

**STRUCTURAL ANALYSIS REPORT – UPGRADE – REV.1
MONOPOLE**



Prepared For:
**Com-Ex Consultants, LLC
115 Route 46 – Suite E39
Mountain Lakes, NJ 07046**



Structure Rating:

Monopole:	Pass (80.4%)
Anchor Rods:	Pass (69.3%)
Foundation	Pass (57.9%)
Soil Interaction:	Pass (73.9%)

Sincerely,
Destek Engineering, LLC
License No: PEC0001429

01-13-2017



Ahmet Colakoglu, PE
Connecticut Professional Engineer
License No: 27057

**AT&T Site ID: CT5022
FA Number: 10108711
Site Name: AWE - Fairfield
100 Reef Road
Fairfield, CT 06824**

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1.0 SUBJECT AND REFERENCES

The purpose of this analysis is to evaluate the structural capacity of the existing monopole located at 100 Reef Road, Fairfield, CT 06824 for the additions and alterations proposed by AT&T.

The structural analysis is based on the following information provided to Destek Engineering, LLC (Destek):

- Tower manufacturing drawings prepared by Valmont, Order Number 11635-94, Dated 05/19/1994.
- Structural Analysis Report prepared by Fullerton Engineering Design, Project Number CT03XC354, dated 5/13/2015.
- RFDS prepared by AT&T, dated 06/23/2015.
- Construction Drawings prepared by Com-Ex, dated 09/22/2015.
- Tower Mapping prepared by Com-Ex, dated 03/25/2016.
- Geotechnical Data Report prepared by Terracon Consultants, Inc., dated 07/08/2016.

1.1 STRUCTURE

The structure is a 145'-0" (12) sided monopole, which is attached to the foundation with anchor bolts and a base plate. Please refer to the software output in Appendix A, for tower geometry, member sizes, and other details.

ELEVATION (FEET)	SECTION LENGTH (FEET)	LAP SPLICE (FT)	SHAFT THICKNESS (IN)	TOP DIAMETER (IN)	BOTTOM DIAMETER (IN)	YIELD STRENGTH (KSI)
145.00-90.83	54.17	5.17	0.281	23.6100	33.4800	65
90.83-42.83	53.17	6.17	0.375	31.9760	41.6400	65
42.83-0.00	49.00	-	0.438	39.7686	48.6900	65

*Does not include description of existing monopole modifications.

2.0 EXISTING AND PROPOSED APPURTENANCES

AT&T is proposing the following antenna configuration on the tower:

Existing Configuration of AT&T Appurtenances:

Rad. Center (ft)	Antenna & TMA	Mount	Cables
130.0	(6) 7770.00 w/Mount Pipe (3) P65-16-XLH-RR w/Mount Pipe (12) LGP21401 TMAs (3) RRUS-11 (1) DC 6	(3) Sector Mounts	(12) 1-5/8" (1) 7/8" (1) Fiber Cable

Proposed and Final Configuration of AT&T Appurtenances:

Rad. Center (ft)	Antenna & TMA	Mount	Cables
130.0	(6) 7770.00 w/Mount Pipe (3) P65-16-XLH-RR w/Mount Pipe (12) LGP21401 TMAs (6) RRUS-11 (1) DC 6	(3) Sector Mounts	(12) 1-5/8" (1) 7/8" (1) Fiber Cable

Existing Appurtenances by Others

Rad. Center (ft)	Antenna & TMA	Mount	Feedlines
143.0 Nextel	(1) 10' Omni (10) Andrew 5' Antennas	(3) Sector Mounts	(6) 1-5/8" (10) 7/8"
135.0 T-Mobile	(6) Kathrein 8101002R4B (6) Powerwave LGP21401 TMA (1) 24"x24" Panel	(3) Sector Mounts	(6) 1-5/8" (6) 1-1/4" (2) 1"
110.3 Sprint	(3) Andrew APXVSPP16 (3) RRH1900-4x45 (3) 9442 RRH2x40-07L (1) 10' Omni	(1) Platform Mount	(3) 1-1/4"

3.0 **CODES AND LOADING**

The monopole was analyzed per *TIA/EIA-222-G* as referenced by the *2016 Connecticut State Building Code* with all of the adopted Addendums and Supplements. The following wind loading was used in compliance with the standard for Fairfield, CT:

- Ultimate wind speed 125 mph converted to a Basic wind speed 97 mph without ice (W_0)
- Basic wind speed 50 mph with 0.75" escalating ice (W_i)
- Exposure Category C
- Topographic Category 1
- Structure Class II ($I_w = 1.0$)

The following load combinations were used with wind blowing at 0°, 30°, 45°, 60°, and 90° measured from a line normal to the face of the monopole.

- $1.2 D + 1.6 W_0$
- $0.9 D + 1.6 W_0$
- $1.2 D + 1.0 D_i + 1.0 W_i$

D: Dead Load of structure and appurtenances

W_0 : Wind Load, without ice

W_i : Wind Load, with ice

D_i : Weight of Ice

4.0 **STANDARD CONDITIONS FOR ENGINEERING SERVICES ON EXISTING STRUCTURES**

The analysis is based on the information provided to Destek and is assumed to be current and correct. Unless otherwise noted, the structure is assumed to be in good condition, free of defects, and can achieve theoretical strength.

It is assumed that the structure has been maintained and shall be maintained during its service lifespan. The superstructure and the foundation system are assumed to be designed with proper engineering practice and fabricated, constructed and erected in accordance with the design documents. Destek will accept no liability which may arise due to any existing deficiency in design, material, fabrication, erection, construction, etc. or lack of maintenance.

The analysis does not include a qualification of the antenna mounts attached on the structure or their connections. The analysis is performed to verify the capacity of the main structural members, which is the current practice in the tower industry.

The analysis results presented in this report are only applicable for the previously mentioned existing and proposed appurtenances. Any deviation of the appurtenances and placement, etc., will require Destek to generate an additional structural analysis. Additionally, the proposed linear appurtenances should be placed per recommendations of this report.

5.0 **ANALYSIS AND ASSUMPTIONS**

The Monopole was analyzed by utilizing tnxTower, a non-linear, three-dimensional, finite element-analysis software package, a product of Tower Numerics, Inc. Software output for this analysis is provided in Appendix A of this report.

6.0 **RESULTS AND CONCLUSION**

Based on analysis, per TIA-222-G, the existing monopole **will have adequate** structural capacity for the proposed changes by AT&T once it is reinforced per Destek drawings dated 1/13/2017. As a maximum, the monopole shaft between 0 feet and 2.67 feet is stressed to **80.4%** of its capacity. The anchor rods also **will have adequate** structural capacity for the proposed changes by AT&T once they are reinforced per Destek drawings dated 1/13/2017. As a maximum, the anchor rods are stressed to **69.3%** of its capacity. The existing foundation is found to have **adequate** capacity to support the proposed installation by AT&T.

Therefore, the proposed additions and alterations by AT&T **can** be implemented as intended with the conditions outlined in this report.

Should you have any questions about this report, please contact Ahmet Colakoglu at (770) 693-0835 or acolakoglu@destekengineering.com.

APPENDIX A
SOFTWARE OUTPUT & CALCULATIONS

DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
(3) Andrew 5' Antennas w/Mount Pipe	143	(2) 7770.00 w/ Mount Pipe	130
(4) Andrew 5' Antennas w/Mount Pipe	143	(2) 7770.00 w/ Mount Pipe	130
(3) Andrew 5' Antennas w/Mount Pipe	143	P65-16-XLH-RR w/ Mount Pipe	130
10' Omni	143	P65-16-XLH-RR w/ Mount Pipe	130
T-Arm Mount [TA 602-3]	143	P65-16-XLH-RR w/ Mount Pipe	130
(2) Kathrein 8101002R4B	135	(4) LGP21401	130
(2) Kathrein 8101002R4B	135	APXVSP16w/ Mount Pipe	110.3
(2) Kathrein 8101002R4B	135	APXVSP16w/ Mount Pipe	110.3
(2) LGP21401	135	APXVSP16w/ Mount Pipe	110.3
(2) LGP21401	135	9442 RRH2X40-07L	110.3
(2) LGP21401	135	9442 RRH2X40-07L	110.3
24"x24" Panel	135	9442 RRH2X40-07L	110.3
T-Arm Mount [TA 602-3]	135	PCS 1900MHz 4x45W-65MHz	110.3
(4) LGP21401	130	PCS 1900MHz 4x45W-65MHz	110.3
(4) LGP21401	130	PCS 1900MHz 4x45W-65MHz	110.3
(2) RRUS 11	130	(2) 6' x 2" Mount Pipe	110.3
(2) RRUS 11	130	(2) 6' x 2" Mount Pipe	110.3
(2) RRUS 11	130	(2) 6' x 2" Mount Pipe	110.3
DC6-48-60-18-8F	130	10' Omni	110.3
T-Arm Mount [TA 602-3]	130	Platform Mount [LP 405-1]	110.3
(2) 7770.00 w/ Mount Pipe	130		

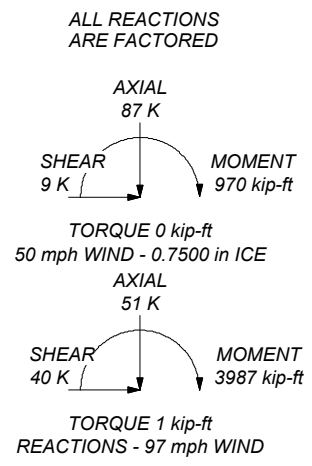
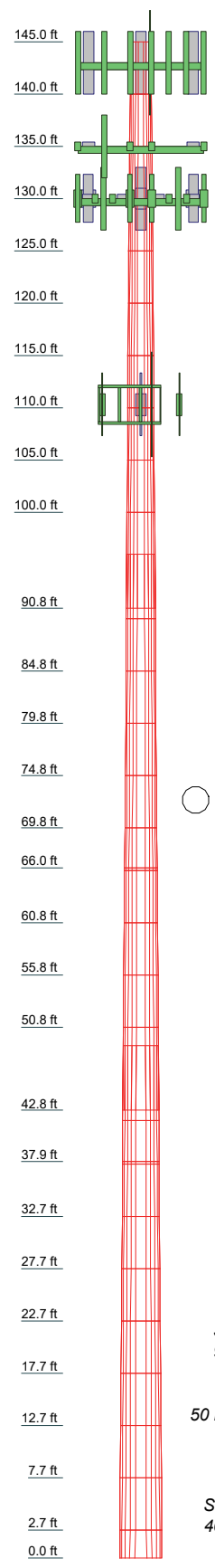
MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A572-65	65 ksi	80 ksi			

TOWER DESIGN NOTES

1. Tower is located in Fairfield County, Connecticut.
2. Tower designed for Exposure C to the TIA-222-G Standard.
3. Tower designed for a 97 mph basic wind in accordance with the TIA-222-G Standard.
4. Tower is also designed for a 50 mph basic wind with 0.75 in ice. Ice is considered to increase in thickness with height.
5. Deflections are based upon a 60 mph wind.
6. Tower Structure Class II.
7. Topographic Category 1 with Crest Height of 0.00 ft
8. TOWER RATING: 80.4%

Section	Length (ft)	Number of Sides	Thickness (in)	Socket Length (ft)	Top Dia (in)	Bot Dia (in)	Grade	Weight (K)
1	5.00	12	0.2810	5.17	30.8982	31.8092	0.4	0.4
2	5.00	12	0.2810	5.17	28.1651	27.2541	0.4	0.4
3	5.00	12	0.2810	5.17	25.4320	24.5210	0.4	0.4
4	5.00	12	0.2810	5.17	22.6989	21.7879	0.4	0.4
5	5.00	12	0.2810	5.17	19.9658	19.0548	0.4	0.4
6	5.00	12	0.2810	5.17	17.2327	16.3217	0.4	0.4
7	5.00	12	0.2810	5.17	14.4996	13.5886	0.4	0.4
8	5.00	12	0.2810	5.17	11.7665	10.8555	0.4	0.4
9	5.00	12	0.2810	5.17	9.0334	8.1224	0.4	0.4
10	5.00	12	0.2810	5.17	6.3003	5.3893	0.4	0.4
11	5.00	12	0.3750	6.17	3.5672	2.6562	0.9	0.8
12	5.00	12	0.3750	6.17	0.8341	-0.0769	0.7	0.7
13	5.00	12	0.3750	6.17	-1.9010	-2.8120	0.7	0.7
14	5.00	12	0.3750	6.17	-4.6679	-5.5789	0.7	0.7
15	5.00	12	0.3750	6.17	-7.4348	-8.3458	0.7	0.7
16	5.00	12	0.3750	6.17	-10.2017	-11.1127	0.7	0.7
17	5.00	12	0.3750	6.17	-12.9686	-13.8796	0.7	0.7
18	5.00	12	0.3750	6.17	-15.7355	-16.6465	0.7	0.7
19	5.00	12	0.3750	6.17	-18.5024	-19.4134	0.7	0.7
20	5.00	12	0.3750	6.17	-21.2693	-22.1803	0.7	0.7
21	5.00	12	0.3750	6.17	-24.0362	-24.9472	0.7	0.7
22	5.00	12	0.3750	6.17	-26.8031	-27.7141	0.7	0.7
23	5.00	12	0.3750	6.17	-29.5700	-30.4810	0.7	0.7
24	5.00	12	0.3750	6.17	-32.3369	-33.2479	0.7	0.7
25	5.00	12	0.3750	6.17	-35.1038	-36.0148	0.7	0.7
26	5.00	12	0.3750	6.17	-37.8707	-38.7817	0.7	0.7
27	5.00	12	0.3750	6.17	-40.6376	-41.5486	0.7	0.7
28	5.00	12	0.3750	6.17	-43.4045	-44.3155	0.7	0.7
29	5.00	12	0.3750	6.17	-46.1714	-47.0824	0.7	0.7
30	5.00	12	0.3750	6.17	-48.9383	-49.8493	0.7	0.7
31	5.00	12	0.3750	6.17	-51.7052	-52.6162	0.7	0.7
32	2.67	12	0.7005	1.0	-54.4721	-55.3831	1.8	1.0



Destek Engineering, LLC
 1281 Kennestone Circle, Suite 100
 Marietta, GA 30066
 Phone: (770) 693 0835
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Job: **824889 Jester-Ishenhour**
 Project: **1602014**
 Client: Crown Castle | Drawn by: Ahmet Colakoglu | App'd:
 Code: TIA-222-G | Date: 01/12/17 | Scale: NTS
 Path: | Dwg No. E-1

tnxTower Destek Engineering, LLC 1281 Kennestone Circle, Suite 100 Marietta, GA 30066 Phone: (770) 693 0835 FAX:	Job 824889 Jester-Isenhour	Page 1 of 31
	Project 1602014	Date 09:10:27 01/12/17
	Client Crown Castle	Designed by Ahmet Colakoglu

Tower Input Data

There is a pole section.

This tower is designed using the TIA-222-G standard.

The following design criteria apply:

Tower is located in Fairfield County, Connecticut.

Basic wind speed of 97 mph.

Structure Class II.

Exposure Category C.

Topographic Category 1.

Crest Height 0.00 ft.

Nominal ice thickness of 0.7500 in.

Ice thickness is considered to increase with height.

Ice density of 56 pcf.

A wind speed of 50 mph is used in combination with ice.

Deflections calculated using a wind speed of 60 mph.

A non-linear (P-delta) analysis was used.

Pressures are calculated at each section.

Stress ratio used in pole design is 1.

Local bending stresses due to climbing loads, feed line supports, and appurtenance mounts are not considered.

Options

<ul style="list-style-type: none"> Consider Moments - Legs Consider Moments - Horizontals Consider Moments - Diagonals Use Moment Magnification √ Use Code Stress Ratios √ Use Code Safety Factors - Guys Escalate Ice Always Use Max Kz Use Special Wind Profile Include Bolts In Member Capacity Leg Bolts Are At Top Of Section Secondary Horizontal Braces Leg Use Diamond Inner Bracing (4 Sided) SR Members Have Cut Ends SR Members Are Concentric 	<ul style="list-style-type: none"> Distribute Leg Loads As Uniform Assume Legs Pinned √ Assume Rigid Index Plate √ Use Clear Spans For Wind Area Use Clear Spans For KL/r Retention Guys To Initial Tension √ Bypass Rigid Stability Checks √ Use Azimuth Dish Coefficients √ Project Wind Area of Appurt. Autocalc Torque Arm Areas Add IBC .6D+W Combination √ Sort Capacity Reports By Component Triangulate Diamond Inner Bracing Treat Feed Line Bundles As Cylinder 	<ul style="list-style-type: none"> Use ASCE 10 X-Brace Ly Rules Calculate Redundant Bracing Forces Ignore Redundant Members in FEA SR Leg Bolts Resist Compression All Leg Panels Have Same Allowable Offset Girt At Foundation √ Consider Feed Line Torque Include Angle Block Shear Check Use TIA-222-G Bracing Resist. Exemption Use TIA-222-G Tension Splice Exemption <li style="text-align: center;">Poles √ Include Shear-Torsion Interaction Always Use Sub-Critical Flow Use Top Mounted Sockets
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Tapered Pole Section Geometry

Section	Elevation ft	Section Length ft	Splice Length ft	Number of Sides	Top Diameter in	Bottom Diameter in	Wall Thickness in	Bend Radius in	Pole Grade
L1	145.00-140.00	5.00	0.00	12	23.6100	24.5210	0.2810	1.1240	A572-65 (65 ksi)
L2	140.00-135.00	5.00	0.00	12	24.5210	25.4320	0.2810	1.1240	A572-65 (65 ksi)
L3	135.00-130.00	5.00	0.00	12	25.4320	26.3431	0.2810	1.1240	A572-65

<p>tnxTower</p> <p>Destek Engineering, LLC 1281 Kennestone Circle, Suite 100 Marietta, GA 30066 Phone: (770) 693 0835 FAX:</p>	Job	824889 Jester-Isenhour	Page	2 of 31
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	Client	Crown Castle	Designed by	Ahmet Colakoglu

Section	Elevation ft	Section Length ft	Splice Length ft	Number of Sides	Top Diameter in	Bottom Diameter in	Wall Thickness in	Bend Radius in	Pole Grade
L4	130.00-125.00	5.00	0.00	12	26.3431	27.2541	0.2810	1.1240	(65 ksi) A572-65
L5	125.00-120.00	5.00	0.00	12	27.2541	28.1651	0.2810	1.1240	(65 ksi) A572-65
L6	120.00-115.00	5.00	0.00	12	28.1651	29.0761	0.2810	1.1240	(65 ksi) A572-65
L7	115.00-110.00	5.00	0.00	12	29.0761	29.9871	0.2810	1.1240	(65 ksi) A572-65
L8	110.00-105.00	5.00	0.00	12	29.9871	30.8982	0.2810	1.1240	(65 ksi) A572-65
L9	105.00-100.00	5.00	0.00	12	30.8982	31.8092	0.2810	1.1240	(65 ksi) A572-65
L10	100.00-90.83	9.17	5.17	12	31.8092	33.4800	0.2810	1.1240	(65 ksi) A572-65
L11	90.83-89.83	6.17	0.00	12	31.9760	33.0974	0.3750	1.5000	(65 ksi) A572-65
L12	89.83-84.83	5.00	0.00	12	33.0974	34.0062	0.3750	1.5000	(65 ksi) A572-65
L13	84.83-79.83	5.00	0.00	12	34.0062	34.9150	0.3750	1.5000	(65 ksi) A572-65
L14	79.83-74.83	5.00	0.00	12	34.9150	35.8238	0.3750	1.5000	(65 ksi) A572-65
L15	74.83-69.83	5.00	0.00	12	35.8238	36.7326	0.3750	1.5000	(65 ksi) A572-65
L16	69.83-66.00	3.83	0.00	12	36.7326	37.4287	0.3750	1.5000	(65 ksi) A572-65
L17	66.00-65.75	0.25	0.00	12	37.4287	37.4741	0.6125	2.4500	(65 ksi) A572-65
L18	65.75-60.75	5.00	0.00	12	37.4741	38.3829	0.6125	2.4500	(65 ksi) A572-65
L19	60.75-55.75	5.00	0.00	12	38.3829	39.2917	0.6000	2.4000	(65 ksi) A572-65
L20	55.75-50.75	5.00	0.00	12	39.2917	40.2005	0.6000	2.4000	(65 ksi) A572-65
L21	50.75-42.83	7.92	6.17	12	40.2005	41.6400	0.6000	2.4000	(65 ksi) A572-65
L22	42.83-41.83	7.17	0.00	12	39.7686	41.0740	0.7130	2.8520	(65 ksi) A572-65
L23	41.83-37.92	3.91	0.00	12	41.0740	41.7865	0.7005	2.8020	(65 ksi) A572-65
L24	37.92-37.67	0.25	0.00	12	41.7865	41.8320	0.7505	3.0020	(65 ksi) A572-65
L25	37.67-32.67	5.00	0.00	12	41.8320	42.7424	0.7380	2.9520	(65 ksi) A572-65
L26	32.67-27.67	5.00	0.00	12	42.7424	43.6527	0.7380	2.9520	(65 ksi) A572-65
L27	27.67-22.67	5.00	0.00	12	43.6527	44.5631	0.7255	2.9020	(65 ksi) A572-65
L28	22.67-17.67	5.00	0.00	12	44.5631	45.4734	0.7255	2.9020	(65 ksi) A572-65
L29	17.67-12.67	5.00	0.00	12	45.4734	46.3838	0.7130	2.8520	(65 ksi) A572-65
L30	12.67-7.67	5.00	0.00	12	46.3838	47.2941	0.7130	2.8520	(65 ksi) A572-65
L31	7.67-2.67	5.00	0.00	12	47.2941	48.2045	0.7005	2.8020	(65 ksi) A572-65
L32	2.67-0.00	2.67		12	48.2045	48.6900	0.7005	2.8020	(65 ksi) A572-65

<p>tnxTower</p> <p>Destek Engineering, LLC 1281 Kennestone Circle, Suite 100 Marietta, GA 30066 Phone: (770) 693 0835 FAX:</p>	Job	Page	
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	Project	1602014	Date
	Client	Crown Castle	09:10:27 01/12/17
			Designed by Ahmet Colakoglu

Tapered Pole Properties

Section	Tip Dia. in	Area in ²	I in ⁴	r in	C in	I/C in ³	J in ⁴	I/Q in ²	w in	w/t
L1	24.4429	21.1085	1466.3462	8.3518	12.2300	119.8977	2971.2149	10.3890	5.5744	19.838
	25.3860	21.9329	1644.9288	8.6779	12.7019	129.5027	3333.0718	10.7947	5.8186	20.707
L2	25.3860	21.9329	1644.9288	8.6779	12.7019	129.5027	3333.0718	10.7947	5.8186	20.707
	26.3292	22.7572	1837.4524	9.0041	13.1738	139.4778	3723.1767	11.2004	6.0627	21.575
L3	26.3292	22.7572	1837.4524	9.0041	13.1738	139.4778	3723.1767	11.2004	6.0627	21.575
	27.2723	23.5815	2044.4407	9.3302	13.6457	149.8230	4142.5911	11.6061	6.3069	22.444
L4	27.2723	23.5815	2044.4407	9.3302	13.6457	149.8230	4142.5911	11.6061	6.3069	22.444
	28.2155	24.4058	2266.4175	9.6564	14.1176	160.5383	4592.3762	12.0118	6.5510	23.313
L5	28.2155	24.4058	2266.4175	9.6564	14.1176	160.5383	4592.3762	12.0118	6.5510	23.313
	29.1587	25.2301	2503.9072	9.9825	14.5895	171.6236	5073.5948	12.4175	6.7952	24.182
L6	29.1587	25.2301	2503.9072	9.9825	14.5895	171.6236	5073.5948	12.4175	6.7952	24.182
	30.1018	26.0544	2757.4335	10.3087	15.0614	183.0791	5587.3078	12.8232	7.0393	25.051
L7	30.1018	26.0544	2757.4335	10.3087	15.0614	183.0791	5587.3078	12.8232	7.0393	25.051
	31.0450	26.8787	3027.5204	10.6348	15.5333	194.9046	6134.5771	13.2289	7.2835	25.92
L8	31.0450	26.8787	3027.5204	10.6348	15.5333	194.9046	6134.5771	13.2289	7.2835	25.92
	31.9881	27.7030	3314.6918	10.9609	16.0053	207.1003	6716.4642	13.6346	7.5276	26.789
L9	31.9881	27.7030	3314.6918	10.9609	16.0053	207.1003	6716.4642	13.6346	7.5276	26.789
	32.9313	28.5273	3619.4716	11.2871	16.4772	219.6660	7334.0308	14.0403	7.7718	27.658
L10	32.9313	28.5273	3619.4716	11.2871	16.4772	219.6660	7334.0308	14.0403	7.7718	27.658
	34.6610	30.0391	4225.9383	11.8852	17.3426	243.6733	8562.8966	14.7843	8.2196	29.251
L11	34.6610	30.0391	4225.9383	11.8852	17.3426	243.6733	8562.8966	14.7843	8.2196	29.251
	34.0768	38.1582	4863.8003	11.3132	16.5636	293.6444	9855.3780	18.7803	7.5646	20.172
L12	34.0768	38.1582	4863.8003	11.3132	16.5636	293.6444	9855.3780	18.7803	7.5646	20.172
	34.2650	39.5123	5400.2045	11.7146	17.1445	314.9822	10942.2785	19.4468	7.8651	20.974
L12	34.2650	39.5123	5400.2045	11.7146	17.1445	314.9822	10942.2785	19.4468	7.8651	20.974
	35.2058	40.6097	5862.7469	12.0400	17.6152	332.8227	11879.5148	19.9869	8.1087	21.623
L13	35.2058	40.6097	5862.7469	12.0400	17.6152	332.8227	11879.5148	19.9869	8.1087	21.623
	36.1467	41.7071	6350.9748	12.3653	18.0860	351.1547	12868.7968	20.5269	8.3522	22.273
L14	36.1467	41.7071	6350.9748	12.3653	18.0860	351.1547	12868.7968	20.5269	8.3522	22.273
	37.0875	42.8044	6865.5822	12.6907	18.5567	369.9781	13911.5310	21.0670	8.5958	22.922
L15	37.0875	42.8044	6865.5822	12.6907	18.5567	369.9781	13911.5310	21.0670	8.5958	22.922
	38.0284	43.9018	7407.2626	13.0160	19.0275	389.2930	15009.1223	21.6071	8.8393	23.572
L16	38.0284	43.9018	7407.2626	13.0160	19.0275	389.2930	15009.1223	21.6071	8.8393	23.572
	38.7490	44.7423	7840.9353	13.2652	19.3881	404.4207	15887.8606	22.0208	9.0259	24.069
L17	38.7490	44.7423	7840.9353	13.2652	19.3881	404.4207	15887.8606	22.0208	9.0259	24.069
	38.7961	72.7004	12608.7454	13.1965	19.4116	649.5468	25548.7366	35.7809	8.4016	13.717
L18	38.7961	72.7004	12608.7454	13.1965	19.4116	649.5468	25548.7366	35.7809	8.4016	13.717
	39.7369	74.4927	13564.4897	13.5218	19.8824	682.2376	27485.3337	36.6630	8.6451	14.114
L19	39.7369	74.4927	13564.4897	13.5218	19.8824	682.2376	27485.3337	36.6630	8.6451	14.114
	40.6778	74.7524	14283.8959	13.8516	20.3531	701.8043	28943.0456	36.7908	8.9222	14.87
L20	40.6778	74.7524	14283.8959	13.8516	20.3531	701.8043	28943.0456	36.7908	8.9222	14.87
	41.6186	76.5081	15314.2131	14.1770	20.8239	735.4169	31030.7476	37.6550	9.1657	15.276
L21	41.6186	76.5081	15314.2131	14.1770	20.8239	735.4169	31030.7476	37.6550	9.1657	15.276
	43.1089	79.2893	17045.7113	14.6923	21.5695	790.2685	34539.2324	39.0238	9.5515	15.919
L22	43.1089	79.2893	17045.7113	14.6923	21.5695	790.2685	34539.2324	39.0238	9.5515	15.919
	42.3344	89.6661	17457.4186	13.9819	20.6001	847.4428	35373.4631	44.1309	8.7471	12.268
L23	42.3344	89.6661	17457.4186	13.9819	20.6001	847.4428	35373.4631	44.1309	8.7471	12.268
	42.5229	92.6632	19267.1406	14.4492	21.2763	905.5667	39040.4505	45.6060	9.0970	12.759
L24	42.5229	92.6632	19267.1406	14.4492	21.2763	905.5667	39040.4505	45.6060	9.0970	12.759
	43.2606	91.0669	18946.9506	14.4537	21.2763	890.5176	38391.6588	44.8203	9.1305	13.034
L25	43.2606	91.0669	18946.9506	14.4537	21.2763	890.5176	38391.6588	44.8203	9.1305	13.034
	43.2606	92.6740	19967.8611	14.7088	21.6454	922.4988	40460.3001	45.6113	9.3214	13.307
L26	43.2606	92.6740	19967.8611	14.7088	21.6454	922.4988	40460.3001	45.6113	9.3214	13.307
	43.3077	99.1680	21315.1102	14.6909	21.6454	984.7406	43190.1920	48.8075	9.1874	12.242
L27	43.3077	99.1680	21315.1102	14.6909	21.6454	984.7406	43190.1920	48.8075	9.1874	12.242
	43.3077	99.2780	21386.1184	14.7072	21.6690	986.9460	43334.0739	48.8616	9.1996	12.258
L28	43.3077	99.2780	21386.1184	14.7072	21.6690	986.9460	43334.0739	48.8616	9.1996	12.258
	44.2502	97.6542	21049.1229	14.7117	21.6690	971.3940	42651.2297	48.0624	9.2331	12.511
L29	44.2502	97.6542	21049.1229	14.7117	21.6690	971.3940	42651.2297	48.0624	9.2331	12.511
	44.2502	99.8175	22479.2377	15.0376	22.1405	1015.2973	45549.0299	49.1271	9.4771	12.842
L30	44.2502	99.8175	22479.2377	15.0376	22.1405	1015.2973	45549.0299	49.1271	9.4771	12.842
	45.1926	101.9808	23972.7029	15.3635	22.6121	1060.1711	48575.1954	50.1919	9.7211	13.172
L31	45.1926	101.9808	23972.7029	15.3635	22.6121	1060.1711	48575.1954	50.1919	9.7211	13.172
	46.1351	102.4094	25119.9434	15.6939	23.0837	1088.2127	50899.8156	50.4028	9.9986	13.782
L32	46.1351	102.4094	25119.9434	15.6939	23.0837	1088.2127	50899.8156	50.4028	9.9986	13.782
	47.0775	104.5361	26717.6236	16.0198	23.5552	1134.2543	54137.1489	51.4495	10.2425	14.118

<p style="text-align: center;">tnxTower</p> <p style="text-align: center;">Destek Engineering, LLC 1281 Kennestone Circle, Suite 100 Marietta, GA 30066 Phone: (770) 693 0835 FAX:</p>	<p>Job</p> <p style="text-align: center;">824889 Jester-Isenhour</p>	<p>Page</p> <p style="text-align: center;">4 of 31</p>
	<p>Project</p> <p style="text-align: center;">1602014</p>	<p>Date</p> <p style="text-align: center;">09:10:27 01/12/17</p>
	<p>Client</p> <p style="text-align: center;">Crown Castle</p>	<p>Designed by</p> <p style="text-align: center;">Ahmet Colakoglu</p>

Section	Tip Dia. in	Area in ²	I in ⁴	r in	C in	I/C in ³	J in ⁴	I/Q in ²	w in	w/t
L29	47.0775	102.7637	26279.3028	16.0242	23.5552	1115.6461	53248.9922	50.5771	10.2760	14.412
	48.0200	104.8537	27915.5642	16.3501	24.0268	1161.8514	56564.5014	51.6058	10.5200	14.755
L30	48.0200	104.8537	27915.5642	16.3501	24.0268	1161.8514	56564.5014	51.6058	10.5200	14.755
	48.9625	106.9437	29618.3742	16.6760	24.4984	1208.9944	60014.8560	52.6345	10.7640	15.097
L31	48.9625	105.0970	29122.5504	16.6805	24.4984	1188.7553	59010.1826	51.7256	10.7975	15.414
	49.9049	107.1504	30863.1153	17.0064	24.9699	1236.0119	62537.0391	52.7362	11.0415	15.762
L32	49.9049	107.1504	30863.1153	17.0064	24.9699	1236.0119	62537.0391	52.7362	11.0415	15.762
	50.4076	108.2456	31819.1546	17.1802	25.2214	1261.5925	64474.2338	53.2752	11.1716	15.948

Tower Elevation	Gusset Area (per face)	Gusset Thickness	Gusset Grade	Adjust. Factor A _f	Adjust. Factor A _r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals	Double Angle Stitch Bolt Spacing Horizontals	Double Angle Stitch Bolt Spacing Redundants
ft	ft ²	in					in	in	in
L1				1	1	1			
145.00-140.00									
L2				1	1	1			
140.00-135.00									
L3				1	1	1			
135.00-130.00									
L4				1	1	1			
130.00-125.00									
L5				1	1	1			
125.00-120.00									
L6				1	1	1			
120.00-115.00									
L7				1	1	1			
115.00-110.00									
L8				1	1	1			
110.00-105.00									
L9				1	1	1			
105.00-100.00									
L10				1	1	1			
100.00-90.83									
L11				1	1	1			
90.83-89.83									
L12				1	1	1			
89.83-84.83									
L13				1	1	1			
84.83-79.83									
L14				1	1	1			
79.83-74.83									
L15				1	1	1			
74.83-69.83									
L16				1	1	1			
69.83-66.00									
L17				1	1	0.977778			
66.00-65.75									
L18				1	1	0.968983			
65.75-60.75									
L19				1	1	0.980297			
60.75-55.75									
L20				1	1	0.972144			
55.75-50.75									
L21				1	1	0.969378			
50.75-42.83									
L22				1	1	0.962972			
42.83-41.83									
L23				1	1	0.973703			
41.83-37.92									
L24				1	1	0.966319			

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	Client	Crown Castle	Designed by	Ahmet Colakoglu

Tower Elevation	Gusset Area (per face)	Gusset Thickness	Gusset Grade	Adjust. Factor A_f	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
ft	ft ²	in							
37.92-37.67 L25				1	1	0.973959			
37.67-32.67 L26				1	1	0.965888			
32.67-27.67 L27				1	1	0.974383			
27.67-22.67 L28				1	1	0.966843			
22.67-17.67 L29				1	1	0.976159			
17.67-12.67 L30				1	1	0.969087			
12.67-7.67 L31				1	1	0.9792			
7.67-2.67 L32				1	1	0.975619			
2.67-0.00									

Feed Line/Linear Appurtenances - Entered As Round Or Flat

Description	Sector	Component Type	Placement	Total Number	Number Per Row	Start/End Position	Width or Diameter in	Perimeter in	Weight plf
			ft						
T-Mobile									
LDF7-50A(1-5/8")	A	Surface Ar (CaAa)	135.00 - 30.00	14	5	0.000 0.000	1.9800		0.82
LDF2-2R(1")	A	Surface Ar (CaAa)	135.00 - 30.00	1	1	0.000 0.000	0.9860		0.30
106.2ft									
3" Conduit	B	Surface Ar (CaAa)	130.00 - 30.00	1	1	0.000 0.000	3.0000		2.80
LDF6-50A(1-1/4")	B	Surface Ar (CaAa)	110.30 - 30.00	4	4	0.000 0.000	1.5500		0.66
LDF5-50A(7/8)	B	Surface Ar (CaAa)	143.00 - 110.30	1	1	0.000 0.000	0.0000		0.33
****Reinforcement***									
10" Plate	A	Surface Af (CaAa)	47.75 - 0.00	1	1	0.200 0.200	10.0000	21.2500	0.00
10" Plate	B	Surface Af (CaAa)	47.75 - 0.00	1	1	0.200 0.200	10.0000	21.2500	0.00
10" Plate	C	Surface Af (CaAa)	47.75 - 0.00	1	1	0.200 0.200	10.0000	21.2500	0.00
7" Plate	A	Surface Af (CaAa)	68.00 - 47.75	1	1	0.200 0.200	7.0000	15.2500	0.00
7" Plate	B	Surface Af (CaAa)	68.00 - 47.75	1	1	0.200 0.200	7.0000	15.2500	0.00
7" Plate	C	Surface Af (CaAa)	68.00 - 47.75	1	1	0.200 0.200	7.0000	15.2500	0.00
10" Plate	A	Surface Af (CaAa)	47.75 - 0.00	1	1	-0.200 -0.200	10.0000	21.2500	0.00
10" Plate	B	Surface Af (CaAa)	47.75 - 0.00	1	1	-0.200 -0.200	10.0000	21.2500	0.00
10" Plate	C	Surface Af (CaAa)	47.75 - 0.00	1	1	-0.200 -0.200	10.0000	21.2500	0.00
7" Plate	A	Surface Af (CaAa)	68.00 - 47.75	1	1	-0.200 -0.200	7.0000	15.2500	0.00
7" Plate	B	Surface Af (CaAa)	68.00 - 47.75	1	1	-0.200 -0.200	7.0000	15.2500	0.00

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	Client Crown Castle	Designed by Ahmet Colakoglu

Description	Sector	Component Type	Placement ft	Total Number	Number Per Row	Start/End Position	Width or Diameter in	Perimeter in	Weight plf
7" Plate	C	Surface Af (CaAa)	68.00 - 47.75	1	1	-0.200 -0.200	7.0000	15.2500	0.00
Connection Plate	A	Surface Af (CaAa)	41.80 - 33.90	1	1	-0.500 -0.500	6.5000	15.5000	0.00
Connection Plate	B	Surface Af (CaAa)	41.80 - 33.90	1	1	0.000 0.000	6.5000	15.5000	0.00
Connection Plate	C	Surface Af (CaAa)	41.80 - 33.90	1	1	0.000 0.000	6.5000	15.5000	0.00
Connection Plate	A	Surface Af (CaAa)	51.50 - 43.80	1	1	0.000 0.000	6.5000	15.5000	0.00
Connection Plate	B	Surface Af (CaAa)	51.50 - 43.80	1	1	0.000 0.000	6.5000	15.5000	0.00
Connection Plate	C	Surface Af (CaAa)	51.50 - 43.80	1	1	0.000 0.000	6.5000	15.5000	0.00

Feed Line/Linear Appurtenances - Entered As Area

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Total Number		C _A A _A ft ² /ft	Weight plf
**** Nextel ****								
LDF7-50A(1-5/8")	C	No	Inside Pole	143.00 - 30.00	6	No Ice 1/2" Ice 1" Ice	0.00 0.00 0.00	0.82 0.82 0.82
LDF5-50A(7/8)	C	No	Inside Pole	143.00 - 30.00	6	No Ice 1/2" Ice 1" Ice	0.00 0.00 0.00	0.33 0.33 0.33
LDF5-50A(7/8")	C	No	Inside Pole	143.00 - 30.00	4	No Ice 1/2" Ice 1" Ice	0.00 0.00 0.00	0.33 0.33 0.33
**** AT&T ****								
LDF7-50A(1-5/8")	B	No	Inside Pole	130.00 - 30.00	3	No Ice 1/2" Ice 1" Ice	0.00 0.00 0.00	0.82 0.82 0.82
LDF7-50A(1-5/8")	B	No	Inside Pole	130.00 - 30.00	9	No Ice 1/2" Ice 1" Ice	0.00 0.00 0.00	0.82 0.82 0.82
LDF5-50A(7/8)	B	No	Inside Pole	130.00 - 30.00	2	No Ice 1/2" Ice 1" Ice	0.00 0.00 0.00	0.33 0.33 0.33

Feed Line/Linear Appurtenances Section Areas

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
L1	145.00-140.00	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.02
L2	140.00-135.00	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.04
L3	135.00-130.00	A	0.000	0.000	5.443	0.000	0.06
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.04

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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
L4	130.00-125.00	A	0.000	0.000	5.443	0.000	0.06
		B	0.000	0.000	1.500	0.000	0.07
		C	0.000	0.000	0.000	0.000	0.04
L5	125.00-120.00	A	0.000	0.000	5.443	0.000	0.06
		B	0.000	0.000	1.500	0.000	0.07
		C	0.000	0.000	0.000	0.000	0.04
L6	120.00-115.00	A	0.000	0.000	5.443	0.000	0.06
		B	0.000	0.000	1.500	0.000	0.07
		C	0.000	0.000	0.000	0.000	0.04
L7	115.00-110.00	A	0.000	0.000	5.443	0.000	0.06
		B	0.000	0.000	1.686	0.000	0.07
		C	0.000	0.000	0.000	0.000	0.04
L8	110.00-105.00	A	0.000	0.000	5.443	0.000	0.06
		B	0.000	0.000	4.600	0.000	0.08
		C	0.000	0.000	0.000	0.000	0.04
L9	105.00-100.00	A	0.000	0.000	5.443	0.000	0.06
		B	0.000	0.000	4.600	0.000	0.08
		C	0.000	0.000	0.000	0.000	0.04
L10	100.00-90.83	A	0.000	0.000	9.982	0.000	0.11
		B	0.000	0.000	8.436	0.000	0.15
		C	0.000	0.000	0.000	0.000	0.08
L11	90.83-89.83	A	0.000	0.000	1.089	0.000	0.01
		B	0.000	0.000	0.920	0.000	0.02
		C	0.000	0.000	0.000	0.000	0.01
L12	89.83-84.83	A	0.000	0.000	5.443	0.000	0.06
		B	0.000	0.000	4.600	0.000	0.08
		C	0.000	0.000	0.000	0.000	0.04
L13	84.83-79.83	A	0.000	0.000	5.443	0.000	0.06
		B	0.000	0.000	4.600	0.000	0.08
		C	0.000	0.000	0.000	0.000	0.04
L14	79.83-74.83	A	0.000	0.000	5.443	0.000	0.06
		B	0.000	0.000	4.600	0.000	0.08
		C	0.000	0.000	0.000	0.000	0.04
L15	74.83-69.83	A	0.000	0.000	5.443	0.000	0.06
		B	0.000	0.000	4.600	0.000	0.08
		C	0.000	0.000	0.000	0.000	0.04
L16	69.83-66.00	A	0.000	0.000	8.836	0.000	0.05
		B	0.000	0.000	8.190	0.000	0.06
		C	0.000	0.000	4.667	0.000	0.03
L17	66.00-65.75	A	0.000	0.000	0.855	0.000	0.00
		B	0.000	0.000	0.813	0.000	0.00
		C	0.000	0.000	0.583	0.000	0.00
L18	65.75-60.75	A	0.000	0.000	17.110	0.000	0.06
		B	0.000	0.000	16.267	0.000	0.08
		C	0.000	0.000	11.667	0.000	0.04
L19	60.75-55.75	A	0.000	0.000	17.110	0.000	0.06
		B	0.000	0.000	16.267	0.000	0.08
		C	0.000	0.000	11.667	0.000	0.04
L20	55.75-50.75	A	0.000	0.000	17.922	0.000	0.06
		B	0.000	0.000	17.079	0.000	0.08
		C	0.000	0.000	12.479	0.000	0.04
L21	50.75-42.83	A	0.000	0.000	39.551	0.000	0.09
		B	0.000	0.000	38.216	0.000	0.13
		C	0.000	0.000	30.929	0.000	0.07
L22	42.83-41.83	A	0.000	0.000	4.422	0.000	0.01
		B	0.000	0.000	4.253	0.000	0.02
		C	0.000	0.000	3.333	0.000	0.01
L23	41.83-37.92	A	0.000	0.000	21.511	0.000	0.05
		B	0.000	0.000	20.851	0.000	0.06
		C	0.000	0.000	17.251	0.000	0.03
L24	37.92-37.67	A	0.000	0.000	1.376	0.000	0.00

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Tower Section	Tower Elevation ft	Face	A_R ft ²	A_F ft ²	C_{AA} In Face ft ²	C_{AA} Out Face ft ²	Weight K
L25	37.67-32.67	B	0.000	0.000	1.334	0.000	0.00
		C	0.000	0.000	1.104	0.000	0.00
		A	0.000	0.000	26.190	0.000	0.06
L26	32.67-27.67	B	0.000	0.000	25.347	0.000	0.08
		C	0.000	0.000	20.747	0.000	0.04
		A	0.000	0.000	19.570	0.000	0.03
L27	27.67-22.67	B	0.000	0.000	19.120	0.000	0.04
		C	0.000	0.000	16.667	0.000	0.02
		A	0.000	0.000	16.667	0.000	0.00
L28	22.67-17.67	B	0.000	0.000	16.667	0.000	0.00
		C	0.000	0.000	16.667	0.000	0.00
		A	0.000	0.000	16.667	0.000	0.00
L29	17.67-12.67	B	0.000	0.000	16.667	0.000	0.00
		C	0.000	0.000	16.667	0.000	0.00
		A	0.000	0.000	16.667	0.000	0.00
L30	12.67-7.67	B	0.000	0.000	16.667	0.000	0.00
		C	0.000	0.000	16.667	0.000	0.00
		A	0.000	0.000	16.667	0.000	0.00
L31	7.67-2.67	B	0.000	0.000	16.667	0.000	0.00
		C	0.000	0.000	16.667	0.000	0.00
		A	0.000	0.000	16.667	0.000	0.00
L32	2.67-0.00	B	0.000	0.000	8.889	0.000	0.00
		C	0.000	0.000	8.889	0.000	0.00
		A	0.000	0.000	8.889	0.000	0.00

Feed Line/Linear Appurtenances Section Areas - With Ice

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft ²	A_F ft ²	C_{AA} In Face ft ²	C_{AA} Out Face ft ²	Weight K
L1	145.00-140.00	A	1.736	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	1.042	0.000	0.01
		C		0.000	0.000	0.000	0.000	0.02
L2	140.00-135.00	A	1.730	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	1.730	0.000	0.02
		C		0.000	0.000	0.000	0.000	0.04
L3	135.00-130.00	A	1.724	0.000	0.000	10.559	0.000	0.22
		B		0.000	0.000	1.724	0.000	0.02
		C		0.000	0.000	0.000	0.000	0.04
L4	130.00-125.00	A	1.717	0.000	0.000	10.544	0.000	0.22
		B		0.000	0.000	4.934	0.000	0.14
		C		0.000	0.000	0.000	0.000	0.04
L5	125.00-120.00	A	1.710	0.000	0.000	10.528	0.000	0.22
		B		0.000	0.000	4.920	0.000	0.14
		C		0.000	0.000	0.000	0.000	0.04
L6	120.00-115.00	A	1.703	0.000	0.000	10.512	0.000	0.22
		B		0.000	0.000	4.906	0.000	0.13
		C		0.000	0.000	0.000	0.000	0.04
L7	115.00-110.00	A	1.696	0.000	0.000	10.496	0.000	0.22
		B		0.000	0.000	5.149	0.000	0.14
		C		0.000	0.000	0.000	0.000	0.04
L8	110.00-105.00	A	1.688	0.000	0.000	10.479	0.000	0.22
		B		0.000	0.000	9.173	0.000	0.19
		C		0.000	0.000	0.000	0.000	0.04
L9	105.00-100.00	A	1.680	0.000	0.000	10.460	0.000	0.22
		B		0.000	0.000	9.155	0.000	0.19

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	Client	Crown Castle	Designed by	Ahmet Colakoglu

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	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
L10	100.00-90.83	C		0.000	0.000	0.000	0.000	0.04
		A	1.668	0.000	0.000	19.135	0.000	0.40
		B		0.000	0.000	16.741	0.000	0.35
L11	90.83-89.83	C		0.000	0.000	0.000	0.000	0.08
		A	1.659	0.000	0.000	2.087	0.000	0.04
		B		0.000	0.000	1.826	0.000	0.04
L12	89.83-84.83	C		0.000	0.000	0.000	0.000	0.01
		A	1.653	0.000	0.000	10.400	0.000	0.22
		B		0.000	0.000	9.095	0.000	0.19
L13	84.83-79.83	C		0.000	0.000	0.000	0.000	0.04
		A	1.644	0.000	0.000	10.379	0.000	0.22
		B		0.000	0.000	9.073	0.000	0.19
L14	79.83-74.83	C		0.000	0.000	0.000	0.000	0.04
		A	1.633	0.000	0.000	10.355	0.000	0.21
		B		0.000	0.000	9.050	0.000	0.19
L15	74.83-69.83	C		0.000	0.000	0.000	0.000	0.04
		A	1.622	0.000	0.000	10.331	0.000	0.21
		B		0.000	0.000	9.025	0.000	0.19
L16	69.83-66.00	C		0.000	0.000	0.000	0.000	0.04
		A	1.612	0.000	0.000	13.831	0.000	0.22
		B		0.000	0.000	12.831	0.000	0.20
L17	66.00-65.75	C		0.000	0.000	5.935	0.000	0.09
		A	1.607	0.000	0.000	1.256	0.000	0.02
		B		0.000	0.000	1.191	0.000	0.02
L18	65.75-60.75	C		0.000	0.000	0.741	0.000	0.01
		A	1.601	0.000	0.000	25.099	0.000	0.34
		B		0.000	0.000	23.794	0.000	0.32
L19	60.75-55.75	C		0.000	0.000	14.817	0.000	0.17
		A	1.588	0.000	0.000	25.047	0.000	0.34
		B		0.000	0.000	23.742	0.000	0.32
L20	55.75-50.75	C		0.000	0.000	14.795	0.000	0.17
		A	1.573	0.000	0.000	25.784	0.000	0.35
		B		0.000	0.000	24.479	0.000	0.32
L21	50.75-42.83	C		0.000	0.000	15.563	0.000	0.18
		A	1.553	0.000	0.000	51.748	0.000	0.66
		B		0.000	0.000	49.680	0.000	0.62
L22	42.83-41.83	C		0.000	0.000	35.630	0.000	0.39
		A	1.538	0.000	0.000	5.990	0.000	0.07
		B		0.000	0.000	5.729	0.000	0.07
L23	41.83-37.92	C		0.000	0.000	3.955	0.000	0.04
		A	1.529	0.000	0.000	27.470	0.000	0.33
		B		0.000	0.000	26.448	0.000	0.32
L24	37.92-37.67	C		0.000	0.000	19.549	0.000	0.21
		A	1.520	0.000	0.000	1.755	0.000	0.02
		B		0.000	0.000	1.690	0.000	0.02
L25	37.67-32.67	C		0.000	0.000	1.250	0.000	0.01
		A	1.510	0.000	0.000	33.744	0.000	0.41
		B		0.000	0.000	32.438	0.000	0.39
L26	32.67-27.67	C		0.000	0.000	23.667	0.000	0.25
		A	1.487	0.000	0.000	24.987	0.000	0.26
		B		0.000	0.000	24.290	0.000	0.25
L27	27.67-22.67	C		0.000	0.000	19.640	0.000	0.18
		A	1.460	0.000	0.000	19.586	0.000	0.15
		B		0.000	0.000	19.586	0.000	0.15
L28	22.67-17.67	C		0.000	0.000	19.586	0.000	0.15
		A	1.428	0.000	0.000	19.522	0.000	0.15
		B		0.000	0.000	19.522	0.000	0.15
L29	17.67-12.67	C		0.000	0.000	19.522	0.000	0.15
		A	1.388	0.000	0.000	19.442	0.000	0.14
		B		0.000	0.000	19.442	0.000	0.14
		C		0.000	0.000	19.442	0.000	0.14

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Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	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
L30	12.67-7.67	A	1.333	0.000	0.000	19.333	0.000	0.14
		B		0.000	0.000	19.333	0.000	0.14
		C		0.000	0.000	19.333	0.000	0.14
L31	7.67-2.67	A	1.246	0.000	0.000	19.159	0.000	0.13
		B		0.000	0.000	19.159	0.000	0.13
		C		0.000	0.000	19.159	0.000	0.13
L32	2.67-0.00	A	1.088	0.000	0.000	10.050	0.000	0.06
		B		0.000	0.000	10.050	0.000	0.06
		C		0.000	0.000	10.050	0.000	0.06

Feed Line Center of Pressure

Section	Elevation ft	CP_X in	CP_Z in	CP_X Ice in	CP_Z Ice in
L1	145.00-140.00	0.0000	0.0000	0.2125	-0.1227
L2	140.00-135.00	0.0000	0.0000	0.3354	-0.1937
L3	135.00-130.00	-1.1131	-0.6427	-1.0736	-0.8171
L4	130.00-125.00	-0.7668	-0.7446	-0.6538	-0.9342
L5	125.00-120.00	-0.7714	-0.7501	-0.6636	-0.9497
L6	120.00-115.00	-0.7758	-0.7553	-0.6732	-0.9648
L7	115.00-110.00	-0.7409	-0.7716	-0.6466	-0.9819
L8	110.00-105.00	-0.2160	-0.9302	-0.1928	-1.0287
L9	105.00-100.00	-0.2160	-0.9390	-0.1943	-1.0459
L10	100.00-90.83	-0.2159	-0.9509	-0.1964	-1.0695
L11	90.83-89.83	-0.2158	-0.9541	-0.1969	-1.0761
L12	89.83-84.83	-0.2158	-0.9589	-0.1981	-1.0854
L13	84.83-79.83	-0.2157	-0.9668	-0.1996	-1.1011
L14	79.83-74.83	-0.2157	-0.9743	-0.2010	-1.1165
L15	74.83-69.83	-0.2156	-0.9817	-0.2025	-1.1315
L16	69.83-66.00	-0.1266	-0.5805	-0.1322	-0.7422
L17	66.00-65.75	-0.0923	-0.4242	-0.1005	-0.5655
L18	65.75-60.75	-0.0927	-0.4276	-0.1011	-0.5704
L19	60.75-55.75	-0.0934	-0.4341	-0.1022	-0.5796
L20	55.75-50.75	-0.0906	-0.4239	-0.1007	-0.5732
L21	50.75-42.83	-0.0691	-0.3261	-0.0830	-0.4750
L22	42.83-41.83	-0.0768	-0.3625	-0.0896	-0.5130
L23	41.83-37.92	0.0841	0.2587	0.0360	-0.0142
L24	37.92-37.67	0.0860	0.2648	0.0373	-0.0102
L25	37.67-32.67	0.0516	0.1302	0.0092	-0.1238
L26	32.67-27.67	-0.0443	-0.2121	-0.0553	-0.3166
L27	27.67-22.67	0.0000	0.0000	0.0000	0.0000
L28	22.67-17.67	0.0000	0.0000	0.0000	0.0000
L29	17.67-12.67	0.0000	0.0000	0.0000	0.0000
L30	12.67-7.67	0.0000	0.0000	0.0000	0.0000
L31	7.67-2.67	0.0000	0.0000	0.0000	0.0000
L32	2.67-0.00	0.0000	0.0000	0.0000	0.0000

Shielding Factor Ka

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Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K _a No Ice	K _a Ice
L1	18	LDF5-50A(7/8)	140.00 - 143.00	1.0000	1.0000
L2	18	LDF5-50A(7/8)	135.00 - 140.00	1.0000	1.0000
L3	6	LDF7-50A(1-5/8")	130.00 - 135.00	1.0000	1.0000
L3	10	LDF2-2R(1")	130.00 - 135.00	1.0000	1.0000
L3	18	LDF5-50A(7/8)	130.00 - 135.00	1.0000	1.0000
L4	6	LDF7-50A(1-5/8")	125.00 - 130.00	1.0000	1.0000
L4	10	LDF2-2R(1")	125.00 - 130.00	1.0000	1.0000
L4	16	3" Conduit	125.00 - 130.00	1.0000	1.0000
L4	18	LDF5-50A(7/8)	125.00 - 130.00	1.0000	1.0000
L5	6	LDF7-50A(1-5/8")	120.00 - 125.00	1.0000	1.0000
L5	10	LDF2-2R(1")	120.00 - 125.00	1.0000	1.0000
L5	16	3" Conduit	120.00 - 125.00	1.0000	1.0000
L5	18	LDF5-50A(7/8)	120.00 - 125.00	1.0000	1.0000
L6	6	LDF7-50A(1-5/8")	115.00 - 120.00	1.0000	1.0000
L6	10	LDF2-2R(1")	115.00 - 120.00	1.0000	1.0000
L6	16	3" Conduit	115.00 - 120.00	1.0000	1.0000
L6	18	LDF5-50A(7/8)	115.00 - 120.00	1.0000	1.0000
L7	6	LDF7-50A(1-5/8")	110.00 - 115.00	1.0000	1.0000
L7	10	LDF2-2R(1")	110.00 - 115.00	1.0000	1.0000
L7	16	3" Conduit	110.00 - 115.00	1.0000	1.0000
L7	17	LDF6-50A(1-1/4")	110.00 - 110.30	1.0000	1.0000
L7	18	LDF5-50A(7/8)	110.30 - 115.00	1.0000	1.0000
L8	6	LDF7-50A(1-5/8")	105.00 - 110.00	1.0000	1.0000
L8	10	LDF2-2R(1")	105.00 - 110.00	1.0000	1.0000
L8	16	3" Conduit	105.00 - 110.00	1.0000	1.0000
L8	17	LDF6-50A(1-1/4")	105.00 - 110.00	1.0000	1.0000
L9	6	LDF7-50A(1-5/8")	100.00 - 105.00	1.0000	1.0000
L9	10	LDF2-2R(1")	100.00 - 105.00	1.0000	1.0000
L9	16	3" Conduit	100.00 - 105.00	1.0000	1.0000
L9	17	LDF6-50A(1-1/4")	100.00 - 105.00	1.0000	1.0000
L10	6	LDF7-50A(1-5/8")	90.83 - 100.00	1.0000	1.0000
L10	10	LDF2-2R(1")	90.83 - 100.00	1.0000	1.0000

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Client	Crown Castle	Designed by	Ahmet Colakoglu

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K _a No Ice	K _a Ice
L10	16	3" Conduit	90.83 - 100.00	1.0000	1.0000
L10	17	LDF6-50A(1-1/4")	90.83 - 100.00	1.0000	1.0000
L12	6	LDF7-50A(1-5/8")	84.83 - 89.83	1.0000	1.0000
L12	10	LDF2-2R(1")	84.83 - 89.83	1.0000	1.0000
L12	16	3" Conduit	84.83 - 89.83	1.0000	1.0000
L12	17	LDF6-50A(1-1/4")	84.83 - 89.83	1.0000	1.0000
L13	6	LDF7-50A(1-5/8")	79.83 - 84.83	1.0000	1.0000
L13	10	LDF2-2R(1")	79.83 - 84.83	1.0000	1.0000
L13	16	3" Conduit	79.83 - 84.83	1.0000	1.0000
L13	17	LDF6-50A(1-1/4")	79.83 - 84.83	1.0000	1.0000
L14	6	LDF7-50A(1-5/8")	74.83 - 79.83	1.0000	1.0000
L14	10	LDF2-2R(1")	74.83 - 79.83	1.0000	1.0000
L14	16	3" Conduit	74.83 - 79.83	1.0000	1.0000
L14	17	LDF6-50A(1-1/4")	74.83 - 79.83	1.0000	1.0000
L14	17	LDF6-50A(1-1/4")	74.83 - 79.83	1.0000	1.0000
L15	6	LDF7-50A(1-5/8")	69.83 - 74.83	1.0000	1.0000
L15	10	LDF2-2R(1")	69.83 - 74.83	1.0000	1.0000
L15	16	3" Conduit	69.83 - 74.83	1.0000	1.0000
L15	17	LDF6-50A(1-1/4")	69.83 - 74.83	1.0000	1.0000
L16	6	LDF7-50A(1-5/8")	66.00 - 69.83	1.0000	1.0000
L16	10	LDF2-2R(1")	66.00 - 69.83	1.0000	1.0000
L16	16	3" Conduit	66.00 - 69.83	1.0000	1.0000
L16	17	LDF6-50A(1-1/4")	66.00 - 69.83	1.0000	1.0000
L16	23	7" Plate	66.00 - 68.00	1.0000	1.0000
L16	24	7" Plate	66.00 - 68.00	1.0000	1.0000
L16	25	7" Plate	66.00 - 68.00	1.0000	1.0000
L16	29	7" Plate	66.00 - 68.00	1.0000	1.0000
L16	30	7" Plate	66.00 - 68.00	1.0000	1.0000
L16	31	7" Plate	66.00 - 68.00	1.0000	1.0000
L17	6	LDF7-50A(1-5/8")	65.75 - 66.00	1.0000	1.0000
L17	10	LDF2-2R(1")	65.75 - 66.00	1.0000	1.0000
L17	16	3" Conduit	65.75 - 66.00	1.0000	1.0000
L17	17	LDF6-50A(1-1/4")	65.75 - 66.00	1.0000	1.0000
L17	23	7" Plate	65.75 - 66.00	1.0000	1.0000
L17	24	7" Plate	65.75 - 66.00	1.0000	1.0000
L17	25	7" Plate	65.75 - 66.00	1.0000	1.0000
L17	29	7" Plate	65.75 - 66.00	1.0000	1.0000
L17	30	7" Plate	65.75 - 66.00	1.0000	1.0000
L17	31	7" Plate	65.75 - 66.00	1.0000	1.0000
L18	6	LDF7-50A(1-5/8")	60.75 - 65.75	1.0000	1.0000
L18	10	LDF2-2R(1")	60.75 - 65.75	1.0000	1.0000
L18	16	3" Conduit	60.75 - 65.75	1.0000	1.0000
L18	17	LDF6-50A(1-1/4")	60.75 - 65.75	1.0000	1.0000
L18	23	7" Plate	60.75 - 65.75	1.0000	1.0000
L18	24	7" Plate	60.75 - 65.75	1.0000	1.0000
L18	25	7" Plate	60.75 - 65.75	1.0000	1.0000
L18	29	7" Plate	60.75 - 65.75	1.0000	1.0000
L18	30	7" Plate	60.75 - 65.75	1.0000	1.0000
L18	31	7" Plate	60.75 - 65.75	1.0000	1.0000
L19	6	LDF7-50A(1-5/8")	55.75 - 60.75	1.0000	1.0000
L19	10	LDF2-2R(1")	55.75 - 60.75	1.0000	1.0000
L19	16	3" Conduit	55.75 - 60.75	1.0000	1.0000
L19	17	LDF6-50A(1-1/4")	55.75 - 60.75	1.0000	1.0000
L19	23	7" Plate	55.75 - 60.75	1.0000	1.0000
L19	24	7" Plate	55.75 - 60.75	1.0000	1.0000
L19	25	7" Plate	55.75 - 60.75	1.0000	1.0000
L19	29	7" Plate	55.75 - 60.75	1.0000	1.0000
L19	30	7" Plate	55.75 - 60.75	1.0000	1.0000
L19	31	7" Plate	55.75 - 60.75	1.0000	1.0000
L20	6	LDF7-50A(1-5/8")	50.75 - 55.75	1.0000	1.0000
L20	10	LDF2-2R(1")	50.75 - 55.75	1.0000	1.0000
L20	16	3" Conduit	50.75 - 55.75	1.0000	1.0000
L20	17	LDF6-50A(1-1/4")	50.75 - 55.75	1.0000	1.0000

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Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L20	23	7" Plate	50.75 - 55.75	1.0000	1.0000
L20	24	7" Plate	50.75 - 55.75	1.0000	1.0000
L20	25	7" Plate	50.75 - 55.75	1.0000	1.0000
L20	29	7" Plate	50.75 - 55.75	1.0000	1.0000
L20	30	7" Plate	50.75 - 55.75	1.0000	1.0000
L20	31	7" Plate	50.75 - 55.75	1.0000	1.0000
L20	35	Connection Plate	50.75 - 51.50	1.0000	1.0000
L20	36	Connection Plate	50.75 - 51.50	1.0000	1.0000
L20	37	Connection Plate	50.75 - 51.50	1.0000	1.0000
L21	6	LDF7-50A(1-5/8")	42.83 - 50.75	1.0000	1.0000
L21	10	LDF2-2R(1")	42.83 - 50.75	1.0000	1.0000
L21	16	3" Conduit	42.83 - 50.75	1.0000	1.0000
L21	17	LDF6-50A(1-1/4")	42.83 - 50.75	1.0000	1.0000
L21	20	10" Plate	42.83 - 47.75	1.0000	1.0000
L21	21	10" Plate	42.83 - 47.75	1.0000	1.0000
L21	22	10" Plate	42.83 - 47.75	1.0000	1.0000
L21	23	7" Plate	47.75 - 50.75	1.0000	1.0000
L21	24	7" Plate	47.75 - 50.75	1.0000	1.0000
L21	25	7" Plate	47.75 - 50.75	1.0000	1.0000
L21	26	10" Plate	42.83 - 47.75	1.0000	1.0000
L21	27	10" Plate	42.83 - 47.75	1.0000	1.0000
L21	28	10" Plate	42.83 - 47.75	1.0000	1.0000
L21	29	7" Plate	47.75 - 50.75	1.0000	1.0000
L21	30	7" Plate	47.75 - 50.75	1.0000	1.0000
L21	31	7" Plate	47.75 - 50.75	1.0000	1.0000
L21	35	Connection Plate	43.80 - 50.75	1.0000	1.0000
L21	36	Connection Plate	43.80 - 50.75	1.0000	1.0000
L21	37	Connection Plate	43.80 - 50.75	1.0000	1.0000
L23	6	LDF7-50A(1-5/8")	37.92 - 41.83	1.0000	1.0000
L23	10	LDF2-2R(1")	37.92 - 41.83	1.0000	1.0000
L23	16	3" Conduit	37.92 - 41.83	1.0000	1.0000
L23	17	LDF6-50A(1-1/4")	37.92 - 41.83	1.0000	1.0000
L23	20	10" Plate	37.92 - 41.83	1.0000	1.0000
L23	21	10" Plate	37.92 - 41.83	1.0000	1.0000
L23	22	10" Plate	37.92 - 41.83	1.0000	1.0000
L23	26	10" Plate	37.92 - 41.83	1.0000	1.0000
L23	27	10" Plate	37.92 - 41.83	1.0000	1.0000
L23	28	10" Plate	37.92 - 41.83	1.0000	1.0000
L23	32	Connection Plate	37.92 - 41.80	1.0000	1.0000
L23	33	Connection Plate	37.92 - 41.80	1.0000	1.0000
L23	34	Connection Plate	37.92 - 41.80	1.0000	1.0000
L24	6	LDF7-50A(1-5/8")	37.67 - 37.92	1.0000	1.0000
L24	10	LDF2-2R(1")	37.67 - 37.92	1.0000	1.0000
L24	16	3" Conduit	37.67 - 37.92	1.0000	1.0000
L24	17	LDF6-50A(1-1/4")	37.67 - 37.92	1.0000	1.0000
L24	20	10" Plate	37.67 - 37.92	1.0000	1.0000
L24	21	10" Plate	37.67 - 37.92	1.0000	1.0000
L24	22	10" Plate	37.67 - 37.92	1.0000	1.0000
L24	26	10" Plate	37.67 - 37.92	1.0000	1.0000
L24	27	10" Plate	37.67 - 37.92	1.0000	1.0000
L24	28	10" Plate	37.67 - 37.92	1.0000	1.0000
L24	32	Connection Plate	37.67 - 37.92	1.0000	1.0000
L24	33	Connection Plate	37.67 - 37.92	1.0000	1.0000
L24	34	Connection Plate	37.67 - 37.92	1.0000	1.0000
L25	6	LDF7-50A(1-5/8")	32.67 - 37.67	1.0000	1.0000
L25	10	LDF2-2R(1")	32.67 - 37.67	1.0000	1.0000
L25	16	3" Conduit	32.67 - 37.67	1.0000	1.0000
L25	17	LDF6-50A(1-1/4")	32.67 - 37.67	1.0000	1.0000
L25	20	10" Plate	32.67 - 37.67	1.0000	1.0000
L25	21	10" Plate	32.67 - 37.67	1.0000	1.0000
L25	22	10" Plate	32.67 - 37.67	1.0000	1.0000
L25	26	10" Plate	32.67 - 37.67	1.0000	1.0000

<p style="text-align: center;">tnxTower</p> <p style="text-align: center;">Destek Engineering, LLC 1281 Kennestone Circle, Suite 100 Marietta, GA 30066 Phone: (770) 693 0835 FAX:</p>	Job	824889 Jester-Isenhour	Page	14 of 31
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Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L25	27	10" Plate	32.67 - 37.67	1.0000	1.0000
L25	28	10" Plate	32.67 - 37.67	1.0000	1.0000
L25	32	Connection Plate	33.90 - 37.67	1.0000	1.0000
L25	33	Connection Plate	33.90 - 37.67	1.0000	1.0000
L25	34	Connection Plate	33.90 - 37.67	1.0000	1.0000
L26	6	LDF7-50A(1-5/8")	30.00 - 32.67	1.0000	1.0000
L26	10	LDF2-2R(1")	30.00 - 32.67	1.0000	1.0000
L26	16	3" Conduit	30.00 - 32.67	1.0000	1.0000
L26	17	LDF6-50A(1-1/4")	30.00 - 32.67	1.0000	1.0000
L26	20	10" Plate	27.67 - 32.67	1.0000	1.0000
L26	21	10" Plate	27.67 - 32.67	1.0000	1.0000
L26	22	10" Plate	27.67 - 32.67	1.0000	1.0000
L26	26	10" Plate	27.67 - 32.67	1.0000	1.0000
L26	27	10" Plate	27.67 - 32.67	1.0000	1.0000
L26	28	10" Plate	27.67 - 32.67	1.0000	1.0000
L27	20	10" Plate	22.67 - 27.67	1.0000	1.0000
L27	21	10" Plate	22.67 - 27.67	1.0000	1.0000
L27	22	10" Plate	22.67 - 27.67	1.0000	1.0000
L27	26	10" Plate	22.67 - 27.67	1.0000	1.0000
L27	27	10" Plate	22.67 - 27.67	1.0000	1.0000
L27	28	10" Plate	22.67 - 27.67	1.0000	1.0000
L28	20	10" Plate	17.67 - 22.67	1.0000	1.0000
L28	21	10" Plate	17.67 - 22.67	1.0000	1.0000
L28	22	10" Plate	17.67 - 22.67	1.0000	1.0000
L28	26	10" Plate	17.67 - 22.67	1.0000	1.0000
L28	27	10" Plate	17.67 - 22.67	1.0000	1.0000
L28	28	10" Plate	17.67 - 22.67	1.0000	1.0000
L29	20	10" Plate	12.67 - 17.67	1.0000	1.0000
L29	21	10" Plate	12.67 - 17.67	1.0000	1.0000
L29	22	10" Plate	12.67 - 17.67	1.0000	1.0000
L29	26	10" Plate	12.67 - 17.67	1.0000	1.0000
L29	27	10" Plate	12.67 - 17.67	1.0000	1.0000
L29	28	10" Plate	12.67 - 17.67	1.0000	1.0000
L30	20	10" Plate	7.67 - 12.67	1.0000	1.0000
L30	21	10" Plate	7.67 - 12.67	1.0000	1.0000
L30	22	10" Plate	7.67 - 12.67	1.0000	1.0000
L30	26	10" Plate	7.67 - 12.67	1.0000	1.0000
L30	27	10" Plate	7.67 - 12.67	1.0000	1.0000
L30	28	10" Plate	7.67 - 12.67	1.0000	1.0000
L31	20	10" Plate	2.67 - 7.67	1.0000	1.0000
L31	21	10" Plate	2.67 - 7.67	1.0000	1.0000
L31	22	10" Plate	2.67 - 7.67	1.0000	1.0000
L31	26	10" Plate	2.67 - 7.67	1.0000	1.0000
L31	27	10" Plate	2.67 - 7.67	1.0000	1.0000
L31	28	10" Plate	2.67 - 7.67	1.0000	1.0000
L32	20	10" Plate	0.00 - 2.67	1.0000	1.0000
L32	21	10" Plate	0.00 - 2.67	1.0000	1.0000
L32	22	10" Plate	0.00 - 2.67	1.0000	1.0000
L32	26	10" Plate	0.00 - 2.67	1.0000	1.0000
L32	27	10" Plate	0.00 - 2.67	1.0000	1.0000
L32	28	10" Plate	0.00 - 2.67	1.0000	1.0000

Discrete Tower Loads

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Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement	C _{AA} Front	C _{AA} Side	Weight
			Horz	Lateral					
143ft									
(3) Andrew 5' Antennas w/ Mount Pipe	A	From Leg	3.00	0.0000	143.00	No Ice	8.50	6.95	0.08
			0.00			1/2" Ice	9.15	8.13	0.15
			0.00			1" Ice	9.77	9.02	0.23
(4) Andrew 5' Antennas w/ Mount Pipe	B	From Leg	3.00	0.0000	143.00	No Ice	8.50	6.95	0.08
			0.00			1/2" Ice	9.15	8.13	0.15
			0.00			1" Ice	9.77	9.02	0.23
(3) Andrew 5' Antennas w/ Mount Pipe	C	From Leg	3.00	0.0000	143.00	No Ice	8.50	6.95	0.08
			0.00			1/2" Ice	9.15	8.13	0.15
			0.00			1" Ice	9.77	9.02	0.23
10' Omni	B	From Leg	0.00	0.0000	143.00	No Ice	2.00	2.00	0.01
			0.00			1/2" Ice	3.03	3.03	0.03
			0.00			1" Ice	4.06	4.06	0.04
T-Arm Mount [TA 602-3]	C	None		0.0000	143.00	No Ice	11.59	11.59	0.77
						1/2" Ice	15.44	15.44	0.99
						1" Ice	19.29	19.29	1.21
130ft									
T-Arm Mount [TA 602-3]	C	None		0.0000	130.00	No Ice	11.59	11.59	0.77
						1/2" Ice	15.44	15.44	0.99
						1" Ice	19.29	19.29	1.21
(2) 7770.00 w/ Mount Pipe	A	From Leg	3.00	0.0000	130.00	No Ice	5.75	4.25	0.06
			0.00			1/2" Ice	6.18	5.01	0.10
			0.00			1" Ice	6.61	5.71	0.16
(2) 7770.00 w/ Mount Pipe	B	From Leg	3.00	0.0000	130.00	No Ice	5.75	4.25	0.06
			0.00			1/2" Ice	6.18	5.01	0.10
			0.00			1" Ice	6.61	5.71	0.16
(2) 7770.00 w/ Mount Pipe	C	From Leg	3.00	0.0000	130.00	No Ice	5.75	4.25	0.06
			0.00			1/2" Ice	6.18	5.01	0.10
			0.00			1" Ice	6.61	5.71	0.16
P65-16-XLH-RR w/ Mount Pipe	A	From Leg	3.00	0.0000	130.00	No Ice	8.37	6.36	0.08
			0.00			1/2" Ice	8.93	7.54	0.14
			0.00			1" Ice	9.46	8.43	0.22
P65-16-XLH-RR w/ Mount Pipe	B	From Leg	3.00	0.0000	130.00	No Ice	8.37	6.36	0.08
			0.00			1/2" Ice	8.93	7.54	0.14
			0.00			1" Ice	9.46	8.43	0.22
P65-16-XLH-RR w/ Mount Pipe	C	From Leg	3.00	0.0000	130.00	No Ice	8.37	6.36	0.08
			0.00			1/2" Ice	8.93	7.54	0.14
			0.00			1" Ice	9.46	8.43	0.22
(4) LGP21401	A	From Leg	3.00	0.0000	130.00	No Ice	1.10	0.21	0.01
			0.00			1/2" Ice	1.24	0.27	0.02
			0.00			1" Ice	1.38	0.35	0.03
(4) LGP21401	B	From Leg	3.00	0.0000	130.00	No Ice	1.10	0.21	0.01
			0.00			1/2" Ice	1.24	0.27	0.02
			0.00			1" Ice	1.38	0.35	0.03
(4) LGP21401	C	From Leg	3.00	0.0000	130.00	No Ice	1.10	0.21	0.01
			0.00			1/2" Ice	1.24	0.27	0.02
			0.00			1" Ice	1.38	0.35	0.03
(2) RRUS 11	A	From Leg	3.00	0.0000	130.00	No Ice	2.78	1.19	0.05
			0.00			1/2" Ice	2.99	1.33	0.07
			0.00			1" Ice	3.21	1.49	0.10
(2) RRUS 11	B	From Leg	3.00	0.0000	130.00	No Ice	2.78	1.19	0.05
			0.00			1/2" Ice	2.99	1.33	0.07
			0.00			1" Ice	3.21	1.49	0.10
(2) RRUS 11	C	From Leg	3.00	0.0000	130.00	No Ice	2.78	1.19	0.05
			0.00			1/2" Ice	2.99	1.33	0.07
			0.00			1" Ice	3.21	1.49	0.10
DC6-48-60-18-8F	A	From Leg	3.00	0.0000	130.00	No Ice	2.20	2.20	0.02

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Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement	C _{AA} Front	C _{AA} Side	Weight	
			Horz	Vert						
			ft	ft	°	ft	ft ²	ft ²	K	
			0.00			1/2" Ice	2.40	2.40	0.04	
			0.00			1" Ice	2.60	2.60	0.07	
135ft										
(2) Kathrein 8101002R4B	A	From Leg	3.00		0.0000	135.00	No Ice	11.56	9.22	0.16
			0.00				1/2" Ice	12.28	10.51	0.25
			0.00				1" Ice	12.97	11.58	0.35
(2) Kathrein 8101002R4B	B	From Leg	3.00		0.0000	135.00	No Ice	11.56	9.22	0.16
			0.00				1/2" Ice	12.28	10.51	0.25
			0.00				1" Ice	12.97	11.58	0.35
(2) Kathrein 8101002R4B	C	From Leg	3.00		0.0000	135.00	No Ice	11.56	9.22	0.16
			0.00				1/2" Ice	12.28	10.51	0.25
			0.00				1" Ice	12.97	11.58	0.35
(2) LGP21401	A	From Leg	3.00		0.0000	135.00	No Ice	1.10	0.21	0.01
			0.00				1/2" Ice	1.24	0.27	0.02
			0.00				1" Ice	1.38	0.35	0.03
(2) LGP21401	B	From Leg	3.00		0.0000	135.00	No Ice	1.10	0.21	0.01
			0.00				1/2" Ice	1.24	0.27	0.02
			0.00				1" Ice	1.38	0.35	0.03
(2) LGP21401	C	From Leg	3.00		0.0000	135.00	No Ice	1.10	0.21	0.01
			0.00				1/2" Ice	1.24	0.27	0.02
			0.00				1" Ice	1.38	0.35	0.03
24"x24" Panel	C	From Leg	3.00		0.0000	135.00	No Ice	6.57	0.79	0.02
			0.00				1/2" Ice	6.91	0.96	0.05
			0.00				1" Ice	7.25	1.13	0.08
T-Arm Mount [TA 602-3]	C	None			0.0000	135.00	No Ice	11.59	11.59	0.77
							1/2" Ice	15.44	15.44	0.99
							1" Ice	19.29	19.29	1.21
110.3ft										
APXVSP16w/ Mount Pipe	A	From Leg	3.00		0.0000	110.30	No Ice	8.50	6.95	0.08
			0.00				1/2" Ice	9.15	8.13	0.15
			0.00				1" Ice	9.77	9.02	0.23
APXVSP16w/ Mount Pipe	B	From Leg	3.00		0.0000	110.30	No Ice	8.50	6.95	0.08
			0.00				1/2" Ice	9.15	8.13	0.15
			0.00				1" Ice	9.77	9.02	0.23
APXVSP16w/ Mount Pipe	C	From Leg	3.00		0.0000	110.30	No Ice	8.50	6.95	0.08
			0.00				1/2" Ice	9.15	8.13	0.15
			0.00				1" Ice	9.77	9.02	0.23
9442 RRH2X40-07L	A	From Leg	3.00		0.0000	110.30	No Ice	2.49	2.21	0.05
			0.00				1/2" Ice	2.71	2.42	0.07
			0.00				1" Ice	2.94	2.63	0.10
9442 RRH2X40-07L	B	From Leg	3.00		0.0000	110.30	No Ice	2.49	2.21	0.05
			0.00				1/2" Ice	2.71	2.42	0.07
			0.00				1" Ice	2.94	2.63	0.10
9442 RRH2X40-07L	C	From Leg	3.00		0.0000	110.30	No Ice	2.49	2.21	0.05
			0.00				1/2" Ice	2.71	2.42	0.07
			0.00				1" Ice	2.94	2.63	0.10
PCS 1900MHz 4x45W-65MHz	A	From Leg	3.00		0.0000	110.30	No Ice	2.32	2.24	0.06
			0.00				1/2" Ice	2.53	2.44	0.08
			0.00				1" Ice	2.74	2.65	0.11
PCS 1900MHz 4x45W-65MHz	B	From Leg	3.00		0.0000	110.30	No Ice	2.32	2.24	0.06
			0.00				1/2" Ice	2.53	2.44	0.08
			0.00				1" Ice	2.74	2.65	0.11
PCS 1900MHz 4x45W-65MHz	C	From Leg	3.00		0.0000	110.30	No Ice	2.32	2.24	0.06
			0.00				1/2" Ice	2.53	2.44	0.08
			0.00				1" Ice	2.74	2.65	0.11
(2) 6' x 2" Mount Pipe	A	From Leg	3.00		0.0000	110.30	No Ice	1.43	1.43	0.02
			0.00				1/2" Ice	1.92	1.92	0.03

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Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement	C _A A _A Front	C _A A _A Side	Weight
			Horz Lateral	Vert					
			ft	°	ft	ft ²	ft ²	K	
(2) 6' x 2" Mount Pipe	B	From Leg	0.00		110.30	1" Ice	2.29	2.29	0.05
			3.00	0.0000		No Ice	1.43	1.43	0.02
			0.00			1/2" Ice	1.92	1.92	0.03
			0.00			1" Ice	2.29	2.29	0.05
(2) 6' x 2" Mount Pipe	C	From Leg	3.00	0.0000	110.30	No Ice	1.43	1.43	0.02
			0.00		1/2" Ice	1.92	1.92	0.03	
			0.00		1" Ice	2.29	2.29	0.05	
			0.00		No Ice	2.00	2.00	0.01	
10' Omni	B	From Leg	0.00	0.0000	110.30	1/2" Ice	3.03	3.03	0.03
			0.00		1" Ice	4.06	4.06	0.04	
			0.00		No Ice	20.80	20.80	1.80	
Platform Mount [LP 405-1]	C	From Leg	0.00	0.0000	110.30	1/2" Ice	28.10	28.10	2.07
			0.00		1" Ice	35.40	35.40	2.33	
			0.00						

Dishes

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

Load Combinations

Comb. No.	Description
1	Dead Only
2	1.2 Dead+1.6 Wind 0 deg - No Ice
3	0.9 Dead+1.6 Wind 0 deg - No Ice
4	1.2 Dead+1.6 Wind 30 deg - No Ice
5	0.9 Dead+1.6 Wind 30 deg - No Ice
6	1.2 Dead+1.6 Wind 60 deg - No Ice
7	0.9 Dead+1.6 Wind 60 deg - No Ice
8	1.2 Dead+1.6 Wind 90 deg - No Ice
9	0.9 Dead+1.6 Wind 90 deg - No Ice
10	1.2 Dead+1.6 Wind 120 deg - No Ice
11	0.9 Dead+1.6 Wind 120 deg - No Ice
12	1.2 Dead+1.6 Wind 150 deg - No Ice
13	0.9 Dead+1.6 Wind 150 deg - No Ice
14	1.2 Dead+1.6 Wind 180 deg - No Ice
15	0.9 Dead+1.6 Wind 180 deg - No Ice
16	1.2 Dead+1.6 Wind 210 deg - No Ice
17	0.9 Dead+1.6 Wind 210 deg - No Ice
18	1.2 Dead+1.6 Wind 240 deg - No Ice
19	0.9 Dead+1.6 Wind 240 deg - No Ice
20	1.2 Dead+1.6 Wind 270 deg - No Ice
21	0.9 Dead+1.6 Wind 270 deg - No Ice

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<i>Comb. No.</i>	<i>Description</i>
22	1.2 Dead+1.6 Wind 300 deg - No Ice
23	0.9 Dead+1.6 Wind 300 deg - No Ice
24	1.2 Dead+1.6 Wind 330 deg - No Ice
25	0.9 Dead+1.6 Wind 330 deg - No Ice
26	1.2 Dead+1.0 Ice
27	1.2 Dead+1.0 Wind 0 deg+1.0 Ice
28	1.2 Dead+1.0 Wind 30 deg+1.0 Ice
29	1.2 Dead+1.0 Wind 60 deg+1.0 Ice
30	1.2 Dead+1.0 Wind 90 deg+1.0 Ice
31	1.2 Dead+1.0 Wind 120 deg+1.0 Ice
32	1.2 Dead+1.0 Wind 150 deg+1.0 Ice
33	1.2 Dead+1.0 Wind 180 deg+1.0 Ice
34	1.2 Dead+1.0 Wind 210 deg+1.0 Ice
35	1.2 Dead+1.0 Wind 240 deg+1.0 Ice
36	1.2 Dead+1.0 Wind 270 deg+1.0 Ice
37	1.2 Dead+1.0 Wind 300 deg+1.0 Ice
38	1.2 Dead+1.0 Wind 330 deg+1.0 Ice
39	Dead+Wind 0 deg - Service
40	Dead+Wind 30 deg - Service
41	Dead+Wind 60 deg - Service
42	Dead+Wind 90 deg - Service
43	Dead+Wind 120 deg - Service
44	Dead+Wind 150 deg - Service
45	Dead+Wind 180 deg - Service
46	Dead+Wind 210 deg - Service
47	Dead+Wind 240 deg - Service
48	Dead+Wind 270 deg - Service
49	Dead+Wind 300 deg - Service
50	Dead+Wind 330 deg - Service

Maximum Member Forces

<i>Section No.</i>	<i>Elevation ft</i>	<i>Component Type</i>	<i>Condition</i>	<i>Gov. Load Comb.</i>	<i>Axial K</i>	<i>Major Axis Moment kip-ft</i>	<i>Minor Axis Moment kip-ft</i>
L1	145 - 140	Pole	Max Tension	2	0.00	0.0	-0.0
			Max. Compression	26	-6.25	-1.4	-0.8
			Max. Mx	8	-1.95	-16.0	-0.2
			Max. My	14	-1.95	-0.3	-15.8
			Max. Vy	20	-5.33	15.3	-0.0
			Max. Vx	14	5.29	-0.3	-15.8
			Max. Torque	16			1.5
L2	140 - 135	Pole	Max Tension	1	0.00	0.0	0.0
			Max. Compression	26	-7.07	-1.4	-0.8
			Max. Mx	8	-2.41	-44.2	-0.4
			Max. My	14	-2.41	-0.5	-43.8
			Max. Vy	20	-5.96	43.5	0.1
			Max. Vx	14	5.92	-0.5	-43.8
			Max. Torque	16			1.5
L3	135 - 130	Pole	Max Tension	1	0.00	0.0	0.0
			Max. Compression	26	-13.52	-0.7	-0.9
			Max. Mx	8	-4.83	-94.9	-0.0
			Max. My	14	-4.85	0.0	-93.8
			Max. Vy	20	-10.50	94.6	-0.3
			Max. Vx	14	10.34	0.0	-93.8
			Max. Torque	16			1.5
L4	130 - 125	Pole	Max Tension	1	0.00	0.0	0.0
			Max. Compression	26	-20.67	-0.5	-0.2
			Max. Mx	8	-7.36	-168.8	0.5

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Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L5	125 - 120	Pole	Max. My	14	-7.38	0.5	-166.9
			Max. Vy	20	-15.14	168.6	-0.5
			Max. Vx	14	15.00	0.5	-166.9
			Max. Torque	18			1.3
			Max Tension	1	0.00	0.0	0.0
			Max. Compression	26	-21.93	-0.2	0.0
			Max. Mx	8	-8.05	-246.1	0.9
			Max. My	2	-8.07	-0.9	243.6
			Max. Vy	20	-15.81	246.0	-0.9
			Max. Vx	14	15.69	0.9	-243.6
L6	120 - 115	Pole	Max. Torque	14			1.2
			Max Tension	1	0.00	0.0	0.0
			Max. Compression	26	-23.20	-0.0	0.3
			Max. Mx	20	-8.77	326.8	-1.2
			Max. My	2	-8.78	-1.2	323.8
			Max. Vy	20	-16.49	326.8	-1.2
			Max. Vx	14	16.38	1.4	-323.7
			Max. Torque	14			1.2
			Max Tension	1	0.00	0.0	0.0
			Max. Compression	26	-30.16	3.4	-1.4
L7	115 - 110	Pole	Max. Mx	20	-12.29	414.3	-2.8
			Max. My	14	-12.31	4.1	-409.5
			Max. Vy	20	-20.45	414.3	-2.8
			Max. Vx	14	20.33	4.1	-409.5
			Max. Torque	14			1.2
			Max Tension	1	0.00	0.0	0.0
			Max. Compression	26	-31.55	3.6	-1.2
			Max. Mx	20	-13.09	518.3	-3.2
			Max. My	14	-13.11	4.6	-512.8
			Max. Vy	20	-21.13	518.3	-3.2
L8	110 - 105	Pole	Max. Vx	14	21.02	4.6	-512.8
			Max. Torque	9			-1.1
			Max Tension	1	0.00	0.0	0.0
			Max. Compression	26	-32.96	3.8	-0.9
			Max. Mx	20	-13.92	625.7	-3.5
			Max. My	14	-13.93	5.0	-619.5
			Max. Vy	20	-21.82	625.7	-3.5
			Max. Vx	14	21.71	5.0	-619.5
			Max. Torque	9			-1.1
			Max Tension	1	0.00	0.0	0.0
L9	105 - 100	Pole	Max. Compression	26	-34.11	3.9	-0.6
			Max. Mx	20	-14.60	714.1	-3.7
			Max. My	14	-14.62	5.4	-707.4
			Max. Vy	20	-22.37	714.1	-3.7
			Max. Vx	14	22.26	5.4	-707.4
			Max. Torque	9			-1.1
			Max Tension	1	0.00	0.0	0.0
			Max. Compression	26	-37.13	4.1	-0.3
			Max. Mx	20	-16.49	855.1	-4.1
			Max. My	14	-16.50	6.0	-847.5
L10	100 - 90.83	Pole	Max. Vy	20	-23.31	855.1	-4.1
			Max. Vx	14	23.20	6.0	-847.5
			Max. Torque	9			-1.1
			Max Tension	1	0.00	0.0	0.0
			Max. Compression	26	-38.80	4.3	0.0
			Max. Mx	20	-17.58	973.4	-4.5
			Max. My	14	-17.59	6.4	-965.1
			Max. Vy	20	-24.02	973.4	-4.5
			Max. Vx	14	23.90	6.4	-965.1
			Max. Torque	9			-1.1
L11	89.83 - 84.83	Pole	Max Tension	1	0.00	0.0	0.0
			Max. Compression	26	-38.80	4.3	0.0
L12	84.83 - 79.83	Pole	Max. Mx	20	-17.58	973.4	-4.5
			Max. My	14	-17.59	6.4	-965.1
			Max. Vy	20	-24.02	973.4	-4.5
			Max. Vx	14	23.90	6.4	-965.1
			Max. Torque	9			-1.1
			Max Tension	1	0.00	0.0	0.0
			Max. Compression	26	-38.80	4.3	0.0
			Max. Mx	20	-17.58	973.4	-4.5
			Max. My	14	-17.59	6.4	-965.1
			Max. Vy	20	-24.02	973.4	-4.5
L13	84.83 - 79.83	Pole	Max. Vx	14	23.90	6.4	-965.1
			Max. Torque	9			-1.1
L13	84.83 - 79.83	Pole	Max Tension	1	0.00	0.0	0.0
			Max. Compression	26	-38.80	4.3	0.0

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L14	79.83 - 74.83	Pole	Max. Compression	26	-40.50	4.4	0.3
			Max. Mx	20	-18.70	1095.3	-4.8
			Max. My	14	-18.71	6.9	-1086.3
			Max. Vy	20	-24.72	1095.3	-4.8
			Max. Vx	14	24.61	6.9	-1086.3
			Max. Torque	9			-1.1
			Max Tension	1	0.00	0.0	0.0
			Max. Compression	26	-42.22	4.6	0.6
			Max. Mx	20	-19.85	1220.6	-5.1
			Max. My	14	-19.86	7.3	-1211.0
L15	74.83 - 69.83	Pole	Max. Vy	20	-25.42	1220.6	-5.1
			Max. Vx	14	25.31	7.3	-1211.0
			Max. Torque	9			-1.1
			Max Tension	1	0.00	0.0	0.0
			Max. Compression	26	-43.97	4.8	1.0
			Max. Mx	20	-21.03	1349.5	-5.4
			Max. My	14	-21.04	7.8	-1339.1
			Max. Vy	20	-26.12	1349.5	-5.4
			Max. Vx	14	26.01	7.8	-1339.1
			Max. Torque	9			-1.1
L16	69.83 - 66	Pole	Max Tension	1	0.00	0.0	0.0
			Max. Compression	26	-45.49	4.9	1.2
			Max. Mx	20	-21.96	1450.6	-5.6
			Max. My	14	-21.97	8.2	-1439.6
			Max. Vy	20	-26.65	1450.6	-5.6
			Max. Vx	14	26.55	8.2	-1439.6
			Max. Torque	9			-1.1
			Max Tension	1	0.00	0.0	0.0
			Max. Compression	26	-45.63	4.9	1.2
			Max. Mx	20	-22.06	1457.2	-5.6
L17	66 - 65.75	Pole	Max. My	14	-22.07	8.2	-1446.3
			Max. Vy	20	-26.68	1457.2	-5.6
			Max. Vx	14	26.58	8.2	-1446.3
			Max. Torque	9			-1.1
			Max Tension	1	0.00	0.0	0.0
			Max. Compression	26	-48.35	5.0	1.5
			Max. Mx	20	-23.78	1592.5	-5.9
			Max. My	14	-23.78	8.6	-1580.9
			Max. Vy	20	-27.43	1592.5	-5.9
			Max. Vx	14	27.34	8.6	-1580.9
L18	65.75 - 60.75	Pole	Max. Torque	9			-1.1
			Max Tension	1	0.00	0.0	0.0
			Max. Compression	26	-51.10	5.2	1.9
			Max. Mx	20	-25.53	1731.6	-6.2
			Max. My	14	-25.54	9.1	-1719.3
			Max. Vy	20	-28.17	1731.6	-6.2
			Max. Vx	2	-28.08	-2.8	1718.7
			Max. Torque	9			-1.1
			Max Tension	1	0.00	0.0	0.0
			Max. Compression	26	-53.90	5.3	2.2
L19	60.75 - 55.75	Pole	Max. Mx	20	-27.31	1874.3	-6.5
			Max. My	14	-27.32	9.6	-1861.5
			Max. Vy	20	-28.91	1874.3	-6.5
			Max. Vx	4	-28.82	-1052.4	1809.2
			Max. Torque	9			-1.1
			Max Tension	1	0.00	0.0	0.0
			Max. Compression	26	-54.96	5.4	2.3
			Max. Mx	20	-27.93	1925.1	-6.6
			Max. My	14	-27.94	9.7	-1912.1
			Max. Vy	20	-29.16	1925.1	-6.6
L20	55.75 - 50.75	Pole	Max. Vx	4	-29.09	-1081.9	1859.9
			Max. Torque	9			-1.1
			Max Tension	1	0.00	0.0	0.0
			Max. Compression	26	-54.96	5.4	2.3
			Max. Mx	20	-27.93	1925.1	-6.6
L21	50.75 - 42.83	Pole	Max. My	14	-27.94	9.7	-1912.1
			Max. Vy	20	-29.16	1925.1	-6.6
			Max. Vx	4	-29.09	-1081.9	1859.9
			Max. Torque	9			-1.1
			Max Tension	1	0.00	0.0	0.0

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Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L22	42.83 - 41.83	Pole	Max. Torque	9			-1.1
			Max Tension	1	0.00	0.0	0.0
			Max. Compression	26	-62.07	5.6	2.8
			Max. Mx	20	-32.77	2138.4	-7.0
			Max. My	14	-32.78	10.4	-2124.4
			Max. Vy	20	-30.30	2138.4	-7.0
			Max. Vx	4	-30.27	-1205.5	2072.8
L23	41.83 - 37.9167	Pole	Max. Torque	9			-1.1
			Max Tension	1	0.00	0.0	0.0
			Max. Compression	26	-64.71	5.7	2.9
			Max. Mx	20	-34.42	2258.0	-7.3
			Max. My	2	-34.43	-3.9	2243.7
			Max. Vy	20	-30.85	2258.0	-7.3
			Max. Vx	4	-30.84	-1275.0	2192.4
L24	37.9167 - 37.6667	Pole	Max. Torque	9			-1.1
			Max Tension	1	0.00	0.0	0.0
			Max. Compression	26	-64.88	5.7	2.9
			Max. Mx	20	-34.54	2265.8	-7.3
			Max. My	2	-34.55	-3.9	2251.4
			Max. Vy	20	-30.88	2265.8	-7.3
			Max. Vx	4	-30.86	-1279.5	2200.2
L25	37.6667 - 32.6667	Pole	Max. Torque	9			-1.1
			Max Tension	1	0.00	0.0	0.0
			Max. Compression	26	-68.33	5.8	3.1
			Max. Mx	20	-36.78	2421.9	-7.6
			Max. My	2	-36.79	-4.2	2407.2
			Max. Vy	20	-31.58	2421.9	-7.6
			Max. Vx	4	-31.58	-1370.2	2356.3
L26	32.6667 - 27.6667	Pole	Max. Torque	9			-1.1
			Max Tension	1	0.00	0.0	0.0
			Max. Compression	26	-71.45	5.9	3.3
			Max. Mx	20	-38.96	2581.5	-7.9
			Max. My	2	-38.97	-4.6	2566.3
			Max. Vy	20	-32.25	2581.5	-7.9
			Max. Vx	2	-32.16	-4.6	2566.3
L27	27.6667 - 22.6667	Pole	Max. Torque	9			-1.1
			Max Tension	1	0.00	0.0	0.0
			Max. Compression	26	-74.34	5.9	3.3
			Max. Mx	20	-41.06	2744.3	-8.3
			Max. My	2	-41.06	-5.0	2728.7
			Max. Vy	20	-32.89	2744.3	-8.3
			Max. Vx	2	-32.81	-5.0	2728.7
L28	22.6667 - 17.6667	Pole	Max. Torque	9			-1.1
			Max Tension	1	0.00	0.0	0.0
			Max. Compression	26	-77.24	5.9	3.3
			Max. Mx	20	-43.18	2910.3	-8.7
			Max. My	2	-43.18	-5.3	2894.2
			Max. Vy	20	-33.51	2910.3	-8.7
			Max. Vx	2	-33.42	-5.3	2894.2
L29	17.6667 - 12.6667	Pole	Max. Torque	9			-1.1
			Max Tension	1	0.00	0.0	0.0
			Max. Compression	26	-80.15	5.9	3.3
			Max. Mx	20	-45.34	3079.2	-9.1
			Max. My	2	-45.34	-5.7	3062.7

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Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L30	12.6667 - 7.6667	Pole	Max. Vy	20	-34.09	3079.2	-9.1
			Max. Vx	2	-34.00	-5.7	3062.7
			Max. Torque	9			-1.1
			Max Tension	1	0.00	0.0	0.0
			Max. Compression	26	-83.05	5.9	3.3
			Max. Mx	20	-47.52	3251.0	-9.4
			Max. My	2	-47.52	-6.1	3234.1
			Max. Vy	20	-34.66	3251.0	-9.4
			Max. Vx	2	-34.58	-6.1	3234.1
			Max. Torque	9			-1.1
L31	7.6667 - 2.6667	Pole	Max Tension	1	0.00	0.0	0.0
			Max. Compression	26	-85.93	5.9	3.3
			Max. Mx	20	-49.74	3425.7	-9.8
			Max. My	2	-49.74	-6.5	3408.3
			Max. Vy	20	-35.24	3425.7	-9.8
			Max. Vx	2	-35.15	-6.5	3408.3
			Max. Torque	9			-1.1
			Max Tension	1	0.00	0.0	0.0
			Max. Compression	26	-87.43	5.9	3.3
			Max. Mx	20	-50.93	3520.0	-10.0
L32	2.6667 - 0	Pole	Max. My	2	-50.93	-6.7	3502.4
			Max. Vy	20	-35.55	3520.0	-10.0
			Max. Vx	2	-35.47	-6.7	3502.4
			Max. Torque	9			-1.1

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Pole	Max. Vert	34	87.43	4.71	-8.12
	Max. H _x	20	50.94	35.54	-0.08
	Max. H _z	2	50.94	-0.08	35.45
	Max. M _x	2	3502.4	-0.08	35.45
	Max. M _z	8	3513.0	-35.54	0.08
	Max. Torsion	21	1.1	35.54	-0.08
	Min. Vert	23	38.21	30.74	17.62
	Min. H _x	9	38.21	-35.54	0.08
	Min. H _z	14	50.94	0.08	-35.45
	Min. M _x	14	-3502.0	0.08	-35.45
	Min. M _z	20	-3520.0	35.54	-0.08
	Min. Torsion	9	-1.1	-35.54	0.08

Tower Mast Reaction Summary

Load Combination	Vertical K	Shear _x K	Shear _z K	Overtuning Moment, M _x kip-ft	Overtuning Moment, M _z kip-ft	Torque kip-ft
Dead Only	42.45	0.00	0.00	-0.2	2.9	0.0
1.2 Dead+1.6 Wind 0 deg - No Ice	50.94	0.08	-35.45	-3502.4	-6.7	0.1

<p style="text-align: center;">tnxTower</p> <p style="text-align: center;">Destek Engineering, LLC 1281 Kennestone Circle, Suite 100 Marietta, GA 30066 Phone: (770) 693 0835 FAX:</p>	Job	824889 Jester-Isenhour	Page	23 of 31
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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
0.9 Dead+1.6 Wind 0 deg - No Ice	38.21	0.08	-35.45	-3477.9	-7.5	0.1
1.2 Dead+1.6 Wind 30 deg - No Ice	50.94	20.29	-34.93	-3444.5	-2002.5	-0.9
0.9 Dead+1.6 Wind 30 deg - No Ice	38.21	20.29	-34.93	-3420.6	-1989.5	-0.9
1.2 Dead+1.6 Wind 60 deg - No Ice	50.94	30.82	-17.76	-1756.8	-3048.7	1.1
0.9 Dead+1.6 Wind 60 deg - No Ice	38.21	30.82	-17.76	-1744.4	-3028.2	1.0
1.2 Dead+1.6 Wind 90 deg - No Ice	50.94	35.54	-0.08	-10.4	-3513.0	1.1
0.9 Dead+1.6 Wind 90 deg - No Ice	38.21	35.54	-0.08	-10.3	-3489.2	1.1
1.2 Dead+1.6 Wind 120 deg - No Ice	50.94	30.74	17.62	1737.6	-3036.7	0.9
0.9 Dead+1.6 Wind 120 deg - No Ice	38.21	30.74	17.62	1725.5	-3016.4	0.9
1.2 Dead+1.6 Wind 150 deg - No Ice	50.94	18.23	31.52	3087.8	-1785.0	0.4
0.9 Dead+1.6 Wind 150 deg - No Ice	38.21	18.23	31.52	3066.4	-1773.5	0.5
1.2 Dead+1.6 Wind 180 deg - No Ice	50.94	-0.08	35.45	3502.0	13.8	-0.1
0.9 Dead+1.6 Wind 180 deg - No Ice	38.21	-0.08	35.45	3477.6	12.8	-0.1
1.2 Dead+1.6 Wind 210 deg - No Ice	50.94	-20.29	34.93	3444.1	2009.6	0.9
0.9 Dead+1.6 Wind 210 deg - No Ice	38.21	-20.29	34.93	3420.3	1994.8	0.9
1.2 Dead+1.6 Wind 240 deg - No Ice	50.94	-30.82	17.76	1756.3	3055.8	-1.1
0.9 Dead+1.6 Wind 240 deg - No Ice	38.21	-30.82	17.76	1744.1	3033.5	-1.0
1.2 Dead+1.6 Wind 270 deg - No Ice	50.94	-35.54	0.08	10.0	3520.0	-1.1
0.9 Dead+1.6 Wind 270 deg - No Ice	38.21	-35.54	0.08	10.0	3494.5	-1.1
1.2 Dead+1.6 Wind 300 deg - No Ice	50.94	-30.74	-17.62	-1738.0	3043.8	-0.9
0.9 Dead+1.6 Wind 300 deg - No Ice	38.21	-30.74	-17.62	-1725.8	3021.6	-0.9
1.2 Dead+1.6 Wind 330 deg - No Ice	50.94	-18.23	-31.52	-3088.2	1792.1	-0.4
0.9 Dead+1.6 Wind 330 deg - No Ice	38.21	-18.23	-31.52	-3066.7	1778.7	-0.5
1.2 Dead+1.0 Ice	87.43	-0.00	-0.00	-3.3	5.9	0.0
1.2 Dead+1.0 Wind 0 deg+1.0 Ice	87.43	0.02	-8.62	-890.2	3.3	-0.0
1.2 Dead+1.0 Wind 30 deg+1.0 Ice	87.43	4.71	-8.12	-841.5	-481.2	-0.1
1.2 Dead+1.0 Wind 60 deg+1.0 Ice	87.43	7.20	-4.16	-440.2	-751.0	0.3
1.2 Dead+1.0 Wind 90 deg+1.0 Ice	87.43	8.30	-0.02	-6.0	-866.4	0.4
1.2 Dead+1.0 Wind 120 deg+1.0 Ice	87.43	7.18	4.12	428.8	-748.2	0.4
1.2 Dead+1.0 Wind 150 deg+1.0 Ice	87.43	4.37	7.56	780.0	-446.4	0.2
1.2 Dead+1.0 Wind 180 deg+1.0 Ice	87.43	-0.02	8.62	883.5	8.7	0.0

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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
1.2 Dead+1.0 Wind 210 deg+1.0 Ice	87.43	-4.71	8.12	834.9	493.3	0.1
1.2 Dead+1.0 Wind 240 deg+1.0 Ice	87.43	-7.20	4.16	433.5	763.1	-0.3
1.2 Dead+1.0 Wind 270 deg+1.0 Ice	87.43	-8.30	0.02	-0.6	878.5	-0.4
1.2 Dead+1.0 Wind 300 deg+1.0 Ice	87.43	-7.18	-4.12	-435.5	760.2	-0.4
1.2 Dead+1.0 Wind 330 deg+1.0 Ice	87.43	-4.37	-7.56	-786.6	458.5	-0.2
Dead+Wind 0 deg - Service	42.45	0.02	-7.58	-746.6	0.8	0.0
Dead+Wind 30 deg - Service	42.45	4.34	-7.47	-734.4	-424.7	0.1
Dead+Wind 60 deg - Service	42.45	6.60	-3.80	-374.6	-647.6	0.2
Dead+Wind 90 deg - Service	42.45	7.60	-0.02	-2.4	-746.5	0.2
Dead+Wind 120 deg - Service	42.45	6.58	3.77	370.2	-645.0	0.2
Dead+Wind 150 deg - Service	42.45	3.90	6.74	658.0	-378.3	0.1
Dead+Wind 180 deg - Service	42.45	-0.02	7.58	746.3	5.1	-0.0
Dead+Wind 210 deg - Service	42.45	-4.34	7.47	734.1	430.6	-0.1
Dead+Wind 240 deg - Service	42.45	-6.60	3.80	374.2	653.5	-0.2
Dead+Wind 270 deg - Service	42.45	-7.60	0.02	2.0	752.4	-0.2
Dead+Wind 300 deg - Service	42.45	-6.58	-3.77	-370.6	650.9	-0.2
Dead+Wind 330 deg - Service	42.45	-3.90	-6.74	-658.4	384.2	-0.1

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	-42.45	0.00	0.00	42.45	0.00	0.000%
2	0.08	-50.94	-35.45	-0.08	50.94	35.45	0.000%
3	0.08	-38.21	-35.45	-0.08	38.21	35.45	0.000%
4	20.29	-50.94	-34.93	-20.29	50.94	34.93	0.000%
5	20.29	-38.21	-34.93	-20.29	38.21	34.93	0.000%
6	30.82	-50.94	-17.76	-30.82	50.94	17.76	0.000%
7	30.82	-38.21	-17.76	-30.82	38.21	17.76	0.000%
8	35.54	-50.94	-0.08	-35.54	50.94	0.08	0.000%
9	35.54	-38.21	-0.08	-35.54	38.21	0.08	0.000%
10	30.74	-50.94	17.62	-30.74	50.94	-17.62	0.000%
11	30.74	-38.21	17.62	-30.74	38.21	-17.62	0.000%
12	18.23	-50.94	31.52	-18.23	50.94	-31.52	0.000%
13	18.23	-38.21	31.52	-18.23	38.21	-31.52	0.000%
14	-0.08	-50.94	35.45	0.08	50.94	-35.45	0.000%
15	-0.08	-38.21	35.45	0.08	38.21	-35.45	0.000%
16	-20.29	-50.94	34.93	20.29	50.94	-34.93	0.000%
17	-20.29	-38.21	34.93	20.29	38.21	-34.93	0.000%
18	-30.82	-50.94	17.76	30.82	50.94	-17.76	0.000%
19	-30.82	-38.21	17.76	30.82	38.21	-17.76	0.000%
20	-35.54	-50.94	0.08	35.54	50.94	-0.08	0.000%
21	-35.54	-38.21	0.08	35.54	38.21	-0.08	0.000%
22	-30.74	-50.94	-17.62	30.74	50.94	17.62	0.000%
23	-30.74	-38.21	-17.62	30.74	38.21	17.62	0.000%
24	-18.23	-50.94	-31.52	18.23	50.94	31.52	0.000%
25	-18.23	-38.21	-31.52	18.23	38.21	31.52	0.000%
26	0.00	-87.43	0.00	0.00	87.43	0.00	0.000%
27	0.02	-87.43	-8.62	-0.02	87.43	8.62	0.000%
28	4.71	-87.43	-8.12	-4.71	87.43	8.12	0.000%
29	7.20	-87.43	-4.16	-7.20	87.43	4.16	0.000%
30	8.30	-87.43	-0.02	-8.30	87.43	0.02	0.000%

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Load Comb.	Sum of Applied Forces			Sum of Reactions			% Error
	PX K	PY K	PZ K	PX K	PY K	PZ K	
31	7.18	-87.43	4.12	-7.18	87.43	-4.12	0.000%
32	4.37	-87.43	7.56	-4.37	87.43	-7.56	0.000%
33	-0.02	-87.43	8.62	0.02	87.43	-8.62	0.000%
34	-4.71	-87.43	8.12	4.71	87.43	-8.12	0.000%
35	-7.20	-87.43	4.16	7.20	87.43	-4.16	0.000%
36	-8.30	-87.43	0.02	8.30	87.43	-0.02	0.000%
37	-7.18	-87.43	-4.12	7.18	87.43	4.12	0.000%
38	-4.37	-87.43	-7.56	4.37	87.43	7.56	0.000%
39	0.02	-42.45	-7.58	-0.02	42.45	7.58	0.000%
40	4.34	-42.45	-7.47	-4.34	42.45	7.47	0.000%
41	6.60	-42.45	-3.80	-6.60	42.45	3.80	0.000%
42	7.60	-42.45	-0.02	-7.60	42.45	0.02	0.000%
43	6.58	-42.45	3.77	-6.58	42.45	-3.77	0.000%
44	3.90	-42.45	6.74	-3.90	42.45	-6.74	0.000%
45	-0.02	-42.45	7.58	0.02	42.45	-7.58	0.000%
46	-4.34	-42.45	7.47	4.34	42.45	-7.47	0.000%
47	-6.60	-42.45	3.80	6.60	42.45	-3.80	0.000%
48	-7.60	-42.45	0.02	7.60	42.45	-0.02	0.000%
49	-6.58	-42.45	-3.77	6.58	42.45	3.77	0.000%
50	-3.90	-42.45	-6.74	3.90	42.45	6.74	0.000%

Non-Linear Convergence Results

Load Combination	Converged?	Number of Cycles	Displacement Tolerance	Force Tolerance
1	Yes	4	0.0000001	0.0000001
2	Yes	4	0.0000001	0.00087891
3	Yes	4	0.0000001	0.00047839
4	Yes	6	0.0000001	0.00003992
5	Yes	5	0.0000001	0.00053138
6	Yes	6	0.0000001	0.00003300
7	Yes	5	0.0000001	0.00044357
8	Yes	5	0.0000001	0.00004441
9	Yes	4	0.0000001	0.00078248
10	Yes	6	0.0000001	0.00003401
11	Yes	5	0.0000001	0.00045747
12	Yes	6	0.0000001	0.00003389
13	Yes	5	0.0000001	0.00045449
14	Yes	4	0.0000001	0.00074415
15	Yes	4	0.0000001	0.00037327
16	Yes	6	0.0000001	0.00004127
17	Yes	5	0.0000001	0.00054915
18	Yes	6	0.0000001	0.00003486
19	Yes	5	0.0000001	0.00046817
20	Yes	5	0.0000001	0.00005886
21	Yes	5	0.0000001	0.00002604
22	Yes	6	0.0000001	0.00003286
23	Yes	5	0.0000001	0.00044128
24	Yes	6	0.0000001	0.00003453
25	Yes	5	0.0000001	0.00046296
26	Yes	4	0.0000001	0.00001193
27	Yes	5	0.0000001	0.00009075
28	Yes	5	0.0000001	0.00025967
29	Yes	5	0.0000001	0.00020905
30	Yes	5	0.0000001	0.00009410
31	Yes	5	0.0000001	0.00022121

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32	Yes	5	0.00000001	0.00021938
33	Yes	5	0.00000001	0.00009045
34	Yes	5	0.00000001	0.00027162
35	Yes	5	0.00000001	0.00023324
36	Yes	5	0.00000001	0.00009708
37	Yes	5	0.00000001	0.00021204
38	Yes	5	0.00000001	0.00024251
39	Yes	4	0.00000001	0.00014951
40	Yes	4	0.00000001	0.00066530
41	Yes	4	0.00000001	0.00046279
42	Yes	4	0.00000001	0.00016437
43	Yes	4	0.00000001	0.00050230
44	Yes	4	0.00000001	0.00048555
45	Yes	4	0.00000001	0.00014946
46	Yes	4	0.00000001	0.00063696
47	Yes	4	0.00000001	0.00053327
48	Yes	4	0.00000001	0.00016931
49	Yes	4	0.00000001	0.00046850
50	Yes	4	0.00000001	0.00051462

Compression Checks

Pole Design Data

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	A in ²	P _u K	φP _n K	Ratio $\frac{P_u}{\phi P_n}$
L1	145 - 140 (1)	TP24.521x23.61x0.281	5.00	0.00	0.0	21.9329	-1.95	1616.67	0.001
L2	140 - 135 (2)	TP25.432x24.521x0.281	5.00	0.00	0.0	22.7572	-2.41	1662.76	0.001
L3	135 - 130 (3)	TP26.3431x25.432x0.281	5.00	0.00	0.0	23.5815	-4.72	1702.87	0.003
L4	130 - 125 (4)	TP27.2541x26.3431x0.281	5.00	0.00	0.0	24.4058	-7.19	1741.58	0.004
L5	125 - 120 (5)	TP28.1651x27.2541x0.281	5.00	0.00	0.0	25.2301	-7.85	1778.89	0.004
L6	120 - 115 (6)	TP29.0761x28.1651x0.281	5.00	0.00	0.0	26.0544	-8.53	1814.78	0.005
L7	115 - 110 (7)	TP29.9871x29.0761x0.281	5.00	0.00	0.0	26.8787	-12.00	1849.28	0.006
L8	110 - 105 (8)	TP30.8982x29.9871x0.281	5.00	0.00	0.0	27.7030	-12.78	1882.36	0.007
L9	105 - 100 (9)	TP31.8092x30.8982x0.281	5.00	0.00	0.0	28.5273	-13.60	1914.04	0.007
L10	100 - 90.83 (10)	TP33.48x31.8092x0.281	9.17	0.00	0.0	29.1868	-14.27	1938.37	0.007
L11	90.83 - 89.83 (11)	TP33.0974x31.976x0.375	6.17	0.00	0.0	39.5123	-16.14	2910.32	0.006
L12	89.83 - 84.83 (12)	TP34.0062x33.0974x0.375	5.00	0.00	0.0	40.6097	-17.24	2965.26	0.006
L13	84.83 - 79.83 (13)	TP34.915x34.0062x0.375	5.00	0.00	0.0	41.7071	-18.37	3018.79	0.006
L14	79.83 - 74.83 (14)	TP35.8238x34.915x0.375	5.00	0.00	0.0	42.8044	-19.54	3070.93	0.006
L15	74.83 - 69.83 (15)	TP36.7326x35.8238x0.375	5.00	0.00	0.0	43.9018	-20.74	3121.67	0.007
L16	69.83 - 66 (16)	TP37.4287x36.7326x0.375	3.83	0.00	0.0	44.7423	-21.68	3159.59	0.007
L17	66 - 65.75 (17)	TP37.4741x37.4287x0.6125	0.25	0.00	0.0	72.7004	-21.79	5358.74	0.004
L18	65.75 - 60.75 (18)	TP38.3829x37.4741x0.6125	5.00	0.00	0.0	74.4927	-23.51	5490.86	0.004
L19	60.75 - 55.75 (19)	TP39.2917x38.3829x0.6	5.00	0.00	0.0	74.7524	-25.28	5510.00	0.005
L20	55.75 - 50.75 (20)	TP40.2005x39.2917x0.6	5.00	0.00	0.0	76.5081	-27.08	5639.42	0.005
L21	50.75 - 42.83	TP41.64x40.2005x0.6	7.92	0.00	0.0	77.1227	-27.71	5684.71	0.005

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Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	A in ²	P _u K	φP _n K	Ratio $\frac{P_u}{\phi P_n}$
L22	(21) 42.83 - 41.83	TP41.074x39.7686x0.713	7.17	0.00	0.0	92.6632	-32.56	6830.21	0.005
L23	(22) 41.83 - 37.9167 (23)	TP41.7865x41.074x0.7005	3.91	0.00	0.0	92.6740	-34.22	6831.00	0.005
L24	37.9167 - 37.6667 (24)	TP41.832x41.7865x0.7505	0.25	0.00	0.0	99.2780	-34.35	7317.78	0.005
L25	37.6667 - 32.6667 (25)	TP42.7424x41.832x0.738	5.00	0.00	0.0	99.8175	-36.61	7357.55	0.005
L26	32.6667 - 27.6667 (26)	TP43.6527x42.7424x0.738	5.00	0.00	0.0	101.981 0	-38.81	7517.01	0.005
L27	27.6667 - 22.6667 (27)	TP44.5631x43.6527x0.7255	5.00	0.00	0.0	102.409 0	-40.93	7548.60	0.005
L28	22.6667 - 17.6667 (28)	TP45.4734x44.5631x0.7255	5.00	0.00	0.0	104.536 0	-43.08	7705.35	0.006
L29	17.6667 - 12.6667 (29)	TP46.3838x45.4734x0.713	5.00	0.00	0.0	104.854 0	-45.26	7728.77	0.006
L30	12.6667 - 7.6667 (30)	TP47.2941x46.3838x0.713	5.00	0.00	0.0	106.944 0	-47.47	7882.82	0.006
L31	7.6667 - 2.6667 (31)	TP48.2045x47.2941x0.7005	5.00	0.00	0.0	107.150 0	-49.72	7898.06	0.006
L32	2.6667 - 0 (32)	TP48.69x48.2045x0.7005	2.67	0.00	0.0	108.246 0	-50.92	7978.78	0.006

Pole Bending Design Data

Section No.	Elevation ft	Size	M _{ux} kip-ft	φM _{ux} kip-ft	Ratio $\frac{M_{ux}}{\phi M_{ux}}$	M _{uy} kip-ft	φM _{uy} kip-ft	Ratio $\frac{M_{uy}}{\phi M_{uy}}$
L1	145 - 140 (1)	TP24.521x23.61x0.281	16.1	795.5	0.020	0.0	795.5	0.000
L2	140 - 135 (2)	TP25.432x24.521x0.281	44.4	849.3	0.052	0.0	849.3	0.000
L3	135 - 130 (3)	TP26.3431x25.432x0.281	95.2	901.6	0.106	0.0	901.6	0.000
L4	130 - 125 (4)	TP27.2541x26.3431x0.281	171.8	954.7	0.180	0.0	954.7	0.000
L5	125 - 120 (5)	TP28.1651x27.2541x0.281	253.6	1008.4	0.252	0.0	1008.4	0.000
L6	120 - 115 (6)	TP29.0761x28.1651x0.281	340.6	1062.7	0.321	0.0	1062.7	0.000
L7	115 - 110 (7)	TP29.9871x29.0761x0.281	436.0	1117.5	0.390	0.0	1117.5	0.000
L8	110 - 105 (8)	TP30.8982x29.9871x0.281	549.9	1172.7	0.469	0.0	1172.7	0.000
L9	105 - 100 (9)	TP31.8092x30.8982x0.281	669.0	1228.2	0.545	0.0	1228.2	0.000
L10	100 - 90.83 (10)	TP33.48x31.8092x0.281	768.0	1272.8	0.603	0.0	1272.8	0.000
L11	90.83 - 89.83 (11)	TP33.0974x31.976x0.375	927.7	1933.4	0.480	0.0	1933.4	0.000
L12	89.83 - 84.83 (12)	TP34.0062x33.0974x0.375	1062.7	2025.2	0.525	0.0	2025.2	0.000
L13	84.83 - 79.83 (13)	TP34.915x34.0062x0.375	1201.9	2118.1	0.567	0.0	2118.1	0.000
L14	79.83 - 74.83 (14)	TP35.8238x34.915x0.375	1345.4	2212.0	0.608	0.0	2212.0	0.000
L15	74.83 - 69.83 (15)	TP36.7326x35.8238x0.375	1493.1	2306.8	0.647	0.0	2306.8	0.000
L16	69.83 - 66 (16)	TP37.4287x36.7326x0.375	1609.1	2379.9	0.676	0.0	2379.9	0.000
L17	66 - 65.75 (17)	TP37.4741x37.4287x0.6125	1616.8	3989.8	0.405	0.0	3989.8	0.000
L18	65.75 - 60.75 (18)	TP38.3829x37.4741x0.6125	1772.3	4190.6	0.423	0.0	4190.6	0.000
L19	60.75 - 55.75 (19)	TP39.2917x38.3829x0.6	1932.3	4310.8	0.448	0.0	4310.8	0.000

<p style="text-align: center;">tnxTower</p> <p style="text-align: center;">Destek Engineering, LLC 1281 Kennestone Circle, Suite 100 Marietta, GA 30066 Phone: (770) 693 0835 FAX:</p>	Job	824889 Jester-Isenhour	Page	28 of 31
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	Client	Crown Castle	Designed by	Ahmet Colakoglu

Section No.	Elevation ft	Size	M_{ux} kip-ft	ϕM_{ux} kip-ft	Ratio $\frac{M_{ux}}{\phi M_{ux}}$	M_{uy} kip-ft	ϕM_{uy} kip-ft	Ratio $\frac{M_{uy}}{\phi M_{uy}}$
L20	55.75 - 50.75 (20)	TP40.2005x39.2917x0.6	2096.7	4517.3	0.464	0.0	4517.3	0.000
L21	50.75 - 42.83 (21)	TP41.64x40.2005x0.6	2155.3	4590.7	0.469	0.0	4590.7	0.000
L22	42.83 - 41.83 (22)	TP41.074x39.7686x0.713	2401.3	5562.4	0.432	0.0	5562.4	0.000
L23	41.83 - 37.9167 (23)	TP41.7865x41.074x0.7005	2539.6	5666.4	0.448	0.0	5666.4	0.000
L24	37.9167 - 37.6667 (24)	TP41.832x41.7865x0.7505	2548.5	6062.3	0.420	0.0	6062.3	0.000
L25	37.6667 - 32.6667 (25)	TP42.7424x41.832x0.738	2729.0	6236.5	0.438	0.0	6236.5	0.000
L26	32.6667 - 27.6667 (26)	TP43.6527x42.7424x0.738	2913.2	6512.1	0.447	0.0	6512.1	0.000
L27	27.6667 - 22.6667 (27)	TP44.5631x43.6527x0.7255	3100.7	6684.4	0.464	0.0	6684.4	0.000
L28	22.6667 - 17.6667 (28)	TP45.4734x44.5631x0.7255	3291.3	6967.2	0.472	0.0	6967.2	0.000
L29	17.6667 - 12.6667 (29)	TP46.3838x45.4734x0.713	3484.7	7136.7	0.488	0.0	7136.7	0.000
L30	12.6667 - 7.6667 (30)	TP47.2941x46.3838x0.713	3681.0	7426.3	0.496	0.0	7426.3	0.000
L31	7.6667 - 2.6667 (31)	TP48.2045x47.2941x0.7005	3880.1	7592.2	0.511	0.0	7592.2	0.000
L32	2.6667 - 0 (32)	TP48.69x48.2045x0.7005	3987.5	7749.3	0.515	0.0	7749.3	0.000

Pole Shear Design Data

Section No.	Elevation ft	Size	Actual V_u K	ϕV_n K	Ratio $\frac{V_u}{\phi V_n}$	Actual T_u kip-ft	ϕT_n kip-ft	Ratio $\frac{T_u}{\phi T_n}$
L1	145 - 140 (1)	TP24.521x23.61x0.281	5.35	808.34	0.007	0.0	1613.0	0.000
L2	140 - 135 (2)	TP25.432x24.521x0.281	5.97	831.38	0.007	0.0	1722.0	0.000
L3	135 - 130 (3)	TP26.3431x25.432x0.281	10.83	851.44	0.013	1.2	1828.1	0.001
L4	130 - 125 (4)	TP27.2541x26.3431x0.281	15.84	870.79	0.018	0.8	1935.8	0.000
L5	125 - 120 (5)	TP28.1651x27.2541x0.281	16.88	889.44	0.019	0.6	2044.7	0.000
L6	120 - 115 (6)	TP29.0761x28.1651x0.281	17.92	907.39	0.020	0.3	2154.8	0.000
L7	115 - 110 (7)	TP29.9871x29.0761x0.281	22.26	924.64	0.024	0.5	2265.9	0.000
L8	110 - 105 (8)	TP30.8982x29.9871x0.281	23.31	941.18	0.025	0.6	2377.8	0.000
L9	105 - 100 (9)	TP31.8092x30.8982x0.281	24.36	957.02	0.025	0.7	2490.4	0.000
L10	100 - 90.83 (10)	TP33.48x31.8092x0.281	25.19	969.19	0.026	0.8	2580.9	0.000
L11	90.83 - 89.83 (11)	TP33.0974x31.976x0.375	26.59	1455.16	0.018	0.9	3920.3	0.000
L12	89.83 - 84.83 (12)	TP34.0062x33.0974x0.375	27.44	1482.63	0.019	0.9	4106.4	0.000
L13	84.83 - 79.83 (13)	TP34.915x34.0062x0.375	28.29	1509.40	0.019	0.9	4294.8	0.000
L14	79.83 - 74.83 (14)	TP35.8238x34.915x0.375	29.14	1535.47	0.019	0.9	4485.2	0.000
L15	74.83 - 69.83 (15)	TP36.7326x35.8238x0.375	29.98	1560.84	0.019	0.9	4677.4	0.000
L16	69.83 - 66 (16)	TP37.4287x36.7326x0.375	30.63	1579.80	0.019	0.9	4825.8	0.000
L17	66 - 65.75 (17)	TP37.4741x37.4287x0.6125	30.66	2679.37	0.011	0.9	8090.1	0.000
L18	65.75 - 60.75 (18)	TP38.3829x37.4741x0.6125	31.57	2745.43	0.011	0.9	8497.3	0.000

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Section No.	Elevation ft	Size	Actual V_u K	ϕV_n K	Ratio $\frac{V_u}{\phi V_n}$	Actual T_u kip-ft	ϕT_n kip-ft	Ratio $\frac{T_u}{\phi T_n}$
L19	60.75 - 55.75 (19)	TP39.2917x38.3829x0.6	32.46	2755.00	0.012	0.9	8741.0	0.000
L20	55.75 - 50.75 (20)	TP40.2005x39.2917x0.6	33.34	2819.71	0.012	0.9	9159.7	0.000
L21	50.75 - 42.83 (21)	TP41.64x40.2005x0.6	33.65	2842.36	0.012	0.9	9308.5	0.000
L22	42.83 - 41.83 (22)	TP41.074x39.7686x0.713	35.02	3415.10	0.010	0.9	11278.9	0.000
L23	41.83 - 37.9167 (23)	TP41.7865x41.074x0.7005	35.67	3415.50	0.010	0.9	11489.7	0.000
L24	37.9167 - 37.6667 (24)	TP41.832x41.7865x0.7505	35.70	3658.89	0.010	0.9	12292.5	0.000
L25	37.6667 - 32.6667 (25)	TP42.7424x41.832x0.738	36.53	3678.77	0.010	0.9	12645.6	0.000
L26	32.6667 - 27.6667 (26)	TP43.6527x42.7424x0.738	37.19	3758.50	0.010	0.9	13204.5	0.000
L27	27.6667 - 22.6667 (27)	TP44.5631x43.6527x0.7255	37.83	3774.30	0.010	0.9	13553.7	0.000
L28	22.6667 - 17.6667 (28)	TP45.4734x44.5631x0.7255	38.43	3852.68	0.010	0.9	14127.2	0.000
L29	17.6667 - 12.6667 (29)	TP46.3838x45.4734x0.713	38.99	3864.38	0.010	0.9	14470.9	0.000
L30	12.6667 - 7.6667 (30)	TP47.2941x46.3838x0.713	39.55	3941.41	0.010	0.9	15058.1	0.000
L31	7.6667 - 2.6667 (31)	TP48.2045x47.2941x0.7005	40.12	3949.03	0.010	0.9	15394.6	0.000
L32	2.6667 - 0 (32)	TP48.69x48.2045x0.7005	40.42	3989.39	0.010	0.9	15713.2	0.000

Pole Interaction Design Data

Section No.	Elevation ft	Ratio $\frac{P_u}{\phi P_n}$	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	Ratio $\frac{M_{uy}}{\phi M_{ny}}$	Ratio $\frac{V_u}{\phi V_n}$	Ratio $\frac{T_u}{\phi T_n}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
L1	145 - 140 (1)	0.001	0.020	0.000	0.007	0.000	0.022	1.000	4.8.2 ✓
L2	140 - 135 (2)	0.001	0.052	0.000	0.007	0.000	0.054	1.000	4.8.2 ✓
L3	135 - 130 (3)	0.003	0.106	0.000	0.013	0.001	0.109	1.000	4.8.2 ✓
L4	130 - 125 (4)	0.004	0.180	0.000	0.018	0.000	0.184	1.000	4.8.2 ✓
L5	125 - 120 (5)	0.004	0.252	0.000	0.019	0.000	0.256	1.000	4.8.2 ✓
L6	120 - 115 (6)	0.005	0.321	0.000	0.020	0.000	0.326	1.000	4.8.2 ✓
L7	115 - 110 (7)	0.006	0.390	0.000	0.024	0.000	0.397	1.000	4.8.2 ✓
L8	110 - 105 (8)	0.007	0.469	0.000	0.025	0.000	0.476	1.000	4.8.2 ✓
L9	105 - 100 (9)	0.007	0.545	0.000	0.025	0.000	0.552	1.000	4.8.2 ✓
L10	100 - 90.83	0.007	0.603	0.000	0.026	0.000	0.611	1.000	4.8.2 ✓

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Section No.	Elevation ft	Ratio P_u ϕP_n	Ratio M_{ux} ϕM_{nx}	Ratio M_{uy} ϕM_{ny}	Ratio V_u ϕV_n	Ratio T_u ϕT_n	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
	(10)						✓		
L11	90.83 - 89.83	0.006	0.480	0.000	0.018	0.000	0.486	1.000	4.8.2 ✓
	(11)						✓		
L12	89.83 - 84.83	0.006	0.525	0.000	0.019	0.000	0.531	1.000	4.8.2 ✓
	(12)						✓		
L13	84.83 - 79.83	0.006	0.567	0.000	0.019	0.000	0.574	1.000	4.8.2 ✓
	(13)						✓		
L14	79.83 - 74.83	0.006	0.608	0.000	0.019	0.000	0.615	1.000	4.8.2 ✓
	(14)						✓		
L15	74.83 - 69.83	0.007	0.647	0.000	0.019	0.000	0.654	1.000	4.8.2 ✓
	(15)						✓		
L16	69.83 - 66 (16)	0.007	0.676	0.000	0.019	0.000	0.683	1.000	4.8.2 ✓
	(16)						✓		
L17	66 - 65.75 (17)	0.004	0.405	0.000	0.011	0.000	0.409	1.000	4.8.2 ✓
	(17)						✓		
L18	65.75 - 60.75	0.004	0.423	0.000	0.011	0.000	0.427	1.000	4.8.2 ✓
	(18)						✓		
L19	60.75 - 55.75	0.005	0.448	0.000	0.012	0.000	0.453	1.000	4.8.2 ✓
	(19)						✓		
L20	55.75 - 50.75	0.005	0.464	0.000	0.012	0.000	0.469	1.000	4.8.2 ✓
	(20)						✓		
L21	50.75 - 42.83	0.005	0.469	0.000	0.012	0.000	0.475	1.000	4.8.2 ✓
	(21)						✓		
L22	42.83 - 41.83	0.005	0.432	0.000	0.010	0.000	0.437	1.000	4.8.2 ✓
	(22)						✓		
L23	41.83 - 37.9167 (23)	0.005	0.448	0.000	0.010	0.000	0.453	1.000	4.8.2 ✓
	(23)						✓		
L24	37.9167 - 37.6667 (24)	0.005	0.420	0.000	0.010	0.000	0.425	1.000	4.8.2 ✓
	(24)						✓		
L25	37.6667 - 32.6667 (25)	0.005	0.438	0.000	0.010	0.000	0.443	1.000	4.8.2 ✓
	(25)						✓		
L26	32.6667 - 27.6667 (26)	0.005	0.447	0.000	0.010	0.000	0.453	1.000	4.8.2 ✓
	(26)						✓		
L27	27.6667 - 22.6667 (27)	0.005	0.464	0.000	0.010	0.000	0.469	1.000	4.8.2 ✓
	(27)						✓		
L28	22.6667 - 17.6667 (28)	0.006	0.472	0.000	0.010	0.000	0.478	1.000	4.8.2 ✓
	(28)						✓		
L29	17.6667 - 12.6667 (29)	0.006	0.488	0.000	0.010	0.000	0.494	1.000	4.8.2 ✓
	(29)						✓		
L30	12.6667 - 7.6667 (30)	0.006	0.496	0.000	0.010	0.000	0.502	1.000	4.8.2 ✓
	(30)						✓		
L31	7.6667 - 2.6667 (31)	0.006	0.511	0.000	0.010	0.000	0.517	1.000	4.8.2 ✓
	(31)						✓		
L32	2.6667 - 0 (32)	0.006	0.515	0.000	0.010	0.000	0.521	1.000	4.8.2 ✓
	(32)						✓		

Section Capacity Table

tnxTower Destek Engineering, LLC 1281 Kennestone Circle, Suite 100 Marietta, GA 30066 Phone: (770) 693 0835 FAX:	Job	824889 Jester-Isenhour	Page	31 of 31
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Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail	
L1	145 - 140	Pole	TP24.521x23.61x0.281	1	-1.95	1616.67	2.2	Pass	
L2	140 - 135	Pole	TP25.432x24.521x0.281	2	-2.41	1662.76	5.4	Pass	
L3	135 - 130	Pole	TP26.3431x25.432x0.281	3	-4.72	1702.87	10.9	Pass	
L4	130 - 125	Pole	TP27.2541x26.3431x0.281	4	-7.19	1741.58	18.4	Pass	
L5	125 - 120	Pole	TP28.1651x27.2541x0.281	5	-7.85	1778.89	25.6	Pass	
L6	120 - 115	Pole	TP29.0761x28.1651x0.281	6	-8.53	1814.78	32.6	Pass	
L7	115 - 110	Pole	TP29.9871x29.0761x0.281	7	-12.00	1849.28	39.7	Pass	
L8	110 - 105	Pole	TP30.8982x29.9871x0.281	8	-12.78	1882.36	47.6	Pass	
L9	105 - 100	Pole	TP31.8092x30.8982x0.281	9	-13.60	1914.04	55.2	Pass	
L10	100 - 90.83	Pole	TP33.48x31.8092x0.281	10	-14.27	1938.37	61.1	Pass	
L11	90.83 - 89.83	Pole	TP33.0974x31.976x0.375	11	-16.14	2910.32	48.6	Pass	
L12	89.83 - 84.83	Pole	TP34.0062x33.0974x0.375	12	-17.24	2965.26	53.1	Pass	
L13	84.83 - 79.83	Pole	TP34.915x34.0062x0.375	13	-18.37	3018.79	57.4	Pass	
L14	79.83 - 74.83	Pole	TP35.8238x34.915x0.375	14	-19.54	3070.93	61.5	Pass	
L15	74.83 - 69.83	Pole	TP36.7326x35.8238x0.375	15	-20.74	3121.67	65.4	Pass	
L16	69.83 - 66	Pole	TP37.4287x36.7326x0.375	16	-21.68	3159.59	68.3	Pass	
L17	66 - 65.75	Pole	TP37.4741x37.4287x0.6125	17	-21.79	5358.74	40.9	Pass	
L18	65.75 - 60.75	Pole	TP38.3829x37.4741x0.6125	18	-23.51	5490.86	42.7	Pass	
L19	60.75 - 55.75	Pole	TP39.2917x38.3829x0.6	19	-25.28	5510.00	45.3	Pass	
L20	55.75 - 50.75	Pole	TP40.2005x39.2917x0.6	20	-27.08	5639.42	46.9	Pass	
L21	50.75 - 42.83	Pole	TP41.64x40.2005x0.6	21	-27.71	5684.71	47.5	Pass	
L22	42.83 - 41.83	Pole	TP41.074x39.7686x0.713	22	-32.56	6830.21	43.7	Pass	
L23	41.83 - 37.9167	Pole	TP41.7865x41.074x0.7005	23	-34.22	6831.00	45.3	Pass	
L24	37.9167 - 37.6667	Pole	TP41.832x41.7865x0.7505	24	-34.35	7317.78	42.5	Pass	
L25	37.6667 - 32.6667	Pole	TP42.7424x41.832x0.738	25	-36.61	7357.55	44.3	Pass	
L26	32.6667 - 27.6667	Pole	TP43.6527x42.7424x0.738	26	-38.81	7517.01	45.3	Pass	
L27	27.6667 - 22.6667	Pole	TP44.5631x43.6527x0.7255	27	-40.93	7548.60	46.9	Pass	
L28	22.6667 - 17.6667	Pole	TP45.4734x44.5631x0.7255	28	-43.08	7705.35	47.8	Pass	
L29	17.6667 - 12.6667	Pole	TP46.3838x45.4734x0.713	29	-45.26	7728.77	49.4	Pass	
L30	12.6667 - 7.6667	Pole	TP47.2941x46.3838x0.713	30	-47.47	7882.82	50.2	Pass	
L31	7.6667 - 2.6667	Pole	TP48.2045x47.2941x0.7005	31	-49.72	7898.06	51.7	Pass	
L32	2.6667 - 0	Pole	TP48.69x48.2045x0.7005	32	-50.92	7978.78	52.1	Pass	
							Summary		
							Pole (L16)	68.3	Pass
							RATING =	68.3*	Pass

*Due to limitations of the TNXTOWER software when analyzing monopoles with additional bolted plates, the above output has not been used to determine the governing tower usage. Please see additional calculation results in Appendix C which are based on the Section forces generated in this output.

Additional Calculations



Site BU: CT5022
Work Order: _____



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Pole Geometry

	Pole Height Above Base (ft)	Section Length (ft)	Lap Splice Length (ft)	Number of Sides	Top Diameter (in)	Bottom Diameter (in)	Wall Thickness (in)	Bend Radius (in)	Pole Material
1	145	54.17	5.17	12	23.61	33.48	0.281	1.124	A572-65
2	96	53.17	6.17	12	31.98	41.64	0.375	1.5	A572-65
3	49	49	0	12	39.77	48.69	0.438	1.752	A572-65

Reinforcement Configuration

	Bottom Effective Elevation (ft)	Top Effective Elevation (ft)	Type	Model	Number													
						1	2	3	4	5	6	7	8	9	10	11	12	
1	0	47.75	plate	10"	3		1					1				1		
2	0	37.9167	plate	10"	3				1				1					1
3	47.75	66	plate	7"	3		1					1				1		
4	37.9167	66	plate	7"	3				1				1					1
5																		
6																		
7																		
8																		
9																		
10																		

Reinforcement Details

	B (in)	H (in)	Gross Area (in ²)	Pole Face to Centroid (in)	Bottom Termination Length (in)	Top Termination Length (in)	L _u (in)	Net Area (in ²)	Bolt Hole Size (in)	Reinforcement Material
1	10	0.625	6.25	0.3125	n/a	24.000	11.000	5.664	0.8750	A572-65
2	10	0.625	6.25	0.3125	n/a	24.000	11.000	5.664	0.8750	A572-65
3	7	0.625	4.375	0.3125	24.000	24.000	11.000	3.789	0.8750	A572-65
4	7	0.625	4.375	0.3125	24.000	24.000	11.000	3.789	0.8750	A572-65

TNX Geometry Input

Increment (ft): 5

	Section Height (ft)	Section Length (ft)	Lap Splice Length (ft)	Number of Sides	Top Diameter (in)	Bottom Diameter (in)	Wall Thickness (in)	Tapered Pole Grade	Weight Multiplier
1	145 - 140	5		12	23.610	24.521	0.281	A572-65	1.000
2	140 - 135	5		12	24.521	25.432	0.281	A572-65	1.000
3	135 - 130	5		12	25.432	26.343	0.281	A572-65	1.000
4	130 - 125	5		12	26.343	27.254	0.281	A572-65	1.000
5	125 - 120	5		12	27.254	28.165	0.281	A572-65	1.000
6	120 - 115	5		12	28.165	29.076	0.281	A572-65	1.000
7	115 - 110	5		12	29.076	29.987	0.281	A572-65	1.000
8	110 - 105	5		12	29.987	30.898	0.281	A572-65	1.000
9	105 - 100	5		12	30.898	31.809	0.281	A572-65	1.000
10	100 - 96	9.17	5.17	12	31.809	33.480	0.281	A572-65	1.000
11	96 - 89.83	6.17		12	31.976	33.097	0.375	A572-65	1.000
12	89.83 - 84.83	5		12	33.097	34.006	0.375	A572-65	1.000
13	84.83 - 79.83	5		12	34.006	34.915	0.375	A572-65	1.000
14	79.83 - 74.83	5		12	34.915	35.824	0.375	A572-65	1.000
15	74.83 - 69.83	5		12	35.824	36.733	0.375	A572-65	1.000
16	69.83 - 66	3.83		12	36.733	37.429	0.375	A572-65	1.000
17	66 - 65.75	0.25		12	37.429	37.474	0.6125	A572-65	0.978
18	65.75 - 60.75	5		12	37.474	38.383	0.6125	A572-65	0.969
19	60.75 - 55.75	5		12	38.383	39.292	0.6	A572-65	0.980
20	55.75 - 50.75	5		12	39.292	40.200	0.6	A572-65	0.972
21	50.75 - 49	7.92	6.17	12	40.200	41.640	0.6	A572-65	0.969
22	49 - 41.83	7.17		12	39.769	41.074	0.713	A572-65	0.963
23	41.83 - 37.9167	3.9133		12	41.074	41.787	0.7005	A572-65	0.974
24	37.9167 - 37.6667	0.25		12	41.787	41.832	0.7505	A572-65	0.966
25	37.6667 - 32.6667	5		12	41.832	42.742	0.738	A572-65	0.974
26	32.6667 - 27.6667	5		12	42.742	43.653	0.738	A572-65	0.966
27	27.6667 - 22.6667	5		12	43.653	44.563	0.7255	A572-65	0.974
28	22.6667 - 17.6667	5		12	44.563	45.473	0.7255	A572-65	0.967
29	17.6667 - 12.6667	5		12	45.473	46.384	0.713	A572-65	0.976
30	12.6667 - 7.6667	5		12	46.384	47.294	0.713	A572-65	0.969
31	7.6667 - 2.6667	5		12	47.294	48.204	0.7005	A572-65	0.979
32	2.6667 - 0	2.6667		12	48.204	48.690	0.7005	A572-65	0.976

TNX Section Forces

Increment (ft):		5	TNX Output		
	Section Height (ft)	P _u (K)	M _{ux} (kip-ft)	V _u (K)	
1	145 - 140	1.9491	16.128	5.3479	
2	140 - 135	2.4103	44.422	5.973	
3	135 - 130	4.7238	95.249	10.829	
4	130 - 125	7.19	171.82	15.842	
5	125 - 120	7.8471	253.62	16.876	
6	120 - 115	8.5347	340.6	17.919	
7	115 - 110	12.003	436.01	22.26	
8	110 - 105	12.781	549.86	23.308	
9	105 - 100	13.596	668.95	24.358	
10	100 - 96	14.27	767.99	25.194	
11	96 - 89.83	16.139	927.69	26.594	
12	89.83 - 84.83	17.237	1062.7	27.442	
13	84.83 - 79.83	18.37	1201.9	28.291	
14	79.83 - 74.83	19.538	1345.4	29.139	
15	74.83 - 69.83	20.742	1493.1	29.984	
16	69.83 - 66	21.683	1609.1	30.631	
17	66 - 65.75	21.787	1616.8	30.664	
18	65.75 - 60.75	23.515	1772.3	31.568	
19	60.75 - 55.75	25.282	1932.3	32.46	
20	55.75 - 50.75	27.08	2096.7	33.344	
21	50.75 - 49	27.71	2155.3	33.654	
22	49 - 41.83	32.561	2401.3	35.016	
23	41.83 - 37.9167	34.225	2539.6	35.673	
24	37.9167 - 37.6667	34.35	2548.5	35.703	
25	37.6667 - 32.6667	36.61	2729	36.528	
26	32.6667 - 27.6667	38.811	2913.2	37.192	
27	27.6667 - 22.6667	40.93	3100.7	37.827	
28	22.6667 - 17.6667	43.081	3291.2	38.431	
29	17.6667 - 12.6667	45.263	3484.7	38.993	
30	12.6667 - 7.6667	47.475	3681	39.555	
31	7.6667 - 2.6667	49.719	3880.1	40.115	
32	2.6667 - 0	50.925	3987.5	40.42	

Analysis Results

Elevation (ft)	Component Type	Size	Critical Element	% Capacity	Pass / Fail
145 - 140	Pole	TP24.521x23.61x0.281	Pole	2.1%	Pass
140 - 135	Pole	TP25.432x24.521x0.281	Pole	5.4%	Pass
135 - 130	Pole	TP26.343x25.432x0.281	Pole	10.8%	Pass
130 - 125	Pole	TP27.254x26.343x0.281	Pole	18.4%	Pass
125 - 120	Pole	TP28.165x27.254x0.281	Pole	25.6%	Pass
120 - 115	Pole	TP29.076x28.165x0.281	Pole	32.5%	Pass
115 - 110	Pole	TP29.987x29.076x0.281	Pole	39.6%	Pass
110 - 105	Pole	TP30.898x29.987x0.281	Pole	47.5%	Pass
105 - 100	Pole	TP31.809x30.898x0.281	Pole	55.1%	Pass
100 - 96	Pole	TP33.48x31.809x0.281	Pole	61.0%	Pass
96 - 89.83	Pole	TP33.097x31.976x0.375	Pole	48.4%	Pass
89.83 - 84.83	Pole	TP34.006x33.097x0.375	Pole	52.9%	Pass
84.83 - 79.83	Pole	TP34.915x34.006x0.375	Pole	57.2%	Pass
79.83 - 74.83	Pole	TP35.824x34.915x0.375	Pole	61.3%	Pass
74.83 - 69.83	Pole	TP36.733x35.824x0.375	Pole	65.2%	Pass
69.83 - 66	Pole	TP37.429x36.733x0.375	Pole	68.1%	Pass
66 - 65.75	Pole + Reinf.	TP37.474x37.429x0.6125	Reinf. 4 Compression	63.0%	Pass
65.75 - 60.75	Pole + Reinf.	TP38.383x37.474x0.6125	Reinf. 4 Compression	66.4%	Pass
60.75 - 55.75	Pole + Reinf.	TP39.292x38.383x0.6	Reinf. 4 Compression	69.6%	Pass
55.75 - 50.75	Pole + Reinf.	TP40.2x39.292x0.6	Reinf. 4 Compression	72.8%	Pass
50.75 - 49	Pole + Reinf.	TP41.64x40.2x0.6	Reinf. 4 Compression	73.8%	Pass
49 - 41.83	Pole + Reinf.	TP41.074x39.769x0.713	Reinf. 4 Compression	68.0%	Pass
41.83 - 37.92	Pole + Reinf.	TP41.787x41.074x0.7005	Reinf. 4 Compression	69.9%	Pass
37.92 - 37.67	Pole + Reinf.	TP41.832x41.787x0.7505	Reinf. 2 Compression	65.7%	Pass
37.67 - 32.67	Pole + Reinf.	TP42.742x41.832x0.738	Reinf. 2 Compression	68.0%	Pass
32.67 - 27.67	Pole + Reinf.	TP43.653x42.742x0.738	Reinf. 2 Compression	70.2%	Pass
27.67 - 22.67	Pole + Reinf.	TP44.563x43.653x0.7255	Reinf. 2 Compression	72.2%	Pass
22.67 - 17.67	Pole + Reinf.	TP45.473x44.563x0.7255	Reinf. 2 Compression	74.2%	Pass
17.67 - 12.67	Pole + Reinf.	TP46.384x45.473x0.713	Reinf. 2 Compression	76.1%	Pass
12.67 - 7.67	Pole + Reinf.	TP47.294x46.384x0.713	Reinf. 2 Compression	77.8%	Pass
7.67 - 2.67	Pole + Reinf.	TP48.204x47.294x0.7005	Reinf. 2 Compression	79.5%	Pass
2.67 - 0	Pole + Reinf.	TP48.69x48.204x0.7005	Reinf. 2 Compression	80.4%	Pass
				Summary	
			Pole	68.1%	Pass
			Reinforcement	80.4%	Pass
			Overall	80.4%	Pass

Additional Calculations

Section Elevation (ft)	Moment of Inertia (in ⁴)			Area (in ²)			% Capacity				
	Pole	Reinf.	Total	Pole	Reinf.	Total	Pole	R1	R2	R3	R4
145 - 140	1647	n/a	1647	21.90	n/a	21.90	2.1%				
140 - 135	1840	n/a	1840	22.72	n/a	22.72	5.4%				
135 - 130	2047	n/a	2047	23.55	n/a	23.55	10.8%				
130 - 125	2269	n/a	2269	24.37	n/a	24.37	18.4%				
125 - 120	2507	n/a	2507	25.19	n/a	25.19	25.6%				
120 - 115	2761	n/a	2761	26.02	n/a	26.02	32.5%				
115 - 110	3032	n/a	3032	26.84	n/a	26.84	39.6%				
110 - 105	3319	n/a	3319	27.66	n/a	27.66	47.5%				
105 - 100	3624	n/a	3624	28.49	n/a	28.49	55.1%				
100 - 96	3882	n/a	3882	29.14	n/a	29.14	61.0%				
96 - 89.83	5408	n/a	5408	39.46	n/a	39.46	48.4%				
89.83 - 84.83	5871	n/a	5871	40.55	n/a	40.55	52.9%				
84.83 - 79.83	6360	n/a	6360	41.65	n/a	41.65	57.2%				
79.83 - 74.83	6875	n/a	6875	42.74	n/a	42.74	61.3%				
74.83 - 69.83	7417	n/a	7417	43.84	n/a	43.84	65.2%				
69.83 - 66	7852	n/a	7852	44.68	n/a	44.68	68.1%				
66 - 65.75	7880	4817	12697	44.73	26.25	70.98	49.5%			63.0%	63.0%
65.75 - 60.75	8474	5047	13521	45.83	26.25	72.08	52.2%			66.4%	66.4%
60.75 - 55.75	9096	5282	14379	46.92	26.25	73.17	54.8%			69.6%	69.6%
55.75 - 50.75	9749	5523	15272	48.02	26.25	74.27	57.3%			72.8%	72.8%
50.75 - 49	9984	5608	15593	48.40	26.25	74.65	58.1%			73.8%	73.8%
49 - 41.83	12096	7033	19129	57.23	31.88	89.10	53.6%	68.0%			68.0%
41.83 - 37.92	12743	7272	20016	58.23	31.88	90.11	55.1%	69.9%			69.9%
37.92 - 37.67	12785	8607	21392	58.30	37.50	95.80	51.8%	65.7%	65.7%		
37.67 - 32.67	13648	8973	22620	59.58	37.50	97.08	53.6%	68.0%	68.0%		
32.67 - 27.67	14548	9347	23895	60.86	37.50	98.36	55.3%	70.2%	70.2%		
27.67 - 22.67	15487	9729	25215	62.14	37.50	99.64	57.0%	72.2%	72.2%		
22.67 - 17.67	16465	10118	26583	63.43	37.50	100.93	58.5%	74.2%	74.2%		
17.67 - 12.67	17484	10515	27999	64.71	37.50	102.21	60.0%	76.1%	76.1%		
12.67 - 7.67	18544	10920	29464	65.99	37.50	103.49	61.5%	77.8%	77.8%		
7.67 - 2.67	19646	11333	30979	67.27	37.50	104.77	62.8%	79.5%	79.5%		
2.67 - 0	20251	11557	31808	67.96	37.50	105.46	63.5%	80.4%	80.4%		

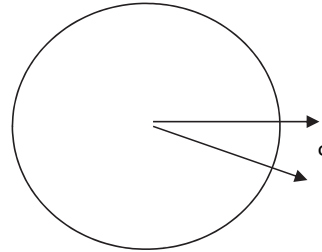
Note: Section capacity checked in 5 degree increments.



BU#	
Site Name	CT5022
App #	

Number Of Bolts (Ext + Mod)	19
Diameter Of Exist. Bolt Circle(inch)	56.91
Moment (ft. kips)	3987
Axial Compression (kips)	51
Outer Diamter of Mod. Bolt Circle(inch)	56.91

47844 in. kips



	Bolt Diameter (inch)	Grade	Allowable Axial (kips)	Capacity
Existing	2.25	A615 (Gr 75)	260	69.3%
Mod	2.25	F1554 (105 KSI)	325	54.8%

Sum Ax_i^2 29917.34

T(+) C(-)

Bolt #	ϕ°	Bolt Circle	D (in)	Radians	$\text{Cos}(\phi^\circ)$	x_i (inch)	x_i^2	Area	Ax_i	Ax_i^2	Force (Kip)	Capacities
1	-11.25	56.91	2.25	-0.196	0.981	27.908	778.870	3.98	110.97	3096.85	174.8	67.2%
2	11.25	56.91	2.25	0.196	0.981	27.908	778.870	3.98	110.97	3096.85	174.8	67.2%
3	33.75	56.91	2.25	0.589	0.831	23.659	559.770	3.98	94.07	2225.69	147.8	56.8%
4	56.25	56.91	2.25	0.982	0.556	15.809	249.917	3.98	62.86	993.69	97.8	37.6%
5	78.75	56.91	2.25	1.374	0.195	5.551	30.817	3.98	22.07	122.53	32.6	12.5%
6	101.25	56.91	2.25	1.767	-0.195	-5.551	30.817	3.98	-22.07	122.53	-38.0	14.6%
7	123.75	56.91	2.25	2.160	-0.556	-15.809	249.917	3.98	-62.86	993.69	-103.2	39.7%
8	146.25	56.91	2.25	2.553	-0.831	-23.659	559.770	3.98	-94.07	2225.69	-153.1	58.9%
9	168.75	56.91	2.25	2.945	-0.981	-27.908	778.870	3.98	-110.97	3096.85	-180.1	69.3%
10	191.25	56.91	2.25	3.338	-0.981	-27.908	778.870	3.98	-110.97	3096.85	-180.1	69.3%
11	213.75	56.91	2.25	3.731	-0.831	-23.659	559.770	3.98	-94.07	2225.69	-153.1	58.9%
12	236.25	56.91	2.25	4.123	-0.556	-15.809	249.917	3.98	-62.86	993.69	-103.2	39.7%
13	258.75	56.91	2.25	4.516	-0.195	-5.551	30.817	3.98	-22.07	122.53	-38.0	14.6%
14	281.25	56.91	2.25	4.909	0.195	5.551	30.817	3.98	22.07	122.53	32.6	12.5%
15	303.75	56.91	2.25	5.301	0.556	15.809	249.917	3.98	62.86	993.69	97.8	37.6%
16	326.25	56.91	2.25	5.694	0.831	23.659	559.770	3.98	94.07	2225.69	147.8	56.8%
17	0	56.91	2.25	0.000	1.000	28.455	809.687	3.98	113.14	3219.38	178.2	54.8%
18	112.5	56.91	2.25	1.963	-0.383	-10.889	118.576	3.98	-43.30	471.47	-71.9	22.1%
19	247.5	56.91	2.25	4.320	-0.383	-10.889	118.576	3.98	-43.30	471.47	-71.9	22.1%

Stiffened or Unstiffened, Ungrouted, Circular Base Plate - Any Rod Material

TIA Rev G

Assumption: Clear space between bottom of leveling nut and top of concrete **not** exceeding (1)*(Rod Diameter)

Site Data	
BU#:	
Site Name:	CT 5022
App #:	
Pole Manufacturer:	Other

Reactions		
Mu:	3987	ft-kips
Axial, Pu:	51	kips
Shear, Vu:	40	kips
Eta Factor, η	0.55	TIA G (Fig. 4-4)

Anchor Rod Data		
Qty:	16	
Diam:	2.25	in
Rod Material:	A615-J	
Strength (Fu):	100	ksi
Yield (Fy):	75	ksi
Bolt Circle:	56.91	in

If No stiffeners, Criteria: AISC LRFD <-Only Applicable to Unstiffened Cases

Rigid
AISC LRFD
φ*Tn

Plate Data		
Diam:	62.9	in
Thick:	2.75	in
Grade:	60	ksi
Single-Rod B-eff:	9.98	in

Base Plate Results

Base Plate Stress:	25.6 ksi
Allowable Plate Stress:	54.0 ksi
Base Plate Stress Ratio:	47.4% Pass

Flexural Check

Rigid
AISC LRFD
φ*Fy
Y.L. Length:
27.76

Stiffener Data (Welding at both sides)		
Config:	0	*
Weld Type:	Fillet	
Groove Depth:	0.25	<-- Disregard
Groove Angle:	45	<-- Disregard
Fillet H. Weld:	0.25	in
Fillet V. Weld:	0.3125	in
Width:	5	in
Height:	18	in
Thick:	0.75	in
Notch:	0.5	in
Grade:	36	ksi
Weld str.:	70	ksi

n/a

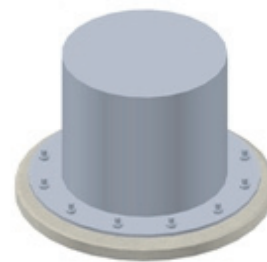
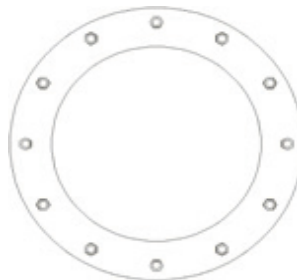
Stiffener Results

Horizontal Weld :	n/a
Vertical Weld:	n/a
Plate Flex+Shear, fb/Fb+(fv/Fv)^2:	n/a
Plate Tension+Shear, ft/Ft+(fv/Fv)^2	n/a
Plate Comp. (AISC Bracket):	n/a

Pole Results

Pole Punching Shear Check: n/a

Pole Data		
Diam:	49.68	in
Thick:	0.438	in
Grade:	65	ksi
# of Sides:	12	"0" IF Round
Fu	80	ksi
Reinf. Fillet Weld	0	"0" if None



* 0 = none, 1 = every bolt, 2 = every 2 bolts, 3 = 2 per bolt

** Note: for complete joint penetration groove welds the groove depth must be exactly 1/2 the stiffener thickness for calculation purposes

BU: _____
 Site Name: CT5022
 App Number: _____
 Work Order: _____



Monopole Drilled Pier

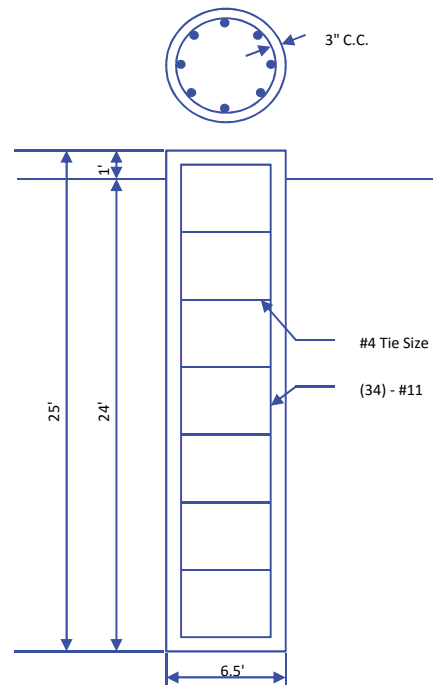
Input

Criteria
 TIA Revision: G
 ACI 318 Revision: 2008
 Seismic Category: B

Forces
 Compression: 51 kips
 Shear: 40 kips
 Moment: 3987 k-ft
 Swelling Force: 0 kips

Foundation Dimensions
 Pier Diameter: 6.5 ft
 Ext. above grade: 1 ft
 Depth below grade: 24 ft

Material Properties
 Number of Rebar: 34
 Rebar Size: #11
 Tie Size: #4
 Rebar tensile strength: 60 ksi
 Concrete Strength: 3000 psi
 Ultimate Concrete Strain: 0.003 in/in
 Clear Cover to Ties: 3 in



Soil Profile: SOIL

Layer	Thickness (ft)	From (ft)	To (ft)	Unit Weight (pcf)	Cohesion (psf)	Friction Angle (deg)	Ultimate Uplift Friction (ksf)	Ultimate Comp. Friction (ksf)	Ultimate Bearing Capacity (ksf)	SPT 'N' Counts
1	3.33	0	3.33	125	0	28	0	0	0	
2	6.67	3.33	10	125	0	28	0	0	0	
3	0.5	10	10.5	63	0	28	0	0	0	
4	14.5	10.5	25	58	0	32	0	0		21

Analysis Results

Soil Lateral Capacity
 Depth to Zero Shear: 4.62 ft
 Max Moment, Mu: 4215.84 k-ft
 Soil Safety Factor: 1.80
 Safety Factor Req'd: 1.33
RATING: 73.9%

Soil Axial Capacity
 Skin Friction (k): 0.00 kips
 End Bearing (k): 289.20 kips
 Comp. Capacity (k), φCn: 289.20 kips
 Comp. (k), Cu: 51.00 kips
RATING: 17.6%

Concrete/Steel Check
 Mu (from soil analysis) 4215.84 k-ft
 φMn 7285.84 k-ft
RATING: 57.9%

rho provided 1.11
 rho required 0.33 OK

Rebar Spacing 5.02
 Spacing required 22.56 OK

Dev. Length required 19.13
 Dev. Length provided 61.78 OK

Overall Foundation Rating: 73.9%

APPENDIX B
TOWER UPGRADE DRAWINGS

DESCRIPTION:	ISSUED FOR CONSTRUCTION		
	DATE	08/19/2016	01/13/2017 REV.1
NUM	A	B	

SITE ADDRESS:
 100 REEF ROAD
 FAIRFIELD, CT 06824

CARRIER DESIGNATION:	AT&T
CARRIER:	CT5022
SITE ID:	AWM - FAIRFIELD
SITE NAME:	

TOWER INFORMATION:	
FA NUMBER:	10108711

DESIGNED: DC
 DRAWN: DC
 CHECKED: RP

JOB #: 1629043

S1
SCOPE OF MODIFICATION

1. DESIGN INFORMATION AND GENERAL REQUIREMENTS

- 1.1 CODES
 a. INTERNATIONAL BUILDING CODE 2012, INTERNATIONAL CODE COUNCIL
 b. MINIMUM DESIGN LOADS FOR BUILDINGS AND OTHER STRUCTURES, ASCE/SEI 7-10, AMERICAN SOCIETY OF CIVIL ENGINEERS
 c. STEEL CONSTRUCTION MANUAL, 14TH EDITION, AMERICAN INSTITUTE OF STEEL CONSTRUCTION
 d. STRUCTURAL STANDARDS FOR STEEL ANTENNA TOWERS AND ANTENNA SUPPORTING STRUCTURES, ANSI/TIA-222-G, TELECOMMUNICATIONS INDUSTRY ASSOCIATION
 e. BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE, ACI 318-11

- 1.2 GENERAL
 a. PRIOR TO PURCHASE OR FABRICATION OF MATERIAL, THE CONTRACTOR SHALL PERFORM AN INSPECTION VERIFYING MEMBER DIMENSIONS AND BOLT SIZES. SHOULD THE CONTRACTOR DISCOVER ANY DAMAGED OR MISSING MEMBERS OR THE MEMBER OR BOLT SIZES DO NOT MATCH THOSE LISTED, DESTEK SHALL BE NOTIFIED IMMEDIATELY.
 b. CONTRACTOR TO REPLACE ALL BOLTS REMOVED WITH NEW BOLTS OF SAME TYPE, UNLESS NOTED OTHERWISE.

- 1.3 LOADS & DESIGN CRITERIA
 WIND LOADING: Vult=125MPH; Vasd=97MPH; EXPOSURE C

2. STRUCTURAL STEEL

- 2.1 MATERIALS
 a. STRUCTURAL STEEL ASTM A992
 ANGLE & PLATE ASTM A36
 PIPE ASTM A53 GRADE B (OR Fy>35KSI)
 HSS ROUND ASTM A500 GRADE C (Fy>46KSI)
 BARS (SOLID RODS) ASTM A572 GRADE 50
 b. BOLTS ASTM A325X U.N.O.
 c. WELDING ELECTRODES AWS A5.1 (E70XX)
 d. STEEL CONSTRUCTION SHALL CONFORM TO "SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS, ANSI/AISC 360-10"
 e. WELDING SHALL CONFORM TO AWS D1.1/D1.3/D1.7 AS APPLICABLE.
 f. THE FABRICATOR SHALL FURNISH CHECKED SHOP AND ERECTION DRAWINGS TO THE ENGINEER, AND OBTAIN APPROVAL PRIOR TO FABRICATING ANY STRUCTURAL STEEL. SHOP DRAWINGS SHALL CONFORM TO "DETAILING FOR STEEL CONSTRUCTION, 2ND EDITION"
 g. POOR MATCHING OF HOLES SHALL BE CORRECTED BY DRILLING TO THE NEXT LARGER SIZE. WELDING FOR RE-DRILLING WILL NOT BE PERMITTED.

- 2.2 CONNECTIONS
 a. SHOP CONNECTIONS MAY BE BOLTED OR WELDED
 b. FIELD CONNECTIONS BOLTED WITH A325-X BOLTS, (INSTALLED SNUG TIGHT) UNLESS OTHERWISE SPECIFIED OR IF WELDED CONNECTIONS ARE NOTED ON DRAWINGS
 c. FIELD CONNECTIONS SHALL BE MADE WITH A325-X BOLTS AND HARDENED WASHERS EXCEPT AS INDICATED ON THE DESIGN DRAWINGS
 d. CONNECTIONS NOT SHOWN ON DRAWINGS SHALL BE DESIGNED BY THE STEEL FABRICATOR. CONNECTIONS SHALL BE DESIGNED IN ACCORDANCE WITH AISC "SPECIFICATIONS FOR STRUCTURAL JOINTS USING ASTM A325 OR A490 BOLTS" AND "AISC CODE OF STANDARD PRACTICE FOR STEEL BUILDINGS AND BRIDGES"
 e. DO NOT FIELD CUT OR ALTER STRUCTURAL MEMBERS WITHOUT PRIOR WRITTEN APPROVAL OF ENGINEER.
 f. BOLT HOLES SHALL BE CUT, DRILLED OR PUNCHED AT RIGHT ANGLES TO THE SURFACE OF THE METAL AND SHALL NOT BE MADE OR ENLARGED BY BURNING. HOLES SHALL BE CLEAN CUT WITHOUT TORN OR RAGGED EDGES. OUTSIDE BURRS RESULTING FROM DRILLING OR REAMING OPERATION SHALL BE REMOVED WITH A TOOL MAKING A 1/16 INCH BEVEL. BOLT HOLES SHALL BE 1/16 INCH OVERSIZE.

- 2.3 FINISHES
 a. STRUCTURAL STEEL SHALL BE HOT DIP GALVANIZED AFTER FABRICATION PER ASTM A123
 b. BOLTS AND NUTS SHALL BE HOT DIP GALVANIZED PER ASTM A153.
 c. ALL SURFACES DAMAGED DURING THE WORK SHALL BE PAINTED WITH COLD GALVANIZING COMPOUND TWICE. THE PAINT SHOULD BE AT LEAST 93% PURE ZINC. RUST-OLEUM PROFESSIONAL, (MODEL# 7585838) OR SIMILAR.

- 2.4 WELDING
 a. CONTRACTOR TO TAKE ALL NECESSARY PRECAUTIONS FOR FIRE PREVENTION DURING WELDING, SUCH AS; INSTALLING 3000 (NFPA 701) FIRE BLANKET AROUND COAX. MORE SPLATTER AND SPARKS SHOULD BE ANTICIPATED WHILE WELDING ON GALVANIZED SURFACE. COAX IS FLAMMABLE AND SHALL CATCH FIRE IF NOT PROTECTED. WATER SHALL BE ON SITE OF ADEQUATE AMOUNT AND AVAILABLE AT SHORT NOTICE AT ALL TIMES DURING WELDING ACTIVITY. CONTRACTOR SHOULD BE ABLE TO TRANSPORT THE WATER TO THE HEIGHT WELDING BEING PERFORMED.
 b. WELDING ON GALVANIZED SURFACE SHOULD BE DONE WITH EXTREME CAUTION. IF THE WELD MATERIAL IS CONTAMINATED WITH ZINC, IT DOES NOT PROVIDE A STRUCTURAL WELD. GRIND GALVANIZING BEFORE WELDING.
 c. WELDING CERTIFICATE MUST BE PROVIDED PRIOR TO WELDING. ALL WELDING SHALL BE PERFORMED BY AWS QUALIFIED WELDER WHO HAS EXPERIENCE WITH GALVANIZED SURFACES.

NOTES:

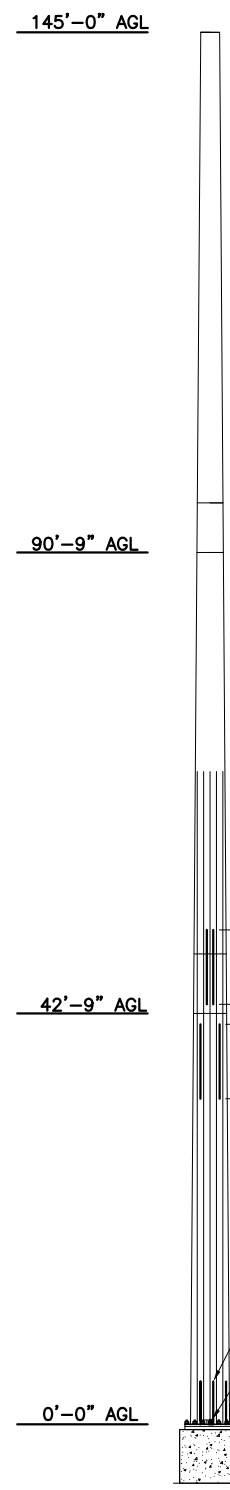
- UPGRADE DESIGN VALID FOR APPURTENANCES LISTED IN DESTEK ANALYSIS REPORT DATED 01/13/2017. CONTRACTOR TO REVIEW AND SHOULD ADHERE TO THE REPORT.
- CONTRACTOR TO REMOVE AND REATTACH EXISTING APPURTENANCES AS NEEDED.
- ALL DIMENSIONS ARE BASED ON A TOWER MAPPING PREPARED BY COM-EX DATED 03/25/2016.
- CONTRACTOR TO FIELD VERIFY EXISTING TOWER MEMBER SIZES AND TOWER DIMENSIONS IN THE VICINITY OF THE UPGRADE, BEFORE FABRICATION OF STEEL AND COMMENCEMENT OF WORK. ANY DISCREPANCY SHOULD BE REPORTED TO DESTEK IMMEDIATELY FOR FURTHER EVALUATION.
- DO NOT PERFORM THE WORK ON THE TOWER WHEN WINDS GUST MORE THAN 20 MPH AT THE GROUND LEVEL.
- NEW TOWER REACTIONS:
 SHAFT MOMENT: 3987 KIPS-FT
 SHAFT SHEAR: 51 KIPS
 SHAFT COMPRESSION: 40 KIPS
- CONTRACTOR TO HAVE THE SAFETY CLIMB INTACT AND FUNCTIONAL AFTER WORK IS COMPLETE.
- TOWER WILL BECOME UNSTABLE WHEN MEMBERS ARE DISCONNECTED OR BEING REPLACED. CONTRACTOR IS FULLY RESPONSIBLE TO MAINTAIN STABILITY OF THE TOWER DURING WORK AND SHOULD CONSULT WITH AN ENGINEER.
- DESTEK DISCLAIMS ANY LIABILITY ARISING FROM THE ORIGINAL MATERIAL, FABRICATION OR ERECTION OF THE TOWER.
- ALL CONSTRUCTION MEANS AND METHODS; INCLUDING BUT NOT LIMITED TO, ERECTION PLANS, RIGGING PLANS, CLIMBING PLANS, AND RESCUE PLANS SHALL BE THE RESPONSIBILITY OF THE GENERAL CONTRACTOR RESPONSIBLE FOR THE EXECUTION OF THE WORK CONTAINED HEREIN AND SHALL MEET ANSI/TIA 1019 (LATEST EDITION), OSHA, AND GENERAL INDUSTRY STANDARDS. ALL RIGGING PLANS SHALL ADHERE TO ANSI/TIA-1019 (LATEST EDITION) INCLUDING THE REQUIRED INVOLVEMENT OF A QUALIFIED ENGINEER FOR CLASS IV CONSTRUCTION.

POLE MODIFICATION SCHEDULE			
	ELEVATION (FT)	MODIFICATION	REFERENCE SHEET
A	0'-0"	ADD (3) 2 1/2" A1554 GR105 ANCHOR RODS MATCH EXISTING ANCHOR RODS B.C.	S-2
B	0'-0"	ADD (6) NEW GR65 STIFFENERS	S-2, S-4
C	43'-9" TO 51'-6"	INSTALL NEW CONNECTION PLATE	S-3
D	33'-11" TO 41'-8"		
E	-	RELOCATE ALL TME AND RRUS BEHIND ANTENNA	S-4

FLAT PLATE (65 KSI) REINFORCING		
ELEVATION (FT)	FLAT / DEGREES	PLATE SIZE
43'-9" TO 51'-6"	3,7,11	SEE S3
33'-11" TO 41'-8"	3,5,11	

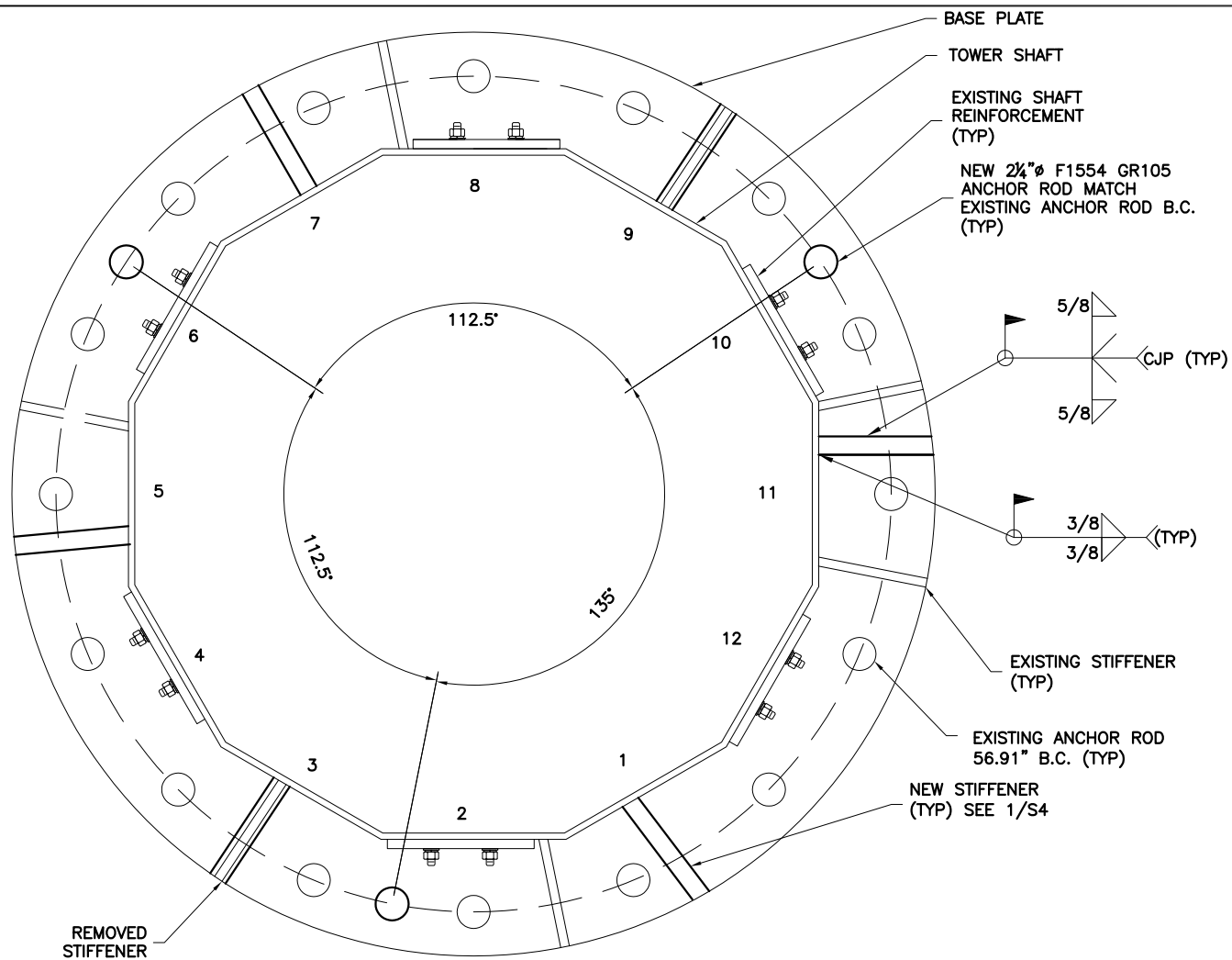
EXISTING POLE SPECIFICATIONS	
POLE SHAPE TYPE	12 SIDED POLYGON
SHAFT STEEL	A572-65
BASE PL STEEL	60 KSI
ANCHOR RODS	2 1/4" @ AA615-J

EXISTING MEMBER SCHEDULE					
SECTION	SECTION LENGTH (FT)	SHAFT THICKNESS (IN)	LAP SPLICE (IN)	SHAFT DIAMETER	
				⊙ TOP	⊙ BOTTOM
1	54.17	0.281	0.281	23.61	33.48
2	53.17	0.375	0.375	31.98	41.64
3	49.00	0.438	0.438	39.77	48.69



1
S1 **TOWER ELEVATION**
 N.T.S.

01-13-2017
 AHMET COLAKOGLU, PE
 CT License No: 27057



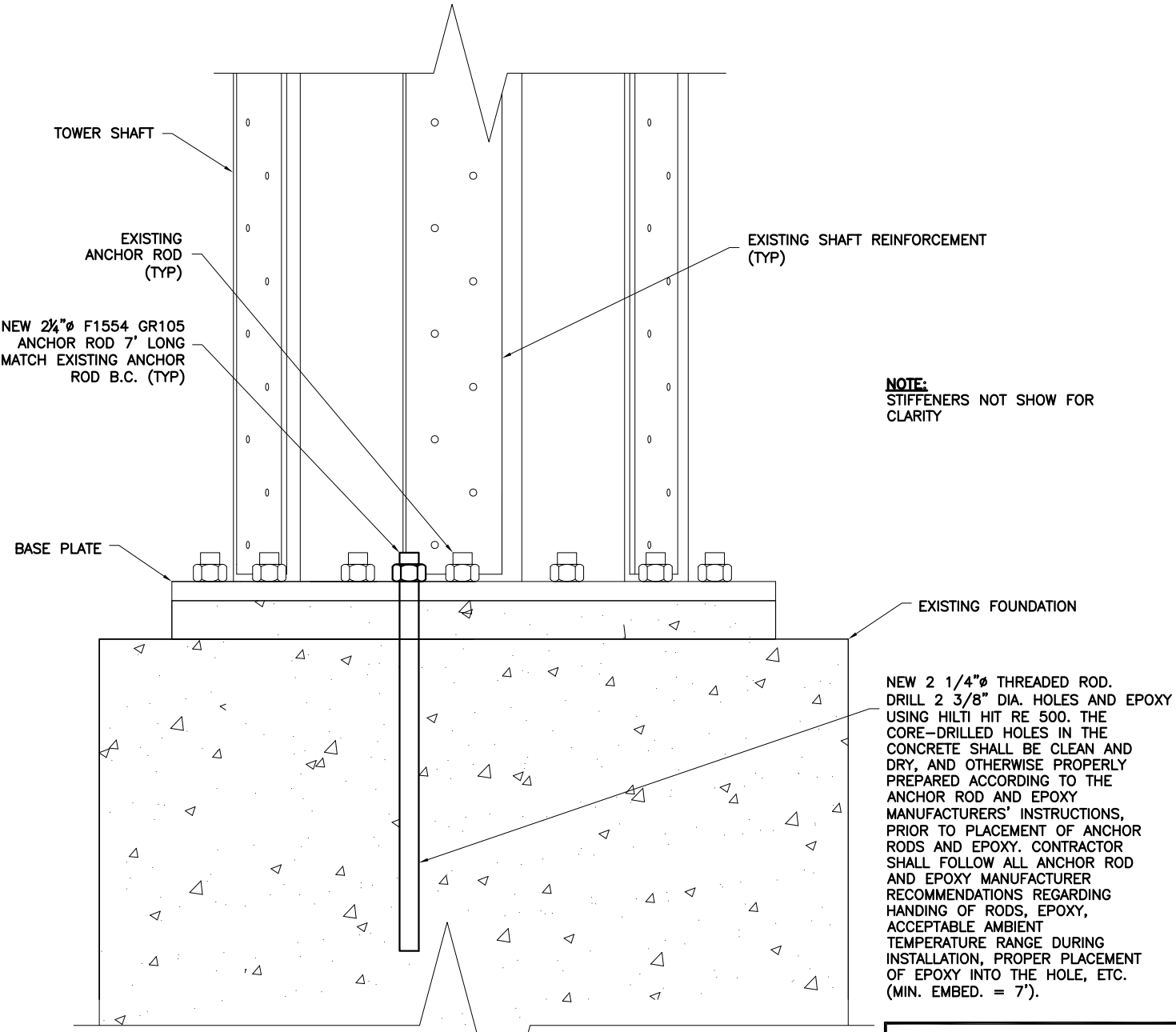
1 ELEVATION 0' SECTION VIEW
S2 N.T.S.

EPOXY GROUTED REINFORCING ANCHOR ROD NOTES:

- IF EXISTING ANCHOR/REBAR MATERIAL IS ENCOUNTERED DURING DRILLING, RELOCATE HOLE AND GROUT FILL IMPEDED HOLE WITH 5000 PSI NON SHRINK GROUT.
- THE CORE-DRILLED HOLES IN THE CONCRETE FOR THE ANCHOR RODS SHALL BE CLEAN AND DRY, AND OTHERWISE PROPERLY PREPARED ACCORDING TO THE ANCHOR ROD AND EPOXY MANUFACTURERS' INSTRUCTIONS, PRIOR TO PLACEMENT OF ANCHOR RODS AND EPOXY. CONTRACTOR SHALL FOLLOW ALL ANCHOR ROD AND EPOXY MANUFACTURER RECOMMENDATIONS REGARDING HANDLING OF RODS, EPOXY, ACCEPTABLE AMBIENT TEMPERATURE RANGE DURING INSTALLATION AND POST-INSTALLATION CURING, THE EFFECT OF TEMPERATURE ON EPOXY CURING TIME, PREPARATION OF HOLE, ETC.
- ONCE THE REINFORCING ANCHOR RODS HAVE BEEN INSTALLED AND ALL EPOXY AND GROUT HAVE CURED, ALL REINFORCING ANCHOR RODS SHALL BE LOAD TESTED PER MANUFACTURER SPECIFICATION. NEW ANCHOR SHALL BE PROOF LOADED TO 160 KIPS.
- ONCE THE REINFORCING ANCHOR RODS HAVE BEEN SUCCESSFULLY LOAD TESTED AND APPROVED, CONTRACTOR SHALL RELEASE ALL OF THE PROOF LOAD AND TIGHTEN ALL ANCHOR NUTS TO SNUG TIGHT PLUS 1/8 TURN OF THE NUT.
- CONTRACTOR SHALL VERIFY THAT EXISTING BASE PLATE GROUT IS IN GOOD CONDITION.

MATERIAL NOTES:

- DRILLED IN ANCHOR RODS SHALL CONFORM TO THE REQUIREMENTS OF ASTM F1554 GR105. ANCHOR RODS SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A153.



2 ELEVATION VIEW
S2 N.T.S.

NOTE:
STIFFENERS NOT SHOW FOR CLARITY

01-13-2017

AHMET COLAKOGLU, PE
CT License No: 27057

PREPARED BY:
DESTEK ENGINEERING
DESTEK ENGINEERING, LLC
1281 KENNESTONE CIR, STE 100
MARIETTA, GA 30066
TEL NO: 770-693-0835
ADMIN@DESTKENGINEERING.COM

PREPARED FOR:
COM-EX Consultants

NUM	DATE	DESCRIPTION:
A	08/19/2016	ISSUED FOR CONSTRUCTION
B	01/13/2017	REV.1

SITE ADDRESS:
**100 REEF ROAD
FAIRFIELD, CT 06824**

CARRIER DESIGNATION:	AT&T
CARRIER:	CT5022
SITE ID:	AWC - FAIRFIELD
SITE NAME:	

TOWER INFORMATION:	
FA NUMBER:	10108711

DESIGNED: DC
DRAWN: DC
CHECKED: RP

JOB #: 1629043

S2 STRUCTURAL DETAILS

NUM	DATE	DESCRIPTION:
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B	01/13/2017	REV.1

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FAIRFIELD, CT 06824

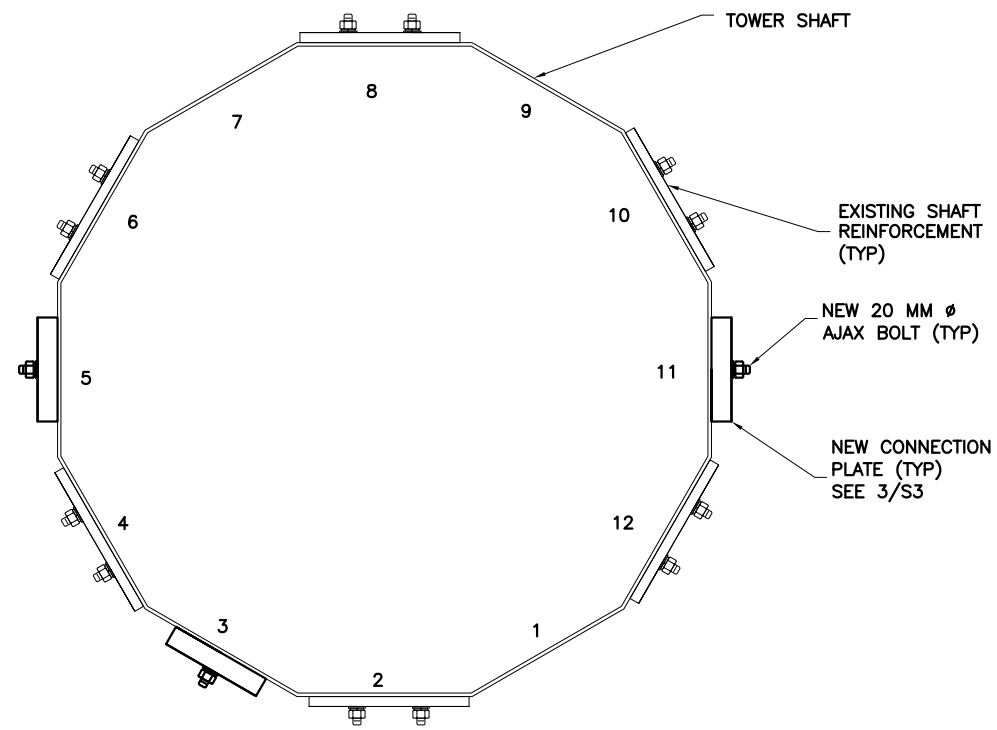
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CARRIER:	CT5022
SITE ID:	AWE - FAIRFIELD
SITE NAME:	

TOWER INFORMATION:	
FA NUMBER:	10108711

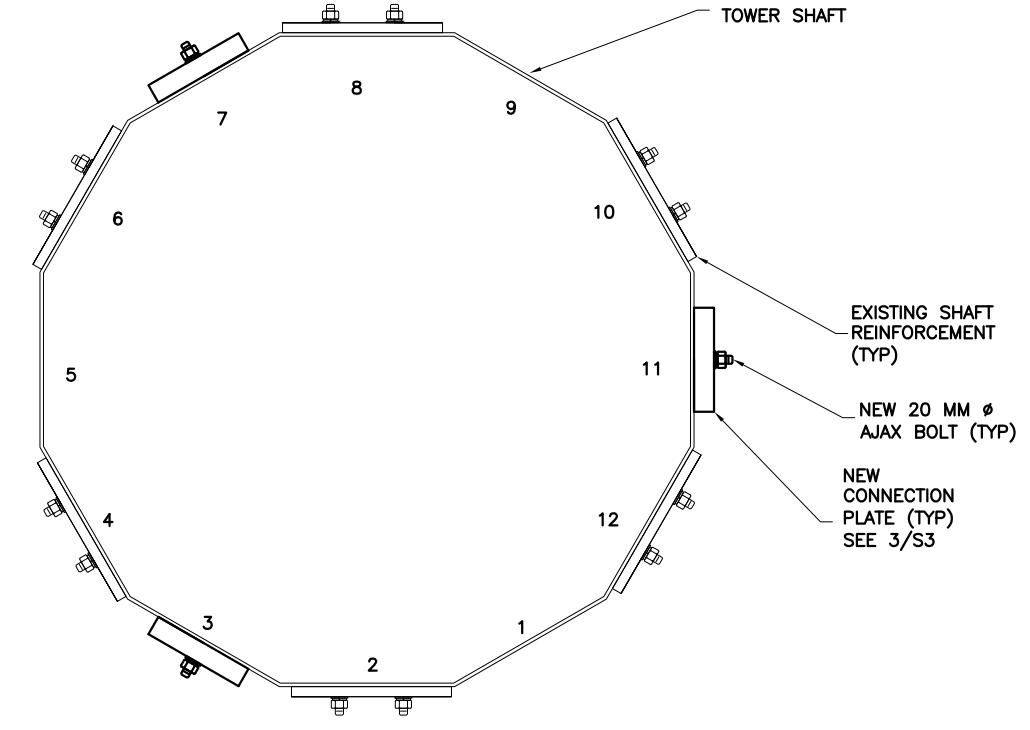
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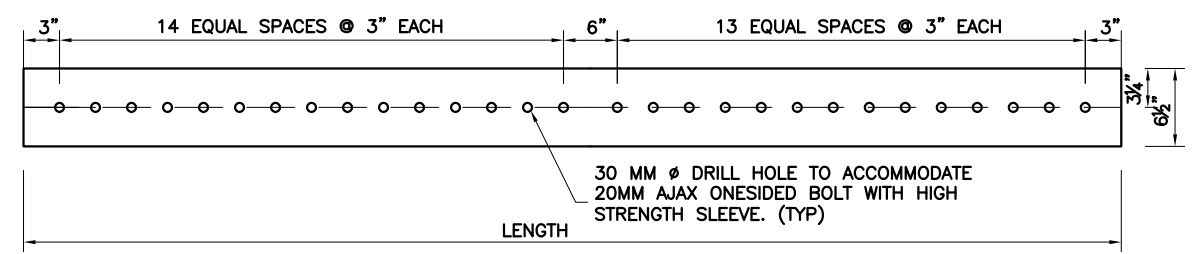
S3
STRUCTURAL
DETAILS



1
S3 N.T.S.
ELEVATION 37'-11\"



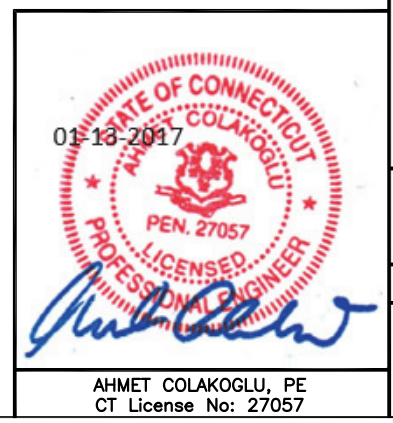
2
S3 N.T.S.
ELEVATION 47'-9\"



3
S3 N.T.S.
CONNECTION PLATE

LENGTH	BOTTOM ELEVATION (FT)	TOP ELEVATION (FT)	FLAT PLATE QUANTITY	TERMINATION BOLT		PLATE THICKNESS
				(BOT.)	(TOP)	
7'-9"	33'-11"	41'-8"	3	15	14	1.25"
7'-9"	43'-9"	51'-6"	3	15	14	1.25"

- NOTES:**
- ALL HOLES ARE TO BE DRILLED. DO NOT BURN OR PUNCH.
 - TOLERANCES: FRACTIONS $\pm 1/16"$
ANGLES $\pm 1/2$ DEGREE
DECIMALS $\pm .010"$
 - THE 65 KSI MATERIAL SHALL CONFORM TO THE FOLLOWING:
A. MATERIAL SHALL BE ASTM A572 HAVING A MINIMUM TENSILE STRENGTH (Fu) OF 80 KSI AND A MINIMUM YIELD STRENGTH (Fy) OF 65 KSI.
B. THE FINISH SHALL BE HOT-DIP GALVANIZED PER ASTM A123
 - AJAX BOLTS NEED TO INSTALL PER MANUFACTURE SPECIFICATIONS.



AHMET COLAKOGLU, PE
CT License No: 27057

PREPARED BY:



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TEL NO: 770-693-0835
ADMIN@DESTENGINEERING.COM

PREPARED FOR:



NUM	DATE	DESCRIPTION:
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FAIRFIELD, CT 06824

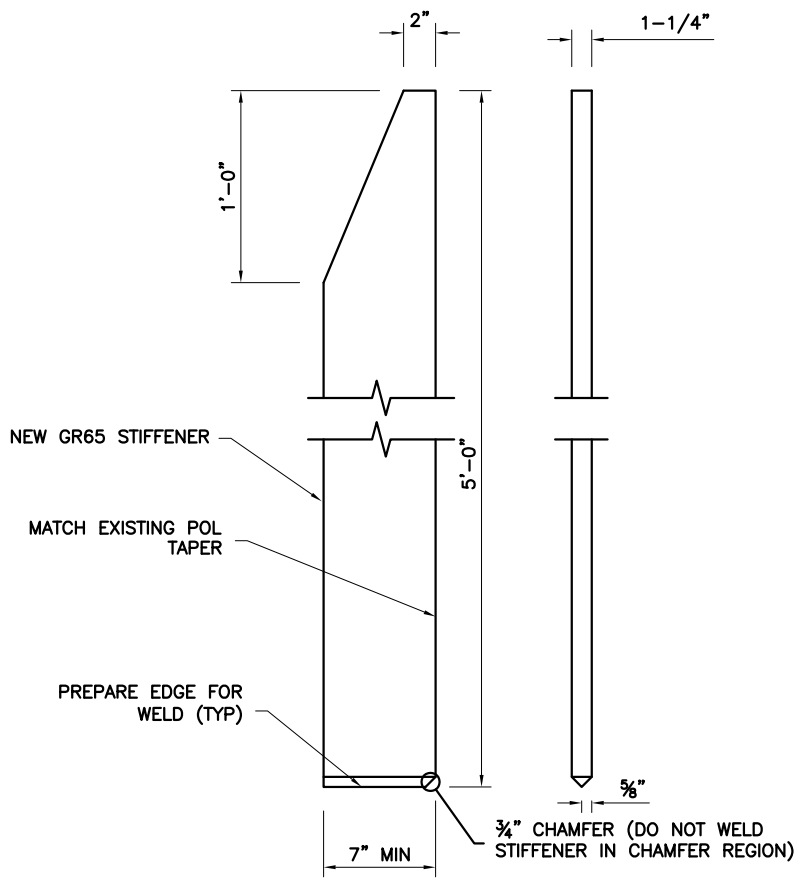
CARRIER DESIGNATION:	AT&T
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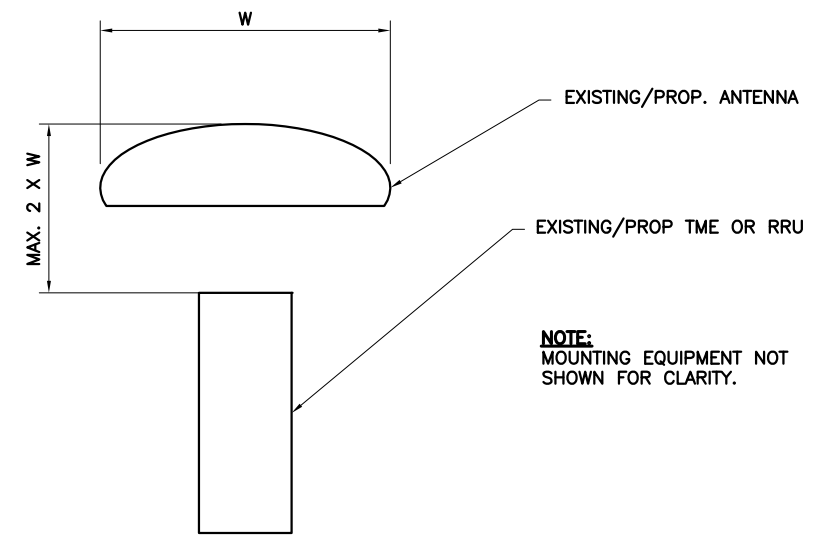
DESIGNED: DC
DRAWN: DC
CHECKED: RP

JOB #: 1629043

S4
STRUCTURAL
DETAILS



1
S4 **NEW STIFFENER DETAIL**
N.T.S.



2
S4 **TME LAYOUT TYP.**
N.T.S.

01-13-2017
AHMET COLAKOGLU
PEN. 27057
LICENSED PROFESSIONAL ENGINEER

AHMET COLAKOGLU, PE
CT License No: 27057