



Tower Engineering Solutions

Phone (972) 483-0607, Fax (972) 975-9615
8445 Freeport Parkway, Suite 375, Irving, Texas 75063

Structural Analysis Report

Existing 176 ft EEI Monopole

Customer Name: SBA Communications Corp

Customer Site Number: CT13611-A

Customer Site Name: BSA

Carrier Name: AT&T

Carrier Site ID / Name: CTL05702 / Ashford Southeast

Site Location: 229-231 Ashford Center Rd

Ashford, Connecticut

Windham County

Latitude: 41.880444

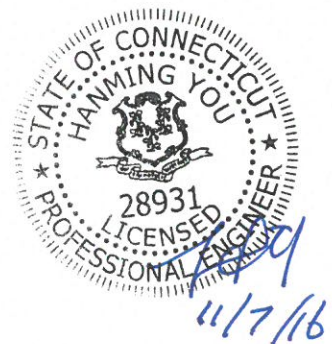
Longitude: -72.128499

Analysis Result:

Max Structural Usage: 56.8% [Pass]

Max Foundation Usage: 35.0% [Pass]

Report Prepared By: Tawfeeq Alajaj





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Introduction

The purpose of this report is to summarize the analysis results on the 176 ft EEI Monopole to support the proposed antennas and transmission lines in addition to those currently installed. Any modification listed under Sources of Information was assumed completed and was included in this analysis.

Sources of Information

Tower Drawings	EEI (Job No. 11863-E01) original design drawings dated August 21, 2003.
Foundation Drawing	EEI (Job No. 11863-E01) original design drawings dated August 21, 2003.
Geotechnical Report	Jaworski Geotech, Inc. (Project No. 02130G) Geotechnical Evaluation dated February 7, 2002.
Modification Drawings	N/A

Analysis Criteria

The rigorous analysis was performed in accordance with the requirements and stipulations of the ANSI/TIA/EIA 222-G. In accordance with this standard, the structure was analyzed using **TESPoles**, a proprietary analysis software. The program considers the structure as an elastic 3-D model with second-order effects and temperature effects incorporated in the analysis. The analysis was performed using multiple wind directions.

Wind Speed Used in the Analysis:	Ultimate Design Wind Speed $V_{ult} = 130$ mph (3-Sec. Gust)/ Nominal Design Wind Speed $V_{asd} = 101.0$ mph (3-Sec. Gust)
Wind Speed with Ice:	50 mph (3-Sec. Gust) with 1" radial ice concurrent
Operational Wind Speed:	60 mph + 0" Radial ice
Standard/Codes:	ANSI/TIA/EIA 222-G / 2012 IBC / 2016 Connecticut State Building Code
Exposure Category:	C
Structure Class:	II
Topographic Category:	1
Crest Height:	0 ft
Seismic Parameters:	$S_S = 0.172$, $S_1 = 0.063$

Existing Antennas, Mounts and Transmission Lines

The table below summarizes the antennas, mounts and transmission lines that were considered in the analysis as existing on the tower.

Existing Antennas, Mounts and Transmission Lines

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Items	Elevation (ft)	Qty.	Antenna Descriptions	Mount Type & Qty.	Transmission Lines	Owner
-	167.0	6	Powerwave Allgon - 7770.00 - Panel	Low Profile Platform	(12) 1 5/8" (1) 3" (2) 3/4" DC (1) 7/16" Fiber	AT&T
-		2	KMW - AM-X-CD-17-65-00T-RET - Panel			
-		1	Powerwave P65-17-XLH-RR			
-		6	Powerwave LGP21401 TMAs			
-		6	Ericsson RRUS-11			
-		6	Powerwave LGP21903 Diplexers			
-		1	Raycap DC6-48-60-18-8F DC Surge			

Proposed Carrier's Final Configuration of Antennas, Mounts and Transmission Lines

Information pertaining to the proposed carrier's final configuration of antennas and transmission lines was provided by SBA Communications Corp. The proposed antennas and lines are listed below.

Items	Elevation (ft)	Qty.	Antenna Descriptions	Mount Type & Qty.	Transmission Lines	Owner
1	167.0	6	Powerwave Allgon - 7770.00 - Panel	Low Profile Platform	(12) 1 5/8" (1) 3" (2) 3/4" DC (1) 7/16" Fiber	AT&T
2		3	KMW - AM-X-CD-17-65-00T-RET - Panel			
3		6	Powerwave LGP21401 TMA			
4		3	Ericsson RRUS-11			
5		3	Ericsson RRUS-12			
6		6	Ericsson LGP 21901 Diplexer			
7		1	Raycap DC6-48-60-18-8F ("Squid") DC Surge Suppress			

3 lines (2) 3/4" DC and (1) 7/16" Fiber housed in 3" conduit.

Analysis Results

The results of the structural analysis, performed for the wind and ice loading and antenna equipment as defined above, are summarized as the following:

	Pole shafts	Anchor Bolts	Base Plate
Max. Usage:	47.4%	38.3%	56.8%
Pass/Fail	Pass	Pass	Pass

Foundations

	Moment (Kip-Ft)	Shear (Kips)	Axial (Kips)
Original Design Reactions	3414.0	27.0	36.0
Analysis Reactions	2325.7	22.7	57.9
Factored Reactions*	4608.9	36.5	48.6

* Per section 15.5.1 of the TIA-222-G standard, factored reactions were obtained by multiplying a 1.35 factor to the original design reactions.

The foundation has been investigated using the supplied documents and soils report and was found adequate. Therefore, no modification to the foundation will be required.

Operational Condition (Rigidity):

Operational characteristics of the tower are found to be within the limits prescribed by ANSI/TIA/EIA 222-G for the installed antennas. The maximum twist/sway at the elevation of the proposed equipment is 0.9568 degrees under the operational wind speed as specified in the Analysis Criteria.

Conclusions

Based on the analysis results, the existing structure and its foundation were found to be adequate to safely support the existing and proposed equipment and meet the minimum requirements per the ANSI/TIA/EIA 222-G Standard under the design basic wind speed as specified in the Analysis Criteria.

Standard Conditions

1. This analysis was performed based on the information supplied to **(TES) Tower Engineering Solutions, LLC**. Verification of the information provided was not included in the Scope of Work for **TES**. The accuracy of the analysis is dependent on the accuracy of the information provided.
2. The analysis is based on the presumption that the tower members and components along with any existing reinforcement items have been correctly and properly designed, manufactured, installed and maintained.
3. All the existing structural members were assumed to be in good condition with no physical damage or deterioration associated with corrosion.
4. An initial tension of 10% of the break strength on all the existing guy wires was assumed in all the structural analyses of guyed towers unless different values were provided by the client. **TES** cannot take responsibility for the deviations in the analysis results because of differences in the initial tension forces of the existing guy wires.
5. Secondary component or connection secondary components, welds and bolts are assumed to be able to carry their intended original design loads. **TES** cannot take responsibility for verification of the adequacy on the connections, bolts and welds present in the structure.
6. The analyses will be performed based on the codes as specified by the client or based on the best knowledge of the engineering staff of **TES**. In the absence of information to the contrary, all work will be performed in accordance with the latest relevant revision of ANSI/TIA-222. If wind speed and/or ice loads are different from the minimum values recommended by the EIA/TIA-222 standard or other codes, **TES** should be notified in writing and the applicable minimum values provided by the client.
7. The configuration of the existing mounts, antennas, coax and other appurtenances were supplied by the customer for the current structural analysis. **TES** has not visited the tower site to verify the adequacy of the information provided. If there is any discrepancy found in the report regarding the existing conditions, **TES** should be notified immediately to evaluate the effect of the discrepancy on the analysis results.
8. The client will assume responsibility for rework associated with the differences in initially provided information, including tower and foundation information, existing and/or proposed equipment and transmission lines.
9. If a feasibility analysis was performed, final acceptance of changed conditions shall be based upon a rigorous structural analysis.

Usage Diagram - Max Ratio 47.45% at 0.0ft

Structure: CT13611-A-SBA
Site Name: BSA
Height: 176.00 (ft)
Base Elev: 0.000 (ft)

Code: EIA/TIA-222-G
Exposure: C
Gh: 1.1

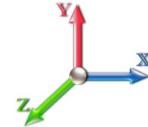
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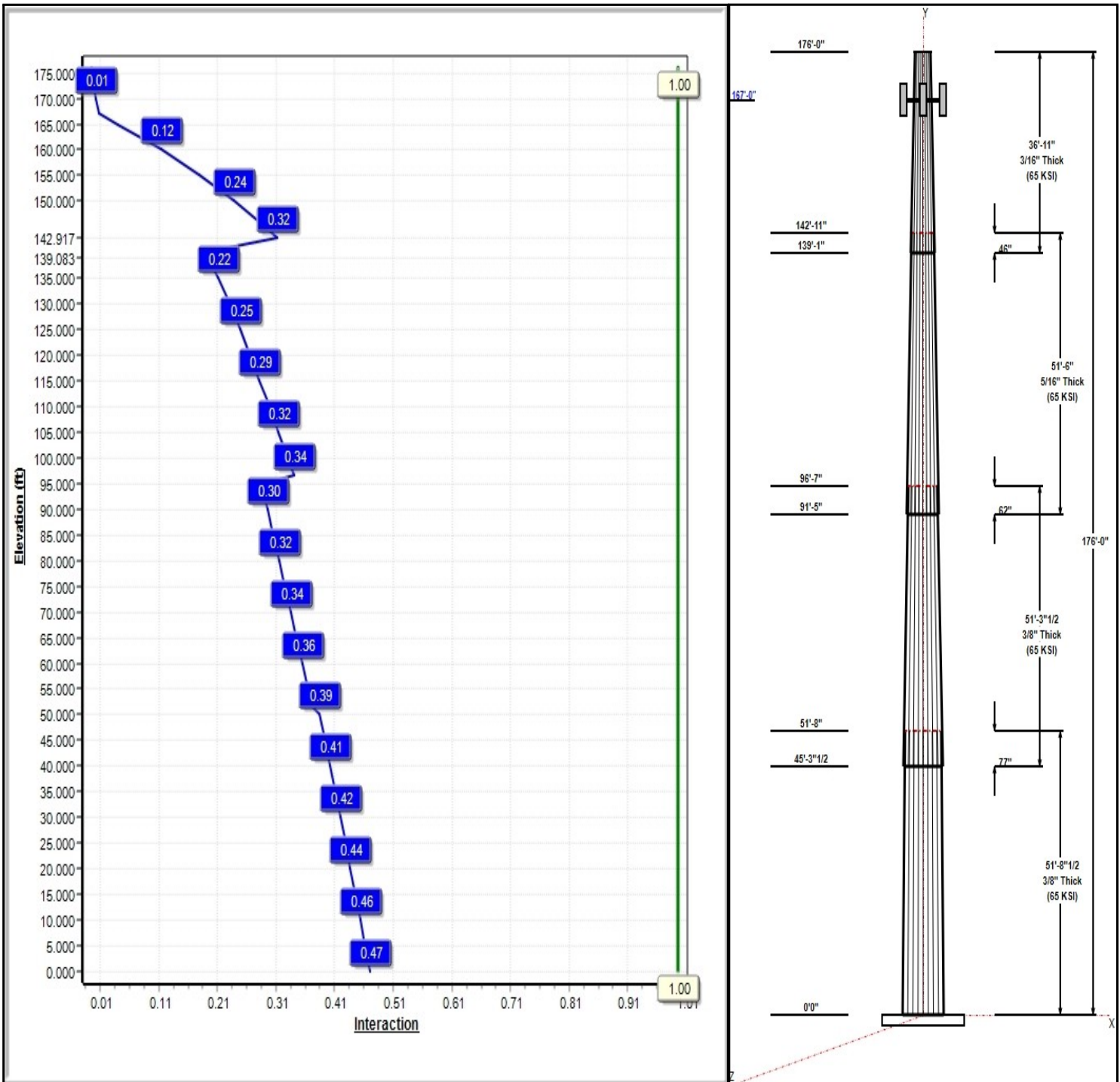
Dead Load Factor: 1.20
Wind Load Factor: 1.60

Load Case : 1.2D + 1.6W 101 mph Wind



Iterations: 26

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Structure: CT13611-A-SBA

Type: Tapered
Site Name: BSA
Height: 176.00 (ft)
Base Elev: 0.00 (ft)

Base Shape: 18 Sided
Taper: 0.23153

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Shaft Properties

Seq	Length (ft)	Top (in)	Bottom (in)	Thick (in)	Joint Type	Taper	Grade (ksi)
1	51.71	44.53	56.50	0.375		0.23153	65
2	51.29	34.89	46.76	0.375	Slip	0.23153	65
3	51.50	24.78	36.71	0.313	Slip	0.23153	65
4	36.92	17.50	26.05	0.188	Slip	0.23153	65

Discrete Appurtenances

Attach Elev (ft)	Force Elev (ft)	Qty	Description	Carrier
167.00	167.00	6	7770.00	AT&T
167.00	167.00	3	AM-X-CD-17-65-00T-RET	AT&T
167.00	167.00	6	Powerwave LGP21401	AT&T
167.00	167.00	3	Ericsson RRUS-11	AT&T
167.00	167.00	6	Ericsson LGP 21901	AT&T
167.00	167.00	1	Raycap DC6-48-60-18-8F	AT&T
167.00	167.00	1	Low Profile Platform	AT&T
167.00	167.00	3	Ericsson RRUS-12	AT&T

Linear Appurtenances

Elev From (ft)	Elev To (ft)	Placement	Description	Carrier
0.00	167.00	Inside	1 5/8" Coax	AT&T
0.00	167.00	Inside	3" Coax	AT&T
0.00	167.00	Inside	3/4" DC	AT&T
0.00	167.00	Inside	7/16" Fiber	AT&T

Anchor Bolts

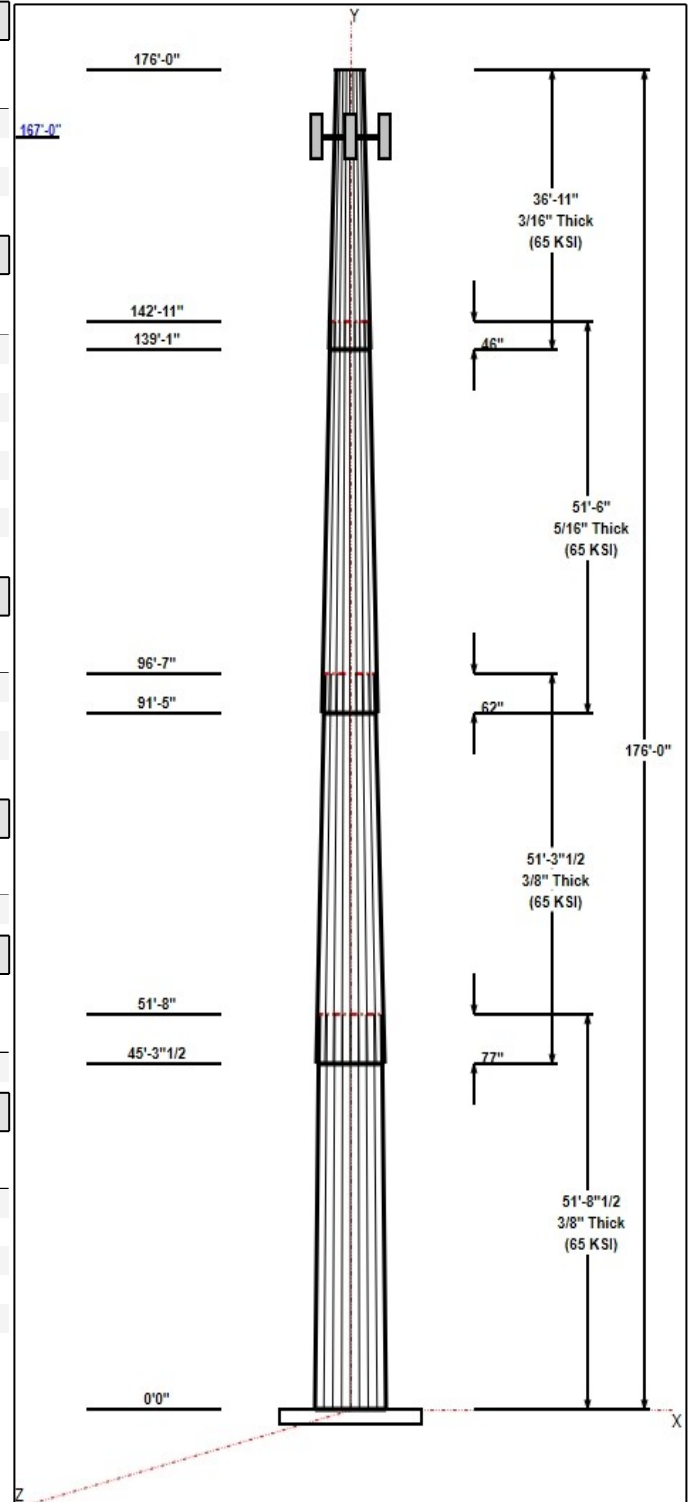
Qty	Specifications	Grade (ksi)	Arrangement
18	2.25" 18J	75.0	Radial

Base Plate

Thickness (in)	Specifications (in)	Grade (ksi)	Geometry
2.0000	72.0	60.0	Round

Reactions

Load Case	Moment	Shear	Axial
1.2D + 1.6W 101 mph Wind	2325.7	22.7	36.3
0.9D + 1.6W 101 mph Wind	2308.2	22.7	27.2
1.2D + 1.0Di + 1.0Wi 50 mph Wind	721.1	6.9	57.9
1.2D + 1.0E	108.0	1.0	36.4
0.9D + 1.0E	106.9	1.0	27.3
1.0D + 1.0W 60 mph Wind	510.6	5.0	30.3



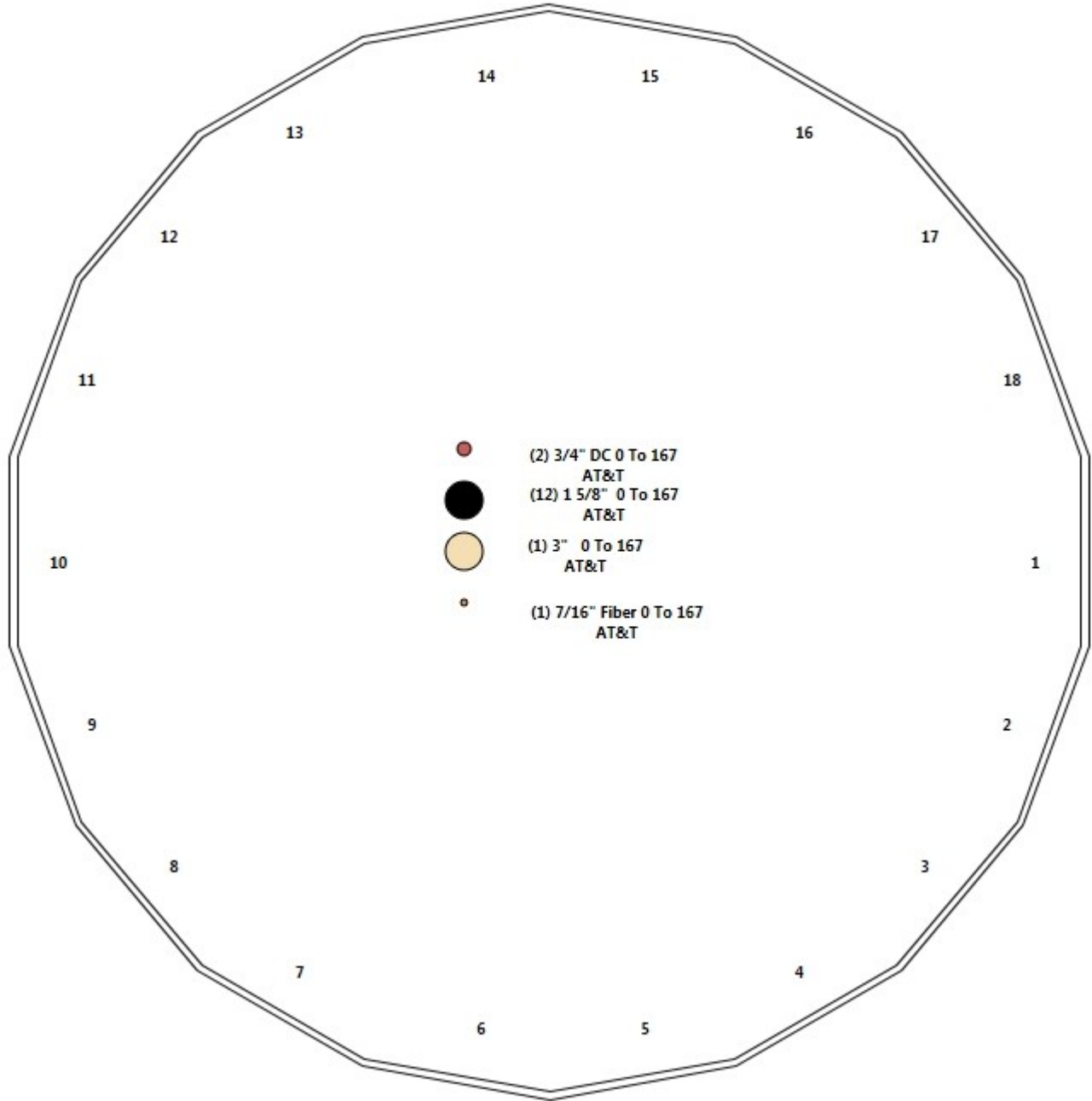
Structure: CT13611-A-SBA - Coax Line Placement

Type: Monopole
Site Name: BSA
Height: 176.00 (ft)

11/4/2016



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Shaft Properties

Structure: CT13611-A-SBA	Code: EIA/TIA-222-G	11/4/2016
Site Name: BSA	Exposure: C	
Height: 176.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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Sec. No.	Shape	Length (ft)	Thick (in)	Fy (ksi)	Joint Type	Overlap (in)	Weight (lb)
1	18	51.710	0.3750	65		0.00	10,500
2	18	51.290	0.3750	65	Slip	77.00	8,403
3	18	51.500	0.3125	65	Slip	62.00	5,290
4	18	36.917	0.1875	65	Slip	46.00	1,614
Total Shaft Weight:							25,807

Bottom

Top

Sec. No.	Dia (in)	Elev (ft)	Area (sqin)	Ix (in^4)	W/t Ratio	D/t Ratio	Dia (in)	Elev (ft)	Area (sqin)	Ix (in^4)	W/t Ratio	D/t Ratio	Taper
1	56.50	0.00	66.80	26585.49	25.16	150.67	44.53	51.71	52.55	12943.0	19.53	118.7	0.231534
2	46.76	45.29	55.21	15010.46	20.58	124.70	34.89	96.58	41.08	6181.75	14.99	93.03	0.231534
3	36.71	91.42	36.10	6041.86	19.30	117.47	24.78	142.92	24.27	1836.64	12.57	79.31	0.231534
4	26.05	139.0	15.39	1300.26	23.08	138.92	17.50	176.00	10.30	390.14	15.05	93.33	0.231534

Load Summary

Structure: CT13611-A-SBA	Code: EIA/TIA-222-G	11/4/2016
Site Name: BSA	Exposure: C	
Height: 176.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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Discrete Appurtenances

No.	Elev (ft)	Description	Qty	No Ice			Ice			Hor. Ecc. (ft)	Vert Ecc (ft)
				Weight (lb)	CaAa (sf)	CaAa Factor	Weight (lb)	CaAa (sf)	CaAa Factor		
1	167.00	7770.00	6	35.00	5.50	0.73	231.83	6.968	0.73	0.00	0.00
2	167.00	AM-X-CD-17-65-00T-RET	3	41.80	8.02	0.75	260.53	11.785	0.75	0.00	0.00
3	167.00	Powerwave LGP21401 TMA	6	14.10	1.29	1.00	47.79	2.416	1.00	0.00	0.00
4	167.00	Ericsson RRUS-11	3	44.00	2.57	0.73	129.28	3.441	0.73	0.00	0.00
5	167.00	Ericsson LGP 21901 Diplexer	6	5.50	0.23	0.75	15.86	0.726	0.75	0.00	0.00
6	167.00	Raycap DC6-48-60-18-8F ("Squid")	1	31.80	0.92	1.00	115.12	1.510	1.00	0.00	0.00
7	167.00	Low Profile Platform	1	1200.00	25.00	1.00	2611.24	53.225	1.00	0.00	0.00
8	167.00	Ericsson RRUS-12	3	60.00	2.70	0.75	160.14	4.151	0.75	0.00	0.00
Totals:			29	1,996.80			6,149.16				

Linear Appurtenances

Bottom Elev. (ft)	Top Elev. (ft)	Description	Exposed Width	Exposed
0.00	167.00	(12) 1 5/8" Coax	0.00	Inside
0.00	167.00	(1) 3" Coax	0.00	Inside
0.00	167.00	(2) 3/4" DC	0.00	Inside
0.00	167.00	(1) 7/16" Fiber	0.00	Inside

Shaft Section Properties

Structure: CT13611-A-SBA	Code: EIA/TIA-222-G	11/4/2016
Site Name: BSA	Exposure: C	
Height: 176.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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Increment Length: 5 (ft)

Elev (ft)	Description	Thick (in)	Dia (in)	Area (in ²)	Ix (in ⁴)	W/t Ratio	D/t Ratio	Fpy (ksi)	S (in ³)	Weight (lb)
0.00		0.3750	56.500	66.800	26585.5	25.16	150.67	71.8	926.8	0.0
5.00		0.3750	55.342	65.423	24974.1	24.61	147.58	72.5	888.8	1124.8
10.00		0.3750	54.185	64.045	23429.1	24.07	144.49	73.1	851.7	1101.4
15.00		0.3750	53.027	62.667	21949.3	23.52	141.41	73.7	815.3	1077.9
20.00		0.3750	51.869	61.289	20533.1	22.98	138.32	74.4	779.7	1054.5
25.00		0.3750	50.712	59.911	19179.1	22.43	135.23	75.0	744.9	1031.0
30.00		0.3750	49.554	58.533	17886.0	21.89	132.14	75.7	710.9	1007.6
35.00		0.3750	48.396	57.155	16652.4	21.35	129.06	76.3	677.7	984.2
40.00		0.3750	47.239	55.777	15476.9	20.80	125.97	76.9	645.3	960.7
45.00		0.3750	46.081	54.400	14358.0	20.26	122.88	77.6	613.7	937.3
45.29	Bot - Section 2	0.3750	46.013	54.319	14294.1	20.22	122.70	77.6	611.9	54.3
50.00		0.3750	44.923	53.022	13294.4	19.71	119.80	78.2	582.9	1733.4
51.71	Top - Section 1	0.3750	45.277	53.443	13613.9	19.88	120.74	0.0	0.0	619.5
55.00		0.3750	44.516	52.536	12932.8	19.52	118.71	78.4	572.2	593.2
60.00		0.3750	43.358	51.159	11941.7	18.98	115.62	79.1	542.5	882.1
65.00		0.3750	42.200	49.781	11002.5	18.43	112.53	79.7	513.5	858.7
70.00		0.3750	41.043	48.403	10114.0	17.89	109.45	80.4	485.4	835.2
75.00		0.3750	39.885	47.025	9274.6	17.34	106.36	81.0	458.0	811.8
80.00		0.3750	38.727	45.647	8483.0	16.80	103.27	81.6	431.4	788.4
85.00		0.3750	37.570	44.269	7737.8	16.25	100.19	82.3	405.7	764.9
90.00		0.3750	36.412	42.891	7037.5	15.71	97.10	82.5	380.7	741.5
91.42	Bot - Section 3	0.3750	36.084	42.501	6847.1	15.56	96.22	82.5	373.7	205.8
95.00		0.3750	35.254	41.514	6380.8	15.17	94.01	82.5	356.5	947.4
96.58	Top - Section 2	0.3125	35.513	34.913	5465.5	18.63	113.64	0.0	0.0	411.6
100.00		0.3125	34.722	34.128	5105.2	18.18	111.11	80.0	289.6	401.3
105.00		0.3125	33.564	32.980	4607.1	17.53	107.40	80.8	270.4	570.9
110.00		0.3125	32.406	31.832	4142.4	16.87	103.70	81.6	251.8	551.4
115.00		0.3125	31.249	30.684	3710.1	16.22	100.00	82.3	233.9	531.8
120.00		0.3125	30.091	29.535	3309.0	15.57	96.29	82.5	216.6	512.3
125.00		0.3125	28.933	28.387	2937.9	14.91	92.59	82.5	200.0	492.7
130.00		0.3125	27.776	27.239	2595.6	14.26	88.88	82.5	184.1	473.2
135.00		0.3125	26.618	26.091	2281.0	13.61	85.18	82.5	168.8	453.7
139.08	Bot - Section 4	0.3125	25.672	25.153	2043.8	13.07	82.15	82.5	156.8	356.0
140.00		0.3125	25.460	24.943	1992.9	12.96	81.47	82.5	154.2	125.9
142.92	Top - Section 3	0.1875	25.160	14.861	1170.9	22.25	134.19	0.0	0.0	393.7
145.00		0.1875	24.678	14.574	1104.4	21.80	131.61	75.8	88.1	104.3
150.00		0.1875	23.520	13.885	955.0	20.71	125.44	77.0	80.0	242.1
155.00		0.1875	22.362	13.196	819.8	19.62	119.27	78.3	72.2	230.4
160.00		0.1875	21.205	12.507	698.0	18.53	113.09	79.6	64.8	218.7
165.00		0.1875	20.047	11.818	588.9	17.44	106.92	80.9	57.9	206.9
167.00		0.1875	19.584	11.543	548.7	17.01	104.45	81.4	55.2	79.5
170.00		0.1875	18.889	11.129	491.8	16.35	100.74	82.2	51.3	115.7
175.00		0.1875	17.732	10.441	406.0	15.26	94.57	82.5	45.1	183.5
176.00		0.1875	17.500	10.303	390.1	15.05	93.33	82.5	43.9	35.3

25806.5

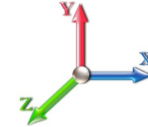
Wind Loading - Shaft

Structure: CT13611-A-SBA	Code: EIA/TIA-222-G	11/4/2016
Site Name: BSA	Exposure: C	
Height: 176.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



Load Case: 1.2D + 1.6W 101 mph Wind

Dead Load Factor 1.20
Wind Load Factor 1.60



Iterations 26

Elev (ft)	Description	Kzt	Kz	qz (psf)	qzGh (psf)	C (mph-ft)	Cf	Ice Thick (in)	Tributary (ft)	Aa (sf)	CfAa (sf)	Wind Force X (lb)	Dead Load Ice (lb)	Tot Dead Load (lb)
0.00		1.00	0.85	21.088	23.20	445.19	0.650	0.000	0.00	0.000	0.00	0.0	0.0	0.0
5.00		1.00	0.85	21.088	23.20	436.07	0.650	0.000	5.00	23.660	15.38	570.8	0.0	1349.8
10.00		1.00	0.85	21.088	23.20	426.95	0.650	0.000	5.00	23.170	15.06	559.0	0.0	1321.6
15.00		1.00	0.85	21.088	23.20	417.83	0.650	0.000	5.00	22.680	14.74	547.1	0.0	1293.5
20.00		1.00	0.90	22.375	24.61	420.99	0.650	0.000	5.00	22.191	14.42	568.0	0.0	1265.4
25.00		1.00	0.95	23.451	25.80	421.38	0.650	0.000	5.00	21.701	14.11	582.2	0.0	1237.2
30.00		1.00	0.98	24.369	26.81	419.74	0.650	0.000	5.00	21.211	13.79	591.3	0.0	1209.1
35.00		1.00	1.01	25.172	27.69	416.64	0.650	0.000	5.00	20.721	13.47	596.7	0.0	1181.0
40.00		1.00	1.04	25.890	28.48	412.43	0.650	0.000	5.00	20.231	13.15	599.2	0.0	1152.9
45.00		1.00	1.07	26.540	29.19	407.34	0.650	0.000	5.00	19.742	12.83	599.4	0.0	1124.7
45.29 Bot - Section 2		1.00	1.07	26.576	29.23	407.02	0.650	0.000	0.29	1.143	0.74	34.7	0.0	65.1
50.00		1.00	1.09	27.135	29.85	401.54	0.650	0.000	4.71	18.407	11.96	571.4	0.0	2080.1
51.71 Top - Section 1		1.00	1.10	27.328	30.06	399.41	0.650	0.000	1.71	6.580	4.28	205.7	0.0	743.4
55.00		1.00	1.12	27.685	30.45	401.90	0.650	0.000	3.29	12.499	8.12	395.9	0.0	711.9
60.00		1.00	1.14	28.197	31.02	395.05	0.650	0.000	5.00	18.589	12.08	599.6	0.0	1058.6
65.00		1.00	1.16	28.676	31.54	387.76	0.650	0.000	5.00	18.100	11.76	593.8	0.0	1030.4
70.00		1.00	1.17	29.127	32.04	380.08	0.650	0.000	5.00	17.610	11.45	586.8	0.0	1002.3
75.00		1.00	1.19	29.553	32.51	372.05	0.650	0.000	5.00	17.120	11.13	578.8	0.0	974.2
80.00		1.00	1.21	29.958	32.95	363.71	0.650	0.000	5.00	16.630	10.81	569.9	0.0	946.0
85.00		1.00	1.22	30.342	33.38	355.10	0.650	0.000	5.00	16.140	10.49	560.3	0.0	917.9
90.00		1.00	1.24	30.710	33.78	346.23	0.650	0.000	5.00	15.651	10.17	549.8	0.0	889.8
91.42 Bot - Section 3		1.00	1.24	30.811	33.89	343.68	0.650	0.000	1.42	4.345	2.82	153.2	0.0	247.0
95.00		1.00	1.25	31.061	34.17	337.14	0.650	0.000	3.58	11.005	7.15	391.1	0.0	1136.8
96.58 Top - Section 2		1.00	1.26	31.170	34.29	334.21	0.650	0.000	1.58	4.783	3.11	170.5	0.0	493.9
100.00		1.00	1.27	31.399	34.54	333.84	0.650	0.000	3.42	10.153	6.60	364.7	0.0	481.6
105.00		1.00	1.28	31.723	34.89	324.37	0.650	0.000	5.00	14.446	9.39	524.2	0.0	685.1
110.00		1.00	1.29	32.035	35.24	314.72	0.650	0.000	5.00	13.956	9.07	511.5	0.0	661.6
115.00		1.00	1.30	32.336	35.57	304.90	0.650	0.000	5.00	13.466	8.75	498.1	0.0	638.2
120.00		1.00	1.32	32.627	35.89	294.92	0.650	0.000	5.00	12.976	8.43	484.3	0.0	614.7
125.00		1.00	1.33	32.909	36.20	284.80	0.650	0.000	5.00	12.486	8.12	470.1	0.0	591.3
130.00		1.00	1.34	33.182	36.50	274.53	0.650	0.000	5.00	11.997	7.80	455.4	0.0	567.8
135.00		1.00	1.35	33.446	36.79	264.14	0.650	0.000	5.00	11.507	7.48	440.3	0.0	544.4
139.08 Bot - Section 4		1.00	1.36	33.657	37.02	255.56	0.650	0.000	4.08	9.034	5.87	347.8	0.0	427.2
140.00		1.00	1.36	33.703	37.07	253.62	0.650	0.000	0.92	2.012	1.31	77.6	0.0	151.1
142.92 Top - Section 3		1.00	1.36	33.850	37.23	247.43	0.650	0.000	2.92	6.293	4.09	243.7	0.0	472.5
145.00		1.00	1.37	33.953	37.35	246.73	0.650	0.000	2.08	4.393	2.86	170.6	0.0	125.2
150.00		1.00	1.38	34.196	37.62	236.00	0.650	0.000	5.00	10.196	6.63	398.9	0.0	290.5
155.00		1.00	1.39	34.433	37.88	225.16	0.650	0.000	5.00	9.706	6.31	382.3	0.0	276.5
160.00		1.00	1.40	34.664	38.13	214.22	0.650	0.000	5.00	9.216	5.99	365.5	0.0	262.4
165.00		1.00	1.41	34.890	38.38	203.18	0.650	0.000	5.00	8.727	5.67	348.3	0.0	248.3
167.00 Appurtenance(s)		1.00	1.41	34.978	38.48	198.74	0.650	0.000	2.00	3.354	2.18	134.2	0.0	95.4
170.00		1.00	1.42	35.110	38.62	192.05	0.650	0.000	3.00	4.883	3.17	196.1	0.0	138.9
175.00		1.00	1.42	35.324	38.86	180.83	0.650	0.000	5.00	7.747	5.04	313.1	0.0	220.2
176.00		1.00	1.43	35.367	38.90	178.58	0.650	0.000	1.00	1.491	0.97	60.3	0.0	42.4
Totals:									176.00			17,962.3		30,967.8

Discrete Appurtenance Forces

Structure: CT13611-A-SBA	Code: EIA/TIA-222-G	11/4/2016
Site Name: BSA	Exposure: C	
Height: 176.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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Load Case: 1.2D + 1.6W 101 mph Wind

Dead Load Factor 1.20
Wind Load Factor 1.60



Iterations 26

No.	Elev (ft)	Description	Qty	qz (psf)	qzGh (psf)	CaAa x Ka	Ka	Total CaAa (sf)	Dead Load (lb)	Horiz Ecc (ft)	Vert Ecc (ft)	Wind FX (lb)	Mom Y (lb-ft)	Mom Z (lb-ft)
1	167.00	7770.00	6	34.978	38.476	0.58	0.80	19.27	252.00	0.000	0.000	1186.41	0.00	0.00
2	167.00	AM-X-CD-17-65-00T-RET	3	34.978	38.476	0.60	0.80	14.44	150.48	0.000	0.000	888.70	0.00	0.00
3	167.00	Powerwave LGP21401	6	34.978	38.476	0.80	0.80	6.19	101.52	0.000	0.000	381.19	0.00	0.00
4	167.00	Ericsson RRUS-11	3	34.978	38.476	0.58	0.80	4.50	158.40	0.000	0.000	277.19	0.00	0.00
5	167.00	Ericsson LGP 21901	6	34.978	38.476	0.60	0.80	0.83	39.60	0.000	0.000	50.97	0.00	0.00
6	167.00	Raycap DC6-48-60-18-8F	1	34.978	38.476	0.80	0.80	0.74	38.16	0.000	0.000	45.31	0.00	0.00
7	167.00	Low Profile Platform	1	34.978	38.476	1.00	1.00	25.00	1440.00	0.000	0.000	1539.04	0.00	0.00
8	167.00	Ericsson RRUS-12	3	34.978	38.476	0.60	0.80	4.86	216.00	0.000	0.000	299.19	0.00	0.00
Totals:									2,396.16			4,668.01		

Total Applied Force Summary

Structure: CT13611-A-SBA	Code: EIA/TIA-222-G	11/4/2016
Site Name: BSA	Exposure: C	
Height: 176.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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Load Case: 1.2D + 1.6W 101 mph Wind

Dead Load Factor 1.20
Wind Load Factor 1.60



Iterations 26

Elev (ft)	Description	Lateral FX (-) (lb)	Axial FY (-) (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)
0.00		0.00	0.00	0.00	0.00
5.00		570.77	1439.60	0.00	0.00
10.00		558.96	1411.46	0.00	0.00
15.00		547.14	1383.33	0.00	0.00
20.00		568.00	1355.20	0.00	0.00
25.00		582.18	1327.07	0.00	0.00
30.00		591.31	1298.94	0.00	0.00
35.00		596.71	1270.81	0.00	0.00
40.00		599.21	1242.68	0.00	0.00
45.00		599.39	1214.54	0.00	0.00
45.29		34.75	70.38	0.00	0.00
50.00		571.42	2164.67	0.00	0.00
51.71		205.72	774.11	0.00	0.00
55.00		395.87	770.98	0.00	0.00
60.00		599.65	1148.37	0.00	0.00
65.00		593.77	1120.24	0.00	0.00
70.00		586.78	1092.11	0.00	0.00
75.00		578.81	1063.98	0.00	0.00
80.00		569.94	1035.85	0.00	0.00
85.00		560.26	1007.72	0.00	0.00
90.00		549.84	979.59	0.00	0.00
91.42		153.16	272.43	0.00	0.00
95.00		391.05	1201.20	0.00	0.00
96.58		170.54	522.33	0.00	0.00
100.00		364.69	542.99	0.00	0.00
105.00		524.24	774.88	0.00	0.00
110.00		511.45	751.44	0.00	0.00
115.00		498.14	728.00	0.00	0.00
120.00		484.34	704.56	0.00	0.00
125.00		470.08	681.11	0.00	0.00
130.00		455.39	657.67	0.00	0.00
135.00		440.28	634.23	0.00	0.00
139.08		347.83	500.56	0.00	0.00
140.00		77.58	167.59	0.00	0.00
142.92		243.69	524.85	0.00	0.00
145.00		170.63	162.63	0.00	0.00
150.00		398.88	380.34	0.00	0.00
155.00		382.35	366.28	0.00	0.00
160.00		365.49	352.21	0.00	0.00
165.00		348.31	338.14	0.00	0.00
167.00	(29) attachments	4802.20	2527.48	0.00	0.00
170.00		196.14	138.87	0.00	0.00
175.00		313.07	220.19	0.00	0.00
176.00		60.31	42.35	0.00	0.00
	Totals:	22,630.32	36,363.95	0.00	0.00

Calculated Forces

Structure: CT13611-A-SBA	Code: EIA/TIA-222-G	11/4/2016
Site Name: BSA	Exposure: C	
Height: 176.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II

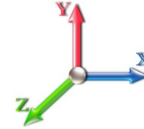


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Load Case: 1.2D + 1.6W 101 mph Wind

Iterations 26

Dead Load Factor 1.20
Wind Load Factor 1.60



Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-36.34	-22.67	0.00	-2325.7	0.00	2325.71	4317.41	2158.71	9968.41	4991.62	0.00	0.000	0.000	0.474
5.00	-34.85	-22.17	0.00	-2212.3	0.00	2212.37	4266.06	2133.03	9645.32	4829.83	0.07	-0.121	0.000	0.466
10.00	-33.40	-21.68	0.00	-2101.5	0.00	2101.52	4213.11	2106.56	9323.64	4668.75	0.26	-0.244	0.000	0.458
15.00	-31.97	-21.19	0.00	-1993.1	0.00	1993.13	4158.58	2079.29	9003.59	4508.49	0.58	-0.369	0.000	0.450
20.00	-30.57	-20.68	0.00	-1887.1	0.00	1887.16	4102.46	2051.23	8685.41	4349.16	1.04	-0.494	0.000	0.441
25.00	-29.21	-20.15	0.00	-1783.7	0.00	1783.74	4044.75	2022.37	8369.33	4190.89	1.62	-0.621	0.000	0.433
30.00	-27.87	-19.61	0.00	-1682.9	0.00	1682.97	3985.45	1992.73	8055.57	4033.77	2.34	-0.750	0.000	0.424
35.00	-26.57	-19.06	0.00	-1584.9	0.00	1584.93	3924.57	1962.28	7744.37	3877.94	3.20	-0.880	0.000	0.416
40.00	-25.29	-18.49	0.00	-1489.6	0.00	1489.65	3862.10	1931.05	7435.94	3723.50	4.19	-1.011	0.000	0.407
45.00	-24.07	-17.90	0.00	-1397.1	0.00	1397.18	3798.04	1899.02	7130.53	3570.56	5.32	-1.144	0.000	0.398
45.29	-23.98	-17.89	0.00	-1391.9	0.00	1391.93	3794.23	1897.11	7112.71	3561.64	5.39	-1.152	0.000	0.397
50.00	-21.80	-17.31	0.00	-1307.7	0.00	1307.71	3732.39	1866.19	6828.35	3419.25	6.59	-1.279	0.000	0.388
51.71	-21.01	-17.11	0.00	-1278.1	0.00	1278.11	3752.64	1876.32	6920.41	3465.35	7.06	-1.326	0.000	0.375
55.00	-20.21	-16.74	0.00	-1221.8	0.00	1221.81	3708.89	1854.45	6722.75	3366.37	8.00	-1.416	0.000	0.368
60.00	-19.04	-16.15	0.00	-1138.1	0.00	1138.13	3641.10	1820.55	6425.31	3217.43	9.56	-1.546	0.000	0.359
65.00	-17.91	-15.57	0.00	-1057.3	0.00	1057.38	3571.72	1785.86	6131.65	3070.38	11.25	-1.677	0.000	0.349
70.00	-16.80	-14.99	0.00	-979.55	0.00	979.55	3500.75	1750.37	5841.99	2925.34	13.07	-1.808	0.000	0.340
75.00	-15.72	-14.41	0.00	-904.63	0.00	904.63	3428.19	1714.09	5556.57	2782.41	15.04	-1.941	0.000	0.330
80.00	-14.67	-13.84	0.00	-832.58	0.00	832.58	3354.04	1677.02	5275.60	2641.72	17.14	-2.074	0.000	0.320
85.00	-13.66	-13.27	0.00	-763.40	0.00	763.40	3278.31	1639.15	4999.32	2503.38	19.39	-2.208	0.000	0.309
90.00	-12.68	-12.70	0.00	-697.04	0.00	697.04	3186.62	1593.31	4706.74	2356.87	21.77	-2.342	0.000	0.300
91.42	-12.40	-12.55	0.00	-679.05	0.00	679.05	3157.61	1578.81	4621.01	2313.94	22.47	-2.382	0.000	0.297
95.00	-11.20	-12.13	0.00	-634.07	0.00	634.07	3084.25	1542.12	4407.69	2207.12	24.30	-2.479	0.000	0.291
96.58	-10.67	-11.94	0.00	-614.87	0.00	614.87	2497.75	1248.88	3609.06	1807.21	25.13	-2.524	0.000	0.345
100.00	-10.12	-11.58	0.00	-574.06	0.00	574.06	2457.75	1228.87	3470.74	1737.95	26.96	-2.617	0.000	0.335
105.00	-9.34	-11.04	0.00	-516.17	0.00	516.17	2397.86	1198.93	3271.22	1638.04	29.79	-2.769	0.000	0.319
110.00	-8.59	-10.52	0.00	-460.96	0.00	460.96	2336.39	1168.19	3075.35	1539.96	32.77	-2.920	0.000	0.303
115.00	-7.86	-10.00	0.00	-408.38	0.00	408.38	2273.33	1136.66	2883.37	1443.83	35.90	-3.069	0.000	0.286
120.00	-7.16	-9.50	0.00	-358.37	0.00	358.37	2194.33	1097.17	2677.99	1340.98	39.20	-3.216	0.000	0.271
125.00	-6.49	-9.01	0.00	-310.88	0.00	310.88	2109.02	1054.51	2472.77	1238.23	42.64	-3.360	0.000	0.254
130.00	-5.84	-8.53	0.00	-265.85	0.00	265.85	2023.72	1011.86	2275.74	1139.56	46.23	-3.499	0.000	0.236
135.00	-5.21	-8.06	0.00	-223.22	0.00	223.22	1938.41	969.21	2086.89	1045.00	49.97	-3.633	0.000	0.216
139.08	-4.73	-7.68	0.00	-190.32	0.00	190.32	1868.74	934.37	1938.73	970.81	53.12	-3.739	0.000	0.199
140.00	-4.56	-7.60	0.00	-183.28	0.00	183.28	1853.10	926.55	1906.22	954.53	53.84	-3.763	0.000	0.195
142.92	-4.04	-7.33	0.00	-161.11	0.00	161.11	1006.21	503.11	1032.86	517.20	56.16	-3.834	0.000	0.316
145.00	-3.88	-7.15	0.00	-145.85	0.00	145.85	993.78	496.89	1000.24	500.86	57.84	-3.884	0.000	0.295
150.00	-3.51	-6.74	0.00	-110.09	0.00	110.09	962.80	481.40	922.91	462.14	62.00	-4.049	0.000	0.242
155.00	-3.16	-6.34	0.00	-76.41	0.00	76.41	930.24	465.12	847.10	424.18	66.32	-4.188	0.000	0.184
160.00	-2.83	-5.95	0.00	-44.72	0.00	44.72	896.09	448.04	773.04	387.10	70.76	-4.293	0.000	0.119
165.00	-2.51	-5.58	0.00	-14.98	0.00	14.98	860.35	430.17	700.97	351.00	75.29	-4.353	0.000	0.046
167.00	-0.36	-0.60	0.00	-3.82	0.00	3.82	845.61	422.80	672.74	336.87	77.11	-4.363	0.000	0.012
170.00	-0.23	-0.39	0.00	-2.02	0.00	2.02	823.02	411.51	631.10	316.02	79.85	-4.367	0.000	0.007
175.00	-0.04	-0.06	0.00	-0.06	0.00	0.06	775.68	387.84	557.61	279.22	84.42	-4.370	0.000	0.000
176.00	0.00	-0.06	0.00	0.00	0.00	0.00	765.44	382.72	542.91	271.86	85.34	-4.370	0.000	0.000

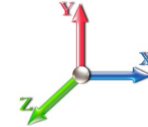
Wind Loading - Shaft

Structure: CT13611-A-SBA	Code: EIA/TIA-222-G	11/4/2016
Site Name: BSA	Exposure: C	
Height: 176.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



Load Case: 0.9D + 1.6W 101 mph Wind

Dead Load Factor 0.90
Wind Load Factor 1.60



Iterations 26

Elev (ft)	Description	Kzt	Kz	qz (psf)	qzGh (psf)	C (mph-ft)	Cf	Ice Thick (in)	Tributary (ft)	Aa (sf)	CfAa (sf)	Wind Force X (lb)	Dead Load Ice (lb)	Tot Dead Load (lb)
0.00		1.00	0.85	21.088	23.20	445.19	0.650	0.000	0.00	0.000	0.00	0.0	0.0	0.0
5.00		1.00	0.85	21.088	23.20	436.07	0.650	0.000	5.00	23.660	15.38	570.8	0.0	1012.3
10.00		1.00	0.85	21.088	23.20	426.95	0.650	0.000	5.00	23.170	15.06	559.0	0.0	991.2
15.00		1.00	0.85	21.088	23.20	417.83	0.650	0.000	5.00	22.680	14.74	547.1	0.0	970.1
20.00		1.00	0.90	22.375	24.61	420.99	0.650	0.000	5.00	22.191	14.42	568.0	0.0	949.0
25.00		1.00	0.95	23.451	25.80	421.38	0.650	0.000	5.00	21.701	14.11	582.2	0.0	927.9
30.00		1.00	0.98	24.369	26.81	419.74	0.650	0.000	5.00	21.211	13.79	591.3	0.0	906.8
35.00		1.00	1.01	25.172	27.69	416.64	0.650	0.000	5.00	20.721	13.47	596.7	0.0	885.7
40.00		1.00	1.04	25.890	28.48	412.43	0.650	0.000	5.00	20.231	13.15	599.2	0.0	864.6
45.00		1.00	1.07	26.540	29.19	407.34	0.650	0.000	5.00	19.742	12.83	599.4	0.0	843.5
45.29 Bot - Section 2		1.00	1.07	26.576	29.23	407.02	0.650	0.000	0.29	1.143	0.74	34.7	0.0	48.8
50.00		1.00	1.09	27.135	29.85	401.54	0.650	0.000	4.71	18.407	11.96	571.4	0.0	1560.1
51.71 Top - Section 1		1.00	1.10	27.328	30.06	399.41	0.650	0.000	1.71	6.580	4.28	205.7	0.0	557.5
55.00		1.00	1.12	27.685	30.45	401.90	0.650	0.000	3.29	12.499	8.12	395.9	0.0	533.9
60.00		1.00	1.14	28.197	31.02	395.05	0.650	0.000	5.00	18.589	12.08	599.6	0.0	793.9
65.00		1.00	1.16	28.676	31.54	387.76	0.650	0.000	5.00	18.100	11.76	593.8	0.0	772.8
70.00		1.00	1.17	29.127	32.04	380.08	0.650	0.000	5.00	17.610	11.45	586.8	0.0	751.7
75.00		1.00	1.19	29.553	32.51	372.05	0.650	0.000	5.00	17.120	11.13	578.8	0.0	730.6
80.00		1.00	1.21	29.958	32.95	363.71	0.650	0.000	5.00	16.630	10.81	569.9	0.0	709.5
85.00		1.00	1.22	30.342	33.38	355.10	0.650	0.000	5.00	16.140	10.49	560.3	0.0	688.4
90.00		1.00	1.24	30.710	33.78	346.23	0.650	0.000	5.00	15.651	10.17	549.8	0.0	667.3
91.42 Bot - Section 3		1.00	1.24	30.811	33.89	343.68	0.650	0.000	1.42	4.345	2.82	153.2	0.0	185.2
95.00		1.00	1.25	31.061	34.17	337.14	0.650	0.000	3.58	11.005	7.15	391.1	0.0	852.6
96.58 Top - Section 2		1.00	1.26	31.170	34.29	334.21	0.650	0.000	1.58	4.783	3.11	170.5	0.0	370.4
100.00		1.00	1.27	31.399	34.54	333.84	0.650	0.000	3.42	10.153	6.60	364.7	0.0	361.2
105.00		1.00	1.28	31.723	34.89	324.37	0.650	0.000	5.00	14.446	9.39	524.2	0.0	513.8
110.00		1.00	1.29	32.035	35.24	314.72	0.650	0.000	5.00	13.956	9.07	511.5	0.0	496.2
115.00		1.00	1.30	32.336	35.57	304.90	0.650	0.000	5.00	13.466	8.75	498.1	0.0	478.6
120.00		1.00	1.32	32.627	35.89	294.92	0.650	0.000	5.00	12.976	8.43	484.3	0.0	461.1
125.00		1.00	1.33	32.909	36.20	284.80	0.650	0.000	5.00	12.486	8.12	470.1	0.0	443.5
130.00		1.00	1.34	33.182	36.50	274.53	0.650	0.000	5.00	11.997	7.80	455.4	0.0	425.9
135.00		1.00	1.35	33.446	36.79	264.14	0.650	0.000	5.00	11.507	7.48	440.3	0.0	408.3
139.08 Bot - Section 4		1.00	1.36	33.657	37.02	255.56	0.650	0.000	4.08	9.034	5.87	347.8	0.0	320.4
140.00		1.00	1.36	33.703	37.07	253.62	0.650	0.000	0.92	2.012	1.31	77.6	0.0	113.3
142.92 Top - Section 3		1.00	1.36	33.850	37.23	247.43	0.650	0.000	2.92	6.293	4.09	243.7	0.0	354.3
145.00		1.00	1.37	33.953	37.35	246.73	0.650	0.000	2.08	4.393	2.86	170.6	0.0	93.9
150.00		1.00	1.38	34.196	37.62	236.00	0.650	0.000	5.00	10.196	6.63	398.9	0.0	217.9
155.00		1.00	1.39	34.433	37.88	225.16	0.650	0.000	5.00	9.706	6.31	382.3	0.0	207.3
160.00		1.00	1.40	34.664	38.13	214.22	0.650	0.000	5.00	9.216	5.99	365.5	0.0	196.8
165.00		1.00	1.41	34.890	38.38	203.18	0.650	0.000	5.00	8.727	5.67	348.3	0.0	186.2
167.00 Appurtenance(s)		1.00	1.41	34.978	38.48	198.74	0.650	0.000	2.00	3.354	2.18	134.2	0.0	71.5
170.00		1.00	1.42	35.110	38.62	192.05	0.650	0.000	3.00	4.883	3.17	196.1	0.0	104.2
175.00		1.00	1.42	35.324	38.86	180.83	0.650	0.000	5.00	7.747	5.04	313.1	0.0	165.1
176.00		1.00	1.43	35.367	38.90	178.58	0.650	0.000	1.00	1.491	0.97	60.3	0.0	31.8
Totals:									176.00			17,962.3		23,225.9

Discrete Appurtenance Forces

Structure: CT13611-A-SBA	Code: EIA/TIA-222-G	11/4/2016
Site Name: BSA	Exposure: C	
Height: 176.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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Load Case: 0.9D + 1.6W 101 mph Wind

Dead Load Factor 0.90
Wind Load Factor 1.60



Iterations 26

No.	Elev (ft)	Description	Qty	qz (psf)	qzGh (psf)	CaAa x Ka	Ka	Total CaAa (sf)	Dead Load (lb)	Horiz Ecc (ft)	Vert Ecc (ft)	Wind FX (lb)	Mom Y (lb-ft)	Mom Z (lb-ft)
1	167.00	7770.00	6	34.978	38.476	0.58	0.80	19.27	189.00	0.000	0.000	1186.41	0.00	0.00
2	167.00	AM-X-CD-17-65-00T-RET	3	34.978	38.476	0.60	0.80	14.44	112.86	0.000	0.000	888.70	0.00	0.00
3	167.00	Powerwave LGP21401	6	34.978	38.476	0.80	0.80	6.19	76.14	0.000	0.000	381.19	0.00	0.00
4	167.00	Ericsson RRUS-11	3	34.978	38.476	0.58	0.80	4.50	118.80	0.000	0.000	277.19	0.00	0.00
5	167.00	Ericsson LGP 21901	6	34.978	38.476	0.60	0.80	0.83	29.70	0.000	0.000	50.97	0.00	0.00
6	167.00	Raycap DC6-48-60-18-8F	1	34.978	38.476	0.80	0.80	0.74	28.62	0.000	0.000	45.31	0.00	0.00
7	167.00	Low Profile Platform	1	34.978	38.476	1.00	1.00	25.00	1080.00	0.000	0.000	1539.04	0.00	0.00
8	167.00	Ericsson RRUS-12	3	34.978	38.476	0.60	0.80	4.86	162.00	0.000	0.000	299.19	0.00	0.00
Totals:									1,797.12			4,668.01		

Total Applied Force Summary

Structure: CT13611-A-SBA	Code: EIA/TIA-222-G	11/4/2016
Site Name: BSA	Exposure: C	
Height: 176.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II

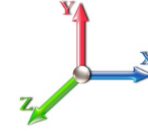


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Load Case: 0.9D + 1.6W 101 mph Wind

Dead Load Factor 0.90

Wind Load Factor 1.60



Iterations 26

Elev (ft)	Description	Lateral FX (-) (lb)	Axial FY (-) (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)
0.00		0.00	0.00	0.00	0.00
5.00		570.77	1079.70	0.00	0.00
10.00		558.96	1058.60	0.00	0.00
15.00		547.14	1037.50	0.00	0.00
20.00		568.00	1016.40	0.00	0.00
25.00		582.18	995.30	0.00	0.00
30.00		591.31	974.20	0.00	0.00
35.00		596.71	953.10	0.00	0.00
40.00		599.21	932.01	0.00	0.00
45.00		599.39	910.91	0.00	0.00
45.29		34.75	52.78	0.00	0.00
50.00		571.42	1623.50	0.00	0.00
51.71		205.72	580.58	0.00	0.00
55.00		395.87	578.23	0.00	0.00
60.00		599.65	861.28	0.00	0.00
65.00		593.77	840.18	0.00	0.00
70.00		586.78	819.08	0.00	0.00
75.00		578.81	797.98	0.00	0.00
80.00		569.94	776.89	0.00	0.00
85.00		560.26	755.79	0.00	0.00
90.00		549.84	734.69	0.00	0.00
91.42		153.16	204.33	0.00	0.00
95.00		391.05	900.90	0.00	0.00
96.58		170.54	391.74	0.00	0.00
100.00		364.69	407.24	0.00	0.00
105.00		524.24	581.16	0.00	0.00
110.00		511.45	563.58	0.00	0.00
115.00		498.14	546.00	0.00	0.00
120.00		484.34	528.42	0.00	0.00
125.00		470.08	510.83	0.00	0.00
130.00		455.39	493.25	0.00	0.00
135.00		440.28	475.67	0.00	0.00
139.08		347.83	375.42	0.00	0.00
140.00		77.58	125.69	0.00	0.00
142.92		243.69	393.64	0.00	0.00
145.00		170.63	121.97	0.00	0.00
150.00		398.88	285.26	0.00	0.00
155.00		382.35	274.71	0.00	0.00
160.00		365.49	264.16	0.00	0.00
165.00		348.31	253.61	0.00	0.00
167.00	(29) attachments	4802.20	1895.61	0.00	0.00
170.00		196.14	104.15	0.00	0.00
175.00		313.07	165.15	0.00	0.00
176.00		60.31	31.76	0.00	0.00
	Totals:	22,630.32	27,272.97	0.00	0.00

Calculated Forces

Structure: CT13611-A-SBA	Code: EIA/TIA-222-G	11/4/2016
Site Name: BSA	Exposure: C	
Height: 176.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



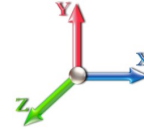
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Load Case: 0.9D + 1.6W 101 mph Wind

Iterations 26

Dead Load Factor 0.90

Wind Load Factor 1.60



Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-27.25	-22.66	0.00	-2308.2	0.00	2308.21	4317.41	2158.71	9968.41	4991.62	0.00	0.000	0.000	0.469
5.00	-26.12	-22.14	0.00	-2194.9	0.00	2194.92	4266.06	2133.03	9645.32	4829.83	0.07	-0.120	0.000	0.461
10.00	-25.02	-21.63	0.00	-2084.2	0.00	2084.21	4213.11	2106.56	9323.64	4668.75	0.26	-0.242	0.000	0.452
15.00	-23.94	-21.13	0.00	-1976.0	0.00	1976.04	4158.58	2079.29	9003.59	4508.49	0.58	-0.366	0.000	0.444
20.00	-22.88	-20.61	0.00	-1870.3	0.00	1870.38	4102.46	2051.23	8685.41	4349.16	1.03	-0.490	0.000	0.436
25.00	-21.85	-20.06	0.00	-1767.3	0.00	1767.35	4044.75	2022.37	8369.33	4190.89	1.61	-0.616	0.000	0.427
30.00	-20.84	-19.51	0.00	-1667.0	0.00	1667.04	3985.45	1992.73	8055.57	4033.77	2.32	-0.744	0.000	0.419
35.00	-19.85	-18.94	0.00	-1569.5	0.00	1569.50	3924.57	1962.28	7744.37	3877.94	3.17	-0.872	0.000	0.410
40.00	-18.89	-18.37	0.00	-1474.8	0.00	1474.80	3862.10	1931.05	7435.94	3723.50	4.15	-1.002	0.000	0.401
45.00	-17.97	-17.78	0.00	-1382.9	0.00	1382.94	3798.04	1899.02	7130.53	3570.56	5.27	-1.134	0.000	0.392
45.29	-17.89	-17.76	0.00	-1377.7	0.00	1377.73	3794.23	1897.11	7112.71	3561.64	5.34	-1.142	0.000	0.392
50.00	-16.26	-17.18	0.00	-1294.1	0.00	1294.14	3732.39	1866.19	6828.35	3419.25	6.53	-1.267	0.000	0.383
51.71	-15.66	-16.98	0.00	-1264.7	0.00	1264.76	3752.64	1876.32	6920.41	3465.35	7.00	-1.314	0.000	0.369
55.00	-15.06	-16.60	0.00	-1208.8	0.00	1208.89	3708.89	1854.45	6722.75	3366.37	7.93	-1.403	0.000	0.363
60.00	-14.18	-16.01	0.00	-1125.9	0.00	1125.90	3641.10	1820.55	6425.31	3217.43	9.47	-1.532	0.000	0.354
65.00	-13.32	-15.42	0.00	-1045.8	0.00	1045.85	3571.72	1785.86	6131.65	3070.38	11.15	-1.661	0.000	0.344
70.00	-12.48	-14.84	0.00	-968.74	0.00	968.74	3500.75	1750.37	5841.99	2925.34	12.95	-1.791	0.000	0.335
75.00	-11.67	-14.26	0.00	-894.54	0.00	894.54	3428.19	1714.09	5556.57	2782.41	14.90	-1.922	0.000	0.325
80.00	-10.89	-13.69	0.00	-823.23	0.00	823.23	3354.04	1677.02	5275.60	2641.72	16.98	-2.054	0.000	0.315
85.00	-10.12	-13.13	0.00	-754.77	0.00	754.77	3278.31	1639.15	4999.32	2503.38	19.21	-2.186	0.000	0.305
90.00	-9.39	-12.56	0.00	-689.14	0.00	689.14	3186.62	1593.31	4706.74	2356.87	21.57	-2.319	0.000	0.295
91.42	-9.18	-12.41	0.00	-671.34	0.00	671.34	3157.61	1578.81	4621.01	2313.94	22.26	-2.358	0.000	0.293
95.00	-8.28	-11.99	0.00	-626.87	0.00	626.87	3084.25	1542.12	4407.69	2207.12	24.07	-2.455	0.000	0.287
96.58	-7.88	-11.82	0.00	-607.88	0.00	607.88	2497.75	1248.88	3609.06	1807.21	24.89	-2.498	0.000	0.340
100.00	-7.47	-11.45	0.00	-567.51	0.00	567.51	2457.75	1228.87	3470.74	1737.95	26.71	-2.591	0.000	0.330
105.00	-6.88	-10.92	0.00	-510.26	0.00	510.26	2397.86	1198.93	3271.22	1638.04	29.50	-2.741	0.000	0.314
110.00	-6.32	-10.39	0.00	-455.68	0.00	455.68	2336.39	1168.19	3075.35	1539.96	32.45	-2.890	0.000	0.299
115.00	-5.77	-9.88	0.00	-403.71	0.00	403.71	2273.33	1136.66	2883.37	1443.83	35.56	-3.037	0.000	0.282
120.00	-5.25	-9.38	0.00	-354.29	0.00	354.29	2194.33	1097.17	2677.99	1340.98	38.82	-3.183	0.000	0.267
125.00	-4.74	-8.90	0.00	-307.37	0.00	307.37	2109.02	1054.51	2472.77	1238.23	42.22	-3.325	0.000	0.251
130.00	-4.26	-8.42	0.00	-262.88	0.00	262.88	2023.72	1011.86	2275.74	1139.56	45.78	-3.463	0.000	0.233
135.00	-3.79	-7.96	0.00	-220.76	0.00	220.76	1938.41	969.21	2086.89	1045.00	49.48	-3.595	0.000	0.213
139.08	-3.43	-7.60	0.00	-188.25	0.00	188.25	1868.74	934.37	1938.73	970.81	52.60	-3.700	0.000	0.196
140.00	-3.30	-7.51	0.00	-181.28	0.00	181.28	1853.10	926.55	1906.22	954.53	53.31	-3.723	0.000	0.192
142.92	-2.92	-7.25	0.00	-159.37	0.00	159.37	1006.21	503.11	1032.86	517.20	55.60	-3.794	0.000	0.311
145.00	-2.80	-7.07	0.00	-144.27	0.00	144.27	993.78	496.89	1000.24	500.86	57.27	-3.843	0.000	0.291
150.00	-2.52	-6.66	0.00	-108.90	0.00	108.90	962.80	481.40	922.91	462.14	61.38	-4.006	0.000	0.238
155.00	-2.26	-6.27	0.00	-75.58	0.00	75.58	930.24	465.12	847.10	424.18	65.65	-4.144	0.000	0.181
160.00	-2.02	-5.89	0.00	-44.24	0.00	44.24	896.09	448.04	773.04	387.10	70.05	-4.248	0.000	0.117
165.00	-1.79	-5.52	0.00	-14.81	0.00	14.81	860.35	430.17	700.97	351.00	74.53	-4.308	0.000	0.044
167.00	-0.26	-0.59	0.00	-3.77	0.00	3.77	845.61	422.80	672.74	336.87	76.34	-4.317	0.000	0.011
170.00	-0.17	-0.39	0.00	-2.00	0.00	2.00	823.02	411.51	631.10	316.02	79.05	-4.321	0.000	0.007
175.00	-0.03	-0.06	0.00	-0.06	0.00	0.06	775.68	387.84	557.61	279.22	83.57	-4.324	0.000	0.000
176.00	0.00	-0.06	0.00	0.00	0.00	0.00	765.44	382.72	542.91	271.86	84.48	-4.324	0.000	0.000

Wind Loading - Shaft

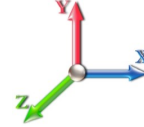
Structure: CT13611-A-SBA	Code: EIA/TIA-222-G	11/4/2016
Site Name: BSA	Exposure: C	
Height: 176.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



Load Case: 1.2D + 1.0Di + 1.0Wi 50 mph Wind

Iterations 26

Dead Load Factor 1.20
Wind Load Factor 1.00



Elev (ft)	Description	Kzt	Kz	qz (psf)	qzGh (psf)	C (mph-ft)	Cf	Ice Thick (in)	Tributary (ft)	Aa (sf)	CfAa (sf)	Wind Force X (lb)	Dead Load Ice (lb)	Tot Dead Load (lb)
0.00		1.00	0.85	5.168	5.68	0.00	1.200	0.000	0.00	0.000	0.00	0.0	0.0	0.0
5.00		1.00	0.85	5.168	5.68	0.00	1.200	1.656	5.00	25.040	30.05	170.8	591.3	1941.0
10.00		1.00	0.85	5.168	5.68	0.00	1.200	1.775	5.00	24.649	29.58	168.2	622.1	1943.8
15.00		1.00	0.85	5.168	5.68	0.00	1.200	1.848	5.00	24.221	29.06	165.2	635.3	1928.8
20.00		1.00	0.90	5.483	6.03	0.00	1.200	1.902	5.00	23.776	28.53	172.1	640.7	1906.1
25.00		1.00	0.95	5.747	6.32	0.00	1.200	1.945	5.00	23.322	27.99	176.9	641.5	1878.8
30.00		1.00	0.98	5.972	6.57	0.00	1.200	1.981	5.00	22.862	27.43	180.2	639.4	1848.5
35.00		1.00	1.01	6.169	6.79	0.00	1.200	2.012	5.00	22.398	26.88	182.4	635.1	1816.1
40.00		1.00	1.04	6.345	6.98	0.00	1.200	2.039	5.00	21.930	26.32	183.7	629.2	1782.1
45.00		1.00	1.07	6.504	7.15	0.00	1.200	2.063	5.00	21.461	25.75	184.3	622.0	1746.7
45.29 Bot - Section 2		1.00	1.07	6.513	7.16	0.00	1.200	2.064	0.29	1.244	1.49	10.7	36.5	101.6
50.00		1.00	1.09	6.650	7.32	0.00	1.200	2.085	4.71	20.043	24.05	175.9	587.0	2667.1
51.71 Top - Section 1		1.00	1.10	6.697	7.37	0.00	1.200	2.092	1.71	7.176	8.61	63.4	212.2	955.6
55.00		1.00	1.12	6.785	7.46	0.00	1.200	2.105	3.29	13.653	16.38	122.3	404.3	1116.2
60.00		1.00	1.14	6.910	7.60	0.00	1.200	2.123	5.00	20.359	24.43	185.7	604.7	1663.3
65.00		1.00	1.16	7.028	7.73	0.00	1.200	2.140	5.00	19.883	23.86	184.5	594.3	1624.7
70.00		1.00	1.17	7.138	7.85	0.00	1.200	2.156	5.00	19.407	23.29	182.9	583.3	1585.6
75.00		1.00	1.19	7.243	7.97	0.00	1.200	2.171	5.00	18.929	22.72	181.0	571.8	1545.9
80.00		1.00	1.21	7.342	8.08	0.00	1.200	2.185	5.00	18.451	22.14	178.8	559.8	1505.8
85.00		1.00	1.22	7.436	8.18	0.00	1.200	2.198	5.00	17.972	21.57	176.4	547.4	1465.3
90.00		1.00	1.24	7.526	8.28	0.00	1.200	2.211	5.00	17.493	20.99	173.8	534.7	1424.5
91.42 Bot - Section 3		1.00	1.24	7.551	8.31	0.00	1.200	2.215	1.42	4.868	5.84	48.5	150.5	397.4
95.00		1.00	1.25	7.612	8.37	0.00	1.200	2.223	3.58	12.333	14.80	123.9	380.1	1516.9
96.58 Top - Section 2		1.00	1.26	7.639	8.40	0.00	1.200	2.227	1.58	5.370	6.44	54.1	166.6	660.5
100.00		1.00	1.27	7.695	8.46	0.00	1.200	2.234	3.42	11.425	13.71	116.1	353.3	834.9
105.00		1.00	1.28	7.774	8.55	0.00	1.200	2.245	5.00	16.317	19.58	167.4	503.4	1188.5
110.00		1.00	1.29	7.851	8.64	0.00	1.200	2.256	5.00	15.836	19.00	164.1	489.5	1151.2
115.00		1.00	1.30	7.925	8.72	0.00	1.200	2.266	5.00	15.354	18.43	160.6	475.4	1113.6
120.00		1.00	1.32	7.996	8.80	0.00	1.200	2.276	5.00	14.873	17.85	157.0	461.1	1075.8
125.00		1.00	1.33	8.065	8.87	0.00	1.200	2.285	5.00	14.390	17.27	153.2	446.5	1037.8
130.00		1.00	1.34	8.132	8.95	0.00	1.200	2.294	5.00	13.908	16.69	149.3	431.7	999.6
135.00		1.00	1.35	8.197	9.02	0.00	1.200	2.303	5.00	13.426	16.11	145.3	416.8	961.2
139.08 Bot - Section 4		1.00	1.36	8.248	9.07	0.00	1.200	2.309	4.08	10.606	12.73	115.5	330.3	757.5
140.00		1.00	1.36	8.260	9.09	0.00	1.200	2.311	0.92	2.365	2.84	25.8	74.6	225.8
142.92 Top - Section 3		1.00	1.36	8.296	9.13	0.00	1.200	2.316	2.92	7.419	8.90	81.2	232.3	704.7
145.00		1.00	1.37	8.321	9.15	0.00	1.200	2.319	2.08	5.198	6.24	57.1	163.3	288.5
150.00		1.00	1.38	8.381	9.22	0.00	1.200	2.327	5.00	12.135	14.56	134.2	376.4	666.9
155.00		1.00	1.39	8.439	9.28	0.00	1.200	2.335	5.00	11.652	13.98	129.8	360.8	637.3
160.00		1.00	1.40	8.495	9.34	0.00	1.200	2.342	5.00	11.168	13.40	125.2	345.1	607.5
165.00		1.00	1.41	8.551	9.41	0.00	1.200	2.349	5.00	10.684	12.82	120.6	329.2	577.5
167.00 Appurtenance(s)		1.00	1.41	8.572	9.43	0.00	1.200	2.352	2.00	4.138	4.97	46.8	129.1	224.5
170.00		1.00	1.42	8.604	9.46	0.00	1.200	2.356	3.00	6.061	7.27	68.8	187.9	326.8
175.00		1.00	1.42	8.657	9.52	0.00	1.200	2.363	5.00	9.716	11.66	111.0	297.0	517.2
176.00		1.00	1.43	8.667	9.53	0.00	1.200	2.364	1.00	1.885	2.26	21.6	58.8	101.1
Totals:								176.00				5,696.4		49,020.0

Discrete Appurtenance Forces

Structure: CT13611-A-SBA	Code: EIA/TIA-222-G	11/4/2016
Site Name: BSA	Exposure: C	
Height: 176.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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Load Case: 1.2D + 1.0Di + 1.0Wi 50 mph Wind

Dead Load Factor 1.20
Wind Load Factor 1.00



Iterations 26

No.	Elev (ft)	Description	Qty	qz (psf)	qzGh (psf)	CaAa x Ka	Ka	Total CaAa (sf)	Dead Load (lb)	Horiz Ecc (ft)	Vert Ecc (ft)	Wind FX (lb)	Mom Y (lb-ft)	Mom Z (lb-ft)
1	167.00	7770.00	6	8.572	9.429	0.58	0.80	24.42	1432.98	0.000	0.000	230.24	0.00	0.00
2	167.00	AM-X-CD-17-65-00T-RET	3	8.572	9.429	0.60	0.80	21.21	667.18	0.000	0.000	200.03	0.00	0.00
3	167.00	Powerwave LGP21401	6	8.572	9.429	0.80	0.80	11.60	261.09	0.000	0.000	109.36	0.00	0.00
4	167.00	Ericsson RRUS-11	3	8.572	9.429	0.58	0.80	6.03	370.43	0.000	0.000	56.84	0.00	0.00
5	167.00	Ericsson LGP 21901	6	8.572	9.429	0.60	0.80	2.61	88.59	0.000	0.000	24.64	0.00	0.00
6	167.00	Raycap DC6-48-60-18-8F	1	8.572	9.429	0.80	0.80	1.21	103.78	0.000	0.000	11.39	0.00	0.00
7	167.00	Low Profile Platform	1	8.572	9.429	1.00	1.00	53.22	2551.24	0.000	0.000	501.88	0.00	0.00
8	167.00	Ericsson RRUS-12	3	8.572	9.429	0.60	0.80	7.47	452.83	0.000	0.000	70.45	0.00	0.00
Totals:									5,928.12			1,204.84		

Total Applied Force Summary

Structure: CT13611-A-SBA	Code: EIA/TIA-222-G	11/4/2016
Site Name: BSA	Exposure: C	
Height: 176.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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Load Case: 1.2D + 1.0Di + 1.0Wi 50 mph Wind

Dead Load Factor 1.20
Wind Load Factor 1.00



Iterations 26

Elev (ft)	Description	Lateral FX (-) (lb)	Axial FY (-) (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)
0.00		0.00	0.00	0.00	0.00
5.00		170.82	2030.86	0.00	0.00
10.00		168.15	2033.59	0.00	0.00
15.00		165.23	2018.63	0.00	0.00
20.00		172.09	1995.87	0.00	0.00
25.00		176.93	1968.60	0.00	0.00
30.00		180.22	1938.34	0.00	0.00
35.00		182.39	1905.93	0.00	0.00
40.00		183.67	1871.88	0.00	0.00
45.00		184.25	1836.55	0.00	0.00
45.29		10.69	106.84	0.00	0.00
50.00		175.94	2751.64	0.00	0.00
51.71		63.44	986.34	0.00	0.00
55.00		122.28	1175.32	0.00	0.00
60.00		185.71	1753.09	0.00	0.00
65.00		184.45	1714.52	0.00	0.00
70.00		182.86	1675.38	0.00	0.00
75.00		180.97	1635.73	0.00	0.00
80.00		178.81	1595.64	0.00	0.00
85.00		176.41	1555.14	0.00	0.00
90.00		173.79	1514.28	0.00	0.00
91.42		48.52	422.89	0.00	0.00
95.00		123.92	1581.28	0.00	0.00
96.58		54.15	688.94	0.00	0.00
100.00		116.05	896.28	0.00	0.00
105.00		167.45	1278.29	0.00	0.00
110.00		164.11	1240.97	0.00	0.00
115.00		160.62	1203.41	0.00	0.00
120.00		156.98	1165.62	0.00	0.00
125.00		153.20	1127.62	0.00	0.00
130.00		149.29	1089.42	0.00	0.00
135.00		145.26	1051.03	0.00	0.00
139.08		115.47	830.87	0.00	0.00
140.00		25.79	242.22	0.00	0.00
142.92		81.24	757.14	0.00	0.00
145.00		57.10	325.89	0.00	0.00
150.00		134.24	756.73	0.00	0.00
155.00		129.79	727.07	0.00	0.00
160.00		125.24	697.27	0.00	0.00
165.00		120.59	667.33	0.00	0.00
167.00	(29) attachments	1251.66	6188.56	0.00	0.00
170.00		68.84	326.78	0.00	0.00
175.00		111.03	517.24	0.00	0.00
176.00		21.56	101.11	0.00	0.00
Totals:		6,901.21	57,948.15	0.00	0.00

Calculated Forces

Structure: CT13611-A-SBA	Code: EIA/TIA-222-G	11/4/2016
Site Name: BSA	Exposure: C	
Height: 176.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II

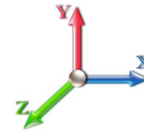


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Load Case: 1.2D + 1.0Di + 1.0Wi 50 mph Wind

Iterations 26

Dead Load Factor 1.20
Wind Load Factor 1.00



Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-57.95	-6.92	0.00	-721.09	0.00	721.09	4317.41	2158.71	9968.41	4991.62	0.00	0.000	0.000	0.158
5.00	-55.91	-6.79	0.00	-686.49	0.00	686.49	4266.06	2133.03	9645.32	4829.83	0.02	-0.038	0.000	0.155
10.00	-53.87	-6.65	0.00	-652.57	0.00	652.57	4213.11	2106.56	9323.64	4668.75	0.08	-0.076	0.000	0.153
15.00	-51.85	-6.52	0.00	-619.31	0.00	619.31	4158.58	2079.29	9003.59	4508.49	0.18	-0.114	0.000	0.150
20.00	-49.85	-6.38	0.00	-586.72	0.00	586.72	4102.46	2051.23	8685.41	4349.16	0.32	-0.153	0.000	0.147
25.00	-47.88	-6.23	0.00	-554.84	0.00	554.84	4044.75	2022.37	8369.33	4190.89	0.50	-0.193	0.000	0.144
30.00	-45.94	-6.07	0.00	-523.71	0.00	523.71	3985.45	1992.73	8055.57	4033.77	0.73	-0.233	0.000	0.141
35.00	-44.03	-5.91	0.00	-493.36	0.00	493.36	3924.57	1962.28	7744.37	3877.94	0.99	-0.273	0.000	0.138
40.00	-42.15	-5.75	0.00	-463.80	0.00	463.80	3862.10	1931.05	7435.94	3723.50	1.30	-0.314	0.000	0.135
45.00	-40.31	-5.57	0.00	-435.06	0.00	435.06	3798.04	1899.02	7130.53	3570.56	1.65	-0.356	0.000	0.132
45.29	-40.21	-5.57	0.00	-433.43	0.00	433.43	3794.23	1897.11	7112.71	3561.64	1.67	-0.358	0.000	0.132
50.00	-37.45	-5.40	0.00	-407.21	0.00	407.21	3732.39	1866.19	6828.35	3419.25	2.05	-0.398	0.000	0.129
51.71	-36.46	-5.34	0.00	-397.98	0.00	397.98	3752.64	1876.32	6920.41	3465.35	2.19	-0.412	0.000	0.125
55.00	-35.29	-5.23	0.00	-380.42	0.00	380.42	3708.89	1854.45	6722.75	3366.37	2.49	-0.440	0.000	0.123
60.00	-33.53	-5.05	0.00	-354.27	0.00	354.27	3641.10	1820.55	6425.31	3217.43	2.97	-0.481	0.000	0.119
65.00	-31.82	-4.88	0.00	-329.01	0.00	329.01	3571.72	1785.86	6131.65	3070.38	3.50	-0.522	0.000	0.116
70.00	-30.14	-4.70	0.00	-304.63	0.00	304.63	3500.75	1750.37	5841.99	2925.34	4.06	-0.563	0.000	0.113
75.00	-28.50	-4.52	0.00	-281.14	0.00	281.14	3428.19	1714.09	5556.57	2782.41	4.68	-0.604	0.000	0.109
80.00	-26.90	-4.35	0.00	-258.53	0.00	258.53	3354.04	1677.02	5275.60	2641.72	5.33	-0.645	0.000	0.106
85.00	-25.35	-4.17	0.00	-236.80	0.00	236.80	3278.31	1639.15	4999.32	2503.38	6.03	-0.687	0.000	0.102
90.00	-23.83	-3.99	0.00	-215.96	0.00	215.96	3186.62	1593.31	4706.74	2356.87	6.77	-0.728	0.000	0.099
91.42	-23.41	-3.94	0.00	-210.31	0.00	210.31	3157.61	1578.81	4621.01	2313.94	6.99	-0.740	0.000	0.098
95.00	-21.83	-3.81	0.00	-196.18	0.00	196.18	3084.25	1542.12	4407.69	2207.12	7.55	-0.771	0.000	0.096
96.58	-21.14	-3.75	0.00	-190.16	0.00	190.16	2497.75	1248.88	3609.06	1807.21	7.81	-0.784	0.000	0.114
100.00	-20.24	-3.64	0.00	-177.34	0.00	177.34	2457.75	1228.87	3470.74	1737.95	8.38	-0.813	0.000	0.110
105.00	-18.97	-3.46	0.00	-159.17	0.00	159.17	2397.86	1198.93	3271.22	1638.04	9.26	-0.860	0.000	0.105
110.00	-17.72	-3.30	0.00	-141.85	0.00	141.85	2336.39	1168.19	3075.35	1539.96	10.19	-0.907	0.000	0.100
115.00	-16.52	-3.13	0.00	-125.37	0.00	125.37	2273.33	1136.66	2883.37	1443.83	11.16	-0.952	0.000	0.094
120.00	-15.36	-2.96	0.00	-109.72	0.00	109.72	2194.33	1097.17	2677.99	1340.98	12.18	-0.998	0.000	0.089
125.00	-14.23	-2.80	0.00	-94.91	0.00	94.91	2109.02	1054.51	2472.77	1238.23	13.25	-1.042	0.000	0.083
130.00	-13.14	-2.64	0.00	-80.90	0.00	80.90	2023.72	1011.86	2275.74	1139.56	14.37	-1.084	0.000	0.077
135.00	-12.09	-2.48	0.00	-67.69	0.00	67.69	1938.41	969.21	2086.89	1045.00	15.52	-1.125	0.000	0.071
139.08	-11.26	-2.36	0.00	-57.55	0.00	57.55	1868.74	934.37	1938.73	970.81	16.50	-1.157	0.000	0.065
140.00	-11.02	-2.33	0.00	-55.39	0.00	55.39	1853.10	926.55	1906.22	954.53	16.72	-1.164	0.000	0.064
142.92	-10.26	-2.23	0.00	-48.60	0.00	48.60	1006.21	503.11	1032.86	517.20	17.44	-1.186	0.000	0.104
145.00	-9.94	-2.18	0.00	-43.95	0.00	43.95	993.78	496.89	1000.24	500.86	17.96	-1.200	0.000	0.098
150.00	-9.18	-2.03	0.00	-33.07	0.00	33.07	962.80	481.40	922.91	462.14	19.25	-1.250	0.000	0.081
155.00	-8.46	-1.89	0.00	-22.90	0.00	22.90	930.24	465.12	847.10	424.18	20.58	-1.292	0.000	0.063
160.00	-7.76	-1.75	0.00	-13.44	0.00	13.44	896.09	448.04	773.04	387.10	21.95	-1.323	0.000	0.043
165.00	-7.10	-1.62	0.00	-4.67	0.00	4.67	860.35	430.17	700.97	351.00	23.35	-1.342	0.000	0.022
167.00	-0.94	-0.22	0.00	-1.43	0.00	1.43	845.61	422.80	672.74	336.87	23.91	-1.345	0.000	0.005
170.00	-0.62	-0.15	0.00	-0.76	0.00	0.76	823.02	411.51	631.10	316.02	24.76	-1.346	0.000	0.003
175.00	-0.10	-0.02	0.00	-0.02	0.00	0.02	775.68	387.84	557.61	279.22	26.17	-1.348	0.000	0.000
176.00	0.00	-0.02	0.00	0.00	0.00	0.00	765.44	382.72	542.91	271.86	26.45	-1.348	0.000	0.000

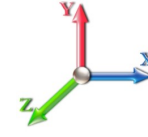
Seismic Segment Forces (Factored)

Structure: CT13611-A-SBA	Code: EIA/TIA-222-G	11/4/2016
Site Name: BSA	Exposure: C	
Height: 176.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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Load Case: 1.2D + 1.0E				Iterations 24
Gust Response Factor	1.10	Sds	0.18	Ss 0.17
Dead Load Factor	1.20	Seismic Load Factor	1.00	S1 0.06
Wind Load Factor	0.00	Structure Frequency	0.39	SA 0.04
				Seismic Importance Factor 1.00



Top Elev (ft)	Description	Wz (lb)	a	b	c	Lateral Fs (lb)	R: 1.50
0.00		0.00	0.00	0.00	0.00	0.00	
5.00		1124.8	0.00	0.03	0.02	16.02	
10.00		1101.3	0.01	0.05	0.03	23.96	
15.00		1077.9	0.01	0.06	0.03	27.96	
20.00		1054.4	0.02	0.07	0.04	29.87	
25.00		1031.0	0.04	0.07	0.04	30.66	
30.00		1007.6	0.05	0.07	0.04	30.90	
35.00		984.16	0.07	0.07	0.04	30.91	
40.00		960.71	0.10	0.07	0.04	30.84	
45.00		937.27	0.12	0.07	0.03	30.70	
45.29	Bot - Section 2	54.26	0.13	0.07	0.03	1.78	
50.00		1733.4	0.15	0.07	0.03	57.75	
51.71	Top - Section 1	619.49	0.16	0.07	0.03	20.73	
55.00		593.23	0.18	0.06	0.03	19.94	
60.00		882.13	0.22	0.06	0.02	29.45	
65.00		858.69	0.26	0.05	0.02	27.77	
70.00		835.24	0.30	0.05	0.01	25.14	
75.00		811.80	0.34	0.03	0.01	21.37	
80.00		788.36	0.39	0.02	0.01	16.36	
85.00		764.91	0.44	0.00	0.01	10.21	
90.00		741.47	0.49	-0.01	0.01	3.30	
91.42	Bot - Section 3	205.82	0.51	-0.02	0.01	0.36	
95.00		947.36	0.55	-0.03	0.01	-4.88	
96.58	Top - Section 2	411.57	0.57	-0.04	0.01	-3.36	
100.00		401.34	0.61	-0.06	0.02	-5.77	
105.00		570.89	0.67	-0.08	0.02	-12.61	
110.00		551.35	0.74	-0.10	0.04	-15.07	
115.00		531.82	0.81	-0.11	0.06	-15.69	
120.00		512.28	0.88	-0.12	0.08	-14.47	
125.00		492.74	0.95	-0.12	0.11	-11.56	
130.00		473.21	1.03	-0.10	0.15	-7.14	
135.00		453.67	1.11	-0.06	0.19	-1.43	
139.08	Bot - Section 4	356.01	1.18	-0.01	0.24	3.29	
140.00		125.93	1.20	0.00	0.25	1.55	
142.92	Top - Section 3	393.71	1.25	0.05	0.29	9.07	
145.00		104.34	1.28	0.10	0.32	3.28	
150.00		242.10	1.37	0.23	0.40	13.09	
155.00		230.38	1.47	0.42	0.50	18.52	
160.00		218.66	1.56	0.67	0.62	24.15	
165.00		206.94	1.66	0.98	0.76	29.84	
167.00	Appurtenance(s)	2076.2	1.70	1.13	0.82	329.67	
170.00		115.72	1.76	1.38	0.92	21.04	
175.00		183.49	1.87	1.87	1.10	40.97	
176.00		35.29	1.89	1.98	1.14	8.19	
Totals:		27,803.3				896.7	Total Wind: 22,630.3

Seismic Base Shear is Less Than 50% of Wind Force - An Analysis is NOT Required

Calculated Forces

Structure: CT13611-A-SBA	Code: EIA/TIA-222-G	11/4/2016
Site Name: BSA	Exposure: C	
Height: 176.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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Load Case: 1.2D + 1.0E							Iterations 24
Gust Response Factor	1.10			Sds	0.18		Ss 0.17
Dead Load Factor	1.20	Seismic Load Factor	1.00	Sd1	0.10		S1 0.06
Wind Load Factor	0.00	Structure Frequency	0.39	SA	0.04	Seismic Importance Factor	1.00

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-36.36	-0.99	0.00	-107.96	0.00	107.96	4317.41	2158.71	9968.41	4991.62	0.00	0.00	0.00	0.030
5.00	-34.92	-0.98	0.00	-103.01	0.00	103.01	4266.06	2133.03	9645.32	4829.83	0.00	-0.01	0.00	0.030
10.00	-33.51	-0.96	0.00	-98.12	0.00	98.12	4213.11	2106.56	9323.64	4668.75	0.01	-0.01	0.00	0.029
15.00	-32.13	-0.93	0.00	-93.34	0.00	93.34	4158.58	2079.29	9003.59	4508.49	0.03	-0.02	0.00	0.028
20.00	-30.77	-0.90	0.00	-88.68	0.00	88.68	4102.46	2051.23	8685.41	4349.16	0.05	-0.02	0.00	0.028
25.00	-29.45	-0.88	0.00	-84.16	0.00	84.16	4044.75	2022.37	8369.33	4190.89	0.08	-0.03	0.00	0.027
30.00	-28.15	-0.85	0.00	-79.78	0.00	79.78	3985.45	1992.73	8055.57	4033.77	0.11	-0.04	0.00	0.027
35.00	-26.88	-0.82	0.00	-75.54	0.00	75.54	3924.57	1962.28	7744.37	3877.94	0.15	-0.04	0.00	0.026
40.00	-25.63	-0.79	0.00	-71.45	0.00	71.45	3862.10	1931.05	7435.94	3723.50	0.20	-0.05	0.00	0.026
45.00	-24.42	-0.76	0.00	-67.50	0.00	67.50	3798.04	1899.02	7130.53	3570.56	0.25	-0.05	0.00	0.025
45.29	-24.35	-0.76	0.00	-67.28	0.00	67.28	3794.23	1897.11	7112.71	3561.64	0.25	-0.05	0.00	0.025
50.00	-22.18	-0.70	0.00	-63.71	0.00	63.71	3732.39	1866.19	6828.35	3419.25	0.31	-0.06	0.00	0.025
51.71	-21.41	-0.68	0.00	-62.51	0.00	62.51	3752.64	1876.32	6920.41	3465.35	0.33	-0.06	0.00	0.024
55.00	-20.64	-0.66	0.00	-60.27	0.00	60.27	3708.89	1854.45	6722.75	3366.37	0.38	-0.07	0.00	0.023
60.00	-19.49	-0.63	0.00	-56.97	0.00	56.97	3641.10	1820.55	6425.31	3217.43	0.45	-0.07	0.00	0.023
65.00	-18.37	-0.61	0.00	-53.80	0.00	53.80	3571.72	1785.86	6131.65	3070.38	0.53	-0.08	0.00	0.023
70.00	-17.28	-0.58	0.00	-50.77	0.00	50.77	3500.75	1750.37	5841.99	2925.34	0.62	-0.09	0.00	0.022
75.00	-16.21	-0.56	0.00	-47.87	0.00	47.87	3428.19	1714.09	5556.57	2782.41	0.71	-0.09	0.00	0.022
80.00	-15.18	-0.54	0.00	-45.07	0.00	45.07	3354.04	1677.02	5275.60	2641.72	0.82	-0.10	0.00	0.022
85.00	-14.17	-0.53	0.00	-42.35	0.00	42.35	3278.31	1639.15	4999.32	2503.38	0.93	-0.11	0.00	0.021
90.00	-13.19	-0.53	0.00	-39.68	0.00	39.68	3186.62	1593.31	4706.74	2356.87	1.04	-0.12	0.00	0.021
91.42	-12.92	-0.53	0.00	-38.93	0.00	38.93	3157.61	1578.81	4621.01	2313.94	1.08	-0.12	0.00	0.021
95.00	-11.72	-0.53	0.00	-37.03	0.00	37.03	3084.25	1542.12	4407.69	2207.12	1.17	-0.12	0.00	0.021
96.58	-11.20	-0.53	0.00	-36.20	0.00	36.20	2497.75	1248.88	3609.06	1807.21	1.21	-0.13	0.00	0.025
100.00	-10.65	-0.53	0.00	-34.40	0.00	34.40	2457.75	1228.87	3470.74	1737.95	1.30	-0.13	0.00	0.024
105.00	-9.88	-0.53	0.00	-31.76	0.00	31.76	2397.86	1198.93	3271.22	1638.04	1.45	-0.14	0.00	0.024
110.00	-9.13	-0.53	0.00	-29.12	0.00	29.12	2336.39	1168.19	3075.35	1539.96	1.60	-0.15	0.00	0.023
115.00	-8.40	-0.53	0.00	-26.49	0.00	26.49	2273.33	1136.66	2883.37	1443.83	1.76	-0.16	0.00	0.022
120.00	-7.69	-0.53	0.00	-23.86	0.00	23.86	2194.33	1097.17	2677.99	1340.98	1.94	-0.17	0.00	0.021
125.00	-7.01	-0.52	0.00	-21.23	0.00	21.23	2109.02	1054.51	2472.77	1238.23	2.12	-0.18	0.00	0.020
130.00	-6.35	-0.52	0.00	-18.60	0.00	18.60	2023.72	1011.86	2275.74	1139.56	2.31	-0.19	0.00	0.019
135.00	-5.72	-0.52	0.00	-15.98	0.00	15.98	1938.41	969.21	2086.89	1045.00	2.52	-0.20	0.00	0.018
139.08	-5.22	-0.52	0.00	-13.85	0.00	13.85	1868.74	934.37	1938.73	970.81	2.69	-0.21	0.00	0.017
140.00	-5.05	-0.52	0.00	-13.38	0.00	13.38	1853.10	926.55	1906.22	954.53	2.73	-0.21	0.00	0.017
142.92	-4.53	-0.51	0.00	-11.87	0.00	11.87	1006.21	503.11	1032.86	517.20	2.86	-0.21	0.00	0.027
145.00	-4.36	-0.50	0.00	-10.82	0.00	10.82	993.78	496.89	1000.24	500.86	2.95	-0.22	0.00	0.026
150.00	-3.98	-0.49	0.00	-8.31	0.00	8.31	962.80	481.40	922.91	462.14	3.18	-0.23	0.00	0.022
155.00	-3.62	-0.47	0.00	-5.86	0.00	5.86	930.24	465.12	847.10	424.18	3.43	-0.24	0.00	0.018
160.00	-3.27	-0.44	0.00	-3.52	0.00	3.52	896.09	448.04	773.04	387.10	3.69	-0.25	0.00	0.013
165.00	-2.93	-0.41	0.00	-1.30	0.00	1.30	860.35	430.17	700.97	351.00	3.95	-0.25	0.00	0.007
167.00	-0.40	-0.07	0.00	-0.48	0.00	0.48	845.61	422.80	672.74	336.87	4.06	-0.25	0.00	0.002
170.00	-0.26	-0.05	0.00	-0.26	0.00	0.26	823.02	411.51	631.10	316.02	4.22	-0.25	0.00	0.001
175.00	-0.04	-0.01	0.00	-0.01	0.00	0.01	775.68	387.84	557.61	279.22	4.48	-0.25	0.00	0.000
176.00	0.00	-0.01	0.00	0.00	0.00	0.00	765.44	382.72	542.91	271.86	4.54	-0.25	0.00	0.000

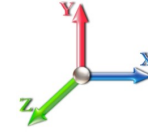
Seismic Segment Forces (Factored)

Structure: CT13611-A-SBA	Code: EIA/TIA-222-G	11/4/2016
Site Name: BSA	Exposure: C	
Height: 176.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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Load Case: 0.9D + 1.0E					Iterations 23
Gust Response Factor	1.10	Sds	0.18	Ss	0.17
Dead Load Factor	0.90	Seismic Load Factor	1.00	Sd1	0.10
Wind Load Factor	0.00	Structure Frequency	0.39	SA	0.04
					Seismic Importance Factor 1.00



Top Elev (ft)	Description	Wz (lb)	a	b	c	Lateral Fs (lb)	R: 1.50
0.00		0.00	0.00	0.00	0.00	0.00	
5.00		1124.8	0.00	0.03	0.02	16.02	
10.00		1101.3	0.01	0.05	0.03	23.96	
15.00		1077.9	0.01	0.06	0.03	27.96	
20.00		1054.4	0.02	0.07	0.04	29.87	
25.00		1031.0	0.04	0.07	0.04	30.66	
30.00		1007.6	0.05	0.07	0.04	30.90	
35.00		984.16	0.07	0.07	0.04	30.91	
40.00		960.71	0.10	0.07	0.04	30.84	
45.00		937.27	0.12	0.07	0.03	30.70	
45.29	Bot - Section 2	54.26	0.13	0.07	0.03	1.78	
50.00		1733.4	0.15	0.07	0.03	57.75	
51.71	Top - Section 1	619.49	0.16	0.07	0.03	20.73	
55.00		593.23	0.18	0.06	0.03	19.94	
60.00		882.13	0.22	0.06	0.02	29.45	
65.00		858.69	0.26	0.05	0.02	27.77	
70.00		835.24	0.30	0.05	0.01	25.14	
75.00		811.80	0.34	0.03	0.01	21.37	
80.00		788.36	0.39	0.02	0.01	16.36	
85.00		764.91	0.44	0.00	0.01	10.21	
90.00		741.47	0.49	-0.01	0.01	3.30	
91.42	Bot - Section 3	205.82	0.51	-0.02	0.01	0.36	
95.00		947.36	0.55	-0.03	0.01	-4.88	
96.58	Top - Section 2	411.57	0.57	-0.04	0.01	-3.36	
100.00		401.34	0.61	-0.06	0.02	-5.77	
105.00		570.89	0.67	-0.08	0.02	-12.61	
110.00		551.35	0.74	-0.10	0.04	-15.07	
115.00		531.82	0.81	-0.11	0.06	-15.69	
120.00		512.28	0.88	-0.12	0.08	-14.47	
125.00		492.74	0.95	-0.12	0.11	-11.56	
130.00		473.21	1.03	-0.10	0.15	-7.14	
135.00		453.67	1.11	-0.06	0.19	-1.43	
139.08	Bot - Section 4	356.01	1.18	-0.01	0.24	3.29	
140.00		125.93	1.20	0.00	0.25	1.55	
142.92	Top - Section 3	393.71	1.25	0.05	0.29	9.07	
145.00		104.34	1.28	0.10	0.32	3.28	
150.00		242.10	1.37	0.23	0.40	13.09	
155.00		230.38	1.47	0.42	0.50	18.52	
160.00		218.66	1.56	0.67	0.62	24.15	
165.00		206.94	1.66	0.98	0.76	29.84	
167.00	Appurtenance(s)	2076.2	1.70	1.13	0.82	329.67	
170.00		115.72	1.76	1.38	0.92	21.04	
175.00		183.49	1.87	1.87	1.10	40.97	
176.00		35.29	1.89	1.98	1.14	8.19	
Totals:		27,803.3				896.7	Total Wind: 22,630.3

Seismic Base Shear is Less Than 50% of Wind Force - An Analysis is NOT Required

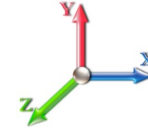
Calculated Forces

Structure: CT13611-A-SBA	Code: EIA/TIA-222-G	11/4/2016
Site Name: BSA	Exposure: C	
Height: 176.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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Load Case: 0.9D + 1.0E										Iterations 23
Gust Response Factor	1.10						Sds	0.18		Ss 0.17
Dead Load Factor	0.90	Seismic Load Factor	1.00	Sd1	0.10					S1 0.06
Wind Load Factor	0.00	Structure Frequency	0.39	SA	0.04	Seismic Importance Factor	1.00			



Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-27.27	-0.99	0.00	-106.95	0.00	106.95	4317.41	2158.71	9968.41	4991.62	0.00	0.00	0.00	0.028
5.00	-26.19	-0.97	0.00	-102.00	0.00	102.00	4266.06	2133.03	9645.32	4829.83	0.00	-0.01	0.00	0.027
10.00	-25.13	-0.95	0.00	-97.13	0.00	97.13	4213.11	2106.56	9323.64	4668.75	0.01	-0.01	0.00	0.027
15.00	-24.10	-0.93	0.00	-92.36	0.00	92.36	4158.58	2079.29	9003.59	4508.49	0.03	-0.02	0.00	0.026
20.00	-23.08	-0.90	0.00	-87.72	0.00	87.72	4102.46	2051.23	8685.41	4349.16	0.05	-0.02	0.00	0.026
25.00	-22.08	-0.87	0.00	-83.23	0.00	83.23	4044.75	2022.37	8369.33	4190.89	0.07	-0.03	0.00	0.025
30.00	-21.11	-0.84	0.00	-78.87	0.00	78.87	3985.45	1992.73	8055.57	4033.77	0.11	-0.03	0.00	0.025
35.00	-20.16	-0.81	0.00	-74.66	0.00	74.66	3924.57	1962.28	7744.37	3877.94	0.15	-0.04	0.00	0.024
40.00	-19.23	-0.78	0.00	-70.60	0.00	70.60	3862.10	1931.05	7435.94	3723.50	0.19	-0.05	0.00	0.024
45.00	-18.31	-0.75	0.00	-66.69	0.00	66.69	3798.04	1899.02	7130.53	3570.56	0.23	-0.05	0.00	0.023
45.29	-18.26	-0.75	0.00	-66.47	0.00	66.47	3794.23	1897.11	7112.71	3561.64	0.25	-0.05	0.00	0.023
50.00	-16.64	-0.69	0.00	-62.93	0.00	62.93	3732.39	1866.19	6828.35	3419.25	0.31	-0.06	0.00	0.023
51.71	-16.06	-0.67	0.00	-61.74	0.00	61.74	3752.64	1876.32	6920.41	3465.35	0.33	-0.06	0.00	0.022
55.00	-15.48	-0.65	0.00	-59.53	0.00	59.53	3708.89	1854.45	6722.75	3366.37	0.37	-0.07	0.00	0.022
60.00	-14.62	-0.63	0.00	-56.26	0.00	56.26	3641.10	1820.55	6425.31	3217.43	0.45	-0.07	0.00	0.022
65.00	-13.78	-0.60	0.00	-53.13	0.00	53.13	3571.72	1785.86	6131.65	3070.38	0.53	-0.08	0.00	0.021
70.00	-12.96	-0.57	0.00	-50.14	0.00	50.14	3500.75	1750.37	5841.99	2925.34	0.61	-0.09	0.00	0.021
75.00	-12.16	-0.55	0.00	-47.28	0.00	47.28	3428.19	1714.09	5556.57	2782.41	0.71	-0.09	0.00	0.021
80.00	-11.38	-0.54	0.00	-44.52	0.00	44.52	3354.04	1677.02	5275.60	2641.72	0.81	-0.10	0.00	0.020
85.00	-10.63	-0.53	0.00	-41.84	0.00	41.84	3278.31	1639.15	4999.32	2503.38	0.92	-0.11	0.00	0.020
90.00	-9.89	-0.52	0.00	-39.21	0.00	39.21	3186.62	1593.31	4706.74	2356.87	1.03	-0.11	0.00	0.020
91.42	-9.69	-0.52	0.00	-38.47	0.00	38.47	3157.61	1578.81	4621.01	2313.94	1.07	-0.12	0.00	0.020
95.00	-8.79	-0.52	0.00	-36.60	0.00	36.60	3084.25	1542.12	4407.69	2207.12	1.16	-0.12	0.00	0.019
96.58	-8.40	-0.52	0.00	-35.78	0.00	35.78	2497.75	1248.88	3609.06	1807.21	1.20	-0.13	0.00	0.023
100.00	-7.99	-0.52	0.00	-34.00	0.00	34.00	2457.75	1228.87	3470.74	1737.95	1.29	-0.13	0.00	0.023
105.00	-7.41	-0.52	0.00	-31.40	0.00	31.40	2397.86	1198.93	3271.22	1638.04	1.43	-0.14	0.00	0.022
110.00	-6.84	-0.52	0.00	-28.80	0.00	28.80	2336.39	1168.19	3075.35	1539.96	1.58	-0.15	0.00	0.022
115.00	-6.30	-0.52	0.00	-26.20	0.00	26.20	2273.33	1136.66	2883.37	1443.83	1.74	-0.16	0.00	0.021
120.00	-5.77	-0.52	0.00	-23.61	0.00	23.61	2194.33	1097.17	2677.99	1340.98	1.91	-0.17	0.00	0.020
125.00	-5.26	-0.52	0.00	-21.01	0.00	21.01	2109.02	1054.51	2472.77	1238.23	2.09	-0.18	0.00	0.019
130.00	-4.77	-0.52	0.00	-18.42	0.00	18.42	2023.72	1011.86	2275.74	1139.56	2.29	-0.19	0.00	0.019
135.00	-4.29	-0.52	0.00	-15.83	0.00	15.83	1938.41	969.21	2086.89	1045.00	2.49	-0.20	0.00	0.017
139.08	-3.91	-0.51	0.00	-13.72	0.00	13.72	1868.74	934.37	1938.73	970.81	2.66	-0.20	0.00	0.016
140.00	-3.79	-0.51	0.00	-13.25	0.00	13.25	1853.10	926.55	1906.22	954.53	2.70	-0.21	0.00	0.016
142.92	-3.39	-0.50	0.00	-11.76	0.00	11.76	1006.21	503.11	1032.86	517.20	2.82	-0.21	0.00	0.026
145.00	-3.27	-0.50	0.00	-10.72	0.00	10.72	993.78	496.89	1000.24	500.86	2.92	-0.21	0.00	0.025
150.00	-2.99	-0.48	0.00	-8.23	0.00	8.23	962.80	481.40	922.91	462.14	3.15	-0.23	0.00	0.021
155.00	-2.71	-0.46	0.00	-5.81	0.00	5.81	930.24	465.12	847.10	424.18	3.39	-0.24	0.00	0.017
160.00	-2.45	-0.44	0.00	-3.49	0.00	3.49	896.09	448.04	773.04	387.10	3.65	-0.25	0.00	0.012
165.00	-2.19	-0.41	0.00	-1.29	0.00	1.29	860.35	430.17	700.97	351.00	3.91	-0.25	0.00	0.006
167.00	-0.30	-0.07	0.00	-0.47	0.00	0.47	845.61	422.80	672.74	336.87	4.01	-0.25	0.00	0.002
170.00	-0.20	-0.05	0.00	-0.26	0.00	0.26	823.02	411.51	631.10	316.02	4.17	-0.25	0.00	0.001
175.00	-0.03	-0.01	0.00	-0.01	0.00	0.01	775.68	387.84	557.61	279.22	4.43	-0.25	0.00	0.000
176.00	0.00	-0.01	0.00	0.00	0.00	0.00	765.44	382.72	542.91	271.86	4.48	-0.25	0.00	0.000

Wind Loading - Shaft

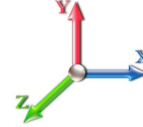
Structure: CT13611-A-SBA	Code: EIA/TIA-222-G	11/4/2016
Site Name: BSA	Exposure: C	
Height: 176.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



Load Case: 1.0D + 1.0W 60 mph Wind

Iterations 25

Dead Load Factor 1.00
Wind Load Factor 1.00



Elev (ft)	Description	Kzt	Kz	qz (psf)	qzGh (psf)	C (mph-ft)	Cf	Ice Thick (in)	Tributary (ft)	Aa (sf)	CfAa (sf)	Wind Force X (lb)	Dead Load Ice (lb)	Tot Dead Load (lb)
0.00		1.00	0.85	7.442	8.19	264.47	0.650	0.000	0.00	0.000	0.00	0.0	0.0	0.0
5.00		1.00	0.85	7.442	8.19	259.05	0.650	0.000	5.00	23.660	15.38	125.9	0.0	1124.8
10.00		1.00	0.85	7.442	8.19	253.63	0.650	0.000	5.00	23.170	15.06	123.3	0.0	1101.4
15.00		1.00	0.85	7.442	8.19	248.21	0.650	0.000	5.00	22.680	14.74	120.7	0.0	1077.9
20.00		1.00	0.90	7.896	8.69	250.09	0.650	0.000	5.00	22.191	14.42	125.3	0.0	1054.5
25.00		1.00	0.95	8.276	9.10	250.32	0.650	0.000	5.00	21.701	14.11	128.4	0.0	1031.0
30.00		1.00	0.98	8.600	9.46	249.35	0.650	0.000	5.00	21.211	13.79	130.4	0.0	1007.6
35.00		1.00	1.01	8.883	9.77	247.51	0.650	0.000	5.00	20.721	13.47	131.6	0.0	984.2
40.00		1.00	1.04	9.137	10.05	245.01	0.650	0.000	5.00	20.231	13.15	132.2	0.0	960.7
45.00		1.00	1.07	9.366	10.30	241.98	0.650	0.000	5.00	19.742	12.83	132.2	0.0	937.3
45.29 Bot - Section 2		1.00	1.07	9.379	10.32	241.79	0.650	0.000	0.29	1.143	0.74	7.7	0.0	54.3
50.00		1.00	1.09	9.576	10.53	238.54	0.650	0.000	4.71	18.407	11.96	126.0	0.0	1733.4
51.71 Top - Section 1		1.00	1.10	9.644	10.61	237.27	0.650	0.000	1.71	6.580	4.28	45.4	0.0	619.5
55.00		1.00	1.12	9.770	10.75	238.75	0.650	0.000	3.29	12.499	8.12	87.3	0.0	593.2
60.00		1.00	1.14	9.951	10.95	234.69	0.650	0.000	5.00	18.589	12.08	132.3	0.0	882.1
65.00		1.00	1.16	10.120	11.13	230.35	0.650	0.000	5.00	18.100	11.76	131.0	0.0	858.7
70.00		1.00	1.17	10.279	11.31	225.79	0.650	0.000	5.00	17.610	11.45	129.4	0.0	835.2
75.00		1.00	1.19	10.430	11.47	221.02	0.650	0.000	5.00	17.120	11.13	127.7	0.0	811.8
80.00		1.00	1.21	10.572	11.63	216.07	0.650	0.000	5.00	16.630	10.81	125.7	0.0	788.4
85.00		1.00	1.22	10.708	11.78	210.95	0.650	0.000	5.00	16.140	10.49	123.6	0.0	764.9
90.00		1.00	1.24	10.838	11.92	205.68	0.650	0.000	5.00	15.651	10.17	121.3	0.0	741.5
91.42 Bot - Section 3		1.00	1.24	10.873	11.96	204.16	0.650	0.000	1.42	4.345	2.82	33.8	0.0	205.8
95.00		1.00	1.25	10.962	12.06	200.28	0.650	0.000	3.58	11.005	7.15	86.3	0.0	947.4
96.58 Top - Section 2		1.00	1.26	11.000	12.10	198.54	0.650	0.000	1.58	4.783	3.11	37.6	0.0	411.6
100.00		1.00	1.27	11.081	12.19	198.32	0.650	0.000	3.42	10.153	6.60	80.4	0.0	401.3
105.00		1.00	1.28	11.195	12.31	192.70	0.650	0.000	5.00	14.446	9.39	115.6	0.0	570.9
110.00		1.00	1.29	11.305	12.44	186.96	0.650	0.000	5.00	13.956	9.07	112.8	0.0	551.4
115.00		1.00	1.30	11.412	12.55	181.13	0.650	0.000	5.00	13.466	8.75	109.9	0.0	531.8
120.00		1.00	1.32	11.514	12.67	175.20	0.650	0.000	5.00	12.976	8.43	106.8	0.0	512.3
125.00		1.00	1.33	11.614	12.78	169.19	0.650	0.000	5.00	12.486	8.12	103.7	0.0	492.7
130.00		1.00	1.34	11.710	12.88	163.09	0.650	0.000	5.00	11.997	7.80	100.4	0.0	473.2
135.00		1.00	1.35	11.803	12.98	156.91	0.650	0.000	5.00	11.507	7.48	97.1	0.0	453.7
139.08 Bot - Section 4		1.00	1.36	11.878	13.07	151.82	0.650	0.000	4.08	9.034	5.87	76.7	0.0	356.0
140.00		1.00	1.36	11.894	13.08	150.67	0.650	0.000	0.92	2.012	1.31	17.1	0.0	125.9
142.92 Top - Section 3		1.00	1.36	11.946	13.14	146.99	0.650	0.000	2.92	6.293	4.09	53.7	0.0	393.7
145.00		1.00	1.37	11.982	13.18	146.57	0.650	0.000	2.08	4.393	2.86	37.6	0.0	104.3
150.00		1.00	1.38	12.068	13.27	140.20	0.650	0.000	5.00	10.196	6.63	88.0	0.0	242.1
155.00		1.00	1.39	12.152	13.37	133.76	0.650	0.000	5.00	9.706	6.31	84.3	0.0	230.4
160.00		1.00	1.40	12.233	13.46	127.26	0.650	0.000	5.00	9.216	5.99	80.6	0.0	218.7
165.00		1.00	1.41	12.313	13.54	120.70	0.650	0.000	5.00	8.727	5.67	76.8	0.0	206.9
167.00 Appurtenance(s)		1.00	1.41	12.344	13.58	118.06	0.650	0.000	2.00	3.354	2.18	29.6	0.0	79.5
170.00		1.00	1.42	12.390	13.63	114.09	0.650	0.000	3.00	4.883	3.17	43.3	0.0	115.7
175.00		1.00	1.42	12.466	13.71	107.42	0.650	0.000	5.00	7.747	5.04	69.1	0.0	183.5
176.00		1.00	1.43	12.481	13.73	106.08	0.650	0.000	1.00	1.491	0.97	13.3	0.0	35.3
Totals:									176.00			3,961.9	25,806.5	

Discrete Appurtenance Forces

Structure: CT13611-A-SBA	Code: EIA/TIA-222-G	11/4/2016
Site Name: BSA	Exposure: C	
Height: 176.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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Load Case: 1.0D + 1.0W 60 mph Wind

Dead Load Factor 1.00
Wind Load Factor 1.00



Iterations 25

No.	Elev (ft)	Description	Qty	qz (psf)	qzGh (psf)	CaAa x Ka	Ka	Total CaAa (sf)	Dead Load (lb)	Horiz Ecc (ft)	Vert Ecc (ft)	Wind FX (lb)	Mom Y (lb-ft)	Mom Z (lb-ft)
1	167.00	7770.00	6	12.344	13.578	0.58	0.80	19.27	210.00	0.000	0.000	261.68	0.00	0.00
2	167.00	AM-X-CD-17-65-00T-RET	3	12.344	13.578	0.60	0.80	14.44	125.40	0.000	0.000	196.02	0.00	0.00
3	167.00	Powerwave LGP21401	6	12.344	13.578	0.80	0.80	6.19	84.60	0.000	0.000	84.08	0.00	0.00
4	167.00	Ericsson RRUS-11	3	12.344	13.578	0.58	0.80	4.50	132.00	0.000	0.000	61.14	0.00	0.00
5	167.00	Ericsson LGP 21901	6	12.344	13.578	0.60	0.80	0.83	33.00	0.000	0.000	11.24	0.00	0.00
6	167.00	Raycap DC6-48-60-18-8F	1	12.344	13.578	0.80	0.80	0.74	31.80	0.000	0.000	9.99	0.00	0.00
7	167.00	Low Profile Platform	1	12.344	13.578	1.00	1.00	25.00	1200.00	0.000	0.000	339.46	0.00	0.00
8	167.00	Ericsson RRUS-12	3	12.344	13.578	0.60	0.80	4.86	180.00	0.000	0.000	65.99	0.00	0.00
Totals:									1,996.80			1,029.61		

Total Applied Force Summary

Structure: CT13611-A-SBA	Code: EIA/TIA-222-G	11/4/2016
Site Name: BSA	Exposure: C	
Height: 176.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II

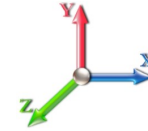


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Load Case: 1.0D + 1.0W 60 mph Wind

Dead Load Factor 1.00

Wind Load Factor 1.00



Iterations 25

Elev (ft)	Description	Lateral FX (-) (lb)	Axial FY (-) (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)
0.00		0.00	0.00	0.00	0.00
5.00		125.89	1199.66	0.00	0.00
10.00		123.29	1176.22	0.00	0.00
15.00		120.68	1152.78	0.00	0.00
20.00		125.28	1129.33	0.00	0.00
25.00		128.41	1105.89	0.00	0.00
30.00		130.42	1082.45	0.00	0.00
35.00		131.61	1059.01	0.00	0.00
40.00		132.17	1035.56	0.00	0.00
45.00		132.20	1012.12	0.00	0.00
45.29		7.66	58.65	0.00	0.00
50.00		126.04	1803.89	0.00	0.00
51.71		45.37	645.09	0.00	0.00
55.00		87.32	642.48	0.00	0.00
60.00		132.26	956.98	0.00	0.00
65.00		130.97	933.54	0.00	0.00
70.00		129.43	910.09	0.00	0.00
75.00		127.67	886.65	0.00	0.00
80.00		125.71	863.21	0.00	0.00
85.00		123.57	839.76	0.00	0.00
90.00		121.28	816.32	0.00	0.00
91.42		33.78	227.03	0.00	0.00
95.00		86.25	1001.00	0.00	0.00
96.58		37.61	435.27	0.00	0.00
100.00		80.44	452.49	0.00	0.00
105.00		115.63	645.74	0.00	0.00
110.00		112.81	626.20	0.00	0.00
115.00		109.87	606.67	0.00	0.00
120.00		106.83	587.13	0.00	0.00
125.00		103.68	567.59	0.00	0.00
130.00		100.44	548.06	0.00	0.00
135.00		97.11	528.52	0.00	0.00
139.08		76.72	417.14	0.00	0.00
140.00		17.11	139.66	0.00	0.00
142.92		53.75	437.38	0.00	0.00
145.00		37.64	135.52	0.00	0.00
150.00		87.98	316.95	0.00	0.00
155.00		84.33	305.23	0.00	0.00
160.00		80.61	293.51	0.00	0.00
165.00		76.83	281.79	0.00	0.00
167.00	(29) attachments	1059.20	2106.23	0.00	0.00
170.00		43.26	115.72	0.00	0.00
175.00		69.05	183.49	0.00	0.00
176.00		13.30	35.29	0.00	0.00
	Totals:	4,991.49	30,303.29	0.00	0.00

Calculated Forces

Structure: CT13611-A-SBA

Code: EIA/TIA-222-G

11/4/2016

Site Name: BSA

Exposure: C

Height: 176.00 (ft)

Crest Height: 0.00

Base Elev: 0.000 (ft)

Site Class: D - Stiff Soil

Gh: 1.1

Topography: 1

Struct Class: II

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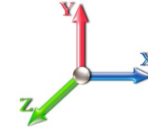


Load Case: 1.0D + 1.0W 60 mph Wind

Iterations 25

Dead Load Factor 1.00

Wind Load Factor 1.00



Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-30.30	-5.00	0.00	-510.63	0.00	510.63	4317.41	2158.71	9968.41	4991.62	0.00	0.000	0.000	0.109
5.00	-29.10	-4.89	0.00	-485.64	0.00	485.64	4266.06	2133.03	9645.32	4829.83	0.01	-0.027	0.000	0.107
10.00	-27.92	-4.77	0.00	-461.22	0.00	461.22	4213.11	2106.56	9323.64	4668.75	0.06	-0.054	0.000	0.105
15.00	-26.77	-4.67	0.00	-437.35	0.00	437.35	4158.58	2079.29	9003.59	4508.49	0.13	-0.081	0.000	0.103
20.00	-25.64	-4.55	0.00	-414.02	0.00	414.02	4102.46	2051.23	8685.41	4349.16	0.23	-0.108	0.000	0.101
25.00	-24.53	-4.43	0.00	-391.27	0.00	391.27	4044.75	2022.37	8369.33	4190.89	0.36	-0.136	0.000	0.099
30.00	-23.44	-4.31	0.00	-369.11	0.00	369.11	3985.45	1992.73	8055.57	4033.77	0.51	-0.165	0.000	0.097
35.00	-22.38	-4.19	0.00	-347.56	0.00	347.56	3924.57	1962.28	7744.37	3877.94	0.70	-0.193	0.000	0.095
40.00	-21.35	-4.06	0.00	-326.63	0.00	326.63	3862.10	1931.05	7435.94	3723.50	0.92	-0.222	0.000	0.093
45.00	-20.33	-3.93	0.00	-306.33	0.00	306.33	3798.04	1899.02	7130.53	3570.56	1.17	-0.251	0.000	0.091
45.29	-20.27	-3.93	0.00	-305.17	0.00	305.17	3794.23	1897.11	7112.71	3561.64	1.18	-0.253	0.000	0.091
50.00	-18.47	-3.80	0.00	-286.69	0.00	286.69	3732.39	1866.19	6828.35	3419.25	1.45	-0.280	0.000	0.089
51.71	-17.82	-3.76	0.00	-280.19	0.00	280.19	3752.64	1876.32	6920.41	3465.35	1.55	-0.291	0.000	0.086
55.00	-17.18	-3.67	0.00	-267.84	0.00	267.84	3708.89	1854.45	6722.75	3366.37	1.76	-0.311	0.000	0.084
60.00	-16.22	-3.54	0.00	-249.48	0.00	249.48	3641.10	1820.55	6425.31	3217.43	2.10	-0.339	0.000	0.082
65.00	-15.29	-3.41	0.00	-231.77	0.00	231.77	3571.72	1785.86	6131.65	3070.38	2.47	-0.368	0.000	0.080
70.00	-14.38	-3.28	0.00	-214.70	0.00	214.70	3500.75	1750.37	5841.99	2925.34	2.87	-0.397	0.000	0.078
75.00	-13.49	-3.16	0.00	-198.28	0.00	198.28	3428.19	1714.09	5556.57	2782.41	3.30	-0.426	0.000	0.075
80.00	-12.63	-3.03	0.00	-182.49	0.00	182.49	3354.04	1677.02	5275.60	2641.72	3.76	-0.455	0.000	0.073
85.00	-11.79	-2.91	0.00	-167.33	0.00	167.33	3278.31	1639.15	4999.32	2503.38	4.25	-0.484	0.000	0.070
90.00	-10.97	-2.78	0.00	-152.79	0.00	152.79	3186.62	1593.31	4706.74	2356.87	4.78	-0.514	0.000	0.068
91.42	-10.74	-2.75	0.00	-148.85	0.00	148.85	3157.61	1578.81	4621.01	2313.94	4.93	-0.522	0.000	0.068
95.00	-9.74	-2.66	0.00	-139.00	0.00	139.00	3084.25	1542.12	4407.69	2207.12	5.33	-0.544	0.000	0.066
96.58	-9.30	-2.62	0.00	-134.79	0.00	134.79	2497.75	1248.88	3609.06	1807.21	5.51	-0.553	0.000	0.078
100.00	-8.85	-2.54	0.00	-125.85	0.00	125.85	2457.75	1228.87	3470.74	1737.95	5.92	-0.574	0.000	0.076
105.00	-8.21	-2.42	0.00	-113.16	0.00	113.16	2397.86	1198.93	3271.22	1638.04	6.53	-0.607	0.000	0.073
110.00	-7.58	-2.30	0.00	-101.07	0.00	101.07	2336.39	1168.19	3075.35	1539.96	7.19	-0.640	0.000	0.069
115.00	-6.97	-2.19	0.00	-89.55	0.00	89.55	2273.33	1136.66	2883.37	1443.83	7.88	-0.673	0.000	0.065
120.00	-6.39	-2.08	0.00	-78.59	0.00	78.59	2194.33	1097.17	2677.99	1340.98	8.60	-0.705	0.000	0.062
125.00	-5.82	-1.97	0.00	-68.19	0.00	68.19	2109.02	1054.51	2472.77	1238.23	9.35	-0.737	0.000	0.058
130.00	-5.27	-1.87	0.00	-58.32	0.00	58.32	2023.72	1011.86	2275.74	1139.56	10.14	-0.767	0.000	0.054
135.00	-4.74	-1.77	0.00	-48.98	0.00	48.98	1938.41	969.21	2086.89	1045.00	10.96	-0.797	0.000	0.049
139.08	-4.33	-1.68	0.00	-41.76	0.00	41.76	1868.74	934.37	1938.73	970.81	11.65	-0.820	0.000	0.045
140.00	-4.19	-1.67	0.00	-40.22	0.00	40.22	1853.10	926.55	1906.22	954.53	11.81	-0.825	0.000	0.044
142.92	-3.75	-1.61	0.00	-35.36	0.00	35.36	1006.21	503.11	1032.86	517.20	12.32	-0.841	0.000	0.072
145.00	-3.61	-1.57	0.00	-32.01	0.00	32.01	993.78	496.89	1000.24	500.86	12.69	-0.852	0.000	0.068
150.00	-3.30	-1.48	0.00	-24.16	0.00	24.16	962.80	481.40	922.91	462.14	13.60	-0.888	0.000	0.056
155.00	-2.99	-1.39	0.00	-16.77	0.00	16.77	930.24	465.12	847.10	424.18	14.55	-0.918	0.000	0.043
160.00	-2.70	-1.31	0.00	-9.82	0.00	9.82	896.09	448.04	773.04	387.10	15.52	-0.941	0.000	0.028
165.00	-2.42	-1.23	0.00	-3.29	0.00	3.29	860.35	430.17	700.97	351.00	16.52	-0.955	0.000	0.012
167.00	-0.33	-0.13	0.00	-0.84	0.00	0.84	845.61	422.80	672.74	336.87	16.92	-0.957	0.000	0.003
170.00	-0.22	-0.09	0.00	-0.44	0.00	0.44	823.02	411.51	631.10	316.02	17.52	-0.958	0.000	0.002
175.00	-0.04	-0.01	0.00	-0.01	0.00	0.01	775.68	387.84	557.61	279.22	18.52	-0.958	0.000	0.000
176.00	0.00	-0.01	0.00	0.00	0.00	0.00	765.44	382.72	542.91	271.86	18.73	-0.958	0.000	0.000

Final Analysis Summary

Structure: CT13611-A-SBA	Code: EIA/TIA-222-G	11/4/2016
Site Name: BSA	Exposure: C	
Height: 176.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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Reactions

Load Case	Shear FX (kips)	Shear FZ (kips)	Axial FY (kips)	Moment MX (ft-kips)	Moment MY (ft-kips)	Moment MZ (ft-kips)
1.2D + 1.6W 101 mph Wind	22.7	0.00	36.34	0.00	0.00	2325.71
0.9D + 1.6W 101 mph Wind	22.7	0.00	27.25	0.00	0.00	2308.21
1.2D + 1.0Di + 1.0Wi 50 mph Wind	6.9	0.00	57.95	0.00	0.00	721.09
1.2D + 1.0E	1.0	0.00	36.36	0.00	0.00	107.96
0.9D + 1.0E	1.0	0.00	27.27	0.00	0.00	106.95
1.0D + 1.0W 60 mph Wind	5.0	0.00	30.30	0.00	0.00	510.63

Max Stresses

Load Case	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Elev (ft)	Stress Ratio
1.2D + 1.6W 101 mph Wind	-36.34	-22.67	0.00	-2325.7	0.00	-2325.7	4317.41	2158.7	9968.41	4991.62	0.00	0.474
0.9D + 1.6W 101 mph Wind	-27.25	-22.66	0.00	-2308.2	0.00	-2308.2	4317.41	2158.7	9968.41	4991.62	0.00	0.469
1.2D + 1.0Di + 1.0Wi 50 mph Wind	-57.95	-6.92	0.00	-721.09	0.00	-721.09	4317.41	2158.7	9968.41	4991.62	0.00	0.158
1.2D + 1.0E	-36.36	-0.99	0.00	-107.96	0.00	-107.96	4317.41	2158.7	9968.41	4991.62	0.00	0.030
0.9D + 1.0E	-27.27	-0.99	0.00	-106.95	0.00	-106.95	4317.41	2158.7	9968.41	4991.62	0.00	0.028
1.0D + 1.0W 60 mph Wind	-30.30	-5.00	0.00	-510.63	0.00	-510.63	4317.41	2158.7	9968.41	4991.62	0.00	0.109

Base Plate Summary

Structure: CT13611-A-SB	Code: EIA/TIA-222-G	11/4/2016
Site Name: BSA	Exposure: C	
Height: 176.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II
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Reactions	Base Plate	Anchor Bolts
Original Design	Yield (ksi): 60.00	Bolt Circle: 66.00
Moment (kip-ft): 3414.00	Width (in): 72.00	Number Bolts: 18.00
Axial (kip): 36.00	Style: Round	Bolt Type: 2.25" 18J
Shear (kip): 27.00	Polygon Sides: 0.00	Bolt Diameter (in): 2.25
Analysis	Clip Length (in): 0.00	Yield (ksi): 75.00
Moment (kip-ft): 2325.71	Effective Len (in): 15.05	Ultimate (ksi): 100.00
Axial (kip): 57.95	Moment (kip-in): 461.64	Arrangement: Radial
Shear (kip): 22.67	Allow Stress (ksi): 81.00	Cluster Dist (in): 0.00
	Applied Stress (ksi): 0.00	Start Angle (deg): 0.00
Moment Design %: 68.12	Stress Ratio: 0.57	Compression
		Force (kip): 97.19
		Allowable (kip): 260.00
		Ratio: 0.38
		Tension
		Force (kip): 90.75
		Allowable (kip): 260.00
		Ratio: 0.36



Monopole Mat Foundation Design

Date

11/4/2016

Customer Name:	AT&T	EIA/TIA Standard:	EIA-222-G
Site Name:		Structure Height (Ft.):	176
Site Number:	CT13611-A-SBA	Engineer Name:	T. Alajaj
Engr. Number:	27520	Engineer Login ID:	

Foundation Info Obtained from:

Drawings/Calculations

Structure Type:

Monopole

Analysis or Design?

Analysis

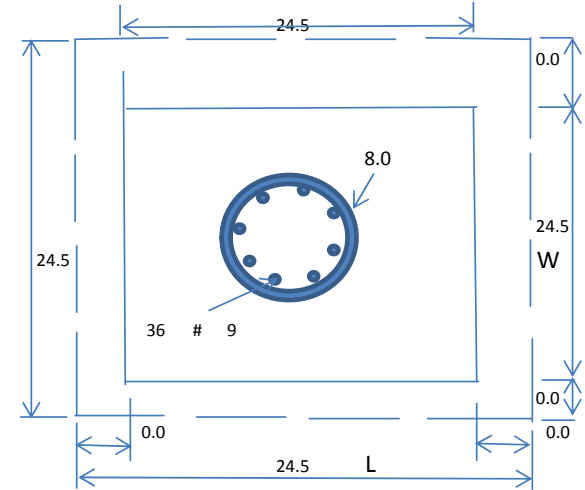
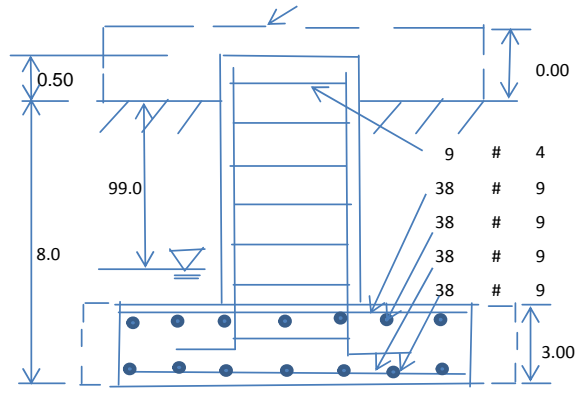
Base Reactions (Factored):

Axial Load (Kips):	36.3	Shear Force (Kips):	22.7
Uplift Force (Kips):	0.0	Moment (Kips-ft):	2325.7

Allowable overstress %: 5.0%

Foundation Geometries:

		Mods required -Yes/No ?:	No
Diameter of Pier (ft.):	8.0	Depth of Base BG (ft.):	8.0
Pier Height A. G. (ft.):	0.50	Thickness of Pad (ft):	3.00
Length of Pad (ft.):	24.5	Width of Pad (ft.):	24.5
Final Length of pad (ft)	24.5	Final width of pad (ft):	24.5
Control Value for Cell D18:	0	Control Value for Cell F18:	0



Material Properties and Rebar Info:

Concrete Strength (psi):	3000	Steel Elastic Modulus:	29000	ksi
Vertical bar yield (ksi)	60	Tie steel yield (ksi):	60	
Vertical Rebar Size #:	9	Tie / Stirrup Size #:	4	
Qty. of Vertical Rebars:	36	Tie Spacing (in):	12.0	
Pad Rebar Yield (Ksi):	60	Pad Steel Rebar Size (#):	9	
Concrete Cover (in.):	4	Unit Weight of Concrete:	150.0	pcf
Rebar at the bottom of the concrete pad:				
Qty. of Rebar in Pad (L):	38	Qty. of Rebar in Pad (W):	38	
Rebar at the top of the concrete pad:				
Qty. of Rebar in Pad (L):	38	Qty. of Rebar in Pad (W):	38	

Apply 1.35 factor for e/w Per G: 1.35

Soil Design Parameters:

Soil Unit Weight (pcf):	110.0	Soil Buoyant Weight:	50.0	Pcf
Water Table B.G.S. (ft):	99.0	Unit Weight of Water:	62.4	pcf
Ultimate Bearing Pressure (psf):	10000	Ultimate Skin Friction:	175	Psf
Consider Friction for O.T.M. (Y/N):	No	Consider Friction for bearing (Y/N):	No	Angle from Bottm of Pad: 25
Consider soil hor. resist. for OTM.:	No	Reduction factor on the maximum soil bearing pressure:	1.00	Angle from Top of Pad: 30

Foundation Analysis and Design:

Uplift Strength Reduction Factor:	0.75	Compression Strength Reduction Factor:	0.75
Total Dry Soil Volume (cu. Ft.):	2749.92	Total Dry Soil Weight (Kips):	302.49
Total Buoyant Soil Volume (cu. Ft.):	0.00	Total Buoyant Soil Weight (Kips):	0.00
Total Effective Soil Weight (Kips):	302.49	Weight from the Concrete Block at Top (K):	0.00
Total Dry Concrete Volume (cu. Ft.):	2077.21	Total Dry Concrete Weight (Kips):	311.58
Total Buoyant Concrete Volume (cu. Ft.):	0.00	Total Buoyant Concrete Weight (Kips):	0.00
Total Effective Concrete Weight (Kips):	311.58	Total Vertical Load on Base (Kips):	650.41

Check Soil Capacities:

Calculated Maxium Net Soil Pressure under the base (psf):	1991	<	Allowable Factored Soil Bearing (psf):	7500	0.27	OK!
Allowable Foundation Overturning Resistance (kips-ft.):	7215.3	>	Design Factored Momont (kips-ft):	2519	0.35	OK!
Factor of Safety Against Overturning (O. R. Moment/Design Moment):	2.86					OK!

Load/
Capacity
Ratio

Check the capacities of Reinforcing Concrete:

Strength reduction factor (Flexure and axial tension): 0.90 Strength reduction factor (Shear): 0.75
 Strength reduction factor (Axial compression): 0.65 Wind Load Factor on Concrete Design: 1.00

Load/
Capacity
Ratio

(1) Concrete Pier:

Vertical Steel Rebar Area (sq. in./each):	1.00	Tie / Stirrup Area (sq. in./each):	0.20		
Calculated Moment Capacity (Mn,Kips-Ft):	6972.8	> Design Factored Moment (Mu, Kips-Ft)	2450.6	0.35	OK!
Calculated Shear Capacity (Kips):	748.3	> Design Factored Shear (Kips):	22.7	0.03	OK!
Calculated Tension Capacity (Tn, Kips):	1944.0	> Design Factored Tension (Tu Kips):	0.0	0.00	OK!
Calculated Compression Capacity (Pn, Kips):	9550.2	> Design Factored Axial Load (Pu Kips):	36.3	0.00	OK!
Moment & Axial Strength Combination:	0.35	OK! Check Tie Spacing (Design/Required):		1	OK!
Pier Reinforcement Ratio:	0.005	Reinforcement Ratio is satisfied per ACI			

(2).Concrete Pad:

One-Way Design Shear Capacity (L-Direction, Kips):	759.4	> One-Way Factored Shear (L-D. Kips):	174.9	0.23	OK!
One-Way Design Shear Capacity (W-Direction, Kips):	759.4	> One-Way Factored Shear (W-D., Kips)	174.9	0.23	OK!
One-Way Design Shear Capacity (Corner-Corner. Kips):	825.9	> One-Way Factored Shear (C-C, Kips):	154.8	0.19	OK!
Lower Steel Pad Reinforcement Ratio (L-Direct.):	0.0041	OK! Lower Steel Pad Reinf. Ratio (W-Direct	0.0041		
Lower Steel Pad Moment Capacity (L-Direction. Kips-ft):	5115.8	> Moment at Bottom (L-Direct. K-Ft):	492.4	0.10	OK!
Lower Steel Pad Moment Capacity (W-Direction. Kips-ft):	5115.8	> Moment at Bottom (W-Direct. K-Ft):	492.4	0.10	OK!
Lower Steel Pad Moment Capacity (Corner-Corner,K-ft):	7124.4	> Moment at Bottom (C-C Dir. K-Ft):	696.4	0.10	OK!
Upper Steel Pad Reinforcement Ratio (L-Direct.):	0.0041	OK! Upper Steel Reinf. Ratio (W-Direct.):	0.0041		
Upper Steel Pad Moment Capacity (L-Direction. Kips-ft):	5115.8	> Moment at the top (L-Dir Kips-Ft):	221.3	0.04	OK!
Upper Steel Pad Moment Capacity (W-Direction. Kips-ft):	5115.8	> Moment at the top (W-Dir Kips-Ft):	221.3	0.04	OK!
Upper Steel Pad Moment Capacity (Corner-Corner. K-ft):	7124.4	> Moment at the top (C-C Direc. K-Ft):	275.2	0.04	OK!