



**SCHERER DESIGN GROUP, LLC**  
Consulting Engineers • Construction Inspectors

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November 12, 2020

Re: Site Name: JS Seaside Park 05 SC  
915 South Ocean Ave  
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 A, dated 10/30/20.

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 replacement utility pole is structurally adequate to support the existing load and proposed antenna and equipment installations.

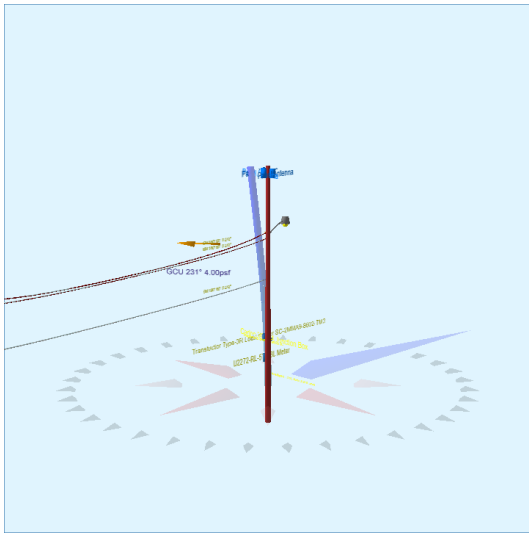
Should you have any questions regarding any of the above information, please call me at 908-323-2513.

Regards,

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

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Pole Num:	<b>JS Seaside Park 05 SC</b>	Pole Length / Class:	<b>45 / 2</b>	Code:	<b>NESC</b>	Structure Type:	<b>Deadend</b>
Aux Data 1	<b>Unset</b>	Species:	<b>SOUTHERN PINE</b>	NESC Rule:	<b>Rule 250B</b>	Status:	<b>Unguyed</b>
Aux Data 2	<b>Unset</b>	Setting Depth (ft):	<b>6.50</b>	Construction Grade:	<b>C</b>	Pole Strength Factor:	<b>0.85</b>
Aux Data 3	<b>Unset</b>	G/L Circumference (in):	<b>40.30</b>	Loading District:	<b>Heavy</b>	Transverse Wind LF:	<b>1.75</b>
Aux Data 4	<b>Unset</b>	G/L Fiber Stress (psi):	<b>8,000</b>	Ice Thickness (in):	<b>0.50</b>	Wire Tension LF:	<b>1.30</b>
Aux Data 5	<b>Unset</b>	Allowable Stress (psi):	<b>6,800</b>	Wind Speed (mph):	<b>39.53</b>	Vertical LF:	<b>1.90</b>
Aux Data 6	<b>Unset</b>	Fiber Stress Ht. Reduc:	<b>No</b>	Wind Pressure (psf):	<b>4.00</b>		
Latitude:	<b>39.915782 Deg</b>	Longitude:	<b>-74.076624 Deg</b>	Elevation:	<b>0 Feet</b>		



Pole Capacity Utilization (%)	Height (ft)	Wind Angle (deg)
Maximum	<b>9.5</b>	0.0
Groundline	<b>9.5</b>	0.0
Vertical	<b>4.8</b>	19.0

Pole Moments (ft-lb)	Load Angle (deg)	Wind Angle (deg)
Max Cap Util	<b>10,708</b>	221.5
Groundline	<b>10,708</b>	221.5
GL Allowable	<b>117,445</b>	
Overturn	<b>36,907</b>	

Groundline Load Summary - Reporting Angle Mode: Load - Reporting Angle: 221.5°										
	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	99	19.9	2,650	24.8	2.3	154	122	1	155	2.3
Comms	90	18.2	1,729	16.1	1.5	101	65	1	101	1.5
GenericEquipments	57	11.5	1,546	14.4	1.3	90	290	2	92	1.4
Pole	230	46.4	4,426	41.3	3.8	258	2,633	20	278	4.1
Streetlights	20	3.9	340	3.2	0.3	20	86	1	20	0.3
Insulators	0	0.1	16	0.2	0.0	1	21	0	1	0.0
Pole Load	495	100.0	10,708	100.0	9.1	624	3,216	25	649	9.5
Pole Reserve Capacity			106,737		90.9	6,176			6,151	90.5

Load Summary by Owner - Reporting Angle Mode: Load - Reporting Angle: 221.5°										
	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 (%)
Existing	63	12.7	1,542	14.4	1.3	90	155	1	91	1.3
Proposed	202	40.8	4,740	44.3	4.0	276	428	3	279	4.1
Pole	230	46.4	4,426	41.3	3.8	258	2,633	20	278	4.1
<b>Totals:</b>	495	100.0	10,708	100.0	9.1	624	3,216	25	649	9.5

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	Existing	27.08	7.11	0.5370	0.071	60.0	180.0	60.2			10	89	99	
Secondary	DUPLEX 6 AWG	Existing	27.05	6.95	0.5370	0.071	60.0	180.0	60.2			10	89	99	
Secondary	DUPLEX 6 AWG	Proposed	26.05	7.26	0.5370	0.071	60.0	180.0	60.1			12	95	107	
Overlashed Bundle	6M	Existing	27.08	6.95	0.2420	4.48	0.104	60.0	180.0	60.2	25	659	10	334	1,003
Overlashed Bundle	6M	Proposed	26.08	7.26	0.2420	2.07	0.104	60.0	180.0	60.1	40	1,015	13	331	1,359
										<b>Totals:</b>	1,674	54	938	2,667	

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	Proposed	19.00	7.71	0.2420	1.88	0.104	60.0	180.0	60.0	75	1,387	14	247	1,648

Fiber	Fiber	Proposed	18.96	7.71	0.6250		0.190	60.0	180.0	60.0		16	75	91	
											<b>Totals:</b>	<b>1,387</b>	<b>30</b>	<b>322</b>	<b>1,739</b>

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	37.33	13.10	90.0	0.0	35.00	18.50	6.90	--	9.60	-48	440	392
Box	Panel Antenna	Proposed	37.33	13.10	180.0	0.0	35.00	18.50	6.90	--	9.60	54	433	488
Box	Panel Antenna	Proposed	37.33	13.10	270.0	0.0	35.00	18.50	6.90	--	9.60	48	440	488
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	19	77	96
Box	Carlon NS664 Junction Box	Proposed	8.25	7.89	0.0	0.0	2.38	6.00	4.00	--	6.00	-2	19	17
Box	U2272-RL-5T9-BL Meter	Proposed	5.00	8.52	270.0	0.0	25.00	18.50	4.84	--	10.00	22	53	76
											<b>Totals:</b>	<b>93</b>	<b>1,463</b>	<b>1,556</b>

Streetlight		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)
General	Streetlight - 3 ft. Arm	Existing	26.75	4.72	0.0	0.0	45.00	24.00	20.00	3.00	36.00	-181	523	342
											<b>Totals:</b>	<b>-181</b>	<b>523</b>	<b>342</b>

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	27.08	0.00	180.0	180.0	1.00	2.50	2.12	1	7	8		
Bolt	Single Bolt	Proposed	26.08	0.00	180.0	180.0	5.00	3.00	0.00	4	0	4		
Bolt	Single Bolt	Proposed	19.00	0.00	180.0	180.0	5.00	3.00	0.00	5	0	5		
											<b>Totals:</b>	<b>10</b>	<b>7</b>	<b>17</b>

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
2.00	19.03	32.81	12.04	13.33	7.96	12.83	1.60e+6	60.00	57.00	38.50	66,372	<b>670.07</b>	<b>20.83</b>