STATE OF CONNECTICUT

CONNECTICUT SITING COUNCIL

Ten Franklin Square, New Britain, CT 06051
Phone: (860) 827-2935 Fax: (860) 827-2950
E-Mail: siting.council@ct.gov
Internet: ct.gov/csc

Daniel F. Caruso
Chairman

February 25, 2008

Kenneth C. Baldwin, Esq.
Robinson & Cole LLP
280 Trumbull Street
Hartford, CT 06103-3597

RE: **EM-VER-144-080131** – Cellco Partnership d/b/a Verizon Wireless notice of intent to modify an existing telecommunications facility located at Video Lane, Trumbull, Connecticut.

Dear Attorney Baldwin:

At a public meeting held on February 14, 2008, the Connecticut Siting Council (Council) acknowledged your notice to modify this existing telecommunications facility, pursuant to Section 16-50j-73 of the Regulations of Connecticut State Agencies.

The proposed modifications are to be implemented as specified here and in your notice dated January 31, 2008, including the placement of all necessary equipment and shelters within the tower compound. The modifications are in compliance with the exception criteria in Section 16-50j-72 (b) of the Regulations of Connecticut State Agencies as changes to an existing facility site that would not increase tower height, extend the boundaries of the tower site, increase noise levels at the tower site boundary by six decibels, and increase the total radio frequencies electromagnetic radiation power density measured at the tower site boundary to or above the standard adopted by the State Department of Environmental Protection pursuant to General Statutes § 22a-162. This facility has also been carefully modeled to ensure that radio frequency emissions are conservatively below State and federal standards applicable to the frequencies now used on this tower.

This decision is under the exclusive jurisdiction of the Council. Please be advised that the validity of this action shall expire one year from the date of this letter. Any additional change to this facility will require explicit notice to this agency pursuant to Regulations of Connecticut State Agencies Section 16-50j-73. Such notice shall include all relevant information regarding the proposed change with cumulative worst-case modeling of radio frequency exposure at the closest point of uncontrolled access to the tower base, consistent with Federal Communications Commission, Office of Engineering and Technology, Bulletin 65. Any deviation from this format may result in the Council implementing enforcement proceedings pursuant to General Statutes § 16-50u including, without limitation, imposition of expenses resulting from such failure and of civil penalties in an amount not less than one thousand dollars per day for each day of construction or operation in material violation.

Thank you for your attention and cooperation.

~~Very truly~~ yours,

Daniel F. Caruso
Chairman

DFC/MP/cm

c: The Honorable Raymond G. Baldwin, Jr., First Selectman, Town of Trumbull
Harry Eberhart, Zoning Enforcement Officer, Town of Trumbull
Crown Castle

ROBINSON & COLE

KENNETH C. BALDWIN

280 Trumbull Street
Hartford, CT 06103-3597
Main (860) 275-8200
Fax (860) 275-8299
kbaldwin@rc.com
Direct (860) 275-8345

EM-VER-144-080131

ORIGINAL

January 31, 2008

Via Hand Delivery

S. Derek Phelps
Executive Director
Connecticut Siting Council
10 Franklin Square
New Britain, CT 06051

Re: **Notice of Exempt Modification – Antenna Swap**
Video Lane (a/k/a 800 Booth Hill Road), Trumbull, Connecticut

Dear Mr. Phelps:

Cellco Partnership d/b/a Verizon Wireless ("Cellco") currently maintains a wireless telecommunications facility at the above-referenced address. The Council approved Cellco's shared use of the existing 460-foot guyed lattice tower in Docket No. 77 on August 4, 1987. On August 26, 2004, the Council granted Cellco's request to replace six cellular antennas with six dual band antennas. Cellco now intends to modify its installation by replacing its six (6) DB774G90ESXM dual band antennas with two (2) BXA-185085/12CF antennas and one (1) BXA-185063/8CF antenna at the 238-foot level, and two (2) BXA-80080/6CF antennas and one (1) BXA-80063/6CF antenna at the 232-foot level on the existing tower. Attached behind Tab 1 are the specifications for the proposed replacement antennas.

Please accept this letter as notification pursuant to R.C.S.A. § 16-50j-73, for construction that 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 Raymond G. Baldwin, First Selectman of the Town of Trumbull. Pursuant to a Council directive, a copy of this letter is also being sent to Francis F. Daddario, Jr., the owner of the property on which the facility is located.

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

1. The proposed modifications will not result in any increase in the overall height of the existing structures. Cellco's replacement antennas will be located at the 232 and 238-foot levels on the existing 460-foot tower.

2. The proposed modifications will not involve any modifications to ground-mounted equipment and, therefore, will not require the extension of the site boundaries.

3. The proposed modifications will not increase noise levels at the facility by six decibels or more.

4. The operation of the replacement antennas will not increase radio frequency (RF) power density levels at the facility to a level at or above the Federal Communications Commission (FCC) adopted safety standard. A cumulative power density table for the modified facility is included behind Tab 2.

Also attached is a Detailed Structural Analysis confirming that the tower can support the proposed modifications. (See Tab 3).

For the foregoing reasons, Cellco respectfully submits that the proposed modifications to the above-referenced telecommunications facility constitutes an exempt modification under R.C.S.A. § 16-50j-72(b)(2).

Sincerely,

Kenneth C. Baldwin

Enclosures
Copy to:
Raymond G. Baldwin, Trumbull First Selectman
Francis F. Daddario
Sandy M. Carter

Slant +/- 45° Dual Polarized, Panel 85° / 18 dBi

BXA-185085/12CF ___

When ordering replace "___" with connector type.

Mechanical specifications

	Length	1840 mm	72.4 in
	Width	154 mm	6.1 in
	Depth	105 mm	4.1 in
	Depth with t-bracket	133 mm	5.2 in
4)	Weight	5.9 kg	13.0 lbs
	Wind Area		
	Fore/Aft	0.28 m^2	3.1 ft^2
	Side	0.19 m^2	2.1 ft^2
	Rated Wind Velocity (Safety factor 2.0)	>201 km/hr	>125 mph
	Wind Load @ 100 mph (161 km/hr)		
	Fore/Aft	460 N	103.4 lbs
	Side	304 N	68.3 lbs

Antenna consisting of aluminum alloy with brass feedlines covered by a UV safe fiberglass radome.

Mounting and Downtilting

Mounting brackets attach to a pipe diameter of Ø50-102 mm (2.0-4.0 in).

Mounting bracket kit #26799997
Downtilt bracket kit #26799999

The downtilt bracket kit includes the mounting bracket kit.

Electrical specifications

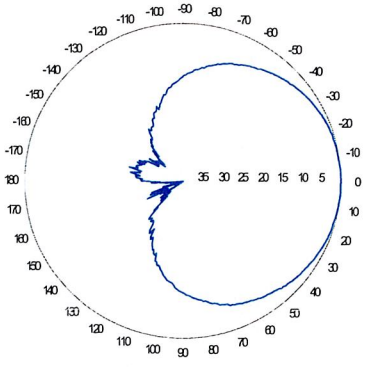
	Frequency Range	1850-1990 MHz
	Impedance	50Ω
3)	Connector(s)	NE or E-DIN 2 ports / center
1)	VSWR	≤ 1.4:1
	Polarization	Slant ± 45°
1)	Isolation Between Ports	< -30 dB
1)	Gain	18 dBi
2)	Power Rating	250 W
1)	Half Power Angle	
	H-Plane	85°
	E-Plane	5°
1)	Electrical Downtilt	0°
1)	Null Fill	5%
	Lightning Protection	Direct Ground

Patented Dipole Design: U.S. Patent No. 6,597,324 B2

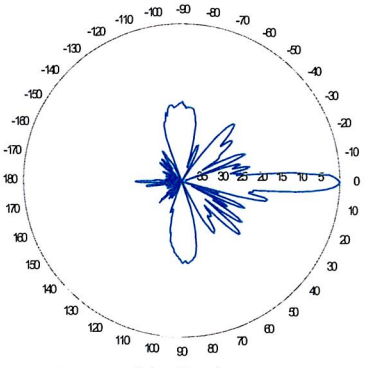
1) Typical values.
2) Power rating limited by connector only.
3) NE indicates an elongated N connector.
   E-DIN indicates an elongated DIN connector.
4) The antenna weight listed above does not include the bracket weight.

Improvements to mechanical and/or electrical performance of the antenna may be made without notice.

Radiation pattern[1)]



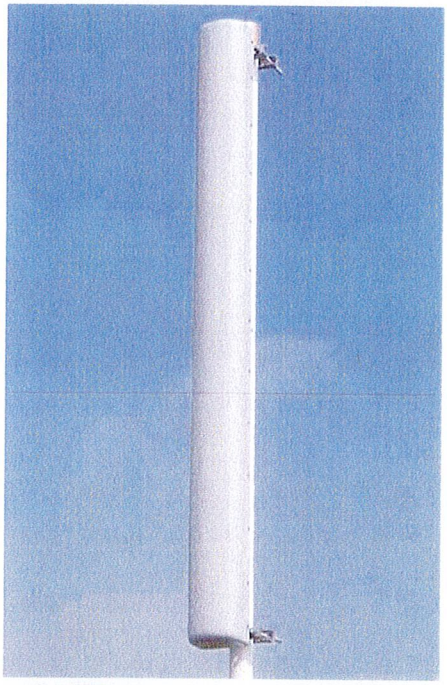
Horizontal



Vertical

Radiation patterns for all antennas are measured with the antenna mounted on a fiberglass pole.

Mounting on a metal pole will typically improve the Front-to-Back ratio.



Amphenol Antel's Exclusive 3T (True Transmission Line Technology) Antenna Design:

- Watercut brass feedline assembly for consistent performance.
- Unique feedline design eliminates the need for conventional solder joints in the signal path.
- A non-collinear system with access to every radiating element for broad band-width and superior performance.
- Air as insulation for virtually no internal signal loss.

This Amphenol Antel antenna is under a five-year limited warranty for repair or replacement.

Antenna available with center-fed connectors only.

CF Denotes a Center-Fed Connector.

1850-1990 MHz

Amphenol Antel, Inc. 1300 Capital Drive Rockford, Illinois 61109 USA Tel. (815) 399-0001
Toll-Free (888) 417-9562 Fax. (815) 399-0156 antel@antelinc.com www.antelinc.com

Revision Date: 7/11/07

Slant +/- 45° Dual Polarized, Panel 63° / 18.5 dBi

BXA-185063/8CF ___

When ordering replace "___" with connector type.

Mechanical specifications

Length	1238 mm	48.8 in
Width	154 mm	6.1 in
Depth	80 mm	3.2 in
Depth with t-bracket	108 mm	4.3 in
[4] Weight	4.5 kg	10.0 lbs
Wind Area		
Fore/Aft	0.19 m^2	2.1 ft^2
Side	0.10 m^2	1.1 ft^2
Rated Wind Velocity (Safety factor 2.0)	>322 km/hr	>200 mph
Wind Load @ 100 mph (161 km/hr)		
Fore/Aft	288 N	65 lbs
Side	170 N	38 lbs

Antenna consisting of aluminum alloy with brass feedlines covered by a UV safe fiberglass radome.

Mounting and Downtilting

Mounting brackets attach to a pipe diameter of Ø50-102 mm (2.0-4.0 in).

Mounting bracket kit #26799997
Downtilt bracket kit #26799999

The downtilt bracket kit includes the mounting bracket kit.

Electrical specifications

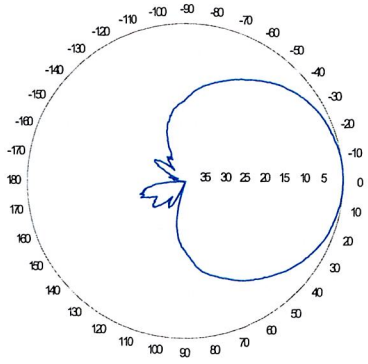
	Frequency Range	1850-1990 MHz
	Impedance	50Ω
[3]	Connector(s)	NE or E-DIN 2 ports / center or bottom
[1]	VSWR	≤ 1.4:1
	Polarization	Slant ± 45°
[1]	Isolation Between Ports	< -30 dB
[1]	Gain	18.5 dBi
[2]	Power Rating	250 W
[1]	Half Power Angle	
	H-Plane	63°
	E-Plane	7°
[1]	Electrical Downtilt	0°
[1]	Null Fill	5%
	Lightning Protection	Direct Ground

Patented Dipole Design: U.S. Patent No. 6,597,324 B2

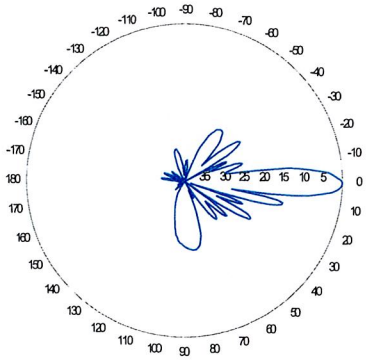
1) Typical values.
2) Power rating limited by connector only.
3) NE indicates an elongated N connector.
   E-DIN indicates an elongated DIN connector.
4) The antenna weight listed above does not include the bracket weight.

Improvements to mechanical and/or electrical performance of the antenna may be made without notice.

Radiation pattern[1]



Horizontal



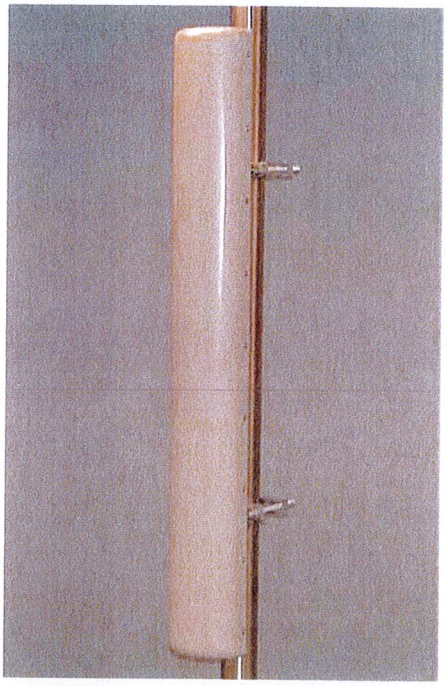
Vertical

Radiation patterns for all antennas are measured with the antenna mounted on a fiberglass pole.

Mounting on a metal pole will typically improve the Front-to-Back ratio.

CF Denotes a Center-Fed Connector.

1850-1990 MHz



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- A non-collinear system with access to every radiating element for broad band-width and superior performance.
- Air as insulation for virtually no internal signal loss.

This Amphenol Antel antenna is under a five-year limited warranty for repair or replacement.

Antenna can be ordered with center-fed or bottom-fed connectors.

Center-fed: BXA-185063/8CF + (NE or E-DIN)
Bottom-fed: BXA-185063/8BF + (NE or E-DIN)

Amphenol Antel, Inc.
The Antenna Technology Company

Amphenol Antel, Inc. 1300 Capital Drive Rockford, Illinois 61109 USA Tel. (815) 399-0001
Toll-Free (888) 417-9562 Fax. (815) 399-0156 antel@antelinc.com www.antelinc.com

Revision Date: 7/11/07

Slant +/- 45° Dual Polarized, Panel 80° / 13.5 dBd

BXA-80080/6CF ___

When ordering replace "___" with connector type.

Mechanical specifications

Length	1844 mm	72.6 in
Width	285 mm	11.2 in
Depth	116 mm	4.6 in
Depth with z-bracket	156 mm	6.1 in
[4] Weight	10 kg	22.0 lbs
Wind Area		
Fore/Aft	0.53 m^2	5.7 ft^2
Side	0.21 m^2	2.3 ft^2
Rated Wind Velocity (Safety factor 2.0)	>277 km/hr	>172 mph
Wind Load @ 100 mph (161 km/hr)		
Fore/Aft	765 N	172 lbs
Side	366 N	82 lbs

Antenna consisting of aluminum alloy with brass feedlines covered by a UV safe fiberglass radome.

Mounting and Downtilting

Mounting brackets attach to a pipe diameter of Ø50-160 mm (2.0-6.3 in).

Mounting bracket kit #36210002
Downtilt bracket kit #36114003

Electrical specifications

	Frequency Range	806-900 MHz*
	Impedance	50Ω
[3]	Connector(s)	NE or E-DIN 2 ports / center
[1]	VSWR	≤ 1.4:1
	Polarization	Slant ± 45°
[1]	Isolation Between Ports	< -30 dB
[1]	Gain	13.5 dBd
[2]	Power Rating	500 W
[1]	Half Power Angle	
	H-Plane	80°
	E-Plane	11°
[1]	Electrical Downtilt	0°
[1]	Null Fill	5%
	Lightning Protection	Direct Ground

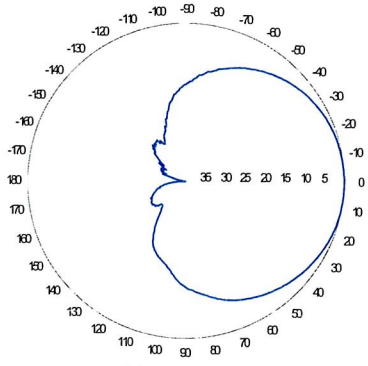
*Also available for 870-960 MHz. Consult your sales director for more information.

Patented Dipole Design: U.S. Patent No. 6,608,600 B2

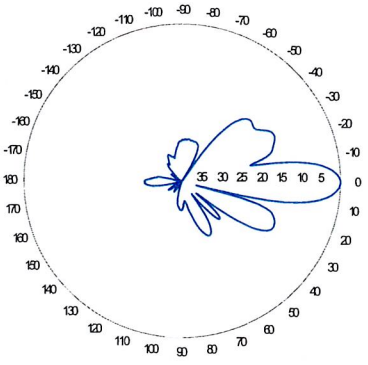
1) Typical values.
2) Power rating limited by connector only.
3) NE indicates an elongated N connector. E-DIN indicates an elongated DIN connector.
4) The antenna weight listed above does not include the bracket weight.

Improvements to mechanical and/or electrical performance of the antenna may be made without notice.

Radiation pattern[1]



Horizontal



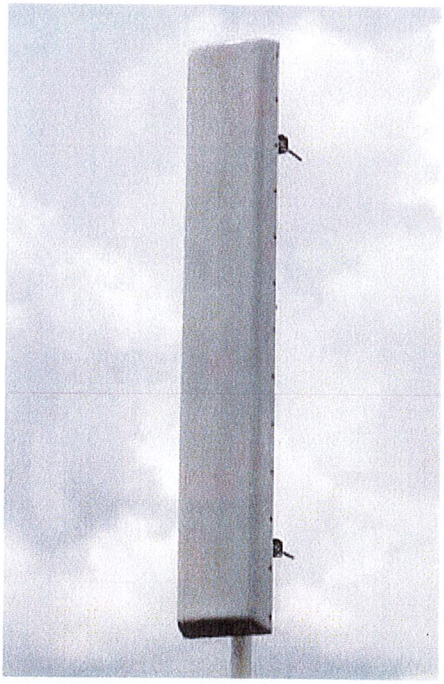
Vertical

Radiation patterns for all antennas are measured with the antenna mounted on a fiberglass pole.

Mounting on a metal pole will typically improve the Front-to-Back ratio.

CF Denotes a Center-Fed Connector.

806-900 MHz



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Antenna available with center-fed connectors only.

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Toll-Free (888) 417-9562 Fax. (815) 399-0156 antel@antelinc.com www.antelinc.com

Amphenol Antel, Inc. The Antenna Technology Company

Revision Date: 7/3/07

Slant +/- 45° Dual Polarized, Panel 63° / 14.5 dBd

BXA-80063/6CF ___

When ordering replace "___" with connector type.

Mechanical specifications

	Length	1804 mm	71.1 in
	Width	285 mm	11.2 in
	Depth	126 mm	5.0 in
	Depth with z-bracket	166 mm	6.5 in
4)	Weight	6.8 kg	14.9 lbs
	Wind Area		
	Fore/Aft	0.51 m^2	5.53 ft^2
	Side	0.23 m^2	2.45 ft^2
	Rated Wind Velocity (Safety factor 2.0)	>318 km/hr	>198 mph
	Wind Load @ 100 mph (161 km/hr)		
	Fore/Aft	753 N	169.2 lbs
	Side	378 N	85 lbs

Antenna consisting of aluminum alloy with brass feedlines covered by a UV safe fiberglass radome.

Mounting and Downtilting

Mounting brackets attach to a pipe diameter of Ø50-160 mm (2.0-6.3 in).

Mounting bracket kit #36210002
Downtilt bracket kit #36114003

Electrical specifications

	Frequency Range	806-900 MHz*
	Impedance	50Ω
3)	Connector(s)	NE or E-DIN 2 ports / center
1)	VSWR	≤ 1.4:1
	Polarization	Slant ± 45°
1)	Isolation Between Ports	< -30 dB
1)	Gain	14.5 dBd
2)	Power Rating	500 W
1)	Half Power Angle	
	H-Plane	63°
	E-Plane	11°
1)	Electrical Downtilt	0°
1)	Null Fill	5%
	Lightning Protection	Direct Ground

*Also available for 870-960 MHz. Refer to model BXA-87063/6CF _.

Patented Dipole Design: U.S. Patent No. 6,608,600 B2

1) Typical values.
2) Power rating limited by connector only.
3) NE indicates an elongated N connector.
   E-DIN indicates an elongated DIN connector.
4) The antenna weight listed above does not include the bracket weight.

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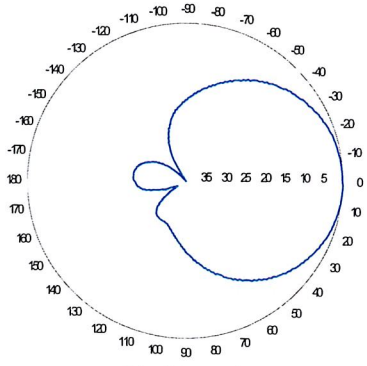
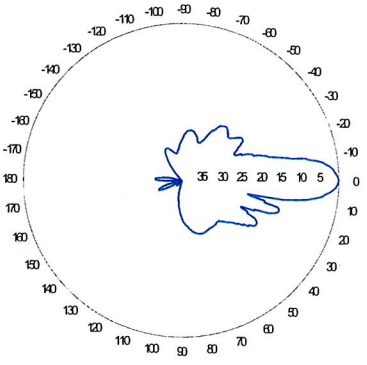
Radiation pattern[1)]



Horizontal



Vertical

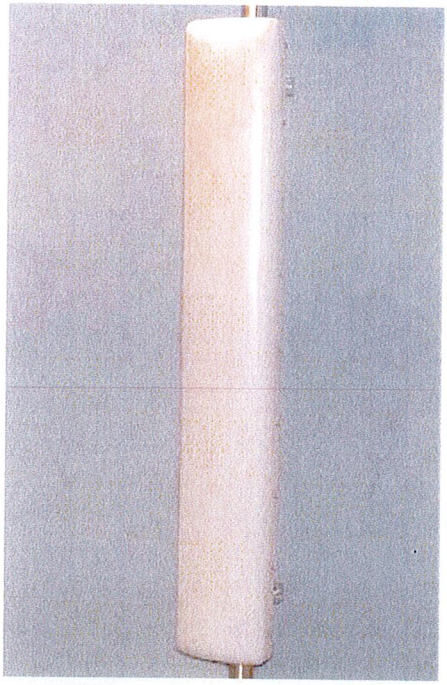
Featuring upper side lobe suppression.

Radiation patterns for all antennas are measured with the antenna mounted on a fiberglass pole.

Mounting on a metal pole will typically improve the Front-to-Back ratio.

CF Denotes a Center-Fed Connector.

806-900 MHz



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Toll-Free (888) 417-9562 Fax. (815) 399-0156 antel@antelinc.com www.antelinc.com

Amphenol Antel, Inc. The Antenna Technology Company

Revision Date: 11/21/07

	General	Power	Density					
Site Name: Trumbull								
Tower Height: Verizon @ 232Ft and 238Ft.								
CARRIER	**# OF CHAN.**	**WATTS ERP**	**HEIGHT**	**CALC. POWER DENS**	**FREQ.**	**MAX. PERMISS. EXP.**	**FRACTION MPE**	**Total**
*Various	field measurements taken in vicinity of tower; highest recorded reading was						25.4%	
*Omnipoint	8	201	243	0.0098	1935	1.0000	0.98%	
*Marcus - Andrew DB408-B Transmit Ant.	10	2800	325	0.0034	450	0.3000	1.13%	
*Marcus - Radiowaves SPD3-5.8 Microwave Dish	1	100	300	0.0002	5.8 GHz	1.0000	0.02%	
*Marcus - Radiowaves SPD4-5.8 Microwave dish	1	100	175	0.0012	5.8 GHz	1.0000	0.12%	
*Marcus - Radiowaves SD2-5.8 Microwave Dish	1	100	75	0.0015	5.8 GHz	1.0000	0.15%	
Verizon	**9**	**175**	**232**	**0.0105**	**880**	**0.5866**	**1.79%**	
Verizon	**3**	**280**	**238**	**0.0053**	**1900**	**1.0000**	**0.53%**	
								30.1%
* Source: Siting Council								

Date: **January 10, 2008**

TOWER ENGINEERING PROFESSIONALS

Mr. Ben Goodhart
Crown Castle International
9105 Monroe Road, Suite 150
Charlotte, NC 28270
(o) (704) 321-3845

Tower Engineering Professionals, Inc. (TEP)
3703 Junction Boulevard
Raleigh, NC 27603
(o) (919) 661-6351
mlackey@tepgroup.net

Subject: **Structural Analysis Report**

Carrier Designation:	**Verizon Wireless Co-Locate**	
	Carrier Site Number:	Trumbull, CT
	Carrier Site Name:	BRG120
Crown Castle Designation:	**Crown Castle BU Number:**	*873128*
	Crown Castle Site Name:	*Trumbull*
	Crown Castle JDE Job Number:	*92620*
Engineering Firm Designation:	**TEP Project Number:**	***072725***
Site Data:	**800 Booth Hill Road, Shelton, Fairfield Co., CT, 06611**	
	Latitude *41°-16'-44.796"*, Longitude *-73°-11'-6.9"*	
	460 Foot - Guyed Tower	

Dear Mr. Goodhart,

TEP is pleased to submit this **"Structural Analysis Report"** to determine the structural integrity of the aforementioned tower. This analysis has been performed in accordance with the Crown Castle Structural 'Statement of Work' and the terms of Crown Castle Purchase Order Number 270330, in accordance with application 57919, revision 0.

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

LC1: Existing + Reserved + Proposed Equipment — Sufficient Capacity
Note: See Table I and Table II for the proposed and existing/reserved loading.

This analysis has been performed in accordance with the TIA/EIA-222-F standard based on a fastest-mile wind speed of 85-mph (105-mph 3-second gust).

We at TEP appreciate the opportunity of providing our continuing professional services to you and Crown Castle International. If you have any questions or need further assistance on this or any other projects please give us a call.

Respectfully submitted,

Pete Jernigan, P.E.

STATE OF CONNECTICUT
PETER G. JERNIGAN, JR.
00021509
LICENSED PROFESSIONAL ENGINEER

1-10-2008

TABLE OF CONTENTS

1) INTRODUCTION

The subject tower is a 460-foot guyed tower by an unknown manufacturer.

2) ANALYSIS CRITERIA

The existing, reserved, and proposed antennas, transmission lines, and mountings are shown in the following tables. The site is in Fairfield County, CT. The structural analysis was performed in accordance with the ANSI/TIA/EIA-222-F-1996 (TIA), Structural Standards for Steel Antenna Towers and Antenna Supporting Structures dated June 1996. The governing winds forces are derived from the TIA Standard using a fastest-mile wind speed of 85 mph without ice (74 mph with ½" radial ice) for an Exposure C and Importance Factor of 1.00.

Table 1 – Proposed Antenna and Cable Information

Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Mount	Number of Feed Lines	Feed Line Size (in)
238 (Proposed)	2 1	Antel Antel	BXA-185085/12CF BXA-185063/8CF	-	-[1]	-[1]
232 (Proposed)	2 1	Antel Antel	BXA-80080/6CF BXA-80063/6CF	-	-[1]	-[1]

[1] – Existing feed lines to be re-used

Table 2 – Existing and Reserved Antenna and Cable Information

Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Mount	Number of Feed Lines	Feed Line Size (in)
474.5 (Existing)	1	RCA	TFU20JDAS	(1) Mast	1	4" Ø
455 (Existing)	1 1 1	Unknown Unknown Decibel	20-ft Omni 20-ft Omni DB420	(3) Sidearm Mounts	1 1 1	7/8 1-5/8 7/8
449 (Existing)	1	Unknown	20-ft Omni	(1) Sidearm Mount	1	7/8
443 (SLA)	1	Decibel	DB810M-XC	(1) Sidearm Mount	1	1-1/4
440 (SLA)	1	Decibel	DB810M-XC	(1) Sidearm Mt.	1	1-5/8
420 (Existing)	1	ERI	ERI 1083-3CP	(1) Pipe Face Mount	1	3" Ø
392 (Existing)	1	Shively	SHI/SIRA 05/06-2/DA	(1) Flush Mount	3	1-5/8
380 (Existing)	1	Dielectric	TLP8J	(1) Flush Mount	1	3.15" Ø
376 (Existing)	1	Unknown	8-ft Omni	(1) Sidearm Mt.	1	1-5/8
359 (Existing)	1	Andrew	63021	(1) Flush Mount	1	1-5/8
356 (Existing)	1	Unknown	20-ft Omni	(1) Sidearm Mt	1	1-1/4

Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Mount	Number of Feed Lines	Feed Line Size (in)
353 (Existing)	1	Unknown	20-ft Omni	(1) Sidearm Mt.	1	7/8
352 (Existing)	1	Antel	BCD87077	(1) Sidearm Mount	1	1-5/8
351 (Existing)	1	Antenna Specialists	ASP 601	(1) Sidearm Mount	2	5/8
340 (Existing)	1	Anixter	P2072	(1) Flush Mount	1	1-5/8
336 (Existing)	1 1	Unknown Decibel	10-ft Omni DB408	(2) Sidearm Mount	1 1	1-1/4 1-1/4
333 (Existing)	1	Sinclair	SRL 101-A	(1) Sidearm Mount	-	-
328 (Existing)	1	Decibel	DB230	(1) Flush Mount	-	-
322 (Existing)	1	Radiowaves	SPD3-5.8	(1) Flush Mount	1	5/8
312 (Existing)	1	Shively	6015-2/3R-DA	(1) Pipe Face Mount	3	1-5/8
299 (Reserved)	1	Dielectric	TLP-8M	(1) Pipe Face Mount	1	3" Ø
288 (Existing)	1	Unknown	10-ft Omni Antenna	(1) Sidearm Mount	1	1-1/4
285 (Existing)	1 1	Decibel Unknown	DB212 15-ft Omni	(2) Flush Mounts	1[2] 1	1-5/8 1-5/8
274 (Existing)	1	Unknown	10-ft Omni	(1) Sidearm Mount	1	1-1/4
271 (Existing)	1	Unknown	6-ft Yagi	(1) Pipe Mount	-	-
270 (Existing)	1	Unknown	6-ft Omni	(1) Sidearm Mount	1	1-5/8
268 (Existing)	1	Decibel	DB809KT3E-Y	(1) Sidearm Mount	1	1-1/4
261 (Existing)	1	Unknown	10-ft Omni	(1) Sidearm Mount	1[2]	7/8
256 (Existing)	-	-	-	(1) Sidearm Mount	-	-
247 (Existing)	3	EMS Wireless	RR901702DP	(3) T-Arm Sectors	6	7/8
247 (SLA)	6	EMS Wireless	DR65-18-00DPL2Q	-	24	1-5/8
238 (Existing)	3[3]	Decibel	DB774G90ESXM	-	3	7/8
232 (Existing)	3[3]	Decibel	DB774G90ESXM	(3) Sidearm Mounts	3	7/8
221 (Existing)	1	Motorola	15-ft Omni Antenna	(1) Sidearm Mount	1	7/8

Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Mount	Number of Feed Lines	Feed Line Size (in)
208 (Existing)	1	Unknown	8-ft Omni Antenna	(1) Sidearm Mount	1	7/8
194 (Existing)	1	Scala	SRL210C4*2	(1) Sidearm Mount	1	7/8
188 (Existing)	1	Unknown	2-ft Yagi w/ Radome	(1) Flush Mount	-	-
186 (Existing)	1	Unknown	14-1/2" Corner Reflector	(1) Flush Mount	-	-
179.5 (Existing)	1	Radiowaves	SPD4-5.8NS	(1) Flush Mount	1	5/8
154 (Existing)	1	Mark Radiation Systems	P2072	(1) Pipe Mount	1	7/8
146 (Existing)	1	Andrew	PL6-65PXA	(1) Pipe Mount	1	EW52
145 (Existing)	1	Unknown	20-ft Omni Antenna	(1) Sidearm Mount	1	7/8
143 (Existing)	1	Decibel	DB264	(1) Sidearm Mount	1	7/8
117 (Existing)	1	Unknown	P9-9A48GN-U	(1) Pipe Mount	1	7/8
115 (Existing)	1	Unknown	8-ft Omni Antenna	(1) Sidearm Mount	1	7/8
110 (Existing)	1	Unknown	10-ft Grid Antenna	(1) Sidearm Mount	-	-
107 (Existing)	1	Scala	6-ft x 3-ft Grid Antenna	(1) Pipe Mount	1	7/8
100 (Existing)	1	Radiowaves	SPD2-5.8ms	(1) Flush Mount	1	5/16" Ø
76 (Existing)	1	Anixter	P2072	(1) Pipe Mount	1	1-5/8
67 (Existing)	1 1	Anixter Scala	P948 PR-450V	- (1) Flush Mount	1 1	7/8 1/4
63 (Existing)	1	Scala	PR-450V	(1) Flush Mount	1	1/4
62 (Existing)	1	Scala	PR-450V	(1) Sidearm Mount	1	7/8
54 (Existing)	1	Decibel	DB496	-	1	7/8
49 (Existing)	1	Channel Master	D.75M-1	(1) Sidearm Mount	1	1/4
44 (Existing)	1	Channel Master	D1.2M-1	(1) Sidearm Mount	1	1/4
40 (Reserved)	1	Trimble	Accutime 2000	(1) Sidearm Mount	1	½

[2] - SLA feed line

[3] – Antennas to be removed

Table 3 – Design Antenna and Cable Information

Unknown

3) ANALYSIS PROCEDURE

Table 4 – Documents Provided

Document	Remarks	Crown Document ID
Antenna Mapping	Unknown, Job # Unknown, date Unknown, provided by Crown	2045248
Steel and Antenna Mapping	Pinnacle Towers Inc., Acquisition # 0588-001, dated July 19, 2000, provided by Crown	1327906
Foundation Mapping	FDH Inc., PTI no. 0588-001, dated December 17, 2002, provided by Crown	1520339
Previous Structural Analysis Report	Global Signal Services, LLC., Job no. 3007940, dated January 5, 2005, provided by Crown	2020732
Geotechnical Report	FDH Inc., FDH Project no. 04-1229E, dated January 25, 2005, provided by Crown	1418454
Base Level Drawing	Crown Castle International, BU # 873128, dated June 21, 2007	1993977
Antenna Mapping	Tower Engineering Professionals, Inc., Job no. 071092, dated September 4, 2007	-
Foundation Mapping	Tower Engineering Professionals, Inc., Job no. 071092, dated December 3, 2007	-
TIA Condition Assessment	Tower Engineering Professionals, Inc., Job no. 071794, dated December 6, 2007	-
Previous Structural Analysis Report	Tower Engineering Professionals, Inc., Job no. 072725, dated December 12, 2007	-

3.1) Analysis Method

RISA Tower (version 5.0.2.0), a commercially available analysis software package, was used to create a three-dimensional model of the tower and calculate member stresses for various dead, live, and wind load cases. Selected output from the analysis is included in Appendix A.

3.2) Assumptions

1. All feed lines are installed in the locations noted on the cable routing drawing in *Appendix B.*
2. When applicable, feed lines were considered to be structural components for calculating wind loads, as allowed by the industry standard.
3. Information in the original design drawings and specifications that could not be verified by TEP is assumed to be correct. For this analysis, TEP will assume conformance with the original design drawings and specifications.
4. TEP shall assume that all tower components are in sufficient condition to carry their full design capacity.
5. Serviceability with respect to antenna twist, tilt, roll, or lateral translation, is not checked and is left to the carrier or tower owner to ensure conformance.

4) ANALYSIS RESULTS

Table 5 – Tower Component Stresses vs. Capacity

LC1: Existing + Reserved + Proposed Equipment

Notes	Component	Elevation (ft)	% Capacity	Pass/Fail
RISA Tower Analysis Summary:(Monopole)				
			Summary	
Notes:	**Component**	**Elevation**	**% Capacity**	**Pass/Fail**
	Legs (T20)	81-61	71.4	Pass
	Leg Bolts (T4)	401-381	39.5	Pass
	Diagonals (T10)	281-261	74.4	Pass
	Diagonal Bolts (T11)	261-241	79.0	Pass
	Top Girt / Bolts (T5)	381-361	97.4	Pass
	Middle Girt / Bolts(T11)	261-241	95.5	Pass
	Guy 1	131	67.9	Pass
	Guy 2	251	59.2	Pass
	Guy 3	381	62.6	Pass
	TOWER RATING =		97.4	Pass
INDIVIDUAL COMPONENTS:				
Notes:	**Component**	**Elevation**	**% Capacity**	**Pass/Fail**
1	Base Foundation	-	52.0	Pass
1	Anchor	-	101.3	Pass
Structure Rating (max from all components) =				**101.3%**

* Notes:

1) See additional documentation in "Appendix C – Additional Calculations" for calculations supporting the % capacity listed.

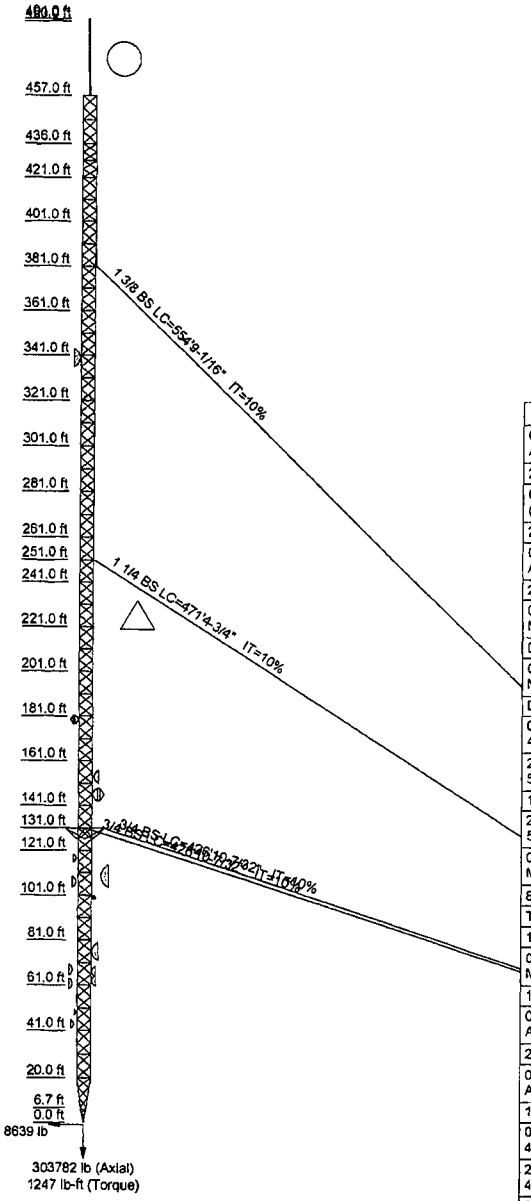
4.1) Recommendations

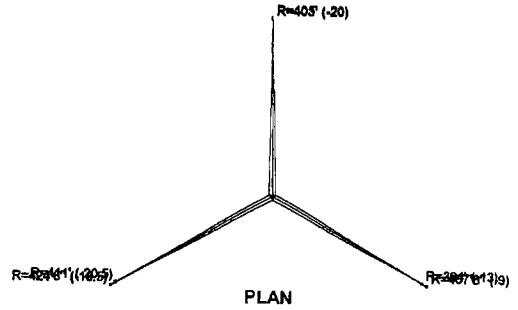
It should be noted that in order for the tower to pass in the current load scenario, the proposed and reserved coax must be configured as shown in Appendix B.

APPENDIX A

RISA TOWER OUTPUT

Section		L1	T1	T2	T3	T4	T5	T6	T7	T8	T9	T10	T11	T12	T13	T14	T15	T16	T17	T18	T19	T20	T21	T22	T23	T24
Legs		A	SR 3	SR 2 3/4	B	C					SR 3					SR 3 1/4					SR 3 1/2				D	
Leg Grade		A53-B-35	A572-50																							
Diagonals		N.A.	L2 1/2x2x3/16									E	L3x3x1/4	L2 1/2x2x3/16		L2 1/2x2x3/16		L3x3x1/4	L2 1/2x2x3/16					F	
Diagonal Grade		N	A36																							
Top Girts		N.A.	G	L2 1/2x2x1/4		H	L2 1/2x2x1/4				G	I	J	L2 1/2x2x3/16										K	L
Mid Girts		N.A.	G	L2 1/2x2x1/4							G	I	J	L2 1/2x2x3/16										N.A.	
Face Width (ft)	0.635833																									
# Panels @ (ft)		N.A.	M 4 @ 5.25											76 @ 5										N 4 @ 5.25	O	
Weight (lb)		2409.9	2141.2	1475.1	1838.5	2691.7	2735.5	2089.0	2089.0	2088.0	2058.3	2011.5	2070.5	2460.8	2308.8	2308.8	2308.8	2951.9	3721.0	2578.4	2578.4	2578.4	2578.4	2648.4	3463.2	58037.1





DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
071092 El. 256-ft-B, 346-ft, 445-ft-C (Existing Antenna 58 Mount)	445	10-Element 10-ft x 6-ft Yagi (Existing Antenna 44)	328
20-FT 16 Element Dipole (Existing Antenna 58)	445	071092 El. 269-ft, 285-ft, 326-ft, 343-ft, 439-ft, 445-ft-A (Existing Antenna 43 Mounts)	326
071092 El. 256-ft (Empty Mount) 445-ft-B (Existing Antenna 59 Mount)	445	20-FT 8 Element Dipole (Existing Antenna 43)	326
20-ft x 2-in Omni (Existing Antenna 59)	445	SPD3-5.8 (Existing Antenna 42)	322
071092 El. 256-ft-B, 346-ft, 445-ft-C (Existing Antenna 60 Mount)	445	2-Bay Shively FM w/ Radomes (Existing Antenna 41)	316 - 308
20-ft x 2-in Omni (Existing Antenna 60)	445	TLP-8M x 11.7-ft (Reserved)	305 - 293
071092 El. 256-ft-B, 346-ft, 445-ft-C (USA Mobility (SLA))	443 - 440	071092 El. 269-ft, 285-ft, 326-ft, 343-ft, 439-ft, 445-ft-A (Existing Antenna 39 Mount)	285
DB810M-XC (USA Mobility (SLA))	443 - 440	10-ft x 2.5" dia. omni (Existing Antenna 39)	285
071092 El. 256-ft-B, 346-ft, 445-ft-C (USA Mobility (SLA))	440	8-ft Single Element Dipole (Existing Antenna 40)	285
DB810M-XC (USA Mobility (SLA))	440	15' x 8" Omni (Existing Antenna 38)	278
071092 El. 269-ft, 285-ft, 326-ft, 343-ft, 439-ft, 445-ft-A (Existing Antenna 57 Mount)	439	071092 271-ft Mount (Existing Antenna 37 Mount)	271
20-ft x 2.5-in Omni Antenna (Existing Antenna 57)	439	10-Element 6-ft x 2-ft Yagi (Existing Antenna 37)	271
1083-3CP (Existing Antenna 56)	430 - 410	071092 El. 269-ft, 285-ft, 326-ft, 343-ft, 439-ft, 445-ft-A (Existing Antenna 36 Mount)	269
2-Bay Shively FM w/ Radomes (Existing Antenna 55)	400 - 388	10-ft x 2.5" dia. omni (Existing Antenna 36)	269
071092 El. 372-ft Mount (Existing Antenna 54 Mount)	372	6-ft x 1.5" Dia Omni (Existing Antenna 35)	267
8' x 2.5" Dia Omni (Existing Antenna 54)	372	071092 El. 267-ft, 331-ft Mounts (Existing Antenna 35 Mount)	267
TLP-8M x 11.7-ft (Existing Antenna 53)	365	071092 El. 260-ft Mount (Existing Antenna 34 mount)	260
15' x 8" Omni (Existing Antenna 52)	354	DB809KT3E-Y (Existing Antenna 34)	260
071092 347.5-ft Mount (Existing Antenna 51 Mount)	347.5	071092 El. 256-ft-B, 346-ft, 445-ft-C (Existing Antenna 33 Mount)	256
10-ft x 2.5" dia. omni (Existing Antenna 51)	347.5	10-ft x 3-in Omni Antenna (Existing Antenna 33)	256
071092 El. 256-ft-B, 346-ft, 445-ft-C (Existing Antenna 49 Mount)	346	071092 El. 247-ft (Single Sector) (Existing Antennas 30-32 Mounts)	247
20-ft x 3-in Omni (Existing Antenna 49)	346	071092 El. 247-ft (Single Sector) (Existing Antennas 30-32 Mounts)	247
071092 El. 256-ft-B, 346-ft, 445-ft-C (Existing Antenna 50 Mount)	346	071092 El. 247-ft (Single Sector) (Existing Antennas 30-32 Mounts)	247
10-ft x 2.5" dia. omni (Existing Antenna 50)	346	(2) DR65-18-00DPL2Q (T-Mobile (SLA))	247
071092 El. 269-ft, 285-ft, 326-ft, 343-ft, 439-ft, 445-ft-A (Existing Antenna 48 Mount)	343	(2) DR65-18-00DPL2Q (T-Mobile (SLA))	247
20-ft x 2.5-in Omni Antenna (Existing Antenna 48)	343	(2) DR65-18-00DPL2Q (T-Mobile (SLA))	247
8-FT Grid (Existing Antenna 47)	340	071092 El. 232-ft, 238-ft Mount (Existing Antennas 24-29 Mount)	235
071092 El. 267-ft, 331-ft Mounts (Existing Antenna 46 Mount)	331	BXA-185085/12CF (Verizon Proposed)	235
10-ft x 3-in Omni Antenna (Existing Antenna 46)	331	BXA-80080/6CF (Verizon Proposed)	235
071092 330-ft Mount (Existing Antenna 45)	330	BXA-185063/8CF (Verizon Proposed)	235
Generic Ground Plane (Existing Antenna 45)	330	BXA-80063/6CF (Verizon Proposed)	235
		BXA-185085/12CF (Verizon Proposed)	235
		BXA-80080/6CF (Verizon Proposed)	235

Tower Engineering Professionals
3703 Junction Boulevard
Raleigh, NC 27603
Phone: (919) 661-6351
FAX: (919) 661-6350

Job: ***BU# 873128 "Trumbull"***		
Project: ***TEP# 072725***		
Client: Crown Castle	Drawn by: Matt Lackey, E.I.	App'd:
Code: TIA/EIA-222-F	Date: 01/10/08	Scale: NTS
Path: H:\2007\2725_Trumbull II\Structures\RISA\LC1\873128.er		Dwg No. E-1

RISATower	Job	Page
Tower Engineering Professionals 3703 Junction Boulevard Raleigh, NC 27603 Phone: (919) 661-6351 FAX: (919) 661-6350	BU# 873128 "Trumbull"	2 of 65
	Project: TEP# 072725	Date: 11:08:39 01/10/08
	Client: Crown Castle	Designed by: Matt Lackey, E.I.

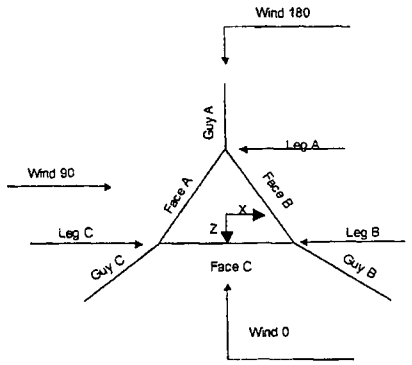
Tower Input Data

The main tower is a 3x guyed tower with an overall height of 490' above the ground line.
The base of the tower is set at an elevation of 0' above the ground line.
The face width of the tower is 6' at the top and tapered at the base.
An index plate is provided at the 3x guyed -tower connection.
There is a pole section.
This tower is designed using the TIA/EIA-222-F standard.
The following design criteria apply:

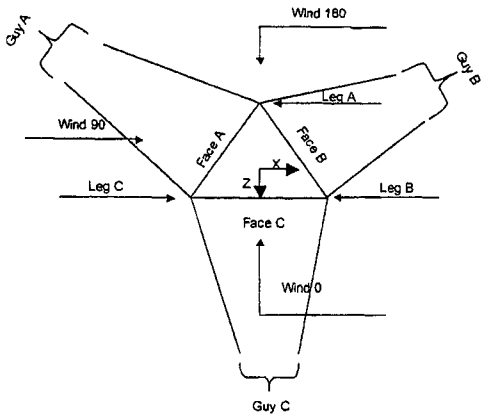
Tower is located in Fairfield County, Connecticut.
Basic wind speed of 85 mph.
Nominal ice thickness of 0.5000 in.
Ice density of 56 pcf.
A wind speed of 74 mph is used in combination with ice.
Temperature drop of 50 °F.
Deflections calculated using a wind speed of 50 mph.
Pressures are calculated at each section.
Stress ratio used in pole design is 1.0664.
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, feedline supports, and appurtenance mounts are not considered.

Options

Consider Moments - Legs	Distribute Leg Loads As Uniform	Treat Feedline Bundles As Cylinder
Consider Moments - Horizontals	Assume Legs Pinned	Use ASCE 10 X-Brace Ly Rules
Consider Moments - Diagonals	Assume Rigid Index Plate	√ Calculate Redundant Bracing Forces
Use Moment Magnification	√ Use Clear Spans For Wind Area	Ignore Redundant Members in FEA
√ Use Code Stress Ratios	√ Use Clear Spans For KL/r	SR Leg Bolts Resist Compression
√ Use Code Safety Factors - Guys	√ Retension Guys To Initial Tension	All Leg Panels Have Same Allowable
Escalate Ice	Bypass Mast Stability Checks	Offset Girt At Foundation
Always Use Max Kz	√ Use Azimuth Dish Coefficients	√ Consider Feedline Torque
Use Special Wind Profile	√ Project Wind Area of Appurt.	Include Angle Block Shear Check
√ Include Bolts In Member Capacity	√ Autocalc Torque Arm Areas	Poles
Leg Bolts Are At Top Of Section	SR Members Have Cut Ends	Include Shear-Torsion Interaction
√ Secondary Horizontal Braces Leg	√ Sort Capacity Reports By Component	Always Use Sub-Critical Flow
Use Diamond Inner Bracing (4 Sided)	√ Triangulate Diamond Inner Bracing	Use Top Mounted Sockets
Add IBC .6D+W Combination		



Corner & Starmount Guyed Tower



Face Guyed

Pole Section Geometry

Section	Elevation	Section Length	Pole Size	Pole Grade	Socket Length
	ft	ft			ft
L1	490'-457'	33'	dielectric TFU-20JDAS	A53-B-35 (35 ksi)	

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	ft²	in					in	in
L1 490'-457'				1	1	1		

Tower Section Geometry

Tower Section	Tower Elevation	Assembly Database	Description	Section Width	Number of Sections	Section Length
	ft			ft		ft
T1	457'-436'			6'	1	21'
T2	436'-421'			6'	1	15'
T3	421'-401'			6'	1	20'
T4	401'-381'			6'	1	20'
T5	381'-361'			6'	1	20'
T6	361'-341'			6'	1	20'
T7	341'-321'			6'	1	20'
T8	321'-301'			6'	1	20'
T9	301'-281'			6'	1	20'
T10	281'-261'			6'	1	20'
T11	261'-241'			6'	1	20'
T12	241'-221'			6'	1	20'
T13	221'-201'			6'	1	20'
T14	201'-181'			6'	1	20'
T15	181'-161'			6'	1	20'
T16	161'-141'			6'	1	20'
T17	141'-121'			6'	1	20'
T18	121'-101'			6'	1	20'
T19	101'-81'			6'	1	20'
T20	81'-61'			6'	1	20'
T21	61'-41'			6'	1	20'
T22	41'-20'			6'	1	21'
T23	20'-6'8-17/32"			6'	1	13'3-15/32"
T24	6'8-17/32"-0'			2'6-31/32"	1	6'8-17/32"

Tower Section Geometry *(cont'd)*

Tower Section	Tower Elevation	Diagonal Spacing	Bracing Type	Has K Brace End Panels	Has Horizontals	Top Girt Offset	Bottom Girt Offset
	ft	ft				in	in
T1	457'-436'	5'3"	X Brace	No	Yes	0.0000	0.0000
T2	436'-421'	3'9"	X Brace	No	Yes	0.0000	0.0000
T3	421'-401'	5'	X Brace	No	Yes	0.0000	0.0000
T4	401'-381'	5'	X Brace	No	Yes	0.0000	0.0000
T5	381'-361'	5'	X Brace	No	Yes	0.0000	0.0000
T6	361'-341'	5'	X Brace	No	Yes	0.0000	0.0000
T7	341'-321'	5'	X Brace	No	Yes	0.0000	0.0000
T8	321'-301'	5'	X Brace	No	Yes	0.0000	0.0000
T9	301'-281'	5'	X Brace	No	Yes	0.0000	0.0000
T10	281'-261'	5'	X Brace	No	Yes	0.0000	0.0000
T11	261'-241'	5'	X Brace	No	Yes	0.0000	0.0000
T12	241'-221'	5'	X Brace	No	Yes	0.0000	0.0000
T13	221'-201'	5'	X Brace	No	Yes	0.0000	0.0000
T14	201'-181'	5'	X Brace	No	Yes	0.0000	0.0000
T15	181'-161'	5'	X Brace	No	Yes	0.0000	0.0000
T16	161'-141'	5'	X Brace	No	Yes	0.0000	0.0000
T17	141'-121'	5'	X Brace	No	Yes	0.0000	0.0000
T18	121'-101'	5'	X Brace	No	Yes	0.0000	0.0000
T19	101'-81'	5'	X Brace	No	Yes	0.0000	0.0000
T20	81'-61'	5'	X Brace	No	Yes	0.0000	0.0000
T21	61'-41'	5'	X Brace	No	Yes	0.0000	0.0000
T22	41'-20'	5'3"	X Brace	No	Yes	0.0000	0.0000
T23	20'-6'8-17/32"	4'5-5/32"	X Brace	No	Yes	0.0000	0.0000

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
T24	6'8-17/32"-0'	2'2-7/8"	X Brace	No	Yes	0.0000	0.0000

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Leg Type	Leg Size	Leg Grade	Diagonal Type	Diagonal Size	Diagonal Grade
T1 457'-436'	Solid Round	3	A572-50 (50 ksi)	Single Angle	L2 1/2x2x3/16	A36 (36 ksi)
T2 436'-421'	Solid Round	2 3/4	A572-50 (50 ksi)	Single Angle	L2 1/2x2x3/16	A36 (36 ksi)
T3 421'-401'	Solid Round	2 3/4	A572-50 (50 ksi)	Single Angle	L2 1/2x2x3/16	A36 (36 ksi)
T4 401'-381'	Arbitrary Shape	3.5" S.R. w/ 3.5 SCH40 Half Pipe	A572-50 (50 ksi)	Single Angle	L2 1/2x2x3/16	A36 (36 ksi)
T5 381'-361'	Arbitrary Shape	3" S.R. w/ 3 SCH 40 Half Pipe and 3.75 x 5/16 Half Pipe	A572-50 (50 ksi)	Single Angle	L2 1/2x2x3/16	A36 (36 ksi)
T6 361'-341'	Solid Round	3	A572-50 (50 ksi)	Single Angle	L2 1/2x2x3/16	A36 (36 ksi)
T7 341'-321'	Solid Round	3	A572-50 (50 ksi)	Single Angle	L2 1/2x2x3/16	A36 (36 ksi)
T8 321'-301'	Solid Round	3	A572-50 (50 ksi)	Single Angle	L2 1/2x2x3/16	A36 (36 ksi)
T9 301'-281'	Solid Round	3	A572-50 (50 ksi)	Single Angle	L2 1/2x2x3/16	A36 (36 ksi)
T10 281'-261'	Solid Round	3	A572-50 (50 ksi)	Single Angle	L1 1/2x1 1/2x1/4	A36 (36 ksi)
T11 261'-241'	Solid Round	3	A572-50 (50 ksi)	Single Angle	L3x3x1/4	A36 (36 ksi)
T12 241'-221'	Solid Round	3	A572-50 (50 ksi)	Single Angle	L3x3x1/4	A36 (36 ksi)
T13 221'-201'	Solid Round	3 1/4	A572-50 (50 ksi)	Single Angle	L2 1/2x2x3/16	A36 (36 ksi)
T14 201'-181'	Solid Round	3 1/4	A572-50 (50 ksi)	Single Angle	L2 1/2x2x3/16	A36 (36 ksi)
T15 181'-161'	Solid Round	3 1/4	A572-50 (50 ksi)	Single Angle	L2 1/2x2x3/16	A36 (36 ksi)
T16 161'-141'	Solid Round	3 1/2	A572-50 (50 ksi)	Single Angle	L3x3x1/4	A36 (36 ksi)
T17 141'-121'	Solid Round	3 1/2	A572-50 (50 ksi)	Single Angle	L3x3x1/4	A36 (36 ksi)
T18 121'-101'	Solid Round	3 1/2	A572-50 (50 ksi)	Single Angle	L2 1/2x2x3/16	A36 (36 ksi)
T19 101'-81'	Solid Round	3 1/2	A572-50 (50 ksi)	Single Angle	L2 1/2x2x3/16	A36 (36 ksi)
T20 81'-61'	Solid Round	3 1/2	A572-50 (50 ksi)	Single Angle	L2 1/2x2x3/16	A36 (36 ksi)
T21 61'-41'	Solid Round	3 1/2	A572-50 (50 ksi)	Single Angle	L2 1/2x2x3/16	A36 (36 ksi)
T22 41'-20'	Solid Round	3 1/2	A572-50 (50 ksi)	Single Angle	L2 1/2x2x3/16	A36 (36 ksi)
T23 20'-6'8-17/32"	Solid Round	3 1/4	A572-50 (50 ksi)	Single Angle	L2x2x3/16	A36 (36 ksi)
T24 6'8-17/32"-0'	Solid Round	3 1/4	A572-50 (50 ksi)	Single Angle	L2x2x3/16	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 457'-436'	Single Angle	L2 1/2x2x3/16	A36 (36 ksi)	Single Angle	L2 1/2x2x3/16	A36 (36 ksi)
T2 436'-421'	Single Angle	L2 1/2x2x3/16	A36 (36 ksi)	Single Angle	L2 1/2x2x3/16	A36 (36 ksi)
T3 421'-401'	Single Angle	L2 1/2x2x1/4	A36 (36 ksi)	Single Angle	L2 1/2x2x1/4	A36 (36 ksi)
T4 401'-381'	Single Angle	L2 1/2x2x1/4	A36 (36 ksi)	Single Angle	L2 1/2x2x1/4	A36 (36 ksi)
T5 381'-361'	Double Angle	2L3x2x1/4	A36 (36 ksi)	Single Angle	L2 1/2x2x1/4	A36 (36 ksi)
T6 361'-341'	Single Angle	L2 1/2x2x1/4	A36 (36 ksi)	Single Angle	L2 1/2x2x1/4	A36 (36 ksi)
T7 341'-321'	Single Angle	L2 1/2x2x1/4	A36 (36 ksi)	Single Angle	L2 1/2x2x1/4	A36 (36 ksi)
T8 321'-301'	Single Angle	L2 1/2x2x1/4	A36 (36 ksi)	Single Angle	L2 1/2x2x1/4	A36 (36 ksi)
T9 301'-281'	Single Angle	L2 1/2x2x3/16	A36 (36 ksi)	Single Angle	L2 1/2x2x3/16	A36 (36 ksi)
T10 281'-261'	Single Angle	L2 1/2x2x1/4	A36 (36 ksi)	Single Angle	L2 1/2x2x1/4	A36 (36 ksi)
T11 261'-241'	Double Angle	2L3 1/2x3 1/2x3/8	A36 (36 ksi)	Double Angle	2L3 1/2x3 1/2x3/8	A36 (36 ksi)
T12 241'-221'	Single Angle	L2 1/2x2x3/16	A36 (36 ksi)	Single Angle	L2 1/2x2x3/16	A36 (36 ksi)
T13 221'-201'	Single Angle	L2 1/2x2x3/16	A36 (36 ksi)	Single Angle	L2 1/2x2x3/16	A36 (36 ksi)
T14 201'-181'	Single Angle	L2 1/2x2x3/16	A36 (36 ksi)	Single Angle	L2 1/2x2x3/16	A36 (36 ksi)
T15 181'-161'	Single Angle	L2 1/2x2x3/16	A36 (36 ksi)	Single Angle	L2 1/2x2x3/16	A36 (36 ksi)
T16 161'-141'	Single Angle	L2 1/2x2x3/16	A36 (36 ksi)	Single Angle	L2 1/2x2x3/16	A36 (36 ksi)
T17 141'-121'	Single Angle	L2 1/2x2x3/16	A36 (36 ksi)	Single Angle	L2 1/2x2x3/16	A36 (36 ksi)
T18 121'-101'	Single Angle	L2 1/2x2x3/16	A36 (36 ksi)	Single Angle	L2 1/2x2x3/16	A36 (36 ksi)
T19 101'-81'	Single Angle	L2 1/2x2x3/16	A36 (36 ksi)	Single Angle	L2 1/2x2x3/16	A36 (36 ksi)
T20 81'-61'	Single Angle	L2 1/2x2x3/16	A36 (36 ksi)	Single Angle	L2 1/2x2x3/16	A36 (36 ksi)
T21 61'-41'	Single Angle	L2 1/2x2x3/16	A36 (36 ksi)	Single Angle	L2 1/2x2x3/16	A36 (36 ksi)
T22 41'-20'	Single Angle	L2 1/2x2x3/16	A36 (36 ksi)	Single Angle	L2 1/2x2x3/16	A36 (36 ksi)
T23 20'-6'8-17/32"	Single Angle	L3x2x3/16	A36 (36 ksi)	Single Angle		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
T1 457'-436'	1	Single Angle	L2 1/2x2x3/16	A36 (36 ksi)	Solid Round		A36 (36 ksi)
T2 436'-421'	1	Single Angle	L2 1/2x2x3/16	A36 (36 ksi)	Solid Round		A36 (36 ksi)
T3 421'-401'	1	Single Angle	L2 1/2x2x1/4	A36 (36 ksi)	Solid Round		A36 (36 ksi)
T4 401'-381'	1	Single Angle	L2 1/2x2x1/4	A36 (36 ksi)	Solid Round		A36 (36 ksi)
T5 381'-361'	1	Single Angle	L2 1/2x2x1/4	A36 (36 ksi)	Solid Round		A36 (36 ksi)
T6 361'-341'	1	Single Angle	L2 1/2x2x1/4	A36 (36 ksi)	Single Angle		A36 (36 ksi)
T7 341'-321'	1	Single Angle	L2 1/2x2x1/4	A36 (36 ksi)	Solid Round		A36 (36 ksi)
T8 321'-301'	1	Single Angle	L2 1/2x2x1/4	A36 (36 ksi)	Solid Round		A36 (36 ksi)
T9 301'-281'	1	Single Angle	L2 1/2x2x3/16	A36 (36 ksi)	Solid Round		A36 (36 ksi)
T10 281'-261'	1	Single Angle	L2 1/2x2x1/4	A36 (36 ksi)	Single Angle		A36 (36 ksi)
T11 261'-241'	1	Double Angle	2L3 1/2x3 1/2x3/8	A36 (36 ksi)	Single Angle		A36 (36 ksi)
T12 241'-221'	1	Single Angle	L2 1/2x2x3/16	A36 (36 ksi)	Single Angle		A36 (36 ksi)
T13 221'-201'	1	Single Angle	L2 1/2x2x3/16	A36 (36 ksi)	Single Angle		A36 (36 ksi)
T14 201'-181'	1	Single Angle	L2 1/2x2x3/16	A36 (36 ksi)	Single Angle		A36 (36 ksi)
T15 181'-161'	1	Single Angle	L2 1/2x2x3/16	A36 (36 ksi)	Single Angle		A36 (36 ksi)
T16 161'-141'	1	Single Angle	L2 1/2x2x3/16	A36 (36 ksi)	Single Angle		A36 (36 ksi)
T17 141'-121'	1	Single Angle	L2 1/2x2x3/16	A36 (36 ksi)	Single Angle		A36 (36 ksi)
T18 121'-101'	1	Single Angle	L2 1/2x2x3/16	A36 (36 ksi)	Single Angle		A36 (36 ksi)
T19 101'-81'	1	Single Angle	L2 1/2x2x3/16	A36 (36 ksi)	Single Angle		A36 (36 ksi)
T20 81'-61'	1	Single Angle	L2 1/2x2x3/16	A36 (36 ksi)	Single Angle		A36 (36 ksi)
T21 61'-41'	1	Single Angle	L2 1/2x2x3/16	A36 (36 ksi)	Single Angle		A36 (36 ksi)
T22 41'-20'	1	Single Angle	L2 1/2x2x3/16	A36 (36 ksi)	Single Angle		A36 (36 ksi)

Tower Section Geometry (cont'd)

Tower Elevation ft	Gusset Area (per face) ft²	Gusset Thickness in	Gusset Grade	Adjust. Factor A_f	Adjust. Factor A_s	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in
T1 457'-436'	0.00	0.0000	A36 (36 ksi)	1	1	1	0.0000	0.0000
T2 436'-421'	0.00	0.0000	A36	1	1	1	0.0000	0.0000

Tower Elevation ft	Gusset Area (per face) ft²	Gusset Thickness in	Gusset Grade	Adjust. Factor A_f	Adjust. Factor A_s	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in
T3 421'-401'	0.00	0.0000	A36 (36 ksi)	1	1	1	0.0000	0.0000
T4 401'-381'	0.00	0.0000	A36 (36 ksi)	1	1	1	0.0000	0.0000
T5 381'-361'	0.00	0.0000	A36 (36 ksi)	1	1	1	0.0000	0.0000
T6 361'-341'	0.00	0.0000	A36 (36 ksi)	1	1	1	0.0000	0.0000
T7 341'-321'	0.00	0.0000	A36 (36 ksi)	1	1	1	0.0000	0.0000
T8 321'-301'	0.00	0.0000	A36 (36 ksi)	1	1	1	0.0000	0.0000
T9 301'-281'	0.00	0.0000	A36 (36 ksi)	1	1	1	0.0000	0.0000
T10 281'-261'	0.00	0.0000	A36 (36 ksi)	1	1	1	0.0000	0.0000
T11 261'-241'	0.00	0.0000	A36 (36 ksi)	1	1	1	0.0000	0.0000
T12 241'-221'	0.00	0.0000	A36 (36 ksi)	1	1	1	0.0000	0.0000
T13 221'-201'	0.00	0.0000	A36 (36 ksi)	1	1	1	0.0000	0.0000
T14 201'-181'	0.00	0.0000	A36 (36 ksi)	1	1	1	0.0000	0.0000
T15 181'-161'	0.00	0.0000	A36 (36 ksi)	1	1	1	0.0000	0.0000
T16 161'-141'	0.00	0.0000	A36 (36 ksi)	1	1	1	0.0000	0.0000
T17 141'-121'	0.00	0.0000	A36 (36 ksi)	1	1	1	0.0000	0.0000
T18 121'-101'	0.00	0.0000	A36 (36 ksi)	1	1	1	0.0000	0.0000
T19 101'-81'	0.00	0.0000	A36 (36 ksi)	1	1	1	0.0000	0.0000
T20 81'-61'	0.00	0.0000	A36 (36 ksi)	1	1	1	0.0000	0.0000
T21 61'-41'	0.00	0.0000	A36 (36 ksi)	1	1	1	0.0000	0.0000
T22 41'-20'	0.00	0.0000	A36 (36 ksi)	1	1	1	0.0000	0.0000
T23 20'-6'8-17/32"	0.00	0.0000	A36 (36 ksi)	1	1	1	0.0000	0.0000
T24 6'8-17/32"-0'	0.00	0.0000	A36 (36 ksi)	1	1	1	0.0000	0.0000

Tower Section Geometry (cont'd)

Tower Elevation ft	Calc K Single Angles	Calc K Solid Rounds	K Factors: 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
T1 457'-436'	Yes	Yes	1	1 / 1	1 / 1	1 / 1	1 / 1	1 / 1	1 / 1	1 / 1

Tower Elevation ft	Calc K Single Angles	Calc K Solid Rounds	Legs	K Factors[1] X Brace Diags X	X Y	K Brace Diags X	X Y	Single Diags X	X Y	Girts X	X Y	Horiz. X	X Y	Sec. Horiz. X	X Y	Inner Brace X	X Y
T2 436'-421'	Yes	Yes	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
T3 421'-401'	Yes	Yes	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
T4 401'-381'	Yes	Yes	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
T5 381'-361'	Yes	Yes	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
T6 361'-341'	Yes	Yes	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
T7 341'-321'	Yes	Yes	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
T8 321'-301'	Yes	Yes	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
T9 301'-281'	Yes	Yes	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
T10 281'-261'	Yes	Yes	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
T11 261'-241'	Yes	Yes	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
T12 241'-221'	Yes	Yes	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
T13 221'-201'	Yes	Yes	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
T14 201'-181'	Yes	Yes	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
T15 181'-161'	Yes	Yes	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
T16 161'-141'	Yes	Yes	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
T17 141'-121'	Yes	Yes	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
T18 121'-101'	Yes	Yes	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
T19 101'-81'	Yes	Yes	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
T20 81'-61'	Yes	Yes	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
T21 61'-41'	Yes	Yes	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
T22 41'-20'	Yes	Yes	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
T23 20'-6'8-17/32"	Yes	Yes	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
T24 6'8-17/32"-0'	Yes	Yes	1	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 Net Width Deduct in	U	Diagonal Net Width Deduct in	U	Top Girt Net Width Deduct in	U	Bottom Girt Net Width Deduct in	U	Mid Girt Net Width Deduct in	U	Long Horizontal Net Width Deduct in	U	Short Horizontal Net Width Deduct in	U
T1 457'-436'	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 436'-421'	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 421'-401'	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 401'-381'	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 381'-361'	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 361'-341'	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 341'-321'	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 321'-301'	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 301'-281'	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 281'-261'	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
T11 261'-241'	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
T12 241'-221'	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
T13 221'-201'	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
T14 201'-181'	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
T15 181'-161'	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
T16 161'-141'	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
T17 141'-121'	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
T18 121'-101'	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
T19 101'-81'	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
T20 81'-61'	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
T21 61'-41'	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
T22 41'-20'	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
T23 20'-6'8-17/32"	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
T24 6'8-17/32"-0'	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 Bolt Size in	No.	Diagonal Bolt Size in	No.	Top Girt Bolt Size in	No.	Bottom Girt Bolt Size in	No.	Mid Girt Bolt Size in	No.	Long Horizontal Bolt Size in	No	Short Horizontal Bolt Size in	No
T1 457'-436'	Flange	0.8750 A325N	8	0.5000 A325N	2	0.5000 A325N	2	0.5000 A325N	2	0.5000 A325N	2	0.0000 A325N	0	0.0000 A325N	0
T2 436'-421'	Flange	0.8750 A325N	8	0.5000 A325N	2	0.5000 A325N	2	0.5000 A325N	2	0.5000 A325N	2	0.0000 A325N	0	0.0000 A325N	0
T3 421'-401'	Flange	0.8750 A325N	8	0.5000 A325N	2	0.5000 A325N	2	0.5000 A325N	2	0.5000 A325N	2	0.0000 A325N	0	0.0000 A325N	0
T4 401'-381'	Flange	0.8750 A325N	8	0.5000 A325N	2	0.5000 A325N	2	0.5000 A325N	2	0.5000 A325N	2	0.0000 A325N	0	0.0000 A325N	0
T5 381'-361'	Flange	0.8750 A325N	8	0.5000 A325N	2	0.5000 A325N	2	0.5000 A325N	2	0.5000 A325N	2	0.0000 A325N	0	0.0000 A325N	0
T6 361'-341'	Flange	0.8750 A325N	8	0.5000 A325N	2	0.5000 A325N	2	0.5000 A325N	2	0.5000 A325N	2	0.0000 A325N	0	0.0000 A325N	0
T7 341'-321'	Flange	0.8750 A325N	8	0.5000 A325N	2	0.5000 A325N	2	0.5000 A325N	2	0.5000 A325N	2	0.0000 A325N	0	0.0000 A325N	0
T8 321'-301'	Flange	0.8750 A325N	8	0.5000 A325N	2	0.5000 A325N	2	0.5000 A325N	2	0.5000 A325N	2	0.0000 A325N	0	0.0000 A325N	0
T9 301'-281'	Flange	0.8750 A325N	8	0.5000 A325N	2	0.5000 A325N	2	0.5000 A325N	2	0.5000 A325N	2	0.0000 A325N	0	0.0000 A325N	0

Tower Elevation ft	Leg Connection Type	Leg Bolt Size in	Leg No.	Diagonal Bolt Size in	Diagonal No.	Top Girt Bolt Size in	Top Girt No.	Bottom Girt Bolt Size in	Bottom Girt No.	Mid Girt Bolt Size in	Mid Girt No.	Long Horizontal Bolt Size in	Long Horizontal No.	Short Horizontal Bolt Size in	Short Horizontal No.
T10 281'-261'	Flange	0.8750 A325N	8	0.5000 A325N	2	0.5000 A325N	2	0.5000 A325N	2	0.5000 A325N	2	0.0000 A325N	0	0.0000 A325N	0
T11 261'-241'	Flange	0.8750 A325N	8	0.5000 A325N	2	0.5000 A325N	2	0.5000 A325N	2	0.5000 A325N	2	0.0000 A325N	0	0.0000 A325N	0
T12 241'-221'	Flange	0.8750 A325N	8	0.5000 A325N	2	0.5000 A325N	2	0.5000 A325N	2	0.5000 A325N	2	0.0000 A325N	0	0.0000 A325N	0
T13 221'-201'	Flange	0.8750 A325N	8	0.5000 A325N	2	0.5000 A325N	2	0.5000 A325N	2	0.5000 A325N	2	0.0000 A325N	0	0.0000 A325N	0
T14 201'-181'	Flange	0.8750 A325N	8	0.5000 A325N	2	0.5000 A325N	2	0.5000 A325N	2	0.5000 A325N	2	0.0000 A325N	0	0.0000 A325N	0
T15 181'-161'	Flange	0.8750 A325N	8	0.5000 A325N	2	0.5000 A325N	2	0.5000 A325N	2	0.5000 A325N	2	0.0000 A325N	0	0.0000 A325N	0
T16 161'-141'	Flange	0.8750 A325N	8	0.5000 A325N	2	0.5000 A325N	2	0.5000 A325N	2	0.5000 A325N	2	0.0000 A325N	0	0.0000 A325N	0
T17 141'-121'	Flange	0.8750 A325N	8	0.5000 A325N	2	0.5000 A325N	2	0.5000 A325N	2	0.5000 A325N	2	0.0000 A325N	0	0.0000 A325N	0
T18 121'-101'	Flange	0.8750 A325N	8	0.5000 A325N	2	0.5000 A325N	2	0.5000 A325N	2	0.5000 A325N	2	0.0000 A325N	0	0.0000 A325N	0
T19 101'-81'	Flange	0.8750 A325N	8	0.5000 A325N	2	0.5000 A325N	2	0.5000 A325N	2	0.5000 A325N	2	0.0000 A325N	0	0.0000 A325N	0
T20 81'-61'	Flange	0.8750 A325N	8	0.5000 A325N	2	0.5000 A325N	2	0.5000 A325N	2	0.5000 A325N	2	0.0000 A325N	0	0.0000 A325N	0
T21 61'-41'	Flange	0.8750 A325N	8	0.5000 A325N	2	0.5000 A325N	2	0.5000 A325N	2	0.5000 A325N	2	0.0000 A325N	0	0.0000 A325N	0
T22 41'-20'	Flange	0.8750 A325N	8	0.5000 A325N	2	0.5000 A325N	2	0.5000 A325N	2	0.5000 A325N	2	0.0000 A325N	0	0.0000 A325N	0
T23 20'-6'8-17/32"	Flange	0.8750 A325N	8	0.5000 A325N	2	0.5000 A325N	2	0.5000 A325N	2	0.5000 A325N	2	0.0000 A325N	0	0.0000 A325N	0
T24 6'8-17/32"-0'	Flange	0.0000 A325N	0	0.5000 A325N	2	0.5000 A325N	2	0.5000 A325N	2	0.5000 A325N	2	0.0000 A325N	0	0.0000 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 %
131	BS	A	3/4	6800.00	10%	24000	1.180	426'1-3/32"	403'	0.0000	-20'	100%
		B	3/4	6800.00	10%	24000	1.180	426'6-27/32"	407'6"	0.0000	-9'	100%
		C	3/4	6800.00	10%	24000	1.180	445'1-3/32"	424'6"	0.0000	-16'6"	100%
251	BS	A	1 1/4	19200.00	10%	24000	3.280	484'1-3/16"	405'	0.0000	-20'	100%
		B	1 1/4	19200.00	10%	24000	3.280	471'27/32"	394'	0.0000	-13'	100%
		C	1 1/4	19200.00	10%	24000	3.280	489'4-5/16"	411'	0.0000	-20'6"	100%
381	BS	A	1 3/8	23200.00	10%	24000	3.970	567'31/32"	405'	0.0000	-20'	100%
		B	1 3/8	23200.00	10%	24000	3.970	554'4-5/16"	394'	0.0000	-13'	100%
		C	1 3/8	23200.00	10%	24000	3.970	571'8-9/32"	411'	0.0000	-20'6"	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
131	Torque Arm	15'	37.1000	But Ear	A36 (36 ksi)	Double Angle	2L3x3x3/16
251	Corner						
381	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
131'	A572-50 (50 ksi)	Solid Round				A572-50 (50 ksi)	Solid Round	
251'	A572-50 (50 ksi)	Solid Round				A572-50 (50 ksi)	Solid Round	
381'	A572-50 (50 ksi)	Solid Round				A572-50 (50 ksi)	Solid Round	

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
131	502.79	503.36	525.20		15'6-27/32" 6.8 sec/pulse	15'7-7/16" 6.8 sec/pulse	16'11-7/8" 7.1 sec/pulse	
251	1587.84	1545.10	1605.10		19'7-3/32" 7.6 sec/pulse	18'6-23/32" 7.4 sec/pulse	20'1/4" 7.7 sec/pulse	
381	2251.31	2200.82	2269.62		26'7-11/16" 8.9 sec/pulse	25'5-5/8" 8.7 sec/pulse	27'27/32" 9.0 sec/pulse	

Guy Data (cont'd)

Guy Elevation ft	Calc K Single Angles	Calc K Solid Rounds	Torque Arm K_x	Torque Arm K_z	Pull Off K_x	Pull Off K_z	Diagonal K_x	Diagonal K_z
131	Yes	Yes	1	1	1	1	1	1
251	No	No			1	1	1	1
381	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
131	0.7500 A325N	8	0.0000	1	0.6250 A325N	0	0.0000	0.75	0.6250 A325N	0	0.0000	0.75
251	0.0000 A325N	0	0.0000	1	0.6250 A325N	0	0.0000	0.75	0.6250 A325N	0	0.0000	0.75
381	0.0000 A325N	0	0.0000	1	0.6250 A325N	0	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
131	A	55'6"	21	16	0.5000
	B	61'	22	17	0.5000
	C	57'3"	22	16	0.5000
251	A	115'6"	26	20	0.5000
	B	119'	27	20	0.5000
	C	115'3"	26	20	0.5000
381	A	180'6"	30	23	0.5000
	B	184'	30	23	0.5000
	C	180'3"	30	23	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
LDF5-50A (7/8 FOAM) (TX # 1)	B	Yes	Ar (CfAc)	439' - 14'	0.0000	-0.45	1	1	1.0900	1.0900		0.33
LDF7-50A (1-5/8 FOAM) (TX # 9)	B	Yes	Ar (CfAc)	354' - 14'	0.0000	-0.05	1	1	1.9800	1.9800		0.82
EW52 (TX # 10)	B	Yes	Ar (CfAc)	146' - 14'	0.0000	-0.15	1	1	1.7426	1.7426	5.5505	0.59
LDF6-50A (1-1/4 FOAM) (TX # 11)	B	Yes	Ar (CfAc)	346' - 14'	0.0000	-0.05	1	1	1.5500	1.5500		0.66
LDF5-50A (7/8 FOAM) (TX # 12)	B	Yes	Ar (CfAc)	330' - 14'	0.0000	0.1	1	1	1.0900	1.0900		0.33
LDF5-50A (7/8 FOAM) (TX # 13)	B	Yes	Ar (CfAc)	184'6" - 14'	0.0000	0.15	1	1	1.0900	1.0900		0.33
LDF7-50A (1-5/8 FOAM) (TX # 14)	B	Yes	Ar (CfAc)	372' - 14'	0.0000	0.2	1	1	1.9800	1.9800		0.82
HJ8-50B (3 AIR) (TX # 15)	B	Yes	Ar (CfAc)	410' - 14'	0.0000	0.25	1	1	3.0100	3.0100		1.78
LDF7-50A (1-5/8 FOAM)	B	Yes	Ar (CfAc)	267' - 14'	0.0000	0.3	1	1	1.9800	1.9800		0.82

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
(TX # 16) LDF7-50A (1-5/8 FOAM) - Ice Weight Only	B	Yes	Ar (CfAc)	76' - 14'	0.0000	0.4	1	1	1.9800	1.9800		0.82
(TX # 17) LDF7-50A (1-5/8 FOAM)	B	Yes	Ar (CfAc)	278' - 14'	0.0000	0.4	1	1	1.9800	1.9800		0.82
(TX # 18) LDF7-50A (1-5/8 FOAM)	B	Yes	Ar (CfAc)	400' - 14'	0.0000	0.475	1	1	1.9800	1.9800		0.82
(TX # 19) LDF5-50A (7/8 FOAM) - Ice Weight Only	B	Yes	Ar (CfAc)	400' - 14'	0.0000	0.475	1	1	0.2500	0.0000		0.33
(TX # 20) LDF5-50A (7/8 FOAM)	B	Yes	Ar (CfAc)	445' - 400'	0.0000	0.475	1	1	1.0900	1.0900		0.33
(TX # 20) LDF5-50A (7/8 FOAM)	B	No	Ar (Leg)	204'6" - 14'	0.0000	0	1	1	1.0900	1.0900		0.33
(TX # 21) CR 50 1070PE (7/8 FOAM)	B	No	Ar (Leg)	154' - 14'	0.0000	0	1	1	1.1700	1.1700		0.28
(TX # 22) LDF1-50A (1/4 FOAM)	B	No	Ar (Leg)	63' - 14'	0.0000	0	1	1	0.3500	0.3500		0.06
(TX # 23) LDF1-50A (1/4 FOAM)	B	No	Ar (Leg)	67' - 14'	0.0000	0	1	1	0.3500	0.3500		0.06
(TX # 24) LDF5-50A (7/8 FOAM)	C	Yes	Ar (CfAc)	111' - 14'	0.0000	-0.45	1	1	1.0900	1.0900		0.33
(TX # 25) LDF5-50A (7/8 FOAM)	C	Yes	Ar (CfAc)	343' - 14'	0.0000	-0.425	1	1	1.0900	1.0900		0.33
(TX # 26) LDF7-50A (1-5/8 FOAM)	C	Yes	Ar (CfAc)	400' - 14'	0.0000	-0.3	1	1	1.9800	1.9800		0.82
(TX # 27) LDF7-50A (1-5/8 FOAM)	C	Yes	Ar (CfAc)	347'6" - 14'	0.0000	0.25	1	1	1.9800	1.9800		0.82
(TX # 29) LDF6-50A (1-1/4 FOAM)	C	Yes	Ar (CfAc)	260' - 14'	0.0000	0.375	1	1	1.5500	1.5500		0.66
(TX # 30) LDF6-50A (1-1/4 FOAM)	C	Yes	Ar (CfAc)	285' - 14'	0.0000	0.35	1	1	1.5500	1.5500		0.66
(TX # 31) LDF6-50A (1-1/4 FOAM)	C	Yes	Ar (CfAc)	269' - 14'	0.0000	0.325	1	1	1.5500	1.5500		0.66
(TX # 32) LDF5-50A (7/8 FOAM)	C	Yes	Ar (CfAc)	107' - 14'	0.0000	0.45	1	1	1.0900	1.0900		0.33
(TX # 36) LDF5-50A (7/8 FOAM)	C	Yes	Ar (CfAc)	117'6" - 14'	0.0000	0.45	1	1	1.0900	1.0900		0.33
(TX # 37) LDF5-50A (7/8 FOAM)	C	Yes	Ar (CfAc)	133' - 14'	0.0000	0.45	1	1	1.0900	1.0900		0.33

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Face Offset in	Lateral Offset (From FW)	#	# Per Row	Clear Spacing in	Width or Diameter in	Perimeter in	Weight plf
(TX # 38)												
LDF7-50A (1-5/8 FOAM) (T-Mobile (SLA))	A	Yes	Ar (CfAe)	247' - 14'	0.0000	0.2	24	12	0.2500	1.9800		0.82
LDF6-50A (1-1/4 FOAM) (TX # 46)	A	No	Ar (Leg)	326' - 14'	0.0000	0.15	1	1	1.5500	1.5500		0.66
8240 (3/8 POLYETHYLENE) (TX # 47)	A	No	Ar (Leg)	112' - 14'	0.0000	0.1	1	1	0.2700	0.2700		0.04
8240 (3/8 POLYETHYLENE) (TX # 48)	A	No	Ar (Leg)	211' - 14'	0.0000	0.1	1	1	0.2700	0.2700		0.04
LDF7-50A (1-5/8 FOAM) (TX # 49)	B	Yes	Ar (CfAe)	400' - 14'	-3.0000	0.1	1	1	1.9800	1.9800		0.82
LDF5-50A (7/8 FOAM) (TX # 50)	B	Yes	Ar (CfAe)	214' - 14'	-1.0000	0.425	1	1	1.0900	1.0900		0.33
STD350-1 (3-1/8 AIR) (TX # 54)	C	Yes	Ar (CfAe)	365' - 14'	-6.0000	-0.15	1	1	3.1300	3.1300		3.00
HJ11-50 (4 AIR) (TX # 55)	C	Yes	Ar (CfAe)	457' - 14'	-5.0000	0	1	1	4.0000	4.0000		2.50
1.9" MC (TX # 60)	C	Yes	Ar (CfAe)	457' - 14'	-10.0000	0.2	1	1	1.9000	1.9000		1.00
1" Metal Conduit (TX # 61)	C	No	Ar (CfAe)	333' - 14'	-10.0000	0.15	1	1	1.0000	0.0000		1.13
LDF6-50A (1-1/4 FOAM) (TX # 62)	C	Yes	Ar (CfAe)	49' - 14'	-1.5000	0.25	1	1	1.5500	1.5500		0.66
LDF6-50A (1-1/4 FOAM) (TX # 63)	C	Yes	Ar (CfAe)	44' - 14'	-1.5000	0.225	1	1	1.5500	1.5500		0.66
**												
LDF5-50A (7/8 FOAM) (SLA (256'))	A	Yes	Ar (CfAe)	256' - 14'	0.0000	-0.3	1	1	1.0900	1.0900		0.33
LDF7-50A (1-5/8 FOAM) (SLA (285'-A leg))	A	Yes	Ar (CfAe)	285' - 14'	0.0000	-0.34	1	1	1.9800	1.9800		0.82
LDF4P-50A (1/2 FOAM) (USA Mobility (SLA))	A	Yes	Ar (CfAe)	40' - 14'	0.0000	-0.28	1	1	0.6300	0.6300		0.15
LDF7-50A (1-5/8 FOAM) (USA Mobility (SLA))	A	Yes	Ar (CfAe)	440' - 14'	0.0000	-0.38	1	1	1.9800	1.9800		0.82
LDF6-50A (1-1/4 FOAM) (USA Mobility	A	Yes	Ar (CfAe)	443' - 14'	0.0000	-0.42	1	1	1.5500	1.5500		0.66

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Face Offset in	Lateral Offset (From FW)	#	# Per Row	Clear Spacing in	Width or Diameter in	Perimeter in	Weight plf
(SLA))												
**												
**												
HJ8-50B (3 AIR) (Reserved)	C	Yes	Ar (CfAe)	299' - 14'	0.0000	-0.1	1	1	3.0100	3.0100		1.78

Feed Line/Linear Appurtenances - Entered As Area

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Face Offset in	Lateral Offset (From FW)	#		CAAa ft²/ft	Weight plf
LDF4-50A (1/2 FOAM) - Ice Weight Only (TX # 2)	B	No	CaAa (In Face)	179'6" - 14'	0.0000	-0.1	1	No Ice 1/2" Ice	0.00 0.00	0.15 0.84
LDF4-50A (1/2 FOAM) - Ice Weight Only (TX # 3)	B	No	CaAa (In Face)	322' - 14'	0.0000	-0.1	1	No Ice 1/2" Ice	0.00 0.00	0.15 0.84
LDF4-50A (1/2 FOAM) - Ice Weight Only (TX # 4-5)	B	No	CaAa (In Face)	346' - 14'	0.0000	-0.1	2	No Ice 1/2" Ice	0.00 0.00	0.15 0.84
5/16" Coax - Ice Weight Only (TX # 6)	B	No	CaAa (In Face)	100' - 14'	0.0000	-0.15	1	No Ice 1/2" Ice	0.00 0.00	0.58 0.00
LDF6-50A (1-1/4 FOAM) - Ice Weight Only (TX # 7)	B	No	CaAa (In Face)	330' - 14'	0.0000	-0.05	1	No Ice 1/2" Ice	0.00 0.00	0.66 1.91
LDF5-50A (7/8 FOAM) - Ice Weight Only (TX # 8)	B	No	CaAa (In Face)	133'6" - 14'	0.0000	-0.05	1	No Ice 1/2" Ice	0.00 0.00	0.33 1.30
LDF7-50A (1-5/8 FOAM) - Ice Weight Only (TX # 28)	C	No	CaAa (In Face)	340' - 14'	0.0000	0	1	No Ice 1/2" Ice	0.00 0.00	0.82 2.33
LDF5-50A (7/8 FOAM) - Ice Weight Only (TX # 33)	C	No	CaAa (In Face)	54' - 14'	0.0000	0.45	1	No Ice 1/2" Ice	0.00 0.00	0.33 1.30
LDF5-50A (7/8 FOAM) - Ice Weight Only (TX # 34)	C	No	CaAa (In Face)	62' - 14'	0.0000	0.45	1	No Ice 1/2" Ice	0.00 0.00	0.33 1.30
LDF5-50A	C	No	CaAa (In Face)	68' - 14'	0.0000	0.45	1	No Ice	0.00	0.33

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Face Offset in	Lateral Offset (From FW)	#		C_AA_A ft^2/ft	Weight plf
(7/8 FOAM) - Ice Weight Only (TX # 35)								1/2" Ice	0.00	1.30
LDF5-50A (7/8 FOAM) - Ice Weight Only (TX # 51)	B	No	C_AA_A (In Face)	445' - 14'	-2.0000	0.425	1	No Ice 1/2" Ice	0.00 0.00	0.33 1.30
LDF5-50A (7/8 FOAM) - Ice Weight Only (TX # 52-53)	B	No	C_AA_A (In Face)	232' - 14'	0.0000	0.05	2	No Ice 1/2" Ice	0.00 0.00	0.33 1.30
LDF5-50A (7/8 FOAM) - Ice Weight Only (TX # 56)	A	No	C_AA_A (In Face)	232' - 14'	-1.0000	-0.425	1	No Ice 1/2" Ice	0.00 0.00	0.33 1.30
LDF5-50A (7/8 FOAM) - Ice Weight Only (TX # 57-59) **	A	No	C_AA_A (In Face)	238' - 14'	-2.0000	-0.4	3	No Ice 1/2" Ice	0.00 0.00	0.33 1.30

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
L1	490'-457'	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
T1	457'-436'	A	1.564	0.000	0.000	0.000	7.90
		B	1.090	0.000	0.000	0.000	6.93
		C	10.325	0.000	0.000	0.000	73.50
T2	436'-421'	A	4.412	0.000	0.000	0.000	22.20
		B	2.725	0.000	0.000	0.000	14.85
		C	7.375	0.000	0.000	0.000	52.50
T3	421'-401'	A	5.883	0.000	0.000	0.000	29.60
		B	5.891	0.000	0.000	0.000	35.82
		C	9.833	0.000	0.000	0.000	70.00
T4	401'-381'	A	5.883	0.000	0.000	0.000	29.60
		B	13.194	0.000	0.000	0.000	86.56
		C	12.968	0.000	0.000	0.000	85.58
T5	381'-361'	A	5.883	0.000	0.000	0.000	29.60
		B	15.248	0.000	0.000	0.000	97.22
		C	14.177	0.000	0.000	0.000	98.40
T6	361'-341'	A	5.883	0.000	0.000	0.000	29.60
		B	19.524	0.000	0.000	0.000	120.06
		C	19.604	0.000	0.000	0.000	152.39
T7	341'-321'	A	6.529	0.000	0.000	0.000	32.90
		B	24.080	0.000	0.000	0.000	149.26
		C	23.467	0.000	0.000	0.000	198.54
T8	321'-301'	A	8.467	0.000	0.000	0.000	42.80
		B	27.017	0.000	0.000	0.000	163.00
		C	23.467	0.000	0.000	0.000	208.40

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
T9	301'-281'	A	9.127	0.000	0.000	0.000	46.08
		B	27.017	0.000	0.000	0.000	163.00
		C	28.498	0.000	0.000	0.000	243.08
T10	281'-261'	A	11.767	0.000	0.000	0.000	59.20
		B	30.812	0.000	0.000	0.000	181.86
		C	32.100	0.000	0.000	0.000	262.48
T11	261'-241'	A	25.009	0.000	0.000	0.000	182.23
		B	33.617	0.000	0.000	0.000	195.80
		C	36.104	0.000	0.000	0.000	282.94
T12	241'-221'	A	53.183	0.000	0.000	0.000	479.86
		B	33.617	0.000	0.000	0.000	203.06
		C	36.233	0.000	0.000	0.000	283.60
T13	221'-201'	A	53.408	0.000	0.000	0.000	486.20
		B	35.340	0.000	0.000	0.000	214.44
		C	36.551	0.000	0.000	0.000	283.60
T14	201'-181'	A	53.633	0.000	0.000	0.000	486.60
		B	38.018	0.000	0.000	0.000	223.35
		C	38.050	0.000	0.000	0.000	283.60
T15	181'-161'	A	53.633	0.000	0.000	0.000	486.60
		B	39.517	0.000	0.000	0.000	231.57
		C	38.050	0.000	0.000	0.000	283.60
T16	161'-141'	A	53.633	0.000	0.000	0.000	486.60
		B	40.784	0.726	0.000	0.000	238.39
		C	39.318	0.000	0.000	0.000	283.60
T17	141'-121'	A	53.633	0.000	0.000	0.000	486.60
		B	41.467	2.904	0.000	0.000	253.32
		C	41.090	0.000	0.000	0.000	287.56
T18	121'-101'	A	53.881	0.000	0.000	0.000	487.04
		B	41.714	2.904	0.000	0.000	255.80
		C	44.769	0.000	0.000	0.000	300.93
T19	101'-81'	A	54.083	0.000	0.000	0.000	487.40
		B	41.917	2.904	0.000	0.000	266.90
		C	47.267	0.000	0.000	0.000	310.00
T20	81'-61'	A	54.083	0.000	0.000	0.000	487.40
		B	44.625	2.904	0.000	0.000	280.26
		C	47.500	0.000	0.000	0.000	312.64
T21	61'-41'	A	54.083	0.000	0.000	0.000	487.40
		B	46.383	2.904	0.000	0.000	286.28
		C	49.854	0.000	0.000	0.000	334.75
T22	41'-20'	A	57.838	0.000	0.000	0.000	514.77
		B	48.703	3.049	0.000	0.000	300.59
		C	56.280	0.000	0.000	0.000	374.01
T23	20'-6'8-17/32"	A	16.540	0.000	0.000	0.000	147.12
		B	13.915	0.871	0.000	0.000	85.88
		C	16.080	0.000	0.000	0.000	106.86
T24	6'8-17/32"-0'	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
L1	490'-457'	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
T1	457'-436'	A	0.500	2.481	0.000	0.000	0.000	22.73

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
		B		2.090	0.000	0.000	0.000	27.33
		C		13.825	0.000	0.000	0.000	162.01
T2	436'-421'	A	0.500	6.912	0.000	0.000	0.000	63.71
		B		5.225	0.000	0.000	0.000	58.56
		C		9.875	0.000	0.000	0.000	115.72
T3	421'-401'	A	0.500	9.217	0.000	0.000	0.000	84.94
		B		9.974	0.000	0.000	0.000	113.39
		C		13.167	0.000	0.000	0.000	154.30
T4	401'-381'	A	0.500	9.217	0.000	0.000	0.000	84.94
		B		21.361	0.000	0.000	0.000	232.64
		C		17.885	0.000	0.000	0.000	198.66
T5	381'-361'	A	0.500	9.217	0.000	0.000	0.000	84.94
		B		24.498	0.000	0.000	0.000	262.33
		C		19.510	0.000	0.000	0.000	221.87
T6	361'-341'	A	0.500	9.217	0.000	0.000	0.000	84.94
		B		31.024	0.000	0.000	0.000	331.66
		C		26.979	0.000	0.000	0.000	323.13
T7	341'-321'	A	0.500	10.279	0.000	0.000	0.000	94.51
		B		38.580	0.000	0.000	0.000	431.65
		C		34.467	0.000	0.000	0.000	439.66
T8	321'-301'	A	0.500	13.467	0.000	0.000	0.000	123.19
		B		43.683	0.000	0.000	0.000	482.97
		C		35.133	0.000	0.000	0.000	453.48
T9	301'-281'	A	0.500	14.460	0.000	0.000	0.000	132.53
		B		43.683	0.000	0.000	0.000	482.97
		C		41.998	0.000	0.000	0.000	531.76
T10	281'-261'	A	0.500	18.433	0.000	0.000	0.000	169.89
		B		49.395	0.000	0.000	0.000	536.67
		C		47.767	0.000	0.000	0.000	585.50
T11	261'-241'	A	0.500	22.536	12.265	0.000	0.000	465.04
		B		53.617	0.000	0.000	0.000	576.37
		C		54.354	0.000	0.000	0.000	644.79
T12	241'-221'	A	0.500	26.883	40.883	0.000	0.000	1195.38
		B		53.617	0.000	0.000	0.000	604.99
		C		54.567	0.000	0.000	0.000	646.70
T13	221'-201'	A	0.500	27.942	40.883	0.000	0.000	1223.91
		B		57.549	0.000	0.000	0.000	649.89
		C		55.176	0.000	0.000	0.000	646.70
T14	201'-181'	A	0.500	29.000	40.883	0.000	0.000	1229.01
		B		63.310	0.000	0.000	0.000	685.02
		C		58.050	0.000	0.000	0.000	646.70
T15	181'-161'	A	0.500	29.000	40.883	0.000	0.000	1229.01
		B		66.183	0.000	0.000	0.000	722.04
		C		58.050	0.000	0.000	0.000	646.70
T16	161'-141'	A	0.500	29.000	40.883	0.000	0.000	1229.01
		B		68.534	1.004	0.000	0.000	750.39
		C		60.401	0.000	0.000	0.000	646.70
T17	141'-121'	A	0.500	29.000	40.883	0.000	0.000	1229.01
		B		69.800	4.015	0.000	0.000	806.31
		C		63.757	0.000	0.000	0.000	662.31
T18	121'-101'	A	0.500	30.164	40.883	0.000	0.000	1234.62
		B		70.964	4.015	0.000	0.000	816.07
		C		70.810	0.000	0.000	0.000	715.01
T19	101'-81'	A	0.500	31.117	40.883	0.000	0.000	1239.22
		B		71.917	4.015	0.000	0.000	816.07
		C		75.600	0.000	0.000	0.000	750.80
T20	81'-61'	A	0.500	31.117	40.883	0.000	0.000	1239.22
		B		76.542	4.015	0.000	0.000	855.73
		C		76.500	0.000	0.000	0.000	761.21
T21	61'-41'	A	0.500	31.117	40.883	0.000	0.000	1239.22
		B		81.383	4.015	0.000	0.000	885.94

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
		C		82.438	0.000	0.000	0.000	840.80
T22	41'-20'	A	0.500	35.389	42.928	0.000	0.000	1317.98
		B		85.453	4.216	0.000	0.000	930.24
		C		93.030	0.000	0.000	0.000	950.64
T23	20'-6'8-17/32"	A	0.500	10.150	12.265	0.000	0.000	376.81
		B		24.415	1.205	0.000	0.000	265.78
		C		26.580	0.000	0.000	0.000	271.61
T24	6'8-17/32"-0'	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	A_R Ice ft^2	A_F ft^2	A_F Ice ft^2
L1	490'-457'		0.000	0.000	0.000	0.000
			0.000	0.000	0.000	0.000
			0.000	0.000	0.000	0.000
T1	457'-436'	A	0.000	0.124	0.196	0.311
		B	0.000	0.105	0.137	0.262
		C	0.000	0.693	1.294	1.732
T2	436'-421'	A	0.000	0.439	0.701	1.098
		B	0.000	0.332	0.433	0.830
		C	0.000	0.627	1.171	1.568
T3	421'-401'	A	0.000	0.477	0.761	1.192
		B	0.000	0.516	0.762	1.290
		C	0.000	0.681	1.272	1.703
T4	401'-381'	A	0.000	0.477	0.761	1.192
		B	0.000	1.105	1.706	2.762
		C	0.000	0.925	1.677	2.313
T5	381'-361'	A	0.000	0.477	0.773	1.211
		B	0.000	1.267	2.004	3.219
		C	0.000	1.009	1.863	2.563
T6	361'-341'	A	0.000	0.477	0.761	1.192
		B	0.000	1.605	2.525	4.012
		C	0.000	1.395	2.535	3.489
T7	341'-321'	A	0.000	0.477	0.761	1.192
		B	0.000	1.941	3.030	4.851
		C	0.000	1.731	3.034	4.328
T8	321'-301'	A	0.000	0.477	0.761	1.192
		B	0.000	2.040	3.159	5.099
		C	0.000	1.731	3.034	4.328
T9	301'-281'	A	0.000	0.528	0.846	1.320
		B	0.000	2.040	3.159	5.099
		C	0.000	2.086	3.685	5.215
T10	281'-261'	A	0.000	0.734	0.789	1.219
		B	0.000	2.335	2.425	3.879
		C	0.000	2.384	2.758	3.961
T11	261'-241'	A	0.000	1.580	3.573	4.868
		B	0.000	2.553	4.945	7.866
		C	0.000	2.725	5.753	8.395
T12	241'-221'	A	0.000	3.285	7.641	9.591
		B	0.000	2.553	4.686	7.455
		C	0.000	2.736	5.471	7.988
T13	221'-201'	A	0.000	3.285	6.543	8.213
		B	0.000	2.671	4.166	6.676

Section	Elevation	Face	A_R	A_R Ice	A_F	A_F Ice
	ft		ft^2	ft^2	ft^2	ft^2
		C	0.000	2.736	4.685	6.840
T14	201'-181'	A	0.000	3.285	6.543	8.213
		B	0.000	2.765	4.289	6.913
		C	0.000	2.736	4.685	6.840
T15	181'-161'	A	0.000	3.285	6.543	8.213
		B	0.000	2.914	4.483	7.284
		C	0.000	2.736	4.685	6.840
T16	161'-141'	A	0.000	3.285	7.641	9.591
		B	0.000	2.973	5.344	8.679
		C	0.000	2.736	5.471	7.988
T17	141'-121'	A	0.000	3.285	7.641	9.591
		B	0.000	3.150	5.673	9.197
		C	0.000	2.844	5.636	8.304
T18	121'-101'	A	0.000	3.285	6.543	8.213
		B	0.000	3.150	4.858	7.875
		C	0.000	3.209	5.302	8.023
T19	101'-81'	A	0.000	3.285	6.543	8.213
		B	0.000	3.150	4.858	7.875
		C	0.000	3.457	5.625	8.642
T20	81'-61'	A	0.000	3.285	6.543	8.213
		B	0.000	3.343	5.178	8.357
		C	0.000	3.457	5.625	8.642
T21	61'-41'	A	0.000	3.285	6.543	8.213
		B	0.000	3.407	5.285	8.518
		C	0.000	3.578	5.809	8.944
T22	41'-20'	A	0.000	3.479	6.789	8.697
		B	0.000	3.466	5.377	8.666
		C	0.000	3.964	6.403	9.911
T23	20'-6'8-17/32"	A	0.000	1.232	2.018	2.588
		B	0.000	1.225	1.597	2.574
		C	0.000	1.401	1.902	2.943
T24	6'8-17/32"-0'	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
L1	490'-457'	0.0000	0.0000	0.0000	0.0000
T1	457'-436'	-0.6959	1.5515	-0.6743	1.4730
T2	436'-421'	-1.4614	1.4416	-1.3768	1.2614
T3	421'-401'	-1.0288	1.7132	-1.0206	1.5257
T4	401'-381'	1.1380	2.1685	1.3044	2.1683
T5	381'-361'	1.6471	2.3085	1.8252	2.2965
T6	361'-341'	2.5400	2.6492	2.6804	2.5511
T7	341'-321'	2.9444	2.5709	3.1347	2.5238
T8	321'-301'	2.9857	1.9732	3.1371	1.8591
T9	301'-281'	2.8664	2.6837	2.9892	2.5098
T10	281'-261'	2.8560	4.0043	2.8422	3.7257
T11	261'-241'	0.9839	1.9963	1.2219	2.4938
T12	241'-221'	-0.7844	-1.1907	-0.0911	0.2173
T13	221'-201'	-0.5693	-1.1264	0.2204	0.2491
T14	201'-181'	-0.1472	-0.9318	0.7679	0.3895
T15	181'-161'	0.0157	-0.9344	0.9712	0.3745
T16	161'-141'	0.2873	-0.8027	1.2621	0.4699

Section	Elevation	CP_X	CP_Z	CP_X Ice	CP_Z Ice
	ft	in	in	in	in
T17	141'-121'	0.3720	-0.8016	1.3099	0.5135
T18	121'-101'	0.1114	-0.5334	0.9702	0.7974
T19	101'-81'	0.0178	-0.3377	0.8340	0.9538
T20	81'-61'	0.3970	-0.1670	1.3656	1.1432
T21	61'-41'	0.5567	0.0798	1.6422	1.5066
T22	41'-20'	0.1789	0.3848	1.1482	1.8267
T23	20'-6'8-17/32"	0.0924	0.1923	0.7555	1.1555
T24	6'8-17/32"-0'	0.0000	0.0000	0.0000	0.0000

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert	Azimuth Adjustment	Placement		C_AA_A Front	C_AA_A Side	Weight
			ft ft ft	°	ft		ft²	ft²	lb
071092 El. 44-ft Mount (Existing Antenna 1 Mount)	C	From Leg	0.88 0' 0'	0.0000	44'	No Ice 1/2" Ice	0.36 0.82	0.50 1.18	18.58 27.50
••									
071092 El. 49-ft Mount (Existing Antenna 2 Mount)	C	From Leg	0.29 0' 0'	20.0000	49'	No Ice 1/2" Ice	0.35 0.42	0.48 0.65	8.63 13.56
••									
3'-6" x 10 Element Yagi (Existing Antenna 3)	C	From Leg	2.50 0' 0'	0.0000	54'	No Ice 1/2" Ice	0.10 0.21	0.34 0.77	3.65 10.90
••									
071092 El. 54-ft, 62-ft, 68-ft Mounts (Existing Antennas 3,4,7 Mount)	C	From Leg	1.25 0' 0'	0.0000	62'	No Ice 1/2" Ice	4.80 9.52	6.83 12.86	145.06 202.74
••									
071092 El. 109.5-ft Mounts (Existing Antenna 10 Mount)	B	From Leg	2.38 0' 0'	20.0000	109'6"	No Ice 1/2" Ice	0.00 2.23	0.00 2.80	34.70 51.80
8-ft x 1 in. Omni (Existing Antenna 11)	B	From Leg	4.75 0' 4'	0.0000	109'6"	No Ice 1/2" Ice	0.80 1.62	0.80 1.62	12.00 19.43
••									
071092 El. 133.5-ft, 204.5-ft Mounts (Existing Antenna 14 Mount)	A	From Leg	2.50 0' 0'	-60.0000	117'6"	No Ice 1/2" Ice	0.52 4.75	0.75 7.26	60.85 86.69
20-ft x 2.5-in Omni Antenna (Existing Antenna 14)	A	From Leg	5.00 -2' 10'	0.0000	133'6"	No Ice 1/2" Ice	5.00 7.03	5.00 7.03	30.00 66.96
••									
071092 El. 133-155-ft Mounts (Existing Antenna 15 Mount)	C	From Leg	0.67 0' 0'	-90.0000	153' - 133'	No Ice 1/2" Ice	0.00 0.40	0.00 0.66	6.70 11.37
DB264-A (Existing Antenna 15)	C	From Leg	1.34 0' 0'	-90.0000	153' - 133'	No Ice 1/2" Ice	3.16 5.69	3.16 5.69	36.00 46.80
••									

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
14" x 12" Corner Reflector (Existing Antenna 19)	A	From Leg	0.50 0' 0'	-80.0000	186'	No Ice 1/2" Ice	1.69 1.87	1.40 1.56	25.00 42.22
**									
26" Covered Yagi (Existing Antenna 20)	A	From Leg	1.00 0' 0'	-80.0000	188'	No Ice 1/2" Ice	0.49 0.64	1.26 1.58	25.00 40.89
**									
071092 El. 184.5-ft Mount (Existing Antenna 21 Mount)	A	From Leg	1.50 0' 0'	40.0000	204'6" - 184'6"	No Ice 1/2" Ice	4.80 5.97	6.83 8.38	94.98 141.50
20-ft 4 Element Dipole (Existing Antenna 21)	A	From Leg	3.00 0' 0'	40.0000	204'6" - 184'6"	No Ice 1/2" Ice	5.00 7.03	5.00 7.03	60.00 96.96
**									
071092 El. 133.5-ft, 204.5-ft Mounts (Existing Antenna 22 Mount)	B	From Leg	2.50 0' 0'	50.0000	204'6"	No Ice 1/2" Ice	0.52 4.75	0.75 7.26	60.85 86.69
8' x 2.5" Dia Omni (Existing Antenna 22)	B	From Leg	5.00 0' 4'	50.0000	204'6"	No Ice 1/2" Ice	2.00 2.83	2.00 2.83	10.00 24.97
**									
071092 El. 214-ft Mount (Existing Antenna 23 Mount)	B	From Leg	2.83 0' 0'	90.0000	214'	No Ice 1/2" Ice	1.20 5.81	1.50 8.26	72.14 110.40
15-ft x 3" Omni (Existing Antenna 23)	B	From Leg	5.67 0' 7'6"	90.0000	214'	No Ice 1/2" Ice	4.50 6.03	4.50 6.03	50.00 82.48
**									
071092 El. 232-ft, 238-ft Mount (Existing Antennas 24-29 Mount)	A	From Leg	3.50 0' 0'	0.0000	235'	No Ice 1/2" Ice	2.90 13.69	3.90 19.20	206.18 293.43
071092 El. 232-ft, 238-ft Mount (Existing Antennas 24-29 Mount)	B	From Leg	3.50 0' 0'	0.0000	235'	No Ice 1/2" Ice	2.90 13.69	3.90 19.20	206.18 293.43
071092 El. 232-ft, 238-ft Mount (Existing Antennas 24-29 Mount)	C	From Leg	3.50 0' 0'	0.0000	235'	No Ice 1/2" Ice	2.90 13.69	3.90 19.20	206.18 293.43
**									
071092 El. 247-ft (Single Sector) (Existing Antennas 30-32 Mounts)	A	From Leg	1.33 0' 0'	40.0000	247'	No Ice 1/2" Ice	19.39 19.39	26.02 26.02	295.54 420.93
071092 El. 247-ft (Single Sector) (Existing Antennas 30-32 Mounts)	B	From Leg	1.33 0' 0'	40.0000	247'	No Ice 1/2" Ice	19.39 19.39	26.02 26.02	295.54 420.93
071092 El. 247-ft (Single Sector) (Existing Antennas 30-32 Mounts)	C	From Leg	1.33 0' 0'	40.0000	247'	No Ice 1/2" Ice	19.39 19.39	26.02 26.02	295.54 420.93
(2) DR65-18-00DPL2Q (T-Mobile (SLA))	A	From Leg	2.67 5' 0'	80.0000	247'	No Ice 1/2" Ice	6.30 6.73	2.42 2.76	24.00 55.86

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
(2) DR65-18-00DPL2Q (T-Mobile (SLA))	B	From Leg	2.67 5' 0'	80.0000	247'	No Ice 1/2" Ice	6.30 6.73	2.42 2.76	24.00 55.86
(2) DR65-18-00DPL2Q (T-Mobile (SLA))	C	From Leg	2.67 5' 0'	80.0000	247'	No Ice 1/2" Ice	6.30 6.73	2.42 2.76	24.00 55.86
**									
071092 El. 256-ft-B, 346-ft, 445-ft-C (Existing Antenna 33 Mount)	A	From Leg	1.50 0' 0'	35.0000	256'	No Ice 1/2" Ice	0.47 2.24	0.68 3.11	23.50 35.30
10-ft x 3-in Omni Antenna (Existing Antenna 33)	A	From Leg	3.00 0' 5'	0.0000	256'	No Ice 1/2" Ice	3.00 4.03	3.00 4.03	12.50 34.29
**									
**									
071092 El. 260-ft Mount (Existing Antenna 34 mount)	C	From Leg	1.50 0' 0'	90.0000	260'	No Ice 1/2" Ice	0.87 2.04	1.12 2.66	36.53 54.69
DB809KT3E-Y (Existing Antenna 34)	C	From Leg	3.00 0' 5'6"	90.0000	260'	No Ice 1/2" Ice	3.39 4.55	3.39 4.55	30.00 54.57
**									
071092 El. 267-ft, 331-ft Mounts (Existing Antenna 35 Mount)	B	From Leg	3.00 0' 0'	-20.0000	267'	No Ice 1/2" Ice	0.72 5.34	0.94 7.73	68.09 104.19
6-ft x 1.5" Dia Omni (Existing Antenna 35)	B	From Leg	6.00 0' 3'	-20.0000	267'	No Ice 1/2" Ice	0.90 1.52	0.90 1.52	15.00 22.49
**									
071092 El. 269-ft, 285-ft, 326-ft, 343-ft, 439-ft, 445-ft-A (Existing Antenna 36 Mount)	C	From Leg	3.00 0' 0'	0.0000	269'	No Ice 1/2" Ice	0.34 3.48	0.50 7.56	42.16 76.96
10-ft x 2.5" dia. omni (Existing Antenna 36)	C	From Leg	6.00 0' 5'	0.0000	269'	No Ice 1/2" Ice	2.50 3.53	2.50 3.53	10.00 28.64
**									
071092 271-ft Mount (Existing Antenna 37 Mount)	B	From Leg	3.00 0' 0'	40.0000	271'	No Ice 1/2" Ice	0.72 2.16	0.94 2.87	34.71 51.83
10-Element 6-ft x 2-ft Yagi (Existing Antenna 37)	B	From Leg	6.00 0' 0'	90.0000	271'	No Ice 1/2" Ice	1.00 2.08	1.00 2.03	15.00 25.00
**									
15' x 8" Omni (Existing Antenna 38)	B	From Leg	0.50 0' 7'6"	0.0000	278'	No Ice 1/2" Ice	11.44 12.35	11.44 12.35	341.00 420.93
**									
071092 El. 269-ft, 285-ft, 326-ft, 343-ft, 439-ft, 445-ft-A (Existing Antenna 39 Mount)	C	From Leg	3.00 0' 0'	0.0000	285'	No Ice 1/2" Ice	0.34 3.48	0.50 7.56	42.16 76.96
10-ft x 2.5" dia. omni (Existing Antenna 39)	C	From Leg	6.00 0' 5'	0.0000	285'	No Ice 1/2" Ice	2.50 3.53	2.50 3.53	10.00 28.64
**									
8-ft Single Element Dipole	A	From Leg	0.50	0.0000	285'	No Ice	2.40	2.40	25.00

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight lb
(Existing Antenna 40)			0' 0'			1/2" Ice	4.02	4.02	44.71
**									
2-Bay Shively FM w/ Radomes (Existing Antenna 41)	C	None		0.0000	316' - 308'	No Ice 1/2" Ice	65.00 135.00	65.00 135.00	1086.00 2388.00
**									
071092 El. 269-ft, 285-ft, 326-ft, 343-ft, 439-ft, 445-ft-A (Existing Antenna 43 Mounts)	B	From Leg	3.00 0' 0'	0.0000	326'	No Ice 1/2" Ice	0.34 3.48	0.50 7.56	42.16 76.96
20-FT 8 Element Dipole (Existing Antenna 43)	B	From Leg	6.00 0' 10'	0.0000	326'	No Ice 1/2" Ice	5.00 7.03	5.00 7.03	45.50 82.46
**									
10-Element 10-ft x 6-ft Yagi (Existing Antenna 44)	C	From Leg	3.00 0' 0'	-20.0000	328'	No Ice 1/2" Ice	4.50 10.65	2.50 4.20	20.00 50.00
**									
071092 330-ft Mount (Existing Antenna 45)	A	From Leg	2.50 0' 0'	80.0000	330'	No Ice 1/2" Ice	0.76 3.53	1.05 4.99	40.30 63.57
Generic Ground Plane (Existing Antenna 45)	A	From Leg	5.00 0' 0'	80.0000	330'	No Ice 1/2" Ice	1.05 1.92	1.05 1.92	10.00 30.00
**									
071092 El. 267-ft, 331-ft Mounts (Existing Antenna 46 Mount)	B	From Leg	3.00 0' 0'	-60.0000	331'	No Ice 1/2" Ice	0.72 5.34	0.94 7.73	68.09 104.19
10-ft x 3-in Omni Antenna (Existing Antenna 46)	B	From Leg	6.00 0' 5'	-60.0000	331'	No Ice 1/2" Ice	3.00 4.03	3.00 4.03	12.50 34.29
**									
071092 El. 269-ft, 285-ft, 326-ft, 343-ft, 439-ft, 445-ft-A (Existing Antenna 48 Mount)	A	From Leg	3.00 0' 0'	40.0000	343'	No Ice 1/2" Ice	0.34 3.48	0.50 7.56	42.16 76.96
20-ft x 2.5-in Omni Antenna (Existing Antenna 48)	A	From Leg	6.00 0' 10'	40.0000	343'	No Ice 1/2" Ice	5.00 7.03	5.00 7.03	30.00 66.96
**									
071092 El. 256-ft-B, 346-ft, 445-ft-C (Existing Antenna 49 Mount)	A	From Leg	1.50 0' 0'	-20.0000	346'	No Ice 1/2" Ice	0.47 2.24	0.68 3.11	23.50 35.30
20-ft x 3-in Omni (Existing Antenna 49)	A	From Leg	3.00 0' 10'	-20.0000	346'	No Ice 1/2" Ice	6.00 8.03	6.00 8.03	16.20 59.37
**									
071092 El. 256-ft-B, 346-ft, 445-ft-C (Existing Antenna 50 Mount)	B	From Leg	1.50 0' 0'	0.0000	346'	No Ice 1/2" Ice	0.47 2.24	0.68 3.11	23.50 35.30
10-ft x 2.5" dia. omni (Existing Antenna 50)	B	From Leg	3.00 0' 5'	0.0000	346'	No Ice 1/2" Ice	2.50 3.53	2.50 3.53	10.00 28.64
**									
071092 347.5-ft Mount	C	From Leg	1.75	-60.0000	347'6"	No Ice	0.59	0.77	35.63

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight lb
(Existing Antenna 51 Mount)			0' 0'			1/2" Ice	2.03	2.65	53.79
10-ft x 2.5" dia. omni (Existing Antenna 51)	C	From Leg	3.50 0' 5'	-60.0000	347'6"	No Ice 1/2" Ice	2.50 3.53	2.50 3.53	10.00 28.64
**									
15' x 8" Omni (Existing Antenna 52)	A	From Leg	0.50 0' 7'6"	0.0000	354'	No Ice 1/2" Ice	11.44 12.35	11.44 12.35	341.00 420.95
**									
TLP-8M x 11.7-ft (Existing Antenna 53)	A	From Leg	0.50 0' 0'	0.0000	365'	No Ice 1/2" Ice	18.70 21.00	18.70 21.00	130.00 220.00
**									
071092 El. 372-ft Mount (Existing Antenna 54 Mount)	A	From Leg	3.00 0' 0'	60.0000	372'	No Ice 1/2" Ice	1.92 11.73	2.75 15.09	98.89 180.02
8' x 2.5" Dia Omni (Existing Antenna 54)	A	From Leg	6.00 0' 4'	60.0000	372'	No Ice 1/2" Ice	2.00 2.83	2.00 2.83	10.00 24.97
**									
2-Bay Shively FM w/ Radomes (Existing Antenna 55)	C	None		0.0000	400' - 388'	No Ice 1/2" Ice	65.00 135.00	65.00 135.00	1086.00 2388.00
**									
1083-3CP (Existing Antenna 56)	A	None		0.0000	430' - 410'	No Ice 1/2" Ice	74.25 133.70	74.25 133.70	750.00 975.00
**									
071092 El. 269-ft, 285-ft, 326-ft, 343-ft, 439-ft, 445-ft-A (Existing Antenna 57 Mount)	B	From Leg	3.00 0' 0'	-90.0000	439'	No Ice 1/2" Ice	0.34 3.48	0.50 7.56	42.16 76.96
20-ft x 2.5-in Omni Antenna (Existing Antenna 57)	B	From Leg	6.00 0' 10'	-90.0000	439'	No Ice 1/2" Ice	5.00 7.03	5.00 7.03	30.00 66.96
**									
071092 El. 256-ft-B, 346-ft, 445-ft-C (Existing Antenna 58 Mount)	A	From Leg	3.00 0' 0'	80.0000	445'	No Ice 1/2" Ice	0.47 2.24	0.68 3.11	23.50 35.30
20-FT 16 Element Dipole (Existing Antenna 58)	A	From Leg	6.00 0' 10'	80.0000	445'	No Ice 1/2" Ice	5.00 7.03	5.00 7.03	45.50 82.46
**									
071092 El. 256-ft (Empty Mount) & 445-ft-B (Existing Antenna 59 Mount)	B	From Leg	1.75 0' 0'	35.0000	445'	No Ice 1/2" Ice	0.19 1.51	0.29 3.06	19.32 21.51
20-ft x 2-in Omni (Existing Antenna 59)	B	From Leg	3.50 0' 10'	35.0000	445'	No Ice 1/2" Ice	4.00 6.03	4.00 6.03	25.00 55.77
**									
071092 El. 256-ft-B, 346-ft, 445-ft-C (Existing Antenna 60 Mount)	C	From Leg	3.00 0' 0'	0.0000	445'	No Ice 1/2" Ice	0.47 2.24	0.68 3.11	23.50 35.30
20-ft x 2-in Omni (Existing Antenna 60)	C	From Leg	6.00 0' 10'	0.0000	445'	No Ice 1/2" Ice	4.00 6.03	4.00 6.03	25.00 55.77
**									

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft²	C_AA_A Side ft²	Weight lb
TLP-8M x 11.7-ft (Reserved)	A	From Leg	1.00 0' 0'	0.0000	305' - 293'	No Ice 1/2" Ice	18.70 21.00	18.70 21.00	130.00 220.00
**									
18-in Standoff (USA Mobility (SLA))	A	From Leg	0.00 0' 0'	0.0000	40'	No Ice 1/2" Ice	0.29 0.40	0.64 1.00	12.30 19.20
Aentinc 2000 (USA Mobility (SLA))	A	From Leg	0.00 0' 0'	0.0000	40'	No Ice 1/2" Ice	0.17 0.24	0.17 0.24	0.87 3.85
071092 El. 256-ft-B, 346-ft, 445-ft-C (USA Mobility (SLA))	A	From Leg	3.00 0' 0'	0.0000	440'	No Ice 1/2" Ice	0.47 2.24	0.68 3.11	23.50 35.30
DB810M-XC (USA Mobility (SLA))	A	From Leg	6.00 0' 5'	0.0000	440'	No Ice 1/2" Ice	2.12 3.14	2.12 3.14	30.00 46.22
071092 El. 256-ft-B, 346-ft, 445-ft-C (USA Mobility (SLA))	B	From Leg	3.00 0' 0'	-30.0000	443' - 440'	No Ice 1/2" Ice	0.47 2.24	0.68 3.11	23.50 35.30
DB810M-XC (USA Mobility (SLA))	B	From Leg	6.00 0' 0'	-30.0000	443' - 440'	No Ice 1/2" Ice	2.12 3.14	2.12 3.14	30.00 46.22
**									
BXA-185085/12CF (Verizon Proposed)	A	From Leg	7.00 0' 3'	0.0000	235'	No Ice 1/2" Ice	4.77 5.22	3.64 4.08	13.00 40.44
BXA-80080/6CF (Verizon Proposed)	A	From Leg	7.00 0' -3'	0.0000	235'	No Ice 1/2" Ice	7.91 8.45	3.93 4.37	22.00 63.74
BXA-185063/8CF (Verizon Proposed)	B	From Leg	7.00 0' 3'	0.0000	235'	No Ice 1/2" Ice	2.94 3.26	1.79 2.09	10.00 27.08
BXA-80063/6CF (Verizon Proposed)	B	From Leg	7.00 0' -3'	0.0000	235'	No Ice 1/2" Ice	7.74 8.28	3.76 4.20	14.90 55.55
BXA-185085/12CF (Verizon Proposed)	C	From Leg	7.00 0' 3'	0.0000	235'	No Ice 1/2" Ice	4.77 5.22	3.64 4.08	13.00 40.44
BXA-80080/6CF (Verizon Proposed)	C	From Leg	7.00 0' -3'	0.0000	235'	No Ice 1/2" Ice	7.91 8.45	3.93 4.37	22.00 63.74

Dishes

Description	Face or Leg	Dish Type	Offset Type	Offsets: Horz Lateral ft / Vert ft	Azimuth Adjustment °	3 dB Beam Width °	Elevation ft	Outside Diameter ft		Aperture Area ft²	Weight lb
1.2M (Existing Antenna 1)	C	Paraboloid w/o Radome	From Leg	1.75 0'	0.0000		44'	4.00	No Ice 1/2" Ice	12.17 13.09	165.00 232.19

Description	Face or Leg	Dish Type	Offset Type	Offsets: Horz Lateral ft / Vert ft	Azimuth Adjustment °	3 dB Beam Width °	Elevation ft	Outside Diameter ft		Aperture Area ft²	Weight lb
**				0'							
0.75M-1 (Existing Antenna 2)	C	Paraboloid w/o Radome	From Leg	0.58 0' 0'	20.0000		49'	2.50	No Ice 1/2" Ice	4.91 5.24	125.00 151.91
**											
6-ft x 3-ft Grid (Existing Antenna 4)	C	Grid	From Leg	2.50 0' 0'	-20.0000		62'	5.00	No Ice 1/2" Ice	19.63 20.29	125.00 229.18
**											
6-ft x 3-ft Grid (Existing Antenna 5)	B	Grid	From Leg	0.50 0' 0'	0.0000		63'	5.00	No Ice 1/2" Ice	19.63 20.29	125.00 229.18
**											
6-ft x 3-ft Grid (Existing Antenna 6)	B	Grid	From Leg	0.50 0' 0'	-60.0000		67'	5.00	No Ice 1/2" Ice	19.63 20.29	125.00 229.18
**											
6-ft x 3-ft Grid (Existing Antenna 7)	C	Grid	From Leg	2.50 0' 0'	-90.0000		68'	5.00	No Ice 1/2" Ice	19.63 20.29	125.00 229.18
**											
8-FT Grid (Existing Antenna 8)	B	Grid	From Leg	0.50 0' 0'	0.0000		76'	8.00	No Ice 1/2" Ice	50.27 51.32	130.00 570.00
**											
SPD2-5.8 (Existing Antenna 9)	B	Paraboloid w/Radome	From Leg	0.50 0' 0'	-10.0000		100'	2.00	No Ice 1/2" Ice	3.14 3.41	22.00 39.49
**											
10-FT Grid (Existing Antenna 10)	B	Grid	From Leg	4.75 0' 0'	20.0000		109'6"	10.00	No Ice 1/2" Ice	78.54 79.85	160.00 450.00
**											
6-ft x 3-ft Grid (Existing Antenna 12)	C	Grid	From Leg	1.00 0' 0'	20.0000		107'	5.00	No Ice 1/2" Ice	19.63 20.29	125.00 229.18
**											
P-9A48GN-U (Existing Antenna 13)	C	Paraboloid w/o Radome	From Leg	1.00 0' 0'	-60.0000		117'6"	4.00	No Ice 1/2" Ice	10.10 13.09	112.00 179.19
**											
Andrew 6' w/Radome (Existing Antenna 16)	B	Paraboloid w/Radome	From Leg	0.50 0' 0'	-45.0000		146'	6.00	No Ice 1/2" Ice	28.27 29.07	380.00 450.00
**											
6-FT Grid (Existing Antenna 17)	B	Grid	From Leg	1.00 0' 0'	-55.0000		154'	6.00	No Ice 1/2" Ice	28.27 29.07	100.00 250.00
**											
SP4-5.8 (Existing Antenna 18)	C	Paraboloid w/Radome	From Leg	0.50 0' 0'	50.0000		179'6"	4.00	No Ice 1/2" Ice	12.57 13.09	60.00 127.19
**											
SPD3-5.8 (Existing Antenna 42)	A	Paraboloid w/Radome	From Leg	0.50 0' 0'	0.0000		322'	3.00	No Ice 1/2" Ice	5.70 7.46	35.00 73.31
**											
8-FT Grid	C	Grid	From	0.50	-20.0000		340'	8.00	No Ice	50.27	130.00

Description	Face or Leg	Dish Type	Offset Type	Offsets: Horz Lateral Vert	Azimuth Adjustment	3 dB Beam Width	Elevation	Outside Diameter	Aperture Area	Weight
				ft	°	°	ft	ft	ft²	lb
(Existing Antenna 47)			Leg	0' 0'					1/2" Ice 51.32	570.00

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
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
L1	490 - 457	Pole	Max Tension	20	0.23	2.36	-5.81
			Max. Compression	14	-2573.83	-19.52	-2.12

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Force lb	Major Axis Moment lb-ft	Minor Axis Moment lb-ft
			Max. Mx	11	-2404.77	8850.09	241.61
			Max. My	8	-2404.88	-140.42	-9388.17
			Max. Vy	11	-532.87	8850.09	241.61
			Max. Vx	8	560.66	-140.42	-9388.17
			Max. Torque	21			-0.21
T1	457 - 436	Leg	Max Tension	4	8311.18	-67.75	-18.20
			Max. Compression	6	-11651.31	-49.52	-43.14
			Max. Mx	26	-9333.26	-239.35	157.67
			Max. My	21	-6151.02	51.82	301.50
			Max. Vy	25	283.86	217.48	92.63
			Max. Vx	15	348.18	-41.46	286.46
		Diagonal	Max Tension	26	1931.48	0.00	0.00
			Max. Compression	20	-1944.09	0.00	0.00
			Max. Mx	16	1463.10	12.63	-1.22
			Max. My	26	-1899.31	6.34	-1.53
			Max. Vy	16	-10.56	12.63	-1.22
			Max. Vx	13	0.43	7.77	-1.45
		Top Girt	Max Tension	25	256.44	0.00	0.00
			Max. Compression	26	-275.64	0.00	0.00
			Max. Mx	14	-0.20	-21.98	0.00
			Max. My	22	-252.87	0.00	0.00
			Max. Vy	14	14.65	0.00	0.00
			Max. Vx	22	-0.00	0.00	0.00
		Mid Girt	Max Tension	15	70.51	0.00	0.00
			Max. Compression	16	-36.86	0.00	0.00
			Max. Mx	14	2.75	-21.98	0.00
			Max. My	22	-9.35	0.00	0.00
			Max. Vy	14	14.65	0.00	0.00
			Max. Vx	22	-0.00	0.00	0.00
		Index Plate	Max Tension	12	490.60	-3494.68	17.92
			Max. Compression	26	-296.29	0.00	0.00
			Max. Mx	2	-80.36	8611.37	-13.49
			Max. My	26	317.50	-1470.64	901.60
			Max. Vy	2	2485.89	8611.37	-13.49
			Max. Vx	26	260.27	-1470.64	901.60
T2	436 - 421	Leg	Max Tension	4	22499.96	-64.07	36.91
			Max. Compression	19	-28765.72	-156.41	-88.47
			Max. Mx	19	-28765.72	-156.41	-88.47
			Max. My	15	-28232.17	-0.60	178.58
			Max. Vy	18	167.28	-141.28	-9.98
			Max. Vx	15	-174.37	-0.60	178.58
		Diagonal	Max Tension	26	3081.78	0.00	0.00
			Max. Compression	20	-3103.20	0.00	0.00
			Max. Mx	15	2717.78	17.93	-0.63
			Max. My	15	-2454.54	3.20	-2.42
			Max. Vy	15	-12.43	17.93	-0.63
			Max. Vx	15	0.73	3.20	-2.42
		Top Girt	Max Tension	17	71.49	0.00	0.00
			Max. Compression	15	-53.94	0.00	0.00
			Max. Mx	14	10.08	-21.98	0.00
			Max. My	22	4.04	0.00	0.00
			Max. Vy	14	14.65	0.00	0.00
			Max. Vx	22	-0.00	0.00	0.00
		Mid Girt	Max Tension	4	34.63	0.00	0.00
			Max. Compression	6	-20.78	0.00	0.00
			Max. Mx	14	11.64	-21.98	0.00
			Max. My	22	9.26	0.00	0.00
			Max. Vy	14	14.65	0.00	0.00
			Max. Vx	22	-0.00	0.00	0.00
T3	421 - 401	Leg	Max Tension	25	57373.15	9.56	4.15
			Max. Compression	19	-68009.07	-184.00	-105.23

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Force lb	Major Axis Moment lb-ft	Minor Axis Moment lb-ft
			Max. Mx	18	-3472.87	-286.30	-13.12
			Max. My	15	13133.06	36.61	270.85
			Max. Vy	18	-241.58	-286.30	-13.12
			Max. Vx	15	237.92	36.62	270.85
		Diagonal	Max Tension	26	5354.28	0.00	0.00
			Max. Compression	20	-5415.67	0.00	0.00
			Max. Mx	19	4488.14	39.33	-1.42
			Max. My	26	-5146.74	-9.19	-6.71
			Max. Vy	19	-17.44	39.33	-1.42
			Max. Vx	20	-1.75	-8.78	6.70
		Top Girt	Max Tension	4	73.14	0.00	0.00
			Max. Compression	6	-62.90	0.00	0.00
			Max. Mx	14	14.58	-25.82	0.00
			Max. My	22	13.43	0.00	0.00
			Max. Vy	14	17.22	0.00	0.00
			Max. Vx	22	-0.00	0.00	0.00
		Mid Girt	Max Tension	4	130.31	0.00	0.00
			Max. Compression	6	-136.51	0.00	0.00
			Max. Mx	14	16.23	-25.82	0.00
			Max. My	22	18.69	0.00	0.00
			Max. Vy	14	17.22	0.00	0.00
			Max. Vx	22	-0.00	0.00	0.00
T4	401 - 381	Leg	Max Tension	25	111308.54	332.14	-0.49
			Max. Compression	19	-130097.64	912.64	1.42
			Max. Mx	17	110743.13	-1318.58	-7.01
			Max. My	20	-5763.10	223.17	-716.64
			Max. Vy	17	-463.35	-646.26	-3.88
			Max. Vx	16	-445.63	10.99	-648.14
		Diagonal	Max Tension	26	8671.96	0.00	0.00
			Max. Compression	20	-8374.31	0.00	0.00
			Max. Mx	26	2789.46	40.90	0.58
			Max. My	16	-6653.36	-23.14	-11.81
			Max. Vy	26	17.82	40.90	0.58
			Max. Vx	16	3.06	-23.14	-11.81
		Top Girt	Max Tension	25	387.95	0.00	0.00
			Max. Compression	19	-378.69	0.00	0.00
			Max. Mx	14	24.47	-25.82	0.00
			Max. My	22	23.74	0.00	0.00
			Max. Vy	14	17.22	0.00	0.00
			Max. Vx	22	-0.00	0.00	0.00
		Mid Girt	Max Tension	25	529.98	0.00	0.00
			Max. Compression	1	0.00	0.00	0.00
			Max. Mx	14	289.14	-25.82	0.00
			Max. My	22	371.68	0.00	0.00
			Max. Vy	14	17.22	0.00	0.00
			Max. Vx	22	-0.00	0.00	0.00
T5	381 - 361	Leg	Max Tension	25	60090.72	-1295.59	-1.40
			Max. Compression	19	-135103.27	-106.20	46.36
			Max. Mx	17	59768.68	-1318.56	-6.99
			Max. My	24	-35521.97	65.21	-570.19
			Max. Vy	17	-339.44	-1318.56	-6.99
			Max. Vx	5	539.13	-126.60	444.03
		Diagonal	Max Tension	16	7251.55	0.00	0.00
			Max. Compression	16	-7086.49	0.00	0.00
			Max. Mx	21	-4217.90	45.23	7.35
			Max. My	18	-5241.74	22.21	-10.33
			Max. Vy	21	-18.94	45.23	7.35
			Max. Vx	18	-2.69	0.00	0.00
		Top Girt	Max Tension	15	21407.73	0.00	0.00
			Max. Compression	1	0.00	0.00	0.00
			Max. Mx	14	10847.83	50.76	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. My	22	14090.38	0.00	-0.00
			Max. Vy	14	-33.84	0.00	0.00
			Max. Vx	22	0.00	0.00	0.00
		Mid Girt	Max Tension	25	646.23	0.00	0.00
			Max. Compression	1	0.00	0.00	0.00
			Max. Mx	14	394.19	-25.82	0.00
			Max. My	22	509.38	0.00	0.00
			Max. Vy	14	17.22	0.00	0.00
			Max. Vx	22	-0.00	0.00	0.00
		Guy A	Bottom Tension	21	70446.59		
			Top Tension	21	72488.95		
			Top Cable Vert	21	52413.41		
			Top Cable Norm	21	50074.76		
			Top Cable Tan	21	1.34		
			Bot Cable Vert	21	-48373.56		
			Bot Cable Norm	21	51212.50		
			Bot Cable Tan	21	1.34		
		Guy B	Bottom Tension	25	70596.50		
			Top Tension	25	72603.11		
			Top Cable Vert	25	52723.45		
			Top Cable Norm	25	49914.42		
			Top Cable Tan	25	0.19		
			Bot Cable Vert	25	-48762.44		
			Bot Cable Norm	25	51049.88		
			Bot Cable Tan	25	0.19		
		Guy C	Bottom Tension	17	70556.11		
			Top Tension	17	72601.06		
			Top Cable Vert	17	52158.82		
			Top Cable Norm	17	50501.20		
			Top Cable Tan	17	8.03		
			Bot Cable Vert	17	-48094.52		
			Bot Cable Norm	17	51624.43		
			Bot Cable Tan	17	8.03		
T6	361 - 341	Leg	Max Tension	12	15965.94	6.00	7.88
			Max. Compression	19	-86599.23	105.80	-5.23
			Max. Mx	18	-28904.26	-417.67	320.43
			Max. My	26	-51688.91	-123.64	446.14
			Max. Vy	24	477.20	190.42	-147.09
			Max. Vx	26	384.92	167.60	138.82
		Diagonal	Max Tension	18	5233.30	0.00	0.00
			Max. Compression	18	-5317.24	0.00	0.00
			Max. Mx	19	-4548.42	46.17	5.32
			Max. My	24	-4292.12	35.78	-6.81
			Max. Vy	19	-19.17	46.17	5.32
			Max. Vx	24	1.76	35.78	-6.81
		Top Girt	Max Tension	25	448.72	0.00	0.00
			Max. Compression	6	-159.79	0.00	0.00
			Max. Mx	14	140.20	-25.82	0.00
			Max. My	22	166.36	0.00	0.00
			Max. Vy	14	17.22	0.00	0.00
			Max. Vx	22	-0.00	0.00	0.00
		Mid Girt	Max Tension	25	297.08	0.00	0.00
			Max. Compression	19	-12.86	0.00	0.00
			Max. Mx	14	126.86	-25.82	0.00
			Max. My	22	147.91	0.00	0.00
			Max. Vy	14	17.22	0.00	0.00
			Max. Vx	22	-0.00	0.00	0.00
T7	341 - 321	Leg	Max Tension	1	0.00	0.00	0.00
			Max. Compression	19	-53969.93	59.03	132.48
			Max. Mx	26	-45585.52	480.77	446.13
			Max. My	26	-48122.74	-113.59	-662.45

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Force lb	Major Axis Moment lb-ft	Minor Axis Moment lb-ft
			Max. Vy	18	-745.12	-417.67	320.44
			Max. Vx	26	874.14	127.99	208.55
		Diagonal	Max Tension	18	3986.64	0.00	0.00
			Max. Compression	18	-3936.96	0.00	0.00
			Max. Mx	15	-542.69	36.17	-2.46
			Max. My	18	-3566.92	35.76	7.92
			Max. Vy	15	-16.59	36.17	-2.46
			Max. Vx	18	-2.06	35.76	7.92
		Top Girt	Max Tension	18	432.66	0.00	0.00
			Max. Compression	15	-167.40	0.00	0.00
			Max. Mx	14	128.65	-25.82	0.00
			Max. My	16	222.48	0.00	0.00
			Max. Vy	14	17.22	0.00	0.00
			Max. Vx	16	-0.00	0.00	0.00
		Mid Girt	Max Tension	15	187.09	0.00	0.00
			Max. Compression	1	0.00	0.00	0.00
			Max. Mx	14	127.18	-25.82	0.00
			Max. My	16	146.76	0.00	0.00
			Max. Vy	14	17.22	0.00	0.00
			Max. Vx	16	-0.00	0.00	0.00
T8	321 - 301	Leg	Max Tension	1	0.00	0.00	0.00
			Max. Compression	15	-49039.80	164.43	260.96
			Max. Mx	18	-39248.39	-504.24	-63.31
			Max. My	15	-33286.64	-2.53	504.18
			Max. Vy	18	515.34	-504.24	-63.31
			Max. Vx	15	-514.75	-2.53	504.18
		Diagonal	Max Tension	18	2274.77	0.00	0.00
			Max. Compression	20	-2299.32	0.00	0.00
			Max. Mx	15	-471.54	37.67	-2.68
			Max. My	18	-2141.57	7.93	6.53
			Max. Vy	15	-16.97	37.67	-2.68
			Max. Vx	18	-1.70	7.93	6.53
		Top Girt	Max Tension	25	261.26	0.00	0.00
			Max. Compression	1	0.00	0.00	0.00
			Max. Mx	14	129.19	-25.82	0.00
			Max. My	16	152.87	0.00	0.00
			Max. Vy	14	17.22	0.00	0.00
			Max. Vx	16	-0.00	0.00	0.00
		Mid Girt	Max Tension	15	500.88	0.00	0.00
			Max. Compression	17	-171.02	0.00	0.00
			Max. Mx	14	138.66	-25.82	0.00
			Max. My	16	171.28	0.00	0.00
			Max. Vy	14	17.22	0.00	0.00
			Max. Vx	16	-0.00	0.00	0.00
T9	301 - 281	Leg	Max Tension	1	0.00	0.00	0.00
			Max. Compression	23	-62211.38	261.85	-108.18
			Max. Mx	18	-51299.34	-265.09	-86.59
			Max. My	15	-41376.29	4.38	284.15
			Max. Vy	19	-224.11	-234.84	-16.11
			Max. Vx	26	304.33	-67.91	235.81
		Diagonal	Max Tension	17	3674.35	0.00	0.00
			Max. Compression	20	-3785.25	0.00	0.00
			Max. Mx	16	1271.22	40.71	0.31
			Max. My	18	-2954.93	5.77	7.75
			Max. Vy	15	-17.77	40.71	-1.58
			Max. Vx	18	-1.99	5.77	7.75
		Top Girt	Max Tension	15	183.53	0.00	0.00
			Max. Compression	1	0.00	0.00	0.00
			Max. Mx	14	134.65	-21.98	0.00
			Max. My	16	163.61	0.00	0.00
			Max. Vy	14	14.65	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	16	-0.00	0.00	0.00
		Mid Girt	Max Tension	25	233.21	0.00	0.00
			Max. Compression	1	0.00	0.00	0.00
			Max. Mx	14	136.76	-21.98	0.00
			Max. My	16	167.31	0.00	0.00
			Max. Vy	14	14.65	0.00	0.00
			Max. Vx	16	-0.00	0.00	0.00
T10	281 - 261	Leg	Max Tension	25	14485.17	216.72	65.28
			Max. Compression	23	-98230.02	357.03	-208.01
			Max. Mx	23	-98230.02	357.03	-208.01
			Max. My	15	-98033.55	-4.59	410.32
			Max. Vy	18	-251.21	-274.45	-121.40
			Max. Vx	16	-278.10	30.94	322.77
		Diagonal	Max Tension	20	5168.93	0.00	0.00
			Max. Compression	20	-5300.18	0.00	0.00
			Max. Mx	16	2484.71	18.99	-0.32
			Max. My	25	-4329.08	2.66	-5.27
			Max. Vy	16	-10.71	18.99	-0.32
			Max. Vx	19	-1.37	3.14	5.27
		Top Girt	Max Tension	25	252.24	0.00	0.00
			Max. Compression	1	0.00	0.00	0.00
			Max. Mx	14	140.03	-25.82	0.00
			Max. My	16	172.96	0.00	0.00
			Max. Vy	14	17.22	0.00	0.00
			Max. Vx	16	-0.00	0.00	0.00
		Mid Girt	Max Tension	17	253.28	0.00	0.00
			Max. Compression	1	0.00	0.00	0.00
			Max. Mx	14	130.37	-25.82	0.00
			Max. My	16	153.54	0.00	0.00
			Max. Vy	14	17.22	0.00	0.00
			Max. Vx	16	-0.00	0.00	0.00
T11	261 - 241	Leg	Max Tension	25	34376.47	82.26	7.67
			Max. Compression	15	-124226.21	-1.63	57.84
			Max. Mx	11	-92352.92	-591.15	-160.98
			Max. My	15	-122215.08	12.95	644.38
			Max. Vy	11	-943.04	496.89	-158.40
			Max. Vx	2	-957.83	73.30	538.53
		Diagonal	Max Tension	18	8683.18	0.00	0.00
			Max. Compression	18	-7922.84	0.00	0.00
			Max. Mx	16	-3109.59	148.88	3.31
			Max. My	18	-4060.97	8.74	32.15
			Max. Vy	16	-49.56	148.88	3.31
			Max. Vx	18	-8.25	8.74	32.15
		Top Girt	Max Tension	23	613.78	0.00	0.00
			Max. Compression	1	0.00	0.00	0.00
			Max. Mx	14	448.27	96.54	0.00
			Max. My	16	531.22	0.00	-0.00
			Max. Vy	14	-64.36	0.00	0.00
			Max. Vx	16	0.00	0.00	0.00
		Mid Girt	Max Tension	23	20998.22	0.00	0.00
			Max. Compression	1	0.00	0.00	0.00
			Max. Mx	14	11451.83	96.54	0.00
			Max. My	16	14044.97	0.00	-0.00
			Max. Vy	14	-64.36	0.00	0.00
			Max. Vx	16	0.00	0.00	0.00
		Guy A	Bottom Tension	21	55338.07		
			Top Tension	21	56512.49		
			Top Cable Vert	21	32571.98		
			Top Cable Horiz	21	46181.46		
			Top Cable Tan	21	2.23		
			Bot Cable Vert	21	-29871.30		

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Force lb	Major Axis Moment lb-ft	Minor Axis Moment lb-ft
			Bot Cable Norm	21	46583.34		
			Bot Cable Tan	21	2.23		
		Guy B	Bottom Tension	25	55673.10		
			Top Tension	25	56817.12		
			Top Cable Vert	25	32751.09		
			Top Cable Norm	25	46427.91		
			Top Cable Tan	25	2.51		
			Bot Cable Vert	25	-30117.14		
			Bot Cable Norm	25	46823.63		
			Bot Cable Tan	25	2.51		
		Guy C	Bottom Tension	17	55337.74		
			Top Tension	17	56514.35		
			Top Cable Vert	17	32304.12		
			Top Cable Norm	17	46371.49		
			Top Cable Tan	17	1.85		
			Bot Cable Vert	17	-29582.76		
			Bot Cable Norm	17	46766.72		
			Bot Cable Tan	17	1.85		
T12	241 - 221	Leg	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-96094.58	157.26	-29.01
			Max. Mx	24	-35036.31	502.42	109.03
			Max. My	21	-42432.77	16.06	-520.47
			Max. Vy	24	681.34	502.42	109.04
			Max. Vx	15	700.92	-195.18	454.25
		Diagonal	Max Tension	18	6848.23	0.00	0.00
			Max. Compression	18	-6863.78	0.00	0.00
			Max. Mx	16	-2469.13	129.91	0.23
			Max. My	18	-5768.10	119.16	13.41
			Max. Vy	16	-44.70	129.91	0.23
			Max. Vx	18	-3.45	119.16	13.41
		Top Girt	Max Tension	25	828.92	0.00	0.00
			Max. Compression	1	0.00	0.00	0.00
			Max. Mx	14	440.77	-21.98	0.00
			Max. My	16	527.65	0.00	0.00
			Max. Vy	14	14.65	0.00	0.00
			Max. Vx	16	-0.00	0.00	0.00
		Mid Girt	Max Tension	25	421.87	0.00	0.00
			Max. Compression	1	0.00	0.00	0.00
			Max. Mx	14	277.19	-21.98	0.00
			Max. My	22	407.15	0.00	-0.00
			Max. Vy	14	14.65	0.00	0.00
			Max. Vx	22	0.00	0.00	0.00
T13	221 - 201	Leg	Max Tension	1	0.00	0.00	0.00
			Max. Compression	25	-91725.46	-306.39	-167.82
			Max. Mx	15	-85715.99	-379.69	-56.17
			Max. My	23	-87796.27	93.02	363.66
			Max. Vy	17	-251.24	-337.95	117.55
			Max. Vx	16	238.37	235.00	218.89
		Diagonal	Max Tension	18	4307.39	0.00	0.00
			Max. Compression	18	-4463.85	0.00	0.00
			Max. Mx	23	-370.46	52.54	1.39
			Max. My	18	-4440.22	7.22	5.81
			Max. Vy	23	-20.78	52.54	1.39
			Max. Vx	18	-1.50	7.22	5.81
		Top Girt	Max Tension	23	420.98	0.00	0.00
			Max. Compression	1	0.00	0.00	0.00
			Max. Mx	14	259.79	-21.98	0.00
			Max. My	22	232.60	0.00	-0.00
			Max. Vy	14	14.65	0.00	0.00
			Max. Vx	22	0.00	0.00	0.00
		Mid Girt	Max Tension	19	428.74	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. Compression	1	0.00	0.00	0.00
			Max. Mx	14	247.09	-21.98	0.00
			Max. My	22	199.60	0.00	-0.00
			Max. Vy	14	14.65	0.00	0.00
			Max. Vx	22	0.00	0.00	0.00
T14	201 - 181	Leg	Max Tension	1	0.00	0.00	0.00
			Max. Compression	25	-104924.13	-324.60	-219.07
			Max. Mx	15	-92611.40	388.80	-93.95
			Max. My	22	-100893.08	55.32	394.77
			Max. Vy	15	-156.15	-386.23	28.78
			Max. Vx	21	-188.54	-19.17	-345.10
		Diagonal	Max Tension	18	2206.70	0.00	0.00
			Max. Compression	18	-2393.22	0.00	0.00
			Max. Mx	23	-214.80	56.69	0.81
			Max. My	19	-1579.92	-0.88	5.67
			Max. Vy	23	-21.85	56.69	0.81
			Max. Vx	19	-1.46	-0.88	5.67
		Top Girt	Max Tension	23	490.25	0.00	0.00
			Max. Compression	1	0.00	0.00	0.00
			Max. Mx	14	252.09	-21.98	0.00
			Max. My	22	156.72	0.00	-0.00
			Max. Vy	14	14.65	0.00	0.00
			Max. Vx	22	0.00	0.00	0.00
		Mid Girt	Max Tension	19	517.27	0.00	0.00
			Max. Compression	1	0.00	0.00	0.00
			Max. Mx	14	255.94	-21.98	0.00
			Max. My	22	298.84	0.00	0.00
			Max. Vy	14	14.65	0.00	0.00
			Max. Vx	22	-0.00	0.00	0.00
T15	181 - 161	Leg	Max Tension	1	0.00	0.00	0.00
			Max. Compression	25	-105870.87	316.49	176.82
			Max. Mx	25	-103240.20	-410.49	-162.38
			Max. My	21	-101861.65	1.31	428.01
			Max. Vy	18	-220.50	-289.34	-75.98
			Max. Vx	7	-255.94	143.90	-279.28
		Diagonal	Max Tension	12	1895.42	0.00	0.00
			Max. Compression	19	-2151.17	0.00	0.00
			Max. Mx	23	-228.02	57.09	0.93
			Max. My	19	-2138.92	14.09	5.45
			Max. Vy	23	-21.95	57.09	0.93
			Max. Vx	15	1.41	47.40	-5.39
		Top Girt	Max Tension	19	543.52	0.00	0.00
			Max. Compression	1	0.00	0.00	0.00
			Max. Mx	14	261.05	-21.98	0.00
			Max. My	22	307.08	0.00	0.00
			Max. Vy	14	14.65	0.00	0.00
			Max. Vx	22	-0.00	0.00	0.00
		Mid Girt	Max Tension	23	519.49	0.00	0.00
			Max. Compression	1	0.00	0.00	0.00
			Max. Mx	14	267.51	-21.98	0.00
			Max. My	22	314.64	0.00	0.00
			Max. Vy	14	14.65	0.00	0.00
			Max. Vx	22	-0.00	0.00	0.00
T16	161 - 141	Leg	Max Tension	1	0.00	0.00	0.00
			Max. Compression	25	-100765.69	537.22	46.01
			Max. Mx	25	-57185.40	-558.38	-28.65
			Max. My	21	-65355.27	-114.57	586.86
			Max. Vy	25	487.27	537.22	46.01
			Max. Vx	21	363.94	-114.57	-459.18
		Diagonal	Max Tension	23	4006.11	0.00	0.00
			Max. Compression	23	-4212.28	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	23	-408.47	111.58	5.38
			Max. My	21	-3918.23	101.95	19.33
			Max. Vy	23	-40.00	111.58	5.38
			Max. Vx	21	-4.98	101.95	19.33
		Top Girt	Max Tension	19	536.82	0.00	0.00
			Max. Compression	1	0.00	0.00	0.00
			Max. Mx	14	292.02	-21.98	0.00
			Max. My	22	378.78	0.00	0.00
			Max. Vy	14	14.65	0.00	0.00
			Max. Vx	22	-0.00	0.00	0.00
		Mid Girt	Max Tension	23	536.02	0.00	0.00
			Max. Compression	1	0.00	0.00	0.00
			Max. Mx	14	344.17	-21.98	0.00
			Max. My	22	393.42	0.00	0.00
			Max. Vy	14	14.65	0.00	0.00
			Max. Vx	22	-0.00	0.00	0.00
T17	141 - 121	Leg	Max Tension	1	0.00	0.00	0.00
			Max. Compression	25	-106714.10	-200.36	-105.18
			Max. Mx	18	-74465.85	-947.06	279.07
			Max. My	22	-72211.84	223.81	-929.60
			Max. Vy	5	-467.87	-863.86	227.13
			Max. Vx	21	-472.12	76.19	-909.12
		Diagonal	Max Tension	16	6924.40	0.00	0.00
			Max. Compression	18	-8422.30	0.00	0.00
			Max. Mx	23	-720.23	135.35	6.01
			Max. My	15	-3424.28	59.90	-48.36
			Max. Vy	23	-46.09	135.35	6.01
			Max. Vx	15	12.42	59.90	-48.36
		Top Girt	Max Tension	25	1277.90	0.00	0.00
			Max. Compression	10	-115.08	0.00	0.00
			Max. Mx	14	485.05	-21.98	0.00
			Max. My	22	594.85	0.00	0.00
			Max. Vy	14	14.65	0.00	0.00
			Max. Vx	22	-0.00	0.00	0.00
		Mid Girt	Max Tension	25	9707.24	0.00	0.00
			Max. Compression	15	-5819.75	0.00	0.00
			Max. Mx	14	1535.91	-21.98	0.00
			Max. My	22	2155.58	0.00	0.00
			Max. Vy	14	14.65	0.00	0.00
			Max. Vx	22	-0.00	0.00	0.00
		Guy A	Bottom Tension	21	22795.33		
			Top Tension	21	23087.77		
			Top Cable Vert	21	8594.03		
			Top Cable Norm	21	21428.67		
			Top Cable Tan	21	1.26		
			Bot Cable Vert	21	-7616.23		
			Bot Cable Norm	21	21485.35		
			Bot Cable Tan	21	7.24		
		Guy B	Bottom Tension	25	22827.37		
			Top Tension	25	23098.49		
			Top Cable Vert	25	7993.89		
			Top Cable Norm	25	21671.14		
			Top Cable Tan	25	4.22		
			Bot Cable Vert	25	-7031.43		
			Bot Cable Norm	25	21717.45		
			Bot Cable Tan	25	3.79		
		Guy C	Bottom Tension	17	22082.14		
			Top Tension	17	22367.85		
			Top Cable Vert	17	7845.35		
			Top Cable Norm	17	20946.87		
			Top Cable Tan	17	4.96		

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	17	-6841.12		
			Bot Cable Norm	17	20995.72		
			Bot Cable Tan	17	2.99		
		Torque Arm Top	Max Tension	21	23131.44	0.00	0.00
			Max. Compression	1	0.00	0.00	0.00
			Max. Mx	15	18003.73	81.06	0.00
			Max. My	16	5392.19	0.00	0.00
			Max. Vy	15	-42.94	0.00	0.00
			Max. Vx	16	-0.00	0.00	0.00
		Torque Arm Bottom	Max Tension	5	3408.83	0.00	0.00
			Max. Compression	21	-20512.18	0.00	0.00
			Max. Mx	23	-18514.84	97.41	0.00
			Max. My	16	-16612.37	0.00	-0.36
			Max. Vy	23	-43.03	0.00	0.00
			Max. Vx	16	0.16	0.00	0.00
T18	121 - 101	Leg	Max Tension	1	0.00	0.00	0.00
			Max. Compression	25	-158676.72	-615.68	-408.65
			Max. Mx	16	-39447.89	-1086.37	-259.00
			Max. My	16	-91662.15	-596.75	-1501.15
			Max. Vy	25	1031.15	530.50	618.06
			Max. Vx	16	1345.49	-596.75	507.39
		Diagonal	Max Tension	18	6634.77	0.00	0.00
			Max. Compression	18	-6681.96	0.00	0.00
			Max. Mx	25	4102.58	66.09	-1.32
			Max. My	16	-3543.73	-4.45	11.37
			Max. Vy	25	-24.24	66.09	-1.32
			Max. Vx	16	2.95	0.00	0.00
		Top Girt	Max Tension	15	2348.32	0.00	0.00
			Max. Compression	25	-118.20	0.00	0.00
			Max. Mx	14	909.76	-21.98	0.00
			Max. My	16	1036.32	0.00	0.00
			Max. Vy	14	14.65	0.00	0.00
			Max. Vx	16	-0.00	0.00	0.00
		Mid Girt	Max Tension	15	985.93	0.00	0.00
			Max. Compression	24	-141.84	0.00	0.00
			Max. Mx	14	395.19	-21.98	0.00
			Max. My	16	240.02	0.00	0.00
			Max. Vy	14	14.65	0.00	0.00
			Max. Vx	16	-0.00	0.00	0.00
T19	101 - 81	Leg	Max Tension	19	1949.22	437.69	235.60
			Max. Compression	25	-184976.91	-652.25	-384.86
			Max. Mx	26	-174063.46	-673.12	-293.13
			Max. My	21	-173146.89	-1.88	721.52
			Max. Vy	15	-259.86	-656.57	-152.44
			Max. Vx	21	-258.77	-22.56	-472.61
		Diagonal	Max Tension	24	4030.22	0.00	0.00
			Max. Compression	24	-4383.81	0.00	0.00
			Max. Mx	24	-63.25	73.40	-6.58
			Max. My	24	-4371.66	-50.03	-9.95
			Max. Vy	24	-26.11	73.40	-6.58
			Max. Vx	24	-2.56	0.00	0.00
		Top Girt	Max Tension	23	720.27	0.00	0.00
			Max. Compression	1	0.00	0.00	0.00
			Max. Mx	14	369.95	-21.98	0.00
			Max. My	16	412.16	0.00	0.00
			Max. Vy	14	14.65	0.00	0.00
			Max. Vx	16	-0.00	0.00	0.00
		Mid Girt	Max Tension	15	822.34	0.00	0.00
			Max. Compression	25	-22.29	0.00	0.00
			Max. Mx	14	372.85	-21.98	0.00
			Max. My	16	405.28	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. Vy	14	14.65	0.00	0.00
			Max. Vx	16	-0.00	0.00	0.00
T20	81 - 61	Leg	Max Tension	15	6795.35	3.13	256.00
			Max. Compression	25	-194035.79	670.99	171.91
			Max. Mx	15	-156310.14	774.39	-65.11
			Max. My	21	-176963.68	-1.89	721.52
			Max. Vy	23	691.20	193.46	621.36
			Max. Vx	20	497.71	301.06	-492.65
		Diagonal	Max Tension	24	2402.45	0.00	0.00
			Max. Compression	24	-2620.10	0.00	0.00
			Max. Mx	24	-919.90	77.26	-3.74
			Max. My	24	-2607.98	-56.13	-9.90
			Max. Vy	24	-27.09	77.26	-3.74
			Max. Vx	24	-2.55	0.00	0.00
		Top Girt	Max Tension	15	813.36	0.00	0.00
			Max. Compression	1	0.00	0.00	0.00
			Max. Mx	14	374.93	-21.98	0.00
			Max. My	16	400.42	0.00	0.00
			Max. Vy	14	14.65	0.00	0.00
			Max. Vx	16	-0.00	-0.00	0.00
		Mid Girt	Max Tension	15	817.36	0.00	0.00
			Max. Compression	1	0.00	0.00	0.00
			Max. Mx	14	384.68	-21.98	0.00
			Max. My	22	448.35	0.00	0.00
			Max. Vy	14	14.65	0.00	0.00
			Max. Vx	22	-0.00	0.00	0.00
T21	61 - 41	Leg	Max Tension	15	2541.19	35.98	314.01
			Max. Compression	25	-191377.55	402.25	233.74
			Max. Mx	26	-86074.27	-690.53	-180.14
			Max. My	21	-173763.90	7.06	727.95
			Max. Vy	16	-312.11	-598.56	80.13
			Max. Vx	21	-289.23	9.18	-517.94
		Diagonal	Max Tension	24	2511.84	0.00	0.00
			Max. Compression	15	-2896.10	0.00	0.00
			Max. Mx	24	-1537.42	74.82	-3.15
			Max. My	24	-1568.63	-17.06	-4.20
			Max. Vy	24	-26.46	74.82	-3.15
			Max. Vx	24	-1.09	0.00	0.00
		Top Girt	Max Tension	15	962.11	0.00	0.00
			Max. Compression	25	-114.87	0.00	0.00
			Max. Mx	14	388.03	-21.98	0.00
			Max. My	22	464.99	0.00	0.00
			Max. Vy	14	14.65	0.00	0.00
			Max. Vx	22	-0.00	0.00	0.00
		Mid Girt	Max Tension	15	868.31	0.00	0.00
			Max. Compression	25	-42.80	0.00	0.00
			Max. Mx	14	390.54	-21.98	0.00
			Max. My	16	431.04	0.00	0.00
			Max. Vy	14	14.65	0.00	0.00
			Max. Vx	16	-0.00	0.00	0.00
T22	41 - 20	Leg	Max Tension	1	0.00	0.00	0.00
			Max. Compression	25	-171697.40	395.55	230.18
			Max. Mx	15	-141445.96	-656.63	-168.58
			Max. My	21	-163745.10	20.27	686.38
			Max. Vy	15	-235.50	-656.63	-168.58
			Max. Vx	21	236.88	-21.39	-458.81
		Diagonal	Max Tension	24	5247.43	0.00	0.00
			Max. Compression	24	-5040.77	0.00	0.00
			Max. Mx	24	-2206.74	69.91	-2.35
			Max. My	16	-3172.15	25.19	-3.97
			Max. Vy	24	-24.84	69.91	-2.35

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Force lb	Major Axis Moment lb-ft	Minor Axis Moment lb-ft
			Max. Vx	16	1.03	25.19	-3.97
		Top Girt	Max Tension	15	830.89	0.00	0.00
			Max. Compression	1	0.00	0.00	0.00
			Max. Mx	14	400.33	-21.98	0.00
			Max. My	16	446.88	0.00	0.00
			Max. Vy	14	14.65	0.00	0.00
			Max. Vx	16	-0.00	0.00	0.00
		Mid Girt	Max Tension	15	1249.63	0.00	0.00
			Max. Compression	1	0.00	0.00	0.00
			Max. Mx	14	761.73	-21.98	0.00
			Max. My	16	853.70	0.00	0.00
			Max. Vy	14	14.65	0.00	0.00
			Max. Vx	16	-0.00	0.00	0.00
T23	20 - 6.70833	Leg	Max Tension	1	0.00	0.00	0.00
			Max. Compression	25	-143312.11	41.05	-25.29
			Max. Mx	23	-127534.81	1468.44	302.69
			Max. My	16	-103258.94	1390.99	-372.45
			Max. Vy	25	-482.48	1464.22	68.87
			Max. Vx	21	112.10	-132.95	338.31
		Diagonal	Max Tension	24	3779.75	0.00	0.00
			Max. Compression	23	-1662.55	0.00	0.00
			Max. Mx	24	2860.44	-109.31	1.49
			Max. My	16	634.87	26.62	-7.77
			Max. Vy	24	-51.52	0.00	0.00
			Max. Vx	16	-3.55	0.00	0.00
		Top Girt	Max Tension	23	9595.92	0.00	0.00
			Max. Compression	1	0.00	0.00	0.00
			Max. Mx	25	5831.45	-24.21	0.00
			Max. My	23	7106.86	0.00	-1.80
			Max. Vy	25	16.14	0.00	0.00
			Max. Vx	23	1.20	0.00	0.00
T24	6.70833 - 0	Leg	Max Tension	1	0.00	0.00	0.00
			Max. Compression	25	-142847.60	-2272.59	0.62
			Max. Mx	25	-142847.60	-2272.59	0.62
			Max. My	22	-101063.34	-1438.37	-1755.97
			Max. Vy	23	-1728.85	-1842.61	-10.19
			Max. Vx	16	-1123.57	-1431.57	1746.94
		Diagonal	Max Tension	23	4500.21	0.00	0.00
			Max. Compression	16	-4937.82	8.99	-29.13
			Max. Mx	21	-3557.50	-242.86	22.77
			Max. My	22	-2342.73	32.30	29.76
			Max. Vy	21	-281.79	0.00	0.00
			Max. Vx	22	34.06	0.00	0.00

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical lb	Horizontal, X lb	Horizontal, Z lb
Mast	Max. Vert	23	303781.78	7371.56	-3212.53
	Max. H_x	24	298292.26	8346.73	1021.37
	Max. H_z	15	302136.44	703.29	8251.64
	Max. M_x	1	0.00	-23.51	-4.88
	Max. M_z	1	0.00	-23.51	-4.88
	Max. Torsion	22	1246.88	3653.18	-6625.20
	Min. Vert	1	187821.01	-23.51	-4.88
	Min. H_x	18	295080.85	-8115.80	362.97

Location	Condition	Gov. Load Comb.	Vertical lb	Horizontal, X lb	Horizontal, Z lb
	Min. H_x	21	295320.97	205.29	-7847.22
	Min. M_x	1	0.00	-23.51	-4.88
	Min. M_z	1	0.00	-23.51	-4.88
	Min. Torsion	16	-1238.44	-3887.97	6933.03
Guy C @ 424.5 ft Elev -16.5 ft Azimuth 240 deg	Max. Vert	10	-969.35	-3445.46	1989.98
	Max. H_x	10	-969.35	-3445.46	1989.98
	Max. H_z	17	-13447.81	-35786.32	20643.37
	Min. Vert	17	-13447.81	-35786.32	20643.37
	Min. H_x	17	-13447.81	-35786.32	20643.37
	Min. H_z	10	-969.35	-3445.46	1989.98
Guy B @ 407.5 ft Elev -9 ft Azimuth 120 deg	Max. Vert	6	-875.53	3205.16	1850.44
	Max. H_x	25	-14045.44	37566.76	21685.44
	Max. H_z	25	-14045.44	37566.76	21685.44
	Min. Vert	25	-14045.44	37566.76	21685.44
	Min. H_x	6	-875.53	3205.16	1850.44
	Min. H_z	6	-875.53	3205.16	1850.44
Guy A @ 403 ft Elev -20 ft Azimuth 0 deg	Max. Vert	2	-977.37	0.77	-3626.63
	Max. H_x	24	-7824.71	1320.36	-22849.33
	Max. H_z	2	-977.37	0.77	-3626.63
	Min. Vert	21	-14783.67	-18.31	-41771.51
	Min. H_x	18	-8012.55	-1319.33	-23347.51
	Min. H_z	21	-14783.67	-18.31	-41771.51
Guy C @ 411 ft Elev -20.5 ft Azimuth 240 deg	Max. Vert	10	-2679.44	-3926.26	2266.74
	Max. H_x	10	-2679.44	-3926.26	2266.74
	Max. H_z	17	-77677.28	-85204.30	49204.13
	Min. Vert	17	-77677.28	-85204.30	49204.13
	Min. H_x	17	-77677.28	-85204.30	49204.13
	Min. H_z	10	-2679.44	-3926.26	2266.74
Guy B @ 394 ft Elev -13 ft Azimuth 120 deg	Max. Vert	6	-2396.36	3498.46	2019.65
	Max. H_x	25	-78879.59	84762.29	48934.42
	Max. H_z	25	-78879.59	84762.29	48934.42
	Min. Vert	25	-78879.59	84762.29	48934.42
	Min. H_x	6	-2396.36	3498.46	2019.65
	Min. H_z	6	-2396.36	3498.46	2019.65
Guy A @ 405 ft Elev -20 ft Azimuth 0 deg	Max. Vert	2	-2586.90	0.08	-4337.22
	Max. H_x	24	-41421.05	2896.37	-52247.08
	Max. H_z	2	-2586.90	0.08	-4337.22
	Min. Vert	21	-78244.86	0.89	-97795.84
	Min. H_x	18	-39999.25	-2890.53	-50552.03
	Min. H_z	21	-78244.86	0.89	-97795.84

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	187821.01	23.51	4.88	0.01	0.02	0.06
Dead+Wind 0 deg - No Ice+Guy	228848.80	232.71	-6222.36	0.01	0.02	421.51
Dead+Wind 30 deg - No Ice+Guy	221339.65	3281.25	-5092.75	0.01	0.02	608.12
Dead+Wind 60 deg - No Ice+Guy	215960.02	5486.21	-3014.39	0.01	0.02	567.39
Dead+Wind 90 deg - No Ice+Guy	221011.12	6361.45	-78.96	0.01	0.02	348.69
Dead+Wind 120 deg - No Ice+Guy	228244.38	5785.34	3005.61	0.01	0.02	175.61
Dead+Wind 150 deg - No Ice+Guy	221735.75	3171.60	5253.79	0.01	0.02	-77.18
Dead+Wind 180 deg - No Ice+Guy	217769.07	60.95	6023.58	0.01	0.02	-438.61
Dead+Wind 210 deg - No Ice+Guy	223772.19	-2836.97	5174.73	0.01	0.02	-593.19
Dead+Wind 240 deg - No Ice+Guy	231343.42	-5295.76	3036.25	0.01	0.02	-542.06
Dead+Wind 270 deg - No Ice+Guy	223638.07	-6163.09	-57.95	0.01	0.02	-430.01
Dead+Wind 300 deg - No Ice+Guy	218112.53	-5353.76	-3086.13	0.01	0.02	-280.11
Dead+Wind 330 deg - No Ice+Guy	221997.59	-3056.27	-5243.76	0.01	0.02	127.70
Dead+Ice+Temp+Guy	262169.40	22.22	5.78	0.01	0.02	0.05
Dead+Wind 0 deg+Ice+Temp+Guy	302136.44	-703.29	-8251.64	0.01	0.03	492.74
Dead+Wind 30 deg+Ice+Temp+Guy	296703.77	3887.97	-6933.03	0.01	0.02	1238.44
Dead+Wind 60 deg+Ice+Temp+Guy	293463.16	7120.03	-3829.20	0.01	0.02	852.26
Dead+Wind 90 deg+Ice+Temp+Guy	295080.85	8115.80	-362.97	0.01	0.02	560.87
Dead+Wind 120 deg+Ice+Temp+Guy	300203.56	7265.31	3703.92	0.01	0.03	314.10
Dead+Wind 150 deg+Ice+Temp+Guy	296277.94	3953.22	6794.71	0.01	0.02	-70.88
Dead+Wind 180 deg+Ice+Temp+Guy	295320.97	-205.29	7847.22	0.01	0.02	-1060.51
Dead+Wind 210 deg+Ice+Temp+Guy	298473.57	-3653.18	6625.20	0.01	0.02	-1246.87
Dead+Wind 240 deg+Ice+Temp+Guy	303781.78	-7371.56	3212.53	0.01	0.03	-936.14
Dead+Wind 270 deg+Ice+Temp+Guy	298292.26	-8346.73	-1021.37	0.01	0.02	-598.07
Dead+Wind 300 deg+Ice+Temp+Guy	295879.47	-7446.62	-4379.58	0.01	0.02	-497.29
Dead+Wind 330 deg+Ice+Temp+Guy	298222.99	-4650.80	-6896.00	0.01	0.02	-373.47
Dead+Wind 0 deg - Service+Guy	191925.61	97.24	-2248.87	0.01	0.02	148.54
Dead+Wind 30 deg - Service+Guy	190541.81	1180.94	-1841.00	0.01	0.02	194.43
Dead+Wind 60 deg - Service+Guy	189731.45	1961.07	-1072.15	0.01	0.02	180.26
Dead+Wind 90 deg - Service+Guy	190373.67	2297.57	-15.92	0.01	0.02	118.21
Dead+Wind 120 deg - Service+Guy	191569.87	2104.20	1090.35	0.01	0.02	54.65
Dead+Wind 150 deg -	190775.13	1166.18	1883.30	0.01	0.02	-28.02

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
Service+Guy						
Dead+Wind 180 deg - Service+Guy	190443.65	31.47	2142.61	0.01	0.02	-133.72
Dead+Wind 210 deg - Service+Guy	191435.27	-1034.85	1865.70	0.01	0.02	-189.73
Dead+Wind 240 deg - Service+Guy	192796.02	-1922.46	1113.72	0.01	0.02	-186.45
Dead+Wind 270 deg - Service+Guy	191575.68	-2209.48	-2.64	0.01	0.02	-147.04
Dead+Wind 300 deg - Service+Guy	190693.96	-1890.61	-1093.51	0.01	0.02	-92.56
Dead+Wind 330 deg - Service+Guy	191086.77	-1071.95	-1886.28	0.01	0.02	46.30

Solution Summary

Load Comb.	Sum of Applied Forces PX lb	PY lb	PZ lb	Sum of Reactions PX lb	PY lb	PZ lb	% Error
1	-0.00	-97484.20	0.00	20.32	97484.21	0.73	0.021%
2	272.87	-98279.59	-98017.42	-272.23	98277.95	97930.71	0.062%
3	47832.61	-97482.04	-82407.73	-47844.74	97480.90	82332.99	0.056%
4	82325.04	-96679.59	-47491.94	-82384.84	96680.51	47514.46	0.047%
5	95916.55	-97516.24	-53.84	-95858.79	97515.19	103.15	0.056%
6	85318.44	-98340.87	48881.15	-85242.33	98339.28	-48837.12	0.063%
7	47855.16	-97518.40	82681.62	-47784.96	97517.35	-82656.66	0.055%
8	1.20	-96688.80	94600.62	-27.68	96689.71	-94661.80	0.049%
9	-47570.99	-97486.35	82802.18	47498.14	97485.17	-82774.39	0.057%
10	-84904.06	-98288.81	49096.35	84828.06	98287.14	-49051.59	0.064%
11	-95855.56	-97452.15	-45.50	95797.91	97451.06	94.46	0.055%
12	-82264.71	-96627.52	-47606.27	82313.02	96628.51	47651.41	0.049%
13	-47590.43	-97449.99	-82624.82	47603.95	97448.92	82551.86	0.054%
14	0.00	-150113.40	0.00	-18.21	150113.38	7.03	0.013%
15	-1281.21	-151269.89	-115978.24	1281.22	151268.24	115887.00	0.048%
16	55002.92	-150108.09	-97912.36	-55016.37	150106.87	97831.99	0.043%
17	96014.26	-148938.74	-55840.88	-96008.18	148938.05	55768.04	0.039%
18	111923.65	-150159.17	-2123.15	-111863.51	150158.06	2175.88	0.043%
19	99928.84	-151362.41	55599.84	-99851.39	151360.85	-55554.59	0.047%
20	55649.46	-150164.47	96009.33	-55575.01	150163.35	-95982.97	0.042%
21	-1083.09	-148956.91	110071.06	1057.91	148955.90	-110008.26	0.037%
22	-55592.54	-150118.71	95878.98	55516.64	150117.48	-95850.22	0.044%
23	-100740.33	-151288.05	54876.53	100661.05	151286.41	-54829.95	0.048%
24	-112816.55	-150067.63	-2850.81	112755.05	150066.45	2902.97	0.043%
25	-97490.77	-148864.39	-56124.81	97419.29	148863.42	56130.03	0.038%
26	-56406.72	-150062.32	-98186.19	56419.56	150061.06	98106.83	0.043%
27	94.42	-97759.42	-34005.60	-94.07	97759.29	33984.94	0.020%
28	16595.85	-97483.45	-28592.33	-16599.60	97483.36	28573.16	0.019%
29	28563.72	-97205.78	-16477.97	-28570.27	97205.81	16476.23	0.007%
30	33278.66	-97495.29	-18.63	-33264.20	97495.22	32.00	0.019%
31	29599.49	-97780.62	16958.66	-29582.27	97780.51	-16948.78	0.019%
32	16603.65	-97496.03	28687.10	-16584.78	97495.97	-28681.28	0.019%
33	0.42	-97208.97	32823.32	-14.77	97208.98	-32824.99	0.014%
34	-16505.32	-97484.94	28728.82	16486.74	97484.85	-28722.35	0.019%
35	-29456.11	-97762.61	17033.12	29438.19	97762.47	-17022.40	0.020%
36	-33257.55	-97473.11	-15.74	33242.82	97473.02	29.13	0.019%
37	-28542.84	-97187.77	-16517.53	28541.40	97187.79	16527.21	0.010%
38	-16512.05	-97472.36	-28667.44	16516.41	97472.28	28648.16	0.019%

Non-Linear Convergence Results

Load Combination	Converged?	Number of Cycles	Displacement Tolerance	Force Tolerance
1	Yes	16	0.00000001	0.00002099
2	Yes	135	0.00019458	0.00013306
3	Yes	122	0.00019649	0.00012523
4	Yes	45	0.00019427	0.00016890
5	Yes	122	0.00019778	0.00012244
6	Yes	135	0.00019773	0.00013197
7	Yes	123	0.00019556	0.00012049
8	Yes	45	0.00019630	0.00016568
9	Yes	122	0.00019988	0.00012775
10	Yes	135	0.00019517	0.00013481
11	Yes	122	0.00019683	0.00012248
12	Yes	44	0.00019855	0.00016942
13	Yes	122	0.00019666	0.00012133
14	Yes	10	0.00000001	0.00002856
15	Yes	133	0.00019695	0.00011157
16	Yes	122	0.00019583	0.00010803
17	Yes	47	0.00019482	0.00012240
18	Yes	121	0.00019741	0.00010464
19	Yes	133	0.00019810	0.00010847
20	Yes	122	0.00019573	0.00010381
21	Yes	40	0.00019088	0.00015116
22	Yes	122	0.00019601	0.00010787
23	Yes	132	0.00019867	0.00011223
24	Yes	121	0.00019764	0.00010538
25	Yes	40	0.00019370	0.00014484
26	Yes	124	0.00019463	0.00010364
27	Yes	71	0.00019613	0.00006695
28	Yes	61	0.00019452	0.00006437
29	Yes	19	0.00019142	0.00009602
30	Yes	58	0.00019578	0.00006401
31	Yes	69	0.00019292	0.00006508
32	Yes	58	0.00019642	0.00006410
33	Yes	20	0.00019799	0.00009004
34	Yes	62	0.00019216	0.00006417
35	Yes	72	0.00019361	0.00006692
36	Yes	61	0.00019487	0.00006410
37	Yes	20	0.00019247	0.00009301
38	Yes	60	0.00019695	0.00006497

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	490 - 457	9.233	35	0.3068	0.1285
T1	457 - 436	7.348	35	0.1865	0.1294
T2	436 - 421	6.544	35	0.1826	0.1291
T3	421 - 401	5.984	35	0.1719	0.1279
T4	401 - 381	5.307	35	0.1392	0.1272
T5	381 - 361	4.760	35	0.1044	0.1274

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T6	361 - 341	4.449	35	0.0730	0.1284
T7	341 - 321	4.233	35	0.0533	0.1205
T8	321 - 301	4.049	35	0.0468	0.1105
T9	301 - 281	3.855	35	0.0474	0.1046
T10	281 - 261	3.651	35	0.0435	0.0988
T11	261 - 241	3.475	35	0.0264	0.0884
T12	241 - 221	3.434	35	0.0089	0.0842
T13	221 - 201	3.470	35	0.0117	0.0811
T14	201 - 181	3.487	35	0.0078	0.0742
T15	181 - 161	3.430	35	0.0245	0.0670
T16	161 - 141	3.287	35	0.0410	0.0632
T17	141 - 121	3.083	35	0.0497	0.0587
T18	121 - 101	2.875	35	0.0503	0.0567
T19	101 - 81	2.667	31	0.0646	0.0641
T20	81 - 61	2.373	31	0.0880	0.0633
T21	61 - 41	1.953	31	0.1152	0.0600
T22	41 - 20	1.406	31	0.1406	0.0589
T23	20 - 6.70833	0.722	31	0.1598	0.0573
T24	6.70833 - 0	0.257	31	0.1724	0.0544

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
445'	071092 El. 256-ft-B, 346-ft, 445-ft-C	35	6.869	0.1815	0.1294	39687
443'	071092 El. 256-ft-B, 346-ft, 445-ft-C	35	6.796	0.1819	0.1294	71732
441'6"	071092 El. 256-ft-B, 346-ft, 445-ft-C	35	6.742	0.1822	0.1293	181863
440'	071092 El. 256-ft-B, 346-ft, 445-ft-C	35	6.689	0.1824	0.1293	321104
439'	071092 El. 269-ft, 285-ft, 326-ft, 343-ft, 439-ft, 445-ft-A	35	6.653	0.1826	0.1292	120210
430'	1083-3CP	35	6.321	0.1804	0.1286	181620
425'	1083-3CP	35	6.132	0.1764	0.1282	81050
420'	1083-3CP	35	5.948	0.1706	0.1278	41644
415'	1083-3CP	35	5.770	0.1634	0.1275	42525
410'	1083-3CP	35	5.599	0.1552	0.1274	46792
400'	2-Bay Shively FM w/ Radomes	35	5.276	0.1374	0.1271	47095
394'	2-Bay Shively FM w/ Radomes	35	5.094	0.1268	0.1270	28669
388'	2-Bay Shively FM w/ Radomes	35	4.927	0.1164	0.1270	20093
381'	Guy	35	4.760	0.1044	0.1274	15930
372'	071092 El. 372-ft Mount	35	4.596	0.0894	0.1284	23632
365'	TLP-8M x 11.7-ft	35	4.498	0.0785	0.1287	43429
354'	15' x 8" Omni	35	4.368	0.0646	0.1265	85593
347'6"	071092 347.5-ft Mount	35	4.298	0.0582	0.1237	87628
346'	071092 El. 256-ft-B, 346-ft, 445-ft-C	35	4.282	0.0569	0.1230	88111
343'	071092 El. 269-ft, 285-ft, 326-ft, 343-ft, 439-ft, 445-ft-A	35	4.252	0.0546	0.1215	90071
340'	8-FT Grid	35	4.223	0.0527	0.1200	98674
331'	071092 El. 267-ft, 331-ft Mounts	35	4.140	0.0487	0.1154	252324
330'	071092 330-ft Mount	35	4.131	0.0484	0.1149	308127
328'	10-Element 10-ft x 6-ft Yagi	35	4.113	0.0479	0.1139	552507
326'	071092 El. 269-ft, 285-ft, 326-ft,	35	4.095	0.0475	0.1129	453953

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
	343-ft, 439-ft, 445-ft-A					
322'	SPD3-5.8	35	4.058	0.0469	0.1110	226676
316'	2-Bay Shively FM w/ Radomes	35	4.002	0.0467	0.1084	214328
312'	2-Bay Shively FM w/ Radomes	35	3.964	0.0468	0.1076	244170
308'	2-Bay Shively FM w/ Radomes	35	3.925	0.0471	0.1063	283665
305'	TLP-8M x 11.7-ft	35	3.895	0.0473	0.1057	322794
299'	TLP-8M x 11.7-ft	35	3.835	0.0473	0.1041	425198
293'	TLP-8M x 11.7-ft	35	3.774	0.0469	0.1026	558964
285'	071092 El. 269-ft, 285-ft, 326-ft, 343-ft, 439-ft, 445-ft-A	35	3.692	0.0451	0.1004	962842
278'	15' x 8" Omni	35	3.620	0.0419	0.0974	154375
271'	071092 271-ft Mount	35	3.551	0.0370	0.0935	52020
269'	071092 El. 269-ft, 285-ft, 326-ft, 343-ft, 439-ft, 445-ft-A	35	3.533	0.0352	0.0924	43453
267'	071092 El. 267-ft, 331-ft Mounts	35	3.517	0.0333	0.0913	37309
260'	071092 El. 260-ft Mount	35	3.469	0.0251	0.0880	27833
256'	071092 El. 256-ft-B, 346-ft, 445-ft-C	35	3.451	0.0195	0.0867	30536
251'	Guy	35	3.438	0.0124	0.0855	36908
247'	071092 El. 247-ft (Single Sector)	35	3.433	0.0096	0.0849	44271
235'	071092 El. 232-ft, 238-ft Mount	35	3.441	0.0101	0.0835	105200
214'	071092 El. 214-ft Mount	35	3.482	0.0077	0.0792	100427
204'6"	071092 El. 184.5-ft Mount	35	3.488	0.0063	0.0757	66055
199'6"	071092 El. 184.5-ft Mount	35	3.485	0.0086	0.0735	58222
194'6"	071092 El. 184.5-ft Mount	35	3.478	0.0120	0.0712	55402
189'6"	071092 El. 184.5-ft Mount	35	3.465	0.0164	0.0695	53159
188'	26" Covered Yagi	35	3.460	0.0178	0.0690	52522
186'	14" x 12" Corner Reflector	35	3.453	0.0197	0.0684	51695
184'6"	071092 El. 184.5-ft Mount	35	3.446	0.0211	0.0679	51116
179'6"	SP4-5.8	35	3.422	0.0258	0.0667	51089
154'	6-FT Grid	35	3.220	0.0453	0.0618	110143
153'	071092 El. 133-155-ft Mounts	35	3.210	0.0458	0.0616	120687
148'	071092 El. 133-155-ft Mounts	35	3.158	0.0480	0.0604	231103
146'	Andrew 6' w/Radome	35	3.137	0.0487	0.0599	356192
143'	071092 El. 133-155-ft Mounts	35	3.105	0.0494	0.0592	637788
138'	071092 El. 133-155-ft Mounts	35	3.052	0.0499	0.0579	290561
133'6"	20-ft x 2.5-in Omni Antenna	35	3.004	0.0498	0.0569	242415
133'	071092 El. 133-155-ft Mounts	35	2.999	0.0497	0.0569	238148
131'	Guy	35	2.978	0.0496	0.0565	222484
117'6"	P-9A48GN-U	35	2.840	0.0516	0.0576	569525
109'6"	10-FT Grid	35	2.759	0.0568	0.0610	76003
107'	6-ft x 3-ft Grid	31	2.732	0.0589	0.0621	59769
100'	SPD2-5.8	31	2.655	0.0657	0.0644	40418
76'	8-FT Grid	31	2.280	0.0946	0.0625	38142
68'	6-ft x 3-ft Grid	31	2.115	0.1055	0.0612	37440
67'	6-ft x 3-ft Grid	31	2.093	0.1069	0.0610	37354
63'	6-ft x 3-ft Grid	31	2.001	0.1124	0.0604	37055
62'	6-ft x 3-ft Grid	31	1.977	0.1138	0.0602	37025
54'	3'-6" x 10 Element Yagi	31	1.776	0.1246	0.0594	37827
49'	0.75M-1	31	1.640	0.1313	0.0592	38558
44'	1.2M	31	1.496	0.1374	0.0590	39405
40'	18-in Standoff	31	1.376	0.1417	0.0589	42476

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	490 - 457	32.322	15	0.8165	0.5338
T1	457 - 436	27.384	15	0.6153	0.5865
T2	436 - 421	24.884	15	0.6073	0.5841
T3	421 - 401	23.129	15	0.5806	0.5683
T4	401 - 381	20.973	15	0.4920	0.5487
T5	381 - 361	19.177	15	0.3929	0.5290
T6	361 - 341	18.091	15	0.3036	0.5247
T7	341 - 321	17.274	15	0.2499	0.5163
T8	321 - 301	16.512	15	0.2400	0.5167
T9	301 - 281	15.681	15	0.2434	0.4948
T10	281 - 261	14.810	15	0.2231	0.4876
T11	261 - 241	14.078	23	0.1578	0.4756
T12	241 - 221	13.874	23	0.0748	0.4677
T13	221 - 201	13.963	23	0.0604	0.4631
T14	201 - 181	14.008	23	0.0721	0.4432
T15	181 - 161	13.806	23	0.1254	0.4115
T16	161 - 141	13.305	23	0.1791	0.3819
T17	141 - 121	12.576	23	0.2090	0.3569
T18	121 - 101	11.805	23	0.2157	0.3528
T19	101 - 81	10.976	23	0.2623	0.4010
T20	81 - 61	9.755	23	0.3567	0.3908
T21	61 - 41	8.028	23	0.4730	0.3836
T22	41 - 20	5.776	23	0.5792	0.3768
T23	20 - 6.70833	2.964	15	0.6569	0.3685
T24	6.70833 - 0	1.057	15	0.7082	0.3497

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
445'	071092 El. 256-ft-B, 346-ft, 445-ft-C	15	25.923	0.6068	0.5873	19426
443'	071092 El. 256-ft-B, 346-ft, 445-ft-C	15	25.692	0.6072	0.5871	35343
441'6"	071092 El. 256-ft-B, 346-ft, 445-ft-C	15	25.519	0.6075	0.5867	91679
440'	071092 El. 256-ft-B, 346-ft, 445-ft-C	15	25.346	0.6078	0.5862	152916
439'	071092 El. 269-ft, 285-ft, 326-ft, 343-ft, 439-ft, 445-ft-A	15	25.231	0.6078	0.5858	57936
430'	1083-3CP	15	24.180	0.6016	0.5786	141228
425'	1083-3CP	15	23.592	0.5918	0.5729	29138
420'	1083-3CP	15	23.015	0.5774	0.5672	16890
415'	1083-3CP	15	22.454	0.5585	0.5621	17007
410'	1083-3CP	15	21.911	0.5363	0.5575	18232
400'	2-Bay Shively FM w/ Radomes	15	20.871	0.4870	0.5477	16821
394'	2-Bay Shively FM w/ Radomes	15	20.280	0.4570	0.5409	9793
388'	2-Bay Shively FM w/ Radomes	15	19.733	0.4272	0.5345	6740
381'	Guy	15	19.177	0.3929	0.5290	5293
372'	071092 El. 372-ft Mount	15	18.617	0.3501	0.5263	7897
365'	TLP-8M x 11.7-ft	15	18.270	0.3194	0.5256	14753
354'	15' x 8" Omni	15	17.792	0.2797	0.5216	31165
347'6"	071092 347.5-ft Mount	15	17.528	0.2622	0.5182	32064
346'	071092 El. 256-ft-B, 346-ft, 445-ft-C	15	17.468	0.2589	0.5176	32279
343'	071092 El. 269-ft, 285-ft, 326-ft,	15	17.351	0.2531	0.5166	33106

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
	343-ft, 439-ft, 445-ft-A					
340'	8-FT Grid	15	17.236	0.2485	0.5162	36624
331'	071092 El. 267-ft, 331-ft Mounts	15	16.896	0.2409	0.5174	100944
330'	071092 330-ft Mount	15	16.858	0.2405	0.5175	124314
328'	10-Element 10-ft x 6-ft Yagi	15	16.782	0.2400	0.5178	87568
326'	071092 El. 269-ft, 285-ft, 326-ft, 343-ft, 439-ft, 445-ft-A	15	16.706	0.2397	0.5178	66533
322'	SPD3-5.8	15	16.551	0.2399	0.5171	47411
316'	2-Bay Shively FM w/ Radomes	15	16.312	0.2412	0.5131	50446
312'	2-Bay Shively FM w/ Radomes	15	16.147	0.2423	0.5089	60819
308'	2-Bay Shively FM w/ Radomes	15	15.980	0.2432	0.5039	76562
305'	TLP-8M x 11.7-ft	15	15.852	0.2436	0.5000	94987
299'	TLP-8M x 11.7-ft	15	15.594	0.2429	0.4924	162709
293'	TLP-8M x 11.7-ft	15	15.334	0.2398	0.4877	160584
285'	071092 El. 269-ft, 285-ft, 326-ft, 343-ft, 439-ft, 445-ft-A	15	14.984	0.2304	0.4882	98734
278'	15' x 8" Omni	15	14.680	0.2163	0.4866	31889
271'	071092 271-ft Mount	15	14.390	0.1963	0.4826	13255
269'	071092 El. 269-ft, 285-ft, 326-ft, 343-ft, 439-ft, 445-ft-A	15	14.313	0.1895	0.4812	11347
267'	071092 El. 267-ft, 331-ft Mounts	23	14.246	0.1822	0.4797	9909
260'	071092 El. 260-ft Mount	23	14.055	0.1533	0.4749	7550
256'	071092 El. 256-ft-B, 346-ft, 445-ft-C	23	13.979	0.1348	0.4727	8136
251'	Guy	23	13.917	0.1116	0.4705	9466
247'	071092 El. 247-ft (Single Sector)	23	13.888	0.0946	0.4691	10889
235'	071092 El. 232-ft, 238-ft Mount	23	13.887	0.0642	0.4669	20093
214'	071092 El. 214-ft Mount	23	13.997	0.0598	0.4581	32225
204'6"	071092 El. 184.5-ft Mount	23	14.014	0.0646	0.4479	19995
199'6"	071092 El. 184.5-ft Mount	23	14.003	0.0756	0.4411	17420
194'6"	071092 El. 184.5-ft Mount	23	13.974	0.0880	0.4335	16549
189'6"	071092 El. 184.5-ft Mount	23	13.928	0.1013	0.4254	15867
188'	26" Covered Yagi	23	13.910	0.1055	0.4230	15674
186'	14" x 12" Corner Reflector	23	13.885	0.1111	0.4197	15423
184'6"	071092 El. 184.5-ft Mount	23	13.863	0.1154	0.4172	15246
179'6"	SP4-5.8	23	13.779	0.1297	0.4091	15154
154'	6-FT Grid	23	13.066	0.1934	0.3727	28021
153'	071092 El. 133-155-ft Mounts	23	13.030	0.1951	0.3714	30263
148'	071092 El. 133-155-ft Mounts	23	12.845	0.2026	0.3652	50444
146'	Andrew 6' w/Radome	23	12.769	0.2049	0.3628	68793
143'	071092 El. 133-155-ft Mounts	23	12.653	0.2077	0.3592	126039
138'	071092 El. 133-155-ft Mounts	23	12.460	0.2102	0.3535	80704
133'6"	20-ft x 2.5-in Omni Antenna	23	12.285	0.2109	0.3494	77437
133'	071092 El. 133-155-ft Mounts	23	12.266	0.2109	0.3491	77170
131'	Guy	23	12.189	0.2111	0.3480	76118
117'6"	P-9A48GN-U	23	11.672	0.2203	0.3599	66165
109'6"	10-FT Grid	23	11.357	0.2370	0.3818	17547
107'	6-ft x 3-ft Grid	23	11.251	0.2436	0.3886	14263
100'	SPD2-5.8	23	10.926	0.2659	0.4022	9941
76'	8-FT Grid	23	9.372	0.3829	0.3855	9092
68'	6-ft x 3-ft Grid	23	8.692	0.4277	0.3831	8868
67'	6-ft x 3-ft Grid	23	8.601	0.4337	0.3830	8841
63'	6-ft x 3-ft Grid	23	8.225	0.4592	0.3831	8748
62'	6-ft x 3-ft Grid	23	8.127	0.4660	0.3833	8739
54'	3'-6" x 10 Element Yagi	23	7.299	0.5240	0.3866	9011
49'	0.75M-t	23	6.738	0.5557	0.3871	9245
44'	1.2M	23	6.146	0.5757	0.3828	9511
40'	18-in Standoff	23	5.650	0.5786	0.3741	10288

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	457	Leg	A325N	0.8750	8	1038.90	26458.10	0.039 ✓	1.333	Bolt Tension
		Diagonal	A325N	0.5000	2	972.05	4123.34	0.236 ✓	1.333	Bolt Shear
		Top Girt	A325N	0.5000	2	137.82	4123.34	0.033 ✓	1.333	Bolt Shear
		Mid Girt	A325N	0.5000	2	35.25	4123.34	0.009 ✓	1.333	Bolt Shear
T2	436	Leg	A325N	0.8750	8	2812.50	26458.10	0.106 ✓	1.333	Bolt Tension
		Diagonal	A325N	0.5000	2	1551.60	4123.34	0.376 ✓	1.333	Bolt Shear
		Top Girt	A325N	0.5000	2	35.75	4123.34	0.009 ✓	1.333	Bolt Shear
		Mid Girt	A325N	0.5000	2	17.32	4123.34	0.004 ✓	1.333	Bolt Shear
T3	421	Leg	A325N	0.8750	8	7171.64	26458.10	0.271 ✓	1.333	Bolt Tension
		Diagonal	A325N	0.5000	2	2707.84	4123.34	0.657 ✓	1.333	Bolt Shear
		Top Girt	A325N	0.5000	2	36.57	4123.34	0.009 ✓	1.333	Bolt Shear
		Mid Girt	A325N	0.5000	2	68.26	4123.34	0.017 ✓	1.333	Bolt Shear
T4	401	Leg	A325N	0.8750	8	13913.60	26457.90	0.526 ✓	1.333	Bolt Tension
		Diagonal	A325N	0.5000	2	4335.98	4123.34	1.052 ✓	1.333	Bolt Shear
		Top Girt	A325N	0.5000	2	193.98	4123.34	0.047 ✓	1.333	Bolt Shear
		Mid Girt	A325N	0.5000	2	264.99	4123.34	0.064 ✓	1.333	Bolt Shear
T5	381	Leg	A325N	0.8750	8	3228.17	26458.00	0.122 ✓	1.333	Bolt Tension
		Diagonal	A325N	0.5000	2	3625.77	4123.34	0.879 ✓	1.333	Bolt Shear
		Top Girt	A325N	0.5000	2	10703.90	8246.68	1.298 ✓	1.333	Bolt Shear
		Mid Girt	A325N	0.5000	2	323.11	4123.34	0.078 ✓	1.333	Bolt Shear
T6	361	Leg	A325N	0.8750	8	0.00	26457.90	0.000 ✓	1.333	Bolt Tension
		Diagonal	A325N	0.5000	2	2658.62	4123.34	0.645 ✓	1.333	Bolt Shear
		Top Girt	A325N	0.5000	2	224.36	4123.34	0.054 ✓	1.333	Bolt Shear
		Mid Girt	A325N	0.5000	2	148.54	4123.34	0.036 ✓	1.333	Bolt Shear
T7	341	Leg	A325N	0.8750	8	0.00	26458.10	0.000 ✓	1.333	Bolt Tension
		Diagonal	A325N	0.5000	2	1993.32	4123.34	0.483 ✓	1.333	Bolt Shear
		Top Girt	A325N	0.5000	2	216.33	4123.34	0.052 ✓	1.333	Bolt Shear
		Mid Girt	A325N	0.5000	2	93.55	4123.34	0.023 ✓	1.333	Bolt Shear
T8	321	Leg	A325N	0.8750	8	0.00	26458.10	0.000 ✓	1.333	Bolt Tension
		Diagonal	A325N	0.5000	2	1149.66	4123.34	0.279 ✓	1.333	Bolt Shear
		Top Girt	A325N	0.5000	2	130.63	4123.34	0.032 ✓	1.333	Bolt Shear
		Mid Girt	A325N	0.5000	2	250.44	4123.34	0.061 ✓	1.333	Bolt Shear
T9	301	Leg	A325N	0.8750	8	0.00	26458.00	0.000 ✓	1.333	Bolt Tension
		Diagonal	A325N	0.5000	2	1892.62	4123.34	0.459 ✓	1.333	Bolt Shear
		Top Girt	A325N	0.5000	2	91.77	4123.34	0.022 ✓	1.333	Bolt Shear
		Mid Girt	A325N	0.5000	2	116.61	4123.34	0.028 ✓	1.333	Bolt Shear
T10	281	Leg	A325N	0.8750	8	1810.65	26458.10	0.068 ✓	1.333	Bolt Tension

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
		Diagonal	A325N	0.5000	2	2650.09	4123.34	0.643 ✓	1.333	Bolt Shear
		Top Girt	A325N	0.5000	2	126.12	4123.34	0.031 ✓	1.333	Bolt Shear
		Mid Girt	A325N	0.5000	2	126.64	4123.34	0.031 ✓	1.333	Bolt Shear
T11	261	Leg	A325N	0.8750	8	0.00	26458.10	0.000 ✓	1.333	Bolt Tension
		Diagonal	A325N	0.5000	2	4341.59	4123.34	1.053 ✓	1.333	Bolt Shear
		Top Girt	A325N	0.5000	2	306.89	8246.68	0.037 ✓	1.333	Bolt Shear
		Mid Girt	A325N	0.5000	2	10499.10	8246.68	1.273 ✓	1.333	Bolt Shear
T12	241	Leg	A325N	0.8750	8	0.00	26458.10	0.000 ✓	1.333	Bolt Tension
		Diagonal	A325N	0.5000	2	3431.89	4123.34	0.832 ✓	1.333	Bolt Shear
		Top Girt	A325N	0.5000	2	414.46	4123.34	0.101 ✓	1.333	Bolt Shear
		Mid Girt	A325N	0.5000	2	210.94	4123.34	0.051 ✓	1.333	Bolt Shear
T13	221	Leg	A325N	0.8750	8	0.00	26458.00	0.000 ✓	1.333	Bolt Tension
		Diagonal	A325N	0.5000	2	2231.92	4123.34	0.541 ✓	1.333	Bolt Shear
		Top Girt	A325N	0.5000	2	210.49	4123.34	0.051 ✓	1.333	Bolt Shear
		Mid Girt	A325N	0.5000	2	214.37	4123.34	0.052 ✓	1.333	Bolt Shear
T14	201	Leg	A325N	0.8750	8	0.00	26458.10	0.000 ✓	1.333	Bolt Tension
		Diagonal	A325N	0.5000	2	1196.61	4123.34	0.290 ✓	1.333	Bolt Shear
		Top Girt	A325N	0.5000	2	245.13	4123.34	0.059 ✓	1.333	Bolt Shear
		Mid Girt	A325N	0.5000	2	258.63	4123.34	0.063 ✓	1.333	Bolt Shear
T15	181	Leg	A325N	0.8750	8	0.00	26458.10	0.000 ✓	1.333	Bolt Tension
		Diagonal	A325N	0.5000	2	1075.58	4123.34	0.261 ✓	1.333	Bolt Shear
		Top Girt	A325N	0.5000	2	271.76	4123.34	0.066 ✓	1.333	Bolt Shear
		Mid Girt	A325N	0.5000	2	259.75	4123.34	0.063 ✓	1.333	Bolt Shear
T16	161	Leg	A325N	0.8750	8	0.00	26458.00	0.000 ✓	1.333	Bolt Tension
		Diagonal	A325N	0.5000	2	2106.14	4123.34	0.511 ✓	1.333	Bolt Shear
		Top Girt	A325N	0.5000	2	268.41	4123.34	0.065 ✓	1.333	Bolt Shear
		Mid Girt	A325N	0.5000	2	268.01	4123.34	0.065 ✓	1.333	Bolt Shear
T17	141	Leg	A325N	0.8750	8	0.00	26458.10	0.000 ✓	1.333	Bolt Tension
		Diagonal	A325N	0.5000	2	4211.15	4123.34	1.021 ✓	1.333	Bolt Shear
		Top Girt	A325N	0.5000	2	638.95	4123.34	0.155 ✓	1.333	Bolt Shear
		Mid Girt	A325N	0.5000	2	4853.62	4123.34	1.177 ✓	1.333	Bolt Shear
		Torque Arm Top@131	A325N	0.7500	8	2891.43	18555.00	0.156 ✓	1.333	Bolt Shear
		Torque Arm Bottom@131	A325N	0.7500	8	2564.02	18555.00	0.138 ✓	1.333	Bolt Shear
T18	121	Leg	A325N	0.8750	8	0.00	26458.00	0.000 ✓	1.333	Bolt Tension
		Diagonal	A325N	0.5000	2	3340.98	4123.34	0.810 ✓	1.333	Bolt Shear
		Top Girt	A325N	0.5000	2	1174.16	4123.34	0.285 ✓	1.333	Bolt Shear
		Mid Girt	A325N	0.5000	2	492.96	4123.34	0.120 ✓	1.333	Bolt Shear
T19	101	Leg	A325N	0.8750	8	243.65	26458.10	0.009 ✓	1.333	Bolt Tension
		Diagonal	A325N	0.5000	2	2191.90	4123.34	0.532 ✓	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
		Top Girt	A325N	0.5000	2	360.14	4123.34	0.087 ✓	1.333	Bolt Shear
		Mid Girt	A325N	0.5000	2	411.17	4123.34	0.100 ✓	1.333	Bolt Shear
T20	81	Leg	A325N	0.8750	8	703.47	26457.90	0.027 ✓	1.333	Bolt Tension
		Diagonal	A325N	0.5000	2	1310.05	4123.34	0.318 ✓	1.333	Bolt Shear
		Top Girt	A325N	0.5000	2	406.68	4123.34	0.099 ✓	1.333	Bolt Shear
		Mid Girt	A325N	0.5000	2	408.68	4123.34	0.099 ✓	1.333	Bolt Shear
T21	61	Leg	A325N	0.8750	8	0.00	26458.00	0.000 ✓	1.333	Bolt Tension
		Diagonal	A325N	0.5000	2	1448.05	4123.34	0.351 ✓	1.333	Bolt Shear
		Top Girt	A325N	0.5000	2	481.06	4123.34	0.117 ✓	1.333	Bolt Shear
		Mid Girt	A325N	0.5000	2	434.16	4123.34	0.105 ✓	1.333	Bolt Shear
T22	41	Leg	A325N	0.8750	8	0.00	26458.10	0.000 ✓	1.333	Bolt Tension
		Diagonal	A325N	0.5000	2	2623.71	4123.34	0.636 ✓	1.333	Bolt Shear
		Top Girt	A325N	0.5000	2	415.45	4123.34	0.101 ✓	1.333	Bolt Shear
		Mid Girt	A325N	0.5000	2	624.82	4123.34	0.152 ✓	1.333	Bolt Shear
T23	20	Leg	A325N	0.8750	8	0.00	26457.80	0.000 ✓	1.333	Bolt Tension
		Diagonal	A325N	0.5000	2	1889.87	4123.34	0.458 ✓	1.333	Bolt Shear
		Top Girt	A325N	0.5000	2	4797.96	4123.34	1.164 ✓	1.333	Bolt Shear
T24	6.70833	Diagonal	A325N	0.5000	2	2468.91	4123.34	0.599 ✓	1.333	Bolt Shear

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.
T5	381' (A) (790)	1 3/8 BS	23200.00	232000.30	72488.90	116000.00	2.000	3.200 ✓
	381' (B) (789)	1 3/8 BS	23200.00	232000.30	72603.10	116000.00	2.000	3.195 ✓
	381' (C) (788)	1 3/8 BS	23200.00	232000.30	72601.10	116000.00	2.000	3.196 ✓
T11	251' (A) (787)	1 1/4 BS	19200.00	192000.16	56512.50	96000.00	2.000	3.397 ✓
	251' (B) (786)	1 1/4 BS	19200.00	192000.16	56817.10	96000.00	2.000	3.379 ✓
	251' (C) (785)	1 1/4 BS	19200.00	192000.16	56514.30	96000.00	2.000	3.397 ✓
T17	131' (A) (779)	3/4 BS	6800.00	67999.85	23087.80	34000.00	2.000	2.945 ✓
	131' (A) (780)	3/4 BS	6800.00	67999.85	21814.40	34000.00	2.000	3.117 ✓
	131' (B) (773)	3/4 BS	6800.00	67999.85	23098.50	34000.00	2.000	2.944 ✓
	131' (B) (774)	3/4 BS	6800.00	67999.85	23044.50	34000.00	2.000	2.951 ✓
	131' (C) (767)	3/4 BS	6800.00	67999.85	21656.80	34000.00	2.000	3.140 ✓
	131' (C) (768)	3/4 BS	6800.00	67999.85	22367.90	34000.00	2.000	3.040 ✓

Compression Checks

Pole 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 lb	Ratio P / P_a
L1	490 - 457 (1)	dielectric TFU-20JDAS	33'	33'	167.8	5.303	21.4614	-2404.80	113820.00	0.021

Pole Bending Design Data

Section No.	Elevation ft	Size	Actual M_x lb-ft	Actual f_{bx} ksi	Allow F_{bx} ksi	Ratio f_{bx} / F_{bx}	Actual M_z lb-ft	Actual f_{bz} ksi	Allow F_{bz} ksi	Ratio f_{bz} / F_{bz}
L1	490 - 457 (1)	dielectric TFU-20JDAS	9408.08	-3.603	23.100	0.156	0.00	0.000	23.100	0.000

Pole Interaction Design Data

Section No.	Elevation ft	Size	Ratio P / P_a	Ratio f_{bx} / F_{bx}	Ratio f_{bz} / F_{bz}	Comb Stress Ratio	Allow Stress Ratio	Criteria
L1	490 - 457 (1)	dielectric TFU-20JDAS	0.021	0.156	0.000	0.177 ✓	1.066	H1-3 ✓

Leg Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	Mast Stability Index	F_a ksi	A in^2	Actual P lb	Allow P_a lb	Ratio P / P_a
T1	457 - 436	3	21'	5'3"	84.0 K=1.00	1.00	18.201	7.0686	-11651.30	128654.00	0.091
T2	436 - 421	2 3/4	15'	3'9"	65.5 K=1.00	1.00	21.765	5.9396	-28765.70	129273.00	0.223
T3	421 - 401	2 3/4	20'	5'	87.3 K=1.00	1.00	17.519	5.9396	-68009.10	104054.00	0.654
T4	401 - 381	3.5" S.R. w/ 3.5 SCH40 Half Pipe	20'	5'	64.5 K=1.00	1.00	21.932	11.0000	-130098.00	241249.00	0.539
T5	381 - 361	3" S.R. w/ 3 SCH 40 Half Pipe and 3.75 x 5/16 Half Pipe	20'	5'	68.2 K=1.00	1.00	21.272	9.7900	-135103.00	208255.00	0.649
T6	361 - 341	3	20'	5'	80.0 K=1.00	1.00	19.012	7.0686	-86599.20	134391.00	0.644
T7	341 - 321	3	20'	5'	80.0 K=1.00	1.00	19.012	7.0686	-53969.90	134391.00	0.402
T8	321 - 301	3	20'	5'	80.0 K=1.00	1.00	19.012	7.0686	-49039.80	134391.00	0.365
T9	301 - 281	3	20'	5'	80.0 K=1.00	1.00	19.012	7.0686	-62211.40	134391.00	0.463

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	Mast Stability Index	F_a ksi	A in^2	Actual P lb	Allow. P_a lb	Ratio $\frac{P}{P_a}$
T10	281 - 261	3	20'	5'	80.0 K=1.00	1.00	19.012	7.0686	-98230.00	134391.00	0.731
T11	261 - 241	3	20'	5'	80.0 K=1.00	1.00	19.012	7.0686	-124226.00	134391.00	0.924
T12	241 - 221	3	20'	5'	80.0 K=1.00	1.00	19.012	7.0686	-96094.60	134391.00	0.715
T13	221 - 201	3 1/4	20'	5'	73.8 K=1.00	1.00	20.215	8.2958	-91725.50	167695.00	0.547
T14	201 - 181	3 1/4	20'	5'	73.8 K=1.00	1.00	20.215	8.2958	-104924.00	167695.00	0.626
T15	181 - 161	3 1/4	20'	5'	73.8 K=1.00	1.00	20.215	8.2958	-105871.00	167695.00	0.631
T16	161 - 141	3 1/2	20'	5'	68.6 K=1.00	1.00	21.201	9.6211	-100766.00	203977.00	0.494
T17	141 - 121	3 1/2	20'	5'	68.6 K=1.00	1.00	21.201	9.6211	-106714.00	203977.00	0.523
T18	121 - 101	3 1/2	20'	5'	68.6 K=1.00	1.00	21.201	9.6211	-158677.00	203977.00	0.778
T19	101 - 81	3 1/2	20'	5'	68.6 K=1.00	1.00	21.201	9.6211	-184977.00	203977.00	0.907
T20	81 - 61	3 1/2	20'	5'	68.6 K=1.00	1.00	21.201	9.6211	-194036.00	203977.00	0.951
T21	61 - 41	3 1/2	20'	5'	68.6 K=1.00	1.00	21.201	9.6211	-191378.00	203977.00	0.938
T22	41 - 20	3 1/2	21'	5'3"	72.0 K=1.00	1.00	20.564	9.6211	-171697.00	197853.00	0.868
T23	20 - 6.70833	3 1/4	13'5-9/32"	4'5-3/4"	66.2 K=1.00	1.00	21.640	8.2958	-143312.00	179518.00	0.798
T24	6.70833 - 0	3 1/4	6'10-7/16"	2'3-15/32"	33.8 K=1.00	0.92	24.566	8.2958	-142848.00	203794.00	0.701

Leg Bending Design Data (Compression)

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	457 - 436	3	0.00	0.000	37.500	0.000	0.00	0.000	37.500	0.000
T2	436 - 421	2 3/4	0.00	0.000	37.500	0.000	0.00	0.000	37.500	0.000
T3	421 - 401	2 3/4	0.00	0.000	37.500	0.000	0.00	0.000	37.500	0.000
T4	401 - 381	3.5" S.R. w/ 3.5 SCH40 Half Pipe	0.00	0.000	30.000	0.000	0.00	0.000	30.000	0.000
T5	381 - 361	3" S.R. w/ 3 SCH 40 Half Pipe and 3.75 x 5/16 Half Pipe	0.00	0.000	30.000	0.000	0.00	0.000	30.000	0.000
T6	361 - 341	3	0.00	0.000	37.500	0.000	0.00	0.000	37.500	0.000
T7	341 - 321	3	0.00	0.000	37.500	0.000	0.00	0.000	37.500	0.000
T8	321 - 301	3	0.00	0.000	37.500	0.000	0.00	0.000	37.500	0.000
T9	301 - 281	3	0.00	0.000	37.500	0.000	0.00	0.000	37.500	0.000
T10	281 - 261	3	0.00	0.000	37.500	0.000	0.00	0.000	37.500	0.000
T11	261 - 241	3	0.00	0.000	37.500	0.000	0.00	0.000	37.500	0.000
T12	241 - 221	3	0.00	0.000	37.500	0.000	0.00	0.000	37.500	0.000
T13	221 - 201	3 1/4	0.00	0.000	37.500	0.000	0.00	0.000	37.500	0.000
T14	201 - 181	3 1/4	0.00	0.000	37.500	0.000	0.00	0.000	37.500	0.000
T15	181 - 161	3 1/4	0.00	0.000	37.500	0.000	0.00	0.000	37.500	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 $\frac{f_{by}}{F_{by}}$
T16	161 - 141	3 1/2	0.00	0.000	37.500	0.000	0.00	0.000	37.500	0.000
T17	141 - 121	3 1/2	0.00	0.000	37.500	0.000	0.00	0.000	37.500	0.000
T18	121 - 101	3 1/2	0.00	0.000	37.500	0.000	0.00	0.000	37.500	0.000
T19	101 - 81	3 1/2	0.00	0.000	37.500	0.000	0.00	0.000	37.500	0.000
T20	81 - 61	3 1/2	0.00	0.000	37.500	0.000	0.00	0.000	37.500	0.000
T21	61 - 41	3 1/2	0.00	0.000	37.500	0.000	0.00	0.000	37.500	0.000
T22	41 - 20	3 1/2	0.00	0.000	37.500	0.000	0.00	0.000	37.500	0.000
T23	20 - 6.70833	3 1/4	0.00	0.000	37.500	0.000	0.00	0.000	37.500	0.000
T24	6.70833 - 0	3 1/4	0.00	0.000	37.500	0.000	0.00	0.000	37.500	0.000

Leg Interaction Design Data (Compression)

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	457 - 436	3	0.091	0.000	0.000	0.091 ✓	1.333	H1-3 ✓
T2	436 - 421	2 3/4	0.223	0.000	0.000	0.223 ✓	1.333	H1-3 ✓
T3	421 - 401	2 3/4	0.654	0.000	0.000	0.654 ✓	1.333	H1-3 ✓
T4	401 - 381	3.5" S.R. w/ 3.5 SCH40 Half Pipe	0.539	0.000	0.000	0.539 ✓	1.333	H1-3 ✓
T5	381 - 361	3" S.R. w/ 3 SCH 40 Half Pipe and 3.75 x 5/16 Half Pipe	0.649	0.000	0.000	0.649 ✓	1.333	H1-3 ✓
T6	361 - 341	3	0.644	0.000	0.000	0.644 ✓	1.333	H1-3 ✓
T7	341 - 321	3	0.402	0.000	0.000	0.402 ✓	1.333	H1-3 ✓
T8	321 - 301	3	0.365	0.000	0.000	0.365 ✓	1.333	H1-3 ✓
T9	301 - 281	3	0.463	0.000	0.000	0.463 ✓	1.333	H1-3 ✓
T10	281 - 261	3	0.731	0.000	0.000	0.731 ✓	1.333	H1-3 ✓
T11	261 - 241	3	0.924	0.000	0.000	0.924 ✓	1.333	H1-3 ✓
T12	241 - 221	3	0.715	0.000	0.000	0.715 ✓	1.333	H1-3 ✓
T13	221 - 201	3 1/4	0.547	0.000	0.000	0.547 ✓	1.333	H1-3 ✓
T14	201 - 181	3 1/4	0.626	0.000	0.000	0.626 ✓	1.333	H1-3 ✓
T15	181 - 161	3 1/4	0.631	0.000	0.000	0.631 ✓	1.333	H1-3 ✓
T16	161 - 141	3 1/2	0.494	0.000	0.000	0.494 ✓	1.333	H1-3 ✓
T17	141 - 121	3 1/2	0.523	0.000	0.000	0.523 ✓	1.333	H1-3 ✓
T18	121 - 101	3 1/2	0.778	0.000	0.000	0.778 ✓	1.333	H1-3 ✓
T19	101 - 81	3 1/2	0.907	0.000	0.000	0.907 ✓	1.333	H1-3 ✓
T20	81 - 61	3 1/2	0.951	0.000	0.000	0.951 ✓	1.333	H1-3 ✓
T21	61 - 41	3 1/2	0.938	0.000	0.000	0.938 ✓	1.333	H1-3 ✓
T22	41 - 20	3 1/2	0.868	0.000	0.000	0.868 ✓	1.333	H1-3 ✓
T23	20 - 6.70833	3 1/4	0.798	0.000	0.000	0.798 ✓	1.333	H1-3 ✓
T24	6.70833 - 0	3 1/4	0.701	0.000	0.000	0.701 ✓	1.333	H1-3 ✓

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	457 - 436	L2 1/2x2x3/16	7'11-5/8"	3'7-3/32"	105.7 K=1.05	12.245	0.8090	-1944.09	9905.98	0.196 ✓
T2	436 - 421	L2 1/2x2x3/16	7'31/32"	3'2-1/32"	96.9 K=1.09	13.368	0.8090	-3103.20	10814.70	0.287 ✓
T3	421 - 401	L2 1/2x2x3/16	7'9-23/32"	3'6-3/8"	104.3 K=1.05	12.422	0.8090	-5415.67	10049.00	0.539 ✓
T4	401 - 381	L2 1/2x2x3/16	7'9-23/32"	3'5-17/32"	102.9 K=1.06	12.607	0.8090	-8374.31	10198.70	0.821 ✓
T5	381 - 361	L2 1/2x2x3/16	7'9-23/32"	3'5-5/8"	103.2 K=1.06	12.570	0.8090	-7086.49	10168.90	0.697 ✓
T6	361 - 341	L2 1/2x2x3/16	7'9-23/32"	3'6-1/8"	104.1 K=1.05	12.459	0.8090	-5317.24	10079.10	0.528 ✓
T7	341 - 321	L2 1/2x2x3/16	7'9-23/32"	3'6-1/8"	104.1 K=1.05	12.459	0.8090	-3936.96	10079.10	0.391 ✓
T8	321 - 301	L2 1/2x2x3/16	7'9-23/32"	3'6-1/8"	104.1 K=1.05	12.459	0.8090	-2299.32	10079.10	0.228 ✓
T9	301 - 281	L2 1/2x2x3/16	7'9-23/32"	3'6-1/8"	104.1 K=1.05	12.459	0.8090	-3785.25	10079.10	0.376 ✓
T10	281 - 261	L1 1/2x1 1/2x1/4	7'9-23/32"	3'6-1/8"	138.6 K=0.96	7.772	0.6875	-5300.18	5343.35	0.992 ✓
T11	261 - 241	L3x3x1/4	7'9-23/32"	3'6-1/8"	83.4 K=1.17	14.971	1.4400	-7922.84	21558.70	0.368 ✓
T12	241 - 221	L3x3x1/4	7'9-23/32"	3'6-1/8"	83.4 K=1.17	14.971	1.4400	-6863.78	21558.70	0.318 ✓
T13	221 - 201	L2 1/2x2x3/16	7'9-23/32"	3'6"	103.8 K=1.06	12.496	0.8090	-4463.85	10109.00	0.442 ✓
T14	201 - 181	L2 1/2x2x3/16	7'9-23/32"	3'6"	103.8 K=1.06	12.496	0.8090	-2393.22	10109.00	0.237 ✓
T15	181 - 161	L2 1/2x2x3/16	7'9-23/32"	3'6"	103.8 K=1.06	12.496	0.8090	-2151.17	10109.00	0.213 ✓
T16	161 - 141	L3x3x1/4	7'9-23/32"	3'5-7/8"	83.0 K=1.17	15.018	1.4400	-4212.28	21626.20	0.195 ✓
T17	141 - 121	L3x3x1/4	7'9-23/32"	3'5-7/8"	83.0 K=1.17	15.018	1.4400	-8422.30	21626.20	0.389 ✓
T18	121 - 101	L2 1/2x2x3/16	7'9-23/32"	3'5-7/8"	103.5 K=1.06	12.533	0.8090	-6681.96	10139.00	0.659 ✓
T19	101 - 81	L2 1/2x2x3/16	7'9-23/32"	3'5-7/8"	103.5 K=1.06	12.533	0.8090	-4383.81	10139.00	0.432 ✓
T20	81 - 61	L2 1/2x2x3/16	7'9-23/32"	3'5-7/8"	103.5 K=1.06	12.533	0.8090	-2620.10	10139.00	0.258 ✓
T21	61 - 41	L2 1/2x2x3/16	7'9-23/32"	3'5-7/8"	103.5 K=1.06	12.533	0.8090	-2896.10	10139.00	0.286 ✓
T22	41 - 20	L2 1/2x2x3/16	7'11-5/8"	3'6-23/32"	105.1 K=1.05	12.321	0.8090	-5040.77	9967.77	0.506 ✓
T23	20 - 6.70833	L2x2x3/16	6'2-5/32"	3'15/32"	99.4 K=1.07	13.059	0.7150	-1662.55	9336.87	0.178 ✓
T24	6.70833 - 0	L2x2x3/16	2'7-3/32"	1'2-3/4"	58.2 K=1.55	17.604	0.7150	-4937.82	12586.90	0.392 ✓

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	457 - 436	L2 1/2x2x3/16	6'	5'3-15/32"	137.7 K=0.93	7.880	0.8090	-275.64	6375.26	0.043 ✓
T2	436 - 421	L2 1/2x2x3/16	6'	5'3-15/32"	137.7 K=0.93	7.880	0.8090	-53.94	6375.26	0.008 ✓
T3	421 - 401	L2 1/2x2x1/4	6'	5'3-23/32"	138.7 K=0.92	7.766	1.0600	-62.90	8232.04	0.008 ✓
T4	401 - 381	L2 1/2x2x1/4	6'	5'3-23/32"	138.7 K=0.92	7.766	1.0600	-378.69	8232.04	0.046 ✓
T6	361 - 341	L2 1/2x2x1/4	6'	5'2-3/4"	137.2 K=0.93	7.931	1.0600	-159.79	8406.99	0.019 ✓
T7	341 - 321	L2 1/2x2x1/4	6'	5'3-15/32"	138.3 K=0.92	7.807	1.0600	-167.40	8275.26	0.020 ✓
T17	141 - 121	L2 1/2x2x3/16	6'	5'3"	136.9 K=0.93	7.964	0.8090	-115.08	6442.49	0.018 ✓
T18	121 - 101	L2 1/2x2x3/16	6'	5'3"	136.9 K=0.93	7.964	0.8090	-118.20	6442.49	0.018 ✓
T21	61 - 41	L2 1/2x2x3/16	6'	5'3"	136.9 K=0.93	7.964	0.8090	-114.87	6442.49	0.018 ✓

Mid 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	457 - 436	L2 1/2x2x3/16	6'	5'3-15/32"	137.7 K=0.93	7.880	0.8090	-36.86	6375.26	0.006 ✓
T2	436 - 421	L2 1/2x2x3/16	6'	5'3-23/32"	138.0 K=0.92	7.839	0.8090	-20.78	6342.04	0.003 ✓
T3	421 - 401	L2 1/2x2x1/4	6'	5'3-23/32"	138.7 K=0.92	7.766	1.0600	-136.51	8232.04	0.017 ✓
T6	361 - 341	L2 1/2x2x1/4	6'	5'3-15/32"	138.3 K=0.92	7.807	1.0600	-12.86	8275.26	0.002 ✓
T8	321 - 301	L2 1/2x2x1/4	6'	5'3-15/32"	138.3 K=0.92	7.807	1.0600	-171.02	8275.26	0.021 ✓
T17	141 - 121	L2 1/2x2x3/16	6'	5'3"	136.9 K=0.93	7.964	0.8090	-5819.75	6442.49	0.903 ✓
T18	121 - 101	L2 1/2x2x3/16	6'	5'3"	136.9 K=0.93	7.964	0.8090	-141.84	6442.49	0.022 ✓
T19	101 - 81	L2 1/2x2x3/16	6'	5'3"	136.9 K=0.93	7.964	0.8090	-22.29	6442.49	0.003 ✓
T21	61 - 41	L2 1/2x2x3/16	6'	5'3"	136.9 K=0.93	7.964	0.8090	-42.80	6442.49	0.007 ✓

Torque-Arm Bottom 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 P / P_a
T17	141 - 121 (771)	2L3x3x3/16	9'23/32"	7'2-3/4"	106.2 K=1.15	11.991	2.1800	-18758.80	26140.70	0.718 ✓
T17	141 - 121 (772)	2L3x3x3/16	9'23/32"	7'2-3/4"	106.2 K=1.15	11.991	2.1800	-19622.50	26140.70	0.751 ✓
T17	141 - 121 (777)	2L3x3x3/16	9'23/32"	7'2-3/4"	106.2 K=1.15	11.991	2.1800	-20491.20	26140.70	0.784 ✓
T17	141 - 121 (778)	2L3x3x3/16	9'23/32"	7'2-3/4"	106.2 K=1.15	11.991	2.1800	-20011.30	26140.70	0.766 ✓
T17	141 - 121 (783)	2L3x3x3/16	9'23/32"	7'2-3/4"	106.2 K=1.15	11.991	2.1800	-20173.40	26140.70	0.772 ✓
T17	141 - 121 (784)	2L3x3x3/16	9'23/32"	7'2-3/4"	106.2 K=1.15	11.991	2.1800	-20512.20	26140.70	0.785 ✓

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 P / P_a
T1	457 - 436	3	21'	5'3"	84.0	30.000	7.0686	8311.18	212058.00	0.039
T2	436 - 421	2 3/4	15'	3'9"	65.5	30.000	5.9396	22500.00	178187.00	0.126
T3	421 - 401	2 3/4	20'	5'	87.3	30.000	5.9396	57373.10	178187.00	0.322
T4	401 - 381	3.5" S.R. w/ 3.5 SCH40 Half Pipe	20'	5'	64.5	30.000	11.0000	111309.00	330000.00	0.337
T5	381 - 361	3" S.R. w/ 3 SCH 40 Half Pipe and 3.75 x 5/16 Half Pipe	20'	5'	68.2	30.000	9.7900	60090.70	293700.00	0.205
T6	361 - 341	3	20'	5'	80.0	30.000	7.0686	15965.90	212058.00	0.075
T10	281 - 261	3	20'	5'	80.0	30.000	7.0686	14485.20	212058.00	0.068
T11	261 - 241	3	20'	5'	80.0	30.000	7.0686	34494.80	212058.00	0.163
T19	101 - 81	3 1/2	20'	5'	68.6	30.000	9.6211	1949.22	288634.00	0.007
T20	81 - 61	3 1/2	20'	5'	68.6	30.000	9.6211	6795.35	288634.00	0.024
T21	61 - 41	3 1/2	20'	5'	68.6	30.000	9.6211	2541.19	288634.00	0.009

Leg Bending Design Data (Tension)

Section No.	Elevation ft	Size	Actual M_x lb-ft	Actual f_{bx} ksi	Allow. F_{bx} ksi	Ratio f_{bx} / F_{bx}	Actual M_y lb-ft	Actual f_{by} ksi	Allow. F_{by} ksi	Ratio f_{by} / F_{by}
T1	457 - 436	3	0.00	0.000	37.500	0.000	0.00	0.000	37.500	0.000
T2	436 - 421	2 3/4	0.00	0.000	37.500	0.000	0.00	0.000	37.500	0.000
T3	421 - 401	2 3/4	0.00	0.000	37.500	0.000	0.00	0.000	37.500	0.000
T4	401 - 381	3.5" S.R. w/ 3.5 SCH40 Half Pipe	0.00	0.000	30.000	0.000	0.00	0.000	30.000	0.000

Section No.	Elevation ft	Size	Actual M_x lb-ft	Actual f_{bx} ksi	Allow F_{bx} ksi	Ratio f_{bx} / F_{bx}	Actual M_y lb-ft	Actual f_{by} ksi	Allow F_{by} ksi	Ratio f_{by} / F_{by}
T5	381 - 361	3" S.R. w/ 3 SCH 40 Half Pipe and 3.75 x 5/16 Half Pipe	0.00	0.000	30.000	0.000	0.00	0.000	30.000	0.000
T6	361 - 341	3	0.00	0.000	37.500	0.000	0.00	0.000	37.500	0.000
T10	281 - 261	3	0.00	0.000	37.500	0.000	0.00	0.000	37.500	0.000
T11	261 - 241	3	0.00	0.000	37.500	0.000	0.00	0.000	37.500	0.000
T19	101 - 81	3 1/2	0.00	0.000	37.500	0.000	0.00	0.000	37.500	0.000
T20	81 - 61	3 1/2	0.00	0.000	37.500	0.000	0.00	0.000	37.500	0.000
T21	61 - 41	3 1/2	0.00	0.000	37.500	0.000	0.00	0.000	37.500	0.000

Leg Interaction Design Data (Tension)

Section No.	Elevation ft	Size	Ratio P / P_a	Ratio f_{bx} / F_{bx}	Ratio f_{by} / F_{by}	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
T1	457 - 436	3	0.039	0.000	0.000	0.039 ✓	1.333	H2-1 ✓
T2	436 - 421	2 3/4	0.126	0.000	0.000	0.126 ✓	1.333	H2-1 ✓
T3	421 - 401	2 3/4	0.322	0.000	0.000	0.322 ✓	1.333	H2-1 ✓
T4	401 - 381	3.5" S.R. w/ 3.5 SCH40 Half Pipe	0.337	0.000	0.000	0.337 ✓	1.333	H2-1 ✓
T5	381 - 361	3" S.R. w/ 3 SCH 40 Half Pipe and 3.75 x 5/16 Half Pipe	0.205	0.000	0.000	0.205 ✓	1.333	H2-1 ✓
T6	361 - 341	3	0.075	0.000	0.000	0.075 ✓	1.333	H2-1 ✓
T10	281 - 261	3	0.068	0.000	0.000	0.068 ✓	1.333	H2-1 ✓
T11	261 - 241	3	0.163	0.000	0.000	0.163 ✓	1.333	H2-1 ✓
T19	101 - 81	3 1/2	0.007	0.000	0.000	0.007 ✓	1.333	H2-1 ✓
T20	81 - 61	3 1/2	0.024	0.000	0.000	0.024 ✓	1.333	H2-1 ✓
T21	61 - 41	3 1/2	0.009	0.000	0.000	0.009 ✓	1.333	H2-1 ✓

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 P / P_a
T1	457 - 436	L2 1/2x2x3/16	7'11-5/8"	3'7-3/32"	76.4	29.000	0.5189	1931.48	15046.90	0.128 ✓
T2	436 - 421	L2 1/2x2x3/16	7'31/32"	3'2-1/32"	68.1	29.000	0.5189	3081.78	15046.90	0.205 ✓
T3	421 - 401	L2 1/2x2x3/16	7'9-23/32"	3'6-3/8"	75.2	29.000	0.5189	5354.28	15046.90	0.356 ✓
T4	401 - 381	L2 1/2x2x3/16	7'9-23/32"	3'5-17/32"	73.8	29.000	0.5189	8671.96	15046.90	0.576 ✓
T5	381 - 361	L2 1/2x2x3/16	7'9-23/32"	3'5-5/8"	74.1	29.000	0.5189	7251.55	15046.90	0.482 ✓
T6	361 - 341	L2 1/2x2x3/16	7'9-	3'6-1/8"	74.9	29.000	0.5189	5233.30	15046.90	0.348

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 P / P_a
T7	341 - 321	L2 1/2x2x3/16	7'9-23/32"	3'6-1/8"	74.9	29.000	0.5189	3986.64	15046.90	0.265 ✓
T8	321 - 301	L2 1/2x2x3/16	7'9-23/32"	3'6-1/8"	74.9	29.000	0.5189	2274.77	15046.90	0.151 ✓
T9	301 - 281	L2 1/2x2x3/16	7'9-23/32"	3'6-1/8"	74.9	29.000	0.5189	3674.34	15046.90	0.244 ✓
T10	281 - 261	L1 1/2x1 1/2x1/4	7'9-23/32"	3'6-1/8"	100.0	29.000	0.3984	5168.93	11554.70	0.447 ✓
T11	261 - 241	L3x3x1/4	7'9-23/32"	3'6-1/8"	48.3	29.000	0.9628	8683.18	27921.60	0.311 ✓
T12	241 - 221	L3x3x1/4	7'9-23/32"	3'6-1/8"	48.3	29.000	0.9628	6848.23	27921.60	0.245 ✓
T13	221 - 201	L2 1/2x2x3/16	7'9-23/32"	3'6"	74.6	29.000	0.5189	4307.39	15046.90	0.286 ✓
T14	201 - 181	L2 1/2x2x3/16	7'9-23/32"	3'6"	74.6	29.000	0.5189	2206.70	15046.90	0.147 ✓
T15	181 - 161	L2 1/2x2x3/16	7'9-23/32"	3'6"	74.6	29.000	0.5189	1895.42	15046.90	0.126 ✓
T16	161 - 141	L3x3x1/4	7'9-23/32"	3'5-7/8"	47.9	29.000	0.9628	4006.11	27921.60	0.143 ✓
T17	141 - 121	L3x3x1/4	7'9-23/32"	3'5-7/8"	47.9	29.000	0.9628	6924.40	27921.60	0.248 ✓
T18	121 - 101	L2 1/2x2x3/16	7'9-23/32"	3'5-7/8"	74.3	29.000	0.5189	6634.77	15046.90	0.441 ✓
T19	101 - 81	L2 1/2x2x3/16	7'9-23/32"	3'5-7/8"	74.3	29.000	0.5189	4030.22	15046.90	0.268 ✓
T20	81 - 61	L2 1/2x2x3/16	7'9-23/32"	3'5-7/8"	74.3	29.000	0.5189	2402.45	15046.90	0.160 ✓
T21	61 - 41	L2 1/2x2x3/16	7'9-23/32"	3'5-7/8"	74.3	29.000	0.5189	2511.84	15046.90	0.167 ✓
T22	41 - 20	L2 1/2x2x3/16	7'11-5/8"	3'6-23/32"	75.9	29.000	0.5189	5247.43	15046.90	0.349 ✓
T23	20 - 6.70833	L2x2x3/16	5'5-13/32"	2'9"	58.0	29.000	0.4484	3779.75	13002.40	0.291 ✓
T24	6.70833 - 0	L2x2x3/16	3'1-5/16"	1'4-7/16"	31.1	29.000	0.4484	4500.21	13002.40	0.346 ✓

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 P / P_a
T1	457 - 436	L2 1/2x2x3/16	6'	5'3-15/32"	115.0	29.000	0.5189	256.44	15046.90	0.017 ✓
T2	436 - 421	L2 1/2x2x3/16	6'	5'3-15/32"	115.0	29.000	0.5189	71.49	15046.90	0.005 ✓
T3	421 - 401	L2 1/2x2x1/4	6'	5'3-23/32"	116.9	29.000	0.6778	73.14	19656.60	0.004 ✓
T4	401 - 381	L2 1/2x2x1/4	6'	5'3-	116.9	29.000	0.6778	387.95	19656.60	0.020

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 P / P_a
T5	381 - 361	2L3x2x1/4	6'	5'2-17/32"	89.8	29.000	1.5506	21407.70	44968.10	0.476 ✓
T6	361 - 341	L2 1/2x2x1/4	6'	5'2-3/4"	115.2	29.000	0.6778	448.72	19656.60	0.023 ✓
T7	341 - 321	L2 1/2x2x1/4	6'	5'3-15/32"	116.5	29.000	0.6778	432.66	19656.60	0.022 ✓
T8	321 - 301	L2 1/2x2x1/4	6'	5'3-15/32"	116.5	29.000	0.6778	261.26	19656.60	0.013 ✓
T9	301 - 281	L2 1/2x2x3/16	6'	5'3-15/32"	115.0	29.000	0.5189	183.53	15046.90	0.012 ✓
T10	281 - 261	L2 1/2x2x1/4	6'	5'3-15/32"	116.5	29.000	0.6778	252.24	19656.60	0.013 ✓
T11	261 - 241	2L3 1/2x3 1/2x3/8	6'	5'3-15/32"	64.5	29.000	3.3759	613.78	97902.20	0.006 ✓
T12	241 - 221	L2 1/2x2x3/16	6'	5'3-15/32"	115.0	29.000	0.5189	828.92	15046.90	0.055 ✓
T13	221 - 201	L2 1/2x2x3/16	6'	5'3-15/32"	115.0	29.000	0.5189	420.98	15046.90	0.028 ✓
T14	201 - 181	L2 1/2x2x3/16	6'	5'3-1/4"	114.6	29.000	0.5189	490.25	15046.90	0.033 ✓
T15	181 - 161	L2 1/2x2x3/16	6'	5'3-1/4"	114.6	29.000	0.5189	543.52	15046.90	0.036 ✓
T16	161 - 141	L2 1/2x2x3/16	6'	5'3-1/4"	114.6	29.000	0.5189	536.82	15046.90	0.036 ✓
T17	141 - 121	L2 1/2x2x3/16	6'	5'3"	114.2	29.000	0.5189	1277.90	15046.90	0.085 ✓
T18	121 - 101	L2 1/2x2x3/16	6'	5'3"	114.2	29.000	0.5189	2348.32	15046.90	0.156 ✓
T19	101 - 81	L2 1/2x2x3/16	6'	5'3"	114.2	29.000	0.5189	720.28	15046.90	0.048 ✓
T20	81 - 61	L2 1/2x2x3/16	6'	5'3"	114.2	29.000	0.5189	813.36	15046.90	0.054 ✓
T21	61 - 41	L2 1/2x2x3/16	6'	5'3"	114.2	29.000	0.5189	962.11	15046.90	0.064 ✓
T22	41 - 20	L2 1/2x2x3/16	6'	5'3"	114.2	29.000	0.5189	830.89	15046.90	0.055 ✓
T23	20 - 6.70833	L3x2x3/16	6'	5'3"	117.4	29.000	0.5886	9595.92	17069.70	0.562 ✓

Mid 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 P / P_a
T1	457 - 436	L2 1/2x2x3/16	6'	5'3-15/32"	115.0	29.000	0.5189	70.51	15046.90	0.005 ✓
T2	436 - 421	L2 1/2x2x3/16	6'	5'3-23/32"	115.5	29.000	0.5189	34.63	15046.90	0.002 ✓
T3	421 - 401	L2 1/2x2x1/4	6'	5'3-	116.9	29.000	0.6778	130.31	19656.60	0.007

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 $\frac{P}{P_a}$
				23/32"						✓
T4	401 - 381	L2 1/2x2x1/4	6'	5'2-17/32"	114.8	29.000	0.6778	529.98	19656.60	0.027 ✓
T5	381 - 361	L2 1/2x2x1/4	6'	5'2-3/4"	115.2	29.000	0.6778	646.23	19656.60	0.033 ✓
T6	361 - 341	L2 1/2x2x1/4	6'	5'3-15/32"	116.5	29.000	0.6778	297.08	19656.60	0.015 ✓
T7	341 - 321	L2 1/2x2x1/4	6'	5'3-15/32"	116.5	29.000	0.6778	187.09	19656.60	0.010 ✓
T8	321 - 301	L2 1/2x2x1/4	6'	5'3-15/32"	116.5	29.000	0.6778	500.88	19656.60	0.025 ✓
T9	301 - 281	L2 1/2x2x3/16	6'	5'3-15/32"	115.0	29.000	0.5189	233.21	15046.90	0.015 ✓
T10	281 - 261	L2 1/2x2x1/4	6'	5'3-15/32"	116.5	29.000	0.6778	253.28	19656.60	0.013 ✓
T11	261 - 241	2L3 1/2x3 1/2x3/8	6'	5'3-15/32"	64.5	29.000	3.3759	20998.20	97902.20	0.214 ✓
T12	241 - 221	L2 1/2x2x3/16	6'	5'3-15/32"	115.0	29.000	0.5189	421.87	15046.90	0.028 ✓
T13	221 - 201	L2 1/2x2x3/16	6'	5'3-1/4"	114.6	29.000	0.5189	428.74	15046.90	0.028 ✓
T14	201 - 181	L2 1/2x2x3/16	6'	5'3-1/4"	114.6	29.000	0.5189	517.27	15046.90	0.034 ✓
T15	181 - 161	L2 1/2x2x3/16	6'	5'3-1/4"	114.6	29.000	0.5189	519.49	15046.90	0.035 ✓
T16	161 - 141	L2 1/2x2x3/16	6'	5'3"	114.2	29.000	0.5189	536.02	15046.90	0.036 ✓
T17	141 - 121	L2 1/2x2x3/16	6'	5'3"	114.2	29.000	0.5189	9707.24	15046.90	0.645 ✓
T18	121 - 101	L2 1/2x2x3/16	6'	5'3"	114.2	29.000	0.5189	985.93	15046.90	0.066 ✓
T19	101 - 81	L2 1/2x2x3/16	6'	5'3"	114.2	29.000	0.5189	822.34	15046.90	0.055 ✓
T20	81 - 61	L2 1/2x2x3/16	6'	5'3"	114.2	29.000	0.5189	817.36	15046.90	0.054 ✓
T21	61 - 41	L2 1/2x2x3/16	6'	5'3"	114.2	29.000	0.5189	868.31	15046.90	0.058 ✓
T22	41 - 20	L2 1/2x2x3/16	6'	5'3"	114.2	29.000	0.5189	1249.63	15046.90	0.083 ✓

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 $\frac{P}{P_a}$
T17	141 - 121 (769)	2L3x3x3/16	7'6-19/32"	5'9-1/8"	94.6	21.600	2.1800	21497.10	47088.00	0.457 ✓
T17	141 - 121 (770)	2L3x3x3/16	7'6-19/32"	5'9-1/8"	94.6	21.600	2.1800	21806.40	47088.00	0.463 ✓
T17	141 - 121 (775)	2L3x3x3/16	7'6-	5'9-1/8"	94.6	21.600	2.1800	22816.00	47088.00	0.485

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 $\frac{P}{P_a}$
				19/32"						✓
T17	141 - 121 (776)	2L3x3x3/16	7'6-19/32"	5'9-1/8"	94.6	21.600	2.1800	22123.80	47088.00	0.470 ✓
T17	141 - 121 (781)	2L3x3x3/16	7'6-19/32"	5'9-1/8"	94.6	21.600	2.1800	23131.40	47088.00	0.491 ✓
T17	141 - 121 (782)	2L3x3x3/16	7'6-19/32"	5'9-1/8"	94.6	21.600	2.1800	23101.20	47088.00	0.491 ✓

Torque-Arm Bottom 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 $\frac{P}{P_a}$
T17	141 - 121 (771)	2L3x3x3/16	9'23/32"	7'2-3/4"	113.5	21.600	2.1800	2501.69	47088.00	0.053 ✓
T17	141 - 121 (772)	2L3x3x3/16	9'23/32"	7'2-3/4"	113.5	21.600	2.1800	2714.14	47088.00	0.058 ✓
T17	141 - 121 (777)	2L3x3x3/16	9'23/32"	7'2-3/4"	113.5	21.600	2.1800	3408.83	47088.00	0.072 ✓
T17	141 - 121 (778)	2L3x3x3/16	9'23/32"	7'2-3/4"	113.5	21.600	2.1800	3386.29	47088.00	0.072 ✓
T17	141 - 121 (783)	2L3x3x3/16	9'23/32"	7'2-3/4"	113.5	21.600	2.1800	2882.10	47088.00	0.061 ✓
T17	141 - 121 (784)	2L3x3x3/16	9'23/32"	7'2-3/4"	113.5	21.600	2.1800	3198.79	47088.00	0.068 ✓

Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P lb	$SF*P_{allow}$ lb	% Capacity	Pass Fail
L1	490 - 457	Pole	dielectric TFU-20JDAS	1	-2404.80	121377.65	16.6	Pass
T1	457 - 436	Leg	3	3	-11651.30	171495.77	6.8	Pass
T2	436 - 421	Leg	2 3/4	39	-28765.70	172320.90	16.7	Pass
T3	421 - 401	Leg	2 3/4	72	-68009.10	138703.98	49.0	Pass
T4	401 - 381	Leg	3.5" S.R. w/ 3.5 SCH40 Half Pipe	105	-130098.00	321584.90	40.5	Pass
T5	381 - 361	Leg	3" S.R. w/ 3 SCH 40 Half Pipe and 3.75 x 5/16 Half Pipe	138	-135103.00	277603.90	48.7	Pass
T6	361 - 341	Leg	3	171	-86599.20	179143.20	48.3	Pass
T7	341 - 321	Leg	3	204	-53969.90	179143.20	30.1	Pass
T8	321 - 301	Leg	3	236	-49039.80	179143.20	27.4	Pass
T9	301 - 281	Leg	3	269	-62211.40	179143.20	34.7	Pass
T10	281 - 261	Leg	3	302	-98230.00	179143.20	54.8	Pass
T11	261 - 241	Leg	3	337	-124226.00	179143.20	69.3	Pass
T12	241 - 221	Leg	3	370	-96094.60	179143.20	53.6	Pass
T13	221 - 201	Leg	3 1/4	402	-91725.50	223537.43	41.0	Pass
T14	201 - 181	Leg	3 1/4	435	-104924.00	223537.43	46.9	Pass
T15	181 - 161	Leg	3 1/4	468	-105871.00	223537.43	47.4	Pass
T16	161 - 141	Leg	3 1/2	501	-100766.00	271901.33	37.1	Pass

Section No.	Elevation ft	Component Type	Size	Critical Element	P lb	SF*P allow lb	% Capacity	Pass Fail
T17	141 - 121	Leg	3 1/2	534	-106714.00	271901.33	39.2	Pass
T18	121 - 101	Leg	3 1/2	567	-158677.00	271901.33	58.4	Pass
T19	101 - 81	Leg	3 1/2	600	-184977.00	271901.33	68.0	Pass
T20	81 - 61	Leg	3 1/2	633	-194036.00	271901.33	71.4	Pass
T21	61 - 41	Leg	3 1/2	666	-191378.00	271901.33	70.4	Pass
T22	41 - 20	Leg	3 1/2	699	-171697.00	263738.04	65.1	Pass
T23	20 - 6.70833	Leg	3 1/4	732	-143312.00	239297.48	59.9	Pass
T24	6.70833 - 0	Leg	3 1/4	753	-142848.00	271657.39	52.6	Pass
T1	457 - 436	Diagonal	L2 1/2x2x3/16	16	-1944.09	13204.67	14.7	Pass
T2	436 - 421	Diagonal	L2 1/2x2x3/16	49	-3103.20	14415.99	17.7 (b) 21.5	Pass
T3	421 - 401	Diagonal	L2 1/2x2x3/16	82	-5415.67	13395.32	28.2 (b) 40.4	Pass
T4	401 - 381	Diagonal	L2 1/2x2x3/16	121	-8374.31	13594.87	49.3 (b) 61.6	Pass
T5	381 - 361	Diagonal	L2 1/2x2x3/16	163	-7086.49	13555.14	78.9 (b) 52.3	Pass
T6	361 - 341	Diagonal	L2 1/2x2x3/16	197	-5317.24	13435.44	66.0 (b) 39.6	Pass
T7	341 - 321	Diagonal	L2 1/2x2x3/16	230	-3936.96	13435.44	48.4 (b) 29.3	Pass
T8	321 - 301	Diagonal	L2 1/2x2x3/16	247	-2299.32	13435.44	36.3 (b) 17.1	Pass
T9	301 - 281	Diagonal	L2 1/2x2x3/16	280	-3785.25	13435.44	20.9 (b) 28.2	Pass
T10	281 - 261	Diagonal	L1 1/2x1 1/2x1/4	313	-5300.18	7122.69	34.4 (b) 74.4	Pass
T11	261 - 241	Diagonal	L3x3x1/4	350	-7922.84	28737.74	27.6	Pass
T12	241 - 221	Diagonal	L3x3x1/4	395	-6863.78	28737.74	79.0 (b) 23.9	Pass
T13	221 - 201	Diagonal	L2 1/2x2x3/16	428	-4463.85	13475.30	62.4 (b) 33.1	Pass
T14	201 - 181	Diagonal	L2 1/2x2x3/16	461	-2393.22	13475.30	40.6 (b) 17.8	Pass
T15	181 - 161	Diagonal	L2 1/2x2x3/16	478	-2151.17	13475.30	21.8 (b) 16.0	Pass
T16	161 - 141	Diagonal	L3x3x1/4	509	-4212.28	28827.72	19.6 (b) 14.6	Pass
T17	141 - 121	Diagonal	L3x3x1/4	542	-8422.30	28827.72	38.3 (b) 29.2	Pass
T18	121 - 101	Diagonal	L2 1/2x2x3/16	587	-6681.96	13515.29	76.6 (b) 49.4	Pass
T19	101 - 81	Diagonal	L2 1/2x2x3/16	627	-4383.81	13515.29	60.8 (b) 32.4	Pass
T20	81 - 61	Diagonal	L2 1/2x2x3/16	660	-2620.10	13515.29	39.9 (b) 19.4	Pass
T21	61 - 41	Diagonal	L2 1/2x2x3/16	677	-2896.10	13515.29	23.8 (b) 21.4	Pass
T22	41 - 20	Diagonal	L2 1/2x2x3/16	713	-5040.77	13287.04	26.3 (b) 37.9	Pass
T23	20 - 6.70833	Diagonal	L2x2x3/16	735	3779.75	17332.20	47.7 (b) 21.8	Pass
T24	6.70833 - 0	Diagonal	L2x2x3/16	756	-4937.82	16778.34	34.4 (b) 29.4	Pass
T1	457 - 436	Top Girt	L2 1/2x2x3/16	6	-275.64	8498.22	44.9 (b) 3.2	Pass
T2	436 - 421	Top Girt	L2 1/2x2x3/16	8	-53.94	8498.22	0.6	Pass
T3	421 - 401	Top Girt	L2 1/2x2x1/4	43	-62.90	10973.31	0.7 (b) 0.6	Pass
T4	401 - 381	Top Girt	L2 1/2x2x1/4	76	-378.69	10973.31	0.7 (b) 3.5	Pass

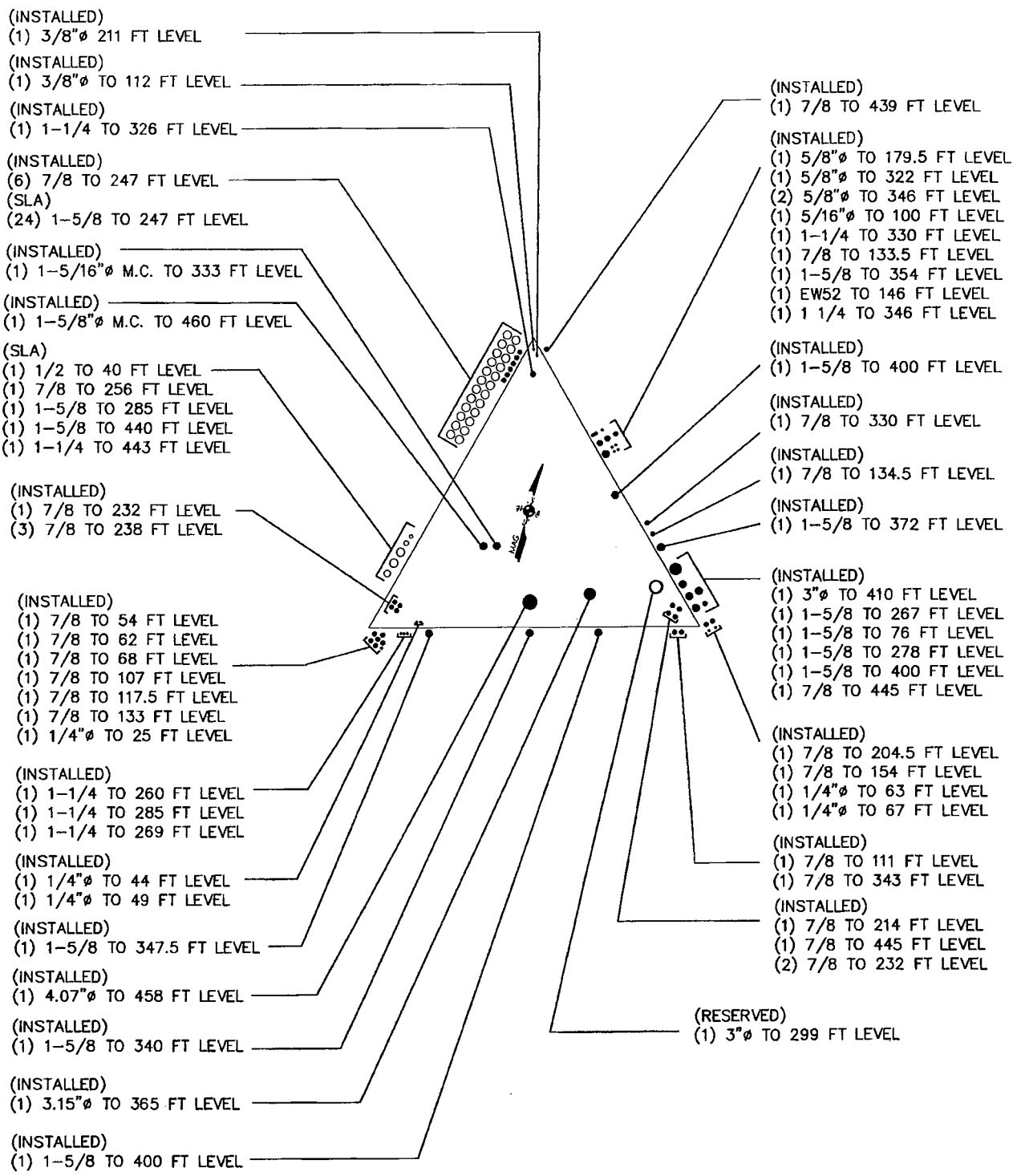
Section No.	Elevation ft	Component Type	Size	Critical Element	P lb	SF*P allow lb	% Capacity	Pass Fail
T5	381 - 361	Top Girt	2L3x2x1/4	107	21407.70	59942.48	3.5 (b) 35.7	Pass
T6	361 - 341	Top Girt	L2 1/2x2x1/4	142	448.72	26202.25	97.4 (b) 1.7	Pass
T7	341 - 321	Top Girt	L2 1/2x2x1/4	173	432.66	26202.25	4.1 (b) 1.7	Pass
T8	321 - 301	Top Girt	L2 1/2x2x1/4	208	261.26	26202.25	3.9 (b) 1.0	Pass
T9	301 - 281	Top Girt	L2 1/2x2x3/16	239	183.53	20057.52	2.4 (b) 0.9	Pass
T10	281 - 261	Top Girt	L2 1/2x2x1/4	274	252.24	26202.25	1.7 (b) 1.0	Pass
T11	261 - 241	Top Girt	2L3 1/2x3 1/2x3/8	306	613.78	130503.63	2.3 (b) 0.5	Pass
T12	241 - 221	Top Girt	L2 1/2x2x3/16	340	828.92	20057.52	2.8 (b) 4.1	Pass
T13	221 - 201	Top Girt	L2 1/2x2x3/16	372	420.98	20057.52	7.5 (b) 2.1	Pass
T14	201 - 181	Top Girt	L2 1/2x2x3/16	405	490.25	20057.52	3.8 (b) 2.4	Pass
T15	181 - 161	Top Girt	L2 1/2x2x3/16	439	543.52	20057.52	4.5 (b) 2.7	Pass
T16	161 - 141	Top Girt	L2 1/2x2x3/16	472	536.82	20057.52	4.9 (b) 2.7	Pass
T17	141 - 121	Top Girt	L2 1/2x2x3/16	505	1277.90	20057.52	4.9 (b) 6.4	Pass
T18	121 - 101	Top Girt	L2 1/2x2x3/16	536	2348.32	20057.52	11.6 (b) 11.7	Pass
T19	101 - 81	Top Girt	L2 1/2x2x3/16	570	720.26	20057.52	21.4 (b) 3.6	Pass
T20	81 - 61	Top Girt	L2 1/2x2x3/16	602	813.36	20057.52	6.6 (b) 4.1	Pass
T21	61 - 41	Top Girt	L2 1/2x2x3/16	635	962.11	20057.52	7.4 (b) 4.8	Pass
T22	41 - 20	Top Girt	L2 1/2x2x3/16	668	830.89	20057.52	8.8 (b) 4.1	Pass
T23	20 - 6.70833	Top Girt	L3x2x3/16	702	9595.92	22753.91	7.6 (b) 42.2	Pass
T1	457 - 436	Mid Girt	L2 1/2x2x3/16	12	-36.86	8498.22	87.3 (b) 0.4	Pass
T2	436 - 421	Mid Girt	L2 1/2x2x3/16	46	-20.78	8453.94	0.6 (b) 0.2	Pass
T3	421 - 401	Mid Girt	L2 1/2x2x1/4	79	-136.51	10973.31	0.3 (b) 1.2	Pass
T4	401 - 381	Mid Girt	L2 1/2x2x1/4	112	529.98	26202.25	2.0	Pass
T5	381 - 361	Mid Girt	L2 1/2x2x1/4	145	646.23	26202.25	4.8 (b) 2.5	Pass
T6	361 - 341	Mid Girt	L2 1/2x2x1/4	178	297.08	26202.25	5.9 (b) 1.1	Pass
T7	341 - 321	Mid Girt	L2 1/2x2x1/4	209	187.09	26202.25	2.7 (b) 0.7	Pass
T8	321 - 301	Mid Girt	L2 1/2x2x1/4	242	500.88	26202.25	1.7 (b) 1.9	Pass
T9	301 - 281	Mid Girt	L2 1/2x2x3/16	277	233.21	20057.52	4.6 (b) 1.2	Pass
T10	281 - 261	Mid Girt	L2 1/2x2x1/4	309	253.28	26202.25	2.1 (b) 1.0	Pass
T11	261 - 241	Mid Girt	2L3 1/2x3 1/2x3/8	342	20998.20	130503.63	2.3 (b) 16.1	Pass
T12	241 - 221	Mid Girt	L2 1/2x2x3/16	376	421.87	20057.52	95.5 (b) 2.1	Pass

RISA Tower	Job	Page
	BU# 873128 "Trumbull"	65 of 65
Tower Engineering Professionals 3703 Junction Boulevard Raleigh, NC 27603 Phone: (919) 661-6351 FAX: (919) 661-6350	**Project** TEP# 072725	**Date** 11:08:39 01/10/08
	Client Crown Castle	**Designed by** Matt Lackey, E.I.

Section No.	Elevation ft	Component Type	Size	Critical Element	P lb	SF*P_{allow} lb	% Capacity	Pass Fail
							3.8 (b)	
T13	221 - 201	Mid Girt	L2 1/2x2x3/16	409	428.74	20057.52	2.1	Pass
							3.9 (b)	
T14	201 - 181	Mid Girt	L2 1/2x2x3/16	442	517.27	20057.52	2.6	Pass
							4.7 (b)	
T15	181 - 161	Mid Girt	L2 1/2x2x3/16	474	519.49	20057.52	2.6	Pass
							4.7 (b)	
T16	161 - 141	Mid Girt	L2 1/2x2x3/16	507	536.02	20057.52	2.7	Pass
							4.9 (b)	
T17	141 - 121	Mid Girt	L2 1/2x2x3/16	539	-5819.75	8587.84	67.8	Pass
							88.3 (b)	
T18	121 - 101	Mid Girt	L2 1/2x2x3/16	572	985.93	20057.52	4.9	Pass
							9.0 (b)	
T19	101 - 81	Mid Girt	L2 1/2x2x3/16	605	822.34	20057.52	4.1	Pass
							7.5 (b)	
T20	81 - 61	Mid Girt	L2 1/2x2x3/16	638	817.36	20057.52	4.1	Pass
							7.4 (b)	
T21	61 - 41	Mid Girt	L2 1/2x2x3/16	671	868.31	20057.52	4.3	Pass
							7.9 (b)	
T22	41 - 20	Mid Girt	L2 1/2x2x3/16	704	1249.63	20057.52	6.2	Pass
							11.4 (b)	
T5	381 - 361	Guy A@381	1 3/8	790	72488.90	116000.00	62.5	Pass
T11	261 - 241	Guy A@251	1 1/4	787	56512.50	96000.00	58.9	Pass
T17	141 - 121	Guy A@131	3/4	779	23087.80	34000.00	67.9	Pass
T5	381 - 361	Guy B@381	1 3/8	789	72603.10	116000.00	62.6	Pass
T11	261 - 241	Guy B@251	1 1/4	786	56817.10	96000.00	59.2	Pass
T17	141 - 121	Guy B@131	3/4	773	23098.50	34000.00	67.9	Pass
T5	381 - 361	Guy C@381	1 3/8	788	72601.10	116000.00	62.6	Pass
T11	261 - 241	Guy C@251	1 1/4	785	56514.30	96000.00	58.9	Pass
T17	141 - 121	Guy C@131	3/4	768	22367.90	34000.00	65.8	Pass
T17	141 - 121	Torque Arm Top@131	2L3x3x3/16	781	23131.40	62768.30	36.9	Pass
T17	141 - 121	Torque Arm Bottom@131	2L3x3x3/16	784	-20512.20	34845.55	58.9	Pass
							Summary	
						Pole (L1)	16.6	Pass
						Leg (T20)	71.4	Pass
						Diagonal (T11)	79.0	Pass
						Top Girt (T5)	97.4	Pass
						Mid Girt (T11)	95.5	Pass
						Guy A (T17)	67.9	Pass
						Guy B (T17)	67.9	Pass
						Guy C (T17)	65.8	Pass
						Torque Arm Top (T17)	36.9	Pass
						Torque Arm Bottom (T17)	58.9	Pass
						Bolt Checks	97.4	Pass
						RATING =	97.4	Pass

APPENDIX B

BASE LEVEL DRAWING



COAX PLAN

N.T.S.

PREPARED BY:	PREPARED FOR:	PROJECT INFORMATION:	
TOWER ENGINEERING PROFESSIONALS 3703 JUNCTION BOULEVARD RALEIGH, NC 27603-5263 (919) 661-6351	CROWN CASTLE INTERNATIONAL Crown Castle USA Inc. SUITE 150 CHARLOTTE, NC 28270	TRUMBULL SITE # 873128 800 BOOTH HILL ROAD SHELTON, CT 06611 (FAIRFIELD COUNTY)	REVISION: 0 TEP JOB #: 072725 SHEET NUMBER: M-1

APPENDIX C

ADDITIONAL CALCULATIONS

TOWER ENGINEERING PROFESSIONALS

Project Name: Trum Dual
Project #: 071092
Date: December 12, 2007
Design: NKL
Check: PEM
Page 1 of 1

Mast Analysis

$A_b = (10.5ft)(10.5ft) = 110.25ft^2$

$V_{concrete} = (10.5ft)(10.5ft)(2ft) + \frac{3ft\left((10ft)^2 + (4.5ft)(10ft) + (4.5ft)^2\right)}{3}$

$V_{concrete} = 385.8ft^3$

$W_{concrete} = (385.8ft^3)(0.150\ K/ft^3) = 57.87\ Kips$

$V_{soil} = (10ft)(10ft)(3ft) - 165.8ft^3 + (10.5^2 - 10^2) \cdot 3$
$V_{soil} = 134.8ft^3 + 30.75ft^3 = 165.5ft^3$

$W_{soil} = (165.5ft^3)(0.115\ K/ft^3) = 19.0K$

Total Weight = 19.0K + 57.87 Kips = 76.90 Kips

$\frac{76.90\ Kips}{110.25ft^2} = 0.70\ ksf$

Net Bearing = 6 ksf - 0.70 ksf = 5.30 ksf

Downforce = 303.8 Kips

Allowable = 5.30 ksf (110.25 ft²) = 584.3 Kips

$\frac{303.8K}{584.3K} * 100 = \boxed{52.0\%}$

3703 Junction Boulevard, Raleigh, NC 27603-5263 O)919.661.6351 F)919.661.6350
www.tepgroup.net

Project Name: Trumbull
Project #: 071092
Date: December 12, 2007
Design: MRL
Check: PEH
Page 1 of 3

TOWER ENGINEERING PROFESSIONALS

ANCHOR CAPACITY ANALYSIS

Anchor A - Geotech B4 No Cap
Anchor B - Geotech B2 Cap
Anchor C - Geotech B3 Cap

Anchor A

$W_c = (23ft)(18.5ft)(3.3ft)(0.15kcf) = 210.6K$
$V_s = (23ft)(18.5ft)(2.0ft)(0.115kcf) = 97.87K$

Uplift

Eq. 1 = $\frac{W_R}{2.0} + \frac{W_C}{1.25} = \frac{97.87K}{2} + \frac{210.6K}{1.25} = 217.4K$

Eq. 2 = $\frac{(W_R + W_C)}{1.5} = \frac{(97.87K + 210.6K)}{1.5} = 205.6K$ controls

$\frac{93.0K}{205.6K}(100) = \boxed{45.2\%}$

Sliding

Downforce = $(210.6K + 97.87K - 91.4K) = 217.1K$
Friction = $217.1K(0.4) = 86.83K$

Passive Resistance
$(23ft)(3.3ft)(1.7ksf) = 129 kips$

Resistance = $\frac{(129K + 86.83K)}{1.5} = 143.9K$

$\frac{139.6K}{143.9K} = \boxed{97.0\%}$

Anchor B

$W_{CTB} = (15ft)(15ft)(5.3ft)(0.15Kcf) = 178.9K$
$W_{Com} = (4.2ft)(7ft)(6ft)(0.15Kcf) + (1.3ft)(7ft)(6ft)(0.0876Kcf) = 31.24 kips$
$W_{Soil} = (2ft)(7ft)(6ft)(0.115Kcf) = 9.66K$

Uplift

$$\text{Eq. 1} = \frac{W_R}{2.0} + \frac{W_c}{1.25} = \frac{(9.66K)}{2.0} + \frac{(178.9K + 31.24K)}{1.25} = 172.9K$$

$$\text{Eq. 2} = \frac{(W_R + W_c)}{1.5} = \frac{(9.66K + 178.9K + 31.24K)}{1.5} = 146.5K \quad \text{controls}$$

$$\frac{92.9K}{146.5K} = \boxed{63.4\%}$$

Sliding

Downforce = 178.9 K + 31.24 K + 9.66K - 91.5K = 128.3K
Friction = 128.3K(0.4) = 51.32 K

Passive Resistance

Top Block
(2.3ft)(15ft)(0.5ksf) = 17.25K

Dead Man
(6ft)(5.5ft)(10.75 ksf) = 354.8K

$$\frac{(354.8K + 17.25K + 51.32K)}{1.5} = 282.2\ K$$

$$\frac{141.3K}{282.2K} = \boxed{50.1\%}$$

Anchor C

$W_{CTB} = 178.9K$
$W_{COM} = 31.24K$
$W_{Soil} = 9.66K$

Uplift

$Eq1 = 172.9K$
$Eq2 = 146.5K$

$\frac{91.1K}{146.5K} = \boxed{62.2\%}$

Sliding

Downforce = $178.9K + 31.24K + 9.66K - 91.9K = 127.9K$
Friction = $127.9K(0.4) = 51.16K$

Passive Resistance

Top Block
$(2.3ft)(15ft)(0.5ksf) = 17.25K$

Dead Man
$W_{concrete\ top\ above\ grade} = 0.15kcf(3ft) = 0.45ksf = 450\ psf$
Add weight concrete to passive resistance charts

$(4.2ft)(6ft)(3.75\ ksf) + (0.6ft)(6ft)(4.95ksf) + (0.8ft)(6ft)(6.075ksf) = 138.5\ kips$

$\frac{138.5K + 17.25K + 51.16K}{1.5} = 137.9K$

$\frac{139.7K}{137.9K} = \boxed{101.3\%}$

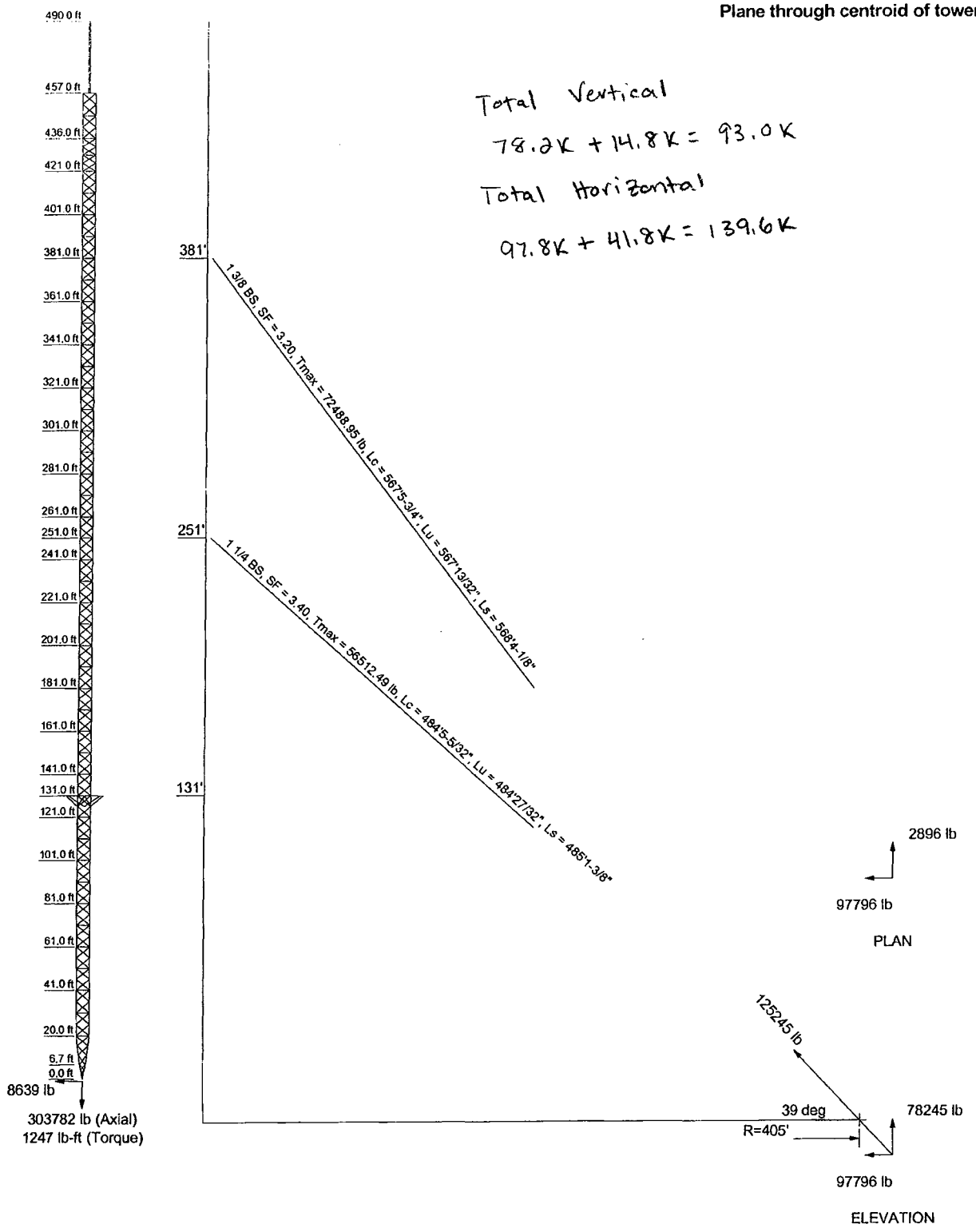
Guy Tensions and Tower Reactions

TIA/EIA-222-F - 85 mph/74 mph 0.5000 in Ice

Maximum Values

Anchor 'A'@405 ft Azimuth 0 deg Elev -20 ft

Plane through centroid of tower



Total Vertical

78.2K + 14.8K = 93.0K

Total Horizontal

97.8K + 41.8K = 139.6K

Tower Engineering Professionals 3703 Junction Boulevard Raleigh, NC 27603 Phone: (919) 661-6351 FAX: (919) 661-6350	Job: ***BU# 873128 "Trumbull"***		
	Project: ***TEP# 072725***		
	Client: Crown Castle	Drawn by: Matt Lackey, E.I.	App'd:
	Code: TIA/EIA-222-F	Date: 01/10/08	Scale: NTS
	Path: H:\2007\2725_Trumbull !!!\Structures\RISA\LC1\873128.eri		Dwg No. E-6

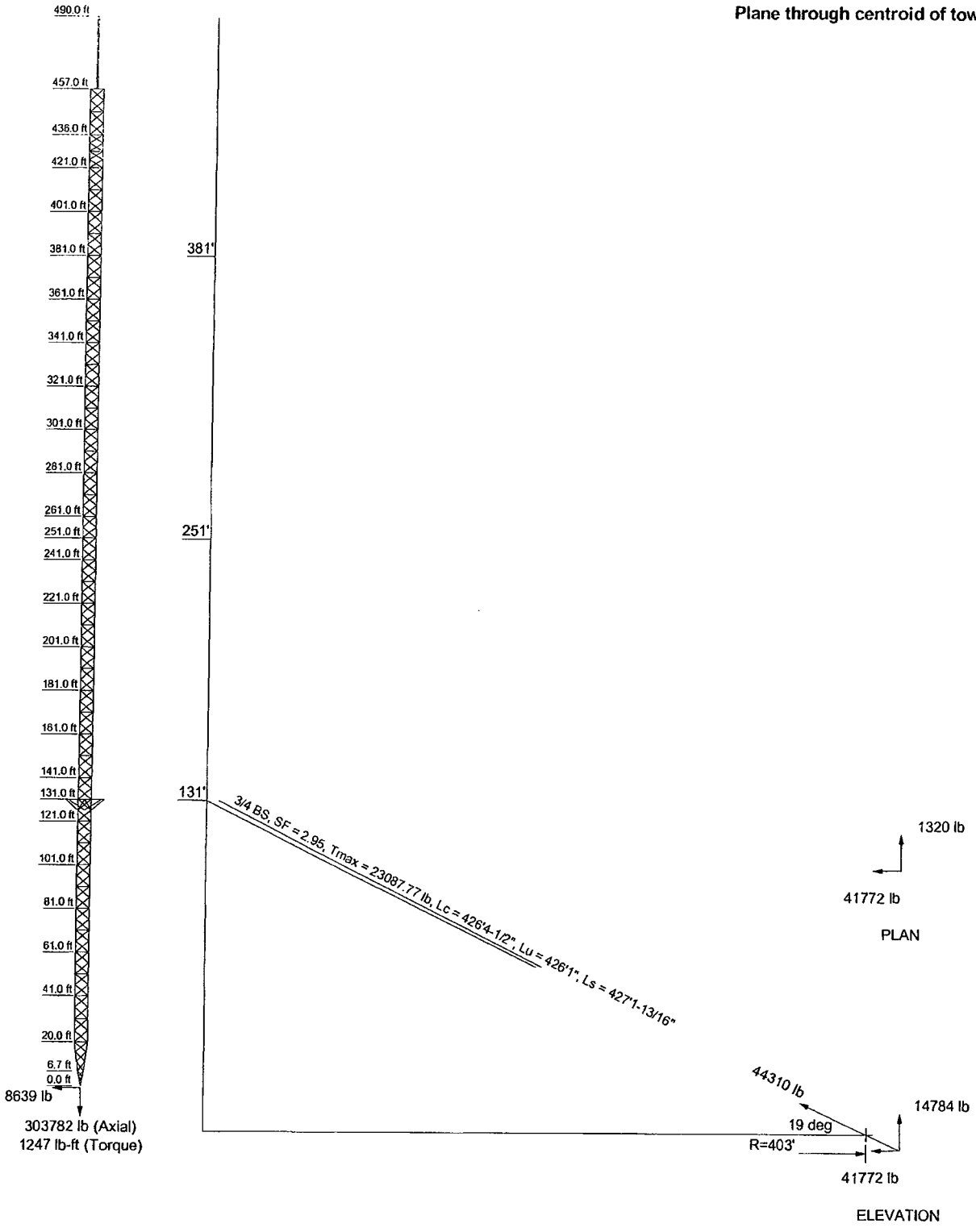
Guy Tensions and Tower Reactions

TIA/EIA-222-F - 85 mph/74 mph 0.5000 in Ice

Maximum Values

Anchor 'A'@403 ft Azimuth 0 deg Elev -20 ft

Plane through centroid of tower



Tower Engineering Professionals
3703 Junction Boulevard
Raleigh, NC 27603
Phone: (919) 661-6351
FAX: (919) 661-6350

Job: *BU# 873128 "Trumbull"*			
Project: *TEP# 072725*			
Client: Crown Castle	Drawn by: Matt Lackey, E.I.	App'd:	
Code: TIA/EIA-222-F	Date: 01/10/08	Scale: NTS	
Path: H:\2007\2725_Trumbull III\Structures\RISA\LC1\873128.eri		Dwg No. E-6	

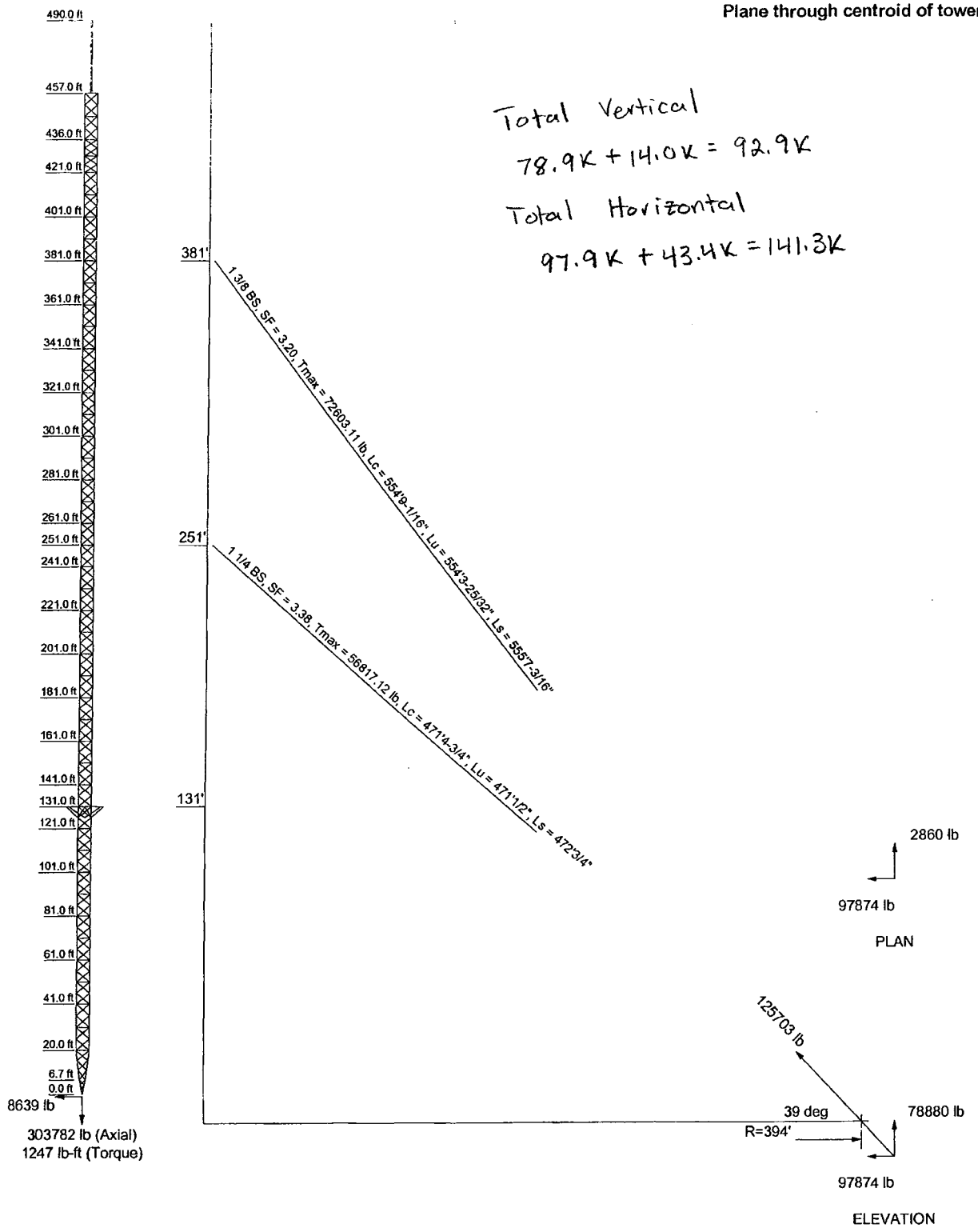
Guy Tensions and Tower Reactions

TIA/EIA-222-F - 85 mph/74 mph 0.5000 in Ice

Maximum Values

Anchor 'B'@394 ft Azimuth 120 deg Elev -13 ft

Plane through centroid of tower



Total Vertical

78.9K + 14.0K = 92.9K

Total Horizontal

97.9K + 43.4K = 141.3K

Tower Engineering Professionals 3703 Junction Boulevard Raleigh, NC 27603 Phone: (919) 661-6351 FAX: (919) 661-6350	Job: ***BU# 873128 "Trumbull"***		
	Project: ***TEP# 072725***		
	Client: Crown Castle	Drawn by: Matt Lackey, E.I.	App'd:
	Code: TIA/EIA-222-F	Date: 01/10/08	Scale: NTS
	Path: H:\2007\2725_Trumbull II\Structures\RISA\LC1\873128.eri		Dwg No. E-6

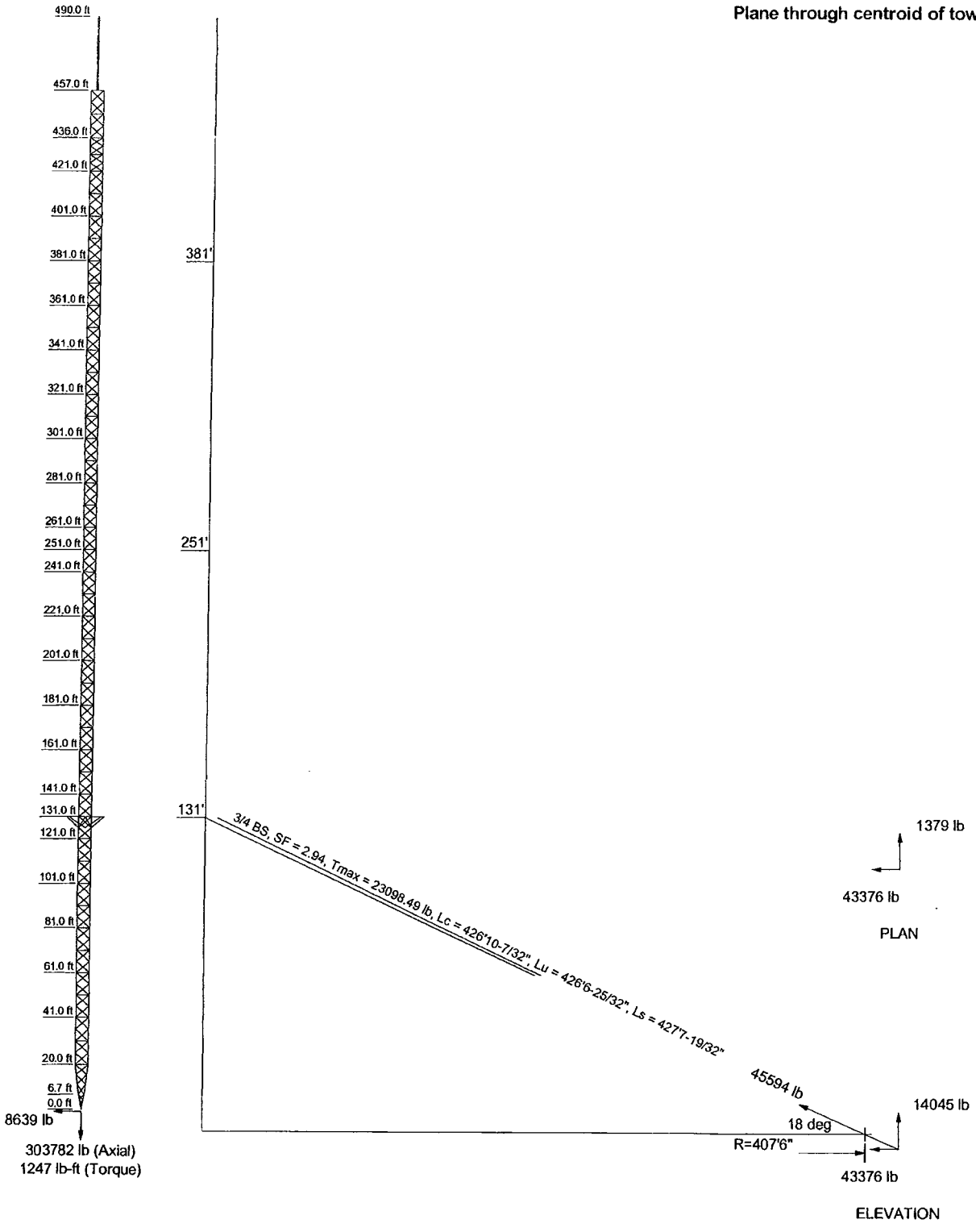
Guy Tensions and Tower Reactions

TIA/EIA-222-F - 85 mph/74 mph 0.5000 in Ice

Maximum Values

Anchor 'B'@407.5 ft Azimuth 120 deg Elev -9 ft

Plane through centroid of tower



Tower Engineering Professionals 3703 Junction Boulevard Raleigh, NC 27603 Phone: (919) 661-6351 FAX: (919) 661-6350	Job: ***BU# 873128 "Trumbull"***		
	Project: ***TEP# 072725***		
	Client: Crown Castle	Drawn by: Matt Lackey, E.I.	App'd:
	Code: TIA/EIA-222-F	Date: 01/10/08	Scale: NTS
	Path: H:\2007\2725 Trumbull II\Structures\RISA\LC1\873128.eri		Dwg No. E-6

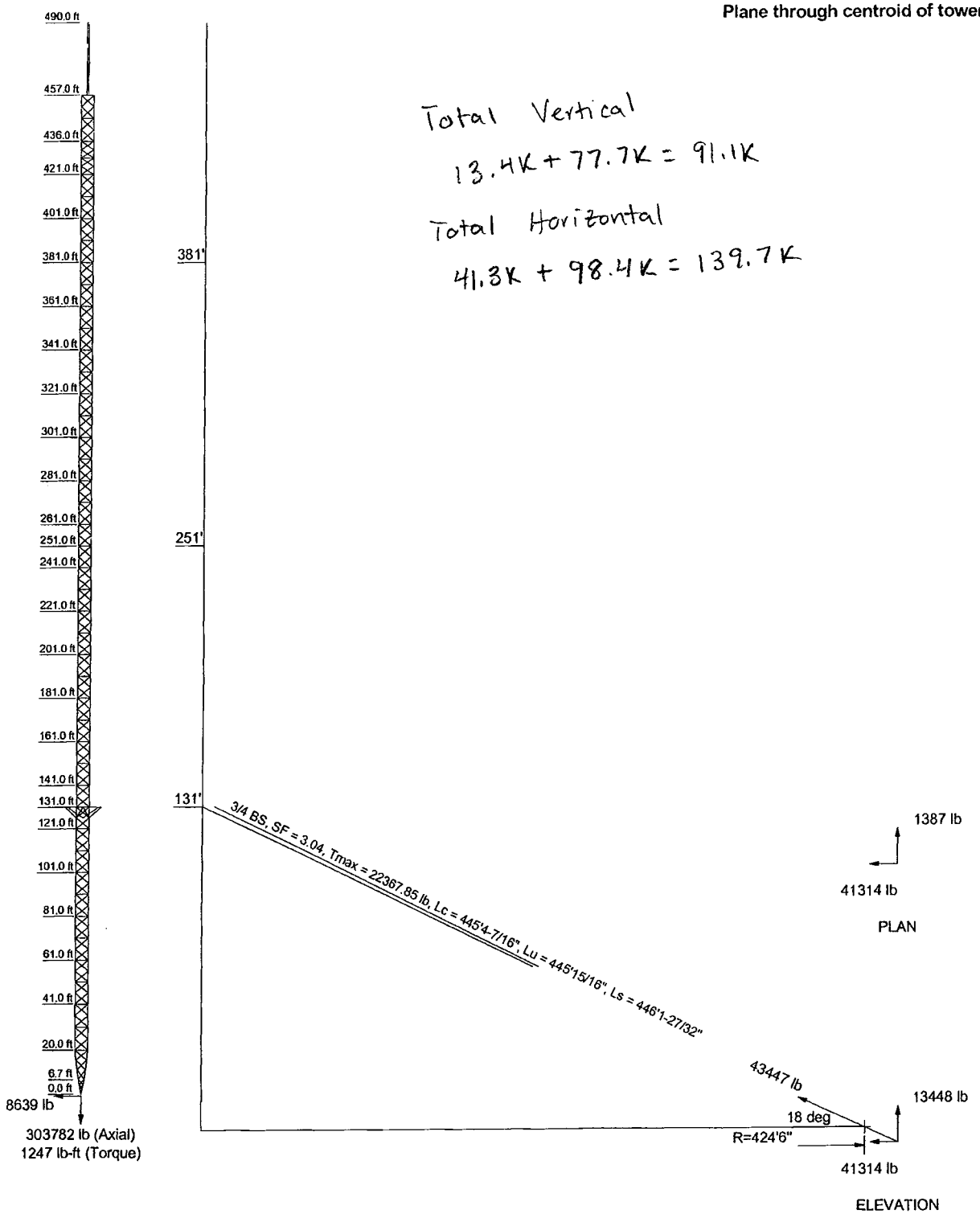
Guy Tensions and Tower Reactions

TIA/EIA-222-F - 85 mph/74 mph 0.5000 in Ice

Maximum Values

Anchor 'C'@424.5 ft Azimuth 240 deg Elev -16.5 ft

Plane through centroid of tower



Total Vertical

13.4K + 77.7K = 91.1K

Total Horizontal

41.3K + 98.4K = 139.7K

Tower Engineering Professionals 3703 Junction Boulevard Raleigh, NC 27603 Phone: (919) 661-6351 FAX: (919) 661-6350	Job: ***BU# 873128 "Trumbull"***		
	Project: ***TEP# 072725***		
	Client: Crown Castle	Drawn by: Matt Lackey, E.I.	App'd:
	Code: TIA/EIA-222-F	Date: 01/10/08	Scale: NTS
	Path: H:\2007\2725 Trumbull !!\Structures\RISA\LC1\873128.eri		Dwg No. E-6

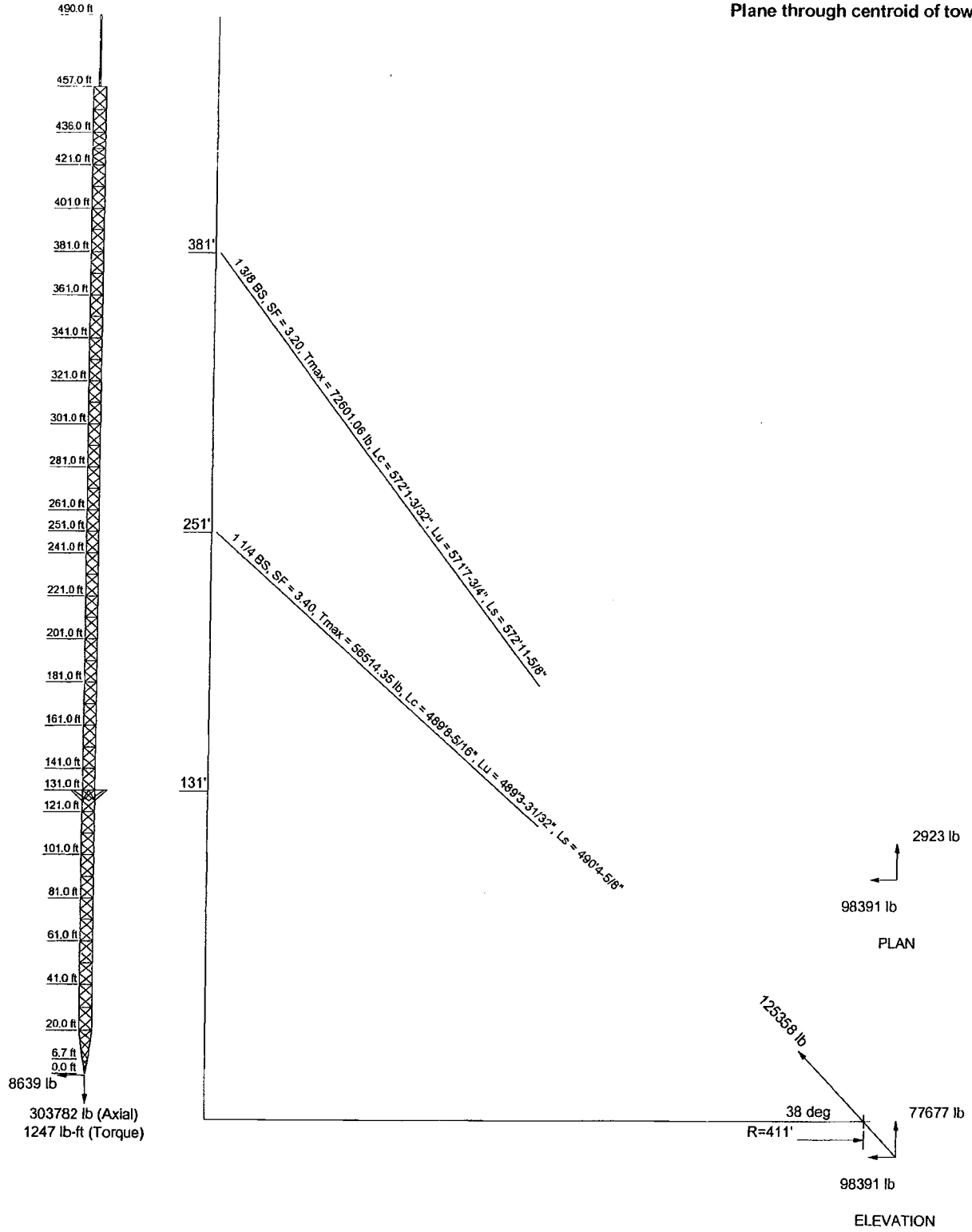
Guy Tensions and Tower Reactions

TIA/EIA-222-F - 85 mph/74 mph 0.5000 in Ice

Maximum Values

Anchor 'C'@411 ft Azimuth 240 deg Elev -20.5 ft

Plane through centroid of tower



Tower Engineering Professionals	Job: ***BU# 873128 "Trumbull"***			
3703 Junction Boulevard	Project: ***TEP# 072725***			
Raleigh, NC 27603	Client: Crown Castle	Drawn by: Matt Lackey, E.I.	App'd:	
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FAX: (919) 661-6350	Path: H:\2007\2725 Trumbull II\Structures\RISA\LC1\873128.eri		Dwg No. E-6	