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

Also admitted in Massachusetts

March 4, 2015

Melanie A. Bachman
Acting Executive Director
Connecticut Siting Council
10 Franklin Square
New Britain, CT 06051

Re: **Notice of Exempt Modification – Facility Modification**
800 Booth Hill Road, Trumbull, Connecticut

Dear Ms. Bachman:

Cellco Partnership d/b/a Verizon Wireless ("Cellco") currently maintains twelve (12) antennas at the 232-foot level on the existing 457-foot guyed-lattice tower at 800 Booth Hill Road in Trumbull, Connecticut (the "Property"). The tower is owned by Crown Castle. The Council approved Cellco's shared use of this tower in 1987. Cellco now intends to modify its facility by replacing all nine (9) of its existing antennas with three (3) model SBNHH-1D65B-03DT dual band, 700/1900 MHz antennas; two (2) model LNX-8513DS-VTM, 850 MHz antennas; one (1) model LNX-6514DS-VTM, 850 MHz antenna; and three (3) model HBXX-6516DS-VTM, 2100 MHz antennas, all at the same 232-foot level on the tower. Cellco also intends to install six (6) remote radio heads ("RRHs") behind its 700/1900 MHz and 2100 MHz antennas and two (2) HYBRIFLEX™ antenna cables. Included in Attachment 1 are specifications for Cellco's replacement antennas, RRHs and HYBRIFLEX™ cables.

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 Timothy M. Herbst, First Selectman of the Town of Trumbull. A copy of this letter is also being sent to Francis F. Daddario, the owner of the Property.

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

Robinson+Cole

1. The proposed modifications will not result in an increase in the height of the existing tower. Cellco's replacement antennas and RRHs will be installed on its existing antenna mounting structure at the 232-foot level of the 457-foot tower.

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

3. The proposed modifications will not increase noise levels at the facility by six decibels or more, or to levels that exceed state and local criteria.

4. The operation of the replacement antennas will not increase radio frequency (RF) emissions at the facility to a level at or above the Federal Communications Commission (FCC) safety standard. A cumulative General Power Density table for Cellco's modified facility is included in Attachment 2.

5. The proposed modifications will not cause a change or alteration in the physical or environmental characteristics of the site.

6. The tower and its foundation can support Cellco's proposed modifications. (*See* Structural Analysis Report included in Attachment 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:
Timothy M. Herbst, Trumbull First Selectman
Francis F. Daddario
Timothy Parks

ATTACHMENT 1

Product Specifications

COMMSCOPE®

SBNHH-1D65B

Andrew® Tri-band Antenna, 698–896 and 2 x 1710–2360 MHz, 65° horizontal beamwidth, internal RET. Both high bands share the same electrical tilt.

POWERED BY ANDREW.

Electrical Specifications

Frequency Band, MHz	698–806	806–896	1710–1880	1850–1990	1920–2180	2300–2360
Gain, dBi	14.9	14.7	17.7	18.2	18.6	18.6
Beamwidth, Horizontal, degrees	68	66	69	66	63	58
Beamwidth, Vertical, degrees	12.1	10.7	5.6	5.2	5.0	4.5
Beam Tilt, degrees	0–14	0–14	0–7	0–7	0–7	0–7
USLS, dB	14	13	15	15	15	13
Front-to-Back Ratio at 180°, dB	27	29	28	28	28	27
CPR at Boresight, dB	20	23	20	20	17	21
CPR at Sector, dB	14	10	12	10	9	1
Isolation, dB	25	25	25	25	25	25
Isolation, Intersystem, dB	30	30	30	30	30	30
VSWR | Return Loss, dB	1.5 | 14.0	1.5 | 14.0	1.5 | 14.0	1.5 | 14.0	1.5 | 14.0	1.5 | 14.0
PIM, 3rd Order, 2 x 20 W, dBc	-153	-153	-153	-153	-153	-153
Input Power per Port, maximum, watts	350	350	350	350	350	300
Polarization	±45°	±45°	±45°	±45°	±45°	±45°

Electrical Specifications, BASTA*

Frequency Band, MHz	698–806	806–896	1710–1880	1850–1990	1920–2180	2300–2360
Gain by all Beam Tilts, average, dBi	14.5	14.3	17.4	17.9	18.2	18.3
Gain by all Beam Tilts Tolerance, dB	±0.5	±0.8	±0.4	±0.3	±0.5	±0.3
Gain by Beam Tilt, average, dBi	0 ° | 14.6	0 ° | 14.5	0 ° | 17.4	0 ° | 17.8	0 ° | 18.1	0 ° | 18.2
	7 ° | 14.6	7 ° | 14.4	3 ° | 17.5	3 ° | 17.9	3 ° | 18.3	3 ° | 18.4
	14 ° | 14.2	14 ° | 13.6	7 ° | 17.4	7 ° | 17.9	7 ° | 18.2	7 ° | 18.4
Beamwidth, Horizontal Tolerance, degrees	±2.2	±3.4	±2	±4.6	±5.7	±4.3
Beamwidth, Vertical Tolerance, degrees	±0.8	±1	±0.3	±0.2	±0.3	±0.2
USLS, dB	16	14	16	16	16	15
Front-to-Back Total Power at 180° ± 30°, dB	25	26	27	26	26	26
CPR at Boresight, dB	22	23	21	20	20	22
CPR at Sector, dB	13	11	16	12	11	4

* CommScope® supports NGMN recommendations on Base Station Antenna Standards (BASTA). To learn more about the benefits of BASTA, download the whitepaper Time to Raise the Bar on BSAs.

Mechanical Specifications

Color | Radome Material	Light gray | Fiberglass, UV resistant
Connector Interface | Location | Quantity	7-16 DIN Female | Bottom | 6
Wind Loading, maximum	617.7 N @ 150 km/h 138.9 lbf @ 150 km/h
Wind Speed, maximum	241.4 km/h | 150.0 mph
Antenna Dimensions, L x W x D	1828.0 mm x 301.0 mm x 181.0 mm | 72.0 in x 11.9 in x 7.1 in
Net Weight	18.4 kg | 40.6 lb

Product Specifications

COMMSCOPE®

LNX-8513DS-VTM

Andrew® Teletilt® Antenna, 698–896 MHz, 85° horizontal beamwidth, RET compatible

POWERED BY ANDREW

Electrical Specifications

Frequency Band, MHz	698–806	806–896
Gain, dBi	14.6	15.3
Beamwidth, Horizontal, degrees	85	85
Beamwidth, Vertical, degrees	12.2	11.0
Beam Tilt, degrees	0–10	0–10
USLS, typical, dB	17	17
Front-to-Back Ratio at 180°, dB	25	26
Isolation, dB	30	30
VSWR | Return Loss, dB	1.4 | 15.6	1.4 | 15.6
PIM, 3rd Order, 2 x 20 W, dBc	-153	-153
Input Power per Port, maximum, watts	400	400
Polarization	±45°	±45°

Mechanical Specifications

Color | Radome Material	Light gray | Fiberglass, UV resistant
Connector Interface | Location | Quantity	7-16 DIN Female | Bottom | 2
Wind Loading, maximum	617.7 N @ 150 km/h 138.9 lbf @ 150 km/h
Wind Speed, maximum	241.0 km/h | 149.8 mph
Antenna Dimensions, L x W x D	1847.0 mm x 301.0 mm x 181.0 mm | 72.7 in x 11.9 in x 7.1 in
Net Weight	17.8 kg | 39.2 lb
Model with factory installed AISG 2.0 RET	LNX-8513DS-A1M

Product Specifications

COMMSCOPE®

LNX-6514DS-VTM

Andrew® Antenna, 698–896 MHz, 65° horizontal beamwidth, RET compatible

POWERED BY ANDREW.

Electrical Specifications

Frequency Band, MHz	698–806	806–896
Gain, dBi	15.7	16.3
Beamwidth, Horizontal, degrees	65	65
Beamwidth, Vertical, degrees	12.5	11.2
Beam Tilt, degrees	0–10	0–10
USLS, typical, dB	17	18
Front-to-Back Ratio at 180°, dB	32	30
CPR at Boresight, dB	20	20
CPR at Sector, dB	10	10
Isolation, dB	30	30
VSWR | Return Loss, dB	1.4 | 15.6	1.4 | 15.6
PIM, 3rd Order, 2 x 20 W, dBc	-153	-153
Input Power per Port, maximum, watts	400	400
Polarization	±45°	±45°

Electrical Specifications, BASTA*

Frequency Band, MHz	698–806	806–896
Beamwidth, Horizontal Tolerance, degrees	±3	±3

* CommScope® supports NGMN recommendations on Base Station Antenna Standards (BASTA). To learn more about the benefits of BASTA, download the whitepaper Time to Raise the Bar on BSAs.

Mechanical Specifications

Color | Radome Material	Light gray | Fiberglass, UV resistant
Connector Interface | Location | Quantity	7-16 DIN Female | Bottom | 2
Wind Loading, maximum	617.7 N @ 150 km/h 138.9 lbf @ 150 km/h
Wind Speed, maximum	241.0 km/h | 149.8 mph
Antenna Dimensions, L x W x D	1847.0 mm x 301.0 mm x 181.0 mm | 72.7 in x 11.9 in x 7.1 in
Net Weight	14.2 kg | 31.3 lb
Model with factory installed AISG 2.0 RET	LNX-6514DS-A1M

Product Specifications

COMMSCOPE®

POWERED BY ANDREW.

HBXX-6516DS-VTM

Andrew® Quad Port Teletilt® Antenna, 1710–2180 MHz, 65° horizontal beamwidth, RET compatible

- Each DualPol® array can be independently adjusted for greater flexibility
- Excellent gain, VSWR, front-to-back ratio, and PIM specifications for robust network performance
- Ideal choice for site collocations and tough zoning restrictions
- Great solution to maximize network coverage and capacity
- The values presented on this datasheet have been calculated based on N-P-BASTA White Paper version 9.6 by the NGMN Alliance

Electrical Specifications

Frequency Band, MHz	**1710–1880**	**1850–1990**	**1920–2180**
Gain by all Beam Tilts, average, dBi	17.2	17.2	17.5
Gain by all Beam Tilts Tolerance, dB	±0.3	±0.3	±0.5
Gain by Beam Tilt, average, dBi	0 ° | 17.0	0 ° | 17.1	0 ° | 17.4
	5 ° | 17.3	5 ° | 17.4	5 ° | 17.7
	10 ° | 17.0	10 ° | 17.0	10 ° | 17.2
Beamwidth, Horizontal, degrees	67	66	64
Beamwidth, Horizontal Tolerance, degrees	±2.7	±2.3	±3.5
Beamwidth, Vertical, degrees	7.5	7.0	6.6
Beamwidth, Vertical Tolerance, degrees	±0.5	±0.4	±0.4
Beam Tilt, degrees	0–10	0–10	0–10
USLS, dB	18	19	19
Front-to-Back Total Power at 180° ± 30°, dB	26	26	26
CPR at Boresight, dB	22	22	22
CPR at Sector, dB	9	9	9
Isolation, dB	30	30	30
VSWR | Return Loss, dB	1.4 | 15.6	1.4 | 15.6	1.4 | 15.6
PIM, 3rd Order, 2 x 20 W, dBc	-153	-153	-153
Input Power per Port, maximum, watts	350	350	350
Polarization	±45°	±45°	±45°
Impedance	50 ohm	50 ohm	50 ohm

General Specifications

Antenna Brand	Andrew®
Antenna Type	DualPol® single band, quad
Band	Single band
Brand	DualPol® | Teletilt®
Operating Frequency Band	1710 – 2180 MHz
Number of Ports, all types	4

Mechanical Specifications

Color	Light gray
Lightning Protection	dc Ground
Radiator Material	Low loss circuit board
Radome Material	PVC, UV resistant
RF Connector Interface	7-16 DIN Female

PCS RF MODULES
RRH1900 2X60 - HW CHARACTERISTICS

LA6.0.1/13.3

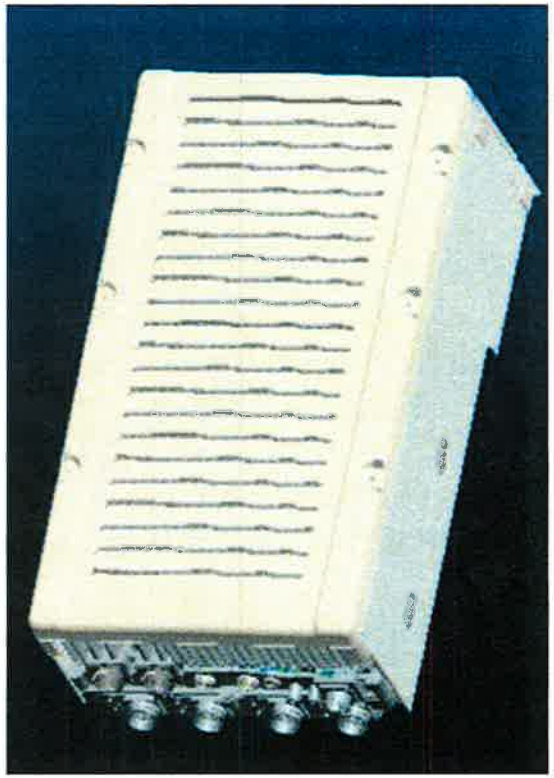
		RRH2x60
RF Output Power		2x60W
Instantaneous Bandwidth		20MHz
Transmitter		2 TX
Receiver	1900 HW version 1900A HW version	2 Branch RX – LA6.0.1 4 Branch RX – LR13.3
Features		AISG 2.0 for RET/TMA
		Internal Smart Bias-T
Power		-48VDC
CPRI Ports		2 CPRI Rate 3 Ports
External Alarms		4 External User Alarms
Monitor Ports		TX
Environmental		GR487 Compliance
RF Connectors		7/16 DIN (top mounted)

** Not a Verizon Wireless deployed product

NEW PCS RF MODULES FOR VZW
RRH2X60 - HW CHARACTERISTICS

LR14.3

	RRH2x60
RF Output Power	2x60W (4x30W HW Ready)
Instantaneous Bandwidth	60MHz
Target Reliability (Annual Return Rate)	<2%
Receiver	4 Branch Rx
Features	AISG 2.0 for RET/TMA
Power	-48VDC
	Internal Smart Bias-T
CPRI Ports	2 CPRI Rate 5 Ports
External Alarms	4 External User Alarms
Monitor Ports	TX, RX
Environmental	GR487 Compliance
RF Connectors	7/16 DIN (downward facing)
Dimensions	22"(h) x 12"(w)x 9.4" (d)**
Weight	55lb**



**- Includes solar shield but not mounting brackets (8 lbs.)

Alcatel·Lucent

ALCATEL-LUCENT
WIRELESS PRODUCT DATASHEET
RRH2X60-AWS FOR BAND 4 APPLICATIONS

The Alcatel-Lucent RRH2x60-AWS is a high power, small form factor Remote Radio Head operating in the AWS frequency band (3GPP Band 4) for LTE technology. It is designed with an eco-efficient approach, providing operators with the means to achieve high quality and high capacity coverage with minimum site requirements and efficient operation.

A distributed Node B expands the deployment options by using two components, a Base Band Unit (BBU) containing the digital assets and a separate RRH containing the radio-frequency (RF) elements. This modular design optimizes available space and allows the main components of a Node B to be installed separately, within the same site or several kilometers apart.

The Alcatel-Lucent RRH2x60-AWS is linked to the BBU by an optical-fiber connection carrying downlink and uplink digital radio signals along with operations, administration and maintenance (OA&M) information.

SUPERIOR RF PERFORMANCE

The Alcatel-Lucent RRH2x60-AWS integrates all the latest technologies. This allows to offer best-in-class characteristics.

It delivers an outstanding 120 watts of total RF power thanks to its two transmit RF paths of 60 W each.

It is ideally suited to support multiple-input multiple-output (MIMO) 2x2 operation.

It includes four RF receivers to natively support 4-way uplink reception diversity. This improves the radio uplink coverage and this can be used to extend the cell radius commensurate with 2x2MIMO 2x60 W for the downlink.

It supports multiple discontinuous LTE carriers within an instantaneous bandwidth of 45 MHz corresponding to the entire AWS B4 spectrum.

The latest generation power amplifiers (PA) used in this product achieve high efficiency (>40%), resulting in improved power consumption figures.

OPTIMIZED TCO

The Alcatel-Lucent RRH2x60-AWS is designed to make available all the benefits of a distributed Node B, with excellent RF characteristics, with low capital expenditures (CAPEX) and low operating expenditures (OPEX).

The Alcatel-Lucent RRH2x60-AWS is a very cost-effective solution to deploy LTE MIMO.

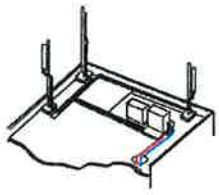
EASY INSTALLATION

The RRH2x60-AWS includes a reversible mounting bracket which allows for ease of installation behind an antenna, or on a rooftop knee wall while providing easy access to the mid body RF connectors.

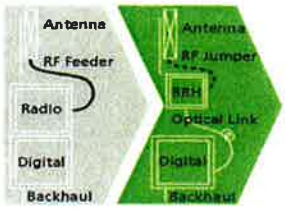
The limited space available in some sites may prevent the installation of traditional single-cabinet BTS equipment. However, many of these sites can host an Alcatel-Lucent RRH2x60-AWS installation, providing more flexible site selection and improved network quality along with greatly reduced installation time and costs.

The Alcatel-Lucent RRH2x60-AWS is a zero-footprint solution and is convection cooled without fans for silent operation, simplifying negotiations with site property owners and minimizing environmental impacts.

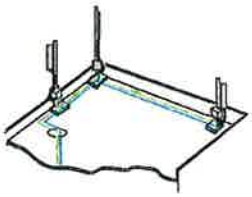
Installation can easily be done by a single person as the Alcatel-Lucent RRH2x60-AWS is compact and weighs about 20 kg, eliminating the need for a crane to hoist the BTS cabinet to the rooftop. A site can be in operation in less than one day.



Macro



RRH for space-constrained cell sites



Distributed

FEATURES

- RRH2x60-AWS integrates two power amplifiers of 60W rating (at each antenna connector)
- Support multiple carriers over the entire 3GPP band 4
- RRH2x60-AWS is optimized for LTE operation
- RRH2x60-AWS is a very compact and lightweight product
- Advanced power management techniques are embedded to provide power savings, such as PA bias control

BENEFITS

- MIMO LTE operation with only one single unit per sector
- Improved uplink coverage with built-in 4-way receive diversity capability
- RRH can be mounted close to the antenna, eliminating nearly all losses in RF cables and thus reducing power consumption by 50% compared to conventional solutions
- Distributed configurations provide easily deployable and cost-effective solutions, near zero footprint and silent solutions, with minimum impact on the neighborhood, which ease the deployment
- RETA and TMA support without additional hardware thanks to the AISG v2.0 port and the integrated Bias-Tees. Bias-Tees support AISG DC supply and signaling.

TECHNICAL SPECIFICATIONS

Specifications listed are hardware capabilities. Some capabilities depend on support in a specific software release or future release.

Dimensions and weights

- HxWxD : 510x285x186mm (27 l with solar shield)
- Weight : 20 kg (44 lbs)

Electrical Data

- Power Supply : -48V DC (-40.5 to -57V)
- Power Consumption (ETSI average traffic load reference) : 250W @2x60W

RF Characteristics

- Frequency band: 1710-1755, UL / 2110-2155 MHz, DL (3GPP band 4)
- Output power: 2x60W at antenna connectors
- Technology supported: LTE
- Instantaneous bandwidth: 45 MHz
- Rx diversity: 2-way and 4-way uplink reception
- Typical sensitivity without Rx diversity: -105 dBm for LTE

Connectivity

- Two CPRI optical ports for daisychaining and up to six RRHs per fiber
- Type of optical fiber: Single-Mode (SM) and Multi-Mode (MM) SFPs
- Optical fiber length: up to 500m using MM fiber, up to 20km using SM fiber
- TMA/RETA : AISG 2.0 (RS485 connector and internal Bias-Tee)
- Six external alarms
- Surge protection for all external ports (DC and RF)

Environmental specifications

- Operating temperature: -40°C to 55°C including solar load
- Operating relative humidity: 8% to 100%
- Environmental Conditions : ETS 300 019-1-4 class 4.1E
- Ingress Protection : IEC 60529 IP65
- Acoustic Noise : Noiseless (natural convection cooling)

Safety and Regulatory Data

- EMC : 3GPP 25113, EN 301 489-1, EN 301 489-23, GR 1089, GR 3108, OET-65
- Safety : IEC60950-1, EN 60825-1, UL, ANSI/NFPA 70, CAN/CSA-C22.2
- Regulatory : FCC Part 15 Class B, CE Mark – European Directive : 2002/95/EC (ROHS); 2002/96/EC (WEEE); 1999/5/EC (R&TTE)
- Health : EN 50385

Alcatel·Lucent

AT THE SPEED OF IDEAS™

Product Data Sheet HB158-1-08U8-S8J18

HYBRIFLEX™ RRH Hybrid Feeder Cabling Solution, 1-5/8", Single-Mode Fiber

Product Description

RFS' HYBRIFLEX Remote Radio Head (RRH) hybrid feeder cabling solution combines optical fiber and DC power for RRHs in a single lightweight aluminum corrugated cable, making it the world's most innovative solution for RRH deployments.

It was developed to reduce installation complexity and costs at Cellular sites. HYBRIFLEX allows mobile operators deploying an RRH architecture to standardize the RRH installation process and eliminate the need for and cost of cable grounding. HYBRIFLEX combines optical fiber (multi-mode or single-mode) and power in a single corrugated cable. It eliminates the need for junction boxes and can connect multiple RRHs with a single feeder. Standard RFS CELLFLEX® accessories can be used with HYBRIFLEX cable. Both pre-connectorized and on-site options are available.

Figure 1: HYBRIFLEX Series

Features/Benefits

- Aluminum corrugated armor with outstanding bending characteristics – minimizes installation time and enables mechanical protection and shielding
- Same accessories as 1 5/8" coaxial cable
- Outer conductor grounding – Eliminates typical grounding requirements and saves on installation costs
- Lightweight solution and compact design – Decreases tower loading
- Robust cabling – Eliminates need for expensive cable trays and ducts
- Installation of tight bundled fiber optic cable pairs directly to the RRH – Reduces CAPEX and wind load by eliminating need for interconnection
- Optical fiber and power cables housed in single corrugated cable – Saves CAPEX by standardizing RRH cable installation and reducing installation requirements
- Outdoor polyethylene jacket – Ensures long-lasting cable protection

Technical Specifications

Structure			
Outer Conductor Armor	Corrugated Aluminum	[mm (in)]	46.5 (1.83)
Jacket	Polyethylene, PE	[mm (in)]	50.3 (1.98)
UV-Protection	Individual and External Jacket		Yes
Mechanical properties			
Weight, Approximate		[kg/m (lb/ft)]	1.9 (1.30)
Minimum Bending Radius, Single Bending		[mm (in)]	200 (8)
Minimum Bending Radius, Repeated Bending		[mm (in)]	500 (20)
Recommended/Maximum Clamp Spacing		[m (ft)]	1.0 / 1.2 (3.25 / 4.0)
Electrical properties			
DC-Resistance Outer Conductor Armor		[Ω/km (Ω/1000ft)]	068 (0.205)
DC-Resistance Power Cable, 8.4mm²(8AWG)		[Ω/km (Ω/1000ft)]	2.1 (0.307)
Fiber Optic properties			
Version			Single-mode OM3
Quantity, Fiber Count			16 (8 pairs)
Core/Clad		[µm]	50/125
Primary Coating (Acrylate)		[µm]	245
Buffer Diameter, Nominal		[µm]	900
Secondary Protection, Jacket, Nominal		[mm (in)]	2.0 (0.08)
Minimum Bending Radius		[mm (in)]	102 (4.1)
Insertion Loss @ wavelength 850nm		dB/km	3.0
Insertion Loss @ wavelength 1310nm		dB/km	1.0
Standards (Meets or exceeds)			UL94-V0, UL1666 RoHS Compliant
DC Power cable Properties			
Size (Power)		[mm² (AWG)]	8.4 (8)
Quantity, Wire Count (Power)			16 (8 pairs)
Size (Alarm)		[mm² (AWG)]	0.8 (18)
Quantity, Wire Count (Alarm)			4 (2 pairs)
Type			UV protected
Strands			19
Primary Jacket Diameter, Nominal		[mm (in)]	6.8 (0.27)
Standards (Meets or exceeds)			NFPA 130, ICEA S-93-638 UL Type XHHW-2, UL 44 UL-LS Limited Smoke, UL VW-1 IEEE-383 (1974), IEEE1202/FT4 RoHS Compliant
Environmental			
Installation Temperature		[°C (°F)]	-40 to +65 (-40 to149)
Operation Temperature		[°C (°F)]	-40 to +65 (-40 to149)

* This data is provisional and subject to change

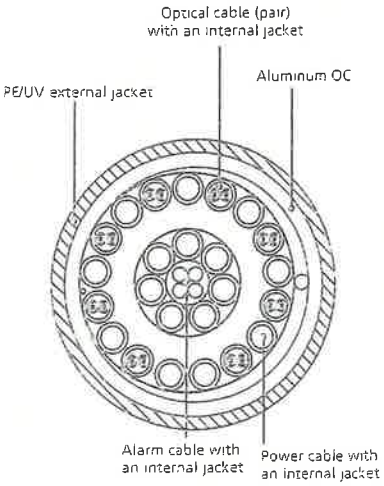


Figure 2: Construction Detail

ATTACHMENT 2

	General	Power	Density					
Site Name: Trumbull								
Tower Height: 457Ft.								
CARRIER	**# OF CHAN.**	**WATTS ERP**	**HEIGHT**	**CALC. POWER DENS**	**FREQ.**	**MAX. PERMISS. EXP.**	**FRACTION MPE**	**Total**
*Various			field measurements taken in vicinity of towe				25.40%	
*T-Mobile GSM	8	91	247	0.0043	1945	1.0000	0.43%	
*T-Mobile UMTS	2	470	247	0.0055	2100	1.0000	0.55%	
*Marcus - Andrew DB408-B	10	2800	325	0.0034	450	0.3000	1.13%	
*Marcus - Radiowaves SPD3	1	100	300	0.0002	5.8 GHz	1.0000	0.02%	
*Marcus - Radiowaves SPD4	1	100	175	0.0012	5.8 GHz	1.0000	0.12%	
*Marcus - Radiowaves SD2-	1	100	75	0.0015	5.8 GHz	1.0000	0.15%	
Verizon PCS	**15**	**453**	**232**	**0.0454**	**1970**	**1.0000**	**4.54%**	
Verizon Cellular	**9**	**289**	**232**	**0.0174**	**869**	**0.5793**	**3.00%**	
Verizon AWS	**1**	**1750**	**232**	**0.0117**	**2145**	**1.0000**	**1.17%**	
Verizon 700	**1**	**550**	**232**	**0.0037**	**698**	**0.4973**	**0.74%**	
								37.25%
* Source: Siting Council								

ATTACHMENT 3

Date: **October 17, 2014**

Veronica Harris
Crown Castle
1200 McArthur Blvd.
Mahwah, NJ 07430
(201) 236-9094

Tower Engineering Professionals
326 Tryon Rd.
Raleigh, NC 27603
(919) 661-6351
crown@tepgroup.net

Subject: Structural Analysis Report

Carrier Designation:	***Verizon Wireless* Co-Locate**	
	Carrier Site Number:	N/A
	Carrier Site Name:	Trumbull
Crown Castle Designation:	**Crown Castle BU Number:**	873128
	Crown Castle Site Name:	Trumbull
	Crown Castle JDE Job Number:	249276
	Crown Castle Work Order Number:	943215
	Crown Castle Application Number:	203796 Rev. 12
Engineering Firm Designation:	**TEP Project Number:**	25575.25415
Site Data:	**800 Booth Hill Rd., Shelton, Fairfield County, CT 06611** **Latitude *41° 16' 44.26"*, Longitude *-73° 11' 6.40"*** **457 Foot - Guyed Tower**	

Dear Veronica Harris,

Tower Engineering Professionals is pleased to submit this **"Structural Analysis Report"** to determine the structural integrity of the above mentioned 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 716988, in accordance with application 203796, revision 12.

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:

LC4.5: Existing + Proposed Equipment with Proposed Modifications **Sufficient Capacity**
Note: See Table I and Table II for the proposed and existing loading, respectively.

The analysis has been performed in accordance with the TIA/EIA-222-F Structural Standards for Steel Antenna Towers and Antenna Supporting Structures, ASCE 7-05 Minimum Design Loads for Buildings and Other Structures and the 2005 Connecticut State Building Code (2003 International Building Code) with 2009 and 2011 Connecticut amendments based upon a wind speed of 85 mph fastest mile.

All modifications and equipment proposed in this report shall be installed in accordance with the appurtenances listed in Tables 1 and 2 and the attached drawing for the determined available structural capacity to be effective.

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

Structural analysis prepared by: Paul Stewart, E.I.T. / TLI

Respectfully submitted by:

Graham M. Andres, P.E.

STATE OF CONNECTICUT GRAHAM M. ANDRES 29538 LICENSED PROFESSIONAL ENGINEER

10/17/14

Electronic Copy

TABLE OF CONTENTS

1) INTRODUCTION

This tower is a 457-ft guyed tower designed by Blaw Knox, and mapped by Pinnacle Towers, Inc. in July of 2003. The original design standard and wind speed are unknown. The tower has been modified multiple times in the past to accommodate additional loading. Reinforcement drawings prepared by Tower Engineering Professionals in June of 2013 were considered in this analysis. TEP visited the site multiple times for post modification inspections. All information provided to TEP was assumed to be accurate and complete.

2) ANALYSIS CRITERIA

The analysis has been performed in accordance with the TIA/EIA-222-F Structural Standards for Steel Antenna Towers and Antenna Supporting Structures and ASCE 7-05 Minimum Design Loads for Buildings and Other Structures using a fastest mile wind speed of 85 mph with no ice, 37.6 mph with 0.75 inch escalating ice thickness and 50 mph under service loads.

Table 1 - Proposed Antenna and Cable Information

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)	Note
230.0	238.0	1	RFS Celwave	DB-T1-6Z-8AB-0Z	2	1-5/8	1
	232.0	3	Commscope	HBXX-6516DS-VTM w/ Mount Pipe			
		3	Andrew	SBNHH-1D65B w/ Mount Pipe			
		1	Andrew	LNX-6514DS-VTM w/ Mount Pipe			
		2	Andrew	LNX-8513DS-VTM w/ Mount Pipe			
		3	Alcatel Lucent	RRH2X60-PCS			
		3	Alcatel Lucent	RRH2X60-AWS			

Notes:
1) See "Appendix B – Base Level Drawing" for assumed feed line configuration.

Table 2 - Existing Antenna and Cable Information

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)	Note
460.0	476.0	1	Dielectric	TFU-20JDAS	1	4-1/16	1
442.0	452.0	1	Decibel	DB420	1	7/8	1
	448.0	1	Antel	BCD-87077	-	-	2
	447.0	1	RFS Celwave	PD10041-1			
	442.0	1	Tower Mounts	Side Arm Mount [SO 306-3]	-	-	1
439.0	445.0	1	Antel	BCD-87077	-	-	2
	439.0	1	Tower Mounts	Side Arm Mount [SO 306-1]			
419.0	419.0	1	ERI	1183-3CP	1	3	1
393.0	393.0	3	Shively Labs	6014-2	1	1-5/8	1
371.0	371.0	1	ERI	SHP-2AE	1	3	1
366.0	374.0	1	Andrew	DB806E-XT	1	1-5/8	2
	366.0	1	Tower Mounts	Side Arm Mount [SO 306-1]			

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)	Note
344.0	356.0	1	RFS Celwave	455-6	1	1/2	1
	350.0	1	RFS Celwave	AO9009-3	2	1-5/8	2
		1	Antel	BCD-87077	1	1-1/4	1
	344.0	1	Tower Mounts	Side Arm Mount [SO 306-1]			
		2	Tower Mounts	Side Arm Mount [SO 602-1]			
340.0	352.0	1	RFS Celwave	455-6	1	7/8	1
	340.0	1	Tower Mounts	Side Arm Mount [SO 602-1]			
333.0	339.0	1	Andrew	PG1N0F-0090-310	1	1-1/4	1
	333.0	1	Tower Mounts	Side Arm Mount [SO 602-1]			
		-	-	-	1	1-5/8	2
328.0	332.0	1	Sinclair	SRL-101A	1	7/8	2
	328.0	1	Tower Mounts	Side Arm Mount [SO 302-1]			
		1	Dielectric	TLP-8M			
		1	Tower Mounts	Pipe Mount [PM 601-1]			
		-	-	-	1	3-1/8	1
326.0	326.0	1	Decibel	DB230-2E	-	-	2
		1	Tower Mounts	Side Arm Mount [SO 602-1]			
322.0	326.0	1	Decibel	DB408	1	1/2	1
	322.0	1	Radiowaves	SPD3-5.8	1	1-1/4	
		1	Tower Mounts	Pipe Mount [PM 601-1]			
		1	Tower Mounts	Side Arm Mount [SO 602-1]			
310.0	312.0	3	Shively Labs	6014-2	1	1-5/8	1
284.0	290.0	1	Decibel	DB810M-XC	1	1-1/4	1
	284.0	1	Tower Mounts	Side Arm Mount [SO 602-1]			
		1	Decibel	DB212-1	-	-	2
277.0	283.0	1	RFS Celwave	BMR10-A-B1	1	1-5/8	1
	277.0	-	-	-	1	7/8	2
269.0	269.0	1	Maxrad	MYA1503K	-	-	2
		1	Tower Mounts	Side Arm Mount [SO 602-1]			
266.0	271.0	1	Decibel	DB810M-XC	1	1-1/4	1
	266.0	1	Tower Mounts	Side Arm Mount [SO 602-1]			
		1	Tower Mounts	Side Arm Mount [SO 602-1]	1	7/8	2
258.0	263.0	1	Decibel	DB809KT3E-Y	1	1-1/4	1
	258.0	1	Tower Mounts	Side Arm Mount [SO 602-1]			
251.0	256.0	1	Andrew	PG1N0F-0090-310	-	-	2
	251.0	2	Tower Mounts	Side Arm Mount [SO 602-1]			
247.0	247.0	3	EMS Wireless	RR90-17-02DP w/ Mount Pipe	12	7/8	1
		3	RFS Celwave	APXV18-206516S-C-A20 w/ Mount Pipe			
		6	RFS Celwave	ATMAP1412D-1A20			
		1	Tower Mounts	Sector Mount [SM 301-3]			

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)	Note
230.0	231.0	2	Antel	BXA-80080/6CF w/ Mount Pipe	-	-	3
		1	Antel	BXA-80063/6CF w/ Mount Pipe			
	230.0	3	Antel	BXA-185063/8CF w/ Mount Pipe			
		3	Antel	BXA-70063/6CF-EDIN w/ Mount Pipe			
		1	Tower Mounts	Sector Mount [SM 406-3]	18	7/8	1
214.0	221.0	1	Decibel	DB810T3E-XT	1	7/8	1
	214.0	1	Tower Mounts	Side Arm Mount [SO 305-1]			
		-	-	-	1	7/8	2
209.0	209.0	1	Mark	P-9A72GN-U	1	7/8	1
		1	Tower Mounts	Pipe Mount [PM 601-1]			
200.0	201.0	1	Gabriel Electronics	DFPD1-52 w/ Mount Pipe	1	3/8	1
188.0	188.0	1	Kathrein	RY-900B	-	-	2
186.0	186.0	1	Decibel	DB495-A	-	-	2
175.0	175.0	1	Radiowaves	SPD4-5.2	1	5/8	1
154.0	154.0	1	Andrew	HPX6-65-P3A	2	EW63	1
146.0	146.0	1	Andrew	PL6-65-PXA	1	EW52	1
		1	Tower Mounts	Pipe Mount [PM 601-1]			
136.0	137.0	1	Channelmaster	CM 4228HD	-	-	2
	136.0	1	Tower Mounts	Pipe Mount [PM 601-1]			
	135.0	1	Channelmaster	CM 4228HD			
133.0	142.0	1	Decibel	DB264-A	2	7/8	1
		1	RFS Celwave	220-5			
	133.0	2	Tower Mounts	Side Arm Mount [SO 202-1]			
117.0	117.0	1	Mark	P-9A48GN-U	1	7/8	1
108.0	108.0	1	RFS Celwave	PD666	1	7/8	1
106.0	106.0	1	Kathrein	PR-950	2	3/8	1
		1	Tower Mounts	Pipe Mount [PM 601-1]			
99.0	99.0	1	Decibel	DB2801RA	1 1	7/8 3/8	1
		1	Radiowaves	SPD2-5.8			
		1	Tower Mounts	Pipe Mount [PM 601-1]			
	98.0	1	Radiowaves	PTP 900-13			
62.0	68.0	1	Mark	P-9A48GN-U	3	7/8	1
	62.0	1	Scala	PR-950			
		1	Tower Mounts	Side Arm Mount [SO 202-1]			
	54.0	1	Decibel	DB499-C			
25.0	25.0	1	Tower Mounts	Side Arm Mount [SO 601-1]	2	5/16	2

Notes:
1) Existing equipment
2) Abandoned equipment; considered in this analysis
3) Existing equipment; to be removed

Table 3 - Design Antenna and Cable Information

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
Unknown						

3) ANALYSIS PROCEDURE

Table 4 - Documents Provided

Document	Remarks	Reference	Source
Geotechnical Report	FDH Engineering, Inc.	1418454	CCISites
Tower Foundation Mapping	Tower Engineering Professionals	1520339	CCISites
Tower Mapping	Pinnacle Towers, Inc.	1327906	CCISites
Tower Reinforcement Design	Tower Engineering Professionals	2407618	CCISites
Tower Reinforcement Design	Tower Engineering Professionals	2633757	CCISites
Tower Reinforcement Design	Tower Engineering Professionals	2755396	CCISites
Tower Reinforcement Design	Tower Engineering Professionals	3006419	CCISites
Tower Reinforcement Design	Tower Engineering Professionals	4141000	CCISites
Post-Modification Inspection	Pinnacle Towers, Inc.	1956007	CCISites
Post-Modification Inspection	Tower Engineering Professionals	2438393	CCISites
Post-Modification Inspection	Tower Engineering Professionals	3417531	CCISites
Post-Modification Inspection	Tower Engineering Professionals	3442609	CCISites

3.1) Analysis Method

tnxTower (version 6.1.4.1), a commercially available analysis software package, was used to create a three-dimensional model of the tower and calculate member stresses for various loading cases. Selected output from the analysis is included in Appendix A.

3.2) Assumptions

1) The tower and foundation were built in accordance with the manufacturer's specifications.
2) The tower and foundation have been maintained in accordance with the manufacturer's specification.
3) The configuration of antennas, transmission cables, mounts and other appurtenances are as specified in Tables 1 and 2, and "Appendix B – Base Level Drawing".
4) When applicable, transmission cables are considered as structural components for calculating wind loads as allowed by the standard.
5) All tower components are in sufficient condition to carry their full design capacity.
6) 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. See Table 7.
7) All antenna mounts and mounting hardware are structurally sufficient to carry the full design capacity requirements of appurtenance wind area and weight as provided by the original manufacturer specifications. It is the carrier's responsibility to ensure compliance to the structural limitations of the existing and/or proposed antenna mounts. TEP did not perform a site visit to verify the size, condition or capacity of the antenna mounts and did not analyze antennas supporting mounts as part of this structural analysis report.
8) The following material grades were assumed:
   a) Leg grade: A7-33
   b) Bracing Grade: A7-33
   c) Connection bolts: A307
9) TEP did not have sufficient information to analyze the base casting. For the purposes of this analysis the base casting is assumed not to control the capacity. Verifying this assumption should be part of the scope of the tower modification installation.

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

4) ANALYSIS RESULTS

Table 5 - Section Capacity (Summary)

Section No.	Elevation (ft)	Component Type	Size	Critical Element	P (K)	SF*P_{allow} (K)	% Capacity	Pass / Fail
T1	457 - 436	Leg	3	2	-25.00	132.22	18.9	Pass
T2	436 - 421	Leg	2 3/4	44	-35.20	108.54	32.4	Pass
T3	421 - 401	Leg	2 3/4	74	-84.29	108.54	77.7	Pass
T4	401 - 396	Leg	3	107	-99.59	135.86	73.3	Pass
T5	396 - 391	Leg	3	116	-116.08	135.86	85.4	Pass
T6	391 - 386	Leg	3	125	-134.35	166.90	80.5	Pass
T7	386 - 381	Leg	3	140	-155.07	166.90	92.9	Pass
T8	381 - 376	Leg	3 1/2	155	-158.47	198.38	79.9	Pass
T9	376 - 371	Leg	3 1/2	164	-140.81	198.38	71.0	Pass
T10	371 - 366	Leg	3 1/2	173	-126.62	198.38	63.8	Pass
T11	366 - 361	Leg	3 1/2	185	-113.96	198.38	57.4	Pass
T12	361 - 341	Leg	3	197	-101.62	163.95	62.0	Pass
T13	341 - 321	Leg	3	242	-50.10	101.92	49.2	Pass
T14	321 - 301	Leg	3	275	-53.61	101.92	52.6	Pass
T15	301 - 281	Leg	3	308	-79.53	135.86	58.5	Pass
T16	281 - 261	Leg	3	342	-120.98	135.86	89.0	Pass
T17	261 - 241	Leg	3	375	-151.94	164.59	92.3	Pass
T18	241 - 221	Leg	3	420	-119.91	135.86	88.3	Pass

Section No.	Elevation (ft)	Component Type	Size	Critical Element	P (K)	SF*P_{allow} (K)	% Capacity	Pass / Fail
T19	221 - 201	Leg	3 1/4	453	-84.49	124.39	67.9	Pass
T20	201 - 181	Leg	3 1/4	485	-119.44	165.81	72.0	Pass
T21	181 - 161	Leg	3 1/4	520	-91.95	124.39	73.9	Pass
T22	161 - 141	Leg	3 1/2	553	-95.80	148.82	64.4	Pass
T23	141 - 121	Leg	3 1/2	586	-99.77	148.82	67.0	Pass
T24	121 - 101	Leg	3 1/2	617	-149.28	198.38	75.2	Pass
T25	101 - 81	Leg	3 1/2	651	-164.17	198.38	82.8	Pass
T26	81 - 61	Leg	3 1/2	684	-167.35	198.38	84.4	Pass
T27	61 - 41	Leg	3 1/2	717	-165.29	198.38	83.3	Pass
T28	41 - 20	Leg	3 1/2	750	-124.53	145.88	85.4	Pass
T29	20 - 6.70833	Leg	3 1/4	783	-130.00	130.07	99.9	Pass
T30	6.70833 - 0	Leg	3 1/4	804	-133.95	137.84	97.2	Pass
T1	457 - 436	Diagonal	L2 1/2x2x1/4	43	-2.04	16.40	12.4 50.0 (b)	Pass
T2	436 - 421	Diagonal	L2 1/2x2x3/16	53	-2.19	12.78	17.1	Pass
T3	421 - 401	Diagonal	L2 1/2x2x3/16	86	-6.92	12.78	54.1 62.9 (b)	Pass
T4	401 - 396	Diagonal	L2 1/2x2x3/16	113	-7.18	12.78	56.2 65.3 (b)	Pass
T5	396 - 391	Diagonal	L2 1/2x2x3/16	122	-8.00	12.78	62.6 72.7 (b)	Pass
T6	391 - 386	Diagonal	L2 1/2x2x3/16	134	-9.95	12.72	78.2	Pass
T7	386 - 381	Diagonal	L2 1/2x2x3/16	149	-8.27	12.72	65.1 70.0 (b)	Pass
T8	381 - 376	Diagonal	L2 1/2x2x3/16	158	-8.54	12.78	66.8 91.1 (b)	Pass
T9	376 - 371	Diagonal	L2 1/2x2x3/16	167	-10.01	12.78	78.3 91.1 (b)	Pass
T10	371 - 366	Diagonal	L2 1/2x2x3/16	182	-8.60	12.78	67.3 78.3 (b)	Pass
T11	366 - 361	Diagonal	L2 1/2x2x3/16	194	-8.29	12.78	64.8 75.4 (b)	Pass
T12	361 - 341	Diagonal	L2 1/2x2x3/16	236	-7.89	12.72	62.1 71.8 (b)	Pass
T13	341 - 321	Diagonal	L2 1/2x2x3/16	272	-6.21	12.78	48.6 56.5 (b)	Pass
T14	321 - 301	Diagonal	L2 1/2x2x3/16	285	-3.09	12.78	24.2 59.0 (b)	Pass
T15	301 - 281	Diagonal	L2 1/2x2x3/16	318	-4.78	12.78	37.4 91.4 (b)	Pass
T16	281 - 261	Diagonal	L2 1/2x2x3/16	351	-7.47	12.78	58.5 68.0 (b)	Pass
T17	261 - 241	Diagonal	L3x3x1/4	396	-9.40	30.31	31.0 86.9 (b)	Pass
T18	241 - 221	Diagonal	L3x3x1/4	450	-8.22	28.61	28.7 74.8 (b)	Pass
T19	221 - 201	Diagonal	L2 1/2x2x3/16	483	-5.11	12.78	40.0 97.6 (b)	Pass
T20	201 - 181	Diagonal	L2 1/2x2x3/16	516	-3.42	12.78	26.8 65.3 (b)	Pass
T21	181 - 161	Diagonal	L2 1/2x2x3/16	527	-2.09	12.78	16.3 39.9 (b)	Pass
T22	161 - 141	Diagonal	L3x3x1/4	560	-5.10	28.66	17.8 29.7 (b)	Pass
T23	141 - 121	Diagonal	L3x3x1/4	611	-6.54	28.66	22.8 38.5 (b)	Pass
T24	121 - 101	Diagonal	L2 1/2x2x3/16	638	-4.50	12.78	35.2	Pass

Section No.	Elevation (ft)	Component Type	Size	Critical Element	P (K)	SF*P_{allow} (K)	% Capacity	Pass / Fail
							40.9 (b)	
T25	101 - 81	Diagonal	L2 1/2x2x3/16	681	-2.38	12.78	18.6 45.4 (b)	Pass
T26	81 - 61	Diagonal	L2 1/2x2x3/16	695	-1.03	12.78	8.1 19.8 (b)	Pass
T27	61 - 41	Diagonal	L2 1/2x2x3/16	725	-2.40	12.78	18.8 45.9 (b)	Pass
T28	41 - 20	Diagonal	L2 1/2x2x3/16	764	-4.19	12.58	33.3 85.0 (b)	Pass
T29	20 - 6.70833	Diagonal	L2x2x3/16	786	3.97	17.93	22.1 75.8 (b)	Pass
T30	6.70833 - 0	Diagonal	L2x2x3/16	807	-5.06	15.53	32.6 96.6 (b)	Pass
T1	457 - 436	Horizontal	L2 1/2x2x1/4	36	-0.97	8.15	11.9 18.6 (b)	Pass
T2	436 - 421	Horizontal	L2 1/2x2x1/4	56	1.24	27.11	4.6 23.7 (b)	Pass
T6	391 - 386	Secondary Horizontal	L2x2x1/4	137	-2.33	18.02	12.9 29.6 (b)	Pass
T7	386 - 381	Secondary Horizontal	L2x2x1/4	152	-2.69	18.02	14.9 34.2 (b)	Pass
T12	361 - 341	Secondary Horizontal	L2x2x1/4	221	-1.76	18.02	9.8 22.4 (b)	Pass
T17	261 - 241	Secondary Horizontal	2L3 1/2x3 1/2x3/8x3/8	390	-2.63	131.05	2.0	Pass
T1	457 - 436	Top Girt	C8x13.75	6	-0.00	51.24	0.2	Pass
T2	436 - 421	Top Girt	L2 1/2x2x1/4	8	0.78	20.33	3.8 15.0 (b)	Pass
T3	421 - 401	Top Girt	L2 1/2x2x1/4	47	0.58	27.11	2.1 11.1 (b)	Pass
T4	401 - 396	Top Girt	L2 1/2x2x1/4	78	-0.35	10.80	3.2 8.9 (b)	Pass
T6	391 - 386	Top Girt	L2 1/2x2x1/4	130	0.79	27.98	2.8	Pass
T10	371 - 366	Top Girt	L2 1/2x2x1/4	178	1.30	27.98	4.6	Pass
T12	361 - 341	Top Girt	L2 1/2x2x1/4	188	0.47	27.11	1.7 9.0 (b)	Pass
T13	341 - 321	Top Girt	L2 1/2x2x1/4	202	0.34	27.11	1.3 6.5 (b)	Pass
T14	321 - 301	Top Girt	L2 1/2x2x1/4	245	0.33	27.11	1.2 6.4 (b)	Pass
T15	301 - 281	Top Girt	L2 1/2x2x3/16	278	0.21	15.57	1.3 4.0 (b)	Pass
T16	281 - 261	Top Girt	L2 1/2x2x1/4	313	0.23	20.33	1.1 4.4 (b)	Pass
T17	261 - 241	Top Girt	L2 1/2x2x3/16	346	0.67	20.75	3.2 12.8 (b)	Pass
T18	241 - 221	Top Girt	L2 1/2x2x3/16	377	0.56	15.57	3.6 10.8 (b)	Pass
T19	221 - 201	Top Girt	L2 1/2x2x3/16	423	0.37	15.57	2.4 7.1 (b)	Pass
T20	201 - 181	Top Girt	L2 1/2x2x3/16	457	0.35	15.57	2.3 8.9 (b)	Pass
T21	181 - 161	Top Girt	2L3x2x1/4x3/8	489	0.60	62.01	1.0 5.7 (b)	Pass
T22	161 - 141	Top Girt	L2 1/2x2x3/16	523	0.42	15.57	2.7 8.0 (b)	Pass
T23	141 - 121	Top Girt	L2 1/2x2x3/16	556	1.25	20.75	6.0 23.9 (b)	Pass
T24	121 - 101	Top Girt	L2 1/2x2x3/16	589	-4.74	8.45	56.0 90.5 (b)	Pass

Section No.	Elevation (ft)	Component Type	Size	Critical Element	P (K)	SF*P_{allow} (K)	% Capacity	Pass / Fail
T25	101 - 81	Top Girt	L2 1/2x2x3/16	621	0.50	15.57	3.2 9.6 (b)	Pass
T26	81 - 61	Top Girt	L2 1/2x2x3/16	654	0.77	20.75	3.7 14.8 (b)	Pass
T27	61 - 41	Top Girt	L2 1/2x2x3/16	687	0.81	20.75	3.9 15.5 (b)	Pass
T28	41 - 20	Top Girt	L2 1/2x2x3/16	720	0.59	15.57	3.8 11.3 (b)	Pass
T29	20 - 6.70833	Top Girt	L3x2x3/16	753	9.28	17.66	52.5 84.4 (b)	Pass
T1	457 - 436	Mid Girt	L2 1/2x2x1/4	13	3.28	27.11	12.1 62.7 (b)	Pass
T3	421 - 401	Mid Girt	L2 1/2x2x1/4	81	-0.48	10.80	4.5 11.6 (b)	Pass
T12	361 - 341	Mid Girt	L2 1/2x2x1/4	203	0.28	27.11	1.0 5.3 (b)	Pass
T13	341 - 321	Mid Girt	L2 1/2x2x1/4	250	0.35	27.11	1.3 6.6 (b)	Pass
T14	321 - 301	Mid Girt	L2 1/2x2x1/4	283	0.59	27.11	2.2 11.3 (b)	Pass
T15	301 - 281	Mid Girt	L2 1/2x2x3/16	314	0.21	15.57	1.3 4.0 (b)	Pass
T16	281 - 261	Mid Girt	L2 1/2x2x1/4	349	0.34	27.11	1.2 6.4 (b)	Pass
T18	241 - 221	Mid Girt	L2 1/2x2x3/16	426	0.85	20.75	4.1 16.2 (b)	Pass
T19	221 - 201	Mid Girt	L2 1/2x2x3/16	459	0.51	20.75	2.5 9.8 (b)	Pass
T20	201 - 181	Mid Girt	L2 1/2x2x3/16	492	0.48	20.75	2.3 9.2 (b)	Pass
T21	181 - 161	Mid Girt	L2 1/2x2x3/16	525	0.51	20.75	2.4 9.7 (b)	Pass
T22	161 - 141	Mid Girt	L2 1/2x2x3/16	558	0.50	15.57	3.2 9.5 (b)	Pass
T23	141 - 121	Mid Girt	L2 1/2x2x3/16	591	-5.78	8.45	68.4 75.9 (b)	Pass
T24	121 - 101	Mid Girt	L2 1/2x2x3/16	625	0.49	15.57	3.1 9.3 (b)	Pass
T25	101 - 81	Mid Girt	L2 1/2x2x3/16	657	0.74	20.75	3.6 14.2 (b)	Pass
T26	81 - 61	Mid Girt	L2 1/2x2x3/16	690	0.78	20.75	3.7 14.8 (b)	Pass
T27	61 - 41	Mid Girt	L2 1/2x2x3/16	723	0.76	20.75	3.6 14.5 (b)	Pass
T28	41 - 20	Mid Girt	L2 1/2x2x3/16	756	1.16	15.57	7.5 22.2 (b)	Pass
T1	457 - 436	Guy A@446.5	9/16	844	13.51	17.50	77.2	Pass
T8	381 - 376	Guy A@381	1 3/8	841	74.86	116.00	64.5	Pass
T17	261 - 241	Guy A@251	1 1/4	838	56.02	96.00	58.4	Pass
T23	141 - 121	Guy A@131	11/16	830	16.80	25.00	67.2	Pass
T1	457 - 436	Guy B@446.5	9/16	843	13.67	17.50	78.1	Pass
T8	381 - 376	Guy B@381	1 3/8	840	75.74	116.00	65.3	Pass
T17	261 - 241	Guy B@251	1 1/4	837	57.01	96.00	59.4	Pass
T23	141 - 121	Guy B@131	11/16	824	16.90	25.00	67.6	Pass
T1	457 - 436	Guy C@446.5	9/16	842	13.36	17.50	76.3	Pass
T8	381 - 376	Guy C@381	1 3/8	839	74.14	116.00	63.9	Pass
T17	261 - 241	Guy C@251	1 1/4	836	56.19	96.00	58.5	Pass
T23	141 - 121	Guy C@131	11/16	819	16.93	25.00	67.7	Pass

Section No.	Elevation (ft)	Component Type	Size	Critical Element	P (K)	SF*P_{allow} (K)	% Capacity	Pass / Fail
T8	381 - 376	Top Guy Pull-Off@381	2L3x2x1/4x3/8	145	24.10	62.82	38.4	Pass
T17	261 - 241	Top Guy Pull-Off@251	2L3 1/2x3 1/2x3/8x3/8	382	21.92	143.10	15.3	Pass
T23	141 - 121	Torque Arm Top@131	2L3x3x3/16	827	15.10	57.54	26.2 64.1 (b)	Pass
T23	141 - 121	Torque Arm Bottom@131	2L3x3x3/16	828	-17.14	22.40	76.5	Pass
							Summary	
						Leg (T29)	99.9	Pass
						Diagonal (T19)	97.6	Pass
						Horizontal (T2)	23.7	Pass
						Secondary Horizontal (T7)	34.2	Pass
						Top Girt (T24)	90.5	Pass
						Mid Girt (T23)	75.9	Pass
						Guy A (T1)	77.2	Pass
						Guy B (T1)	78.1	Pass
						Guy C (T1)	76.3	Pass
						Top Guy Pull-Off (T8)	38.4	Pass
						Torque Arm Top (T23)	64.1	Pass
						Torque Arm Bottom (T23)	76.5	Pass
						Bolt Checks	90.5	Pass
						RATING =	**99.9**	**Pass**

Table 6 - Tower Component Stresses vs. Capacity

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
1	Mast Foundation	-	73.6	Pass
1	Guy Anchor Foundation A	-	93.4	Pass
1	Guy Anchor Foundation B	-	91.8	Pass
1	Guy Anchor Foundation C	-	97.7	Pass

Structure Rating (max from all components) =	99.9%

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

Table 7 - Dish Twist/Sway Results for 50 mph Service Wind Speed

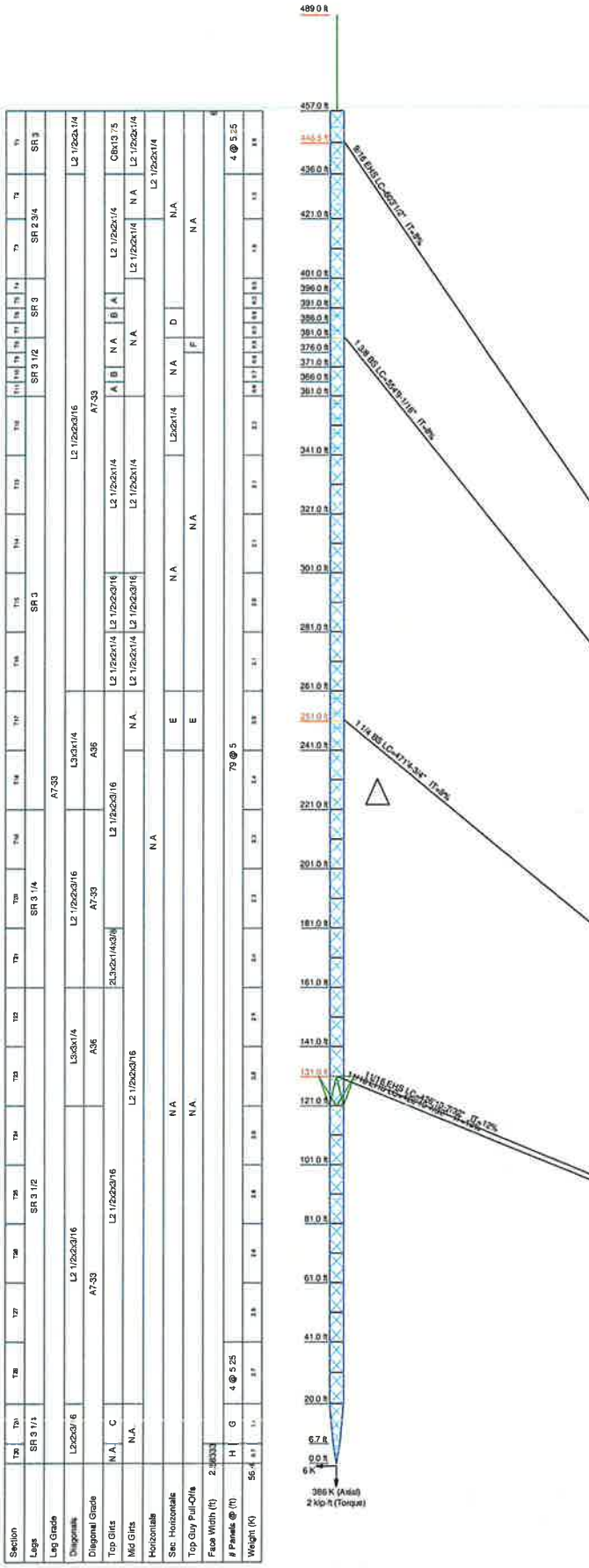
Elevation (ft)	Dish Model	Beam Deflection		
		Deflection (in)	Tilt (deg)	Twist (deg)
322.0	Radiowaves SPD3-5.8	7.645	0.0860	0.3617
209.0	Mark P-9A72GN-U	5.906	0.0657	0.2671
186.0	Decibel DB495-A	5.642	0.0856	0.2307
175.0	Radiowaves SPD4-5.2	5.475	0.0967	0.2129
154.0	Andrew HPX6-65-P3A	5.079	0.1145	0.1827
146.0	Andrew PL6-65-PXA	4.908	0.1182	0.1745
137.0	Channel Master CM 4228	4.710	0.1191	0.1665
135.0	Channel Master CM 4228	4.665	0.1189	0.1648
117.0	Mark P-9A48GN-U	4.268	0.1198	0.1568
106.0	Kathrein PR-950	4.026	0.1289	0.1597
99.0	Radiowaves SPD2-5.8	3.860	0.1370	0.1613
68.0	Mark P-9A48GN-U	2.951	0.1787	0.1573
62.0	Kathrein PR-950	2.743	0.1876	0.1568

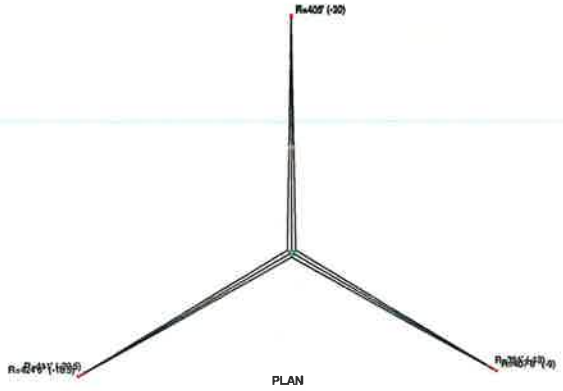
4.1) Recommendations

1) If the load differs from that described in Tables 1 and 2 of this report, "Appendix B – Base Level Drawing" or the provisions of this analysis are found to be invalid, another structural analysis should be performed.
2) The tower and its base and anchor foundations have sufficient capacity to carry the existing and proposed loads once the proposed modifications (Doc ID 4141000) have been installed and a passing post modification inspection has been completed. No additional modifications are required at this time.

APPENDIX A

TNXTOWER OUTPUT





DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
12" x 9' Beacon	457	ATMAP1412D-1A20	247
DB420	442	2.4" Dia. x 6' Mount Pipe	247
PD10041-1	442	2.4" Dia. x 6' Mount Pipe	247
BCD-87077	442	2.4" Dia. x 6' Mount Pipe	247
Side Arm Mount [SO 306-3]	442	Sector Mount [SM 201-3]	247
BCD-87077	439	HBXX-6516DS-VTM w/ Mount Pipe	230
Side Arm Mount [SO 306-1]	439	HBXX-6516DS-VTM w/ Mount Pipe	230
ERI 1183-3CP	419	HBXX-6516DS-VTM w/ Mount Pipe	230
6014-2	393	SBNHH-1D65B w/ Mount Pipe	230
SHP-2AE	371	SBNHH-1D65B w/ Mount Pipe	230
DB806E-XT	366	SBNHH-1D65B w/ Mount Pipe	230
Side Arm Mount [SO 306-1]	366	LNX-6513DS-VTM w/ Mount Pipe	230
BCD-87077	344	LNX-6514DS-VTM w/ Mount Pipe	230
455-6	344	LNX-6513DS-VTM w/ Mount Pipe	230
AO9009-3	344	RRH2X60-PCS	230
Side Arm Mount [SO 602-1]	344	RRH2X60-PCS	230
Side Arm Mount [SO 306-1]	344	RRH2X60-PCS	230
Side Arm Mount [SO 602-1]	344	RRH2X60-AWS	230
455-6	340	RRH2X60-AWS	230
Side Arm Mount [SO 602-1]	340	RRH2X60-AWS	230
3" x 6" SideLight	333	DB-T1-6Z-8AB-0Z	230
3" x 6" SideLight	333	Sector Mount [SM 406-3]	230
3" x 6" SideLight	333	3" x 6" SideLight	215
PG1N0F-0090-310	333	3" x 6" SideLight	215
Side Arm Mount [SO 602-1]	333	3" x 6" SideLight	215
SRL-101A	328	DB810T3E-XT	214
TLP-6M	328	Side Arm Mount [SO 305-1]	214
Pipe Mount [PM 601-1]	328	Pipe Mount [PM 601-1]	209
Side Arm Mount [SO 302-1]	328	P-9A72GN-U	209
DB230-2E	326	DFPD1-52 w/ Mount Pipe	200
Side Arm Mount [SO 602-1]	326	RY-900B	188
DB408	322	DB495-A	188
Side Arm Mount [SO 602-1]	322	SPD4-5.2	175
Pipe Mount [PM 601-1]	322	HPX6-65-P3A	154
SPD3-5.8	322	Pipe Mount [PM 601-1]	146
6014-2	310	PL6-65-PXA	148
DB212-1	284	Pipe Mount [PM 601-1]	136
DB810M-XC	284	CM 4228	136
Side Arm Mount [SO 602-1]	284	CM 4228	136
DMR10-A-B1	277	220-5	133
MYA1503K	269	Side Arm Mount [SO 202-1]	133
Side Arm Mount [SO 602-1]	269	DB264-A	133
DB810M-XC	266	Side Arm Mount [SO 202-1]	133
Side Arm Mount [SO 602-1]	266	P-9A48GN-U	117
Side Arm Mount [SO 602-1]	266	3" x 6" SideLight	112
DB809KT3E-Y	258	3" x 6" SideLight	112
Side Arm Mount [SO 602-1]	258	3" x 6" SideLight	112
PG1N0F-0090-310	251	P0666	108
Side Arm Mount [SO 602-1]	251	Pipe Mount [PM 601-1]	106
Side Arm Mount [SO 602-1]	251	PR-950	106
APXV18-206516S-C-A20 w/ Mount Pipe	247	DB2801RA	99
APXV18-206516S-C-A20 w/ Mount Pipe	247	PTP 800-13 w/ Mount Pipe	99
APXV18-206516S-C-A20 w/ Mount Pipe	247	Pipe Mount [PM 601-1]	99
RR90-17-02DP w/ Mount Pipe	247	SPD2-5.8	99
RR90-17-02DP w/ Mount Pipe	247	Side Arm Mount [SO 202-1]	62
RR90-17-02DP w/ Mount Pipe	247	DB499-C	62
ATMAP1412D-1A20	247	2.4" Dia x 20-ft Pipe	62
ATMAP1412D-1A20	247	P-9A48GN-U	62
ATMAP1412D-1A20	247	PR-950	62
ATMAP1412D-1A20	247	Side Arm Mount [SO 601-1]	25
ATMAP1412D-1A20	247		

SYMBOL LIST

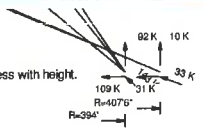
MARK	SIZE	MARK	SIZE
A	N.A.	E	2L3 1/2x3 1/2x3/8x3/8
B	L2 1/2x2x1/4	F	2L3x2x1/4x3/8
C	L3x2x3/16	G	3 @ 4.43056
D	L2x2x1/4	H	3 @ 2.23611

MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A7-33	33 ksi	60 ksi	A36	36 ksi	58 ksi

TOWER DESIGN NOTES

1. Tower is located in Fairfield County, Connecticut.
2. Tower designed for a 85 mph basic wind in accordance with the TIA/EIA-222-F Standard.
3. Tower is also designed for a 38 mph basic wind with 0.75 in ice. Ice is considered to increase in thickness with height.
4. Deflections are based upon a 50 mph wind.
5. 32' dielectric TFU-33J is included for load transfer only.



Tower Engineering Professionals
326 Tryon Road
Raleigh, NC
Phone: (919) 661-6351
FAX: (919) 661-6350

Job: Trumbull (BU 873128)			
Project: TEP No. 25575.25415			
Client: Crown Castle	Drawn by: TLI	App'd:	
Code: TIA/EIA-222-F	Date: 10/17/14	Scale: NTS	
Path:		Dwg No. E-1	

tnxTower	Job	Page
	Trumbull (BU 873128)	1 of 74
Tower Engineering Professionals 326 Tryon Road Raleigh, NC Phone: (919) 661-6351 FAX: (919) 661-6350	Project TEP No. 25575.25415	Date 15:45:48 10/17/14
	Client Crown Castle	Designed by TLI

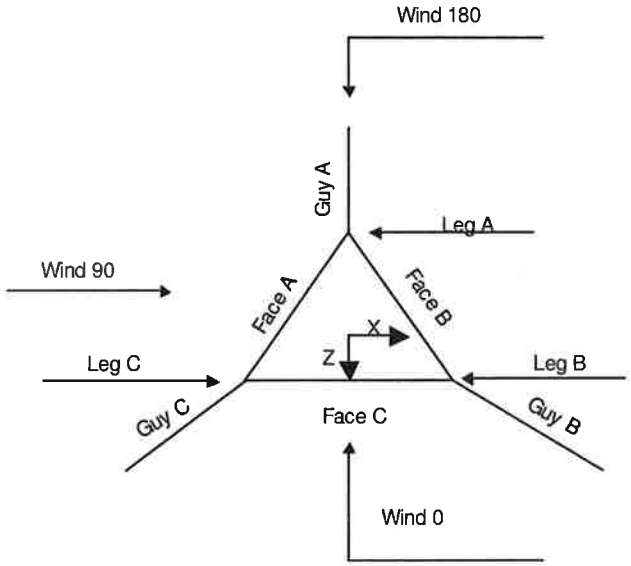
Tower Input Data

The main tower is a 3x guyed tower with an overall height of 457' 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.
This tower is designed using the TIA/EIA-222-F standard.
The following design criteria apply:

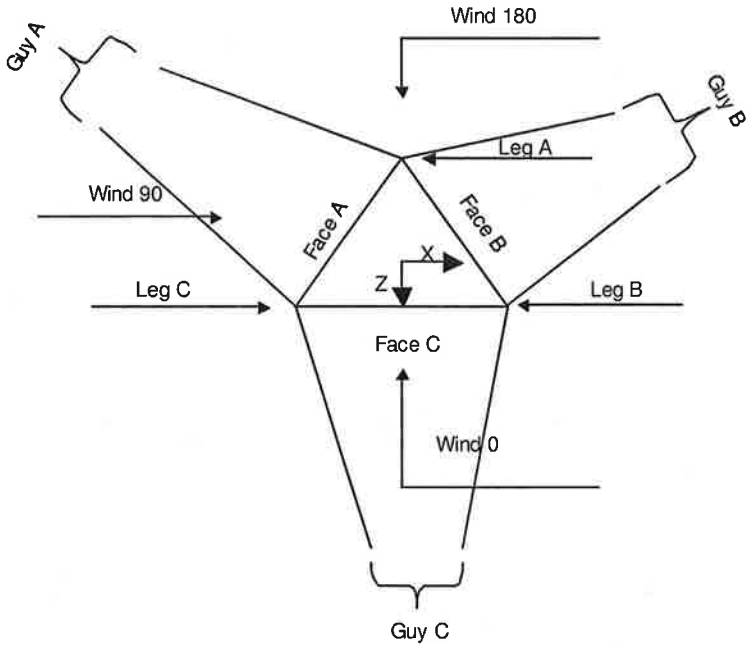
Tower is located in Fairfield County, Connecticut.
Basic wind speed of 85 mph.
Nominal ice thickness of 0.7500 in.
Ice thickness is considered to increase with height.
Ice density of 56 pcf.
A wind speed of 38 mph is used in combination with ice.
Temperature drop of 50 °F.
Deflections calculated using a wind speed of 50 mph.
Pressures are calculated at each section.
Safety factor used in guy design is 2.
Stress ratio used in tower member design is 1.333.
Local bending stresses due to climbing loads, feed line supports, and appurtenance mounts are not considered.

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	Use TIA-222-G Tension Splice Capacity Exemption	



Corner & Starmount Guyed Tower



Face Guyed

Tower Section Geometry

Tower Section	*Tower Elevation*	*Assembly Database*	*Description*	*Section Width*	*Number of Sections*	*Section Length*
	ft			*ft*		*ft*
T1	457'-436'			6'	1	21'
T2	436'-421'			6'	1	15'
T3	421'-401'			6'	1	20'
T4	401'-396'			6'	1	5'
T5	396'-391'			6'	1	5'
T6	391'-386'			6'	1	5'
T7	386'-381'			6'	1	5'
T8	381'-376'			6'	1	5'
T9	376'-371'			6'	1	5'
T10	371'-366'			6'	1	5'
T11	366'-361'			6'	1	5'
T12	361'-341'			6'	1	20'
T13	341'-321'			6'	1	20'
T14	321'-301'			6'	1	20'
T15	301'-281'			6'	1	20'
T16	281'-261'			6'	1	20'

Tower Section	Tower Elevation	Assembly Database	Description	Section Width	Number of Sections	Section Length
	ft			ft		ft
T17	261'-241'			6'	1	20'
T18	241'-221'			6'	1	20'
T19	221'-201'			6'	1	20'
T20	201'-181'			6'	1	20'
T21	181'-161'			6'	1	20'
T22	161'-141'			6'	1	20'
T23	141'-121'			6'	1	20'
T24	121'-101'			6'	1	20'
T25	101'-81'			6'	1	20'
T26	81'-61'			6'	1	20'
T27	61'-41'			6'	1	20'
T28	41'-20'			6'	1	21'
T29	20'-6'8-17/32"			6'	1	13'3-15/32"
T30	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'	5'	X Brace	No	Yes	0.0000	0.0000
T3	421'-401'	5'	X Brace	No	Yes	0.0000	0.0000
T4	401'-396'	5'	X Brace	No	Yes	0.0000	0.0000
T5	396'-391'	5'	X Brace	No	Yes	0.0000	0.0000
T6	391'-386'	5'	X Brace	No	Yes	0.0000	0.0000
T7	386'-381'	5'	X Brace	No	Yes	0.0000	0.0000
T8	381'-376'	5'	X Brace	No	Yes	0.0000	0.0000
T9	376'-371'	5'	X Brace	No	Yes	0.0000	0.0000
T10	371'-366'	5'	X Brace	No	Yes	0.0000	0.0000
T11	366'-361'	5'	X Brace	No	Yes	0.0000	0.0000
T12	361'-341'	5'	X Brace	No	Yes	0.0000	0.0000
T13	341'-321'	5'	X Brace	No	Yes	0.0000	0.0000
T14	321'-301'	5'	X Brace	No	Yes	0.0000	0.0000
T15	301'-281'	5'	X Brace	No	Yes	0.0000	0.0000
T16	281'-261'	5'	X Brace	No	Yes	0.0000	0.0000
T17	261'-241'	5'	X Brace	No	Yes	0.0000	0.0000
T18	241'-221'	5'	X Brace	No	Yes	0.0000	0.0000
T19	221'-201'	5'	X Brace	No	Yes	0.0000	0.0000
T20	201'-181'	5'	X Brace	No	Yes	0.0000	0.0000
T21	181'-161'	5'	X Brace	No	Yes	0.0000	0.0000
T22	161'-141'	5'	X Brace	No	Yes	0.0000	0.0000
T23	141'-121'	5'	X Brace	No	Yes	0.0000	0.0000
T24	121'-101'	5'	X Brace	No	Yes	0.0000	0.0000
T25	101'-81'	5'	X Brace	No	Yes	0.0000	0.0000
T26	81'-61'	5'	X Brace	No	Yes	0.0000	0.0000
T27	61'-41'	5'	X Brace	No	Yes	0.0000	0.0000
T28	41'-20'	5'3"	X Brace	No	Yes	0.0000	0.0000
T29	20'-6'8-17/32"	4'5-5/32"	X Brace	No	Yes	0.0000	0.0000
T30	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	A7-33 (33 ksi)	Single Angle	L2 1/2x2x1/4	A7-33 (33 ksi)
T2 436'-421'	Solid Round	2 3/4	A7-33 (33 ksi)	Single Angle	L2 1/2x2x3/16	A7-33 (33 ksi)
T3 421'-401'	Solid Round	2 3/4	A7-33 (33 ksi)	Single Angle	L2 1/2x2x3/16	A7-33 (33 ksi)
T4 401'-396'	Solid Round	3	A7-33 (33 ksi)	Single Angle	L2 1/2x2x3/16	A7-33 (33 ksi)
T5 396'-391'	Solid Round	3	A7-33 (33 ksi)	Single Angle	L2 1/2x2x3/16	A7-33 (33 ksi)
T6 391'-386'	Solid Round	3	A7-33 (33 ksi)	Single Angle	L2 1/2x2x3/16	A7-33 (33 ksi)
T7 386'-381'	Solid Round	3	A7-33 (33 ksi)	Single Angle	L2 1/2x2x3/16	A7-33 (33 ksi)
T8 381'-376'	Solid Round	3 1/2	A7-33 (33 ksi)	Single Angle	L2 1/2x2x3/16	A7-33 (33 ksi)
T9 376'-371'	Solid Round	3 1/2	A7-33 (33 ksi)	Single Angle	L2 1/2x2x3/16	A7-33 (33 ksi)
T10 371'-366'	Solid Round	3 1/2	A7-33 (33 ksi)	Single Angle	L2 1/2x2x3/16	A7-33 (33 ksi)
T11 366'-361'	Solid Round	3 1/2	A7-33 (33 ksi)	Single Angle	L2 1/2x2x3/16	A7-33 (33 ksi)
T12 361'-341'	Solid Round	3	A7-33 (33 ksi)	Single Angle	L2 1/2x2x3/16	A7-33 (33 ksi)
T13 341'-321'	Solid Round	3	A7-33 (33 ksi)	Single Angle	L2 1/2x2x3/16	A7-33 (33 ksi)
T14 321'-301'	Solid Round	3	A7-33 (33 ksi)	Single Angle	L2 1/2x2x3/16	A7-33 (33 ksi)
T15 301'-281'	Solid Round	3	A7-33 (33 ksi)	Single Angle	L2 1/2x2x3/16	A7-33 (33 ksi)
T16 281'-261'	Solid Round	3	A7-33 (33 ksi)	Single Angle	L2 1/2x2x3/16	A7-33 (33 ksi)
T17 261'-241'	Solid Round	3	A7-33 (33 ksi)	Single Angle	L3x3x1/4	A36 (36 ksi)
T18 241'-221'	Solid Round	3	A7-33 (33 ksi)	Single Angle	L3x3x1/4	A36 (36 ksi)
T19 221'-201'	Solid Round	3 1/4	A7-33 (33 ksi)	Single Angle	L2 1/2x2x3/16	A7-33 (33 ksi)
T20 201'-181'	Solid Round	3 1/4	A7-33 (33 ksi)	Single Angle	L2 1/2x2x3/16	A7-33 (33 ksi)
T21 181'-161'	Solid Round	3 1/4	A7-33 (33 ksi)	Single Angle	L2 1/2x2x3/16	A7-33 (33 ksi)
T22 161'-141'	Solid Round	3 1/2	A7-33 (33 ksi)	Single Angle	L3x3x1/4	A36 (36 ksi)
T23 141'-121'	Solid Round	3 1/2	A7-33 (33 ksi)	Single Angle	L3x3x1/4	A36 (36 ksi)
T24 121'-101'	Solid Round	3 1/2	A7-33 (33 ksi)	Single Angle	L2 1/2x2x3/16	A7-33 (33 ksi)
T25 101'-81'	Solid Round	3 1/2	A7-33 (33 ksi)	Single Angle	L2 1/2x2x3/16	A7-33 (33 ksi)
T26 81'-61'	Solid Round	3 1/2	A7-33 (33 ksi)	Single Angle	L2 1/2x2x3/16	A7-33 (33 ksi)
T27 61'-41'	Solid Round	3 1/2	A7-33 (33 ksi)	Single Angle	L2 1/2x2x3/16	A7-33 (33 ksi)
T28 41'-20'	Solid Round	3 1/2	A7-33 (33 ksi)	Single Angle	L2 1/2x2x3/16	A7-33 (33 ksi)
T29 20'-6'8-17/32"	Solid Round	3 1/4	A7-33 (33 ksi)	Single Angle	L2x2x3/16	A7-33 (33 ksi)

Tower Elevation ft	Leg Type	Leg Size	Leg Grade	Diagonal Type	Diagonal Size	Diagonal Grade
T30 6'8-17/32"-0'	Solid Round	3 1/4	A7-33 (33 ksi)	Single Angle	L2x2x3/16	A7-33 (33 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'	Channel	C8x13.75	A7-33 (33 ksi)	Single Angle	L2 1/2x2x1/4	A7-33 (33 ksi)
T2 436'-421'	Single Angle	L2 1/2x2x1/4	A7-33 (33 ksi)	Single Angle	L2 1/2x2x1/4	A7-33 (33 ksi)
T3 421'-401'	Single Angle	L2 1/2x2x1/4	A7-33 (33 ksi)	Single Angle	L2 1/2x2x1/4	A7-33 (33 ksi)
T4 401'-396'	Single Angle	L2 1/2x2x1/4	A7-33 (33 ksi)	Single Angle		A7-33 (33 ksi)
T6 391'-386'	Single Angle	L2 1/2x2x1/4	A7-33 (33 ksi)	Single Angle		A7-33 (33 ksi)
T7 386'-381'	Single Angle		A7-33 (33 ksi)	Single Angle	L2 1/2x2x1/4	A7-33 (33 ksi)
T8 381'-376'	Single Angle	L2 1/2x2x1/4	A7-33 (33 ksi)	Single Angle		A7-33 (33 ksi)
T10 371'-366'	Single Angle	L2 1/2x2x1/4	A7-33 (33 ksi)	Single Angle		A7-33 (33 ksi)
T11 366'-361'	Single Angle		A7-33 (33 ksi)	Single Angle	L2 1/2x2x1/4	A7-33 (33 ksi)
T12 361'-341'	Single Angle	L2 1/2x2x1/4	A7-33 (33 ksi)	Single Angle	L2 1/2x2x1/4	A7-33 (33 ksi)
T13 341'-321'	Single Angle	L2 1/2x2x1/4	A7-33 (33 ksi)	Single Angle	L2 1/2x2x1/4	A7-33 (33 ksi)
T14 321'-301'	Single Angle	L2 1/2x2x1/4	A7-33 (33 ksi)	Single Angle	L2 1/2x2x1/4	A7-33 (33 ksi)
T15 301'-281'	Single Angle	L2 1/2x2x3/16	A7-33 (33 ksi)	Single Angle	L2 1/2x2x3/16	A7-33 (33 ksi)
T16 281'-261'	Single Angle	L2 1/2x2x1/4	A7-33 (33 ksi)	Single Angle	L2 1/2x2x1/4	A7-33 (33 ksi)
T17 261'-241'	Single Angle	L2 1/2x2x3/16	A7-33 (33 ksi)	Single Angle	L2 1/2x2x3/16	A7-33 (33 ksi)
T18 241'-221'	Single Angle	L2 1/2x2x3/16	A7-33 (33 ksi)	Single Angle	L2 1/2x2x3/16	A7-33 (33 ksi)
T19 221'-201'	Single Angle	L2 1/2x2x3/16	A7-33 (33 ksi)	Single Angle	L2 1/2x2x3/16	A7-33 (33 ksi)
T20 201'-181'	Single Angle	L2 1/2x2x3/16	A7-33 (33 ksi)	Single Angle	L2 1/2x2x3/16	A7-33 (33 ksi)
T21 181'-161'	Double Angle	2L3x2x1/4x3/8	A7-33 (33 ksi)	Single Angle	L2 1/2x2x3/16	A7-33 (33 ksi)
T22 161'-141'	Single Angle	L2 1/2x2x3/16	A7-33 (33 ksi)	Single Angle	L2 1/2x2x3/16	A7-33 (33 ksi)
T23 141'-121'	Single Angle	L2 1/2x2x3/16	A7-33 (33 ksi)	Single Angle	L2 1/2x2x3/16	A7-33 (33 ksi)
T24 121'-101'	Single Angle	L2 1/2x2x3/16	A7-33 (33 ksi)	Single Angle	L2 1/2x2x3/16	A7-33 (33 ksi)
T25 101'-81'	Single Angle	L2 1/2x2x3/16	A7-33 (33 ksi)	Single Angle	L2 1/2x2x3/16	A7-33 (33 ksi)
T26 81'-61'	Single Angle	L2 1/2x2x3/16	A7-33 (33 ksi)	Single Angle	L2 1/2x2x3/16	A7-33 (33 ksi)

Tower Elevation ft	Top Girt Type	Top Girt Size	Top Girt Grade	Bottom Girt Type	Bottom Girt Size	Bottom Girt Grade
T27 61'-41'	Single Angle	L2 1/2x2x3/16	A7-33 (33 ksi)	Single Angle	L2 1/2x2x3/16	A7-33 (33 ksi)
T28 41'-20'	Single Angle	L2 1/2x2x3/16	A7-33 (33 ksi)	Single Angle	L2 1/2x2x3/16	A7-33 (33 ksi)
T29 20'-6'8-17/32"	Single Angle	L3x2x3/16	A7-33 (33 ksi)	Single Angle		A7-33 (33 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 1/2x2x1/4	A7-33 (33 ksi)	Single Angle	L2 1/2x2x1/4	A7-33 (33 ksi)
T2 436'-421'	None	Single Angle		A7-33 (33 ksi)	Single Angle	L2 1/2x2x1/4	A7-33 (33 ksi)
T3 421'-401'	1	Single Angle	L2 1/2x2x1/4	A7-33 (33 ksi)	Solid Round		A36 (36 ksi)
T12 361'-341'	1	Single Angle	L2 1/2x2x1/4	A7-33 (33 ksi)	Single Angle		A36 (36 ksi)
T13 341'-321'	1	Single Angle	L2 1/2x2x1/4	A7-33 (33 ksi)	Solid Round		A36 (36 ksi)
T14 321'-301'	1	Single Angle	L2 1/2x2x1/4	A7-33 (33 ksi)	Solid Round		A36 (36 ksi)
T15 301'-281'	1	Single Angle	L2 1/2x2x3/16	A7-33 (33 ksi)	Solid Round		A36 (36 ksi)
T16 281'-261'	1	Single Angle	L2 1/2x2x1/4	A7-33 (33 ksi)	Single Angle		A36 (36 ksi)
T17 261'-241'	1	Single Angle	L2 1/2x2x3/16	A7-33 (33 ksi)	Single Angle		A36 (36 ksi)
T18 241'-221'	1	Single Angle	L2 1/2x2x3/16	A7-33 (33 ksi)	Single Angle		A36 (36 ksi)
T19 221'-201'	1	Single Angle	L2 1/2x2x3/16	A7-33 (33 ksi)	Single Angle		A36 (36 ksi)
T20 201'-181'	1	Single Angle	L2 1/2x2x3/16	A7-33 (33 ksi)	Single Angle		A36 (36 ksi)
T21 181'-161'	1	Single Angle	L2 1/2x2x3/16	A7-33 (33 ksi)	Single Angle		A36 (36 ksi)
T22 161'-141'	1	Single Angle	L2 1/2x2x3/16	A7-33 (33 ksi)	Single Angle		A36 (36 ksi)
T23 141'-121'	1	Single Angle	L2 1/2x2x3/16	A7-33 (33 ksi)	Single Angle		A36 (36 ksi)
T24 121'-101'	1	Single Angle	L2 1/2x2x3/16	A7-33 (33 ksi)	Single Angle		A36 (36 ksi)
T25 101'-81'	1	Single Angle	L2 1/2x2x3/16	A7-33 (33 ksi)	Single Angle		A36 (36 ksi)
T26 81'-61'	1	Single Angle	L2 1/2x2x3/16	A7-33 (33 ksi)	Single Angle		A36 (36 ksi)
T27 61'-41'	1	Single Angle	L2 1/2x2x3/16	A7-33 (33 ksi)	Single Angle		A36 (36 ksi)
T28 41'-20'	1	Single Angle	L2 1/2x2x3/16	A7-33 (33 ksi)	Single Angle		A36 (36 ksi)

Tower Section Geometry *(cont'd)*

Tower Elevation	Secondary Horizontal Type	Secondary Horizontal Size	Secondary Horizontal Grade	Inner Bracing Type	Inner Bracing Size	Inner Bracing Grade
ft						
T6 391'-386'	Equal Angle	L2x2x1/4	A36 (36 ksi)	Solid Round		A36 (36 ksi)
T7 386'-381'	Equal Angle	L2x2x1/4	A36 (36 ksi)	Solid Round		A36 (36 ksi)
T12 361'-341'	Equal Angle	L2x2x1/4	A36 (36 ksi)	Solid Round		A36 (36 ksi)
T17 261'-241'	Double Equal Angle	2L3 1/2x3 1/2x3/8x3/8	A36 (36 ksi)	Solid Round		A36 (36 ksi)

Tower Section Geometry *(cont'd)*

Tower Elevation	Gusset Area (per face)	Gusset Thickness	Gusset Grade	Adjust. Factor A_f	Adjust. Factor A_r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals	Double Angle Stitch Bolt Spacing Horizontals
ft	ft^2	*in*					*in*	*in*
T1 457'-436'	0.00	0.3750	A7-33 (33 ksi)	1.03	1	1	0.0000	0.0000
T2 436'-421'	0.00	0.3750	A7-33 (33 ksi)	1.03	1	1	0.0000	0.0000
T3 421'-401'	0.00	0.3750	A7-33 (33 ksi)	1.03	1	1	0.0000	0.0000
T4 401'-396'	0.00	0.3750	A7-33 (33 ksi)	1.03	1	1	0.0000	0.0000
T5 396'-391'	0.00	0.3750	A7-33 (33 ksi)	1.03	1	1	0.0000	0.0000
T6 391'-386'	0.00	0.3750	A7-33 (33 ksi)	1.03	1	1	0.0000	0.0000
T7 386'-381'	0.00	0.3750	A7-33 (33 ksi)	1.03	1	1	0.0000	0.0000
T8 381'-376'	0.00	0.3750	A7-33 (33 ksi)	1.03	1	1	0.0000	0.0000
T9 376'-371'	0.00	0.3750	A7-33 (33 ksi)	1.03	1	1	0.0000	0.0000
T10 371'-366'	0.00	0.3750	A7-33 (33 ksi)	1.03	1	1	0.0000	0.0000
T11 366'-361'	0.00	0.3750	A7-33 (33 ksi)	1.03	1	1	0.0000	0.0000
T12 361'-341'	0.00	0.3750	A7-33 (33 ksi)	1.03	1	1	0.0000	0.0000
T13 341'-321'	0.00	0.3750	A7-33 (33 ksi)	1.03	1	1	0.0000	0.0000
T14 321'-301'	0.00	0.3750	A7-33 (33 ksi)	1.03	1	1	0.0000	0.0000
T15 301'-281'	0.00	0.3750	A7-33 (33 ksi)	1.03	1	1	0.0000	0.0000
T16 281'-261'	0.00	0.3750	A7-33 (33 ksi)	1.03	1	1	0.0000	0.0000
T17 261'-241'	0.00	0.3750	A7-33 (33 ksi)	1.03	1	1	0.0000	0.0000
T18 241'-221'	0.00	0.3750	A7-33	1.03	1	1	0.0000	0.0000

Tower Elevation	Gusset Area (per face)	Gusset Thickness	Gusset Grade	Adjust. Factor A_f	Adjust. Factor A_r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals	Double Angle Stitch Bolt Spacing Horizontals
ft	ft^2	in					in	in
T19 221'-201'	0.00	0.3750	(33 ksi) A7-33	1.03	1	1	0.0000	0.0000
T20 201'-181'	0.00	0.3750	(33 ksi) A7-33	1.03	1	1	0.0000	0.0000
T21 181'-161'	0.00	0.3750	(33 ksi) A7-33	1.03	1	1	0.0000	0.0000
T22 161'-141'	0.00	0.3750	(33 ksi) A7-33	1.03	1	1	0.0000	0.0000
T23 141'-121'	0.00	0.3750	(33 ksi) A7-33	1.03	1	1	0.0000	0.0000
T24 121'-101'	0.00	0.3750	(33 ksi) A7-33	1.03	1	1	0.0000	0.0000
T25 101'-81'	0.00	0.3750	(33 ksi) A7-33	1.03	1	1	0.0000	0.0000
T26 81'-61'	0.00	0.3750	(33 ksi) A7-33	1.03	1	1	0.0000	0.0000
T27 61'-41'	0.00	0.3750	(33 ksi) A7-33	1.03	1	1	0.0000	0.0000
T28 41'-20'	0.00	0.3750	(33 ksi) A7-33	1.03	1	1	0.0000	0.0000
T29 20'-6'8-17/32"	0.00	0.2500	(33 ksi) A7-33	1.03	1	1	0.0000	0.0000
T30 6'8-17/32"-0'	0.00	0.2500	(33 ksi) A7-33	1.03	1	1	0.0000	0.0000

Tower Section Geometry *(cont'd)*

Tower Elevation	Calc K Single Angles	Calc K Solid Rounds	K Factors[1] Legs	X Brace Diags X	X Brace Diags Y	K Brace Diags X	K Brace Diags Y	Single Diags X	Single Diags Y	Girts X	Girts Y	Horiz. X	Horiz. Y	Sec. Horiz. X	Sec. Horiz. Y	Inner Brace X	Inner Brace Y
ft																	
T1 457'-436'	Yes	No	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
T2 436'-421'	Yes	No	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
T3 421'-401'	Yes	No	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
T4 401'-396'	Yes	No	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
T5 396'-391'	Yes	No	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
T6 391'-386'	No	No	1	1.05	1	1	1	1	1	0.92	1	1	1	0.5	1	1	1
T7 386'-381'	No	No	1	1.05	1	1	1	1	1	0.92	1	1	1	0.5	1	1	1
T8 381'-376'	Yes	No	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
T9 376'-371'	Yes	No	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
T10 371'-366'	Yes	No	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
T11 366'-361'	Yes	No	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	K Factors[1] Legs	X Brace Diags X	X Brace Diags Y	K Brace Diags X	K Brace Diags Y	Single Diags X	Single Diags Y	Girts X	Girts Y	Horiz. X	Horiz. Y	Sec. Horiz. X	Sec. Horiz. Y	Inner Brace X	Inner Brace Y
				1		1		1		1		1		1		1	
T12 361'-341'	No	No	1	1.05		1		1		0.92		1		0.5		1	
				1.05		1		1		0.92		1		0.5		1	
T13 341'-321'	Yes	No	1	1		1		1		1		1		1		1	
				1		1		1		1		1		1		1	
T14 321'-301'	Yes	No	1	1		1		1		1		1		1		1	
				1		1		1		1		1		1		1	
T15 301'-281'	Yes	No	1	1		1		1		1		1		1		1	
				1		1		1		1		1		1		1	
T16 281'-261'	Yes	No	1	1		1		1		1		1		1		1	
				1		1		1		1		1		1		1	
T17 261'-241'	No	No	1	1.17		1		1		0.92		1		0.5		1	
				1.17		1		1		0.92		1		0.5		1	
T18 241'-221'	Yes	No	1	1		1		1		1		1		1		1	
				1		1		1		1		1		1		1	
T19 221'-201'	Yes	No	1	1		1		1		1		1		1		1	
				1		1		1		1		1		1		1	
T20 201'-181'	Yes	No	1	1		1		1		1		1		1		1	
				1		1		1		1		1		1		1	
T21 181'-161'	Yes	No	1	1		1		1		1		1		1		1	
				1		1		1		1		1		1		1	
T22 161'-141'	Yes	No	1	1		1		1		1		1		1		1	
				1		1		1		1		1		1		1	
T23 141'-121'	Yes	No	1	1		1		1		1		1		1		1	
				1		1		1		1		1		1		1	
T24 121'-101'	Yes	No	1	1		1		1		1		1		1		1	
				1		1		1		1		1		1		1	
T25 101'-81'	Yes	No	1	1		1		1		1		1		1		1	
				1		1		1		1		1		1		1	
T26 81'-61'	Yes	No	1	1		1		1		1		1		1		1	
				1		1		1		1		1		1		1	
T27 61'-41'	Yes	No	1	1		1		1		1		1		1		1	
				1		1		1		1		1		1		1	
T28 41'-20'	Yes	No	1	1		1		1		1		1		1		1	
				1		1		1		1		1		1		1	
T29	Yes	No	1	1		1		1		1		1		1		1	
20'-6'8-17/32"				1		1		1		1		1		1		1	
T30	Yes	No	1	1		1		1		1		1		1		1	
6'8-17/32"-0'				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	Leg U	Diagonal Net Width Deduct in	Diagonal U	Top Girt Net Width Deduct in	Top Girt U	Bottom Girt Net Width Deduct in	Bottom Girt U	Mid Girt Net Width Deduct in	Mid Girt U	Long Horizontal Net Width Deduct in	Long Horizontal U	Short Horizontal Net Width Deduct in	Short Horizontal 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	1
T2 436'-421'	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	1	0.0000	0.75	0.0000	1
T3 421'-401'	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	1	0.0000	1

Tower Elevation ft	Leg		Diagonal		Top Girt		Bottom Girt		Mid Girt		Long Horizontal		Short Horizontal	
	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U
T4 401'-396'	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	1	0.0000	1	0.0000	1
T5 396'-391'	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	1	0.0000	1	0.0000	1
T6 391'-386'	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	1	0.0000	1	0.0000	0.75
T7 386'-381'	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	1	0.0000	1	0.0000	0.75
T8 381'-376'	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	1	0.0000	1	0.0000	1
T9 376'-371'	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	1	0.0000	1	0.0000	1
T10 371'-366'	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	1	0.0000	1	0.0000	1
T11 366'-361'	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	1	0.0000	1	0.0000	1
T12 361'-341'	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	1	0.0000	0.75
T13 341'-321'	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	1	0.0000	1
T14 321'-301'	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	1	0.0000	1
T15 301'-281'	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	1	0.0000	1
T16 281'-261'	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	1	0.0000	1
T17 261'-241'	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	1	0.0000	1
T18 241'-221'	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	1	0.0000	1
T19 221'-201'	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	1	0.0000	1
T20 201'-181'	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	1	0.0000	1
T21 181'-161'	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	1	0.0000	1
T22 161'-141'	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	1	0.0000	1
T23 141'-121'	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	1	0.0000	1
T24 121'-101'	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	1	0.0000	1
T25 101'-81'	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	1	0.0000	1
T26 81'-61'	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	1	0.0000	1
T27 61'-41'	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	1	0.0000	1
T28 41'-20'	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	1	0.0000	1
T29 20'-6'8-17/32"	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	1	0.0000	1	0.0000	1	0.0000	1
T30 6'8-17/32"-0'	0.0000	1	0.0000	0.75	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1

Tower Section Geometry *(cont'd)*

Tower Elevation	Connection Offsets							
	Diagonal				K-Bracing			
	Vert. Top	Horiz. Top	Vert. Bot.	Horiz. Bot.	Vert. Top	Horiz. Top	Vert. Bot.	Horiz. Bot.
ft	in	in	in	in	in	in	in	in
T1 457'-436'	3.0000	0.0000	3.0000	0.0000	0.0000	0.0000	0.0000	0.0000
T2 436'-421'	3.0000	0.0000	3.0000	0.0000	0.0000	0.0000	0.0000	0.0000
T3 421'-401'	3.0000	0.0000	3.0000	0.0000	0.0000	0.0000	0.0000	0.0000
T4 401'-396'	3.0000	0.0000	3.0000	0.0000	0.0000	0.0000	0.0000	0.0000
T5 396'-391'	3.0000	0.0000	3.0000	0.0000	0.0000	0.0000	0.0000	0.0000
T6 391'-386'	3.0000	0.0000	3.0000	0.0000	0.0000	0.0000	0.0000	0.0000
T7 386'-381'	3.0000	0.0000	3.0000	0.0000	0.0000	0.0000	0.0000	0.0000
T8 381'-376'	3.0000	0.0000	3.0000	0.0000	0.0000	0.0000	0.0000	0.0000
T9 376'-371'	3.0000	0.0000	3.0000	0.0000	0.0000	0.0000	0.0000	0.0000
T10 371'-366'	3.0000	0.0000	3.0000	0.0000	0.0000	0.0000	0.0000	0.0000
T11 366'-361'	3.0000	0.0000	3.0000	0.0000	0.0000	0.0000	0.0000	0.0000
T12 361'-341'	3.0000	0.0000	3.0000	0.0000	0.0000	0.0000	0.0000	0.0000
T13 341'-321'	3.0000	0.0000	3.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Tower Elevation	Connection Offsets							
	Diagonal				K-Bracing			
	Vert. Top	Horiz. Top	Vert. Bot.	Horiz. Bot.	Vert. Top	Horiz. Top	Vert. Bot.	Horiz. Bot.
ft	in	in	in	in	in	in	in	in
T14 321'-301'	3.0000	0.0000	3.0000	0.0000	0.0000	0.0000	0.0000	0.0000
T15 301'-281'	3.0000	0.0000	3.0000	0.0000	0.0000	0.0000	0.0000	0.0000
T16 281'-261'	3.0000	0.0000	3.0000	0.0000	0.0000	0.0000	0.0000	0.0000
T17 261'-241'	3.0000	0.0000	3.0000	0.0000	0.0000	0.0000	0.0000	0.0000
T18 241'-221'	3.0000	0.0000	3.0000	0.0000	0.0000	0.0000	0.0000	0.0000
T19 221'-201'	3.0000	0.0000	3.0000	0.0000	0.0000	0.0000	0.0000	0.0000
T20 201'-181'	3.0000	0.0000	3.0000	0.0000	0.0000	0.0000	0.0000	0.0000
T21 181'-161'	3.0000	0.0000	3.0000	0.0000	0.0000	0.0000	0.0000	0.0000
T22 161'-141'	3.0000	0.0000	3.0000	0.0000	0.0000	0.0000	0.0000	0.0000
T23 141'-121'	3.0000	0.0000	3.0000	0.0000	0.0000	0.0000	0.0000	0.0000
T24 121'-101'	3.0000	0.0000	3.0000	0.0000	0.0000	0.0000	0.0000	0.0000
T25 101'-81'	3.0000	0.0000	3.0000	0.0000	0.0000	0.0000	0.0000	0.0000
T26 81'-61'	3.0000	0.0000	3.0000	0.0000	0.0000	0.0000	0.0000	0.0000
T27 61'-41'	3.0000	0.0000	3.0000	0.0000	0.0000	0.0000	0.0000	0.0000
T28 41'-20'	3.0000	0.0000	3.0000	0.0000	0.0000	0.0000	0.0000	0.0000
T29 20'-6'8-17/32"	3.0000	0.0000	3.0000	0.0000	0.0000	0.0000	0.0000	0.0000
T30 6'8-17/32"-0'	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Leg Connection Type	Leg		Diagonal		Top Girt		Bottom Girt		Mid Girt		Long Horizontal		Short Horizontal	
		Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.
T1 457'-436'	Flange	0.8750 A307	8	0.5000 A307	2	0.5000 A307	2	0.5000 A307	2	0.5000 A307	2	0.5000 A307	2	0.0000 A325X	0
T2 436'-421'	Flange	0.8750 A307	8	0.5000 A325X	2	0.5000 A307	2	0.5000 A307	2	0.5000 A307	0	0.5000 A307	2	0.0000 A325X	0
T3 421'-401'	Flange	0.8750 A307	8	0.5000 A325N	2	0.5000 A307	2	0.5000 A307	2	0.5000 A307	2	0.0000 A307	0	0.0000 A325X	0
T4 401'-396'	Flange	0.8750 A307	8	0.5000 A325N	2	0.5000 A307	2	0.0000 A307	0	0.5000 A307	0	0.0000 A307	0	0.0000 A325X	0
T5 396'-391'	Flange	0.8750 A307	0	0.5000 A325N	2	0.0000 A307	0	0.0000 A307	0	0.5000 A307	0	0.0000 A307	0	0.0000 A325X	0
T6 391'-386'	Flange	0.8750 A307	0	0.5000 A325X	2	0.0000 A307	2	0.0000 A307	0	0.5000 A307	0	0.0000 A307	0	0.5000 A325X	1
T7 386'-381'	Flange	0.8750 A307	0	0.5000 A325X	2	0.0000 A307	0	0.5000 A307	2	0.5000 A307	0	0.0000 A307	0	0.5000 A325X	1
T8 381'-376'	Flange	0.8750 A307	8	0.5000 A325N	2	0.5000 A307	2	0.0000 A307	0	0.5000 A307	0	0.0000 A307	0	0.0000 A325X	0
T9 376'-371'	Flange	0.8750 A307	0	0.5000 A325N	2	0.0000 A307	0	0.0000 A307	0	0.5000 A307	0	0.0000 A307	0	0.0000 A325X	0
T10 371'-366'	Flange	0.8750 A307	0	0.5000 A325N	2	0.0000 A307	2	0.0000 A307	0	0.5000 A307	0	0.0000 A307	0	0.0000 A325X	0
T11 366'-361'	Flange	0.8750 A307	0	0.5000 A325N	2	0.0000 A307	0	0.5000 A307	2	0.5000 A307	0	0.0000 A307	0	0.0000 A325X	0
T12 361'-341'	Flange	0.8750 A307	8	0.5000 A325N	2	0.5000 A307	2	0.5000 A307	2	0.5000 A307	2	0.0000 A307	0	0.5000 A325X	1

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.
T13 341'-321'	Flange	0.8750 A307	8	0.5000 A325N	2	0.5000 A307	2	0.5000 A307	2	0.5000 A307	2	0.0000 A307	0	0.0000 A325X	0
T14 321'-301'	Flange	0.8750 A307	8	0.5000 A307	2	0.5000 A307	2	0.5000 A307	2	0.5000 A307	2	0.0000 A307	0	0.0000 A325X	0
T15 301'-281'	Flange	0.8750 A307	8	0.5000 A307	2	0.5000 A307	2	0.5000 A307	2	0.5000 A307	2	0.0000 A307	0	0.0000 A325X	0
T16 281'-261'	Flange	0.8750 A307	8	0.5000 A325N	2	0.5000 A307	2	0.5000 A307	2	0.5000 A307	2	0.0000 A307	0	0.0000 A325X	0
T17 261'-241'	Flange	0.6250 A307	8	0.5000 A325N	2	0.5000 A307	2	0.5000 A307	2	0.5000 A307	2	0.0000 A307	0	0.0000 A325X	0
T18 241'-221'	Flange	0.6250 A307	8	0.5000 A325N	2	0.5000 A307	2	0.5000 A307	2	0.5000 A307	2	0.0000 A307	0	0.0000 A325X	0
T19 221'-201'	Flange	0.8750 A307	8	0.5000 A307	2	0.5000 A307	2	0.5000 A307	2	0.5000 A307	2	0.0000 A307	0	0.0000 A325X	0
T20 201'-181'	Flange	0.8750 A307	8	0.5000 A307	2	0.5000 A307	2	0.5000 A307	2	0.5000 A307	2	0.0000 A307	0	0.0000 A325X	0
T21 181'-161'	Flange	0.8750 A307	8	0.5000 A307	2	0.5000 A307	2	0.5000 A307	2	0.5000 A307	2	0.0000 A307	0	0.0000 A325X	0
T22 161'-141'	Flange	0.6250 A307	8	0.6250 A325N	2	0.5000 A307	2	0.5000 A307	2	0.5000 A307	2	0.0000 A307	0	0.0000 A325X	0
T23 141'-121'	Flange	0.6250 A307	8	0.6250 A325N	2	0.5000 A307	2	0.5000 A307	2	0.5000 A325N	2	0.0000 A307	0	0.0000 A325X	0
T24 121'-101'	Flange	0.8750 A307	8	0.5000 A325N	2	0.5000 A307	2	0.5000 A307	2	0.5000 A307	2	0.0000 A307	0	0.0000 A325X	0
T25 101'-81'	Flange	0.8750 A307	8	0.5000 A307	2	0.5000 A307	2	0.5000 A307	2	0.5000 A307	2	0.0000 A307	0	0.0000 A325X	0
T26 81'-61'	Flange	0.8750 A307	8	0.5000 A307	2	0.5000 A307	2	0.5000 A307	2	0.5000 A307	2	0.0000 A307	0	0.0000 A325X	0
T27 61'-41'	Flange	0.8750 A307	8	0.5000 A307	2	0.5000 A307	2	0.5000 A307	2	0.5000 A307	2	0.0000 A307	0	0.0000 A325X	0
T28 41'-20'	Flange	0.8750 A307	8	0.5000 A307	2	0.5000 A307	2	0.5000 A307	2	0.5000 A307	2	0.0000 A307	0	0.0000 A325X	0
T29 20'-6'8-17/32"	Flange	0.8750 A307	8	0.5000 A307	2	0.5000 A325N	2	0.5000 A307	0	0.5000 A307	0	0.0000 A307	0	0.0000 A325X	0
T30 6'8-17/32"-0'	Flange	0.8750 A307	8	0.5000 A307	2	0.5000 A307	0	0.5000 A307	0	0.5000 A307	0	0.0000 A307	0	0.0000 A325X	0

Guy Data

Guy Elevation ft	Guy Grade		Guy Size	Initial Tension K	%	Guy Modulus ksi	Guy Weight plf	L_u ft	Anchor Radius ft	Anchor Azimuth Adj. °	Anchor Elevation ft	End Fitting Efficiency %
131	EHS	A	11/16	6.00	12%	19000	0.994	425'11-5/8"	403'	0.0000	-20'	100%
		B	11/16	6.00	12%	19000	0.994	426'5-13/32"	407'6"	0.0000	-9'	100%
		C	11/16	6.00	12%	19000	0.994	444'11-17/32"	424'6"	0.0000	-16'6"	100%
251	BS	A	1 1/4	15.36	8%	24000	3.280	484'2-3/4"	405'	0.0000	-20'	100%
		B	1 1/4	15.36	8%	24000	3.280	471'2-9/32"	394'	0.0000	-13'	100%
		C	1 1/4	15.36	8%	24000	3.280	489'5-7/8"	411'	0.0000	-20'6"	100%
381	BS	A	1 3/8	18.56	8%	24000	3.970	567'2-3/4"	405'	0.0000	-20'	100%
		B	1 3/8	18.56	8%	24000	3.970	554'6-1/8"	394'	0.0000	-13'	100%
		C	1 3/8	18.56	8%	24000	3.970	571'10-3/16"	411'	0.0000	-20'6"	100%

446.5	EHS	A	9/16	2.80	8%	21000	0.671	615'3-3/8"	405'	0.0000	-20'	100%
		B	9/16	2.80	8%	21000	0.671	602'9-19/32"	394'	0.0000	-13'	100%
		C	9/16	2.80	8%	21000	0.671	619'7-3/32"	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'	53.0000	Bat Ear	A7-33 (33 ksi)	Double Angle	2L3x3x3/16
251	Corner						
381	Corner						
446.5	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				A7-33 (33 ksi)	Double Angle	
251'	A572-50 (50 ksi)	Solid Round			No	A36 (36 ksi)	Double Angle	2L3 1/2x3 1/2x3/8x3/8
381'	A572-50 (50 ksi)	Solid Round			No	A7-33 (33 ksi)	Double Angle	2L3x2x1/4x3/8
446'6"	A572-50 (50 ksi)	Solid Round				A7-33 (33 ksi)	Double Angle	

Guy Data *(cont'd)*

Guy Elevation *ft*	*Cable Weight A* *K*	*Cable Weight B* *K*	*Cable Weight C* *K*	*Cable Weight D* *K*	*Tower Intercept A* *ft*	*Tower Intercept B* *ft*	*Tower Intercept C* *ft*	*Tower Intercept D* *ft*
131	0.42	0.42	0.44		14'10-7/16" 6.7 sec/pulse	14'10-29/32" 6.7 sec/pulse	16'2-3/4" 7.0 sec/pulse	
251	1.59	1.55	1.61		24'4-5/16" 8.5 sec/pulse	23'1-3/32" 8.3 sec/pulse	24'10-13/16" 8.6 sec/pulse	
381	2.25	2.20	2.27		33'15/32" 9.9 sec/pulse	31'7-3/16" 9.7 sec/pulse	33'6-31/32" 10.0 sec/pulse	
446.5	0.41	0.40	0.42		43'1/4" 11.3 sec/pulse	41'3-31/32" 11.1 sec/pulse	43'7-9/16" 11.4 sec/pulse	

Guy Data *(cont'd)*

Guy Elevation ft	Calc K Single Angles	Calc K Solid Rounds	Torque Arm K_x	Torque Arm K_y	Pull Off K_x	Pull Off K_y	Diagonal K_x	Diagonal K_y
131	Yes	Yes	1	1	1	1	1	1
251	No	No			1	1	1	1
381	No	No			1	1	1	1
446.5	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 A307	2	0.0000	1	0.6250 A325N	0	0.0000	1	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
446.5	0.0000 A325N	0	0.0000	1	0.6250 A325N	0	0.0000	1	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"	23	4	0.7983
	B	61'	23	5	0.8074
	C	57'3"	23	4	0.8013
251	A	115'6"	28	5	0.8717
	B	119'	28	5	0.8748
	C	115'3"	28	5	0.8714
381	A	180'6"	32	6	0.9196
	B	184'	32	6	0.9218
	C	180'3"	32	6	0.9195
446.5	A	213'3"	33	6	0.9382
	B	216'9"	33	7	0.9401
	C	213'	33	6	0.9381

Guy-Mast Forces (Excluding Wind) - No Ice

Guy Elevation ft	Guy Location	Chord Angle °	Guy Tension Top Bottom K	F_x K	F_y K	F_z K	M_x kip-ft	M_y kip-ft	M_z kip-ft
131	A	20.7413	6.15 6.00	-0.11	2.36	-5.68	-10.23	43.04	-17.72

Guy Elevation	Guy Location	Chord Angle	Guy Tension Top Bottom K	F_x	F_y	F_z	M_x	M_y	M_z
ft		°		K	K	K	kip-ft	kip-ft	kip-ft
	A	20.7413	6.15 6.00	0.11	2.36	-5.68	-10.23	-43.04	17.72
	B	19.1464	6.14 6.00	5.02	2.20	2.77	19.07	43.43	0.00
	B	19.1464	6.14 6.00	4.91	2.20	2.96	-9.54	-43.43	-16.52
	C	19.3407	6.15 6.00	-4.91	2.23	2.95	-9.67	43.39	16.74
	C	19.3407	6.15 6.00	-5.01	2.23	2.77	19.33	-43.39	0.00
			Sum:	**0.01**	13.59	**0.10**	**-1.26**	0.00	**0.22**
251	A	34.0157	16.25 15.36	0.00	9.63	-13.08	-33.37	0.00	0.00
	B	34.0585	16.23 15.36	11.32	9.61	6.53	16.65	0.00	-28.84
	C	33.6715	16.25 15.36	-11.38	9.56	6.57	16.56	-0.00	28.69
			Sum:	**-0.06**	28.81	**0.02**	**-0.15**	0.00	**-0.16**
381	A	44.9617	20.15 18.56	0.00	14.80	-13.68	-51.27	0.00	0.00
	B	45.2530	20.12 18.56	11.78	14.83	6.80	25.69	0.00	-44.50
	C	44.5725	20.15 18.56	-11.92	14.72	6.88	25.49	-0.00	44.15
			Sum:	**-0.15**	44.35	**0.01**	**-0.08**	0.00	**-0.35**
446.5	A	49.2801	3.11 2.80	0.00	2.45	-1.92	-8.47	0.00	0.00
	B	49.6383	3.11 2.80	1.65	2.45	0.95	4.25	0.00	-7.36
	C	48.8898	3.11 2.80	-1.68	2.43	0.97	4.22	-0.00	7.30
			Sum:	**-0.03**	7.33	-0.00	**-0.01**	0.00	**-0.05**

Guy-Mast Forces (Excluding Wind) - Ice

Guy Elevation	Guy Location	Chord Angle	Guy Tension Top Bottom K	F_x	F_y	F_z	M_x	M_y	M_z
ft		°		K	K	K	kip-ft	kip-ft	kip-ft
131	A	20.7413	9.53 9.16	-0.16	3.83	-8.72	-16.57	66.12	-28.70
	A	20.7413	9.53 9.16	0.16	3.83	-8.72	-16.57	-66.12	28.70
	B	19.1464	9.57 9.22	7.75	3.61	4.29	31.23	67.15	0.00
	B	19.1464	9.57 9.22	7.59	3.61	4.57	-15.61	-67.15	-27.04
	C	19.3407	9.64 9.28	-7.63	3.68	4.59	-15.92	67.49	27.57
	C	19.3407	9.64 9.28	-7.79	3.68	4.32	31.83	-67.49	0.00
			Sum:	**-0.08**	22.22	**0.32**	**-1.61**	0.00	**0.52**
251	A	34.0157	25.17	0.00	15.00	-20.22	-51.96	0.00	0.00

Guy Elevation	Guy Location	Chord Angle	Guy Tension Top / Bottom K	F_x	F_y	F_z	M_x	M_y	M_z
ft		°		K	K	K	kip-ft	kip-ft	kip-ft
			23.67						
	B	34.0585	25.12	17.48	14.96	10.09	25.91	0.00	-44.88
			23.66						
	C	33.6715	25.20	-17.59	14.90	10.16	25.81	-0.00	44.71
			23.69						
			Sum:	**-0.12**	44.86	**0.03**	**-0.23**	0.00	**-0.17**
381	A	44.9617	30.82	0.00	22.70	-20.84	-78.63	0.00	0.00
			28.19						
	B	45.2530	30.75	17.93	22.73	10.35	39.38	0.00	-68.20
			28.17						
	C	44.5725	30.84	-18.19	22.59	10.50	39.13	-0.00	67.77
			28.22						
			Sum:	**-0.26**	68.02	**0.01**	**-0.13**	0.00	**-0.43**
446.5	A	49.2801	7.11	0.00	5.70	-4.26	-19.75	0.00	0.00
			6.00						
	B	49.6383	7.05	3.63	5.67	2.10	9.83	0.00	-17.02
			5.95						
	C	48.8898	7.15	-3.73	5.70	2.15	9.87	-0.00	17.10
			6.03						
			Sum:	**-0.10**	17.07	**-0.01**	**-0.05**	0.00	**0.08**

Guy-Mast Forces (Excluding Wind) - Service

Guy Elevation	Guy Location	Chord Angle	Guy Tension Top / Bottom K	F_x	F_y	F_z	M_x	M_y	M_z
ft		°		K	K	K	kip-ft	kip-ft	kip-ft
131	A	20.7413	6.15	-0.11	2.36	-5.68	-10.23	43.04	-17.72
			6.00						
	A	20.7413	6.15	0.11	2.36	-5.68	-10.23	-43.04	17.72
			6.00						
	B	19.1464	6.14	5.02	2.20	2.77	19.07	43.43	0.00
			6.00						
	B	19.1464	6.14	4.91	2.20	2.96	-9.54	-43.43	-16.52
			6.00						
	C	19.3407	6.15	-4.91	2.23	2.95	-9.67	43.39	16.74
			6.00						
	C	19.3407	6.15	-5.01	2.23	2.77	19.33	-43.39	0.00
			6.00						
			Sum:	**0.01**	13.59	**0.10**	**-1.26**	0.00	**0.22**
251	A	34.0157	16.25	0.00	9.63	-13.08	-33.37	0.00	0.00
			15.36						
	B	34.0585	16.23	11.32	9.61	6.53	16.65	0.00	-28.84
			15.36						
	C	33.6715	16.25	-11.38	9.56	6.57	16.56	-0.00	28.69
			15.36						
			Sum:	**-0.06**	28.81	**0.02**	**-0.15**	0.00	**-0.16**
381	A	44.9617	20.15	0.00	14.80	-13.68	-51.27	0.00	0.00
			18.56						
	B	45.2530	20.12	11.78	14.83	6.80	25.69	0.00	-44.50
			18.56						
	C	44.5725	20.15	-11.92	14.72	6.88	25.49	-0.00	44.15
			18.56						

Guy Elevation	Guy Location	Chord Angle	Guy Tension Top Bottom K	F_x	F_y	F_z	M_x	M_y	M_z
ft		°		K	K	K	kip-ft	kip-ft	kip-ft
			Sum:	-0.15	44.35	0.01	-0.08	0.00	-0.35
446.5	A	49.2801	3.11	0.00	2.45	-1.92	-8.47	0.00	0.00
			2.80						
	B	49.6383	3.11	1.65	2.45	0.95	4.25	0.00	-7.36
			2.80						
	C	48.8898	3.11	-1.68	2.43	0.97	4.22	-0.00	7.30
			2.80						
			Sum:	-0.03	7.33	-0.00	-0.01	0.00	-0.05

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
CA Face												
HB158-1-08U8-S8J18(1-5/8)	A	Yes	Ar (CfAe)	230' - 10'	-5.0000	0.35	2	2	0.5000	1.9800		1.30
LCF78-50A(7/8")	A	Yes	Ar (CfAe)	230' - 10'	-4.0000	0.35	6	2	0.5000	1.0900		0.34
LDF5-50A(7/8")	A	Yes	Ar (CfAe)	247' - 10'	0.0000	0.4	12	6	0.5000 0.2500	1.0900		0.33
LDF6-50A(1-1/4")	A	Yes	Ar (CfAe)	322' - 10'	-0.5000	0.45	1	1	1.5500	1.5500		0.66
EW63(ELLIPTICAL)	A	Yes	Ar (CfAe)	154' - 10'	0.0000	-0.28	2	1	0.5000	2.0100		0.51
LDF2-50A(3/8")	A	Yes	Ar (CfAe)	106' - 10'	0.0000	-0.21	2	2	0.5000 0.4400	0.4400		0.08
LCF78-50A(7/8")	A	Yes	Ar (CfAe)	230' - 10'	-1.0000	-0.36	2	1	0.5000	1.0900		0.34
LCF78-50A(7/8")	A	Yes	Ar (CfAe)	230' - 10'	-3.0000	-0.38	4	2	0.5000	1.0900		0.34
1" Rigid Conduit	A	Yes	Ar (CfAe)	333' - 10'	0.0000	-0.33	1	1	1.0000	1.0000		1.13
3/8" Cable (Lights)	A	Yes	Ar (CfAe)	457' - 10'	0.0000	-0.43	1	1	0.3750	0.3750		0.22
Banjo (6" dia, 36" step)	A	Yes	Af (CfAe)	230' - 10'	-2.0000	0.35	1	1	0.3330	0.3330	1.3320	0.45
Banjo (6" dia, 36" step)	A	Yes	Af (CfAe)	230' - 10'	-2.0000	-0.38	1	1	0.3330	0.3330	1.3320	0.45
AB Face												
LDF5-50A(7/8")	B	Yes	Ar (CfAe)	442' - 10'	0.0000	-0.47	1	1	1.0900	1.0900		0.33
LDF5-50A(7/8")	B	Yes	Ar (CfAe)	277' - 266'	0.0000	0.45	1	1	1.0900	1.0900		0.33
LDF5-50A(7/8")	B	Yes	Ar (CfAe)	266' - 10'	0.0000	0.45	2	2	0.5000	1.0900		0.33
HJ8-50B(3")	B	Yes	Ar (CfAe)	419' - 10'	0.0000	0.4	1	1	3.0100	3.0100		1.78
HJ8-50B(3")	B	Yes	Ar (CfAe)	419' - 10'	0.0000	0.2	1	1	3.0100	3.0100		1.78
LDF7-50A(1-5/8")	B	Yes	Ar (CfAe)	344' - 10'	0.0000	0.3	2	2	0.5000	1.9800		0.82
LDF6-50A(1-1/4")	B	Yes	Ar (CfAe)	344' - 10'	0.0000	0.01	1	1	1.5500	1.5500		0.66
LDF5-50A(7/	B	Yes	Ar (CfAe)	340' - 10'	0.0000	0.49	1	1	1.0900	1.0900		0.33

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
8")												
375-004(3 1/8")	B	Yes	Ar (CfAe)	328' - 10'	-1.7500	-0.08	1	1	3.1250	3.1250		2.80
LDF7-50A(1-5/8")	B	Yes	Ar (CfAe)	310' - 10'	0.0000	0.12	1	1	1.9800	1.9800		0.82
LDF7-50A(1-5/8")	B	Yes	Ar (CfAe)	277' - 10'	-0.7500	0	1	1	1.9800	1.9800		0.82
LDF5-50A(7/8")	B	Yes	Ar (CfAe)	214' - 10'	0.0000	0.06	1	1	1.0900	1.0900		0.33
RG-11(5/16")	B	Yes	Ar (CfAe)	25' - 10'	2.5000	0.3	2	2	0.3160	0.3160		0.09
LDF7-50A(1-5/8")	B	Yes	Ar (CfAe)	333' - 10'	0.0000	-0.07	2	1	0.5000	1.9800		0.82
LDF7-50A(1-5/8")	B	Yes	Ar (CfAe)	366' - 333'	0.0000	-0.07	1	1	0.5000	1.9800		0.82
LDF5-50A(7/8")	B	Yes	Ar (CfAe)	133' - 10'	2.0000	-0.18	1	1	0.2500	1.0900		0.33
LDF6-50A(1-1/4")	B	Yes	Ar (CfAe)	333' - 10'	0.0000	-0.18	1	1	0.5000	1.5500		0.66
LDF4-50A(1/2")	B	Yes	Ar (CfAe)	344' - 322'	1.0000	-0.22	1	1	0.5000	0.6300		0.15
LDF4-50A(1/2")	B	Yes	Ar (CfAe)	322' - 10'	1.0000	-0.22	2	2	0.5000	0.6300		0.15
LDF4.5-50(5/8")	B	Yes	Ar (CfAe)	175' - 10'	0.0000	-0.225	1	1	0.5000	0.8650		0.15
EW52(ELLIPTICAL) **BC Face**	B	Yes	Ar (CfAe)	146' - 10'	0.0000	-0.13	1	1	2.2500	2.2500		0.59
AVA5-50(7/8")	C	Yes	Ar (CfAe)	230' - 10'	-4.0000	-0.4	6	2	0.5000	1.1020		0.30
Banjo 12" Dia. (40" Step)	C	Yes	Af (CfAe)	230' - 10'	-3.0000	-0.4	1	1	0.2500	0.0000	0.5000	1.91
475-000(4 1/16")	C	Yes	Ar (CfAe)	457' - 10'	-6.0000	0	1	1	4.0620	4.0620		110.00
1.5" dia. M.C.	C	Yes	Ar (CfAe)	333' - 10'	-6.0000	0.1	1	1	1.5000	1.5000		1.85
LDF7-50A(1-5/8")	C	Yes	Ar (CfAe)	393' - 10'	0.0000	-0.1	1	1	1.9800	1.9800		0.82
HJ8-50B(3")	C	Yes	Ar (CfAe)	371' - 10'	0.0000	0.1	1	1	3.0100	3.0100		1.78
LDF5-50A(7/8")	C	Yes	Ar (CfAe)	214' - 10'	0.0000	-0.49	1	1	1.0900	1.0900		0.33
LDF5-50A(7/8")	C	Yes	Ar (CfAe)	108' - 99'	0.0000	-0.4	1	1	0.5000	1.0900		0.33
LDF5-50A(7/8")	C	Yes	Ar (CfAe)	99' - 10'	0.0000	-0.4	2	2	0.5000	1.0900		0.33
LDF2-50A(3/8")	C	Yes	Ar (CfAe)	48' - 10'	0.0000	0.2	1	1	0.4400	0.4400		0.08
LDF6-50A(1-1/4")	C	Yes	Ar (CfAe)	284' - 266'	0.0000	0.28	1	1	0.5000	1.5500		0.66
LDF6-50A(1-1/4")	C	Yes	Ar (CfAe)	266' - 258'	0.0000	0.28	2	2	0.5000	1.5500		0.66
LDF6-50A(1-1/4")	C	Yes	Ar (CfAe)	258' - 10'	0.0000	0.28	3	3	0.5000	1.5500		0.66
LDF2-50(3/8")	C	Yes	Ar (CfAe)	200' - 99'	0.0000	0.41	1	1	0.2500 0.4400	0.4400		0.08
LDF2-50(3/8")	C	Yes	Ar (CfAe)	99' - 10'	0.0000	0.41	2	2	0.5000	0.4400		0.08
LDF5-50A(7/8")	C	Yes	Ar (CfAe)	209' - 133'	0.0000	0.475	1	1	0.2500	1.0900		0.33
LDF5-50A(7/8")	C	Yes	Ar (CfAe)	133' - 117'	0.0000	0.475	2	2	0.5000	1.0900		0.33
LDF5-50A(7/8")	C	Yes	Ar (CfAe)	117' - 62'	0.0000	0.475	3	3	0.5000	1.0900		0.33
LDF5-50A(7/	C	Yes	Ar (CfAe)	62' - 10'	0.0000	0.475	6	4	0.5000	1.0900		0.33

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
8") **Equipment* *												
Thin Flat Climbing Ladder ***	C	Yes	Af (CfAe)	457' - 10'	-9.0000	0	1	1	2.0000	2.0000	8.0000	4.00
Full Sleeve	A	No	Ar (Leg)	401' - 381'	0.0000	0	1	1	2.0000	0.7500		19.07
Full Sleeve	B	No	Ar (Leg)	401' - 381'	0.0000	0	1	1	2.0000	0.7500		19.07
Full Sleeve	C	No	Ar (Leg)	401' - 381'	0.0000	0	1	1	2.0000	0.7500		19.07
Half Sleeve	A	No	Ar (Leg)	381' - 361'	0.0000	0	1	1	2.0000	0.5000		9.12
Half Sleeve	B	No	Ar (Leg)	381' - 361'	0.0000	0	1	1	2.0000	0.5000		9.12
Half Sleeve ***	C	No	Ar (Leg)	381' - 361'	0.0000	0	1	1	2.0000	0.5000		9.12

Feed Line/Linear Appurtenances - Entered As Area

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Total Number	C_AA_A ft^2/ft	Weight plf
***							

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 K
T1	457'-436'	A	0.656	0.000	0.000	0.000	0.00
		B	0.545	0.000	0.000	0.000	0.00
		C	7.109	3.500	0.000	0.000	2.39
T2	436'-421'	A	0.469	0.000	0.000	0.000	0.00
		B	1.363	0.000	0.000	0.000	0.00
		C	5.077	2.500	0.000	0.000	1.71
T3	421'-401'	A	0.625	0.000	0.000	0.000	0.00
		B	10.847	0.000	0.000	0.000	0.07
		C	6.770	3.333	0.000	0.000	2.28
T4	401'-396'	A	0.781	0.000	0.000	0.000	0.10
		B	3.588	0.000	0.000	0.000	0.11
		C	2.317	0.833	0.000	0.000	0.67
T5	396'-391'	A	0.781	0.000	0.000	0.000	0.10
		B	3.588	0.000	0.000	0.000	0.11
		C	2.648	0.833	0.000	0.000	0.67
T6	391'-386'	A	0.781	0.000	0.000	0.000	0.10
		B	3.588	0.000	0.000	0.000	0.11
		C	3.143	0.833	0.000	0.000	0.67
T7	386'-381'	A	0.781	0.000	0.000	0.000	0.10
		B	3.588	0.000	0.000	0.000	0.11
		C	3.143	0.833	0.000	0.000	0.67
T8	381'-376'	A	0.573	0.000	0.000	0.000	0.05
		B	3.379	0.000	0.000	0.000	0.07
		C	2.934	0.833	0.000	0.000	0.62
T9	376'-371'	A	0.573	0.000	0.000	0.000	0.05
		B	3.379	0.000	0.000	0.000	0.07
		C	2.934	0.833	0.000	0.000	0.62

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 K
T10	371'-366'	A	0.573	0.000	0.000	0.000	0.05
		B	3.379	0.000	0.000	0.000	0.07
		C	4.188	0.833	0.000	0.000	0.63
T11	366'-361'	A	0.573	0.000	0.000	0.000	0.05
		B	4.204	0.000	0.000	0.000	0.07
		C	4.188	0.833	0.000	0.000	0.63
T12	361'-341'	A	0.625	0.000	0.000	0.000	0.00
		B	16.685	0.000	0.000	0.000	0.10
		C	15.087	3.333	0.000	0.000	2.33
T13	341'-321'	A	1.754	0.000	0.000	0.000	0.02
		B	30.535	0.000	0.000	0.000	0.19
		C	16.587	3.333	0.000	0.000	2.35
T14	321'-301'	A	4.875	0.000	0.000	0.000	0.04
		B	37.527	0.000	0.000	0.000	0.25
		C	17.587	3.333	0.000	0.000	2.37
T15	301'-281'	A	4.875	0.000	0.000	0.000	0.04
		B	39.342	0.000	0.000	0.000	0.25
		C	17.974	3.333	0.000	0.000	2.37
T16	281'-261'	A	4.875	0.000	0.000	0.000	0.04
		B	43.889	0.000	0.000	0.000	0.27
		C	20.816	3.333	0.000	0.000	2.39
T17	261'-241'	A	8.145	0.000	0.000	0.000	0.06
		B	46.275	0.000	0.000	0.000	0.28
		C	24.949	3.333	0.000	0.000	2.41
T18	241'-221'	A	22.833	0.500	0.000	0.000	0.19
		B	46.275	0.000	0.000	0.000	0.28
		C	26.990	3.333	0.000	0.000	2.44
T19	221'-201'	A	31.458	1.110	0.000	0.000	0.27
		B	47.456	0.000	0.000	0.000	0.29
		C	30.918	3.333	0.000	0.000	2.49
T20	201'-181'	A	31.458	1.110	0.000	0.000	0.27
		B	48.092	0.000	0.000	0.000	0.29
		C	33.340	3.333	0.000	0.000	2.50
T21	181'-161'	A	31.458	1.110	0.000	0.000	0.27
		B	49.101	0.000	0.000	0.000	0.29
		C	33.377	3.333	0.000	0.000	2.50
T22	161'-141'	A	33.636	1.110	0.000	0.000	0.28
		B	50.471	0.000	0.000	0.000	0.30
		C	33.377	3.333	0.000	0.000	2.50
T23	141'-121'	A	34.808	1.110	0.000	0.000	0.29
		B	54.373	0.000	0.000	0.000	0.31
		C	34.467	3.333	0.000	0.000	2.50
T24	121'-101'	A	35.175	1.110	0.000	0.000	0.29
		B	55.100	0.000	0.000	0.000	0.31
		C	37.282	3.333	0.000	0.000	2.51
T25	101'-81'	A	36.275	1.110	0.000	0.000	0.29
		B	55.100	0.000	0.000	0.000	0.31
		C	41.122	3.333	0.000	0.000	2.52
T26	81'-61'	A	36.275	1.110	0.000	0.000	0.29
		B	55.100	0.000	0.000	0.000	0.31
		C	41.468	3.333	0.000	0.000	2.53
T27	61'-41'	A	36.275	1.110	0.000	0.000	0.29
		B	55.100	0.000	0.000	0.000	0.31
		C	43.450	3.333	0.000	0.000	2.55
T28	41'-20'	A	38.089	1.166	0.000	0.000	0.31
		B	58.118	0.000	0.000	0.000	0.33
		C	46.123	3.500	0.000	0.000	2.67
T29	20'-6'8-17/32"	A	18.137	0.555	0.000	0.000	0.15
		B	28.077	0.000	0.000	0.000	0.16
		C	21.963	1.667	0.000	0.000	1.27
T30	6'8-17/32"-0'	A	0.000	0.000	0.000	0.000	0.00

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 K
		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 K
T1	457'-436'	A	1.025	4.245	0.000	0.000	0.000	0.04
		B		1.570	0.000	0.000	0.000	0.02
		C		10.697	5.892	0.000	0.000	2.63
T2	436'-421'	A	1.020	3.019	0.000	0.000	0.000	0.03
		B		3.913	0.000	0.000	0.000	0.04
		C		7.628	4.200	0.000	0.000	1.88
T3	421'-401'	A	1.015	4.009	0.000	0.000	0.000	0.04
		B		20.321	0.000	0.000	0.000	0.30
		C		10.154	5.589	0.000	0.000	2.50
T4	401'-396'	A	1.011	3.310	0.000	0.000	0.000	0.12
		B		7.801	0.000	0.000	0.000	0.19
		C		4.846	1.395	0.000	0.000	0.73
T5	396'-391'	A	1.010	3.306	0.000	0.000	0.000	0.12
		B		7.795	0.000	0.000	0.000	0.19
		C		5.509	1.394	0.000	0.000	0.74
T6	391'-386'	A	1.008	3.302	0.000	0.000	0.000	0.12
		B		7.789	0.000	0.000	0.000	0.19
		C		6.503	1.393	0.000	0.000	0.75
T7	386'-381'	A	1.007	3.298	0.000	0.000	0.000	0.12
		B		7.782	0.000	0.000	0.000	0.19
		C		6.498	1.393	0.000	0.000	0.75
T8	381'-376'	A	1.005	3.086	0.000	0.000	0.000	0.06
		B		7.567	0.000	0.000	0.000	0.14
		C		6.284	1.392	0.000	0.000	0.70
T9	376'-371'	A	1.003	3.082	0.000	0.000	0.000	0.06
		B		7.560	0.000	0.000	0.000	0.14
		C		6.279	1.391	0.000	0.000	0.70
T10	371'-366'	A	1.002	3.078	0.000	0.000	0.000	0.06
		B		7.554	0.000	0.000	0.000	0.14
		C		8.363	1.390	0.000	0.000	0.73
T11	366'-361'	A	1.000	3.073	0.000	0.000	0.000	0.06
		B		9.205	0.000	0.000	0.000	0.16
		C		8.356	1.389	0.000	0.000	0.73
T12	361'-341'	A	0.996	3.945	0.000	0.000	0.000	0.04
		B		30.965	0.620	0.000	0.000	0.45
		C		25.047	5.547	0.000	0.000	2.72
T13	341'-321'	A	0.989	7.194	0.000	0.000	0.000	0.08
		B		56.524	4.228	0.000	0.000	0.89
		C		28.455	5.531	0.000	0.000	2.77
T14	321'-301'	A	0.982	14.692	0.000	0.000	0.000	0.18
		B		67.372	6.017	0.000	0.000	1.11
		C		30.676	5.515	0.000	0.000	2.81
T15	301'-281'	A	0.974	14.614	0.000	0.000	0.000	0.18
		B		70.701	6.017	0.000	0.000	1.15
		C		31.446	5.498	0.000	0.000	2.81
T16	281'-261'	A	0.966	14.531	0.000	0.000	0.000	0.18
		B		79.640	6.679	0.000	0.000	1.26
		C		36.263	6.333	0.000	0.000	2.88
T17	261'-241'	A	0.957	15.944	3.975	0.000	0.000	0.28
		B		81.568	8.667	0.000	0.000	1.31

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 K
		C		36.116	11.780	0.000	0.000	2.96
T18	241'-221'	A	0.947	28.943	19.889	0.000	0.000	0.84
		B		81.157	8.667	0.000	0.000	1.29
		C		38.205	14.420	0.000	0.000	3.08
T19	221'-201'	A	0.937	40.429	27.958	0.000	0.000	1.22
		B		83.924	8.667	0.000	0.000	1.31
		C		45.934	17.001	0.000	0.000	3.28
T20	201'-181'	A	0.926	40.132	27.908	0.000	0.000	1.21
		B		85.134	8.667	0.000	0.000	1.32
		C		53.959	16.952	0.000	0.000	3.35
T21	181'-161'	A	0.914	39.807	27.854	0.000	0.000	1.20
		B		87.705	8.667	0.000	0.000	1.33
		C		53.784	16.898	0.000	0.000	3.33
T22	161'-141'	A	0.900	43.574	27.794	0.000	0.000	1.28
		B		90.062	8.667	0.000	0.000	1.34
		C		53.378	16.837	0.000	0.000	3.32
T23	141'-121'	A	0.885	45.340	27.726	0.000	0.000	1.31
		B		97.173	8.667	0.000	0.000	1.41
		C		52.921	18.360	0.000	0.000	3.32
T24	121'-101'	A	0.868	45.723	28.041	0.000	0.000	1.30
		B		98.093	8.667	0.000	0.000	1.40
		C		54.047	21.462	0.000	0.000	3.36
T25	101'-81'	A	0.847	47.761	29.125	0.000	0.000	1.31
		B		96.935	8.667	0.000	0.000	1.37
		C		56.426	25.696	0.000	0.000	3.42
T26	81'-61'	A	0.822	46.932	29.014	0.000	0.000	1.28
		B		95.526	8.667	0.000	0.000	1.33
		C		55.597	26.140	0.000	0.000	3.40
T27	61'-41'	A	0.790	45.866	28.872	0.000	0.000	1.24
		B		93.712	8.667	0.000	0.000	1.28
		C		55.709	28.515	0.000	0.000	3.45
T28	41'-20'	A	0.750	46.751	30.128	0.000	0.000	1.25
		B		96.762	9.363	0.000	0.000	1.29
		C		59.245	29.753	0.000	0.000	3.58
T29	20'-6'8-17/32"	A	0.750	22.262	14.347	0.000	0.000	0.59
		B		47.230	4.860	0.000	0.000	0.62
		C		28.212	14.168	0.000	0.000	1.71
T30	6'8-17/32"-0'	A	0.750	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.000	0.00

Feed Line Shielding

Section	Elevation ft	Face	A_R ft^2	A_R Ice ft^2	A_F ft^2	A_F Ice ft^2
T1	457'-436'	A	0.000	0.505	0.110	0.709
		B	0.000	0.187	0.091	0.262
		C	0.000	2.117	1.771	2.969
T2	436'-421'	A	0.000	0.370	0.070	0.453
		B	0.000	0.479	0.205	0.587
		C	0.000	1.554	1.138	1.904
T3	421'-401'	A	0.000	0.421	0.081	0.518
		B	0.000	2.134	1.403	2.628
		C	0.000	1.772	1.306	2.182
T4	401'-396'	A	0.000	0.121	0.023	0.150
		B	0.000	0.667	0.445	0.824

Section	Elevation ft	Face	A_R ft^2	A_R Ice ft^2	A_F ft^2	A_F Ice ft^2
		C	0.000	0.512	0.379	0.632
T5	396'-391'	A	0.000	0.087	0.017	0.108
		B	0.000	0.481	0.321	0.595
		C	0.000	0.427	0.310	0.529
T6	391'-386'	A	0.000	0.154	0.029	0.183
		B	0.000	0.848	0.544	1.006
		C	0.000	0.908	0.615	1.077
T7	386'-381'	A	0.000	0.120	0.022	0.141
		B	0.000	0.663	0.420	0.777
		C	0.000	0.709	0.475	0.832
T8	381'-376'	A	0.000	0.120	0.025	0.157
		B	0.000	0.661	0.469	0.868
		C	0.000	0.708	0.531	0.929
T9	376'-371'	A	0.000	0.086	0.017	0.108
		B	0.000	0.476	0.321	0.593
		C	0.000	0.510	0.363	0.636
T10	371'-366'	A	0.000	0.119	0.023	0.149
		B	0.000	0.658	0.445	0.821
		C	0.000	0.956	0.691	1.193
T11	366'-361'	A	0.000	0.086	0.017	0.107
		B	0.000	0.618	0.411	0.773
		C	0.000	0.689	0.500	0.861
T12	361'-341'	A	0.000	0.537	0.102	0.642
		B	0.000	4.303	2.714	5.137
		C	0.000	4.319	2.996	5.156
T13	341'-321'	A	0.000	0.736	0.227	0.930
		B	0.000	6.216	3.948	7.856
		C	0.000	3.590	2.576	4.537
T14	321'-301'	A	0.000	1.492	0.630	1.900
		B	0.000	7.453	4.853	9.490
		C	0.000	3.786	2.705	4.821
T15	301'-281'	A	0.000	1.472	0.630	1.890
		B	0.000	7.729	5.087	9.920
		C	0.000	3.831	2.755	4.917
T16	281'-261'	A	0.000	1.451	0.630	1.879
		B	0.000	8.622	5.675	11.162
		C	0.000	4.362	3.123	5.647
T17	261'-241'	A	0.000	2.607	1.739	4.253
		B	0.000	11.809	9.880	19.265
		C	0.000	6.407	6.038	10.453
T18	241'-221'	A	0.000	4.878	3.523	7.517
		B	0.000	8.802	6.988	13.564
		C	0.000	5.306	4.579	8.177
T19	221'-201'	A	0.000	6.831	4.211	9.112
		B	0.000	8.975	6.136	11.973
		C	0.000	6.302	4.429	8.407
T20	201'-181'	A	0.000	6.714	4.211	9.064
		B	0.000	8.984	6.219	12.129
		C	0.000	6.989	4.742	9.436
T21	181'-161'	A	0.000	6.587	4.279	9.157
		B	0.000	9.109	6.451	12.663
		C	0.000	6.873	4.823	9.554
T22	161'-141'	A	0.000	6.832	5.247	11.079
		B	0.000	9.193	7.621	14.908
		C	0.000	6.725	5.543	10.905
T23	141'-121'	A	0.000	6.869	5.424	11.330
		B	0.000	9.689	8.211	15.982
		C	0.000	6.705	5.708	11.061
T24	121'-101'	A	0.000	6.793	4.692	9.788
		B	0.000	9.581	7.125	13.805
		C	0.000	6.949	5.252	10.013

Section	Elevation	Face	A_R	A_R Ice	A_F	A_F Ice
	ft		ft^2	ft^2	ft^2	ft^2
T25	101'-81'	A	0.000	6.902	4.834	10.185
		B	0.000	9.254	7.125	13.655
		C	0.000	7.361	5.748	10.863
T26	81'-61'	A	0.000	6.615	4.834	10.057
		B	0.000	8.862	7.125	13.473
		C	0.000	7.108	5.793	10.806
T27	61'-41'	A	0.000	6.253	4.834	9.891
		B	0.000	8.369	7.125	13.239
		C	0.000	7.029	6.050	11.118
T28	41'-20'	A	0.000	5.911	4.919	9.852
		B	0.000	7.978	7.282	13.297
		C	0.000	6.822	6.218	11.371
T29	20'-6'8-17/32"	A	0.000	3.481	2.435	4.877
		B	0.000	4.843	3.657	6.784
		C	0.000	4.018	3.078	5.628
T30	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
T1	457'-436'	-0.1706	0.9426	-0.5752	0.8251
T2	436'-421'	-0.1689	0.5554	-0.5730	0.1922
T3	421'-401'	2.3915	1.2084	1.5658	0.7532
T4	401'-396'	2.1894	1.0471	1.3551	0.6075
T5	396'-391'	2.6841	1.5051	1.7544	1.0116
T6	391'-386'	2.0270	1.3681	1.2367	0.9080
T7	386'-381'	2.3958	1.6170	1.5303	1.1302
T8	381'-376'	2.1904	1.4784	1.4430	1.0644
T9	376'-371'	2.6965	1.8200	1.8274	1.3552
T10	371'-366'	1.9293	2.2701	1.2351	1.6911
T11	366'-361'	2.6587	2.1987	1.9133	1.6173
T12	361'-341'	2.5874	1.9127	1.7560	1.3052
T13	341'-321'	4.6380	1.9152	3.0764	1.0840
T14	321'-301'	4.7955	0.6446	3.0354	0.3082
T15	301'-281'	4.9505	0.6496	3.2172	0.3266
T16	281'-261'	5.0492	1.0521	3.4250	0.5925
T17	261'-241'	3.5930	0.7538	2.2541	-0.0411
T18	241'-221'	3.5212	-0.9042	2.3204	-0.7416
T19	221'-201'	3.3903	-1.1830	2.2560	-0.5020
T20	201'-181'	3.2331	-0.9390	1.9239	-0.0860
T21	181'-161'	3.2448	-1.0445	1.9714	-0.2744
T22	161'-141'	2.7938	-1.0358	1.6429	-0.3484
T23	141'-121'	2.6454	-1.2163	1.8823	-0.7996
T24	121'-101'	2.4868	-1.0600	2.0326	-0.8101
T25	101'-81'	2.5241	-0.6696	2.1002	-0.8950
T26	81'-61'	2.5201	-0.6354	2.0812	-0.9179
T27	61'-41'	2.2286	-0.4247	1.8111	-0.7108
T28	41'-20'	2.2456	-0.3762	1.7359	-0.5995
T29	20'-6'8-17/32"	1.8190	-0.3330	1.2938	-0.5138
T30	6'8-17/32"-0'	0.0000	0.0000	0.0000	0.0000

Antenna Pole Forces *dielectric TFU-33J*

Length of Pole ft	Ix in^4	Iy in^4	Modulus E ksi		Antenna Pole C_AA_A ft^2/ft	Antenna Pole Weight plf	Length of Beacon ft	Beacon C_AA_A ft^2	Beacon Weight K
32'	655.5500	655.5500	10000	No Ice	2.33	75.00	0'	0.00	0.00
				With Ice	2.48	86.50		0.00	0.00

Discrete Tower Loads

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 K
Equipment										
12" x 3' Beacon	A	From Centroid-Leg	0.00	0'	0.0000	457'	No Ice	2.40	2.40	0.02
				34'			1/2" Ice	2.67	2.67	0.05
							1" Ice	2.96	2.96	0.08
							2" Ice	3.56	3.56	0.15
							4" Ice	4.89	4.89	0.34
3" x 6" SideLight	A	From Leg	1.00	0'	0.0000	333'	No Ice	0.10	0.10	0.00
				0'			1/2" Ice	0.16	0.16	0.00
							1" Ice	0.22	0.22	0.00
							2" Ice	0.39	0.39	0.01
							4" Ice	0.86	0.86	0.04
3" x 6" SideLight	B	From Leg	1.00	0'	0.0000	333'	No Ice	0.10	0.10	0.00
				0'			1/2" Ice	0.16	0.16	0.00
							1" Ice	0.22	0.22	0.00
							2" Ice	0.39	0.39	0.01
							4" Ice	0.86	0.86	0.04
3" x 6" SideLight	C	From Leg	1.00	0'	0.0000	333'	No Ice	0.10	0.10	0.00
				0'			1/2" Ice	0.16	0.16	0.00
							1" Ice	0.22	0.22	0.00
							2" Ice	0.39	0.39	0.01
							4" Ice	0.86	0.86	0.04
3" x 6" SideLight	A	From Leg	1.00	0'	0.0000	215'	No Ice	0.10	0.10	0.00
				0'			1/2" Ice	0.16	0.16	0.00
							1" Ice	0.22	0.22	0.00
							2" Ice	0.39	0.39	0.01
							4" Ice	0.86	0.86	0.04
3" x 6" SideLight	B	From Leg	1.00	0'	0.0000	215'	No Ice	0.10	0.10	0.00
				0'			1/2" Ice	0.16	0.16	0.00
							1" Ice	0.22	0.22	0.00
							2" Ice	0.39	0.39	0.01
							4" Ice	0.86	0.86	0.04
3" x 6" SideLight	C	From Leg	1.00	0'	0.0000	215'	No Ice	0.10	0.10	0.00
				0'			1/2" Ice	0.16	0.16	0.00
							1" Ice	0.22	0.22	0.00
							2" Ice	0.39	0.39	0.01
							4" Ice	0.86	0.86	0.04
3" x 6" SideLight	A	From Leg	1.00	0'	0.0000	112'	No Ice	0.10	0.10	0.00
				0'			1/2" Ice	0.16	0.16	0.00
							1" Ice	0.22	0.22	0.00

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 K
						2" Ice	0.39	0.39	0.01
						4" Ice	0.86	0.86	0.04
3" x 6" SideLight	B	From Leg	1.00 0' 0'	0.0000	112'	No Ice	0.10	0.10	0.00
						1/2" Ice	0.16	0.16	0.00
						1" Ice	0.22	0.22	0.00
						2" Ice	0.39	0.39	0.01
						4" Ice	0.86	0.86	0.04
3" x 6" SideLight	C	From Leg	1.00 0' 0'	0.0000	112'	No Ice	0.10	0.10	0.00
						1/2" Ice	0.16	0.16	0.00
						1" Ice	0.22	0.22	0.00
						2" Ice	0.39	0.39	0.01
						4" Ice	0.86	0.86	0.04
442									
DB420	A	From Leg	4.00 0' 10'	25.0000	442'	No Ice	3.33	3.33	0.03
						1/2" Ice	5.99	5.99	0.04
						1" Ice	8.66	8.66	0.05
						2" Ice	13.99	13.99	0.07
						4" Ice	24.64	24.64	0.12
PD10041-1	B	From Leg	4.00 0' 5'	-5.0000	442'	No Ice	2.86	2.86	0.02
						1/2" Ice	3.94	3.94	0.04
						1" Ice	5.03	5.03	0.07
						2" Ice	6.46	6.46	0.14
						4" Ice	9.13	9.13	0.39
BCD-87077	C	From Leg	4.00 0' 6'	-5.0000	442'	No Ice	3.06	3.06	0.03
						1/2" Ice	4.27	4.27	0.05
						1" Ice	5.49	5.49	0.08
						2" Ice	7.55	7.55	0.16
						4" Ice	10.52	10.52	0.43
Side Arm Mount [SO 306-3]	C	None		0.0000	442'	No Ice	3.55	3.55	0.13
						1/2" Ice	6.19	6.19	0.19
						1" Ice	8.83	8.83	0.25
						2" Ice	14.11	14.11	0.37
						4" Ice	24.67	24.67	0.61
439									
BCD-87077	B	From Leg	4.00 0' 6'	-65.0000	439'	No Ice	3.06	3.06	0.03
						1/2" Ice	4.27	4.27	0.05
						1" Ice	5.49	5.49	0.08
						2" Ice	7.55	7.55	0.16
						4" Ice	10.52	10.52	0.43
Side Arm Mount [SO 306-1]	B	From Leg	2.00 0' 0'	-65.0000	439'	No Ice	0.98	2.18	0.04
						1/2" Ice	1.70	3.80	0.06
						1" Ice	2.42	5.42	0.08
						2" Ice	3.86	8.66	0.12
						4" Ice	6.74	15.14	0.20
419									
ERI 1183-3CP	C	None		0.0000	419'	No Ice	182.40	182.40	4.35
						1/2" Ice	184.84	184.84	6.27
						1" Ice	187.29	187.29	8.22
						2" Ice	192.22	192.22	12.19
						4" Ice	202.22	202.22	20.48
393									
6014-2	C	None		0.0000	393'	No Ice	65.00	65.00	1.09
						1/2" Ice	135.00	135.00	2.39
						1" Ice	205.00	205.00	3.69
						2" Ice	345.00	345.00	6.29
						4" Ice	625.00	625.00	11.50
371									

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
SHP-2AE	C	From Leg	1.00 0' 0'	-35.0000	371'	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	39.75 41.11 42.49 45.26 50.88	122.77 124.60 126.43 130.11 137.59	0.22 0.78 1.36 2.58 5.25
366									
DB806E-XT	A	From Leg	4.00 0' 8'	45.0000	366'	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	2.40 3.19 3.67 4.68 6.79	2.40 3.19 3.67 4.68 6.79	0.02 0.03 0.06 0.12 0.31
Side Arm Mount [SO 306-1]	A	From Leg	2.00 0' 0'	45.0000	366'	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	0.98 1.70 2.42 3.86 6.74	2.18 3.80 5.42 8.66 15.14	0.04 0.06 0.08 0.12 0.20
344									
BCD-87077	A	From Leg	6.00 0' 6'	5.0000	344'	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	3.06 4.27 5.49 7.55 10.52	3.06 4.27 5.49 7.55 10.52	0.03 0.05 0.08 0.16 0.43
455-6	B	From Leg	4.00 0' 12'	-15.0000	344'	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	5.50 7.53 9.58 13.73 21.42	5.50 7.53 9.58 13.73 21.42	0.03 0.07 0.12 0.26 0.71
AO9009-3	C	From Leg	6.00 0' 6'	25.0000	344'	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	2.55 3.60 4.67 6.14 8.75	2.55 3.60 4.67 6.14 8.75	0.01 0.03 0.06 0.13 0.36
Side Arm Mount [SO 602-1]	A	From Leg	3.00 0' 0'	5.0000	344'	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	2.72 4.11 5.50 8.28 13.84	12.93 17.82 22.71 32.49 52.05	0.15 0.22 0.30 0.46 0.77
Side Arm Mount [SO 306-1]	B	From Leg	2.00 0' 0'	-15.0000	344'	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	0.98 1.70 2.42 3.86 6.74	2.18 3.80 5.42 8.66 15.14	0.04 0.06 0.08 0.12 0.20
Side Arm Mount [SO 602-1]	C	From Leg	3.00 0' 0'	25.0000	344'	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	2.72 4.11 5.50 8.28 13.84	12.93 17.82 22.71 32.49 52.05	0.15 0.22 0.30 0.46 0.77
340									
455-6	C	From Leg	6.00 0' 12'	-35.0000	340'	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	5.50 7.53 9.58 13.73 21.42	5.50 7.53 9.58 13.73 21.42	0.03 0.07 0.12 0.26 0.71
Side Arm Mount [SO 602-1]	C	From Leg	3.00 0' 0'	-35.0000	340'	No Ice 1/2" Ice 1" Ice 2" Ice	2.72 4.11 5.50 8.28	12.93 17.82 22.71 32.49	0.15 0.22 0.30 0.46

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 K
						4" Ice	13.84	52.05	0.77
333									
PG1N0F-0090-310	B	From Leg	6.00 0' 6'	-75.0000	333'	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	3.00 4.03 5.03 6.26 8.83	3.00 4.03 5.03 6.26 8.83	0.03 0.05 0.08 0.16 0.39
Side Arm Mount [SO 602-1]	B	From Leg	3.00 0' 0'	-75.0000	333'	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	2.72 4.11 5.50 8.28 13.84	12.93 17.82 22.71 32.49 52.05	0.15 0.22 0.30 0.46 0.77
328									
SRL-101A	A	From Leg	2.00 0' 4'	65.0000	328'	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	54.44 55.55 56.67 58.93 63.60	54.44 55.55 56.67 58.93 63.60	0.02 0.78 1.55 3.15 6.54
TLP-8M	B	From Leg	4.00 0' 0'	50.0000	328'	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	13.50 15.30 17.10 20.70 27.90	13.50 15.30 17.10 20.70 27.90	0.13 0.17 0.21 0.29 0.44
Pipe Mount [PM 601-1]	A	From Leg	0.50 0' 0'	0.0000	328'	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	3.00 3.74 4.48 5.96 8.92	0.90 1.12 1.34 1.78 2.66	0.02 0.03 0.03 0.04 0.06
Side Arm Mount [SO 302-1]	B	From Leg	2.00 0' 0'	50.0000	328'	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	1.67 2.51 3.35 5.03 8.39	3.27 4.99 6.71 10.15 17.03	0.06 0.09 0.12 0.19 0.32
326									
DB230-2E	C	From Leg	6.00 0' 0'	-35.0000	326'	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	1.00 1.80 2.60 4.20 7.40	1.00 1.80 2.60 4.20 7.40	0.05 0.07 0.09 0.12 0.18
Side Arm Mount [SO 602-1]	C	From Leg	3.00 0' 0'	-35.0000	326'	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	2.72 4.11 5.50 8.28 13.84	12.93 17.82 22.71 32.49 52.05	0.15 0.22 0.30 0.46 0.77
322									
DB408	B	From Leg	6.00 0' 4'	-15.0000	322'	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	1.90 3.42 4.94 7.98 14.06	1.90 3.42 4.94 7.98 14.06	0.02 0.02 0.03 0.04 0.06
Side Arm Mount [SO 602-1]	B	From Leg	3.00 0' 0'	-15.0000	322'	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	2.72 4.11 5.50 8.28 13.84	12.93 17.82 22.71 32.49 52.05	0.15 0.22 0.30 0.46 0.77
Pipe Mount [PM 601-1]	A	From Leg	0.50 0'	0.0000	322'	No Ice 1/2" Ice	3.00 3.74	0.90 1.12	0.02 0.03

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft Vert ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
			0'			1" Ice	4.48	1.34	0.03
						2" Ice	5.96	1.78	0.04
						4" Ice	8.92	2.66	0.06
310									
6014-2	C	None		0.0000	310'	No Ice	65.00	65.00	1.09
						1/2" Ice	135.00	135.00	2.39
						1" Ice	205.00	205.00	3.69
						2" Ice	345.00	345.00	6.29
						4" Ice	625.00	625.00	11.50
284									
DB212-1	A	From Leg	1.00	-15.0000	284'	No Ice	4.50	4.50	0.03
			0'			1/2" Ice	8.10	8.10	0.04
			0'			1" Ice	11.70	11.70	0.05
						2" Ice	18.90	18.90	0.07
						4" Ice	33.30	33.30	0.11
DB810M-XC	C	From Leg	6.00	-15.0000	284'	No Ice	2.12	2.12	0.03
			0'			1/2" Ice	3.14	3.14	0.05
			6'			1" Ice	4.18	4.18	0.07
						2" Ice	5.77	5.77	0.13
						4" Ice	8.32	8.32	0.35
Side Arm Mount [SO 602-1]	C	From Leg	3.00	-15.0000	284'	No Ice	2.72	12.93	0.15
			0'			1/2" Ice	4.11	17.82	0.22
			0'			1" Ice	5.50	22.71	0.30
						2" Ice	8.28	32.49	0.46
						4" Ice	13.84	52.05	0.77
277									
BMR10-A-B1	B	From Leg	1.00	-15.0000	277'	No Ice	8.38	8.38	0.06
			0'			1/2" Ice	9.16	9.16	0.11
			6'			1" Ice	9.95	9.95	0.18
						2" Ice	11.56	11.56	0.34
						4" Ice	14.88	14.88	0.77
269									
MYA1503K	B	From Leg	3.00	25.0000	269'	No Ice	0.36	0.36	0.00
			0'			1/2" Ice	0.98	0.98	0.01
			0'			1" Ice	1.60	1.60	0.01
						2" Ice	2.84	2.84	0.01
						4" Ice	5.32	5.32	0.03
Side Arm Mount [SO 602-1]	B	From Leg	1.50	25.0000	269'	No Ice	2.72	12.93	0.15
			0'			1/2" Ice	4.11	17.82	0.22
			0'			1" Ice	5.50	22.71	0.30
						2" Ice	8.28	32.49	0.46
						4" Ice	13.84	52.05	0.77
266									
DB810M-XC	C	From Leg	3.00	-15.0000	266'	No Ice	2.12	2.12	0.03
			0'			1/2" Ice	3.14	3.14	0.05
			5'			1" Ice	4.18	4.18	0.07
						2" Ice	5.77	5.77	0.13
						4" Ice	8.32	8.32	0.35
Side Arm Mount [SO 602-1]	C	From Leg	1.50	-15.0000	266'	No Ice	2.72	12.93	0.15
			0'			1/2" Ice	4.11	17.82	0.22
			0'			1" Ice	5.50	22.71	0.30
						2" Ice	8.28	32.49	0.46
						4" Ice	13.84	52.05	0.77
Side Arm Mount [SO 602-1]	B	From Leg	1.50	-65.0000	266'	No Ice	2.72	12.93	0.15
			0'			1/2" Ice	4.11	17.82	0.22
			0'			1" Ice	5.50	22.71	0.30
						2" Ice	8.28	32.49	0.46

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 K
						4" Ice	13.84	52.05	0.77
258									
DB809KT3E-Y	B	From Leg	3.00 0' 5'	-75.0000	258'	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	3.39 4.55 5.73 7.38 10.25	3.39 4.55 5.73 7.38 10.25	0.03 0.05 0.09 0.17 0.44
Side Arm Mount [SO 602-1]	B	From Leg	1.50 0' 0'	-75.0000	258'	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	2.72 4.11 5.50 8.28 13.84	12.93 17.82 22.71 32.49 52.05	0.15 0.22 0.30 0.46 0.77
251									
PG1N0F-0090-310	B	From Leg	3.00 0' 5'	10.0000	251'	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	3.00 4.03 5.03 6.26 8.83	3.00 4.03 5.03 6.26 8.83	0.03 0.05 0.08 0.16 0.39
Side Arm Mount [SO 602-1]	B	From Leg	1.50 0' 0'	10.0000	251'	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	2.72 4.11 5.50 8.28 13.84	12.93 17.82 22.71 32.49 52.05	0.15 0.22 0.30 0.46 0.77
Side Arm Mount [SO 602-1]	A	From Leg	1.50 0' 0'	25.0000	251'	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	2.72 4.11 5.50 8.28 13.84	12.93 17.82 22.71 32.49 52.05	0.15 0.22 0.30 0.46 0.77
247									
APXV18-206516S-C-A20 w/ Mount Pipe	A	From Leg	3.00 -5' 0'	75.0000	247'	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	3.86 4.27 4.73 5.69 7.73	3.30 4.00 4.67 6.06 9.04	0.04 0.07 0.11 0.21 0.53
APXV18-206516S-C-A20 w/ Mount Pipe	B	From Leg	3.00 -5' 0'	55.0000	247'	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	3.86 4.27 4.73 5.69 7.73	3.30 4.00 4.67 6.06 9.04	0.04 0.07 0.11 0.21 0.53
APXV18-206516S-C-A20 w/ Mount Pipe	C	From Leg	3.00 -5' 0'	85.0000	247'	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	3.86 4.27 4.73 5.69 7.73	3.30 4.00 4.67 6.06 9.04	0.04 0.07 0.11 0.21 0.53
RR90-17-02DP w/ Mount Pipe	A	From Leg	3.00 5' 0'	65.0000	247'	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	4.59 5.09 5.58 6.59 8.73	3.32 4.09 4.78 6.23 9.31	0.03 0.07 0.12 0.22 0.56
RR90-17-02DP w/ Mount Pipe	B	From Leg	3.00 5' 0'	65.0000	247'	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	4.59 5.09 5.58 6.59 8.73	3.32 4.09 4.78 6.23 9.31	0.03 0.07 0.12 0.22 0.56
RR90-17-02DP w/ Mount Pipe	C	From Leg	3.00 5' 0'	65.0000	247'	No Ice 1/2" Ice 1" Ice	4.59 5.09 5.58	3.32 4.09 4.78	0.03 0.07 0.12

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 K
						2" Ice	6.59	6.23	0.22
						4" Ice	8.73	9.31	0.56
ATMAP1412D-1A20	A	From Leg	3.00 -5' 0'	75.0000	247'	No Ice	0.47	1.17	0.01
						1/2" Ice	0.57	1.31	0.02
						1" Ice	0.69	1.47	0.03
						2" Ice	0.95	1.81	0.06
						4" Ice	1.57	2.58	0.14
ATMAP1412D-1A20	A	From Leg	3.00 5' 0'	65.0000	247'	No Ice	0.47	1.17	0.01
						1/2" Ice	0.57	1.31	0.02
						1" Ice	0.69	1.47	0.03
						2" Ice	0.95	1.81	0.06
						4" Ice	1.57	2.58	0.14
ATMAP1412D-1A20	B	From Leg	3.00 -5' 0'	55.0000	247'	No Ice	0.47	1.17	0.01
						1/2" Ice	0.57	1.31	0.02
						1" Ice	0.69	1.47	0.03
						2" Ice	0.95	1.81	0.06
						4" Ice	1.57	2.58	0.14
ATMAP1412D-1A20	B	From Leg	3.00 5' 0'	65.0000	247'	No Ice	0.47	1.17	0.01
						1/2" Ice	0.57	1.31	0.02
						1" Ice	0.69	1.47	0.03
						2" Ice	0.95	1.81	0.06
						4" Ice	1.57	2.58	0.14
ATMAP1412D-1A20	C	From Leg	3.00 -5' 0'	85.0000	247'	No Ice	0.47	1.17	0.01
						1/2" Ice	0.57	1.31	0.02
						1" Ice	0.69	1.47	0.03
						2" Ice	0.95	1.81	0.06
						4" Ice	1.57	2.58	0.14
ATMAP1412D-1A20	C	From Leg	3.00 5' 0'	65.0000	247'	No Ice	0.47	1.17	0.01
						1/2" Ice	0.57	1.31	0.02
						1" Ice	0.69	1.47	0.03
						2" Ice	0.95	1.81	0.06
						4" Ice	1.57	2.58	0.14
2.4" Dia. x 6' Mount Pipe	A	From Leg	3.00 0' 0'	0.0000	247'	No Ice	1.43	1.43	0.02
						1/2" Ice	1.93	1.93	0.04
						1" Ice	2.32	2.32	0.06
						2" Ice	3.15	3.15	0.10
						4" Ice	5.06	5.06	0.25
2.4" Dia. x 6' Mount Pipe	B	From Leg	3.00 0' 0'	0.0000	247'	No Ice	1.43	1.43	0.02
						1/2" Ice	1.93	1.93	0.04
						1" Ice	2.32	2.32	0.06
						2" Ice	3.15	3.15	0.10
						4" Ice	5.06	5.06	0.25
2.4" Dia. x 6' Mount Pipe	C	From Leg	3.00 0' 0'	0.0000	247'	No Ice	1.43	1.43	0.02
						1/2" Ice	1.93	1.93	0.04
						1" Ice	2.32	2.32	0.06
						2" Ice	3.15	3.15	0.10
						4" Ice	5.06	5.06	0.25
Sector Mount [SM 301-3]	C	None		0.0000	247'	No Ice	29.61	29.61	1.30
						1/2" Ice	39.80	39.80	1.84
						1" Ice	49.99	49.99	2.38
						2" Ice	70.37	70.37	3.46
						4" Ice	111.13	111.13	5.63
230 HBXX-6516DS-VTM w/ Mount Pipe	A	From Leg	4.00 -6' 2'	75.0000	230'	No Ice	6.19	4.53	0.05
						1/2" Ice	6.66	5.21	0.10
						1" Ice	7.15	5.90	0.15
						2" Ice	8.15	7.38	0.29

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 K
						4" Ice	10.27	10.56	0.67
HBXX-6516DS-VTM w/ Mount Pipe	B	From Leg	4.00 -6' 2'	75.0000	230'	No Ice	6.19	4.53	0.05
						1/2" Ice	6.66	5.21	0.10
						1" Ice	7.15	5.90	0.15
						2" Ice	8.15	7.38	0.29
						4" Ice	10.27	10.56	0.67
HBXX-6516DS-VTM w/ Mount Pipe	C	From Leg	4.00 -6' 2'	75.0000	230'	No Ice	6.19	4.53	0.05
						1/2" Ice	6.66	5.21	0.10
						1" Ice	7.15	5.90	0.15
						2" Ice	8.15	7.38	0.29
						4" Ice	10.27	10.56	0.67
SBNHH-1D65B w/ Mount Pipe	A	From Leg	4.00 0' 2'	75.0000	230'	No Ice	9.00	7.73	0.10
						1/2" Ice	9.75	9.02	0.17
						1" Ice	10.43	9.98	0.26
						2" Ice	11.82	11.93	0.45
						4" Ice	14.74	16.20	0.99
SBNHH-1D65B w/ Mount Pipe	B	From Leg	4.00 0' 2'	75.0000	230'	No Ice	9.00	7.73	0.10
						1/2" Ice	9.75	9.02	0.17
						1" Ice	10.43	9.98	0.26
						2" Ice	11.82	11.93	0.45
						4" Ice	14.74	16.20	0.99
SBNHH-1D65B w/ Mount Pipe	C	From Leg	4.00 0' 2'	75.0000	230'	No Ice	9.00	7.73	0.10
						1/2" Ice	9.75	9.02	0.17
						1" Ice	10.43	9.98	0.26
						2" Ice	11.82	11.93	0.45
						4" Ice	14.74	16.20	0.99
LNX-8513DS-VTM w/ Mount Pipe	A	From Leg	4.00 6' 2'	75.0000	230'	No Ice	8.65	7.08	0.06
						1/2" Ice	9.31	8.27	0.13
						1" Ice	9.93	9.18	0.21
						2" Ice	11.20	11.02	0.39
						4" Ice	13.87	15.06	0.90
LNX-6514DS-VTM w/ Mount Pipe	B	From Leg	4.00 6' 2'	75.0000	230'	No Ice	8.68	7.42	0.08
						1/2" Ice	9.31	8.45	0.15
						1" Ice	9.93	9.34	0.23
						2" Ice	11.20	11.18	0.42
						4" Ice	13.85	15.22	0.94
LNX-8513DS-VTM w/ Mount Pipe	C	From Leg	4.00 6' 2'	75.0000	230'	No Ice	8.65	7.08	0.06
						1/2" Ice	9.31	8.27	0.13
						1" Ice	9.93	9.18	0.21
						2" Ice	11.20	11.02	0.39
						4" Ice	13.87	15.06	0.90
RRH2X60-PCS	A	From Leg	4.00 -6' 2'	75.0000	230'	No Ice	2.57	2.01	0.06
						1/2" Ice	2.79	2.22	0.08
						1" Ice	3.02	2.43	0.10
						2" Ice	3.52	2.89	0.16
						4" Ice	4.61	3.92	0.31
RRH2X60-PCS	B	From Leg	4.00 -6' 2'	75.0000	230'	No Ice	2.57	2.01	0.06
						1/2" Ice	2.79	2.22	0.08
						1" Ice	3.02	2.43	0.10
						2" Ice	3.52	2.89	0.16
						4" Ice	4.61	3.92	0.31
RRH2X60-PCS	C	From Leg	4.00 -6' 2'	75.0000	230'	No Ice	2.57	2.01	0.06
						1/2" Ice	2.79	2.22	0.08
						1" Ice	3.02	2.43	0.10
						2" Ice	3.52	2.89	0.16
						4" Ice	4.61	3.92	0.31
RRH2X60-AWS	A	From Leg	4.00	75.0000	230'	No Ice	3.96	1.82	0.06

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 K
			6'			1/2" Ice	4.27	2.08	0.08
			2'			1" Ice	4.60	2.36	0.11
						2" Ice	5.27	2.96	0.17
						4" Ice	6.72	4.25	0.35
RRH2X60-AWS	B	From Leg	4.00	75.0000	230'	No Ice	3.96	1.82	0.06
			6'			1/2" Ice	4.27	2.08	0.08
			2'			1" Ice	4.60	2.36	0.11
						2" Ice	5.27	2.96	0.17
						4" Ice	6.72	4.25	0.35
RRH2X60-AWS	C	From Leg	4.00	75.0000	230'	No Ice	3.96	1.82	0.06
			6'			1/2" Ice	4.27	2.08	0.08
			2'			1" Ice	4.60	2.36	0.11
						2" Ice	5.27	2.96	0.17
						4" Ice	6.72	4.25	0.35
DB-T1-6Z-8AB-0Z	A	From Leg	4.00	75.0000	230'	No Ice	5.60	2.33	0.04
			6'			1/2" Ice	5.92	2.56	0.08
			8'			1" Ice	6.24	2.79	0.12
						2" Ice	6.91	3.28	0.21
						4" Ice	8.37	4.37	0.45
Sector Mount [SM 406-3]	C	None		0.0000	230'	No Ice	19.83	19.83	0.92
						1/2" Ice	29.41	29.41	1.33
						1" Ice	38.99	38.99	1.73
						2" Ice	58.15	58.15	2.53
						4" Ice	96.47	96.47	4.15
214									
DB810T3E-XT	B	From Leg	5.00	85.0000	214'	No Ice	4.53	4.53	0.05
			0'			1/2" Ice	6.07	6.07	0.08
			7'			1" Ice	7.63	7.63	0.12
						2" Ice	10.79	10.79	0.24
						4" Ice	14.82	14.82	0.59
Side Arm Mount [SO 305-1]	B	From Leg	2.50	85.0000	214'	No Ice	0.94	1.41	0.03
			0'			1/2" Ice	1.48	2.17	0.04
			0'			1" Ice	2.02	2.93	0.06
						2" Ice	3.10	4.45	0.08
						4" Ice	5.26	7.49	0.14
209									
Pipe Mount [PM 601-1]	C	From Leg	0.50	0.0000	209'	No Ice	3.00	0.90	0.02
			0'			1/2" Ice	3.74	1.12	0.03
			0'			1" Ice	4.48	1.34	0.03
						2" Ice	5.96	1.78	0.04
						4" Ice	8.92	2.66	0.06
200									
DFPD1-52 w/ Mount Pipe	C	From Leg	1.00	5.0000	200'	No Ice	1.87	1.02	0.02
			0'			1/2" Ice	2.11	1.28	0.04
			1'			1" Ice	2.37	1.57	0.06
						2" Ice	2.94	2.23	0.11
						4" Ice	4.25	3.79	0.27
188									
RY-900B	A	From Leg	1.00	5.0000	188'	No Ice	1.70	4.11	0.02
			0'			1/2" Ice	1.94	4.42	0.05
			0'			1" Ice	2.18	4.73	0.08
						2" Ice	2.67	5.36	0.14
						4" Ice	3.63	6.61	0.26
186									
*									
175									
154									

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 K
146									
Pipe Mount [PM 601-1]	B	From Leg	0.50 0' 0'	0.0000	146'	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	3.00 3.74 4.48 5.96 8.92	0.90 1.12 1.34 1.78 2.66	0.02 0.03 0.03 0.04 0.06
136									
Pipe Mount [PM 601-1]	B	From Leg	0.50 0' 0'	0.0000	136'	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	3.00 3.74 4.48 5.96 8.92	0.90 1.12 1.34 1.78 2.66	0.02 0.03 0.03 0.04 0.06
133									
220-5	A	From Leg	2.00 0' 9'	25.0000	133'	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	3.40 5.42 7.46 11.59 20.05	3.40 5.42 7.46 11.59 20.05	0.02 0.05 0.09 0.21 0.60
DB264-A	C	From Leg	2.00 0' 9'	-35.0000	133'	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	3.16 5.69 8.22 13.27 23.38	3.16 5.69 8.22 13.27 23.38	0.04 0.05 0.06 0.08 0.12
Side Arm Mount [SO 202-1]	A	From Leg	1.00 0' 0'	25.0000	133'	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	2.96 4.10 5.24 7.52 12.08	2.53 3.51 4.49 6.45 10.37	0.11 0.13 0.16 0.20 0.30
Side Arm Mount [SO 202-1]	C	From Leg	1.00 0' 0'	-35.0000	133'	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	2.96 4.10 5.24 7.52 12.08	2.53 3.51 4.49 6.45 10.37	0.11 0.13 0.16 0.20 0.30
117									
108									
PD666	B	From Leg	0.50 0' 0'	65.0000	108'	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	32.00 32.94 33.89 35.82 39.82	32.00 32.94 33.89 35.82 39.82	0.08 0.44 0.81 1.58 3.26
106									
Pipe Mount [PM 601-1]	C	From Leg	0.50 0' 0'	0.0000	106'	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	3.00 3.74 4.48 5.96 8.92	0.90 1.12 1.34 1.78 2.66	0.02 0.03 0.03 0.04 0.06
99									
DB2801RA	B	From Leg	1.00 0' 0'	25.0000	99'	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	0.40 0.49 0.59 0.81 1.35	0.28 0.36 0.44 0.64 1.13	0.01 0.01 0.01 0.03 0.08
PTP 900-13 w/ Mount Pipe	C	From Leg	1.00 0' -1'	55.0000	99'	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	2.48 2.75 3.04 3.66 5.07	0.97 1.24 1.54 2.24 3.87	0.02 0.03 0.06 0.11 0.29

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
Pipe Mount [PM 601-1]	B	From Leg	0.50 0' 0'	0.0000	99'	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	3.00 3.74 4.48 5.96 8.92	0.90 1.12 1.34 1.78 2.66	0.02 0.03 0.03 0.04 0.06
62									
DB499-C	C	From Leg	2.00 0' -8'	-55.0000	62'	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	0.25 0.45 0.65 1.05 1.85	0.25 0.45 0.65 1.05 1.85	0.01 0.01 0.01 0.01 0.02
Side Arm Mount [SO 202-1]	C	From Leg	1.00 0' 0'	-55.0000	62'	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	2.96 4.10 5.24 7.52 12.08	2.53 3.51 4.49 6.45 10.37	0.11 0.13 0.16 0.20 0.30
2.4" Dia x 20-ft Pipe	C	From Leg	2.00 0' 0'	-55.0000	62'	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	4.76 6.79 8.83 12.97 21.01	4.76 6.79 8.83 12.97 21.01	0.04 0.08 0.12 0.26 0.69
25									
Side Arm Mount [SO 601-1]	C	From Leg	1.50 0' 0'	-35.0000	25'	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	1.22 1.85 2.48 3.74 6.26	6.30 8.61 10.92 15.54 24.78	0.16 0.20 0.23 0.31 0.46

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 ft^2	Weight K
322											
SPD3-5.8	A	Paraboloid w/Radome	From Leg	1.00 0' 0'	-15.0000		322'	3.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	7.07 7.47 7.86 8.66 10.25	0.04 0.07 0.11 0.19 0.34
209											
P-9A72GN-U	C	Grid	From Leg	1.00 0' 0'	5.0000		209'	6.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	28.27 29.07 29.86 31.44 34.60	0.11 0.26 0.41 0.71 1.31
186											
DB495-A	B	Conical Horn	From Leg	0.50 0' 0'	20.0000		186'	1.50	No Ice 1/2" Ice 1" Ice	1.77 1.97 2.17	0.01 0.02 0.03

Description	Face or Leg	Dish Type	Offset Type	Offsets: Horz Lateral Vert ft	Azimuth Adjustment °	3 dB Beam Width °	Elevation ft	Outside Diameter ft		Aperture Area ft^2	Weight K
									2" Ice	2.57	0.05
									4" Ice	3.38	0.09
175											
SPD4-5.2	C	Paraboloid w/Radome	From Leg	1.00 0' 0'	-35.0000		175'	4.21	No Ice	13.91	0.06
									1/2" Ice	14.47	0.07
									1" Ice	15.02	0.09
									2" Ice	16.14	0.12
									4" Ice	18.36	0.17
154											
HPX6-65-P3A	B	Paraboloid w/Shroud (HP)	From Leg	0.50 0' 0'	-32.0000		154'	6.46	No Ice	32.76	0.36
									1/2" Ice	33.61	0.53
									1" Ice	34.46	0.70
									2" Ice	36.16	1.05
									4" Ice	39.57	1.74
146											
PL6-65-PXA	B	Paraboloid w/Radome	From Leg	1.00 0' 0'	-5.0000		146'	6.36	No Ice	31.75	0.16
									1/2" Ice	32.59	0.17
									1" Ice	33.43	0.17
									2" Ice	35.10	0.19
									4" Ice	38.45	0.21
136											
CM 4228	B	Grid	From Leg	1.00 0' 1'	-50.0000		136'	3.55	No Ice	9.90	0.04
									1/2" Ice	10.37	0.09
									1" Ice	10.84	0.06
									2" Ice	11.78	0.06
									4" Ice	13.66	0.08
CM 4228	B	Grid	From Leg	1.00 0' -1'	-5.0000		136'	3.55	No Ice	9.90	0.04
									1/2" Ice	10.37	0.09
									1" Ice	10.84	0.06
									2" Ice	11.78	0.06
									4" Ice	13.66	0.08
117											
P-9A48GN-U	C	Grid	From Leg	1.00 0' 0'	-55.0000		117'	4.00	No Ice	12.57	0.11
									1/2" Ice	13.10	0.18
									1" Ice	13.62	0.25
									2" Ice	14.68	0.38
									4" Ice	16.80	0.65
106											
PR-950	C	Grid	From Leg	1.00 0' 0'	85.0000		106'	2.84	No Ice	6.35	0.04
									1/2" Ice	6.73	0.13
									1" Ice	7.11	0.22
									2" Ice	7.86	0.40
									4" Ice	9.37	0.76
99											
SPD2-5.8	B	Paraboloid w/Radome	From Leg	1.00 0' 0'	-25.0000		99'	2.00	No Ice	3.14	0.02
									1/2" Ice	3.41	0.04
									1" Ice	3.68	0.06
									2" Ice	4.21	0.09
									4" Ice	5.28	0.16
62											
P-9A48GN-U	C	Grid	From Leg	2.00 0' 6'	-75.0000		62'	4.00	No Ice	12.57	0.11
									1/2" Ice	13.10	0.18
									1" Ice	13.62	0.25
									2" Ice	14.68	0.38
									4" Ice	16.80	0.65
PR-950	C	Grid	From Leg	2.00 0' 0'	-35.0000		62'	4.66	No Ice	17.06	0.04
									1/2" Ice	17.67	0.17
									1" Ice	18.28	0.30
									2" Ice	19.50	0.57

Description	Face or Leg	Dish Type	Offset Type	Offsets: Horz Lateral Vert ft	Azimuth Adjustment °	3 dB Beam Width °	Elevation ft	Outside Diameter ft		Aperture Area ft^2	Weight K
									4" Ice	21.94	1.10

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 K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
T1	457 - 436	Leg	Max Tension	8	14.81	0.00	-0.34
			Max. Compression	10	-25.00	-0.21	0.16
			Max. Mx	5	-11.38	-1.01	-0.19

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Force K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. My	2	-12.93	-0.01	1.09
			Max. Vy	5	-0.40	-1.01	-0.19
			Max. Vx	2	0.44	-0.01	1.09
		Diagonal	Max Tension	7	2.61	0.00	0.00
			Max. Compression	9	-2.04	0.00	0.00
			Max. Mx	22	0.29	0.03	0.00
			Max. My	4	-0.14	-0.00	0.00
			Max. Vy	22	-0.02	0.03	0.00
			Max. Vx	4	0.00	0.00	0.00
		Horizontal	Max Tension	21	0.55	0.00	0.00
			Max. Compression	19	-1.17	0.00	0.00
			Max. Mx	20	0.43	-0.04	0.00
			Max. My	11	-0.37	0.00	-0.00
			Max. Vy	20	-0.03	0.00	0.00
			Max. Vx	11	0.00	0.00	0.00
		Top Girt	Max Tension	7	0.00	0.00	0.00
			Max. Compression	7	-0.00	0.00	0.00
			Max. Mx	20	0.00	0.12	0.00
			Max. My	11	0.00	0.00	0.00
			Max. Vy	20	0.08	0.00	0.00
			Max. Vx	11	-0.00	0.00	0.00
		Mid Girt	Max Tension	6	3.28	0.00	0.00
			Max. Compression	1	0.00	0.00	0.00
			Max. Mx	20	2.50	-0.04	0.00
			Max. My	11	2.21	0.00	-0.00
			Max. Vy	20	-0.03	0.00	0.00
			Max. Vx	11	0.00	0.00	0.00
		Guy A	Bottom Tension	7	13.20		
			Top Tension	7	13.51		
			Top Cable Vert	7	10.51		
			Top Cable Norm	7	8.48		
			Top Cable Tan	7	0.20		
			Bot Cable Vert	7	-9.66		
			Bot Cable Norm	7	8.98		
			Bot Cable Tan	7	0.30		
		Guy B	Bottom Tension	12	13.36		
			Top Tension	12	13.67		
			Top Cable Vert	12	10.69		
			Top Cable Norm	12	8.51		
			Top Cable Tan	12	0.00		
			Bot Cable Vert	12	-9.84		
			Bot Cable Norm	12	9.04		
			Bot Cable Tan	12	0.00		
		Guy C	Bottom Tension	5	13.05		
			Top Tension	5	13.36		
			Top Cable Vert	5	10.34		
			Top Cable Norm	5	8.46		
			Top Cable Tan	5	0.20		
			Bot Cable Vert	5	-9.49		
			Bot Cable Norm	5	8.95		
			Bot Cable Tan	5	0.30		
		Pole Antenna	Max Tension	11	0.00	0.00	0.00
			Max. Compression	15	-2.77	-0.00	10.94
			Max. Mx	5	-2.33	-53.53	-0.85
			Max. My	2	-2.33	-0.15	53.56
			Max. Vy	5	3.34	-53.53	-0.85
			Max. Vx	2	-3.34	-0.15	53.56
			Max. Torque	4			0.00
T2	436 - 421	Leg	Max Tension	8	19.22	0.01	-0.43
			Max. Compression	10	-35.20	0.31	-0.20
			Max. Mx	5	-10.50	-0.85	-0.11

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Force K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. My	13	-11.18	0.37	0.79
			Max. Vy	4	-0.26	-0.54	0.32
			Max. Vx	8	-0.30	-0.00	-0.63
		Diagonal	Max Tension	8	1.67	0.00	0.00
			Max. Compression	2	-2.19	0.00	0.00
			Max. Mx	10	0.93	0.02	0.00
			Max. My	2	-1.94	0.00	-0.00
			Max. Vy	16	-0.02	0.02	-0.00
			Max. Vx	6	0.00	0.00	0.00
		Horizontal	Max Tension	8	1.24	0.00	0.00
			Max. Compression	10	-0.38	0.00	0.00
			Max. Mx	14	0.78	-0.04	0.00
			Max. My	11	0.33	0.00	-0.00
			Max. Vy	14	0.03	0.00	0.00
			Max. Vx	11	0.00	0.00	0.00
		Top Girt	Max Tension	21	0.88	0.00	0.00
			Max. Compression	1	0.00	0.00	0.00
			Max. Mx	20	0.75	-0.04	0.00
			Max. My	11	0.38	0.00	-0.00
			Max. Vy	20	0.03	0.00	0.00
			Max. Vx	11	0.00	0.00	0.00
T3	421 - 401	Leg	Max Tension	8	62.32	0.01	1.83
			Max. Compression	10	-84.29	-1.55	0.88
			Max. Mx	11	25.39	2.45	0.54
			Max. My	8	35.28	-0.02	-2.79
			Max. Vy	11	2.08	2.10	-0.40
			Max. Vx	2	2.20	0.02	2.38
		Diagonal	Max Tension	13	6.83	0.00	0.00
			Max. Compression	13	-6.92	0.00	0.00
			Max. Mx	10	5.82	0.05	-0.00
			Max. My	9	-6.62	-0.01	0.01
			Max. Vy	21	-0.02	0.03	0.00
			Max. Vx	9	-0.00	-0.01	0.01
		Top Girt	Max Tension	15	0.58	0.00	0.00
			Max. Compression	12	-0.12	0.00	0.00
			Max. Mx	14	0.40	-0.04	0.00
			Max. My	11	0.19	0.00	-0.00
			Max. Vy	14	-0.03	0.00	0.00
			Max. Vx	11	0.00	0.00	0.00
		Mid Girt	Max Tension	8	0.61	0.00	0.00
			Max. Compression	10	-0.48	0.00	0.00
			Max. Mx	14	0.12	-0.04	0.00
			Max. My	11	0.07	0.00	-0.00
			Max. Vy	14	-0.03	0.00	0.00
			Max. Vx	11	0.00	0.00	0.00
T4	401 - 396	Leg	Max Tension	8	76.65	-0.03	-2.39
			Max. Compression	10	-99.59	-1.68	0.92
			Max. Mx	10	-99.42	2.19	-1.22
			Max. My	2	-98.24	0.04	2.52
			Max. Vy	10	0.81	2.19	-1.22
			Max. Vx	2	0.92	0.04	2.52
		Diagonal	Max Tension	13	7.00	0.00	0.00
			Max. Compression	13	-7.18	0.00	0.00
			Max. Mx	10	-6.39	-0.04	0.01
			Max. My	7	-7.10	-0.03	0.01
			Max. Vy	21	-0.02	0.02	-0.00
			Max. Vx	7	0.00	0.00	0.00
		Top Girt	Max Tension	8	0.46	0.00	0.00
			Max. Compression	10	-0.35	0.00	0.00
			Max. Mx	14	0.10	-0.04	0.00
			Max. My	5	0.08	0.00	-0.00

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Force K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Vy	14	-0.03	0.00	0.00
			Max. Vx	5	0.00	0.00	0.00
T5	396 - 391	Leg	Max Tension	8	91.46	-0.03	-2.60
			Max. Compression	10	-116.08	-1.68	0.94
			Max. Mx	11	72.36	2.27	0.54
			Max. My	2	-114.28	0.03	2.62
			Max. Vy	11	1.16	2.27	0.54
			Max. Vx	8	-1.31	-0.03	-2.60
		Diagonal	Max Tension	13	7.96	0.00	0.00
			Max. Compression	13	-8.00	0.00	0.00
			Max. Mx	10	6.79	0.05	-0.00
			Max. My	9	-7.65	-0.02	0.01
			Max. Vy	21	-0.02	0.03	0.00
			Max. Vx	9	-0.00	-0.02	0.01
T6	391 - 386	Leg	Max Tension	8	109.56	-0.04	-3.43
			Max. Compression	10	-134.35	-3.32	1.82
			Max. Mx	10	-134.35	-3.32	1.82
			Max. My	2	-132.81	-0.05	-3.80
			Max. Vy	10	1.53	0.46	-0.28
			Max. Vx	2	1.75	-0.01	0.53
		Diagonal	Max Tension	13	8.56	0.00	0.00
			Max. Compression	13	-9.95	0.00	0.00
			Max. Mx	7	3.76	0.06	-0.00
			Max. My	7	-9.85	-0.03	0.01
			Max. Vy	7	0.02	0.06	-0.00
			Max. Vx	7	0.00	0.00	0.00
		Secondary Horizontal	Max Tension	10	2.33	0.00	0.00
			Max. Compression	10	-2.33	0.00	0.00
			Max. Mx	14	0.31	-0.04	0.00
			Max. My	5	1.95	0.00	-0.00
			Max. Vy	14	0.02	0.00	0.00
			Max. Vx	5	0.00	0.00	0.00
		Top Girt	Max Tension	6	0.79	0.00	0.00
			Max. Compression	1	0.00	0.00	0.00
			Max. Mx	14	0.40	-0.04	0.00
			Max. My	5	0.49	0.00	-0.00
			Max. Vy	14	-0.03	0.00	0.00
			Max. Vx	5	0.00	0.00	0.00
T7	386 - 381	Leg	Max Tension	8	125.83	-0.02	-1.61
			Max. Compression	10	-155.07	-0.52	0.33
			Max. Mx	11	-131.80	1.85	-0.24
			Max. My	2	-153.41	0.03	2.06
			Max. Vy	10	0.58	0.88	-0.45
			Max. Vx	2	0.66	0.03	0.98
		Diagonal	Max Tension	13	9.58	0.00	0.00
			Max. Compression	13	-8.27	0.00	0.00
			Max. Mx	7	-2.88	-0.06	0.01
			Max. My	9	-7.92	-0.04	0.02
			Max. Vy	7	0.02	0.00	0.00
			Max. Vx	9	-0.00	-0.04	0.02
		Secondary Horizontal	Max Tension	10	2.69	0.00	0.00
			Max. Compression	10	-2.69	0.00	0.00
			Max. Mx	14	0.34	-0.04	0.00
			Max. My	5	2.25	0.00	-0.00
			Max. Vy	14	0.02	0.00	0.00
			Max. Vx	5	0.00	0.00	0.00
T8	381 - 376	Leg	Max Tension	8	73.98	-0.01	-0.31
			Max. Compression	10	-158.47	1.99	-0.94
			Max. Mx	5	-134.03	-2.32	-0.36

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Force K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. My	2	-156.76	-0.02	2.14
			Max. Vy	5	0.61	-2.32	-0.36
			Max. Vx	2	-0.52	-0.02	2.14
		Diagonal	Max Tension	5	10.02	0.00	0.00
			Max. Compression	5	-8.54	0.00	0.00
			Max. Mx	11	-8.50	0.05	0.01
			Max. My	6	-7.13	0.00	0.01
			Max. Vy	21	-0.02	0.03	-0.00
			Max. Vx	6	0.00	0.00	0.00
		Guy A	Bottom Tension	7	73.28		
			Top Tension	7	74.86		
			Top Cable Vert	7	53.78		
			Top Cable Norm	7	52.07		
			Top Cable Tan	7	0.28		
			Bot Cable Vert	7	-50.64		
			Bot Cable Norm	7	52.97		
			Bot Cable Tan	7	0.75		
		Guy B	Bottom Tension	12	74.18		
			Top Tension	12	75.74		
			Top Cable Vert	12	54.66		
			Top Cable Norm	12	52.43		
			Top Cable Tan	12	0.01		
			Bot Cable Vert	12	-51.55		
			Bot Cable Norm	12	53.35		
			Bot Cable Tan	12	0.01		
		Guy C	Bottom Tension	5	72.56		
			Top Tension	5	74.14		
			Top Cable Vert	5	52.94		
			Top Cable Norm	5	51.92		
			Top Cable Tan	5	0.28		
			Bot Cable Vert	5	-49.77		
			Bot Cable Norm	5	52.80		
			Bot Cable Tan	5	0.76		
		Top Guy Pull-Off	Max Tension	6	24.10	0.00	0.00
			Max. Compression	1	0.00	0.00	0.00
			Max. Mx	14	9.90	0.07	0.00
			Max. My	5	14.80	0.00	0.00
			Max. Vy	14	-0.05	0.00	0.00
			Max. Vx	5	-0.00	0.00	0.00
T9	376 - 371	Leg	Max Tension	8	59.28	0.08	2.67
			Max. Compression	10	-140.81	2.40	-1.41
			Max. Mx	6	-133.88	2.99	1.64
			Max. My	2	-139.17	-0.07	-3.01
			Max. Vy	6	1.13	-2.51	-1.68
			Max. Vx	2	-1.19	0.18	2.77
		Diagonal	Max Tension	5	8.61	0.00	0.00
			Max. Compression	5	-10.01	0.00	0.00
			Max. Mx	11	-3.83	0.05	-0.00
			Max. My	5	-10.00	0.01	0.01
			Max. Vy	21	-0.02	0.04	0.00
			Max. Vx	5	0.00	0.00	0.00
T10	371 - 366	Leg	Max Tension	8	42.69	0.11	2.02
			Max. Compression	10	-126.62	1.48	-0.93
			Max. Mx	11	16.01	-1.82	-0.59
			Max. My	8	42.67	-0.21	-2.07
			Max. Vy	12	2.07	-1.00	-0.28
			Max. Vx	6	-2.34	1.46	0.07
		Diagonal	Max Tension	7	8.57	0.00	0.00
			Max. Compression	7	-8.60	0.00	0.00
			Max. Mx	10	4.94	-0.04	0.00
			Max. My	6	-4.21	0.02	-0.01

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Force K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Vy	21	-0.02	0.00	0.00
			Max. Vx	12	-0.00	0.02	0.01
		Top Girt	Max Tension	6	1.30	0.00	0.00
			Max. Compression	12	-0.11	0.00	0.00
			Max. Mx	14	0.48	-0.04	0.00
			Max. My	5	0.43	0.00	-0.00
			Max. Vy	14	0.03	0.00	0.00
			Max. Vx	5	0.00	0.00	0.00
T11	366 - 361	Leg	Max Tension	8	29.30	-0.32	-2.26
			Max. Compression	10	-113.96	1.96	-1.27
			Max. Mx	10	-113.96	1.96	-1.27
			Max. My	2	-111.59	0.31	2.38
			Max. Vy	10	-0.77	1.96	-1.27
			Max. Vx	2	-0.93	0.31	2.38
		Diagonal	Max Tension	7	8.13	0.00	0.00
			Max. Compression	7	-8.29	0.00	0.00
			Max. Mx	10	-4.91	0.05	0.00
			Max. My	7	-8.27	0.04	-0.02
			Max. Vy	20	-0.02	0.04	-0.00
			Max. Vx	7	0.00	0.04	-0.02
T12	361 - 341	Leg	Max Tension	8	16.28	-0.02	0.01
			Max. Compression	10	-101.62	0.87	-0.67
			Max. Mx	10	-90.18	-1.94	1.21
			Max. My	2	-87.18	-0.29	-2.30
			Max. Vy	10	-0.94	0.38	-0.19
			Max. Vx	2	-1.10	0.00	0.41
		Diagonal	Max Tension	7	7.61	0.00	0.00
			Max. Compression	7	-7.89	0.00	0.00
			Max. Mx	10	-4.44	0.05	0.00
			Max. My	7	-7.66	0.04	-0.02
			Max. Vy	19	-0.02	0.05	-0.00
			Max. Vx	7	0.00	0.04	-0.02
		Secondary Horizontal	Max Tension	10	1.76	0.00	0.00
			Max. Compression	10	-1.76	0.00	0.00
			Max. Mx	14	0.77	-0.04	0.00
			Max. My	5	1.43	0.00	-0.00
			Max. Vy	14	-0.02	0.00	0.00
			Max. Vx	5	0.00	0.00	0.00
		Top Girt	Max Tension	8	0.47	0.00	0.00
			Max. Compression	2	-0.05	0.00	0.00
			Max. Mx	14	0.22	-0.04	0.00
			Max. My	5	0.19	0.00	-0.00
			Max. Vy	14	0.03	0.00	0.00
			Max. Vx	5	0.00	0.00	0.00
		Mid Girt	Max Tension	8	0.28	0.00	0.00
			Max. Compression	1	0.00	0.00	0.00
			Max. Mx	14	0.15	-0.04	0.00
			Max. My	10	0.20	0.00	0.00
			Max. Vy	14	0.03	0.00	0.00
			Max. Vx	10	-0.00	0.00	0.00
T13	341 - 321	Leg	Max Tension	1	0.00	0.00	0.00
			Max. Compression	19	-64.64	0.17	-0.14
			Max. Mx	5	-56.45	1.54	-0.15
			Max. My	7	-42.71	-0.60	-1.64
			Max. Vy	12	-1.30	1.15	0.29
			Max. Vx	13	-1.24	0.37	1.34
		Diagonal	Max Tension	7	6.15	0.00	0.00
			Max. Compression	7	-6.21	0.00	0.00
			Max. Mx	19	0.21	0.06	-0.00
			Max. My	7	-5.96	0.03	-0.02

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Force K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Vy	19	-0.03	0.06	-0.00
			Max. Vx	7	0.00	0.03	-0.02
		Top Girt	Max Tension	19	0.34	0.00	0.00
			Max. Compression	1	0.00	0.00	0.00
			Max. Mx	14	0.19	-0.04	0.00
			Max. My	10	0.18	0.00	-0.00
			Max. Vy	14	0.03	0.00	0.00
			Max. Vx	10	0.00	0.00	0.00
		Mid Girt	Max Tension	6	0.35	0.00	0.00
			Max. Compression	12	-0.01	0.00	0.00
			Max. Mx	14	0.17	-0.04	0.00
			Max. My	10	0.11	0.00	-0.00
			Max. Vy	14	0.03	0.00	0.00
			Max. Vx	10	0.00	0.00	0.00
T14	321 - 301	Leg	Max Tension	1	0.00	0.00	0.00
			Max. Compression	19	-67.18	-0.05	0.18
			Max. Mx	12	-46.24	0.97	0.32
			Max. My	8	-43.11	0.10	-0.86
			Max. Vy	5	-0.96	-0.81	-0.10
			Max. Vx	2	0.96	-0.08	0.79
		Diagonal	Max Tension	12	2.96	0.00	0.00
			Max. Compression	6	-3.09	0.00	0.00
			Max. Mx	19	0.19	0.06	-0.00
			Max. My	12	-2.91	0.04	0.01
			Max. Vy	19	-0.03	0.06	-0.00
			Max. Vx	12	-0.00	0.04	0.01
		Top Girt	Max Tension	15	0.33	0.00	0.00
			Max. Compression	1	0.00	0.00	0.00
			Max. Mx	14	0.20	-0.04	0.00
			Max. My	10	0.18	0.00	-0.00
			Max. Vy	14	0.03	0.00	0.00
			Max. Vx	10	0.00	0.00	0.00
		Mid Girt	Max Tension	6	0.59	0.00	0.00
			Max. Compression	8	-0.21	0.00	0.00
			Max. Mx	14	0.20	-0.04	0.00
			Max. My	10	-0.00	0.00	-0.00
			Max. Vy	14	0.03	0.00	0.00
			Max. Vx	10	0.00	0.00	0.00
T15	301 - 281	Leg	Max Tension	1	0.00	0.00	0.00
			Max. Compression	10	-79.53	-0.72	0.30
			Max. Mx	12	-23.33	1.38	0.42
			Max. My	8	-23.40	0.19	-1.23
			Max. Vy	12	0.72	1.38	0.42
			Max. Vx	8	-0.59	0.19	-1.23
		Diagonal	Max Tension	11	4.59	0.00	0.00
			Max. Compression	6	-4.78	0.00	0.00
			Max. Mx	19	0.18	0.06	-0.00
			Max. My	7	-2.72	0.03	-0.01
			Max. Vy	19	-0.03	0.06	-0.00
			Max. Vx	12	-0.00	0.03	0.01
		Top Girt	Max Tension	19	0.28	0.00	0.00
			Max. Compression	1	0.00	0.00	0.00
			Max. Mx	14	0.20	-0.03	0.00
			Max. My	10	0.20	0.00	-0.00
			Max. Vy	14	0.02	0.00	0.00
			Max. Vx	10	0.00	0.00	0.00
		Mid Girt	Max Tension	15	0.26	0.00	0.00
			Max. Compression	1	0.00	0.00	0.00
			Max. Mx	14	0.20	-0.03	0.00
			Max. My	10	0.20	0.00	-0.00
			Max. Vy	14	0.02	0.00	0.00

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Force K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Vx	10	0.00	0.00	0.00
T16	281 - 261	Leg	Max Tension	12	15.65	1.82	0.65
			Max. Compression	6	-120.98	1.50	0.48
			Max. Mx	6	-107.86	-1.87	-0.70
			Max. My	2	-103.06	-0.01	1.88
			Max. Vy	12	1.04	1.82	0.65
			Max. Vx	8	-0.93	0.02	-1.74
		Diagonal	Max Tension	11	7.45	0.00	0.00
			Max. Compression	5	-7.47	0.00	0.00
			Max. Mx	10	3.31	0.07	0.01
			Max. My	11	-6.51	-0.01	0.01
			Max. Vy	25	-0.03	0.06	0.00
			Max. Vx	11	-0.00	-0.01	0.01
		Top Girt	Max Tension	19	0.29	0.00	0.00
			Max. Compression	1	0.00	0.00	0.00
			Max. Mx	14	0.22	-0.04	0.00
			Max. My	10	0.23	0.00	-0.00
			Max. Vy	14	-0.03	0.00	0.00
			Max. Vx	10	0.00	0.00	0.00
		Mid Girt	Max Tension	13	0.34	0.00	0.00
			Max. Compression	1	0.00	0.00	0.00
			Max. Mx	14	0.23	-0.04	0.00
			Max. My	10	0.25	0.00	-0.00
			Max. Vy	14	-0.03	0.00	0.00
			Max. Vx	10	0.00	0.00	0.00
T17	261 - 241	Leg	Max Tension	12	41.14	1.68	0.67
			Max. Compression	6	-151.94	-1.31	-0.97
			Max. Mx	6	-134.32	3.02	1.88
			Max. My	2	-125.87	0.06	-3.43
			Max. Vy	6	-1.49	-0.43	-0.16
			Max. Vx	2	-1.66	-0.01	0.70
		Diagonal	Max Tension	9	9.56	0.00	0.00
			Max. Compression	10	-9.40	0.08	-0.00
			Max. Mx	10	-8.94	0.18	0.03
			Max. My	11	-8.70	-0.03	0.04
			Max. Vy	25	-0.06	0.15	0.00
			Max. Vx	11	-0.01	-0.03	0.04
		Secondary Horizontal	Max Tension	6	2.63	0.00	0.00
			Max. Compression	6	-2.63	0.00	0.00
			Max. Mx	14	1.32	0.12	0.00
			Max. My	10	2.53	0.00	0.00
			Max. Vy	14	-0.08	0.00	0.00
			Max. Vx	10	-0.00	0.00	0.00
		Top Girt	Max Tension	6	0.67	0.00	0.00
			Max. Compression	1	0.00	0.00	0.00
			Max. Mx	14	0.45	-0.03	0.00
			Max. My	10	0.45	0.00	-0.00
			Max. Vy	14	-0.02	0.00	0.00
			Max. Vx	10	0.00	0.00	0.00
		Guy A	Bottom Tension	7	55.14		
			Top Tension	7	56.02		
			Top Cable Vert	7	32.06		
			Top Cable Norm	7	45.94		
			Top Cable Tan	7	0.18		
			Bot Cable Vert	7	-29.98		
			Bot Cable Norm	7	46.27		
			Bot Cable Tan	7	0.45		
		Guy B	Bottom Tension	11	56.15		
			Top Tension	11	57.01		
			Top Cable Vert	11	32.63		

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Force K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Top Cable Norm	11	46.75		
			Top Cable Tan	11	0.17		
			Bot Cable Vert	11	-30.60		
			Bot Cable Norm	11	47.08		
			Bot Cable Tan	11	0.44		
		Guy C	Bottom Tension	5	55.30		
			Top Tension	5	56.19		
			Top Cable Vert	5	31.89		
			Top Cable Norm	5	46.26		
			Top Cable Tan	5	0.17		
			Bot Cable Vert	5	-29.78		
			Bot Cable Norm	5	46.60		
			Bot Cable Tan	5	0.45		
		Top Guy Pull-Off	Max Tension	6	21.92	0.00	0.00
			Max. Compression	1	0.00	0.00	0.00
			Max. Mx	14	10.50	0.12	0.00
			Max. My	10	12.47	0.00	0.00
			Max. Vy	14	-0.08	0.00	0.00
			Max. Vx	10	-0.00	0.00	0.00
T18	241 - 221	Leg	Max Tension	1	0.00	0.00	0.00
			Max. Compression	6	-119.91	-1.58	-1.10
			Max. Mx	10	-98.07	2.37	-1.62
			Max. My	2	-97.08	-0.04	2.72
			Max. Vy	10	-0.91	2.37	-1.62
			Max. Vx	2	-1.05	-0.04	2.72
		Diagonal	Max Tension	9	8.19	0.00	0.00
			Max. Compression	9	-8.22	0.04	0.00
			Max. Mx	15	-0.20	0.17	-0.00
			Max. My	4	-7.41	0.12	-0.02
			Max. Vy	15	-0.06	0.17	-0.00
			Max. Vx	4	0.01	0.12	-0.02
		Top Girt	Max Tension	6	0.73	0.00	0.00
			Max. Compression	1	0.00	0.00	0.00
			Max. Mx	14	0.56	-0.03	0.00
			Max. My	10	0.59	0.00	-0.00
			Max. Vy	14	0.02	0.00	0.00
			Max. Vx	10	0.00	0.00	0.00
		Mid Girt	Max Tension	10	0.85	0.00	0.00
			Max. Compression	4	-0.17	0.00	0.00
			Max. Mx	14	0.36	-0.03	0.00
			Max. My	3	-0.09	0.00	-0.00
			Max. Vy	14	0.02	0.00	0.00
			Max. Vx	3	0.00	0.00	0.00
T19	221 - 201	Leg	Max Tension	1	0.00	0.00	0.00
			Max. Compression	17	-105.66	0.15	0.01
			Max. Mx	12	-75.12	-1.42	-0.95
			Max. My	8	-77.04	-0.07	1.66
			Max. Vy	12	-0.55	1.29	0.91
			Max. Vx	8	0.66	-0.00	-1.52
		Diagonal	Max Tension	9	4.96	0.00	0.00
			Max. Compression	9	-5.11	0.00	0.00
			Max. Mx	16	-0.01	0.07	-0.00
			Max. My	10	-4.29	0.00	0.01
			Max. Vy	16	-0.03	0.07	-0.00
			Max. Vx	10	-0.00	0.00	0.01
		Top Girt	Max Tension	23	0.49	0.00	0.00
			Max. Compression	1	0.00	0.00	0.00
			Max. Mx	14	0.37	-0.03	0.00
			Max. My	3	0.21	0.00	-0.00
			Max. Vy	14	-0.02	0.00	0.00
			Max. Vx	3	0.00	0.00	0.00

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Force K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
		Mid Girt	Max Tension	10	0.51	0.00	0.00
			Max. Compression	1	0.00	0.00	0.00
			Max. Mx	14	0.35	-0.03	0.00
			Max. My	3	0.13	0.00	-0.00
			Max. Vy	14	-0.02	0.00	0.00
			Max. Vx	3	0.00	0.00	0.00
T20	201 - 181	Leg	Max Tension	1	0.00	0.00	0.00
			Max. Compression	5	-119.44	0.27	-0.00
			Max. Mx	12	-103.03	-0.86	-0.66
			Max. My	8	-103.19	-0.10	1.04
			Max. Vy	12	-0.34	0.76	0.63
			Max. Vx	8	0.42	0.07	-0.94
		Diagonal	Max Tension	10	3.13	0.00	0.00
			Max. Compression	10	-3.42	0.00	0.00
			Max. Mx	22	-0.31	0.07	0.00
			Max. My	10	-3.41	-0.00	0.01
			Max. Vy	22	-0.03	0.07	0.00
			Max. Vx	10	-0.00	-0.00	0.01
		Top Girt	Max Tension	23	0.47	0.00	0.00
			Max. Compression	1	0.00	0.00	0.00
			Max. Mx	14	0.35	-0.03	0.00
			Max. My	10	0.24	0.00	0.00
			Max. Vy	14	0.02	0.00	0.00
			Max. Vx	10	-0.00	0.00	0.00
		Mid Girt	Max Tension	10	0.48	0.00	0.00
			Max. Compression	1	0.00	0.00	0.00
			Max. Mx	14	0.34	-0.03	0.00
			Max. My	10	0.21	0.00	0.00
			Max. Vy	14	0.02	0.00	0.00
			Max. Vx	10	-0.00	0.00	0.00
T21	181 - 161	Leg	Max Tension	1	0.00	0.00	0.00
			Max. Compression	5	-122.28	-0.04	0.40
			Max. Mx	4	-120.01	0.71	-0.15
			Max. My	9	-117.79	0.20	0.66
			Max. Vy	4	-0.28	-0.42	-0.04
			Max. Vx	9	-0.26	-0.30	-0.55
		Diagonal	Max Tension	4	1.89	0.00	0.00
			Max. Compression	10	-2.09	0.00	0.00
			Max. Mx	22	-0.42	0.07	0.00
			Max. My	4	-1.76	-0.00	-0.01
			Max. Vy	22	-0.03	0.07	0.00
			Max. Vx	4	0.00	-0.00	-0.01
		Top Girt	Max Tension	10	0.60	0.00	0.00
			Max. Compression	1	0.00	0.00	0.00
			Max. Mx	14	0.43	0.07	0.00
			Max. My	10	0.26	0.00	-0.00
			Max. Vy	14	-0.05	0.00	0.00
			Max. Vx	10	0.00	0.00	0.00
		Mid Girt	Max Tension	10	0.51	0.00	0.00
			Max. Compression	1	0.00	0.00	0.00
			Max. Mx	14	0.36	-0.03	0.00
			Max. My	10	0.21	0.00	0.00
			Max. Vy	14	-0.02	0.00	0.00
			Max. Vx	10	-0.00	0.00	0.00
T22	161 - 141	Leg	Max Tension	1	0.00	0.00	0.00
			Max. Compression	5	-120.28	-0.04	0.29
			Max. Mx	10	-46.50	-1.39	0.27
			Max. My	2	-51.11	-0.25	-1.29
			Max. Vy	11	0.88	1.18	0.33
			Max. Vx	2	0.71	0.62	0.64
		Diagonal	Max Tension	10	4.88	0.00	0.00

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Force K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Compression	10	-5.10	0.00	0.00
			Max. Mx	22	-0.89	0.15	0.01
			Max. My	10	-5.05	0.11	0.03
			Max. Vy	22	-0.06	0.15	0.01
			Max. Vx	10	-0.01	0.11	0.03
		Top Girt	Max Tension	23	0.54	0.00	0.00
			Max. Compression	1	0.00	0.00	0.00
			Max. Mx	14	0.42	-0.03	0.00
			Max. My	10	0.30	0.00	0.00
			Max. Vy	14	0.02	0.00	0.00
			Max. Vx	10	-0.00	0.00	0.00
		Mid Girt	Max Tension	23	0.58	0.00	0.00
			Max. Compression	1	0.00	0.00	0.00
			Max. Mx	14	0.50	-0.03	0.00
			Max. My	3	0.44	0.00	0.00
			Max. Vy	14	0.02	0.00	0.00
			Max. Vx	3	-0.00	0.00	0.00
T23	141 - 121	Leg	Max Tension	1	0.00	0.00	0.00
			Max. Compression	21	-113.90	0.00	0.22
			Max. Mx	10	-60.26	-1.81	0.44
			Max. My	2	-64.19	-0.31	-1.76
			Max. Vy	11	0.69	1.47	0.04
			Max. Vx	8	0.78	0.02	-1.53
		Diagonal	Max Tension	10	6.61	0.00	0.00
			Max. Compression	10	-6.54	0.00	0.00
			Max. Mx	10	-0.04	0.18	0.00
			Max. My	4	-6.28	0.13	-0.06
			Max. Vy	23	-0.06	0.17	0.00
			Max. Vx	4	0.02	0.13	-0.06
		Top Girt	Max Tension	12	1.25	0.00	0.00
			Max. Compression	6	-0.21	0.00	0.00
			Max. Mx	14	0.59	-0.03	0.00
			Max. My	3	0.50	0.00	0.00
			Max. Vy	14	-0.02	0.00	0.00
			Max. Vx	3	-0.00	0.00	0.00
		Mid Girt	Max Tension	12	8.34	0.00	0.00
			Max. Compression	10	-5.78	0.00	0.00
			Max. Mx	14	1.18	-0.03	0.00
			Max. My	3	0.83	0.00	0.00
			Max. Vy	14	-0.02	0.00	0.00
			Max. Vx	3	-0.00	0.00	0.00
		Guy A	Bottom Tension	8	16.65		
			Top Tension	8	16.80		
			Top Cable Vert	8	6.16		
			Top Cable Norm	8	15.63		
			Top Cable Tan	8	0.00		
			Bot Cable Vert	8	-5.66		
			Bot Cable Norm	8	15.66		
			Bot Cable Tan	8	0.00		
		Guy B	Bottom Tension	12	16.76		
			Top Tension	12	16.90		
			Top Cable Vert	12	5.75		
			Top Cable Norm	12	15.89		
			Top Cable Tan	12	0.00		
			Bot Cable Vert	12	-5.26		
			Bot Cable Norm	12	15.91		
			Bot Cable Tan	12	0.00		
		Guy C	Bottom Tension	4	16.79		
			Top Tension	4	16.93		
			Top Cable Vert	4	5.83		
			Top Cable Norm	4	15.90		

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Force K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Top Cable Tan	4	0.00		
			Bot Cable Vert	4	-5.31		
			Bot Cable Norm	4	15.92		
			Bot Cable Tan	4	0.00		
		Torque Arm Top	Max Tension	4	15.10	0.00	0.00
			Max. Compression	11	-0.63	0.00	0.00
			Max. Mx	19	9.93	0.11	0.00
			Max. My	10	11.42	0.00	0.00
			Max. Vy	19	-0.06	0.00	0.00
			Max. Vx	10	-0.00	0.00	0.00
		Torque Arm Bottom	Max Tension	6	8.90	0.00	0.00
			Max. Compression	5	-17.14	0.00	0.00
			Max. Mx	19	-9.55	0.18	0.00
			Max. My	10	8.82	0.00	0.00
			Max. Vy	19	0.06	0.00	0.00
			Max. Vx	10	-0.00	0.00	0.00
T24	121 - 101	Leg	Max Tension	1	0.00	0.00	0.00
			Max. Compression	5	-149.28	-0.11	-0.20
			Max. Mx	5	-57.58	1.64	0.35
			Max. My	8	-125.54	-0.01	-1.74
			Max. Vy	4	0.76	-1.28	0.57
			Max. Vx	8	0.77	-0.13	-1.44
		Diagonal	Max Tension	5	4.31	0.00	0.00
			Max. Compression	5	-4.50	0.00	0.00
			Max. Mx	22	0.42	0.08	0.00
			Max. My	5	-4.44	-0.05	0.01
			Max. Vy	22	-0.03	0.08	0.00
			Max. Vx	5	0.00	0.00	0.00
		Top Girt	Max Tension	12	4.26	0.00	0.00
			Max. Compression	6	-4.74	0.00	0.00
			Max. Mx	14	0.34	-0.03	0.00
			Max. My	3	0.52	0.00	0.00
			Max. Vy	14	-0.02	0.00	0.00
			Max. Vx	3	-0.00	0.00	0.00
		Mid Girt	Max Tension	26	0.51	0.00	0.00
			Max. Compression	1	0.00	0.00	0.00
			Max. Mx	14	0.49	-0.03	0.00
			Max. My	3	0.43	0.00	0.00
			Max. Vy	14	-0.02	0.00	0.00
			Max. Vx	3	-0.00	0.00	0.00
T25	101 - 81	Leg	Max Tension	1	0.00	0.00	0.00
			Max. Compression	12	-164.17	-0.33	-0.22
			Max. Mx	12	-153.81	-1.04	-0.59
			Max. My	8	-153.13	-0.03	1.23
			Max. Vy	12	-0.43	0.89	0.51
			Max. Vx	8	0.49	0.01	-1.03
		Diagonal	Max Tension	9	2.10	0.00	0.00
			Max. Compression	9	-2.38	0.00	0.00
			Max. Mx	22	-0.02	0.08	0.00
			Max. My	9	-1.64	-0.01	0.00
			Max. Vy	22	-0.03	0.08	0.00
			Max. Vx	9	-0.00	-0.01	0.00
		Top Girt	Max Tension	10	0.66	0.00	0.00
			Max. Compression	1	0.00	0.00	0.00
			Max. Mx	14	0.50	-0.03	0.00
			Max. My	3	0.42	0.00	0.00
			Max. Vy	14	0.02	0.00	0.00
			Max. Vx	3	-0.00	0.00	0.00
		Mid Girt	Max Tension	10	0.74	0.00	0.00
			Max. Compression	1	0.00	0.00	0.00
			Max. Mx	14	0.51	-0.03	0.00

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Force K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. My	3	0.42	0.00	0.00
			Max. Vy	14	0.02	0.00	0.00
			Max. Vx	3	-0.00	0.00	0.00
T26	81 - 61	Leg	Max Tension	1	0.00	0.00	0.00
			Max. Compression	12	-167.35	0.34	0.14
			Max. Mx	3	-163.79	0.77	-0.31
			Max. My	21	-157.27	0.02	0.83
			Max. Vy	2	-0.34	0.71	-0.22
			Max. Vx	7	0.39	0.30	-0.36
		Diagonal	Max Tension	2	0.71	0.00	0.00
			Max. Compression	2	-1.03	0.00	0.00
			Max. Mx	22	-0.39	0.08	0.00
			Max. My	9	-0.11	0.02	0.00
			Max. Vy	22	-0.03	0.08	0.00
			Max. Vx	9	-0.00	0.02	0.00
		Top Girt	Max Tension	10	0.77	0.00	0.00
			Max. Compression	1	0.00	0.00	0.00
			Max. Mx	14	0.52	-0.03	0.00
			Max. My	3	0.42	0.00	0.00
			Max. Vy	14	-0.02	0.00	0.00
			Max. Vx	3	-0.00	0.00	0.00
		Mid Girt	Max Tension	10	0.78	0.00	0.00
			Max. Compression	1	0.00	0.00	0.00
			Max. Mx	14	0.52	-0.03	0.00
			Max. My	3	0.42	0.00	0.00
			Max. Vy	14	-0.02	0.00	0.00
			Max. Vx	3	-0.00	0.00	0.00
T27	61 - 41	Leg	Max Tension	1	0.00	0.00	0.00
			Max. Compression	12	-165.29	0.03	0.07
			Max. Mx	4	-155.37	1.16	-0.64
			Max. My	8	-155.32	0.00	1.30
			Max. Vy	4	-0.44	-0.96	0.52
			Max. Vx	8	-0.49	-0.01	-1.07
		Diagonal	Max Tension	11	2.10	0.00	0.00
			Max. Compression	11	-2.40	0.00	0.00
			Max. Mx	22	-0.56	0.08	0.00
			Max. My	4	-2.15	0.06	-0.00
			Max. Vy	22	-0.03	0.08	0.00
			Max. Vx	4	0.00	0.06	-0.00
		Top Girt	Max Tension	10	0.81	0.00	0.00
			Max. Compression	4	-0.00	0.00	0.00
			Max. Mx	14	0.53	-0.03	0.00
			Max. My	3	0.42	0.00	0.00
			Max. Vy	14	0.02	0.00	0.00
			Max. Vx	3	-0.00	0.00	0.00
		Mid Girt	Max Tension	10	0.76	0.00	0.00
			Max. Compression	1	0.00	0.00	0.00
			Max. Mx	14	0.54	-0.03	0.00
			Max. My	3	0.43	0.00	0.00
			Max. Vy	14	0.02	0.00	0.00
			Max. Vx	3	-0.00	0.00	0.00
T28	41 - 20	Leg	Max Tension	1	0.00	0.00	0.00
			Max. Compression	5	-152.19	0.25	0.14
			Max. Mx	10	-57.69	-1.35	0.82
			Max. My	2	-57.30	0.03	-1.58
			Max. Vy	4	-0.47	-1.10	0.60
			Max. Vx	2	0.54	0.01	1.20
		Diagonal	Max Tension	11	4.45	0.00	0.00
			Max. Compression	11	-4.19	0.00	0.00
			Max. Mx	22	-0.80	0.08	0.00
			Max. My	4	-2.67	0.06	-0.00

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Force K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Vy	22	-0.03	0.08	0.00
			Max. Vx	4	0.00	0.06	-0.00
		Top Girt	Max Tension	10	0.76	0.00	0.00
			Max. Compression	1	0.00	0.00	0.00
			Max. Mx	14	0.59	-0.03	0.00
			Max. My	3	0.47	0.00	0.00
			Max. Vy	14	-0.02	0.00	0.00
			Max. Vx	3	-0.00	0.00	0.00
		Mid Girt	Max Tension	23	1.33	0.00	0.00
			Max. Compression	1	0.00	0.00	0.00
			Max. Mx	14	1.16	-0.03	0.00
			Max. My	3	0.95	0.00	0.00
			Max. Vy	14	-0.02	0.00	0.00
			Max. Vx	3	-0.00	0.00	0.00
T29	20 - 6.70833	Leg	Max Tension	1	0.00	0.00	0.00
			Max. Compression	25	-148.34	1.07	0.08
			Max. Mx	6	-81.92	2.74	-0.17
			Max. My	3	-105.28	1.12	-1.38
			Max. Vy	6	-0.95	-1.38	0.05
			Max. Vx	3	0.36	-0.89	0.18
		Diagonal	Max Tension	10	3.97	0.00	0.00
			Max. Compression	10	-1.56	0.04	-0.00
			Max. Mx	24	3.14	-0.15	0.00
			Max. My	4	-1.35	-0.01	0.01
			Max. Vy	24	-0.08	0.00	0.00
			Max. Vx	3	0.00	0.00	0.00
		Top Girt	Max Tension	23	10.25	0.00	0.00
			Max. Compression	1	0.00	0.00	0.00
			Max. Mx	17	8.69	-0.03	0.00
			Max. My	23	9.15	0.00	-0.00
			Max. Vy	17	0.02	0.00	0.00
			Max. Vx	23	0.00	0.00	0.00
T30	6.70833 - 0	Leg	Max Tension	1	0.00	0.00	0.00
			Max. Compression	25	-152.11	-2.50	-0.00
			Max. Mx	6	-85.30	2.90	-0.13
			Max. My	4	-83.84	-1.27	2.45
			Max. Vy	23	2.27	-2.53	-0.00
			Max. Vx	4	-1.36	-1.27	2.45
		Diagonal	Max Tension	24	4.68	0.00	0.00
			Max. Compression	4	-5.06	0.02	-0.04
			Max. Mx	25	-3.45	-0.28	0.00
			Max. My	4	-5.06	0.02	-0.04
			Max. Vy	25	-0.32	0.00	0.00
			Max. Vx	4	-0.05	-0.19	-0.04

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Mast	Max. Vert	23	386.47	2.16	-1.16
	Max. H_x	11	314.40	5.46	0.64
	Max. H_z	2	325.66	-0.00	5.28
	Max. M_x	1	0.00	-0.00	0.09
	Max. M_z	1	0.00	-0.00	0.09
	Max. Torsion	9	1.54	2.34	-4.95
	Min. Vert	1	232.65	-0.00	0.09

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
	Min. H_x	5	315.11	-5.32	0.78
	Min. H_z	8	290.72	0.18	-6.06
	Min. M_x	1	0.00	-0.00	0.09
	Min. M_z	1	0.00	-0.00	0.09
	Min. Torsion	4	-1.82	-5.29	3.30
Guy C @ 424.5 ft Elev -16.5 ft Azimuth 240 deg	Max. Vert	10	-0.58	-2.29	1.32
	Max. H_x	10	-0.58	-2.29	1.32
	Max. H_z	4	-10.14	-26.40	15.21
	Min. Vert	4	-10.14	-26.40	15.21
	Min. H_x	4	-10.14	-26.40	15.21
	Min. H_z	10	-0.58	-2.29	1.32
Guy B @ 407.5 ft Elev -9 ft Azimuth 120 deg	Max. Vert	6	-0.53	2.14	1.24
	Max. H_x	12	-10.29	27.00	15.57
	Max. H_z	12	-10.29	27.00	15.57
	Min. Vert	12	-10.29	27.00	15.57
	Min. H_x	6	-0.53	2.14	1.24
	Min. H_z	6	-0.53	2.14	1.24
Guy A @ 403 ft Elev -20 ft Azimuth 0 deg	Max. Vert	2	-0.59	0.00	-2.40
	Max. H_x	11	-6.09	0.74	-17.21
	Max. H_z	2	-0.59	0.00	-2.40
	Min. Vert	8	-11.00	-0.02	-30.48
	Min. H_x	5	-6.02	-0.74	-17.03
	Min. H_z	8	-11.00	-0.02	-30.48
Guy C @ 411 ft Elev -20.5 ft Azimuth 240 deg	Max. Vert	10	-2.40	-2.90	1.68
	Max. H_x	10	-2.40	-2.90	1.68
	Max. H_z	3	-85.12	-89.22	53.15
	Min. Vert	5	-89.04	-94.59	52.86
	Min. H_x	5	-89.04	-94.59	52.86
	Min. H_z	10	-2.40	-2.90	1.68
Guy B @ 394 ft Elev -13 ft Azimuth 120 deg	Max. Vert	6	-2.15	2.50	1.44
	Max. H_x	11	-91.56	95.14	53.23
	Max. H_z	13	-91.17	93.26	55.51
	Min. Vert	12	-91.82	94.57	54.57
	Min. H_x	6	-2.15	2.50	1.44
	Min. H_z	6	-2.15	2.50	1.44
Guy A @ 405 ft Elev -20 ft Azimuth 0 deg	Max. Vert	2	-2.36	0.00	-3.21
	Max. H_x	11	-46.35	3.07	-55.54
	Max. H_z	2	-2.36	0.00	-3.21
	Min. Vert	7	-90.27	-1.49	-108.22
	Min. H_x	5	-50.02	-3.11	-59.64
	Min. H_z	7	-90.27	-1.49	-108.22

Tower Mast Reaction Summary

Load Combination	Vertical K	$Shear_x$ K	$Shear_z$ K	Overturning Moment, M_x kip-ft	Overturning Moment, M_z kip-ft	Torque kip-ft
Dead Only	232.65	0.00	-0.09	0.00	0.00	-0.00
Dead+Wind 0 deg - No Ice+Guy	325.66	0.00	-5.28	0.00	0.00	0.83
Dead+Wind 30 deg - No Ice+Guy	307.15	3.27	-4.61	0.00	0.00	1.60
Dead+Wind 60 deg - No Ice+Guy	288.68	5.29	-3.30	0.00	0.00	1.82
Dead+Wind 90 deg - No Ice+Guy	315.11	5.32	-0.78	0.00	0.00	1.23
Dead+Wind 120 deg - No Ice+Guy	333.27	4.25	2.34	0.00	0.00	0.64
Dead+Wind 150 deg - No Ice+Guy	315.85	2.05	4.82	0.00	0.00	0.04
Dead+Wind 180 deg - No Ice+Guy	290.72	-0.18	6.06	0.00	0.00	-0.95
Dead+Wind 210 deg - No Ice+Guy	310.48	-2.34	4.95	0.00	0.00	-1.54
Dead+Wind 240 deg - No Ice+Guy	328.89	-4.50	2.48	0.00	0.00	-1.50
Dead+Wind 270 deg - No Ice+Guy	314.40	-5.46	-0.64	0.00	0.00	-1.19
Dead+Wind 300 deg - No Ice+Guy	294.10	-5.31	-3.10	0.00	0.00	-0.89
Dead+Wind 330 deg - No Ice+Guy	311.99	-3.26	-4.50	0.00	0.00	-0.18
Dead+Ice+Temp+Guy	376.39	-0.02	-0.06	0.00	0.00	-0.00
Dead+Wind 0 deg+Ice+Temp+Guy	385.14	-0.01	-2.57	0.00	0.00	0.20
Dead+Wind 30 deg+Ice+Temp+Guy	383.13	1.33	-2.29	0.00	0.00	0.41
Dead+Wind 60 deg+Ice+Temp+Guy	381.95	2.26	-1.48	0.00	0.00	0.33
Dead+Wind 90 deg+Ice+Temp+Guy	383.32	2.53	-0.22	0.00	0.00	0.22
Dead+Wind 120 deg+Ice+Temp+Guy	385.15	2.08	1.16	0.00	0.00	0.18
Dead+Wind 150 deg+Ice+Temp+Guy	383.92	1.15	2.18	0.00	0.00	0.09
Dead+Wind 180 deg+Ice+Temp+Guy	383.05	-0.03	2.58	0.00	0.00	-0.22
Dead+Wind 210 deg+Ice+Temp+Guy	384.52	-1.22	2.19	0.00	0.00	-0.47
Dead+Wind 240 deg+Ice+Temp+Guy	386.47	-2.16	1.16	0.00	0.00	-0.44
Dead+Wind 270 deg+Ice+Temp+Guy	385.08	-2.57	-0.18	0.00	0.00	-0.31
Dead+Wind 300 deg+Ice+Temp+Guy	383.76	-2.29	-1.43	0.00	0.00	-0.30
Dead+Wind 330 deg+Ice+Temp+Guy	384.31	-1.35	-2.29	0.00	0.00	-0.17
Dead+Wind 0 deg - Service+Guy	243.41	0.01	-2.13	0.00	0.00	0.30
Dead+Wind 30 deg - Service+Guy	241.05	1.15	-1.86	0.00	0.00	0.55
Dead+Wind 60 deg - Service+Guy	239.73	1.89	-1.20	0.00	0.00	0.57
Dead+Wind 90 deg - Service+Guy	241.87	2.08	-0.22	0.00	0.00	0.44
Dead+Wind 120 deg - Service+Guy	244.24	1.73	0.89	0.00	0.00	0.27
Dead+Wind 150 deg -	242.32	0.94	1.75	0.00	0.00	0.05

Load Combination	Vertical K	$Shear_x$ K	$Shear_z$ K	Overturning Moment, M_x kip-ft	Overturning Moment, M_z kip-ft	Torque kip-ft
Service+Guy						
Dead+Wind 180 deg - Service+Guy	240.67	-0.02	2.08	0.00	0.00	-0.28
Dead+Wind 210 deg - Service+Guy	242.42	-0.99	1.77	0.00	0.00	-0.54
Dead+Wind 240 deg - Service+Guy	244.94	-1.78	0.93	0.00	0.00	-0.57
Dead+Wind 270 deg - Service+Guy	243.35	-2.10	-0.17	0.00	0.00	-0.43
Dead+Wind 300 deg - Service+Guy	241.71	-1.89	-1.16	0.00	0.00	-0.30
Dead+Wind 330 deg - Service+Guy	242.46	-1.13	-1.85	0.00	0.00	-0.09

Solution Summary

	Sum of Applied Forces			Sum of Reactions			
Load Comb.	PX K	PY K	PZ K	PX K	PY K	PZ K	% Error
1	0.00	-153.87	0.00	0.00	153.87	0.00	0.001%
2	-2.43	-154.80	-122.46	2.43	154.80	122.45	0.002%
3	59.22	-153.87	-101.92	-59.22	153.87	101.92	0.002%
4	103.96	-152.94	-56.87	-103.96	152.94	56.87	0.002%
5	122.45	-153.91	2.45	-122.44	153.91	-2.44	0.002%
6	110.06	-154.87	63.14	-110.06	154.87	-63.13	0.002%
7	63.46	-153.91	104.26	-63.46	153.91	-104.26	0.002%
8	2.40	-152.95	118.16	-2.39	152.95	-118.16	0.002%
9	-59.73	-153.87	101.80	59.73	153.87	-101.80	0.002%
10	-108.01	-154.80	59.08	108.00	154.80	-59.08	0.002%
11	-122.86	-153.83	-2.38	122.85	153.83	2.38	0.002%
12	-106.88	-152.88	-61.24	106.88	152.88	61.25	0.003%
13	-63.94	-153.83	-104.50	63.94	153.83	104.49	0.002%
14	0.00	-265.57	0.00	-0.00	265.57	0.00	0.001%
15	-0.43	-266.09	-47.12	0.43	266.09	47.11	0.002%
16	23.07	-265.57	-39.89	-23.07	265.57	39.89	0.001%
17	40.27	-265.05	-22.73	-40.27	265.05	22.73	0.001%
18	47.07	-265.59	0.44	-47.07	265.59	-0.44	0.001%
19	41.67	-266.13	23.84	-41.67	266.13	-23.84	0.001%
20	24.14	-265.59	40.30	-24.14	265.59	-40.30	0.001%
21	0.58	-265.06	46.13	-0.58	265.06	-46.13	0.001%
22	-23.09	-265.57	39.72	23.09	265.57	-39.71	0.001%
23	-41.04	-266.09	22.84	41.03	266.09	-22.84	0.001%
24	-47.08	-265.55	-0.68	47.08	265.55	0.68	0.001%
25	-40.96	-265.02	-23.76	40.96	265.02	23.77	0.001%
26	-24.15	-265.55	-40.55	24.15	265.55	40.54	0.001%
27	-0.84	-154.19	-42.37	0.84	154.19	42.37	0.001%
28	20.49	-153.87	-35.27	-20.49	153.87	35.27	0.001%
29	35.97	-153.55	-19.68	-35.97	153.55	19.68	0.001%
30	42.37	-153.89	0.85	-42.37	153.89	-0.85	0.001%
31	38.08	-154.22	21.85	-38.08	154.22	-21.85	0.001%
32	21.96	-153.89	36.08	-21.96	153.89	-36.08	0.001%
33	0.83	-153.55	40.89	-0.83	153.55	-40.89	0.001%
34	-20.67	-153.87	35.23	20.67	153.87	-35.23	0.001%
35	-37.37	-154.19	20.44	37.37	154.19	-20.44	0.001%
36	-42.51	-153.86	-0.82	42.51	153.86	0.82	0.001%
37	-36.98	-153.53	-21.19	36.98	153.53	21.19	0.002%
38	-22.12	-153.86	-36.16	22.12	153.86	36.16	0.001%

Non-Linear Convergence Results

Load Combination	Converged?	Number of Cycles	Displacement Tolerance	Force Tolerance
1	Yes	11	0.00000001	0.00002880
2	Yes	21	0.00004792	0.00007302
3	Yes	21	0.00005059	0.00006142
4	Yes	21	0.00006269	0.00003501
5	Yes	21	0.00005059	0.00006687
6	Yes	21	0.00004976	0.00008023
7	Yes	21	0.00005309	0.00006979
8	Yes	20	0.00008791	0.00004897
9	Yes	21	0.00005032	0.00006274
10	Yes	21	0.00004748	0.00007342
11	Yes	21	0.00005667	0.00007145
12	Yes	17	0.00007975	0.00002805
13	Yes	21	0.00006045	0.00007360
14	Yes	11	0.00000001	0.00002879
15	Yes	16	0.00009544	0.00003257
16	Yes	16	0.00000001	0.00001810
17	Yes	14	0.00000001	0.00003378
18	Yes	16	0.00007346	0.00001979
19	Yes	17	0.00000001	0.00001494
20	Yes	16	0.00007213	0.00001997
21	Yes	14	0.00000001	0.00003399
22	Yes	16	0.00006956	0.00002007
23	Yes	17	0.00000001	0.00001438
24	Yes	16	0.00007502	0.00002050
25	Yes	14	0.00000001	0.00003336
26	Yes	16	0.00000001	0.00001871
27	Yes	18	0.00008432	0.00005222
28	Yes	17	0.00008167	0.00004240
29	Yes	14	0.00009474	0.00004343
30	Yes	18	0.00000001	0.00003293
31	Yes	19	0.00000001	0.00003827
32	Yes	18	0.00000001	0.00003344
33	Yes	14	0.00000001	0.00002916
34	Yes	17	0.00009268	0.00004957
35	Yes	18	0.00009134	0.00005875
36	Yes	18	0.00000001	0.00002956
37	Yes	13	0.00009027	0.00004502
38	Yes	17	0.00009916	0.00005085

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
Pole	489 - 457	12.681	33	0.4983	0.3854
Antenna					
T1	457 - 436	10.006	32	0.2493	0.3961
T2	436 - 421	9.427	31	0.2402	0.3964
T3	421 - 401	9.044	31	0.2288	0.3953
T4	401 - 396	8.542	31	0.1951	0.3932

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T5	396 - 391	8.430	31	0.1833	0.3924
T6	391 - 386	8.326	31	0.1694	0.3916
T7	386 - 381	8.227	31	0.1531	0.3907
T8	381 - 376	8.147	31	0.1343	0.3897
T9	376 - 371	8.100	31	0.1232	0.3906
T10	371 - 366	8.063	31	0.1138	0.3912
T11	366 - 361	8.024	31	0.1059	0.3876
T12	361 - 341	7.989	31	0.0995	0.3842
T13	341 - 321	7.844	31	0.0818	0.3708
T14	321 - 301	7.632	31	0.0864	0.3612
T15	301 - 281	7.314	31	0.0939	0.3498
T16	281 - 261	6.921	31	0.1020	0.3366
T17	261 - 241	6.515	31	0.0906	0.3161
T18	241 - 221	6.234	31	0.0615	0.2999
T19	221 - 201	6.034	31	0.0592	0.2841
T20	201 - 181	5.821	35	0.0717	0.2541
T21	181 - 161	5.570	35	0.0907	0.2228
T22	161 - 141	5.221	35	0.1095	0.1913
T23	141 - 121	4.799	35	0.1192	0.1700
T24	121 - 101	4.355	35	0.1183	0.1570
T25	101 - 81	3.909	35	0.1346	0.1611
T26	81 - 61	3.365	35	0.1604	0.1591
T27	61 - 41	2.708	35	0.1891	0.1567
T28	41 - 20	1.935	35	0.2150	0.1542
T29	20 - 6.70833	1.020	35	0.2345	0.1506
T30	6.70833 - 0	0.398	35	0.2723	0.1576

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
457'	12" x 3' Beacon	32	10.006	0.2493	0.3961	4894
446'6"	Guy	31	9.658	0.2366	0.3964	12026
442'	DB420	31	9.556	0.2381	0.3965	41549
439'	BCD-87077	31	9.492	0.2394	0.3965	63095
419'	ERI 1183-3CP	31	8.991	0.2262	0.3951	48858
393'	6014-2	31	8.367	0.1752	0.3919	32864
381'	Guy	31	8.147	0.1343	0.3897	8369
371'	SHP-2AE	31	8.063	0.1138	0.3912	94962
366'	DB806E-XT	31	8.024	0.1059	0.3876	38053
344'	BCD-87077	31	7.868	0.0827	0.3726	77358
340'	455-6	31	7.836	0.0816	0.3702	62056
333'	3" x 6" SideLight	31	7.771	0.0821	0.3667	51201
328'	SRL-101A	31	7.717	0.0836	0.3644	45844
326'	DB230-2E	31	7.694	0.0843	0.3635	44002
322'	SPD3-5.8	31	7.645	0.0860	0.3617	41420
310'	6014-2	31	7.469	0.0910	0.3551	50603
284'	DB212-I	31	6.984	0.1016	0.3391	88124
277'	BMR10-A-B1	31	6.837	0.1017	0.3329	111150
269'	MYA1503K	31	6.669	0.0984	0.3245	37357
266'	DB810M-XC	31	6.609	0.0960	0.3212	29906
258'	DB809KT3E-Y	31	6.464	0.0864	0.3132	24274
251'	Guy	31	6.358	0.0752	0.3072	29459
247'	APXV18-206516S-C-A20 w/ Mount Pipe	31	6.305	0.0690	0.3041	33668
230'	HBXX-6516DS-VTM w/ Mount	31	6.122	0.0570	0.2924	120662

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
	Pipe					
215'	3" x 6" SideLight	31	5.973	0.0621	0.2763	75371
214'	DB810T3E-XT	31	5.962	0.0627	0.2748	73112
209'	P-9A72GN-U	31	5.906	0.0657	0.2671	63582
200'	DFPD1-52 w/ Mount Pipe	35	5.811	0.0725	0.2525	52563
188'	RY-900B	35	5.669	0.0836	0.2338	48183
186'	DB495-A	35	5.642	0.0856	0.2307	47568
175'	SPD4-5.2	35	5.475	0.0967	0.2129	49577
154'	HPX6-65-P3A	35	5.079	0.1145	0.1827	81385
146'	PL6-65-PXA	35	4.908	0.1182	0.1745	135366
137'	CM 4228	35	4.710	0.1191	0.1665	368626
136'	Pipe Mount [PM 601-1]	35	4.687	0.1190	0.1656	441653
135'	CM 4228	35	4.665	0.1189	0.1648	550505
133'	220-5	35	4.620	0.1186	0.1632	354350
131'	Guy	35	4.576	0.1183	0.1617	256057
117'	P-9A48GN-U	35	4.268	0.1198	0.1568	392207
112'	3" x 6" SideLight	35	4.159	0.1229	0.1577	107465
108'	PD666	35	4.071	0.1268	0.1590	65073
106'	PR-950	35	4.026	0.1289	0.1597	54299
99'	SPD2-5.8	35	3.860	0.1370	0.1613	38807
68'	P-9A48GN-U	35	2.951	0.1787	0.1573	43322
62'	PR-950	35	2.743	0.1876	0.1568	43382
25'	Side Arm Mount [SO 601-1]	35	1.239	0.2263	0.1501	157126

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
Pole	489 - 457	58.641	6	1.6660	1.0104
Antenna					
T1	457 - 436	48.692	6	0.9444	1.0082
T2	436 - 421	44.963	6	0.9191	1.0103
T3	421 - 401	42.385	6	0.8883	1.0094
T4	401 - 396	39.071	6	0.7927	1.0062
T5	396 - 391	38.301	6	0.7586	1.0048
T6	391 - 386	37.572	6	0.7183	1.0033
T7	386 - 381	36.865	6	0.6706	1.0013
T8	381 - 376	36.227	6	0.6155	0.9994
T9	376 - 371	35.699	6	0.5840	1.0044
T10	371 - 366	35.211	6	0.5582	1.0088
T11	366 - 361	34.725	6	0.5374	1.0013
T12	361 - 341	34.259	6	0.5206	0.9943
T13	341 - 321	32.503	6	0.4776	0.9670
T14	321 - 301	30.742	6	0.4864	0.9517
T15	301 - 281	28.859	6	0.5008	0.9322
T16	281 - 261	26.927	6	0.4844	0.9076
T17	261 - 241	25.119	6	0.4101	0.8620
T18	241 - 221	23.824	6	0.2905	0.8243
T19	221 - 201	22.880	6	0.2590	0.7893
T20	201 - 181	21.937	6	0.2834	0.7222
T21	181 - 161	20.807	6	0.3363	0.6514
T22	161 - 141	19.422	6	0.3977	0.5820
T23	141 - 121	17.814	6	0.4398	0.5323
T24	121 - 101	16.106	6	0.4568	0.5003
T25	101 - 81	14.349	6	0.5193	0.5125

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T26	81 - 61	12.275	10	0.6057	0.5070
T27	61 - 41	9.831	10	0.6990	0.4998
T28	41 - 20	7.000	10	0.7841	0.4915
T29	20 - 6.70833	3.679	10	0.8489	0.4797
T30	6.70833 - 0	1.434	10	0.9826	0.5022

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
457'	12" x 3' Beacon	6	48.692	0.9444	1.0082	1636
446'6"	Guy	6	46.663	0.9080	1.0093	4033
442'	DB420	6	45.927	0.9124	1.0098	14122
439'	BCD-87077	6	45.447	0.9166	1.0101	22228
419'	ERI 1183-3CP	6	42.039	0.8809	1.0092	15635
393'	6014-2	6	37.861	0.7351	1.0039	10784
381'	Guy	6	36.227	0.6155	0.9994	2712
371'	SHP-2AE	6	35.211	0.5582	1.0088	26980
366'	DB806E-XT	6	34.725	0.5374	1.0013	12039
344'	BCD-87077	6	32.762	0.4807	0.9705	32815
340'	455-6	6	32.417	0.4769	0.9660	29353
333'	3" x 6" SideLight	6	31.810	0.4766	0.9600	26474
328'	SRL-101A	6	31.370	0.4797	0.9566	24857
326'	DB230-2E	6	31.192	0.4815	0.9553	24265
322'	SPD3-5.8	6	30.833	0.4854	0.9524	23389
310'	6014-2	6	29.719	0.4964	0.9415	26210
284'	DB212-1	6	27.217	0.4899	0.9126	38738
277'	BMR10-A-B1	6	26.543	0.4752	0.8997	26452
269'	MYA1503K	6	25.798	0.4487	0.8812	11195
266'	DB810M-XC	6	25.534	0.4358	0.8738	9199
258'	DB809KT3E-Y	6	24.890	0.3922	0.8553	7634
251'	Guy	6	24.407	0.3469	0.8412	9142
247'	APXV18-206516S-C-A20 w/ Mount Pipe	6	24.160	0.3218	0.8340	10337
230'	HBXX-6516DS-VTM w/ Mount Pipe	6	23.285	0.2619	0.8077	30998
215'	3" x 6" SideLight	6	22.608	0.2625	0.7719	38510
214'	DB810T3E-XT	6	22.563	0.2635	0.7686	36075
209'	P-9A72GN-U	6	22.329	0.2694	0.7514	27276
200'	DFPD1-52 w/ Mount Pipe	6	21.886	0.2855	0.7185	19531
188'	RY-900B	6	21.230	0.3156	0.6762	16658
186'	DB495-A	6	21.112	0.3213	0.6692	16280
175'	SPD4-5.2	6	20.419	0.3550	0.6297	15898
154'	HPX6-65-P3A	6	18.879	0.4163	0.5627	21005
146'	PL6-65-PXA	6	18.231	0.4329	0.5436	28173
137'	CM 4228	6	17.475	0.4433	0.5235	47123
136'	Pipe Mount [PM 601-1]	6	17.390	0.4439	0.5213	51160
135'	CM 4228	6	17.305	0.4445	0.5192	55957
133'	220-5	6	17.134	0.4457	0.5152	68873
131'	Guy	6	16.963	0.4468	0.5114	89540
117'	P-9A48GN-U	6	15.765	0.4651	0.5005	72337
112'	3" x 6" SideLight	6	15.337	0.4790	0.5036	26321
108'	PD666	6	14.987	0.4925	0.5072	17434
106'	PR-950	6	14.809	0.4998	0.5090	14915
99'	SPD2-5.8	6	14.159	0.5274	0.5132	11199
68'	P-9A48GN-U	10	10.729	0.6653	0.5016	12899

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
62'	PR-950	10	9.962	0.6941	0.5000	13084
25'	Side Arm Mount [SO 601-1]	10	4.471	0.8207	0.4782	38511

Bolt Design Data

Section No.	Elevation ft	Component Type	Bolt Grade	Bolt Size in	Number Of Bolts	Maximum Load per Bolt K	Allowable Load K	Ratio Load / Allowable	Allowable Ratio	Criteria
T1	457	Leg	A307	0.8750	8	1.47	12.03	0.122	1.333	Bolt Tension
		Diagonal	A307	0.5000	2	1.31	1.96	0.666	1.333	Bolt Shear
		Horizontal	A307	0.5000	2	0.49	1.96	0.248	1	Bolt Shear
		Top Girt	A307	0.5000	2	0.00	1.96	0.000	1.333	Bolt Shear
		Mid Girt	A307	0.5000	2	1.64	1.96	0.835	1.333	Bolt Shear
T2	436	Leg	A307	0.8750	8	1.57	12.03	0.130	1.333	Bolt Tension
		Diagonal	A325X	0.5000	2	1.09	5.89	0.186	1.333	Bolt Shear
		Horizontal	A307	0.5000	2	0.62	1.96	0.316	1.333	Bolt Shear
		Top Girt	A307	0.5000	2	0.39	1.96	0.199	1	Bolt Shear
T3	421	Leg	A307	0.8750	8	3.16	12.03	0.263	1.333	Bolt Tension
		Diagonal	A325N	0.5000	2	3.46	4.12	0.839	1.333	Bolt Shear
		Top Girt	A307	0.5000	2	0.29	1.96	0.148	1.333	Bolt Shear
		Mid Girt	A307	0.5000	2	0.30	1.96	0.155	1.333	Bolt Shear
T4	401	Leg	A307	0.8750	8	9.58	12.03	0.797	1.333	Bolt Tension
		Diagonal	A325N	0.5000	2	3.59	4.12	0.871	1.333	Bolt Shear
		Top Girt	A307	0.5000	2	0.23	1.96	0.118	1.333	Bolt Shear
T5	396	Diagonal	A325N	0.5000	2	4.00	4.12	0.970	1.333	Bolt Shear
T6	391	Diagonal	A325X	0.5000	2	4.97	5.89	0.844	1.333	Bolt Shear
		Secondary Horizontal	A325X	0.5000	1	2.33	5.89	0.395	1.333	Bolt Shear
T7	386	Diagonal	A325X	0.5000	2	4.79	5.13	0.933	1.333	Member Block Shear
		Secondary Horizontal	A325X	0.5000	1	2.69	5.89	0.456	1.333	Bolt Shear
T8	381	Leg	A307	0.8750	8	9.25	12.03	0.769	1.333	Bolt Tension
		Diagonal	A325N	0.5000	2	5.01	4.12	1.215	1.333	Bolt Shear
T9	376	Diagonal	A325N	0.5000	2	5.00	4.12	1.214	1.333	Bolt Shear
T10	371	Diagonal	A325N	0.5000	2	4.30	4.12	1.043	1.333	Bolt Shear
T11	366	Diagonal	A325N	0.5000	2	4.14	4.12	1.005	1.333	Bolt Shear
T12	361	Leg	A307	0.8750	8	2.03	12.03	0.169	1.333	Bolt Tension
		Diagonal	A325N	0.5000	2	3.95	4.12	0.957	1.333	Bolt Shear
		Secondary Horizontal	A325X	0.5000	1	1.76	5.89	0.299	1.333	Bolt Shear
		Top Girt	A307	0.5000	2	0.24	1.96	0.120	1.333	Bolt Shear
		Mid Girt	A307	0.5000	2	0.14	1.96	0.071	1.333	Bolt Shear
T13	341	Leg	A307	0.8750	8	0.00	12.03	0.000	1.333	Bolt Tension
		Diagonal	A325N	0.5000	2	3.10	4.12	0.753	1.333	Bolt Shear
		Top Girt	A307	0.5000	2	0.17	1.96	0.087	1.333	Bolt Shear
		Mid Girt	A307	0.5000	2	0.17	1.96	0.088	1.333	Bolt Shear
T14	321	Leg	A307	0.8750	8	0.00	12.03	0.000	1.333	Bolt Tension
		Diagonal	A307	0.5000	2	1.54	1.96	0.787	1.333	Bolt Shear
		Top Girt	A307	0.5000	2	0.17	1.96	0.085	1.333	Bolt Shear
		Mid Girt	A307	0.5000	2	0.30	1.96	0.151	1.333	Bolt Shear
T15	301	Leg	A307	0.8750	8	0.00	12.03	0.000	1.333	Bolt Tension
		Diagonal	A307	0.5000	2	2.39	1.96	1.218	1.333	Bolt Shear
		Top Girt	A307	0.5000	2	0.11	1.96	0.053	1	Bolt Shear
		Mid Girt	A307	0.5000	2	0.10	1.96	0.053	1	Bolt Shear

Section No.	Elevation ft	Component Type	Bolt Grade	Bolt Size in	Number Of Bolts	Maximum Load per Bolt K	Allowable Load K	Ratio Load / Allowable	Allowable Ratio	Criteria
T16	281	Leg	A307	0.8750	8	0.00	12.03	0.000	1.333	Bolt Tension
		Diagonal	A325N	0.5000	2	3.74	4.12	0.906	1.333	Bolt Shear
		Top Girt	A307	0.5000	2	0.12	1.96	0.059	1	Bolt Shear
		Mid Girt	A307	0.5000	2	0.17	1.96	0.085	1.333	Bolt Shear
T17	261	Leg	A307	0.6250	8	3.67	6.14	0.598	1.333	Bolt Tension
		Diagonal	A325N	0.5000	2	4.78	4.12	1.159	1.333	Bolt Shear
		Top Girt	A307	0.5000	2	0.33	1.96	0.170	1.333	Bolt Shear
T18	241	Leg	A307	0.6250	8	0.00	6.14	0.000	1.333	Bolt Tension
		Diagonal	A325N	0.5000	2	4.11	4.12	0.997	1.333	Bolt Shear
		Top Girt	A307	0.5000	2	0.28	1.96	0.143	1	Bolt Shear
		Mid Girt	A307	0.5000	2	0.42	1.96	0.216	1.333	Bolt Shear
T19	221	Leg	A307	0.8750	8	0.00	12.03	0.000	1.333	Bolt Tension
		Diagonal	A307	0.5000	2	2.56	1.96	1.302	1.333	Bolt Shear
		Top Girt	A307	0.5000	2	0.19	1.96	0.095	1	Bolt Shear
		Mid Girt	A307	0.5000	2	0.26	1.96	0.130	1.333	Bolt Shear
T20	201	Leg	A307	0.8750	8	0.00	12.03	0.000	1.333	Bolt Tension
		Diagonal	A307	0.5000	2	1.71	1.96	0.870	1.333	Bolt Shear
		Top Girt	A307	0.5000	2	0.23	1.96	0.119	1.333	Bolt Shear
		Mid Girt	A307	0.5000	2	0.24	1.96	0.123	1.333	Bolt Shear
T21	181	Leg	A307	0.8750	8	0.00	12.03	0.000	1.333	Bolt Tension
		Diagonal	A307	0.5000	2	1.04	1.96	0.532	1.333	Bolt Shear
		Top Girt	A307	0.5000	2	0.30	3.93	0.076	1.333	Bolt Shear
		Mid Girt	A307	0.5000	2	0.25	1.96	0.129	1.333	Bolt Shear
T22	161	Leg	A307	0.6250	8	0.00	6.14	0.000	1.333	Bolt Tension
		Diagonal	A325N	0.6250	2	2.55	6.44	0.396	1.333	Bolt Shear
		Top Girt	A307	0.5000	2	0.21	1.96	0.107	1	Bolt Shear
		Mid Girt	A307	0.5000	2	0.25	1.96	0.127	1	Bolt Shear
T23	141	Leg	A307	0.6250	8	0.00	6.14	0.000	1.333	Bolt Tension
		Diagonal	A325N	0.6250	2	3.30	6.44	0.513	1.333	Bolt Shear
		Top Girt	A307	0.5000	2	0.62	1.96	0.318	1.333	Bolt Shear
		Mid Girt	A325N	0.5000	2	4.17	4.12	1.012	1.333	Bolt Shear
		Torque Arm Top@131	A307	0.7500	2	7.55	8.84	0.854	1.333	Bolt Shear
		Torque Arm Bottom@131	A307	0.7500	2	8.57	8.84	0.970	1.333	Bolt Shear
T24	121	Leg	A307	0.8750	8	0.00	12.03	0.000	1.333	Bolt Tension
		Diagonal	A325N	0.5000	2	2.25	4.12	0.546	1.333	Bolt Shear
		Top Girt	A307	0.5000	2	2.37	1.96	1.206	1.333	Bolt Shear
		Mid Girt	A307	0.5000	2	0.24	1.96	0.124	1	Bolt Shear
T25	101	Leg	A307	0.8750	8	0.00	12.03	0.000	1.333	Bolt Tension
		Diagonal	A307	0.5000	2	1.19	1.96	0.606	1.333	Bolt Shear
		Top Girt	A307	0.5000	2	0.25	1.96	0.128	1	Bolt Shear
		Mid Girt	A307	0.5000	2	0.37	1.96	0.189	1.333	Bolt Shear
T26	81	Leg	A307	0.8750	8	0.00	12.03	0.000	1.333	Bolt Tension
		Diagonal	A307	0.5000	2	0.52	1.96	0.264	1.333	Bolt Shear
		Top Girt	A307	0.5000	2	0.39	1.96	0.197	1.333	Bolt Shear
		Mid Girt	A307	0.5000	2	0.39	1.96	0.198	1.333	Bolt Shear
T27	61	Leg	A307	0.8750	8	0.00	12.03	0.000	1.333	Bolt Tension
		Diagonal	A307	0.5000	2	1.20	1.96	0.612	1.333	Bolt Shear
		Top Girt	A307	0.5000	2	0.41	1.96	0.207	1.333	Bolt Shear
		Mid Girt	A307	0.5000	2	0.38	1.96	0.193	1.333	Bolt Shear
T28	41	Leg	A307	0.8750	8	0.00	12.03	0.000	1.333	Bolt Tension
		Diagonal	A307	0.5000	2	2.22	1.96	1.133	1.333	Bolt Shear
		Top Girt	A307	0.5000	2	0.29	1.96	0.150	1	Bolt Shear
		Mid Girt	A307	0.5000	2	0.58	1.96	0.296	1	Bolt Shear
T29	20	Leg	A307	0.8750	8	0.00	12.03	0.000	1.333	Bolt Tension
		Diagonal	A307	0.5000	2	1.98	1.96	1.010	1.333	Bolt Shear
		Top Girt	A325N	0.5000	2	4.64	4.12	1.125	1.333	Bolt Shear
T30	6.70833	Leg	A307	0.8750	8	0.00	12.03	0.000	1.333	Bolt Tension
		Diagonal	A307	0.5000	2	2.53	1.96	1.288	1.333	Bolt Shear

Section No.	Elevation ft	Component Type	Bolt Grade	Bolt Size in	Number Of Bolts	Maximum Load per Bolt K	Allowable Load K	Ratio Load / Allowable	Allowable Ratio	Criteria

Guy Design Data

Section No.	Elevation ft	Size	Initial Tension K	Breaking Load K	Actual T K	Allowable T_a K	Required S.F.	Actual S.F.
T1	446'6" (A) (844)	9/16 EHS	2.80	35.00	13.51	17.50	2.000	2.591
	446'6" (B) (843)	9/16 EHS	2.80	35.00	13.67	17.50	2.000	2.561
	446'6" (C) (842)	9/16 EHS	2.80	35.00	13.36	17.50	2.000	2.620
T8	381' (A) (841)	1 3/8 BS	18.56	232.00	74.86	116.00	2.000	3.099
	381' (B) (840)	1 3/8 BS	18.56	232.00	75.74	116.00	2.000	3.063
	381' (C) (839)	1 3/8 BS	18.56	232.00	74.14	116.00	2.000	3.129
T17	251' (A) (838)	1 1/4 BS	15.36	192.00	56.02	96.00	2.000	3.427
	251' (B) (837)	1 1/4 BS	15.36	192.00	57.01	96.00	2.000	3.368
	251' (C) (836)	1 1/4 BS	15.36	192.00	56.19	96.00	2.000	3.417
T23	131' (A) (830)	11/16 EHS	6.00	50.00	16.80	25.00	2.000	2.977
	131' (A) (831)	11/16 EHS	6.00	50.00	15.99	25.00	2.000	3.126
	131' (B) (824)	11/16 EHS	6.00	50.00	16.90	25.00	2.000	2.959
	131' (B) (825)	11/16 EHS	6.00	50.00	16.20	25.00	2.000	3.086
	131' (C) (818)	11/16 EHS	6.00	50.00	15.55	25.00	2.000	3.216
	131' (C) (819)	11/16 EHS	6.00	50.00	16.93	25.00	2.000	2.953

Compression Checks

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 K	Allow. P_a K	Ratio P / P_a
T1	457 - 436	3	21'	5'3"	84.0 K=1.00	1.00	14.032	7.0686	-25.00	99.19	0.252
T2	436 - 421	2 3/4	15'	5'	87.3 K=1.00	1.00	13.708	5.9396	-35.20	81.42	0.432
T3	421 - 401	2 3/4	20'	5'	87.3 K=1.00	1.00	13.708	5.9396	-84.29	81.42	1.035
T4	401 - 396	3	5'	5'	80.0 K=1.00	1.00	14.419	7.0686	-99.59	101.92	0.977
T5	396 - 391	3	5'	5'	80.0 K=1.00	1.00	14.419	7.0686	-116.08	101.92	1.139
T6	391 - 386	3	5'	2'6"	40.0 K=1.00	1.00	17.714	7.0686	-134.35	125.21	1.073
T7	386 - 381	3	5'	2'6"	40.0 K=1.00	1.00	17.714	7.0686	-155.07	125.21	1.238
T8	381 - 376	3 1/2	5'	5'	68.6	1.00	15.468	9.6211	-158.47	148.82	1.065

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	Mast Stability Index	F_a ksi	A in^2	Actual P K	Allow. P_a K	Ratio $\frac{P}{P_a}$
T9	376 - 371	3 1/2	5'	5'	K=1.00 68.6	1.00	15.468	9.6211	-140.81	148.82	0.946
T10	371 - 366	3 1/2	5'	5'	K=1.00 68.6	1.00	15.468	9.6211	-126.62	148.82	0.851
T11	366 - 361	3 1/2	5'	5'	K=1.00 68.6	1.00	15.468	9.6211	-113.96	148.82	0.766
T12	361 - 341	3	20'	2'6"	K=1.00 40.0	0.98	17.400	7.0686	-101.62	122.99	0.826
T13	341 - 321	3	20'	5'	K=1.00 80.0	1.00	14.419	7.0686	-50.10	101.92	0.492*
T14	321 - 301	3	20'	5'	K=1.00 80.0	1.00	14.419	7.0686	-53.61	101.92	0.526*
T15	301 - 281	3	20'	5'	K=1.00 80.0	1.00	14.419	7.0686	-79.53	101.92	0.780
T16	281 - 261	3	20'	5'	K=1.00 80.0	1.00	14.419	7.0686	-120.98	101.92	1.187
T17	261 - 241	3	20'	2'6"	K=1.00 40.0	0.99	17.468	7.0686	-151.94	123.47	1.231
T18	241 - 221	3	20'	5'	K=1.00 80.0	1.00	14.419	7.0686	-119.91	101.92	1.176
T19	221 - 201	3 1/4	20'	5'	K=1.00 73.8	1.00	14.994	8.2958	-84.49	124.39	0.679*
T20	201 - 181	3 1/4	20'	5'	K=1.00 73.8	1.00	14.994	8.2958	-119.44	124.39	0.960
T21	181 - 161	3 1/4	20'	5'	K=1.00 73.8	1.00	14.994	8.2958	-91.95	124.39	0.739*
T22	161 - 141	3 1/2	20'	5'	K=1.00 68.6	1.00	15.468	9.6211	-95.80	148.82	0.644*
T23	141 - 121	3 1/2	20'	5'	K=1.00 68.6	1.00	15.468	9.6211	-99.77	148.82	0.670*
T24	121 - 101	3 1/2	20'	5'	K=1.00 68.6	1.00	15.468	9.6211	-149.28	148.82	1.003
T25	101 - 81	3 1/2	20'	5'	K=1.00 68.6	1.00	15.468	9.6211	-164.17	148.82	1.103
T26	81 - 61	3 1/2	20'	5'	K=1.00 68.6	1.00	15.468	9.6211	-167.35	148.82	1.124
T27	61 - 41	3 1/2	20'	5'	K=1.00 68.6	1.00	15.468	9.6211	-165.29	148.82	1.111
T28	41 - 20	3 1/2	21'	5'3"	K=1.00 72.0	1.00	15.162	9.6211	-124.53	145.88	0.854*
T29	20 - 6.70833	3 1/4	13'5-9/32"	4'5-3/4"	K=1.00 66.2	1.00	15.680	8.2958	-130.00	130.07	0.999*
T30	6.70833 - 0	3 1/4	6'10-7/16"	2'3-15/32"	K=1.00 33.8	0.92	16.616	8.2958	-133.95	137.84	0.972*

* DL controls

Diagonal Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P K	Allow. P_a K	Ratio $\frac{P}{P_a}$

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P K	Allow. P_a K	Ratio $\frac{P}{P_a}$
T1	457 - 436	L2 1/2x2x1/4	7'7-13/16"	3'7-9/16"	107.0 K=1.04	11.608	1.0600	-2.04	12.31	0.166
T2	436 - 421	L2 1/2x2x3/16	7'6"	3'6-19/32"	104.9 K=1.05	11.849	0.8090	-2.19	9.59	0.228
T3	421 - 401	L2 1/2x2x3/16	7'6"	3'6-19/32"	104.9 K=1.05	11.849	0.8090	-6.92	9.59	0.721
T4	401 - 396	L2 1/2x2x3/16	7'6"	3'6-19/32"	104.9 K=1.05	11.849	0.8090	-7.18	9.59	0.749
T5	396 - 391	L2 1/2x2x3/16	7'6"	3'6-19/32"	104.9 K=1.05	11.849	0.8090	-8.00	9.59	0.834
T6	391 - 386	L2 1/2x2x3/16	7'6"	3'9"	105.4 K=1.00	11.792	0.8090	-9.95	9.54	1.043
T7	386 - 381	L2 1/2x2x3/16	7'6"	3'9"	105.4 K=1.00	11.792	0.8090	-8.27	9.54	0.867
T8	381 - 376	L2 1/2x2x3/16	7'6"	3'6-19/32"	104.9 K=1.05	11.849	0.8090	-8.54	9.59	0.891
T9	376 - 371	L2 1/2x2x3/16	7'6"	3'6-19/32"	104.9 K=1.05	11.849	0.8090	-10.01	9.59	1.044
T10	371 - 366	L2 1/2x2x3/16	7'6"	3'6-19/32"	104.9 K=1.05	11.849	0.8090	-8.60	9.59	0.898
T11	366 - 361	L2 1/2x2x3/16	7'6"	3'6-19/32"	104.9 K=1.05	11.849	0.8090	-8.29	9.59	0.864
T12	361 - 341	L2 1/2x2x3/16	7'6"	3'9"	105.4 K=1.00	11.792	0.8090	-7.89	9.54	0.827
T13	341 - 321	L2 1/2x2x3/16	7'6"	3'6-19/32"	104.9 K=1.05	11.849	0.8090	-6.21	9.59	0.648
T14	321 - 301	L2 1/2x2x3/16	7'6"	3'6-19/32"	104.9 K=1.05	11.849	0.8090	-3.09	9.59	0.322
T15	301 - 281	L2 1/2x2x3/16	7'6"	3'6-19/32"	104.9 K=1.05	11.849	0.8090	-4.78	9.59	0.499
T16	281 - 261	L2 1/2x2x3/16	7'6"	3'6-19/32"	104.9 K=1.05	11.849	0.8090	-7.47	9.59	0.780
T17	261 - 241	L3x3x1/4	7'6"	3'9"	76.0 K=1.00	15.793	1.4400	-9.40	22.74	0.413
T18	241 - 221	L3x3x1/4	7'6"	3'6-19/32"	84.0 K=1.17	14.904	1.4400	-8.22	21.46	0.383
T19	221 - 201	L2 1/2x2x3/16	7'6"	3'6-19/32"	104.9 K=1.05	11.849	0.8090	-5.11	9.59	0.533
T20	201 - 181	L2 1/2x2x3/16	7'6"	3'6-19/32"	104.9 K=1.05	11.849	0.8090	-3.42	9.59	0.357
T21	181 - 161	L2 1/2x2x3/16	7'6"	3'6-19/32"	104.9 K=1.05	11.849	0.8090	-2.09	9.59	0.218
T22	161 - 141	L3x3x1/4	7'6"	3'6-15/32"	83.8 K=1.17	14.931	1.4400	-5.10	21.50	0.237
T23	141 - 121	L3x3x1/4	7'6"	3'6-15/32"	83.8 K=1.17	14.931	1.4400	-6.54	21.50	0.304
T24	121 - 101	L2 1/2x2x3/16	7'6"	3'6-19/32"	104.9 K=1.05	11.849	0.8090	-4.50	9.59	0.470
T25	101 - 81	L2 1/2x2x3/16	7'6"	3'6-19/32"	104.9 K=1.05	11.849	0.8090	-2.38	9.59	0.248
T26	81 - 61	L2 1/2x2x3/16	7'6"	3'6-19/32"	104.9 K=1.05	11.849	0.8090	-1.03	9.59	0.108
T27	61 - 41	L2 1/2x2x3/16	7'6"	3'6-19/32"	104.9 K=1.05	11.849	0.8090	-2.40	9.59	0.251
T28	41 - 20	L2 1/2x2x3/16	7'7-13/16"	3'7-9/16"	106.5 K=1.04	11.669	0.8090	-4.19	9.44	0.444
T29	20 - 6.70833	L2x2x3/16	5'9-31/32"	3'1-3/16"	100.9 K=1.07	12.289	0.7150	-1.56	8.79	0.177
T30	6.70833 - 0	L2x2x3/16	2'7-3/32"	1'3-1/8"	58.9 K=1.53	16.291	0.7150	-5.06	11.65	0.434

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P K	Allow. P_a K	Ratio $\frac{P}{P_a}$

Horizontal Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P K	Allow. P_a K	Ratio $\frac{P}{P_a}$
T1	457 - 436	L2 1/2x2x1/4	6'	5'4-3/16"	139.4 K=0.92	7.685	1.0600	-0.97	8.15	0.119*
T2	436 - 421	L2 1/2x2x1/4	6'	5'4-9/16"	139.8 K=0.92	7.646	1.0600	-0.38	8.10	0.047

* DL controls

Secondary Horizontal Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P K	Allow. P_a K	Ratio $\frac{P}{P_a}$
T6	391 - 386	L2x2x1/4	6'	5'9"	88.2 K=0.50	14.413	0.9380	-2.33	13.52	0.172
T7	386 - 381	L2x2x1/4	6'	5'9"	88.2 K=0.50	14.413	0.9380	-2.69	13.52	0.199
T12	361 - 341	L2x2x1/4	6'	5'9"	88.2 K=0.50	14.413	0.9380	-1.76	13.52	0.130
T17	261 - 241	2L3 1/2x3 1/2x3/8x3/8	6'	5'9"	32.2 K=0.50	19.781	4.9700	-2.63	98.31	0.027

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 K	Allow. P_a K	Ratio $\frac{P}{P_a}$
T1	457 - 436	C8x13.75	6'	5'9"	124.6 K=1.00	9.514	4.0400	-0.00	38.44	0.000
T3	421 - 401	L2 1/2x2x1/4	6'	5'4-9/16"	139.8 K=0.92	7.646	1.0600	-0.12	8.10	0.014
T4	401 - 396	L2 1/2x2x1/4	6'	5'4-9/16"	139.8 K=0.92	7.646	1.0600	-0.35	8.10	0.043
T10	371 - 366	L2 1/2x2x1/4	6'	5'8-17/32"	161.6 K=1.00	5.721	1.0600	-0.11	6.06	0.018
T12	361 - 341	L2 1/2x2x1/4	6'	5'8-17/32"	148.6 K=0.92	6.760	1.0600	-0.05	7.17	0.007
T23	141 - 121	L2 1/2x2x3/16	6'	5'3-23/32"	138.0 K=0.92	7.839	0.8090	-0.21	6.34	0.034
T24	121 - 101	L2 1/2x2x3/16	6'	5'3-23/32"	138.0 K=0.92	7.839	0.8090	-4.74	6.34	0.747
T27	61 - 41	L2 1/2x2x3/16	6'	5'3-23/32"	138.0 K=0.92	7.839	0.8090	-0.00	6.34	0.001

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P K	Allow. P_a K	Ratio $\frac{P}{P_a}$

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 K	Allow. P_a K	Ratio $\frac{P}{P_a}$
T3	421 - 401	L2 1/2x2x1/4	6'	5'4-9/16"	139.8 K=0.92	7.646	1.0600	-0.48	8.10	0.059
T13	341 - 321	L2 1/2x2x1/4	6'	5'4-3/16"	139.4 K=0.92	7.685	1.0600	-0.01	8.15	0.001
T14	321 - 301	L2 1/2x2x1/4	6'	5'4-3/16"	139.4 K=0.92	7.685	1.0600	-0.21	8.15	0.026
T18	241 - 221	L2 1/2x2x3/16	6'	5'4-3/16"	138.7 K=0.92	7.758	0.8090	-0.17	6.28	0.028
T23	141 - 121	L2 1/2x2x3/16	6'	5'3-23/32"	138.0 K=0.92	7.839	0.8090	-5.78	6.34	0.912

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 K	Allow. P_a K	Ratio $\frac{P}{P_a}$
T23	141 - 121 (826)	2L3x3x3/16	7'6-19/32"	6'11-13/32"	104.4 K=1.18	11.882	2.1800	-0.50	25.90	0.019
T23	141 - 121 (827)	2L3x3x3/16	7'6-19/32"	6'11-13/32"	104.4 K=1.18	11.882	2.1800	-0.63	25.90	0.024
T23	141 - 121 (832)	2L3x3x3/16	7'6-19/32"	6'11-13/32"	104.4 K=1.18	11.882	2.1800	-0.44	25.90	0.017
T23	141 - 121 (833)	2L3x3x3/16	7'6-19/32"	6'11-13/32"	104.4 K=1.18	11.882	2.1800	-0.07	25.90	0.003

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 K	Allow. P_a K	Ratio $\frac{P}{P_a}$
T23	141 - 121 (822)	2L3x3x3/16	12'6-3/8"	11'9-31/32"	139.2 K=0.92	7.710	2.1800	-16.16	16.81	0.962
T23	141 - 121 (823)	2L3x3x3/16	12'6-3/8"	11'9-31/32"	139.2 K=0.92	7.710	2.1800	-16.59	16.81	0.987
T23	141 - 121 (828)	2L3x3x3/16	12'6-3/8"	11'9-31/32"	139.2 K=0.92	7.710	2.1800	-17.14	16.81	1.020
T23	141 - 121 (829)	2L3x3x3/16	12'6-3/8"	11'9-31/32"	139.2 K=0.92	7.710	2.1800	-17.11	16.81	1.018
T23	141 - 121 (834)	2L3x3x3/16	12'6-3/8"	11'9-31/32"	139.2 K=0.92	7.710	2.1800	-16.47	16.81	0.980
T23	141 - 121 (835)	2L3x3x3/16	12'6-3/8"	11'9-31/32"	139.2 K=0.92	7.710	2.1800	-16.87	16.81	1.004

Section No.	Elevation	Size	L	L_u	Kl/r	F_a	A	Actual P	Allow. P_a	Ratio $\frac{P}{P_a}$
	ft		ft	ft		ksi	in^2	K	K	

Tension Checks

Leg Design Data (Tension)

Section No.	Elevation	Size	L	L_u	Kl/r	F_a	A	Actual P	Allow. P_a	Ratio $\frac{P}{P_a}$
	ft		ft	ft		ksi	in^2	K	K	
T1	457 - 436	3	21'	5'3"	84.0	19.800	7.0686	14.81	139.96	0.106
T2	436 - 421	2 3/4	15'	5'	87.3	19.800	5.9396	19.22	117.60	0.163
T3	421 - 401	2 3/4	20'	5'	87.3	19.800	5.9396	62.32	117.60	0.530
T4	401 - 396	3	5'	5'	80.0	19.800	7.0686	76.65	139.96	0.548
T5	396 - 391	3	5'	5'	80.0	19.800	7.0686	91.46	139.96	0.653
T6	391 - 386	3	5'	2'6"	40.0	19.800	7.0686	109.56	139.96	0.783
T7	386 - 381	3	5'	2'6"	40.0	19.800	7.0686	125.83	139.96	0.899
T8	381 - 376	3 1/2	5'	5'	68.6	19.800	9.6211	73.98	190.50	0.388
T9	376 - 371	3 1/2	5'	5'	68.6	19.800	9.6211	59.28	190.50	0.311
T10	371 - 366	3 1/2	5'	5'	68.6	19.800	9.6211	42.69	190.50	0.224
T11	366 - 361	3 1/2	5'	5'	68.6	19.800	9.6211	29.30	190.50	0.154
T12	361 - 341	3	20'	2'6"	40.0	19.800	7.0686	16.28	139.96	0.116
T16	281 - 261	3	20'	5'	80.0	19.800	7.0686	15.57	139.96	0.111
T17	261 - 241	3	20'	2'6"	40.0	19.800	7.0686	41.14	139.96	0.294

Diagonal Design Data (Tension)

Section No.	Elevation	Size	L	L_u	Kl/r	F_a	A	Actual P	Allow. P_a	Ratio $\frac{P}{P_a}$
	ft		ft	ft		ksi	in^2	K	K	
T1	457 - 436	L2 1/2x2x1/4	7'7-13/16'	3'7-9/16"	77.5	30.000	0.6778	2.61	20.33	0.129
T2	436 - 421	L2 1/2x2x3/16	7'6"	3'6-19/32'	75.0	30.000	0.5189	1.67	15.57	0.107
T3	421 - 401	L2 1/2x2x3/16	7'6"	3'6-19/32'	75.0	30.000	0.5189	6.83	15.57	0.439
T4	401 - 396	L2 1/2x2x3/16	7'6"	3'6-19/32'	75.0	30.000	0.5189	7.00	15.57	0.450
T5	396 - 391	L2 1/2x2x3/16	7'6"	3'6-19/32'	75.0	30.000	0.5189	7.96	15.57	0.511
T6	391 - 386	L2 1/2x2x3/16	7'6"	3'9"	75.0	30.000	0.5189	8.56	15.57	0.550
T7	386 - 381	L2 1/2x2x3/16	7'6"	3'9"	75.0	30.000	0.5189	9.58	15.57	0.615
T8	381 - 376	L2 1/2x2x3/16	7'6"	3'6-19/32'	75.0	30.000	0.5189	10.02	15.57	0.644
T9	376 - 371	L2 1/2x2x3/16	7'6"	3'6-19/32'	75.0	30.000	0.5189	8.61	15.57	0.553
T10	371 - 366	L2 1/2x2x3/16	7'6"	3'6-19/32'	75.0	30.000	0.5189	8.57	15.57	0.550
T11	366 - 361	L2 1/2x2x3/16	7'6"	3'6-19/32'	75.0	30.000	0.5189	8.13	15.57	0.522
T12	361 - 341	L2 1/2x2x3/16	7'6"	3'9"	75.0	30.000	0.5189	7.61	15.57	0.489
T13	341 - 321	L2 1/2x2x3/16	7'6"	3'6-19/32'	75.0	30.000	0.5189	6.15	15.57	0.395

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P K	Allow. P_a K	Ratio $\frac{P}{P_a}$
T14	321 - 301	L2 1/2x2x3/16	7'6"	3'6-19/32'	75.0	30.000	0.5189	2.96	15.57	0.190
T15	301 - 281	L2 1/2x2x3/16	7'6"	3'6-19/32'	75.0	30.000	0.5189	4.59	15.57	0.295
T16	281 - 261	L2 1/2x2x3/16	7'6"	3'6-19/32'	75.0	30.000	0.5189	7.45	15.57	0.479
T17	261 - 241	L3x3x1/4	7'6"	3'9"	48.4	29.000	0.9628	9.56	27.92	0.342
T18	241 - 221	L3x3x1/4	7'6"	3'6-19/32'	48.4	29.000	0.9628	8.19	27.92	0.293
T19	221 - 201	L2 1/2x2x3/16	7'6"	3'6-19/32'	75.0	30.000	0.5189	4.96	15.57	0.319
T20	201 - 181	L2 1/2x2x3/16	7'6"	3'6-19/32'	75.0	30.000	0.5189	3.13	15.57	0.201
T21	181 - 161	L2 1/2x2x3/16	7'6"	3'6-19/32'	75.0	30.000	0.5189	1.89	15.57	0.122
T22	161 - 141	L3x3x1/4	7'6"	3'6-15/32'	48.4	29.000	0.9394	4.88	27.24	0.179
T23	141 - 121	L3x3x1/4	7'6"	3'6-15/32'	48.4	29.000	0.9394	6.61	27.24	0.242
T24	121 - 101	L2 1/2x2x3/16	7'6"	3'6-19/32'	75.0	30.000	0.5189	4.31	15.57	0.277
T25	101 - 81	L2 1/2x2x3/16	7'6"	3'6-19/32'	75.0	30.000	0.5189	2.10	15.57	0.135
T26	81 - 61	L2 1/2x2x3/16	7'6"	3'6-19/32'	75.0	30.000	0.5189	0.71	15.57	0.045
T27	61 - 41	L2 1/2x2x3/16	7'6"	3'6-19/32'	75.0	30.000	0.5189	2.10	15.57	0.135
T28	41 - 20	L2 1/2x2x3/16	7'7-13/16'	3'7-9/16"	76.6	30.000	0.5189	4.45	15.57	0.286
T29	20 - 6.70833	L2x2x3/16	5'19/32"	2'9-3/8"	58.0	30.000	0.4484	3.97	13.45	0.295
T30	6.70833 - 0	L2x2x3/16	3'1-5/16"	1'4-13/16'	31.1	30.000	0.4484	4.10	13.45	0.305*

* DL controls

Horizontal Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P K	Allow. P_a K	Ratio $\frac{P}{P_a}$
T1	457 - 436	L2 1/2x2x1/4	6'	5'4-3/16"	116.5	30.000	0.6778	0.46	20.33	0.023*
T2	436 - 421	L2 1/2x2x1/4	6'	5'4-9/16"	116.9	30.000	0.6778	1.24	20.33	0.061

* DL controls

Secondary Horizontal Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P K	Allow. P_a K	Ratio $\frac{P}{P_a}$

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P K	Allow. P_a K	Ratio $\frac{P}{P_a}$
T6	391 - 386	L2x2x1/4	6'	5'9"	113.3	29.000	0.5863	2.33	17.00	0.137
T7	386 - 381	L2x2x1/4	6'	5'9"	113.3	29.000	0.5863	2.69	17.00	0.158
T12	361 - 341	L2x2x1/4	6'	5'9"	113.3	29.000	0.5863	1.76	17.00	0.104
T17	261 - 241	2L3 1/2x3 1/2x3/8x3/8	6'	5'9"	64.5	21.600	4.9700	2.63	107.35	0.025

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 K	Allow. P_a K	Ratio $\frac{P}{P_a}$
T1	457 - 436	C8x13.75	6'	5'9"	112.2	19.800	4.0400	0.00	79.99	0.000
T2	436 - 421	L2 1/2x2x1/4	6'	5'4-3/16"	116.5	30.000	0.6778	0.78	20.33	0.038*
T3	421 - 401	L2 1/2x2x1/4	6'	5'4-9/16"	116.9	30.000	0.6778	0.58	20.33	0.029
T4	401 - 396	L2 1/2x2x1/4	6'	5'4-9/16"	116.9	30.000	0.6778	0.46	20.33	0.023
T6	391 - 386	L2 1/2x2x1/4	6'	5'9"	116.5	19.800	1.0600	0.79	20.99	0.038
T10	371 - 366	L2 1/2x2x1/4	6'	5'8-17/32'	115.6	19.800	1.0600	1.30	20.99	0.062
T12	361 - 341	L2 1/2x2x1/4	6'	5'8-17/32'	115.6	30.000	0.6778	0.47	20.33	0.023
T13	341 - 321	L2 1/2x2x1/4	6'	5'4-3/16"	116.5	30.000	0.6778	0.34	20.33	0.017
T14	321 - 301	L2 1/2x2x1/4	6'	5'4-3/16"	116.5	30.000	0.6778	0.33	20.33	0.016
T15	301 - 281	L2 1/2x2x3/16	6'	5'4-3/16"	115.0	30.000	0.5189	0.21	15.57	0.013*
T16	281 - 261	L2 1/2x2x1/4	6'	5'4-3/16"	116.5	30.000	0.6778	0.23	20.33	0.011*
T17	261 - 241	L2 1/2x2x3/16	6'	5'9"	115.0	30.000	0.5189	0.67	15.57	0.043
T18	241 - 221	L2 1/2x2x3/16	6'	5'4-3/16"	115.0	30.000	0.5189	0.56	15.57	0.036*
T19	221 - 201	L2 1/2x2x3/16	6'	5'4-3/16"	115.0	30.000	0.5189	0.37	15.57	0.024*
T20	201 - 181	L2 1/2x2x3/16	6'	5'3-31/32'	114.6	30.000	0.5189	0.35	15.57	0.023*
T21	181 - 161	2L3x2x1/4x3/8	6'	5'3-31/32'	77.2	30.000	1.5506	0.60	46.52	0.013
T22	161 - 141	L2 1/2x2x3/16	6'	5'3-31/32'	114.6	30.000	0.5189	0.42	15.57	0.027*
T23	141 - 121	L2 1/2x2x3/16	6'	5'3-23/32'	114.2	30.000	0.5189	1.25	15.57	0.080
T24	121 - 101	L2 1/2x2x3/16	6'	5'3-23/32'	114.2	30.000	0.5189	4.26	15.57	0.274
T25	101 - 81	L2 1/2x2x3/16	6'	5'3-23/32'	114.2	30.000	0.5189	0.50	15.57	0.032*
T26	81 - 61	L2 1/2x2x3/16	6'	5'3-23/32'	114.2	30.000	0.5189	0.77	15.57	0.050
T27	61 - 41	L2 1/2x2x3/16	6'	5'3-23/32'	114.2	30.000	0.5189	0.81	15.57	0.052
T28	41 - 20	L2 1/2x2x3/16	6'	5'3-23/32'	114.2	30.000	0.5189	0.59	15.57	0.038*
T29	20 - 6.70833	L3x2x3/16	6'	5'3-23/32'	117.4	30.000	0.5886	9.28	17.66	0.525*

* DL controls

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 K	Allow. P_a K	Ratio $\frac{P}{P_a}$
T1	457 - 436	L2 1/2x2x1/4	6'	5'4-3/16"	116.5	30.000	0.6778	3.28	20.33	0.161
T3	421 - 401	L2 1/2x2x1/4	6'	5'4-9/16"	116.9	30.000	0.6778	0.61	20.33	0.030
T12	361 - 341	L2 1/2x2x1/4	6'	5'9"	116.5	30.000	0.6778	0.28	20.33	0.014
T13	341 - 321	L2 1/2x2x1/4	6'	5'4-3/16"	116.5	30.000	0.6778	0.35	20.33	0.017
T14	321 - 301	L2 1/2x2x1/4	6'	5'4-3/16"	116.5	30.000	0.6778	0.59	20.33	0.029
T15	301 - 281	L2 1/2x2x3/16	6'	5'4-3/16"	115.0	30.000	0.5189	0.21	15.57	0.013*
T16	281 - 261	L2 1/2x2x1/4	6'	5'4-3/16"	116.5	30.000	0.6778	0.34	20.33	0.016
T18	241 - 221	L2 1/2x2x3/16	6'	5'4-3/16"	115.0	30.000	0.5189	0.85	15.57	0.055
T19	221 - 201	L2 1/2x2x3/16	6'	5'3-31/32"	114.6	30.000	0.5189	0.51	15.57	0.033
T20	201 - 181	L2 1/2x2x3/16	6'	5'3-31/32"	114.6	30.000	0.5189	0.48	15.57	0.031
T21	181 - 161	L2 1/2x2x3/16	6'	5'3-31/32"	114.6	30.000	0.5189	0.51	15.57	0.033
T22	161 - 141	L2 1/2x2x3/16	6'	5'3-23/32"	114.2	30.000	0.5189	0.50	15.57	0.032*
T23	141 - 121	L2 1/2x2x3/16	6'	5'3-23/32"	114.2	30.000	0.5189	8.34	15.57	0.536
T24	121 - 101	L2 1/2x2x3/16	6'	5'3-23/32"	114.2	30.000	0.5189	0.49	15.57	0.031*
T25	101 - 81	L2 1/2x2x3/16	6'	5'3-23/32"	114.2	30.000	0.5189	0.74	15.57	0.048
T26	81 - 61	L2 1/2x2x3/16	6'	5'3-23/32"	114.2	30.000	0.5189	0.78	15.57	0.050
T27	61 - 41	L2 1/2x2x3/16	6'	5'3-23/32"	114.2	30.000	0.5189	0.76	15.57	0.049
T28	41 - 20	L2 1/2x2x3/16	6'	5'3-23/32"	114.2	30.000	0.5189	1.16	15.57	0.075*

* DL controls

Top Guy Pull-Off Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P K	Allow. P_a K	Ratio $\frac{P}{P_a}$
T8	381 - 376	2L3x2x1/4x3/8	6'	5'9"	77.4	19.800	2.3800	24.10	47.12	0.512
T17	261 - 241	2L3 1/2x3 1/2x3/8x3/8	6'	5'9"	64.5	21.600	4.9700	21.92	107.35	0.204

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 K	Allow. P_a K	Ratio $\frac{P}{P_a}$
T23	141 - 121 (820)	2L3x3x3/16	7'6-19/32"	6'11-13/32"	94.6	19.800	2.1800	13.50	43.16	0.313
T23	141 - 121 (821)	2L3x3x3/16	7'6-19/32"	6'11-13/32"	94.6	19.800	2.1800	13.11	43.16	0.304
T23	141 - 121 (826)	2L3x3x3/16	7'6-19/32"	6'11-13/32"	94.6	19.800	2.1800	14.94	43.16	0.346
T23	141 - 121 (827)	2L3x3x3/16	7'6-19/32"	6'11-13/32"	94.6	19.800	2.1800	15.10	43.16	0.350

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P K	Allow. P_a K	Ratio $\frac{P}{P_a}$
T23	141 - 121 (832)	2L3x3x3/16	7'6-19/32"	6'11-13/32"	94.6	19.800	2.1800	14.92	43.16	0.346
T23	141 - 121 (833)	2L3x3x3/16	7'6-19/32"	6'11-13/32"	94.6	19.800	2.1800	14.13	43.16	0.327

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 K	Allow. P_a K	Ratio $\frac{P}{P_a}$
T23	141 - 121 (822)	2L3x3x3/16	12'6-3/8"	11'9-31/32"	157.0	19.800	2.1800	8.45	43.16	0.196
T23	141 - 121 (823)	2L3x3x3/16	12'6-3/8"	11'9-31/32"	157.0	19.800	2.1800	8.53	43.16	0.198
T23	141 - 121 (828)	2L3x3x3/16	12'6-3/8"	11'9-31/32"	157.0	19.800	2.1800	8.82	43.16	0.204
T23	141 - 121 (829)	2L3x3x3/16	12'6-3/8"	11'9-31/32"	157.0	19.800	2.1800	8.90	43.16	0.206
T23	141 - 121 (834)	2L3x3x3/16	12'6-3/8"	11'9-31/32"	157.0	19.800	2.1800	8.51	43.16	0.197
T23	141 - 121 (835)	2L3x3x3/16	12'6-3/8"	11'9-31/32"	157.0	19.800	2.1800	8.46	43.16	0.196

Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	$SF*P_{allow}$ K	% Capacity	Pass Fail
T1	457 - 436	Leg	3	2	-25.00	132.22	18.9	Pass
T2	436 - 421	Leg	2 3/4	44	-35.20	108.54	32.4	Pass
T3	421 - 401	Leg	2 3/4	74	-84.29	108.54	77.7	Pass
T4	401 - 396	Leg	3	107	-99.59	135.86	73.3	Pass
T5	396 - 391	Leg	3	116	-116.08	135.86	85.4	Pass
T6	391 - 386	Leg	3	125	-134.35	166.90	80.5	Pass
T7	386 - 381	Leg	3	140	-155.07	166.90	92.9	Pass
T8	381 - 376	Leg	3 1/2	155	-158.47	198.38	79.9	Pass
T9	376 - 371	Leg	3 1/2	164	-140.81	198.38	71.0	Pass
T10	371 - 366	Leg	3 1/2	173	-126.62	198.38	63.8	Pass
T11	366 - 361	Leg	3 1/2	185	-113.96	198.38	57.4	Pass
T12	361 - 341	Leg	3	197	-101.62	163.95	62.0	Pass
T13	341 - 321	Leg	3	242	-50.10	101.92	49.2	Pass
T14	321 - 301	Leg	3	275	-53.61	101.92	52.6	Pass
T15	301 - 281	Leg	3	308	-79.53	135.86	58.5	Pass
T16	281 - 261	Leg	3	342	-120.98	135.86	89.0	Pass
T17	261 - 241	Leg	3	375	-151.94	164.59	92.3	Pass
T18	241 - 221	Leg	3	420	-119.91	135.86	88.3	Pass
T19	221 - 201	Leg	3 1/4	453	-84.49	124.39	67.9	Pass
T20	201 - 181	Leg	3 1/4	485	-119.44	165.81	72.0	Pass
T21	181 - 161	Leg	3 1/4	520	-91.95	124.39	73.9	Pass
T22	161 - 141	Leg	3 1/2	553	-95.80	148.82	64.4	Pass
T23	141 - 121	Leg	3 1/2	586	-99.77	148.82	67.0	Pass
T24	121 - 101	Leg	3 1/2	617	-149.28	198.38	75.2	Pass
T25	101 - 81	Leg	3 1/2	651	-164.17	198.38	82.8	Pass

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	$SF*P_{allow}$ K	% Capacity	Pass Fail
T26	81 - 61	Leg	3 1/2	684	-167.35	198.38	84.4	Pass
T27	61 - 41	Leg	3 1/2	717	-165.29	198.38	83.3	Pass
T28	41 - 20	Leg	3 1/2	750	-124.53	145.88	85.4	Pass
T29	20 - 6.70833	Leg	3 1/4	783	-130.00	130.07	99.9	Pass
T30	6.70833 - 0	Leg	3 1/4	804	-133.95	137.84	97.2	Pass
T1	457 - 436	Diagonal	L2 1/2x2x1/4	43	-2.04	16.40	12.4	Pass
							50.0 (b)	
T2	436 - 421	Diagonal	L2 1/2x2x3/16	53	-2.19	12.78	17.1	Pass
T3	421 - 401	Diagonal	L2 1/2x2x3/16	86	-6.92	12.78	54.1	Pass
							62.9 (b)	
T4	401 - 396	Diagonal	L2 1/2x2x3/16	113	-7.18	12.78	56.2	Pass
							65.3 (b)	
T5	396 - 391	Diagonal	L2 1/2x2x3/16	122	-8.00	12.78	62.6	Pass
							72.7 (b)	
T6	391 - 386	Diagonal	L2 1/2x2x3/16	134	-9.95	12.72	78.2	Pass
T7	386 - 381	Diagonal	L2 1/2x2x3/16	149	-8.27	12.72	65.1	Pass
							70.0 (b)	
T8	381 - 376	Diagonal	L2 1/2x2x3/16	158	-8.54	12.78	66.8	Pass
							91.1 (b)	
T9	376 - 371	Diagonal	L2 1/2x2x3/16	167	-10.01	12.78	78.3	Pass
							91.1 (b)	
T10	371 - 366	Diagonal	L2 1/2x2x3/16	182	-8.60	12.78	67.3	Pass
							78.3 (b)	
T11	366 - 361	Diagonal	L2 1/2x2x3/16	194	-8.29	12.78	64.8	Pass
							75.4 (b)	
T12	361 - 341	Diagonal	L2 1/2x2x3/16	236	-7.89	12.72	62.1	Pass
							71.8 (b)	
T13	341 - 321	Diagonal	L2 1/2x2x3/16	272	-6.21	12.78	48.6	Pass
							56.5 (b)	
T14	321 - 301	Diagonal	L2 1/2x2x3/16	285	-3.09	12.78	24.2	Pass
							59.0 (b)	
T15	301 - 281	Diagonal	L2 1/2x2x3/16	318	-4.78	12.78	37.4	Pass
							91.4 (b)	
T16	281 - 261	Diagonal	L2 1/2x2x3/16	351	-7.47	12.78	58.5	Pass
							68.0 (b)	
T17	261 - 241	Diagonal	L3x3x1/4	396	-9.40	30.31	31.0	Pass
							86.9 (b)	
T18	241 - 221	Diagonal	L3x3x1/4	450	-8.22	28.61	28.7	Pass
							74.8 (b)	
T19	221 - 201	Diagonal	L2 1/2x2x3/16	483	-5.11	12.78	40.0	Pass
							97.6 (b)	
T20	201 - 181	Diagonal	L2 1/2x2x3/16	516	-3.42	12.78	26.8	Pass
							65.3 (b)	
T21	181 - 161	Diagonal	L2 1/2x2x3/16	527	-2.09	12.78	16.3	Pass
							39.9 (b)	
T22	161 - 141	Diagonal	L3x3x1/4	560	-5.10	28.66	17.8	Pass
							29.7 (b)	
T23	141 - 121	Diagonal	L3x3x1/4	611	-6.54	28.66	22.8	Pass
							38.5 (b)	
T24	121 - 101	Diagonal	L2 1/2x2x3/16	638	-4.50	12.78	35.2	Pass
							40.9 (b)	
T25	101 - 81	Diagonal	L2 1/2x2x3/16	681	-2.38	12.78	18.6	Pass
							45.4 (b)	
T26	81 - 61	Diagonal	L2 1/2x2x3/16	695	-1.03	12.78	8.1	Pass
							19.8 (b)	
T27	61 - 41	Diagonal	L2 1/2x2x3/16	725	-2.40	12.78	18.8	Pass
							45.9 (b)	
T28	41 - 20	Diagonal	L2 1/2x2x3/16	764	-4.19	12.58	33.3	Pass
							85.0 (b)	
T29	20 - 6.70833	Diagonal	L2x2x3/16	786	3.97	17.93	22.1	Pass
							75.8 (b)	

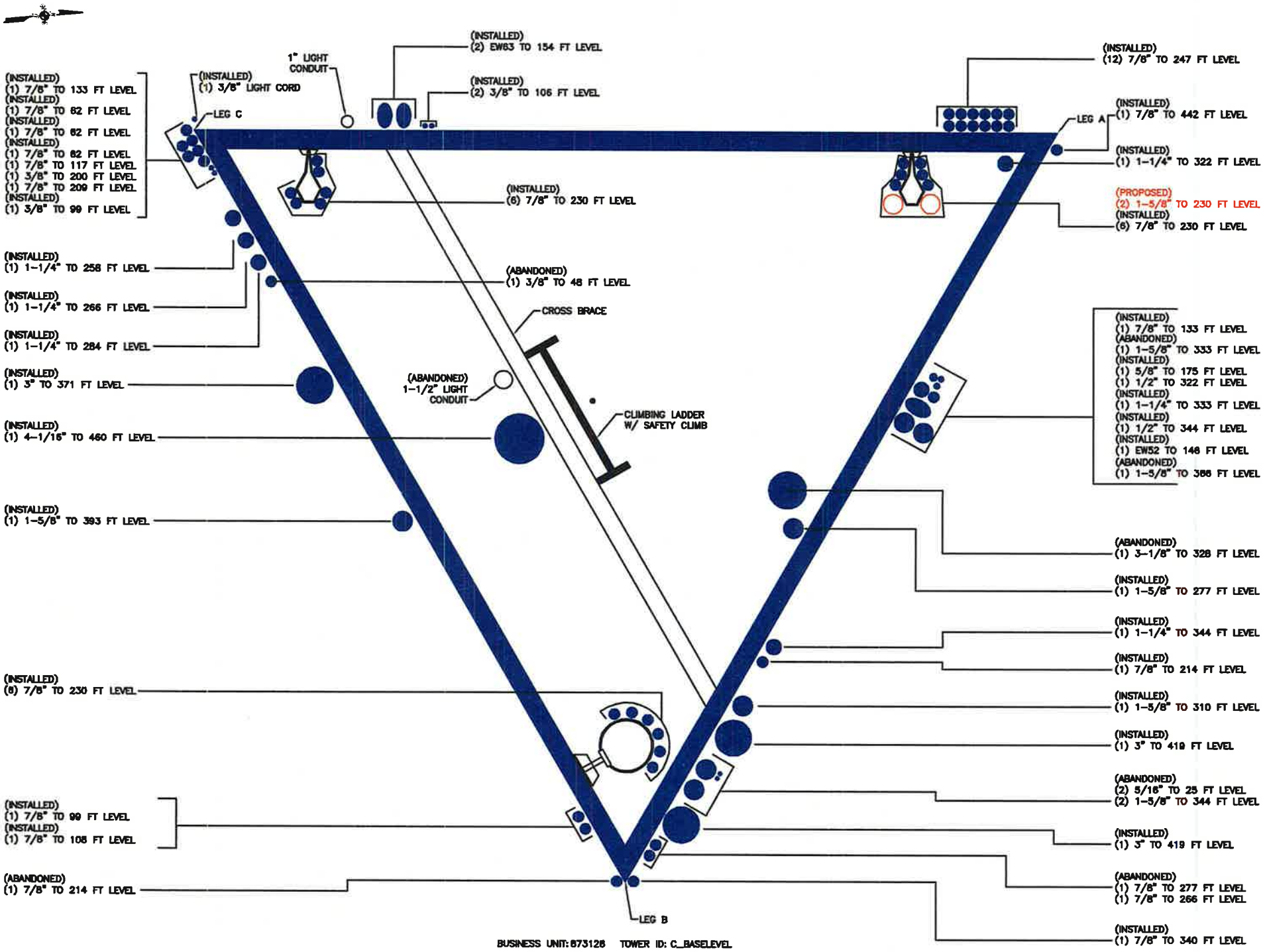
Section No.	Elevation ft	Component Type	Size	Critical Element	P K	$SF*P_{allow}$ K	% Capacity	Pass Fail
T30	6.70833 - 0	Diagonal	L2x2x3/16	807	-5.06	15.53	32.6 96.6 (b)	Pass
T1	457 - 436	Horizontal	L2 1/2x2x1/4	36	-0.97	8.15	11.9 18.6 (b)	Pass
T2	436 - 421	Horizontal	L2 1/2x2x1/4	56	1.24	27.11	4.6 23.7 (b)	Pass
T6	391 - 386	Secondary Horizontal	L2x2x1/4	137	-2.33	18.02	12.9 29.6 (b)	Pass
T7	386 - 381	Secondary Horizontal	L2x2x1/4	152	-2.69	18.02	14.9 34.2 (b)	Pass
T12	361 - 341	Secondary Horizontal	L2x2x1/4	221	-1.76	18.02	9.8 22.4 (b)	Pass
T17	261 - 241	Secondary Horizontal	2L3 1/2x3 1/2x3/8x3/8	390	-2.63	131.05	2.0	Pass
T1	457 - 436	Top Girt	C8x13.75	6	-0.00	51.24	0.2	Pass
T2	436 - 421	Top Girt	L2 1/2x2x1/4	8	0.78	20.33	3.8 15.0 (b)	Pass
T3	421 - 401	Top Girt	L2 1/2x2x1/4	47	0.58	27.11	2.1 11.1 (b)	Pass
T4	401 - 396	Top Girt	L2 1/2x2x1/4	78	-0.35	10.80	3.2 8.9 (b)	Pass
T6	391 - 386	Top Girt	L2 1/2x2x1/4	130	0.79	27.98	2.8	Pass
T10	371 - 366	Top Girt	L2 1/2x2x1/4	178	1.30	27.98	4.6	Pass
T12	361 - 341	Top Girt	L2 1/2x2x1/4	188	0.47	27.11	1.7 9.0 (b)	Pass
T13	341 - 321	Top Girt	L2 1/2x2x1/4	202	0.34	27.11	1.3 6.5 (b)	Pass
T14	321 - 301	Top Girt	L2 1/2x2x1/4	245	0.33	27.11	1.2 6.4 (b)	Pass
T15	301 - 281	Top Girt	L2 1/2x2x3/16	278	0.21	15.57	1.3 4.0 (b)	Pass
T16	281 - 261	Top Girt	L2 1/2x2x1/4	313	0.23	20.33	1.1 4.4 (b)	Pass
T17	261 - 241	Top Girt	L2 1/2x2x3/16	346	0.67	20.75	3.2 12.8 (b)	Pass
T18	241 - 221	Top Girt	L2 1/2x2x3/16	377	0.56	15.57	3.6 10.8 (b)	Pass
T19	221 - 201	Top Girt	L2 1/2x2x3/16	423	0.37	15.57	2.4 7.1 (b)	Pass
T20	201 - 181	Top Girt	L2 1/2x2x3/16	457	0.35	15.57	2.3 8.9 (b)	Pass
T21	181 - 161	Top Girt	2L3x2x1/4x3/8	489	0.60	62.01	1.0 5.7 (b)	Pass
T22	161 - 141	Top Girt	L2 1/2x2x3/16	523	0.42	15.57	2.7 8.0 (b)	Pass
T23	141 - 121	Top Girt	L2 1/2x2x3/16	556	1.25	20.75	6.0 23.9 (b)	Pass
T24	121 - 101	Top Girt	L2 1/2x2x3/16	589	-4.74	8.45	56.0 90.5 (b)	Pass
T25	101 - 81	Top Girt	L2 1/2x2x3/16	621	0.50	15.57	3.2 9.6 (b)	Pass
T26	81 - 61	Top Girt	L2 1/2x2x3/16	654	0.77	20.75	3.7 14.8 (b)	Pass
T27	61 - 41	Top Girt	L2 1/2x2x3/16	687	0.81	20.75	3.9 15.5 (b)	Pass
T28	41 - 20	Top Girt	L2 1/2x2x3/16	720	0.59	15.57	3.8 11.3 (b)	Pass
T29	20 - 6.70833	Top Girt	L3x2x3/16	753	9.28	17.66	52.5 84.4 (b)	Pass
T1	457 - 436	Mid Girt	L2 1/2x2x1/4	13	3.28	27.11	12.1 62.7 (b)	Pass
T3	421 - 401	Mid Girt	L2 1/2x2x1/4	81	-0.48	10.80	4.5	Pass

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	SF*P_{allow} K	% Capacity	Pass Fail
							11.6 (b)	
T12	361 - 341	Mid Girt	L2 1/2x2x1/4	203	0.28	27.11	1.0	Pass
							5.3 (b)	
T13	341 - 321	Mid Girt	L2 1/2x2x1/4	250	0.35	27.11	1.3	Pass
							6.6 (b)	
T14	321 - 301	Mid Girt	L2 1/2x2x1/4	283	0.59	27.11	2.2	Pass
							11.3 (b)	
T15	301 - 281	Mid Girt	L2 1/2x2x3/16	314	0.21	15.57	1.3	Pass
							4.0 (b)	
T16	281 - 261	Mid Girt	L2 1/2x2x1/4	349	0.34	27.11	1.2	Pass
							6.4 (b)	
T18	241 - 221	Mid Girt	L2 1/2x2x3/16	426	0.85	20.75	4.1	Pass
							16.2 (b)	
T19	221 - 201	Mid Girt	L2 1/2x2x3/16	459	0.51	20.75	2.5	Pass
							9.8 (b)	
T20	201 - 181	Mid Girt	L2 1/2x2x3/16	492	0.48	20.75	2.3	Pass
							9.2 (b)	
T21	181 - 161	Mid Girt	L2 1/2x2x3/16	525	0.51	20.75	2.4	Pass
							9.7 (b)	
T22	161 - 141	Mid Girt	L2 1/2x2x3/16	558	0.50	15.57	3.2	Pass
							9.5 (b)	
T23	141 - 121	Mid Girt	L2 1/2x2x3/16	591	-5.78	8.45	68.4	Pass
							75.9 (b)	
T24	121 - 101	Mid Girt	L2 1/2x2x3/16	625	0.49	15.57	3.1	Pass
							9.3 (b)	
T25	101 - 81	Mid Girt	L2 1/2x2x3/16	657	0.74	20.75	3.6	Pass
							14.2 (b)	
T26	81 - 61	Mid Girt	L2 1/2x2x3/16	690	0.78	20.75	3.7	Pass
							14.8 (b)	
T27	61 - 41	Mid Girt	L2 1/2x2x3/16	723	0.76	20.75	3.6	Pass
							14.5 (b)	
T28	41 - 20	Mid Girt	L2 1/2x2x3/16	756	1.16	15.57	7.5	Pass
							22.2 (b)	
T1	457 - 436	Guy A@446.5	9/16	844	13.51	17.50	77.2	Pass
T8	381 - 376	Guy A@381	1 3/8	841	74.86	116.00	64.5	Pass
T17	261 - 241	Guy A@251	1 1/4	838	56.02	96.00	58.4	Pass
T23	141 - 121	Guy A@131	11/16	830	16.80	25.00	67.2	Pass
T1	457 - 436	Guy B@446.5	9/16	843	13.67	17.50	78.1	Pass
T8	381 - 376	Guy B@381	1 3/8	840	75.74	116.00	65.3	Pass
T17	261 - 241	Guy B@251	1 1/4	837	57.01	96.00	59.4	Pass
T23	141 - 121	Guy B@131	11/16	824	16.90	25.00	67.6	Pass
T1	457 - 436	Guy C@446.5	9/16	842	13.36	17.50	76.3	Pass
T8	381 - 376	Guy C@381	1 3/8	839	74.14	116.00	63.9	Pass
T17	261 - 241	Guy C@251	1 1/4	836	56.19	96.00	58.5	Pass
T23	141 - 121	Guy C@131	11/16	819	16.93	25.00	67.7	Pass
T8	381 - 376	Top Guy Pull-Off@381	2L3x2x1/4x3/8	145	24.10	62.82	38.4	Pass
T17	261 - 241	Top Guy Pull-Off@251	2L3 1/2x3 1/2x3/8x3/8	382	21.92	143.10	15.3	Pass
T23	141 - 121	Torque Arm Top@131	2L3x3x3/16	827	15.10	57.54	26.2	Pass
							64.1 (b)	
T23	141 - 121	Torque Arm Bottom@131	2L3x3x3/16	828	-17.14	22.40	76.5	Pass
							Summary	
						Leg (T29)	99.9	Pass
						Diagonal (T19)	97.6	Pass
						Horizontal (T2)	23.7	Pass
						Secondary Horizontal	34.2	Pass

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	$SF*P_{allow}$ K	% Capacity	Pass Fail
						(T7) Top Girt	90.5	Pass
						(T24) Mid Girt	75.9	Pass
						(T23) Guy A (T1)	77.2	Pass
						Guy B (T1)	78.1	Pass
						Guy C (T1)	76.3	Pass
						Top Guy Pull-Off	38.4	Pass
						(T8) Torque Arm Top	64.1	Pass
						(T23) Torque Arm Bottom	76.5	Pass
						(T23) Bolt Checks	90.5	Pass
						RATING =	**99.9**	**Pass**

APPENDIX B

BASE LEVEL DRAWING


(INSTALLED)
(1) 7/8" TO 133 FT LEVEL
(INSTALLED)
(1) 7/8" TO 82 FT LEVEL
(INSTALLED)
(1) 7/8" TO 82 FT LEVEL
(INSTALLED)
(1) 7/8" TO 82 FT LEVEL
(1) 7/8" TO 117 FT LEVEL
(1) 3/8" TO 200 FT LEVEL
(1) 7/8" TO 209 FT LEVEL
(INSTALLED)
(1) 3/8" TO 99 FT LEVEL
(INSTALLED)
(1) 3/8" LIGHT CORD
LEG C
1" LIGHT CONDUIT
(INSTALLED)
(2) EW63 TO 154 FT LEVEL
(INSTALLED)
(2) 3/8" TO 106 FT LEVEL
(INSTALLED)
(6) 7/8" TO 230 FT LEVEL
(INSTALLED)
(1) 1-1/4" TO 258 FT LEVEL
(INSTALLED)
(1) 1-1/4" TO 266 FT LEVEL
(INSTALLED)
(1) 1-1/4" TO 284 FT LEVEL
(ABANDONED)
(1) 3/8" TO 48 FT LEVEL
CROSS BRACE
(INSTALLED)
(1) 3" TO 371 FT LEVEL
(ABANDONED)
1-1/2" LIGHT CONDUIT
CLIMBING LADDER W/ SAFETY CLIMB
(INSTALLED)
(1) 4-1/16" TO 460 FT LEVEL
(INSTALLED)
(1) 1-5/8" TO 393 FT LEVEL
(INSTALLED)
(8) 7/8" TO 230 FT LEVEL
(INSTALLED)
(1) 7/8" TO 99 FT LEVEL
(INSTALLED)
(1) 7/8" TO 106 FT LEVEL
(ABANDONED)
(1) 7/8" TO 214 FT LEVEL
LEG B
(INSTALLED)
(12) 7/8" TO 247 FT LEVEL
LEG A
(INSTALLED)
(1) 7/8" TO 442 FT LEVEL
(INSTALLED)
(1) 1-1/4" TO 322 FT LEVEL
(PROPOSED)
(2) 1-5/8" TO 230 FT LEVEL
(INSTALLED)
(6) 7/8" TO 230 FT LEVEL
(INSTALLED)
(1) 7/8" TO 133 FT LEVEL
(ABANDONED)
(1) 1-5/8" TO 333 FT LEVEL
(INSTALLED)
(1) 5/8" TO 175 FT LEVEL
(1) 1/2" TO 322 FT LEVEL
(INSTALLED)
(1) 1-1/4" TO 333 FT LEVEL
(INSTALLED)
(1) 1/2" TO 344 FT LEVEL
(INSTALLED)
(1) EW52 TO 148 FT LEVEL
(ABANDONED)
(1) 1-5/8" TO 366 FT LEVEL
(ABANDONED)
(1) 3-1/8" TO 328 FT LEVEL
(INSTALLED)
(1) 1-5/8" TO 277 FT LEVEL
(INSTALLED)
(1) 1-1/4" TO 344 FT LEVEL
(INSTALLED)
(1) 7/8" TO 214 FT LEVEL
(INSTALLED)
(1) 1-5/8" TO 310 FT LEVEL
(INSTALLED)
(1) 3" TO 419 FT LEVEL
(ABANDONED)
(2) 5/16" TO 25 FT LEVEL
(2) 1-5/8" TO 344 FT LEVEL
(INSTALLED)
(1) 3" TO 419 FT LEVEL
(ABANDONED)
(1) 7/8" TO 277 FT LEVEL
(1) 7/8" TO 266 FT LEVEL
(INSTALLED)
(1) 7/8" TO 340 FT LEVEL
BUSINESS UNIT: 873128 TOWER ID: C_BASELEVEL

APPENDIX C

ADDITIONAL CALCULATIONS

Bearing: 73.57%

Pad		
Width at the top of the pad (ft)	Width at the bottom of the pad (ft)	Thickness of the pad (ft)
10.50	10.50	2.00

Pier			
Width at the top of the pier (ft)	Width at the bottom of the pier (ft)	Length of the pier (ft)	Pier Extension above grade (ft)
4.50	10.00	3.00	0.50

Soil Density (kcf)	Depth to base of foundation (ft)	Vertical Load (kip)	Horizontal Load (kip)
0.115	5.00	386.00	6.00

Weight of Concrete	57.86	kip
W_c (Replaced)	13.65	kip
Weight of Soil	18.54	kip
Total Vertical Load	462.40	kip
Moment	30.00	kip-ft
Section Modulus - S	136.43	ft^3
Area - A	110.25	ft^2
Min. Pressure - q_{min}	3.97	ksf
Max Pressure - q_{max}	4.41	ksf

All. Pressure - q_{all}: 6.00 ksf

Net Bearing Pressure? No

Lateral: 5.48%

Coefficient of Friction (μ)	Friction Angle (ϕ) (Degrees)	Cohesion (ksf)
0.4	34	0

K_P	3.54	
$Pressure_{Top}$	1.22	ksf
$Pressure_{Bottom}$	2.03	ksf
Force from pressure	34.17	kip
Force from friction	184.96	kip

Total Resistance: 109.56 kip (SF = 2.0)

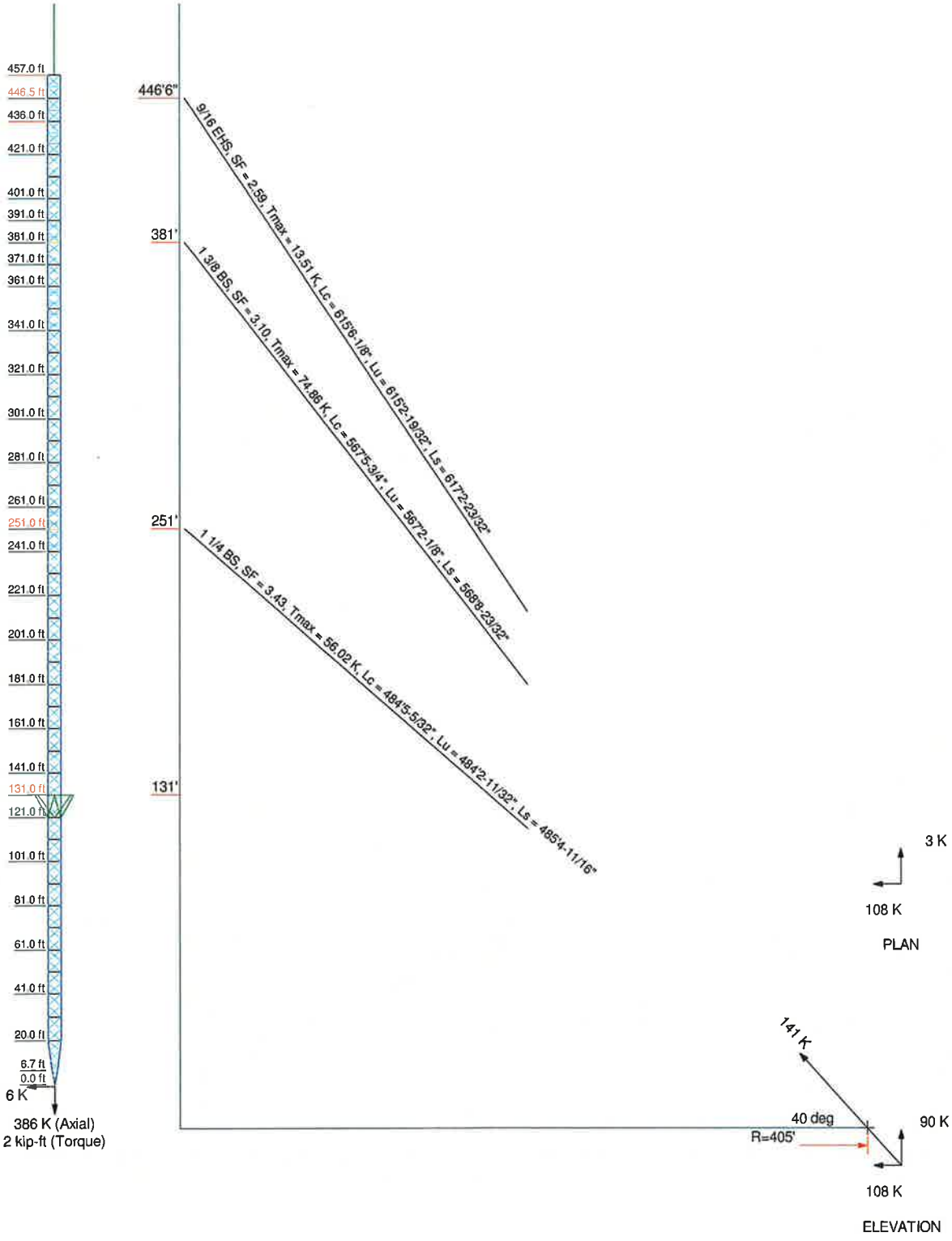
Guy Tensions and Tower Reactions

TIA/EIA-222-F - 85 mph/38 mph 0.7500 in Ice

Maximum Values

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

Plane through centroid of tower



Tower Engineering Professionals

Tower Engineering Professionals
326 Tryon Road
Raleigh, NC
Phone: (919) 661-6351
FAX: (919) 661-6350

Job: *Trumbull (BU 873128)*			
Project: *TEP No. 25575.25415*			
Client: Crown Castle	Drawn by: TLI	App'd:	
Code: TIA/EIA-222-F	Date: 10/17/14	Scale: NTS	
Path: C:\Users\tlinfante\Desktop\25575.25415 Trumbull\tnxTower\873128_LC4.5.eri		Dwg No. E-6	

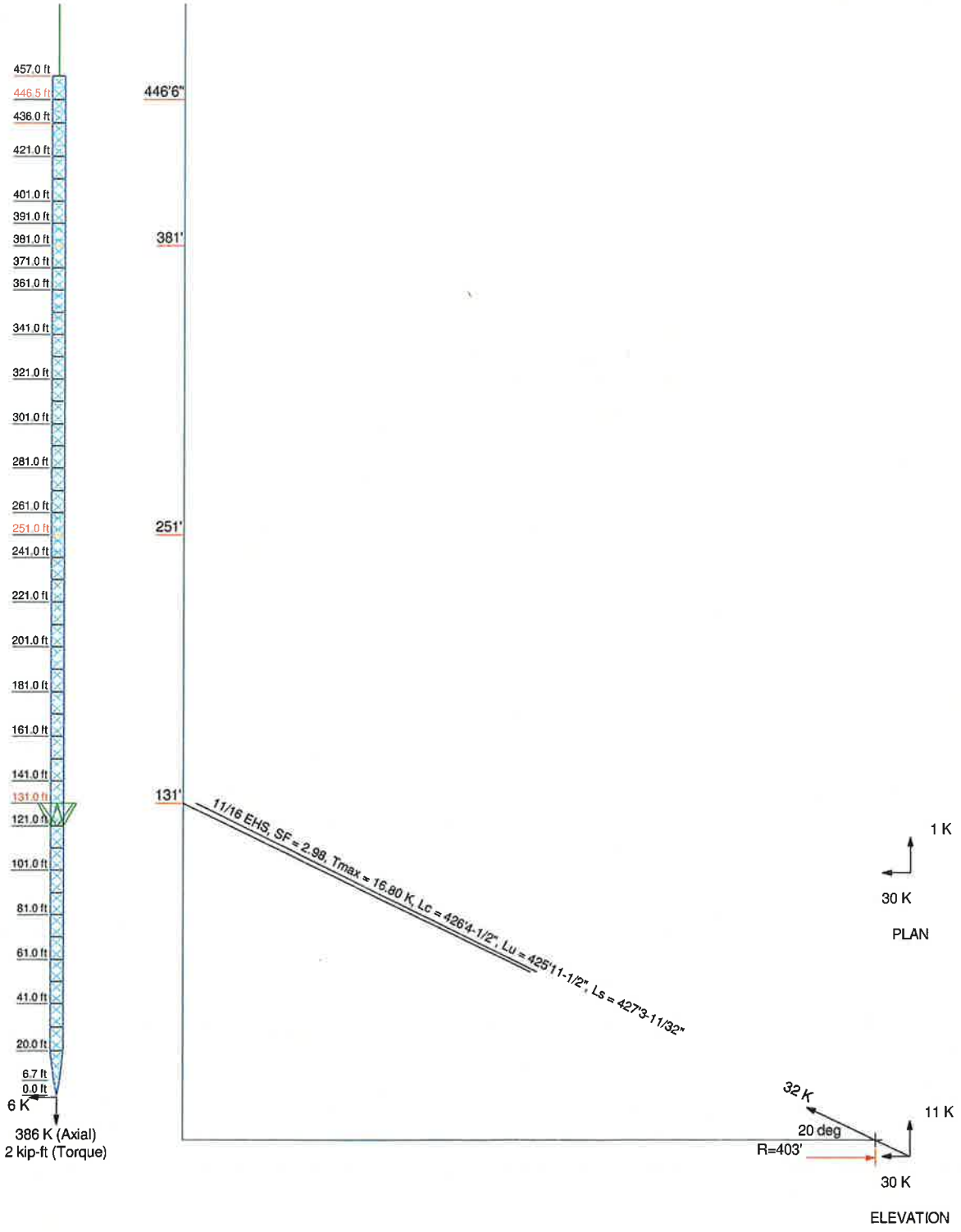
Guy Tensions and Tower Reactions

TIA/EIA-222-F - 85 mph/38 mph 0.7500 in Ice

Maximum Values

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

Plane through centroid of tower



Tower Engineering Professionals

Tower Engineering Professionals
326 Tryon Road
Raleigh, NC
Phone: (919) 661-6351
FAX: (919) 661-6350

Job: *Trumbull (BU 873128)*		
Project: *TEP No. 25575.25415*		
Client: Crown Castle	Drawn by: TLI	App'd:
Code: TIA/EIA-222-F	Date: 10/17/14	Scale: NTS
Path: C:\Users\tlinfante\Desktop\25575.25415 Trumbull\mxTower\873128_LC4.5.eri		Dwg No. E-6

Deadman Anchor Analysis: A - Anchor Path

Project Name: Trumbull (BU 873128)
Job #: 25575.25415
Client: Crown Castle
Analysis by: PRS
Checked by: TLI
Code: TIA - F

Anchor Block is Adequate for Uplift	30.5%
Anchor Block is Adequate for Lateral	93.4%

Loads

U_{max}: 101.00 kips - maximum uplift reaction
H_{max}: 138.00 kips - maximum horizontal reaction

Capacity

U_{all}: 331.28 kips - allowable uplift
H_{all}: 147.69 kips - allowable horizontal

Foundation Input

Guy Path: A
Anchor Ring: Anchor Path

W_b: 18.50 ft - width of anchor block
L_b: 23.00 ft - length of anchor block
T_b: 3.30 ft - thickness of anchor block
d: 2.00 ft - depth from t/ grade to t/ anchor block
b: 5.30 ft - depth from t/ grade to b/ anchor block

Ultimate Soil Properties

D_w: 8.50 ft - depth from t/ grade to water table

Geotechnical Firm: FDH Engineering
Report: 04-1229E
Date: 2/3/2005
Notes: Boring B-4
42" Frost Depth (per CT Building Code)

USE? Yes
Soil Berm:
depth: 4.00 ft
width: 18.50 ft
length: 23.50 ft
density: 110.00 pcf

Weight: 191.29 kips

Layer	Begin (ft)	End (ft)	ϕ Friction Angle (deg)	c Ult. Cohesion (psf)	γ Eff. Unit Weight (pcf)	f_s Ult. Skin Friction (ksf)	μ Friction Factor
1	0.00	2.00	33.00	0.00	115.00	0.00	0.00
2	2.00	3.50	0.00	0.00	115.00	0.00	0.40
3	3.50	4.00	33.00	0.00	115.00	0.19	0.40
4	4.00	5.30	41.00	0.00	125.00	0.33	0.40
5							
6							

Analysis Criteria

Uplift:	F_{s_sides}=	11.45	Yes	Horizontal:	F_{s_sides} =	15.65	Yes
	F_{s_front}=	12.05	Yes		F_{s_top} =	0.00	No
	F_{s_back}=	0.00	No		F_{s_bottom} =	0.00	No
					$F_{\perp} \cdot \mu$ =	174.08	Yes

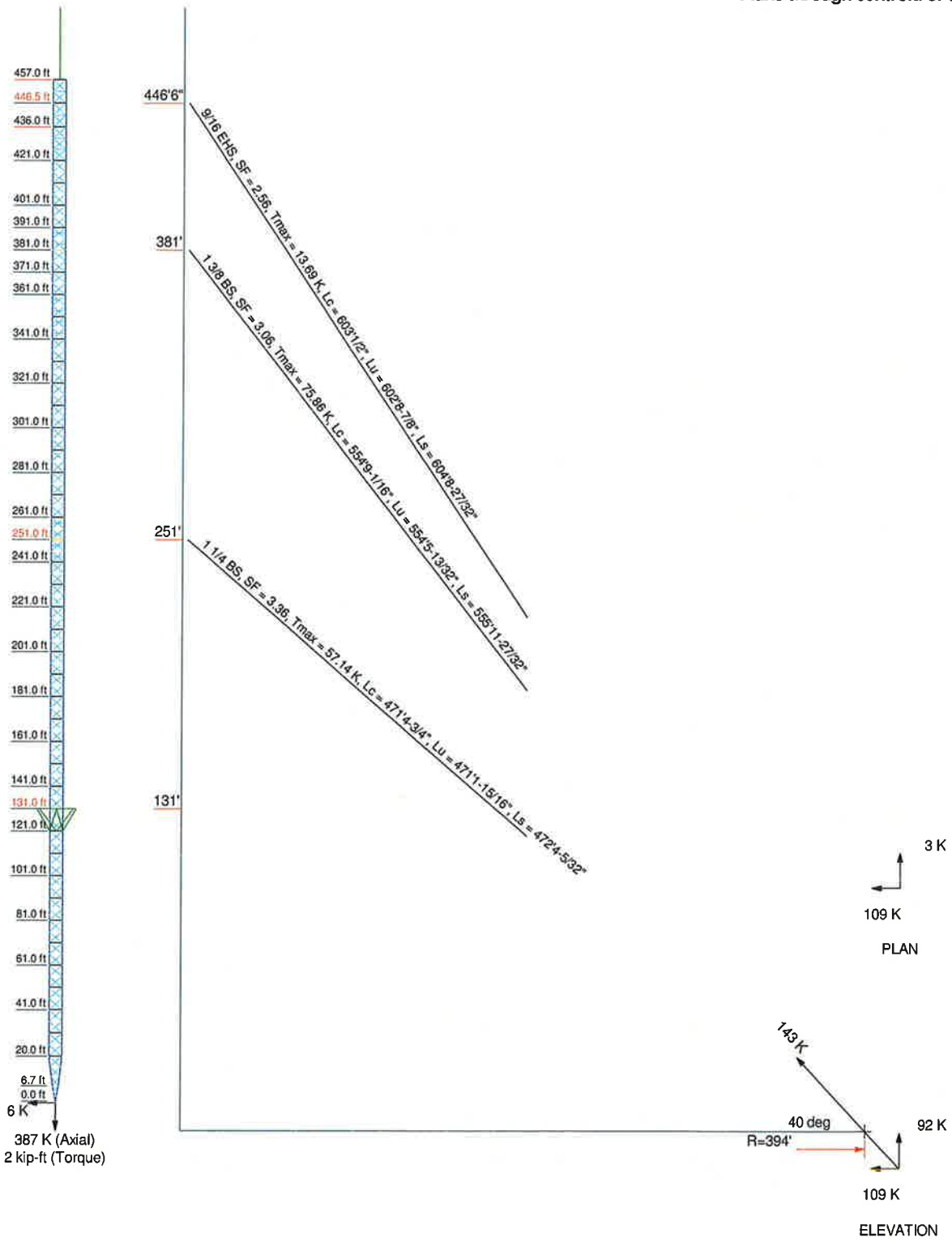
Guy Tensions and Tower Reactions

TIA/EIA-222-F - 85 mph/38 mph 0.7500 in Ice

Maximum Values

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

Plane through centroid of tower

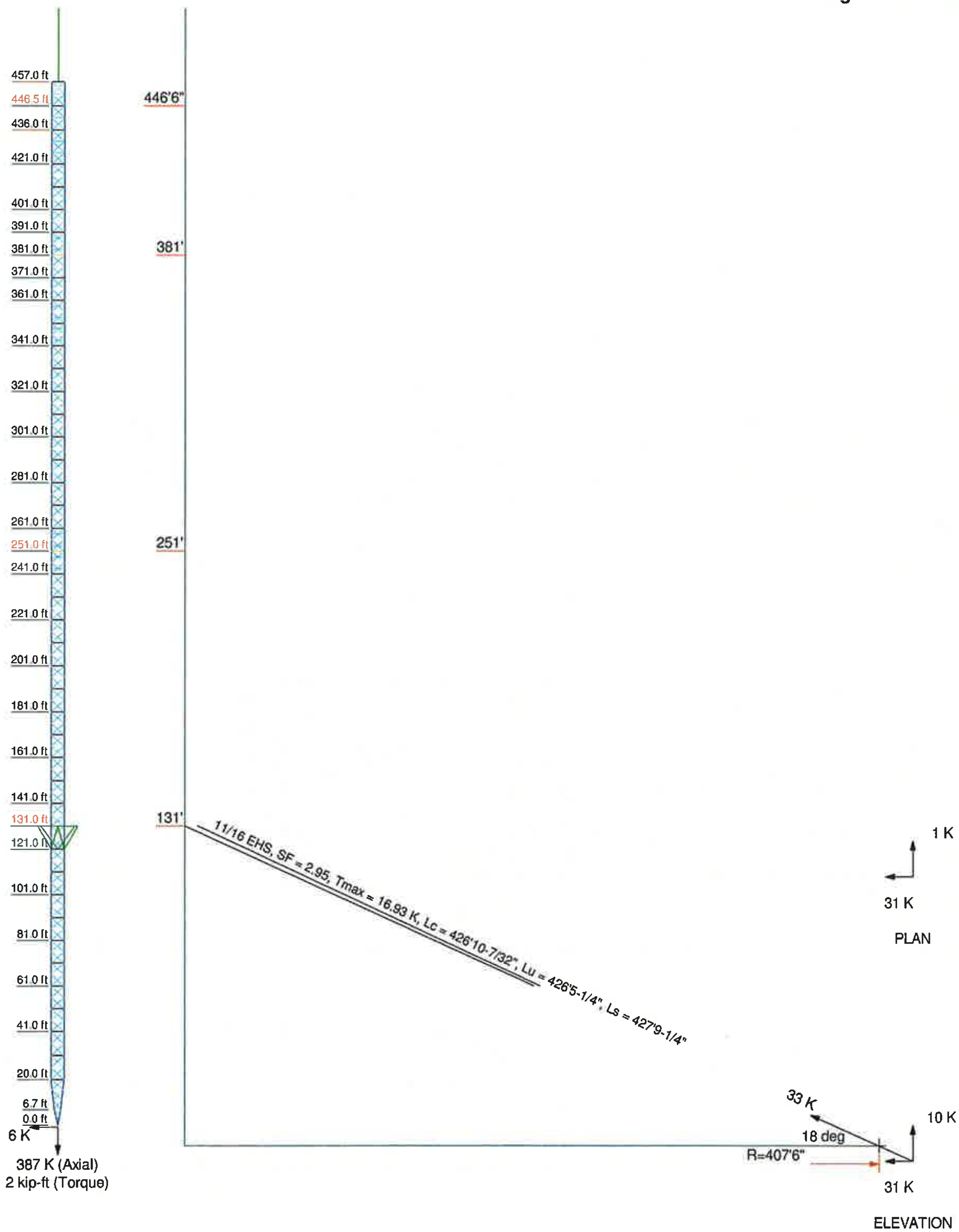


Tower Engineering Professionals	*Tower Engineering Professionals* 326 Tryon Road Raleigh, NC Phone: (919) 661-6351 FAX: (919) 661-6350	Job: ***Trumbull (BU 873128)*** Project: ***TEP No. 25575.25415*** Client: Crown Castle — Drawn by: TLI — App'd: Code: TIA/EIA-222-F — Date: 10/16/14 — Scale: NTS Path: C:\Users\tlinfante\Desktop\25575.25415 Trumbull\Rev Tower\873128 LC5.eri — Dwg No. E-6

Guy Tensions and Tower Reactions

TIA/EIA-222-F - 85 mph/38 mph 0.7500 in Ice

Maximum Values
Anchor 'B'@407.5 ft Azimuth 120 deg Elev -9 ft
Plane through centroid of tower



Tower Engineering Professionals 326 Tryon Road Raleigh, NC Phone: (919) 661-6351 FAX: (919) 661-6350	Job: Trumbull (BU 873128)		
	Project: TEP No. 25575.25415		
	Client: Crown Castle	Drawn by: TLI	App'd:
	Code: TIA/EIA-222-F	Date: 10/16/14	Scale: NTS
	Path: C:\Users\tinfante\Desktop\25575.25415 Trumbull\trxTower\873128_LC5.eri		Dwg No. E-6

Deadman Anchor Analysis: B - Anchor Path

Project Name: Trumbull (BU 873128)
Job #: TEP No. 25575.25415
Client: Crown Castle
Analysis by: PRS
Checked by: TLI
Code: TIA - F

Anchor Block is Adequate for Uplift	38.5%
Anchor Block is Adequate for Lateral	39.0%
Concrete Block is Adequate for Lateral	91.8%
Concrete Block is Adequate for Overturning	33.4%

Loads

U_1: 92.00 kips - uplift reaction (block front)
H_1: 109.00 kips - maximum horizontal reaction (block f
U_2: 10.00 kips - uplift reaction (block back)
H_2: 31.00 kips - maximum horizontal reaction (block back)

Capacity

U_{all}: 238.95 kips - allowable uplift
H_{all}: 279.41 kips - allowable horizontal

Foundation Input

Guy Path: B
Anchor Ring: Anchor Path

W_b: 7.00 ft - width of anchor block
L_b: 6.00 ft - length of anchor block
T_b: 5.50 ft - thickness of anchor block
d: 4.30 ft - depth from t/ grade to t/ anchor block
b: 9.80 ft - depth from t/ grade to b/ anchor block

Ultimate Soil Properties

D_w: 8.50 ft - depth from t/ grade to water table

Geotechnical Firm: FDH Engineering
Report: 04-1229E
Date: 2/3/2005
Notes: Boring B-2
42" Frost Depth (per CT building code)

USE? Yes
Concrete Berm:
depth (above gr): 3.00 ft
depth (below gr): 2.30 ft
width: 15.00 ft
length: 15.00 ft
density: 150.00 pcf

Layer	Begin (ft)	End (ft)	ϕ Friction Angle (deg)	c Ult. Cohesion (psf)	γ Eff. Unit Weight (pcf)	f_s Ult. Skin Friction (ksf)	μ Friction Factor
1	0.00	2.30	0.00	0.00	115.00	0.00	0.00
2	2.30	3.50	34.00	0.00	115.00	0.00	0.40
3	3.50	8.50	0.00	5000.00	135.00	1.89	0.40
4	8.50	9.80	0.00	5000.00	72.60	1.89	0.40
5							
6							

Analysis Criteria

Uplift				Horizontal			
	F_{s_sides}=	93.87	Yes		F_{s_sides} =	111.21	Yes
	F_{s_front}=	62.37	Yes		F_{s_top} =	0.00	No
	F_{s_back}=	0.00	No		F_{s_bottom} =	0.00	No
					$F_{\perp} \cdot \mu$ =	88.81	Yes

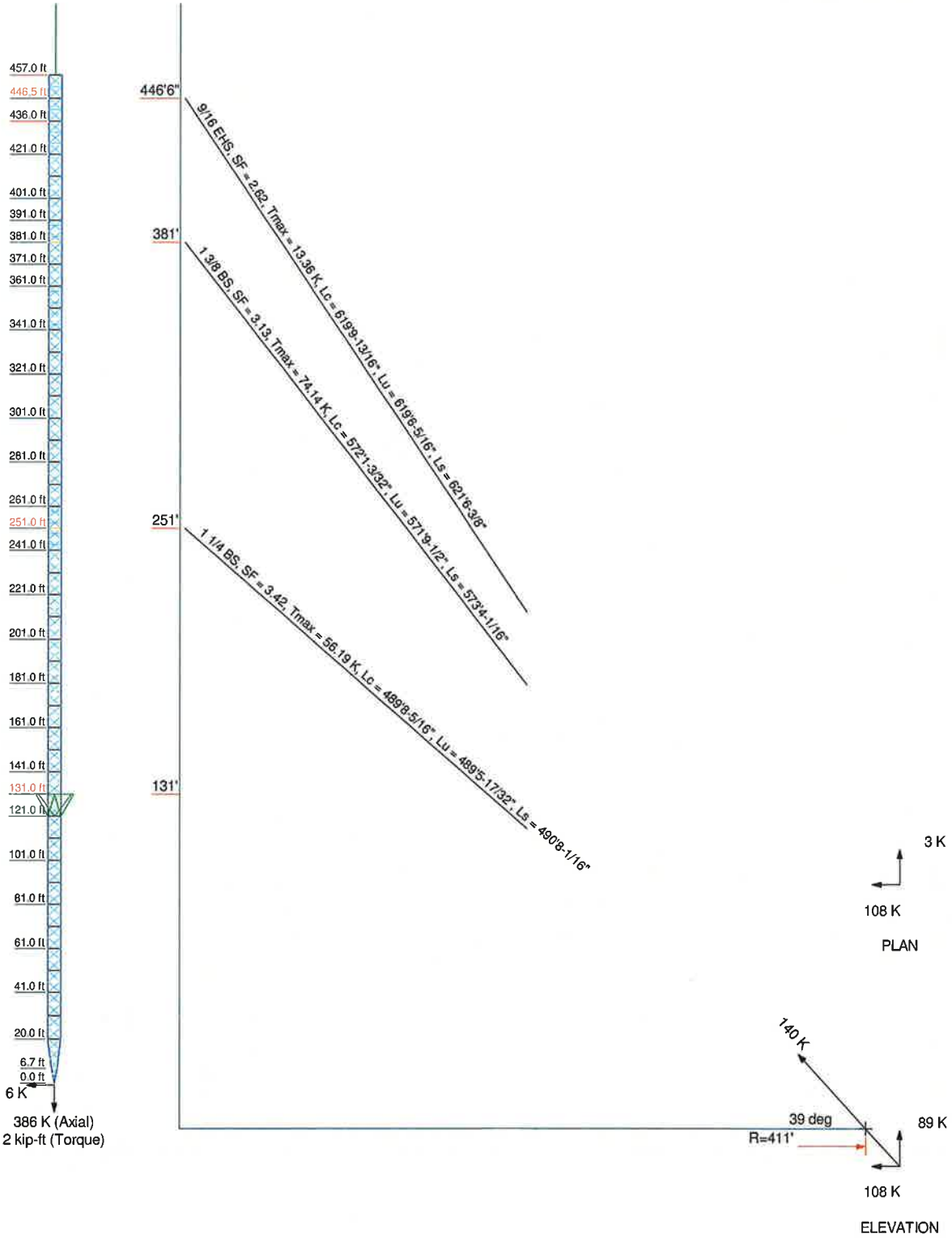
Guy Tensions and Tower Reactions

TIA/EIA-222-F - 85 mph/38 mph 0.7500 in Ice

Maximum Values

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

Plane through centroid of tower



Tower Engineering Professionals
326 Tryon Road
Raleigh, NC
Phone: (919) 661-6351
FAX: (919) 661-6350

Job: Trumbull (BU 873128)			
Project: TEP No. 25575.25415			
Client: Crown Castle	Drawn by: TLI	App'd:	
Code: TIA/EIA-222-F	Date: 10/17/14	Scale: NTS	
Path: C:\Users\tlinville\Desktop\25575.25415 Trumbull\tnxTower\873128_LC4.5.eri		Dwg No. E-6	

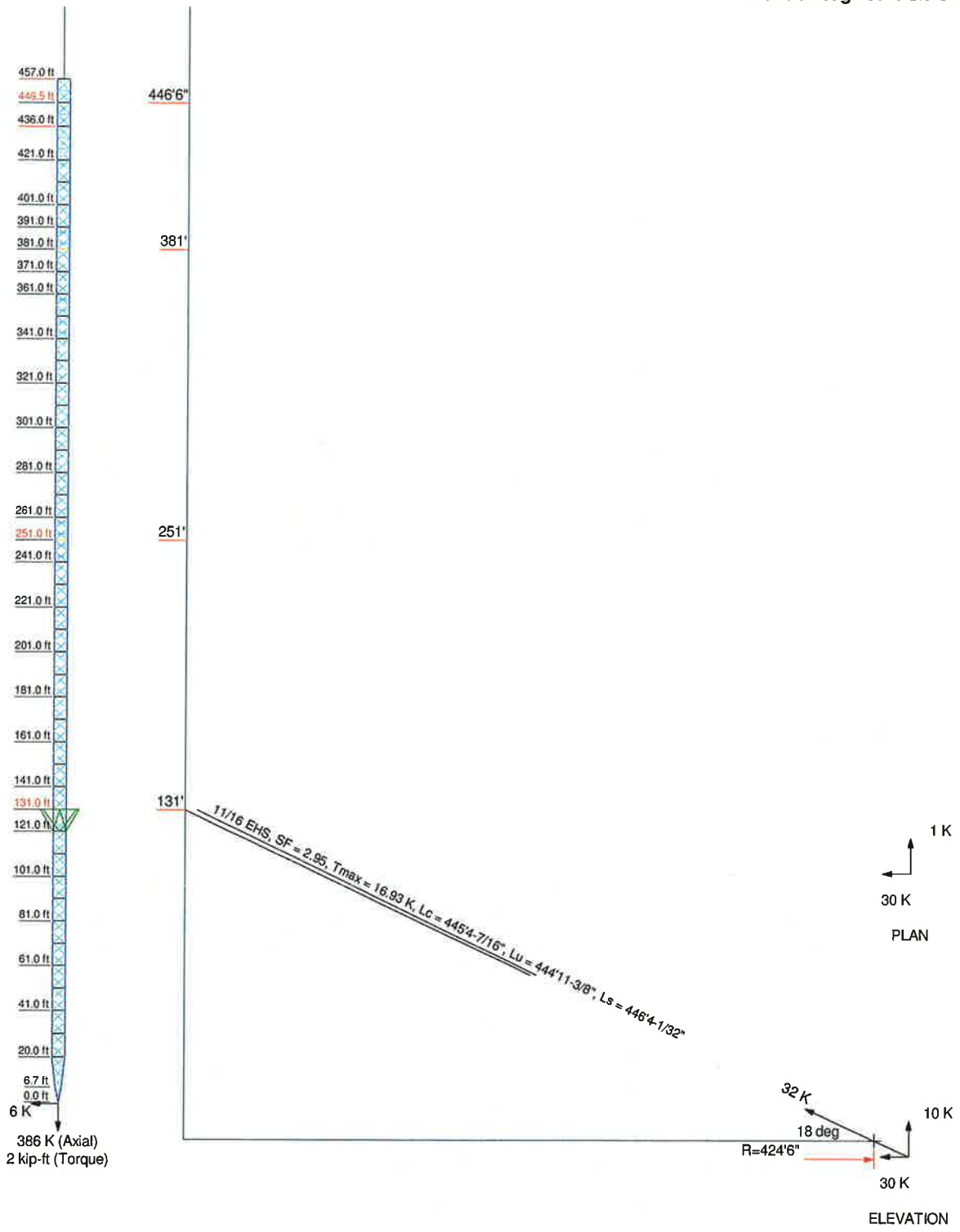
Guy Tensions and Tower Reactions

TIA/EIA-222-F - 85 mph/38 mph 0.7500 in Ice

Maximum Values

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

Plane through centroid of tower



Tower Engineering Professionals
326 Tryon Road
Raleigh, NC
Phone: (919) 661-6351
FAX: (919) 661-6350
Tower Engineering Professionals

Job: *Trumbull (BU 873128)*		
Project: *TEP No. 25575.25415*		
Client: Crown Castle	Drawn by: TLI	App'd:
Code: TIA/EIA-222-F	Date: 10/17/14	Scale: NTS
Path: C:\Users\tlinfante\Desktop\25575.25415 Trumbull\tnxTower\873128_LC4.5.eri		Dwg No. E-6

Deadman Anchor Analysis: C - Anchor Path

Project Name: Trumbull (BU 873128)
Job #: TEP No. 25575.25415
Client: Crown Castle
Analysis by: PRS
Checked by: TLI
Code: TIA - F

Anchor Block is Adequate for Uplift	52.6%
Anchor Block is Adequate for Lateral	97.7%
Concrete Block is Adequate for Lateral	88.8%
Concrete Block is Adequate for Overturning	32.8%

Loads

U_1: 89.00 kips - uplift reaction (block front)
H_1: 108.00 kips - maximum horizontal reaction (block f
U_2: 10.00 kips - uplift reaction (block back)
H_2: 30.00 kips - maximum horizontal reaction (block back)

Capacity

U_{all}: 169.15 kips - allowable uplift
H_{all}: 110.58 kips - allowable horizontal

Foundation Input

Guy Path: C
Anchor Ring: Anchor Path

W_b: 7.00 ft - width of anchor block
L_b: 6.00 ft - length of anchor block
T_b: 5.50 ft - thickness of anchor block
d: 4.30 ft - depth from t/ grade to t/ anchor block
b: 9.80 ft - depth from t/ grade to b/ anchor block

Ultimate Soil Properties

D_w: 8.50 ft - depth from t/ grade to water table

Geotechnical Firm: FDH Engineering
Report: 04-1229E
Date: 2/3/2005
Notes: Boring B-3
42" Frost Depth (per CT building code)

USE? Yes
Concrete Berm:
depth (above gr): 3.00 ft
depth (below gr): 2.30 ft
width: 15.00 ft
length: 15.00 ft
density: 150.00 pcf

Layer	Begin (ft)	End (ft)	ϕ Friction Angle (deg)	c Ult. Cohesion (psf)	γ Eff. Unit Weight (pcf)	f_s Ult. Skin Friction (ksf)	μ Friction Factor
1	0.00	2.30	0.00	0.00	115.00	0.00	0.00
2	2.30	4.00	34.00	0.00	115.00	0.00	0.40
3	4.00	8.50	39.00	0.00	120.00	0.42	0.40
4	8.50	9.00	39.00	0.00	57.60	0.58	0.40
5	9.00	15.50	43.00	0.00	62.60	0.69	0.40
6							

Analysis Criteria

Uplift				Horizontal			
	F_{s_sides}=	23.32	Yes		F_{s_sides} =	28.29	Yes
	F_{s_front}=	15.71	Yes		F_{s_top} =	0.00	No
	F_{s_back}=	0.00	No		F_{s_bottom} =	0.00	No
					$F_{\perp} \cdot \mu$ =	69.89	Yes