

Date: February 28, 2021



MORRISON HERSHFIELD

Morrison Hershfield
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Subject: Structural Analysis Report

Carrier Designation: T-Mobile Co-Locate
Site Number: 9JK0345B
Site Name: Fort White

Crown Castle Designation: BU Number: 846216
Site Name: Fort White
JDE Job Number: 632078
Work Order Number: 1930105
Order Number: 541376 Rev. 0

Engineering Firm Designation: Morrison Hershfield Project Number: CN7-432 / 2101398

Site Data: 612 Southwest Hilliard Lane, Fort White, Columbia County,
FL 32038
Latitude 29° 54' 31.23", Longitude -82° 40' 19.58"
300 Foot - Guyed Tower [Rohn]

Morrison Hershfield is pleased to submit this "Structural Analysis Report" to determine the structural integrity of the above-mentioned tower.

The purpose of the analysis is to determine acceptability of the tower stress level. Based on our analysis we have determined the tower stress level for the structure and foundation, under the following load case, to be:

LC5: Proposed Equipment Configuration

Sufficient Capacity

This analysis utilizes an ultimate 3-second gust wind speed of 120 mph as required by the 2020 Florida Building Code 7th Edition. Applicable Standard references and design criteria are listed in Section 2- Analysis Criteria.

Respectfully submitted by:

G. Lance Cooke, P.E. (FL License No. 68787)
Senior Engineer

Certificate of Authorization# 8508



4/15/21



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1) INTRODUCTION

This tower is a 300 ft Guyed tower Designed by Rohn and Mapped by GPD Group, Inc.

2) ANALYSIS CRITERIA

TIA-222 Revision: TIA-222-H
 Risk Category: II
 Wind Speed: 120 mph
 Exposure Category: C
 Topographic Factor: 1
 Service Wind Speed: 60 mph

Table 1 - Proposed Equipment Configuration

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
252.0	253.0	3	commscope	FFV4-65C-R3-V1_TMO	10	1-5/8
		1	comsat rsi	P-24A35GF-U		
		3	ericsson	AIR6449 B41_T-MOBILE		
		3	ericsson	RADIO 4415 B25_TMO		
		3	ericsson	RADIO 4424 B25_TMOV1		
		3	ericsson	RADIO 4449 B71 B85A_T-MOBILE		
	252.0	3	sabre	12' HD V-Boom Assembly [C10857001C]		

Table 2 - Other Considered Equipment

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
289.0	291.0	6	andrew	SBNH-1D8585B w/ Mount Pipe	6 7 4 3	1-5/8 3/4 3/8 5/16
		3	andrew	SBNHH-1D65B w/ Mount Pipe		
		3	commscope	SBNHH-1D85B w/ Mount Pipe		
		3	ericsson	RADIO 4426		
		3	ericsson	RRUS 11		
		6	ericsson	RRUS 12		
		3	ericsson	RRUS 32		
		2	ericsson	RRUS 4478 B14		
		3	ericsson	RRUS A2 MODULE		
		6	ericsson	KRY 112 81/2		
		2	raycap	DC6-48-60-18-8C		
		2	raycap	DC6-48-60-18-8F		
	289.0	1	-	Sector Mount [SM 502-3]		

3) ANALYSIS PROCEDURE

Table 3 - Documents Provided

Document	Reference	Source
4-GEOTECHNICAL REPORTS	5179866	CCISITES
4-TOWER FOUNDATION DRAWINGS/DESIGN/SPECS	5183121	CCISITES
4-TOWER MANUFACTURER DRAWINGS	5183178	CCISITES

3.1) Analysis Method

tnxTower (version 8.0.7.5), a commercially available analysis software package, was used to create a three-dimensional model of the tower and calculate member stresses for various loading cases. Selected output from the analysis is included in Appendix A. When applicable, Crown Castle has calculated and provided the effective area for panel antennas using approved methods following the intent of the TIA-222 standard.

3.2) Assumptions

- 1) Tower and structures were maintained in accordance with the TIA-222 Standard.
- 2) The configuration of antennas, transmission cables, mounts and other appurtenances are as specified in Tables 1 and 2 and the referenced drawings.

This analysis may be affected if any assumptions are not valid or have been made in error. Morrison Hershfield should be notified to determine the effect on the structural integrity of the tower.

4) ANALYSIS RESULTS

Table 4 - Section Capacity (Summary)

Section No.	Elevation (ft)	Component Type	Size	Critical Element	P (K)	SF*P _{allow} (K)	% Capacity	Pass / Fail
T1	300 - 280	Leg	ROHN 2.5 EH	2	-20.93	99.13	21.1	Pass
T2	280 - 260	Leg	ROHN 2.5 STD	59	-20.06	75.22	26.7	Pass
T3	260 - 240	Leg	ROHN 2.5 EH	115	-37.53	99.13	37.9	Pass
T4	240 - 220	Leg	ROHN 2.5 EH	173	-41.46	99.13	41.8	Pass
T5	220 - 200	Leg	ROHN 2.5 EH	230	-45.86	79.98	57.3	Pass
T6	200 - 180	Leg	ROHN 3 EH	264	-45.43	117.93	38.5	Pass
T7	180 - 160	Leg	ROHN 3 EH	296	-51.72	117.93	43.9	Pass
T8	160 - 140	Leg	ROHN 3 EH	329	-51.45	117.93	43.6	Pass
T9	140 - 120	Leg	ROHN 3 EH	362	-60.89	135.92	44.8	Pass
T10	120 - 100	Leg	ROHN 3 EH	419	-57.80	135.92	42.5	Pass
T11	100 - 80	Leg	ROHN 3 EH	476	-62.21	117.93	52.8	Pass
T12	80 - 60	Leg	ROHN 3 EH	509	-60.90	117.93	51.6	Pass
T13	60 - 40	Leg	ROHN 3 EH	542	-67.97	117.93	57.6	Pass
T14	40 - 20	Leg	ROHN 3 EH	575	-69.97	117.93	59.3	Pass
T15	20 - 4.81771	Leg	ROHN 3 EH	607	-66.69	117.93	56.6	Pass
T16	4.81771 - 0	Leg	ROHN 3 EH	635	-62.85	140.55	44.7	Pass
T1	300 - 280	Diagonal	ROHN 1.5 x 11GA	23	-2.54	11.83	21.5 24.9 (b)	Pass
T2	280 - 260	Diagonal	ROHN 1.5 x 11GA	112	-1.56	11.83	13.2 15.2 (b)	Pass
T3	260 - 240	Diagonal	L2x2x1/4	126	-5.83	29.68	19.6	Pass

Section No.	Elevation (ft)	Component Type	Size	Critical Element	P (K)	SF*P _{allow} (K)	% Capacity	Pass / Fail
							32.1 (b)	
T4	240 - 220	Diagonal	ROHN 1.5 x 11GA	226	-3.29	11.83	27.8 32.0 (b)	Pass
T5	220 - 200	Diagonal	ROHN 1.5 x 16GA	238	-2.91	6.24	46.7	Pass
T6	200 - 180	Diagonal	ROHN 1.5 x 16GA	274	-4.01	6.35	63.2 65.1 (b)	Pass
T7	180 - 160	Diagonal	ROHN 1.5 x 16GA	326	-2.79	6.35	44.0	Pass
T8	160 - 140	Diagonal	ROHN 1.5 x 16GA	337	-3.12	6.35	49.1	Pass
T9	140 - 120	Diagonal	ROHN 1.5 x 16GA	371	-2.94	6.35	46.3	Pass
T10	120 - 100	Diagonal	ROHN 1.5 x 16GA	470	-2.52	6.35	39.8	Pass
T11	100 - 80	Diagonal	ROHN 1.5 x 16GA	505	-2.15	6.35	33.9	Pass
T12	80 - 60	Diagonal	ROHN 1.5 x 16GA	518	-3.03	6.35	47.8	Pass
T13	60 - 40	Diagonal	ROHN 1.5 x 16GA	568	-3.44	6.35	54.2 56.0 (b)	Pass
T14	40 - 20	Diagonal	ROHN 1.5 x 16GA	584	-2.81	6.35	44.3	Pass
T15	20 - 4.81771	Diagonal	ROHN 1.5 x 16GA	617	-3.25	6.35	51.3 51.9 (b)	Pass
T16	4.81771 - 0	Horizontal	L4x4x1/4	642	-0.37	61.97	11.6	Pass
T1	300 - 280	Top Girt	ROHN 1.5 x 11GA	6	-0.04	14.23	0.3 0.4 (b)	Pass
T2	280 - 260	Top Girt	ROHN 1.5 x 11GA	62	0.66	20.65	3.2 6.4 (b)	Pass
T3	260 - 240	Top Girt	L2x2x1/4	118	0.36	25.71	1.4 3.8 (b)	Pass
T4	240 - 220	Top Girt	ROHN 1.5 x 11GA	177	1.22	20.65	5.9 11.9 (b)	Pass
T5	220 - 200	Top Girt	ROHN 1.5 x 16GA	233	-0.95	7.40	12.8 17.4 (b)	Pass
T6	200 - 180	Top Girt	ROHN 1.5 x 16GA	265	-0.69	7.48	9.3 15.5 (b)	Pass
T7	180 - 160	Top Girt	ROHN 1.5 x 16GA	299	0.83	10.43	8.0 13.3 (b)	Pass
T8	160 - 140	Top Girt	ROHN 1.5 x 16GA	331	0.42	10.43	4.0 6.7 (b)	Pass
T9	140 - 120	Top Girt	ROHN 1.5 x 16GA	366	0.67	10.43	6.4 10.7 (b)	Pass
T10	120 - 100	Top Girt	ROHN 1.5 x 16GA	423	0.98	10.43	9.4 15.8 (b)	Pass
T11	100 - 80	Top Girt	ROHN 1.5 x 16GA	478	0.78	10.43	7.5 12.6 (b)	Pass
T12	80 - 60	Top Girt	ROHN 1.5 x 16GA	512	0.54	10.43	5.2 8.8 (b)	Pass
T13	60 - 40	Top Girt	ROHN 1.5 x 16GA	546	0.56	10.43	5.4 9.1 (b)	Pass
T14	40 - 20	Top Girt	ROHN 1.5 x 16GA	577	0.67	10.43	6.4 10.7 (b)	Pass
T15	20 - 4.81771	Top Girt	ROHN 1.5 x 16GA	611	0.93	10.43	8.9 14.9 (b)	Pass
T16	4.81771 - 0	Top Girt	L4x4x1/4	639	12.16	66.00	18.4	Pass
T1	300 - 280	Bottom Girt	ROHN 1.5 x 11GA	8	0.92	20.65	4.5 9.0 (b)	Pass
T2	280 - 260	Bottom Girt	ROHN 1.5 x 11GA	65	0.31	20.65	1.5 3.0 (b)	Pass
T3	260 - 240	Bottom Girt	L2x2x1/4	122	2.76	25.71	10.7 28.8 (b)	Pass

Section No.	Elevation (ft)	Component Type	Size	Critical Element	P (K)	SF*P _{allow} (K)	% Capacity	Pass / Fail
T4	240 - 220	Bottom Girt	ROHN 1.5 x 11GA	180	0.93	20.65	4.5 9.0 (b)	Pass
T5	220 - 200	Bottom Girt	ROHN 1.5 x 16GA	235	-0.70	7.40	9.4 12.8 (b)	Pass
T6	200 - 180	Bottom Girt	ROHN 1.5 x 16GA	269	-0.49	7.48	6.6 10.3 (b)	Pass
T7	180 - 160	Bottom Girt	ROHN 1.5 x 16GA	301	0.37	10.43	3.5 5.9 (b)	Pass
T8	160 - 140	Bottom Girt	ROHN 1.5 x 16GA	334	-0.77	7.48	10.3 16.8 (b)	Pass
T9	140 - 120	Bottom Girt	ROHN 1.5 x 16GA	368	0.63	10.43	6.1 10.2 (b)	Pass
T10	120 - 100	Bottom Girt	ROHN 1.5 x 16GA	424	0.62	10.43	5.9 10.0 (b)	Pass
T11	100 - 80	Bottom Girt	ROHN 1.5 x 16GA	483	0.41	10.43	4.0 6.7 (b)	Pass
T12	80 - 60	Bottom Girt	ROHN 1.5 x 16GA	515	1.17	10.43	11.2 18.8 (b)	Pass
T13	60 - 40	Bottom Girt	ROHN 1.5 x 16GA	547	0.75	10.43	7.2 12.1 (b)	Pass
T14	40 - 20	Bottom Girt	ROHN 1.5 x 16GA	581	0.78	10.43	7.4 12.5 (b)	Pass
T15	20 - 4.81771	Bottom Girt	ROHN 1.5 x 16GA	615	1.85	10.43	17.7 29.8 (b)	Pass
T1	300 - 280	Guy A@282.523	3/4 [ECP-24000]	693	14.27	36.73	38.9	Pass
T3	260 - 240	Guy A@242.523	3/4 [ECP-24000]	678	14.33	36.73	39.0	Pass
T6	200 - 180	Guy A@182.523	3/4 [ECP-24000]	666	14.80	36.73	40.3	Pass
T9	140 - 120	Guy A@122.523	3/4 [ECP-24000]	660	15.40	36.73	41.9	Pass
T13	60 - 40	Guy A@59.3854	1/2 [ECP-23000]	654	7.36	16.95	43.4	Pass
T1	300 - 280	Guy B@282.523	3/4 [ECP-24000]	690	14.50	36.73	39.5	Pass
T3	260 - 240	Guy B@242.523	3/4 [ECP-24000]	675	15.39	36.73	41.9	Pass
T6	200 - 180	Guy B@182.523	3/4 [ECP-24000]	665	16.92	36.73	46.1	Pass
T9	140 - 120	Guy B@122.523	3/4 [ECP-24000]	659	18.84	36.73	51.3	Pass
T13	60 - 40	Guy B@59.3854	1/2 [ECP-23000]	653	9.00	16.95	53.1	Pass
T1	300 - 280	Guy C@282.523	3/4 [ECP-24000]	682	14.59	36.73	39.7	Pass
T3	260 - 240	Guy C@242.523	3/4 [ECP-24000]	667	15.19	36.73	41.4	Pass
T6	200 - 180	Guy C@182.523	3/4 [ECP-24000]	661	16.81	36.73	45.8	Pass
T9	140 - 120	Guy C@122.523	3/4 [ECP-24000]	655	18.58	36.73	50.6	Pass
T13	60 - 40	Guy C@59.3854	1/2 [ECP-23000]	649	8.88	16.95	52.4	Pass
T1	300 - 280	Top Guy Pull-Off@282.523	2L2x2x1/4x3/8	687	5.15	51.56	10.0 22.2 (b)	Pass
T3	260 - 240	Top Guy Pull-Off@242.523	2L2x2x1/4x3/8	672	8.61	51.56	16.7 24.9 (b)	Pass
T6	200 - 180	Top Guy Pull-Off@182.523	2L2x2x1/4x3/8	663	6.35	51.56	12.3 18.4 (b)	Pass
T9	140 - 120	Top Guy Pull-Off@122.523	2L2x2x1/4x3/8	658	7.06	51.56	13.7 20.4 (b)	Pass
T13	60 - 40	Top Guy Pull-Off@59.3854	4 1/2x3/8	652	3.61	46.57	7.8	Pass
T1	300 - 280	Torque Arm Top@282.523	C15x33.9	684	-0.79	306.34	27.0 27.8 (b)	Pass
T3	260 - 240	Torque Arm Top@242.523	C15x33.9	680	-1.96	306.34	26.3	Pass
							Summary	

Section No.	Elevation (ft)	Component Type	Size	Critical Element	P (K)	SF*P _{allow} (K)	% Capacity	Pass / Fail
						Leg (T14)	59.3	Pass
						Diagonal (T6)	65.1	Pass
						Horizontal (T16)	11.6	Pass
						Top Girt (T16)	18.4	Pass
						Bottom Girt (T15)	29.8	Pass
						Guy A (T13)	43.4	Pass
						Guy B (T13)	53.1	Pass
						Guy C (T13)	52.4	Pass
						Top Guy Pull-Off (T3)	24.9	Pass
						Torque Arm Top (T1)	27.8	Pass
						Bolt Checks	65.1	Pass
						Rating =	65.1	Pass

Table 5 - Tower Component Stresses vs. Capacity – LC5

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
1	Base Foundation	0	23.7	Pass
1	Base Foundation Soil Interaction	0	35.1	Pass
1	Guy Anchor Foundation Soil Interaction (Inner)	0	17.7	Pass
1	Guy Anchor Foundation Soil Interaction (Outer)	0	17.5	Pass

Structure Rating (max from all components) =	65.1%*
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Notes:

- 1) See additional documentation in "Appendix C – Additional Calculations" for calculations supporting the % capacity consumed.
- 2) *Rating per TIA-222-H, Section 15.5.

Table 6 - Tilt & Twist Values for Dish (60 mph Service Wind)

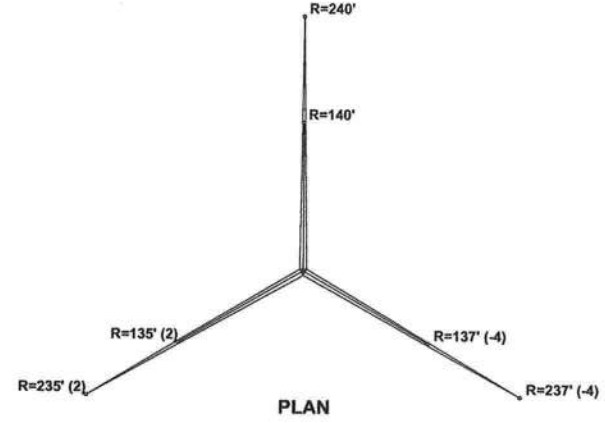
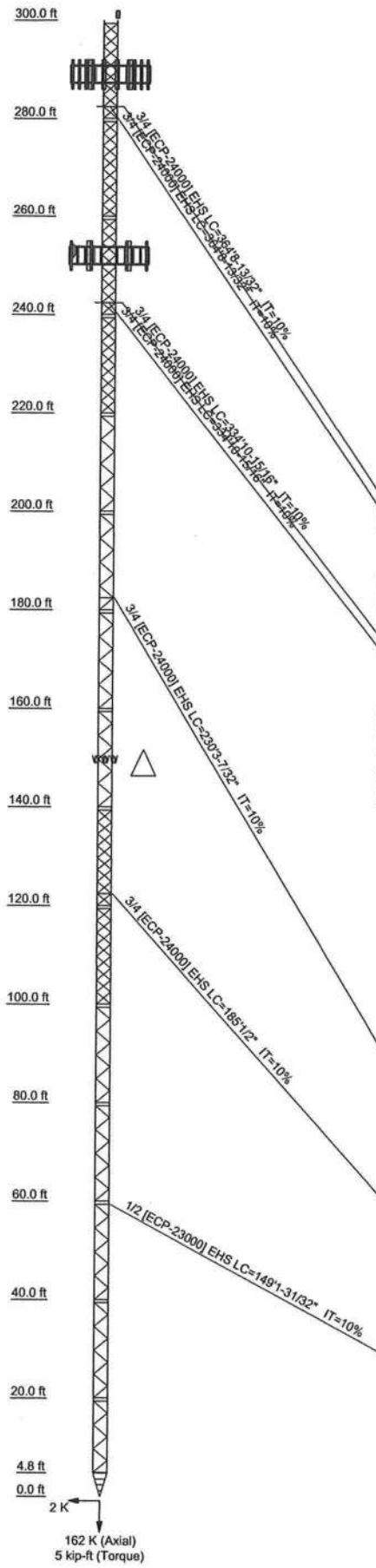
Elevation (ft)	Appurtenance	Deflection (in)	Tilt (°)	Twist (°)
253.0	P-24A35GF-U	1.237	0.0323	0.1246

4.1) Recommendations

The tower and its foundation have sufficient capacity to carry the proposed load configuration. No modifications are required at this time.

APPENDIX A
TNXTOWER OUTPUT

	T1	T2	T3	T4	T5	T6	T7	T8	T9	T10	T11	T12	T13	T14	T15	T16
Legs	ROHN 2.5 STD	ROHN 2.5 EH	ROHN 2.5 EH	ROHN 2.5 EH	ROHN 2.5 EH	ROHN 2.5 EH	ROHN 2.5 EH	ROHN 2.5 EH	ROHN 2.5 EH	ROHN 2.5 EH	ROHN 2.5 EH	ROHN 2.5 EH	ROHN 2.5 EH	ROHN 2.5 EH	ROHN 2.5 EH	ROHN 2.5 EH
Leg Grade	A572-50	A572-50	A572-50	A572-50	A572-50	A572-50	A572-50	A572-50	A572-50	A572-50	A572-50	A572-50	A572-50	A572-50	A572-50	A572-50
Diagonals	ROHN 1.5 x 11GA	ROHN 1.5 x 11GA	ROHN 1.5 x 11GA	ROHN 1.5 x 11GA	ROHN 1.5 x 11GA	ROHN 1.5 x 11GA	ROHN 1.5 x 11GA	ROHN 1.5 x 11GA	ROHN 1.5 x 11GA	ROHN 1.5 x 11GA	ROHN 1.5 x 11GA	ROHN 1.5 x 11GA	ROHN 1.5 x 11GA	ROHN 1.5 x 11GA	ROHN 1.5 x 11GA	ROHN 1.5 x 11GA
Diagonal Grade	A36	A36	A36	A36	A36	A36	A36	A36	A36	A36	A36	A36	A36	A36	A36	A36
Top Girts	ROHN 1.5 x 11GA	ROHN 1.5 x 11GA	ROHN 1.5 x 11GA	ROHN 1.5 x 11GA	ROHN 1.5 x 11GA	ROHN 1.5 x 11GA	ROHN 1.5 x 11GA	ROHN 1.5 x 11GA	ROHN 1.5 x 11GA	ROHN 1.5 x 11GA	ROHN 1.5 x 11GA	ROHN 1.5 x 11GA	ROHN 1.5 x 11GA	ROHN 1.5 x 11GA	ROHN 1.5 x 11GA	ROHN 1.5 x 11GA
Bottom Girts	ROHN 1.5 x 11GA	ROHN 1.5 x 11GA	ROHN 1.5 x 11GA	ROHN 1.5 x 11GA	ROHN 1.5 x 11GA	ROHN 1.5 x 11GA	ROHN 1.5 x 11GA	ROHN 1.5 x 11GA	ROHN 1.5 x 11GA	ROHN 1.5 x 11GA	ROHN 1.5 x 11GA	ROHN 1.5 x 11GA	ROHN 1.5 x 11GA	ROHN 1.5 x 11GA	ROHN 1.5 x 11GA	ROHN 1.5 x 11GA
Horizontals	ROHN 1.5 x 11GA	ROHN 1.5 x 11GA	ROHN 1.5 x 11GA	ROHN 1.5 x 11GA	ROHN 1.5 x 11GA	ROHN 1.5 x 11GA	ROHN 1.5 x 11GA	ROHN 1.5 x 11GA	ROHN 1.5 x 11GA	ROHN 1.5 x 11GA	ROHN 1.5 x 11GA	ROHN 1.5 x 11GA	ROHN 1.5 x 11GA	ROHN 1.5 x 11GA	ROHN 1.5 x 11GA	ROHN 1.5 x 11GA
Top Guy Full-Offs	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
Face Width (ft)	2L2x2x1/4x3/8	2L2x2x1/4x3/8	2L2x2x1/4x3/8	2L2x2x1/4x3/8	2L2x2x1/4x3/8	2L2x2x1/4x3/8	2L2x2x1/4x3/8	2L2x2x1/4x3/8	2L2x2x1/4x3/8	2L2x2x1/4x3/8	2L2x2x1/4x3/8	2L2x2x1/4x3/8	2L2x2x1/4x3/8	2L2x2x1/4x3/8	2L2x2x1/4x3/8	2L2x2x1/4x3/8
# Panels @ (ft)	118 @ 2.40885	118 @ 2.40885	118 @ 2.40885	118 @ 2.40885	118 @ 2.40885	118 @ 2.40885	118 @ 2.40885	118 @ 2.40885	118 @ 2.40885	118 @ 2.40885	118 @ 2.40885	118 @ 2.40885	118 @ 2.40885	118 @ 2.40885	118 @ 2.40885	118 @ 2.40885
Weight (K)	14.1	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3



SYMBOL LIST

MARK	SIZE	MARK	SIZE
A	ROHN 1.5 x 11GA	C	L4x4x1/4
B	N.A.	D	4 @ 1.20443

MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A572-50	50 ksi	65 ksi	A36	36 ksi	58 ksi
A500-42	42 ksi	58 ksi	A53-B-42	42 ksi	63 ksi

TOWER DESIGN NOTES

1. Tower is located in Columbia County, Florida.
2. Tower designed for Exposure C to the TIA-222-H Standard.
3. Tower designed for a 120 mph basic wind in accordance with the TIA-222-H Standard.
4. Deflections are based upon a 60 mph wind.
5. Tower Risk Category II.
6. Topographic Category 1 with Crest Height of 0'
7. TOWER RATING: 65.1%

ALL REACTIONS ARE FACTORED



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Job: **CN7-432 / 2101398**
Project: **846216 / Fort White**
Client: Crown Castle USA
Code: TIA-222-H
Path:

Drawn by: CKK
Date: 02/28/21
Scale: N1
Dwg No. E

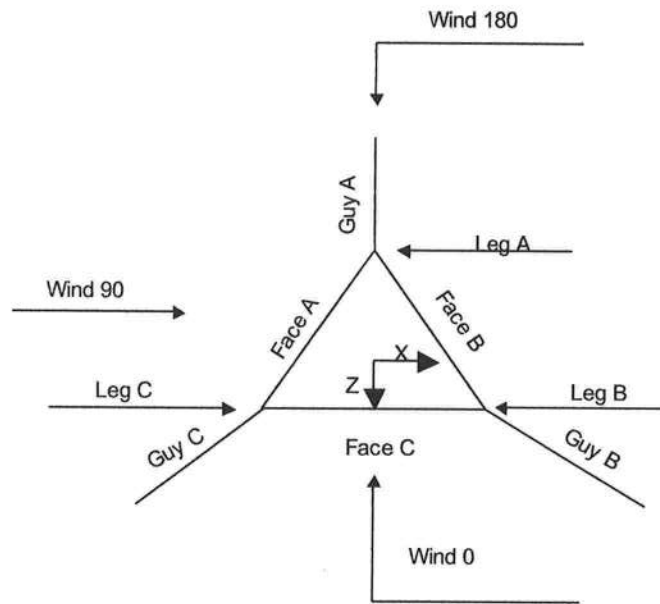
Tower Input Data

The main tower is a 3x guyed tower with an overall height of 300' above the ground line.
 The base of the tower is set at an elevation of 0' above the ground line.
 The face width of the tower is 3'5" at the top and tapered at the base.
 This tower is designed using the TIA-222-H standard.
 The following design criteria apply:

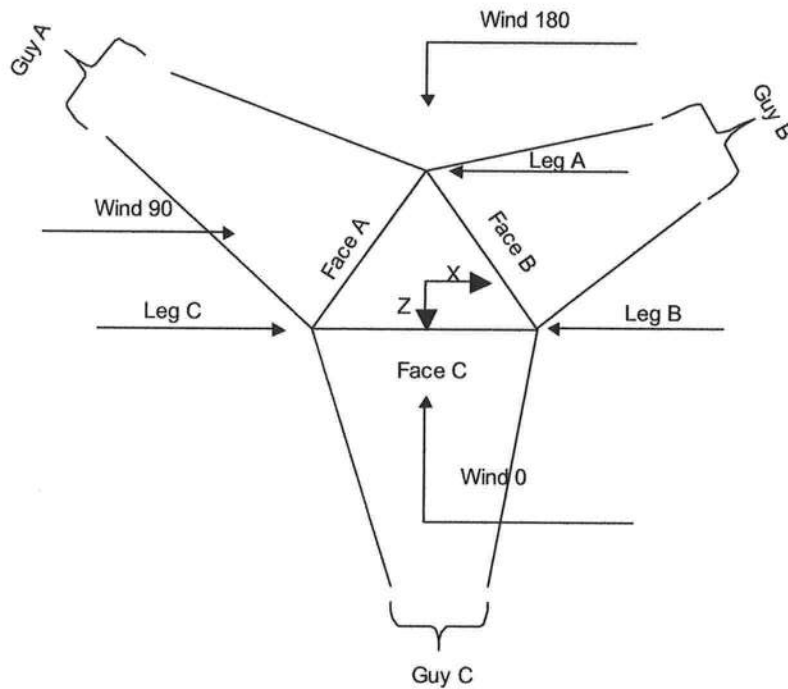
- Tower is located in Columbia County, Florida.
- Tower base elevation above sea level: 73'.
- Basic wind speed of 120 mph.
- Risk Category II.
- Exposure Category C.
- Simplified Topographic Factor Procedure for wind speed-up calculations is used.
- Topographic Category: 1.
- Crest Height: 0'.
- Deflections calculated using a wind speed of 60 mph.
- Pressures are calculated at each section.
- Safety factor used in guy design is 0.9524.
- Tower analysis based on target reliabilities in accordance with Annex S.
- Load Modification Factors used: $K_{es}(F_w) = 0.95$.
- Stress ratio used in tower member design is 1.05.
- Local bending stresses due to climbing loads, feed line supports, and appurtenance mounts are not considered.

Options

Consider Moments - Legs	Distribute Leg Loads As Uniform	Use ASCE 10 X-Brace Ly Rules
Consider Moments - Horizontals	Assume Legs Pinned	√ Calculate Redundant Bracing Forces
Consider Moments - Diagonals	√ Assume Rigid Index Plate	Ignore Redundant Members in FEA
Use Moment Magnification	√ Use Clear Spans For Wind Area	√ SR Leg Bolts Resist Compression
Use Code Stress Ratios	√ Use Clear Spans For KL/r	All Leg Panels Have Same Allowable
Use Code Safety Factors - Guys	√ Retension Guys To Initial Tension	Offset Girt At Foundation
Escalate Ice	√ Bypass Mast Stability Checks	√ Consider Feed Line Torque
Always Use Max Kz	√ Use Azimuth Dish Coefficients	√ Include Angle Block Shear Check
Use Special Wind Profile	√ Project Wind Area of Appurt.	Use TIA-222-H Bracing Resist.
√ Include Bolts In Member Capacity	√ Autocalc Torque Arm Areas	Exemption
Leg Bolts Are At Top Of Section	Add IBC .6D+W Combination	Use TIA-222-H Tension Splice
Secondary Horizontal Braces Leg	√ Sort Capacity Reports By Component	Exemption
Use Diamond Inner Bracing (4 Sided)	Triangulate Diamond Inner Bracing	Poles
SR Members Have Cut Ends	Treat Feed Line Bundles As Cylinder	Include Shear-Torsion Interaction
SR Members Are Concentric	Ignore KL/ry For 60 Deg. Angle Legs	Always Use Sub-Critical Flow
		Use Top Mounted Sockets
		Pole Without Linear Attachments
		Pole With Shroud Or No
		Appurtenances
		Outside and Inside Corner Radii Are
		Known



Corner & Starmount Guyed Tower



Face Guyed

Tower Section Geometry

Tower Section	Tower Elevation	Assembly Database	Description	Section Width	Number of Sections	Section Length
	ft			ft		ft
T1	300'-280'			3'5-1/32"	1	20'
T2	280'-260'			3'5-1/32"	1	20'
T3	260'-240'			3'5-1/32"	1	20'
T4	240'-220'			3'5-1/32"	1	20'
T5	220'-200'			3'5-1/32"	1	20'
T6	200'-180'			3'5-1/32"	1	20'
T7	180'-160'			3'5-1/32"	1	20'
T8	160'-140'			3'5-1/32"	1	20'
T9	140'-120'			3'5-1/32"	1	20'
T10	120'-100'			3'5-1/32"	1	20'
T11	100'-80'			3'5-1/32"	1	20'
T12	80'-60'			3'5-1/32"	1	20'
T13	60'-40'			3'5-1/32"	1	20'
T14	40'-20'			3'5-1/32"	1	20'
T15	20'-4'9-27/32"			3'5-1/32"	1	15'2-5/32"
T16	4'9-27/32"-0'			3'5-1/32"	1	4'9-27/32"

Tower Section Geometry (cont'd)

Tower Section	Tower Elevation	Diagonal Spacing	Bracing Type	Has K Brace End Panels	Has Horizontals	Top Girt Offset	Bottom Girt Offset
	ft	ft				in	in
T1	300'-280'	2'4-29/32"	CX Brace	No	No	7.3750	1.3750
T2	280'-260'	2'4-29/32"	CX Brace	No	No	7.3750	1.3750
T3	260'-240'	2'4-29/32"	X Brace	No	No	7.3750	1.3750
T4	240'-220'	2'4-29/32"	CX Brace	No	No	7.3750	1.3750
T5	220'-200'	2'4-29/32"	K Brace Left	No	No	7.3750	1.3750
T6	200'-180'	2'4-29/32"	K Brace Left	No	No	7.3750	1.3750
T7	180'-160'	2'4-29/32"	K Brace Left	No	No	7.3750	1.3750
T8	160'-140'	2'4-29/32"	K Brace Left	No	No	7.3750	1.3750
T9	140'-120'	2'4-29/32"	CX Brace	No	No	7.3750	1.3750
T10	120'-100'	2'4-29/32"	CX Brace	No	No	7.3750	1.3750
T11	100'-80'	2'4-29/32"	K Brace Left	No	No	7.3750	1.3750
T12	80'-60'	2'4-29/32"	K Brace Left	No	No	7.3750	1.3750
T13	60'-40'	2'4-29/32"	K Brace Left	No	No	7.3750	1.3750
T14	40'-20'	2'4-29/32"	K Brace Left	No	No	7.3750	1.3750
T15	20'-4'9-27/32"	2'4-29/32"	K Brace Left	No	No	7.3750	1.3750
T16	4'9-27/32"-0'	1'2-13/32"	X Brace	No	Yes	0.0000	0.0000

Tower Section Geometry (cont'd)

Tower Elevation	Leg Type	Leg Size	Leg Grade	Diagonal Type	Diagonal Size	Diagonal Grade
ft						
T1 300'-280'	Pipe	ROHN 2.5 EH	A572-50 (50 ksi)	Pipe	ROHN 1.5 x 11GA	A500-42 (42 ksi)
T2 280'-260'	Pipe	ROHN 2.5 STD	A572-50 (50 ksi)	Pipe	ROHN 1.5 x 11GA	A500-42 (42 ksi)
T3 260'-240'	Pipe	ROHN 2.5 EH	A572-50 (50 ksi)	Equal Angle	L2x2x1/4	A36 (36 ksi)
T4 240'-220'	Pipe	ROHN 2.5 EH	A572-50 (50 ksi)	Pipe	ROHN 1.5 x 11GA	A500-42 (42 ksi)
T5 220'-200'	Pipe	ROHN 2.5 EH	A572-50 (50 ksi)	Pipe	ROHN 1.5 x 16GA	A53-B-42 (42 ksi)
T6 200'-180'	Pipe	ROHN 3 EH	A572-50 (50 ksi)	Pipe	ROHN 1.5 x 16GA	A53-B-42 (42 ksi)
T7 180'-160'	Pipe	ROHN 3 EH	A572-50 (50 ksi)	Pipe	ROHN 1.5 x 16GA	A53-B-42 (42 ksi)

Tower Elevation ft	Leg Type	Leg Size	Leg Grade	Diagonal Type	Diagonal Size	Diagonal Grade
T8 160'-140'	Pipe	ROHN 3 EH	A572-50 (50 ksi)	Pipe	ROHN 1.5 x 16GA	A53-B-42 (42 ksi)
T9 140'-120'	Pipe	ROHN 3 EH	A572-50 (50 ksi)	Pipe	ROHN 1.5 x 16GA	A53-B-42 (42 ksi)
T10 120'-100'	Pipe	ROHN 3 EH	A572-50 (50 ksi)	Pipe	ROHN 1.5 x 16GA	A53-B-42 (42 ksi)
T11 100'-80'	Pipe	ROHN 3 EH	A572-50 (50 ksi)	Pipe	ROHN 1.5 x 16GA	A53-B-42 (42 ksi)
T12 80'-60'	Pipe	ROHN 3 EH	A572-50 (50 ksi)	Pipe	ROHN 1.5 x 16GA	A53-B-42 (42 ksi)
T13 60'-40'	Pipe	ROHN 3 EH	A572-50 (50 ksi)	Pipe	ROHN 1.5 x 16GA	A53-B-42 (42 ksi)
T14 40'-20'	Pipe	ROHN 3 EH	A572-50 (50 ksi)	Pipe	ROHN 1.5 x 16GA	A53-B-42 (42 ksi)
T15 20'-4'-9- 27/32"	Pipe	ROHN 3 EH	A572-50 (50 ksi)	Pipe	ROHN 1.5 x 16GA	A53-B-42 (42 ksi)
T16 4'-9'-27/32"- 0'	Pipe	ROHN 3 EH	A572-50 (50 ksi)	Equal Angle		A36 (36 ksi)

Tower Section Geometry (cont'd)

Tower Elevation ft	Top Girt Type	Top Girt Size	Top Girt Grade	Bottom Girt Type	Bottom Girt Size	Bottom Girt Grade
T1 300'-280'	Pipe	ROHN 1.5 x 11GA	A500-42 (42 ksi)	Pipe	ROHN 1.5 x 11GA	A500-42 (42 ksi)
T2 280'-260'	Pipe	ROHN 1.5 x 11GA	A500-42 (42 ksi)	Pipe	ROHN 1.5 x 11GA	A500-42 (42 ksi)
T3 260'-240'	Equal Angle	L2x2x1/4	A36 (36 ksi)	Equal Angle	L2x2x1/4	A36 (36 ksi)
T4 240'-220'	Pipe	ROHN 1.5 x 11GA	A500-42 (42 ksi)	Pipe	ROHN 1.5 x 11GA	A500-42 (42 ksi)
T5 220'-200'	Pipe	ROHN 1.5 x 16GA	A53-B-42 (42 ksi)	Pipe	ROHN 1.5 x 16GA	A53-B-42 (42 ksi)
T6 200'-180'	Pipe	ROHN 1.5 x 16GA	A53-B-42 (42 ksi)	Pipe	ROHN 1.5 x 16GA	A53-B-42 (42 ksi)
T7 180'-160'	Pipe	ROHN 1.5 x 16GA	A53-B-42 (42 ksi)	Pipe	ROHN 1.5 x 16GA	A53-B-42 (42 ksi)
T8 160'-140'	Pipe	ROHN 1.5 x 16GA	A53-B-42 (42 ksi)	Pipe	ROHN 1.5 x 16GA	A53-B-42 (42 ksi)
T9 140'-120'	Pipe	ROHN 1.5 x 16GA	A53-B-42 (42 ksi)	Pipe	ROHN 1.5 x 16GA	A53-B-42 (42 ksi)
T10 120'-100'	Pipe	ROHN 1.5 x 16GA	A53-B-42 (42 ksi)	Pipe	ROHN 1.5 x 16GA	A53-B-42 (42 ksi)
T11 100'-80'	Pipe	ROHN 1.5 x 16GA	A53-B-42 (42 ksi)	Pipe	ROHN 1.5 x 16GA	A53-B-42 (42 ksi)
T12 80'-60'	Pipe	ROHN 1.5 x 16GA	A53-B-42 (42 ksi)	Pipe	ROHN 1.5 x 16GA	A53-B-42 (42 ksi)
T13 60'-40'	Pipe	ROHN 1.5 x 16GA	A53-B-42 (42 ksi)	Pipe	ROHN 1.5 x 16GA	A53-B-42 (42 ksi)
T14 40'-20'	Pipe	ROHN 1.5 x 16GA	A53-B-42 (42 ksi)	Pipe	ROHN 1.5 x 16GA	A53-B-42 (42 ksi)
T15 20'-4'-9- 27/32"	Pipe	ROHN 1.5 x 16GA	A53-B-42 (42 ksi)	Pipe	ROHN 1.5 x 16GA	A53-B-42 (42 ksi)
T16 4'-9'-27/32"- 0'	Equal Angle	L4x4x1/4	A36 (36 ksi)	Equal Angle	L4x4x1/4	A36 (36 ksi)

Tower Section Geometry (cont'd)

Tower Elevation ft	No. of Mid Girts	Mid Girt Type	Mid Girt Size	Mid Girt Grade	Horizontal Type	Horizontal Size	Horizontal Grade
T16 4'9"-27/32"-0'	None	Flat Bar		A36 (36 ksi)	Equal Angle	L4x4x1/4	A36 (36 ksi)

Tower Section Geometry (cont'd)

Tower Elevation ft	Gusset Area (per face) ft ²	Gusset Thickness in	Gusset Grade	Adjust. Factor A _r	Adjust. Factor A _r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in	Double Angle Stitch Bolt Spacing Redundants in
T1 300'-280'	0.00	0.1757	A36 (36 ksi)	1	1.03	1.05	0.0000	0.0000	0.0000
T2 280'-260'	0.00	0.1757	A36 (36 ksi)	1	1.03	1.05	0.0000	0.0000	0.0000
T3 260'-240'	0.00	0.3750	A36 (36 ksi)	1.03	1	1.05	0.0000	0.0000	0.0000
T4 240'-220'	0.00	0.1757	A36 (36 ksi)	1	1.03	1.05	0.0000	0.0000	0.0000
T5 220'-200'	0.00	0.3750	A36 (36 ksi)	1	1.03	1.05	0.0000	0.0000	0.0000
T6 200'-180'	0.00	0.3750	A36 (36 ksi)	1	1.03	1.05	0.0000	0.0000	0.0000
T7 180'-160'	0.00	0.3750	A36 (36 ksi)	1	1.03	1.05	0.0000	0.0000	0.0000
T8 160'-140'	0.00	0.3750	A36 (36 ksi)	1	1.03	1.05	0.0000	0.0000	0.0000
T9 140'-120'	0.00	0.3750	A36 (36 ksi)	1	1.03	1.05	0.0000	0.0000	0.0000
T10 120'-100'	0.00	0.3750	A36 (36 ksi)	1	1.03	1.05	0.0000	0.0000	0.0000
T11 100'-80'	0.00	0.3750	A36 (36 ksi)	1	1.03	1.05	0.0000	0.0000	0.0000
T12 80'-60'	0.00	0.3750	A36 (36 ksi)	1	1.03	1.05	0.0000	0.0000	0.0000
T13 60'-40'	0.00	0.3750	A36 (36 ksi)	1	1.03	1.05	0.0000	0.0000	0.0000
T14 40'-20'	0.00	0.3750	A36 (36 ksi)	1	1.03	1.05	0.0000	0.0000	0.0000
T15 20'-4'9"-27/32"	0.00	0.3750	A36 (36 ksi)	1	1.03	1.05	0.0000	0.0000	0.0000
T16 4'9"-27/32"-0'	0.00	0.0000	A36 (36 ksi)	1	1	1.05	0.0000	0.0000	0.0000

Tower Section Geometry (cont'd)

Tower Elevation ft	Calc K Single Angles	Calc K Solid Rounds	Legs	K Factors ¹						
				X Brace Diags X Y	K Brace Diags X Y	Single Diags X Y	Girts X Y	Horiz. X Y	Sec. Horiz. X Y	Inner Brace X Y
T1 300'-280'	No	No	1	1	1	1	1	1	1	1
T2 280'-260'	No	No	1	1	1	1	1	1	1	1
T3 260'-240'	Yes	No	1	1	1	1	1	1	1	1
T4 240'-220'	No	No	1	1	1	1	1	1	1	1

Tower Elevation ft	Calc K Single Angles	Calc K Solid Rounds	Legs	K Factors ¹						
				X Brace Diags	K Brace Diags	Single Diags	Girts	Horiz.	Sec. Horiz.	Inner Brace
				X Y	X Y	X Y	X Y	X Y	X Y	X Y
T5 220'-200'	No	No	1	1	1	1	1	1	1	1
T6 200'-180'	No	No	1	1	1	1	1	1	1	1
T7 180'-160'	No	No	1	1	1	1	1	1	1	1
T8 160'-140'	No	No	1	1	1	1	1	1	1	1
T9 140'-120'	No	No	1	1	1	1	1	1	1	1
T10 120'-100'	No	No	1	1	1	1	1	1	1	1
T11 100'-80'	No	No	1	1	1	1	1	1	1	1
T12 80'-60'	No	No	1	1	1	1	1	1	1	1
T13 60'-40'	No	No	1	1	1	1	1	1	1	1
T14 40'-20'	No	No	1	1	1	1	1	1	1	1
T15 20'-4'-9-27/32"	No	No	1	1	1	1	1	1	1	1
T16 4'-9-27/32"-0'	Yes	No	1	1	1	1	1	1	1	1

¹Note: K factors are applied to member segment lengths. K-braces without inner supporting members will have the K factor in the out-of-plane direction applied to the overall length.

Tower Section Geometry (cont'd)

Tower Elevation ft	Leg		Diagonal		Top Girt		Bottom Girt		Mid Girt		Long Horizontal		Short Horizontal	
	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U
T1 300'-280'	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	0.75	0.0000	1	0.0000	0.75
T2 280'-260'	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	0.75	0.0000	1	0.0000	0.75
T3 260'-240'	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T4 240'-220'	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	0.75	0.0000	1	0.0000	0.75
T5 220'-200'	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	0.75	0.0000	1	0.0000	0.75
T6 200'-180'	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	0.75	0.0000	1	0.0000	0.75
T7 180'-160'	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	0.75	0.0000	1	0.0000	0.75
T8 160'-140'	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	0.75	0.0000	1	0.0000	0.75
T9 140'-120'	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	0.75	0.0000	1	0.0000	0.75
T10 120'-100'	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	0.75	0.0000	1	0.0000	0.75
T11 100'-80'	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	0.75	0.0000	1	0.0000	0.75
T12 80'-60'	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	0.75	0.0000	1	0.0000	0.75
T13 60'-40'	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	0.75	0.0000	1	0.0000	0.75
T14 40'-20'	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	0.75	0.0000	1	0.0000	0.75
T15 20'-4'-9-27/32"	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	0.75	0.0000	1	0.0000	0.75
T16 4'-9-27/32"-0'	0.0000	1	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75

Tower Section Geometry (cont'd)

Tower Elevation ft	Leg Connection Type	Leg		Diagonal		Top Girt		Bottom Girt		Mid Girt		Long Horizontal		Short Horizontal	
		Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.
T1 300'-280'	Flange	0.0000	4	0.5000	1	0.5000	1	0.5000	1	0.6250	0	0.0000	0	0.6250	0
		A325X		A325X		A325X		A325X		A325X		A325X		A325X	
T2 280'-260'	Flange	0.7500	4	0.5000	1	0.5000	1	0.5000	1	0.6250	0	0.0000	0	0.6250	0
		A325X		A325X		A325X		A325X		A325X		A325X		A325X	
T3 260'-240'	Flange	0.7500	4	0.6250	1	0.6250	1	0.6250	1	0.6250	0	0.0000	0	0.6250	0
		A325X		A325X		A325X		A325X		A325X		A325X		A325X	
T4 240'-220'	Flange	0.7500	4	0.5000	1	0.5000	1	0.5000	1	0.6250	0	0.0000	0	0.6250	0
		A325X		A325X		A325X		A325X		A325X		A325X		A325X	
T5 220'-200'	Flange	0.7500	4	0.5000	1	0.5000	1	0.5000	1	0.6250	0	0.0000	0	0.6250	0
		A325X		A325X		A325X		A325X		A325X		A325X		A325X	
T6 200'-180'	Flange	0.7500	4	0.5000	1	0.5000	1	0.5000	1	0.6250	0	0.0000	0	0.6250	0
		A325X		A325X		A325X		A325X		A325X		A325X		A325X	
T7 180'-160'	Flange	0.7500	4	0.5000	1	0.5000	1	0.5000	1	0.6250	0	0.0000	0	0.6250	0
		A325X		A325X		A325X		A325X		A325X		A325X		A325X	
T8 160'-140'	Flange	0.7500	4	0.5000	1	0.5000	1	0.5000	1	0.6250	0	0.0000	0	0.6250	0
		A325X		A325X		A325X		A325X		A325X		A325X		A325X	
T9 140'-120'	Flange	0.7500	4	0.5000	1	0.5000	1	0.5000	1	0.6250	0	0.0000	0	0.6250	0
		A325X		A325X		A325X		A325X		A325X		A325X		A325X	
T10 120'-100'	Flange	0.7500	4	0.5000	1	0.5000	1	0.5000	1	0.6250	0	0.0000	0	0.6250	0
		A325X		A325X		A325X		A325X		A325X		A325X		A325X	
T11 100'-80'	Flange	0.7500	4	0.5000	1	0.5000	1	0.5000	1	0.6250	0	0.0000	0	0.6250	0
		A325X		A325X		A325X		A325X		A325X		A325X		A325X	
T12 80'-60'	Flange	0.7500	4	0.5000	1	0.5000	1	0.5000	1	0.6250	0	0.0000	0	0.6250	0
		A325X		A325X		A325X		A325X		A325X		A325X		A325X	
T13 60'-40'	Flange	0.7500	4	0.5000	1	0.5000	1	0.5000	1	0.6250	0	0.0000	0	0.0000	2
		A325X		A325X		A325X		A325X		A325X		A325X		A325N	
T14 40'-20'	Flange	0.7500	4	0.5000	1	0.5000	1	0.5000	1	0.6250	0	0.0000	0	0.6250	0
		A325X		A325X		A325X		A325X		A325X		A325X		A325X	
T15 20'-4'9- 27/32"	Flange	0.7500	4	0.5000	1	0.5000	1	0.5000	1	0.6250	0	0.0000	0	0.6250	0
		A325X		A325X		A325X		A325X		A325X		A325X		A325X	
T16 4'9- 27/32"-0'	Flange	0.8750	0	0.0000	0	0.0000	0	0.0000	0	0.6250	0	0.0000	0	0.6250	0
		A325X		A325X		A325X		A325X		A325X		A325X		A325X	

Guy Data

Guy Elevation ft	Guy Grade	Guy Size	Initial Tension K	%	Guy Modulus ksi	Guy Weight plf	L _u ft	Anchor Radius ft	Anchor Azimuth Adj. °	Anchor Elevation ft	End Fitting Efficiency %
59.3854	EHS	A 1/2 [ECP-23000]	2.69	10%	23000	0.517	150'1-13/16"	140'	0.0000	0'	100%
		B 1/2 [ECP-23000]	2.69	10%	23000	0.517	149'19/32"	137'	0.0000	-4'	100%
		C 1/2 [ECP-23000]	2.69	10%	23000	0.517	144'9-1/4"	135'	0.0000	2'	100%
122.523	EHS	A 3/4 [ECP-24000]	5.83	10%	24000	1.155	184'5-5/32"	140'	0.0000	0'	100%
		B 3/4 [ECP-24000]	5.83	10%	24000	1.155	184'10-29/32"	137'	0.0000	-4'	100%
		C 3/4 [ECP-24000]	5.83	10%	24000	1.155	179'4-9/16"	135'	0.0000	2'	100%
182.523	EHS	A 3/4 [ECP-24000]	5.83	10%	24000	1.155	228'8-5/32"	140'	0.0000	0'	100%
		B 3/4 [ECP-24000]	5.83	10%	24000	1.155	230'1-5/16"	137'	0.0000	-4'	100%
		C 3/4 [ECP-24000]	5.83	10%	24000	1.155	224'31/32"	135'	0.0000	2'	100%
242.523	EHS	A 3/4 [ECP-24000]	5.83	10%	24000	1.155	339'7-5/16"	240'	0.0000	0'	100%
		B 3/4 [ECP-24000]	5.83	10%	24000	1.155	340'4-13/16"	237'	0.0000	-4'	100%
		C 3/4 [ECP-24000]	5.83	10%	24000	1.155	334'8-9/32"	235'	0.0000	2'	100%
282.523	EHS	A 3/4 [ECP-24000]	5.83	10%	24000	1.155	369'2-13/32"	240'	0.0000	0'	100%
		B 3/4 [ECP-24000]	5.83	10%	24000	1.155	370'4-5/16"	237'	0.0000	-4'	100%
		C 3/4 [ECP-24000]	5.83	10%	24000	1.155	364'5-17/32"	235'	0.0000	2'	100%

Guy Data(cont'd)

Guy Elevation ft	Mount Type	Torque-Arm Spread ft	Torque-Arm Leg Angle °	Torque-Arm Style	Torque-Arm Grade	Torque-Arm Type	Torque-Arm Size
59.3854	Corner						
122.523	Corner						
182.523	Corner						
242.523	Torque Arm	6'9-31/32"	0.0000	Channel	A36 (36 ksi)	Channel	C15x33.9
282.523	Torque Arm	6'9-31/32"	0.0000	Channel	A36 (36 ksi)	Channel	C15x33.9

Guy Data (cont'd)

Guy Elevation ft	Diagonal Grade	Diagonal Type	Upper Diagonal Size	Lower Diagonal Size	Is Strap.	Pull-Off Grade	Pull-Off Type	Pull-Off Size
59'4-11/16"	A36 (36 ksi)	Solid Round			Yes	A36 (36 ksi)	Flat Bar	4 1/2x3/8
122'6-1/4"	A36 (36 ksi)	Solid Round			No	A36 (36 ksi)	Double Angle	2L2x2x1/4x3/8
182'6-1/4"	A36 (36 ksi)	Solid Round			No	A36 (36 ksi)	Double Angle	2L2x2x1/4x3/8
242'6-1/4"	A36 (36 ksi)	Solid Round			No	A36 (36 ksi)	Double Angle	2L2x2x1/4x3/8
282'6-1/4"	A36 (36 ksi)	Solid Round			No	A36 (36 ksi)	Double Angle	2L2x2x1/4x3/8

Guy Data (cont'd)

Guy Elevation ft	Cable Weight A K	Cable Weight B K	Cable Weight C K	Cable Weight D K	Tower Intercept A ft	Tower Intercept B ft	Tower Intercept C ft	Tower Intercept D ft
59.3854	0.08	0.08	0.07		2'1-29/32" 2.5 sec/pulse	2'1-7/16" 2.5 sec/pulse	2' 2.4 sec/pulse	
122.523	0.21	0.21	0.21		3'3-31/32" 3.2 sec/pulse	3'4-3/16" 3.2 sec/pulse	3'1-13/16" 3.1 sec/pulse	
182.523	0.26	0.27	0.26		5'1-3/32" 3.9 sec/pulse	5'1-13/16" 3.9 sec/pulse	4'10-11/16" 3.8 sec/pulse	
242.523	0.39	0.39	0.39		11'2-1/32" 5.8 sec/pulse	11'2-17/32" 5.8 sec/pulse	10'10-3/16" 5.7 sec/pulse	
282.523	0.43	0.43	0.42		13'1-13/16" 6.3 sec/pulse	13'2-5/8" 6.3 sec/pulse	12'9-23/32" 6.2 sec/pulse	

Guy Data (cont'd)

Guy Elevation ft	Calc K Single Angles	Calc K Solid Rounds	Torque Arm		Pull Off		Diagonal	
			K _x	K _y	K _x	K _y	K _x	K _y
59.3854	No	No			1	1	1	1
122.523	No	No			1	1	1	1
182.523	No	No			1	1	1	1
242.523	No	No	1	1	1	1	1	1
282.523	No	No	1	1	1	1	1	1

Guy Data (cont'd)

Guy Elevation ft	Torque-Arm				Pull Off				Diagonal			
	Bolt Size in	Number	Net Width Deduct in	U	Bolt Size in	Number	Net Width Deduct in	U	Bolt Size in	Number	Net Width Deduct in	U
59.3854	0.0000 A325N	0	0.0000	1	0.7500 A325X	2	0.0000	0.75	0.0000 A325N	0	0.0000	1
122.523	0.7500 A325N	8	0.0000	0.75	0.6250 A325X	2	0.0000	0.75	0.0000 A325N	0	0.0000	1
182.523	0.0000 A325N	0	0.0000	1	0.6250 A325X	2	0.0000	0.75	0.0000 A325N	0	0.0000	1
242.523	0.8750 A325X	2	0.0000	0.75	0.6250 A325X	2	0.0000	0.75	0.0000 A325N	0	0.0000	1
282.523	0.8750 A325X	2	0.0000	0.75	0.6250 A325X	2	0.0000	0.75	0.0000 A325N	0	0.0000	1

Guy Pressures

Guy Elevation ft	Guy Location	z ft	q _z psf	q _z Ice psf	Ice Thickness in
59.3854	A	29'8-9/32"	29		
	B	27'8-9/32"	29		
	C	30'8-9/32"	29		
122.523	A	61'3-1/8"	34		
	B	59'3-1/8"	34		
	C	62'3-1/8"	34		
182.523	A	91'3-1/8"	37		
	B	89'3-1/8"	37		
	C	92'3-1/8"	37		
242.523	A	121'3-1/8"	39		
	B	119'3-1/8"	39		
	C	122'3-1/8"	39		
282.523	A	141'3-1/8"	40		
	B	139'3-1/8"	40		
	C	142'3-1/8"	40		

Guy-Mast Forces (Excluding Wind) - No Ice

Guy Elevation ft	Guy Location	Chord Angle °	Guy Tension Top Bottom K	F _x K	F _y K	F _z K	M _x kip-ft	M _y kip-ft	M _z kip-ft
59.3854	A	23.2795	2.72 2.69	0.00	1.11	-2.48	-2.19	0.00	0.00
	B	25.1466	2.72 2.69	2.12	1.19	1.22	1.17	0.00	-2.03
	C	23.3344	2.72 2.69	-2.15	1.11	1.24	1.09	-0.00	1.89
			Sum:	-0.03	3.41	-0.02	0.08	0.00	-0.14
122.523	A	41.5947	5.97 5.83	0.00	4.02	-4.41	-7.94	0.00	0.00
	B	43.1378	5.98 5.83	3.73	4.14	2.15	4.09	0.00	-7.08
	C	42.1767	5.97 5.83	-3.79	4.06	2.19	4.01	-0.00	6.94
			Sum:	-0.06	12.23	-0.07	0.16	0.00	-0.13
182.523	A	52.9028	6.04 5.83	0.00	4.87	-3.58	-9.60	0.00	0.00
	B	54.0986	6.05 5.83	3.01	4.94	1.74	4.87	0.00	-8.44
	C	53.6136	6.04 5.83	-3.05	4.91	1.76	4.84	-0.00	8.38

Guy Elevation	Guy Location	Chord Angle	Guy Tension Top Bottom	F_x	F_y	F_z	M_x	M_y	M_z
ft		°	K	K	K	K	kip-ft	kip-ft	kip-ft
242.523	A	45.5331	Sum:	-0.03	14.71	-0.08	0.12	0.00	-0.06
			6.11	-0.06	4.46	-4.18	-8.79	14.40	-15.23
			5.83						
	A	45.5331	6.11	0.06	4.46	-4.18	-8.79	-14.40	15.23
			5.83						
			6.11	3.60	4.52	2.01	17.83	14.19	0.00
	B	46.3645	5.83						
			6.11	3.54	4.52	2.11	-8.91	-14.19	-15.44
			5.83						
	C	45.9038	6.11	-3.56	4.48	2.13	-8.84	14.30	15.31
			5.83						
			6.11	-3.63	4.48	2.02	17.67	-14.30	0.00
282.523	A	49.8828	Sum:	-0.06	26.91	-0.09	0.17	0.00	-0.13
			6.16	-0.06	4.80	-3.86	-9.46	13.30	-16.39
			5.83						
	A	49.8828	6.16	0.06	4.80	-3.86	-9.46	-13.30	16.39
			5.83						
			6.16	3.32	4.85	1.85	19.13	13.09	0.00
	B	50.6359	5.83						
			6.16	3.26	4.85	1.95	-9.56	-13.09	-16.57
			5.83						
	C	50.2810	6.15	-3.29	4.82	1.96	-9.51	13.19	16.46
			5.83						
			6.15	-3.34	4.82	1.86	19.01	-13.19	0.00
C	50.2810	5.83							
		Sum:	-0.05	28.93	-0.09	0.15	0.00	-0.10	

Guy-Mast Forces (Excluding Wind) - Service

Guy Elevation	Guy Location	Chord Angle	Guy Tension Top Bottom	F_x	F_y	F_z	M_x	M_y	M_z
ft		°	K	K	K	K	kip-ft	kip-ft	kip-ft
59.3854	A	23.2795	2.72	0.00	1.11	-2.48	-2.19	0.00	0.00
			2.69						
	B	25.1466	2.72	2.12	1.19	1.22	1.17	0.00	-2.03
122.523	C	23.3344	2.69						
			2.72	-2.15	1.11	1.24	1.09	-0.00	1.89
	A	41.5947	Sum:	-0.03	3.41	-0.02	0.08	0.00	-0.14
			5.97	0.00	4.02	-4.41	-7.94	0.00	0.00
	B	43.1378	5.83						
			5.98	3.73	4.14	2.15	4.09	0.00	-7.08
182.523	C	42.1767	5.83						
			5.97	-3.79	4.06	2.19	4.01	-0.00	6.94
	A	52.9028	Sum:	-0.06	12.23	-0.07	0.16	0.00	-0.13
			6.04	0.00	4.87	-3.58	-9.60	0.00	0.00
	B	54.0986	5.83						
			6.05	3.01	4.94	1.74	4.87	0.00	-8.44
242.523	C	53.6136	5.83						
			6.04	-3.05	4.91	1.76	4.84	-0.00	8.38
	A	45.5331	Sum:	-0.03	14.71	-0.08	0.12	0.00	-0.06
			6.11	-0.06	4.46	-4.18	-8.79	14.40	-15.23
	A	45.5331	5.83						
			6.11	0.06	4.46	-4.18	-8.79	-14.40	15.23
	B	46.3645	5.83						
			6.11	3.60	4.52	2.01	17.83	14.19	0.00
	B	46.3645	5.83	3.54	4.52	2.11	-8.91	-14.19	-15.44

Guy Elevation	Guy Location	Chord Angle	Guy Tension Top Bottom	F _x	F _y	F _z	M _x	M _y	M _z
ft		°	K	K	K	K	kip-ft	kip-ft	kip-ft
282.523	C	45.9038	6.11	-3.56	4.48	2.13	-8.84	14.30	15.31
			5.83						
	C	45.9038	6.11	-3.63	4.48	2.02	17.67	-14.30	0.00
			5.83						
	A	49.8828	Sum:	-0.06	26.91	-0.09	0.17	0.00	-0.13
			6.16	-0.06	4.80	-3.86	-9.46	13.30	-16.39
			5.83						
	A	49.8828	6.16	0.06	4.80	-3.86	-9.46	-13.30	16.39
			5.83						
	B	50.6359	6.16	3.32	4.85	1.85	19.13	13.09	0.00
			5.83						
	B	50.6359	6.16	3.26	4.85	1.95	-9.56	-13.09	-16.57
			5.83						
	C	50.2810	6.15	-3.29	4.82	1.96	-9.51	13.19	16.46
			5.83						
	C	50.2810	6.15	-3.34	4.82	1.86	19.01	-13.19	0.00
			5.83						
	Sum:			-0.05	28.93	-0.09	0.15	0.00	-0.10

Guy-Tensioning Information

Temperature At Time Of Tensioning																
Guy Elevation ft	H ft	V ft	0 F		20 F		40 F		60 F		80 F		100 F		120 F	
			Initial Tension K	Intercept ft	Initial Tension K	Intercept ft	Initial Tension K	Intercept ft	Initial Tension K	Intercept ft	Initial Tension K	Intercept ft	Initial Tension K	Intercept ft	Initial Tension K	Intercept ft
59.3854	A	138.03	59.39	3.776	1.54	3.409	1.70	3.046	1.90	2.690	2.16	2.343	2.47	2.011	2.88	1.702
	B	135.03	63.39	3.746	1.53	3.389	1.69	3.037	1.88	2.690	2.12	2.352	2.43	2.027	2.81	1.723
	C	133.03	57.39	3.778	1.43	3.411	1.58	3.048	1.77	2.690	2.00	2.341	2.30	2.007	2.68	1.695
122.523	A	138.03	122.52	7.494	2.60	6.932	2.81	6.377	3.05	5.830	3.33	5.295	3.66	4.776	4.06	4.278
	B	135.03	126.52	7.417	2.64	6.881	2.84	6.352	3.08	5.830	3.35	5.318	3.67	4.820	4.04	4.341
	C	133.03	120.52	7.470	2.47	6.917	2.66	6.369	2.89	5.830	3.15	5.301	3.46	4.787	3.83	4.292
182.523	A	138.03	182.52	6.908	4.31	6.545	4.54	6.186	4.80	5.830	5.09	5.482	5.41	5.134	5.77	4.796
	B	135.03	186.52	6.850	4.40	6.507	4.63	6.167	4.88	5.830	5.15	5.497	5.46	5.170	5.80	4.848
	C	133.03	180.52	6.876	4.16	6.524	4.38	6.175	4.62	5.830	4.89	5.489	5.19	5.153	5.52	4.823
242.523	A	238.05	242.52	7.143	9.15	6.693	9.75	6.254	10.42	5.830	11.17	5.423	11.99	5.036	12.89	4.671
	B	235.05	246.52	7.108	9.23	6.670	9.83	6.243	10.49	5.830	11.21	5.433	12.02	5.054	12.89	4.696
	C	233.05	240.52	7.134	8.90	6.687	9.48	6.252	10.13	5.830	10.85	5.425	11.64	5.039	12.51	4.674
282.523	A	238.05	282.52	6.935	11.10	6.557	11.72	6.188	12.40	5.830	13.15	5.484	13.96	5.151	14.83	4.834
	B	235.05	286.52	6.903	11.21	6.537	11.83	6.178	12.50	5.830	13.22	5.493	14.02	5.168	14.87	4.858
	C	233.05	280.52	6.923	10.83	6.550	11.44	6.185	12.10	5.830	12.81	5.487	13.60	5.156	14.44	4.840

Feed Line/Linear Appurtenances - Entered As Round Or Flat

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Componen t Type	Placement ft	Face Offset in	Lateral Offset (Frac FW)	#	# Per Row	Clear Spacin g in	Width or Diameter in	Perimete r in	Weight plf

Safety Line 3/8"	A	No	No	Ar (CaAa)	300' - 5'	0.0000	0.5	1	1	0.3750	0.3750		0.22
Step Pegs	A	No	No	Ar (CaAa)	300' - 5'	0.0000	0.5	1	1	0.7050	0.7050		1.80
ROHN	B	No	No	Ar (CaAa)	289' - 0'	0.0000	0	1	1	1.7500	1.7500		1.27
Waveguide Brackets													
Lighting Cable (3/8)	B	No	No	Ar (CaAa)	300' - 149'	0.0000	0.49	1	1	0.2500	0.4400		0.08
Lighting Cable (3/8)	B	No	No	Ar (CaAa)	149' - 0'	0.0000	0.49	2	2	0.2500	0.4400		0.08

ATCB- B01(5/16)	B	No	No	Ar (CaAa)	289' - 8'	2.0000	-0.15	3	2	0.5000	0.3150		0.07
LDF2-50(3/8)	B	No	No	Ar (CaAa)	289' - 8'	2.0000	-0.1	2	2	0.5000	0.4400		0.08
LDF7-50A(1- 5/8)	B	No	No	Ar (CaAa)	289' - 8'	0.0000	0	6	6	0.5000	1.9800		0.82

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Face Offset in	Lateral Offset (Frac FW)	#	# Per Row	Clear Spacing in	Width or Diameter in	Perimeter in	Weight plf
FB-L98B-002-100000(3/8)	B	No	No	Ar (CaAa)	289' - 8'	1.0000	-0.19	1	1	0.5000	0.3937		0.06
FB-L98B-002-100000(3/8)	B	No	No	Ar (CaAa)	289' - 8'	1.0000	0.19	1	1	0.5000	0.3937		0.06
WR-VG86ST-BRD(3/4)	B	No	No	Ar (CaAa)	289' - 8'	2.0000	0.11	3	3	0.5000	0.7950		0.58
WR-VG86T(3/4)	B	No	No	Ar (CaAa)	289' - 8'	0.0000	-0.2	2	2	0.5000	0.7560		0.53
WR-VG86T(3/4)	B	No	No	Ar (CaAa)	289' - 8'	0.0000	0.2	2	2	0.5000	0.7560		0.53

LDF7-50A(1-5/8)	A	No	No	Ar (CaAa)	252' - 0'	0.0000	0	7	7	0.5000	1.9800		0.82
Feedline Ladder (Af)	A	No	No	Af (CaAa)	252' - 0'	0.0000	0	1	1	3.0000	3.0000		8.40

HB158-21U6S24-xxM_TMO(1-5/8)	A	No	No	Ar (CaAa)	252' - 0'	0.0000	0.3	3	3	0.5000	1.9960		2.50

Feed Line/Linear Appurtenances Section Areas

Tower Section	Tower Elevation	Face	A _R	A _F	C _A A _A In Face	C _A A _A Out Face	Weight
n	ft		ft ²	ft ²	ft ²	ft ²	K
T1	300'-280'	A	0.000	0.000	2.160	0.000	0.04
		B	0.000	0.000	20.366	0.000	0.10
		C	0.000	0.000	0.000	0.000	0.00
T2	280'-260'	A	0.000	0.000	2.160	0.000	0.04
		B	0.000	0.000	44.183	0.000	0.21
		C	0.000	0.000	0.000	0.000	0.00
T3	260'-240'	A	0.000	0.000	31.978	0.000	0.30
		B	0.000	0.000	44.183	0.000	0.21
		C	0.000	0.000	0.000	0.000	0.00
T4	240'-220'	A	0.000	0.000	51.856	0.000	0.47
		B	0.000	0.000	44.183	0.000	0.21
		C	0.000	0.000	0.000	0.000	0.00
T5	220'-200'	A	0.000	0.000	51.856	0.000	0.47
		B	0.000	0.000	44.183	0.000	0.21
		C	0.000	0.000	0.000	0.000	0.00
T6	200'-180'	A	0.000	0.000	51.856	0.000	0.47
		B	0.000	0.000	44.183	0.000	0.21
		C	0.000	0.000	0.000	0.000	0.00
T7	180'-160'	A	0.000	0.000	51.856	0.000	0.47
		B	0.000	0.000	44.183	0.000	0.21
		C	0.000	0.000	0.000	0.000	0.00
T8	160'-140'	A	0.000	0.000	51.856	0.000	0.47
		B	0.000	0.000	44.579	0.000	0.21
		C	0.000	0.000	0.000	0.000	0.00
T9	140'-120'	A	0.000	0.000	51.856	0.000	0.47
		B	0.000	0.000	45.063	0.000	0.21
		C	0.000	0.000	0.000	0.000	0.00
T10	120'-100'	A	0.000	0.000	51.856	0.000	0.47
		B	0.000	0.000	45.063	0.000	0.21
		C	0.000	0.000	0.000	0.000	0.00
T11	100'-80'	A	0.000	0.000	51.856	0.000	0.47
		B	0.000	0.000	45.063	0.000	0.21
		C	0.000	0.000	0.000	0.000	0.00
T12	80'-60'	A	0.000	0.000	51.856	0.000	0.47
		B	0.000	0.000	45.063	0.000	0.21

Tower Section	Tower Elevation ft	Face	A _R ft ²	A _F ft ²	C _A A _A In Face ft ²	C _A A _A Out Face ft ²	Weight K
T13	60'-40'	C	0.000	0.000	0.000	0.000	0.00
		A	0.000	0.000	51.856	0.000	0.47
		B	0.000	0.000	45.063	0.000	0.21
T14	40'-20'	C	0.000	0.000	0.000	0.000	0.00
		A	0.000	0.000	51.856	0.000	0.47
		B	0.000	0.000	45.063	0.000	0.21
T15	20'-4'9"-27/32"	C	0.000	0.000	0.000	0.000	0.00
		A	0.000	0.000	39.345	0.000	0.36
		B	0.000	0.000	27.875	0.000	0.13
T16	4'9"-27/32"-0'	C	0.000	0.000	0.000	0.000	0.00
		A	0.000	0.000	11.971	0.000	0.10
		B	0.000	0.000	1.267	0.000	0.01
		C	0.000	0.000	0.000	0.000	0.00

Feed Line Center of Pressure

Section	Elevation ft	CP _x in	CP _z in	CP _x Ice in	CP _z Ice in
T1	300'-280'	2.7254	-2.4474	2.7254	-2.4474
T2	280'-260'	4.6256	-3.5425	4.6256	-3.5425
T3	260'-240'	1.5596	-4.2439	1.5596	-4.2439
T4	240'-220'	0.6859	-5.4660	0.6859	-5.4660
T5	220'-200'	0.7392	-5.7915	0.7392	-5.7915
T6	200'-180'	0.6997	-5.5648	0.6967	-5.5461
T7	180'-160'	0.7122	-5.6282	0.7095	-5.6117
T8	160'-140'	0.7675	-5.5746	0.7652	-5.5617
T9	140'-120'	0.7662	-5.1653	0.7651	-5.1594
T10	120'-100'	0.7779	-5.2163	0.7773	-5.2132
T11	100'-80'	0.8328	-5.5010	0.8328	-5.5010
T12	80'-60'	0.8328	-5.5010	0.8328	-5.5010
T13	60'-40'	0.8002	-5.3607	0.8002	-5.3607
T14	40'-20'	0.8328	-5.5010	0.8328	-5.5010
T15	20'-4'9"-27/32"	0.2374	-5.4169	0.2374	-5.4169
T16	4'9"-27/32"-0'	-2.1339	-3.0321	-2.1339	-3.0321

Shielding Factor Ka

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K _a No Ice	K _a Ice
T1	2	Safety Line 3/8"	280.00 - 300.00	0.6000	0.6000
T1	3	Step Pegs	280.00 - 300.00	0.6000	0.6000
T1	4	ROHN Waveguide Brackets	280.00 - 289.00	0.6000	0.6000
T1	5	Lighting Cable (3/8)	280.00 - 300.00	0.6000	0.6000
T1	8	ATCB-B01(5/16)	280.00 - 289.00	0.6000	0.6000
T1	9	LDF2-50(3/8)	280.00 - 289.00	0.6000	0.6000
T1	10	LDF7-50A(1-5/8)	280.00 - 289.00	0.6000	0.6000
T1	11	FB-L98B-002-100000(3/8)	280.00 - 289.00	0.6000	0.6000
T1	12	FB-L98B-002-100000(3/8)	280.00 - 289.00	0.6000	0.6000
T1	13	WR-VG86ST-BRD(3/4)	280.00 - 289.00	0.6000	0.6000
T1	14	WR-VG86T(3/4)	280.00 - 289.00	0.6000	0.6000
T1	15	WR-VG86T(3/4)	280.00 - 289.00	0.6000	0.6000
T2	2	Safety Line 3/8"	260.00 - 280.00	0.6000	0.6000
T2	3	Step Pegs	260.00 - 280.00	0.6000	0.6000
T2	4	ROHN Waveguide Brackets	260.00 - 280.00	0.6000	0.6000
T2	5	Lighting Cable (3/8)	260.00 - 280.00	0.6000	0.6000
T2	8	ATCB-B01(5/16)	260.00 - 280.00	0.6000	0.6000
T2	9	LDF2-50(3/8)	260.00 - 280.00	0.6000	0.6000
T2	10	LDF7-50A(1-5/8)	260.00 - 280.00	0.6000	0.6000
T2	11	FB-L98B-002-100000(3/8)	260.00 - 280.00	0.6000	0.6000
T2	12	FB-L98B-002-100000(3/8)	260.00 - 280.00	0.6000	0.6000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K _a No Ice	K _a Ice
T2	13	WR-VG86ST-BRD(3/4)	260.00 - 280.00	0.6000	0.6000
T2	14	WR-VG86T(3/4)	260.00 - 280.00	0.6000	0.6000
T2	15	WR-VG86T(3/4)	260.00 - 280.00	0.6000	0.6000
T3	2	Safety Line 3/8"	240.00 - 260.00	0.6000	0.6000
T3	3	Step Pegs	240.00 - 260.00	0.6000	0.6000
T3	4	ROHN Waveguide Brackets	240.00 - 260.00	0.6000	0.6000
T3	5	Lighting Cable (3/8)	240.00 - 260.00	0.6000	0.6000
T3	8	ATCB-B01(5/16)	240.00 - 260.00	0.6000	0.6000
T3	9	LDF2-50(3/8)	240.00 - 260.00	0.6000	0.6000
T3	10	LDF7-50A(1-5/8)	240.00 - 260.00	0.6000	0.6000
T3	11	FB-L98B-002-100000(3/8)	240.00 - 260.00	0.6000	0.6000
T3	12	FB-L98B-002-100000(3/8)	240.00 - 260.00	0.6000	0.6000
T3	13	WR-VG86ST-BRD(3/4)	240.00 - 260.00	0.6000	0.6000
T3	14	WR-VG86T(3/4)	240.00 - 260.00	0.6000	0.6000
T3	15	WR-VG86T(3/4)	240.00 - 260.00	0.6000	0.6000
T3	17	LDF7-50A(1-5/8)	240.00 - 252.00	0.6000	0.6000
T3	18	Feedline Ladder (Af)	240.00 - 252.00	0.6000	0.6000
T3	20	HB158-21U6S24-xxM_TMO(1-5/8)	240.00 - 252.00	0.6000	0.6000
T4	2	Safety Line 3/8"	220.00 - 240.00	0.6000	0.6000
T4	3	Step Pegs	220.00 - 240.00	0.6000	0.6000
T4	4	ROHN Waveguide Brackets	220.00 - 240.00	0.6000	0.6000
T4	5	Lighting Cable (3/8)	220.00 - 240.00	0.6000	0.6000
T4	8	ATCB-B01(5/16)	220.00 - 240.00	0.6000	0.6000
T4	9	LDF2-50(3/8)	220.00 - 240.00	0.6000	0.6000
T4	10	LDF7-50A(1-5/8)	220.00 - 240.00	0.6000	0.6000
T4	11	FB-L98B-002-100000(3/8)	220.00 - 240.00	0.6000	0.6000
T4	12	FB-L98B-002-100000(3/8)	220.00 - 240.00	0.6000	0.6000
T4	13	WR-VG86ST-BRD(3/4)	220.00 - 240.00	0.6000	0.6000
T4	14	WR-VG86T(3/4)	220.00 - 240.00	0.6000	0.6000
T4	15	WR-VG86T(3/4)	220.00 - 240.00	0.6000	0.6000
T4	17	LDF7-50A(1-5/8)	220.00 - 240.00	0.6000	0.6000
T4	18	Feedline Ladder (Af)	220.00 - 240.00	0.6000	0.6000
T4	20	HB158-21U6S24-xxM_TMO(1-5/8)	220.00 - 240.00	0.6000	0.6000
T5	2	Safety Line 3/8"	200.00 - 220.00	0.6000	0.6000
T5	3	Step Pegs	200.00 - 220.00	0.6000	0.6000
T5	4	ROHN Waveguide Brackets	200.00 - 220.00	0.6000	0.6000
T5	5	Lighting Cable (3/8)	200.00 - 220.00	0.6000	0.6000
T5	8	ATCB-B01(5/16)	200.00 - 220.00	0.6000	0.6000
T5	9	LDF2-50(3/8)	200.00 - 220.00	0.6000	0.6000
T5	10	LDF7-50A(1-5/8)	200.00 - 220.00	0.6000	0.6000
T5	11	FB-L98B-002-100000(3/8)	200.00 - 220.00	0.6000	0.6000
T5	12	FB-L98B-002-100000(3/8)	200.00 - 220.00	0.6000	0.6000
T5	13	WR-VG86ST-BRD(3/4)	200.00 - 220.00	0.6000	0.6000
T5	14	WR-VG86T(3/4)	200.00 - 220.00	0.6000	0.6000
T5	15	WR-VG86T(3/4)	200.00 - 220.00	0.6000	0.6000
T5	17	LDF7-50A(1-5/8)	200.00 - 220.00	0.6000	0.6000
T5	18	Feedline Ladder (Af)	200.00 - 220.00	0.6000	0.6000
T5	20	HB158-21U6S24-xxM_TMO(1-5/8)	200.00 - 220.00	0.6000	0.6000
T6	2	Safety Line 3/8"	180.00 - 200.00	0.6000	0.6000
T6	3	Step Pegs	180.00 - 200.00	0.6000	0.6000
T6	4	ROHN Waveguide Brackets	180.00 - 200.00	0.6000	0.6000
T6	5	Lighting Cable (3/8)	180.00 - 200.00	0.6000	0.6000
T6	8	ATCB-B01(5/16)	180.00 - 200.00	0.6000	0.6000
T6	9	LDF2-50(3/8)	180.00 - 200.00	0.6000	0.6000
T6	10	LDF7-50A(1-5/8)	180.00 - 200.00	0.6000	0.6000
T6	11	FB-L98B-002-100000(3/8)	180.00 - 200.00	0.6000	0.6000
T6	12	FB-L98B-002-100000(3/8)	180.00 - 200.00	0.6000	0.6000
T6	13	WR-VG86ST-BRD(3/4)	180.00 - 200.00	0.6000	0.6000
T6	14	WR-VG86T(3/4)	180.00 - 200.00	0.6000	0.6000
T6	15	WR-VG86T(3/4)	180.00 - 200.00	0.6000	0.6000
T6	17	LDF7-50A(1-5/8)	180.00 - 200.00	0.6000	0.6000
T6	18	Feedline Ladder (Af)	180.00 - 200.00	0.6000	0.6000
T6	20	HB158-21U6S24-	180.00 - 200.00	0.6000	0.6000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K _a No Ice	K _a Ice
T7	2	xxM_TMO(1-5/8) Safety Line 3/8"	160.00 - 180.00	0.6000	0.6000
T7	3	Step Pegs	160.00 - 180.00	0.6000	0.6000
T7	4	ROHN Waveguide Brackets	160.00 - 180.00	0.6000	0.6000
T7	5	Lighting Cable (3/8)	160.00 - 180.00	0.6000	0.6000
T7	8	ATCB-B01(5/16)	160.00 - 180.00	0.6000	0.6000
T7	9	LDF2-50(3/8)	160.00 - 180.00	0.6000	0.6000
T7	10	LDF7-50A(1-5/8)	160.00 - 180.00	0.6000	0.6000
T7	11	FB-L98B-002-100000(3/8)	160.00 - 180.00	0.6000	0.6000
T7	12	FB-L98B-002-100000(3/8)	160.00 - 180.00	0.6000	0.6000
T7	13	WR-VG86ST-BRD(3/4)	160.00 - 180.00	0.6000	0.6000
T7	14	WR-VG86T(3/4)	160.00 - 180.00	0.6000	0.6000
T7	15	WR-VG86T(3/4)	160.00 - 180.00	0.6000	0.6000
T7	17	LDF7-50A(1-5/8)	160.00 - 180.00	0.6000	0.6000
T7	18	Feedline Ladder (Af)	160.00 - 180.00	0.6000	0.6000
T7	20	HB158-21U6S24-xxM_TMO(1-5/8)	160.00 - 180.00	0.6000	0.6000
T8	2	Safety Line 3/8"	140.00 - 160.00	0.6000	0.6000
T8	3	Step Pegs	140.00 - 160.00	0.6000	0.6000
T8	4	ROHN Waveguide Brackets	140.00 - 160.00	0.6000	0.6000
T8	5	Lighting Cable (3/8)	149.00 - 160.00	0.6000	0.6000
T8	6	Lighting Cable (3/8)	140.00 - 149.00	0.6000	0.6000
T8	8	ATCB-B01(5/16)	140.00 - 160.00	0.6000	0.6000
T8	9	LDF2-50(3/8)	140.00 - 160.00	0.6000	0.6000
T8	10	LDF7-50A(1-5/8)	140.00 - 160.00	0.6000	0.6000
T8	11	FB-L98B-002-100000(3/8)	140.00 - 160.00	0.6000	0.6000
T8	12	FB-L98B-002-100000(3/8)	140.00 - 160.00	0.6000	0.6000
T8	13	WR-VG86ST-BRD(3/4)	140.00 - 160.00	0.6000	0.6000
T8	14	WR-VG86T(3/4)	140.00 - 160.00	0.6000	0.6000
T8	15	WR-VG86T(3/4)	140.00 - 160.00	0.6000	0.6000
T8	17	LDF7-50A(1-5/8)	140.00 - 160.00	0.6000	0.6000
T8	18	Feedline Ladder (Af)	140.00 - 160.00	0.6000	0.6000
T8	20	HB158-21U6S24-xxM_TMO(1-5/8)	140.00 - 160.00	0.6000	0.6000
T9	2	Safety Line 3/8"	120.00 - 140.00	0.6000	0.6000
T9	3	Step Pegs	120.00 - 140.00	0.6000	0.6000
T9	4	ROHN Waveguide Brackets	120.00 - 140.00	0.6000	0.6000
T9	6	Lighting Cable (3/8)	120.00 - 140.00	0.6000	0.6000
T9	8	ATCB-B01(5/16)	120.00 - 140.00	0.6000	0.6000
T9	9	LDF2-50(3/8)	120.00 - 140.00	0.6000	0.6000
T9	10	LDF7-50A(1-5/8)	120.00 - 140.00	0.6000	0.6000
T9	11	FB-L98B-002-100000(3/8)	120.00 - 140.00	0.6000	0.6000
T9	12	FB-L98B-002-100000(3/8)	120.00 - 140.00	0.6000	0.6000
T9	13	WR-VG86ST-BRD(3/4)	120.00 - 140.00	0.6000	0.6000
T9	14	WR-VG86T(3/4)	120.00 - 140.00	0.6000	0.6000
T9	15	WR-VG86T(3/4)	120.00 - 140.00	0.6000	0.6000
T9	17	LDF7-50A(1-5/8)	120.00 - 140.00	0.6000	0.6000
T9	18	Feedline Ladder (Af)	120.00 - 140.00	0.6000	0.6000
T9	20	HB158-21U6S24-xxM_TMO(1-5/8)	120.00 - 140.00	0.6000	0.6000
T10	2	Safety Line 3/8"	100.00 - 120.00	0.6000	0.6000
T10	3	Step Pegs	100.00 - 120.00	0.6000	0.6000
T10	4	ROHN Waveguide Brackets	100.00 - 120.00	0.6000	0.6000
T10	6	Lighting Cable (3/8)	100.00 - 120.00	0.6000	0.6000
T10	8	ATCB-B01(5/16)	100.00 - 120.00	0.6000	0.6000
T10	9	LDF2-50(3/8)	100.00 - 120.00	0.6000	0.6000
T10	10	LDF7-50A(1-5/8)	100.00 - 120.00	0.6000	0.6000
T10	11	FB-L98B-002-100000(3/8)	100.00 - 120.00	0.6000	0.6000
T10	12	FB-L98B-002-100000(3/8)	100.00 - 120.00	0.6000	0.6000
T10	13	WR-VG86ST-BRD(3/4)	100.00 - 120.00	0.6000	0.6000
T10	14	WR-VG86T(3/4)	100.00 - 120.00	0.6000	0.6000
T10	15	WR-VG86T(3/4)	100.00 - 120.00	0.6000	0.6000
T10	17	LDF7-50A(1-5/8)	100.00 - 120.00	0.6000	0.6000
T10	18	Feedline Ladder (Af)	100.00 - 120.00	0.6000	0.6000
T10	20	HB158-21U6S24-xxM_TMO(1-5/8)	100.00 - 120.00	0.6000	0.6000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K _a No Ice	K _a Ice
T11	2	Safety Line 3/8"	80.00 - 100.00	0.6000	0.6000
T11	3	Step Pegs	80.00 - 100.00	0.6000	0.6000
T11	4	ROHN Waveguide Brackets	80.00 - 100.00	0.6000	0.6000
T11	6	Lighting Cable (3/8)	80.00 - 100.00	0.6000	0.6000
T11	8	ATCB-B01(5/16)	80.00 - 100.00	0.6000	0.6000
T11	9	LDF2-50(3/8)	80.00 - 100.00	0.6000	0.6000
T11	10	LDF7-50A(1-5/8)	80.00 - 100.00	0.6000	0.6000
T11	11	FB-L98B-002-100000(3/8)	80.00 - 100.00	0.6000	0.6000
T11	12	FB-L98B-002-100000(3/8)	80.00 - 100.00	0.6000	0.6000
T11	13	WR-VG86ST-BRD(3/4)	80.00 - 100.00	0.6000	0.6000
T11	14	WR-VG86T(3/4)	80.00 - 100.00	0.6000	0.6000
T11	15	WR-VG86T(3/4)	80.00 - 100.00	0.6000	0.6000
T11	17	LDF7-50A(1-5/8)	80.00 - 100.00	0.6000	0.6000
T11	18	Feedline Ladder (Af)	80.00 - 100.00	0.6000	0.6000
T11	20	HB158-21U6S24-xxM_TMO(1-5/8)	80.00 - 100.00	0.6000	0.6000
T12	2	Safety Line 3/8"	60.00 - 80.00	0.6000	0.6000
T12	3	Step Pegs	60.00 - 80.00	0.6000	0.6000
T12	4	ROHN Waveguide Brackets	60.00 - 80.00	0.6000	0.6000
T12	6	Lighting Cable (3/8)	60.00 - 80.00	0.6000	0.6000
T12	8	ATCB-B01(5/16)	60.00 - 80.00	0.6000	0.6000
T12	9	LDF2-50(3/8)	60.00 - 80.00	0.6000	0.6000
T12	10	LDF7-50A(1-5/8)	60.00 - 80.00	0.6000	0.6000
T12	11	FB-L98B-002-100000(3/8)	60.00 - 80.00	0.6000	0.6000
T12	12	FB-L98B-002-100000(3/8)	60.00 - 80.00	0.6000	0.6000
T12	13	WR-VG86ST-BRD(3/4)	60.00 - 80.00	0.6000	0.6000
T12	14	WR-VG86T(3/4)	60.00 - 80.00	0.6000	0.6000
T12	15	WR-VG86T(3/4)	60.00 - 80.00	0.6000	0.6000
T12	17	LDF7-50A(1-5/8)	60.00 - 80.00	0.6000	0.6000
T12	18	Feedline Ladder (Af)	60.00 - 80.00	0.6000	0.6000
T12	20	HB158-21U6S24-xxM_TMO(1-5/8)	60.00 - 80.00	0.6000	0.6000
T13	2	Safety Line 3/8"	40.00 - 60.00	0.6000	0.6000
T13	3	Step Pegs	40.00 - 60.00	0.6000	0.6000
T13	4	ROHN Waveguide Brackets	40.00 - 60.00	0.6000	0.6000
T13	6	Lighting Cable (3/8)	40.00 - 60.00	0.6000	0.6000
T13	8	ATCB-B01(5/16)	40.00 - 60.00	0.6000	0.6000
T13	9	LDF2-50(3/8)	40.00 - 60.00	0.6000	0.6000
T13	10	LDF7-50A(1-5/8)	40.00 - 60.00	0.6000	0.6000
T13	11	FB-L98B-002-100000(3/8)	40.00 - 60.00	0.6000	0.6000
T13	12	FB-L98B-002-100000(3/8)	40.00 - 60.00	0.6000	0.6000
T13	13	WR-VG86ST-BRD(3/4)	40.00 - 60.00	0.6000	0.6000
T13	14	WR-VG86T(3/4)	40.00 - 60.00	0.6000	0.6000
T13	15	WR-VG86T(3/4)	40.00 - 60.00	0.6000	0.6000
T13	17	LDF7-50A(1-5/8)	40.00 - 60.00	0.6000	0.6000
T13	18	Feedline Ladder (Af)	40.00 - 60.00	0.6000	0.6000
T13	20	HB158-21U6S24-xxM_TMO(1-5/8)	40.00 - 60.00	0.6000	0.6000
T14	2	Safety Line 3/8"	20.00 - 40.00	0.6000	0.6000
T14	3	Step Pegs	20.00 - 40.00	0.6000	0.6000
T14	4	ROHN Waveguide Brackets	20.00 - 40.00	0.6000	0.6000
T14	6	Lighting Cable (3/8)	20.00 - 40.00	0.6000	0.6000
T14	8	ATCB-B01(5/16)	20.00 - 40.00	0.6000	0.6000
T14	9	LDF2-50(3/8)	20.00 - 40.00	0.6000	0.6000
T14	10	LDF7-50A(1-5/8)	20.00 - 40.00	0.6000	0.6000
T14	11	FB-L98B-002-100000(3/8)	20.00 - 40.00	0.6000	0.6000
T14	12	FB-L98B-002-100000(3/8)	20.00 - 40.00	0.6000	0.6000
T14	13	WR-VG86ST-BRD(3/4)	20.00 - 40.00	0.6000	0.6000
T14	14	WR-VG86T(3/4)	20.00 - 40.00	0.6000	0.6000
T14	15	WR-VG86T(3/4)	20.00 - 40.00	0.6000	0.6000
T14	17	LDF7-50A(1-5/8)	20.00 - 40.00	0.6000	0.6000
T14	18	Feedline Ladder (Af)	20.00 - 40.00	0.6000	0.6000
T14	20	HB158-21U6S24-xxM_TMO(1-5/8)	20.00 - 40.00	0.6000	0.6000
T15	2	Safety Line 3/8"	5.00 - 20.00	0.6000	0.6000
T15	3	Step Pegs	5.00 - 20.00	0.6000	0.6000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K _a No Ice	K _a Ice
T15	4	ROHN Waveguide Brackets	4.82 - 20.00	0.6000	0.6000
T15	6	Lighting Cable (3/8)	4.82 - 20.00	0.6000	0.6000
T15	8	ATCB-B01(5/16)	8.00 - 20.00	0.6000	0.6000
T15	9	LDF2-50(3/8)	8.00 - 20.00	0.6000	0.6000
T15	10	LDF7-50A(1-5/8)	8.00 - 20.00	0.6000	0.6000
T15	11	FB-L98B-002-100000(3/8)	8.00 - 20.00	0.6000	0.6000
T15	12	FB-L98B-002-100000(3/8)	8.00 - 20.00	0.6000	0.6000
T15	13	WR-VG86ST-BRD(3/4)	8.00 - 20.00	0.6000	0.6000
T15	14	WR-VG86T(3/4)	8.00 - 20.00	0.6000	0.6000
T15	15	WR-VG86T(3/4)	8.00 - 20.00	0.6000	0.6000
T15	17	LDF7-50A(1-5/8)	4.82 - 20.00	0.6000	0.6000
T15	18	Feedline Ladder (Af)	4.82 - 20.00	0.6000	0.6000
T15	20	HB158-21U6S24-xxM TMO(1-5/8)	4.82 - 20.00	0.6000	0.6000
T16	4	ROHN Waveguide Brackets	0.00 - 4.82	0.4347	0.4347
T16	6	Lighting Cable (3/8)	0.00 - 4.82	0.4347	0.4347
T16	17	LDF7-50A(1-5/8)	0.00 - 4.82	0.4347	0.4347
T16	18	Feedline Ladder (Af)	0.00 - 4.82	0.4347	0.4347
T16	20	HB158-21U6S24-xxM TMO(1-5/8)	0.00 - 4.82	0.4347	0.4347

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment t °	Placement ft		C _A A _A Front ft ²	C _A A _A Side ft ²	Weight K

Flash Beacon Lighting	B	From Leg	0.00 0' 6"	0.0000	300'	No Ice	2.70	2.70	0.05
Side Light	A	From Leg	0.50 0' 0'	0.0000	149'	No Ice	0.26	0.26	0.01
Side Light	B	From Leg	0.50 0' 0'	0.0000	149'	No Ice	0.26	0.26	0.01
Side Light	C	From Leg	0.50 0' 0'	0.0000	149'	No Ice	0.26	0.26	0.01

SBNHH-1D65B w/ Mount Pipe	A	From Leg	4.00 0' 2'	0.0000	289'	No Ice	4.09	3.30	0.07
SBNHH-1D65B w/ Mount Pipe	B	From Leg	4.00 0' 2'	0.0000	289'	No Ice	4.09	3.30	0.07
SBNHH-1D65B w/ Mount Pipe	C	From Leg	4.00 0' 2'	0.0000	289'	No Ice	4.09	3.30	0.07
(2) SBNH-1D8585B w/ Mount Pipe	A	From Leg	4.00 0' 2'	0.0000	289'	No Ice	4.09	3.30	0.07
(2) SBNH-1D8585B w/ Mount Pipe	B	From Leg	4.00 0' 2'	0.0000	289'	No Ice	4.09	3.30	0.07
(2) SBNH-1D8585B w/ Mount Pipe	C	From Leg	4.00 0' 2'	0.0000	289'	No Ice	4.09	3.30	0.07
SBNHH-1D85B w/ Mount Pipe	A	From Leg	4.00 0' 2'	0.0000	289'	No Ice	4.09	3.30	0.07

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustmen t °	Placement ft		C _A A _A Front ft ²	C _A A _A Side ft ²	Weight K
SBNHH-1D85B w/ Mount Pipe	B	From Leg	4.00 0' 2'	0.0000	289'	No Ice	4.09	3.30	0.07
SBNHH-1D85B w/ Mount Pipe	C	From Leg	4.00 0' 2'	0.0000	289'	No Ice	4.09	3.30	0.07
RRUS 11	A	From Leg	4.00 0' 2'	0.0000	289'	No Ice	2.78	1.19	0.05
RRUS 11	B	From Leg	4.00 0' 2'	0.0000	289'	No Ice	2.78	1.19	0.05
RRUS 11	C	From Leg	4.00 0' 2'	0.0000	289'	No Ice	2.78	1.19	0.05
(2) RRUS 12	A	From Leg	4.00 0' 2'	0.0000	289'	No Ice	3.15	1.29	0.06
(2) RRUS 12	B	From Leg	4.00 0' 2'	0.0000	289'	No Ice	3.15	1.29	0.06
(2) RRUS 12	C	From Leg	4.00 0' 2'	0.0000	289'	No Ice	3.15	1.29	0.06
(2) RRUS 32	B	From Leg	4.00 0' 2'	0.0000	289'	No Ice	2.86	1.78	0.06
RRUS 32	C	From Leg	4.00 0' 2'	0.0000	289'	No Ice	2.86	1.78	0.06
RRUS 4478 B14	B	From Leg	4.00 0' 2'	0.0000	289'	No Ice	1.84	1.06	0.06
RRUS 4478 B14	C	From Leg	4.00 0' 2'	0.0000	289'	No Ice	1.84	1.06	0.06
RRUS A2 MODULE	A	From Leg	4.00 0' 2'	0.0000	289'	No Ice	1.60	0.38	0.02
RRUS A2 MODULE	B	From Leg	4.00 0' 2'	0.0000	289'	No Ice	1.60	0.38	0.02
RRUS A2 MODULE	C	From Leg	4.00 0' 2'	0.0000	289'	No Ice	1.60	0.38	0.02
RADIO 4426	A	From Leg	4.00 0' 2'	0.0000	289'	No Ice	1.64	0.73	0.05
RADIO 4426	B	From Leg	4.00 0' 2'	0.0000	289'	No Ice	1.64	0.73	0.05
RADIO 4426	C	From Leg	4.00 0' 2'	0.0000	289'	No Ice	1.64	0.73	0.05
(4) KRY 112 81/2	B	From Leg	4.00 0' 2'	0.0000	289'	No Ice	0.18	0.39	0.01
(2) KRY 112 81/2	C	From Leg	4.00 0' 2'	0.0000	289'	No Ice	0.18	0.39	0.01
DC6-48-60-18-8C	B	From Leg	1.00 0' 2'	0.0000	289'	No Ice	2.74	2.74	0.03
DC6-48-60-18-8C	C	From Leg	1.00 0' 2'	0.0000	289'	No Ice	2.74	2.74	0.03

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustmen t °	Placement ft		C _A A _A Front ft ²	C _A A _A Side ft ²	Weight K
(2) DC6-48-60-18-8F	B	From Leg	2' 1.00 0' 2'	0.0000	289'	No Ice	0.92	0.92	0.02
Sector Mount [SM 502-3] ***** ***	A	None		0.0000	289'	No Ice	29.82	29.82	1.67
FFV4-65C-R3-V1_TMO	A	From Leg	4.00 0' 1'	0.0000	252'	No Ice	21.11	9.35	0.15
FFV4-65C-R3-V1_TMO	B	From Leg	4.00 0' 1'	0.0000	252'	No Ice	21.11	9.35	0.15
FFV4-65C-R3-V1_TMO	C	From Leg	4.00 0' 1'	0.0000	252'	No Ice	21.11	9.35	0.15
AIR6449 B41_T-MOBILE	A	From Leg	4.00 0' 1'	0.0000	252'	No Ice	5.66	2.48	0.11
AIR6449 B41_T-MOBILE	B	From Leg	4.00 0' 1'	0.0000	252'	No Ice	5.66	2.48	0.11
AIR6449 B41_T-MOBILE	C	From Leg	4.00 0' 1'	0.0000	252'	No Ice	5.66	2.48	0.11
RADIO 4415 B25_TMO	A	From Leg	4.00 0' 1'	0.0000	252'	No Ice	1.86	0.87	0.05
RADIO 4415 B25_TMO	B	From Leg	4.00 0' 1'	0.0000	252'	No Ice	1.86	0.87	0.05
RADIO 4415 B25_TMO	C	From Leg	4.00 0' 1'	0.0000	252'	No Ice	1.86	0.87	0.05
RADIO 4424 B25_TMOV1	A	From Leg	4.00 0' 1'	0.0000	252'	No Ice	2.05	1.61	0.10
RADIO 4424 B25_TMOV1	B	From Leg	4.00 0' 1'	0.0000	252'	No Ice	2.05	1.61	0.10
RADIO 4424 B25_TMOV1	C	From Leg	4.00 0' 1'	0.0000	252'	No Ice	2.05	1.61	0.10
RADIO 4449 B71 B85A_T-MOBILE	A	From Leg	4.00 0' 1'	0.0000	252'	No Ice	1.97	1.59	0.07
RADIO 4449 B71 B85A_T-MOBILE	B	From Leg	4.00 0' 1'	0.0000	252'	No Ice	1.97	1.59	0.07
RADIO 4449 B71 B85A_T-MOBILE	C	From Leg	4.00 0' 1'	0.0000	252'	No Ice	1.97	1.59	0.07
12' HD V-Boom Assembly [#C10857001C]	A	From Leg	2.00 0' 0'	0.0000	252'	No Ice	15.40	11.11	0.56
12' HD V-Boom Assembly [#C10857001C]	B	From Leg	2.00 0' 0'	0.0000	252'	No Ice	15.40	11.11	0.56
12' HD V-Boom Assembly [#C10857001C]	C	From Leg	2.00 0' 0'	0.0000	252'	No Ice	15.40	11.11	0.56

Dishes

Description	Face or Leg	Dish Type	Offset Type	Offsets: Horz Lateral Vert ft	Azimuth Adjustment °	3 dB Beam Width °	Elevation ft	Outside Diameter ft	Aperture Area ft ²	Weight K

P-24A35GF-U	C	Grid	From Leg	4.00 6' 1'	34.0000		252'	3.00	No Ice 7.10	0.05

Load Combinations

Comb. No.	Description
1	Dead Only
2	1.2 Dead+1.0 Wind 0 deg - No Ice+1.0 Guy
3	1.2 Dead+1.0 Wind 30 deg - No Ice+1.0 Guy
4	1.2 Dead+1.0 Wind 60 deg - No Ice+1.0 Guy
5	1.2 Dead+1.0 Wind 90 deg - No Ice+1.0 Guy
6	1.2 Dead+1.0 Wind 120 deg - No Ice+1.0 Guy
7	1.2 Dead+1.0 Wind 150 deg - No Ice+1.0 Guy
8	1.2 Dead+1.0 Wind 180 deg - No Ice+1.0 Guy
9	1.2 Dead+1.0 Wind 210 deg - No Ice+1.0 Guy
10	1.2 Dead+1.0 Wind 240 deg - No Ice+1.0 Guy
11	1.2 Dead+1.0 Wind 270 deg - No Ice+1.0 Guy
12	1.2 Dead+1.0 Wind 300 deg - No Ice+1.0 Guy
13	1.2 Dead+1.0 Wind 330 deg - No Ice+1.0 Guy
14	Dead+Wind 0 deg - Service+Guy
15	Dead+Wind 30 deg - Service+Guy
16	Dead+Wind 60 deg - Service+Guy
17	Dead+Wind 90 deg - Service+Guy
18	Dead+Wind 120 deg - Service+Guy
19	Dead+Wind 150 deg - Service+Guy
20	Dead+Wind 180 deg - Service+Guy
21	Dead+Wind 210 deg - Service+Guy
22	Dead+Wind 240 deg - Service+Guy
23	Dead+Wind 270 deg - Service+Guy
24	Dead+Wind 300 deg - Service+Guy
25	Dead+Wind 330 deg - Service+Guy

Maximum Member Forces

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
T1	300 - 280	Leg	Max Tension	8	11.68	0.01	0.00
			Max. Compression	6	-21.06	-0.09	-0.18
			Max. Mx	11	2.19	-0.53	0.02
			Max. My	8	-4.48	0.02	0.54
			Max. Vy	5	-1.11	-0.45	-0.04
			Max. Vx	8	-0.99	-0.04	-0.19
		Diagonal	Max Tension	5	2.55	0.00	0.00
			Max. Compression	5	-2.54	0.00	0.00
			Max. Mx	11	0.49	0.00	0.00
			Max. My	11	0.43	0.00	-0.00
			Max. Vy	11	-0.00	0.00	0.00
			Max. Vx	11	0.00	0.00	0.00
		Top Girt	Max Tension	10	0.04	0.00	0.00
			Max. Compression	12	-0.04	0.00	0.00
			Max. Mx	2	-0.02	0.00	0.00
			Max. My	11	-0.04	0.00	-0.00
			Max. Vy	2	-0.00	0.00	0.00

Section n No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
T2	280 - 260	Bottom Girt	Max. Vx	11	0.00	0.00	0.00
			Max Tension	10	0.92	0.00	0.00
			Max. Compression	1	0.00	0.00	0.00
			Max. Mx	12	0.23	0.00	0.00
			Max. My	11	0.25	0.00	-0.00
			Max. Vy	12	-0.00	0.00	0.00
		Guy A	Max. Vx	11	0.00	0.00	0.00
			Bottom Tension	8	13.95		
			Top Tension	8	14.27		
			Top Cable Vert	8	11.17		
			Top Cable Norm	8	8.89		
			Top Cable Tan	8	0.01		
		Guy B	Bot Cable Vert	8	-10.38		
			Bot Cable Norm	8	9.31		
			Bot Cable Tan	8	0.01		
			Bottom Tension	12	14.17		
			Top Tension	12	14.50		
			Top Cable Vert	12	11.46		
		Guy C	Top Cable Norm	12	8.88		
			Top Cable Tan	12	0.01		
			Bot Cable Vert	12	-10.67		
			Bot Cable Norm	12	9.32		
			Bot Cable Tan	12	0.00		
			Bottom Tension	4	14.26		
		Top Guy Pull-Off	Top Tension	4	14.59		
			Top Cable Vert	4	11.47		
			Top Cable Norm	4	9.02		
			Top Cable Tan	4	0.01		
			Bot Cable Vert	4	-10.69		
			Bot Cable Norm	4	9.44		
		Torque Arm Top	Bot Cable Tan	4	0.01		
			Max Tension	4	5.15	0.00	0.00
			Max. Compression	10	-3.61	0.00	0.00
			Max. Mx	13	0.67	0.01	0.00
			Max. My	11	4.50	0.00	-0.00
			Max. Vy	13	-0.01	0.00	0.00
		Leg	Max. Vx	11	0.00	0.00	0.00
			Max Tension	9	7.72	0.00	0.00
			Max. Compression	9	-1.61	-34.91	0.00
			Max. Mx	4	-0.79	-38.36	-0.00
			Max. My	11	0.81	-35.46	0.00
			Max. Vy	4	11.30	-38.36	-0.00
		Diagonal	Max. Vx	11	0.00	-35.46	0.00
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	6	-21.07	0.03	0.17
			Max. Mx	5	-15.25	0.35	0.10
			Max. My	8	-10.38	-0.00	0.33
			Max. Vy	5	-1.10	-0.32	-0.02
		Top Girt	Max. Vx	8	-0.89	0.00	-0.22
			Max Tension	4	1.15	0.00	0.00
			Max. Compression	5	-1.56	0.00	0.00
			Max. Mx	11	0.75	0.00	0.00
			Max. My	11	0.40	0.00	-0.00
			Max. Vy	11	-0.00	0.00	0.00
		Bottom Girt	Max. Vx	11	0.00	0.00	0.00
			Max Tension	4	0.66	0.00	0.00
			Max. Compression	1	0.00	0.00	0.00
			Max. Mx	12	0.63	0.00	0.00
			Max. My	11	0.60	0.00	-0.00
			Max. Vy	12	-0.00	0.00	0.00
T3	260 - 240	Leg	Max. Vx	11	0.00	0.00	0.00
			Max Tension	4	0.24	-0.13	0.08
			Max. Compression	10	-38.37	0.30	-0.36

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
T4	240 - 220	Leg	Max. Mx	11	-31.38	0.98	-0.11
			Max. My	12	-24.23	0.48	0.64
			Max. Vy	11	2.41	0.98	-0.11
			Max. Vx	8	-1.77	-0.04	-0.63
			Max Tension	11	3.03	0.00	0.00
			Max. Compression	12	-5.83	0.00	0.00
			Max. Mx	5	2.55	0.05	-0.00
			Max. My	5	-5.54	-0.02	-0.02
			Max. Vy	5	-0.03	0.05	-0.00
			Max. Vx	5	-0.01	0.00	0.00
			Max Tension	3	0.36	0.00	0.00
			Max. Compression	1	0.00	0.00	0.00
			Max. Mx	12	0.32	-0.01	0.00
			Max. My	11	0.29	0.00	0.00
			Max. Vy	12	0.01	0.00	0.00
			Max. Vx	11	-0.00	0.00	0.00
			Max Tension	11	2.76	0.00	0.00
			Max. Compression	1	0.00	0.00	0.00
			Max. Mx	4	1.29	-0.01	0.00
			Max. My	11	1.24	0.00	0.00
			Max. Vy	4	0.01	0.00	0.00
			Max. Vx	11	-0.00	0.00	0.00
			Bottom Tension	8	14.05		
			Top Tension	8	14.33		
			Top Cable Vert	8	10.46		
			Top Cable Norm	8	9.80		
			Top Cable Tan	8	0.00		
			Bot Cable Vert	8	-9.76		
			Bot Cable Norm	8	10.10		
			Bot Cable Tan	8	0.00		
			Bottom Tension	12	15.11		
			Top Tension	12	15.39		
			Top Cable Vert	12	11.37		
			Top Cable Norm	12	10.38		
			Top Cable Tan	12	0.01		
			Bot Cable Vert	12	-10.67		
			Bot Cable Norm	12	10.70		
			Bot Cable Tan	12	0.00		
			Bottom Tension	4	14.91		
			Top Tension	4	15.19		
			Top Cable Vert	4	11.13		
			Top Cable Norm	4	10.33		
			Top Cable Tan	4	0.00		
			Bot Cable Vert	4	-10.45		
			Bot Cable Norm	4	10.64		
			Bot Cable Tan	4	0.00		
			Max Tension	4	8.61	0.00	0.00
			Max. Compression	10	-3.95	0.00	0.00
			Max. Mx	4	8.61	0.01	0.00
			Max. My	11	8.31	0.00	-0.00
			Max. Vy	4	-0.01	0.00	0.00
			Max. Vx	11	0.00	0.00	0.00
			Max Tension	11	9.71	-7.92	0.00
			Max. Compression	6	-3.20	-27.51	0.00
			Max. Mx	12	-1.30	-37.09	0.00
			Max. My	11	0.22	-35.31	0.00
			Max. Vy	12	10.93	-37.09	0.00
			Max. Vx	11	0.00	-35.31	0.00
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	12	-42.73	-0.14	0.42
			Max. Mx	11	-33.35	0.83	-0.03
			Max. My	8	-23.53	0.04	0.66
			Max. Vy	11	2.41	0.71	-0.06
			Max. Vx	8	-1.77	-0.03	-0.43
			Max Tension	6	2.43	0.00	0.00
			Max. Compression	6	-3.29	0.00	0.00
			Max. Mx	11	2.20	0.00	0.00
			Max. My	11	1.27	0.00	-0.00
			Max. Vy	11	-0.00	0.00	0.00

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
T5	220 - 200	Top Girt	Max. Vx	11	0.00	0.00	0.00
			Max Tension	12	1.22	0.00	0.00
			Max. Compression	6	-0.04	0.00	0.00
			Max. Mx	4	1.21	0.00	0.00
			Max. My	11	1.21	0.00	-0.00
			Max. Vy	4	-0.00	0.00	0.00
		Bottom Girt	Max. Vx	11	0.00	0.00	0.00
			Max Tension	5	0.93	0.00	0.00
			Max. Compression	11	-0.04	0.00	0.00
			Max. Mx	6	0.85	0.00	0.00
			Max. My	11	-0.04	0.00	-0.00
			Max. Vy	6	-0.00	0.00	0.00
		Leg	Max. Vx	11	0.00	0.00	0.00
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	11	-45.86	-0.00	-0.03
			Max. Mx	11	-33.35	0.69	-0.00
			Max. My	5	-18.76	-0.14	-0.47
			Max. Vy	11	-1.42	-0.19	-0.12
		Diagonal	Max. Vx	5	-1.08	-0.14	-0.47
			Max Tension	5	2.69	0.00	0.00
			Max. Compression	11	-2.91	0.00	0.00
			Max. Mx	11	2.66	0.00	0.00
			Max. My	11	-2.91	0.00	-0.00
			Max. Vy	11	-0.00	0.00	0.00
T6	200 - 180	Top Girt	Max. Vx	11	0.00	0.00	0.00
			Max Tension	5	1.08	0.00	0.00
			Max. Compression	11	-0.95	0.00	0.00
			Max. Mx	6	0.50	0.00	0.00
			Max. My	11	-0.89	0.00	-0.00
			Max. Vy	6	-0.00	0.00	0.00
		Bottom Girt	Max. Vx	11	0.00	0.00	0.00
			Max Tension	11	0.79	0.00	0.00
			Max. Compression	5	-0.70	0.00	0.00
			Max. Mx	10	0.31	0.00	0.00
			Max. My	11	0.43	0.00	-0.00
			Max. Vy	10	-0.00	0.00	0.00
		Leg	Max. Vx	11	0.00	0.00	0.00
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	5	-45.43	-0.29	0.49
			Max. Mx	5	-45.37	-0.83	0.05
			Max. My	12	-41.17	0.16	0.73
			Max. Vy	11	-1.43	0.69	0.06
		Diagonal	Max. Vx	12	1.45	0.16	0.73
			Max Tension	5	4.04	0.00	0.00
			Max. Compression	5	-4.01	0.00	0.00
			Max. Mx	4	2.63	0.00	0.00
			Max. My	11	0.28	0.00	-0.00
			Max. Vy	4	-0.00	0.00	0.00
		Top Girt	Max. Vx	11	0.00	0.00	0.00
			Max Tension	5	0.96	0.00	0.00
			Max. Compression	11	-0.69	0.00	0.00
			Max. Mx	10	-0.01	0.00	0.00
			Max. My	5	0.43	0.00	0.00
			Max. Vy	10	-0.00	0.00	0.00
		Bottom Girt	Max. Vx	5	-0.00	0.00	0.00
			Max Tension	11	0.64	0.00	0.00
			Max. Compression	5	-0.49	0.00	0.00
			Max. Mx	6	-0.44	0.00	0.00
			Max. My	12	0.59	0.00	0.00
			Max. Vy	6	-0.00	0.00	0.00
		Guy A	Max. Vx	12	-0.00	0.00	0.00
			Bottom Tension	8	14.59		
			Top Tension	8	14.80		
			Top Cable Vert	8	11.94		
			Top Cable Norm	8	8.74		
			Top Cable Tan	8	0.00		
		Guy B	Bot Cable Vert	8	-11.47		
			Bot Cable Norm	8	9.02		
			Bot Cable Tan	8	0.00		

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
T7	180 - 160	Guy B	Bottom Tension	11	16.71		
			Top Tension	11	16.92		
			Top Cable Vert	11	13.82		
			Top Cable Norm	11	9.76		
			Top Cable Tan	11	0.09		
			Bot Cable Vert	11	-13.37		
			Bot Cable Norm	11	10.02		
			Bot Cable Tan	11	0.14		
		Guy C	Bottom Tension	5	16.60		
			Top Tension	5	16.81		
			Top Cable Vert	5	13.65		
			Top Cable Norm	5	9.81		
			Top Cable Tan	5	0.09		
			Bot Cable Vert	5	-13.20		
			Bot Cable Norm	5	10.06		
			Bot Cable Tan	5	0.14		
		Top Guy Pull-Off	Max Tension	11	6.35	0.00	0.00
			Max. Compression	1	0.00	0.00	0.00
			Max. Mx	10	4.07	0.01	0.00
			Max. My	12	5.79	0.00	0.00
			Max. Vy	10	-0.01	0.00	0.00
			Max. Vx	12	-0.00	0.00	0.00
		Leg	Max Tension	1	0.00	0.00	0.00
			Max. Compression	11	-51.72	0.06	0.05
			Max. Mx	5	-44.17	0.60	-0.06
			Max. My	12	-41.17	0.04	0.56
			Max. Vy	5	-1.22	-0.15	0.40
			Max. Vx	12	1.46	0.04	0.56
		Diagonal	Max Tension	12	2.58	0.00	0.00
			Max. Compression	6	-2.79	0.00	0.00
			Max. Mx	4	0.40	0.00	0.00
			Max. My	5	0.36	0.00	0.00
			Max. Vy	4	-0.00	0.00	0.00
			Max. Vx	5	-0.00	0.00	0.00
		Top Girt	Max Tension	5	0.83	0.00	0.00
			Max. Compression	12	-0.43	0.00	0.00
			Max. Mx	6	0.82	0.00	0.00
			Max. My	12	-0.43	0.00	0.00
			Max. Vy	6	-0.00	0.00	0.00
			Max. Vx	12	-0.00	0.00	0.00
		Bottom Girt	Max Tension	11	0.37	0.00	0.00
			Max. Compression	5	-0.10	0.00	0.00
			Max. Mx	8	0.09	0.00	0.00
			Max. My	5	-0.10	0.00	-0.00
			Max. Vy	8	-0.00	0.00	0.00
			Max. Vx	5	0.00	0.00	0.00
T8	160 - 140	Leg	Max Tension	1	0.00	0.00	0.00
			Max. Compression	11	-51.45	0.08	-0.07
			Max. Mx	5	-40.16	0.52	-0.23
			Max. My	9	-37.74	-0.01	0.43
			Max. Vy	5	1.72	0.32	-0.21
			Max. Vx	2	-1.21	0.12	0.02
		Diagonal	Max Tension	5	2.84	0.00	0.00
			Max. Compression	11	-3.12	0.00	0.00
			Max. Mx	5	2.84	0.00	0.00
			Max. My	5	-1.46	0.00	0.00
			Max. Vy	5	-0.00	0.00	0.00
			Max. Vx	5	-0.00	0.00	0.00
		Top Girt	Max Tension	5	0.42	0.00	0.00
			Max. Compression	11	-0.16	0.00	0.00
			Max. Mx	8	0.10	0.00	0.00
			Max. My	5	0.42	0.00	-0.00
			Max. Vy	8	-0.00	0.00	0.00
			Max. Vx	5	0.00	0.00	0.00
		Bottom Girt	Max Tension	11	1.05	0.00	0.00
			Max. Compression	5	-0.77	0.00	0.00
			Max. Mx	2	0.05	0.00	0.00
			Max. My	5	-0.77	0.00	-0.00
			Max. Vy	2	-0.00	0.00	0.00

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
T9	140 - 120	Leg	Max. Vx	5	0.00	0.00	0.00
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	5	-60.89	-0.60	-0.16
			Max. Mx	11	-38.83	0.92	-0.25
			Max. My	2	-37.79	-0.00	0.77
			Max. Vy	11	2.23	0.72	0.17
		Diagonal	Max. Vx	8	-2.03	0.00	-0.65
			Max Tension	11	2.17	0.00	0.00
			Max. Compression	11	-2.94	0.00	0.00
			Max. Mx	5	1.62	0.00	0.00
			Max. My	5	0.56	0.00	0.00
			Max. Vy	5	-0.00	0.00	0.00
		Top Girt	Max. Vx	5	-0.00	0.00	0.00
			Max Tension	5	0.67	0.00	0.00
			Max. Compression	6	-0.07	0.00	0.00
			Max. Mx	2	0.48	0.00	0.00
			Max. My	5	-0.02	0.00	-0.00
			Max. Vy	2	-0.00	0.00	0.00
		Bottom Girt	Max. Vx	5	0.00	0.00	0.00
			Max Tension	11	0.63	0.00	0.00
			Max. Compression	1	0.00	0.00	0.00
			Max. Mx	4	0.43	0.00	0.00
			Max. My	11	0.52	0.00	-0.00
			Max. Vy	2	-0.00	0.00	0.00
		Guy A	Max. Vx	11	0.00	0.00	0.00
			Bottom Tension	7	15.26		
			Top Tension	7	15.40		
			Top Cable Vert	7	10.33		
			Top Cable Norm	7	11.42		
			Top Cable Tan	7	0.05		
		Guy B	Bot Cable Vert	7	-9.99		
			Bot Cable Norm	7	11.53		
			Bot Cable Tan	7	0.10		
			Bottom Tension	11	18.70		
			Top Tension	11	18.84		
			Top Cable Vert	11	12.98		
		Guy C	Top Cable Norm	11	13.66		
			Top Cable Tan	11	0.05		
			Bot Cable Vert	11	-12.64		
			Bot Cable Norm	11	13.78		
			Bot Cable Tan	11	0.11		
			Bottom Tension	5	18.44		
		Top Guy Pull-Off	Top Tension	5	18.58		
			Top Cable Vert	5	12.57		
			Top Cable Norm	5	13.68		
			Top Cable Tan	5	0.04		
			Bot Cable Vert	5	-12.23		
			Bot Cable Norm	5	13.80		
T10	120 - 100	Leg	Bot Cable Tan	5	0.10		
			Max Tension	5	7.06	0.00	0.00
			Max. Compression	1	0.00	0.00	0.00
			Max. Mx	4	2.70	0.01	0.00
			Max. My	11	4.86	0.00	-0.00
			Max. Vy	2	-0.01	0.00	0.00
		Diagonal	Max. Vx	11	0.00	0.00	0.00
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	5	-60.14	0.49	0.13
			Max. Mx	11	-36.16	-0.91	-0.33
			Max. My	8	-32.99	0.00	0.83
			Max. Vy	11	2.24	0.47	0.09
		Top Girt	Max. Vx	8	-2.03	0.00	-0.42
			Max Tension	11	1.87	0.00	0.00
			Max. Compression	11	-2.52	0.00	0.00
			Max. Mx	13	-2.27	0.00	0.00
			Max. My	5	-0.34	0.00	0.00
			Max. Vy	13	-0.00	0.00	0.00
			Max. Vx	5	-0.00	0.00	0.00
			Max Tension	12	0.98	0.00	0.00
			Max. Compression	1	0.00	0.00	0.00

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
T11	100 - 80	Bottom Girt	Max. Mx	4	0.97	0.00	0.00
			Max. My	11	0.56	0.00	-0.00
			Max. Vy	2	-0.00	0.00	0.00
			Max. Vx	11	0.00	0.00	0.00
			Max Tension	12	0.62	0.00	0.00
			Max. Compression	1	0.00	0.00	0.00
			Max. Mx	4	0.18	0.00	0.00
			Max. My	11	0.59	0.00	-0.00
			Max. Vy	4	-0.00	0.00	0.00
			Max. Vx	11	0.00	0.00	0.00
		Leg	Max Tension	1	0.00	0.00	0.00
			Max. Compression	11	-62.21	-0.04	0.02
			Max. Mx	5	-40.02	-0.50	-0.04
			Max. My	2	-37.54	0.04	0.45
			Max. Vy	5	-1.16	-0.26	-0.21
			Max. Vx	8	-0.83	0.16	-0.08
			Max Tension	5	1.79	0.00	0.00
			Max. Compression	11	-2.15	0.00	0.00
			Max. Mx	5	-0.57	0.00	0.00
			Max. My	11	-0.45	0.00	-0.00
			Max. Vy	5	-0.00	0.00	0.00
			Max. Vx	11	0.00	0.00	0.00
		Top Girt	Max Tension	11	0.78	0.00	0.00
			Max. Compression	5	-0.46	0.00	0.00
			Max. Mx	4	0.14	0.00	0.00
			Max. My	11	0.78	0.00	-0.00
			Max. Vy	4	-0.00	0.00	0.00
			Max. Vx	11	0.00	0.00	0.00
		Bottom Girt	Max Tension	5	0.41	0.00	0.00
			Max. Compression	11	-0.09	0.00	0.00
			Max. Mx	4	0.24	0.00	0.00
			Max. My	11	0.06	0.00	-0.00
			Max. Vy	4	-0.00	0.00	0.00
			Max. Vx	11	0.00	0.00	0.00
T12	80 - 60	Leg	Max Tension	1	0.00	0.00	0.00
			Max. Compression	11	-61.55	-0.27	0.25
			Max. Mx	4	-49.35	-0.46	0.23
			Max. My	11	-53.74	0.16	0.47
			Max. Vy	11	-1.28	0.30	0.41
			Max. Vx	12	-1.19	-0.15	-0.09
		Diagonal	Max Tension	6	2.68	0.00	0.00
			Max. Compression	6	-3.03	0.00	0.00
			Max. Mx	11	1.13	0.00	0.00
			Max. My	5	1.05	0.00	0.00
			Max. Vy	11	-0.00	0.00	0.00
			Max. Vx	5	-0.00	0.00	0.00
		Top Girt	Max Tension	11	0.54	0.00	0.00
			Max. Compression	5	-0.21	0.00	0.00
			Max. Mx	4	-0.03	0.00	0.00
			Max. My	11	0.21	0.00	-0.00
			Max. Vy	4	-0.00	0.00	0.00
			Max. Vx	11	0.00	0.00	0.00
		Bottom Girt	Max Tension	6	1.17	0.00	0.00
			Max. Compression	12	-0.74	0.00	0.00
			Max. Mx	4	0.51	0.00	0.00
			Max. My	11	0.60	0.00	-0.00
			Max. Vy	8	-0.00	0.00	0.00
			Max. Vx	11	0.00	0.00	0.00
T13	60 - 40	Leg	Max Tension	1	0.00	0.00	0.00
			Max. Compression	11	-67.97	-0.31	-0.11
			Max. Mx	11	-52.45	1.08	0.11
			Max. My	2	-44.51	0.21	0.88
			Max. Vy	5	1.28	-0.73	0.22
			Max. Vx	12	-1.19	0.49	0.64
		Diagonal	Max Tension	5	3.48	0.00	0.00
			Max. Compression	5	-3.44	0.00	0.00
			Max. Mx	11	-2.69	0.00	0.00
			Max. My	5	-0.16	0.00	0.00
			Max. Vy	11	-0.00	0.00	0.00

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
T14	40 - 20	Top Girt	Max. Vx	5	-0.00	0.00	0.00
			Max Tension	5	0.56	0.00	0.00
			Max. Compression	1	0.00	0.00	0.00
			Max. Mx	4	0.05	0.00	0.00
			Max. My	11	0.49	0.00	-0.00
			Max. Vy	8	-0.00	0.00	0.00
		Bottom Girt	Max. Vx	11	0.00	0.00	0.00
			Max Tension	5	0.75	0.00	0.00
			Max. Compression	11	-0.38	0.00	0.00
			Max. Mx	6	0.52	0.00	0.00
			Max. My	11	-0.38	0.00	-0.00
			Max. Vy	6	-0.00	0.00	0.00
		Guy A	Max. Vx	11	0.00	0.00	0.00
			Bottom Tension	7	7.33		
			Top Tension	7	7.36		
			Top Cable Vert	7	2.95		
			Top Cable Norm	7	6.74		
			Top Cable Tan	7	0.02		
		Guy B	Bot Cable Vert	7	-2.84		
			Bot Cable Norm	7	6.76		
			Bot Cable Tan	7	0.04		
			Bottom Tension	11	8.97		
			Top Tension	11	9.00		
			Top Cable Vert	11	3.87		
		Guy C	Top Cable Norm	11	8.13		
			Top Cable Tan	11	0.02		
			Bot Cable Vert	11	-3.75		
			Bot Cable Norm	11	8.15		
			Bot Cable Tan	11	0.04		
			Bottom Tension	5	8.85		
		Top Guy Pull-Off	Top Tension	5	8.88		
			Top Cable Vert	5	3.56		
			Top Cable Norm	5	8.13		
			Top Cable Tan	5	0.02		
			Bot Cable Vert	5	-3.45		
			Bot Cable Norm	5	8.15		
T15	20 - 4.81771	Leg	Bot Cable Tan	5	0.04		
			Max Tension	5	3.61	0.00	0.00
			Max. Compression	1	0.00	0.00	0.00
			Max. Mx	4	0.32	0.01	0.00
			Max. My	11	3.17	0.00	-0.00
			Max. Vy	8	-0.01	0.00	0.00
		Diagonal	Max. Vx	11	0.00	0.00	0.00
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	11	-69.97	-0.19	0.03
			Max. Mx	5	-53.90	0.61	-0.01
			Max. My	10	-59.29	-0.11	0.52
			Max. Vy	5	-1.18	-0.13	-0.41
		Top Girt	Max. Vx	5	1.24	-0.06	0.37
			Max Tension	11	2.36	0.00	0.00
			Max. Compression	5	-2.81	0.00	0.00
			Max. Mx	11	-0.98	0.00	0.00
			Max. My	5	0.84	0.00	0.00
			Max. Vy	11	-0.00	0.00	0.00
		Bottom Girt	Max. Vx	5	-0.00	0.00	0.00
			Max Tension	11	0.67	0.00	0.00
			Max. Compression	5	-0.36	0.00	0.00
			Max. Mx	6	-0.07	0.00	0.00
			Max. My	11	0.67	0.00	-0.00
			Max. Vy	6	-0.00	0.00	0.00
		Leg	Max. Vx	11	0.00	0.00	0.00
			Max Tension	5	0.78	0.00	0.00
			Max. Compression	11	-0.43	0.00	0.00
			Max. Mx	6	0.47	0.00	0.00
			Max. My	11	-0.05	0.00	-0.00
			Max. Vy	6	-0.00	0.00	0.00
		Leg	Max. Vx	11	0.00	0.00	0.00
			Max Tension	1	0.00	0.00	0.00
		Leg	Max. Compression	11	-66.96	-0.21	0.48

Section n No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
T16	4.81771 - 0	Diagonal	Max. Mx	11	-58.24	0.90	0.34
			Max. My	8	-54.51	0.02	-0.73
			Max. Vy	11	-3.76	0.90	0.34
			Max. Vx	11	4.72	0.03	-0.07
			Max Tension	11	3.22	0.00	0.00
			Max. Compression	5	-3.25	0.00	0.00
			Max. Mx	11	0.07	0.00	0.00
			Max. My	5	2.42	0.00	0.00
			Max. Vy	11	-0.00	0.00	0.00
			Max. Vx	5	-0.00	0.00	0.00
			Max Tension	11	0.93	0.00	0.00
			Max. Compression	5	-0.57	0.00	0.00
		Top Girt	Max. Mx	6	-0.04	0.00	0.00
			Max. My	11	0.34	0.00	-0.00
			Max. Vy	6	-0.00	0.00	0.00
			Max. Vx	11	0.00	0.00	0.00
			Max Tension	5	1.85	0.00	0.00
			Max. Compression	1	0.00	0.00	0.00
		Bottom Girt	Max. Mx	6	1.71	0.00	0.00
			Max. My	11	1.54	0.00	-0.00
			Max. Vy	6	-0.00	0.00	0.00
			Max. Vx	11	0.00	0.00	0.00
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	11	-62.85	-0.30	-0.03
		Leg	Max. Mx	11	-62.41	0.85	-0.35
			Max. My	11	-58.25	-0.61	1.70
			Max. Vy	11	1.03	0.85	-0.35
			Max. Vx	11	-1.11	-0.61	1.70
			Max Tension	11	0.76	-0.51	-0.13
			Max. Compression	11	-0.45	-0.50	-0.33
		Horizontal	Max. Mx	11	-0.29	1.27	-0.04
			Max. My	11	-0.45	-0.50	-0.33
			Max. Vy	11	2.36	1.27	-0.04
			Max. Vx	11	0.44	1.09	0.04
			Max Tension	5	12.16	-0.32	-0.21
			Max. Compression	1	0.00	0.00	0.00
		Top Girt	Max. Mx	5	12.16	0.55	0.17
			Max. My	5	10.64	0.00	-0.30
			Max. Vy	11	0.27	0.53	0.13
			Max. Vx	11	0.15	0.24	0.21

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Mast	Max. Vert	11	161.98	1.69	0.09
	Max. H _x	11	161.98	1.69	0.09
	Max. H _z	2	150.36	-0.01	1.44
	Max. M _x	1	0.00	-0.01	-0.03
	Max. M _z	1	0.00	-0.01	-0.03
	Max. Torsion	5	4.61	-1.73	0.08
	Min. Vert	1	116.25	-0.01	-0.03
	Min. H _x	5	161.52	-1.73	0.08
	Min. H _z	8	152.59	-0.00	-1.55
	Min. M _x	1	0.00	-0.01	-0.03
	Min. M _z	1	0.00	-0.01	-0.03
	Min. Torsion	11	-4.63	1.69	0.09
	Max. Vert	10	-0.98	-0.65	0.37
	Max. H _x	10	-0.98	-0.65	0.37
Guy C @ 135 ft Elev 2 ft Azimuth 240 deg	Max. H _z	5	-28.88	-27.86	15.76
	Min. Vert	5	-28.88	-27.86	15.76
	Min. H _x	5	-28.88	-27.86	15.76

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Guy B @ 137 ft Elev -4 ft Azimuth 120 deg	Min. H _z	10	-0.98	-0.65	0.37
	Max. Vert	6	-1.06	0.67	0.39
	Max. H _x	11	-29.76	27.82	15.72
	Max. H _z	11	-29.76	27.82	15.72
	Min. Vert	11	-29.76	27.82	15.72
	Min. H _x	6	-1.06	0.67	0.39
Guy A @ 140 ft Elev 0 ft Azimuth 0 deg	Min. H _z	6	-1.06	0.67	0.39
	Max. Vert	2	-1.09	0.00	-0.88
	Max. H _x	11	-14.88	0.64	-16.74
	Max. H _z	2	-1.09	0.00	-0.88
	Min. Vert	7	-24.06	-0.27	-27.11
	Min. H _x	5	-14.97	-0.63	-16.82
Guy C @ 235 ft Elev 2 ft Azimuth 240 deg	Min. H _z	7	-24.06	-0.27	-27.11
	Max. Vert	10	-5.76	-3.84	2.22
	Max. H _x	10	-5.76	-3.84	2.22
	Max. H _z	4	-41.78	-34.37	19.86
	Min. Vert	4	-41.78	-34.37	19.86
	Min. H _x	4	-41.78	-34.37	19.86
Guy B @ 237 ft Elev -4 ft Azimuth 120 deg	Min. H _z	10	-5.76	-3.84	2.22
	Max. Vert	6	-6.22	4.11	2.37
	Max. H _x	12	-41.83	33.99	19.64
	Max. H _z	12	-41.83	33.99	19.64
	Min. Vert	12	-41.83	33.99	19.64
	Min. H _x	6	-6.22	4.11	2.37
Guy A @ 240 ft Elev 0 ft Azimuth 0 deg	Min. H _z	6	-6.22	4.11	2.37
	Max. Vert	2	-6.08	0.00	-4.82
	Max. H _x	11	-23.88	1.86	-22.49
	Max. H _z	2	-6.08	0.00	-4.82
	Min. Vert	8	-39.97	-0.01	-38.54
	Min. H _x	5	-24.11	-1.86	-22.70
	Min. H _z	8	-39.97	-0.01	-38.54

Tower Mast Reaction Summary

Load Combination	Vertical K	Shear _x K	Shear _z K	Overturing Moment, M _x kip-ft	Overturing Moment, M _z kip-ft	Torque kip-ft
Dead Only	116.25	0.01	0.03	0.00	0.00	0.00
1.2 Dead+1.0 Wind 0 deg - No Ice+1.0 Guy	150.36	0.01	-1.44	0.00	0.00	0.47
1.2 Dead+1.0 Wind 30 deg - No Ice+1.0 Guy	154.02	0.76	-1.16	0.00	0.00	0.50
1.2 Dead+1.0 Wind 60 deg - No Ice+1.0 Guy	155.47	1.42	-0.78	0.00	0.00	-2.54
1.2 Dead+1.0 Wind 90 deg - No Ice+1.0 Guy	161.52	1.73	-0.08	0.00	0.00	-4.61
1.2 Dead+1.0 Wind 120 deg - No Ice+1.0 Guy	155.84	1.41	0.85	0.00	0.00	-3.20
1.2 Dead+1.0 Wind 150 deg - No Ice+1.0 Guy	153.55	0.73	1.42	0.00	0.00	-0.50
1.2 Dead+1.0 Wind 180 deg - No Ice+1.0 Guy	152.59	0.00	1.55	0.00	0.00	-0.48
1.2 Dead+1.0 Wind 210 deg - No Ice+1.0 Guy	153.07	-0.65	1.30	0.00	0.00	-0.49
1.2 Dead+1.0 Wind 240 deg - No Ice+1.0 Guy	155.14	-1.32	0.81	0.00	0.00	2.45
1.2 Dead+1.0 Wind 270 deg - No Ice+1.0 Guy	161.98	-1.69	-0.09	0.00	0.00	4.63
1.2 Dead+1.0 Wind 300 deg - No Ice+1.0 Guy	155.70	-1.49	-0.83	0.00	0.00	3.38
1.2 Dead+1.0 Wind 330 deg - No Ice+1.0 Guy	154.68	-0.81	-1.26	0.00	0.00	0.50
Dead+Wind 0 deg - Service+Guy	117.94	0.01	-0.42	0.00	0.00	0.13
Dead+Wind 30 deg - Service+Guy	117.89	0.22	-0.35	0.00	0.00	0.13
Dead+Wind 60 deg - Service+Guy	117.93	0.42	-0.21	0.00	0.00	-0.70
Dead+Wind 90 deg - Service+Guy	117.93	0.56	0.03	0.00	0.00	-1.32
Dead+Wind 120 deg - Service+Guy	117.87	0.46	0.29	0.00	0.00	-0.92

Load Combination	Vertical K	Shear _x K	Shear _z K	Overturning Moment, M _x kip-ft	Overturning Moment, M _z kip-ft	Torque kip-ft
Dead+Wind 150 deg - Service+Guy	117.74	0.24	0.44	0.00	0.00	-0.14
Dead+Wind 180 deg - Service+Guy	117.69	0.01	0.47	0.00	0.00	-0.13
Dead+Wind 210 deg - Service+Guy	117.72	-0.21	0.40	0.00	0.00	-0.13
Dead+Wind 240 deg - Service+Guy	117.80	-0.42	0.28	0.00	0.00	0.70
Dead+Wind 270 deg - Service+Guy	117.82	-0.55	0.03	0.00	0.00	1.33
Dead+Wind 300 deg - Service+Guy	117.82	-0.43	-0.23	0.00	0.00	0.93
Dead+Wind 330 deg - Service+Guy	117.83	-0.23	-0.38	0.00	0.00	0.15

Solution Summary

Load Comb.	Sum of Applied Forces			Sum of Reactions			% Error
	PX K	PY K	PZ K	PX K	PY K	PZ K	
1	0.00	-36.64	0.00	-0.00	36.64	0.00	0.009%
2	-0.03	-43.12	-49.37	0.03	43.12	49.36	0.005%
3	24.98	-42.64	-43.16	-24.98	42.64	43.15	0.003%
4	45.89	-42.16	-26.41	-45.88	42.16	26.41	0.005%
5	57.28	-42.63	0.01	-57.27	42.63	-0.01	0.006%
6	46.59	-43.10	26.84	-46.58	43.10	-26.84	0.004%
7	25.12	-42.65	43.37	-25.12	42.65	-43.37	0.006%
8	0.00	-42.19	49.08	-0.01	42.19	-49.07	0.006%
9	-24.99	-42.67	43.16	24.99	42.67	-43.15	0.003%
10	-46.13	-43.15	26.54	46.13	43.15	-26.54	0.005%
11	-57.29	-42.68	-0.01	57.29	42.68	0.01	0.005%
12	-46.35	-42.21	-26.69	46.35	42.21	26.69	0.006%
13	-25.13	-42.66	-43.37	25.13	42.66	43.37	0.004%
14	-0.01	-36.76	-12.99	0.01	36.76	12.99	0.012%
15	6.57	-36.63	-11.36	-6.57	36.63	11.35	0.013%
16	12.08	-36.51	-6.95	-12.07	36.51	6.95	0.006%
17	15.07	-36.63	0.00	-15.07	36.63	-0.00	0.006%
18	12.26	-36.75	7.06	-12.26	36.75	-7.06	0.014%
19	6.61	-36.63	11.41	-6.61	36.63	-11.41	0.012%
20	0.00	-36.51	12.92	-0.00	36.51	-12.91	0.013%
21	-6.58	-36.64	11.36	6.57	36.64	-11.35	0.011%
22	-12.14	-36.77	6.98	12.14	36.77	-6.98	0.013%
23	-15.08	-36.64	-0.00	15.07	36.64	0.00	0.007%
24	-12.20	-36.52	-7.02	12.20	36.52	7.02	0.007%
25	-6.61	-36.64	-11.41	6.61	36.64	11.41	0.015%

Non-Linear Convergence Results

Load Combination	Converged?	Number of Cycles	Displacement Tolerance	Force Tolerance
1	Yes	9	0.00000001	0.00004857
2	Yes	21	0.00009578	0.00003962
3	Yes	21	0.00000001	0.00002692
4	Yes	14	0.00000001	0.00004363
5	Yes	21	0.00009088	0.00005340
6	Yes	22	0.00000001	0.00003222
7	Yes	20	0.00009302	0.00004087
8	Yes	13	0.00000001	0.00006042
9	Yes	21	0.00000001	0.00002575
10	Yes	22	0.00000001	0.00003725
11	Yes	22	0.00006844	0.00004023
12	Yes	14	0.00008074	0.00005513
13	Yes	21	0.00000001	0.00003146
14	Yes	10	0.00000001	0.00005789
15	Yes	10	0.00000001	0.00005969
16	Yes	11	0.00000001	0.00003697
17	Yes	11	0.00000001	0.00003869
18	Yes	10	0.00000001	0.00007025
19	Yes	10	0.00000001	0.00005653
20	Yes	10	0.00000001	0.00006081

21	Yes	10	0.00000001	0.00005225
22	Yes	10	0.00000001	0.00006719
23	Yes	11	0.00000001	0.00004245
24	Yes	11	0.00000001	0.00004412
25	Yes	10	0.00000001	0.00007037

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T1	300 - 280	1.196	16	0.0229	0.0756
T2	280 - 260	1.159	16	0.0261	0.0842
T3	260 - 240	1.220	24	0.0273	0.1170
T4	240 - 220	1.280	24	0.0411	0.1350
T5	220 - 200	1.393	24	0.0325	0.1993
T6	200 - 180	1.428	23	0.0127	0.3921
T7	180 - 160	1.355	23	0.0147	0.5304
T8	160 - 140	1.309	23	0.0266	0.6425
T9	140 - 120	1.150	23	0.0358	0.6985
T10	120 - 100	1.012	23	0.0135	0.7062
T11	100 - 80	1.015	23	0.0083	0.7035
T12	80 - 60	0.960	23	0.0256	0.6499
T13	60 - 40	0.794	23	0.0361	0.5534
T14	40 - 20	0.652	23	0.0502	0.4330
T15	20 - 4.81771	0.385	23	0.0774	0.2717
T16	4.81771 - 0	0.094	23	0.0906	0.1192

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
300'	Flash Beacon Lighting	16	1.196	0.0229	0.0756	166703
289'	SBNHH-1D65B w/ Mount Pipe	16	1.169	0.0233	0.0774	75774
282'6-1/4"	Guy	16	1.160	0.0257	0.0815	48306
253'	P-24A35GF-U	24	1.237	0.0323	0.1246	156796
252'	FFV4-65C-R3-V1_TMO	24	1.240	0.0331	0.1254	125981
242'6-1/4"	Guy	24	1.269	0.0401	0.1327	39666
182'6-1/4"	Guy	23	1.363	0.0141	0.5157	50862
149'	Side Light	23	1.233	0.0349	0.6811	59176
122'6-1/4"	Guy	23	1.021	0.0164	0.7059	23924
59'4-11/16"	Guy	23	0.789	0.0364	0.5502	46607

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T1	300 - 280	7.646	4	0.1510	0.4562
T2	280 - 260	7.177	4	0.1480	0.4885
T3	260 - 240	7.113	11	0.1628	0.6117
T4	240 - 220	7.643	11	0.2160	0.6770
T5	220 - 200	8.462	11	0.1808	0.8915
T6	200 - 180	8.802	11	0.1104	1.5108
T7	180 - 160	8.600	11	0.1149	1.9419
T8	160 - 140	8.371	11	0.1532	2.2873
T9	140 - 120	7.604	11	0.1862	2.4307
T10	120 - 100	6.857	11	0.1048	2.4254
T11	100 - 80	6.593	11	0.1004	2.4309
T12	80 - 60	6.039	11	0.1931	2.2567
T13	60 - 40	4.950	11	0.2590	1.9059
T14	40 - 20	3.849	11	0.3357	1.5006

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T15	20 - 4.81771	2.175	11	0.4565	0.9410
T16	4.81771 - 0	0.527	11	0.5124	0.4166

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
300'	Flash Beacon Lighting	4	7.646	0.1510	0.4562	46063
289'	SBNHH-1D65B w/ Mount Pipe	4	7.365	0.1402	0.4628	20938
282'6-1/4"	Guy	4	7.224	0.1465	0.4784	13350
253'	P-24A35GF-U	11	7.273	0.1823	0.6397	29488
252'	FFV4-65C-R3-V1_TMO	11	7.297	0.1855	0.6428	24118
242'6-1/4"	Guy	11	7.557	0.2121	0.6689	9020
182'6-1/4"	Guy	11	8.628	0.1150	1.8955	13066
149'	Side Light	11	8.001	0.1820	2.3947	12545
122'6-1/4"	Guy	11	6.922	0.1152	2.4256	6341
59'4-11/16"	Guy	11	4.917	0.2617	1.8947	14442

Bolt Design Data

Section No.	Elevation ft	Component Type	Bolt Grade	Bolt Size in	Number Of Bolts	Maximum Load per Bolt K	Allowable Load per Bolt K	Ratio Load Allowable	Allowable Ratio	Criteria
T1	300	Diagonal	A325X	0.5000	1	2.55	9.78	0.261	1.05	Gusset Bearing
		Top Girt	A325X	0.5000	1	0.04	9.78	0.005	1.05	Gusset Bearing
		Bottom Girt	A325X	0.5000	1	0.92	9.78	0.094	1.05	Gusset Bearing
		Top Guy Pull-Off@282.523	A325X	0.6250	2	2.57	11.07	0.233	1.05	Gusset Bearing
		Torque Arm Top@282.523	A325X	0.8750	2	3.86	13.21	0.292	1.05	Gusset Bearing
T2	280	Leg	A325X	0.7500	4	1.44	30.10	0.048	1.05	Bolt Tension
		Diagonal	A325X	0.5000	1	1.56	9.78	0.159	1.05	Gusset Bearing
		Top Girt	A325X	0.5000	1	0.66	9.78	0.068	1.05	Gusset Bearing
		Bottom Girt	A325X	0.5000	1	0.31	9.78	0.031	1.05	Gusset Bearing
T3	260	Leg	A325X	0.7500	4	3.20	30.10	0.106	1.05	Bolt Tension
		Diagonal	A325X	0.6250	1	5.83	17.26	0.338	1.05	Bolt Shear
		Top Girt	A325X	0.6250	1	0.36	9.11	0.040	1.05	Member Block Shear
		Bottom Girt	A325X	0.6250	1	2.76	9.11	0.303	1.05	Member Block Shear
		Top Guy Pull-Off@242.523	A325X	0.6250	2	4.30	16.45	0.262	1.05	Member Block Shear
T4	240	Torque Arm Top@242.523	A325X	0.8750	2	4.86	26.10	0.186	1.05	Gusset Bearing
		Leg	A325X	0.7500	4	3.56	30.10	0.118	1.05	Bolt Tension
		Diagonal	A325X	0.5000	1	3.29	9.78	0.336	1.05	Gusset Bearing
		Top Girt	A325X	0.5000	1	1.22	9.78	0.125	1.05	Gusset Bearing
		Bottom Girt	A325X	0.5000	1	0.93	9.78	0.095	1.05	Gusset Bearing
T5	220	Leg	A325X	0.7500	4	3.55	30.10	0.118	1.05	Bolt Tension
		Diagonal	A325X	0.5000	1	2.69	5.92	0.454	1.05	Member Bearing
		Top Girt	A325X	0.5000	1	1.08	5.92	0.183	1.05	Member Bearing
		Bottom Girt	A325X	0.5000	1	0.79	5.92	0.134	1.05	Member Bearing
T6	200	Leg	A325X	0.7500	4	3.68	30.10	0.122	1.05	Bolt Tension
		Diagonal	A325X	0.5000	1	4.04	5.92	0.683	1.05	Member Bearing
		Top Girt	A325X	0.5000	1	0.96	5.92	0.163	1.05	Member Bearing

Section No.	Elevation ft	Component Type	Bolt Grade	Bolt Size in	Number Of Bolts	Maximum Load per Bolt K	Allowable Load per Bolt K	Ratio Load Allowable	Allowable Ratio	Criteria
T7	180	Bottom Girt	A325X	0.5000	1	0.64	5.92	0.108	1.05	Member Bearing
		Top Guy Pull-Off@182.523	A325X	0.6250	2	3.18	16.45	0.193	1.05	Member Block Shear
		Leg	A325X	0.7500	4	4.27	30.10	0.142	1.05	Bolt Tension
		Diagonal	A325X	0.5000	1	2.58	5.92	0.436	1.05	Member Bearing
		Top Girt	A325X	0.5000	1	0.83	5.92	0.140	1.05	Member Bearing
T8	160	Bottom Girt	A325X	0.5000	1	0.37	5.92	0.062	1.05	Member Bearing
		Leg	A325X	0.7500	4	3.67	30.10	0.122	1.05	Bolt Tension
		Diagonal	A325X	0.5000	1	2.84	5.92	0.480	1.05	Member Bearing
		Top Girt	A325X	0.5000	1	0.42	5.92	0.070	1.05	Member Bearing
		Bottom Girt	A325X	0.5000	1	1.05	5.92	0.177	1.05	Member Bearing
T9	140	Leg	A325X	0.7500	4	5.01	30.10	0.166	1.05	Bolt Tension
		Diagonal	A325X	0.5000	1	2.94	7.02	0.418	1.05	Member Bearing
		Top Girt	A325X	0.5000	1	0.67	5.92	0.112	1.05	Member Bearing
		Bottom Girt	A325X	0.5000	1	0.63	5.92	0.107	1.05	Member Bearing
		Top Guy Pull-Off@122.523	A325X	0.6250	2	3.53	16.45	0.215	1.05	Member Block Shear
T10	120	Leg	A325X	0.7500	4	4.71	30.10	0.157	1.05	Bolt Tension
		Diagonal	A325X	0.5000	1	2.52	7.02	0.360	1.05	Member Bearing
		Top Girt	A325X	0.5000	1	0.98	5.92	0.166	1.05	Member Bearing
		Bottom Girt	A325X	0.5000	1	0.62	5.92	0.105	1.05	Member Bearing
		Leg	A325X	0.7500	4	5.13	30.10	0.170	1.05	Bolt Tension
T11	100	Diagonal	A325X	0.5000	1	2.15	7.02	0.307	1.05	Member Bearing
		Top Girt	A325X	0.5000	1	0.78	5.92	0.132	1.05	Member Bearing
		Bottom Girt	A325X	0.5000	1	0.41	5.92	0.070	1.05	Member Bearing
		Leg	A325X	0.7500	4	4.37	30.10	0.145	1.05	Bolt Tension
		Diagonal	A325X	0.5000	1	2.68	5.92	0.453	1.05	Member Bearing
T12	80	Top Girt	A325X	0.5000	1	0.54	5.92	0.092	1.05	Member Bearing
		Bottom Girt	A325X	0.5000	1	1.17	5.92	0.198	1.05	Member Bearing
		Leg	A325X	0.7500	4	5.64	30.10	0.187	1.05	Bolt Tension
		Diagonal	A325X	0.5000	1	3.48	5.92	0.588	1.05	Member Bearing
		Top Girt	A325X	0.5000	1	0.56	5.92	0.095	1.05	Member Bearing
T13	60	Bottom Girt	A325X	0.5000	1	0.75	5.92	0.127	1.05	Member Bearing
		Leg	A325X	0.7500	4	5.64	30.10	0.187	1.05	Bolt Tension
		Diagonal	A325X	0.5000	1	3.48	5.92	0.588	1.05	Member Bearing
		Top Girt	A325X	0.5000	1	0.56	5.92	0.095	1.05	Member Bearing
		Bottom Girt	A325X	0.5000	1	0.75	5.92	0.127	1.05	Member Bearing
T14	40	Top Guy Pull-Off@59.3854	A325X	0.7500	2	1.81	23.82	0.076	1.05	Gusset Bearing
		Leg	A325X	0.7500	4	5.58	30.10	0.185	1.05	Bolt Tension
		Diagonal	A325X	0.5000	1	2.81	7.02	0.400	1.05	Member Bearing
		Top Girt	A325X	0.5000	1	0.67	5.92	0.113	1.05	Member Bearing
		Bottom Girt	A325X	0.5000	1	0.78	5.92	0.131	1.05	Member Bearing
T15	20	Leg	A325X	0.7500	4	4.85	30.10	0.161	1.05	Bolt Tension
		Diagonal	A325X	0.5000	1	3.22	5.92	0.545	1.05	Member Bearing
		Top Girt	A325X	0.5000	1	0.93	5.92	0.156	1.05	Member Bearing

Section No.	Elevation ft	Component Type	Bolt Grade	Bolt Size in	Number Of Bolts	Maximum Load per Bolt K	Allowable Load per Bolt K	Ratio Load Allowable	Allowable Ratio	Criteria
		Bottom Girt	A325X	0.5000	1	1.85	5.92	0.313	1.05	Bearing Member Bearing

Guy Design Data

Section No.	Elevation ft	Size	Initial Tension K	Breaking Load K	Actual T_u K	Allowable ϕT_n K	Required S.F.	Actual S.F.
T1	282'6-1/4" (A) (693)	3/4 [ECP-24000] EHS	5.83	58.30	14.27	36.73	0.952	2.451
	282'6-1/4" (A) (694)	3/4 [ECP-24000] EHS	5.83	58.30	14.06	36.73	0.952	2.489
	282'6-1/4" (B) (689)	3/4 [ECP-24000] EHS	5.83	58.30	14.08	36.73	0.952	2.484
	282'6-1/4" (B) (690)	3/4 [ECP-24000] EHS	5.83	58.30	14.50	36.73	0.952	2.413
	282'6-1/4" (C) (682)	3/4 [ECP-24000] EHS	5.83	58.30	14.59	36.73	0.952	2.398
	282'6-1/4" (C) (683)	3/4 [ECP-24000] EHS	5.83	58.30	14.39	36.73	0.952	2.430
T3	242'6-1/4" (A) (678)	3/4 [ECP-24000] EHS	5.83	58.30	14.33	36.73	0.952	2.441
	242'6-1/4" (A) (679)	3/4 [ECP-24000] EHS	5.83	58.30	14.10	36.73	0.952	2.480
	242'6-1/4" (B) (674)	3/4 [ECP-24000] EHS	5.83	58.30	14.65	36.73	0.952	2.387
	242'6-1/4" (B) (675)	3/4 [ECP-24000] EHS	5.83	58.30	15.39	36.73	0.952	2.272
	242'6-1/4" (C) (667)	3/4 [ECP-24000] EHS	5.83	58.30	15.19	36.73	0.952	2.303
	242'6-1/4" (C) (668)	3/4 [ECP-24000] EHS	5.83	58.30	14.70	36.73	0.952	2.380
T6	182'6-1/4" (A) (666)	3/4 [ECP-24000] EHS	5.83	58.30	14.80	36.73	0.952	2.364
	182'6-1/4" (B) (665)	3/4 [ECP-24000] EHS	5.83	58.30	16.92	36.73	0.952	2.067
	182'6-1/4" (C) (661)	3/4 [ECP-24000] EHS	5.83	58.30	16.81	36.73	0.952	2.081
T9	122'6-1/4" (A) (660)	3/4 [ECP-24000] EHS	5.83	58.30	15.40	36.73	0.952	2.272
	122'6-1/4" (B) (659)	3/4 [ECP-24000] EHS	5.83	58.30	18.84	36.73	0.952	1.856
	122'6-1/4" (C) (655)	3/4 [ECP-24000] EHS	5.83	58.30	18.58	36.73	0.952	1.883
T13	59'4-11/16" (A) (654)	1/2 [ECP-23000] EHS	2.69	26.90	7.36	16.95	0.952	2.193
	59'4-11/16" (B) (653)	1/2 [ECP-23000] EHS	2.69	26.90	9.00	16.95	0.952	1.793
	59'4-11/16" (C) (649)	1/2 [ECP-23000] EHS	2.69	26.90	8.88	16.95	0.952	1.818

Compression Checks

Leg Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	KI/r	A in ²	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	300 - 280	ROHN 2.5 EH	20'	2'4-29/32"	31.3 K=1.00	2.2535	-20.93	94.41	0.222 ¹
T2	280 - 260	ROHN 2.5 STD	20'	2'4-29/32"	30.5 K=1.00	1.7040	-20.06	71.64	0.280 ¹
T3	260 - 240	ROHN 2.5 EH	20'	2'4-29/32"	31.3 K=1.00	2.2535	-37.53	94.41	0.398 ¹
T4	240 - 220	ROHN 2.5 EH	20'	2'4-29/32"	31.3 K=1.00	2.2535	-41.46	94.41	0.439 ¹
T5	220 - 200	ROHN 2.5 EH	20'	2'4-29/32"	62.6 K=2.00	2.2535	-45.86	76.17	0.602 ¹
T6	200 - 180	ROHN 3 EH	20'	2'4-29/32"	50.9 K=2.00	3.0159	-45.43	112.32	0.405 ¹
T7	180 - 160	ROHN 3 EH	20'	2'4-29/32"	50.9 K=2.00	3.0159	-51.72	112.32	0.460 ¹
T8	160 - 140	ROHN 3 EH	20'	2'4-29/32"	50.9 K=2.00	3.0159	-51.45	112.32	0.458 ¹
T9	140 - 120	ROHN 3 EH	20'	2'4-29/32"	25.4 K=1.00	3.0159	-60.89	129.44	0.470 ¹
T10	120 - 100	ROHN 3 EH	20'	2'4-29/32"	25.4 K=1.00	3.0159	-57.80	129.44	0.447 ¹

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	A in ²	P _u K	φP _n K	Ratio $\frac{P_u}{\phi P_n}$
T11	100 - 80	ROHN 3 EH	20'	2'4- 29/32"	50.9 K=2.00	3.0159	-62.21	112.32	0.554 ¹
T12	80 - 60	ROHN 3 EH	20'	2'4- 29/32"	50.9 K=2.00	3.0159	-60.90	112.32	0.542 ¹
T13	60 - 40	ROHN 3 EH	20'	2'4- 29/32"	50.9 K=2.00	3.0159	-67.97	112.32	0.605 ¹
T14	40 - 20	ROHN 3 EH	20'	2'4- 29/32"	50.9 K=2.00	3.0159	-69.97	112.32	0.623 ¹
T15	20 - 4.81771	ROHN 3 EH	15'2- 5/32"	2'4- 29/32"	50.9 K=2.00	3.0159	-66.69	112.32	0.594 ¹
T16	4.81771 - 0	ROHN 3 EH	5'2- 17/32"	1'3- 19/32"	13.7 K=1.00	3.0159	-62.85	133.85	0.470 ¹

¹ P_u / φP_n controls

Diagonal Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	A in ²	P _u K	φP _n K	Ratio $\frac{P_u}{\phi P_n}$
T1	300 - 280	ROHN 1.5 x 11GA	4'2- 5/32"	3'10- 11/16"	95.2 K=1.00	0.5202	-2.54	11.26	0.226 ¹
T2	280 - 260	ROHN 1.5 x 11GA	4'2- 5/32"	3'10- 11/16"	95.2 K=1.00	0.5202	-1.56	11.26	0.138 ¹
T3	260 - 240	L2x2x1/4	4'2- 5/32"	1'9- 27/32"	72.0 K=1.29	0.9380	-5.83	28.27	0.206 ¹
T4	240 - 220	ROHN 1.5 x 11GA	4'2- 5/32"	3'10- 11/16"	95.2 K=1.00	0.5202	-3.29	11.26	0.292 ¹
T5	220 - 200	ROHN 1.5 x 16GA	4'2- 5/32"	3'10- 11/16"	91.4 K=1.00	0.2627	-2.91	5.94	0.490 ¹
T6	200 - 180	ROHN 1.5 x 16GA	4'2- 5/32"	3'9- 27/32"	89.9 K=1.00	0.2627	-4.01	6.04	0.663 ¹
T7	180 - 160	ROHN 1.5 x 16GA	4'2- 5/32"	3'9- 27/32"	89.9 K=1.00	0.2627	-2.79	6.04	0.462 ¹
T8	160 - 140	ROHN 1.5 x 16GA	4'2- 5/32"	3'9- 27/32"	89.9 K=1.00	0.2627	-3.12	6.04	0.515 ¹
T9	140 - 120	ROHN 1.5 x 16GA	4'2- 5/32"	3'9- 27/32"	89.9 K=1.00	0.2627	-2.94	6.04	0.486 ¹
T10	120 - 100	ROHN 1.5 x 16GA	4'2- 5/32"	3'9- 27/32"	89.9 K=1.00	0.2627	-2.52	6.04	0.418 ¹
T11	100 - 80	ROHN 1.5 x 16GA	4'2- 5/32"	3'9- 27/32"	89.9 K=1.00	0.2627	-2.15	6.04	0.356 ¹
T12	80 - 60	ROHN 1.5 x 16GA	4'2- 5/32"	3'9- 27/32"	89.9 K=1.00	0.2627	-3.03	6.04	0.502 ¹
T13	60 - 40	ROHN 1.5 x 16GA	4'2- 5/32"	3'9- 27/32"	89.9 K=1.00	0.2627	-3.44	6.04	0.569 ¹
T14	40 - 20	ROHN 1.5 x 16GA	4'2- 5/32"	3'9- 27/32"	89.9 K=1.00	0.2627	-2.81	6.04	0.465 ¹
T15	20 - 4.81771	ROHN 1.5 x 16GA	4'2- 5/32"	3'9- 27/32"	89.9 K=1.00	0.2627	-3.25	6.04	0.538 ¹

¹ P_u / φP_n controls

Horizontal Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	A in ²	P _u K	φP _n K	Ratio $\frac{P_u}{\phi P_n}$
T16	4.81771 - 0	L4x4x1/4	10- 3/16"	6- 23/32"	64.2 K=7.57	1.9400	-0.45	59.01	0.008 ¹

¹ P_u / φP_n controls

Top Girt Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	A in ²	P _u K	φP _n K	Ratio $\frac{P_u}{\phi P_n}$
T1	300 - 280	ROHN 1.5 x 11GA	3'5- 1/32"	3'2- 5/32"	77.8 K=1.00	0.5202	-0.04	13.55	0.003 ¹
T4	240 - 220	ROHN 1.5 x 11GA	3'5- 1/32"	3'2- 5/32"	77.8 K=1.00	0.5202	-0.04	13.55	0.003 ¹
T5	220 - 200	ROHN 1.5 x 16GA	3'5- 1/32"	3'2- 5/32"	74.7 K=1.00	0.2627	-0.95	7.05	0.135 ¹
T6	200 - 180	ROHN 1.5 x 16GA	3'5- 1/32"	3'1- 9/16"	73.5 K=1.00	0.2627	-0.69	7.13	0.097 ¹
T7	180 - 160	ROHN 1.5 x 16GA	3'5- 1/32"	3'1- 9/16"	73.5 K=1.00	0.2627	-0.43	7.13	0.060 ¹
T8	160 - 140	ROHN 1.5 x 16GA	3'5- 1/32"	3'1- 9/16"	73.5 K=1.00	0.2627	-0.16	7.13	0.022 ¹
T9	140 - 120	ROHN 1.5 x 16GA	3'5- 1/32"	3'1- 9/16"	73.5 K=1.00	0.2627	-0.07	7.13	0.010 ¹
T11	100 - 80	ROHN 1.5 x 16GA	3'5- 1/32"	3'1- 9/16"	73.5 K=1.00	0.2627	-0.46	7.13	0.065 ¹
T12	80 - 60	ROHN 1.5 x 16GA	3'5- 1/32"	3'1- 9/16"	73.5 K=1.00	0.2627	-0.21	7.13	0.029 ¹
T14	40 - 20	ROHN 1.5 x 16GA	3'5- 1/32"	3'1- 9/16"	73.5 K=1.00	0.2627	-0.36	7.13	0.051 ¹
T15	20 - 4.81771	ROHN 1.5 x 16GA	3'5- 1/32"	3'1- 9/16"	73.5 K=1.00	0.2627	-0.57	7.13	0.080 ¹

¹ P_u / φP_n controls

Bottom Girt Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	A in ²	P _u K	φP _n K	Ratio $\frac{P_u}{\phi P_n}$
T4	240 - 220	ROHN 1.5 x 11GA	3'5- 1/32"	3'2- 5/32"	77.8 K=1.00	0.5202	-0.04	13.55	0.003 ¹
T5	220 - 200	ROHN 1.5 x 16GA	3'5- 1/32"	3'2- 5/32"	74.7 K=1.00	0.2627	-0.70	7.05	0.099 ¹
T6	200 - 180	ROHN 1.5 x 16GA	3'5- 1/32"	3'1- 9/16"	73.5 K=1.00	0.2627	-0.49	7.13	0.069 ¹
T7	180 - 160	ROHN 1.5 x 16GA	3'5- 1/32"	3'1- 9/16"	73.5 K=1.00	0.2627	-0.10	7.13	0.014 ¹
T8	160 - 140	ROHN 1.5 x 16GA	3'5- 1/32"	3'1- 9/16"	73.5 K=1.00	0.2627	-0.77	7.13	0.108 ¹
T11	100 - 80	ROHN 1.5 x 16GA	3'5- 1/32"	3'1- 9/16"	73.5 K=1.00	0.2627	-0.09	7.13	0.013 ¹
T12	80 - 60	ROHN 1.5 x 16GA	3'5- 1/32"	3'1- 9/16"	73.5 K=1.00	0.2627	-0.74	7.13	0.104 ¹
T13	60 - 40	ROHN 1.5 x 16GA	3'5- 1/32"	3'1- 9/16"	73.5 K=1.00	0.2627	-0.38	7.13	0.053 ¹
T14	40 - 20	ROHN 1.5 x 16GA	3'5- 1/32"	3'1- 9/16"	73.5 K=1.00	0.2627	-0.43	7.13	0.061 ¹

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	A in ²	P _u K	φP _n K	Ratio $\frac{P_u}{\phi P_n}$
			1/32"	9/16"	K=1.00				

¹ P_u / φP_n controls

Top Guy Pull-Off Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	A in ²	P _u K	φP _n K	Ratio $\frac{P_u}{\phi P_n}$
T1	300 - 280	2L2x2x1/4x3/8	3'5-1/32"	3'2-5/32"	62.6 K=1.00	1.8800	-3.61	59.34	0.061 ¹
T3	260 - 240	2L2x2x1/4x3/8	3'5-1/32"	3'2-5/32"	62.6 K=1.00	1.8800	-3.95	59.34	0.067 ¹

¹ P_u / φP_n controls

Top Guy Pull-Off Bending Design Data

Section No.	Elevation ft	Size	M _{ux} kip-ft	φM _{nx} kip-ft	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	M _{uy} kip-ft	φM _{ny} kip-ft	Ratio $\frac{M_{uy}}{\phi M_{ny}}$
T1	300 - 280	2L2x2x1/4x3/8	0.00	2.00	0.000	0.00	3.39	0.000
T3	260 - 240	2L2x2x1/4x3/8	0.00	2.00	0.000	0.00	3.39	0.000

Top Guy Pull-Off Interaction Design Data

Section No.	Elevation ft	Size	Ratio $\frac{P_u}{\phi P_n}$	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	Ratio $\frac{M_{uy}}{\phi M_{ny}}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
T1	300 - 280	2L2x2x1/4x3/8	0.061	0.000	0.000	0.061 ¹	1.050	4.8.1
T3	260 - 240	2L2x2x1/4x3/8	0.067	0.000	0.000	0.067 ¹	1.050	4.8.1

¹ P_u / φP_n controls

Torque-Arm Top Design Data

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	A in ²	P _u K	φP _n K	Ratio $\frac{P_u}{\phi P_n}$
T1	300 - 280 (684)	C15x33.9	3'5-1/32"	3'3-19/32"	43.8 K=1.00	9.9600	-0.79	291.75	0.003
T1	300 - 280 (685)	C15x33.9	3'5-1/32"	3'3-19/32"	43.8 K=1.00	9.9600	-0.49	291.75	0.002
T1	300 - 280 (691)	C15x33.9	3'5-1/32"	3'3-19/32"	43.8 K=1.00	9.9600	-0.42	291.75	0.001
T1	300 - 280 (692)	C15x33.9	3'5-1/32"	3'3-19/32"	43.8 K=1.00	9.9600	-0.64	291.75	0.002
T1	300 - 280 (695)	C15x33.9	3'5-1/32"	3'3-19/32"	43.8 K=1.00	9.9600	-0.79	291.75	0.003
T1	300 - 280 (696)	C15x33.9	3'5-1/32"	3'3-19/32"	43.8 K=1.00	9.9600	-0.70	291.75	0.002

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	A in ²	P _u K	φP _n K	Ratio $\frac{P_u}{\phi P_n}$
T3	260 - 240 (669)	C15x33.9	3'5-1/32"	3'3-19/32"	43.8 K=1.00	9.9600	-1.82	291.75	0.006
T3	260 - 240 (670)	C15x33.9	3'5-1/32"	3'3-19/32"	43.8 K=1.00	9.9600	-1.14	291.75	0.004
T3	260 - 240 (676)	C15x33.9	3'5-1/32"	3'3-19/32"	43.8 K=1.00	9.9600	-1.30	291.75	0.004
T3	260 - 240 (677)	C15x33.9	3'5-1/32"	3'3-19/32"	43.8 K=1.00	9.9600	-1.37	291.75	0.005
T3	260 - 240 (680)	C15x33.9	3'5-1/32"	3'3-19/32"	43.8 K=1.00	9.9600	-1.96	291.75	0.007
T3	260 - 240 (681)	C15x33.9	3'5-1/32"	3'3-19/32"	43.8 K=1.00	9.9600	-1.33	291.75	0.005

Torque-Arm Top Bending Design Data

Section No.	Elevation ft	Size	M _{ux} kip-ft	φM _{nx} kip-ft	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	M _{uy} kip-ft	φM _{ny} kip-ft	Ratio $\frac{M_{uy}}{\phi M_{ny}}$
T1	300 - 280 (684)	C15x33.9	-38.36	136.08	0.282	-0.00	12.60	0.000
T1	300 - 280 (685)	C15x33.9	-37.40	136.08	0.275	-0.00	12.60	0.000
T1	300 - 280 (691)	C15x33.9	-37.96	136.08	0.279	0.00	12.60	0.000
T1	300 - 280 (692)	C15x33.9	-38.32	136.08	0.282	-0.00	12.60	0.000
T1	300 - 280 (695)	C15x33.9	-37.98	136.08	0.279	0.00	12.60	0.000
T1	300 - 280 (696)	C15x33.9	-37.37	136.08	0.275	-0.00	12.60	0.000
T3	260 - 240 (669)	C15x33.9	-36.65	136.08	0.269	-0.00	12.60	0.000
T3	260 - 240 (670)	C15x33.9	-34.81	136.08	0.256	-0.00	12.60	0.000
T3	260 - 240 (676)	C15x33.9	-37.09	136.08	0.273	0.00	12.60	0.000
T3	260 - 240 (677)	C15x33.9	-36.68	136.08	0.270	-0.00	12.60	0.000
T3	260 - 240 (680)	C15x33.9	-37.06	136.08	0.272	0.00	12.60	0.000
T3	260 - 240 (681)	C15x33.9	-34.80	136.08	0.256	-0.00	12.60	0.000

Torque-Arm Top Interaction Design Data

Section No.	Elevation ft	Size	Ratio $\frac{P_u}{\phi P_n}$	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	Ratio $\frac{M_{uy}}{\phi M_{ny}}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
T1	300 - 280 (684)	C15x33.9	0.003	0.282	0.000	0.283	1.050	4.8.1
T1	300 - 280 (685)	C15x33.9	0.002	0.275	0.000	0.276	1.050	4.8.1
T1	300 - 280 (691)	C15x33.9	0.001	0.279	0.000	0.280	1.050	4.8.1
T1	300 - 280 (692)	C15x33.9	0.002	0.282	0.000	0.283	1.050	4.8.1
T1	300 - 280 (695)	C15x33.9	0.003	0.279	0.000	0.280	1.050	4.8.1
T1	300 - 280 (696)	C15x33.9	0.002	0.275	0.000	0.276	1.050	4.8.1
T3	260 - 240 (669)	C15x33.9	0.006	0.269	0.000	0.272	1.050	4.8.1
T3	260 - 240 (670)	C15x33.9	0.004	0.256	0.000	0.258	1.050	4.8.1
T3	260 - 240 (676)	C15x33.9	0.004	0.273	0.000	0.275	1.050	4.8.1
T3	260 - 240 (677)	C15x33.9	0.005	0.270	0.000	0.272	1.050	4.8.1
T3	260 - 240 (680)	C15x33.9	0.007	0.272	0.000	0.276	1.050	4.8.1
T3	260 - 240 (681)	C15x33.9	0.005	0.256	0.000	0.258	1.050	4.8.1

Tension Checks

Leg Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	A in ²	P _u K	φP _n K	Ratio $\frac{P_u}{\phi P_n}$
T1	300 - 280	ROHN 2.5 EH	20'	2'4-29/32"	31.3	2.2535	11.68	101.41	0.115 ¹
T3	260 - 240	ROHN 2.5 EH	20'	2'4-29/32"	31.3	2.2535	0.24	101.41	0.002 ¹

¹ P_u / φP_n controls

Diagonal Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	A in ²	P _u K	φP _n K	Ratio $\frac{P_u}{\phi P_n}$
T1	300 - 280	ROHN 1.5 x 11GA	4'2-5/32"	3'10-11/16"	95.2	0.5202	2.55	19.67	0.130 ¹
T2	280 - 260	ROHN 1.5 x 11GA	4'2-5/32"	3'10-11/16"	95.2	0.5202	1.15	19.67	0.058 ¹
T3	260 - 240	L2x2x1/4	4'2-5/32"	1'9-27/32"	38.3	0.5629	3.03	24.49	0.124 ¹
T4	240 - 220	ROHN 1.5 x 11GA	4'2-5/32"	3'10-11/16"	95.2	0.5202	2.43	19.67	0.123 ¹
T5	220 - 200	ROHN 1.5 x 16GA	4'2-5/32"	3'10-11/16"	91.4	0.2627	2.69	9.93	0.271 ¹
T6	200 - 180	ROHN 1.5 x 16GA	4'2-5/32"	3'9-27/32"	89.9	0.2627	4.04	9.93	0.407 ¹
T7	180 - 160	ROHN 1.5 x 16GA	4'2-5/32"	3'9-27/32"	89.9	0.2627	2.58	9.93	0.260 ¹
T8	160 - 140	ROHN 1.5 x 16GA	4'2-5/32"	3'9-27/32"	89.9	0.2627	2.84	9.93	0.286 ¹
T9	140 - 120	ROHN 1.5 x 16GA	4'2-5/32"	3'9-27/32"	89.9	0.2627	2.17	9.93	0.218 ¹
T10	120 - 100	ROHN 1.5 x 16GA	4'2-5/32"	3'9-27/32"	89.9	0.2627	1.87	9.93	0.188 ¹
T11	100 - 80	ROHN 1.5 x 16GA	4'2-5/32"	3'9-27/32"	89.9	0.2627	1.79	9.93	0.180 ¹
T12	80 - 60	ROHN 1.5 x 16GA	4'2-5/32"	3'9-27/32"	89.9	0.2627	2.68	9.93	0.270 ¹
T13	60 - 40	ROHN 1.5 x 16GA	4'2-5/32"	3'9-27/32"	89.9	0.2627	3.48	9.93	0.350 ¹
T14	40 - 20	ROHN 1.5 x 16GA	4'2-5/32"	3'9-27/32"	89.9	0.2627	2.36	9.93	0.238 ¹
T15	20 - 4.81771	ROHN 1.5 x 16GA	4'2-5/32"	3'9-27/32"	89.9	0.2627	3.22	9.93	0.325 ¹

¹ P_u / φP_n controls

Horizontal Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	A in ²	P _u K	φP _n K	Ratio $\frac{P_u}{\phi P_n}$
T16	4.81771 - 0	L4x4x1/4	2'6-23/32"	2'3-1/4"	21.8	1.9400	0.76	62.86	0.012 ¹

¹ P_u / φP_n controls

Top Girt Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	A in ²	P _u K	φP _n K	Ratio $\frac{P_u}{\phi P_n}$
T1	300 - 280	ROHN 1.5 x 11GA	3'5-1/32"	3'2-5/32"	77.8	0.5202	0.04	19.67	0.002 ¹
T2	280 - 260	ROHN 1.5 x 11GA	3'5-1/32"	3'2-5/32"	77.8	0.5202	0.66	19.67	0.034 ¹
T3	260 - 240	L2x2x1/4	3'5-1/32"	2'11-9/32"	62.6	0.5629	0.36	24.49	0.015 ¹
T4	240 - 220	ROHN 1.5 x 11GA	3'5-1/32"	3'2-5/32"	77.8	0.5202	1.22	19.67	0.062 ¹
T5	220 - 200	ROHN 1.5 x 16GA	3'5-1/32"	3'2-5/32"	74.7	0.2627	1.08	9.93	0.109 ¹
T6	200 - 180	ROHN 1.5 x 16GA	3'5-1/32"	3'1-9/16"	73.5	0.2627	0.96	9.93	0.097 ¹

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	A in ²	P _u K	φP _n K	Ratio $\frac{P_u}{\phi P_n}$
T7	180 - 160	ROHN 1.5 x 16GA	3'5-1/32"	3'1-9/16"	73.5	0.2627	0.83	9.93	0.083 ¹
T8	160 - 140	ROHN 1.5 x 16GA	3'5-1/32"	3'1-9/16"	73.5	0.2627	0.42	9.93	0.042 ¹
T9	140 - 120	ROHN 1.5 x 16GA	3'5-1/32"	3'1-9/16"	73.5	0.2627	0.67	9.93	0.067 ¹
T10	120 - 100	ROHN 1.5 x 16GA	3'5-1/32"	3'1-9/16"	73.5	0.2627	0.98	9.93	0.099 ¹
T11	100 - 80	ROHN 1.5 x 16GA	3'5-1/32"	3'1-9/16"	73.5	0.2627	0.78	9.93	0.079 ¹
T12	80 - 60	ROHN 1.5 x 16GA	3'5-1/32"	3'1-9/16"	73.5	0.2627	0.54	9.93	0.055 ¹
T13	60 - 40	ROHN 1.5 x 16GA	3'5-1/32"	3'1-9/16"	73.5	0.2627	0.56	9.93	0.057 ¹
T14	40 - 20	ROHN 1.5 x 16GA	3'5-1/32"	3'1-9/16"	73.5	0.2627	0.67	9.93	0.067 ¹
T15	20 - 4.81771	ROHN 1.5 x 16GA	3'5-1/32"	3'1-9/16"	73.5	0.2627	0.93	9.93	0.093 ¹
T16	4.81771 - 0	L4x4x1/4	3'5-1/32"	3'1-9/16"	30.0	1.9400	12.16	62.86	0.194 ¹

¹ P_u / φP_n controls

Bottom Girt Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	A in ²	P _u K	φP _n K	Ratio $\frac{P_u}{\phi P_n}$
T1	300 - 280	ROHN 1.5 x 11GA	3'5-1/32"	3'2-5/32"	77.8	0.5202	0.92	19.67	0.047 ¹
T2	280 - 260	ROHN 1.5 x 11GA	3'5-1/32"	3'2-5/32"	77.8	0.5202	0.31	19.67	0.016 ¹
T3	260 - 240	L2x2x1/4	3'5-1/32"	2'11-9/32"	62.6	0.5629	2.76	24.49	0.113 ¹
T4	240 - 220	ROHN 1.5 x 11GA	3'5-1/32"	3'2-5/32"	77.8	0.5202	0.93	19.67	0.047 ¹
T5	220 - 200	ROHN 1.5 x 16GA	3'5-1/32"	3'2-5/32"	74.7	0.2627	0.79	9.93	0.080 ¹
T6	200 - 180	ROHN 1.5 x 16GA	3'5-1/32"	3'1-9/16"	73.5	0.2627	0.64	9.93	0.064 ¹
T7	180 - 160	ROHN 1.5 x 16GA	3'5-1/32"	3'1-9/16"	73.5	0.2627	0.37	9.93	0.037 ¹
T8	160 - 140	ROHN 1.5 x 16GA	3'5-1/32"	3'1-9/16"	73.5	0.2627	1.05	9.93	0.105 ¹
T9	140 - 120	ROHN 1.5 x 16GA	3'5-1/32"	3'1-9/16"	73.5	0.2627	0.63	9.93	0.064 ¹
T10	120 - 100	ROHN 1.5 x 16GA	3'5-1/32"	3'1-9/16"	73.5	0.2627	0.62	9.93	0.062 ¹
T11	100 - 80	ROHN 1.5 x 16GA	3'5-1/32"	3'1-9/16"	73.5	0.2627	0.41	9.93	0.042 ¹
T12	80 - 60	ROHN 1.5 x 16GA	3'5-1/32"	3'1-9/16"	73.5	0.2627	1.17	9.93	0.118 ¹
T13	60 - 40	ROHN 1.5 x 16GA	3'5-1/32"	3'1-9/16"	73.5	0.2627	0.75	9.93	0.076 ¹
T14	40 - 20	ROHN 1.5 x 16GA	3'5-1/32"	3'1-9/16"	73.5	0.2627	0.78	9.93	0.078 ¹
T15	20 - 4.81771	ROHN 1.5 x 16GA	3'5-1/32"	3'1-9/16"	73.5	0.2627	1.85	9.93	0.186 ¹

¹ P_u / φP_n controls

Top Guy Pull-Off Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	A in ²	P _u K	φP _n K	Ratio $\frac{P_u}{\phi P_n}$
T1	300 - 280	2L2x2x1/4x3/8	3'5-1/32"	3'2-5/32"	62.6	1.1287	5.15	49.10	0.105 ¹
T3	260 - 240	2L2x2x1/4x3/8	3'5-1/32"	3'2-5/32"	62.6	1.1287	8.61	49.10	0.175 ¹
T6	200 - 180	2L2x2x1/4x3/8	3'5-1/32"	3'1-9/16"	61.6	1.1287	6.35	49.10	0.129 ¹
T9	140 - 120	2L2x2x1/4x3/8	3'5-1/32"	3'1-9/16"	61.6	1.1287	7.06	49.10	0.144 ¹
T13	60 - 40	4 1/2x3/8	3'5-1/32"	3'1-9/16"	346.4	1.0195	3.61	44.35	0.081 ¹

¹ P_u / φP_n controls

Top Guy Pull-Off Bending Design Data

Section No.	Elevation ft	Size	M_{ux} kip-ft	ϕM_{nx} kip-ft	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	M_{uy} kip-ft	ϕM_{ny} kip-ft	Ratio $\frac{M_{uy}}{\phi M_{ny}}$
T1	300 - 280	2L2x2x1/4x3/8	0.00	2.00	0.000	0.00	3.39	0.000
T3	260 - 240	2L2x2x1/4x3/8	0.00	2.00	0.000	0.00	3.39	0.000
T6	200 - 180	2L2x2x1/4x3/8	0.00	2.00	0.000	0.00	3.39	0.000
T9	140 - 120	2L2x2x1/4x3/8	0.00	2.00	0.000	0.00	3.39	0.000
T13	60 - 40	4 1/2x3/8	0.00	5.13	0.000	0.00	0.43	0.000

Top Guy Pull-Off Interaction Design Data

Section No.	Elevation ft	Size	Ratio $\frac{P_u}{\phi P_n}$	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	Ratio $\frac{M_{uy}}{\phi M_{ny}}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
T1	300 - 280	2L2x2x1/4x3/8	0.105	0.000	0.000	0.105 ¹	1.050	4.8.1
T3	260 - 240	2L2x2x1/4x3/8	0.175	0.000	0.000	0.175 ¹	1.050	4.8.1
T6	200 - 180	2L2x2x1/4x3/8	0.129	0.000	0.000	0.129 ¹	1.050	4.8.1
T9	140 - 120	2L2x2x1/4x3/8	0.144	0.000	0.000	0.144 ¹	1.050	4.8.1
T13	60 - 40	4 1/2x3/8	0.081	0.000	0.000	0.081 ¹	1.050	4.8.1

¹ $P_u / \phi P_n$ controls

Torque-Arm Top Design Data

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in ²	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	300 - 280 (684)	C15x33.9	3'5-1/32"	3'3-19/32"	43.8	7.1700	0.83	311.89	0.003
T1	300 - 280 (685)	C15x33.9	3'5-1/32"	3'3-19/32"	43.8	7.1700	1.23	311.89	0.004
T1	300 - 280 (691)	C15x33.9	3'5-1/32"	3'3-19/32"	43.8	7.1700	1.19	311.89	0.004
T1	300 - 280 (692)	C15x33.9	3'5-1/32"	3'3-19/32"	43.8	7.1700	0.93	311.89	0.003
T1	300 - 280 (695)	C15x33.9	3'5-1/32"	3'3-19/32"	43.8	7.1700	0.81	311.89	0.003
T1	300 - 280 (696)	C15x33.9	3'5-1/32"	3'3-19/32"	43.8	7.1700	0.95	311.89	0.003
T3	260 - 240 (669)	C15x33.9	3'5-1/32"	3'3-19/32"	43.8	7.1700	0.27	311.89	0.001
T3	260 - 240 (670)	C15x33.9	3'5-1/32"	3'3-19/32"	43.8	7.1700	1.11	311.89	0.004
T3	260 - 240 (676)	C15x33.9	3'5-1/32"	3'3-19/32"	43.8	7.1700	1.03	311.89	0.003
T3	260 - 240 (677)	C15x33.9	3'5-1/32"	3'3-19/32"	43.8	7.1700	0.87	311.89	0.003
T3	260 - 240 (680)	C15x33.9	3'5-1/32"	3'3-19/32"	43.8	7.1700	0.22	311.89	0.001
T3	260 - 240 (681)	C15x33.9	3'5-1/32"	3'3-19/32"	43.8	7.1700	0.91	311.89	0.003

Torque-Arm Top Bending Design Data

Section No.	Elevation ft	Size	M_{ux} kip-ft	ϕM_{nx} kip-ft	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	M_{uy} kip-ft	ϕM_{ny} kip-ft	Ratio $\frac{M_{uy}}{\phi M_{ny}}$
T1	300 - 280 (684)	C15x33.9	-35.29	136.08	0.259	-0.00	12.60	0.000
T1	300 - 280 (685)	C15x33.9	-34.32	136.08	0.252	-0.00	12.60	0.000
T1	300 - 280 (691)	C15x33.9	-34.89	136.08	0.256	0.00	12.60	0.000
T1	300 - 280 (692)	C15x33.9	-35.59	136.08	0.262	0.00	12.60	0.000
T1	300 - 280 (695)	C15x33.9	-35.46	136.08	0.261	0.00	12.60	0.000
T1	300 - 280 (696)	C15x33.9	-35.18	136.08	0.259	-0.00	12.60	0.000
T3	260 - 240 (669)	C15x33.9	-34.86	136.08	0.256	-0.00	12.60	0.000
T3	260 - 240 (670)	C15x33.9	-32.63	136.08	0.240	-0.00	12.60	0.000
T3	260 - 240 (676)	C15x33.9	-33.62	136.08	0.247	0.00	12.60	0.000
T3	260 - 240 (677)	C15x33.9	-33.31	136.08	0.245	0.00	12.60	0.000
T3	260 - 240 (680)	C15x33.9	-35.31	136.08	0.259	0.00	12.60	0.000
T3	260 - 240 (681)	C15x33.9	-32.75	136.08	0.241	-0.00	12.60	0.000

Torque-Arm Top Interaction Design Data

Section No.	Elevation ft	Size	Ratio	Ratio	Ratio	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
			P_u ϕP_n	M_{ux} ϕM_{nx}	M_{uy} ϕM_{ny}			
T1	300 - 280 (684)	C15x33.9	0.003	0.259	0.000	0.261	1.050	4.8.1
T1	300 - 280 (685)	C15x33.9	0.004	0.252	0.000	0.254	1.050	4.8.1
T1	300 - 280 (691)	C15x33.9	0.004	0.256	0.000	0.258	1.050	4.8.1
T1	300 - 280 (692)	C15x33.9	0.003	0.262	0.000	0.263	1.050	4.8.1
T1	300 - 280 (695)	C15x33.9	0.003	0.261	0.000	0.262	1.050	4.8.1
T1	300 - 280 (696)	C15x33.9	0.003	0.259	0.000	0.260	1.050	4.8.1
T3	260 - 240 (669)	C15x33.9	0.001	0.256	0.000	0.257	1.050	4.8.1
T3	260 - 240 (670)	C15x33.9	0.004	0.240	0.000	0.242	1.050	4.8.1
T3	260 - 240 (676)	C15x33.9	0.003	0.247	0.000	0.249	1.050	4.8.1
T3	260 - 240 (677)	C15x33.9	0.003	0.245	0.000	0.246	1.050	4.8.1
T3	260 - 240 (680)	C15x33.9	0.001	0.259	0.000	0.260	1.050	4.8.1
T3	260 - 240 (681)	C15x33.9	0.003	0.241	0.000	0.242	1.050	4.8.1

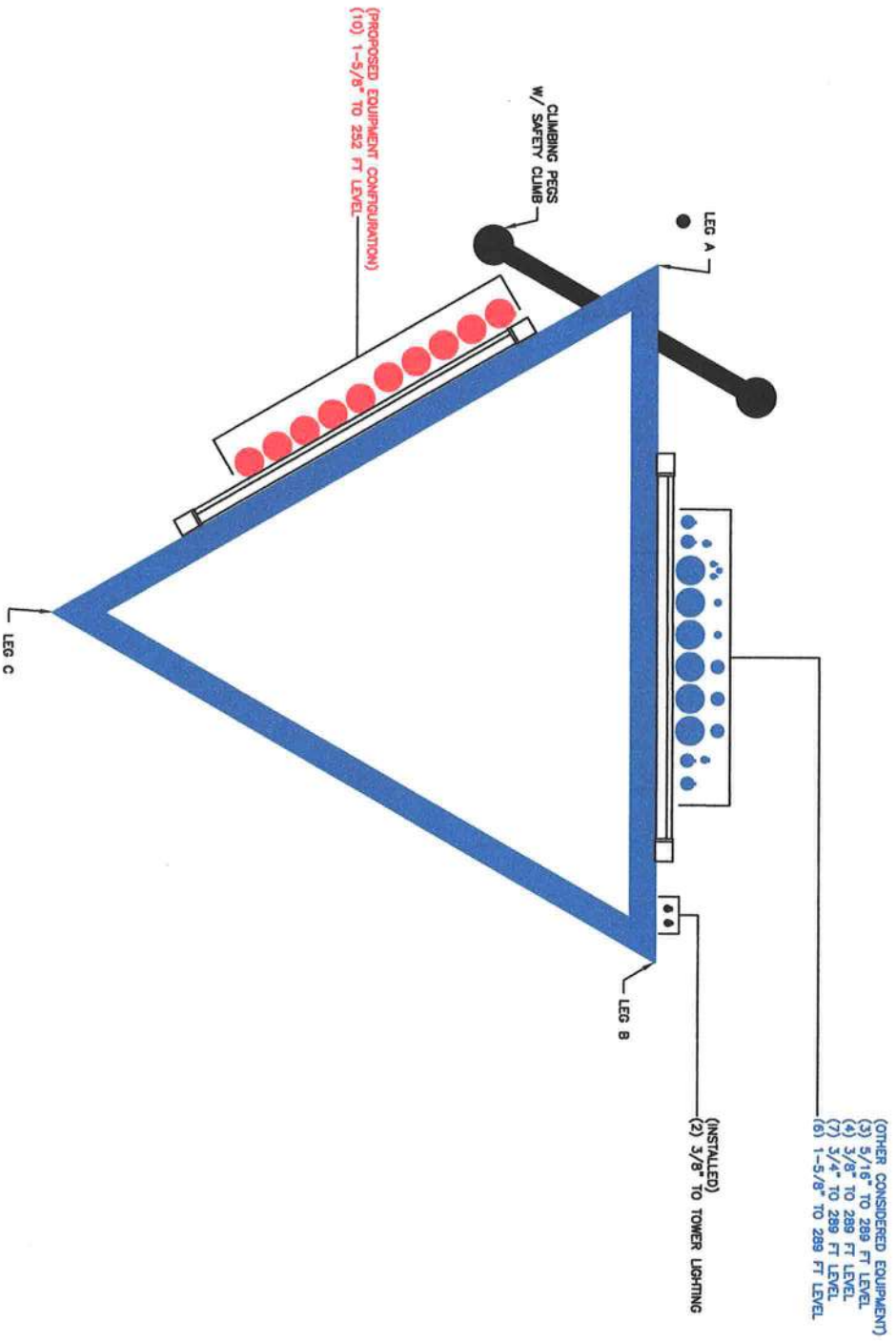
Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
T1	300 - 280	Leg	ROHN 2.5 EH	2	-20.93	99.13	21.1	Pass
T2	280 - 260	Leg	ROHN 2.5 STD	59	-20.06	75.22	26.7	Pass
T3	260 - 240	Leg	ROHN 2.5 EH	115	-37.53	99.13	37.9	Pass
T4	240 - 220	Leg	ROHN 2.5 EH	173	-41.46	99.13	41.8	Pass
T5	220 - 200	Leg	ROHN 2.5 EH	230	-45.86	79.98	57.3	Pass
T6	200 - 180	Leg	ROHN 3 EH	264	-45.43	117.93	38.5	Pass
T7	180 - 160	Leg	ROHN 3 EH	296	-51.72	117.93	43.9	Pass
T8	160 - 140	Leg	ROHN 3 EH	329	-51.45	117.93	43.6	Pass
T9	140 - 120	Leg	ROHN 3 EH	362	-60.89	135.92	44.8	Pass
T10	120 - 100	Leg	ROHN 3 EH	419	-57.80	135.92	42.5	Pass
T11	100 - 80	Leg	ROHN 3 EH	476	-62.21	117.93	52.8	Pass
T12	80 - 60	Leg	ROHN 3 EH	509	-60.90	117.93	51.6	Pass
T13	60 - 40	Leg	ROHN 3 EH	542	-67.97	117.93	57.6	Pass
T14	40 - 20	Leg	ROHN 3 EH	575	-69.97	117.93	59.3	Pass
T15	20 - 4.81771	Leg	ROHN 3 EH	607	-66.69	117.93	56.6	Pass
T16	4.81771 - 0	Leg	ROHN 3 EH	635	-62.85	140.55	44.7	Pass
T1	300 - 280	Diagonal	ROHN 1.5 x 11GA	23	-2.54	11.83	21.5	Pass
T2	280 - 260	Diagonal	ROHN 1.5 x 11GA	112	-1.56	11.83	24.9 (b)	Pass
T3	260 - 240	Diagonal	L2x2x1/4	126	-5.83	29.68	15.2 (b)	Pass
T4	240 - 220	Diagonal	ROHN 1.5 x 11GA	226	-3.29	11.83	32.1 (b)	Pass
T5	220 - 200	Diagonal	ROHN 1.5 x 16GA	238	-2.91	6.24	27.8	Pass
T6	200 - 180	Diagonal	ROHN 1.5 x 16GA	274	-4.01	6.35	32.0 (b)	Pass
T7	180 - 160	Diagonal	ROHN 1.5 x 16GA	326	-2.79	6.35	46.7	Pass
T8	160 - 140	Diagonal	ROHN 1.5 x 16GA	337	-3.12	6.35	63.2	Pass
T9	140 - 120	Diagonal	ROHN 1.5 x 16GA	371	-2.94	6.35	65.1 (b)	Pass
T10	120 - 100	Diagonal	ROHN 1.5 x 16GA	470	-2.52	6.35	44.0	Pass
T11	100 - 80	Diagonal	ROHN 1.5 x 16GA	505	-2.15	6.35	49.1	Pass
T12	80 - 60	Diagonal	ROHN 1.5 x 16GA	518	-3.03	6.35	46.3	Pass
T13	60 - 40	Diagonal	ROHN 1.5 x 16GA	568	-3.44	6.35	39.8	Pass
T14	40 - 20	Diagonal	ROHN 1.5 x 16GA	584	-2.81	6.35	47.8	Pass
T15	20 - 4.81771	Diagonal	ROHN 1.5 x 16GA	617	-3.25	6.35	54.2	Pass
T16	4.81771 - 0	Horizontal	L4x4x1/4	642	-0.37	61.97	56.0 (b)	Pass
T1	300 - 280	Top Girt	ROHN 1.5 x 11GA	6	-0.04	14.23	44.3	Pass
T2	280 - 260	Top Girt	ROHN 1.5 x 11GA	62	0.66	20.65	51.3	Pass
T3	260 - 240	Top Girt	L2x2x1/4	118	0.36	25.71	51.9 (b)	Pass
							11.6	Pass
							0.3	Pass
							0.4 (b)	Pass
							3.2	Pass
							6.4 (b)	Pass
							1.4	Pass
							3.8 (b)	Pass

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
T4	240 - 220	Top Girt	ROHN 1.5 x 11GA	177	1.22	20.65	5.9	Pass
T5	220 - 200	Top Girt	ROHN 1.5 x 16GA	233	-0.95	7.40	11.9 (b) 12.8	Pass
T6	200 - 180	Top Girt	ROHN 1.5 x 16GA	265	-0.69	7.48	17.4 (b) 9.3	Pass
T7	180 - 160	Top Girt	ROHN 1.5 x 16GA	299	0.83	10.43	15.5 (b) 8.0	Pass
T8	160 - 140	Top Girt	ROHN 1.5 x 16GA	331	0.42	10.43	13.3 (b) 4.0	Pass
T9	140 - 120	Top Girt	ROHN 1.5 x 16GA	366	0.67	10.43	6.7 (b) 6.4	Pass
T10	120 - 100	Top Girt	ROHN 1.5 x 16GA	423	0.98	10.43	10.7 (b) 9.4	Pass
T11	100 - 80	Top Girt	ROHN 1.5 x 16GA	478	0.78	10.43	15.8 (b) 7.5	Pass
T12	80 - 60	Top Girt	ROHN 1.5 x 16GA	512	0.54	10.43	12.6 (b) 5.2	Pass
T13	60 - 40	Top Girt	ROHN 1.5 x 16GA	546	0.56	10.43	8.8 (b) 5.4	Pass
T14	40 - 20	Top Girt	ROHN 1.5 x 16GA	577	0.67	10.43	9.1 (b) 6.4	Pass
T15	20 - 4.81771	Top Girt	ROHN 1.5 x 16GA	611	0.93	10.43	10.7 (b) 8.9	Pass
T16	4.81771 - 0	Top Girt	L4x4x1/4	639	12.16	66.00	14.9 (b) 18.4	Pass
T1	300 - 280	Bottom Girt	ROHN 1.5 x 11GA	8	0.92	20.65	9.0 (b) 4.5	Pass
T2	280 - 260	Bottom Girt	ROHN 1.5 x 11GA	65	0.31	20.65	1.5	Pass
T3	260 - 240	Bottom Girt	L2x2x1/4	122	2.76	25.71	3.0 (b) 10.7	Pass
T4	240 - 220	Bottom Girt	ROHN 1.5 x 11GA	180	0.93	20.65	28.8 (b) 4.5	Pass
T5	220 - 200	Bottom Girt	ROHN 1.5 x 16GA	235	-0.70	7.40	9.0 (b) 9.4	Pass
T6	200 - 180	Bottom Girt	ROHN 1.5 x 16GA	269	-0.49	7.48	12.8 (b) 6.6	Pass
T7	180 - 160	Bottom Girt	ROHN 1.5 x 16GA	301	0.37	10.43	10.3 (b) 3.5	Pass
T8	160 - 140	Bottom Girt	ROHN 1.5 x 16GA	334	-0.77	7.48	5.9 (b) 10.3	Pass
T9	140 - 120	Bottom Girt	ROHN 1.5 x 16GA	368	0.63	10.43	16.8 (b) 6.1	Pass
T10	120 - 100	Bottom Girt	ROHN 1.5 x 16GA	424	0.62	10.43	10.2 (b) 5.9	Pass
T11	100 - 80	Bottom Girt	ROHN 1.5 x 16GA	483	0.41	10.43	10.0 (b) 4.0	Pass
T12	80 - 60	Bottom Girt	ROHN 1.5 x 16GA	515	1.17	10.43	6.7 (b) 11.2	Pass
T13	60 - 40	Bottom Girt	ROHN 1.5 x 16GA	547	0.75	10.43	18.8 (b) 7.2	Pass
T14	40 - 20	Bottom Girt	ROHN 1.5 x 16GA	581	0.78	10.43	12.1 (b) 7.4	Pass
T15	20 - 4.81771	Bottom Girt	ROHN 1.5 x 16GA	615	1.85	10.43	12.5 (b) 17.7	Pass
T1	300 - 280	Guy A@282.523	3/4 [ECP-24000]	693	14.27	36.73	29.8 (b) 38.9	Pass
T3	260 - 240	Guy A@242.523	3/4 [ECP-24000]	678	14.33	36.73	39.0	Pass
T6	200 - 180	Guy A@182.523	3/4 [ECP-24000]	666	14.80	36.73	40.3	Pass
T9	140 - 120	Guy A@122.523	3/4 [ECP-24000]	660	15.40	36.73	41.9	Pass
T13	60 - 40	Guy A@59.3854	1/2 [ECP-23000]	654	7.36	16.95	43.4	Pass
T1	300 - 280	Guy B@282.523	3/4 [ECP-24000]	690	14.50	36.73	39.5	Pass
T3	260 - 240	Guy B@242.523	3/4 [ECP-24000]	675	15.39	36.73	41.9	Pass
T6	200 - 180	Guy B@182.523	3/4 [ECP-24000]	665	16.92	36.73	46.1	Pass
T9	140 - 120	Guy B@122.523	3/4 [ECP-24000]	659	18.84	36.73	51.3	Pass
T13	60 - 40	Guy B@59.3854	1/2 [ECP-23000]	653	9.00	16.95	53.1	Pass
T1	300 - 280	Guy C@282.523	3/4 [ECP-24000]	682	14.59	36.73	39.7	Pass
T3	260 - 240	Guy C@242.523	3/4 [ECP-24000]	667	15.19	36.73	41.4	Pass
T6	200 - 180	Guy C@182.523	3/4 [ECP-24000]	661	16.81	36.73	45.8	Pass
T9	140 - 120	Guy C@122.523	3/4 [ECP-24000]	655	18.58	36.73	50.6	Pass
T13	60 - 40	Guy C@59.3854	1/2 [ECP-23000]	649	8.88	16.95	52.4	Pass

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
T1	300 - 280	Top Guy Pull-Off@282.523	2L2x2x1/4x3/8	687	5.15	51.56	10.0	Pass
T3	260 - 240	Top Guy Pull-Off@242.523	2L2x2x1/4x3/8	672	8.61	51.56	22.2 (b) 16.7	Pass
T6	200 - 180	Top Guy Pull-Off@182.523	2L2x2x1/4x3/8	663	6.35	51.56	24.9 (b) 12.3	Pass
T9	140 - 120	Top Guy Pull-Off@122.523	2L2x2x1/4x3/8	658	7.06	51.56	18.4 (b) 13.7	Pass
T13	60 - 40	Top Guy Pull-Off@59.3854	4 1/2x3/8	652	3.61	46.57	20.4 (b) 7.8	Pass
T1	300 - 280	Torque Arm Top@282.523	C15x33.9	684	-0.79	306.34	27.0	Pass
T3	260 - 240	Torque Arm Top@242.523	C15x33.9	680	-1.96	306.34	27.8 (b) 26.3	Pass
Summary								
Leg (T14)							59.3	Pass
Diagonal (T6)							65.1	Pass
Horizontal (T16)							11.6	Pass
Top Girt (T16)							18.4	Pass
Bottom Girt (T15)							29.8	Pass
Guy A (T13)							43.4	Pass
Guy B (T13)							53.1	Pass
Guy C (T13)							52.4	Pass
Top Guy Pull-Off (T3)							24.9	Pass
Torque Arm Top (T1)							27.8	Pass
Bolt Checks							65.1	Pass
RATING =							65.1	Pass

APPENDIX B
BASE LEVEL DRAWING



APPENDIX C
ADDITIONAL CALCULATIONS

Pier and Pad Foundation



BU #: 846216
 Site Name: Fort White
 App. Number: 541376 Rev. 0

TIA-222 Revision: H
 Tower Type: Guyed

Top & Bot. Pad Rein. Different?: ☐
 Block Foundation?: ☐
 Rectangular Pad?: ☐

Superstructure Analysis Reactions		
Compression, P_{comp} :	161.98	kips
Base Shear, V_{u_comp} :	1.69	kips
Moment, M_u :	0	ft-kips
Tower Height, H :	300	ft
BP Dist. Above Fdn, b_{p_dist} :	3	in
Bolt Circle / Bearing Plate Width, BC :	18	in

Pier Properties		
Pier Shape:	Circular	
Pier Diameter, d_{pier} :	3	ft
Ext. Above Grade, E :	1	ft
Pier Rebar Size, S_c :	9	
Pier Rebar Quantity, m_c :	6	
Pier Tie/Spiral Size, S_t :	3	
Pier Tie/Spiral Quantity, m_t :	14	
Pier Reinforcement Type:	Tie	
Pier Clear Cover, cc_{pier} :	3	in

Pad Properties		
Depth, D :	10	ft
Pad Width, W_1 :	11	ft
Pad Thickness, T :	2	ft
Pad Rebar Size (Bottom dir. 2), S_{p2} :	9	
Pad Rebar Quantity (Bottom dir. 2), m_{p2} :	6	
Pad Clear Cover, cc_{pad} :	3	in

Material Properties		
Rebar Grade, F_y :	60	ksi
Concrete Compressive Strength, F'_c :	3	ksi
Dry Concrete Density, δ_c :	150	pcf

Soil Properties		
Total Soil Unit Weight, γ :	120	pcf
Ultimate Net Bearing, Q_{net} :	12.000	ksf
Cohesion, C_u :	2.000	ksf
Friction Angle, ϕ :	0	degrees
SPT Blow Count, N_{blows} :		
Base Friction, μ :	0.35	
Neglected Depth, N :	2.00	ft
Foundation Bearing on Rock?	No	
Groundwater Depth, gw :	N/A	ft

Foundation Analysis Checks				
	Capacity	Demand	Rating*	Check
Lateral (Sliding) (kips)	214.48	1.69	0.8%	Pass
Bearing Pressure (ksf)	7.92	2.92	35.1%	Pass
Overturing (kip*ft)	1274.26	19.01	1.5%	Pass
Pier Flexure (Comp.) (kip*ft)	511.50	15.21	2.8%	Pass
Pier Compression (kip)	1528.95	173.43	10.8%	Pass
Pad Flexure (kip*ft)	506.88	125.92	23.7%	Pass
Pad Shear - 1-way (kips)	209.39	37.69	17.1%	Pass
Pad Shear - 2-way (Comp) (ksi)	0.164	0.033	19.4%	Pass
Flexural 2-way (Comp) (kip*ft)	733.13	9.13	1.2%	Pass

min steel assumed

*Rating per TIA-222-H Section 15.5

Soil Rating*:	35.1%
Structural Rating*:	23.7%

min steel assumed

<--Toggle between Gross and Net

Guyed Anchor Block Foundation

Checks capacity of anchor blocks for a guyed tower.



BU#:	846216
Site Name:	Fort White
Order Number:	541376 Rev. 0
Location:	Guy A @ 140 ft (Elev 0 ft)

TIA-222 Revision:

H

Design Reactions		
Shear, S:	27.11	kips
Uplift, Ua:	24.06	kips
Resultant Force, Rt:	36.2	kips
Tower Height, H:	300.00	ft
Guy Anchor Radius, R:	140.00	ft
Resultant Angle to Horizontal, θ :	41.6	deg

Guy Anchor Properties		
Depth to Bottom of Deadman, Da:	8.5	ft
Anchor Width, Wa:	4	ft
Anchor Thickness, Ta:	2	ft
Anchor Length, La:	14	ft
Concrete Volume, Vc:	4.1	yd ³
Toe Width, toe:	0	ft

Design Checks				
	Capacity	Demand	Rating*	Check
Lateral Capacity (kips):	145.86	27.11	17.7%	Pass
Uplift Capacity (kips):	148.49	24.06	15.4%	Pass

Soil Rating:	17.7%
Structural Rating:	N/A
Anchor Shaft Rating:	N/A

*Rating per TIA-222-H Section 15.5

Neglect Depth, Neg:	2	ft
Groundwater Level, gw:	None	ft

Soil Properties:					
Layer	ϕ , deg	cu, ksf	δ , pcf	d, ft	Ultimate fs (ksf)
1	0	0.000	120	2.00	0.000
2	35	0.000	135	6.00	0.350
3	40	0.000	135	8.50	1.000

Material Properties

Wt. Avg. Concrete Density, δx :	0.150	kcft
---	-------	------

*Key: ϕ = Internal Angle of Friction
cu = Cohesion / Undrained Shear Strength
 δ = Buoyant Soil Unit Weight
d = Depth to Bottom of Layer
Ultimate fs = Geotechnical Report-provided skin friction / adhesion
N = SPT Blow Count

Guyed Anchor Block Foundation

Checks capacity of anchor blocks for a guyed tower.

BU#: 846216

Site Name: Fort White

Order Number: 541376 Rev. 0

Location: Guy B @ 137 ft (Elev -4 ft)

TIA-222 Revision:

H

Design Reactions

Shear, S:	31.95	kips
Uplift, Ua:	29.76	kips
Resultant Force, Rt:	43.7	kips
Tower Height, H:	300.00	ft
Guy Anchor Radius, R:	137.00	ft
Resultant Angle to Horizontal, θ :	43.0	deg

Guy Anchor Properties

Depth to Bottom of Deadman, Da:	8.5	ft
Anchor Width, Wa:	4	ft
Anchor Thickness, Ta:	2	ft
Anchor Length, La:	14	ft
Concrete Volume, Vc:	4.1	yd ³
Toe Width, toe:	0	ft

Material Properties

Wt. Avg. Concrete Density, δx :	0.150	Kcf
---	-------	-----



Design Checks

	Capacity	Demand	Rating*	Check
Lateral Capacity (kips):	227.82	31.95	13.4%	Pass
Uplift Capacity (kips):	229.90	29.76	12.3%	Pass

*Rating per TIA-222-H Section 15.5

Soil Rating:	13.4%
Structural Rating:	N/A
Anchor Shaft Rating:	N/A

Neglect Depth, Neg:	2	ft
Groundwater Level, gw:	None	ft

Soil Properties:

Layer	No. of Soil Layers?	ϕ , deg	cu, ksf	δ , pcf	d, ft	Ultimate fs (ksf)	N (blows/ft)
1	0	0.000	110	2.00	0.000		
2	0	1.250	125	4.00	1.250		
3	0	2.250	125	8.50	2.250		

*Key: ϕ = Internal Angle of Friction
cu = Cohesion / Undrained Shear Strength
 δ = Buoyant Soil Unit Weight
d = Depth to Bottom of Layer
Ultimate fs = Geotechnical Report-provided skin friction / adhesion
N = SPT Blow Count

Guyed Anchor Block Foundation

Checks capacity of anchor blocks for a guyed tower.



BU#:	846216
Site Name:	Fort White
Order Number:	541376 Rev. 0
Location:	Guy C @ 135 ft (Elev 2 ft)

T1A-222 Revision: H

Design Reactions		
Shear, S:	32.01	kips
Uplift, Ua:	28.88	kips
Resultant Force, Rt:	43.1	kips
Tower Height, H:	300.00	ft
Guy Anchor Radius, R:	135.00	ft
Resultant Angle to Horizontal, θ:	42.1	deg

Guy Anchor Properties		
Depth to Bottom of Deadman, Da:	8.5	ft
Anchor Width, Wa:	4	ft
Anchor Thickness, Ta:	2	ft
Anchor Length, La:	14	ft
Concrete Volume, Vc:	4.1	yd³
Toe Width, toe:	0	ft

Design Checks				
	Capacity	Demand	Rating*	Check
Lateral Capacity (kips):	228.10	32.01	13.4%	Pass
Uplift Capacity (kips):	228.58	28.88	12.0%	Pass

Soil Rating:	13.4%
Structural Rating:	N/A
Anchor Shaft Rating:	N/A

*Rating per T1A-222-H Section 15.5

Neglect Depth, Neg:	2	ft
Groundwater Level, gw:	None	ft

Soil Properties:					
No. of Soil Layers?				3	
Layer	φ, deg	c _u , ksf	δ, pcf	d, ft	Ultimate f _s (ksf)
1	0	0.000	110	2.00	0.000
2	0	1.250	125	4.00	1.250
3	0	2.250	125	8.50	2.250

Material Properties

Wt. Avg. Concrete Density, δ _c :	0.150	kcf
---	-------	-----

*Key: φ = Internal Angle of Friction
c_u = Cohesion / Undrained Shear Strength
δ = Buoyant Soil Unit Weight
d = Depth to Bottom of Layer
Ultimate f_s = Geotechnical Report-provided skin friction / adhesion
N = SPT Blow Count

Guyed Anchor Block Foundation

Checks capacity of anchor blocks for a guyed tower.

BU#: 846216

Site Name: Fort White

Order Number: 541376 Rev. 0

Location: Guy A @ 240 ft (Elev 0 ft)

TIA-222 Revision:

H

Design Reactions		
Shear, S:	38.54	kips
Uplift, Ua:	39.97	kips
Resultant Force, Rf:	55.5	kips
Tower Height, H:	300.00	ft
Guy Anchor Radius, R:	240.00	ft
Resultant Angle to Horizontal, θ:	46.0	deg

Guy Anchor Properties		
Depth to Bottom of Deadman, Da:	10	ft
Anchor Width, Wa:	4	ft
Anchor Thickness, Ta:	2	ft
Anchor Length, La:	18	ft
Concrete Volume, Vc:	5.3	yd ³
Toe Width, toe:	0	ft

Material Properties		
Wt. Avg. Concrete Density, δx:	0.150	kcf



Design Checks				
	Capacity	Demand	Rating*	Check
Lateral Capacity (kips):	209.47	38.54	17.5%	Pass
Uplift Capacity (kips):	252.55	39.97	15.1%	Pass

Soil Rating:	17.5%
Structural Rating:	N/A
Anchor Shaft Rating:	N/A

*Rating per TIA-222-H Section 15.5

Neglect Depth, Neg:	2	ft
Groundwater Level, gw:	None	ft

Soil Properties:						
No. of Soil Layers?					3	
Layer	ϕ , deg	c_u , ksf	δ , pcf	d, ft	Ultimate f_s (ksf)	N (blows/ft)
1	0	0.000	120	2.00	0.000	
2	35	0.000	135	6.00	0.350	
3	40	0.000	135	10.00	1.000	

*Key: φ = Internal Angle of Friction
c_u = Cohesion / Undrained Shear Strength
δ = Buoyant Soil Unit Weight
d = Depth to Bottom of Layer
Ultimate fs = Geotechnical Report-provided skin friction / adhesion
N = SPT Blow Count

Guyed Anchor Block Foundation

Checks capacity of anchor blocks for a guyed tower.

BU#: 846216

Site Name: Fort White

Order Number: 541376 Rev. 0

Location: Guy B @ 237 ft (Elev -4 ft)

TIA-222 Revision:

H

Design Reactions

Shear, S:	39.26	kips
Uplift, Ua:	41.83	kips
Resultant Force, R:	57.4	kips
Tower Height, H:	300.00	ft
Guy Anchor Radius, R:	237.00	ft
Resultant Angle to Horizontal, θ :	45.8	deg

Guy Anchor Properties

Depth to Bottom of Deadman, Da:	10	ft
Anchor Width, Wa:	4	ft
Anchor Thickness, Ta:	2	ft
Anchor Length, La:	18	ft
Concrete Volume, Vc:	5.3	yd ³
Toe Width, toe:	0	ft

Material Properties

Wt. Avg. Concrete Density, δx :	0.150	kcf
---	-------	-----



Design Checks

	Capacity	Demand	Rating*	Check
Lateral Capacity (kips):	291.04	39.26	12.8%	Pass
Uplift Capacity (kips):	352.48	41.83	11.3%	Pass

*Rating per TIA-222-H Section 15.5

Soil Rating:	12.8%
Structural Rating:	N/A
Anchor Shaft Rating:	N/A

Neglect Depth, Neg:	2	ft
Groundwater Level, gw:	None	ft

Soil Properties:

No. of Soil Layers?					3		
Layer	ϕ , deg	cu, ksf	δ , pcf	d, ft	Ultimate fs (ksf)	N (blows/ft)	
1	0	0.000	110	2.00	0.000		
2	0	1.250	125	4.00	1.250		
3	0	2.250	125	10.00	2.250		

*Key: ϕ = Internal Angle of Friction

cu = Cohesion / Undrained Shear Strength

δ = Buoyant Soil Unit Weight

d = Depth to Bottom of Layer

Ultimate fs = Geotechnical Report-provided skin friction / adhesion

N = SPT Blow Count

Guyed Anchor Block Foundation

Checks capacity of anchor blocks for a guyed tower.

BU#: 846216

Site Name: Fort White

Order Number: 541376 Rev. 0

Location: Guy C @ 235 ft (Elev 2 ft)

TIA-222 Revision:

H

Design Reactions

Shear, S:	39.70	kips
Uplift, Ua:	41.78	kips
Resultant Force, Rf:	57.6	kips
Tower Height, H:	300.00	ft
Guy Anchor Radius, R:	235.00	ft
Resultant Angle to Horizontal, θ :	46.5	deg

Guy Anchor Properties

Depth to Bottom of Deadman, Da:	10	ft
Anchor Width, Wa:	4	ft
Anchor Thickness, Ta:	2	ft
Anchor Length, La:	18	ft
Concrete Volume, Vc:	5.3	yd ³
Toe Width, toe:	0	ft

Material Properties

Wt. Avg. Concrete Density, δx :	0.150	kcf
---	-------	-----



Design Checks

	Capacity	Demand	Rating*	Check
Lateral Capacity (kips):	291.16	39.70	13.0%	Pass
Uplift Capacity (kips):	352.37	41.78	11.3%	Pass

*Rating per TIA-222-H Section 15.5

Soil Rating:	13.0%
Structural Rating:	N/A
Anchor Shaft Rating:	N/A

Neglect Depth, Neg:	2	ft
Groundwater Level, gw:	None	ft

Soil Properties:

No. of Soil Layers?					3		
Layer	ϕ , deg	c _u , ksf	δ , pcf	d, ft	Ultimate fs (ksf)	N (blows/ft)	
1	0	0.000	110	2.00	0.000		
2	0	1.250	125	4.00	1.250		
3	0	2.250	125	10.00	2.250		

*key: ϕ = Internal Angle of Friction

c_u = Cohesion / Undrained Shear Strength

δ = Buoyant Soil Unit Weight

d = Depth to Bottom of Layer

Ultimate fs = Geotechnical Report-provided skin friction / adhesion

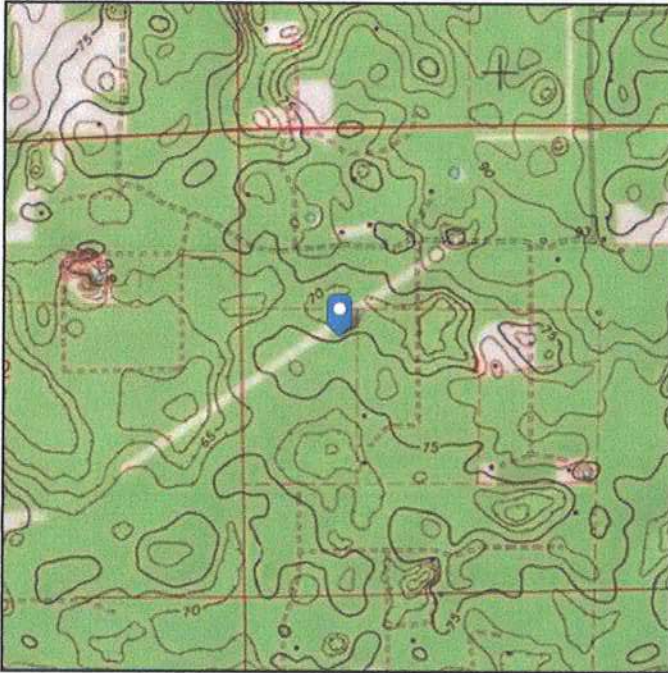
N = SPT Blow Count

ASCE 7 Hazards Report

Address:
No Address at This
Location

Standard: ASCE/SEI 7-16
Risk Category: II
Soil Class: D - Stiff Soil

Elevation: 72.85 ft (NAVD 88)
Latitude: 29.908675
Longitude: -82.672106



Wind

Results:

Wind Speed:	120 Vmph
10-year MRI	75 Vmph
25-year MRI	84 Vmph
50-year MRI	90 Vmph
100-year MRI	98 Vmph

Data Source: ASCE/SEI 7-16, Fig. 26.5-1B and Figs. CC.2-1–CC.2-4, and Section 26.5.2
Date Accessed: Sun Feb 28 2021

Value provided is 3-second gust wind speeds at 33 ft above ground for Exposure C Category, based on linear interpolation between contours. Wind speeds are interpolated in accordance with the 7-16 Standard. Wind speeds correspond to approximately a 7% probability of exceedance in 50 years (annual exceedance probability = 0.00143, MRI = 700 years).

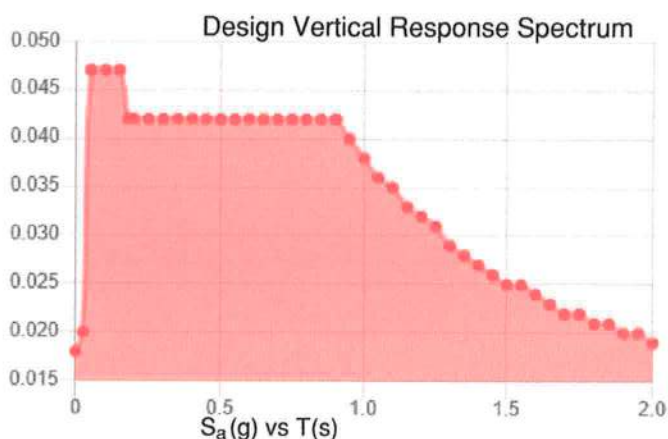
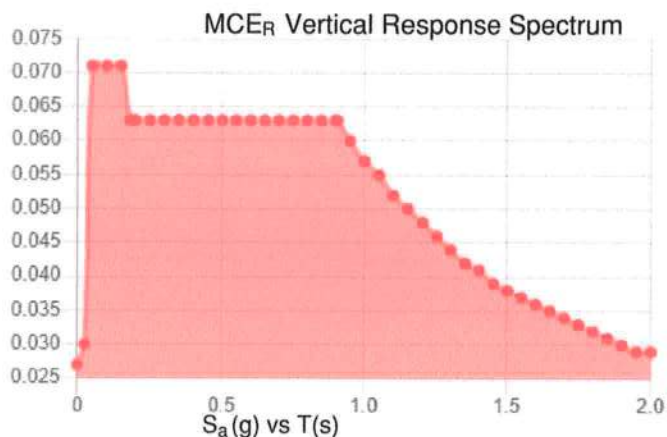
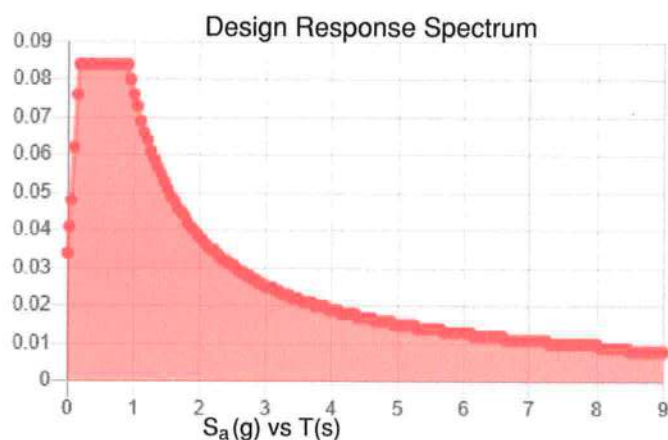
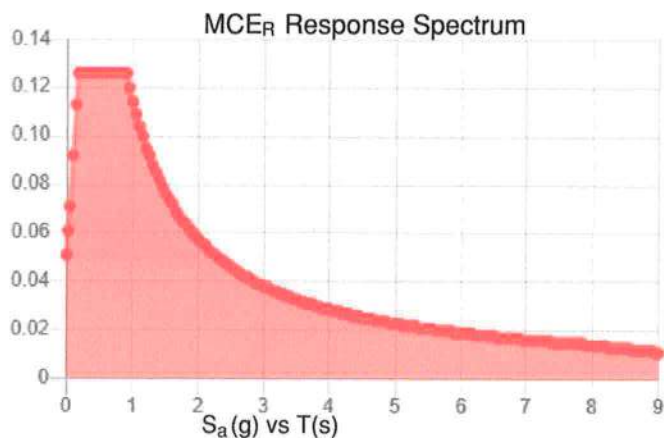
Site is in a hurricane-prone region as defined in ASCE/SEI 7-16 Section 26.2. Glazed openings need not be protected against wind-borne debris.

Site Soil Class: D - Stiff Soil

Results:

S_S :	0.079	S_{D1} :	0.076
S_1 :	0.048	T_L :	8
F_a :	1.6	PGA :	0.038
F_v :	2.4	PGA _M :	0.06
S_{MS} :	0.126	F_{PGA} :	1.6
S_{M1} :	0.114	I_e :	1
S_{DS} :	0.084	C_v :	0.7

Seismic Design Category B



Data Accessed:

Sun Feb 28 2021

Date Source:

USGS Seismic Design Maps based on ASCE/SEI 7-16 and ASCE/SEI 7-16 Table 1.5-2. Additional data for site-specific ground motion procedures in accordance with ASCE/SEI 7-16 Ch. 21 are available from USGS.

Results:

Ice Thickness: 0.25 in.
Concurrent Temperature: 25 F
Gust Speed: 30 mph

Data Source: Standard ASCE/SEI 7-16, Figs. 10-2 through 10-8

Date Accessed: Sun Feb 28 2021

Ice thicknesses on structures in exposed locations at elevations higher than the surrounding terrain and in valleys and gorges may exceed the mapped values.

Values provided are equivalent radial ice thicknesses due to freezing rain with concurrent 3-second gust speeds, for a 500-year mean recurrence interval, and temperatures concurrent with ice thicknesses due to freezing rain. Thicknesses for ice accretions caused by other sources shall be obtained from local meteorological studies. Ice thicknesses in exposed locations at elevations higher than the surrounding terrain and in valleys and gorges may exceed the mapped values.

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T-Mobile

T-MOBILE SITE NUMBER:
T-MOBILE SITE NAME:
SITE TYPE:
TOWER HEIGHT:

9JK0345B
FORT WHITE
GYUED TOWER
300'

BUSINESS UNIT #:
SITE ADDRESS:
COUNTY:
JURISDICTION:

846216
612 SOUTHWEST HILLARD, FORT WHITE, FL 32038
COLUMBIA COUNTY
COLUMBIA COUNTY

T-MOBILE EXCALIBUR SITE CONFIGURATION: TBD

SITE INFORMATION

CROWN CASTLE USA INC. FORT WHITE
SITE NAME:
SITE ADDRESS: 612 SOUTHWEST HILLARD
FORT WHITE, FL 32038
COUNTY: COLUMBIA COUNTY
MAP/PARCEL #: 01-75-16-04104-001
AREA OF CONSTRUCTION: EXISTING
LATITUDE: 29.908675°
LONGITUDE: -82.672106°
LAT/LONG TYPE: NAD83
GROUND ELEVATION: 73 FT.
CURRENT ZONING: A-3
JURISDICTION: COLUMBIA COUNTY
OCCUPANCY CLASSIFICATION: U
TYPE OF CONSTRUCTION: IIB
AD.A. COMPLIANCE: FACILITY IS UNMANNED AND NOT FOR HUMAN HABITATION
PROPERTY OWNER: GLENN FARMS INC
190 NORTH STATE ROAD 175
BELLE GLADE, FL 33430
TOWER OWNER: CROWN CASTLE USA, INC.
2000 CORPORATE DRIVE
CANONSBURG, PA 15317
CARRIER/APPLICANT: T-MOBILE
1 RAVINIA DRIVE, SUITE 1000
ATLANTA, GA 30346
ELECTRIC PROVIDER: CLAY ELECTRIC CO-OP
1-800-224-4917
WINDSTREAM
1-800-347-1991
TELCO PROVIDER:

PROJECT TEAM

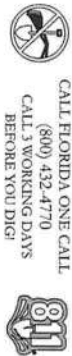
A&E FIRM: P. MARSHALL & ASSOCIATES LLC.
1000 HOLCOMB WOOD PKWY STE 210,
ROSWELL, GA 30076
SENIOR ENGINEER - PATRICK MARSHALL, P.E.
PROJECT ENGINEER - AJ BULOT, E.I.T.
OFFICE 678-280-2325
CARRIER/APPLICANT: T-MOBILE
1 RAVINIA DRIVE, SUITE 1000
ATLANTA, GA 30346
SEAN MASSEY - DEVELOPMENT MANAGER
404-277-8434
CROWN CASTLE
USA INC. DISTRICT
CONTACTS: 2 CHASE CORPORATE DRIVE, SUITE 105
BIRMINGHAM, AL 35244
SUSAN PALM - A&E SPECIALIST
205-587-1867
CONSTRUCTION MANAGER
TBD

NOTE:
PRIOR TO ACCESSING/ENTERING THE SITE YOU MUST CONTACT THE CROWN
NOC AT (800) 788-7011 & CROWN CONSTRUCTION MANAGER.

DRAWING INDEX

SHEET #	SHEET DESCRIPTION
T-1	TITLE SHEET
T-2	GENERAL NOTES
C-1.1	EXISTING SITE PLAN
C-1.2	EXISTING & FINAL EQUIPMENT PLAN
C-2	FINAL ELEVATION & ANTENNA PLANS
C-3	ANTENNA & CABLE SCHEDULES
C-4	EQUIPMENT SPECS
C-5	EQUIPMENT SPECS
C-6	EQUIPMENT DETAILS
G-1	GROUNDING DETAILS
G-2	GROUNDING DETAILS

ALL DRAWINGS CONTAINED HEREIN ARE FORWARDED FOR LIMIT CONTRACTOR SHALL
VERIFY ALL ASSUMED AND EXISTING DIMENSIONS AND CONDITIONS FOR THE JOB SITE AND
SHALL BE RESPONSIBLE FOR ANY DISCREPANCIES AND/OR OMISSIONS. THE CONTRACTOR
PROCEEDING WITH THE WORK OR BE RESPONSIBLE FOR SAME.



CALL FLORIDA ONE CALL
(800) 432-4770
CALL 3 WORKING DAYS
BEFORE YOU DIG!

PROJECT DESCRIPTION

THE PURPOSE OF THIS PROJECT IS TO ENHANCE
BROADBAND CONNECTIVITY AND CAPACITY TO THE
EXISTING ELIGIBLE WIRELESS FACILITY.

- TOWER SCOPE OF WORK:
- REMOVE (3) ANTENNAS
 - REMOVE (3) TMAs
 - INSTALL (6) ANTENNAS
 - INSTALL (3) RRHs
 - INSTALL (3) HYBRID CABLE
- GROUND SCOPE OF WORK:
- REMOVE (2) EQUIPMENT CABINETS
 - REMOVE (1) EQUIPMENT RACK
 - REMOVE (3) RRHS
 - INSTALL (2) EQUIPMENT CABINETS

NOTE:
THE POWER DESIGN FOR ANY AC ELECTRICAL POWER
CHANGES IS TO BE PERFORMED BY OTHERS AND IS SHOWN
HERE FOR REFERENCE PURPOSES ONLY. T-MOBILE IS
SOLELY RESPONSIBLE FOR THE ELECTRICAL POWER DESIGN.

LOCATION MAP



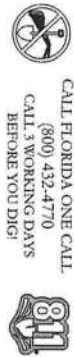
NO SCALE

APPLICABLE CODES/REFERENCE DOCUMENTS

ALL WORK SHALL BE PERFORMED AND MATERIALS INSTALLED IN ACCORDANCE
WITH THE CURRENT EDITIONS OF THE FOLLOWING CODES AS ADOPTED BY
THE LOCAL GOVERNING AUTHORITIES. NOTHING IN THESE PLANS IS TO BE
CONSTRUED TO PERMIT WORK NOT CONFORMING TO THESE CODES:

CODE TYPE BUILDING CODE
2020 FLORIDA BUILDING CODE
ELECTRICAL CODE
2017 NATIONAL ELECTRICAL CODE

REFERENCE DOCUMENTS:
STRUCTURAL ANALYSIS: MORRISON HERSHFIELD
DATED: 2/28/2021 PROJECT NO. CN7-432 / 2101398
MOUNT ANALYSIS: NOT APPLICABLE
DATED:
RFDs REVISION: NOT APPLICABLE
DATED:
ORDER ID: NOT APPLICABLE
REVISION:



CALL FLORIDA ONE CALL
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APPROVALS

APPROVAL	SIGNATURE	DATE
PROPERTY OWNER OR REP.		
LAND USE PLANNER		
T-MOBILE		
OPERATIONS		
RF		
NETWORK		
BACKHAUL		
CONSTRUCTION MANAGER		



Patrick Marshall
Digitally signed by
Patrick Marshall
Date: 2021.03.10
14:59:42 -05'00'

THE PARTIES ABOVE HEREBY APPROVE AND ACCEPT THESE DOCUMENTS
AND AUTHORIZE THE CONTRACTOR TO PROCEED WITH THE
CONSTRUCTION DESCRIBED HEREIN. ALL CONSTRUCTION DOCUMENTS
ARE SUBJECT TO REVIEW BY THE LOCAL BUILDING DEPARTMENT AND
ANY CHANGES AND MODIFICATIONS THEY MAY IMPOSE.

T-Mobile
1 RAVINIA DRIVE, SUITE 1000
ATLANTA, GA 30346

CROWN CASTLE
8000 AVALON BLVD, SUITE 700
ALPHARETTA, GA 30009

PM&A
P. MARSHALL & ASSOCIATES
1000 HOLCOMB WOODS PKWY STE. 210
ROSWELL, GA 30076
OFFICE 678-280-2325

T-MOBILE SITE NUMBER:
9JK0345B
BU #: 846216
FORT WHITE
612 SOUTHWEST HILLARD
FORT WHITE, FL 32038
EXISTING 300' GUYED TOWER

ISSUED FOR:				
REV	DATE	DRWN	DESCRIPTION	DES./QA
A	3/3/21	MAAM	PRELIMS	AJB
0	3/30/21	PC	FINALS	AJB

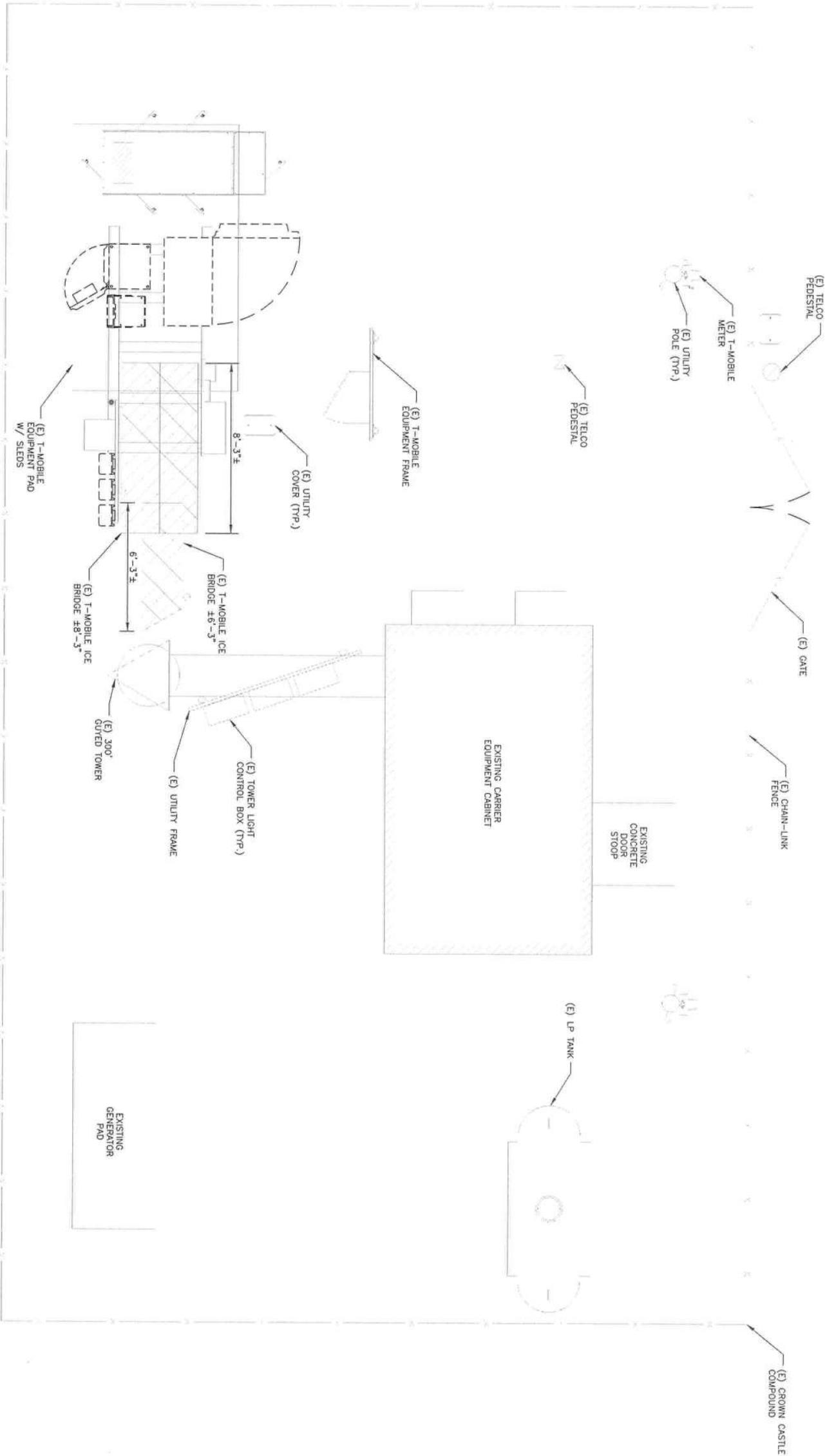
Patrick W. Marshall, P.E.
Registered Engineer
State of Florida #053573
P. Marshall & Associates Certificate of Authorization #21595



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SHEET NUMBER:
T-1
REVISION:
A

SITE PLAN DISCLAIMER:
PROPERTY LINES AND STRUCTURES HAVE BEEN DIGITIZED FROM PREVIOUS PLAN SETS OR FROM ASSESSORS MAPS. CROWN CASTLE USA INC. HAS NOT COMPLETED A SITE SURVEY AND THEREFORE MAKES NO CLAIMS AS TO THE ACCURACY OF INFORMATION DEPICTED ON THIS SHEET



1 OVERALL SITE PLAN

SCALE: 1"=3'-0" (FULL SIZE)
1"=6'-0" (11x17)

1 RAVINIA DRIVE, SUITE 1000
ATLANTA, GA 30346

8000 AVALON BLVD, SUITE 700
ALPHARETTA, GA 30009

P. MARSHALL & ASSOCIATES
1000 HOLCOMB WOODS PKWY STE. 210
ROSWELL, GA 30076
OFFICE 678-280-2325

T-MOBILE SITE NUMBER:
9JK0345B

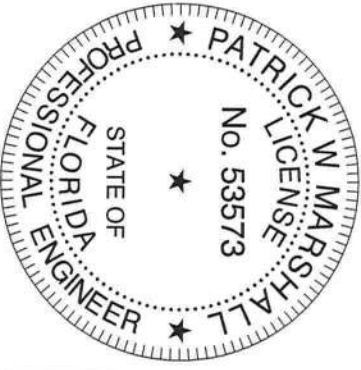
BU #: 846216
FORT WHITE

612 SOUTHWEST HILLIARD
FORT WHITE, FL 32038

EXISTING 300' GUYED TOWER

ISSUED FOR:				
REV	DATE	DRWN	DESCRIPTION	DES./QA
A	3/3/21	MAN	PRELIMS	AJB
0	3/10/21	FC	FINALS	AJB

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Registered Engineer
State of Florida #055573
P Marshall & Associates Certificate of Authorization #27595



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SHEET NUMBER: C-1.1

REVISION: A

NOTE:
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T-Mobile
1 RAVINIA DRIVE, SUITE 1000
ATLANTA, GA 30346

CROWN CASTLE
8000 AVALON BLVD, SUITE 700
ALPHARETTA, GA 30009

PM&A
P. MARSHALL & ASSOCIATES
1000 HOLCOMB WOODS PKWY STE. 210
ROSWELL, GA 30076
OFFICE 678-280-2325

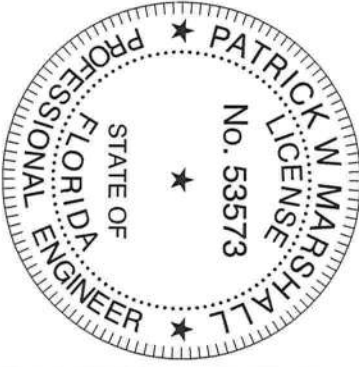
T-MOBILE SITE NUMBER:
9JK0345B

BU #: 846216
FORT WHITE
612 SOUTHWEST HILLIARD
FORT WHITE, FL 32038

EXISTING 300' GUYED TOWER

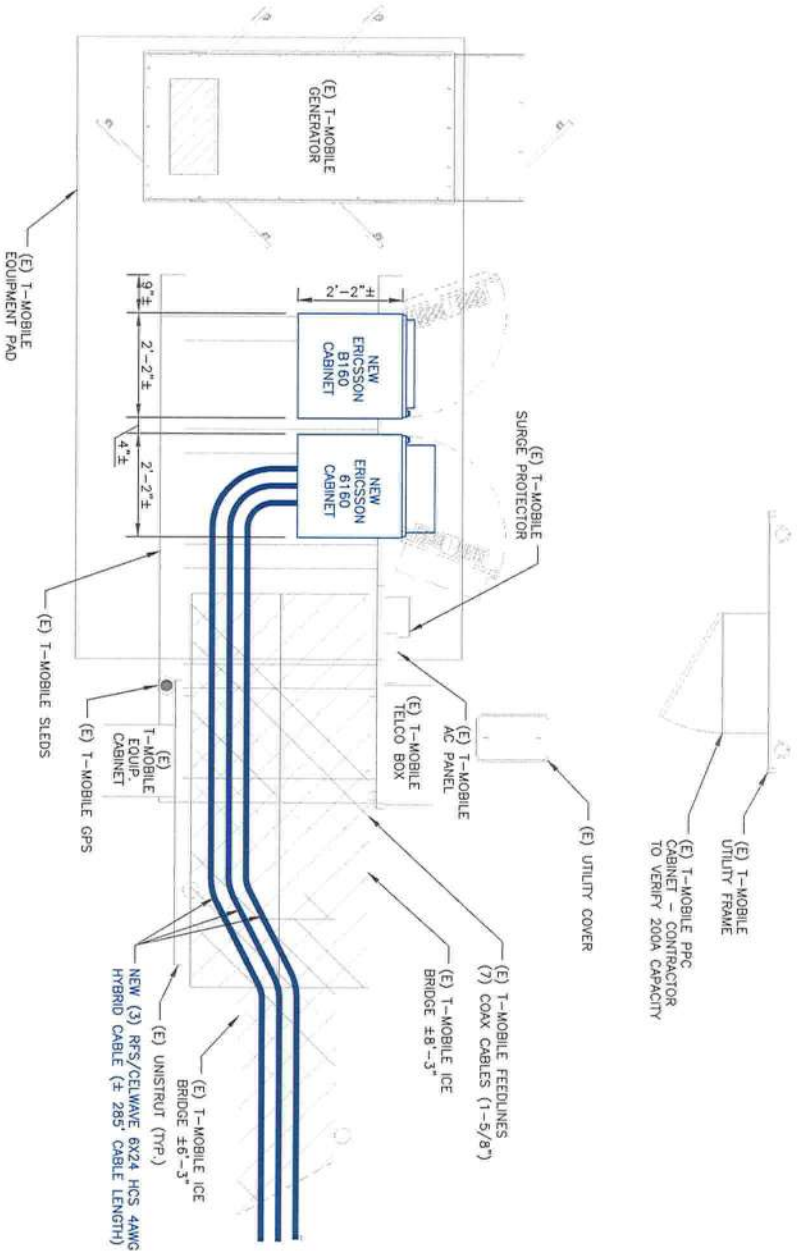
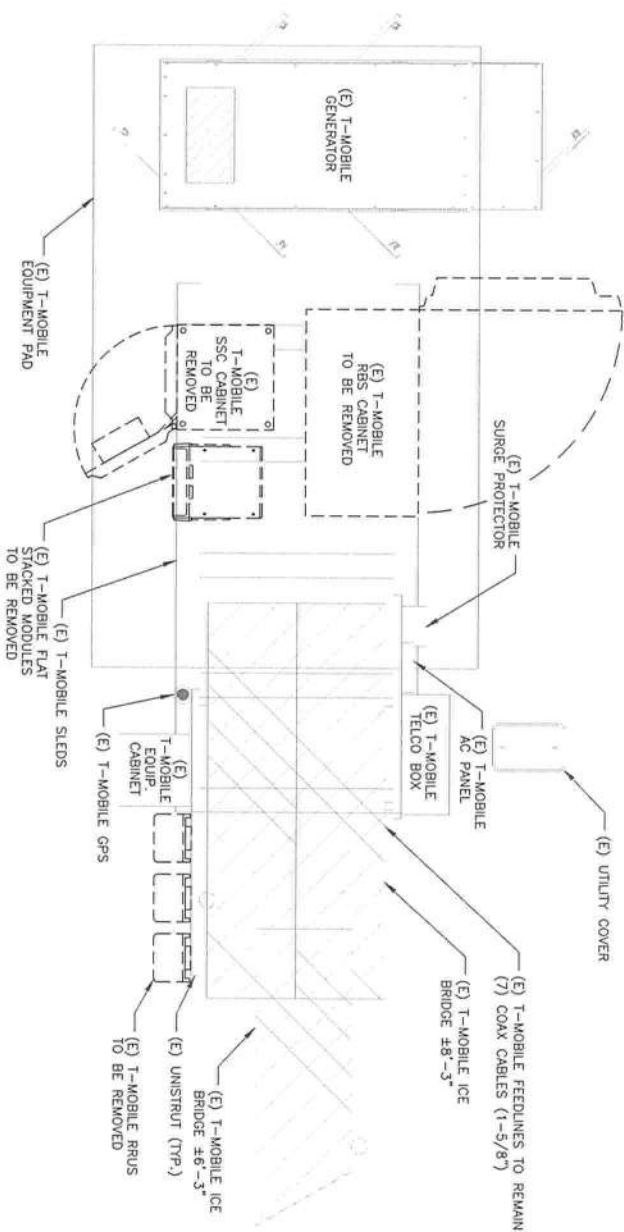
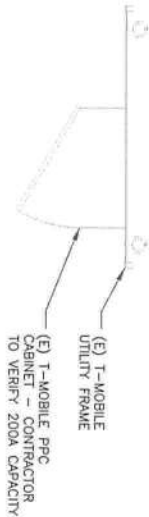
ISSUED FOR:				
REV	DATE	DRAWN	DESCRIPTION	DWG. Q/A
A	3/3/21	MAN	PRELIMS	AJB
0	3/10/21	FC	FINALS	AJB

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Registered Professional Engineer
State of Florida #0053573
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SHEET NUMBER: **C-1.2** REVISION: **A**



EXISTING EQUIPMENT PLAN

1 SCALE: 1/2"=1'-0" (FULL SIZE)
1/4"=1'-0" (1x17)



FINAL EQUIPMENT PLAN

2 SCALE: 1/2"=1'-0" (FULL SIZE)
1/4"=1'-0" (1x17)



T-Mobile
1 RAVINIA DRIVE, SUITE 1000
ATLANTA, GA 30346

CROWN CASTLE
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PM&A
P. MARSHALL & ASSOCIATES
1000 HOLCOMB WOODS PKWY STE. 210
ROSWELL, GA 30076
OFFICE 678-280-2325

T-MOBILE SITE NUMBER:
9JK0345B

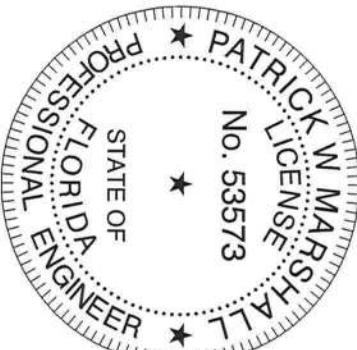
BU #: 846216
FORT WHITE

612 SOUTHWEST HILLIARD
FORT WHITE, FL 32038

EXISTING 300' GUYED TOWER

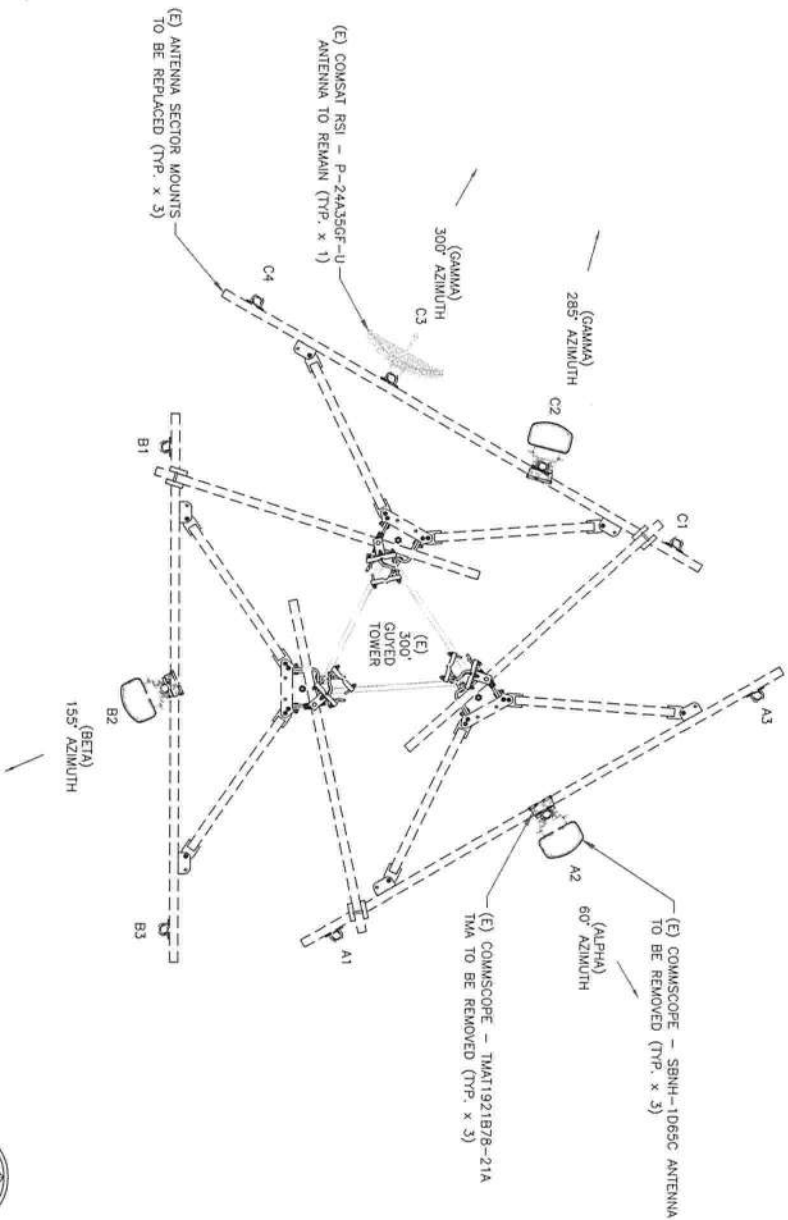
ISSUED FOR:				
REV	DATE	DRAWN	DESCRIPTION	DWG. Q/A
A	3/3/21	MAN	PRELIMS	A/B
0	3/19/21	FC	FINALS	A/B

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Registered Professional Engineer
State of Florida #053573
P Marshall & Associates Certificate of Authorization #27595

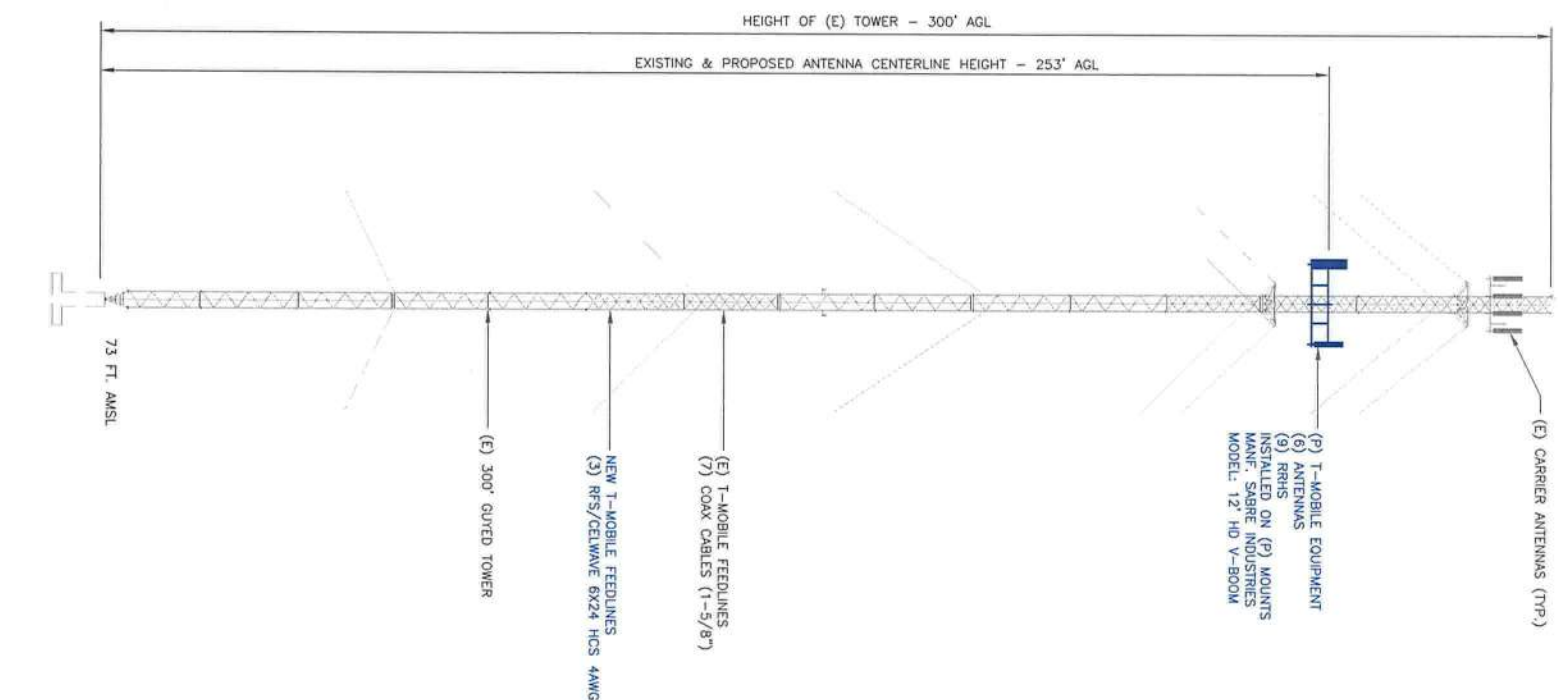
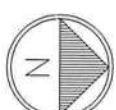


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SHEET NUMBER: **C-2** REVISION: **A**



2 EXISTING ANTENNA LAYOUT
SCALE: NOT TO SCALE



1 FINAL ELEVATION
SCALE: NOT TO SCALE



ISSUED FOR:				
REV	DATE	DRAWN	DESCRIPTION	DES./QA
A	3/3/21	MAAM	PRELIMS	AJB
0	3/19/21	FC	FINALS	AJB

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Registered Professional Engineer
State of Florida #053573
P Marshall & Associates Certificate of Authentication #27595



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SHEET NUMBER: C-3 REVISION: A

FINAL ANTENNA SCHEDULE

SECTOR	POS.	RAD CENTER	AZIMUTH	ANTENNA MANUFACTURER	ANTENNA MODEL	TOWER MOUNTED EQUIPMENT	FEEDLINE TYPE
ALPHA	A1	253'	60°	COMMSCOPE	FFV4-65C-R3-V1	(1) ERICSSON RADIO 4415 B25/B66 (1) ERICSSON RADIO 4449 B71 (1) ERICSSON RADIO 4424 B2/B25	(1) 6x24 RFS HCS (1) 1-5/8" COAX
ALPHA	A2						
ALPHA	A3	253'	60°	ERICSSON	AIR6449		(2) 1-5/8" COAX
BETA	B1	253'	155°	COMMSCOPE	FFV4-65C-R3-V1	(1) ERICSSON RADIO 4415 B25/B66 (1) ERICSSON RADIO 4449 B71 (1) ERICSSON RADIO 4424 B2/B25	(1) 6x24 RFS HCS
BETA	B2						
BETA	B3	253'	155°	ERICSSON	AIR6449		(2) 1-5/8" COAX
GAMMA	C1	253'	285°	COMMSCOPE	FFV4-65C-R3-V1	(1) ERICSSON RADIO 4415 B25/B66 (1) ERICSSON RADIO 4449 B71 (1) ERICSSON RADIO 4424 B2/B25	(1) 6x24 RFS HCS
GAMMA	C2						
GAMMA	C3	253'	300°	COMSAT RSI	P-24A35GF-U		
GAMMA	C4	253'	285°	ERICSSON	AIR6449		(2) 1-5/8" COAX

1 FINAL ANTENNA AND CABLE SCHEDULE
SCALE: NOT TO SCALE

FINAL CABLE SCHEDULE

STATUS	CABLE TYPE	SIZE	QUANTITY
EXISTING	COAX	1-5/8"	7
EXISTING	HYBRID	1-4/5"	0
NEW	HYBRID	1-4/5"	3
CABLE QUANTITY			10

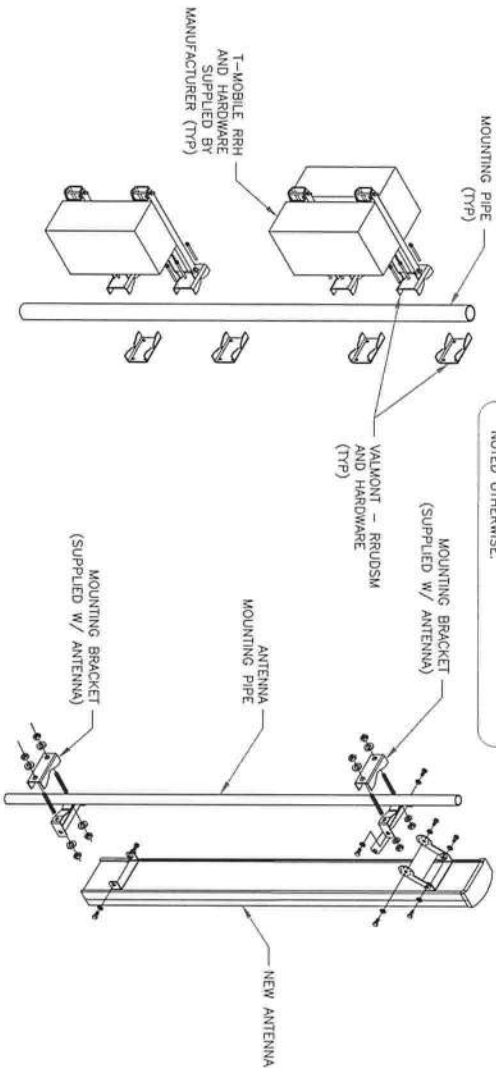
FFV4-65C-R3-V1

12-port sector antenna, 4x 617-894, and 8x 1695-2690 MHz, 65° HPBW, 3K RET



INSTALLER NOTES:

1. COMPLY WITH MANUFACTURER'S INSTRUCTIONS TO ENSURE THAT ALL RRHS RECEIVE ELECTRICAL POWER WITHIN 24 HOURS OF BEING REMOVED FROM THE MANUFACTURER'S PACKAGING.
2. DO NOT OPEN RRH PACKAGES IN THE RAIN.
3. ALL PIPES, BRACKETS, AND MISCELLANEOUS HARDWARE TO BE GALVANIZED UNLESS NOTED OTHERWISE.



1 ANTENNA WITH RRHS MOUNTING DETAIL
SCALE: NOT TO SCALE

2 COMMSCOPE FFV4-65-R3-V1 SPECIFICATIONS
SCALE: NOT TO SCALE



3.2 Physical Characteristics

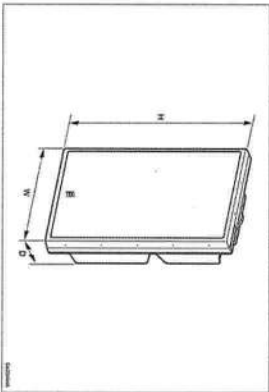


Figure 2: Air Unit Dimensions

Table 7: Air Unit Dimensions			
AIR Unit Type	Height (H) × Width (W) × Depth (D)		
AIR 6449 B41	841 × 521 × 217 mm		
AIR 6449 B41X	841 × 521 × 217 mm		

Table 8: Air Unit Weight			
AIR Unit Type	Unit Weight	Mounting Kit Weight	
AIR 6449 B41	46.1 kg ±5%	50K 189 2864/L	5.9 kg
AIR 6449 B41X	45.7 kg ±5%	4.4 kg	5.9 kg

The midline and covers of the AIR unit are white (color code MCS 5 4582-B).

3 ERICSSON AIR 6449 SPECIFICATIONS
SCALE: NOT TO SCALE

T-Mobile

1 RAVINIA DRIVE, SUITE 1000
ATLANTA, GA 30346

CROWN CASTLE

8000 AVAILON BLVD, SUITE 700
ALPHARETTA, GA 30009

PM&A

P. MARSHALL & ASSOCIATES
1000 HOLCOMB WOODS PKWY STE. 210
ROSWELL, GA 30076
OFFICE 678-280-2325

T-MOBILE SITE NUMBER:
9JK0345B

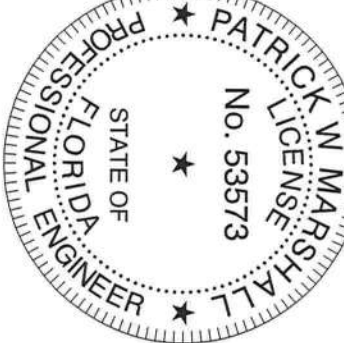
BU #: 846216
FORT WHITE

612 SOUTHWEST HILLIARD
FORT WHITE, FL 32038

EXISTING 300' GUYED TOWER

ISSUED FOR:				
REV	DATE	DRAWN	DESCRIPTION	DES./QA
A	3/3/21	MAAM	PRELIMS	AJB
0	3/19/21	FC	FINALS	AJB

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Registered Engineer
State of Florida #053573
P Marshall & Associates Certificate of Authorization #27595

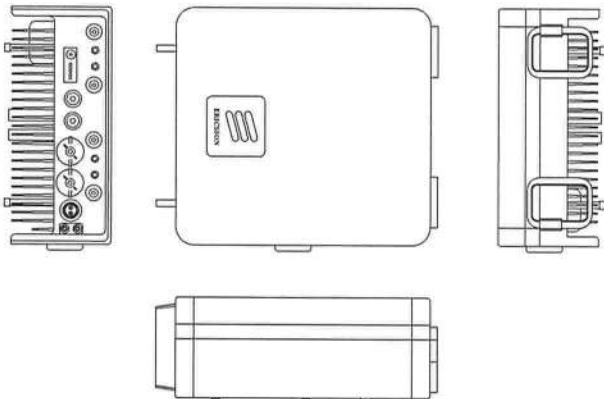


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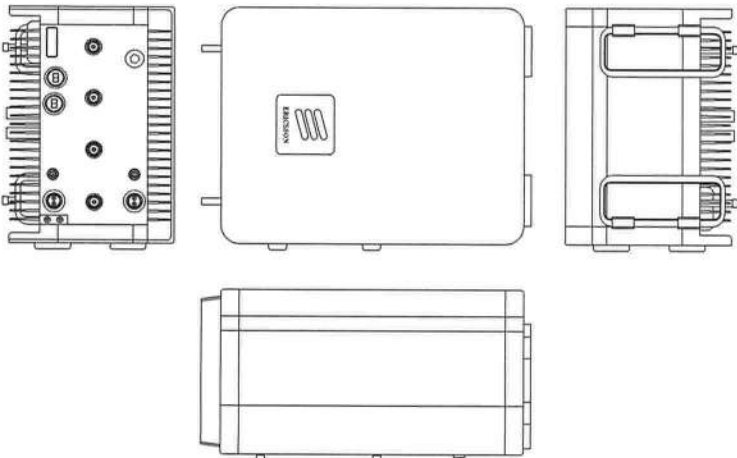
REVISION:
A

4 ERICSSON - RADIO 4415
SCALE: NOT TO SCALE



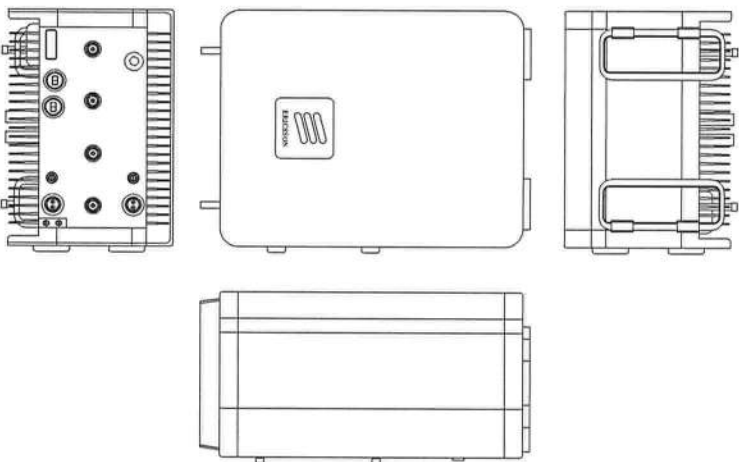
ERICSSON - RADIO 4415
WEIGHT: 86.0 LBS
SIZE (HxWxD): 13.0x13.0x8.0 IN.

5 ERICSSON - RADIO 4424
SCALE: NOT TO SCALE

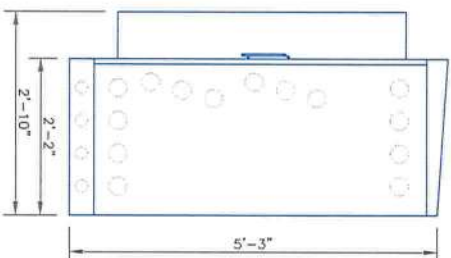


ERICSSON - RADIO 4424
WEIGHT: 86.0 LBS
SIZE (HxWxD): 17.1x14.4x11.3 IN.

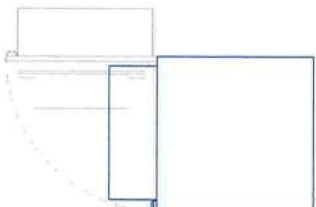
6 ERICSSON - RADIO 4449
SCALE: NOT TO SCALE



ERICSSON - RADIO 4449
WEIGHT: 70.0 LBS
SIZE (HxWxD): 18.0x13.2x9.4 IN.

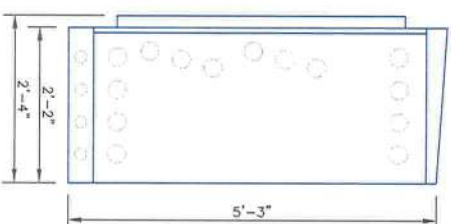
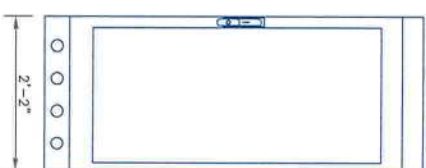


ERICSSON RBS 6160
WEIGHT: 411 LBS.
SIZE (HxWxD):
63"x26.0"x26.0" IN.

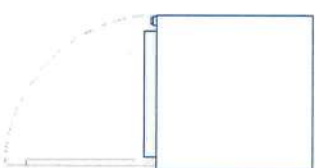


1 ERICSSON 6160 SITE SUPPORT CABINET

SCALE: NOT TO SCALE

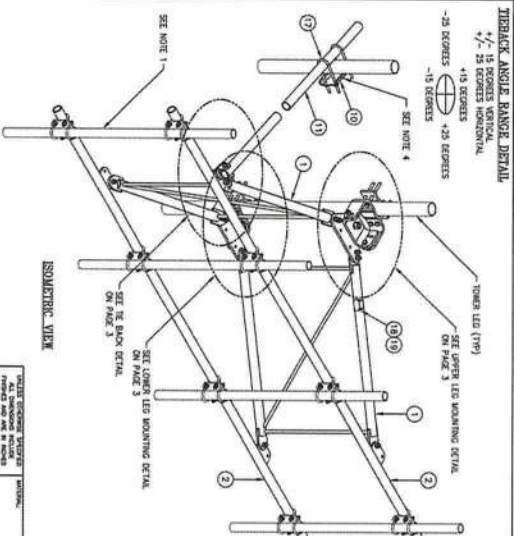


ERICSSON B160 BATTERY
CABINET
WEIGHT: 485 LBS.
SIZE (HxWxD): 63"x26."x26.0"
IN.

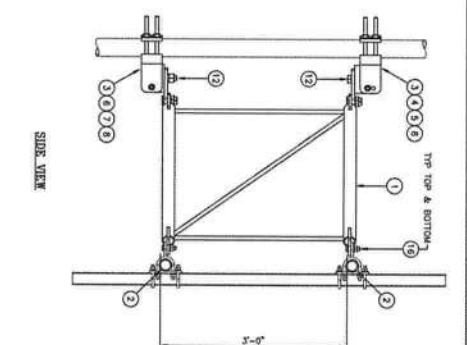
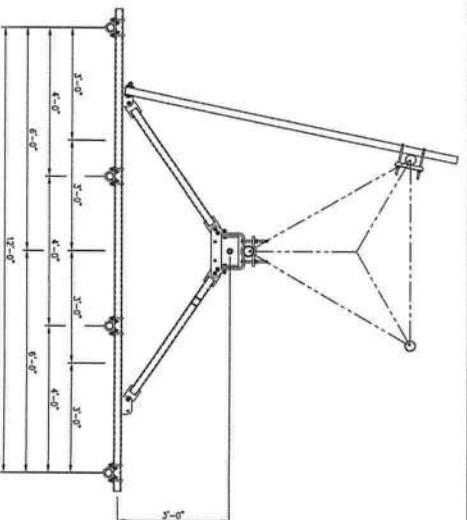
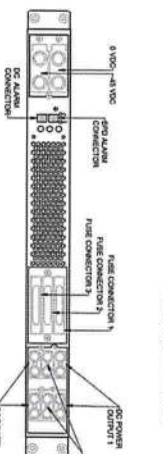
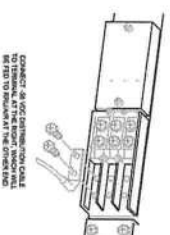
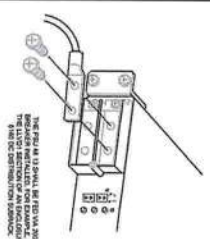
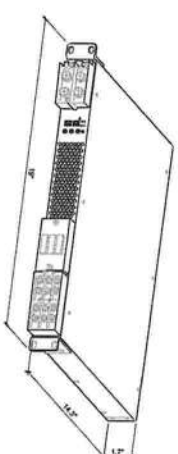


2 ERICSSON B160 BATTERY CABINET

SCALE: NOT TO SCALE



ITEM	QTY	PLANT NO.	WARRANTY
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2	1	SPRINT	WARRANTY
3	2	SPRINT	WARRANTY
4	1	SPRINT	WARRANTY
5	1	SPRINT	WARRANTY
6	1	SPRINT	WARRANTY
7	1	SPRINT	WARRANTY
8	2	SPRINT	WARRANTY
9	1	SPRINT	WARRANTY
10	1	SPRINT	WARRANTY
11	1	SPRINT	WARRANTY
12	1	SPRINT	WARRANTY
13	1	SPRINT	WARRANTY
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98	1	SPRINT	WARRANTY
99	1	SPRINT	WARRANTY
100	1	SPRINT	WARRANTY

[illegible][illegible]

MANUFACTURER: ERICSSON	NEEDED INSTALL KIT (PICK 1)
MODEL: PSU 48 13	34133 PSU4813 INSTALL KIT FOR RS651XX
WEIGHT: 17.1 LBS	34134 PSU4813 INSTALL KIT FOR PRC6200
DIMENSIONS: 18"x 1.7"x 14.3"	34135 PSU4813 INSTALL KIT FOR 6X60/RS65230

SKU# 34132 - PSU 48 13	
85W P/BOLT N/T/L	17W P/BOLT N/T/L
1	

T-Mobile
1 RAVINIA DRIVE, SUITE 1000
ATLANTA, GA 30346

**CROWN
CASTLE**
8000 AVILON BLVD, SUITE 700
ALPHARETTA, GA 30009

PM&A
P. MARSHALL & ASSOCIATES
1000 HOLCOMB BROOKS PKWY STE. 210
ROSWELL, GA 30076
OFFICE 678-280-2325

T-MOBILE SITE NUMBER:
9JK0345B

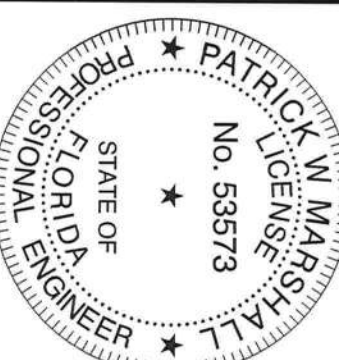
BU #: 846216
FORT WHITE

612 SOUTHWEST HILLIARD
FORT WHITE, FL 32038

EXISTING 300' GUYED TOWER

ISSUED FOR:				
REV	DATE	DRAWN	DESCRIPTION	DES./A/B
A	3/7/21	MAM	PRELIMS	A/B
0	3/30/21	FC	FINALS	A/B

Patrick W. Marshall, P.E.
Registered Engineer
State of Florida #053573
P Marshall & Associates Certificate of Authorization #27595



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SHEET NUMBER: REVISION:

A C-5



1 RAVINIA DRIVE, SUITE 1000
ATLANTA, GA 30346



8000 AVALON BLVD, SUITE 700
ALPHARETTA, GA 30009



P. MARSHALL & ASSOCIATES
1000 HOLCOMB WOODS PKWY STE. 210
ROSWELL, GA 30076
OFFICE 678-280-2325

T-MOBILE SITE NUMBER:

9JK03445B

BU #: 846216
FORT WHITE

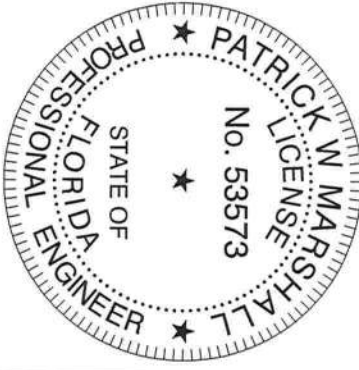
612 SOUTHWEST HILLIARD
FORT WHITE, FL 32038

EXISTING 300' GUYED TOWER

ISSUED FOR:

REV	DATE	DRAWN	DESCRIPTION	DDES./QA
A	3/3/21	MM	PRELIMS	AJB
0	3/19/21	FC	FINALS	AJB

Patrick W. Marshall, P.E.
Registered Professional Engineer
State of Florida #055573
P. Marshall & Associates Certificate of Authorization #27595

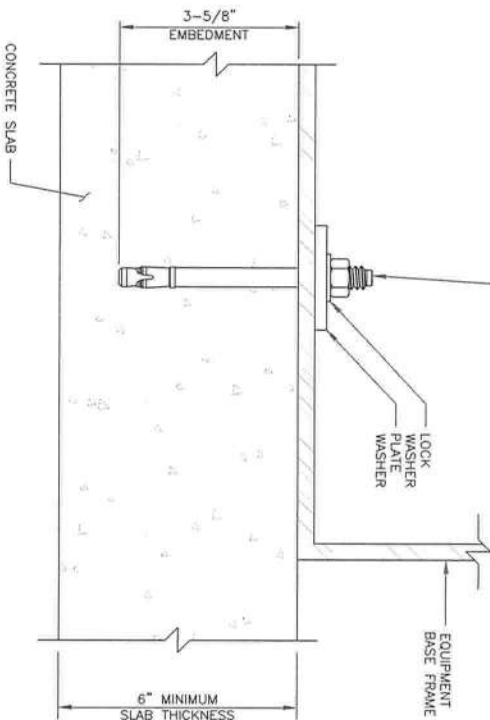


Patrick W. Marshall, State of Florida, Professional Engineer, License No. 53573. This item has been electronically signed and sealed by Patrick W. Marshall, PE on the Date and/or Time Stamp shown using a digital signature. Printed copies of this document are not considered signed and sealed and the signature must be verified on any electronic copy.
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SHEET NUMBER: REVISION:

C-6 A

PROPOSED 1/2" DIAMETER, HEAT TREAT BOLT TZ ANCHOR WITH 3-5/8" NOMINAL EMBEDMENT (ICC ESR-1917). TO BE INSTALLED A MINIMUM OF (1) IN EACH CORNER OF CABINET. SEE MANUFACTURER'S EQUIPMENT INSTALLATION MANUAL FOR ANCHOR LOCATION. LOCATIONS IN DESIGNED/REINFORCED BY THE MANUFACTURER TO WITHSTAND SHEAR AND UPLIFT FORCES AS CALCULATED IN THIS DESIGN.



1 CABINET ANCHOR DETAIL – CONCRETE

SCALE: NOT TO SCALE

SPACE

INTENTIONALLY
LEFT BLANK

NOT USED

2

SCALE: NOT TO SCALE

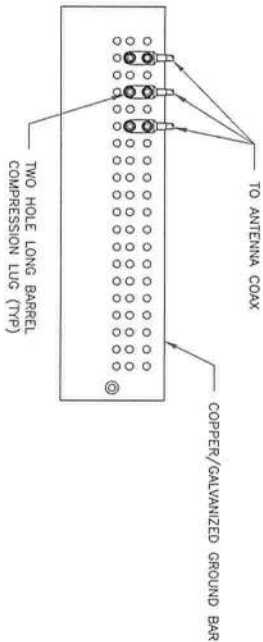
SPACE

INTENTIONALLY
LEFT BLANK

NOT USED

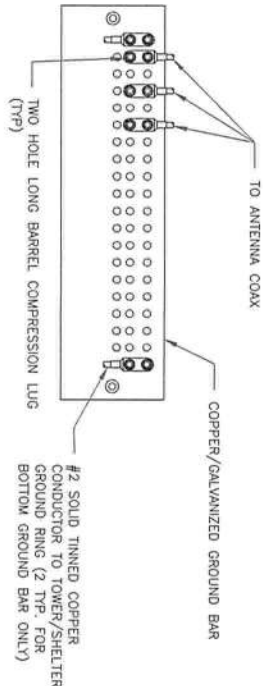
3

SCALE: NOT TO SCALE



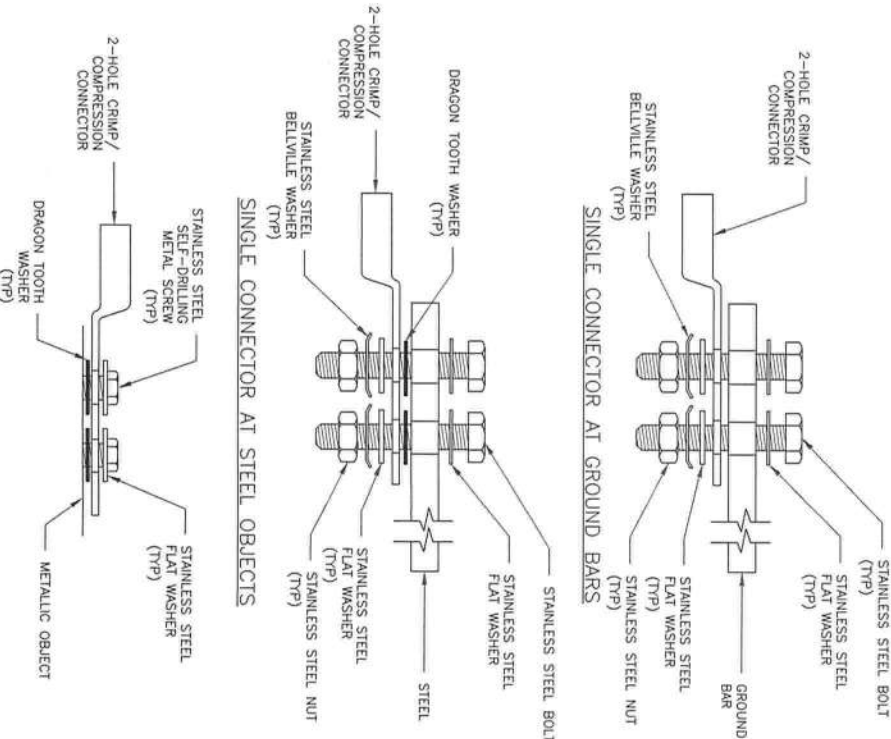
- NOTES:
1. DOUBLING UP "OR STACKING" OF CONNECTIONS IS NOT PERMITTED.
 2. EXTERIOR ANTIOXIDANT JOINT COMPOUND TO BE USED ON ALL EXTERIOR CONNECTIONS.
 3. GROUND BAR SHALL NOT BE ISOLATED FROM TOWER. MOUNT DIRECTLY TO ANTENNA MOUNT STEEL.

1 ANTENNA SECTOR GROUND BAR DETAIL
SCALE: NOT TO SCALE



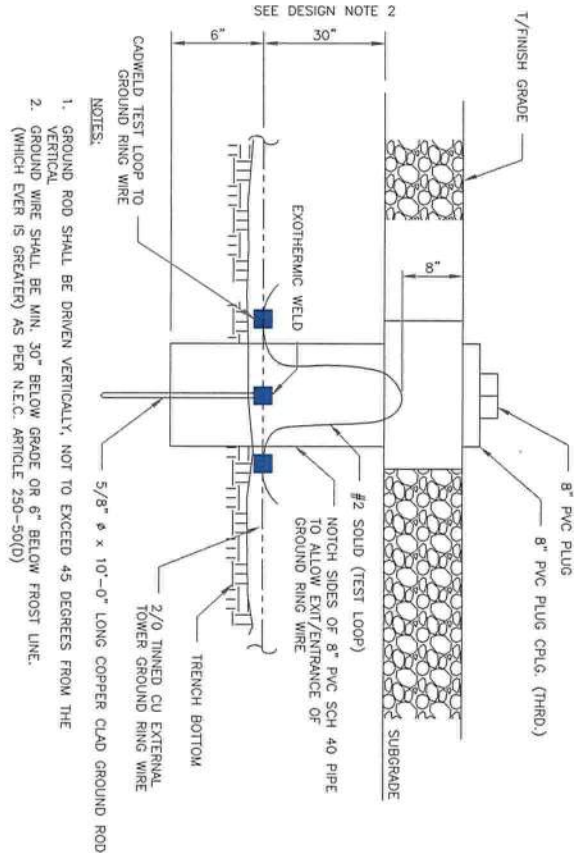
- NOTES:
1. EXTERIOR ANTIOXIDANT JOINT COMPOUND TO BE USED ON ALL EXTERIOR CONNECTIONS.
 2. GROUND BAR SHALL NOT BE ISOLATED FROM TOWER. MOUNT DIRECTLY TO TOWER STEEL (TOWER ONLY).
 3. GROUND BAR SHALL BE ISOLATED FROM BUILDING OR SHELTER.

2 TOWER/SHELTER GROUND BAR DETAIL
SCALE: NOT TO SCALE

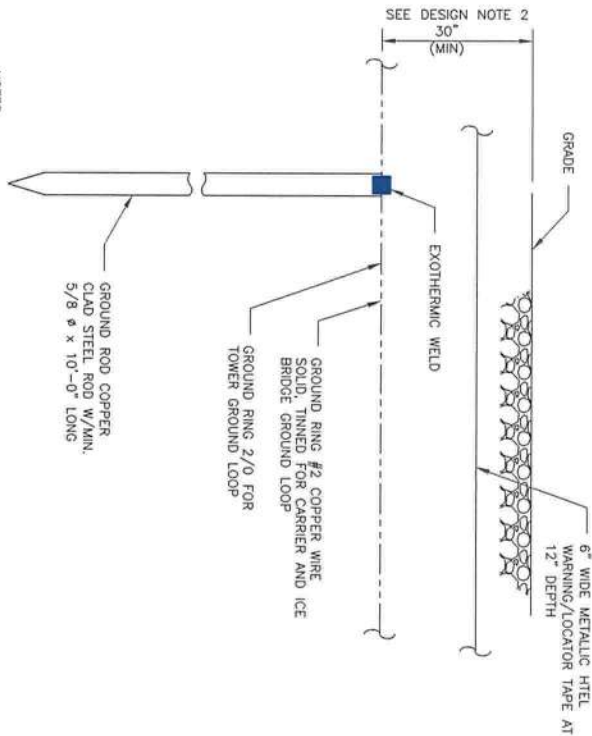


SINGLE CONNECTOR AT METALLIC/STEEL OBJECTS

5 HARDWARE DETAIL FOR EXTERIOR CONNECTIONS
SCALE: NOT TO SCALE



3 INSPECTION WELL DETAIL
SCALE: NOT TO SCALE



- NOTES:
1. GROUND ROD SHALL BE DRIVEN VERTICALLY, NOT TO EXCEED 45 DEGREES FROM THE VERTICAL.
 2. GROUND WIRE SHALL BE MIN. 30" BELOW GRADE OR 6" BELOW FROST LINE. (WHICH EVER IS GREATER) AS PER N.E.C. ARTICLE 250-50(D).

6 GROUND ROD DETAIL
SCALE: NOT TO SCALE

T-Mobile
1 RAVINIA DRIVE, SUITE 1000
ATLANTA, GA 30346

CROWN CASTLE
8000 AVALON BLVD, SUITE 700
ALPHARETTA, GA 30009

PM&A
P. MARSHALL & ASSOCIATES
1000 HOLCOMB WOODS PKWY STE. 210
ROSWELL, GA 30076
OFFICE 678-280-2325

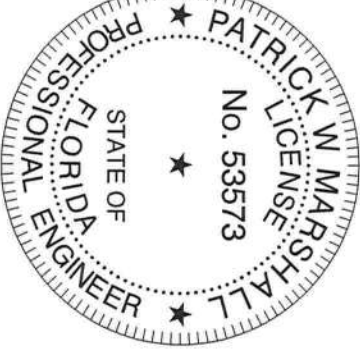
T-MOBILE SITE NUMBER:
9JK0345B

BU #: 846216
FORT WHITE

612 SOUTHWEST HILLIARD
FORT WHITE, FL 32038
EXISTING 300' GUYED TOWER

ISSUED FOR:				
REV	DATE	DRAWN	DESCRIPTION	DES./QA
1	3/9/21	MAAM	PRELIMS	AJB
0	3/19/21	FC	FINALS	AJB

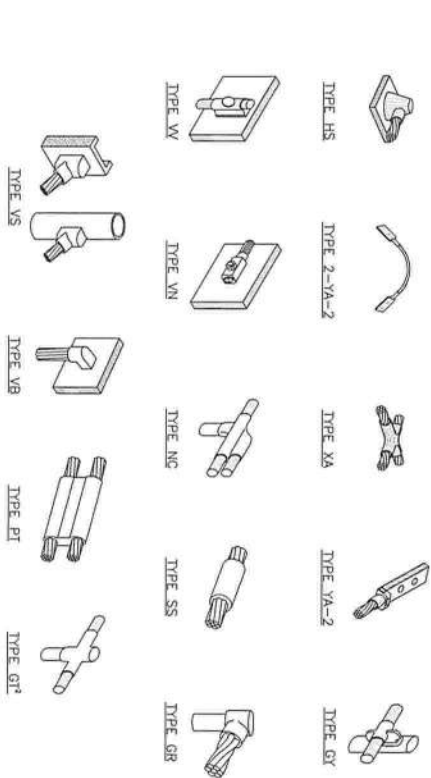
Patrick W. Marshall, P.E.
Registered Engineer
State of Florida #153573
P Marshall & Associates Certificate of Authorization #27595



Patrick W. Marshall, State of Florida, Professional Engineer, License No. 53573. This item has been electronically signed and sealed by Patrick W. Marshall. P.E. on the Date and/or Time Stamp shown using a digital signature. Printed copies of this document are not considered signed and sealed and the signature must be verified on an original signed and sealed document.

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SHEET NUMBER: **G-1** REVISION: **A**

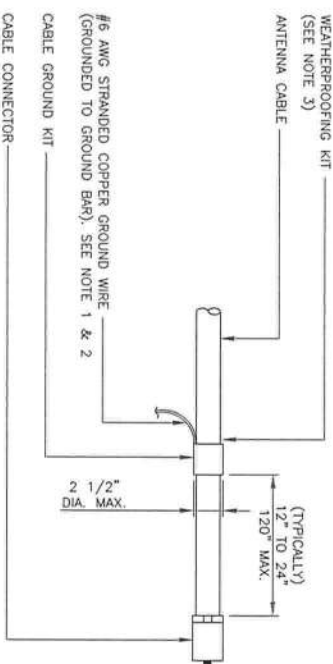


NOTE:

1. ERICO EXOTHERMIC "MOLD TYPES" SHOWN HERE ARE EXAMPLES. CONSULT WITH CONSTRUCTION MANAGER FOR SPECIFIC MOLDS TO BE USED FOR THIS PROJECT.

2. MOLD TYPE MUST BE USED BELOW GRADE WHEN CONNECTING GROUND RING TO GROUND ROD.

1 CADWELD GROUNDING CONNECTIONS
SCALE: NOT TO SCALE

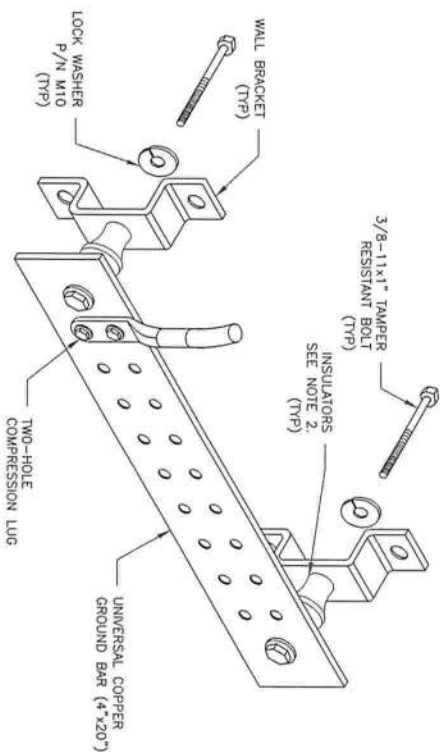


CABLE

NOTES:

1. DO NOT INSTALL CABLE GROUND KIT AT A BEND AND ALWAYS DIRECT GROUND WIRE DOWN TO GROUND BAR.
2. GROUNDING KIT SHALL BE TYPE AND PART NUMBER AS SUPPLIED OR RECOMMENDED BY CABLE MANUFACTURER.
3. WEATHER PROOFING SHALL BE TWO-PART TAPE KIT, COLD SHRINK SHALL NOT BE USED.

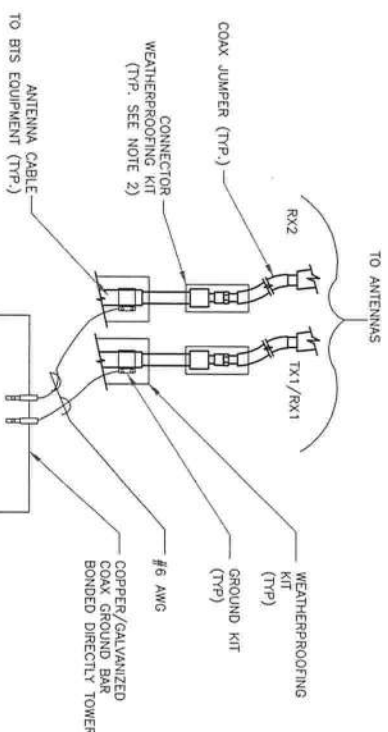
3 CABLE GROUND KIT CONNECTION
SCALE: NOT TO SCALE



NOTES:

1. DOWN LEAD CONDUCTORS ARE NOT TO BE INSTALLED ON CROWN CASTLE USA, INC. TOWER, PER THE GROUNDING DOWN CONDUCTOR POLICY QAS-SID-10091. NO MODIFICATION OR DRILLING TO TOWER STEEL IS ALLOWED IN ANY FORM OR FASHION, C.W.-WELDING ON THE TOWER AND/OR IN THE AIR ARE NOT PERMITTED.
 2. OMIT INSULATOR WHEN MOUNTING TO TOWER STEEL OR PLATFORM STEEL.
- USE INSULATORS WHEN ATTACHING TO BUILDING OR SHELTERS.

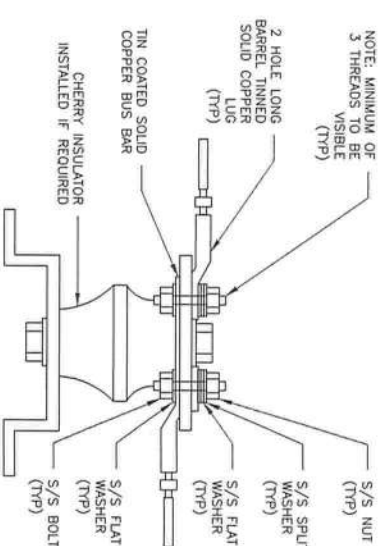
6 GROUND BAR DETAIL
SCALE: NOT TO SCALE



NOTES:

1. DO NOT INSTALL CABLE GROUND KIT AT A BEND AND ALWAYS DIRECT GROUND WIRE DOWN TO ANTENNA GROUND BAR.
2. WEATHER PROOFING SHALL BE TWO-PART TAPE KIT. COLD SHRINK SHALL NOT BE USED.

4 GROUND CABLE CONNECTION
SCALE: NOT TO SCALE

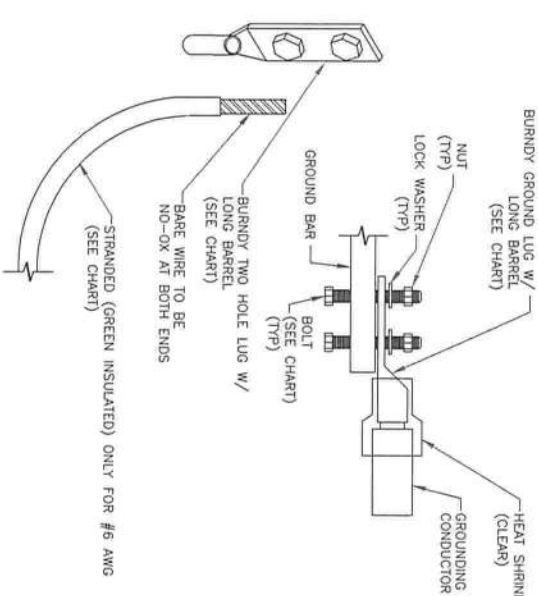


NOTE: MINIMUM OF 3 THREADS TO BE VISIBLE (TYP)

S/S NUT (TYP)

7 LUG DETAIL
SCALE: NOT

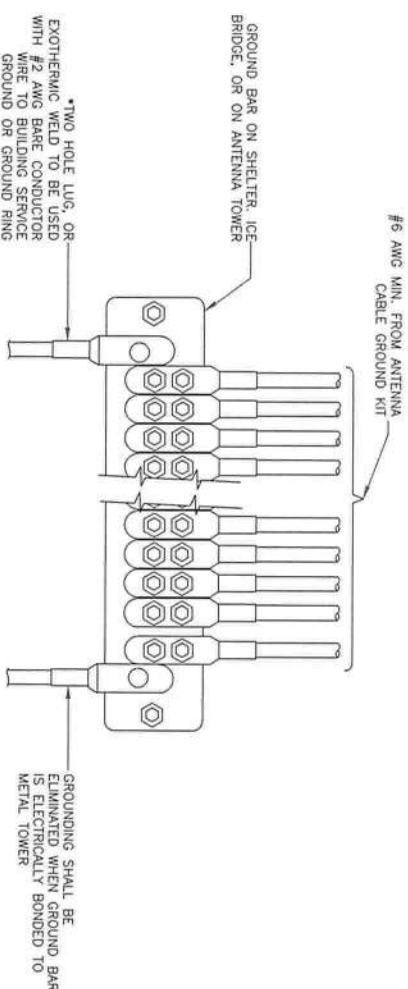
WIRE SIZE	BURNDY LUG	BOLT SIZE
#6 AWG GREEN INSULATED	YA6C-2TC38	3/8" - 16 NC S 2 BOLT
#2 AWG SOLID TINNED	YA3C-2TC38	3/8" - 16 NC S 2 BOLT
#2 AWG STRANDED	YA2C-2TC38	3/8" - 16 NC S 2 BOLT
#2/0 AWG STRANDED	YA2C-2TC38	3/8" - 16 NC S 2 BOLT
#4/0 AWG STRANDED	YA2B-2IN	1/2" - 16 NC S 2 BOLT



NOTES:

1. ALL GROUNDING LUGS ARE TO BE INSTALLED PER MANUFACTURER'S SPECIFICATIONS. ALL HARDWARE BOLTS, NUTS, LOCK WASHERS SHALL BE STAINLESS STEEL. ALL HARDWARE ARE TO BE AS FOLLOWS: BOLT, FLAT WASHER,GROUND BAR, GROUND LUG, FLAT WASHER AND NUT.

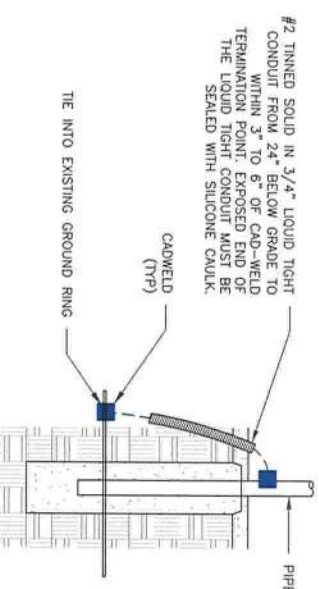
2 MECHANICAL LUG CONNECTION
SCALE: NOT TO SCALE



• TWO HOLE LUG, OR EXOTHERMIC WELD TO BE USED WITH #2 AWG BARE CONDUCTOR WIRE TO BUILDING SERVICE GROUND OR GROUND RING

—GROUNDING SHALL BE ELIMINATED WHEN GROUND BAR IS ELECTRICALLY BONDED TO METAL TOWER

5 GROUNDWIRE INSTALLATION
SCALE: NOT TO SCALE



#2 TINNED SOLD IN 3/4" LIQUID TIGHT CONDUIT FROM 24" BELOW GRADE TO WITHIN 3" TO 6" OF C&W-WEID TERMINATION POINT. EXPOSED END OF THE LIQUID TIGHT CONDUIT MUST BE SEALED WITH SILICONE CAULK.

THE INTO EXISTING GROUND RING

8 TRANSITIONING GROUND DETAIL
SCALE: NOT TO SCALE

ISSUED FOR:				
REV	DATE	DRAWN	DESCRIPTION	DES./Q.C.
A	3/3/21	MAM	PRELIMS	A/B
0	3/10/21	FC	FINALS	A/B

T-MOBILE SITE NUMBER:
9JK0345B

BU #: 846216
FORT WHITE

612 SOUTHWEST HILLIARD
FORT WHITE, FL 32038

EXISTING 300' GUYED TOWER

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1000 HOLCOMB WOODS PKWY STE. 210
ROSWELL, GA 30076
OFFICE 678-280-2325

**CROWN
CASTLE**
8000 AVALON BLVD, SUITE 700
ALPHARETTA, GA 30009

T-Mobile
1 RAVINIA DRIVE, SUITE 1000
ATLANTA, GA 30346

A circular professional engineer seal for Patrick W. Marshall. The outer ring contains the text "PATRICK W MARSHALL" at the top and "PROFESSIONAL ENGINEER" at the bottom, separated by two stars. The inner circle contains the text "STATE OF FLORIDA" on the left and "LICENSE" on the right, separated by a central star. The license number "No. 53573" is prominently displayed in the center.

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SHEET NUMBER: REVISION:

G-2 | A