COHEN and WOLF P.C.
ATTORNEYS AT LAW

JULIE D. KOHLER

PLEASE REPLY TO: Bridgeport
WRITER'S DIRECT DIAL: (203) 337-4157
E-Mail Address: jkohler@cohenandwolf.com

March 4, 2014

Attorney Melanie Bachman
Acting Executive Director
Connecticut Siting Council
Ten Franklin Square
New Britain, CT 06051

Re: Notice of Exempt Modification
Wireless Solutions, LLC /T-Mobile co-location
Site ID CT11048A
174 Boom Bridge Road, North Stonington

Dear Attorney Bachman:

This office represents T-Mobile Northeast LLC ("T-Mobile") and has been retained to file exempt modification filings with the Connecticut Siting Council on its behalf.

In this case, Wireless Solutions LLC owns the existing guyed lattice telecommunications tower and related facility at 174 Boom Bridge Road, North Stonington, Connecticut (Latitude: 41.42880564; Longitude: -71.8090895). T-Mobile intends to replace three existing antennas with six new antennas and related equipment at this existing telecommunications facility in North Stonington ("North Stonington Facility"). Please accept this letter as notification, pursuant to R.C.S.A. § 16-50j-73, of construction which constitutes an exempt modification pursuant to R.C.S.A. § 16-50j-72(b)(2). In accordance with R.C.S.A. § 16-50j-73, a copy of this letter is being sent to the Mayor, Nicholas H. Mullane II and the property owner Lewis David Babcock LLC.

The existing North Stonington Facility consists of a 180 foot tall guyed structure.[1] T-Mobile plans to replace three existing antennas with six new antennas and replace 3 TMAs (tower mounted amplifiers) at a centerline of 120 feet. (See the plans revised to February 3, 2014 attached hereto as Exhibit A). T-Mobile will also install an equipment cabinet, install fiber and coax cable, and reuse existing coax cables. The existing North Stonington Facility is structurally capable of supporting T-Mobile's proposed modifications, as indicated in the structural analysis dated February 14, 2014 and attached hereto as Exhibit B.

[1] While the online Connecticut Siting Council database does not provide a docket or petition number for the approval of this structure, it does reference this structure in connection with a notice of intent captioned EM-AT&T-102-020529.

The planned modifications to the North Stonington Facility fall squarely within those activities explicitly provided for in R.C.S.A. § 16-50j-72(b)(2).

1. The proposed modification will not increase the height of the tower. T-Mobile's replacement and additional antennas will be installed at a centerline of 120 feet, merely replacing existing antennas located at the same 120 foot elevation. The enclosed tower drawing confirms that the proposed modification will not increase the height of the tower.

2. The proposed modifications will not require an extension of the site boundaries or lease area as depicted on Sheet 1 of Exhibit A. T-Mobile's equipment will be located entirely within the existing compound area.

3. The proposed modification to the Facility will not increase the noise levels at the existing facility by six decibels or more.

4. The operation of the replacement antennas will not increase the total radio frequency (RF) power density, measured at the base of the tower, to a level at or above the applicable standard. According to a Radio Frequency Emissions Analysis Report prepared by EBI dated February 21, 2014 T-Mobile's operations would add 0.869% of the FCC Standard. Therefore, the calculated "worst case" power density for the planned combined operation at the site including all of the proposed antennas would be 38.559% of the FCC Standard as calculated for a mixed frequency site as evidenced by the engineering exhibit attached hereto as Exhibit C.

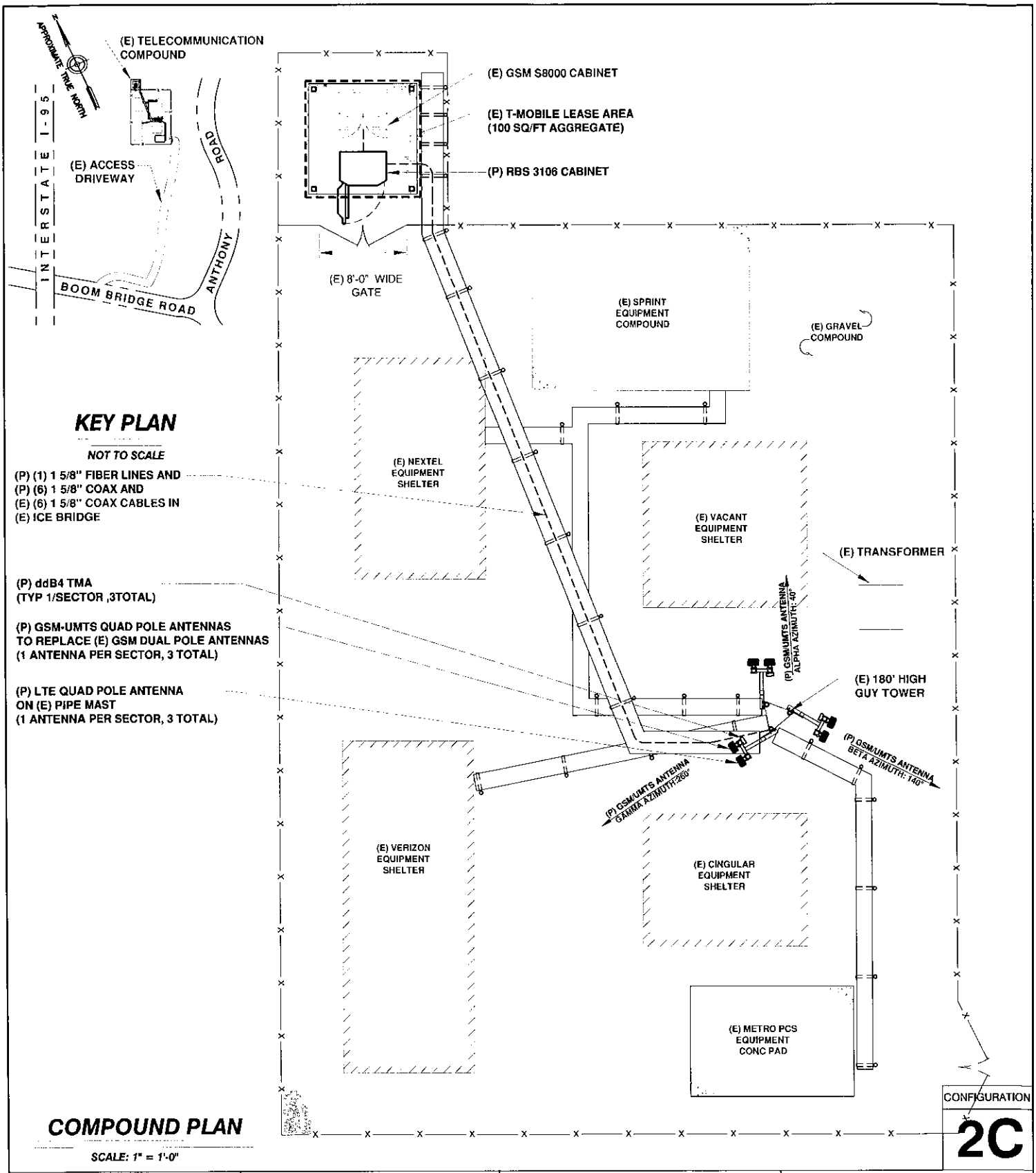
For the foregoing reasons, T-Mobile respectfully submits that the proposed replacement antennas and equipment at the North Stonington Facility constitutes an exempt modification under R.C.S.A. § 16-50j-72(b)(2). Upon acknowledgement by the Council of this proposed exempt modification, T-Mobile shall commence construction approximately sixty days from the date of the Council's notice of acknowledgement.

Sincerely,

Julie D. Kohler, Esq.

cc: Town of North Stonington, First Selectman Nicholas H. Mullane II
Wireless Solutions LLC
Lewis David Babcock LLC
Sheldon J. Freincle, Northeast Site Solutions

EXHIBIT A



KEY PLAN

NOT TO SCALE

(P) (1) 1 5/8" FIBER LINES AND
(P) (6) 1 5/8" COAX AND
(E) (6) 1 5/8" COAX CABLES IN
(E) ICE BRIDGE

(P) ddB4 TMA
(TYP 1/SECTOR ,3TOTAL)

(P) GSM-UMTS QUAD POLE ANTENNAS
TO REPLACE (E) GSM DUAL POLE ANTENNAS
(1 ANTENNA PER SECTOR, 3 TOTAL)

(P) LTE QUAD POLE ANTENNA
ON (E) PIPE MASK
(1 ANTENNA PER SECTOR, 3 TOTAL)

COMPOUND PLAN

SCALE: 1" = 1'-0"

CONFIGURATION

2C

SUBMITTALS	
LE REV A	02.03.14

ATLANTIS GROUP
1340 Centre Street
Suite 212
Newton, MA 02459
Office: 617-965-0789
Fax: 617-213-5056

LEASE EXHIBIT

SITE NUMBER:
CT11048A

SITE NAME:
NORTH STONINGTON

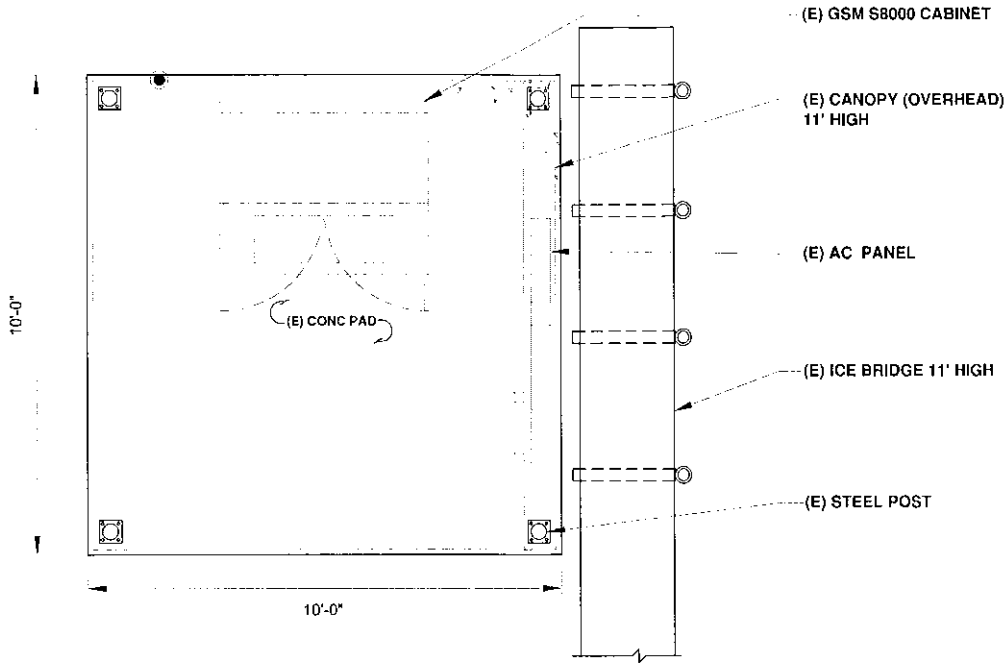
SITE ADDRESS:
174 BOOM BRIDGE ROAD
NORTH STONINGTON, CT
06359

NORTHEAST SITE SOLUTIONS
54 MAIN STREET, UNIT 3
STURBRIDGE, MA 01566
(508) 434-5237

FOR

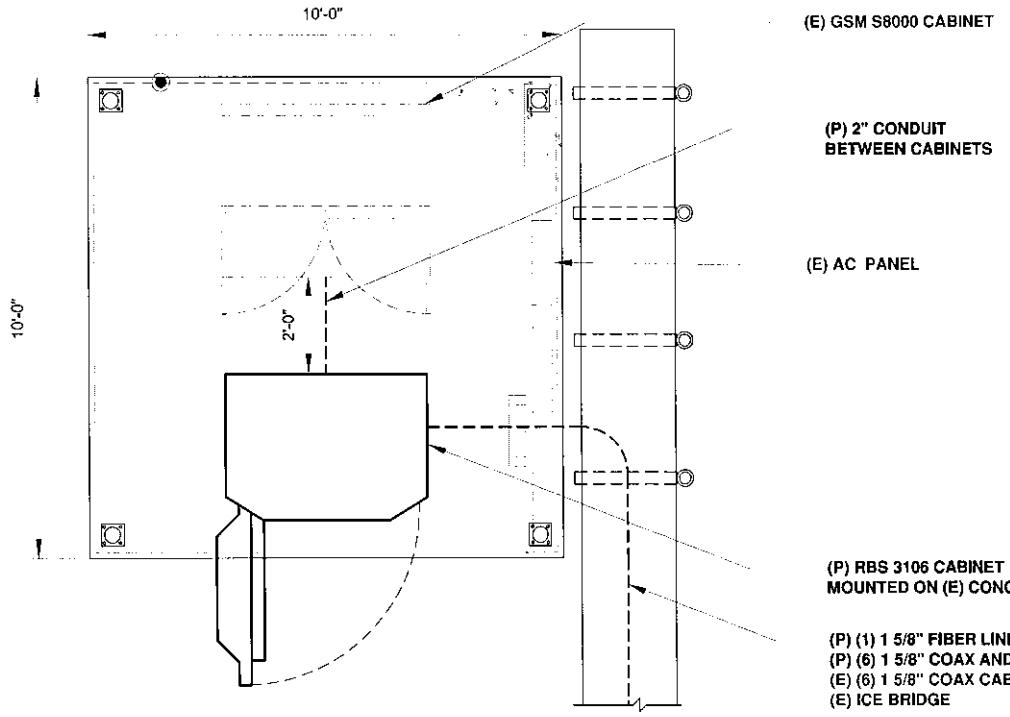
T-MOBILE NORTHEAST, LLC
35 GRIFFIN ROAD SOUTH
BLOOMFIELD, CT 06002
OFFICE: (860) 692-7100
FAX: (860) 692-7159

DRAWN BY: EB | CHECKED BY: SM



EQUIPMENT LAYOUT PLAN (BEFORE)

SCALE: 1/4" = 1'-0"



EQUIPMENT LAYOUT PLAN (AFTER)

SCALE: 1/4" = 1'-0"

CONFIGURATION

2C

SUBMITTALS	
LE REV A	02.03.14

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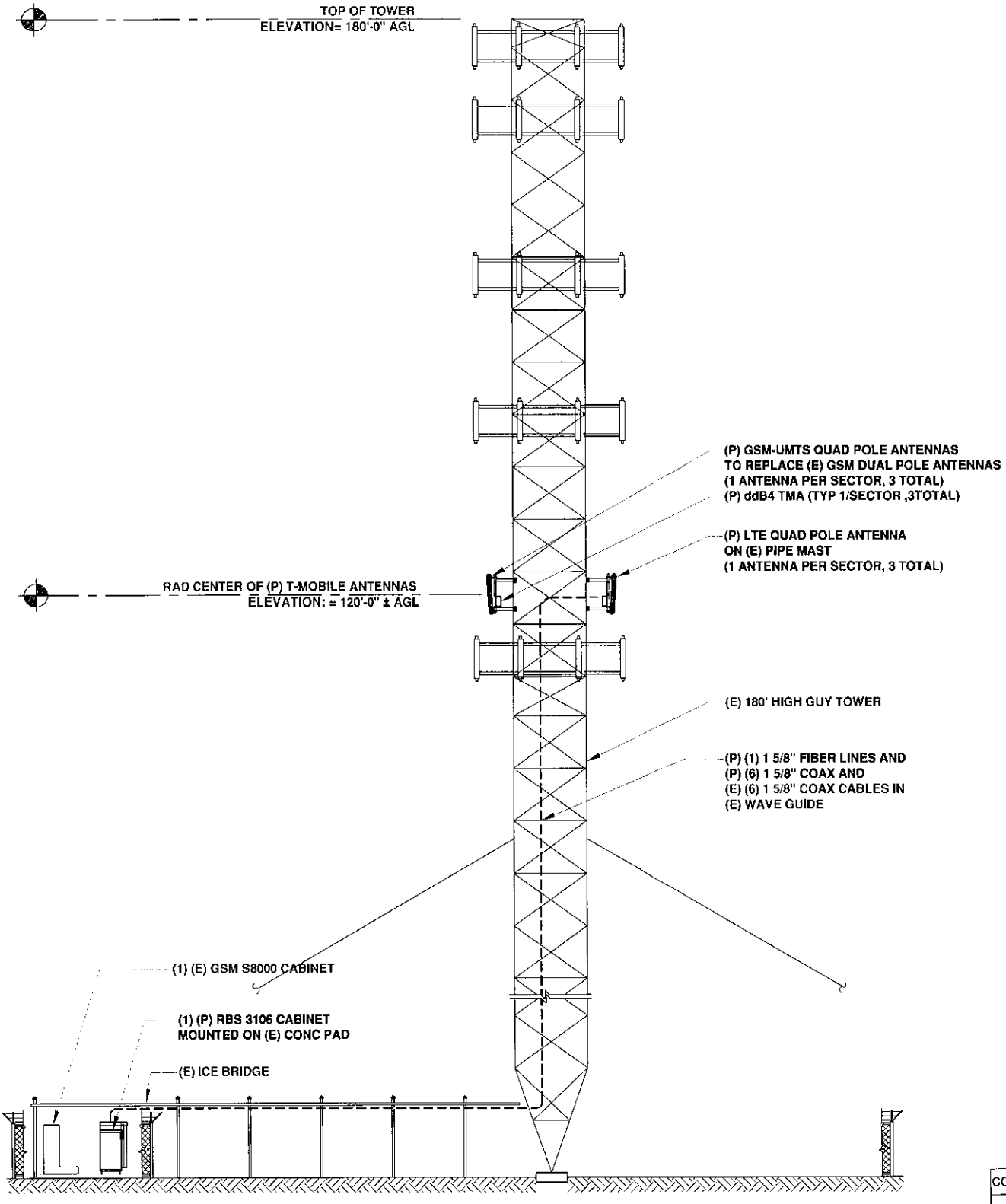


ELEVATION

SCALE: 1/16" = 1'-0"

CONFIGURATION

2C

SUBMITTALS	
LE REV A	02.03.14

ATLANTIS GROUP
1340 Centre Street
Suite 212
Newton, MA 02459
Office: 617-965-0789
Fax: 617-213-5056

LEASE EXHIBIT

SITE NUMBER:
CT11048A

SITE NAME:
NORTH STONINGTON

SITE ADDRESS:
174 BOOM BRIDGE ROAD
NORTH STONINGTON, CT
06359

NORTHEAST SITE SOLUTIONS
54 MAIN STREET, UNIT 3
STURBRIDGE, MA 01566
(508) 434-5237

FOR

T-MOBILE NORTHEAST, LLC
35 GRIFFIN ROAD SOUTH
BLOOMFIELD, CT 06002
OFFICE: (860) 692-7100
FAX: (860) 692-7159

DRAWN BY: EB | CHECKED BY: SM

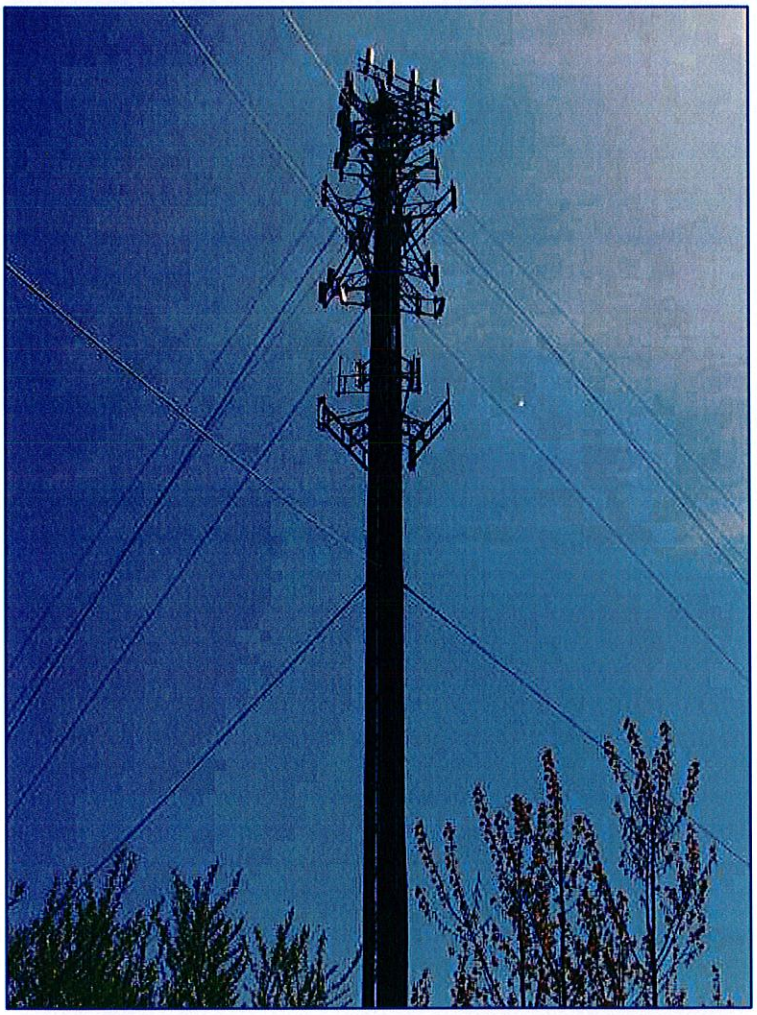
EXHIBIT B

STRUCTURAL ANALYSIS REPORT
GUYED TOWER

Prepared For:

T-Mobile

35 Griffin Road South
Bloomfield, CT 06002



Tower Rating

Tower:	**Pass (97.7 %)**
Foundation:	**Pass**

Sincerely,
Atlantis Group, Inc.
2-14-2014

Ahmet Colakoglu, PE
CT Professional Engineer
License No: 27057

Site ID: CT11048A
Site Name: NorthStonington/CDT_1
174 Boom Bridge Road,
North Stonington, CT 06359

Prepared By:

Atlantis Group, Inc.
1340 Centre Street, Suite 203
Newton, Massachusetts 02459
Phone: 617-965-0789, Fax: 617-965-0103
February 14, 2014

CONTENTS

1340 Centre Street, Suite 203
Newton, Massachusetts 02459
Phone: 617-965-0789
Fax: 617-965-0103

1.0 SUBJECT AND REFERENCES

The purpose of this analysis is to evaluate the structural capacity of the existing 180 feet high guyed tower, located at 174 Boom Bridge Road, North Stonington, CT 06359, for the alteration and addition of wireless telecommunication appurtenances proposed by T-Mobile.

The structural analysis of the site is based on the following documents provided to us:

1. Structural Analysis Report and Tower Modification drawings prepared by Centek Engineering, Inc., Centek project No. 11079, dated 12/13/2011.
2. Structural Analysis letter and Tower Reinforcement drawings prepared by All-Points Technology Corporation, P.C., APT Project #CT278121, dated 01/22/2009.
3. Existing and proposed antenna information provided by T-Mobile.

1.1 STRUCTURE

The guyed tower is a 180 feet high, triangular based tower manufactured by Rohn. Round pipe legs are K-braced between the base and 60 feet AGL with round pipes, while the remaining tower height is X-braced with round pipes and single angles. The tower is guyed at four (4) elevations at 103.5 ft. above the grade line; 162.5 feet, 132.2 feet, 82.5 feet and 49.8 feet. The torque arm guy wires are terminated at anchors 162 feet away from the tower, the top (2) guy wires are terminated at anchors 142 feet away, while the lower (2) guy wires are terminated at anchors 100 feet away from the tower. During the analysis of the tower it has been assumed that the modifications recommended by Centek Engineering, Inc., have taken place. Please refer to the tower elevation drawing in Appendix A, for details about the tower geometry, member sizes, etc.

2.0 PROPOSED CONFIGURATION

Antennas and Appurtenances:

The analysis is based on the following existing and proposed appurtenances:

Existing Configuration of T-MOBILE Appurtenances:

Sector	RAD Center (ft.)	Antenna & TMA		Mount	Feed Lines
Alpha	120	GSM Antenna TMA	(1) RR90 (1) dd B2	(1) Standoff	(6) 1 5/8"
Beta	120	GSM Antenna TMA	(1) RR90 (1) dd B2	(1) Standoff	
Gamma	120	GSM Antenna TMA	(1) RR90 (1) dd B2	(1) Standoff	

Proposed Configuration of T-MOBILE Appurtenances:

Sector	RAD Center (ft.)	Antenna & TMA		Mount	Feed Lines
Alpha	120	GSM/UMTS Antenna LTE Antenna TMA	(1) AIR21 B2A/B4P (1) AIR21 B4A/B2P (1) dd B4	(1) Standoff	(12) 1 5/8" + (1) 1 5/8" Hybrid Line
Beta	120	GSM/UMTS Antenna LTE Antenna TMA	(1) AIR21 B2A/B4P (1) AIR21 B4A/B2P (1) dd B4	(1) Standoff	
Gamma	120	GSM/UMTS Antenna LTE Antenna TMA	(1) AIR21 B2A/B4P (1) AIR21 B4A/B2P (1) dd B4	(1) Standoff	

Existing and Remaining Appurtenances by Others:

RAD Center (ft.) Carrier	Antenna & TMA	Mount	Feed Lines
177 AT&T	(6) DUO1417-8686 (4) 7770.00 (4) SC 9012-DIN (1) 5' Panel Antenna (8) LGP 17201 TMA (4) 10" TMA	(3) Sector Mounts	(12) 1 1/4" + (4) 1 5/8"
169 Nextel	(12) DB844H90E-XY	(3) Sector Mounts	(9) 1 5/8"
152 Sprint	(6) DB980H90E-M	(3) Sector Mounts	(6) 1 5/8"
136 Verizon	(3) BXA-70063-6CF (3) BXA-171085-8BF (6) LPA-80080-4CF (6) FD9R6004/2C-3L Diplexers	(3) Sector Mounts	(12) 1 5/8"
110 MetroPCS	(6) 800-10504 (6) 860 10025 RCU's (1) GPS antenna	(3) Sector Mounts	(12) 1 5/8"
98 Sprint	(1) GPS	(1) Standoff	(1) 1/2"

3.0 CODES AND LOADING

The tower was analyzed per ANSI/TIA-222-F as referenced by the 2005 Connecticut Building Code with 2011 Supplement, which is the adopted building code. The following wind loading was used in compliance with the standard for New London County, CT.

- Basic wind speed 95 mph (W) without ice [fastest-mile speed equivalent to 115 mph 3-second gust].
- Basic wind speed 82.27 mph (W_i) with 1/2" radial and escalating ice.

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

- D + Dg + W
- D + Dg + I + W_i + 1.0Ti

D: Dead Load of structure and appurtenances, except guy wires

W: Wind Load, without ice
W_i: Wind Load with ice
I: Ice Gravity Load
Dg: Dead Load of guy assemblies

4.0 STANDARD CONDITIONS FOR ENGINEERING SERVICES ON EXISTING STRUCTURES

The analysis is based on the information provided to Atlantis Group and is assumed to be current and correct. Unless otherwise noted, the structure and the foundation system are 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. 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. Atlantis Group will accept no liability which may arise due to any existing deficiency in design, material, fabrication, erection, construction, etc. or lack of maintenance. Contractor should inspect the condition of the existing structure, mounts and connections and notify Atlantis Group for any discrepancies and deficiencies before proceeding with the construction.

The analysis does not include a qualification of the 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 evaluation results presented in this report are only applicable for the previously mentioned existing and proposed additions and alterations. Any deviation of the proposed equipment and placement, etc., will require Atlantis Group to generate an additional structural evaluation.

5.0 ANALYSIS and ASSUMPTIONS

The tower was analyzed by utilizing tnx-Tower, a non-linear 3-Dimensional finite element software, 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 an analysis per ANSI/TIA-222-F, the existing tower is found to have **adequate** structural capacity for the proposed changes by T-mobile. For the aforementioned load combinations and as a maximum, the tower legs between 40 feet and 60 feet AGL will be stressed to **98.2%** of capacity. Maximum usage of tower guy wires and bracing is 89% and 87%, respectively. The tower foundation system is found to have **adequate** structural strength.

Reactions:

Maximums	Atlantis Analysis	Centek Analysis
Base Shear (kips)	2.7	3
Base Compression (kips)	165	156
Inner Anchor Shear (kips)	28.6	28
Inner Anchor Uplift (kips)	20.6	20
Middle Anchor Shear (kips)	30.5	29
Middle Anchor Uplift (kips)	31.7	30
Outer Anchor Shear (kips)	15.3	15
Outer Anchor Uplift (kips)	14.6	14

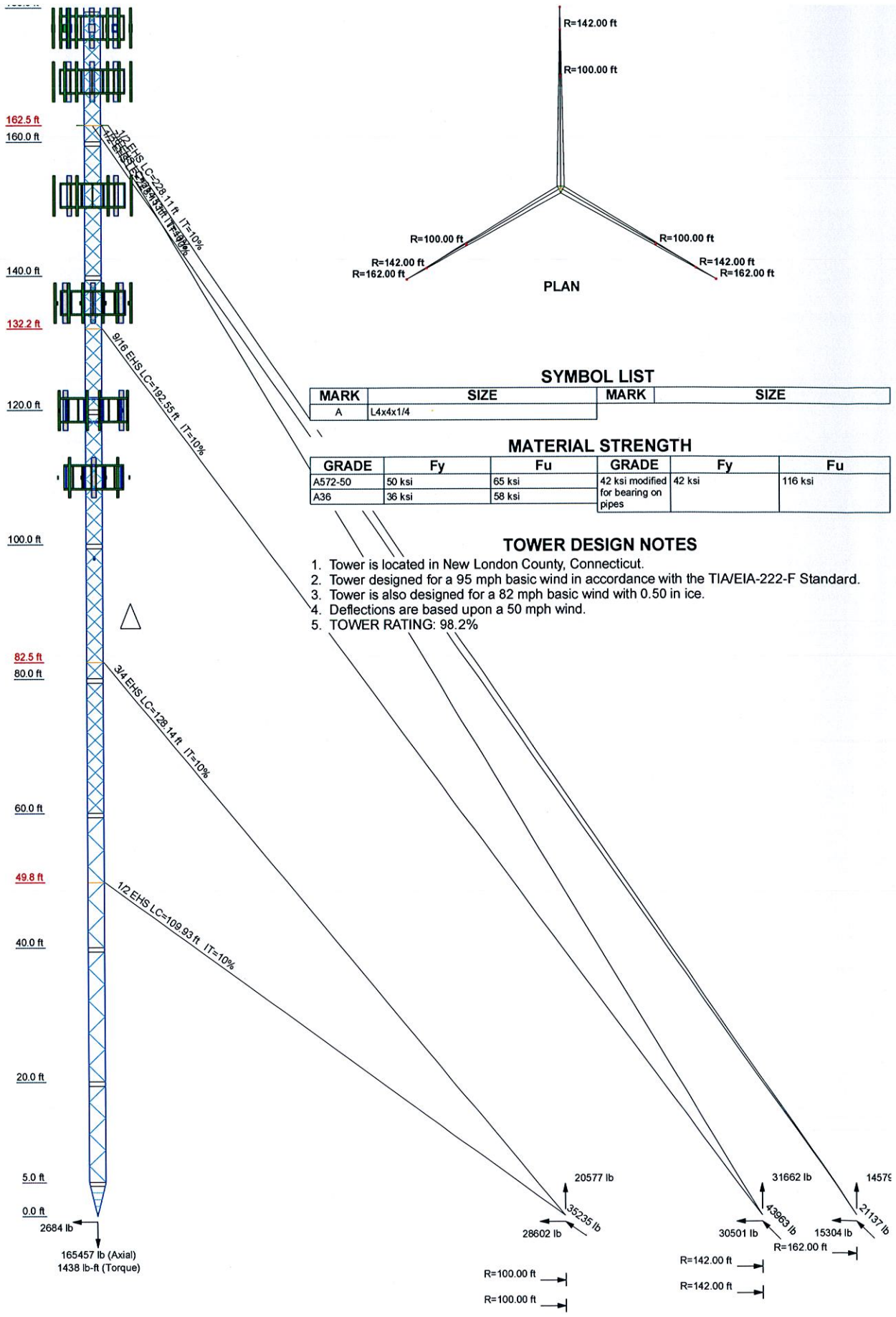
Therefore, the proposed additions and alterations by T-Mobile can be implemented with the conditions outlined in this report.

Should you have any questions or need any clarifications about this report, please contact Ahmet Colakoglu at (617) 965-0789.

Sincerely,
Atlantis Group, Inc.

APPENDIX A
CALCULATIONS

Legs	ROHN 2.5 X-STR							3.417
Leg Grade	A572-50							64 @ 2.40885
Diagonals	N.A.	ROHN TS1.5x16 ga	ROHN TS1.5x11 ga	ROHN TS1.5x16 ga	ROHN TS1.5x11 ga	ROHN TS1.5x16 ga	ROHN TS1.5x11 ga	L2x2x1/4
Diagonal Grade	N.A.	42 ksi modified for bearing on pipes						A36
Top Girts	A	ROHN TS1.5x16 ga	ROHN TS1.5x11 ga	ROHN TS1.5x16 ga	ROHN TS1.5x11 ga	ROHN TS1.5x16 ga	ROHN TS1.5x11 ga	L2x2x1/4
Bottom Girts	A	L3x3x1/2	ROHN TS1.5x16 ga	ROHN TS1.5x11 ga	ROHN TS1.5x16 ga	ROHN TS1.5x11 ga	ROHN TS1.5x16 ga	L2x2x1/4
Horizontals	A	N.A.						
Top Guy Pull-Offs		N.A.	4x3/8	N.A.	2L2x2x1/4x3/8	N.A.	4x3/8	2L2x2x1/4x3/8
Face Width (ft)								
# Panels @ (ft)	5 @ 1	6 @ 2.37847						
Weight (lb)	8072.7	292.8	544.7	652.1	654.5	907.2	779.0	907.2	765.8	907.2	1712.1



PLAN

SYMBOL LIST

MARK	SIZE	MARK	SIZE
A	L4x4x1/4		

MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A572-50	50 ksi	65 ksi	42 ksi modified for bearing on pipes	42 ksi	116 ksi
A36	36 ksi	58 ksi			

TOWER DESIGN NOTES

1. Tower is located in New London County, Connecticut.
2. Tower designed for a 95 mph basic wind in accordance with the TIA/EIA-222-F Standard.
3. Tower is also designed for a 82 mph basic wind with 0.50 in ice.
4. Deflections are based upon a 50 mph wind.
5. TOWER RATING: 98.2%

ATLANTIS GROUP

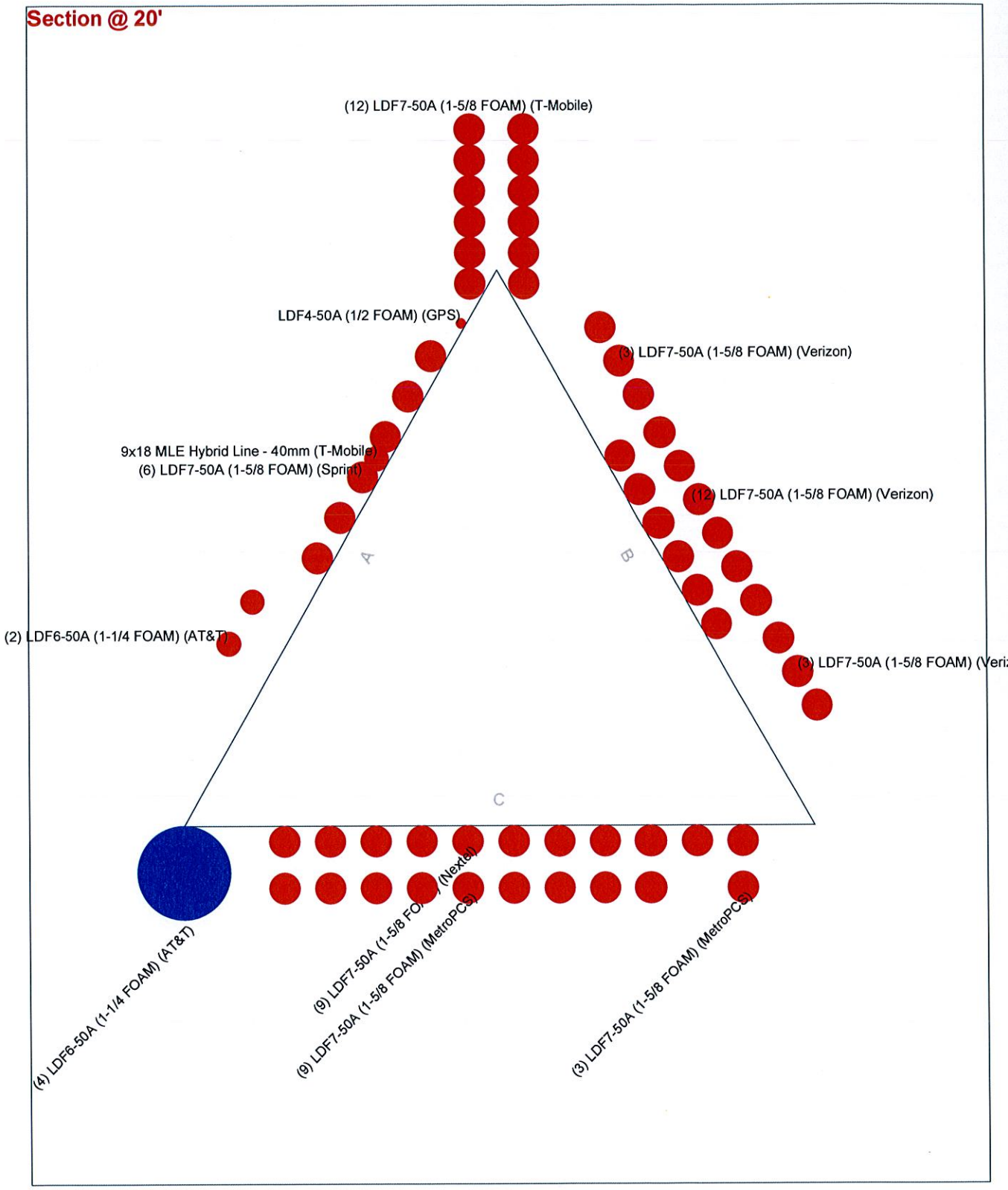
Atlantis Group, Inc.
1340 Centre Street, Suite 203
Newton, Massachusetts 02459
Phone: 617-965-0789
FAX:

Job: **1417002**			
Project: ***CT11048A***			
Client: T-Mobile	Drawn by: AC		App'd:
Code: TIA/EIA-222-F	Date: 02/14/14		Scale: N
Path: Z:\Projects\2014\17 - Atlantis\1417002 - CT11048A (180 Guyed lattice tower)\tnx Tower\CT11048A Guyed Tower - 49.en			Dwg No.

20'

Round Flat App In Face App Out Face

Section @ 20'



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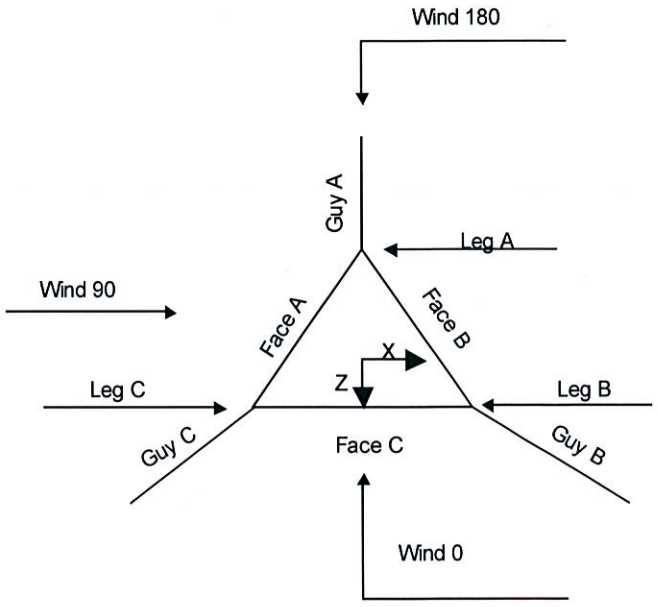
Newton, Massachusetts 02459
Phone: 617-965-0789
FAX:

Job: ***1417002***			
Project: ***CT11048A***			
Client: T-Mobile		Drawn by: AC	App'd:
Code: TIA/EIA-222-F		Date: 02/14/14	Scale: N
Path: Z:\Projects\2014\17 - Atlantis\1417002 - CT11048A (180 Guyed lattice tower\Rx Tower\CT11048A Guyed Tower - as-bt			Dwg No.

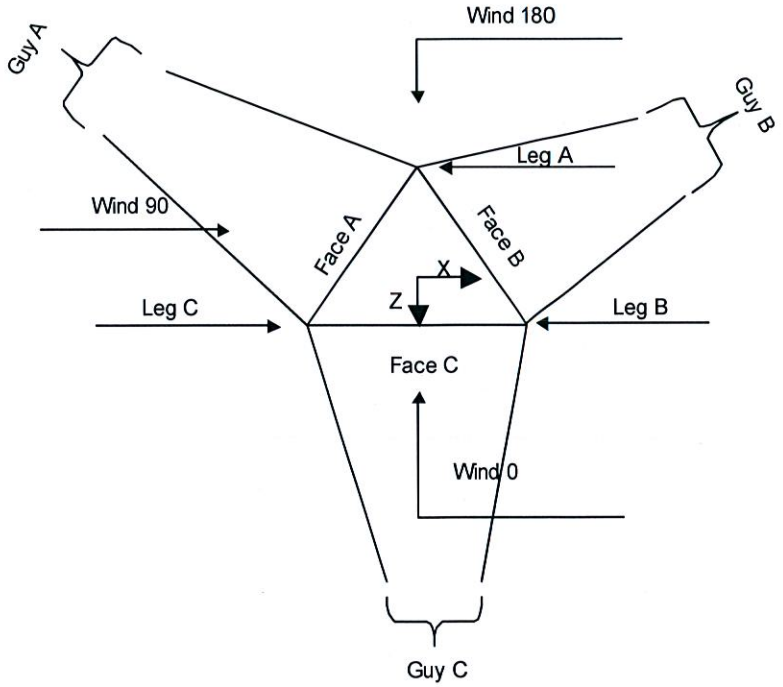
Tower Input Data

The main tower is a 3x guyed tower with an overall height of 180.00 ft above the ground line.
The base of the tower is set at an elevation of 0.00 ft above the ground line.
The face width of the tower is 3.42 ft at the top and tapered at the base.
This tower is designed using the TIA/EIA-222-F standard.
The following design criteria apply:

Tower is located in New London County, Connecticut.
Basic wind speed of 95 mph.
Nominal ice thickness of 0.5000 in.
Ice density of 56 pcf.
A wind speed of 82 mph is used in combination with ice.
Temperature drop of 50 °F.
Deflections calculated using a wind speed of 50 mph.
Pressures are calculated at each section.
Safety factor used in guy design is 2.
Stress ratio used in tower member design is 1.333.
Local bending stresses due to climbing loads, feed line supports, and appurtenance mounts are not considered.



Corner & Starmount Guyed Tower



Face Guyed

Tower Section Geometry

Tower Section	Tower Elevation	Assembly Database	Description	Section Width	Number of Sections	Section Length
	ft			ft		ft
T1	180.00-160.00			3.42	1	20.00
T2	160.00-140.00			3.42	1	20.00
T3	140.00-120.00			3.42	1	20.00
T4	120.00-100.00			3.42	1	20.00
T5	100.00-80.00			3.42	1	20.00
T6	80.00-60.00			3.42	1	20.00
T7	60.00-40.00			3.42	1	20.00
T8	40.00-20.00			3.42	1	20.00
T9	20.00-5.00			3.42	1	15.00
T10	5.00-0.00			3.42	1	5.00

Tower Section Geometry *(cont'd)*

Tower Section	Tower Elevation ft	Diagonal Spacing ft	Bracing Type	Has K Brace End Panels	Has Horizontals	Top Girt Offset in	Bottom Girt Offset in
T1	180.00-160.00	2.41	X Brace	No	No	7.3750	1.3750
T2	160.00-140.00	2.41	X Brace	No	No	7.3750	1.3750
T3	140.00-120.00	2.41	X Brace	No	No	7.3750	1.3750
T4	120.00-100.00	2.41	X Brace	No	No	7.3750	1.3750
T5	100.00-80.00	2.41	X Brace	No	No	7.3750	1.3750
T6	80.00-60.00	2.41	X Brace	No	No	7.3750	1.3750
T7	60.00-40.00	2.41	K Brace Right	No	No	7.3750	1.3750
T8	40.00-20.00	2.41	K Brace Right	No	No	7.3750	1.3750
T9	20.00-5.00	2.38	K Brace Right	No	No	7.3750	1.3750
T10	5.00-0.00	1.00	X Brace	No	Yes	6.0000	6.0000

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Leg Type	Leg Size	Leg Grade	Diagonal Type	Diagonal Size	Diagonal Grade
T1 180.00-160.00	Pipe	ROHN 2.5 X-STR	A572-50 (50 ksi)	Single Angle	L2x2x1/4	A36 (36 ksi)
T2 160.00-140.00	Pipe	ROHN 2.5 X-STR	A572-50 (50 ksi)	Pipe	ROHN TS1.5x11 ga	42 ksi modified for bearing on pipes (42 ksi)
T3 140.00-120.00	Pipe	ROHN 2.5 X-STR	A572-50 (50 ksi)	Pipe	ROHN TS1.5x16 ga	42 ksi modified for bearing on pipes (42 ksi)
T4 120.00-100.00	Pipe	ROHN 2.5 X-STR	A572-50 (50 ksi)	Pipe	ROHN TS1.5x11 ga	42 ksi modified for bearing on pipes (42 ksi)
T5 100.00-80.00	Pipe	ROHN 2.5 X-STR	A572-50 (50 ksi)	Pipe	ROHN TS1.5x16 ga	42 ksi modified for bearing on pipes (42 ksi)
T6 80.00-60.00	Pipe	ROHN 2.5 X-STR	A572-50 (50 ksi)	Pipe	ROHN TS1.5x11 ga	42 ksi modified for bearing on pipes (42 ksi)
T7 60.00-40.00	Pipe	ROHN 2.5 X-STR	A572-50 (50 ksi)	Pipe	ROHN TS1.5x16 ga	42 ksi modified for bearing on pipes (42 ksi)
T8 40.00-20.00	Pipe	ROHN 2.5 X-STR	A572-50 (50 ksi)	Pipe	ROHN TS1.5x16 ga	42 ksi modified for bearing on pipes (42 ksi)
T9 20.00-5.00	Pipe	ROHN 2.5 X-STR	A572-50 (50 ksi)	Pipe	ROHN TS1.5x16 ga	42 ksi modified for bearing on pipes (42 ksi)
T10 5.00-0.00	Pipe	ROHN 2.5 X-STR	A572-50 (50 ksi)	Pipe		A36 (36 ksi)

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Top Girt Type	Top Girt Size	Top Girt Grade	Bottom Girt Type	Bottom Girt Size	Bottom Girt Grade
T1 180.00-160.00	Single Angle	L2x2x1/4	A36 (36 ksi)	Single Angle	L2x2x1/4	A36 (36 ksi)
T2 160.00-140.00	Pipe	ROHN TS1.5x11 ga	A53-B-42 (42 ksi)	Pipe	ROHN TS1.5x11 ga	A53-B-42 (42 ksi)
T3 140.00-120.00	Pipe	ROHN TS1.5x16 ga	A53-B-42 (42 ksi)	Pipe	ROHN TS1.5x16 ga	A53-B-42 (42 ksi)
T4 120.00-100.00	Pipe	ROHN TS1.5x11 ga	A53-B-42 (42 ksi)	Pipe	ROHN TS1.5x11 ga	A53-B-42 (42 ksi)
T5 100.00-80.00	Pipe	ROHN TS1.5x16 ga	A53-B-42 (42 ksi)	Pipe	ROHN TS1.5x16 ga	A53-B-42 (42 ksi)
T6 80.00-60.00	Pipe	ROHN TS1.5x11 ga	A53-B-42 (42 ksi)	Pipe	ROHN TS1.5x11 ga	A53-B-42 (42 ksi)
T7 60.00-40.00	Pipe	ROHN TS1.5x16 ga	A53-B-42 (42 ksi)	Pipe	ROHN TS1.5x16 ga	A53-B-42 (42 ksi)
T8 40.00-20.00	Pipe	ROHN TS1.5x16 ga	A53-B-42 (42 ksi)	Pipe	ROHN TS1.5x16 ga	A53-B-42 (42 ksi)
T9 20.00-5.00	Pipe	ROHN TS1.5x16 ga	A53-B-42 (42 ksi)	Single Angle	L3x3x1/2	A36 (36 ksi)
T10 5.00-0.00	Single Angle	L4x4x1/4	A36 (36 ksi)	Single Angle	L4x4x1/4	A36 (36 ksi)

Tower Section Geometry *(cont'd)*

Tower Elevation ft	No. of Mid Girts	Mid Girt Type	Mid Girt Size	Mid Girt Grade	Horizontal Type	Horizontal Size	Horizontal Grade
T10 5.00-0.00	None	Flat Bar		A36 (36 ksi)	Single Angle	L4x4x1/4	A36 (36 ksi)

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Gusset Area (per face) ft^2	Gusset Thickness in	Gusset Grade	Adjust. Factor A_f	Adjust. Factor A_r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in
T1 180.00-160.00	1.21	0.3750	A36 (36 ksi)	1	1	1	36.0000	36.0000
T2 160.00-140.00	1.21	0.3750	A36 (36 ksi)	1	1	1	36.0000	36.0000
T3 140.00-120.00	1.21	0.3750	A36 (36 ksi)	1	1	1	36.0000	36.0000
T4 120.00-100.00	1.21	0.3750	A36 (36 ksi)	1	1	1	36.0000	36.0000
T5 100.00-80.00	1.21	0.3750	A36 (36 ksi)	1	1	1	36.0000	36.0000

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
ft	ft^2	in					in	in
T6 80.00-60.00	1.21	0.3750	A36 (36 ksi)	1	1	1	36.0000	36.0000
T7 60.00-40.00	0.74	0.3750	A36 (36 ksi)	1	1	1	36.0000	36.0000
T8 40.00-20.00	0.74	0.3750	A36 (36 ksi)	1	1	1	36.0000	36.0000
T9 20.00-5.00	0.60	0.3750	A36 (36 ksi)	1	1	1	36.0000	36.0000
T10 5.00-0.00	0.00	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000

Tower Section Geometry *(cont'd)*

Tower Elevation	Calc K Single Angles	Calc K Solid Rounds	K Factors[1] Legs	X Brace Diags X Y	K Brace Diags X Y	Single Diags X Y	Girts X Y	Horiz. X Y	Sec. Horiz. X Y	Inner Brace X Y
ft										
T1	Yes	Yes	1	1	1	1	1	1	1	1
180.00-160.00				1	1	1	1	1	1	1
T2	Yes	Yes	1	1	1	1	1	1	1	1
160.00-140.00				1	1	1	1	1	1	1
T3	Yes	Yes	1	1	1	1	1	1	1	1
140.00-120.00				1	1	1	1	1	1	1
T4	Yes	Yes	1	1	1	1	1	1	1	1
120.00-100.00				1	1	1	1	1	1	1
T5	Yes	Yes	1	1	1	1	1	1	1	1
100.00-80.00				1	1	1	1	1	1	1
T6	Yes	Yes	1	1	1	1	1	1	1	1
80.00-60.00				1	1	1	1	1	1	1
T7	Yes	Yes	1	1	1	1	1	1	1	1
60.00-40.00				1	1	1	1	1	1	1
T8	Yes	Yes	1	1	1	1	1	1	1	1
40.00-20.00				1	1	1	1	1	1	1
T9 20.00-5.00	Yes	Yes	1	1	1	1	1	1	1	1
				1	1	1	1	1	1	1
T10 5.00-0.00	Yes	Yes	0.2	1	1	1	1	1	1	1
				1	1	1	1	1	1	1

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

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Leg		Diagonal		Top Girt		Bottom Girt		Mid Girt		Long Horizontal		Short Horizontal	
	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U
T1 180.00-160.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T2 160.00-140.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T3 140.00-120.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T4 120.00-100.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T5 100.00-80.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T6 80.00-60.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T7 60.00-40.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T8 40.00-20.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T9 20.00-5.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T10 5.00-0.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Leg Connection Type	Leg		Diagonal		Top Girt		Bottom Girt		Mid Girt		Long Horizontal		Short Horizontal	
		Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.
T1 180.00-160.00	Flange	0.7500 A325N	0	0.6250 A325N	1	0.6250 A325N	1	0.6250 A325N	1	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T2 160.00-140.00	Flange	0.7500 A325N	4	0.5000 A325N	1	0.5000 A325N	1	0.5000 A325N	1	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T3 140.00-120.00	Flange	0.7500 A325N	4	0.5000 A325N	1	0.5000 A325N	1	0.5000 A325N	1	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T4 120.00-100.00	Flange	0.7500 A325N	4	0.5000 A325N	1	0.5000 A325N	1	0.5000 A325N	1	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T5 100.00-80.00	Flange	0.7500 A325N	4	0.5000 A325N	1	0.5000 A325N	1	0.5000 A325N	1	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T6 80.00-60.00	Flange	0.7500 A325N	4	0.5000 A325N	1	0.5000 A325N	1	0.5000 A325N	1	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T7 60.00-40.00	Flange	0.7500 A325N	4	0.5000 A325N	1	0.5000 A325N	1	0.5000 A325N	1	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T8 40.00-20.00	Flange	0.7500 A325N	4	0.5000 A325N	1	0.5000 A325N	1	0.5000 A325N	1	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T9 20.00-5.00	Flange	0.7500 A325N	4	0.5000 A325N	1	0.5000 A325N	1	0.6250 A325N	2	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T10 5.00-0.00	Flange	0.7500 A325N	4	0.5000 A325N	0	0.5000 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0

Guy Data

Guy Elevation ft	Guy Grade		Guy Size	Initial Tension lb	%	Guy Modulus ksi	Guy Weight plf	L_u ft	Anchor Radius ft	Anchor Azimuth Adj. °	Anchor Elevation ft	End Fitting Efficiency %
162.523	EHS	A	1/2	2690.00	10%	21000	0.517	227.92	162.00	0.0000	0.00	100%
		B	1/2	2690.00	10%	21000	0.517	227.92	162.00	0.0000	0.00	100%
		C	1/2	2690.00	10%	21000	0.517	227.92	162.00	0.0000	0.00	100%
132.159	EHS	A	9/16	3500.00	10%	21000	0.671	192.38	142.00	0.0000	0.00	100%
		B	9/16	3500.00	10%	21000	0.671	192.38	142.00	0.0000	0.00	100%
		C	9/16	3500.00	10%	21000	0.671	192.38	142.00	0.0000	0.00	100%
82.5234	EHS	A	3/4	5830.00	10%	19000	1.155	128.02	100.00	0.0000	0.00	100%
		B	3/4	5830.00	10%	19000	1.155	128.02	100.00	0.0000	0.00	100%
		C	3/4	5830.00	10%	19000	1.155	128.02	100.00	0.0000	0.00	100%
162.523	EHS	A	7/8	7970.00	10%	19000	1.581	214.33	142.00	0.0000	0.00	100%
		B	7/8	7970.00	10%	19000	1.581	214.33	142.00	0.0000	0.00	100%
		C	7/8	7970.00	10%	19000	1.581	214.33	142.00	0.0000	0.00	100%
49.75	EHS	A	1/2	2690.00	10%	21000	0.517	109.84	100.00	0.0000	0.00	100%
		B	1/2	2690.00	10%	21000	0.517	109.84	100.00	0.0000	0.00	100%
		C	1/2	2690.00	10%	21000	0.517	109.84	100.00	0.0000	0.00	100%

Guy Data *(cont'd)*

Guy Elevation ft	Mount Type	Torque-Arm Spread ft	Torque-Arm Leg Angle °	Torque-Arm Style	Torque-Arm Grade	Torque-Arm Type	Torque-Arm Size
162.523	Torque Arm	6.83	0.0000	Channel	A36 (36 ksi)	Channel	C12x20.7
132.159	Corner						
82.5234	Corner						
162.523	Corner						
49.75	Corner						

Guy Data *(cont'd)*

Guy Elevation ft	Diagonal Grade	Diagonal Type	Upper Diagonal Size	Lower Diagonal Size	Is Strap.	Pull-Off Grade	Pull-Off Type	Pull-Off Size
162.52	A572-50 (50 ksi)	Solid Round				A36 (36 ksi)	Double Angle	
132.16	A572-50 (50 ksi)	Solid Round			Yes	A36 (36 ksi)	Flat Bar	4x3/8
82.52	A572-50 (50 ksi)	Solid Round			Yes	A36 (36 ksi)	Double Angle	2L2x2x1/4x3/8
162.52	A572-50 (50 ksi)	Solid Round			Yes	A36 (36 ksi)	Double Angle	2L2x2x1/4x3/8
49.75	A572-50 (50 ksi)	Solid Round			Yes	A36 (36 ksi)	Flat Bar	4x3/8

Guy Data *(cont'd)*

Guy Elevation ft	Cable Weight A lb	Cable Weight B lb	Cable Weight C lb	Cable Weight D lb	Tower Intercept A ft	Tower Intercept B ft	Tower Intercept C ft	Tower Intercept D ft
162.523	117.84	117.84	117.84		4.92 3.8 sec/pulse	4.92 3.8 sec/pulse	4.92 3.8 sec/pulse	
132.159	129.09	129.09	129.09		3.51 3.2 sec/pulse	3.51 3.2 sec/pulse	3.51 3.2 sec/pulse	
82.5234	147.87	147.87	147.87		1.61 2.2 sec/pulse	1.61 2.2 sec/pulse	1.61 2.2 sec/pulse	
162.523	338.86	338.86	338.86		4.49 3.7 sec/pulse	4.49 3.7 sec/pulse	4.49 3.7 sec/pulse	
49.75	56.79	56.79	56.79		1.15 1.9 sec/pulse	1.15 1.9 sec/pulse	1.15 1.9 sec/pulse	

Guy Data *(cont'd)*

Guy Elevation ft	Calc K Single Angles	Calc K Solid Rounds	Torque Arm K_x	Torque Arm K_y	Pull Off K_x	Pull Off K_y	Diagonal K_x	Diagonal K_y
162.523	No	No	1	1	1	1	1	1
132.159	No	No			1	1	1	1
82.5234	No	No			1	1	1	1
162.523	No	No			1	1	1	1
49.75	No	No			1	1	1	1

Guy Data *(cont'd)*

Guy Elevation ft	Torque-Arm Bolt Size in	Torque-Arm Number	Torque-Arm Net Width Deduct in	Torque-Arm U	Pull Off Bolt Size in	Pull Off Number	Pull Off Net Width Deduct in	Pull Off U	Diagonal Bolt Size in	Diagonal Number	Diagonal Net Width Deduct in	Diagonal U
162.523	0.0000 A325N	0	0.0000	1	0.6250 A325N	0	0.0000	0.75	0.6250 A325N	0	0.0000	0.75
132.159	0.6250 A325N	0	0.0000	0.75	0.6250 A325N	2	0.0000	0.75	0.6250 A325N	0	0.0000	0.75
82.5234	0.0000 A325N	0	0.0000	1	0.6250 A325N	2	0.0000	0.75	0.6250 A325N	0	0.0000	0.75
162.523	0.0000 A325N	0	0.0000	1	0.6250 A325N	2	0.0000	0.75	0.6250 A325N	0	0.0000	0.75
49.75	0.6250 A325N	0	0.0000	0.75	0.6250 A325N	2	0.0000	0.75	0.6250 A325N	0	0.0000	0.75

Guy Pressures

Guy Elevation ft	Guy Location	z ft	q_z psf	q_z Ice psf	Ice Thickness in
162.523	A	81.26	30	22	0.5000
	B	81.26	30	22	0.5000

Guy Elevation ft	Guy Location	z ft	q_z psf	q_z Ice psf	Ice Thickness in
	C	81.26	30	22	0.5000
132.159	A	66.08	28	21	0.5000
	B	66.08	28	21	0.5000
	C	66.08	28	21	0.5000
82.5234	A	41.26	25	18	0.5000
	B	41.26	25	18	0.5000
	C	41.26	25	18	0.5000
162.523	A	81.26	30	22	0.5000
	B	81.26	30	22	0.5000
	C	81.26	30	22	0.5000
49.75	A	24.88	23	17	0.5000
	B	24.88	23	17	0.5000
	C	24.88	23	17	0.5000

Feed Line/Linear Appurtenances - Entered As Round Or Flat

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Face Offset in	Lateral Offset (Frac FW)	#	# Per Row	Clear Spacing in	Width or Diameter in	Perimeter in	Weight plf
LDF6-50A (1-1/4 FOAM) (AT&T)	A	Yes	Ar (CfAe)	177.00 - 8.00	2.5000	-0.18	2	2	1.5500	1.5500		0.66
LDF6-50A (1-1/4 FOAM) (AT&T)	C	Yes	Ar (CfAe)	177.00 - 136.00	0.0000	-0.18	12	6	1.5500	1.5500		0.66
LDF7-50A (1-5/8 FOAM) (Nextel)	C	Yes	Ar (CfAe)	169.00 - 8.00	0.0000	0.05	9	9	1.0000 1.9800	1.9800		0.82
LDF7-50A (1-5/8 FOAM) (Sprint)	A	Yes	Ar (CfAe)	152.00 - 8.00	0.0000	0.15	6	6	1.0000 1.9800	1.9800		0.82
LDF7-50A (1-5/8 FOAM) (Verizon)	B	Yes	Ar (CfAe)	136.00 - 8.00	0.0000	0	12	6	0.5000 1.0000	1.9800		0.82
LDF7-50A (1-5/8 FOAM) (Verizon)	B	Yes	Ar (CfAe)	136.00 - 8.00	3.0000	-0.28	3	3	0.5000 1.0000	1.9800		0.82
LDF7-50A (1-5/8 FOAM) (Verizon)	B	Yes	Ar (CfAe)	136.00 - 8.00	3.0000	0.28	3	3	0.5000 1.0000	1.9800		0.82
LDF7-50A (1-5/8 FOAM) (T-Mobile)	A	No	Ar (Leg)	120.00 - 8.00	0.0000	-0.1	12	6	0.0000 1.5000	1.9800		0.82
LDF7-50A (1-5/8 FOAM) (MetroPCS)	C	Yes	Ar (CfAe)	110.00 - 8.00	3.0000	0.05	9	9	1.0000 1.9800	1.9800		0.82
LDF7-50A (1-5/8 FOAM) (MetroPCS)	C	Yes	Ar (CfAe)	110.00 - 8.00	0.0000	-0.35	3	2	1.0000	1.9800		0.82
LDF4-50A (1/2 FOAM) (GPS) ***Proposed***	A	Yes	Ar (CfAe)	98.00 - 8.00	0.0000	0.4	1	1	0.6300	0.6300		0.15
9x18 MLE Hybrid Line - 40mm (T-Mobile)	A	Yes	Ar (CfAe)	117.00 - 8.00	0.0000	0.15	1	1	1.5000 1.5700	1.5700		1.07

Feed Line/Linear Appurtenances - Entered As Area

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Face Offset in	Lateral Offset (Frac FW)	#		C_AA_A ft^2/ft	Weight plf
LDF6-50A (1-1/4 FOAM) (AT&T)	C	No	CaAa (In Face)	177.00 - 8.00	0.0000	0.5	4	No Ice	0.16	0.66
								1/2" Ice	0.25	1.91

Feed Line/Linear Appurtenances Section Areas

Tower Section	Tower Elevation ft	Face	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight lb
T1	180.00-160.00	A	4.392	0.000	0.000	0.000	22.44
		B	0.000	0.000	0.000	0.000	0.00
		C	26.540	0.000	10.540	0.000	245.94
T2	160.00-140.00	A	17.047	0.000	0.000	0.000	85.44
		B	0.000	0.000	0.000	0.000	0.00
		C	45.200	0.000	12.400	0.000	358.80
T3	140.00-120.00	A	24.967	0.000	0.000	0.000	124.80
		B	31.680	0.000	0.000	0.000	236.16
		C	32.800	0.000	12.400	0.000	232.08
T4	120.00-100.00	A	46.991	0.000	0.000	0.000	339.79
		B	59.400	0.000	0.000	0.000	295.20
		C	47.850	0.000	12.400	0.000	298.80
T5	100.00-80.00	A	48.328	0.000	0.000	0.000	345.70
		B	59.400	0.000	0.000	0.000	295.20
		C	66.000	0.000	12.400	0.000	397.20
T6	80.00-60.00	A	48.433	0.000	0.000	0.000	346.00
		B	59.400	0.000	0.000	0.000	295.20
		C	66.000	0.000	12.400	0.000	397.20
T7	60.00-40.00	A	48.433	0.000	0.000	0.000	346.00
		B	59.400	0.000	0.000	0.000	295.20
		C	66.000	0.000	12.400	0.000	397.20
T8	40.00-20.00	A	48.433	0.000	0.000	0.000	346.00
		B	59.400	0.000	0.000	0.000	295.20
		C	66.000	0.000	12.400	0.000	397.20
T9	20.00-5.00	A	29.060	0.000	0.000	0.000	207.60
		B	35.640	0.000	0.000	0.000	177.12
		C	39.600	0.000	7.440	0.000	238.32
T10	5.00-0.00	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	0.00

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_A In Face ft^2	C_AA_A Out Face ft^2	Weight lb
T1	180.00-160.00	A	0.500	7.225	0.000	0.000	0.000	65.02
		B		0.000	0.000	0.000	0.000	0.00
		C		23.910	17.880	17.340	0.000	762.63

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight lb
T2	160.00-140.00	A	0.500	11.480	14.900	0.000	0.000	289.07
		B		0.000	0.000	0.000	0.000	0.00
		C		30.467	39.733	20.400	0.000	1150.80
T3	140.00-120.00	A	0.500	13.467	24.833	0.000	0.000	430.80
		B		11.920	29.760	0.000	0.000	708.68
		C		10.067	39.733	20.400	0.000	783.64
T4	120.00-100.00	A	0.500	22.074	41.333	0.000	0.000	947.32
		B		19.867	53.700	0.000	0.000	885.85
		C		9.933	62.083	20.400	0.000	1038.75
T5	100.00-80.00	A	0.500	25.162	41.333	0.000	0.000	969.45
		B		19.867	53.700	0.000	0.000	885.85
		C		14.900	84.433	20.400	0.000	1385.64
T6	80.00-60.00	A	0.500	25.433	41.333	0.000	0.000	971.13
		B		19.867	53.700	0.000	0.000	885.85
		C		14.900	84.433	20.400	0.000	1385.64
T7	60.00-40.00	A	0.500	25.433	41.333	0.000	0.000	971.13
		B		19.867	53.700	0.000	0.000	885.85
		C		14.900	84.433	20.400	0.000	1385.64
T8	40.00-20.00	A	0.500	25.433	41.333	0.000	0.000	971.13
		B		19.867	53.700	0.000	0.000	885.85
		C		14.900	84.433	20.400	0.000	1385.64
T9	20.00-5.00	A	0.500	15.260	24.800	0.000	0.000	582.68
		B		11.920	32.220	0.000	0.000	531.51
		C		8.940	50.660	12.240	0.000	831.39
T10	5.00-0.00	A	0.500	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	0.00

Feed Line Shielding

Section	Elevation ft	Face	A_R ft^2	A_R Ice ft^2	A_F ft^2	A_F Ice ft^2
T1	180.00-160.00	A	0.000	0.680	0.826	1.359
		B	0.000	0.000	0.000	0.000
		C	0.000	3.931	4.993	7.862
T2	160.00-140.00	A	2.299	5.929	0.000	0.000
		B	0.000	0.000	0.000	0.000
		C	6.095	15.778	0.000	0.000
T3	140.00-120.00	A	3.367	8.768	0.416	0.638
		B	4.272	9.541	0.528	0.695
		C	4.423	11.400	0.547	0.830
T4	120.00-100.00	A	3.667	9.426	0.000	0.000
		B	5.340	11.710	0.000	0.000
		C	6.453	16.186	0.000	0.000
T5	100.00-80.00	A	3.847	10.308	0.238	0.375
		B	5.340	11.927	0.330	0.434
		C	8.900	22.739	0.550	0.828
T6	80.00-60.00	A	3.861	10.181	0.000	0.000
		B	5.340	11.710	0.000	0.000
		C	8.900	22.325	0.000	0.000
T7	60.00-40.00	A	2.110	5.751	0.477	0.755
		B	2.918	6.615	0.660	0.868
		C	4.863	12.611	1.100	1.656
T8	40.00-20.00	A	2.110	5.562	0.000	0.000
		B	2.918	6.397	0.000	0.000
		C	4.863	12.197	0.000	0.000

Section	Elevation	Face	A_R	A_R Ice	A_F	A_F Ice
	ft		ft^2	ft^2	ft^2	ft^2
T9	20.00-5.00	A	1.190	3.288	0.286	0.453
		B	1.645	3.782	0.396	0.521
		C	2.742	7.210	0.660	0.993
T10	5.00-0.00	A	0.000	0.000	0.000	0.000
		B	0.000	0.000	0.000	0.000
		C	0.000	0.000	0.000	0.000

Feed Line Center of Pressure

Section	Elevation	CP_X	CP_Z	CP_X Ice	CP_Z Ice
	ft	in	in	in	in
T1	180.00-160.00	-1.6033	3.0079	-1.7403	2.8425
T2	160.00-140.00	-2.2457	3.3204	-2.1801	3.1472
T3	140.00-120.00	-0.7668	0.5446	-1.6424	1.1302
T4	120.00-100.00	-0.2940	-1.2768	-1.2879	-0.0746
T5	100.00-80.00	-0.2437	-0.3605	-1.2648	0.4883
T6	80.00-60.00	-0.2379	-0.3567	-1.2576	0.4958
T7	60.00-40.00	-0.2041	-0.3017	-1.2143	0.6244
T8	40.00-20.00	-0.1906	-0.2799	-1.2013	0.6566
T9	20.00-5.00	-0.1915	-0.2825	-1.1546	0.6044
T10	5.00-0.00	0.0000	0.0000	0.0000	0.0000

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight lb
Rohn 6'x15' Boom Gate (3)	A	None		0.0000	177.00	No Ice	53.20	40.00	1500.00
(AT&T)						1/2" Ice	63.30	45.00	1600.00
(3) DUO1417-8686 w/Mount Pipe	A	From Leg	4.75 0.00	0.0000	177.00	No Ice 1/2" Ice	7.25 7.96	5.86 6.96	45.85 106.54
(AT&T)			0.00						
Powerwave 7770.00 w/pipe	A	From Leg	4.75	0.0000	177.00	No Ice	6.16	4.48	67.33
(AT&T)			0.00 0.00			1/2" Ice	6.65	5.17	115.62
5'x1' Panel with pipe	A	From Leg	4.75	0.0000	177.00	No Ice	7.24	4.20	81.90
(AT&T)			0.00 0.00			1/2" Ice	7.79	5.07	132.95
(3) LGP 17201 TMA	A	From Leg	4.75	0.0000	177.00	No Ice	2.18	0.54	31.00
(AT&T)			0.00 0.00			1/2" Ice	2.38	0.67	43.28
(2) 10"x10" TMA	A	From Leg	4.75	0.0000	177.00	No Ice	0.97	0.39	20.00
(AT&T)			0.00 0.00			1/2" Ice	1.11	0.48	26.64
(3) DUO1417-8686 w/Mount Pipe	B	From Leg	4.75 0.00	0.0000	177.00	No Ice 1/2" Ice	7.25 7.96	5.86 6.96	45.85 106.54
(AT&T)			0.00						

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight lb
Powerwave 7770.00 w/pipe	B	From Leg	4.75	0.0000	177.00	No Ice	6.16	4.48	67.33
(AT&T)			0.00			1/2" Ice	6.65	5.17	115.62
			0.00						
(2) LGP 17201 TMA	B	From Leg	4.75	0.0000	177.00	No Ice	2.18	0.54	31.00
(AT&T)			0.00			1/2" Ice	2.38	0.67	43.28
			0.00						
(2) Powerwave 7770.00 w/pipe	C	From Leg	4.75	0.0000	177.00	No Ice	6.16	4.48	67.33
(AT&T)			0.00			1/2" Ice	6.65	5.17	115.62
			0.00						
(4) SC 9012-DIN w/Mount Pipe	C	From Leg	4.75	0.0000	177.00	No Ice	3.53	5.01	35.55
(AT&T)			0.00			1/2" Ice	4.21	6.07	77.83
			0.00						
(3) LGP 17201 TMA	C	From Leg	4.75	0.0000	177.00	No Ice	2.18	0.54	31.00
(AT&T)			0.00			1/2" Ice	2.38	0.67	43.28
			0.00						
(2) 10"x10" TMA	C	From Leg	4.75	0.0000	177.00	No Ice	0.97	0.39	20.00
(AT&T)			0.00			1/2" Ice	1.11	0.48	26.64
			0.00						
*****									
Pirod 15' T-Frame Sector Mount (1)	A	From Leg	2.00	0.0000	169.00	No Ice	15.00	13.00	500.00
(Nextel)			0.00			1/2" Ice	20.60	14.00	650.00
			0.00						
(4) DB844H90E-XY w/Mount Pipe	A	From Leg	4.75	0.0000	169.00	No Ice	3.58	5.40	35.55
(Nextel)			0.00			1/2" Ice	4.20	6.49	79.42
			0.00						
Pirod 15' T-Frame Sector Mount (1)	B	From Leg	2.00	0.0000	169.00	No Ice	15.00	13.00	500.00
(Nextel)			0.00			1/2" Ice	20.60	20.60	650.00
			0.00						
(4) DB844H90E-XY w/Mount Pipe	B	From Leg	4.75	0.0000	169.00	No Ice	3.58	5.40	35.55
(Nextel)			0.00			1/2" Ice	4.20	6.49	79.42
			0.00						
Pirod 15' T-Frame Sector Mount (1)	C	From Leg	2.00	0.0000	169.00	No Ice	15.00	13.00	500.00
(Nextel)			0.00			1/2" Ice	20.60	14.00	650.00
			0.00						
(4) DB844H90E-XY w/Mount Pipe	C	From Leg	4.75	0.0000	169.00	No Ice	3.58	5.40	35.55
(Nextel)			0.00			1/2" Ice	4.20	6.49	79.42
			0.00						
*****									
Pirod 15' T-Frame Sector Mount (1)	A	From Leg	2.00	0.0000	152.00	No Ice	15.00	13.00	500.00
(Sprint)			0.00			1/2" Ice	20.60	14.00	650.00
			0.00						
(2) DB980H90E-M w/Mount Pipe	A	From Leg	4.75	0.0000	152.00	No Ice	4.27	3.86	34.05
(Sprint)			0.00			1/2" Ice	4.86	4.95	72.67
			0.00						
Pirod 15' T-Frame Sector Mount (1)	B	From Leg	2.00	0.0000	152.00	No Ice	15.00	13.00	500.00
(Sprint)			0.00			1/2" Ice	20.60	14.00	650.00
			0.00						
(2) DB980H90E-M w/Mount Pipe	B	From Leg	4.75	0.0000	152.00	No Ice	4.27	3.86	34.05
(Sprint)			0.00			1/2" Ice	4.86	4.95	72.67
			0.00						
Pirod 15' T-Frame Sector Mount (1)	C	From Leg	2.00	0.0000	152.00	No Ice	15.00	13.00	500.00
(Sprint)			0.00			1/2" Ice	20.60	14.00	650.00
			0.00						
(2) DB980H90E-M w/Mount Pipe	C	From Leg	4.75	0.0000	152.00	No Ice	4.27	3.86	34.05
(Sprint)			0.00			1/2" Ice	4.86	4.95	72.67
			0.00						
*****									

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight lb
Pirod 15' T-Frame Sector Mount (1) (Verizon)	A	From Leg	2.00 0.00 0.00	0.0000	136.00	No Ice 1/2" Ice	15.00 20.60	7.00 9.00	500.00 650.00
Antel BXA 70063/6CF_4 w/pipe (Verizon)	A	From Leg	4.00 0.00 0.00	0.0000	136.00	No Ice 1/2" Ice	7.93 8.50	6.84 7.67	66.27 135.78
BXA-171085-8BF-EDIN with pipe (Verizon)	A	From Leg	4.00 0.00 0.00	0.0000	136.00	No Ice 1/2" Ice	3.41 3.88	3.58 4.38	32.40 67.06
AmpenolAntel LPA-80080-4CF w/pipe (Verizon)	A	From Leg	4.00 6.00 0.00	0.0000	136.00	No Ice 1/2" Ice	2.90 3.27	7.38 8.09	60.95 108.13
AmpenolAntel LPA-80080-4CF w/pipe (Verizon)	A	From Leg	4.00 -6.00 0.00	0.0000	136.00	No Ice 1/2" Ice	2.90 3.27	7.38 8.09	60.95 108.13
(2) FRS FD9R6004 Diplexer (Verizon)	A	From Leg	4.00 0.00 0.00	0.0000	136.00	No Ice 1/2" Ice	0.37 0.45	0.08 0.14	2.60 4.90
Pirod 15' T-Frame Sector Mount (1) (Verizon)	B	From Leg	2.00 0.00 0.00	0.0000	136.00	No Ice 1/2" Ice	15.00 20.60	7.00 9.00	500.00 650.00
Antel BXA 70063/6CF_4 w/pipe (Verizon)	B	From Leg	4.00 0.00 0.00	0.0000	136.00	No Ice 1/2" Ice	7.93 8.50	6.84 7.67	66.27 135.78
BXA-171085-8BF-EDIN with pipe (Verizon)	B	From Leg	4.00 0.00 0.00	0.0000	136.00	No Ice 1/2" Ice	3.41 3.88	3.58 4.38	32.40 67.06
AmpenolAntel LPA-80080-4CF w/pipe (Verizon)	B	From Leg	4.00 6.00 0.00	0.0000	136.00	No Ice 1/2" Ice	2.90 3.27	7.38 8.09	60.95 108.13
AmpenolAntel LPA-80080-4CF w/pipe (Verizon)	B	From Leg	4.00 -6.00 0.00	0.0000	136.00	No Ice 1/2" Ice	2.90 3.27	7.38 8.09	60.95 108.13
(2) FRS FD9R6004 Diplexer (Verizon)	B	From Leg	4.00 0.00 0.00	0.0000	136.00	No Ice 1/2" Ice	0.37 0.45	0.08 0.14	2.60 4.90
Pirod 15' T-Frame Sector Mount (1) (Verizon)	C	From Leg	2.00 0.00 0.00	0.0000	136.00	No Ice 1/2" Ice	15.00 20.60	7.00 9.00	500.00 650.00
Antel BXA 70063/6CF_4 w/pipe (Verizon)	C	From Leg	4.00 0.00 0.00	0.0000	136.00	No Ice 1/2" Ice	7.93 8.50	6.84 7.67	66.27 135.78
BXA-171085-8BF-EDIN with pipe (Verizon)	C	From Leg	4.00 0.00 0.00	0.0000	136.00	No Ice 1/2" Ice	3.41 3.88	3.58 4.38	32.40 67.06
AmpenolAntel LPA-80080-4CF w/pipe (Verizon)	C	From Leg	4.00 6.00 0.00	0.0000	136.00	No Ice 1/2" Ice	2.90 3.27	7.38 8.09	60.95 108.13
AmpenolAntel LPA-80080-4CF w/pipe (Verizon)	C	From Leg	4.00 -6.00 0.00	0.0000	136.00	No Ice 1/2" Ice	2.90 3.27	7.38 8.09	60.95 108.13
(2) FRS FD9R6004 Diplexer (Verizon)	C	From Leg	4.00 0.00 0.00	0.0000	136.00	No Ice 1/2" Ice	0.37 0.45	0.08 0.14	2.60 4.90
***** *****									
Pirod 12' T-Frame Sector	A	From Leg	2.00	0.0000	110.00	No Ice	13.60	7.00	465.00

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft Vert ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight lb
Mount (1)			0.00			1/2" Ice	18.40	9.00	600.00
(MetroPCS)			0.00						
(2) Kathrein 800 10504 with	A	From Leg	4.00	0.0000	110.00	No Ice	3.71	3.29	46.90
pipe			0.00			1/2" Ice	4.18	4.11	80.82
(MetroPCS)			0.00						
(2) Kathrein 860 10025	A	From Leg	4.00	0.0000	110.00	No Ice	0.33	0.40	9.80
(RCU)			0.00			1/2" Ice	0.47	0.58	16.05
(MetroPCS)			0.00						
Pirod 12' T-Frame Sector	B	From Leg	2.00	0.0000	110.00	No Ice	13.60	7.00	465.00
Mount (1)			0.00			1/2" Ice	18.40	9.00	600.00
(MetroPCS)			0.00						
(2) Kathrein 800 10504 with	B	From Leg	4.00	0.0000	110.00	No Ice	3.71	3.29	46.90
pipe			0.00			1/2" Ice	4.18	4.11	80.82
(MetroPCS)			0.00						
(2) Kathrein 860 10025	B	From Leg	4.00	0.0000	110.00	No Ice	0.33	0.40	9.80
(RCU)			0.00			1/2" Ice	0.47	0.58	16.05
(MetroPCS)			0.00						
Pirod 12' T-Frame Sector	C	From Leg	2.00	0.0000	110.00	No Ice	13.60	7.00	465.00
Mount (1)			0.00			1/2" Ice	18.40	9.00	600.00
(MetroPCS)			0.00						
(2) Kathrein 800 10504 with	C	From Leg	4.00	0.0000	110.00	No Ice	3.71	3.29	46.90
pipe			0.00			1/2" Ice	4.18	4.11	80.82
(MetroPCS)			0.00						
(2) Kathrein 860 10025	C	From Leg	4.00	0.0000	110.00	No Ice	0.33	0.40	9.80
(RCU)			0.00			1/2" Ice	0.47	0.58	16.05
(MetroPCS)			0.00						
*****									
GPS	A	From Leg	1.00	0.0000	98.00	No Ice	0.34	0.34	6.08
(Sprint)			0.00			1/2" Ice	0.51	0.51	11.71
			0.00						
1' Standoff	A	From Leg	1.00	0.0000	98.00	No Ice	1.00	1.00	100.00
(Sprint)			0.00			1/2" Ice	2.00	2.00	150.00
			0.00						
*****Proposed*****									
Pirod 12' T-Frame Sector	A	From Leg	3.00	0.0000	120.00	No Ice	13.60	7.00	465.00
Mount (1)			0.00			1/2" Ice	18.40	9.00	600.00
(T-Mobile)			0.00						
AIR21 B4A/B2P with pipe	A	From Leg	3.00	0.0000	120.00	No Ice	6.85	5.78	126.90
(T-Mobile)			-6.00			1/2" Ice	7.41	6.70	184.69
			0.00						
AIR21 B2A/B4P with pipe	A	From Leg	3.00	0.0000	120.00	No Ice	6.87	6.29	134.62
(T-Mobile)			6.00			1/2" Ice	7.38	7.05	201.01
			0.00						
dd B4 TMA	A	From Leg	3.00	0.0000	120.00	No Ice	0.64	0.52	22.43
(T-Mobile)			6.00			1/2" Ice	0.82	0.71	31.53
			0.00						
Pirod 12' T-Frame Sector	B	From Leg	3.00	0.0000	120.00	No Ice	13.60	7.00	465.00
Mount (1)			0.00			1/2" Ice	18.40	9.00	600.00
(T-Mobile)			0.00						
AIR21 B4A/B2P with pipe	B	From Leg	3.00	0.0000	120.00	No Ice	6.85	5.78	126.90
(T-Mobile)			-6.00			1/2" Ice	7.41	6.70	184.69
			0.00						
AIR21 B2A/B4P with pipe	B	From Leg	3.00	0.0000	120.00	No Ice	6.87	6.29	134.62
(T-Mobile)			6.00			1/2" Ice	7.38	7.05	201.01
			0.00						
dd B4 TMA	B	From Leg	3.00	0.0000	120.00	No Ice	0.64	0.52	22.43
(T-Mobile)			6.00			1/2" Ice	0.82	0.71	31.53

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight lb
			0.00						
Pirod 12' T-Frame Sector	C	From Leg	3.00	0.0000	120.00	No Ice	13.60	7.00	465.00
Mount (1)			0.00			1/2" Ice	18.40	9.00	600.00
(T-Mobile)			0.00						
AIR21 B4A/B2P with pipe	C	From Leg	3.00	0.0000	120.00	No Ice	6.85	5.78	126.90
(T-Mobile)			-6.00			1/2" Ice	7.41	6.70	184.69
			0.00						
AIR21 B2A/B4P with pipe	C	From Leg	3.00	0.0000	120.00	No Ice	6.87	6.29	134.62
(T-Mobile)			6.00			1/2" Ice	7.38	7.05	201.01
			0.00						
dd B4 TMA	C	From Leg	3.00	0.0000	120.00	No Ice	0.64	0.52	22.43
(T-Mobile)			6.00			1/2" Ice	0.82	0.71	31.53
			0.00						

Load Combinations

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

Comb. No.	Description
34	Dead+Wind 210 deg - Service+Guy
35	Dead+Wind 240 deg - Service+Guy
36	Dead+Wind 270 deg - Service+Guy
37	Dead+Wind 300 deg - Service+Guy
38	Dead+Wind 330 deg - Service+Guy

Maximum Member Forces

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Force lb	Major Axis Moment lb-ft	Minor Axis Moment lb-ft
T1	180 - 160	Leg	Max Tension	8	39930.97	-4.64	-9.72
			Max. Compression	2	-45139.98	-17.50	1441.15
			Max. Mx	11	-36653.52	1363.41	-112.81
			Max. My	2	-42697.74	-17.45	1441.18
			Max. Vy	24	3460.68	1289.65	-50.26
			Max. Vx	2	3561.35	-17.45	1441.18
		Diagonal	Max Tension	9	5722.15	25.68	2.86
			Max. Compression	19	-6708.49	0.00	0.00
			Max. Mx	2	-6277.55	55.71	-4.70
			Max. My	9	-5693.20	-20.12	-11.46
			Max. Vy	15	-30.98	55.60	-6.62
			Max. Vx	9	5.49	-20.12	-11.46
		Top Girt	Max Tension	8	498.48	0.00	0.00
			Max. Compression	2	-549.21	0.00	0.00
			Max. Mx	14	-27.89	-7.49	0.00
			Max. My	26	-34.51	0.00	0.00
			Max. Vy	14	8.76	0.00	0.00
			Max. Vx	26	-0.00	0.00	0.00
		Bottom Girt	Max Tension	19	2217.80	0.00	0.00
			Max. Compression	1	0.00	0.00	0.00
			Max. Mx	14	775.47	-7.49	0.00
			Max. My	21	1512.26	0.00	-0.00
			Max. Vy	14	8.76	0.00	0.00
			Max. Vx	21	0.00	0.00	0.00
		Guy A	Bottom Tension	21	10835.58		
			Top Tension	21	11016.84		
			Top Cable Vert	21	8040.71		
			Top Cable Norm	21	7531.11		
			Top Cable Tan	21	6.61		
			Bot Cable Vert	21	-7477.77		
			Bot Cable Norm	21	7841.74		
			Bot Cable Tan	21	6.45		
		Guy A	Bottom Tension	21	28628.49		
			Top Tension	21	29018.57		
			Top Cable Vert	21	22222.74		
			Top Cable Norm	21	18660.86		
			Top Cable Tan	21	2.65		
			Bot Cable Vert	21	-21325.73		
			Bot Cable Norm	21	19099.83		
			Bot Cable Tan	21	2.65		
		Guy B	Bottom Tension	25	10771.81		
			Top Tension	25	10953.08		
			Top Cable Vert	25	7995.60		
			Top Cable Norm	25	7486.01		
			Top Cable Tan	25	6.00		
			Bot Cable Vert	25	-7432.65		
			Bot Cable Norm	25	7796.64		
			Bot Cable Tan	25	7.06		

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Force lb	Major Axis Moment lb-ft	Minor Axis Moment lb-ft
		Guy B	Bottom Tension	25	28399.93		
			Top Tension	25	28790.04		
			Top Cable Vert	25	22050.56		
			Top Cable Norm	25	18510.52		
			Top Cable Tan	25	0.91		
			Bot Cable Vert	25	-21153.55		
			Bot Cable Norm	25	18949.49		
			Bot Cable Tan	25	0.91		
		Guy C	Bottom Tension	16	10500.18		
			Top Tension	16	10680.63		
			Top Cable Vert	16	7797.41		
			Top Cable Norm	16	7297.82		
			Top Cable Tan	16	134.46		
			Bot Cable Vert	16	-7243.63		
			Bot Cable Norm	16	7599.14		
			Bot Cable Tan	16	191.55		
		Guy C	Bottom Tension	17	28355.88		
			Top Tension	17	28745.99		
			Top Cable Vert	17	22017.33		
			Top Cable Norm	17	18481.59		
			Top Cable Tan	17	1.72		
			Bot Cable Vert	17	-21120.32		
			Bot Cable Norm	17	18920.57		
			Bot Cable Tan	17	1.72		
		Top Guy Pull-Off	Max Tension	13	9421.42	0.00	0.00
			Max. Compression	1	0.00	0.00	0.00
			Max. Mx	14	4022.90	13.84	0.00
			Max. My	26	6815.35	0.00	-0.00
			Max. Vy	14	-16.20	0.00	0.00
			Max. Vx	26	0.00	0.00	0.00
		Torque Arm Top	Max Tension	22	7512.99	-6185.31	0.00
			Max. Compression	9	-3336.24	-21601.61	-0.00
			Max. Mx	21	-1111.41	-25572.28	0.00
			Max. My	20	405.89	-24972.07	0.00
			Max. Vy	21	7531.91	-25572.28	0.00
			Max. Vx	20	0.00	-24972.07	0.00
T2	160 - 140	Leg	Max Tension	8	3957.01	11.42	-870.62
			Max. Compression	2	-42697.89	10.93	-1163.05
			Max. Mx	24	-8998.48	-1230.86	-180.92
			Max. My	21	-4573.50	-74.43	1277.60
			Max. Vy	24	3461.24	893.24	-70.57
			Max. Vx	2	3577.19	-12.83	1033.21
		Diagonal	Max Tension	24	4110.80	0.00	0.00
			Max. Compression	24	-4741.07	-8.27	3.71
			Max. Mx	26	83.78	-24.85	-0.00
			Max. My	19	-4524.69	10.74	-4.38
			Max. Vy	26	14.45	-24.85	-0.00
			Max. Vx	19	-2.11	0.00	0.00
		Top Girt	Max Tension	21	1850.36	0.00	0.00
			Max. Compression	2	-1231.58	0.00	0.00
			Max. Mx	14	263.81	4.37	0.00
			Max. My	21	-302.18	0.00	0.00
			Max. Vy	14	-5.11	0.00	0.00
			Max. Vx	21	-0.00	0.00	0.00
		Bottom Girt	Max Tension	19	811.76	0.00	0.00
			Max. Compression	1	0.00	0.00	0.00
			Max. Mx	14	261.66	4.37	0.00
			Max. My	26	336.36	0.00	-0.00
			Max. Vy	14	-5.11	0.00	0.00
			Max. Vx	26	0.00	0.00	0.00
T3	140 - 120	Leg	Max Tension	10	16258.19	125.06	-112.29

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Force lb	Major Axis Moment lb-ft	Minor Axis Moment lb-ft
			Max. Compression	17	-66828.15	285.09	-145.01
			Max. Mx	5	-25622.29	678.75	-9.22
			Max. My	8	-12107.98	-46.85	657.91
			Max. Vy	11	1386.55	-49.62	32.62
			Max. Vx	8	-1558.41	-26.37	8.07
		Diagonal	Max Tension	13	2512.04	0.00	0.00
			Max. Compression	13	-2579.37	0.00	0.00
			Max. Mx	26	220.82	-20.45	-0.60
			Max. My	6	-1601.11	0.74	3.58
			Max. Vy	26	11.59	-20.45	-0.60
			Max. Vx	6	-1.71	0.74	3.58
		Top Girt	Max Tension	7	309.26	0.00	0.00
			Max. Compression	1	0.00	0.00	0.00
			Max. Mx	14	132.52	3.09	0.00
			Max. My	26	207.89	0.00	-0.00
			Max. Vy	14	3.61	0.00	0.00
			Max. Vx	26	0.00	0.00	0.00
		Bottom Girt	Max Tension	2	885.56	0.00	0.00
			Max. Compression	4	-392.12	0.00	0.00
			Max. Mx	14	180.86	3.09	0.00
			Max. My	26	255.58	0.00	-0.00
			Max. Vy	14	3.61	0.00	0.00
			Max. Vx	26	0.00	0.00	0.00
		Guy A	Bottom Tension	21	15388.88		
			Top Tension	21	15561.51		
			Top Cable Vert	21	10834.02		
			Top Cable Norm	21	11170.70		
			Top Cable Tan	21	1.32		
			Bot Cable Vert	21	-10336.22		
			Bot Cable Norm	21	11400.88		
			Bot Cable Tan	21	1.32		
		Guy B	Bottom Tension	25	15381.34		
			Top Tension	25	15553.97		
			Top Cable Vert	25	10828.86		
			Top Cable Norm	25	11165.20		
			Top Cable Tan	25	0.85		
			Bot Cable Vert	25	-10331.06		
			Bot Cable Norm	25	11395.38		
			Bot Cable Tan	25	0.85		
		Guy C	Bottom Tension	17	15430.79		
			Top Tension	17	15603.41		
			Top Cable Vert	17	10862.55		
			Top Cable Norm	17	11201.41		
			Top Cable Tan	17	0.47		
			Bot Cable Vert	17	-10364.75		
			Bot Cable Norm	17	11431.59		
			Bot Cable Tan	17	0.47		
		Top Guy Pull-Off	Max Tension	15	6154.24	0.00	0.00
			Max. Compression	1	0.00	0.00	0.00
			Max. Mx	14	2098.99	10.38	0.00
			Max. My	26	3788.13	0.00	-0.00
			Max. Vy	14	-12.15	0.00	0.00
			Max. Vx	26	0.00	0.00	0.00
T4	120 - 100	Leg	Max Tension	10	16257.26	-16.79	-15.20
			Max. Compression	17	-67840.95	335.25	-238.63
			Max. Mx	5	-47802.87	1254.88	-266.54
			Max. My	8	-43071.07	-45.17	1344.88
			Max. Vy	5	2702.82	945.24	-209.80
			Max. Vx	8	2957.85	-33.12	1006.04
		Diagonal	Max Tension	5	2899.33	0.00	0.00
			Max. Compression	18	-3737.69	0.00	0.00

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Force lb	Major Axis Moment lb-ft	Minor Axis Moment lb-ft
			Max. Mx	26	-664.52	36.99	0.99
			Max. My	5	-3672.33	-7.15	4.74
			Max. Vy	26	20.26	0.00	0.00
			Max. Vx	5	2.27	0.00	0.00
		Top Girt	Max Tension	19	1087.77	0.00	0.00
			Max. Compression	4	-68.23	0.00	0.00
			Max. Mx	14	335.99	4.37	0.00
			Max. My	26	449.20	0.00	-0.00
			Max. Vy	14	-5.11	0.00	0.00
			Max. Vx	26	0.00	0.00	0.00
		Bottom Girt	Max Tension	21	1043.72	0.00	0.00
			Max. Compression	1	0.00	0.00	0.00
			Max. Mx	14	373.29	4.37	0.00
			Max. My	20	488.86	0.00	-0.00
			Max. Vy	14	-5.11	0.00	0.00
			Max. Vx	20	0.00	0.00	0.00
T5	100 - 80	Leg	Max Tension	4	3895.93	-18.63	11.91
			Max. Compression	15	-69070.77	4.80	217.93
			Max. Mx	19	-22183.80	-957.82	-520.34
			Max. My	15	-19747.16	-17.56	1085.77
			Max. Vy	5	2730.39	-730.89	98.31
			Max. Vx	8	2984.65	31.79	-826.23
		Diagonal	Max Tension	3	4398.21	0.00	0.00
			Max. Compression	3	-4526.45	0.00	0.00
			Max. Mx	15	2976.87	-19.59	-1.20
			Max. My	26	-3957.02	-6.90	-3.38
			Max. Vy	15	11.19	-19.59	-1.20
			Max. Vx	26	1.63	-6.90	-3.38
		Top Girt	Max Tension	19	1027.72	0.00	0.00
			Max. Compression	4	-501.56	0.00	0.00
			Max. Mx	14	208.21	3.09	0.00
			Max. My	20	284.69	0.00	-0.00
			Max. Vy	14	3.61	0.00	0.00
			Max. Vx	20	-0.00	0.00	0.00
		Bottom Girt	Max Tension	2	772.85	0.00	0.00
			Max. Compression	1	0.00	0.00	0.00
			Max. Mx	14	459.67	3.09	0.00
			Max. My	20	664.98	0.00	-0.00
			Max. Vy	14	3.61	0.00	0.00
			Max. Vx	20	-0.00	0.00	0.00
		Guy A	Bottom Tension	9	24656.19		
			Top Tension	9	24750.39		
			Top Cable Vert	9	15973.12		
			Top Cable Norm	9	18906.05		
			Top Cable Tan	9	48.65		
			Bot Cable Vert	9	-15740.59		
			Bot Cable Norm	9	18977.35		
			Bot Cable Tan	9	147.90		
		Guy B	Bottom Tension	11	24685.82		
			Top Tension	11	24780.03		
			Top Cable Vert	11	15992.10		
			Top Cable Norm	11	18928.82		
			Top Cable Tan	11	46.73		
			Bot Cable Vert	11	-15759.57		
			Bot Cable Norm	11	19000.12		
			Bot Cable Tan	11	145.98		
		Guy C	Bottom Tension	5	24731.17		
			Top Tension	5	24825.37		
			Top Cable Vert	5	16021.09		
			Top Cable Norm	5	18963.69		
			Top Cable Tan	5	46.98		

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Force lb	Major Axis Moment lb-ft	Minor Axis Moment lb-ft
			Bot Cable Vert	5	-15788.56		
			Bot Cable Norm	5	19034.99		
			Bot Cable Tan	5	146.23		
		Top Guy Pull-Off	Max Tension	6	9928.67	0.00	0.00
			Max. Compression	1	0.00	0.00	0.00
			Max. Mx	14	3907.17	13.84	0.00
			Max. My	20	6030.76	0.00	-0.00
			Max. Vy	14	-16.20	0.00	0.00
			Max. Vx	20	0.00	0.00	0.00
T6	80 - 60	Leg	Max Tension	1	0.00	0.00	0.00
			Max. Compression	15	-69081.37	-10.39	-183.85
			Max. Mx	5	-23821.95	812.07	-226.73
			Max. My	8	-12720.54	36.51	878.40
			Max. Vy	5	-1838.03	-315.81	60.35
			Max. Vx	8	-2037.18	-17.22	-371.76
		Diagonal	Max Tension	13	1635.00	0.00	0.00
			Max. Compression	13	-2588.90	-9.80	-1.24
			Max. Mx	15	-691.88	-37.93	-0.85
			Max. My	20	-418.71	-27.49	2.10
			Max. Vy	15	20.72	-37.93	-0.85
			Max. Vx	20	-1.02	-27.49	2.10
		Top Girt	Max Tension	17	1637.42	0.00	0.00
			Max. Compression	1	0.00	0.00	0.00
			Max. Mx	14	626.91	4.37	0.00
			Max. My	20	823.77	0.00	-0.00
			Max. Vy	14	-5.11	0.00	0.00
			Max. Vx	20	0.00	0.00	0.00
		Bottom Girt	Max Tension	15	882.18	0.00	0.00
			Max. Compression	1	0.00	0.00	0.00
			Max. Mx	14	470.70	4.37	0.00
			Max. My	20	769.68	0.00	-0.00
			Max. Vy	14	-5.11	0.00	0.00
			Max. Vx	20	0.00	0.00	0.00
T7	60 - 40	Leg	Max Tension	1	0.00	0.00	0.00
			Max. Compression	15	-65719.15	-247.03	552.99
			Max. Mx	5	-35652.95	-668.37	-131.50
			Max. My	26	-53364.41	198.81	693.26
			Max. Vy	11	1643.80	607.59	-179.44
			Max. Vx	8	-1551.72	-314.41	-433.21
		Diagonal	Max Tension	13	3995.70	0.00	0.00
			Max. Compression	13	-4226.84	0.00	0.00
			Max. Mx	19	588.48	3.80	0.00
			Max. My	26	480.44	0.00	0.04
			Max. Vy	19	-3.63	0.00	0.00
			Max. Vx	26	-0.03	0.00	0.00
		Top Girt	Max Tension	2	286.40	0.00	0.00
			Max. Compression	7	-269.00	0.00	0.00
			Max. Mx	14	41.82	3.09	0.00
	□佶		Max. My	26	110.31	0.00	-0.00
			Max. Vy	14	3.61	0.00	0.00
			Max. Vx	26	-0.00	0.00	0.00
		Bottom Girt	Max Tension	8	1196.76	0.00	0.00
			Max. Compression	15	-1023.48	0.00	0.00
			Max. Mx	14	64.08	3.09	0.00
			Max. My	26	-1001.81	0.00	-0.00
			Max. Vy	14	3.61	0.00	0.00
			Max. Vx	26	-0.00	0.00	0.00
		Guy A	Bottom Tension	9	10689.66		
			Top Tension	9	10715.09		
			Top Cable Vert	9	4873.27		
			Top Cable Norm	9	9542.76		

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Force lb	Major Axis Moment lb-ft	Minor Axis Moment lb-ft
			Top Cable Tan	9	9.03		
			Bot Cable Vert	9	-4784.92		
			Bot Cable Norm	9	9558.79		
			Bot Cable Tan	9	54.20		
		Guy B	Bottom Tension	11	10700.21		
			Top Tension	11	10725.65		
			Top Cable Vert	11	4878.03		
			Top Cable Norm	11	9552.19		
			Top Cable Tan	11	8.25		
			Bot Cable Vert	11	-4789.67		
			Bot Cable Norm	11	9568.21		
			Bot Cable Tan	11	53.42		
		Guy C	Bottom Tension	5	10698.55		
			Top Tension	5	10723.98		
			Top Cable Vert	5	4877.28		
			Top Cable Norm	5	9550.70		
			Top Cable Tan	5	8.16		
			Bot Cable Vert	5	-4788.93		
			Bot Cable Norm	5	9566.73		
			Bot Cable Tan	5	53.33		
		Top Guy Pull-Off	Max Tension	7	5656.26	0.00	0.00
			Max. Compression	1	0.00	0.00	0.00
			Max. Mx	14	1977.99	10.38	0.00
			Max. My	26	4415.82	0.00	-0.00
			Max. Vy	14	-12.15	0.00	0.00
			Max. Vx	26	0.00	0.00	0.00
T8	40 - 20	Leg	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-61961.98	-202.15	-196.62
			Max. Mx	5	-49656.07	635.07	-138.65
			Max. My	8	-43366.42	6.86	696.44
			Max. Vy	11	1650.03	419.26	-194.19
			Max. Vx	8	-1551.21	-264.67	-255.42
		Diagonal	Max Tension	20	2995.60	0.00	0.00
			Max. Compression	26	-3341.59	0.00	0.00
			Max. Mx	23	-386.48	3.80	0.00
			Max. My	26	-535.92	0.00	0.03
			Max. Vy	23	-3.63	0.00	0.00
			Max. Vx	26	-0.03	0.00	0.00
		Top Girt	Max Tension	26	1169.62	0.00	0.00
			Max. Compression	8	-888.47	0.00	0.00
			Max. Mx	14	102.89	3.09	0.00
			Max. My	26	1169.58	0.00	-0.00
			Max. Vy	14	3.61	0.00	0.00
			Max. Vx	26	-0.00	0.00	0.00
		Bottom Girt	Max Tension	20	388.56	0.00	0.00
			Max. Compression	3	-183.78	0.00	0.00
			Max. Mx	14	82.66	3.09	0.00
			Max. My	26	-125.72	0.00	-0.00
			Max. Vy	14	3.61	0.00	0.00
			Max. Vx	26	0.00	0.00	0.00
T9	20 - 5	Leg	Max Tension	1	0.00	0.00	0.00
			Max. Compression	20	-61930.94	172.67	2.43
			Max. Mx	23	-56967.72	1683.29	769.49
			Max. My	20	-56801.38	-176.27	-1852.65
			Max. Vy	26	-15486.89	1613.36	933.55
			Max. Vx	20	17751.46	-176.27	-1852.65
		Diagonal	Max Tension	3	2706.14	0.00	0.00
			Max. Compression	9	-2921.09	0.00	0.00
			Max. Mx	24	1872.63	3.78	0.00
			Max. My	26	1041.29	0.00	0.02
			Max. Vy	24	-3.63	0.00	0.00

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Force lb	Major Axis Moment lb-ft	Minor Axis Moment lb-ft
			Max. Vx	26	-0.02	0.00	0.00
		Top Girt	Max Tension	3	494.57	0.00	0.00
			Max. Compression	10	-297.34	0.00	0.00
			Max. Mx	14	102.58	3.09	0.00
			Max. My	20	5.36	0.00	-0.00
			Max. Vy	14	3.61	0.00	0.00
			Max. Vx	20	-0.00	0.00	0.00
		Bottom Girt	Max Tension	20	10637.26	0.00	0.00
			Max. Compression	1	0.00	0.00	0.00
			Max. Mx	23	10349.75	-17.62	0.00
			Max. My	26	9969.98	0.00	0.00
			Max. Vy	23	20.63	0.00	0.00
			Max. Vx	26	-0.00	0.00	0.00
T10	5 - 0	Leg	Max Tension	1	0.00	0.00	0.00
			Max. Compression	15	-61595.36	-24.75	-194.47
			Max. Mx	16	-59312.62	1871.42	-111.01
			Max. My	20	-55328.15	-1032.71	538.72
			Max. Vy	15	4536.77	-613.91	-67.81
			Max. Vx	20	-1262.54	-1032.71	538.72
		Horizontal	Max Tension	10	112.32	65.50	-46.19
			Max. Compression	19	-338.43	276.52	-20.79
			Max. Mx	26	-32.34	654.27	-43.34
			Max. My	2	-160.99	145.55	-193.01
			Max. Vy	26	-835.33	648.70	-98.72
			Max. Vx	2	-156.23	268.62	-33.55
		Top Girt	Max Tension	15	3092.68	34.44	-128.10
			Max. Compression	1	0.00	0.00	0.00
			Max. Mx	15	2839.55	517.08	-86.74
			Max. My	15	2865.73	126.80	-175.45
			Max. Vy	26	-205.79	513.51	-24.07
			Max. Vx	26	-49.14	369.60	-30.03
		Bottom Girt	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-2101.28	346.15	-382.84
			Max. Mx	20	-1559.56	1166.65	-181.75
			Max. My	2	-1993.71	610.40	-459.46
			Max. Vy	20	3190.10	1119.35	-297.03
			Max. Vx	2	-1027.70	433.10	-108.37

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical lb	Horizontal, X lb	Horizontal, Z lb
Mast	Max. Vert	15	165457.47	22.13	1140.51
	Max. H_x	12	107617.45	2322.12	1311.90
	Max. H_z	2	139159.64	13.02	1991.37
	Max. M_x	1	0.00	6.48	-13.56
	Max. M_z	1	0.00	6.48	-13.56
	Max. Torsion	26	1433.04	1016.22	1069.05
	Min. Vert	1	81319.53	6.48	-13.56
	Min. H_x	4	107493.14	-2302.54	1317.42
	Min. H_z	8	107733.54	11.07	-2684.17
	Min. M_x	1	0.00	6.48	-13.56
	Min. M_z	1	0.00	6.48	-13.56
	Min. Torsion	20	-1437.53	-435.72	-1437.80
Guy C @ 162 ft Elev 0 ft	Max. Vert	10	-620.40	-395.05	228.01

Location	Condition	Gov. Load Comb.	Vertical lb	Horizontal, X lb	Horizontal, Z lb
Azimuth 240 deg					
	Max. H_x	10	-620.40	-395.05	228.01
	Max. H_z	16	-14236.05	-12737.45	7820.47
	Min. Vert	17	-14447.06	-13139.64	7587.01
	Min. H_x	17	-14447.06	-13139.64	7587.01
	Min. H_z	10	-620.40	-395.05	228.01
Guy B @ 162 ft Elev 0 ft	Max. Vert	6	-616.83	391.92	226.43
Azimuth 120 deg					
	Max. H_x	25	-14469.00	13163.44	7589.56
	Max. H_z	26	-14259.05	12764.90	7818.74
	Min. Vert	25	-14469.00	13163.44	7589.56
	Min. H_x	6	-616.83	391.92	226.43
	Min. H_z	6	-616.83	391.92	226.43
Guy A @ 162 ft Elev 0 ft	Max. Vert	2	-612.28	-0.19	-448.16
Azimuth 0 deg					
	Max. H_x	24	-9099.40	910.83	-9230.31
	Max. H_z	2	-612.28	-0.19	-448.16
	Min. Vert	21	-14578.96	9.77	-15304.27
	Min. H_x	18	-9097.14	-910.75	-9228.06
	Min. H_z	21	-14578.96	9.77	-15304.27
Guy C @ 142 ft Elev 0 ft	Max. Vert	10	-515.43	-293.33	169.33
Azimuth 240 deg					
	Max. H_x	10	-515.43	-293.33	169.33
	Max. H_z	16	-30695.04	-25387.10	15209.47
	Min. Vert	17	-31485.08	-26284.64	15177.97
	Min. H_x	17	-31485.08	-26284.64	15177.97
	Min. H_z	10	-515.43	-293.33	169.33
Guy B @ 142 ft Elev 0 ft	Max. Vert	6	-512.39	291.01	168.04
Azimuth 120 deg					
	Max. H_x	25	-31484.62	26280.31	15170.92
	Max. H_z	26	-30689.25	25378.31	15197.18
	Min. Vert	25	-31484.62	26280.31	15170.92
	Min. H_x	6	-512.39	291.01	168.04
	Min. H_z	6	-512.39	291.01	168.04
Guy A @ 142 ft Elev 0 ft	Max. Vert	2	-508.71	-0.04	-332.85
Azimuth 0 deg					
	Max. H_x	24	-15472.16	955.52	-14727.72
	Max. H_z	2	-508.71	-0.04	-332.85
	Min. Vert	21	-31661.95	3.97	-30500.72
	Min. H_x	18	-15462.61	-955.45	-14718.36
	Min. H_z	21	-31661.95	3.97	-30500.72
Guy C @ 100 ft Elev 0 ft	Max. Vert	10	-18.25	-51.14	29.52
Azimuth 240 deg					
	Max. H_x	10	-18.25	-51.14	29.52
	Max. H_z	3	-20548.45	-24632.91	14455.11
	Min. Vert	5	-20577.48	-24869.59	14128.04
	Min. H_x	5	-20577.48	-24869.59	14128.04
	Min. H_z	10	-18.25	-51.14	29.52
Guy B @ 100 ft Elev 0 ft	Max. Vert	6	-18.26	51.17	29.55
Azimuth 120 deg					
	Max. H_x	11	-20549.24	24840.60	14111.48
	Max. H_z	13	-20501.71	24583.13	14420.47
	Min. Vert	11	-20549.24	24840.60	14111.48
	Min. H_x	6	-18.26	51.17	29.55

Location	Condition	Gov. Load Comb.	Vertical lb	Horizontal, X lb	Horizontal, Z lb
Guy A @ 100 ft Elev 0 ft Azimuth 0 deg	Min. H_z	6	-18.26	51.17	29.55
	Max. Vert	2	-18.32	-0.01	-59.21
	Max. H_x	24	-9309.39	450.08	-13187.68
	Max. H_z	2	-18.32	-0.01	-59.21
	Min. Vert	9	-20525.50	202.10	-28536.14
	Min. H_x	18	-9322.02	-450.41	-13208.13
	Min. H_z	9	-20525.50	202.10	-28536.14

Tower Mast Reaction Summary

Load Combination	Vertical lb	$Shear_x$ lb	$Shear_z$ lb	Overturning Moment, M_x lb-ft	Overturning Moment, M_z lb-ft	Torque lb-ft
Dead Only	81319.53	-6.48	13.56	0.00	0.00	-5.97
Dead+Wind 0 deg - No Ice+Guy	139159.64	-13.02	-1991.37	0.00	0.00	-505.89
Dead+Wind 30 deg - No Ice+Guy	128794.36	1335.73	-1829.75	0.00	0.00	-470.43
Dead+Wind 60 deg - No Ice+Guy	107493.14	2302.54	-1317.42	0.00	0.00	-474.28
Dead+Wind 90 deg - No Ice+Guy	128339.71	2267.96	-230.16	0.00	0.00	-255.49
Dead+Wind 120 deg - No Ice+Guy	138723.95	1733.77	1021.72	0.00	0.00	105.72
Dead+Wind 150 deg - No Ice+Guy	128760.09	914.57	2106.87	0.00	0.00	462.03
Dead+Wind 180 deg - No Ice+Guy	107733.54	-11.07	2684.17	0.00	0.00	640.35
Dead+Wind 210 deg - No Ice+Guy	128339.38	-932.21	2110.95	0.00	0.00	453.70
Dead+Wind 240 deg - No Ice+Guy	138334.30	-1752.47	1025.54	0.00	0.00	389.72
Dead+Wind 270 deg - No Ice+Guy	128128.41	-2286.01	-227.13	0.00	0.00	253.57
Dead+Wind 300 deg - No Ice+Guy	107617.45	-2322.12	-1311.90	0.00	0.00	-175.07
Dead+Wind 330 deg - No Ice+Guy	129005.44	-1358.92	-1825.42	0.00	0.00	-463.02
Dead+Ice+Temp+Guy	115320.40	-16.09	21.94	0.00	0.00	-1.52
Dead+Wind 0 deg+Ice+Temp+Guy	165457.47	-22.13	-1140.51	0.00	0.00	-1105.59
Dead+Wind 30 deg+Ice+Temp+Guy	158983.40	974.14	-1070.77	0.00	0.00	-524.48
Dead+Wind 60 deg+Ice+Temp+Guy	148113.03	1585.79	-899.56	0.00	0.00	-78.39
Dead+Wind 90 deg+Ice+Temp+Guy	158379.86	1434.95	-287.39	0.00	0.00	397.64
Dead+Wind 120 deg+Ice+Temp+Guy	164834.91	997.85	612.22	0.00	0.00	1041.44
Dead+Wind 150 deg+Ice+Temp+Guy	158681.76	435.72	1437.80	0.00	0.00	1437.53
Dead+Wind 180 deg+Ice+Temp+Guy	148285.10	-19.87	1876.58	0.00	0.00	1186.52
Dead+Wind 210 deg+Ice+Temp+Guy	158648.82	-470.29	1437.73	0.00	0.00	512.24

Load Combination	Vertical	$Shear_x$	$Shear_z$	Overturning Moment, M_x	Overturning Moment, M_z	Torque
	lb	lb	lb	lb-ft	lb-ft	lb-ft
Dead+Wind 240 deg+Ice+Temp+Guy	164816.97	-1031.17	612.78	0.00	0.00	56.69
Dead+Wind 270 deg+Ice+Temp+Guy	158354.79	-1469.77	-284.66	0.00	0.00	-403.83
Dead+Wind 300 deg+Ice+Temp+Guy	148107.39	-1625.06	-894.96	0.00	0.00	-1115.85
Dead+Wind 330 deg+Ice+Temp+Guy	158991.49	-1016.22	-1069.05	0.00	0.00	-1433.04
Dead+Wind 0 deg - Service+Guy	82035.59	-7.53	-810.53	0.00	0.00	-158.68
Dead+Wind 30 deg - Service+Guy	82074.79	398.40	-693.44	0.00	0.00	-139.93
Dead+Wind 60 deg - Service+Guy	82172.74	694.56	-392.26	0.00	0.00	-128.33
Dead+Wind 90 deg - Service+Guy	82073.53	807.55	14.98	0.00	0.00	-81.63
Dead+Wind 120 deg - Service+Guy	82035.86	706.43	425.64	0.00	0.00	29.87
Dead+Wind 150 deg - Service+Guy	82080.81	402.50	719.17	0.00	0.00	133.98
Dead+Wind 180 deg - Service+Guy	82180.06	-5.76	825.31	0.00	0.00	156.87
Dead+Wind 210 deg - Service+Guy	82074.45	-414.26	719.43	0.00	0.00	134.04
Dead+Wind 240 deg - Service+Guy	82030.05	-718.85	426.04	0.00	0.00	120.69
Dead+Wind 270 deg - Service+Guy	82072.31	-820.84	15.35	0.00	0.00	76.47
Dead+Wind 300 deg - Service+Guy	82176.73	-708.76	-391.95	0.00	0.00	-36.43
Dead+Wind 330 deg - Service+Guy	82079.83	-413.25	-693.27	0.00	0.00	-139.02

Solution Summary

	Sum of Applied Forces			Sum of Reactions			
Load Comb.	PX lb	PY lb	PZ lb	PX lb	PY lb	PZ lb	% Error
1	0.00	-30305.70	0.00	-0.10	30305.42	-0.02	0.001%
2	-101.20	-30553.05	-62901.01	101.21	30552.89	62898.49	0.004%
3	31106.37	-30305.70	-54291.67	-31106.41	30305.46	54287.43	0.006%
4	53942.73	-30058.35	-31265.93	-53941.75	30058.30	31265.12	0.002%
5	62388.03	-30305.70	101.20	-62384.41	30305.46	-99.05	0.006%
6	54211.82	-30553.05	31538.15	-54209.65	30552.89	-31536.90	0.004%
7	31281.66	-30305.70	54392.87	-31277.96	30305.46	-54390.80	0.006%
8	101.20	-30058.35	62707.15	-98.47	30058.30	-62705.90	0.004%
9	-31106.37	-30305.70	54291.67	31102.70	30305.46	-54289.60	0.006%
10	-54110.62	-30553.05	31362.86	54108.46	30552.89	-31361.61	0.004%
11	-62388.03	-30305.70	-101.20	62384.43	30305.46	103.35	0.006%
12	-54043.93	-30058.35	-31441.22	54044.35	30058.30	31437.96	0.005%
13	-31281.66	-30305.70	-54392.87	31281.71	30305.46	54388.62	0.006%
14	0.00	-56556.44	-0.00	0.73	56556.34	-0.87	0.002%
15	7.00	-57050.26	-61343.35	-6.99	57050.13	61340.86	0.003%
16	30208.49	-56556.44	-52639.98	-30208.74	56556.26	52636.06	0.005%
17	52167.55	-56062.61	-30310.24	-52167.15	56062.57	30308.58	0.002%
18	60404.87	-56556.44	-7.00	-60401.64	56556.26	9.14	0.005%
19	52797.07	-57050.26	30665.61	-52792.15	57049.97	-30662.80	0.007%
20	30196.37	-56556.44	52632.98	-30192.88	56556.26	-52631.27	0.005%

Load Comb.	Sum of Applied Forces PX lb	PY lb	PZ lb	Sum of Reactions PX lb	PY lb	PZ lb	% Error
21	-7.00	-56062.61	60608.36	7.60	56062.57	-60607.21	0.002%
22	-30208.49	-56556.44	52639.98	30205.00	56556.27	-52638.25	0.005%
23	-52804.06	-57050.26	30677.73	52799.17	57049.97	-30674.91	0.007%
24	-60404.87	-56556.44	7.00	60401.65	56556.27	-4.86	0.005%
25	-52160.55	-56062.61	-30298.12	52160.46	56062.57	30295.96	0.003%
26	-30196.37	-56556.44	-52632.98	30196.63	56556.26	52629.08	0.005%
27	-28.03	-30374.22	-17424.10	28.04	30374.20	17422.95	0.003%
28	8616.72	-30305.70	-15039.24	-8616.70	30305.69	15038.48	0.002%
29	14942.58	-30237.18	-8660.92	-14941.56	30237.17	8660.32	0.003%
30	17282.00	-30305.70	28.03	-17281.33	30305.69	-27.67	0.002%
31	15017.12	-30374.22	8736.33	-15016.12	30374.20	-8735.76	0.003%
32	8665.28	-30305.70	15067.28	-8664.62	30305.69	-15066.89	0.002%
33	28.03	-30237.18	17370.40	-27.99	30237.17	-17369.25	0.003%
34	-8616.72	-30305.70	15039.24	8616.09	30305.69	-15038.86	0.002%
35	-14989.09	-30374.22	8687.77	14988.11	30374.21	-8687.21	0.003%
36	-17282.00	-30305.70	-28.03	17281.35	30305.69	28.39	0.002%
37	-14970.62	-30237.18	-8709.48	14969.63	30237.17	8708.86	0.003%
38	-8665.28	-30305.70	-15067.28	8665.27	30305.69	15066.51	0.002%

Non-Linear Convergence Results

Load Combination	Converged?	Number of Cycles	Displacement Tolerance	Force Tolerance
1	Yes	8	0.00000001	0.00002410
2	Yes	18	0.00000001	0.00007547
3	Yes	17	0.00007899	0.00013151
4	Yes	13	0.00000001	0.00008019
5	Yes	17	0.00007881	0.00013040
6	Yes	18	0.00000001	0.00007491
7	Yes	17	0.00007901	0.00013133
8	Yes	13	0.00009226	0.00009686
9	Yes	17	0.00007901	0.00013057
10	Yes	18	0.00000001	0.00007458
11	Yes	17	0.00007880	0.00012988
12	Yes	13	0.00010006	0.00009103
13	Yes	17	0.00007897	0.00013168
14	Yes	6	0.00000001	0.00005514
15	Yes	18	0.00000001	0.00006763
16	Yes	17	0.00008347	0.00010709
17	Yes	13	0.00000001	0.00006722
18	Yes	17	0.00008320	0.00010542
19	Yes	17	0.00010689	0.00014940
20	Yes	17	0.00008313	0.00010731
21	Yes	13	0.00000001	0.00006707
22	Yes	17	0.00008337	0.00010593
23	Yes	17	0.00010677	0.00014798
24	Yes	17	0.00008299	0.00010511
25	Yes	13	0.00000001	0.00007302
26	Yes	17	0.00008304	0.00010803
27	Yes	11	0.00000001	0.00008562
28	Yes	11	0.00000001	0.00005810
29	Yes	10	0.00000001	0.00008182
30	Yes	11	0.00000001	0.00005815
31	Yes	11	0.00000001	0.00008581
32	Yes	11	0.00000001	0.00005835
33	Yes	10	0.00000001	0.00007830

34	Yes	11	0.00000001	0.00005645
35	Yes	11	0.00000001	0.00008376
36	Yes	11	0.00000001	0.00005656
37	Yes	10	0.00000001	0.00007859
38	Yes	11	0.00000001	0.00005841

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T1	180 - 160	1.890	33	0.0275	0.1194
T2	160 - 140	1.822	33	0.0374	0.1131
T3	140 - 120	1.960	29	0.0358	0.1142
T4	120 - 100	2.000	29	0.0286	0.1011
T5	100 - 80	1.700	31	0.1066	0.0971
T6	80 - 60	1.216	31	0.0876	0.0883
T7	60 - 40	0.934	31	0.0613	0.0830
T8	40 - 20	0.730	35	0.0538	0.0632
T9	20 - 5	0.464	35	0.0885	0.0402
T10	5 - 0	0.121	35	0.1111	0.0250

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
177.00	Rohn 6'x15' Boom Gate (3)	33	1.872	0.0254	0.1180	55359
169.00	Pirod 15' T-Frame Sector Mount (1)	33	1.832	0.0262	0.1147	25163
162.52	Guy	33	1.820	0.0347	0.1132	16063
162.52	Guy	33	1.820	0.0347	0.1132	16063
152.00	Pirod 15' T-Frame Sector Mount (1)	33	1.861	0.0425	0.1141	31896
136.00	Pirod 15' T-Frame Sector Mount (1)	29	1.988	0.0288	0.1125	22572
132.16	Guy	29	2.008	0.0215	0.1100	18444
120.00	Pirod 12' T-Frame Sector Mount (1)	29	2.000	0.0286	0.1011	12085
110.00	Pirod 12' T-Frame Sector Mount (1)	29	1.891	0.0687	0.0993	13323
98.00	GPS	31	1.654	0.1097	0.0964	20384
82.52	Guy	31	1.270	0.0928	0.0891	15928
49.75	Guy	35	0.829	0.0532	0.0729	393350

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T1	180 - 160	14.106	2	0.1979	0.7011
T2	160 - 140	13.882	2	0.1063	0.6833
T3	140 - 120	14.341	2	0.0891	0.7202
T4	120 - 100	14.164	2	0.3589	0.7297
T5	100 - 80	12.417	6	0.6681	0.7192
T6	80 - 60	9.653	6	0.6019	0.6815

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T7	60 - 40	7.456	10	0.5185	0.6616
T8	40 - 20	5.426	10	0.5092	0.5375
T9	20 - 5	3.104	10	0.6531	0.3636
T10	5 - 0	0.794	10	0.7422	0.2050

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
177.00	Rohn 6'x15' Boom Gate (3)	2	14.043	0.1712	0.6960	15658
169.00	Pirod 15' T-Frame Sector Mount (1)	2	13.905	0.1054	0.6850	7117
162.52	Guy	2	13.868	0.1045	0.6822	4550
162.52	Guy	2	13.868	0.1045	0.6822	4550
152.00	Pirod 15' T-Frame Sector Mount (1)	2	14.032	0.0985	0.6955	9956
136.00	Pirod 15' T-Frame Sector Mount (1)	2	14.402	0.1271	0.7252	4169
132.16	Guy	2	14.423	0.1716	0.7280	3721
120.00	Pirod 12' T-Frame Sector Mount (1)	2	14.164	0.3589	0.7297	2689
110.00	Pirod 12' T-Frame Sector Mount (1)	2	13.488	0.5421	0.7282	2949
98.00	GPS	6	12.160	0.6781	0.7157	4244
82.52	Guy	6	9.990	0.6212	0.6845	3880
49.75	Guy	10	6.423	0.4988	0.6060	13570

Bolt Design Data

Section No.	Elevation ft	Component Type	Bolt Grade	Bolt Size in	Number Of Bolts	Maximum Load per Bolt lb	Allowable Load lb	Ratio Load / Allowable	Allowable Ratio	Criteria
T1	180	Diagonal	A325N	0.6250	1	6708.49	6442.72	1.041 ✔	1.333	Bolt Shear
		Top Girt	A325N	0.6250	1	549.21	6442.72	0.085 ✔	1.333	Bolt Shear
		Bottom Girt	A325N	0.6250	1	2217.80	6071.88	0.365 ✔	1.333	Member Block Shear
		Top Guy Pull-Off@162.523	A325N	0.6250	2	4710.71	10965.60	0.430 ✔	1.333	Member Block Shear
T2	160	Leg	A325N	0.7500	4	989.25	19354.10	0.051 ✔	1.333	Bolt Tension
		Diagonal	A325N	0.5000	1	4741.07	4123.34	1.150 ✔	1.333	Bolt Shear
		Top Girt	A325N	0.5000	1	1850.36	4123.34	0.449 ✔	1.333	Bolt Shear
		Bottom Girt	A325N	0.5000	1	811.76	4123.34	0.197 ✔	1.333	Bolt Shear
T3	140	Leg	A325N	0.7500	4	0.00	19436.80	0.000 ✔	1.333	Bolt Tension
		Diagonal	A325N	0.5000	1	2579.37	4123.34	0.626 ✔	1.333	Bolt Shear
		Top Girt	A325N	0.5000	1	309.26	2740.50	0.113 ✔	1.333	Member Bearing
		Bottom Girt	A325N	0.5000	1	885.56	2740.50	0.323 ✔	1.333	Member Bearing
		Top Guy Pull-Off@132.159	A325N	0.6250	2	3077.12	6442.72	0.478 ✔	1.333	Bolt Shear

Section No.	Elevation ft	Component Type	Bolt Grade	Bolt Size in	Number Of Bolts	Maximum Load per Bolt lb	Allowable Load lb	Ratio Load / Allowable	Allowable Ratio	Criteria
T4	120	Leg	A325N	0.7500	4	4064.32	19422.70	0.209 ✓	1.333	Bolt Tension
		Diagonal	A325N	0.5000	1	3737.69	4123.34	0.906 ✓	1.333	Bolt Shear
		Top Girt	A325N	0.5000	1	1087.77	4123.34	0.264 ✓	1.333	Bolt Shear
		Bottom Girt	A325N	0.5000	1	1043.72	4123.34	0.253 ✓	1.333	Bolt Shear
T5	100	Leg	A325N	0.7500	4	0.00	19417.10	0.000 ✓	1.333	Bolt Tension
		Diagonal	A325N	0.5000	1	4526.45	4123.34	1.098 ✓	1.333	Bolt Shear
		Top Girt	A325N	0.5000	1	1027.72	2740.50	0.375 ✓	1.333	Member Bearing
		Bottom Girt	A325N	0.5000	1	772.85	2740.50	0.282 ✓	1.333	Member Bearing
		Top Guy Pull-Off@82.5234	A325N	0.6250	2	4964.33	10965.60	0.453 ✓	1.333	Member Block Shear
T6	80	Leg	A325N	0.7500	4	0.00	19431.80	0.000 ✓	1.333	Bolt Tension
		Diagonal	A325N	0.5000	1	2588.90	4123.34	0.628 ✓	1.333	Bolt Shear
		Top Girt	A325N	0.5000	1	1637.42	4123.34	0.397 ✓	1.333	Bolt Shear
		Bottom Girt	A325N	0.5000	1	882.18	4123.34	0.214 ✓	1.333	Bolt Shear
T7	60	Leg	A325N	0.7500	4	0.00	19437.50	0.000 ✓	1.333	Bolt Tension
		Diagonal	A325N	0.5000	1	4226.84	4123.34	1.025 ✓	1.333	Bolt Shear
		Top Girt	A325N	0.5000	1	286.40	2740.50	0.105 ✓	1.333	Member Bearing
		Bottom Girt	A325N	0.5000	1	1196.76	2740.50	0.437 ✓	1.333	Member Bearing
		Top Guy Pull-Off@49.75	A325N	0.6250	2	2828.13	6442.72	0.439 ✓	1.333	Bolt Shear
T8	40	Leg	A325N	0.7500	4	0.00	19435.00	0.000 ✓	1.333	Bolt Tension
		Diagonal	A325N	0.5000	1	3341.59	4123.34	0.810 ✓	1.333	Bolt Shear
		Top Girt	A325N	0.5000	1	1169.62	2740.50	0.427 ✓	1.333	Member Bearing
		Bottom Girt	A325N	0.5000	1	388.56	2740.50	0.142 ✓	1.333	Member Bearing
T9	20	Leg	A325N	0.7500	4	0.00	19438.20	0.000 ✓	1.333	Bolt Tension
		Diagonal	A325N	0.5000	1	2921.09	4123.34	0.708 ✓	1.333	Bolt Shear
		Top Girt	A325N	0.5000	1	494.57	2740.50	0.180 ✓	1.333	Member Bearing
		Bottom Girt	A325N	0.6250	2	5318.63	6442.72	0.826 ✓	1.333	Bolt Shear
T10	5	Leg	A325N	0.7500	4	0.00	19307.60	0.000 ✓	1.333	Bolt Tension

Guy Design Data

Section No.	Elevation ft	Size	Initial Tension lb	Breaking Load lb	Actual T lb	Allowable T_a lb	Required S.F.	Actual S.F.
T1	162.52 (A) (462)	1/2 EHS	2690.00	26900.04	10484.90	13450.00	2.000	2.566 ✓
	162.52 (A) (463)	1/2 EHS	2690.00	26900.04	11016.80	13450.00	2.000	2.442 ✓
	162.52 (B) (458)	1/2 EHS	2690.00	26900.04	10953.10	13450.00	2.000	2.456 ✓

Section No.	Elevation ft	Size	Initial Tension lb	Breaking Load lb	Actual T lb	Allowable T_a lb	Required S.F.	Actual S.F.
	162.52 (B) (459)	1/2 EHS	2690.00	26900.04	10393.50	13450.00	2.000	2.588 ✔
	162.52 (C) (454)	1/2 EHS	2690.00	26900.04	10680.60	13450.00	2.000	2.519 ✔
	162.52 (C) (455)	1/2 EHS	2690.00	26900.04	10673.50	13450.00	2.000	2.520 ✔
	162.52 (A) (483)	7/8 EHS	7970.00	79699.84	29018.60	39850.00	2.000	2.747 ✔
	162.52 (B) (482)	7/8 EHS	7970.00	79699.84	28790.00	39850.00	2.000	2.768 ✔
	162.52 (C) (478)	7/8 EHS	7970.00	79699.84	28746.00	39850.00	2.000	2.773 ✔
T3	132.16 (A) (471)	9/16 EHS	3500.00	35000.04	15561.50	17500.00	2.000	2.249 ✔
	132.16 (B) (470)	9/16 EHS	3500.00	35000.04	15554.00	17500.00	2.000	2.250 ✔
	132.16 (C) (466)	9/16 EHS	3500.00	35000.04	15603.40	17500.00	2.000	2.243 ✔
T5	82.52 (A) (477)	3/4 EHS	5830.00	58299.91	24750.40	29150.00	2.000	2.356 ✔
	82.52 (B) (476)	3/4 EHS	5830.00	58299.91	24780.00	29150.00	2.000	2.353 ✔
	82.52 (C) (472)	3/4 EHS	5830.00	58299.91	24825.40	29150.00	2.000	2.348 ✔
T7	49.75 (A) (489)	1/2 EHS	2690.00	26900.04	10715.10	13450.00	2.000	2.510 ✔
	49.75 (B) (488)	1/2 EHS	2690.00	26900.04	10725.70	13450.00	2.000	2.508 ✔
	49.75 (C) (484)	1/2 EHS	2690.00	26900.04	10724.00	13450.00	2.000	2.508 ✔

Compression Checks

Leg Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P lb	Allow. P_a lb	Ratio $\frac{P}{P_a}$
T1	180 - 160	ROHN 2.5 X-STR	20.00	2.41	31.3 K=1.00	26.993	2.2535	-45140.00	60829.50	0.742 ✔
T2	160 - 140	ROHN 2.5 X-STR	20.00	2.41	31.3 K=1.00	26.993	2.2535	-42696.60	60829.50	0.702 ✔
T3	140 - 120	ROHN 2.5 X-STR	20.00	2.41	31.3 K=1.00	26.993	2.2535	-66828.10	60829.50	1.099 ✔
T4	120 - 100	ROHN 2.5 X-STR	20.00	2.41	31.3 K=1.00	26.993	2.2535	-67757.30	60829.50	1.114 ✔
T5	100 - 80	ROHN 2.5 X-STR	20.00	2.41	31.3 K=1.00	26.993	2.2535	-69070.80	60829.50	1.135 ✔
T6	80 - 60	ROHN 2.5 X-STR	20.00	2.41	31.3 K=1.00	26.993	2.2535	-69070.70	60829.50	1.135 ✔
T7	60 - 40	ROHN 2.5 X-STR	20.00	2.41	62.6 K=2.00	22.275	2.2535	-65719.20	50197.60	1.309 ✔
T8	40 - 20	ROHN 2.5 X-STR	20.00	2.41	62.6 K=2.00	22.275	2.2535	-61962.00	50197.60	1.234 ✔

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P lb	Allow. P_a lb	Ratio $\frac{P}{P_a}$
T9	20 - 5	ROHN 2.5 X-STR	15.00	2.38	61.8 K=2.00	22.412	2.2535	-61930.90	50506.80	1.226 ✔
T10	5 - 0	ROHN 2.5 X-STR	5.38	1.08	2.8 K=0.20	29.815	2.2535	-61595.40	67188.80	0.917 ✔

Diagonal Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P lb	Allow. P_a lb	Ratio $\frac{P}{P_a}$
T1	180 - 160	L2x2x1/4	4.18	1.82	72.0 K=1.29	16.223	0.9380	-6708.49	15217.30	0.441 ✔
T2	160 - 140	ROHN TS1.5x11 ga	4.18	1.94	47.6 K=1.00	21.260	0.5202	-4741.07	11060.30	0.429 ✔
T3	140 - 120	ROHN TS1.5x16 ga	4.18	1.94	45.7 K=1.00	21.473	0.2627	-2579.37	5641.98	0.457 ✔
T4	120 - 100	ROHN TS1.5x11 ga	4.18	1.94	47.6 K=1.00	21.260	0.5202	-3737.69	11060.30	0.338 ✔
T5	100 - 80	ROHN TS1.5x16 ga	4.18	1.94	45.7 K=1.00	21.473	0.2627	-4526.45	5641.98	0.802 ✔
T6	80 - 60	ROHN TS1.5x11 ga	4.18	1.94	47.6 K=1.00	21.260	0.5202	-2588.90	11060.30	0.234 ✔
T7	60 - 40	ROHN TS1.5x16 ga	4.18	3.89	91.4 K=1.00	15.324	0.2627	-4226.84	4026.31	1.050 ✔
T8	40 - 20	ROHN TS1.5x16 ga	4.18	3.89	91.4 K=1.00	15.324	0.2627	-3341.59	4026.31	0.830 ✔
T9	20 - 5	ROHN TS1.5x16 ga	4.16	3.87	91.0 K=1.00	15.384	0.2627	-2921.09	4042.14	0.723 ✔

Horizontal Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P lb	Allow. P_a lb	Ratio $\frac{P}{P_a}$
T10	5 - 0	L4x4x1/4	2.39	2.15	76.2 K=2.35	15.370	1.9400	-338.43	29817.80	0.011 ✔

Top Girt Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P lb	Allow. P_a lb	Ratio $\frac{P}{P_a}$
T1	180 - 160	L2x2x1/4	3.42	2.94	105.1 K=1.17	12.324	0.9380	-549.21	11560.10	0.048 ✔

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P lb	Allow. P_a lb	Ratio $\frac{P}{P_a}$
T2	160 - 140	ROHN TS1.5x11 ga	3.42	3.18	77.9 K=1.00	17.376	0.5202	-1231.58	9039.70	0.136 ✔
T4	120 - 100	ROHN TS1.5x11 ga	3.42	3.18	77.9 K=1.00	17.376	0.5202	-68.23	9039.70	0.008 ✔
T5	100 - 80	ROHN TS1.5x16 ga	3.42	3.18	74.7 K=1.00	17.821	0.2627	-501.56	4682.57	0.107 ✔
T7	60 - 40	ROHN TS1.5x16 ga	3.42	3.18	74.7 K=1.00	17.821	0.2627	-269.00	4682.57	0.057 ✔
T8	40 - 20	ROHN TS1.5x16 ga	3.42	3.18	74.7 K=1.00	17.821	0.2627	-888.47	4682.57	0.190 ✔
T9	20 - 5	ROHN TS1.5x16 ga	3.42	3.18	74.7 K=1.00	17.821	0.2627	-297.33	4682.57	0.063 ✔

Bottom Girt Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P lb	Allow. P_a lb	Ratio $\frac{P}{P_a}$
T3	140 - 120	ROHN TS1.5x16 ga	3.42	3.18	74.7 K=1.00	17.821	0.2627	-392.12	4682.57	0.084 ✔
T7	60 - 40	ROHN TS1.5x16 ga	3.42	3.18	74.7 K=1.00	17.821	0.2627	-1023.48	4682.57	0.219 ✔
T8	40 - 20	ROHN TS1.5x16 ga	3.42	3.18	74.7 K=1.00	17.821	0.2627	-183.78	4682.57	0.039 ✔
T10	5 - 0	L4x4x1/4	0.34	0.10	60.8 K=39.43	16.864	1.9400	-2101.28	32717.00	0.064 ✔

Top Guy Pull-Off Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P lb	Allow. P_a lb	Ratio $\frac{P}{P_a}$
T1	180 - 160	2L2x2x1/4x3/8	3.42	3.18	62.6 K=1.00	29.000	1.1287	0.00	24441.60	0.000*
T3	140 - 120	2L 'a' > 18.3601 in - 479 4x3/8	3.42	3.18	352.2 K=1.00	29.000	0.9141	0.00	1805.56	0.000*
T5	100 - 80	2L2x2x1/4x3/8	3.42	3.18	62.6 K=1.00	29.000	1.1287	0.00	24441.60	0.000*
T7	60 - 40	2L 'a' > 18.3601 in - 473 4x3/8	3.42	3.18	352.2 K=1.00	29.000	0.9141	0.00	1805.56	0.000*

* DL controls

Top Guy Pull-Off Bending Design Data

Section No.	Elevation ft	Size	Actual M_x lb-ft	Actual f_{bx} ksi	Allow. F_{bx} ksi	Ratio $\frac{f_{bx}}{F_{bx}}$	Actual M_y lb-ft	Actual f_{by} ksi	Allow. F_{by} ksi	Ratio $\frac{f_{by}}{F_{by}}$
T1	180 - 160	2L2x2x1/4x3/8	13.84	-0.142	21.600	0.007	0.00	0.000	21.600	0.000
T3	140 - 120	4x3/8	10.38	-0.125	27.000	0.005	0.00	0.000	27.000	0.000
T5	100 - 80	2L2x2x1/4x3/8	13.84	-0.142	21.600	0.007	0.00	0.000	21.600	0.000
T7	60 - 40	4x3/8	10.38	-0.125	27.000	0.005	0.00	0.000	27.000	0.000

Top Guy Pull-Off Interaction Design Data

Section No.	Elevation ft	Size	Ratio $\frac{P}{P_a}$	Ratio $\frac{f_{bx}}{F_{bx}}$	Ratio $\frac{f_{by}}{F_{by}}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
T1	180 - 160	2L2x2x1/4x3/8	0.000	0.007	0.000	0.007* ✔	1.000	H1-3 ✔
T3	140 - 120	4x3/8	0.000	0.005	0.000	0.005* ✔	1.000	H1-3 ✔
T5	100 - 80	2L2x2x1/4x3/8	0.000	0.007	0.000	0.007* ✔	1.000	H1-3 ✔
T7	60 - 40	4x3/8	0.000	0.005	0.000	0.005* ✔	1.000	H1-3 ✔

* DL controls

Torque-Arm Top Design Data

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P lb	Allow. P_a lb	Ratio $\frac{P}{P_a}$
T1	180 - 160 (456)	C12x20.7	3.42	3.30	102.6 K=1.00	12.646	6.0900	-2755.54	77012.40	0.036
T1	180 - 160 (457)	C12x20.7	3.42	3.30	102.6 K=1.00	12.646	6.0900	-1596.13	77012.40	0.021
T1	180 - 160 (460)	C12x20.7	3.42	3.30	102.6 K=1.00	12.646	6.0900	-1540.70	77012.40	0.020
T1	180 - 160 (461)	C12x20.7	3.42	3.30	102.6 K=1.00	12.646	6.0900	-1291.84	77012.40	0.017
T1	180 - 160 (464)	C12x20.7	3.42	3.30	102.6 K=1.00	12.646	6.0900	-1088.25	77012.40	0.014
T1	180 - 160 (465)	C12x20.7	3.42	3.30	102.6 K=1.00	12.646	6.0900	-1111.45	77012.40	0.014

Torque-Arm Top Bending Design Data

Section No.	Elevation ft	Size	Actual M_x lb-ft	Actual f_{bx} ksi	Allow. F_{bx} ksi	Ratio $\frac{f_{bx}}{F_{bx}}$	Actual M_y lb-ft	Actual f_{by} ksi	Allow. F_{by} ksi	Ratio $\frac{f_{by}}{F_{by}}$
T1	180 - 160 (456)	C12x20.7	-24726.08	-13.801	21.600	0.639	-0.00	-0.000	21.600	0.000
T1	180 - 160 (457)	C12x20.7	-25557.8	-14.265	21.600	0.660	0.00	-0.000	21.600	0.000

Section No.	Elevation ft	Size	Actual M_x lb-ft	Actual f_{bx} ksi	Allow. F_{bx} ksi	Ratio $\frac{f_{bx}}{F_{bx}}$	Actual M_y lb-ft	Actual f_{by} ksi	Allow. F_{by} ksi	Ratio $\frac{f_{by}}{F_{by}}$
T1	180 - 160 (460)	C12x20.7	-25358.93	-14.154	21.600	0.655	-0.00	-0.000	21.600	0.000
T1	180 - 160 (461)	C12x20.7	-25321.08	-14.133	21.600	0.654	0.00	-0.000	21.600	0.000
T1	180 - 160 (464)	C12x20.7	-25363.50	-14.156	21.600	0.655	-0.00	-0.000	21.600	0.000
T1	180 - 160 (465)	C12x20.7	-25572.25	-14.273	21.600	0.661	0.00	-0.000	21.600	0.000

Torque-Arm Top Interaction Design Data

Section No.	Elevation ft	Size	Ratio $\frac{P}{P_a}$	Ratio $\frac{f_{bx}}{F_{bx}}$	Ratio $\frac{f_{by}}{F_{by}}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
T1	180 - 160 (456)	C12x20.7	0.036	0.639	0.000	0.675 ✔	1.333	H1-3 ✔
T1	180 - 160 (457)	C12x20.7	0.021	0.660	0.000	0.681 ✔	1.333	H1-3 ✔
T1	180 - 160 (460)	C12x20.7	0.020	0.655	0.000	0.675 ✔	1.333	H1-3 ✔
T1	180 - 160 (461)	C12x20.7	0.017	0.654	0.000	0.671 ✔	1.333	H1-3 ✔
T1	180 - 160 (464)	C12x20.7	0.014	0.655	0.000	0.670 ✔	1.333	H1-3 ✔
T1	180 - 160 (465)	C12x20.7	0.014	0.661	0.000	0.675 ✔	1.333	H1-3 ✔

Tension Checks

Leg Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P lb	Allow. P_a lb	Ratio $\frac{P}{P_a}$
T1	180 - 160	ROHN 2.5 X-STR	20.00	2.41	31.3	30.000	2.2535	39931.00	67606.20	0.591 ✔
T2	160 - 140	ROHN 2.5 X-STR	20.00	2.41	31.3	30.000	2.2535	3957.01	67606.20	0.059 ✔
T3	140 - 120	ROHN 2.5 X-STR	20.00	0.11	1.5	30.000	2.2535	16258.20	67606.20	0.240 ✔
T4	120 - 100	ROHN 2.5 X-STR	20.00	2.41	31.3	30.000	2.2535	16257.30	67606.20	0.240 ✔
T5	100 - 80	ROHN 2.5 X-STR	20.00	2.41	31.3	30.000	2.2535	3895.93	67606.20	0.058 ✔

Diagonal Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P lb	Allow. P_a lb	Ratio $\frac{P}{P_a}$
T1	180 - 160	L2x2x1/4	4.18	1.82	38.3	29.000	0.5629	5722.15	16323.40	0.351 ✔
T2	160 - 140	ROHN TS1.5x11 ga	4.18	1.94	47.6	25.200	0.5202	4110.80	13110.20	0.314 ✔
T3	140 - 120	ROHN TS1.5x16 ga	4.18	1.94	45.7	25.200	0.2627	2512.04	6621.31	0.379 ✔
T4	120 - 100	ROHN TS1.5x11 ga	4.18	1.94	47.6	25.200	0.5202	2899.33	13110.20	0.221 ✔
T5	100 - 80	ROHN TS1.5x16 ga	4.18	1.94	45.7	25.200	0.2627	4398.21	6621.31	0.664 ✔
T6	80 - 60	ROHN TS1.5x11 ga	4.18	1.94	47.6	25.200	0.5202	1635.00	13110.20	0.125 ✔
T7	60 - 40	ROHN TS1.5x16 ga	4.18	3.89	91.4	25.200	0.2627	3995.70	6621.31	0.603 ✔
T8	40 - 20	ROHN TS1.5x16 ga	4.18	3.89	91.4	25.200	0.2627	2995.60	6621.31	0.452 ✔
T9	20 - 5	ROHN TS1.5x16 ga	4.16	3.87	91.0	25.200	0.2627	2706.14	6621.31	0.409 ✔

Horizontal Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P lb	Allow. P_a lb	Ratio $\frac{P}{P_a}$
T10	5 - 0	L4x4x1/4	1.03	0.79	7.5	21.600	1.9400	112.32	41904.00	0.003 ✔

Top Girt Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P lb	Allow. P_a lb	Ratio $\frac{P}{P_a}$
T1	180 - 160	L2x2x1/4	3.42	2.94	62.6	29.000	0.5629	498.48	16323.40	0.031 ✔
T2	160 - 140	ROHN TS1.5x11 ga	3.42	3.18	77.9	25.200	0.5202	1850.36	13110.20	0.141 ✔
T3	140 - 120	ROHN TS1.5x16 ga	3.42	3.18	74.7	25.200	0.2627	309.26	6621.31	0.047 ✔
T4	120 - 100	ROHN TS1.5x11 ga	3.42	3.18	77.9	25.200	0.5202	1087.77	13110.20	0.083 ✔
T5	100 - 80	ROHN TS1.5x16 ga	3.42	3.18	74.7	25.200	0.2627	1027.72	6621.31	0.155 ✔

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P lb	Allow. P_a lb	Ratio $\frac{P}{P_a}$
T6	80 - 60	ROHN TS1.5x11 ga	3.42	3.18	77.9	25.200	0.5202	1637.42	13110.20	0.125 ✔
T7	60 - 40	ROHN TS1.5x16 ga	3.42	3.18	74.7	25.200	0.2627	286.40	6621.31	0.043 ✔
T8	40 - 20	ROHN TS1.5x16 ga	3.42	3.18	74.7	25.200	0.2627	1169.62	6621.31	0.177 ✔
T9	20 - 5	ROHN TS1.5x16 ga	3.42	3.18	74.7	25.200	0.2627	494.57	6621.31	0.075 ✔
T10	5 - 0	L4x4x1/4	3.08	2.84	27.2	21.600	1.9400	3092.68	41904.00	0.074 ✔

Bottom Girt Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P lb	Allow. P_a lb	Ratio $\frac{P}{P_a}$
T1	180 - 160	L2x2x1/4	3.42	2.94	62.6	29.000	0.5629	2217.80	16323.40	0.136 ✔
T2	160 - 140	ROHN TS1.5x11 ga	3.42	3.18	77.9	25.200	0.5202	811.76	13110.20	0.062 ✔
T3	140 - 120	ROHN TS1.5x16 ga	3.42	3.18	74.7	25.200	0.2627	885.56	6621.31	0.134 ✔
T4	120 - 100	ROHN TS1.5x11 ga	3.42	3.18	77.9	25.200	0.5202	1043.72	13110.20	0.080 ✔
T5	100 - 80	ROHN TS1.5x16 ga	3.42	3.18	74.7	25.200	0.2627	772.85	6621.31	0.117 ✔
T6	80 - 60	ROHN TS1.5x11 ga	3.42	3.18	77.9	25.200	0.5202	882.18	13110.20	0.067 ✔
T7	60 - 40	ROHN TS1.5x16 ga	3.42	3.18	74.7	25.200	0.2627	1196.76	6621.31	0.181 ✔
T8	40 - 20	ROHN TS1.5x16 ga	3.42	3.18	74.7	25.200	0.2627	388.56	6621.31	0.059 ✔
T9	20 - 5	L3x3x1/2	3.42	2.78	42.5	29.000	1.7813	10637.30	51656.30	0.206 ✔

Top Guy Pull-Off Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P lb	Allow. P_a lb	Ratio $\frac{P}{P_a}$
T1	180 - 160	2L2x2x1/4x3/8 2L 'a' > 18.3601 in - 481	3.42	3.18	62.6	29.000	1.1287	9421.42	32733.80	0.288
T3	140 - 120	4x3/8	3.42	3.18	352.2	29.000	0.9141	6154.24	26507.80	0.232
T5	100 - 80	2L2x2x1/4x3/8 2L 'a' > 18.3601 in - 475	3.42	3.18	62.6	29.000	1.1287	9928.67	32733.80	0.303
T7	60 - 40	4x3/8	3.42	3.18	352.2	29.000	0.9141	5656.25	26507.80	0.213

Top Guy Pull-Off Bending Design Data

Section No.	Elevation ft	Size	Actual M_x lb-ft	Actual f_{bx} ksi	Allow. F_{bx} ksi	Ratio $\frac{f_{bx}}{F_{bx}}$	Actual M_y lb-ft	Actual f_{by} ksi	Allow. F_{by} ksi	Ratio $\frac{f_{by}}{F_{by}}$
T1	180 - 160	2L2x2x1/4x3/8	9.34	0.227	21.600	0.011	-0.00	0.000	21.600	0.000
T3	140 - 120	4x3/8	10.38	0.125	27.000	0.005	0.00	0.000	27.000	0.000
T5	100 - 80	2L2x2x1/4x3/8	9.34	0.227	21.600	0.011	-0.00	0.000	21.600	0.000
T7	60 - 40	4x3/8	7.45	0.089	27.000	0.003	0.00	0.000	27.000	0.000

Top Guy Pull-Off Interaction Design Data

Section No.	Elevation ft	Size	Ratio $\frac{P}{P_a}$	Ratio $\frac{f_{bx}}{F_{bx}}$	Ratio $\frac{f_{by}}{F_{by}}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
T1	180 - 160	2L2x2x1/4x3/8	0.288	0.011	0.000	0.298 ✔	1.333	H2-1 ✔
T3	140 - 120	4x3/8	0.232	0.005	0.000	0.237 ✔	1.333	H2-1 ✔
T5	100 - 80	2L2x2x1/4x3/8	0.303	0.011	0.000	0.314 ✔	1.333	H2-1 ✔
T7	60 - 40	4x3/8	0.213	0.003	0.000	0.217 ✔	1.333	H2-1 ✔

Torque-Arm Top Design Data

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P lb	Allow. P_a lb	Ratio $\frac{P}{P_a}$
T1	180 - 160 (456)	C12x20.7	3.42	3.30	49.5	21.600	6.0900	982.35	131544.00	0.007
T1	180 - 160 (457)	C12x20.7	3.42	3.30	49.5	21.600	6.0900	405.89	131544.00	0.003
T1	180 - 160 (460)	C12x20.7	3.42	3.30	49.5	21.600	6.0900	475.94	131544.00	0.004
T1	180 - 160 (461)	C12x20.7	3.42	3.30	49.5	21.600	6.0900	985.08	131544.00	0.007
T1	180 - 160 (464)	C12x20.7	3.42	3.30	49.5	21.600	6.0900	976.96	131544.00	0.007
T1	180 - 160 (465)	C12x20.7	3.42	3.30	49.5	21.600	6.0900	911.39	131544.00	0.007

Torque-Arm Top Bending Design Data

Section No.	Elevation ft	Size	Actual M_x lb-ft	Actual f_{bx} ksi	Allow. F_{bx} ksi	Ratio $\frac{f_{bx}}{F_{bx}}$	Actual M_y lb-ft	Actual f_{by} ksi	Allow. F_{by} ksi	Ratio $\frac{f_{by}}{F_{by}}$
T1	180 - 160 (456)	C12x20.7	-25245.75	14.091	21.600	0.652	0.00	0.000	27.000	0.000
T1	180 - 160 (457)	C12x20.7	-24972.08	13.938	21.600	0.645	0.00	0.000	27.000	0.000
T1	180 - 160 (460)	C12x20.7	-24956.33	13.929	21.600	0.645	-0.00	0.000	27.000	0.000
T1	180 - 160 (461)	C12x20.7	-25456.5	14.208	21.600	0.658	-0.00	0.000	27.000	0.000

Section No.	Elevation ft	Size	Actual M_x lb-ft	Actual f_{bx} ksi	Allow. F_{bx} ksi	Ratio $\frac{f_{bx}}{F_{bx}}$	Actual M_y lb-ft	Actual f_{by} ksi	Allow. F_{by} ksi	Ratio $\frac{f_{by}}{F_{by}}$
T1	180 - 160 (464)	C12x20.7	8 -25292.92	14.117	21.600	0.654	-0.00	0.000	27.000	0.000
T1	180 - 160 (465)	C12x20.7	-25510.75	14.239	21.600	0.659	0.00	0.000	27.000	0.000

Torque-Arm Top Interaction Design Data

Section No.	Elevation ft	Size	Ratio $\frac{P}{P_a}$	Ratio $\frac{f_{bx}}{F_{bx}}$	Ratio $\frac{f_{by}}{F_{by}}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
T1	180 - 160 (456)	C12x20.7	0.007	0.652	0.000	0.660 ✔	1.333	H2-1 ✔
T1	180 - 160 (457)	C12x20.7	0.003	0.645	0.000	0.648 ✔	1.333	H2-1 ✔
T1	180 - 160 (460)	C12x20.7	0.004	0.645	0.000	0.648 ✔	1.333	H2-1 ✔
T1	180 - 160 (461)	C12x20.7	0.007	0.658	0.000	0.665 ✔	1.333	H2-1 ✔
T1	180 - 160 (464)	C12x20.7	0.007	0.654	0.000	0.661 ✔	1.333	H2-1 ✔
T1	180 - 160 (465)	C12x20.7	0.007	0.659	0.000	0.666 ✔	1.333	H2-1 ✔

Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P lb	$SF*P_{allow}$ lb	% Capacity	Pass Fail
T1	180 - 160	Leg	ROHN 2.5 X-STR	3	-45140.00	81085.72	55.7	Pass
T2	160 - 140	Leg	ROHN 2.5 X-STR	60	-42696.60	81085.72	52.7	Pass
T3	140 - 120	Leg	ROHN 2.5 X-STR	115	-66828.10	81085.72	82.4	Pass
T4	120 - 100	Leg	ROHN 2.5 X-STR	172	-67757.30	81085.72	83.6	Pass
T5	100 - 80	Leg	ROHN 2.5 X-STR	231	-69070.80	81085.72	85.2	Pass
T6	80 - 60	Leg	ROHN 2.5 X-STR	288	-69070.70	81085.72	85.2	Pass
T7	60 - 40	Leg	ROHN 2.5 X-STR	345	-65719.20	66913.40	98.2	Pass
T8	40 - 20	Leg	ROHN 2.5 X-STR	377	-61962.00	66913.40	92.6	Pass
T9	20 - 5	Leg	ROHN 2.5 X-STR	411	-61930.90	67325.56	92.0	Pass
T10	5 - 0	Leg	ROHN 2.5 X-STR	437	-61595.40	89562.66	68.8	Pass
T1	180 - 160	Diagonal	L2x2x1/4	10	-6708.49	20284.66	33.1 78.1 (b)	Pass
T2	160 - 140	Diagonal	ROHN TS1.5x11 ga	110	-4741.07	14743.38	32.2 86.3 (b)	Pass
T3	140 - 120	Diagonal	ROHN TS1.5x16 ga	150	-2579.37	7520.76	34.3 46.9 (b)	Pass
T4	120 - 100	Diagonal	ROHN TS1.5x11 ga	182	-3737.69	14743.38	25.4 68.0 (b)	Pass
T5	100 - 80	Diagonal	ROHN TS1.5x16 ga	248	-4526.45	7520.76	60.2 82.4 (b)	Pass
T6	80 - 60	Diagonal	ROHN TS1.5x11 ga	339	-2588.90	14743.38	17.6 47.1 (b)	Pass

Section No.	Elevation ft	Component Type	Size	Critical Element	P lb	SF*P_{allow} lb	% Capacity	Pass Fail
T7	60 - 40	Diagonal	ROHN TS1.5x16 ga	362	-4226.84	5367.07	78.8	Pass
T8	40 - 20	Diagonal	ROHN TS1.5x16 ga	407	-3341.59	5367.07	62.3	Pass
T9	20 - 5	Diagonal	ROHN TS1.5x16 ga	420	-2921.09	5388.17	54.2	Pass
T10	5 - 0	Horizontal	L4x4x1/4	447	-177.98	42372.74	4.4	Pass
T1	180 - 160	Top Girt	L2x2x1/4	4	-549.21	15409.61	3.6 6.4 (b)	Pass
T2	160 - 140	Top Girt	ROHN TS1.5x11 ga	61	1850.36	17475.90	10.6 33.7 (b)	Pass
T3	140 - 120	Top Girt	ROHN TS1.5x16 ga	118	309.26	8826.21	3.5 8.5 (b)	Pass
T4	120 - 100	Top Girt	ROHN TS1.5x11 ga	177	1087.77	17475.90	6.2 19.8 (b)	Pass
T5	100 - 80	Top Girt	ROHN TS1.5x16 ga	234	1027.72	8826.21	11.6 28.1 (b)	Pass
T6	80 - 60	Top Girt	ROHN TS1.5x11 ga	290	1637.42	17475.90	9.4 29.8 (b)	Pass
T7	60 - 40	Top Girt	ROHN TS1.5x16 ga	346	-269.00	6241.87	4.3 7.8 (b)	Pass
T8	40 - 20	Top Girt	ROHN TS1.5x16 ga	380	-888.47	6241.87	14.2 32.0 (b)	Pass
T9	20 - 5	Top Girt	ROHN TS1.5x16 ga	414	494.57	8826.21	5.6 13.5 (b)	Pass
T10	5 - 0	Top Girt	L4x4x1/4	439	3092.68	55858.03	5.5	Pass
T1	180 - 160	Bottom Girt	L2x2x1/4	9	2217.80	21759.09	10.2 27.4 (b)	Pass
T2	160 - 140	Bottom Girt	ROHN TS1.5x11 ga	66	811.76	17475.90	4.6 14.8 (b)	Pass
T3	140 - 120	Bottom Girt	ROHN TS1.5x16 ga	121	885.56	8826.21	10.0 24.2 (b)	Pass
T4	120 - 100	Bottom Girt	ROHN TS1.5x11 ga	178	1043.72	17475.90	6.0 19.0 (b)	Pass
T5	100 - 80	Bottom Girt	ROHN TS1.5x16 ga	235	772.85	8826.21	8.8 21.2 (b)	Pass
T6	80 - 60	Bottom Girt	ROHN TS1.5x11 ga	294	882.18	17475.90	5.0 16.1 (b)	Pass
T7	60 - 40	Bottom Girt	ROHN TS1.5x16 ga	350	-1023.48	6241.87	16.4 32.8 (b)	Pass
T8	40 - 20	Bottom Girt	ROHN TS1.5x16 ga	384	388.56	8826.21	4.4 10.6 (b)	Pass
T9	20 - 5	Bottom Girt	L3x3x1/2	417	10637.30	68857.85	15.4 61.9 (b)	Pass
T10	5 - 0	Bottom Girt	L4x4x1/4	442	-2093.37	43611.76	16.6	Pass
T1	180 - 160	Guy A@162.523	1/2	463	11016.80	13450.00	81.9	Pass
		Guy A@162.523	7/8	483	29018.60	39850.00	72.8	Pass
T3	140 - 120	Guy A@132.159	9/16	471	15561.50	17500.00	88.9	Pass
T5	100 - 80	Guy A@82.5234	3/4	477	24750.40	29150.00	84.9	Pass
T7	60 - 40	Guy A@49.75	1/2	489	10715.10	13450.00	79.7	Pass
T1	180 - 160	Guy B@162.523	1/2	458	10953.10	13450.00	81.4	Pass
		Guy B@162.523	7/8	482	28790.00	39850.00	72.2	Pass
T3	140 - 120	Guy B@132.159	9/16	470	15554.00	17500.00	88.9	Pass
T5	100 - 80	Guy B@82.5234	3/4	476	24780.00	29150.00	85.0	Pass
T7	60 - 40	Guy B@49.75	1/2	488	10725.70	13450.00	79.7	Pass
T1	180 - 160	Guy C@162.523	1/2	454	10680.60	13450.00	79.4	Pass
		Guy C@162.523	7/8	478	28746.00	39850.00	72.1	Pass
T3	140 - 120	Guy C@132.159	9/16	466	15603.40	17500.00	89.2	Pass
T5	100 - 80	Guy C@82.5234	3/4	472	24825.40	29150.00	85.2	Pass
T7	60 - 40	Guy C@49.75	1/2	484	10724.00	13450.00	79.7	Pass
T1	180 - 160	Top Guy Pull-Off@162.523	2L2x2x1/4x3/8	481	9421.42	43634.15	22.4 32.2 (b)	Pass
T3	140 - 120	Top Guy Pull-Off@132.159	4x3/8	467	6154.24	35334.90	17.8 35.8 (b)	Pass

Section No.	Elevation ft	Component Type	Size	Critical Element	P lb	$SF*P_{allow}$ lb	% Capacity	Pass Fail
T5	100 - 80	Top Guy Pull-Off@82.5234	2L2x2x1/4x3/8	475	9928.67	43634.15	23.5 34.0 (b)	Pass
T7	60 - 40	Top Guy Pull-Off@49.75	4x3/8	487	5656.25	35334.90	16.3 32.9 (b)	Pass
T1	180 - 160	Torque Arm Top@162.523	C12x20.7	457	-1596.13	102657.52	51.1	Pass
							Summary	
						Leg (T7)	98.2	Pass
						Diagonal (T2)	86.3	Pass
						Horizontal (T10)	4.4	Pass
						Top Girt (T2)	33.7	Pass
						Bottom Girt (T9)	61.9	Pass
						Guy A (T3)	88.9	Pass
						Guy B (T3)	88.9	Pass
						Guy C (T3)	89.2	Pass
						Top Guy Pull-Off (T3)	35.8	Pass
						Torque Arm Top (T1)	51.1	Pass
						Bolt Checks	86.3	Pass
						RATING =	**98.2**	**Pass**

EXHIBIT C

EBI Consulting
environmental | engineering | due diligence

RADIO FREQUENCY EMISSIONS ANALYSIS REPORT
EVALUATION OF HUMAN EXPOSURE POTENTIAL TO NON-IONIZING EMISSIONS

T-Mobile Existing Facility

Site ID: CT11048A

North Stonington
174 Boombridge Road North
Stonington, CT 06359

February 21, 2014

EBI Project Number: 62140907

21 B Street Burlington, MA 01803 Tel: (781) 273.2500 Fax: (781) 273.3311

EBI Consulting
environmental | engineering | due diligence

February 21, 2014

T-Mobile USA
Attn: Jason Overbey, RF Manager
35 Griffin Road South
Bloomfield, CT 06002

Re: Emissions Values for Site: **CT11048A – North Stonington**

EBI Consulting was directed to analyze the proposed T-Mobile facility located at 174 Boombridge Road, North Stonington, CT, for the purpose of determining whether the emissions from the Proposed T-Mobile Antenna Installation located on this property are within specified federal limits.

All information used in this report was analyzed as a percentage of current Maximum Permissible Exposure (% MPE) as listed in the FCC OET Bulletin 65 Edition 97-01and ANSI/IEEE Std C95.1. The FCC regulates Maximum Permissible Exposure in units of microwatts per square centimeter (μW/cm2). The number of μW/cm2 calculated at each sample point is called the power density. The exposure limit for power density varies depending upon the frequencies being utilized. Wireless Carriers and Paging Services use different frequency bands each with different exposure limits, therefore it is necessary to report results and limits in terms of percent MPE rather than power density.

All results were compared to the FCC (Federal Communications Commission) radio frequency exposure rules, 47 CFR 1.1307(b)(1) – (b)(3), to determine compliance with the Maximum Permissible Exposure (MPE) limits for General Population/Uncontrolled environments as defined below.

General population/uncontrolled exposure limits apply to situations in which the general public may be exposed or in which persons who are exposed as a consequence of their employment may not be made fully aware of the potential for exposure or cannot exercise control over their exposure. Therefore, members of the general public would always be considered under this category when exposure is not employment related, for example, in the case of a telecommunications tower that exposes persons in a nearby residential area.

Public exposure to radio frequencies is regulated and enforced in units of microwatts per square centimeter (μW/cm2). The general population exposure limit for the cellular band is 567 μW/cm2, and the general population exposure limit for the PCS and AWS bands is 1000 μW/cm2. Because each carrier will be using different frequency bands, and each frequency band has different exposure limits, it is necessary to report percent of MPE rather than power density.

Occupational/controlled exposure limits apply to situations in which persons are exposed as a consequence of their employment and in which those persons who are exposed have been made fully aware of the potential for exposure and can exercise control over their exposure. Occupational/controlled exposure limits also apply where exposure is of a transient nature as a result of incidental passage through a location where exposure levels may be above general population/uncontrolled limits (see below), as long as the exposed person has been made fully aware of the potential for exposure and can exercise control over his or her exposure by leaving the area or by some other appropriate means.

Additional details can be found in FCC OET 65.

CALCULATIONS

Calculations were done for the proposed T-Mobile Wireless antenna facility located at 174 Boombridge Road, North Stonington, CT, using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65. Since T-Mobile is proposing highly focused directional panel antennas, which project most of the emitted energy out toward the horizon, the actual antenna pattern gain value in the direction of the sample area was used. For this report the sample point is a 6 foot person standing at the base of the tower

For all calculations, all equipment was calculated using the following assumptions:

1) 2 GSM / UMTS channels (1935.000 MHz to 1945.000 MHz / 1983.000 MHz to 1984.000 MHz) were considered for each sector of the proposed installation.
2) 4 UMTS / LTE channels (2110.000 to 2120.000 MHz / 2140.000 MHz to 2145.000 MHz) were considered for each sector of the proposed installation
3) All radios at the proposed installation were considered to be running at full power and were uncombined in their RF transmissions paths per carrier prescribed configuration. Per FCC OET Bulletin No. 65 - Edition 97-01 recommendations to achieve the maximum anticipated value at each sample point, all power levels emitting from the proposed antenna installation are increased by a factor of 2.56 to account for possible in-phase reflections from the surrounding environment. This is rarely the case, and if so, is never continuous.
4) For the following calculations the sample point was the top of a six foot person standing at the base of the tower. The actual gain in this direction was used per the manufactures supplied specifications.
5) The antenna used in this modeling is the Ericsson AIR21 for LTE, UMTS and GSM. This is based on feedback from the carrier with regards to anticipated antenna selection. This antenna has a 15.6 dBd gain value at its main lobe. Actual antenna gain values were used for all calculations as per the manufacturers specifications

6) The antenna mounting height centerline of the proposed antennas is **120 feet** above ground level (AGL)
7) Emissions values for additional carriers were taken from the Connecticut Siting Council active database. Values in this database are provided by the individual carriers themselves.

All calculation were done with respect to uncontrolled / general public threshold limits

Site ID	CT11048A - North Stonington
Site Addresss	174 Boombridge Road, North Stonington, CT 06359
Site Type	Guyed Tower

Sector 1

Antenna Number	Antenna Make	Antenna Model	Status	Frequency Band	Technology	Power Out Per Channel (Watts)	Number of Channels	Composite Power	Antenna Gain in direction of sample point (dBd)	Antenna Height (ft)	analysis height	Cable Size	Cable Loss (dB)	Additional Loss	ERP	Power Density Value	Power Density Percentage
1a	Ericsson	AIR21 B4A/B2P	Active	AWS - 2100 MHz	LTE	60	2	120	-3.95	120	114	None	0	0	48.326044	1.336834	0.13368%
1b	Ericsson	AIR21 B4A/B2P	Not Used	-	-			0	-3.95	120	114	None	0	0	0	0	0.00000%
2a	Ericsson	AIR21 B2A / B4P	Active	PCS - 1950 MHz	GSM / UMTS	30	2	60	-3.95	120	114	None	0	0	24.163022	0.668417	0.06684%
1b	Ericsson	AIR21 B4A/B2P	Passive	AWS - 2100 MHz	UMTS	40	2	80	-3.95	120	114	None	0	0	32.217363	0.891223	0.08912%
														Sector total Power Density Value:		0.290%	

Sector 2

Antenna Number	Antenna Make	Antenna Model	Status	Frequency Band	Technology	Power Out Per Channel (Watts)	Number of Channels	Composite Power	Antenna Gain in direction of sample point (dBd)	Antenna Height (ft)	analysis height	Cable Size	Cable Loss (dB)	Additional Loss	ERP	Power Density Value	Power Density Percentage
1a	Ericsson	AIR21 B4A/B2P	Active	AWS - 2100 MHz	LTE	60	2	120	-3.95	120	114	None	0	0	48.326044	1.336834	0.13368%
1b	Ericsson	AIR21 B4A/B2P	Not Used	-	-			0	-3.95	120	114	None	0	0	0	0	0.00000%
2a	Ericsson	AIR21 B2A / B4P	Active	PCS - 1950 MHz	GSM / UMTS	30	2	60	-3.95	120	114	None	0	0	24.163022	0.668417	0.06684%
1b	Ericsson	AIR21 B4A/B2P	Passive	AWS - 2100 MHz	UMTS	40	2	80	-3.95	120	114	None	0	0	32.217363	0.891223	0.08912%
														Sector total Power Density Value:		0.290%	

Sector 3

Antenna Number	Antenna Make	Antenna Model	Status	Frequency Band	Technology	Power Out Per Channel (Watts)	Number of Channels	Composite Power	Antenna Gain in direction of sample point (dBd)	Antenna Height (ft)	analysis height	Cable Size	Cable Loss (dB)	Additional Loss	ERP	Power Density Value	Power Density Percentage
1a	Ericsson	AIR21 B4A/B2P	Active	AWS - 2100 MHz	LTE	60	2	120	-3.95	120	114	None	0	0	48.326044	1.336834	0.13368%
1b	Ericsson	AIR21 B4A/B2P	Not Used	-	-			0	-3.95	120	114	None	0	0	0	0	0.00000%
2a	Ericsson	AIR21 B2A / B4P	Active	PCS - 1950 MHz	GSM / UMTS	30	2	60	-3.95	120	114	None	0	0	24.163022	0.668417	0.06684%
1b	Ericsson	AIR21 B4A/B2P	Passive	AWS - 2100 MHz	UMTS	40	2	80	-3.95	120	114	None	0	0	32.217363	0.891223	0.08912%
														Sector total Power Density Value:		0.290%	

Site Composite MPE %	
Carrier	MPE %
T-Mobile	0.869%
AT&T	10.610%
Nextel	2.050%
Sprint	1.540%
Verizon Wireless	17.010%
MetroPCS	6.480%
Total Site MPE %	**38.559%**

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Summary

All calculations performed for this analysis yielded results that were well within the allowable limits for general public exposure to RF Emissions.

The anticipated Maximum Composite contributions from the T-Mobile facility are **0.869% (0.290% from each sector)** of the allowable FCC established general public limit considering all three sectors simultaneously sampled at the ground level.

The anticipated composite MPE value for this site assuming all carriers present is **38.559%** of the allowable FCC established general public limit sampled at the ground level. This is based upon values listed in the Connecticut Siting Council database for existing carrier emissions.

FCC guidelines state that if a site is found to be out of compliance (over allowable thresholds), that carriers over a 5% contribution to the composite value will require measures to bring the site into compliance. For this facility, the composite values calculated were well within the allowable 100% threshold standard per the federal government.

Scott Heffernan
RF Engineering Director

EBI Consulting
21 B Street
Burlington, MA 01803