ROBINSON & COLE LLP

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Also admitted in Massachusetts

May 2, 2014

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

Re: **Notice of Exempt Modification – Facility Modification**
2715 Mountain Road, Suffield, Connecticut

Dear Ms. Bachman:

Cellco Partnership d/b/a Verizon Wireless ("Cellco") currently maintains twelve (12) antennas at the 160-foot level of the existing 190.5 foot tower at 2715 Mountain Road in Suffield, Connecticut (the "Property"). The tower is owned by Crown Castle. The Council approved Cellco's use of this tower in 2008. Cellco now intends to replace six (6) of its existing antennas with three (3) model 742 213V01, 1900 MHz antennas and three (3) model 742 213V01, 2100 MHz antennas, all at the same 160-foot level on the tower. Cellco also intends to install six (6) coaxial cable diplexers behind its antennas. Included in Attachment 1 are specifications for Cellco's replacement antennas and diplexers.

Please accept this letter as notification pursuant to R.C.S.A. § 16-50j-73, for construction that constitutes an exempt modification pursuant to R.C.S.A. § 16-50j-72(b)(2). In accordance with R.C.S.A. § 16-50j-73, a copy of this letter is being sent to Edward McAnaney, First Selectman of the Town of Suffield. The Town of Suffield is 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).

1. The proposed modifications will not result in an increase in the height of the existing tower. Cellco's replacement antennas will be located at the 160-foot level on the 190.5 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 worst-case 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:
Edward McAnaney, Suffield First Selectman
Sandy M. Carter

ATTACHMENT 1

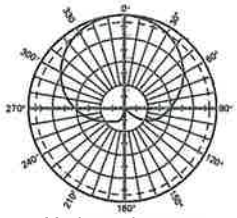
KATHREIN
SCALA DIVISION

742 213V01

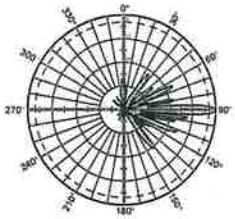
65° Panel Antenna

Kathrein's X-polarized adjustable electrical downtilt antennas offer the wireless carrier the ability to tailor polarization diversity sites for optimum performance. Using variable downtilt, only a few models need be procured to accommodate the needs of widely varying conditions. Remotely controlled downtilt is available as a retrofitable option.

- 0-6° downtilt range.
- UV resistant pulltruded fiberglass radome.
- DC Grounded metallic parts for impulse suppression.
- No moving electrical connections.
- Wideband vector dipole technology.
- Optional remote downtilt Control.
- Will accomodate future 3G / UMTS applications.



Horizontal pattern
±45°- polarization



Vertical pattern
±45°- polarization
0°–6° electrical downtilt

General specifications:

Frequency range	1710–2200 MHz
VSWR	< 1.5:1
Impedance	50 ohms
Intermodulation (2x20w)	IM3: <-150 dBc
Polarization	+45° and -45°
Front-to-back ratio (180°±30°)	>30 dB (co-polar) >25 dB (total power)
Maximum input power	300 watts per input (at 50°C)
Electrical downtilt continuously adjustable	0–6 degrees
Connector	2 x 7-16 DIN female
Isolation	>30 dB
Cross polar ratio Main direction 0° Sector ±60°	 25 dB (typical) >10 dB
Tracking, average	0.5 dB
Squint	±2.0°
Weight	19.8 lb (9 kg) 24.3 lb (11 kg) clamps included
Dimensions	76.9 x 6.1 x 2.8 inches (1954 x 155 x 70 mm)
Wind load Front/Side/Rear Mounting category	at 93 mph (150kph) 115 lbf / 32 lbf / 115 lbf (510 N) / (140 N) / (510 N) M (Medium)
Wind survival rating*	120 mph (200 kph)
Shipping dimensions	88 x 6.8 x 3.6 inches (2235 x 172 x 92 mm)
Shipping weight	28.7 lb (13 kg)
Mounting	Fixed mounts for 2 to 4.6 inch (50 to 115 mm) OD masts are included and tilt options are available.
See reverse for order information.	

Specifications:	**1710–1880 MHz**				**1850–1990 MHz**				**1920–2200 MHz**			
Gain	19 dBi				19.2 dBi				19.5 dBi			
+45° and -45° polarization horizontal beamwidth	67° (half-power)				65° (half-power)				63° (half-power)			
+45° and -45° polarization vertical beamwidth	4.7° (half-power)				4.5° (half-power)				4.3° (half-power)			
Sidelobe suppression for first sidelobe above main beam	0° 18	2° 18	4° 16	6° T 15 dB	0° 18	2° 18	4° 17	6° T 16 dB	0° 18	2° 18	4° 18	6° T 18 dB

TÜV
RoHS
Lead-Free

11271-B
936.3740/b

*Mechanical design is based on environmental conditions as stipulated in TIA-222-G-2 (December 2009) and/or ETS 300 019-1-4 which include the static mechanical load imposed on an antenna by wind at maximum velocity. See the Engineering Section of the catalog for further details.

Kathrein Inc., Scala Division Post Office Box 4580 Medford, OR 97501 (USA) Phone: (541) 779-6500 Fax: (541) 779-3991
Email: communications@kathrein.com Internet: www.kathrein-scala.com

Product Data Sheet FD9R6004/2C-3L

ShareLite Wideband Diplexer – In-line 698-960 MHz/1710-2200 MHz, DC pass in high frequency path

Product Description

The ShareLite FD9R6004 Series of diplexers are designed to enable feeder sharing between systems in the 698-960 MHz range and in the 1710-2200 MHz range. The diplexer is equipped with in-line connector placement so it can be installed in the BTS cabinet or at the tower top. This is especially valuable in crowded sites or when the feeders are not easily accessible. Due to its wideband design, the FD9R6004 Series can accommodate many combining solutions between 698-960 MHz and 1710-2200 MHz systems such as LTE 700 MHz, Cellular 800 MHz with PCS, GSM900 with GSM1800, or GSM900 with UMTS. This diplexer features a highly selective filter. It provides a high level of isolation between ports, while keeping the insertion loss on both paths at an extremely low level. The FD9R6004 diplexers are available with various DC pass options, helpful in configurations with or without the Tower Mount Amplifiers installed.

Features/Benefits

- **LTE ready design**
- **Extremely Low Insertion Loss**
- **High level of Rejection between bands – Protection against interferences**
- **Extremely High Power Handling Capability**
- **Integrated DC block/bypass versions available**
- **Very compact & small size design – Easy installation and reduced tower load**
- **In-line long-neck connectors for easy connection & waterproofing**
- **Exceptional reliability & environmental protection (IP 67)**
- **Equipped with 1 * Breathable Vent – Prevent any humidity inside the product**
- **Mounting hardware for Wall and Pole mount provided (P/N SEM2-1A)**
- **Grounding already provided through the mounting bracket**
- **Kit available for easy dual mount**

Technical Specifications

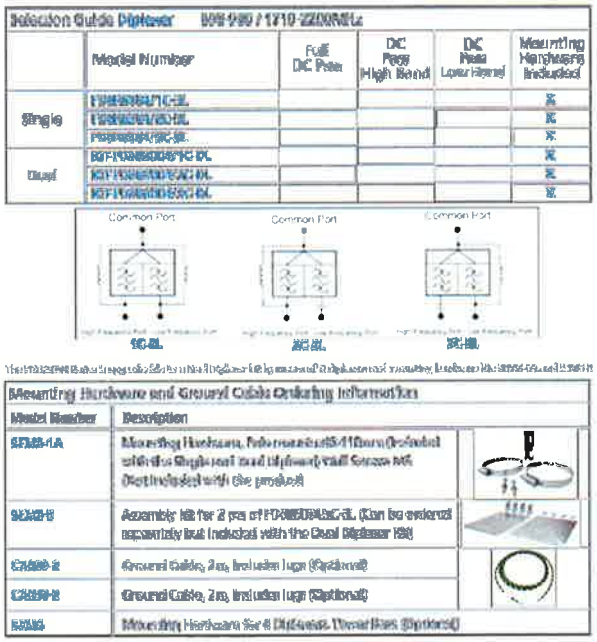
Product Type	Diplexer/Cross Band Coupler
Application	LTE700, GSM900, UMTS, GSM1800, Cellular 800, PCS
Frequency Range 1, MHz	698-960
Frequency Range 2, MHz	1710-2200
Configuration	Sharelite Single diplexer, outdoor, DC pass in the 1710-2170MHz path, with mounting hardware SEM2-1A
Mounting	Wall Mounting: With 4 screws (maximum 6mm diameter); Pole Mounting: With included clamp set 40-110mm (1.57-4.33)
Return Loss All Ports Min/Typ, dB	19/23
Power Handling Continuous, Max, W	1250 at common port; 750 in low frequency path & 500 in high frequency path
Power Handling Peak, Max, W	15000 in low frequency path & 8000 in high frequency path
Impedance, Ohms	50
Insertion Loss, Path 1, dB	0.07 typ.
Insertion Loss, Path 2, dB	0.13 typ.
Rejection Between Bands Min/Typ, dB	58/64@698-960MHz; 57/70@1710-2200MHz
IMP Level at the COM Port, Typ, dBm	-112 @ 2x43
DC Pass in Low Frequency Path	No
DC Pass in High Frequency Path	Yes
Temperature Range, °C (°F)	-40 to +60 (-40 to +140)
Environmental	ETSI 300-019-2-4 Class 4.1E
Ingress Protection	IP 67
Lightning Protection	EN/IEC61000-4-5 Level 4
Connectors	In-line long-neck 7-16-Female
Weight, kg (lb)	1.2 (2.6)
Shipping Weight, kg (lb)	3.2 (7) for 2 * single units in 1 * box, 9.8 (21.6) for 6 * units = 3 * Boxes in 1 * overwrap
Dimensions, H x W x D, mm (in)	147 x 164 x 37 (5.8 x 6.5 x 1.5)
Shipping Dimensions, H x W x D, mm (in)	254 x 406 x 82 (10 x 16 x 3.2) for 2 * Single Units in 1 * box, 280 x 406 x 241 (11 x 16 x 9.5) for 6 * units = 3 * Boxes in 1 * overwrap
Volume, L	0.43
Housing	Aluminum

Notes

ShareLite Wideband Diplexer – In-line 698-960 MHz/1710-2200 MHz, DC pass in high frequency path

Other Documentation

FD9R6004/2C-3L Installation Instructions: Wideband_Diplexer_Installation_Rev5.pdf



ATTACHMENT 2

	General	Power	Density					
Site Name: Suffield W								
Tower Height: 190.5Ft								
CARRIER	**# OF CHAN.**	**WATTS ERP**	**HEIGHT**	**CALC. POWER DENS**	**FREQ.**	**MAX. PERMISS. EXP.**	**FRACTION MPE**	**Total**
*AT&T UMTS	2	565	170	0.0141	880	0.5867	2.40%	
*AT&T UMTS	2	875	170	0.0218	1900	1.0000	2.18%	
*AT&T GSM	1	283	170	0.0035	880	0.5867	0.60%	
*AT&T GSM	4	525	170	0.0261	1900	1.0000	2.61%	
*AT&T LTE	1	1615	170	0.0201	734	0.4893	4.11%	
*Nextel	9	100	192	0.0088	851	0.5673	1.55%	
*T-Mobile	8	193	182	0.0168	1930	1.0000	1.68%	
Verizon	**11**	**399**	**160**	**0.0616**	**1970**	**1.0000**	**6.16%**	
Verizon	**9**	**380**	**160**	**0.0480**	**869**	**0.5793**	**8.29%**	
Verizon	**1**	**1750**	**160**	**0.0246**	**2145**	**1.0000**	**2.46%**	
Verizon	**1**	**1050**	**160**	**0.0147**	**698**	**0.4653**	**3.17%**	
								35.20%
* Source: Siting Council								

ATTACHMENT 3

April 02, 2014

Marianne Dunst
Crown Castle
3530 Toringdon Way, Suite 300
Charlotte, NC 28277
(704) 405-6580

B+T Group
1717 S. Boulder, Suite 300
Tulsa, OK 74119
(918) 587-4630
btwo@btgrp.com

Subject:	**Structural Analysis Report**	
Carrier Designation:	***Verizon Wireless* Co-Locate**	
	Carrier Site Number:	N/A
	Carrier Site Name:	Suffield West
Crown Castle Designation:	**Crown Castle BU Number:**	801485
	Crown Castle Site Name:	CT SUFFIELD 1 CAC 801485
	Crown Castle JDE Job Number:	264261
	Crown Castle Work Order Number:	734692
	Crown Castle Application Number:	213751 Rev. 4
Engineering Firm Designation:	**B+T Group Project Number:**	84855.003.01
Site Data:	**2715 Mountain Rd., Suffield, Hartford County, CT** **Latitude *42° 0' 41.8"*, Longitude *-72° 43' 43.6"*** **190.5 Foot - Monopole Tower**	

Dear Marianne Dunst,

B+T Group 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 631287, in accordance with application 213751, revision 4.

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

LC5: Existing + Proposed Equipment **Sufficient Capacity**
Note: See Table 1 and Table 2 for the proposed and existing loading, respectively.

This analysis has been performed in accordance with the TIA/EIA-222-F standard and 2005 CT State Building Code with 2009 amendment based upon a wind speed of 80 mph fastest mile.

All modifications and equipment proposed in this report shall be installed in accordance with the attached drawings for the determined available structural capacity to be effective.

We at *B+T Group* 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.

Respectfully submitted by:
B+T Engineering, Inc.

STATE OF CONNECTICUT
CHAD TUTTLE
No. 23924
LICENSED
PROFESSIONAL ENGINEER
4/2/14

Jyoti Ojha
Project Engineer

Chad E. Tuttle, P.E.
President

TABLE OF CONTENTS

1) INTRODUCTION

This tower is a 190.5 ft. Monopole tower designed by FWT Inc. in May of 2000. The tower was originally designed for a wind speed of 80 mph per TIA/EIA-222-F.

2) ANALYSIS CRITERIA

The structural analysis was performed for this tower in accordance with the requirements of TIA/EIA-222-F Structural Standards for Steel Antenna Towers and Antenna Supporting Structures using a fastest mile wind speed of 80 mph with no ice, 37.6 mph with 1 inch 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
160.0	160.0	6	Rfs Celwave	FD9R6004/2C-3L	--	--	--
		6	Kathrein	742 213			

Table 2 - Existing and Reserved 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
191.0	192.0	12	Decibel	DB844H90-XY	12	1 5/8	1
	191.0	1	--	Platform Mount [LP 714-1]			
180.0	182.0	6	Decibel	PCS 1900 TMA Dual DUP	6	1 5/8	1
		3	Ems Wireless	RR90-17-02DP			
	180.0	1	--	T-Arm Mount [TA 701-3]			
168.0	171.0	3	Ericsson	RRUS-11	12 2 1	1 5/8 3/4 3/8	1
		2	Powerwave	LGP21401			
		1	Raycap	DC6-48-60-18-8F			
	170.0	1	Kmw	AM-X-CD-14-65-00T-RET			
		6	Powerwave	7770.00			
		4	Powerwave	LGP21401			
		6	Powerwave	LGP21901			
		2	Powerwave	P65-17-XLH-RR			
	168.0	1	--	Platform Mount [LP 303-1]			
160.0	160.0	2	Antel	BXA-70063-6CF-EDIN-0	18	1 5/8	1
		1	Antel	BXA-70063-6CF-2			
		4	Antel	LPA-80063-6CF-EDIN			
		2	Antel	LPA-80063-6CF-EDIN-5			
		6	**Antel**	**LPA-171080-12CF-EDIN-2**	**--**	**--**	**2**
		1	--	Platform Mount [LP 601-1]	--	--	1

Notes:
1) Existing Equipment
2) 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)
192	192	1	--	12' LPS Mount w/service grating	--	--
		12	swedcom	ALP-9011-E-DIN		
182	182	1	--	12' LPS Mount w/service grating	--	--
		12	swedcom	ALP-9212-N		
172	172	1	--	12' LPS Mount w/service grating	--	--
		12	swedcom	ALP-9212-N		
162	162	1	--	12' LPS Mount w/service grating	--	--
		12	swedcom	ALP-9212-N		
152	152	1	--	12' LPS Mount w/service grating	--	--
		12	swedcom	ALP-9212-N		
142	142	1	--	12' LPS Mount w/service grating	--	--
		12	swedcom	ALP-9212-N		

3) ANALYSIS PROCEDURE

Table 4 - Documents Provided

Document	Remarks	Reference	Source
Online Application	Verizon Wireless Co-Locate Revision # 4	213751	CCI Sites
Tower Manufacturer Drawings	FWT Inc. Job No. 21281000	942443	CCI Sites
Tower Modification Drawings	B+T Group Project No. 84855.001	3268394	CCI Sites
Post Modification Inspection	TEP Project No. 127143	3770639	CCI Sites
Tower Foundation Drawing	FWT Inc. Job No. 21281000	1118796	CCI Sites
Geotechnical Reports	Clough, Harbour & Associates LLP,CHA Project No. 8961.07.06	2240855	CCI Sites
Antenna Configuration	Crown CAD Package	Date: 03/26/2014	CCI Sites

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) Tower and structures were built in accordance with the manufacturer's specifications.
2) The tower and structures 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 the referenced drawings.

4) When applicable, transmission cables are considered as structural components for calculating wind loads as allowed by TIA/EIA-222-F.
5) Mount areas and weights are assumed based on photographs provided.

This analysis may be affected if any assumptions are not valid or have been made in error. B+T Group 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
L1	190.5 - 143.17	Pole	TP27.778x14.75x0.25	1	-8.725	1094.926	86.7	Pass
L2	143.17 - 93.75	Pole	TP40.88x26.293x0.375	2	-17.798	2415.569	81.9	Pass
L3	93.75 - 46.08	Pole	TP53.251x38.663x0.375	3	-23.947	2768.401	86.1	Pass
L4	46.08 - 0	Pole	TP65.185x50.596x0.375	4	-46.513	3748.329	90.0	Pass
							Summary	
						Pole (L4)	90.0	Pass
						RATING =	**90.0**	**Pass**

Table 6 - Tower Component Stresses vs. Capacity – LC5

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
1	Anchor Rods	Base	74.7	Pass
1	Base Plate	Base	42.6	Pass
1	Base Foundation	Base	73.7	Pass

Structure Rating (max from all components) =	**90.0%**

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

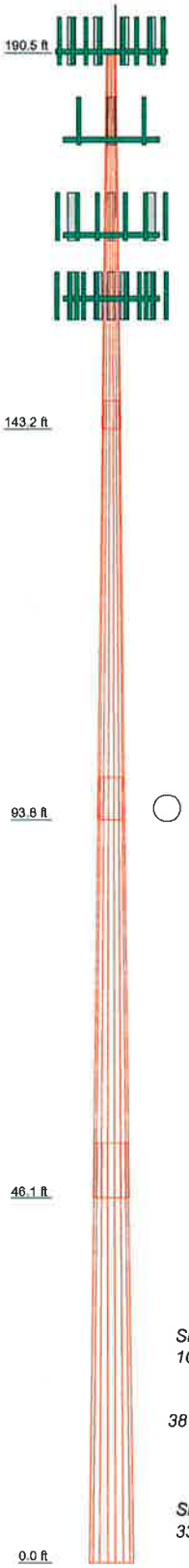
4.1) Recommendations

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

APPENDIX A

TNXTOWER OUTPUT

Section	1	2	3	4
Length (ft)	47.330	53.000	53.000	53.000
Number of Sides	18	18	18	18
Thickness (in)	0.250	0.375	0.375	0.375
Socket Length (ft)	3.580	5.330	6.920	
Top Dia (in)	14.750	26.293	38.663	50.596
Bot Dia (in)	27.778	40.880	53.251	65.185
Grade	A572-65			
Weight (K)	2.7	7.1	9.8	12.3



AXIAL
79 K
SHEAR
10 K
MOMENT
1433 kip-ft
TORQUE 0 kip-ft
38 mph WIND - 1.000 in ICE
AXIAL
47 K
SHEAR
33 K
MOMENT
4442 kip-ft
TORQUE 1 kip-ft
REACTIONS - 80 mph WIND

DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
(4) DB844H90-XY w/ Mount Pipe (E)	191	P65-17-XLH-RR w/ Mount Pipe (E)	168
(4) DB844H90-XY w/ Mount Pipe (E)	191	P65-17-XLH-RR w/ Mount Pipe (E)	168
(4) DB844H90-XY w/ Mount Pipe (E)	191	RRUS-11 (E)	168
Platform Mount [LP 714-1] (E)	191	RRUS-11 (E)	168
Lightning Rod 5/8" x 6' (E)	190.5	RRUS-11 (E)	168
RR90-17-02DP w/ Mount Pipe (E)	180	DC6-48-60-18-8F (E)	168
RR90-17-02DP w/ Mount Pipe (E)	180	Platform Mount [LP 303-1] (E)	168
RR90-17-02DP w/ Mount Pipe (E)	180	(2) LPA-80063-6CF-EDIN-5 w/ Mount Pipe (E)	160
(2) PCS 1900 TMA DUAL DUP (E)	180		
(2) PCS 1900 TMA DUAL DUP (E)	180	(2) LPA-80063-6CF-EDIN w/ Mount Pipe (E)	160
(2) PCS 1900 TMA DUAL DUP (E)	180		
(2) 6' x 2" Mount Pipe (E)	180	(2) LPA-80063-6CF-EDIN w/ Mount Pipe (E)	160
(2) 6' x 2" Mount Pipe (E)	180	BXA-70063-6CF-2 w/ Mount Pipe (E)	160
(2) 6' x 2" Mount Pipe (E)	180		
T-Arm Mount [TA 701-3] (E)	180	BXA-70063-6CF-EDIN-0 w/ Mount Pipe (E)	160
(2) 7770.00 w/ Mount Pipe (E)	168		
(2) 7770.00 w/ Mount Pipe (E)	168	BXA-70063-6CF-EDIN-0 w/ Mount Pipe (E)	160
(2) 7770.00 w/ Mount Pipe (E)	168	(2) 742 213 w/ Mount Pipe (P)	160
(2) LGP21901 (E)	168	(2) 742 213 w/ Mount Pipe (P)	160
(2) LGP21901 (E)	168	(2) 742 213 w/ Mount Pipe (P)	160
(2) LGP21901 (E)	168	(2) FD9R6004/2C-3L (P)	160
(2) LGP21401 (E)	168	(2) FD9R6004/2C-3L (P)	160
(2) LGP21401 (E)	168	(2) FD9R6004/2C-3L (P)	160
(2) LGP21401 (E)	168	Platform Mount [LP 601-1] (E)	160
AM-X-CD-14-65-00T-RET w/ Mount Pipe (E)	168		

MATERIAL STRENGTH

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

TOWER DESIGN NOTES

1. Tower is located in Hartford County, Connecticut.
2. Tower designed for a 80 mph basic wind in accordance with the TIA/EIA-222-F Standard.
3. Tower is also designed for a 38 mph basic wind with 1.00 in ice. Ice is considered to increase in thickness with height.
4. Deflections are based upon a 50 mph wind.
5. TOWER RATING: 90%

B+T Group
1717 S Boulder Ave, Suite 300
Tulsa, OK 74119
Phone: (918) 587-4630
FAX: (918) 295-0265

Job: 84855.003.01 - CT SUFFIELD 1 CAC 801485, CT (BU# 80148			
Project:			
Client: Crown Castle	Drawn by: jojha	App'd:	
Code: TIA/EIA-222-F	Date: 04/02/14	Scale: NTS	
Path: C:\Users\John\Desktop\84855.003\Tnx\84855_003_01_CT SUFFIELD 1 CAC 801485_CT.eri		Dwg No. E-1	

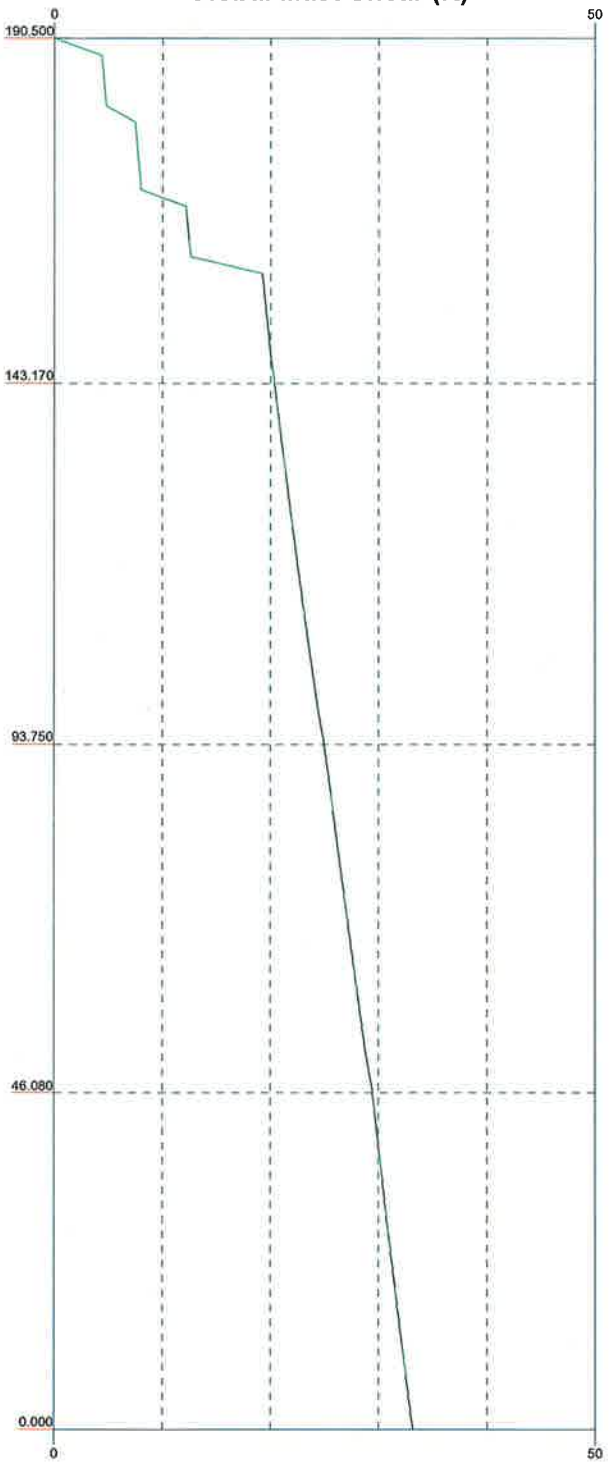
TIA/EIA-222-F - 80 mph/38 mph 1.000 in Ice

Vx Vz

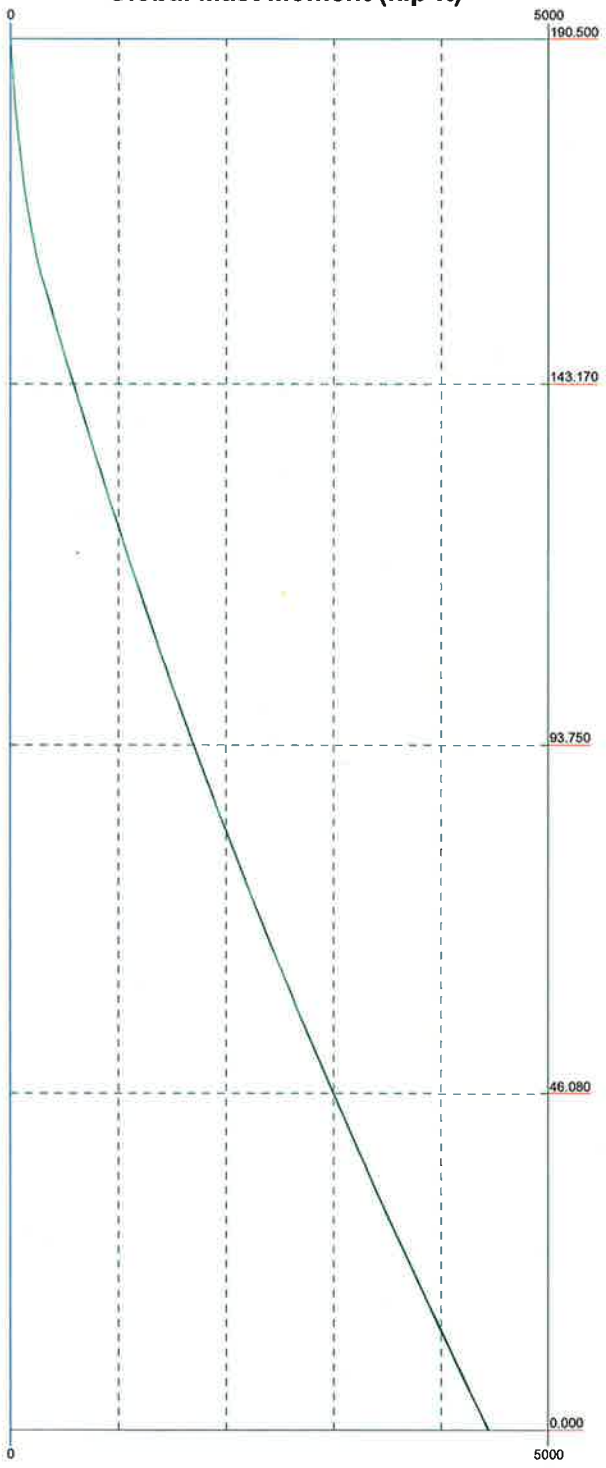
Maximum Values

Mx Mz

Global Mast Shear (K)



Global Mast Moment (kip-ft)



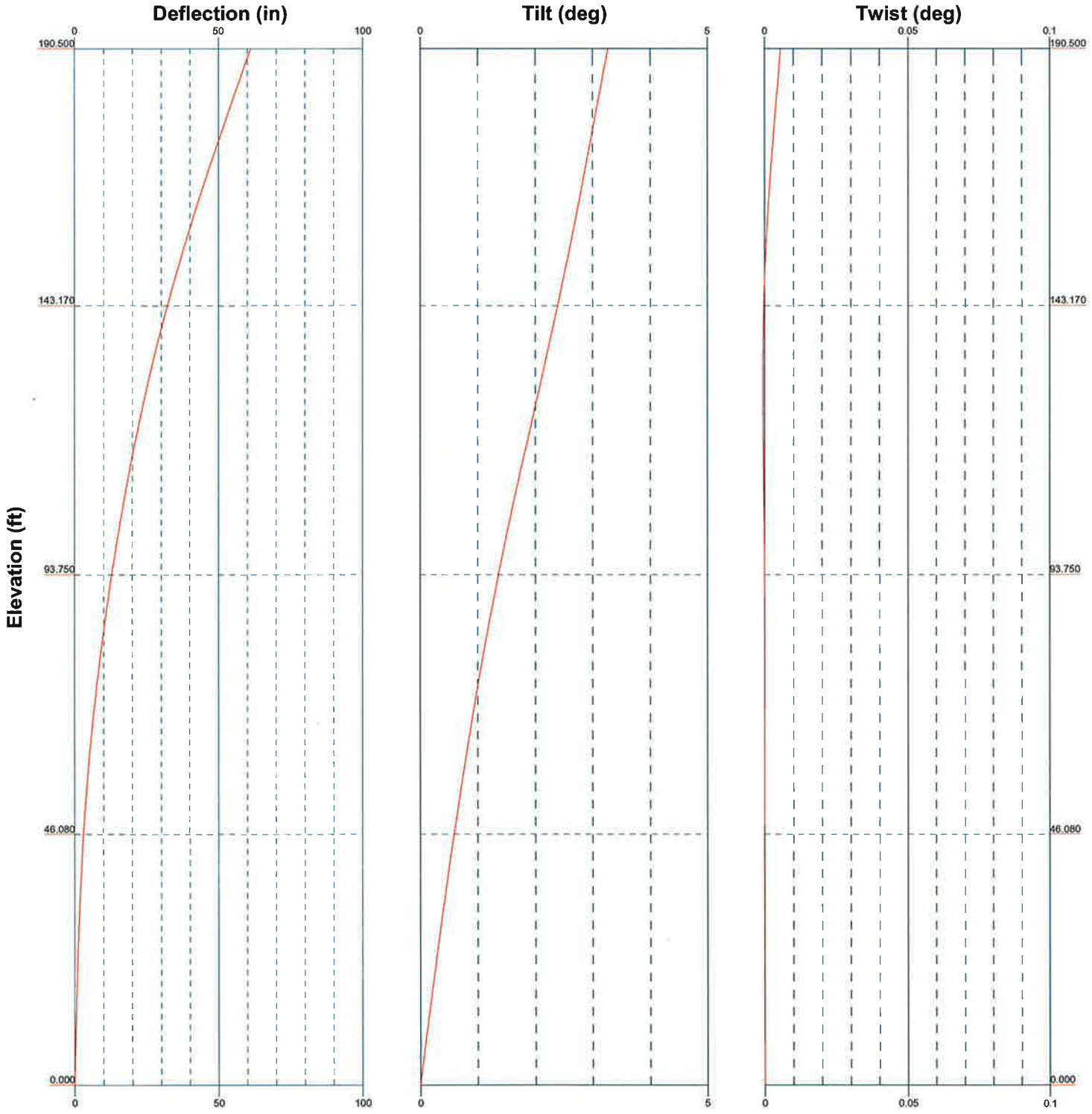
Elevation (ft)

B+T Group
1717 S Boulder Ave, Suite 300
Tulsa, OK 74119
Phone: (918) 587-4630
FAX: (918) 295-0265

Job: 84855.003.01 - CT SUFFIELD 1 CAC 801485, CT (BU# 80148			
Project:			
Client: Crown Castle	Drawn by: jojha	App'd:	
Code: TIA/EIA-222-F	Date: 04/02/14	Scale: NTS	
Path: C:\Users\John\Desktop\84855.003\Tnx\84855_003_01_CT SUFFIELD 1 CAC 801485_CT.e		Dwg No. E-4	

TIA/EIA-222-F - Service - 50 mph

Maximum Values



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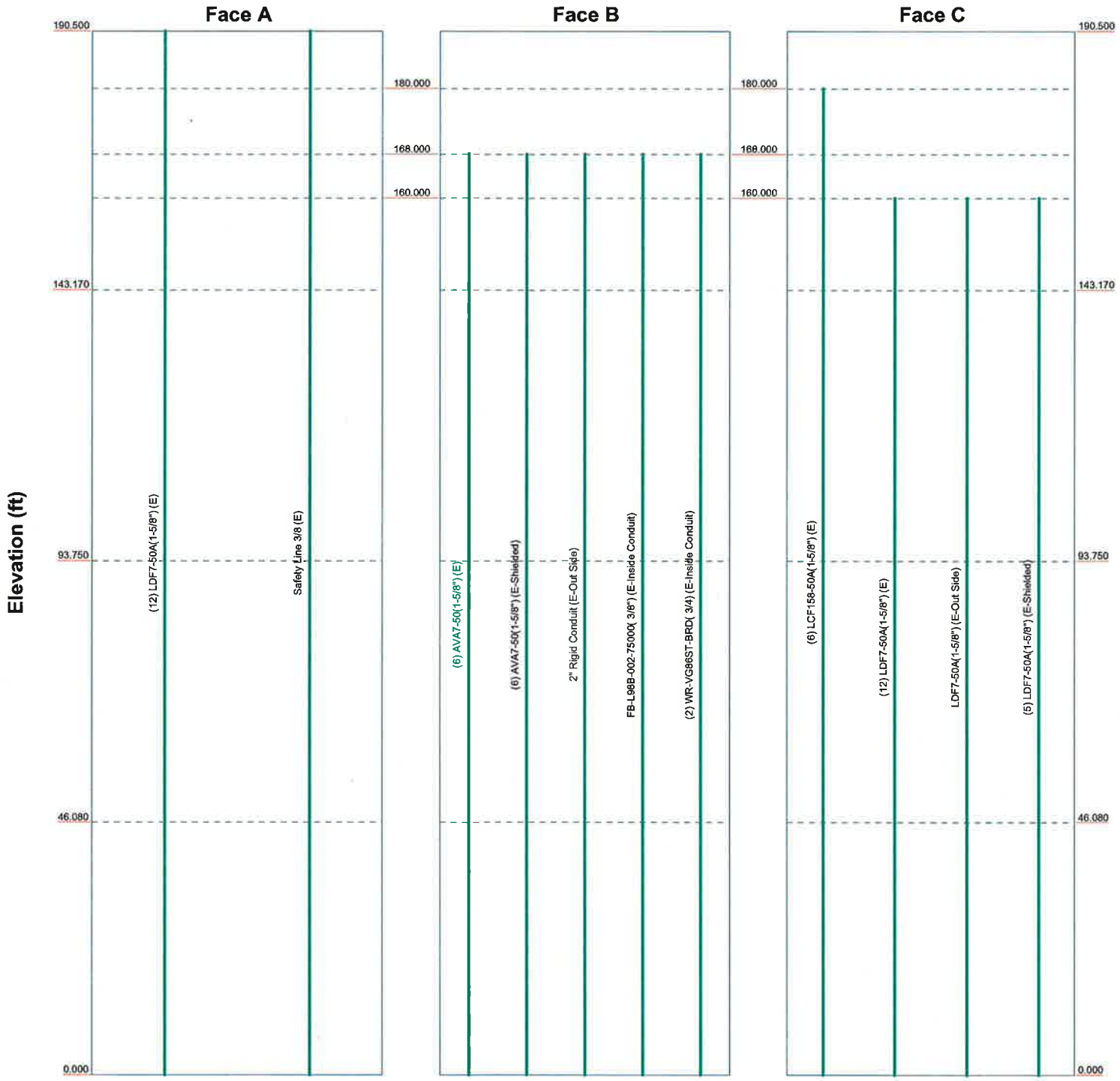
Project:			
Client: Crown Castle	Drawn by: jojha	App'd:	
Code: TIA/EIA-222-F	Date: 04/02/14	Scale: NTS	
Path: C:\Users\jojha\Desktop\84855.003\Tnx\84855_003_01_CT SUFFIELD 1 CAC 801485_CT.e		Dwg No. E-5	

Feed Line Distribution Chart
0' - 190'6"

Round | Flat | App In Face | App Out Face | Truss Leg



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Phone: (918) 587-4630
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Job: 84855.003.01 - CT SUFFIELD 1 CAC 801485, CT (BU# 80148		
Project:		
Client: Crown Castle	Drawn by: jojha	App'd:
Code: TIA/EIA-222-F	Date: 04/02/14	Scale: NTS
Path: C:\Users\jojha\Desktop\84855.003\Tnx\84855_003_01_CT SUFFIELD 1 CAC 801485_CT.e		Dwg No. E-7

tnxTower	Job: 84855.003.01 - CT SUFFIELD 1 CAC 801485, CT (BU# 801485)	Page: 1 of 15
B+T Group 1717 S Boulder Ave, Suite 300 Tulsa, OK 74119 Phone: (918) 587-4630 FAX: (918) 295-0265	Project:	Date: 12:02:22 04/02/14
	Client: Crown Castle	Designed by: jojha

Tower Input Data

There is a pole section.
This tower is designed using the TIA/EIA-222-F standard.
The following design criteria apply:

Tower is located in Hartford County, Connecticut.
Basic wind speed of 80 mph.
Nominal ice thickness of 1.000 in.
Ice thickness is considered to increase with height.
Ice density of 56.000 pcf.
A wind speed of 38 mph is used in combination with ice.
Temperature drop of 50.000 °F.
Deflections calculated using a wind speed of 50 mph.
A non-linear (P-delta) analysis was used.
Pressures are calculated at each section.
Stress ratio used in pole 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		

Tapered Pole Section Geometry

Section	Elevation ft	Section Length ft	Splice Length ft	Number of Sides	Top Diameter in	Bottom Diameter in	Wall Thickness in	Bend Radius in	Pole Grade
L1	190.500-143.170	47.330	3.580	18	14.750	27.778	0.250	1.000	A572-65 (65 ksi)
L2	143.170-93.750	53.000	5.330	18	26.293	40.880	0.375	1.500	A572-65 (65 ksi)
L3	93.750-46.080	53.000	6.920	18	38.663	53.251	0.375	1.500	A572-65 (65 ksi)
L4	46.080-0.000	53.000		18	50.596	65.185	0.375	1.500	A572-65 (65 ksi)

Tapered Pole Properties

Section	Tip Dia. in	Area in^2	I in^4	r in	C in	I/C in^3	J in^4	It/Q in^2	w in	w/t
L1	14.978	11.506	305.625	5.148	7.493	40.788	611.651	5.754	2.156	8.624
	28.207	21.843	2091.262	9.772	14.111	148.198	4185.275	10.924	4.449	17.796
L2	27.699	30.848	2617.934	9.201	13.357	196.003	5239.312	15.427	3.967	10.58
	41.511	48.211	9993.130	14.379	20.767	481.201	19999.410	24.110	6.535	17.426
L3	40.749	45.572	8440.413	13.592	19.641	429.739	16891.932	22.790	6.145	16.386
	54.072	62.936	22230.612	18.771	27.052	821.788	44490.476	31.474	8.712	23.232
L4	53.311	59.776	19047.570	17.829	25.703	741.066	38120.203	29.894	8.245	21.987
	66.191	77.140	40935.651	23.008	33.114	1236.205	81925.167	38.577	10.813	28.833

Tower Elevation ft	Gusset Area (per face) ft^2	Gusset Thickness in	Gusset Grade	Adjust. Factor A_f	Adjust. Factor A_r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in
L1 190.500-143.170				1	1	1		
L2 143.170-93.750				1	1	1		
L3 93.750-46.080				1	1	1		
L4 46.080-0.000				1	1	1		

Feed Line/Linear Appurtenances - Entered As Round Or Flat

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Total Number	Number Per Row	Clear Spacing in	Width or Diameter in	Perimeter in	Weight klf
&										

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 klf
LDF7-50A(1-5/8") (E)	A	No	Inside Pole	190.500 - 0.000	12	No Ice	0.000	0.001
						1/2" Ice	0.000	0.001
						1" Ice	0.000	0.001
						2" Ice	0.000	0.001
						4" Ice	0.000	0.001
&								
LCF158-50A(1-5/8") (E)	C	No	Inside Pole	180.000 - 0.000	6	No Ice	0.000	0.001
						1/2" Ice	0.000	0.001
						1" Ice	0.000	0.001
						2" Ice	0.000	0.001
						4" Ice	0.000	0.001
&								

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Total Number		C_AA_A ft^2/ft	Weight klf
AVA7-50(1-5/8") (E)	B	No	Inside Pole	168.000 - 0.000	6	No Ice	0.000	0.001
						1/2" Ice	0.000	0.001
						1" Ice	0.000	0.001
						2" Ice	0.000	0.001
						4" Ice	0.000	0.001
AVA7-50(1-5/8") (E-Shielded)	B	No	CaAa (Out Of Face)	168.000 - 0.000	6	No Ice	0.000	0.001
						1/2" Ice	0.000	0.002
						1" Ice	0.000	0.004
						2" Ice	0.000	0.010
						4" Ice	0.000	0.030
2" Rigid Conduit (E-Out Side)	B	No	CaAa (Out Of Face)	168.000 - 0.000	1	No Ice	0.200	0.003
						1/2" Ice	0.300	0.004
						1" Ice	0.400	0.006
						2" Ice	0.600	0.013
						4" Ice	1.000	0.032
FB-L98B-002-75000(3/8") (E-Inside Conduit)	B	No	CaAa (Out Of Face)	168.000 - 0.000	1	No Ice	0.000	0.000
						1/2" Ice	0.000	0.000
						1" Ice	0.000	0.000
						2" Ice	0.000	0.000
						4" Ice	0.000	0.000
WR-VG86ST-BRD(3/4) (E-Inside Conduit)	B	No	CaAa (Out Of Face)	168.000 - 0.000	2	No Ice	0.000	0.001
						1/2" Ice	0.000	0.001
						1" Ice	0.000	0.003
						2" Ice	0.000	0.007
						4" Ice	0.000	0.024
&								
LDF7-50A(1-5/8") (E)	C	No	Inside Pole	160.000 - 0.000	12	No Ice	0.000	0.001
						1/2" Ice	0.000	0.001
						1" Ice	0.000	0.001
						2" Ice	0.000	0.001
						4" Ice	0.000	0.001
LDF7-50A(1-5/8") (E-Out Side)	C	No	CaAa (Out Of Face)	160.000 - 0.000	1	No Ice	0.198	0.001
						1/2" Ice	0.298	0.002
						1" Ice	0.398	0.004
						2" Ice	0.598	0.011
						4" Ice	0.998	0.030
LDF7-50A(1-5/8") (E-Shielded)	C	No	CaAa (Out Of Face)	160.000 - 0.000	5	No Ice	0.000	0.001
						1/2" Ice	0.000	0.002
						1" Ice	0.000	0.004
						2" Ice	0.000	0.011
						4" Ice	0.000	0.030
&								
Safety Line 3/8 (E)	A	No	CaAa (Out Of Face)	190.500 - 0.000	1	No Ice	0.037	0.000
						1/2" Ice	0.137	0.001
						1" Ice	0.238	0.001
						2" Ice	0.437	0.002
						4" Ice	0.838	0.004
&								

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
L1	190.500-143.170	A	0.000	0.000	0.000	1.775	0.476
		B	0.000	0.000	0.000	4.966	0.309
		C	0.000	0.000	0.000	3.332	0.425
L2	143.170-93.750	A	0.000	0.000	0.000	1.853	0.497

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	9.884	0.615
		C	0.000	0.000	0.000	9.785	0.967
L3	93.750-46.080	A	0.000	0.000	0.000	1.788	0.480
		B	0.000	0.000	0.000	9.534	0.593
		C	0.000	0.000	0.000	9.439	0.932
L4	46.080-0.000	A	0.000	0.000	0.000	1.728	0.464
		B	0.000	0.000	0.000	9.216	0.573
		C	0.000	0.000	0.000	9.124	0.901

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
L1	190.500-143.170	A	1.213	0.000	0.000	0.000	13.255	0.537
		B		0.000	0.000	0.000	10.988	1.329
		C		0.000	0.000	0.000	7.414	0.924
L2	143.170-93.750	A	1.164	0.000	0.000	0.000	13.840	0.561
		B		0.000	0.000	0.000	21.871	2.645
		C		0.000	0.000	0.000	21.772	2.430
L3	93.750-46.080	A	1.093	0.000	0.000	0.000	12.887	0.538
		B		0.000	0.000	0.000	20.634	2.431
		C		0.000	0.000	0.000	20.539	2.260
L4	46.080-0.000	A	1.000	0.000	0.000	0.000	11.804	0.517
		B		0.000	0.000	0.000	19.292	2.179
		C		0.000	0.000	0.000	19.200	2.065

Feed Line Center of Pressure

Section	Elevation ft	CP_X in	CP_Z in	CP_X Ice in	CP_Z Ice in
L1	190.500-143.170	0.042	0.087	0.068	-0.054
L2	143.170-93.750	0.002	0.210	0.002	0.164
L3	93.750-46.080	0.002	0.218	0.002	0.181
L4	46.080-0.000	0.002	0.222	0.002	0.192

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
Lightning Rod 5/8" x 6' (E)	B	From Leg	0.000 0.000 3.000	0.000	190.500	No Ice 1/2" Ice 1" Ice	0.375 0.989 1.619	0.375 0.989 1.619	0.033 0.037 0.045

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
						2" Ice	2.464	2.464	0.074
						4" Ice	4.076	4.076	0.184
&									
(4) DB844H90-XY w/ Mount Pipe (E)	C	From Leg	4.000 0.000 1.000	0.000	191.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	3.104 3.476 3.879 4.761 6.660	5.154 5.833 6.523 7.959 11.092	0.028 0.068 0.113 0.224 0.552
(4) DB844H90-XY w/ Mount Pipe (E)	B	From Leg	4.000 0.000 1.000	0.000	191.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	3.104 3.476 3.879 4.761 6.660	5.154 5.833 6.523 7.959 11.092	0.028 0.068 0.113 0.224 0.552
(4) DB844H90-XY w/ Mount Pipe (E)	A	From Leg	4.000 0.000 1.000	0.000	191.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	3.104 3.476 3.879 4.761 6.660	5.154 5.833 6.523 7.959 11.092	0.028 0.068 0.113 0.224 0.552
Platform Mount [LP 714-1] (E)	C	None		0.000	191.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	37.470 44.230 50.990 64.510 91.550	37.470 44.230 50.990 64.510 91.550	1.600 2.040 2.480 3.360 5.119
&									
RR90-17-02DP w/ Mount Pipe (E)	C	From Leg	4.000 0.000 2.000	0.000	180.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	4.593 5.088 5.578 6.588 8.731	3.319 4.089 4.784 6.225 9.308	0.034 0.072 0.115 0.224 0.557
RR90-17-02DP w/ Mount Pipe (E)	B	From Leg	4.000 0.000 2.000	0.000	180.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	4.593 5.088 5.578 6.588 8.731	3.319 4.089 4.784 6.225 9.308	0.034 0.072 0.115 0.224 0.557
RR90-17-02DP w/ Mount Pipe (E)	A	From Leg	4.000 0.000 2.000	0.000	180.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	4.593 5.088 5.578 6.588 8.731	3.319 4.089 4.784 6.225 9.308	0.034 0.072 0.115 0.224 0.557
(2) PCS 1900 TMA DUAL DUP (E)	C	From Leg	4.000 0.000 2.000	0.000	180.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	0.628 0.744 0.869 1.145 1.799	0.617 0.732 0.856 1.131 1.783	0.018 0.023 0.031 0.052 0.122
(2) PCS 1900 TMA DUAL DUP (E)	B	From Leg	4.000 0.000 2.000	0.000	180.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	0.628 0.744 0.869 1.145 1.799	0.617 0.732 0.856 1.131 1.783	0.018 0.023 0.031 0.052 0.122
(2) PCS 1900 TMA DUAL DUP (E)	A	From Leg	4.000 0.000 2.000	0.000	180.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	0.628 0.744 0.869 1.145 1.799	0.617 0.732 0.856 1.131 1.783	0.018 0.023 0.031 0.052 0.122
(2) 6' x 2" Mount Pipe (E)	C	From Leg	4.000 0.000 0.000	0.000	180.000	No Ice 1/2" Ice 1" Ice	1.425 1.925 2.294	1.425 1.925 2.294	0.022 0.033 0.048

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft	Offsets: Vert ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
							2" Ice	3.060	3.060	0.090
							4" Ice	4.702	4.702	0.231
(2) 6' x 2" Mount Pipe	B	From Leg	4.000		0.000	180.000	No Ice	1.425	1.425	0.022
(E)			0.000				1/2" Ice	1.925	1.925	0.033
			0.000				1" Ice	2.294	2.294	0.048
							2" Ice	3.060	3.060	0.090
							4" Ice	4.702	4.702	0.231
(2) 6' x 2" Mount Pipe	A	From Leg	4.000		0.000	180.000	No Ice	1.425	1.425	0.022
(E)			0.000				1/2" Ice	1.925	1.925	0.033
			0.000				1" Ice	2.294	2.294	0.048
							2" Ice	3.060	3.060	0.090
							4" Ice	4.702	4.702	0.231
T-Arm Mount [TA 701-3]	C	None			0.000	180.000	No Ice	27.950	27.950	1.092
(E)							1/2" Ice	37.260	37.260	1.407
							1" Ice	46.570	46.570	1.722
							2" Ice	65.190	65.190	2.352
							4" Ice	102.430	102.430	3.612
&										
(2) 7770.00 w/ Mount Pipe	C	From Leg	4.000		0.000	168.000	No Ice	6.119	4.254	0.055
(E)			0.000				1/2" Ice	6.626	5.014	0.103
			2.000				1" Ice	7.128	5.711	0.157
							2" Ice	8.164	7.155	0.287
							4" Ice	10.360	10.412	0.665
(2) 7770.00 w/ Mount Pipe	B	From Leg	4.000		0.000	168.000	No Ice	6.119	4.254	0.055
(E)			0.000				1/2" Ice	6.626	5.014	0.103
			2.000				1" Ice	7.128	5.711	0.157
							2" Ice	8.164	7.155	0.287
							4" Ice	10.360	10.412	0.665
(2) 7770.00 w/ Mount Pipe	A	From Leg	4.000		0.000	168.000	No Ice	6.119	4.254	0.055
(E)			0.000				1/2" Ice	6.626	5.014	0.103
			2.000				1" Ice	7.128	5.711	0.157
							2" Ice	8.164	7.155	0.287
							4" Ice	10.360	10.412	0.665
(2) LGP21901	C	From Leg	4.000		0.000	168.000	No Ice	0.270	0.184	0.006
(E)			0.000				1/2" Ice	0.343	0.248	0.008
			2.000				1" Ice	0.425	0.322	0.011
							2" Ice	0.616	0.494	0.022
							4" Ice	1.101	0.943	0.066
(2) LGP21901	B	From Leg	4.000		0.000	168.000	No Ice	0.270	0.184	0.006
(E)			0.000				1/2" Ice	0.343	0.248	0.008
			2.000				1" Ice	0.425	0.322	0.011
							2" Ice	0.616	0.494	0.022
							4" Ice	1.101	0.943	0.066
(2) LGP21901	A	From Leg	4.000		0.000	168.000	No Ice	0.270	0.184	0.006
(E)			0.000				1/2" Ice	0.343	0.248	0.008
			2.000				1" Ice	0.425	0.322	0.011
							2" Ice	0.616	0.494	0.022
							4" Ice	1.101	0.943	0.066
(2) LGP21401	C	From Leg	4.000		0.000	168.000	No Ice	1.288	0.233	0.014
(E)			0.000				1/2" Ice	1.445	0.313	0.021
			2.000				1" Ice	1.611	0.403	0.030
							2" Ice	1.969	0.608	0.055
							4" Ice	2.788	1.121	0.135
(2) LGP21401	B	From Leg	4.000		0.000	168.000	No Ice	1.288	0.233	0.014
(E)			0.000				1/2" Ice	1.445	0.313	0.021
			3.000				1" Ice	1.611	0.403	0.030
							2" Ice	1.969	0.608	0.055

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
						4" Ice	2.788	1.121	0.135
(2) LGP21401	A	From Leg	4.000	0.000	168.000	No Ice	1.288	0.233	0.014
(E)			0.000			1/2" Ice	1.445	0.313	0.021
			2.000			1" Ice	1.611	0.403	0.030
						2" Ice	1.969	0.608	0.055
						4" Ice	2.788	1.121	0.135
AM-X-CD-14-65-00T-RET	C	From Leg	4.000	0.000	168.000	No Ice	5.744	4.015	0.035
w/ Mount Pipe			0.000			1/2" Ice	6.198	4.633	0.080
(E)			2.000			1" Ice	6.661	5.276	0.131
						2" Ice	7.618	6.678	0.254
						4" Ice	9.668	9.744	0.610
P65-17-XLH-RR w/ Mount	B	From Leg	4.000	0.000	168.000	No Ice	11.704	8.938	0.092
Pipe			0.000			1/2" Ice	12.424	10.450	0.178
(E)			2.000			1" Ice	13.153	11.986	0.273
						2" Ice	14.639	14.313	0.498
						4" Ice	17.906	19.144	1.126
P65-17-XLH-RR w/ Mount	A	From Leg	4.000	0.000	168.000	No Ice	11.704	8.938	0.092
Pipe			0.000			1/2" Ice	12.424	10.450	0.178
(E)			2.000			1" Ice	13.153	11.986	0.273
						2" Ice	14.639	14.313	0.498
						4" Ice	17.906	19.144	1.126
RRUS-11	C	From Leg	4.000	0.000	168.000	No Ice	3.249	1.373	0.048
(E)			0.000			1/2" Ice	3.491	1.551	0.068
			3.000			1" Ice	3.741	1.738	0.092
						2" Ice	4.268	2.138	0.150
						4" Ice	5.426	3.042	0.310
RRUS-11	B	From Leg	4.000	0.000	168.000	No Ice	3.249	1.373	0.048
(E)			0.000			1/2" Ice	3.491	1.551	0.068
			3.000			1" Ice	3.741	1.738	0.092
						2" Ice	4.268	2.138	0.150
						4" Ice	5.426	3.042	0.310
RRUS-11	A	From Leg	4.000	0.000	168.000	No Ice	3.249	1.373	0.048
(E)			0.000			1/2" Ice	3.491	1.551	0.068
			3.000			1" Ice	3.741	1.738	0.092
						2" Ice	4.268	2.138	0.150
						4" Ice	5.426	3.042	0.310
DC6-48-60-18-8F	A	From Leg	4.000	0.000	168.000	No Ice	1.266	1.266	0.020
(E)			0.000			1/2" Ice	1.456	1.456	0.035
			3.000			1" Ice	1.658	1.658	0.053
						2" Ice	2.093	2.093	0.095
						4" Ice	3.098	3.098	0.215
Platform Mount [LP 303-1]	C	None		0.000	168.000	No Ice	14.660	14.660	1.250
(E)						1/2" Ice	18.870	18.870	1.481
						1" Ice	23.080	23.080	1.713
						2" Ice	31.500	31.500	2.175
						4" Ice	48.340	48.340	3.101
&									
(2) LPA-80063-6CF-EDIN-5	C	From Leg	4.000	0.000	160.000	No Ice	10.745	10.700	0.052
w/ Mount Pipe			0.000			1/2" Ice	11.412	11.967	0.145
(E)			0.000			1" Ice	12.045	12.948	0.247
						2" Ice	13.341	14.963	0.480
						4" Ice	16.054	19.208	1.095
(2) LPA-80063-6CF-EDIN	B	From Leg	4.000	0.000	160.000	No Ice	10.745	10.700	0.052
w/ Mount Pipe			0.000			1/2" Ice	11.412	11.967	0.145
(E)			0.000			1" Ice	12.045	12.948	0.247
						2" Ice	13.341	14.963	0.480
						4" Ice	16.054	19.208	1.095

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
(2) LPA-80063-6CF-EDIN w/ Mount Pipe (E)	A	From Leg	4.000 0.000 0.000	0.000	160.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	10.745 11.412 12.045 13.341 16.054	10.700 11.967 12.948 14.963 19.208	0.052 0.145 0.247 0.480 1.095
BXA-70063-6CF-2 w/ Mount Pipe (E)	C	From Leg	4.000 0.000 0.000	0.000	160.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	7.969 8.609 9.216 10.459 13.066	5.801 6.953 7.819 9.601 13.366	0.042 0.103 0.171 0.335 0.804
BXA-70063-6CF-EDIN-0 w/ Mount Pipe (E)	B	From Leg	4.000 0.000 0.000	0.000	160.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	7.969 8.609 9.216 10.459 13.066	5.801 6.953 7.819 9.601 13.366	0.042 0.103 0.171 0.335 0.804
BXA-70063-6CF-EDIN-0 w/ Mount Pipe (E)	A	From Leg	4.000 0.000 0.000	0.000	160.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	7.969 8.609 9.216 10.459 13.066	5.801 6.953 7.819 9.601 13.366	0.042 0.103 0.171 0.335 0.804
(2) 742 213 w/ Mount Pipe (P)	C	From Leg	4.000 0.000 0.000	0.000	160.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	5.373 5.950 6.501 7.611 9.933	4.620 6.000 6.982 8.852 12.794	0.049 0.094 0.146 0.277 0.683
(2) 742 213 w/ Mount Pipe (P)	B	From Leg	4.000 0.000 0.000	0.000	160.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	5.373 5.950 6.501 7.611 9.933	4.620 6.000 6.982 8.852 12.794	0.049 0.094 0.146 0.277 0.683
(2) 742 213 w/ Mount Pipe (P)	A	From Leg	4.000 0.000 0.000	0.000	160.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	5.373 5.950 6.501 7.611 9.933	4.620 6.000 6.982 8.852 12.794	0.049 0.094 0.146 0.277 0.683
(2) FD9R6004/2C-3L (P)	A	From Leg	4.000 0.000 0.000	0.000	160.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	0.367 0.451 0.543 0.755 1.281	0.085 0.136 0.196 0.343 0.740	0.003 0.005 0.009 0.020 0.063
(2) FD9R6004/2C-3L (P)	B	From Leg	4.000 0.000 0.000	0.000	160.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	0.367 0.451 0.543 0.755 1.281	0.085 0.136 0.196 0.343 0.740	0.003 0.005 0.009 0.020 0.063
(2) FD9R6004/2C-3L (P)	C	From Leg	4.000 0.000 0.000	0.000	160.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	0.367 0.451 0.543 0.755 1.281	0.085 0.136 0.196 0.343 0.740	0.003 0.005 0.009 0.020 0.063
Platform Mount [LP 601-1] (E)	C	None		0.000	160.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	28.470 33.590 38.710 48.950 69.430	28.470 33.590 38.710 48.950 69.430	1.122 1.514 1.905 2.689 4.255
&									

Load Combinations

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

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
L1	190.5 - 143.17	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	14	-23.682	-1.356	-0.249
			Max. Mx	5	-8.733	-511.156	-0.496
			Max. My	2	-8.729	0.228	511.394
			Max. Vy	5	20.054	-511.156	-0.496
			Max. Vx	8	20.078	-0.838	-511.208

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Force K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Torque	13			-1.190
L2	143.17 - 93.75	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	14	-37.987	-2.374	-3.121
			Max. Mx	5	-17.803	-1567.355	-1.890
			Max. My	8	-17.800	-2.087	-1568.763
			Max. Vy	5	24.390	-1567.355	-1.890
			Max. Vx	8	24.414	-2.087	-1568.763
			Max. Torque	13			-1.185
L3	93.75 - 46.08	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	14	-55.494	-3.540	-6.670
			Max. Mx	5	-29.616	-2792.831	-3.415
			Max. My	8	-29.615	-3.329	-2795.646
			Max. Vy	5	28.727	-2792.831	-3.415
			Max. Vx	8	28.750	-3.329	-2795.646
			Max. Torque	13			-1.140
L4	46.08 - 0	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	14	-79.177	-4.968	-11.169
			Max. Mx	5	-46.513	-4435.432	-5.311
			Max. My	8	-46.513	-4.782	-4439.929
			Max. Vy	5	33.197	-4435.432	-5.311
			Max. Vx	8	33.220	-4.782	-4439.929
			Max. Torque	13			-1.093

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Pole	Max. Vert	21	79.177	0.001	-9.911
	Max. H_x	11	46.535	33.167	0.020
	Max. H_z	2	46.535	0.020	33.190
	Max. M_x	2	4436.504	0.020	33.190
	Max. M_z	5	4435.432	-33.167	-0.020
	Max. Torsion	7	1.050	-16.601	-28.753
	Min. Vert	1	46.535	0.000	0.000
	Min. H_x	5	46.535	-33.167	-0.020
	Min. H_z	8	46.535	-0.020	-33.190
	Min. M_x	8	-4439.929	-0.020	-33.190
	Min. M_z	11	-4433.024	33.167	0.020
	Min. Torsion	13	-1.050	16.601	28.753

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	46.535	0.000	0.000	1.667	-1.155	0.000
Dead+Wind 0 deg - No Ice	46.535	-0.020	-33.190	-4436.504	2.386	0.920
Dead+Wind 30 deg - No Ice	46.535	16.566	-28.733	-3840.138	-2215.226	0.543
Dead+Wind 60 deg - No Ice	46.535	28.713	-16.578	-2214.309	-3839.597	0.021
Dead+Wind 90 deg - No Ice	46.535	33.167	0.020	5.311	-4435.432	-0.507
Dead+Wind 120 deg - No Ice	46.535	28.733	16.612	2223.947	-3843.140	-0.899
Dead+Wind 150 deg - No Ice	46.535	16.601	28.753	3847.126	-2221.404	-1.050

Load Combination	Vertical K	Shear$_x$ K	Shear$_z$ K	Overturning Moment, M_x kip-ft	Overturning Moment, M_z kip-ft	Torque kip-ft
Dead+Wind 180 deg - No Ice	46.535	0.020	33.190	4439.929	-4.782	-0.919
Dead+Wind 210 deg - No Ice	46.535	-16.566	28.733	3843.565	2212.815	-0.543
Dead+Wind 240 deg - No Ice	46.535	-28.713	16.578	2217.751	3837.179	-0.021
Dead+Wind 270 deg - No Ice	46.535	-33.167	-0.020	-1.856	4433.024	0.507
Dead+Wind 300 deg - No Ice	46.535	-28.733	-16.612	-2220.494	3840.748	0.899
Dead+Wind 330 deg - No Ice	46.535	-16.601	-28.753	-3843.688	2219.018	1.050
Dead+Ice+Temp	79.177	0.000	0.000	11.169	-4.968	0.000
Dead+Wind 0 deg+Ice+Temp	79.177	0.001	-9.911	-1409.781	-5.271	0.299
Dead+Wind 30 deg+Ice+Temp	79.177	4.957	-8.584	-1219.496	-715.954	0.167
Dead+Wind 60 deg+Ice+Temp	79.177	8.585	-4.956	-699.407	-1236.147	-0.010
Dead+Wind 90 deg+Ice+Temp	79.177	9.912	-0.001	11.126	-1426.466	-0.184
Dead+Wind 120 deg+Ice+Temp	79.177	8.584	4.954	721.716	-1235.918	-0.309
Dead+Wind 150 deg+Ice+Temp	79.177	4.955	8.582	1241.962	-715.561	-0.351
Dead+Wind 180 deg+Ice+Temp	79.177	-0.001	9.911	1432.466	-4.825	-0.299
Dead+Wind 210 deg+Ice+Temp	79.177	-4.957	8.584	1242.185	705.851	-0.167
Dead+Wind 240 deg+Ice+Temp	79.177	-8.585	4.956	722.103	1226.045	0.010
Dead+Wind 270 deg+Ice+Temp	79.177	-9.912	0.001	11.573	1416.370	0.184
Dead+Wind 300 deg+Ice+Temp	79.177	-8.584	-4.954	-699.021	1225.828	0.309
Dead+Wind 330 deg+Ice+Temp	79.177	-4.955	-8.582	-1219.274	705.471	0.351
Dead+Wind 0 deg - Service	46.535	-0.008	-12.965	-1735.345	0.189	0.366
Dead+Wind 30 deg - Service	46.535	6.471	-11.224	-1501.931	-867.752	0.216
Dead+Wind 60 deg - Service	46.535	11.216	-6.476	-865.603	-1503.506	0.007
Dead+Wind 90 deg - Service	46.535	12.956	0.008	3.123	-1736.709	-0.203
Dead+Wind 120 deg - Service	46.535	11.224	6.489	871.471	-1504.905	-0.359
Dead+Wind 150 deg - Service	46.535	6.485	11.232	1506.769	-870.179	-0.419
Dead+Wind 180 deg - Service	46.535	0.008	12.965	1738.780	-2.617	-0.366
Dead+Wind 210 deg - Service	46.535	-6.471	11.224	1505.367	865.323	-0.216
Dead+Wind 240 deg - Service	46.535	-11.216	6.476	869.041	1501.075	-0.007
Dead+Wind 270 deg - Service	46.535	-12.956	-0.008	0.317	1734.280	0.203
Dead+Wind 300 deg - Service	46.535	-11.224	-6.489	-868.032	1502.478	0.359
Dead+Wind 330 deg - Service	46.535	-6.485	-11.232	-1503.332	867.754	0.419

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	0.000	-46.535	0.000	0.000	46.535	0.000	0.000%
2	-0.020	-46.535	-33.190	0.020	46.535	33.190	0.000%
3	16.566	-46.535	-28.733	-16.566	46.535	28.733	0.000%
4	28.713	-46.535	-16.578	-28.713	46.535	16.578	0.000%
5	33.167	-46.535	0.020	-33.167	46.535	-0.020	0.000%
6	28.733	-46.535	16.612	-28.733	46.535	-16.612	0.000%
7	16.601	-46.535	28.753	-16.601	46.535	-28.753	0.000%
8	0.020	-46.535	33.190	-0.020	46.535	-33.190	0.000%
9	-16.566	-46.535	28.733	16.566	46.535	-28.733	0.000%
10	-28.713	-46.535	16.578	28.713	46.535	-16.578	0.000%
11	-33.167	-46.535	-0.020	33.167	46.535	0.020	0.000%
12	-28.733	-46.535	-16.612	28.733	46.535	16.612	0.000%
13	-16.601	-46.535	-28.753	16.601	46.535	28.753	0.000%
14	0.000	-79.177	0.000	-0.000	79.177	-0.000	0.000%
15	0.001	-79.177	-9.911	-0.001	79.177	9.911	0.000%
16	4.957	-79.177	-8.583	-4.957	79.177	8.584	0.000%
17	8.585	-79.177	-4.956	-8.585	79.177	4.956	0.000%
18	9.912	-79.177	-0.001	-9.912	79.177	0.001	0.000%
19	8.583	-79.177	4.954	-8.584	79.177	-4.954	0.000%
20	4.955	-79.177	8.582	-4.955	79.177	-8.582	0.000%
21	-0.001	-79.177	9.911	0.001	79.177	-9.911	0.000%

Load Comb.	Sum of Applied Forces PX K	PY K	PZ K	Sum of Reactions PX K	PY K	PZ K	% Error
22	-4.957	-79.177	8.583	4.957	79.177	-8.584	0.000%
23	-8.585	-79.177	4.956	8.585	79.177	-4.956	0.000%
24	-9.912	-79.177	0.001	9.912	79.177	-0.001	0.000%
25	-8.583	-79.177	-4.954	8.584	79.177	4.954	0.000%
26	-4.955	-79.177	-8.582	4.955	79.177	8.582	0.000%
27	-0.008	-46.535	-12.965	0.008	46.535	12.965	0.000%
28	6.471	-46.535	-11.224	-6.471	46.535	11.224	0.000%
29	11.216	-46.535	-6.476	-11.216	46.535	6.476	0.000%
30	12.956	-46.535	0.008	-12.956	46.535	-0.008	0.000%
31	11.224	-46.535	6.489	-11.224	46.535	-6.489	0.000%
32	6.485	-46.535	11.232	-6.485	46.535	-11.232	0.000%
33	0.008	-46.535	12.965	-0.008	46.535	-12.965	0.000%
34	-6.471	-46.535	11.224	6.471	46.535	-11.224	0.000%
35	-11.216	-46.535	6.476	11.216	46.535	-6.476	0.000%
36	-12.956	-46.535	-0.008	12.956	46.535	0.008	0.000%
37	-11.224	-46.535	-6.489	11.224	46.535	6.489	0.000%
38	-6.485	-46.535	-11.232	6.485	46.535	11.232	0.000%

Non-Linear Convergence Results

Load Combination	Converged?	Number of Cycles	Displacement Tolerance	Force Tolerance
1	Yes	4	0.00000001	0.00000001
2	Yes	4	0.00000001	0.00065703
3	Yes	6	0.00000001	0.00004677
4	Yes	6	0.00000001	0.00004652
5	Yes	4	0.00000001	0.00057120
6	Yes	6	0.00000001	0.00004584
7	Yes	6	0.00000001	0.00004739
8	Yes	4	0.00000001	0.00072838
9	Yes	6	0.00000001	0.00004612
10	Yes	6	0.00000001	0.00004635
11	Yes	4	0.00000001	0.00062559
12	Yes	6	0.00000001	0.00004726
13	Yes	6	0.00000001	0.00004571
14	Yes	4	0.00000001	0.00003585
15	Yes	5	0.00000001	0.00047281
16	Yes	5	0.00000001	0.00073772
17	Yes	5	0.00000001	0.00073415
18	Yes	5	0.00000001	0.00047758
19	Yes	5	0.00000001	0.00074271
20	Yes	5	0.00000001	0.00075191
21	Yes	5	0.00000001	0.00047864
22	Yes	5	0.00000001	0.00073518
23	Yes	5	0.00000001	0.00073892
24	Yes	5	0.00000001	0.00047334
25	Yes	5	0.00000001	0.00073008
26	Yes	5	0.00000001	0.00072105
27	Yes	4	0.00000001	0.00018855
28	Yes	5	0.00000001	0.00012597
29	Yes	5	0.00000001	0.00012476
30	Yes	4	0.00000001	0.00017161
31	Yes	5	0.00000001	0.00012233
32	Yes	5	0.00000001	0.00012915
33	Yes	4	0.00000001	0.00019426
34	Yes	5	0.00000001	0.00012286

35	Yes	5	0.00000001	0.00012392
36	Yes	4	0.00000001	0.00017505
37	Yes	5	0.00000001	0.00012795
38	Yes	5	0.00000001	0.00012128

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	190.5 - 143.17	61.185	32	3.269	0.005
L2	146.75 - 93.75	34.005	32	2.465	0.002
L3	99.08 - 46.08	14.344	32	1.467	0.001
L4	53 - 0	3.891	32	0.689	0.000

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
191.000	(4) DB844H90-XY w/ Mount Pipe	32	61.185	3.269	0.005	17727
190.500	Lightning Rod 5/8" x 6'	32	61.185	3.269	0.005	17727
180.000	RR90-17-02DP w/ Mount Pipe	32	54.233	3.085	0.005	8441
168.000	(2) 7770.00 w/ Mount Pipe	32	46.489	2.870	0.004	3938
160.000	(2) LPA-80063-6CF-EDIN-5 w/ Mount Pipe	32	41.557	2.722	0.003	2904

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	190.5 - 143.17	155.617	8	8.321	0.013
L2	146.75 - 93.75	86.600	8	6.282	0.006
L3	99.08 - 46.08	36.580	7	3.741	0.002
L4	53 - 0	9.930	7	1.759	0.001

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
191.000	(4) DB844H90-XY w/ Mount Pipe	8	155.617	8.321	0.013	7198
190.500	Lightning Rod 5/8" x 6'	8	155.617	8.321	0.013	7198
180.000	RR90-17-02DP w/ Mount Pipe	8	137.970	7.854	0.011	3426
168.000	(2) 7770.00 w/ Mount Pipe	8	118.311	7.310	0.009	1595
160.000	(2) LPA-80063-6CF-EDIN-5 w/	8	105.786	6.935	0.008	1174

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
	Mount Pipe					

Compression Checks

Pole Design Data

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P K	Allow. P_a K	Ratio $\frac{P}{P_a}$
L1	190.5 - 143.17 (1)	TP27.778x14.75x0.25	47.330	0.000	0.0	39.000	21.062	-8.725	821.400	0.011
L2	143.17 - 93.75 (2)	TP40.88x26.293x0.375	53.000	0.000	0.0	39.000	46.465	-17.798	1812.130	0.010
L3	93.75 - 46.08 (3)	TP53.251x38.663x0.375	53.000	0.000	0.0	39.000	53.252	-23.947	2076.820	0.012
L4	46.08 - 0 (4)	TP65.185x50.596x0.375	53.000	0.000	0.0	36.453	77.140	-46.513	2811.950	0.017

Pole Bending Design Data

Section No.	Elevation ft	Size	Actual M_x kip-ft	Actual f_{bx} ksi	Allow. F_{bx} ksi	Ratio $\frac{f_{bx}}{F_{bx}}$	Actual M_y kip-ft	Actual f_{by} ksi	Allow. F_{by} ksi	Ratio $\frac{f_{by}}{F_{by}}$
L1	190.5 - 143.17 (1)	TP27.778x14.75x0.25	511.733	44.585	39.000	1.143	0.000	0.000	39.000	0.000
L2	143.17 - 93.75 (2)	TP40.88x26.293x0.375	1569.917	42.162	39.000	1.081	0.000	0.000	39.000	0.000
L3	93.75 - 46.08 (3)	TP53.251x38.663x0.375	2170.083	44.318	39.000	1.136	0.000	0.000	39.000	0.000
L4	46.08 - 0 (4)	TP65.185x50.596x0.375	4442.408	43.123	36.453	1.183	0.000	0.000	36.453	0.000

Pole Shear Design Data

Section No.	Elevation ft	Size	Actual V K	Actual f_v ksi	Allow. F_v ksi	Ratio $\frac{f_v}{F_v}$	Actual T kip-ft	Actual f_{vt} ksi	Allow. F_{vt} ksi	Ratio $\frac{f_{vt}}{F_{vt}}$
L1	190.5 - 143.17 (1)	TP27.778x14.75x0.25	20.090	0.954	26.000	0.073	1.185	0.050	26.000	0.002
L2	143.17 - 93.75 (2)	TP40.88x26.293x0.375	24.426	0.526	26.000	0.040	1.146	0.015	26.000	0.001
L3	93.75 - 46.08 (3)	TP53.251x38.663x0.375	26.890	0.505	26.000	0.038	1.122	0.011	26.000	0.000
L4	46.08 - 0 (4)	TP65.185x50.596x0.375	33.232	0.431	26.000	0.033	1.052	0.005	26.000	0.000

tnxTower	Job: 84855.003.01 - CT SUFFIELD 1 CAC 801485, CT (BU# 801485)	Page: 15 of 15
B+T Group 1717 S Boulder Ave, Suite 300 Tulsa, OK 74119 Phone: (918) 587-4630 FAX: (918) 295-0265	Project:	Date: 12:02:22 04/02/14
	Client: Crown Castle	Designed by: jojha

Pole Interaction Design Data

Section No.	Elevation ft	Ratio $\frac{P}{P_a}$	Ratio $\frac{f_{bx}}{F_{bx}}$	Ratio $\frac{f_{by}}{F_{by}}$	Ratio $\frac{f_v}{F_v}$	Ratio $\frac{f_{vt}}{F_{vt}}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
L1	190.5 - 143.17 (1)	0.011	1.143	0.000	0.073	0.002	1.155 ✔	1.333	H1-3+VT ✔
L2	143.17 - 93.75 (2)	0.010	1.081	0.000	0.040	0.001	1.091 ✔	1.333	H1-3+VT ✔
L3	93.75 - 46.08 (3)	0.012	1.136	0.000	0.038	0.000	1.148 ✔	1.333	H1-3+VT ✔
L4	46.08 - 0 (4)	0.017	1.183	0.000	0.033	0.000	1.200 ✔	1.333	H1-3+VT ✔

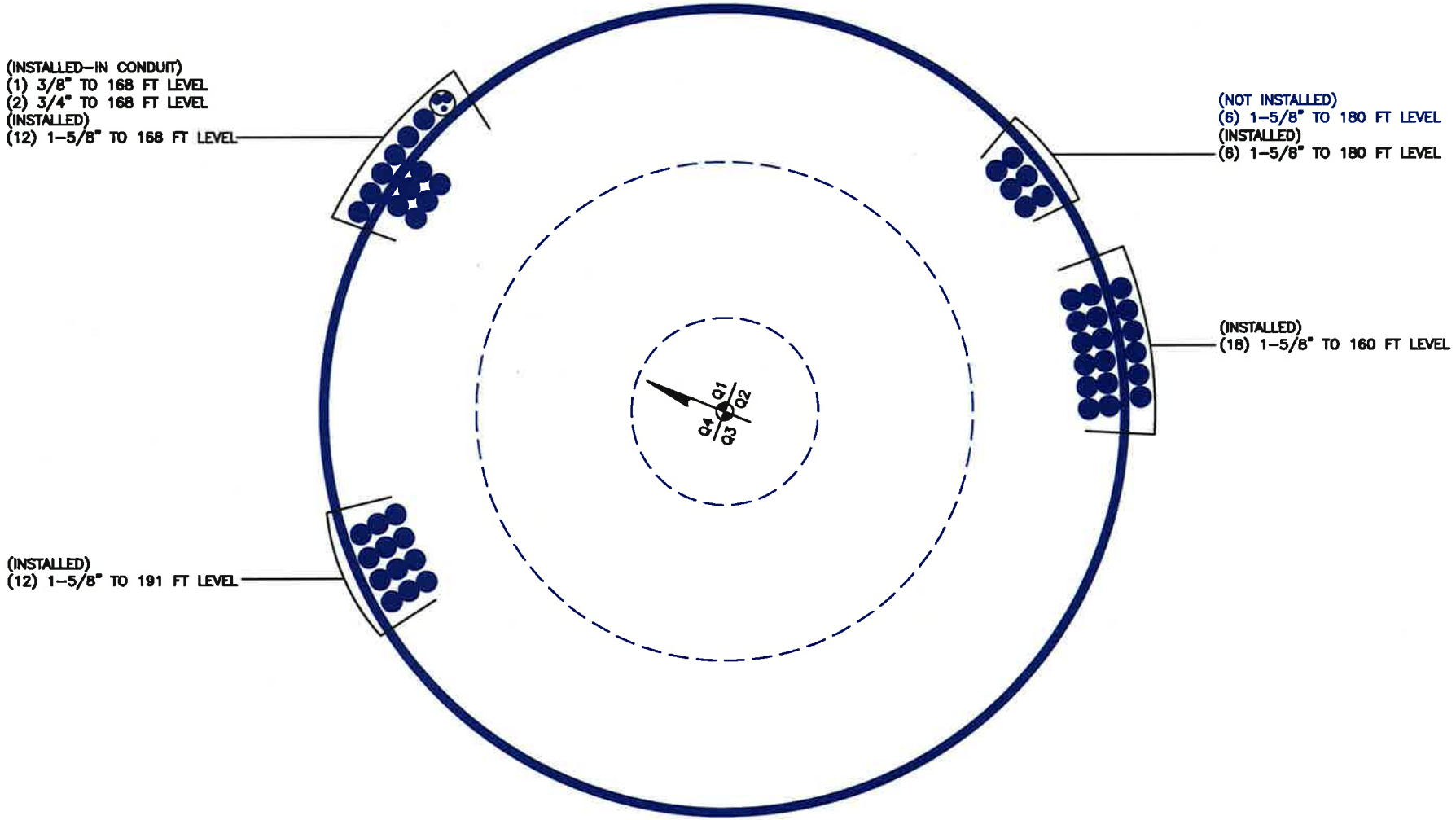
Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	$SF*P_{allow}$ K	% Capacity	Pass Fail
L1	190.5 - 143.17	Pole	TP27.778x14.75x0.25	1	-8.725	1094.926	86.7	Pass
L2	143.17 - 93.75	Pole	TP40.88x26.293x0.375	2	-17.798	2415.569	81.9	Pass
L3	93.75 - 46.08	Pole	TP53.251x38.663x0.375	3	-23.947	2768.401	86.1	Pass
L4	46.08 - 0	Pole	TP65.185x50.596x0.375	4	-46.513	3748.329	90.0	Pass
							Summary	
						Pole (L4)	90.0	Pass
						RATING =	**90.0**	**Pass**

Program Version 6.1.4.1 -

APPENDIX B

BASE LEVEL DRAWING


(INSTALLED–IN CONDUIT)
(1) 3/8" TO 168 FT LEVEL
(2) 3/4" TO 168 FT LEVEL
(INSTALLED)
(12) 1–5/8" TO 168 FT LEVEL
(NOT INSTALLED)
(6) 1–5/8" TO 180 FT LEVEL
(INSTALLED)
(6) 1–5/8" TO 180 FT LEVEL
(INSTALLED)
(18) 1–5/8" TO 160 FT LEVEL
(INSTALLED)
(12) 1–5/8" TO 191 FT LEVEL
Q1
Q2
Q3
Q4

APPENDIX C

ADDITIONAL CALCULATIONS

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

TIA Rev F

Site Data

BU#: *801485*
Site Name: *CT SUFFIELD 1 CAC 8014*
App #: *213751, Rev:4*

Pole Manufacturer:	Other

Reactions		
Moment:	4442	ft-kips
Axial:	47	kips
Shear:	33	kips

If No stiffeners, Criteria:	AISC ASD	<-Only Applcable to Unstiffened Cases

Anchor Rod Data		
Qty:	20	
Diam:	2.25	in
Rod Material:	A615-J	
Strength (Fu):	100	ksi
Yield (Fy):	75	ksi
Bolt Circle:	72	in

Plate Data		
Diam:	78	in
Thick:	2.75	in
Grade:	60	ksi
Single-Rod B-eff:	10.34	in

Stiffener Data (Welding at both sides)		
Config:	0	*
Weld Type:		
Groove Depth:		in **
Groove Angle:		degrees
Fillet H. Weld:		<-- Disregard
Fillet V. Weld:		in
Width:		in
Height:		in
Thick:		in
Notch:		in
Grade:		ksi
Weld str.:		ksi

Pole Data		
Diam:	65.185	in
Thick:	0.375	in
Grade:	65	ksi
# of Sides:	18	"0" IF Round
Fu	80	ksi
Reinf. Fillet Weld	0	"0" if None

Stress Increase Factor		
ASIF:	1.333	

Anchor Rod Results

Maximum Rod Tension:	145.7 Kips	Rigid
Allowable Tension:	195.0 Kips	Service, ASD
Anchor Rod Stress Ratio:	74.7% **Pass**	Fty*ASIF

Base Plate Results

	Flexural Check	Rigid
Base Plate Stress:	25.5 ksi	Service ASD
Allowable Plate Stress:	60.0 ksi	0.75*Fy*ASIF
Base Plate Stress Ratio:	42.6% **Pass**	Y.L. Length: 30.58

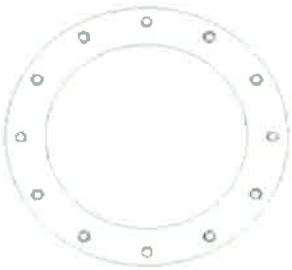
n/a

Stiffener Results

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

Pole Results

Pole Punching Shear Check: n/a



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

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

PROJECT	**801485 - CT SUFFIELD 1 CAC 801485, CT**				
SUBJECT	**Foundation Analysis**				
DATE	**04/02/14**	PAGE	1	OF	1

B+T GRP
1717 S. Boulder, Suite 300
Tulsa, OK 74159
(918) 587-4630

Monopole Pad & Pier Foundation Analysis

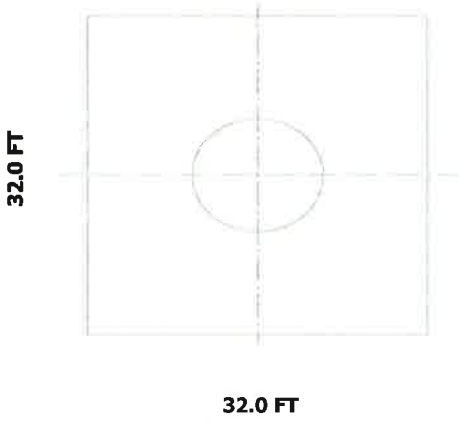
Rev. Type: F

Design Loads:

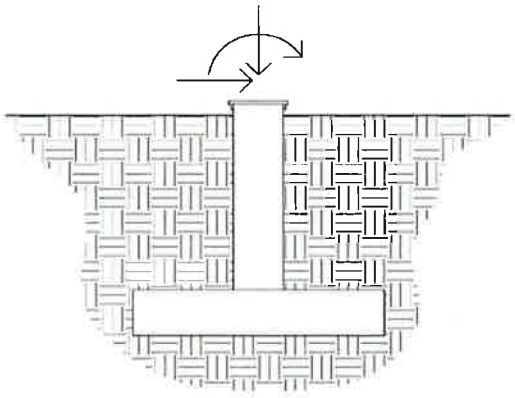
	Input unfactored loads	
Shear:	33.0	kips
Moment:	4,442.0	ft-kips
Tower Height:	190.5	ft
Tower Weight:	47.0	kips

Pad & Pier Dimensions / Properties:

Pole Diameter at Base:	65.19	in
Bearing Depth:	6.5	ft
Pad Width:	32.0	ft
Neglected Depth:	2.0	ft
Thickness:	5.0	ft
Pier Diameter:	8.0	ft
Pier Height Above Grade:	0.5	ft
BP Dist. Above Pier:	3.0	in
Clear Cover:	3.0	in
Pier Rebar Size:	9	
Pier Rebar Quanity:	43	
Pad Rebar Size:	9	
Pad Rebar Quanity:	34	
Pier Tie Size:	5	
Tie Quanity:	9	
Rebar Yield Strength:	60000	psi
Concrete Strength:	3000	psi
Concrete Unit Weight:	0.15	kcf



Elevation Overview



Soil Data:

	Allowable Values	
Soil Unit Weight:	0.120	kcf
Ult. Bearing Capacity:	6.000	ksf
Angle of Friction:	30.000	deg
Cohesion:	0.000	ksf
Passive Pressure:	0.000	ksf
Base Friction:	0.300	

Summary of Results

Req'd Pier Diam.	OK
Overturning	53.3%
Shear Capacity	21.7%
Bearing	44.0%
Pad Shear - 1-way	28.2%
Pad Shear - 2-way	2.9%
Pad Moment Capacity	24.3%
Pier Moment Capacity	73.7%

** Notes: