



SCHERER DESIGN GROUP, LLC
Consulting Engineers • Construction Inspectors

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November 12, 2020

Re: Site Name: JS Seaside Park 07 SC
501 N 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 11/02/20.

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.

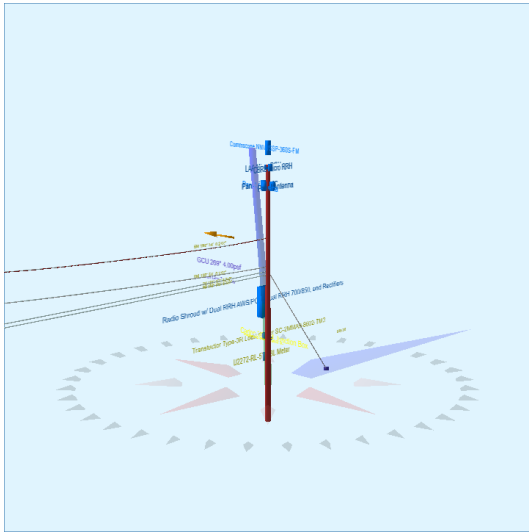
Should you have any questions regarding any of the above information, please call me at 908-323-2513.

Regards,



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

Pole Num:	JS Seaside Park 07 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):	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:	39.926362 Deg	Longitude:	-74.074391 Deg	Elevation:	0 Feet		



Pole Capacity Utilization (%)	Height (ft)	Wind Angle (deg)
Maximum	18.2	0.0
Groundline	18.2	0.0
Vertical	2.3	19.3

Pole Moments (ft-lb)	Load Angle (deg)	Wind Angle (deg)
Max Cap Util	19,826	227.9
Groundline	19,826	227.9
GL Allowable	117,445	
Overturn	36,907	

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		50.9	268.6	61.4	180.0
EHS 3/8 (Down)			19.6	47.7	268.6	57.6	180.0
System Capacity Summary:				Adequate		Adequate	

Groundline Load Summary - Reporting Angle Mode: Load - Reporting Angle: 227.9°										
	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	68	6.8	1,609	8.1	1.4	104	51	0	105	1.5
Comms	3,243	320.7	57,814	291.6	49.2	3,745	240	2	3,746	55.1
GuyBraces	-2,637	-260.8	-46,152	-232.8	-39.3	-2,989	7,975	62	-2,927	-43.1
GenericEquipments	159	15.8	3,476	17.5	3.0	225	919	7	232	3.4
Pole	177	17.5	3,065	15.5	2.6	199	2,633	20	219	3.2
Insulators	0	0.0	14	0.1	0.0	1	38	0	1	0.0
Pole Load	1,011	100.0	19,826	100.0	16.9	1,284	11,855	92	1,376	20.2
Pole Reserve Capacity			97,619		83.1	5,516			5,424	79.8

Load Summary by Owner - Reporting Angle Mode: Load - Reporting Angle: 227.9°										
	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	333	32.9	7,085	35.7	6.0	459	1,048	8	467	6.9
Existing	501	49.6	9,677	48.8	8.2	627	8,174	63	690	10.1
Pole	177	17.5	3,065	15.5	2.6	199	2,633	20	219	3.2
Totals:	1,011	100.0	19,826	100.0	16.9	1,284	11,855	92	1,376	20.2

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	25.97	7.27	0.5370	0.071	54.0	190.0	54.0			10	99	109
Overlashed Bundle	6M	Proposed	26.00	7.27	0.2420	1.44	0.104	54.0	54.0	50	1,333	11	346	1,690
										Totals:	1,333	21	446	1,799

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	21.00	7.59	0.2420	1.43	0.104	54.0	54.0	85	1,830	12	287	2,128
Fiber	Fiber	Proposed	20.96	7.59	0.6250	0.190	54.0	190.0	54.0			13	87	101
Overlashed Bundle	6M	Existing	20.17	7.64	0.2420	0.23	0.104	163.0	180.0	1,750	30,739	39	905	31,682
Overlashed Bundle	6M	Existing	19.58	7.68	0.2420	0.23	0.104	163.0	180.0	1,750	29,844	39	878	30,761
										Totals:	62,413	102	2,157	64,672

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	0.0	0.0	26.70	28.70	--	12.00	--	1	526	527
Box	CBRS Micro RRH	Proposed	38.08	6.08	90.0	0.0	18.64	13.91	4.15	--	8.55	-13	264	251
Box	LAA Micro RRH	Proposed	38.08	5.51	270.0	0.0	11.00	9.10	3.00	--	8.90	7	179	186
Box	Panel Antenna	Proposed	35.00	13.25	90.0	0.0	35.00	18.50	6.90	--	9.60	-55	365	310
Box	Panel Antenna	Proposed	35.00	13.25	180.0	0.0	35.00	18.50	6.90	--	9.60	49	266	315
Box	Panel Antenna	Proposed	35.00	13.25	270.0	0.0	35.00	18.50	6.90	--	9.60	55	365	419
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	436	1,266	1,702
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	21	69	90
Box	Carlou NS664 Junction Box	Proposed	8.25	7.89	0.0	0.0	2.38	6.00	4.00	--	6.00	-2	12	10
Box	U2272-RL-5T9-BL Meter	Proposed	5.00	8.52	270.0	0.0	25.00	18.50	4.84	--	10.00	25	54	79
Totals:												524	3,365	3,889

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	26.00	0.00	180.0	180.0	5.00	3.00	0.00	4	0	4
Bolt	Single Bolt	Proposed	21.00	0.00	180.0	180.0	5.00	3.00	0.00	4	0	4
Bolt	Single Bolt	Existing	20.17	0.00	180.0	180.0	5.00	3.00	0.00	4	0	4
Bolt	Single Bolt	Existing	19.58	0.00	180.0	180.0	5.00	3.00	0.00	4	0	4
Totals:										16	0	16

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	19.58	0.00	15.00	0.375	75.00	0.0	52.4	0.273	29.87	1.24

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 Tension² (lbs)	Applied Tension³ (lbs)	Vertical Load (lbs)	Shear Load In Guy Dir (lbs)	Shear Load At Report Angle (lbs)	Moment at GL³ (ft-lb)
EHS 3/8	Down	2.30e+7	15,400	0.90	13,860	700	7,980	7,254	6,613	5,236	4,039	-2,706	-51,627
Totals:										5,236	4,039	-2,706	-51,627

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	15.00	0.0	13,000	1.00	13,000	7,980	6,613	61.4

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	19.34	32.86	12.02	14.48	7.96	12.83	1.60e+6	60.00	57.00	38.50	511,196	5154.41	43.48