ROBINSON & COLE LLP

KENNETH C. BALDWIN

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May 17, 2012

Linda Roberts
Executive Director
Connecticut Siting Council
10 Franklin Square
New Britain, CT 06051

Re: **EM-VER-007-120125 – 1684 Chamberlain Highway, Berlin, Connecticut**
EM-VER-014-120110 – 405 Brushy Hill Road, Branford, Connecticut
EM-VER-026-111130 – Wig Hill Road, Chester, Connecticut
EM-VER-070-120202 – 78 Route 81, Killingworth, Connecticut
EM-VER-030-120106 – 330 Middletown Road, Columbia, Connecticut
EM-VER-046-120123 – 206 Everett Road, Easton, Connecticut
EM-VER-049-120214 – Town Farm Road, Enfield, Connecticut
EM-VER-013-111220 – 12 Polly Lane, Bozrah, Connecticut

Completion of Construction Activity

Dear Ms. Roberts:

The purpose of this letter is to notify you and the Connecticut Siting Council that construction activity associated with each of the above-referenced modification filings has been completed.

If you have any questions or need any additional information regarding these facilities please do not hesitate to contact me.

Sincerely,

Kenneth C. Baldwin

Copy to:
Sandy M. Carter

11525985-v1

STATE OF CONNECTICUT

CONNECTICUT SITING COUNCIL

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

December 20, 2011

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

RE: **EM-VER-026-111130** - Cellco Partnership d/b/a Verizon Wireless notice of intent to modify an existing telecommunications facility located at Wig Hill Road, Chester, Connecticut.

Dear Attorney Baldwin:

The Connecticut Siting Council (Council) hereby acknowledges your notice to modify this existing telecommunications facility, pursuant to Section 16-50j-73 of the Regulations of Connecticut State Agencies with the following conditions:

- Any deviation from the proposed modification as specified in this notice and supporting materials with Council shall render this acknowledgement invalid;
- Any material changes to this modification as proposed shall require the filing of a new notice with the Council;
- Not less than 45 days after completion of construction, the Council shall be notified in writing that construction has been completed;
- The validity of this action shall expire one year from the date of this letter; and
- The applicant may file a request for an extension of time beyond the one year deadline provided that such request is submitted to the Council not less than 60 days prior to the expiration;

The proposed modifications including the placement of all necessary equipment and shelters within the tower compound are to be implemented as specified here and in your notice dated November 28, 2011. The modifications are in compliance with the exception criteria in Section 16-50j-72 (b) of the Regulations of Connecticut State Agencies as changes to an existing facility site that would not increase tower height, extend the boundaries of the tower site, increase noise levels at the tower site boundary by six decibels, and increase the total radio frequencies electromagnetic radiation power density measured at the tower site boundary to or above the standard adopted by the State Department of Environmental Protection pursuant to General Statutes § 22a-162. This facility has also been carefully modeled to ensure that radio frequency emissions are conservatively below State and federal standards applicable to the frequencies now used on this tower.

This decision is under the exclusive jurisdiction of the Council. Please be advised that the validity of this action shall expire one year from the date of this letter. Any additional change to this facility will require explicit notice to this agency pursuant to Regulations of Connecticut State Agencies Section 16-50j-73. Such notice shall include all relevant information regarding the proposed change with cumulative worst-case modeling of radio frequency exposure at the closest point of uncontrolled access to the tower base, consistent with Federal Communications Commission, Office of Engineering and Technology, Bulletin 65. Thank you for your attention and cooperation.

Very truly yours,

Linda Roberts

Linda Roberts
Executive Director

LR/CDM/laf

c: The Honorable Edmund Meehan, First Selectman, Town of Chester
Cathy Jefferson, Zoning Enforcement Officer, Town of Chester
Crown Castle USA, Inc.

CSC
CONNECTICUT SITING COUNCIL

STATE OF CONNECTICUT

CONNECTICUT SITING COUNCIL

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

December 6, 2011

The Honorable Thomas E. Marsh
First Selectman
Town of Chester
203 Middlesex Avenue
Chester, CT 06412-0218

RE: **EM-VER-026-111130** - Cellco Partnership d/b/a Verizon Wireless notice of intent to modify an existing telecommunications facility located at Wig Hill Road, Chester, Connecticut.

Dear First Selectman Marsh:

The Connecticut Siting Council (Council) received this request to modify an existing telecommunications facility, pursuant to Regulations of Connecticut State Agencies Section 16-50j-72.

If you have any questions or comments regarding this proposal, please call me or inform the Council by December 20, 2011.

Thank you for your cooperation and consideration.

Very truly yours,

Linda Roberts
Executive Director

LR/jbw

Enclosure: Notice of Intent

c: Cathy Jefferson, Zoning Enforcement Officer, Town of Chester

EM-VER-026-111130

ROBINSON & COL

KENNETH C. BALDWIN

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November 28, 2011

Linda Roberts
Executive Director
Connecticut Siting Council
10 Franklin Square
New Britain, CT 06051

Re: **Notice of Exempt Modification – Antenna Swap**
Wig Hill Road, Chester, Connecticut

Dear Ms. Roberts:

Cellco Partnership d/b/a Verizon Wireless ("Cellco") currently maintains twelve (12) wireless telecommunications antennas at the 140-foot level on the existing 150-foot tower at the above-referenced address. The tower is owned by Crown Castle. The Council approved Cellco's use of the existing tower in 1998 (Docket No. 181). Cellco now intends to modify its installation by replacing all of its existing antennas with six (6) model LPA-80080/4CF cellular antennas; three (3) model BXA-171085/8BF PCS antennas; and three (3) model BXA-70063/6CF LTE antennas, all at the same 140-foot level on the tower. Cellco also intends to install six (6) coax cable diplexers on its antenna platform. Attached behind Tab 1 are the specifications for the proposed replacement antennas and cable 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 Meehan, First Selectman of the Town of Chester. A copy of this letter is also being sent to Bruce A. and Mary C. Rayner, the owners of the property on which the tower is located.

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 overall height of the existing tower. Cellco's antennas and diplexers will be located at the same 140-foot level on the existing 150-foot tower.

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

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

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

Also attached is a Structural Analysis Report confirming that the tower and foundation can support Cellco's proposed antennas modification. (See Tab 3).

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

Sincerely,

Kenneth C. Baldwin

Enclosures
Copy to:
Edward Meehan, Chester First Selectman
Bruce A. and Mary C. Rayner
Sandy M. Carter

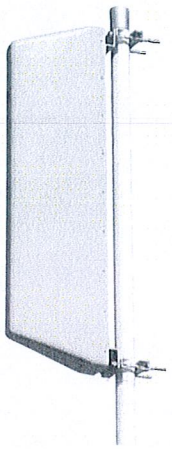
Amphenol ANTENNA SOLUTIONS

LPA-80080-4CF-EDIN-X

V-Pol | Log Periodic | 80° | 12.5 dBd

Replace "X" with desired electrical downtilt.

Antenna is also available with NE connector(s). Replace "EDIN" with "NE" in the model number when ordering.

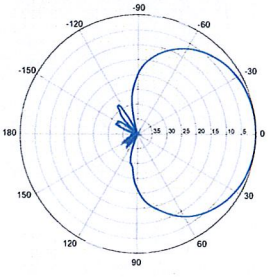


Electrical Characteristics	
Frequency bands	806-960 MHz
Polarization	Vertical
Horizontal beamwidth	80°
Vertical beamwidth	15°
Gain	12.5 dBd (14.6 dBi)
Electrical downtilt (X)	0, 2, 4, 5, 6, 8, 10, 12, 14
Impedance	50Ω
VSWR	≤1.4:1
Upper sidelobe suppression (0°)	-14.2 dB
Front-to-back ratio (+/-30°)	-34.7 dB
Null fill	15% (-16.48 dB)
Input power	500 W
Lightning protection	Direct Ground
Connector(s)	1 Port / EDIN or NE / Female / Center (Back)

Mechanical Characteristics		
Dimensions Length x Width x Depth	1200 x 140 x 335 mm	47.2 x 5.5 x 13.2 in
Depth of antenna with z-bracket	375 mm	14.8 in
Weight without mounting brackets	5.4 kg	12 lbs
Survival wind speed	> 201 km/hr	> 125 mph
Wind area	Front: 0.17 m² Side: 0.40 m²	Front: 1.8 ft² Side: 4.3 ft²
Wind load @ 161 km/hr (100 mph)	Front: 254 N Side: 574 N	Front: 57 lbf Side: 129 lbf

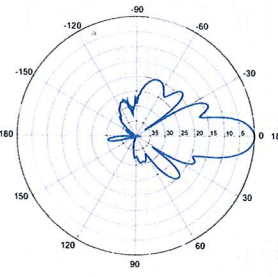
Mounting Options	Part Number	Fits Pipe Diameter	Weight
2-Point Mounting & Downtilt Bracket Kit (0-20°)	21699999	50-102 mm 2.0-4.0 in	5.4 kg 12 lbs
Lock-Down Brace	If the lock-down brace is used, the maximum diameter of the mounting pipe is 88.9 mm or 3.5 in.		

LPA-80080-4CF-EDIN-X



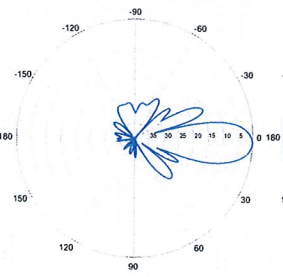
Horizontal

LPA-80080-4CF-EDIN-0



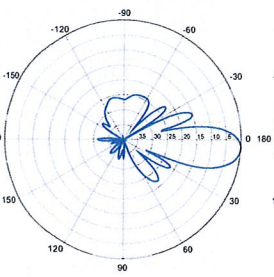
0° | Vertical

LPA-80080-4CF-EDIN-2



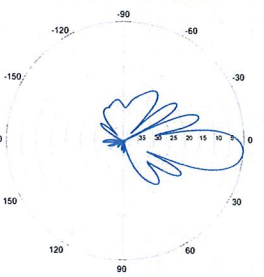
2° | Vertical

LPA-80080-4CF-EDIN-4



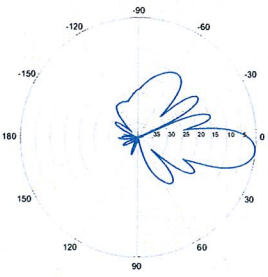
2° | Vertical

LPA-80080-4CF-EDIN-5



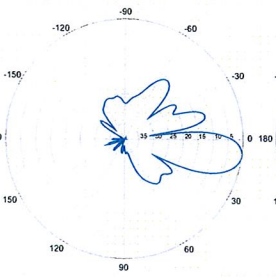
5° | Vertical

LPA-80080-4CF-EDIN-6



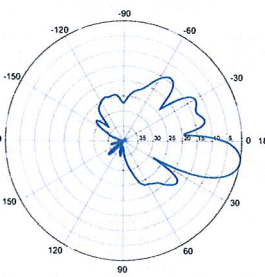
6° | Vertical

LPA-80080-4CF-EDIN-8



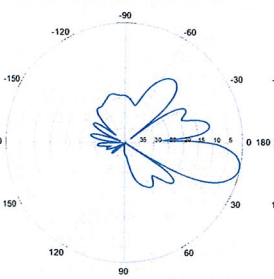
8° | Vertical

LPA-80080-4CF-EDIN-10



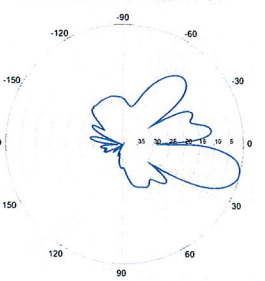
10° | Vertical

LPA-80080-4CF-EDIN-12



12° | Vertical

LPA-80080-4CF-EDIN-14



14° | Vertical

Amphenol ANTENNA SOLUTIONS

BXA-171085-8BF-EDIN-X

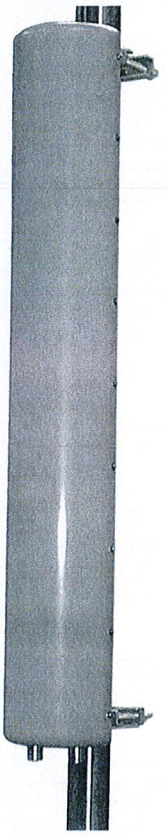
Replace "X" with desired electrical downtilt.

X-Pol | FET Panel | 85° | 16.4 dBi

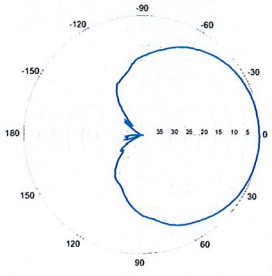
Electrical Characteristics	1710-2170 MHz		
Frequency bands	1710-1880 MHz	1850-1990 MHz	1920-2170 MHz
Polarization	±45°	±45°	±45°
Horizontal beamwidth	88°	85°	80°
Vertical beamwidth	7°	7°	7°
Gain	13.5 dBd / 15.6 dBi	13.9 dBd / 16.0 dBi	14.3 dBd / 16.4 dBi
Electrical downtilt (X)	0, 2, 4		
Impedance	50Ω		
VSWR	≤1.5:1		
First upper sidelobe	< -17 dB		
Front-to-back isolation	> 30 dB		
In-band isolation	> 28 dB		
IM3 (20W carrier)	< -150 dBc		
Input power	300 W		
Lightning protection	Direct Ground		
Connector(s)	2 Ports / EDIN / Female / Bottom		
Operating temperature	-40° to +60° C / -40° to +140° F		

Mechanical Characteristics		
Dimensions Length x Width x Depth	1232 x 154 x 105 mm	48.5 x 6.1 x 4.1 in
Depth with t-brackets	133 mm	5.2 in
Weight without mounting brackets	4.8 kg	10.5 lbs
Survival wind speed	296 km/hr	184 mph
Wind area	Front: 0.19 m² Side: 0.14 m²	Front: 2.0 ft² Side: 1.5 ft²
Wind load @ 161 km/hr (100 mph)	Front: 281 N Side: 223 N	Front: 63 lbf Side: 50 lbf

Mounting Options	Part Number	Fits Pipe Diameter	Weight
2-Point Mounting Bracket Kit	26799997	50-102 mm 2.0-4.0 in	2.3 kg 5 lbs
2-Point Mounting & Downtilt Bracket Kit	26799999	50-102 mm 2.0-4.0 in	3.6 kg 8 lbs
Concealment Configurations	For concealment configurations, order BXA-171085-8BF-EDIN-X-FP		

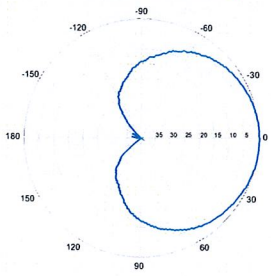


BXA-171085-8BF-EDIN-X



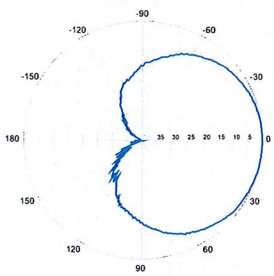
Horizontal | 1710-1880 MHz

BXA-171085-8BF-EDIN-X



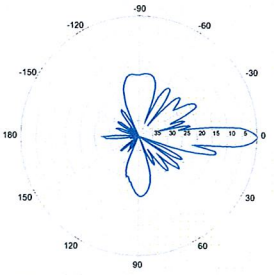
Horizontal | 1850-1990 MHz

BXA-171085-8BF-EDIN-X



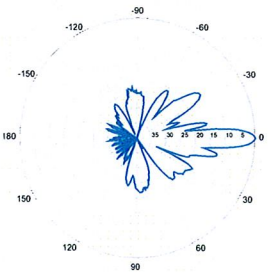
Horizontal | 1920-2170 MHz

BXA-171085-8BF-EDIN-0



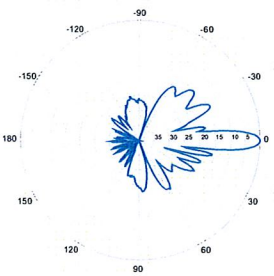
0° | Vertical | 1710-1880 MHz

BXA-171085-8BF-EDIN-0



0° | Vertical | 1850-1990 MHz

BXA-171085-8BF-EDIN-0

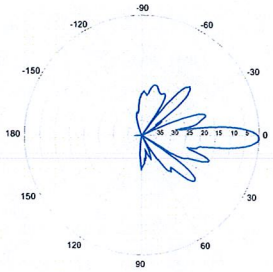


0° | Vertical | 1920-2170 MHz

BXA-171085-8BF-EDIN-X

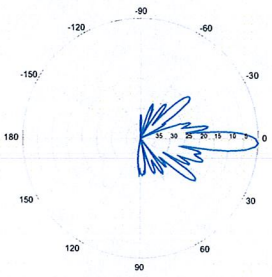
X-Pol | FET Panel | 85° | 16.4 dBi

BXA-171085-8BF-EDIN-2



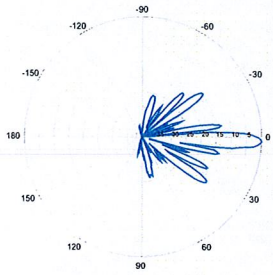
2° | Vertical | 1710-1880 MHz

BXA-171085-8BF-EDIN-2



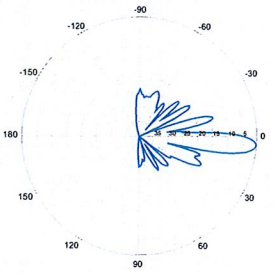
2° | Vertical | 1850-1990 MHz

BXA-171085-8BF-EDIN-2



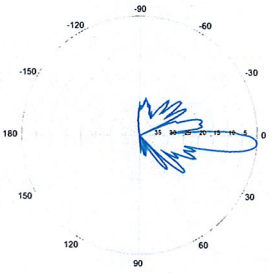
2° | Vertical | 1920-2170 MHz

BXA-171085-8BF-EDIN-4



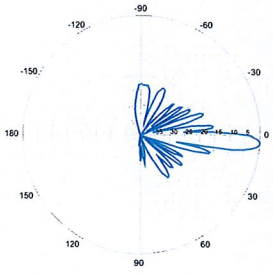
4° | Vertical | 1710-1880 MHz

BXA-171085-8BF-EDIN-4



4° | Vertical | 1850-1990 MHz

BXA-171085-8BF-EDIN-4



4° | Vertical | 1920-2170 MHz

Amphenol ANTENNA SOLUTIONS

BXA-70063-6CF-EDIN-X

X-Pol | FET Panel | 63° | 14.5 dBd

Replace "X" with desired electrical downtilt.

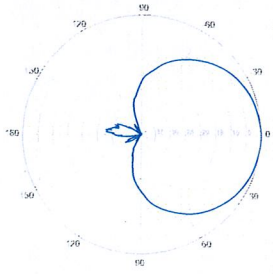
Antenna is also available with NE connector(s). Replace "EDIN" with "NE" in the model number when ordering.

Electrical Characteristics	696-900 MHz	
Frequency bands	696-806 MHz	806-900 MHz
Polarization	±45°	
Horizontal beamwidth	65°	63°
Vertical beamwidth	13°	11°
Gain	14.0 dBd (16.1 dBi)	14.5 dBd (16.6 dBi)
Electrical downtilt (X)	0, 2, 3, 4, 5, 6, 8, 10	
Impedance	50Ω	
VSWR	≤1.35:1	
Upper sidelobe suppression (0°)	-18.3 dB	-18.2 dB
Front-to-back ratio (+/-30°)	-33.4 dB	-36.3 dB
Null fill	5% (-26.02 dB)	
Isolation between ports	< -25 dB	
Input power with EDIN connectors	500 W	
Input power with NE connectors	300 W	
Lightning protection	Direct Ground	
Connector(s)	2 Ports / EDIN or NE / Female / Center (Back)	

Mechanical Characteristics		
Dimensions Length x Width x Depth	1804 x 285 x 132 mm	71.0 x 11.2 x 5.2 in
Depth with z-brackets	172 mm	6.8 in
Weight without mounting brackets	7.9 kg	17 lbs
Survival wind speed	> 201 km/hr	> 125 mph
Wind area	Front: 0.51 m² Side: 0.24 m²	Front: 5.5 ft² Side: 2.6 ft²
Wind load @ 161 km/hr (100 mph)	Front: 759 N Side: 391 N	Front: 169 lbf Side: 89 lbf

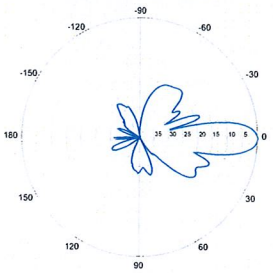
Mounting Options	Part Number	Fits Pipe Diameter	Weight
3-Point Mounting & Downtilt Bracket Kit	36210008	40-115 mm 1.57-4.5 in	6.9 kg 15.2 lbs
Concealment Configurations	For concealment configurations, order BXA-70063-6CF-EDIN-X-FP		

BXA-70063-6CF-EDIN-X



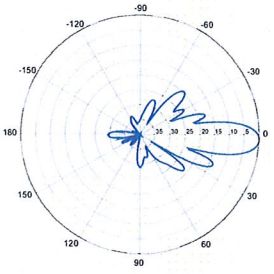
Horizontal | 750 MHz

BXA-70063-6CF-EDIN-0

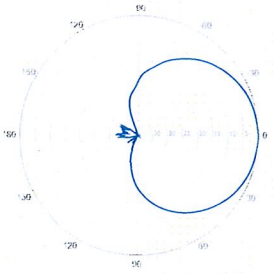


0° | Vertical | 750 MHz

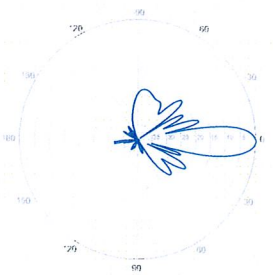
BXA-70063-6CF-EDIN-2



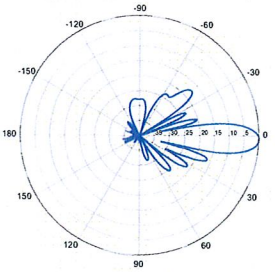
2° | Vertical | 750 MHz



Horizontal | 850 MHz



0° | Vertical | 850 MHz



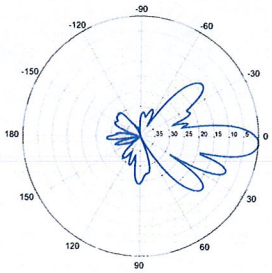
2° | Vertical | 850 MHz

Quoted performance parameters are provided to offer typical or range values only and may vary as a result of normal manufacturing and operational conditions. Extreme operational conditions and/or stress on structural supports is beyond our control. Such conditions may result in damage to this product. Improvements to product may be made without notice.

BXA-70063-6CF-EDIN-X

X-Pol | FET Panel | 63° | 14.5 dBd

BXA-70063-6CF-EDIN-3



3° | Vertical | 750 MHz

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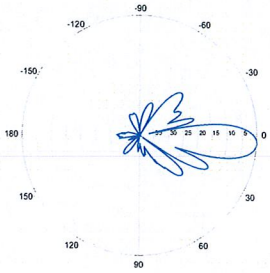
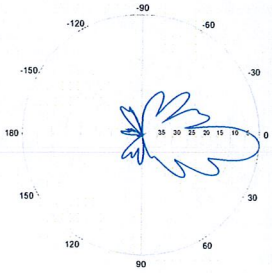
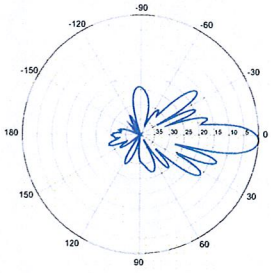


4° | Vertical | 750 MHz

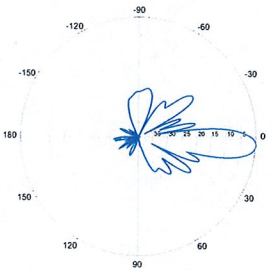
BXA-70063-6CF-EDIN-5



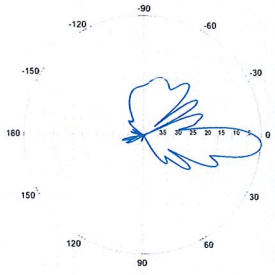
5° | Vertical | 750 MHz



3° | Vertical | 850 MHz

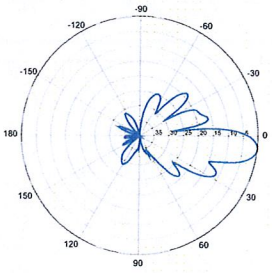


4° | Vertical | 850 MHz



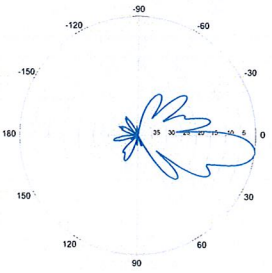
5° | Vertical | 850 MHz

BXA-70063-6CF-EDIN-6



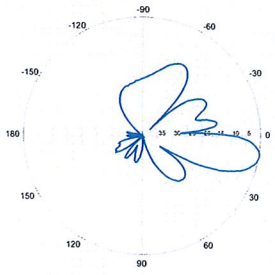
6° | Vertical | 750 MHz

BXA-70063-6CF-EDIN-8

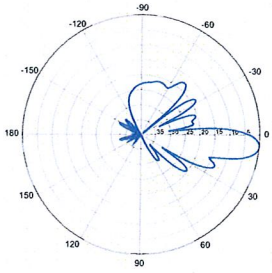


8° | Vertical | 750 MHz

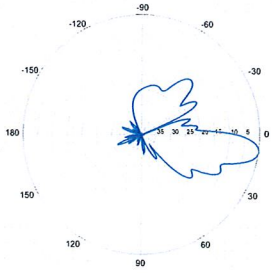
BXA-70063-6CF-EDIN-10



10° | Vertical | 750 MHz



6° | Vertical | 850 MHz



8° | Vertical | 850 MHz

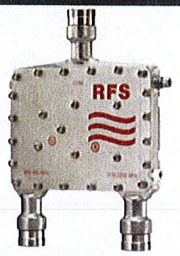
10° | Vertical | 850 MHz

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
Frequency Range 1, MHz	698-960
Frequency Range 2, MHz	1710-2200
Application	LTE700, GSM900, UMTS, GSM1800, Cellular 800, PCS
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; 60/70@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

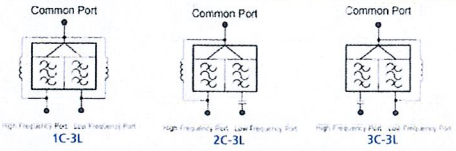
Notes

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

Selection Guide Diplexer 698-960 / 1710-2200MHz					
	Model Number	Full DC Pass	DC Pass High Band	DC Pass Low Band	Mounting Hardware Included
Single	FD9R6004/1C-3L				X
	FD9R6004/2C-3L				X
	FD9R6004/3C-3L				X
Dual	KIT-FD9R6004/1C-DL				X
	KIT-FD9R6004/2C-DL				X
	KIT-FD9R6004/3C-DL				X



1C-3L 2C-3L 3C-3L

The FD9R6004 Series is upgradeable to a Dual Diplexer kit by means of 2 diplexers and mounting hardware kits SEM2-1A and SEM2-3

Mounting Hardware and Ground Cable Ordering Information		
Model Number	**Description**	
SEM2-1A	Mounting Hardware, Pole mount ø40-110mm (Included with the Single and Dual Diplexer) Wall Screws M6 (Not included with the product)	
SEM2-3	Assembly kit for 2 pcs of FD9R6004/xC-3L (Can be ordered separately but included with the Dual Diplexer Kit)	
CA020-2	Ground Cable, 2m, includes lugs (Optional)	
CA030-2	Ground Cable, 2m, includes lugs (Optional)	
SEM6	Mounting Hardware for 6 Diplexers, Tower Base (Optional)	

	General	Power	Density					
Site Name: Chester								
Tower Height: Verizon @ 140ft								
CARRIER	**# OF CHAN.**	**WATTS ERP**	**HEIGHT**	**CALC. POWER DENS**	**FREQ.**	**MAX. PERMISS. EXP.**	**FRACTION MPE**	**Total**
*AT&T UMTS	1	500	132	0.0103	880	0.5867	1.76%	
*AT&T GSM	4	296	132	0.0244	880	0.5867	4.16%	
*AT&T GSM	2	427	132	0.0176	1930	1.0000	1.76%	
*Pocket	6	631	96	0.1477	2130	1.0000	14.77%	
*Sprint+Nextel+Omnpt							12.52%	
*VSECI	1	29.39024	170	0.0004	933.175	0.6221	0.06%	
*VSECI	1	300	170	0.0037	46.18	0.2000	1.87%	
*VSECI	1	300	170	0.0037	46.44	0.2000	1.87%	
Verizon PCS	**7**	**274**	**140**	**0.0352**	**1970**	**1.0000**	**3.52%**	
Verizon Cellular	**9**	**268**	**140**	**0.0442**	**869**	**0.5793**	**7.64%**	
Verizon AWS	**1**	**686**	**140**	**0.0126**	**2145**	**1.0000**	**1.26%**	
Verizon 700	**2**	**790**	**140**	**0.0290**	**698**	**0.4653**	**6.23%**	
								51.18%
* Source: Siting Council								

Date: **October 05, 2011**

Joseph Clark
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Charlotte, NC 28277
(704) 405-6579

GPD Group
520 South Main Street, Suite 2531
Akron, Ohio 44311
(330) 572-2137
jcheronis@gpdgroup.com

Subject:	**Structural Analysis Report**	
Carrier Designation:	***Verizon Wireless* Co-Locate**	
	Carrier Site Number:	119727
	Carrier Site Name:	Chester CT
Crown Castle Designation:	**Crown Castle BU Number:**	800515
	Crown Castle Site Name:	CT CHESTER CAC 800515
	Crown Castle JDE Job Number:	167520
	Crown Castle Work Order Number:	440401
Engineering Firm Designation:	**GPD Group Project Number:**	2011181.800515.01
Site Data:	**Wig Hill Road, Chester, CT 06412, Middlesex County**	
	Latitude *41° 24' 13.93"*, Longitude *-72° 28' 20.82"*	
	150 Foot – Modified EEI Monopole Tower	

Dear Mr. Joseph Clark,

GPD 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 433009, in accordance with application 131712, revision 1.

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

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

The analysis has been performed in accordance with the TIA/EIA-222-F standard and all local code requirements based upon a wind speed of 85 mph fastest mile.

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

Respectfully submitted by:

David B. Granger, P.E.
Connecticut #: 17557

TABLE OF CONTENTS

1) INTRODUCTION

The monopole has 18 sides and is evenly tapered from 62" (flat-flat) at the base to 21" (flat-flat) at the top. It has four major sections connected with slip joints. The tower is galvanized and has no tower lighting.

The tower was originally designed for Bell Atlantic by Engineering Endeavors, Inc. of Mentor, Ohio for a 90 mph basic wind speed with ½" radial ice in accordance with TIA/EIA-222-F.

Modifications designed by GPD (Project #: 2005078.33, dated 3/1/05) have been considered in this analysis. The modifications consisted of installing stiffeners to existing base plate.

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 85 mph with no ice, 37 mph with 0.75 inch ice thickness (according to ASCE 7-05 requirements) 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
140	142	3	Antel	BXA-171085-8BF-EDIN-2			
		3	Antel	BXA-70063-6CF-2			
		6	Antel	LPA-80080-4CF-EDIN-0			
		6	RFS Celwave	FD9R6004/2C-3L			

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
150	152	6	Decibel	DB980H90E-M	6	1-5/8	
		1		Platform Mount [LP 713-1]			
	162	2	RFS Celwave	PD1142-1			
147	157	2	Decibel	DB636-A	4	7/8	
	147	4		Side Arm Mount [SO 701-1]			
140	142	6	Decibel	DB844H90E-XY			1
		6	Decibel	DB948F85T2E-M			
	141	1	Decibel	DB809K-Y	1	7/8	
	140	1		Platform Mount [LP 713-1]	12 3	1-5/8 13/64	
130	132	6	Powerwave	7770.00	12	1-1/4	
		6	Powerwave	LGP21401 TMA			
		6	Powerwave	LGP21901 TMA			
	130	1		Platform Mount [LP 713-1]			
116	120	2	GPS	GPS_A	12 2	1-1/4 1/2	
	118	12	Allgon	7834.00			
	116	1		Platform Mount [LP 713-1]			
106	108	6	Dapa	59212	6	1-5/8	
	106	1		Platform Mount [LP 713-1]			
96	96	3	Kathrein	742-213	6	1-5/8	
75	75	1	GPS	GPS_Reserved	1	1/2	
70	70	1	Kathrein	PR-950	1	WEP65	
		1		Side Arm Mount [SO 103-1]			

Notes:
1) The existing equipment shall be removed prior to the installation of the proposed loading.

3) ANALYSIS PROCEDURE

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)
150	150	12		ALP 9212 Antennas on AMPS Platform		
140	140	12		ALP 9212 Antennas on AMPS Platform		
130	130	12		ALP 9212 Antennas on AMPS Platform		
116	116	12		ALP 9212 Antennas on AMPS Platform		
106	106	12		ALP 9212 Antennas on AMPS Platform		

Table 4 - Documents Provided

Document	Remarks	Reference	Source
Original Tower Drawings	EEI Job #: 4123, dated 8/7/98	Doc ID # 671925	Crown DMZ
Foundation Mapping	TEP Job #: 081974, dated 7/31/2008	Doc ID # 671930	Crown DMZ
Geotechnical Report	Dr. Clarence Welti, dated 10/27/98	Doc ID # 2301672	Crown DMZ
Modification Drawings	GPD Job#: 2005078.33, dated 2/22/05	Doc ID # 1037702	Crown DMZ
Post Modification Inspection	GPD Job #: 2006185.04, dated 10/5/06	Doc ID #: 1285403	Crown DMZ
Previous Analysis	GPD Job #: 2008282.51, dated 11/21/08	Doc ID #: 2348886	Crown DMZ

3.1) Analysis Method

RISA Tower (version 5.4.2.0), a commercially available analysis software package, was used to create a three-dimensional model of the tower and calculate member stresses for various 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, referenced drawings, and available site photos.
4) When applicable, transmission cables are considered as structural components for calculating wind loads as allowed by TIA/EIA-222-F
5) Mount sizes, weights, and manufacturers are best estimates based on site photos provided and were determined without the benefit of a site visit by GPD.
6) All member connections and foundation steel reinforcing are assumed designed to meet or exceed the load carrying capacity of the connected member and surrounding soils respectively unless otherwise specified in this report.
7) All equipment model numbers, quantities, and centerline elevations are as provided in the CCI CAD package dated 9/27/11 with any adjustments as noted below.
   -The Omni Antenna Centerlines at mounting level 147' have been based off of photos and varied from CAD.

This analysis may be affected if any assumptions are not valid or have been made in error. GPD 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	150 - 122.92	Pole	TP28.83x21x0.1875	1	-7.59	848.86	47.8	Pass
L2	122.92 - 84.26	Pole	TP39.51x27.2493x0.375	2	-17.98	2324.15	59.0	Pass
L3	84.26 - 41.55	Pole	TP50.99x37.1855x0.4375	3	-29.60	3506.36	65.2	Pass
L4	41.55 - 0	Pole	TP62x48.1335x0.5	4	-48.01	5073.96	61.7	Pass
							Summary	
						Pole (L3)	65.2	Pass
						RATING =	**65.2**	**Pass**

Table 6 - Tower Component Stresses vs. Capacity - LC1

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
1	Anchor Rods		55.2	Pass
1	Base Plate		43.2	Pass
1	Base Foundation Soil Interaction		67.6	Pass

Structure Rating (max from all components) =	**67.6%**

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

4.1) Recommendations

The designs of the tower and its foundation are sufficient for the proposed loading and do not require modification.

5) DISCLAIMER OF WARRANTIES

GPD GROUP has not performed a site visit to the tower to verify the member sizes or antenna/coax loading. If the existing conditions are not as represented on the tower elevation contained in this report, we should be contacted immediately to evaluate the significance of the discrepancy. This is not a condition assessment of the tower or foundation. This report does not replace a full tower inspection. The tower and foundations are assumed to have been properly fabricated, erected, maintained, in good condition, twist free, and plumb.

The engineering services rendered by GPD GROUP in connection with this Structural Analysis are limited to a computer analysis of the tower structure and theoretical capacity of its main structural members. All tower components have been assumed to only resist dead loads when no other loads are applied. No allowance was made for any damaged, bent, missing, loose, or rusted members (above and below ground). No allowance was made for loose bolts or cracked welds.

GPD GROUP does not analyze the fabrication of the structure (including welding). It is not possible to have all the very detailed information needed to perform a thorough analysis of every structural sub-component and connection of an existing tower. GPD GROUP provides a limited scope of service in that we cannot verify the adequacy of every weld, plate connection detail, etc. The purpose of this report is to assess the feasibility of adding appurtenances usually accompanied by transmission lines to the structure.

It is the owner's responsibility to determine the amount of ice accumulation, if any, that should be considered in the structural analysis.

The attached sketches are a schematic representation of the analyzed tower. If any material is fabricated from these sketches, the contractor shall be responsible for field verifying the existing conditions, proper fit, and clearance in the field. Any mentions of structural modifications are reasonable estimates and should not be used as a precise construction document. Precise modification drawings are obtainable from GPD GROUP, but are beyond the scope of this report.

Miscellaneous items such as antenna mounts, etc., have not been designed or detailed as a part of our work. We recommend that material of adequate size and strength be purchased from a reputable tower manufacturer.

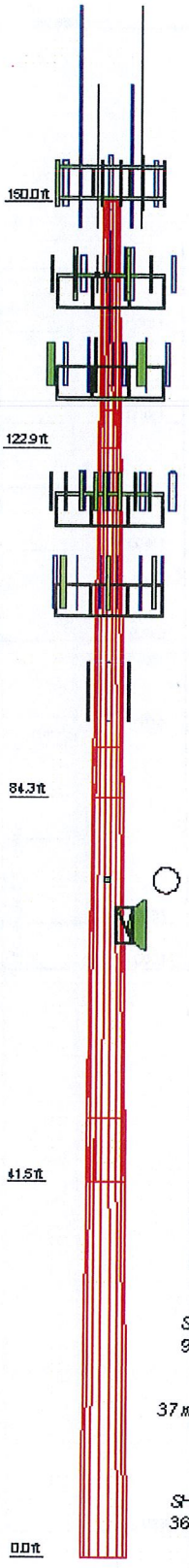
GPD GROUP makes no warranties, expressed and/or implied, in connection with this report and disclaims any liability arising from material, fabrication, and erection of this tower. GPD GROUP will not be responsible whatsoever for, or on account of, consequential or incidental damages sustained by any person, firm, or organization as a result of any data or conclusions contained in this report. The maximum liability of GPD GROUP pursuant to this report will be limited to the total fee received for preparation of this report.

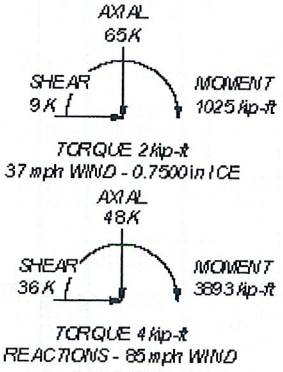
APPENDIX A

RISA TOWER OUTPUT

Section	1	2	3	4
Length (ft)	27.08	42.83	43.21	43.47
Number of Sides	18	18	18	18
Thickness (in)	0.1875	0.3750	0.4375	0.5000
Socket Length (ft)	4.17	5.50	6.92	
Top Dia (in)	21.0000	27.2493	37.1355	48.1335
Bot Dia (in)	28.3300	39.5100	50.9500	62.0000
Grade	A572-65			
Weight (K)	1.4	5.7	9.9	14.3

Total Weight: 31.3 K





TORQUE 2 kip-ft
37 mph WIND - 0.7500 in ICE

TORQUE 4 kip-ft
REACTIONS - 85 mph WIND

DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
Platform Mount [LP 713-1]	152	DB809K-Y	140
9' Ladder	150	4' Standoff	135
(2) DB980H90E-M w/Mount Pipe	150	10' 2.5" Std. Pipe	135
(2) DB980H90E-M w/Mount Pipe	150	Platform Mount [LP 713-1]	130
(2) DB980H90E-M w/Mount Pipe	150	9' Ladder	130
(2) 6' mount pipe	150	(2) 7770.00 w/Mount Pipe	130
(2) 6' mount pipe	150	(2) 7770.00 w/Mount Pipe	130
(2) 6' mount pipe	150	(2) 7770.00 w/Mount Pipe	130
Side Arm Mount [SO 701-3]	147	(2) 6' mount pipe	130
Side Arm Mount [SO 701-1]	147	(2) 6' mount pipe	130
PD1142-1	147	(2) 6' mount pipe	130
DB636-A	147	(2) LGP21901	130
PD1142-1	147	(2) LGP21901	130
DB636-A	147	(2) LGP21901	130
10' 2.5" Std. Pipe	147	(2) LGP21401	130
10' 2.5" Std. Pipe	147	(2) LGP21401	130
10' 2.5" Std. Pipe	147	(2) LGP21401	130
10' 2.5" Std. Pipe	147	Platform Mount [LP 713-1]	116
Platform Mount [LP 713-1]	140	9' Ladder	116
9' Ladder	140	(2) GPS_A	116
(2) FD9R6004/2C-3L	140	(6) 7834.00 w/Mount Pipe	116
(2) FD9R6004/2C-3L	140	(6) 7834.00 w/Mount Pipe	116
(2) FD9R6004/2C-3L	140	(6) 7834.00 w/Mount Pipe	116
(2) LPA-80080-4C F-EDIN-0w/ Mount Pipe	140	Platform Mount [LP 713-1]	105
(2) LPA-80080-4C F-EDIN-0w/ Mount Pipe	140	9' Ladder	105
(2) LPA-80080-4C F-EDIN-0w/ Mount Pipe	140	(2) 59212w/Mount Pipe	105
BXA-70063-6CF-2 w/ Mount Pipe	140	(2) 59212w/Mount Pipe	105
BXA-70063-6CF-2 w/ Mount Pipe	140	(2) 59212w/Mount Pipe	105
BXA-70063-6CF-2 w/ Mount Pipe	140	6' mount pipe	105
BXA-171085-8BF-EDIN-2 w/ Mount Pipe	140	6' mount pipe	105
BXA-171085-8BF-EDIN-2 w/ Mount Pipe	140	6' mount pipe	105
BXA-171085-8BF-EDIN-2 w/ Mount Pipe	140	742-213 w/Mount Pipe	95
		742-213 w/Mount Pipe	95
		742-213 w/Mount Pipe	95
		GPS	75
		Side Arm Mount [SO 103-1]	70
		PR-950	70

MATERIAL STRENGTH

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

TOWER DESIGN NOTES

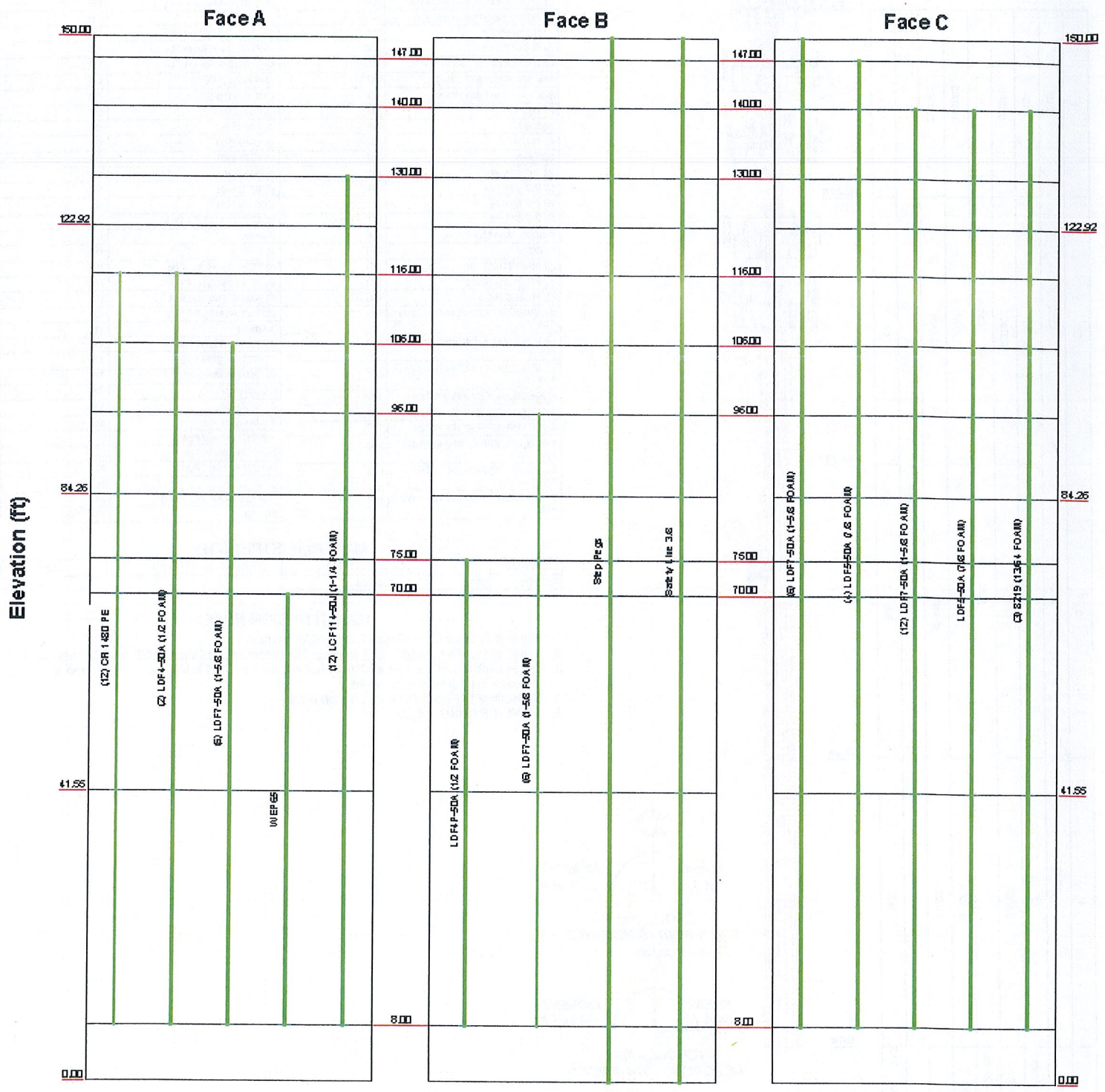
1. Tower is located in Middlesex County, Connecticut.
2. Tower designed for a 85 mph basic wind in accordance with the TIA/EIA-222-F Standard.
3. Tower is also designed for a 37 mph basic wind with 0.75 in ice. Ice is considered to increase in thickness with height.
4. Deflections are based upon a 50 mph wind.
5. TOWER RATING: 65.2%

GPD Group
520 South Main Street, Suite 2531
Akron, Ohio 44311
Phone: 330-572-2205
FAX: 330-572-2101

Job: CT Chester BU#: 800515			
Project: 2011181.800515.01			
Client: Crown Castle USA, Inc.	Drawn by: jbutterfield	App'd:	
Code: TIA/EIA-222-F	Date: 10/05/11	Scale: NTS	
Path: N:\2011\201118\800515\01\R\BA800515.ant		Dwg No. E-1	

Feedline Distribution Chart
0' - 150'

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



GPD GROUP
GPD Group
520 South Main Street, Suite 2531
Akron, Ohio 44311
Phone: 330-572-2205
FAX: 330-572-2101

Job: *CT Chester BU#: 800515*			
Project: *20111181.800515.01*			
Client: Crown Castle USA, Inc.	Drawn by: jbutterfield	Appvd:	
Code: TIA/EIA-222-F	Date: 10/05/11	Scale: NTS	
Path: N:\2011\20111811\800515\01\RFDS\800515.rfl		Dwg No. E-7	

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 Middlesex 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 37 mph is used in combination with ice.
Temperature drop of 50 °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, feedline supports, and appurtenance mounts are not considered.

Options

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

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	150.00-122.92	27.08	4.17	18	21.0000	28.8300	0.1875	0.7500	A572-65 (65 ksi)
L2	122.92-84.26	42.83	5.50	18	27.2493	39.5100	0.3750	1.5000	A572-65 (65 ksi)
L3	84.26-41.55	48.21	6.92	18	37.1855	50.9900	0.4375	1.7500	A572-65 (65 ksi)
L4	41.55-0.00	48.47		18	48.1335	62.0000	0.5000	2.0000	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	21.3240	12.3860	677.8263	7.3884	10.6680	63.5383	1356.5444	6.1942	3.3660	17.952
	29.2747	17.0459	1766.7635	10.1681	14.6456	120.6341	3535.8517	8.5246	4.7441	25.302
L2	28.8818	31.9871	2918.6755	9.5404	13.8426	210.8469	5841.1915	15.9966	4.1359	11.029
	40.1195	46.5804	9013.0474	13.8929	20.0711	449.0564	18037.9544	23.2946	6.2938	16.783
L3	39.3584	51.0293	8706.1286	13.0456	18.8903	460.8793	17423.7129	25.5195	5.7747	13.199
	51.7766	70.1985	22664.7192	17.9461	25.9029	874.9870	45359.2613	35.1059	8.2042	18.753
L4	50.8863	75.5944	21669.6835	16.9099	24.4518	886.2193	43367.8806	37.8044	7.5915	15.183
	62.9564	97.6005	46637.9792	21.8325	31.4960	1480.7588	93337.3258	48.8095	10.0320	20.064

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 150.00-122.92				1	1	1		
L2 122.92-84.26				1	1	1		
L3 84.26-41.55				1	1	1		
L4 41.55-0.00				1	1	1		

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
CR 1480 PE	A	No	Inside Pole	116.00 - 8.00	12	No Ice	0.00	0.55
						1/2" Ice	0.00	0.55
						1" Ice	0.00	0.55
						2" Ice	0.00	0.55
						4" Ice	0.00	0.55
LDF4-50A (1/2 FOAM)	A	No	Inside Pole	116.00 - 8.00	2	No Ice	0.00	0.15
						1/2" Ice	0.00	0.15
						1" Ice	0.00	0.15
						2" Ice	0.00	0.15
						4" Ice	0.00	0.15
LDF7-50A (1-5/8 FOAM)	A	No	Inside Pole	106.00 - 8.00	6	No Ice	0.00	0.82
						1/2" Ice	0.00	0.82
						1" Ice	0.00	0.82
						2" Ice	0.00	0.82
						4" Ice	0.00	0.82
LDF4P-50A (1/2 FOAM)	B	No	CaAa (Out Of Face)	75.00 - 8.00	1	No Ice	0.00	0.15
						1/2" Ice	0.00	0.84
						1" Ice	0.00	2.14
						2" Ice	0.00	6.58
						4" Ice	0.00	22.78
LDF7-50A (1-5/8 FOAM)	B	No	Inside Pole	96.00 - 8.00	6	No Ice	0.00	0.82
						1/2" Ice	0.00	0.82
						1" Ice	0.00	0.82
						2" Ice	0.00	0.82
						4" Ice	0.00	0.82
LDF7-50A (1-5/8 FOAM)	C	No	Inside Pole	150.00 - 8.00	6	No Ice	0.00	0.82
						1/2" Ice	0.00	0.82

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Total Number		C_AA_A ft^2/ft	Weight plf
						1" Ice	0.00	0.82
						2" Ice	0.00	0.82
						4" Ice	0.00	0.82
LDF5-50A (7/8 FOAM)	C	No	Inside Pole	147.00 - 8.00	4	No Ice	0.00	0.33
						1/2" Ice	0.00	0.33
						1" Ice	0.00	0.33
						2" Ice	0.00	0.33
						4" Ice	0.00	0.33
LDF7-50A (1-5/8 FOAM)	C	No	Inside Pole	140.00 - 8.00	12	No Ice	0.00	0.82
						1/2" Ice	0.00	0.82
						1" Ice	0.00	0.82
						2" Ice	0.00	0.82
						4" Ice	0.00	0.82
LDF5-50A (7/8 FOAM)	C	No	Inside Pole	140.00 - 8.00	1	No Ice	0.00	0.33
						1/2" Ice	0.00	0.33
						1" Ice	0.00	0.33
						2" Ice	0.00	0.33
						4" Ice	0.00	0.33
8219 (13/64 FOAM)	C	No	Inside Pole	140.00 - 8.00	3	No Ice	0.00	0.03
						1/2" Ice	0.00	0.03
						1" Ice	0.00	0.03
						2" Ice	0.00	0.03
						4" Ice	0.00	0.03
WEP65	A	No	CaAa (Out Of Face)	70.00 - 8.00	1	No Ice	0.26	0.53
						1/2" Ice	0.35	1.82
						1" Ice	0.45	3.71
						2" Ice	0.64	9.33
						4" Ice	1.04	27.91
LCF114-50J (1-1/4 FOAM)	A	No	Inside Pole	130.00 - 8.00	12	No Ice	0.00	0.70
						1/2" Ice	0.00	0.70
						1" Ice	0.00	0.70
						2" Ice	0.00	0.70
						4" Ice	0.00	0.70
Step Pegs	B	No	CaAa (Out Of Face)	150.00 - 0.00	1	No Ice	0.08	2.72
						1/2" Ice	0.18	3.51
						1" Ice	0.28	4.92
						2" Ice	0.48	9.56
						4" Ice	0.88	26.18
Safety Line 3/8	B	No	CaAa (Out Of Face)	150.00 - 0.00	1	No Ice	0.04	0.22
						1/2" Ice	0.14	0.75
						1" Ice	0.24	1.28
						2" Ice	0.44	2.34
						4" Ice	0.84	4.46

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	150.00-122.92	A	0.000	0.000	0.000	0.000	0.06
		B	0.000	0.000	0.000	3.182	0.08
		C	0.000	0.000	0.000	0.000	0.34
L2	122.92-84.26	A	0.000	0.000	0.000	0.000	0.65
		B	0.000	0.000	0.000	4.543	0.17
		C	0.000	0.000	0.000	0.000	0.64
L3	84.26-41.55	A	0.000	0.000	0.000	7.509	0.88
		B	0.000	0.000	0.000	5.018	0.34
		C	0.000	0.000	0.000	0.000	0.70

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
L4	41.55-0.00	A	0.000	0.000	0.000	8.855	0.70
		B	0.000	0.000	0.000	4.882	0.29
		C	0.000	0.000	0.000	0.000	0.55

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	150.00-122.92	A	0.889	0.000	0.000	0.000	0.000	0.06
		B		0.000	0.000	0.000	12.809	0.16
		C		0.000	0.000	0.000	0.000	0.34
L2	122.92-84.26	A	0.860	0.000	0.000	0.000	0.000	0.65
		B		0.000	0.000	0.000	18.286	0.28
		C		0.000	0.000	0.000	0.000	0.64
L3	84.26-41.55	A	0.810	0.000	0.000	0.000	11.978	0.95
		B		0.000	0.000	0.000	19.703	0.51
		C		0.000	0.000	0.000	0.000	0.70
L4	41.55-0.00	A	0.750	0.000	0.000	0.000	13.805	0.78
		B		0.000	0.000	0.000	18.339	0.45
		C		0.000	0.000	0.000	0.000	0.55

Feed Line Center of Pressure

Section	Elevation ft	CP_X in	CP_Z in	CP_X Ice in	CP_Z Ice in
L1	150.00-122.92	0.1445	0.0834	0.4729	0.2731
L2	122.92-84.26	0.1466	0.0846	0.5039	0.2909
L3	84.26-41.55	0.1415	-0.1739	0.4846	-0.0759
L4	41.55-0.00	0.1425	-0.2101	0.4800	-0.1316

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
Platform Mount [LP 713-1]	C	None			0.0000	152.00	No Ice	31.27	31.27	1.51
							1/2" Ice	39.68	39.68	1.93
							1" Ice	48.09	48.09	2.35
							2" Ice	64.91	64.91	3.19
							4" Ice	98.55	98.55	4.86
9' Ladder	A	From Leg	3.00		0.0000	150.00	No Ice	4.50	2.25	0.08
			0.00				1/2" Ice	5.50	2.75	0.12
			0.00				1" Ice	6.50	3.25	0.17

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	8.50	4.25	0.26
						4" Ice	12.50	6.25	0.44
(2) DB980H90E-M w/Mount Pipe	A	From Centroid-Leg	4.00 0.00 2.00	0.0000	150.00	No Ice	4.27	3.86	0.03
						1/2" Ice	4.86	4.95	0.07
						1" Ice	5.37	5.75	0.12
						2" Ice	6.42	7.39	0.23
						4" Ice	8.86	10.87	0.59
(2) DB980H90E-M w/Mount Pipe	B	From Centroid-Leg	4.00 0.00 2.00	0.0000	150.00	No Ice	4.27	3.86	0.03
						1/2" Ice	4.86	4.95	0.07
						1" Ice	5.37	5.75	0.12
						2" Ice	6.42	7.39	0.23
						4" Ice	8.86	10.87	0.59
(2) DB980H90E-M w/Mount Pipe	C	From Centroid-Leg	4.00 0.00 2.00	0.0000	150.00	No Ice	4.27	3.86	0.03
						1/2" Ice	4.86	4.95	0.07
						1" Ice	5.37	5.75	0.12
						2" Ice	6.42	7.39	0.23
						4" Ice	8.86	10.87	0.59
(2) 6' mount pipe	A	From Centroid-Leg	4.00 0.00 2.00	0.0000	150.00	No Ice	1.77	1.77	0.04
						1/2" Ice	2.13	2.13	0.05
						1" Ice	2.50	2.50	0.07
						2" Ice	3.27	3.27	0.11
						4" Ice	4.93	4.93	0.26
(2) 6' mount pipe	B	From Centroid-Leg	4.00 0.00 2.00	0.0000	150.00	No Ice	1.77	1.77	0.04
						1/2" Ice	2.13	2.13	0.05
						1" Ice	2.50	2.50	0.07
						2" Ice	3.27	3.27	0.11
						4" Ice	4.93	4.93	0.26
(2) 6' mount pipe	C	From Centroid-Leg	4.00 0.00 2.00	0.0000	150.00	No Ice	1.77	1.77	0.04
						1/2" Ice	2.13	2.13	0.05
						1" Ice	2.50	2.50	0.07
						2" Ice	3.27	3.27	0.11
						4" Ice	4.93	4.93	0.26
Side Arm Mount [SO 701-3]	B	None		0.0000	147.00	No Ice	2.83	2.83	0.20
						1/2" Ice	3.92	3.92	0.24
						1" Ice	5.01	5.01	0.28
						2" Ice	7.19	7.19	0.36
						4" Ice	11.55	11.55	0.53
Side Arm Mount [SO 701-1]	C	From Face	1.29 0.75 0.00	30.0000	147.00	No Ice	0.85	1.67	0.07
						1/2" Ice	1.14	2.34	0.08
						1" Ice	1.43	3.01	0.09
						2" Ice	2.01	4.35	0.12
						4" Ice	3.17	7.03	0.18
PD1142-1	A	From Face	3.00 0.00 15.00	0.0000	147.00	No Ice	1.32	1.32	0.01
						1/2" Ice	3.21	3.21	0.02
						1" Ice	5.12	5.12	0.05
						2" Ice	8.99	8.99	0.14
						4" Ice	16.94	16.94	0.46
DB636-A	B	From Face	2.59 -1.50 10.00	-30.0000	147.00	No Ice	2.78	2.78	0.03
						1/2" Ice	3.96	3.96	0.05
						1" Ice	5.16	5.16	0.08
						2" Ice	7.24	7.24	0.16
						4" Ice	10.16	10.16	0.41
PD1142-1	B	From Leg	3.00 0.00 15.00	0.0000	147.00	No Ice	1.32	1.32	0.01
						1/2" Ice	3.21	3.21	0.02
						1" Ice	5.12	5.12	0.05
						2" Ice	8.99	8.99	0.14
						4" Ice	16.94	16.94	0.46

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft²	C_AA_A Side ft²	Weight K
DB636-A	C	From Face	2.59 1.50 10.00	30.0000	147.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	2.78 3.96 5.16 7.24 10.16	2.78 3.96 5.16 7.24 10.16	0.03 0.05 0.08 0.16 0.41
10' 2.5" Std. Pipe	A	From Face	3.00 0.00 5.00	0.0000	147.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	2.88 3.91 4.96 6.19 8.76	2.88 3.91 4.96 6.19 8.76	0.06 0.08 0.11 0.18 0.42
10' 2.5" Std. Pipe	B	From Face	2.59 -1.50 5.00	-30.0000	147.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	2.88 3.91 4.96 6.19 8.76	2.88 3.91 4.96 6.19 8.76	0.06 0.08 0.11 0.18 0.42
10' 2.5" Std. Pipe	B	From Leg	3.00 0.00 5.00	0.0000	147.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	2.88 3.91 4.96 6.19 8.76	2.88 3.91 4.96 6.19 8.76	0.06 0.08 0.11 0.18 0.42
10' 2.5" Std. Pipe	C	From Face	2.59 1.50 5.00	30.0000	147.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	2.88 3.91 4.96 6.19 8.76	2.88 3.91 4.96 6.19 8.76	0.06 0.08 0.11 0.18 0.42
Platform Mount [LP 713-1]	C	None		0.0000	140.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	31.27 39.68 48.09 64.91 98.55	31.27 39.68 48.09 64.91 98.55	1.51 1.93 2.35 3.19 4.86
9' Ladder	A	From Leg	3.00 0.00 0.00	0.0000	140.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	4.50 5.50 6.50 8.50 12.50	2.25 2.75 3.25 4.25 6.25	0.08 0.12 0.17 0.26 0.44
(2) FD9R6004/2C-3L	A	From Centroid-Leg	3.46 2.00 2.00	30.0000	140.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	0.37 0.45 0.54 0.75 1.28	0.08 0.14 0.20 0.34 0.74	0.00 0.01 0.01 0.02 0.06
(2) FD9R6004/2C-3L	B	From Centroid-Leg	3.46 2.00 2.00	30.0000	140.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	0.37 0.45 0.54 0.75 1.28	0.08 0.14 0.20 0.34 0.74	0.00 0.01 0.01 0.02 0.06
(2) FD9R6004/2C-3L	C	From Centroid-Leg	3.46 2.00 2.00	30.0000	140.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	0.37 0.45 0.54 0.75 1.28	0.08 0.14 0.20 0.34 0.74	0.00 0.01 0.01 0.02 0.06
(2) LPA-80080-4CF-EDIN-0 w/ Mount Pipe	A	From Centroid-Leg	3.46 2.00 2.00	30.0000	140.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	2.87 3.24 3.62 4.48 6.37	7.24 7.95 8.66 10.15 13.39	0.03 0.07 0.13 0.25 0.62
(2) LPA-80080-4CF-EDIN-0 w/ Mount Pipe	B	From Centroid-Le	3.46 2.00	30.0000	140.00	No Ice 1/2" Ice	2.87 3.24	7.24 7.95	0.03 0.07

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
		g	2.00			1" Ice	3.62	8.66	0.13
						2" Ice	4.48	10.15	0.25
						4" Ice	6.37	13.39	0.62
(2) LPA-80080-4CF-EDIN-0 w/ Mount Pipe	C	From Centroid-Le g	3.46 2.00 2.00	30.0000	140.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	2.87 3.24 3.62 4.48 6.37	7.24 7.95 8.66 10.15 13.39	0.03 0.07 0.13 0.25 0.62
BXA-70063-6CF-2 w/ Mount Pipe	A	From Centroid-Le g	3.46 2.00 2.00	30.0000	140.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	7.73 8.27 8.81 9.93 12.27	5.35 6.09 6.85 8.41 11.78	0.04 0.09 0.15 0.31 0.73
BXA-70063-6CF-2 w/ Mount Pipe	B	From Centroid-Le g	3.46 2.00 2.00	30.0000	140.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	7.73 8.27 8.81 9.93 12.27	5.35 6.09 6.85 8.41 11.78	0.04 0.09 0.15 0.31 0.73
BXA-70063-6CF-2 w/ Mount Pipe	C	From Centroid-Le g	3.46 2.00 2.00	30.0000	140.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	7.73 8.27 8.81 9.93 12.27	5.35 6.09 6.85 8.41 11.78	0.04 0.09 0.15 0.31 0.73
BXA-171085-8BF-EDIN-2 w/ Mount Pipe	A	From Centroid-Le g	3.46 2.00 2.00	30.0000	140.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	3.41 3.88 4.35 5.36 7.52	3.58 4.38 5.06 6.47 9.64	0.03 0.06 0.11 0.21 0.52
BXA-171085-8BF-EDIN-2 w/ Mount Pipe	B	From Centroid-Le g	3.46 2.00 2.00	30.0000	140.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	3.41 3.88 4.35 5.36 7.52	3.58 4.38 5.06 6.47 9.64	0.03 0.06 0.11 0.21 0.52
BXA-171085-8BF-EDIN-2 w/ Mount Pipe	C	From Centroid-Le g	3.46 2.00 2.00	30.0000	140.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	3.41 3.88 4.35 5.36 7.52	3.58 4.38 5.06 6.47 9.64	0.03 0.06 0.11 0.21 0.52
DB809K-Y	A	From Centroid-Le g	8.00 0.00 1.00	0.0000	140.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	2.85 4.03 5.21 7.17 10.06	2.85 4.03 5.21 7.17 10.06	0.03 0.05 0.08 0.16 0.42
4' Standoff	A	From Centroid-Le g	6.00 0.00 0.00	0.0000	135.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	3.41 4.47 5.50 7.49 11.08	3.41 4.47 5.50 7.49 11.08	0.08 0.10 0.13 0.18 0.27
10' 2.5" Std. Pipe	A	From Centroid-Le g	4.00 0.00 0.00	0.0000	135.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	2.88 3.91 4.96 6.19 8.76	2.88 3.91 4.96 6.19 8.76	0.06 0.08 0.11 0.18 0.42
Platform Mount [LP 713-1]	C	None		0.0000	130.00	No Ice 1/2" Ice 1" Ice 2" Ice	31.27 39.68 48.09 64.91	31.27 39.68 48.09 64.91	1.51 1.93 2.35 3.19

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
						4" Ice	98.55	98.55	4.86
9' Ladder	A	From Leg	3.00 0.00 0.00	0.0000	130.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	4.50 5.50 6.50 8.50 12.50	2.25 2.75 3.25 4.25 6.25	0.08 0.12 0.17 0.26 0.44
(2) 7770.00 w/ Mount Pipe	A	From Centroid-Face	3.68 1.56 2.00	23.0000	130.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	6.12 6.63 7.13 8.16 10.36	4.25 5.01 5.71 7.16 10.41	0.06 0.10 0.16 0.29 0.66
(2) 7770.00 w/ Mount Pipe	B	From Centroid-Face	3.68 1.56 2.00	23.0000	130.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	6.12 6.63 7.13 8.16 10.36	4.25 5.01 5.71 7.16 10.41	0.06 0.10 0.16 0.29 0.66
(2) 7770.00 w/ Mount Pipe	C	From Centroid-Face	3.68 1.56 2.00	23.0000	130.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	6.12 6.63 7.13 8.16 10.36	4.25 5.01 5.71 7.16 10.41	0.06 0.10 0.16 0.29 0.66
(2) 6' mount pipe	A	From Centroid-Face	3.68 1.56 2.00	23.0000	130.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	1.77 2.13 2.50 3.27 4.93	1.77 2.13 2.50 3.27 4.93	0.04 0.05 0.07 0.11 0.26
(2) 6' mount pipe	B	From Centroid-Face	3.68 1.56 2.00	23.0000	130.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	1.77 2.13 2.50 3.27 4.93	1.77 2.13 2.50 3.27 4.93	0.04 0.05 0.07 0.11 0.26
(2) 6' mount pipe	C	From Centroid-Face	3.68 1.56 2.00	23.0000	130.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	1.77 2.13 2.50 3.27 4.93	1.77 2.13 2.50 3.27 4.93	0.04 0.05 0.07 0.11 0.26
(2) LGP21901	A	From Centroid-Face	3.68 1.56 2.00	23.0000	130.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	0.00 0.00 0.00 0.00 0.00	0.18 0.25 0.32 0.49 0.94	0.01 0.01 0.01 0.02 0.07
(2) LGP21901	B	From Centroid-Face	3.68 1.56 2.00	23.0000	130.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	0.00 0.00 0.00 0.00 0.00	0.18 0.25 0.32 0.49 0.94	0.01 0.01 0.01 0.02 0.07
(2) LGP21901	C	From Centroid-Face	3.68 1.56 2.00	23.0000	130.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	0.00 0.00 0.00 0.00 0.00	0.18 0.25 0.32 0.49 0.94	0.01 0.01 0.01 0.02 0.07
(2) LGP21401	A	From Centroid-Face	3.68 1.56 2.00	23.0000	130.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	0.00 0.00 0.00 0.00 0.00	0.23 0.31 0.40 0.61 1.12	0.01 0.02 0.03 0.05 0.14
(2) LGP21401	B	From	3.68	23.0000	130.00	No Ice	0.00	0.23	0.01

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
		Centroid-Face	1.56 2.00			1/2" Ice	0.00	0.31	0.02
						1" Ice	0.00	0.40	0.03
						2" Ice	0.00	0.61	0.05
						4" Ice	0.00	1.12	0.14
(2) LGP21401	C	From Centroid-Face	3.68 1.56 2.00	23.0000	130.00	No Ice	0.00	0.23	0.01
						1/2" Ice	0.00	0.31	0.02
						1" Ice	0.00	0.40	0.03
						2" Ice	0.00	0.61	0.05
						4" Ice	0.00	1.12	0.14
Platform Mount [LP 713-1]	C	None		0.0000	116.00	No Ice	31.27	31.27	1.51
						1/2" Ice	39.68	39.68	1.93
						1" Ice	48.09	48.09	2.35
						2" Ice	64.91	64.91	3.19
						4" Ice	98.55	98.55	4.86
9' Ladder	B	From Leg	3.00 0.00 0.00	0.0000	116.00	No Ice	4.50	2.25	0.08
						1/2" Ice	5.50	2.75	0.12
						1" Ice	6.50	3.25	0.17
						2" Ice	8.50	4.25	0.26
						4" Ice	12.50	6.25	0.44
(2) GPS_A	A	From Centroid-Leg	3.46 2.00 4.00	30.0000	116.00	No Ice	0.30	0.30	0.00
						1/2" Ice	0.37	0.37	0.00
						1" Ice	0.46	0.46	0.01
						2" Ice	0.65	0.65	0.02
						4" Ice	1.15	1.15	0.08
(4) 7834.00 w/Mount Pipe	A	From Centroid-Leg	3.46 2.00 2.00	30.0000	116.00	No Ice	4.40	6.88	0.04
						1/2" Ice	5.07	8.01	0.09
						1" Ice	5.63	8.85	0.15
						2" Ice	6.79	10.58	0.30
						4" Ice	9.25	14.24	0.71
(4) 7834.00 w/Mount Pipe	B	From Centroid-Leg	3.46 2.00 2.00	30.0000	116.00	No Ice	4.40	6.88	0.04
						1/2" Ice	5.07	8.01	0.09
						1" Ice	5.63	8.85	0.15
						2" Ice	6.79	10.58	0.30
						4" Ice	9.25	14.24	0.71
(4) 7834.00 w/Mount Pipe	C	From Centroid-Leg	3.46 2.00 2.00	30.0000	116.00	No Ice	4.40	6.88	0.04
						1/2" Ice	5.07	8.01	0.09
						1" Ice	5.63	8.85	0.15
						2" Ice	6.79	10.58	0.30
						4" Ice	9.25	14.24	0.71
Platform Mount [LP 713-1]	C	None		0.0000	106.00	No Ice	31.27	31.27	1.51
						1/2" Ice	39.68	39.68	1.93
						1" Ice	48.09	48.09	2.35
						2" Ice	64.91	64.91	3.19
						4" Ice	98.55	98.55	4.86
9' Ladder	A	From Leg	3.00 0.00 0.00	0.0000	106.00	No Ice	4.50	2.25	0.08
						1/2" Ice	5.50	2.75	0.12
						1" Ice	6.50	3.25	0.17
						2" Ice	8.50	4.25	0.26
						4" Ice	12.50	6.25	0.44
(2) 59212 w/Mount Pipe	A	From Centroid-Face	4.00 0.00 2.00	0.0000	106.00	No Ice	5.00	4.30	0.04
						1/2" Ice	5.56	5.49	0.08
						1" Ice	6.08	6.35	0.13
						2" Ice	7.14	8.11	0.26
						4" Ice	9.46	11.82	0.64
(2) 59212 w/Mount Pipe	B	From Centroid-Face	4.00 0.00 2.00	0.0000	106.00	No Ice	5.00	4.30	0.04
						1/2" Ice	5.56	5.49	0.08
						1" Ice	6.08	6.35	0.13

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	7.14	8.11	0.26
						4" Ice	9.46	11.82	0.64
(2) 59212 w/Mount Pipe	C	From Centroid-Face	4.00 0.00 2.00	0.0000	106.00	No Ice	5.00	4.30	0.04
						1/2" Ice	5.56	5.49	0.08
						1" Ice	6.08	6.35	0.13
						2" Ice	7.14	8.11	0.26
						4" Ice	9.46	11.82	0.64
6' mount pipe	A	From Centroid-Face	4.00 0.00 2.00	0.0000	106.00	No Ice	1.77	1.77	0.04
						1/2" Ice	2.13	2.13	0.05
						1" Ice	2.50	2.50	0.07
						2" Ice	3.27	3.27	0.11
						4" Ice	4.93	4.93	0.26
6' mount pipe	B	From Centroid-Face	4.00 0.00 2.00	0.0000	106.00	No Ice	1.77	1.77	0.04
						1/2" Ice	2.13	2.13	0.05
						1" Ice	2.50	2.50	0.07
						2" Ice	3.27	3.27	0.11
						4" Ice	4.93	4.93	0.26
6' mount pipe	C	From Centroid-Face	4.00 0.00 2.00	0.0000	106.00	No Ice	1.77	1.77	0.04
						1/2" Ice	2.13	2.13	0.05
						1" Ice	2.50	2.50	0.07
						2" Ice	3.27	3.27	0.11
						4" Ice	4.93	4.93	0.26
742-213 w/Mount Pipe	A	From Leg	1.00 0.00 0.00	30.0000	96.00	No Ice	5.42	4.63	0.05
						1/2" Ice	5.95	6.02	0.09
						1" Ice	6.47	6.93	0.14
						2" Ice	7.54	8.78	0.27
						4" Ice	9.76	12.68	0.68
742-213 w/Mount Pipe	B	From Leg	1.00 0.00 0.00	30.0000	96.00	No Ice	5.42	4.63	0.05
						1/2" Ice	5.95	6.02	0.09
						1" Ice	6.47	6.93	0.14
						2" Ice	7.54	8.78	0.27
						4" Ice	9.76	12.68	0.68
742-213 w/Mount Pipe	C	From Leg	1.00 0.00 0.00	30.0000	96.00	No Ice	5.42	4.63	0.05
						1/2" Ice	5.95	6.02	0.09
						1" Ice	6.47	6.93	0.14
						2" Ice	7.54	8.78	0.27
						4" Ice	9.76	12.68	0.68
GPS	C	From Face	0.50 0.00 0.00	0.0000	75.00	No Ice	0.17	0.17	0.00
						1/2" Ice	0.24	0.24	0.00
						1" Ice	0.32	0.32	0.01
						2" Ice	0.51	0.51	0.02
						4" Ice	1.02	1.02	0.06
Side Arm Mount [SO 103-1]	B	From Leg	0.50 0.00 0.00	45.0000	70.00	No Ice	5.70	0.60	0.08
						1/2" Ice	7.00	0.90	0.11
						1" Ice	8.30	1.20	0.13
						2" Ice	10.90	1.80	0.19
						4" Ice	16.10	3.00	0.30

Dishes

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 ft²	Weight K
PR-950	B	Grid	From Leg	1.00 0.00 0.00	45.0000		70.00	5.67	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	25.25 26.00 26.74 28.24 31.23	0.04 0.10 0.20 0.30 0.50

Tower Pressures - No Ice

$G_H = 1.690$

Section Elevation ft	z ft	K_Z	q_z psf	A_G ft²	Face	A_F ft²	A_R ft²	A_{leg} ft²	Leg % %	C_AA_A In Face ft²	C_AA_A Out Face ft²
L1 150.00-122.92	135.75	1.498	28	56.225	A	0.000	56.225	56.225	100.00	0.000	0.000
					B	0.000	56.225		100.00	0.000	3.182
					C	0.000	56.225		100.00	0.000	0.000
L2 122.92-84.26	102.80	1.384	26	109.461	A	0.000	109.461	109.461	100.00	0.000	0.000
					B	0.000	109.461		100.00	0.000	4.543
					C	0.000	109.461		100.00	0.000	0.000
L3 84.26-41.55	62.46	1.2	22	159.718	A	0.000	159.718	159.718	100.00	0.000	7.509
					B	0.000	159.718		100.00	0.000	5.018
					C	0.000	159.718		100.00	0.000	0.000
L4 41.55-0.00	20.04	1	18	194.096	A	0.000	194.096	194.096	100.00	0.000	8.855
					B	0.000	194.096		100.00	0.000	4.882
					C	0.000	194.096		100.00	0.000	0.000

Tower Pressure - With Ice

$G_H = 1.690$

Section Elevation ft	z ft	K_Z	q_z psf	t_Z in	A_G ft²	Face	A_F ft²	A_R ft²	A_{leg} ft²	Leg % %	C_AA_A In Face ft²	C_AA_A Out Face ft²
L1 150.00-122.92	135.75	1.498	5	0.8887	60.236	A	0.000	60.236	60.236	100.00	0.000	0.000
						B	0.000	60.236		100.00	0.000	12.809
						C	0.000	60.236		100.00	0.000	0.000
L2 122.92-84.26	102.80	1.384	5	0.8596	115.187	A	0.000	115.187	115.187	100.00	0.000	0.000
						B	0.000	115.187		100.00	0.000	18.286
						C	0.000	115.187		100.00	0.000	0.000
L3 84.26-41.55	62.46	1.2	4	0.8097	165.837	A	0.000	165.837	165.837	100.00	0.000	11.978
						B	0.000	165.837		100.00	0.000	19.703
						C	0.000	165.837		100.00	0.000	0.000
L4 41.55-0.00	20.04	1	4	0.7500	199.703	A	0.000	199.703	199.703	100.00	0.000	13.805
						B	0.000	199.703		100.00	0.000	18.339
						C	0.000	199.703		100.00	0.000	0.000

Tower Pressure - Service

$G_H = 1.690$

Section Elevation ft	z ft	K_Z	q_z psf	A_G ft²	Face	A_F ft²	A_R ft²	A_{leg} ft²	Leg %	C_AA_A In Face ft²	C_AA_A Out Face ft²
L1 150.00-122.92	135.75	1.498	10	56.225	A	0.000	56.225	56.225	100.00	0.000	0.000
					B	0.000	56.225		100.00	0.000	3.182
					C	0.000	56.225		100.00	0.000	0.000
L2 122.92-84.26	102.80	1.384	9	109.461	A	0.000	109.461	109.461	100.00	0.000	0.000
					B	0.000	109.461		100.00	0.000	4.543
					C	0.000	109.461		100.00	0.000	0.000
L3 84.26-41.55	62.46	1.2	8	159.718	A	0.000	159.718	159.718	100.00	0.000	7.509
					B	0.000	159.718		100.00	0.000	5.018
					C	0.000	159.718		100.00	0.000	0.000
L4 41.55-0.00	20.04	1	6	194.096	A	0.000	194.096	194.096	100.00	0.000	8.855
					B	0.000	194.096		100.00	0.000	4.882
					C	0.000	194.096		100.00	0.000	0.000

Tower Forces - No Ice - Wind Normal To Face

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	R_R	D_F	D_R	A_E ft²	F K	w plf	Ctrl. Face
L1 150.00-122.92	0.48	1.36	A	1	0.65	1	1	1	56.225	1.86	68.69	C
			B	1	0.65	1	1	1	56.225			
			C	1	0.65	1	1	1	56.225			
L2 122.92-84.26	1.46	5.73	A	1	0.65	1	1	1	109.461	3.27	84.54	C
			B	1	0.65	1	1	1	109.461			
			C	1	0.65	1	1	1	109.461			
L3 84.26-41.55	1.92	9.94	A	1	0.65	1	1	1	159.718	4.34	101.62	C
			B	1	0.65	1	1	1	159.718			
			C	1	0.65	1	1	1	159.718			
L4 41.55-0.00	1.54	14.28	A	1	0.65	1	1	1	194.096	4.37	105.25	C
			B	1	0.65	1	1	1	194.096			
			C	1	0.65	1	1	1	194.096			
Sum Weight:	5.41	31.31						OTM	947.21 kip-ft	13.84		

Tower Forces - No Ice - Wind 60 To Face

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	R_R	D_F	D_R	A_E ft²	F K	w plf	Ctrl. Face
L1 150.00-122.92	0.48	1.36	A	1	0.65	1	1	1	56.225	1.86	68.69	C
			B	1	0.65	1	1	1	56.225			
			C	1	0.65	1	1	1	56.225			
L2 122.92-84.26	1.46	5.73	A	1	0.65	1	1	1	109.461	3.27	84.54	C
			B	1	0.65	1	1	1	109.461			

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	R_R	D_F	D_R	A_E ft²	F K	w plf	Ctrl. Face
			C	1	0.65	1	1	1	109.461			
L3	1.92	9.94	A	1	0.65	1	1	1	159.718	4.34	101.62	C
84.26-41.55			B	1	0.65	1	1	1	159.718			
			C	1	0.65	1	1	1	159.718			
L4 41.55-0.00	1.54	14.28	A	1	0.65	1	1	1	194.096	4.37	105.25	C
			B	1	0.65	1	1	1	194.096			
			C	1	0.65	1	1	1	194.096			
Sum Weight:	5.41	31.31						OTM	947.21 kip-ft	13.84		

Tower Forces - No Ice - Wind 90 To Face

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	R_R	D_F	D_R	A_E ft²	F K	w plf	Ctrl. Face
L1	0.48	1.36	A	1	0.65	1	1	1	56.225	1.86	68.69	C
150.00-122.92			B	1	0.65	1	1	1	56.225			
			C	1	0.65	1	1	1	56.225			
L2	1.46	5.73	A	1	0.65	1	1	1	109.461	3.27	84.54	C
122.92-84.26			B	1	0.65	1	1	1	109.461			
			C	1	0.65	1	1	1	109.461			
L3	1.92	9.94	A	1	0.65	1	1	1	159.718	4.34	101.62	C
84.26-41.55			B	1	0.65	1	1	1	159.718			
			C	1	0.65	1	1	1	159.718			
L4 41.55-0.00	1.54	14.28	A	1	0.65	1	1	1	194.096	4.37	105.25	C
			B	1	0.65	1	1	1	194.096			
			C	1	0.65	1	1	1	194.096			
Sum Weight:	5.41	31.31						OTM	947.21 kip-ft	13.84		

Tower Forces - With Ice - Wind Normal To Face

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	R_R	D_F	D_R	A_E ft²	F K	w plf	Ctrl. Face
L1	0.56	2.12	A	1	0.65	1	1	1	60.236	0.46	17.02	C
150.00-122.92			B	1	0.65	1	1	1	60.236			
			C	1	0.65	1	1	1	60.236			
L2	1.57	7.15	A	1	0.65	1	1	1	115.187	0.76	19.71	C
122.92-84.26			B	1	0.65	1	1	1	115.187			
			C	1	0.65	1	1	1	115.187			
L3	2.17	11.89	A	1	0.65	1	1	1	165.837	0.99	23.08	C
84.26-41.55			B	1	0.65	1	1	1	165.837			
			C	1	0.65	1	1	1	165.837			
L4 41.55-0.00	1.78	16.47	A	1	0.65	1	1	1	199.703	0.96	23.09	C
			B	1	0.65	1	1	1	199.703			
			C	1	0.65	1	1	1	199.703			
Sum Weight:	6.07	37.64						OTM	221.73 kip-ft	3.17		

Tower Forces - With Ice - Wind 60 To Face

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	R_R	D_F	D_R	A_E ft²	F K	w plf	Ctrl. Face
L1	0.56	2.12	A	1	0.65	1	1	1	60.236	0.46	17.02	C
150.00-122.92			B	1	0.65	1	1	1	60.236			
			C	1	0.65	1	1	1	60.236			
L2	1.57	7.15	A	1	0.65	1	1	1	115.187	0.76	19.71	C
122.92-84.26			B	1	0.65	1	1	1	115.187			
			C	1	0.65	1	1	1	115.187			
L3	2.17	11.89	A	1	0.65	1	1	1	165.837	0.99	23.08	C
84.26-41.55			B	1	0.65	1	1	1	165.837			
			C	1	0.65	1	1	1	165.837			
L4 41.55-0.00	1.78	16.47	A	1	0.65	1	1	1	199.703	0.96	23.09	C
			B	1	0.65	1	1	1	199.703			
			C	1	0.65	1	1	1	199.703			
Sum Weight:	6.07	37.64						OTM	221.73 kip-ft	3.17		

Tower Forces - With Ice - Wind 90 To Face

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	R_R	D_F	D_R	A_E ft²	F K	w plf	Ctrl. Face
L1	0.56	2.12	A	1	0.65	1	1	1	60.236	0.46	17.02	C
150.00-122.92			B	1	0.65	1	1	1	60.236			
			C	1	0.65	1	1	1	60.236			
L2	1.57	7.15	A	1	0.65	1	1	1	115.187	0.76	19.71	C
122.92-84.26			B	1	0.65	1	1	1	115.187			
			C	1	0.65	1	1	1	115.187			
L3	2.17	11.89	A	1	0.65	1	1	1	165.837	0.99	23.08	C
84.26-41.55			B	1	0.65	1	1	1	165.837			
			C	1	0.65	1	1	1	165.837			
L4 41.55-0.00	1.78	16.47	A	1	0.65	1	1	1	199.703	0.96	23.09	C
			B	1	0.65	1	1	1	199.703			
			C	1	0.65	1	1	1	199.703			
Sum Weight:	6.07	37.64						OTM	221.73 kip-ft	3.17		

Tower Forces - Service - Wind Normal To Face

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	R_R	D_F	D_R	A_E ft²	F K	w plf	Ctrl. Face
L1	0.48	1.36	A	1	0.65	1	1	1	56.225	0.64	23.77	C
150.00-122.92			B	1	0.65	1	1	1	56.225			
			C	1	0.65	1	1	1	56.225			

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	R_R	D_F	D_R	A_E ft²	F K	w plf	Ctrl. Face
L2	1.46	5.73	A	1	0.65	1	1	1	109.461	1.13	29.25	C
122.92-84.26			B	1	0.65	1	1	1	109.461			
			C	1	0.65	1	1	1	109.461			
L3	1.92	9.94	A	1	0.65	1	1	1	159.718	1.50	35.16	C
84.26-41.55			B	1	0.65	1	1	1	159.718			
			C	1	0.65	1	1	1	159.718			
L4 41.55-0.00	1.54	14.28	A	1	0.65	1	1	1	194.096	1.51	36.42	C
			B	1	0.65	1	1	1	194.096			
			C	1	0.65	1	1	1	194.096			
Sum Weight:	5.41	31.31						OTM	327.75 kip-ft	4.79		

Tower Forces - Service - Wind 60 To Face

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	R_R	D_F	D_R	A_E ft²	F K	w plf	Ctrl. Face
L1	0.48	1.36	A	1	0.65	1	1	1	56.225	0.64	23.77	C
150.00-122.92			B	1	0.65	1	1	1	56.225			
			C	1	0.65	1	1	1	56.225			
L2	1.46	5.73	A	1	0.65	1	1	1	109.461	1.13	29.25	C
122.92-84.26			B	1	0.65	1	1	1	109.461			
			C	1	0.65	1	1	1	109.461			
L3	1.92	9.94	A	1	0.65	1	1	1	159.718	1.50	35.16	C
84.26-41.55			B	1	0.65	1	1	1	159.718			
			C	1	0.65	1	1	1	159.718			
L4 41.55-0.00	1.54	14.28	A	1	0.65	1	1	1	194.096	1.51	36.42	C
			B	1	0.65	1	1	1	194.096			
			C	1	0.65	1	1	1	194.096			
Sum Weight:	5.41	31.31						OTM	327.75 kip-ft	4.79		

Tower Forces - Service - Wind 90 To Face

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	R_R	D_F	D_R	A_E ft²	F K	w plf	Ctrl. Face
L1	0.48	1.36	A	1	0.65	1	1	1	56.225	0.64	23.77	C
150.00-122.92			B	1	0.65	1	1	1	56.225			
			C	1	0.65	1	1	1	56.225			
L2	1.46	5.73	A	1	0.65	1	1	1	109.461	1.13	29.25	C
122.92-84.26			B	1	0.65	1	1	1	109.461			
			C	1	0.65	1	1	1	109.461			
L3	1.92	9.94	A	1	0.65	1	1	1	159.718	1.50	35.16	C
84.26-41.55			B	1	0.65	1	1	1	159.718			
			C	1	0.65	1	1	1	159.718			
L4 41.55-0.00	1.54	14.28	A	1	0.65	1	1	1	194.096	1.51	36.42	C
			B	1	0.65	1	1	1	194.096			
			C	1	0.65	1	1	1	194.096			

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	R_R	D_F	D_R	A_E ft²	F K	w plf	Ctrl. Face
Sum Weight:	5.41	31.31						OTM	327.75 kip-ft	4.79		

Discrete Appurtenance Pressures - No Ice $G_H = 1.690$

Description	Aiming Azimuth °	Weight K	$Offset_x$ ft	$Offset_z$ ft	z ft	K_z	q_z psf	C_AA_C Front ft²	C_AA_C Side ft²
Platform Mount [LP 713-1]	0.0000	1.51	0.00	0.00	152.00	1.547	29	31.27	31.27
9' Ladder	0.0000	0.08	0.00	-3.88	150.00	1.541	29	4.50	2.25
DB980H90E-M w/Mount Pipe	0.0000	0.06	0.00	-4.00	152.00	1.547	29	8.55	7.71
DB980H90E-M w/Mount Pipe	120.0000	0.06	3.46	2.00	152.00	1.547	29	8.55	7.71
DB980H90E-M w/Mount Pipe	240.0000	0.06	-3.46	2.00	152.00	1.547	29	8.55	7.71
6' mount pipe	0.0000	0.08	0.00	-4.00	152.00	1.547	29	3.53	3.53
6' mount pipe	120.0000	0.08	3.46	2.00	152.00	1.547	29	3.53	3.53
6' mount pipe	240.0000	0.08	-3.46	2.00	152.00	1.547	29	3.53	3.53
Side Arm Mount [SO 701-3]	0.0000	0.20	0.00	0.00	147.00	1.532	28	2.83	2.83
Side Arm Mount [SO 701-1]	210.0000	0.07	-0.75	2.21	147.00	1.532	28	0.85	1.67
PD1142-1	300.0000	0.01	-3.39	-1.96	162.00	1.576	29	1.32	1.32
DB636-A	30.0000	0.03	2.28	-3.05	157.00	1.561	29	2.78	2.78
PD1142-1	120.0000	0.01	3.39	1.96	162.00	1.576	29	1.32	1.32
DB636-A	210.0000	0.03	-1.50	3.50	157.00	1.561	29	2.78	2.78
10' 2.5" Std. Pipe	300.0000	0.06	-3.39	-1.96	152.00	1.547	29	2.88	2.88
10' 2.5" Std. Pipe	30.0000	0.06	2.28	-3.05	152.00	1.547	29	2.88	2.88
10' 2.5" Std. Pipe	120.0000	0.06	3.39	1.96	152.00	1.547	29	2.88	2.88
10' 2.5" Std. Pipe	210.0000	0.06	-1.50	3.50	152.00	1.547	29	2.88	2.88
Platform Mount [LP 713-1]	0.0000	1.51	0.00	0.00	140.00	1.511	28	31.27	31.27
9' Ladder	0.0000	0.08	0.00	-4.00	140.00	1.511	28	4.50	2.25
FD9R6004/2C-3L	30.0000	0.01	2.00	-3.46	142.00	1.517	28	0.73	0.17
FD9R6004/2C-3L	150.0000	0.01	2.00	3.46	142.00	1.517	28	0.73	0.17
FD9R6004/2C-3L	270.0000	0.01	-4.00	-0.00	142.00	1.517	28	0.73	0.17
LPA-80080-4CF-EDIN-0 w/ Mount Pipe	30.0000	0.06	2.00	-3.46	142.00	1.517	28	5.74	14.49
LPA-80080-4CF-EDIN-0 w/ Mount Pipe	150.0000	0.06	2.00	3.46	142.00	1.517	28	5.74	14.49
LPA-80080-4CF-EDIN-0 w/ Mount Pipe	270.0000	0.06	-4.00	-0.00	142.00	1.517	28	5.74	14.49
BXA-70063-6CF-2 w/ Mount Pipe	30.0000	0.04	2.00	-3.46	142.00	1.517	28	7.73	5.35
BXA-70063-6CF-2 w/ Mount Pipe	150.0000	0.04	2.00	3.46	142.00	1.517	28	7.73	5.35
BXA-70063-6CF-2 w/ Mount Pipe	270.0000	0.04	-4.00	-0.00	142.00	1.517	28	7.73	5.35
BXA-171085-8BF-EDIN -2 w/ Mount Pipe	30.0000	0.03	2.00	-3.46	142.00	1.517	28	3.41	3.58
BXA-171085-8BF-EDIN -2 w/ Mount Pipe	150.0000	0.03	2.00	3.46	142.00	1.517	28	3.41	3.58
BXA-171085-8BF-EDIN -2 w/ Mount Pipe	270.0000	0.03	-4.00	-0.00	142.00	1.517	28	3.41	3.58

Description	Aiming Azimuth °	Weight K	$Offset_x$ ft	$Offset_z$ ft	z ft	K_z	q_z psf	C_AA_C Front ft^2	C_AA_C Side ft^2
DB809K-Y	0.0000	0.03	0.00	-8.00	141.00	1.514	28	2.85	2.85
4' Standoff	0.0000	0.08	0.00	-6.00	135.00	1.496	28	3.41	3.41
10' 2.5" Std. Pipe	0.0000	0.06	0.00	-4.00	135.00	1.496	28	2.88	2.88
Platform Mount [LP 713-1]	0.0000	1.51	0.00	0.00	130.00	1.480	27	31.27	31.27
9' Ladder	0.0000	0.08	0.00	-4.12	130.00	1.480	27	4.50	2.25
7770.00 w/ Mount Pipe	323.0000	0.12	-2.41	-3.19	132.00	1.486	27	12.24	8.51
7770.00 w/ Mount Pipe	83.0000	0.12	3.97	-0.49	132.00	1.486	27	12.24	8.51
7770.00 w/ Mount Pipe	203.0000	0.12	-1.56	3.68	132.00	1.486	27	12.24	8.51
6' mount pipe	323.0000	0.08	-2.41	-3.19	132.00	1.486	27	3.53	3.53
6' mount pipe	83.0000	0.08	3.97	-0.49	132.00	1.486	27	3.53	3.53
6' mount pipe	203.0000	0.08	-1.56	3.68	132.00	1.486	27	3.53	3.53
LGP21901	323.0000	0.01	-2.41	-3.19	132.00	1.486	27	0.00	0.37
LGP21901	83.0000	0.01	3.97	-0.49	132.00	1.486	27	0.00	0.37
LGP21901	203.0000	0.01	-1.56	3.68	132.00	1.486	27	0.00	0.37
LGP21401	323.0000	0.02	-2.41	-3.19	132.00	1.486	27	0.00	0.47
LGP21401	83.0000	0.02	3.97	-0.49	132.00	1.486	27	0.00	0.47
LGP21401	203.0000	0.02	-1.56	3.68	132.00	1.486	27	0.00	0.47
Platform Mount [LP 713-1]	0.0000	1.51	0.00	0.00	116.00	1.432	26	31.27	31.27
9' Ladder	120.0000	0.08	3.70	2.13	116.00	1.432	26	4.50	2.25
GPS_A	30.0000	0.00	2.00	-3.46	120.00	1.446	27	0.59	0.59
7834.00 w/Mount Pipe	30.0000	0.16	2.00	-3.46	118.00	1.439	27	17.60	27.51
7834.00 w/Mount Pipe	150.0000	0.16	2.00	3.46	118.00	1.439	27	17.60	27.51
7834.00 w/Mount Pipe	270.0000	0.16	-4.00	-0.00	118.00	1.439	27	17.60	27.51
Platform Mount [LP 713-1]	0.0000	1.51	0.00	0.00	106.00	1.396	26	31.27	31.27
9' Ladder	0.0000	0.08	0.00	-4.39	106.00	1.396	26	4.50	2.25
59212 w/Mount Pipe	300.0000	0.08	-3.46	-2.00	108.00	1.403	26	10.01	8.60
59212 w/Mount Pipe	60.0000	0.08	3.46	-2.00	108.00	1.403	26	10.01	8.60
59212 w/Mount Pipe	180.0000	0.08	0.00	4.00	108.00	1.403	26	10.01	8.60
6' mount pipe	300.0000	0.04	-3.46	-2.00	108.00	1.403	26	1.77	1.77
6' mount pipe	60.0000	0.04	3.46	-2.00	108.00	1.403	26	1.77	1.77
6' mount pipe	180.0000	0.04	0.00	4.00	108.00	1.403	26	1.77	1.77
742-213 w/Mount Pipe	30.0000	0.05	0.00	-2.51	96.00	1.357	25	5.42	4.63
742-213 w/Mount Pipe	150.0000	0.05	2.17	1.25	96.00	1.357	25	5.42	4.63
742-213 w/Mount Pipe	270.0000	0.05	-2.17	1.25	96.00	1.357	25	5.42	4.63
GPS	180.0000	0.00	0.00	2.23	75.00	1.264	23	0.17	0.17
Side Arm Mount [SO 103-1]	165.0000	0.08	1.98	1.14	70.00	1.240	23	5.70	0.60
	Sum Weight:	11.27							

Discrete Appurtenance Pressures - With Ice $G_H = 1.690$

Description	Aiming Azimuth °	Weight K	$Offset_x$ ft	$Offset_z$ ft	z ft	K_z	q_z psf	C_AA_C Front ft^2	C_AA_C Side ft^2	t_z in
Platform Mount [LP 713-1]	0.0000	2.26	0.00	0.00	152.00	1.547	5	46.42	46.42	0.9009
9' Ladder	0.0000	0.16	0.00	-3.88	150.00	1.541	5	6.30	3.15	0.8994
DB980H90E-M w/Mount Pipe	0.0000	0.21	0.00	-4.00	152.00	1.547	5	10.54	11.18	0.8994
DB980H90E-M w/Mount Pipe	120.0000	0.21	3.46	2.00	152.00	1.547	5	10.54	11.18	0.8994
DB980H90E-M w/Mount Pipe	240.0000	0.21	-3.46	2.00	152.00	1.547	5	10.54	11.18	0.8994
6' mount pipe	0.0000	0.12	0.00	-4.00	152.00	1.547	5	4.85	4.85	0.8994

Description	Aiming Azimuth	Weight	$Offset_x$	$Offset_z$	z	K_z	q_z	C_AA_C Front	C_AA_C Side	t_z
	°	K	ft	ft	ft		psf	ft^2	ft^2	in
6' mount pipe	120.0000	0.12	3.46	2.00	152.00	1.547	5	4.85	4.85	0.8994
6' mount pipe	240.0000	0.12	-3.46	2.00	152.00	1.547	5	4.85	4.85	0.8994
Side Arm Mount [SO 701-3]	0.0000	0.27	0.00	0.00	147.00	1.532	5	4.79	4.79	0.8973
Side Arm Mount [SO 701-1]	210.0000	0.09	-0.75	2.21	147.00	1.532	5	1.37	2.87	0.8973
PD1142-1	300.0000	0.04	-3.39	-1.96	162.00	1.576	6	4.73	4.73	0.8973
DB636-A	30.0000	0.07	2.28	-3.05	157.00	1.561	5	4.92	4.92	0.8973
PD1142-1	120.0000	0.04	3.39	1.96	162.00	1.576	6	4.73	4.73	0.8973
DB636-A	210.0000	0.07	-1.50	3.50	157.00	1.561	5	4.92	4.92	0.8973
10' 2.5" Std. Pipe	300.0000	0.10	-3.39	-1.96	152.00	1.547	5	4.74	4.74	0.8973
10' 2.5" Std. Pipe	30.0000	0.10	2.28	-3.05	152.00	1.547	5	4.74	4.74	0.8973
10' 2.5" Std. Pipe	120.0000	0.10	3.39	1.96	152.00	1.547	5	4.74	4.74	0.8973
10' 2.5" Std. Pipe	210.0000	0.10	-1.50	3.50	152.00	1.547	5	4.74	4.74	0.8973
Platform Mount [LP 713-1]	0.0000	2.26	0.00	0.00	140.00	1.511	5	46.27	46.27	0.8920
9' Ladder	0.0000	0.16	0.00	-4.00	140.00	1.511	5	6.28	3.14	0.8920
FD9R6004/2C-3L	30.0000	0.02	2.00	-3.46	142.00	1.517	5	1.05	0.37	0.8920
FD9R6004/2C-3L	150.0000	0.02	2.00	3.46	142.00	1.517	5	1.05	0.37	0.8920
FD9R6004/2C-3L	270.0000	0.02	-4.00	-0.00	142.00	1.517	5	1.05	0.37	0.8920
LPA-80080-4CF-EDIN-0 w/ Mount Pipe	30.0000	0.23	2.00	-3.46	142.00	1.517	5	7.07	17.02	0.8920
LPA-80080-4CF-EDIN-0 w/ Mount Pipe	150.0000	0.23	2.00	3.46	142.00	1.517	5	7.07	17.02	0.8920
LPA-80080-4CF-EDIN-0 w/ Mount Pipe	270.0000	0.23	-4.00	-0.00	142.00	1.517	5	7.07	17.02	0.8920
BXA-70063-6CF-2 w/ Mount Pipe	30.0000	0.14	2.00	-3.46	142.00	1.517	5	8.70	6.68	0.8920
BXA-70063-6CF-2 w/ Mount Pipe	150.0000	0.14	2.00	3.46	142.00	1.517	5	8.70	6.68	0.8920
BXA-70063-6CF-2 w/ Mount Pipe	270.0000	0.14	-4.00	-0.00	142.00	1.517	5	8.70	6.68	0.8920
BXA-171085-8BF-EDIN -2 w/ Mount Pipe	30.0000	0.10	2.00	-3.46	142.00	1.517	5	4.25	4.92	0.8920
BXA-171085-8BF-EDIN -2 w/ Mount Pipe	150.0000	0.10	2.00	3.46	142.00	1.517	5	4.25	4.92	0.8920
BXA-171085-8BF-EDIN -2 w/ Mount Pipe	270.0000	0.10	-4.00	-0.00	142.00	1.517	5	4.25	4.92	0.8920
DB809K-Y	0.0000	0.07	0.00	-8.00	141.00	1.514	5	4.96	4.96	0.8920
4' Standoff	0.0000	0.12	0.00	-6.00	135.00	1.496	5	5.27	5.27	0.8881
10' 2.5" Std. Pipe	0.0000	0.10	0.00	-4.00	135.00	1.496	5	4.72	4.72	0.8881
Platform Mount [LP 713-1]	0.0000	2.25	0.00	0.00	130.00	1.480	5	46.14	46.14	0.8841
9' Ladder	0.0000	0.16	0.00	-4.12	130.00	1.480	5	6.27	3.13	0.8841
7770.00 w/ Mount Pipe	323.0000	0.29	-2.41	-3.19	132.00	1.486	5	14.02	11.10	0.8841
7770.00 w/ Mount Pipe	83.0000	0.29	3.97	-0.49	132.00	1.486	5	14.02	11.10	0.8841
7770.00 w/ Mount Pipe	203.0000	0.29	-1.56	3.68	132.00	1.486	5	14.02	11.10	0.8841
6' mount pipe	323.0000	0.12	-2.41	-3.19	132.00	1.486	5	4.83	4.83	0.8841
6' mount pipe	83.0000	0.12	3.97	-0.49	132.00	1.486	5	4.83	4.83	0.8841
6' mount pipe	203.0000	0.12	-1.56	3.68	132.00	1.486	5	4.83	4.83	0.8841
LGP21901	323.0000	0.02	-2.41	-3.19	132.00	1.486	5	0.00	0.61	0.8841
LGP21901	83.0000	0.02	3.97	-0.49	132.00	1.486	5	0.00	0.61	0.8841
LGP21901	203.0000	0.02	-1.56	3.68	132.00	1.486	5	0.00	0.61	0.8841
LGP21401	323.0000	0.06	-2.41	-3.19	132.00	1.486	5	0.00	0.76	0.8841
LGP21401	83.0000	0.06	3.97	-0.49	132.00	1.486	5	0.00	0.76	0.8841
LGP21401	203.0000	0.06	-1.56	3.68	132.00	1.486	5	0.00	0.76	0.8841
Platform Mount [LP 713-1]	0.0000	2.24	0.00	0.00	116.00	1.432	5	45.94	45.94	0.8721
9' Ladder	120.0000	0.16	3.70	2.13	116.00	1.432	5	6.24	3.12	0.8721
GPS_A	30.0000	0.02	2.00	-3.46	120.00	1.446	5	0.87	0.87	0.8721
7834.00 w/Mount Pipe	30.0000	0.55	2.00	-3.46	118.00	1.439	5	21.96	34.54	0.8721

Description	Aiming Azimuth °	Weight K	$Offset_x$ ft	$Offset_z$ ft	z ft	K_z	q_z psf	C_AA_C Front ft^2	C_AA_C Side ft^2	t_z in
7834.00 w/Mount Pipe	150.0000	0.55	2.00	3.46	118.00	1.439	5	21.96	34.54	0.8721
7834.00 w/Mount Pipe	270.0000	0.55	-4.00	-0.00	118.00	1.439	5	21.96	34.54	0.8721
Platform Mount [LP 713-1]	0.0000	2.23	0.00	0.00	106.00	1.396	5	45.78	45.78	0.8627
9' Ladder	0.0000	0.15	0.00	-4.39	106.00	1.396	5	6.23	3.11	0.8627
59212 w/Mount Pipe	300.0000	0.23	-3.46	-2.00	108.00	1.403	5	11.87	12.23	0.8627
59212 w/Mount Pipe	60.0000	0.23	3.46	-2.00	108.00	1.403	5	11.87	12.23	0.8627
59212 w/Mount Pipe	180.0000	0.23	0.00	4.00	108.00	1.403	5	11.87	12.23	0.8627
6' mount pipe	300.0000	0.06	-3.46	-2.00	108.00	1.403	5	2.40	2.40	0.8627
6' mount pipe	60.0000	0.06	3.46	-2.00	108.00	1.403	5	2.40	2.40	0.8627
6' mount pipe	180.0000	0.06	0.00	4.00	108.00	1.403	5	2.40	2.40	0.8627
742-213 w/Mount Pipe	30.0000	0.13	0.00	-2.51	96.00	1.357	5	6.32	6.66	0.8525
742-213 w/Mount Pipe	150.0000	0.13	2.17	1.25	96.00	1.357	5	6.32	6.66	0.8525
742-213 w/Mount Pipe	270.0000	0.13	-2.17	1.25	96.00	1.357	5	6.32	6.66	0.8525
GPS	180.0000	0.01	0.00	2.23	75.00	1.264	4	0.29	0.29	0.8277
Side Arm Mount [SO 103-1]	165.0000	0.12	1.98	1.14	70.00	1.240	4	7.83	1.09	0.8208
	Sum Weight:	20.30								

Discrete Appurtenance Pressures - Service $G_H = 1.690$

Description	Aiming Azimuth °	Weight K	$Offset_x$ ft	$Offset_z$ ft	z ft	K_z	q_z psf	C_AA_C Front ft^2	C_AA_C Side ft^2
Platform Mount [LP 713-1]	0.0000	1.51	0.00	0.00	152.00	1.547	10	31.27	31.27
9' Ladder	0.0000	0.08	0.00	-3.88	150.00	1.541	10	4.50	2.25
DB980H90E-M w/Mount Pipe	0.0000	0.06	0.00	-4.00	152.00	1.547	10	8.55	7.71
DB980H90E-M w/Mount Pipe	120.0000	0.06	3.46	2.00	152.00	1.547	10	8.55	7.71
DB980H90E-M w/Mount Pipe	240.0000	0.06	-3.46	2.00	152.00	1.547	10	8.55	7.71
6' mount pipe	0.0000	0.08	0.00	-4.00	152.00	1.547	10	3.53	3.53
6' mount pipe	120.0000	0.08	3.46	2.00	152.00	1.547	10	3.53	3.53
6' mount pipe	240.0000	0.08	-3.46	2.00	152.00	1.547	10	3.53	3.53
Side Arm Mount [SO 701-3]	0.0000	0.20	0.00	0.00	147.00	1.532	10	2.83	2.83
Side Arm Mount [SO 701-1]	210.0000	0.07	-0.75	2.21	147.00	1.532	10	0.85	1.67
PD1142-1	300.0000	0.01	-3.39	-1.96	162.00	1.576	10	1.32	1.32
DB636-A	30.0000	0.03	2.28	-3.05	157.00	1.561	10	2.78	2.78
PD1142-1	120.0000	0.01	3.39	1.96	162.00	1.576	10	1.32	1.32
DB636-A	210.0000	0.03	-1.50	3.50	157.00	1.561	10	2.78	2.78
10' 2.5" Std. Pipe	300.0000	0.06	-3.39	-1.96	152.00	1.547	10	2.88	2.88
10' 2.5" Std. Pipe	30.0000	0.06	2.28	-3.05	152.00	1.547	10	2.88	2.88
10' 2.5" Std. Pipe	120.0000	0.06	3.39	1.96	152.00	1.547	10	2.88	2.88
10' 2.5" Std. Pipe	210.0000	0.06	-1.50	3.50	152.00	1.547	10	2.88	2.88
Platform Mount [LP 713-1]	0.0000	1.51	0.00	0.00	140.00	1.511	10	31.27	31.27
9' Ladder	0.0000	0.08	0.00	-4.00	140.00	1.511	10	4.50	2.25
FD9R6004/2C-3L	30.0000	0.01	2.00	-3.46	142.00	1.517	10	0.73	0.17
FD9R6004/2C-3L	150.0000	0.01	2.00	3.46	142.00	1.517	10	0.73	0.17
FD9R6004/2C-3L	270.0000	0.01	-4.00	-0.00	142.00	1.517	10	0.73	0.17
LPA-80080-4CF-EDIN-0 w/ Mount Pipe	30.0000	0.06	2.00	-3.46	142.00	1.517	10	5.74	14.49
LPA-80080-4CF-EDIN-0	150.0000	0.06	2.00	3.46	142.00	1.517	10	5.74	14.49

Description	Aiming Azimuth °	Weight K	$Offset_x$ ft	$Offset_z$ ft	z ft	K_z	q_z psf	C_AA_C Front ft^2	C_AA_C Side ft^2
w/ Mount Pipe									
LPA-80080-4CF-EDIN-0 w/ Mount Pipe	270.0000	0.06	-4.00	-0.00	142.00	1.517	10	5.74	14.49
BXA-70063-6CF-2 w/ Mount Pipe	30.0000	0.04	2.00	-3.46	142.00	1.517	10	7.73	5.35
BXA-70063-6CF-2 w/ Mount Pipe	150.0000	0.04	2.00	3.46	142.00	1.517	10	7.73	5.35
BXA-70063-6CF-2 w/ Mount Pipe	270.0000	0.04	-4.00	-0.00	142.00	1.517	10	7.73	5.35
BXA-171085-8BF-EDIN -2 w/ Mount Pipe	30.0000	0.03	2.00	-3.46	142.00	1.517	10	3.41	3.58
BXA-171085-8BF-EDIN -2 w/ Mount Pipe	150.0000	0.03	2.00	3.46	142.00	1.517	10	3.41	3.58
BXA-171085-8BF-EDIN -2 w/ Mount Pipe	270.0000	0.03	-4.00	-0.00	142.00	1.517	10	3.41	3.58
DB809K-Y	0.0000	0.03	0.00	-8.00	141.00	1.514	10	2.85	2.85
4' Standoff	0.0000	0.08	0.00	-6.00	135.00	1.496	10	3.41	3.41
10' 2.5" Std. Pipe	0.0000	0.06	0.00	-4.00	135.00	1.496	10	2.88	2.88
Platform Mount [LP 713-1]	0.0000	1.51	0.00	0.00	130.00	1.480	9	31.27	31.27
9' Ladder	0.0000	0.08	0.00	-4.12	130.00	1.480	9	4.50	2.25
7770.00 w/ Mount Pipe	323.0000	0.12	-2.41	-3.19	132.00	1.486	10	12.24	8.51
7770.00 w/ Mount Pipe	83.0000	0.12	3.97	-0.49	132.00	1.486	10	12.24	8.51
7770.00 w/ Mount Pipe	203.0000	0.12	-1.56	3.68	132.00	1.486	10	12.24	8.51
6' mount pipe	323.0000	0.08	-2.41	-3.19	132.00	1.486	10	3.53	3.53
6' mount pipe	83.0000	0.08	3.97	-0.49	132.00	1.486	10	3.53	3.53
6' mount pipe	203.0000	0.08	-1.56	3.68	132.00	1.486	10	3.53	3.53
LGP21901	323.0000	0.01	-2.41	-3.19	132.00	1.486	10	0.00	0.37
LGP21901	83.0000	0.01	3.97	-0.49	132.00	1.486	10	0.00	0.37
LGP21901	203.0000	0.01	-1.56	3.68	132.00	1.486	10	0.00	0.37
LGP21401	323.0000	0.02	-2.41	-3.19	132.00	1.486	10	0.00	0.47
LGP21401	83.0000	0.02	3.97	-0.49	132.00	1.486	10	0.00	0.47
LGP21401	203.0000	0.02	-1.56	3.68	132.00	1.486	10	0.00	0.47
Platform Mount [LP 713-1]	0.0000	1.51	0.00	0.00	116.00	1.432	9	31.27	31.27
9' Ladder	120.0000	0.08	3.70	2.13	116.00	1.432	9	4.50	2.25
GPS_A	30.0000	0.00	2.00	-3.46	120.00	1.446	9	0.59	0.59
7834.00 w/Mount Pipe	30.0000	0.16	2.00	-3.46	118.00	1.439	9	17.60	27.51
7834.00 w/Mount Pipe	150.0000	0.16	2.00	3.46	118.00	1.439	9	17.60	27.51
7834.00 w/Mount Pipe	270.0000	0.16	-4.00	-0.00	118.00	1.439	9	17.60	27.51
Platform Mount [LP 713-1]	0.0000	1.51	0.00	0.00	106.00	1.396	9	31.27	31.27
9' Ladder	0.0000	0.08	0.00	-4.39	106.00	1.396	9	4.50	2.25
59212 w/Mount Pipe	300.0000	0.08	-3.46	-2.00	108.00	1.403	9	10.01	8.60
59212 w/Mount Pipe	60.0000	0.08	3.46	-2.00	108.00	1.403	9	10.01	8.60
59212 w/Mount Pipe	180.0000	0.08	0.00	4.00	108.00	1.403	9	10.01	8.60
6' mount pipe	300.0000	0.04	-3.46	-2.00	108.00	1.403	9	1.77	1.77
6' mount pipe	60.0000	0.04	3.46	-2.00	108.00	1.403	9	1.77	1.77
6' mount pipe	180.0000	0.04	0.00	4.00	108.00	1.403	9	1.77	1.77
742-213 w/Mount Pipe	30.0000	0.05	0.00	-2.51	96.00	1.357	9	5.42	4.63
742-213 w/Mount Pipe	150.0000	0.05	2.17	1.25	96.00	1.357	9	5.42	4.63
742-213 w/Mount Pipe	270.0000	0.05	-2.17	1.25	96.00	1.357	9	5.42	4.63
GPS	180.0000	0.00	0.00	2.23	75.00	1.264	8	0.17	0.17
Side Arm Mount [SO 103-1]	165.0000	0.08	1.98	1.14	70.00	1.240	8	5.70	0.60
	Sum Weight:	11.27							

Dish Pressures - No Ice

Elevation ft	Dish Description	Aiming Azimuth °	Weight K	$Offset_x$ ft	$Offset_z$ ft	K_z	A_A ft^2	q_z psf
70.00	PR-950	165.0000	0.04	2.41	1.39	1.240	25.25	23
		Sum Weight:	0.04					

Dish Pressures - With Ice

Elevation ft	Dish Description	Aiming Azimuth °	Weight K	$Offset_x$ ft	$Offset_z$ ft	K_z	A_A ft^2	q_z psf	t_z in
70.00	PR-950	165.0000	0.16	2.41	1.39	1.240	26.47	4	0.8208
		Sum Weight:	0.16						

Dish Pressures - Service

Elevation ft	Dish Description	Aiming Azimuth °	Weight K	$Offset_x$ ft	$Offset_z$ ft	K_z	A_A ft^2	q_z psf
70.00	PR-950	165.0000	0.04	2.41	1.39	1.240	25.25	8
		Sum Weight:	0.04					

Force Totals

Load Case	Vertical Forces K	Sum of Forces X K	Sum of Forces Z K	Sum of Overturning Moments, M_x kip-ft	Sum of Overturning Moments, M_z kip-ft	Sum of Torques kip-ft
Leg Weight	31.31					
Bracing Weight	0.00					
Total Member Self-Weight	31.31			-1.39	-1.24	
Total Weight	48.02			-1.39	-1.24	
Wind 0 deg - No Ice		-0.11	-36.10	-3808.76	9.62	2.48
Wind 30 deg - No Ice		17.59	-31.17	-3291.02	-1858.97	0.44
Wind 60 deg - No Ice		30.53	-17.84	-1887.43	-3226.62	-1.97
Wind 90 deg - No Ice		35.36	0.18	14.76	-3734.86	-3.50
Wind 120 deg - No Ice		30.74	18.17	1913.69	-3244.81	-3.99
Wind 150 deg - No Ice		17.88	31.37	3305.03	-1885.05	-3.69
Wind 180 deg - No Ice		0.14	36.14	3809.00	-14.28	-2.53
Wind 210 deg - No Ice		-17.57	31.17	3287.63	1855.28	-0.39
Wind 240 deg - No Ice		-30.53	17.91	1889.48	3224.11	1.83
Wind 270 deg - No Ice		-35.32	-0.12	-13.32	3730.01	3.38
Wind 300 deg - No Ice		-30.76	-18.17	-1916.38	3243.70	3.96
Wind 330 deg - No Ice		-17.89	-31.31	-3304.10	1882.97	3.54
Member Ice	6.33					
Total Weight Ice	64.17			-2.91	-2.79	
Wind 0 deg - Ice		-0.12	-9.15	-988.61	6.35	0.92
Wind 30 deg - Ice		4.27	-7.97	-859.19	-470.33	0.34
Wind 60 deg - Ice		7.57	-4.63	-498.52	-826.23	-0.16

Load Case	Vertical Forces K	Sum of Forces X K	Sum of Forces Z K	Sum of Overturning Moments, M_x kip-ft	Sum of Overturning Moments, M_z kip-ft	Sum of Torques kip-ft
Wind 90 deg - Ice		8.83	0.09	4.42	-960.13	-0.99
Wind 120 deg - Ice		7.69	4.53	487.78	-835.40	-1.03
Wind 150 deg - Ice		4.48	7.85	845.99	-486.80	-1.08
Wind 180 deg - Ice		0.03	9.05	975.36	-6.17	-0.88
Wind 210 deg - Ice		-4.40	7.78	840.25	474.02	-0.30
Wind 240 deg - Ice		-7.60	4.51	484.31	822.62	0.32
Wind 270 deg - Ice		-8.86	-0.21	-18.50	957.03	1.32
Wind 300 deg - Ice		-7.67	-4.76	-509.60	828.35	1.83
Wind 330 deg - Ice		-4.46	-7.98	-861.13	479.95	1.53
Total Weight	48.02			-1.39	-1.24	
Wind 0 deg - Service		-0.04	-12.49	-1319.14	3.20	0.86
Wind 30 deg - Service		6.09	-10.79	-1139.99	-643.37	0.15
Wind 60 deg - Service		10.56	-6.17	-654.32	-1116.61	-0.68
Wind 90 deg - Service		12.23	0.06	3.87	-1292.47	-1.21
Wind 120 deg - Service		10.64	6.29	660.95	-1122.90	-1.38
Wind 150 deg - Service		6.19	10.85	1142.38	-652.40	-1.28
Wind 180 deg - Service		0.05	12.50	1316.76	-5.07	-0.87
Wind 210 deg - Service		-6.08	10.78	1136.36	641.84	-0.13
Wind 240 deg - Service		-10.56	6.20	652.57	1115.48	0.63
Wind 270 deg - Service		-12.22	-0.04	-5.84	1290.53	1.17
Wind 300 deg - Service		-10.64	-6.29	-664.34	1122.26	1.37
Wind 330 deg - Service		-6.19	-10.84	-1144.52	651.42	1.23

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

Comb. No.	Description
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	150 - 122.92	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-14.71	-0.20	3.32
			Max. Mx	5	-7.63	-219.15	1.14
			Max. My	2	-7.59	0.26	224.58
			Max. Vy	5	15.01	-219.15	1.14
			Max. Vx	2	-15.31	0.26	224.58
			Max. Torque	11			-3.52
L2	122.92 - 84.26	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-30.44	-1.10	3.66
			Max. Mx	5	-18.02	-1024.94	-0.50
			Max. My	2	-17.98	1.67	1041.93
			Max. Vy	5	26.59	-1024.94	-0.50
			Max. Vx	2	-26.95	1.67	1041.93
			Max. Torque	11			-3.82
L3	84.26 - 41.55	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-44.04	-2.19	3.16
			Max. Mx	5	-29.63	-2212.07	-5.91
			Max. My	2	-29.60	4.83	2251.68
			Max. Vy	5	30.87	-2212.07	-5.91
			Max. Vx	8	31.67	-7.46	-2249.50
			Max. Torque	6			3.86
L4	41.55 - 0	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-64.94	-2.84	3.05
			Max. Mx	5	-48.01	-3817.88	-14.99
			Max. My	8	-48.01	-14.56	-3893.37
			Max. Vy	5	35.38	-3817.88	-14.99
			Max. Vx	8	36.16	-14.56	-3893.37
			Max. Torque	6			3.96

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Pole	Max. Vert	15	64.94	0.12	9.15
	Max. H_x	11	48.02	35.32	0.12
	Max. H_z	2	48.02	0.11	36.10
	Max. M_x	2	3893.22	0.11	36.10
	Max. M_z	5	3817.88	-35.36	-0.18
	Max. Torsion	6	3.96	-30.74	-18.17

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
	Min. Vert	1	48.02	0.00	0.00
	Min. H_x	5	48.02	-35.36	-0.18
	Min. H_z	8	48.02	-0.14	-36.14
	Min. M_x	8	-3893.37	-0.14	-36.14
	Min. M_z	11	-3812.94	35.32	0.12
	Min. Torsion	12	-3.93	30.76	18.17

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	48.02	0.00	0.00	-1.40	-1.24	0.00
Dead+Wind 0 deg - No Ice	48.02	-0.11	-36.10	-3893.22	9.81	2.47
Dead+Wind 30 deg - No Ice	48.02	17.59	-31.17	-3364.06	-1900.29	0.45
Dead+Wind 60 deg - No Ice	48.02	30.53	-17.84	-1929.43	-3298.38	-1.95
Dead+Wind 90 deg - No Ice	48.02	35.36	0.18	14.99	-3817.88	-3.46
Dead+Wind 120 deg - No Ice	48.02	30.74	18.17	1956.07	-3316.85	-3.96
Dead+Wind 150 deg - No Ice	48.02	17.88	31.37	3378.22	-1926.82	-3.66
Dead+Wind 180 deg - No Ice	48.02	0.14	36.14	3893.37	-14.56	-2.52
Dead+Wind 210 deg - No Ice	48.02	-17.57	31.17	3360.54	1896.51	-0.40
Dead+Wind 240 deg - No Ice	48.02	-30.53	17.91	1931.43	3295.79	1.81
Dead+Wind 270 deg - No Ice	48.02	-35.32	-0.12	-13.61	3812.94	3.34
Dead+Wind 300 deg - No Ice	48.02	-30.76	-18.17	-1958.88	3315.70	3.93
Dead+Wind 330 deg - No Ice	48.02	-17.89	-31.31	-3377.37	1924.70	3.52
Dead+Ice+Temp	64.94	0.00	-0.00	-3.05	-2.84	0.00
Dead+Wind 0 deg+Ice+Temp	64.94	-0.12	-9.15	-1024.63	6.45	0.92
Dead+Wind 30 deg+Ice+Temp	64.94	4.27	-7.97	-890.46	-487.68	0.34
Dead+Wind 60 deg+Ice+Temp	64.94	7.57	-4.63	-516.68	-856.51	-0.16
Dead+Wind 90 deg+Ice+Temp	64.94	8.83	0.09	4.37	-995.22	-0.98
Dead+Wind 120 deg+Ice+Temp	64.94	7.69	4.53	505.42	-865.90	-1.03
Dead+Wind 150 deg+Ice+Temp	64.94	4.48	7.85	876.65	-504.55	-1.07
Dead+Wind 180 deg+Ice+Temp	64.94	0.03	9.05	1010.74	-6.41	-0.88
Dead+Wind 210 deg+Ice+Temp	64.94	-4.40	7.78	870.75	491.30	-0.30
Dead+Wind 240 deg+Ice+Temp	64.94	-7.60	4.51	501.80	852.68	0.31
Dead+Wind 270 deg+Ice+Temp	64.94	-8.86	-0.21	-19.10	991.92	1.31
Dead+Wind 300 deg+Ice+Temp	64.94	-7.67	-4.76	-528.05	858.56	1.83
Dead+Wind 330 deg+Ice+Temp	64.94	-4.46	-7.98	-892.47	497.42	1.53
Dead+Wind 0 deg - Service	48.02	-0.04	-12.49	-1348.86	2.56	0.86
Dead+Wind 30 deg - Service	48.02	6.09	-10.79	-1165.65	-658.74	0.15
Dead+Wind 60 deg - Service	48.02	10.56	-6.17	-668.95	-1142.77	-0.68
Dead+Wind 90 deg - Service	48.02	12.23	0.06	4.23	-1322.63	-1.20
Dead+Wind 120 deg - Service	48.02	10.64	6.29	676.26	-1149.17	-1.38
Dead+Wind 150 deg - Service	48.02	6.19	10.85	1168.64	-667.93	-1.27
Dead+Wind 180 deg - Service	48.02	0.05	12.50	1346.99	-5.87	-0.87
Dead+Wind 210 deg - Service	48.02	-6.08	10.78	1162.51	655.77	-0.14
Dead+Wind 240 deg - Service	48.02	-10.56	6.20	667.72	1140.21	0.63
Dead+Wind 270 deg - Service	48.02	-12.22	-0.04	-5.67	1319.25	1.16
Dead+Wind 300 deg - Service	48.02	-10.64	-6.29	-679.15	1147.11	1.37
Dead+Wind 330 deg - Service	48.02	-6.19	-10.84	-1170.26	665.53	1.22

Solution Summary

Load Comb.	Sum of Applied Forces PX K	PY K	PZ K	Sum of Reactions PX K	PY K	PZ K	% Error
1	0.00	-48.02	0.00	0.00	48.02	0.00	0.000%
2	-0.11	-48.02	-36.10	0.11	48.02	36.10	0.000%
3	17.59	-48.02	-31.17	-17.59	48.02	31.17	0.000%
4	30.53	-48.02	-17.84	-30.53	48.02	17.84	0.000%
5	35.36	-48.02	0.18	-35.36	48.02	-0.18	0.000%
6	30.74	-48.02	18.17	-30.74	48.02	-18.17	0.000%
7	17.88	-48.02	31.37	-17.88	48.02	-31.37	0.000%
8	0.14	-48.02	36.14	-0.14	48.02	-36.14	0.000%
9	-17.57	-48.02	31.17	17.57	48.02	-31.17	0.000%
10	-30.53	-48.02	17.91	30.53	48.02	-17.91	0.000%
11	-35.32	-48.02	-0.12	35.32	48.02	0.12	0.000%
12	-30.76	-48.02	-18.17	30.76	48.02	18.17	0.000%
13	-17.89	-48.02	-31.31	17.89	48.02	31.31	0.000%
14	0.00	-64.94	0.00	-0.00	64.94	0.00	0.000%
15	-0.12	-64.94	-9.15	0.12	64.94	9.15	0.000%
16	4.27	-64.94	-7.97	-4.27	64.94	7.97	0.000%
17	7.57	-64.94	-4.63	-7.57	64.94	4.63	0.000%
18	8.83	-64.94	0.09	-8.83	64.94	-0.09	0.000%
19	7.69	-64.94	4.53	-7.69	64.94	-4.53	0.000%
20	4.48	-64.94	7.85	-4.48	64.94	-7.85	0.000%
21	0.03	-64.94	9.05	-0.03	64.94	-9.05	0.000%
22	-4.40	-64.94	7.78	4.40	64.94	-7.78	0.000%
23	-7.60	-64.94	4.51	7.60	64.94	-4.51	0.000%
24	-8.86	-64.94	-0.21	8.86	64.94	0.21	0.000%
25	-7.67	-64.94	-4.76	7.67	64.94	4.76	0.000%
26	-4.46	-64.94	-7.98	4.46	64.94	7.98	0.000%
27	-0.04	-48.02	-12.49	0.04	48.02	12.49	0.000%
28	6.09	-48.02	-10.79	-6.09	48.02	10.79	0.000%
29	10.56	-48.02	-6.17	-10.56	48.02	6.17	0.000%
30	12.23	-48.02	0.06	-12.23	48.02	-0.06	0.000%
31	10.64	-48.02	6.29	-10.64	48.02	-6.29	0.000%
32	6.19	-48.02	10.85	-6.19	48.02	-10.85	0.000%
33	0.05	-48.02	12.50	-0.05	48.02	-12.50	0.000%
34	-6.08	-48.02	10.78	6.08	48.02	-10.78	0.000%
35	-10.56	-48.02	6.20	10.56	48.02	-6.20	0.000%
36	-12.22	-48.02	-0.04	12.22	48.02	0.04	0.000%
37	-10.64	-48.02	-6.29	10.64	48.02	6.29	0.000%
38	-6.19	-48.02	-10.84	6.19	48.02	10.84	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	0.00017484
3	Yes	5	0.00000001	0.00009507
4	Yes	5	0.00000001	0.00010436
5	Yes	4	0.00000001	0.00061716
6	Yes	5	0.00000001	0.00009027
7	Yes	5	0.00000001	0.00010567
8	Yes	4	0.00000001	0.00022467
9	Yes	5	0.00000001	0.00009916
10	Yes	5	0.00000001	0.00009070
11	Yes	4	0.00000001	0.00066372
12	Yes	5	0.00000001	0.00010814
13	Yes	5	0.00000001	0.00009216

14	Yes	4	0.00000001	0.00000744
15	Yes	4	0.00000001	0.00090968
16	Yes	5	0.00000001	0.00004918
17	Yes	5	0.00000001	0.00004948
18	Yes	4	0.00000001	0.00089554
19	Yes	5	0.00000001	0.00004828
20	Yes	5	0.00000001	0.00004938
21	Yes	4	0.00000001	0.00089201
22	Yes	5	0.00000001	0.00004817
23	Yes	5	0.00000001	0.00004756
24	Yes	4	0.00000001	0.00089280
25	Yes	5	0.00000001	0.00005029
26	Yes	5	0.00000001	0.00004921
27	Yes	4	0.00000001	0.00003838
28	Yes	4	0.00000001	0.00023376
29	Yes	4	0.00000001	0.00028931
30	Yes	4	0.00000001	0.00011141
31	Yes	4	0.00000001	0.00021635
32	Yes	4	0.00000001	0.00029250
33	Yes	4	0.00000001	0.00004104
34	Yes	4	0.00000001	0.00025450
35	Yes	4	0.00000001	0.00021427
36	Yes	4	0.00000001	0.00011325
37	Yes	4	0.00000001	0.00031040
38	Yes	4	0.00000001	0.00022060

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	150 - 122.92	22.829	27	1.4358	0.0089
L2	127.09 - 84.26	16.242	27	1.2584	0.0052
L3	89.76 - 41.55	7.776	27	0.8635	0.0020
L4	48.47 - 0	2.163	27	0.4136	0.0007

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
152.00	Platform Mount [LP 713-1]	27	22.829	1.4358	0.0089	23615
150.00	9' Ladder	27	22.829	1.4358	0.0089	23615
147.00	Side Arm Mount [SO 701-3]	27	21.941	1.4141	0.0084	23615
140.00	Platform Mount [LP 713-1]	27	19.882	1.3627	0.0072	11807
135.00	4' Standoff	27	18.440	1.3243	0.0064	7871
130.00	Platform Mount [LP 713-1]	27	17.036	1.2835	0.0057	5922
116.00	Platform Mount [LP 713-1]	27	13.393	1.1527	0.0039	5208
106.00	Platform Mount [LP 713-1]	27	11.067	1.0468	0.0031	5259
96.00	742-213 w/Mount Pipe	27	8.970	0.9348	0.0024	5310
75.00	GPS	27	5.304	0.6956	0.0014	5108
70.00	PR-950	27	4.582	0.6398	0.0012	5033

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	150 - 122.92	65.731	2	4.1264	0.0257
L2	127.09 - 84.26	46.802	2	3.6222	0.0151
L3	89.76 - 41.55	22.427	2	2.4893	0.0059
L4	48.47 - 0	6.241	2	1.1932	0.0020

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
152.00	Platform Mount [LP 713-1]	2	65.731	4.1264	0.0257	8361
150.00	9' Ladder	2	65.731	4.1264	0.0257	8361
147.00	Side Arm Mount [SO 701-3]	2	63.177	4.0651	0.0242	8361
140.00	Platform Mount [LP 713-1]	2	57.264	3.9192	0.0208	4180
135.00	4' Standoff	2	53.121	3.8099	0.0185	2786
130.00	Platform Mount [LP 713-1]	2	49.086	3.6938	0.0163	2095
116.00	Platform Mount [LP 713-1]	2	38.607	3.3199	0.0113	1834
106.00	Platform Mount [LP 713-1]	2	31.911	3.0162	0.0088	1844
96.00	742-213 w/Mount Pipe	2	25.868	2.6944	0.0069	1855
75.00	GPS	2	15.300	2.0060	0.0041	1777
70.00	PR-950	2	13.217	1.8454	0.0036	1750

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	150 - 122.92 (1)	TP28.83x21x0.1875	27.08	0.00	0.0	39.000	16.3283	-7.59	636.80	0.012
L2	122.92 - 84.26 (2)	TP39.51x27.2493x0.375	42.83	0.00	0.0	39.000	44.7064	-17.98	1743.55	0.010
L3	84.26 - 41.55 (3)	TP50.99x37.1855x0.4375	48.21	0.00	0.0	39.000	67.4469	-29.60	2630.43	0.011
L4	41.55 - 0 (4)	TP62x48.1335x0.5	48.47	0.00	0.0	39.000	97.6005	-48.01	3806.42	0.013

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	150 - 122.92 (1)	TP28.83x21x0.1875	224.58	24.354	39.000	0.624	0.00	0.000	39.000	0.000
L2	122.92 - 84.26 (2)	TP39.51x27.2493x0.375	1041.93	30.238	39.000	0.775	0.00	0.000	39.000	0.000

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 $\frac{f_{by}}{F_{by}}$
L3	84.26 - 41.55 (3)	TP50.99x37.1855x0.4375	2251.68	33.463	39.000	0.858	0.00	0.000	39.000	0.000
L4	41.55 - 0 (4)	TP62x48.1335x0.5	3893.39	31.552	39.000	0.809	0.00	0.000	39.000	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	150 - 122.92 (1)	TP28.83x21x0.1875	15.31	0.938	26.000	0.072	0.16	0.008	26.000	0.000
L2	122.92 - 84.26 (2)	TP39.51x27.2493x0.375	26.95	0.603	26.000	0.046	0.62	0.009	26.000	0.000
L3	84.26 - 41.55 (3)	TP50.99x37.1855x0.4375	31.62	0.469	26.000	0.036	2.41	0.017	26.000	0.001
L4	41.55 - 0 (4)	TP62x48.1335x0.5	36.16	0.371	26.000	0.028	2.52	0.010	26.000	0.000

Pole Interaction Design Data

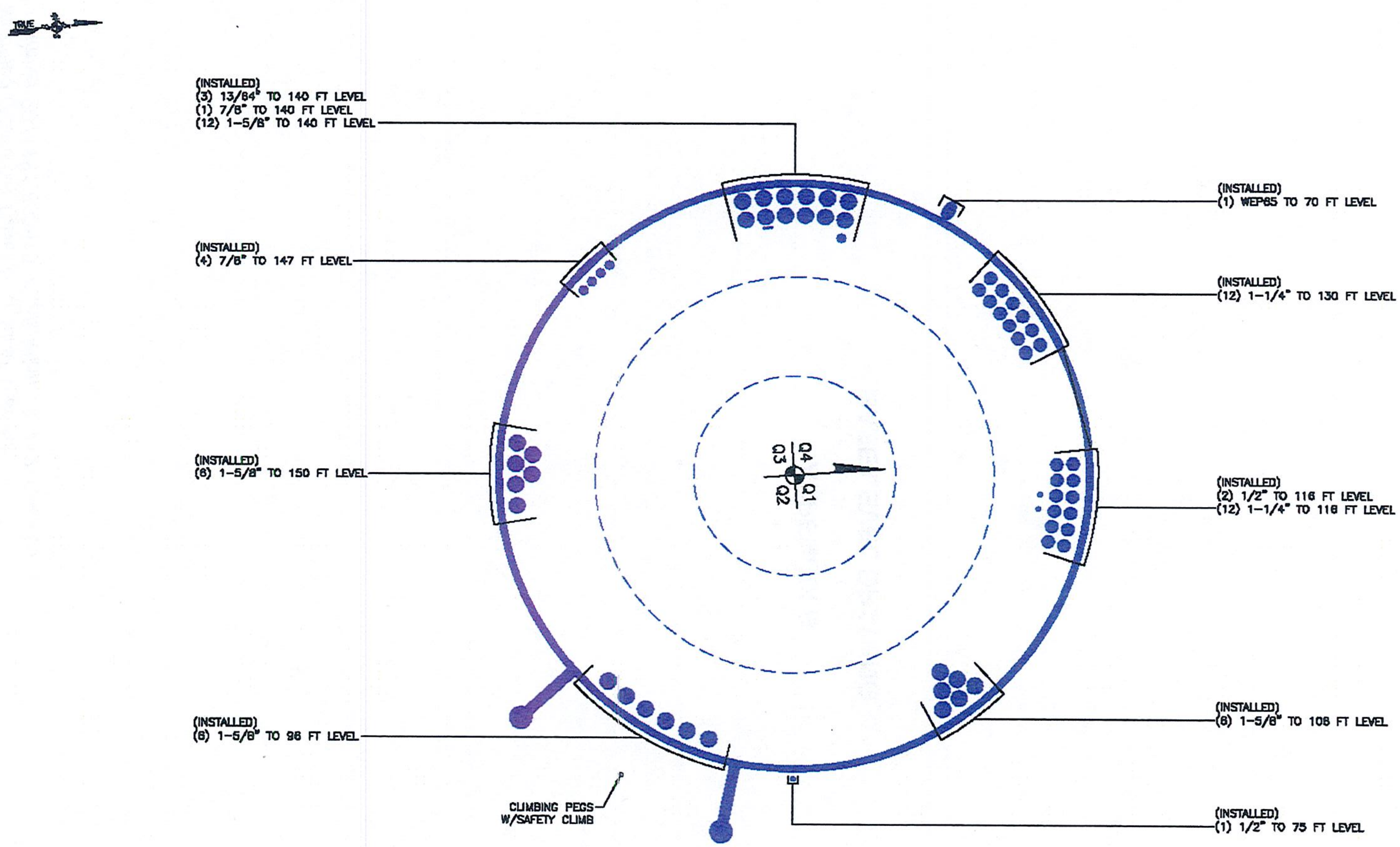
Section No.	Elevation ft	Ratio $\frac{P}{P_a}$	Ratio $\frac{f_{bx}}{F_{bx}}$	Ratio $\frac{f_{by}}{F_{by}}$	Ratio $\frac{f_v}{F_v}$	Ratio $\frac{f_{vt}}{F_{vt}}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
L1	150 - 122.92 (1)	0.012	0.624	0.000	0.072	0.000	0.638 ✔	1.333	H1-3+VT ✔
L2	122.92 - 84.26 (2)	0.010	0.775	0.000	0.046	0.000	0.786 ✔	1.333	H1-3+VT ✔
L3	84.26 - 41.55 (3)	0.011	0.858	0.000	0.036	0.001	0.870 ✔	1.333	H1-3+VT ✔
L4	41.55 - 0 (4)	0.013	0.809	0.000	0.028	0.000	0.822 ✔	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	150 - 122.92	Pole	TP28.83x21x0.1875	1	-7.59	848.86	47.8	Pass
L2	122.92 - 84.26	Pole	TP39.51x27.2493x0.375	2	-17.98	2324.15	59.0	Pass
L3	84.26 - 41.55	Pole	TP50.99x37.1855x0.4375	3	-29.60	3506.36	65.2	Pass
L4	41.55 - 0	Pole	TP62x48.1335x0.5	4	-48.01	5073.96	61.7	Pass
							Summary	
						Pole (L3)	65.2	Pass
						RATING =	**65.2**	**Pass**

APPENDIX B

BASE LEVEL DRAWING



BUSINESS UNIT: 800515 TOWER ID: C_BASELEVEL

LEGEND: FEEDLINES

- ● SOLID BLUE CIRCLE DENOTES EXISTING FEEDLINE
- ○ OPEN RED CIRCLE DENOTES PROPOSED FEEDLINE
- X BLUE "X" DENOTES LOCATION NOT GIVEN

NOTE: ASSUME FEEDLINE ATTACHMENT HEIGHT TO TOWER STEEL AT 8-FEET ABOVE FINISHED GRADE UNLESS OTHERWISE SPECIFIED

CROWN REGION ADDRESS
USA

1	22/03/07	AS-BUILT INFORMATION ADDED PER WORK ORDER # 130104	SB
2	02/07/07	AS-BUILT INFORMATION ADDED PER WORK ORDER # 600519	DJA
3	22/05/08	AS-BUILT INFORMATION ADDED PER WORK ORDER # 163782	DEH
4	14/05/08	UPDATES PER WORK ORDER # 210686	PS
5	18/05/09	APPLICATION ADDED PER WORK ORDER # 311155	AM
6	19/11/09	UPDATED & APPLICATION ADDED PER WORK ORDER # 236244	ATF
7	22/01/09	CHANGED PER WORK ORDER # 346742	TL
8	03/03/09	UPDATED PER WORK ORDER # 383309	ATF
9	16/07/10	AS-BUILT INFORMATION ADDED PER WORK ORDER # 340054	SM

DRAWN BY: JPD
CHECKED BY:
DRAWING DATE: 31/05/03

SITE NUMBER:
SITE NAME:

SITE NAME
CHESTER

BUSINESS UNIT NUMBER
800515

SITE ADDRESS
WIG HILL ROAD
CHESTER, CT 06412
MIDDLESEX COUNTY
USA

SHEET TITLE
BASE LEVEL

SHEET NUMBER
A1-0

BASE LEVEL DRAWING

1

Xref R:\Standards - ...\Typical Blocks For Templates\TITLE BLOCK STD-VER 0.1.dwg

APPENDIX C

ADDITIONAL CALCULATIONS

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

TIA Rev F

Site Data

BU#: 800515
Site Name: CT CHESTER CAC 800515
App #: 131712 Rev 1
Pole Manufacturer: Other

Reactions		
Moment:	3893	ft-kips
Axial:	48	kips
Shear:	36	kips

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

Anchor Rod Data		
Qty:	24	
Diam:	2.25	in
Rod Material:	A615-J	
Strength (Fu):	100	ksi
Yield (Fy):	75	ksi
Bolt Circle:	71	in

Plate Data		
Diam:	77	in
Thick:	2.25	in
Grade:	60	ksi
Single-Rod B-eff:	8.20	in

Stiffener Data (Welding at both sides)		
Config:	1	*
Weld Type:	Groove	
Groove Depth:	0.5	in **
Groove Angle:	45	degrees
Fillet H. Weld:	0	<-- Disregard
Fillet V. Weld:	1	in
Width:	6	in
Height:	16	in
Thick:	1	in
Notch:	1	in
Grade:	65	ksi
Weld str.:	70	ksi

Pole Data		
Diam:	62	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:	107.7	Kips	Stiffened
Allowable Tension:	195.0	Kips	Service, ASD
Anchor Rod Stress Ratio:	55.2%	Pass	Fty*ASIF

Base Plate Results

	Flexural Check		Stiffened
Base Plate Stress:	25.9	ksi	Service, ASD
Allowable Plate Stress:	60.0	ksi	0.75*Fy*ASIF
Base Plate Stress Ratio:	43.2%	Pass	Y.L. Length: N/A, Roark

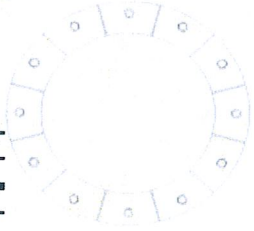
Stiffener Results

Horizontal Weld :	32.7%	Pass
Vertical Weld:	18.3%	Pass
Plate Flex+Shear, fb/Fb+(fv/Fv)^2:	8.2%	Pass
Plate Tension+Shear, ft/Ft+(fv/Fv)^2:	31.6%	Pass
Plate Comp. (AISC Bracket):	33.7%	Pass

Note: Vertical Weld Calculations have been modified to account for full penetration weld.

Pole Results

Pole Punching Shear Check:	12.1%	Pass



* 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

GPD GROUP

Mat Foundation Analysis
CT CHESTER CAC 800515
2011181.800515.01

General Info	
Code	TIA/EIA-222-F (LRFD)
Bearing On	Soil
Foundation Type	Mono Pad
Pier Type	Round
Reinforcing Known	Yes
Max Capacity	1.05

Tower Reactions		
Moment, M	3893	k-ft
Axial, P	48	k
Shear, V	36	k

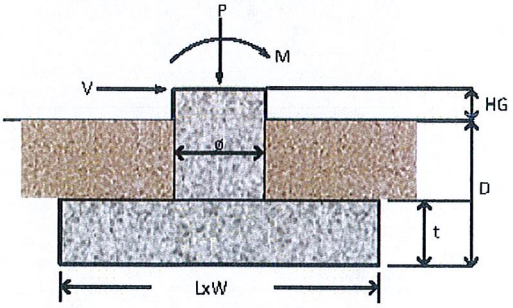
Pad & Pier Geometry		
Pier Diameter, ø	7.5	ft
Pad Length, L	28	ft
Pad Width, W	28	ft
Pad Thickness, t	3	ft
Depth, D	5.1667	ft
Height Above Grade, HG	0.5	ft

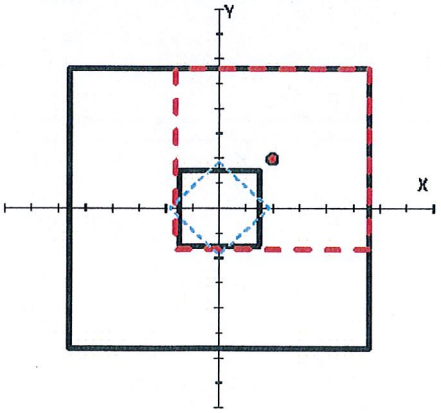
Pad & Pier Reinforcing		
Rebar Fy	60	ksi
Concrete Fc'	3	ksi
Clear Cover	4	in
Reinforced Top & Bottom?	Yes	
Pad Reinforcing Size	# 8	
Pad Quantity Per Layer	24	
Pier Rebar Size	# 8	
Pier Quantity of Rebar	12	

Soil Properties		
Soil Type	Granular	
Soil Unit Weight	120	pcf
Angle of Friction, ø	30	°
Bearing Type	Gross	
Ultimate Bearing	40	ksf
Water Table Depth	20	ft
Frost Depth	3.5	ft

Bearing Summary			Load Case
Qxmax	2.20	ksf	0.9D+1.6W
Qymax	2.20	ksf	0.9D+1.6W
Qmax @ 45°	2.54	ksf	0.9D+1.6W
$Q_{allj\ Gross}$	30.00	ksf	
Controlling Capacity	8.5%	Pass	

Overturning Summary (Required FS=1.0)			Load Case
FS(ot)x	1.48	≥1.0	0.9D+1.6W
FS(ot)y	1.48	≥1.0	0.9D+1.6W
Controlling Capacity	67.6%	Pass	





	General	Power	Density					
Site Name: Chester								
Tower Height: Verizon @ 140ft								
CARRIER	**# OF CHAN.**	**WATTS ERP**	**HEIGHT**	**CALC. POWER DENS**	**FREQ.**	**MAX. PERMISS. EXP.**	**FRACTION MPE**	**Total**
*AT&T UMTS	1	500	132	0.0103	880	0.5867	1.76%	
*AT&T GSM	4	296	132	0.0244	880	0.5867	4.16%	
*AT&T GSM	2	427	132	0.0176	1930	1.0000	1.76%	
*Pocket	6	631	96	0.1477	2130	1.0000	14.77%	
*Sprint+Nextel+Omnpt							12.52%	
*VSECI	1	29.39024	170	0.0004	933.175	0.6221	0.06%	
*VSECI	1	300	170	0.0037	46.18	0.2000	1.87%	
*VSECI	1	300	170	0.0037	46.44	0.2000	1.87%	
Verizon PCS	**7**	**274**	**140**	**0.0352**	**1970**	**1.0000**	**3.52%**	
Verizon Cellular	**9**	**268**	**140**	**0.0442**	**869**	**0.5793**	**7.64%**	
Verizon AWS	**1**	**686**	**140**	**0.0126**	**2145**	**1.0000**	**1.26%**	
Verizon 700	**2**	**790**	**140**	**0.0290**	**698**	**0.4653**	**6.23%**	
								57.41%
* Source: Siting Council								