



SCHERER DESIGN GROUP, LLC
Consulting Engineers • Construction Inspectors

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November 11, 2020

Re: Site Name: JS Seaside Park 02 SC
47 7th Ave
Seaside Park, NJ 08752

To Whom It May Concern,

Scherer Design Group, LLC (SDG) has performed a Structural Assessment for an existing wooden utility pole at the above-referenced site. The proposed equipment loading is depicted within the Construction Documents, by SDG, Revision A, dated 10/29/20.

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 existing pole embedment was checked using O-Calc Pro, by comparing the overturning moment with the groundline moment.

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

- Class 3 Southern Pine
- 45' wooden pole with 7.0' embedment depth
- Assumed Soil Class: Class 6 – Loose to medium dense fine to coarse sand, firm to stiff clays and silts

All existing 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 existing pole was 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.

Based upon this Structural Assessment, the existing utility pole was found to be structurally adequate to support the existing load and proposed antenna and equipment installations. However, if the actual conditions vary from the above-mentioned or if any deficiencies in the existing wooden utility pole are discovered at the time of construction, the contractor must immediately report these discrepancies or deficiencies to the Design Engineer for review.

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

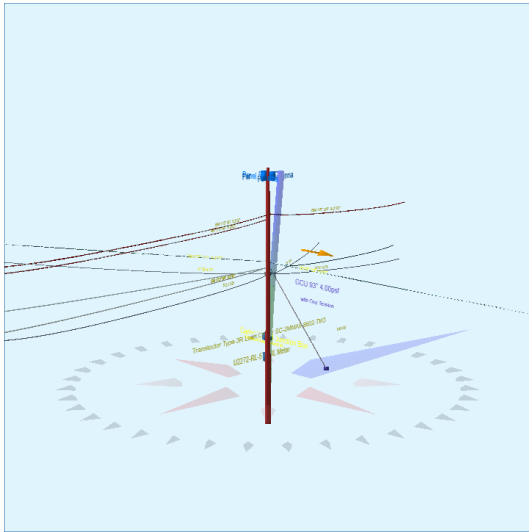
Regards,



Colleen Connolly, P.E.
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Pole Num:	JS Seaside Park 02 SC	Pole Length / Class:	45 / 3	Code:	NESC	Structure Type:	Guyed Tangent
Aux Data 1	Unset	Species:	SOUTHERN PINE	NESC Rule:	Rule 250B	Status	Guy Wires Adequate
Aux Data 2	Unset	Setting Depth (ft):	7.00	Construction Grade:	C	Pole Strength Factor:	0.85
Aux Data 3	Unset	G/L Circumference (in):	37.13	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):	6,800	Wind Speed (mph):	39.53	Vertical LF:	1.90
Aux Data 6	Unset	Fiber Stress Ht. Reduc:	No	Wind Pressure (psf):	4.00		
Latitude:	39.918083 Deg	Longitude:	-74.078749 Deg	Elevation:	0 Feet		



Pole Capacity Utilization (%)	Height (ft)	Wind Angle (deg)
Maximum	23.8	0.0
Groundline	23.8	0.0
Vertical	1.9	20.3

Pole Moments (ft-lb)	Load Angle (deg)	Wind Angle (deg)
Max Cap Util	21,053	95.4
Groundline	21,053	95.4
GL Allowable	91,831	
Overturn	48,478	

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	15.0	0.0		17.9	92.7	25.1	180.0
EHS 3/8 (Down)			20.8	16.8	92.7	23.6	180.0
System Capacity Summary:				Adequate		Adequate	

Groundline Load Summary - Reporting Angle Mode: Load - Reporting Angle: 95.4°										
	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	122	13.0	3,648	17.3	4.0	273	160	1	274	4.0
Comms	653	69.7	14,247	67.7	15.5	1,065	670	6	1,071	15.8
GuyBraces	-114	-12.2	-2,356	-11.2	-2.6	-176	2,872	26	-150	-2.2
GenericEquipments	64	6.9	1,487	7.1	1.6	111	290	3	114	1.7
Pole	212	22.6	4,010	19.1	4.4	300	2,204	20	320	4.7
Insulators	0	0.0	17	0.1	0.0	1	59	1	2	0.0
Pole Load	937	100.0	21,053	100.0	22.9	1,574	6,254	57	1,631	24.0
Pole Reserve Capacity			70,778		77.1	5,226			5,169	76.0

Load Summary by Owner - Reporting Angle Mode: Load - Reporting Angle: 95.4°										
	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 (%)
Existing	552	59.0	12,913	61.3	14.1	965	3,620	33	998	14.7
Proposed	173	18.4	4,130	19.6	4.5	309	430	4	313	4.6
Pole	212	22.6	4,010	19.1	4.4	300	2,204	20	320	4.7
Totals:	937	100.0	21,053	100.0	22.9	1,574	6,254	57	1,631	24.0

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	Existing	30.17	6.01	0.5370	0.071	28.0	15.0	28.1			5	87	92	
Secondary	DUPLEX 6 AWG	Existing	30.13	6.37	0.5370	0.071	28.0	15.0	28.1			6	86	92	
Secondary	DUPLEX 6 AWG	Existing	30.17	6.01	0.5370	0.071	60.0	173.0	60.0			11	185	197	
Secondary	DUPLEX 6 AWG	Existing	30.13	6.37	0.5370	0.071	60.0	173.0	60.0			12	185	197	
Secondary	DUPLEX 6 AWG	Proposed	29.13	6.68	0.5370	0.071	60.0	173.0	60.0			1	198	200	
Overlashed Bundle	6M	Existing	30.17	6.37	0.2420	1.64	0.104	28.0	15.0	28.1	15	98	6	324	428
Overlashed Bundle	6M	Existing	30.17	6.37	0.2420	1.87	0.104	60.0	173.0	60.0	65	549	13	693	1,256
Overlashed Bundle	6M	Proposed	29.17	6.68	0.2420	1.42	0.104	60.0	173.0	60.0	65	531	2	690	1,222
										Totals:	1,178	57	2,448	3,683	

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	22.00	7.11	0.2420	2.55	0.104	195.0	90.0	195.0	1,500	42,707	5	8	42,720
CATV	CATV .50	Existing	21.97	7.10	0.5700		0.600	195.0	90.0	195.0			11	2	13
CATV	CATV .25	Existing	21.90	60.43	0.2500	0.72	0.091	28.0	0.0	28.0	15	-39	6	217	183
Overlashed Bundle	6M	Existing	22.00	7.11	0.2420	1.04	0.104	111.0	245.0	111.0	1,250	-30,822	3	237	-30,582
CATV	CATV .50	Existing	21.97	7.10	0.5700		0.600	111.0	245.0	111.0			6	69	75
Overlashed Bundle	6M	Proposed	20.83	7.18	0.2420	1.52	0.104	60.0	173.0	60.0	100	583	2	505	1,090
Fiber	Fiber	Proposed	20.79	7.18	0.6250		0.190	60.0	173.0	60.0			2	154	156
Overlashed Bundle	6M	Existing	20.83	7.18	0.2420	0.21	0.104	60.0	173.0	60.0	250	1,457	2	446	1,905
Telco	TELE 0.25	Existing	19.83	7.24	0.2500	1.49	0.091	60.0	173.0	60.1	35	194	19	418	631
Telco	TELE 0.25	Existing	19.83	7.24	0.2500	0.91	0.091	32.0	332.0	32.1	15	-213	10	166	-37
Telco	TELE 0.25	Existing	19.83	7.24	0.2500	0.72	0.091	28.0	15.0	28.0	15	64	1	195	260
Telco	TELE 0.25	Existing	19.83	7.24	0.2500	2.09	0.091	111.0	245.0	111.1	100	-2,223	3	189	-2,030
Totals:											11,709	70	2,604	14,383	

GenericEquipment	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)	
Box	Panel Antenna	Proposed	36.67	12.79	90.0	0.0	35.00	18.50	6.90	--	9.60	71	505	576
Box	Panel Antenna	Proposed	36.67	12.79	180.0	0.0	35.00	18.50	6.90	--	9.60	7	364	371
Box	Panel Antenna	Proposed	36.67	12.79	270.0	0.0	35.00	18.50	6.90	--	9.60	-71	505	435
Box	Transtector Type-3R Load Center SC-2MMA9-8602-TM3	Proposed	8.62	8.56	270.0	0.0	20.00	14.85	6.32	--	9.20	-27	91	64
Box	U2272-RL-5T9-BL Meter	Proposed	5.00	8.03	270.0	0.0	25.00	18.50	4.84	--	10.00	-32	72	40
Box	Carlou NS664 Junction Box	Proposed	8.25	7.42	0.0	0.0	2.38	6.00	4.00	--	6.00	0	15	15
Totals:											-52	1,553	1,501	

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)	
Spool	Spool 2.5"	Existing	30.17	0.00	90.0	90.0	1.00	2.50	2.12	1	8	9
Bolt	Single Bolt	Proposed	29.17	0.00	180.0	180.0	5.00	3.00	0.00	1	0	1
Bolt	Single Bolt	Existing	22.00	0.00	180.0	180.0	5.00	3.00	0.00	1	0	1
Bolt	Single Bolt	Proposed	20.83	0.00	180.0	180.0	5.00	3.00	0.00	1	0	1
Bolt	Single Bolt	Existing	20.83	0.00	180.0	180.0	5.00	3.00	0.00	1	0	1
J-Hook	J-Hook	Existing	19.83	0.00	90.0	90.0	5.00	3.00	0.00	6	0	6
J-Hook	J-Hook	Existing	19.83	0.00	180.0	180.0	5.00	3.00	0.00	1	0	1
Totals:										9	8	17

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	20.83	0.00	15.00	0.375	75.00	0.0	54.1	0.273	31.43	0.46

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	3,268	2,971	2,325	1,882	1,365	-129	-2,378
Totals:										1,882	1,365	-129	-2,378

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 Load ² (lbs)	Load at Pole MCU ³ (lbs)	Max Required Capacity ² (%)
Single - 8" - Soil Class 6	Existing	0.00	15.00	0.0	13,000	1.00	13,000	3,268	2,325	25.1

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	20.27	33.04	11.03	10.86	7.32	11.82	1.60e+6	60.00	57.00	38.00	329,279	3291.38	52.63