf)	Pole Tip Height (ft)	Buckling Load Capacity at Height (lbs)	Buckling Load Applied at Height (lbs)	Buckling Load Factor of Safety
0.71	20.28	33.00	11.98	16.79	7.96	12.83	1.60e+6	60.00	57.00	38.50	458,722	4532.77	29.41