COHEN and WOLF P.C.
ATTORNEYS AT LAW

RACHEL A. SCHWARTZMAN

Please Reply To: Bridgeport
Writer's Direct Dial: (203) 337-4110
E-Mail: rschwartzman@cohenandwolf.com

August 20, 2014

Attorney Melanie Bachman
Acting Executive Director
Connecticut Siting Council
Ten Franklin Square
New Britain, CT 06501

Re: EM-T-MOBILE-049-130521
T-Mobile Site ID CT11066A
4 Oliver Road, Enfield, CT
Notice of Construction Completion

Dear Attorney Bachman:

The Connecticut Siting Council ("Council") acknowledged the above referenced T-Mobile Northeast LLC ("T-Mobile") notice of exempt modification on June 18, 2013. T-Mobile hereby notifies the Council that construction of the acknowledged modifications were complete as of March 27, 2014.

Please don't hesitate to contact me with any questions.

Sincerely,

Rachel Schwartzman

Rachel A. Schwartzman

cc: Samuel Simons, T-Mobile
Mark Richard, T-Mobile
Alex Giannaras, HPC Wireless
Julie Kohler, Esq.

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

June 18, 2013

Alex Giannaras
HPC Development LLC
22 Shelter Rock Lane
Building C
Danbury, CT 06810

RE: **EM-T-MOBILE-049-130521** – T-Mobile Northeast LLC notice of intent to modify an existing telecommunications facility located at 4 Oliver Road, Enfield, Connecticut.

Dear Mr. Giannaras:

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 the 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;
- Within 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 May 20, 2013. 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,

Melanie A. Bachman
Acting Executive Director

MAB/CDM/jb

c: The Honorable Scott Kaupin, Mayor, Town of Enfield
Matthew W. Coppler, Town Manager, Town of Enfield
Jose Giner, Director of Planning and Community Development, Town of Enfield
Crown Castle

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

May 23, 2013

The Honorable Scott Kaupin
Mayor
Town of Enfield
820 Enfield Street
Enfield, CT 06082

RE: **EM-T-MOBILE-049-130521** – T-Mobile Northeast LLC notice of intent to modify an existing telecommunications facility located at 4 Oliver Road, Enfield, Connecticut.

Dear Mayor Kaupin:

The Connecticut Siting Council (Council) received a request to modify an existing telecommunications facility, pursuant to Regulations of Connecticut State Agencies Section 16-50j-72, a copy of which has already been provided to you.

If you have any questions or comments regarding the proposal, please call me or inform the Council by June 7, 2013.

Thank you for your cooperation and consideration.

Very truly yours,

Melanie A. Bachman
Acting Executive Director

MAB/jb

c: Matthew W. Coppler, Town Manager, Town of Enfield
Jose Giner, Director of Planning and Community Development, Town of Enfield

EM-T-MOBILE-049-130521

HPC Wireless Services
22 Shelter Rock Lane.
Building C
Danbury, CT, 06810
P.: 203.797.1112

HPC WIRELESS SERVICES

ORIGINAL

May 20, 2013

VIA OVERNIGHT COURIER

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

Re: T-Mobile Northeast LLC – exempt modification
4 Oliver Road, Enfield, Connecticut

Dear Ms. Bachman:

This letter and attachments are submitted on behalf of T-Mobile Northeast LLC ("T-Mobile"). T-Mobile is making modifications to certain existing sites in its Connecticut system in order to implement LTE technology. Please accept this letter and attachments as notification, pursuant to R.C.S.A. Section 16-50j-73, of construction that constitutes an exempt modification pursuant to R.C.S.A. Section 16-50j-72(b)(2). In compliance with R.C.S.A. Section 16-50j-73, a copy of this letter and attachments is being sent to the Mayor of the Town of Enfield.

T-Mobile plans to modify the existing wireless communications facility owned by Crown Castle and located at 4 Oliver Road in the Town of Enfield (coordinates 41°-57'-36.2" N, 72°-35'-32.3" W). Attached are a compound plan and elevation depicting the planned changes, and documentation of the structural sufficiency of the structure to accommodate the revised antenna configuration. Also included is a power density report reflecting the modification to T-Mobile's operations at the site.

The changes to the facility do not constitute a modification as defined in Connecticut General Statutes ("C.G.S.") Section 16-50i(d) because the general physical characteristics of the facility will not be significantly changed. Rather, the planned changes to the facility fall squarely within those activities explicitly provided for in R.C.S.A. Section 16-50j-72(b)(2).

1. T-Mobile will replace six (6) of its existing panel antennas with six (6) new antennas at a center line of approximately 117'. T-Mobile will also remove three (3) of

six (6) TMAs. Six (6) existing 1-1/4" coax will be replaced with six (6) of the same size. A hybrid cable will be run from the equipment to the antennas along the existing coaxial cable run. The proposed modifications will not extend the height of the approximately 160' structure.

2. T-Mobile's proposed changes will have no effect on the site boundaries.

3. The proposed changes will not increase the noise level at the existing facility by six decibels or more. The incremental effect of the proposed changes will be negligible.

4. The changes to the facility will not increase the calculated "worst case" power density for the combined operations at the site to a level at or above the applicable standard for uncontrolled environments as calculated for a mixed frequency site. As indicated on the attached report prepared by EBI Consulting, T-Mobile's operations at the site will result in a power density of approximately 0.846%; the combined site operations will result in a total power density of approximately 47.986%.

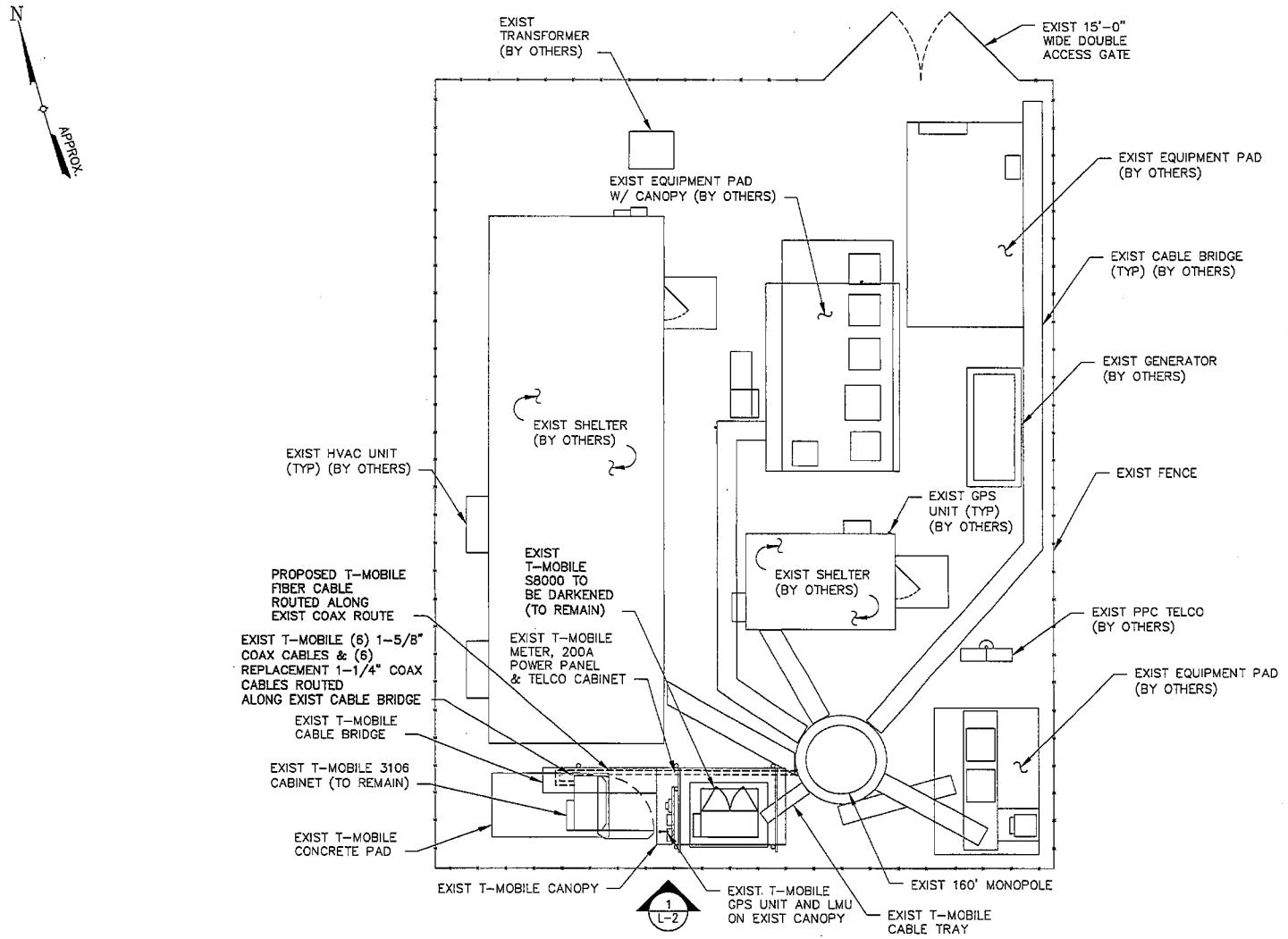
Please feel free to contact me by phone at (617) 281-0084 or by e-mail at agiannaras@hpcwireless.com with questions concerning this matter. Thank you for your consideration.

Respectfully yours,

Alex Giannaras

Alex Giannaras

cc: Honorable Scott R. Kaupin, Mayor, Town of Enfield
Oliver Road Holding LLC (underlying property owner)



STRUCTURAL NOTE:
EXIST MOUNTS AND MONOPOLE TO BE VERIFIED FOR STRUCTURAL SUITABILITY OF PROPOSED INSTALLATION BY A STATE LICENSED P.E.

1/L-1 SITE PLAN

SCALE: 1/8" = 1'-0"

CONFIGURATION
2C

0 1 2 3
ORIGINAL SIZE IN INCHES

TECTONIC
• PLANNING • SURVEYING
• ENGINEERING • CONSTRUCTION MANAGEMENT
TECTONIC Engineering & Surveying Consultants P.C.
1279 Route 300
Newburgh, NY 12550
Phone: (845) 567-8556
Fax: (845) 567-8703

T-Mobile NORTHEAST LLC.

T-MOBILE NORTHEAST, LLC.
4 SYLVAN DRIVE
PARSIPPANY, NJ 07054
PHONE: (973) 686-6500

APPROVALS
T-MOBILE
LANDLORD
RF
CONSTRUCTION

PROJECT NUMBER	DESIGNED BY
6844.CT11066A	JG

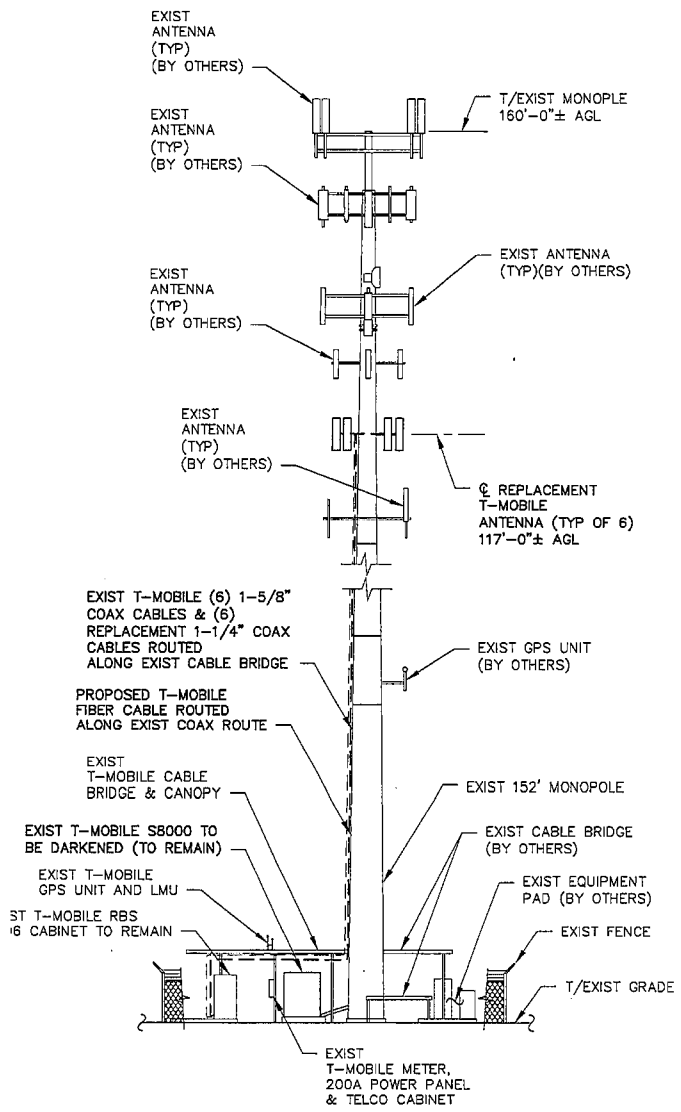
REV	DATE	REVISION	DRAWN BY
0	04/22/13	FOR COMMENT	DAC
1	05/16/13	REVISED PER SA	DAC

ISSUED BY | DATE

SITE INFORMATION
CT11066A
ENFIELD_J-91_X47
4 OLIVER RD
ENFIELD, CT 06082

SHEET TITLE
SITE PLAN

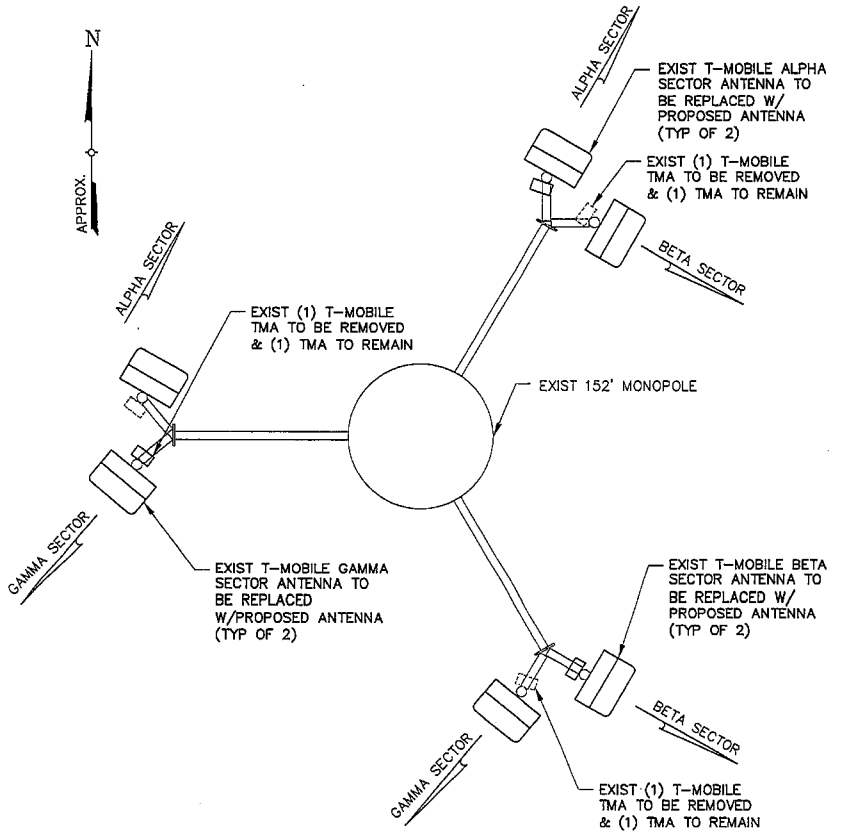
SHEET NUMBER
L-1



1 / L-2 ELEVATION

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

STRUCTURAL NOTE:
EXIST MOUNTS AND MONOPOLE TO BE VERIFIED FOR STRUCTURAL SUITABILITY OF PROPOSED INSTALLATION BY A STATE LICENSED P.E.



2 / L-2 ANTENNA PLAN

SCALE: 1/2"=1'-0"

CONFIGURATION
2C

0 1 2 3
ORIGINAL SIZE IN INCHES

TECTONIC
• PLANNING • SURVEYING
• ENGINEERING • CONSTRUCTION MANAGEMENT
TECTONIC Engineering & Surveying Consultants P.C.
1279 Route 300
Newburgh, NY 12550
Phone: (845) 567-6656
Fax: (845) 567-8703

T-Mobile
NORTHEAST LLC.

T-MOBILE NORTHEAST, LLC.
4 SYLVAN DRIVE
PARSIPPANY, NJ 07054
PHONE: (973) 886-6500

APPROVALS
T-MOBILE
LANDLORD
RF
CONSTRUCTION

PROJECT NUMBER	DESIGNED BY
6544.CT11066A	JQ

REV	DATE	REVISION	DRAWN BY
0	04/22/13	FOR COMMENT	DAC
1	05/16/13	REVISED PER SA	DAC

ISSUED BY | DATE

SITE INFORMATION
CT11066A
ENFIELD_I-91_X47
4 OLIVER RD
ENFIELD, CT 06082

SHEET TITLE
ELEVATION & ANTENNA PLAN

SHEET NUMBER
L-2

PAUL J. FORD AND COMPANY
STRUCTURAL ENGINEERS
250 East Broad Street • Suite 1500 • Columbus, Ohio 43215-3708

Date: **April 19, 2013**

David Grimes
Crown Castle USA Inc.
3530 Toringdon Way Suite 300
Charlotte, NC 28277
(704) 405-6548

Paul J. Ford and Company
250 East Broad Street, Suite 1500
Columbus, Ohio 43215
(614) 221-6679
kthorpe@pjfweb.com

Subject: **Structural Analysis Report**

Carrier Designation:	***T-Mobile* Co-Locate**	
	Carrier Site Number:	CT11066A
	Carrier Site Name:	CT11066A
Crown Castle Designation:	**Crown Castle BU Number:**	806373
	Crown Castle Site Name:	HRT 101 943232
	Crown Castle JDE Job Number:	232398
	Crown Castle Work Order Number:	600692
	Crown Castle Application Number:	186714 Rev. 4
Engineering Firm Designation:	**Paul J. Ford and Company Project Number:**	37513-1266
Site Data:	**4 Oliver Road, ENFIELD, Hartford County, CT** **Latitude *41° 57' 36.2"*, Longitude *-72° 35' 32.3"*** **160 Foot - Monopole Tower**	

Dear David Grimes,

Paul J. Ford and Company 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 539143, in accordance with application 186714, revision 4.

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

LC7: Existing + Reserved + Proposed Equipment **Sufficient Capacity**
Note: See Table I and Table II for the proposed and existing/reserved loading, respectively.

The structural analysis was performed for this tower in accordance with the requirements of the 2005 Connecticut Building Code and the TIA/EIA-222-F Structural Standards for Steel Antenna Towers and Antenna Supporting Structures using a fastest mile wind speed of 80 mph with no ice, 37.6 mph with 1 inch ice thickness and 50 mph under service loads.

We at *Paul J. Ford and Company* 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:

Kyle Thorpe, E.I.
Structural Designer

tnxTower Report - version 6.0.3.0

APR 2 2 2013

PAUL J. FORD AND COMPANY
STRUCTURAL ENGINEERS
250 East Broad Street • Suite 1500 • Columbus, Ohio 43215-3708

Date: **April 19, 2013**

David Grimes
Crown Castle USA Inc.
3530 Toringdon Way Suite 300
Charlotte, NC 28277
(704) 405-6548

Paul J. Ford and Company
250 East Broad Street, Suite 1500
Columbus, Ohio 43215
(614) 221-6679
kthorpe@pjfweb.com

Subject: **Structural Analysis Report**

Carrier Designation:	***T-Mobile* Co-Locate**	
	Carrier Site Number:	CT11066A
	Carrier Site Name:	CT11066A
Crown Castle Designation:	**Crown Castle BU Number:**	806373
	Crown Castle Site Name:	HRT 101 943232
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Respectfully submitted by:

Kyle Thorpe, E.I.
Structural Designer

TABLE OF CONTENTS

1) INTRODUCTION

This tower is a 160 ft Monopole tower designed by VALMONT in November of 1991. The tower was originally designed for a wind speed of 90 mph per TIA/EIA-222-E. The tower has been modified per reinforcement drawings prepared by PJF, in July of 2012. The modification consists of a 10-ft shaft extension, shaft reinforcing from 0' to 121'-3", and (3) post installed anchors and brackets.

2) ANALYSIS CRITERIA

The structural analysis was performed for this tower in accordance with the requirements of the 2005 Connecticut Building Code and the TIA/EIA-222-F Structural Standards for Steel Antenna Towers and Antenna Supporting Structures using a fastest mile wind speed of 80 mph with no ice, 37.6 mph with 1 inch ice thickness and 50 mph under service loads.

Table 1 - Proposed Antenna and Cable Information

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)	Note
116.0	117.0	3	ericsson	ERICSSON AIR 21 B2A B4P w/ Mount Pipe	1 (E)	1-5/8	1
		3	ericsson	ERICSSON AIR 21 B4A B2P w/ Mount Pipe			
		3	ericsson	KRY 112 144/1			

Notes:
1) Proposed Equipment
(E) Coax to be mounted externally and exposed to the wind. See coax layout in Appendix B.

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
158.0	161.0	6	powerwave technologies	7770.00 w/ Mount Pipe	1 (C) 2 (C) 12 (E)	3/8 3/4 1-5/8	1
		6		LGP13519			
		6		LGP21401			
	158.0	3	andrew	SBNH-1D6565C w/ Pipe			
		6	ericsson	RRUS-11			
		1	raycap	DC6-48-60-18-8F			
		1	tower mounts	Platform Mount [LP 301-1]			
149.0	149.0	1	antel	BXA-185063/8CF w/ Mount Pipe	12 (I)	7/8	1
		2	antel	BXA-185090/8CFx2 w/ Mount Pipe			
		2	antel	BXA-70063/6CFx4 w/ Mount Pipe			
		1	antel	BXA-70063/6CFx6 w/ Mount Pipe			
		2	antel	LPA-80063/4CF w/ Pipe			
		4	antel	LPA-80080/4CF w/ Pipe			
		6	rfs celwave	FD9R6004/2C-3L			
		1	tower mounts	Platform Mount [LP 602-1]			

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)	Note
135.0	139.0	2	andrew	VHLP2.5-11	6 (C) 3 (E)	1/4 1/2	1
		2	dragonwave	HORIZON COMPACT			
	135.0	3	argus technologies	LLPX310R-V1 w/ Mount Pipe			
		1	motorola	TIMING 2000			
		3	samsung telecom	WIMAX DAP HEAD			
		1	tower mounts	Platform Mount [LP 602-1]			
		1	rfs celwave	APXV9ERR18-C-A20 w/ Mount Pipe	3 (E)	1-1/4	2
		2	rfs celwave	APXVSPP18-C-A20 w/ Mount Pipe			
		6	decibel	DB980H90E-M w/ Mount Pipe	6 (I)	1-5/8	3
132.0	132.0	3	alcatel lucent	800MHz 2X50W RRH W/FILTER	-	-	1
		3	alcatel lucent	PCS 1900MHz 4x45W-65MHz			
		1	tower mounts	Side Arm Mount [SO 102-3]			
126.0	127.0	9	decibel	DB844H90E-XY w/ Mount Pipe	9 (E)	7/8	1
	126.0	1	tower mounts	T-Arm Mount [TA 901-3]			
116.0	117.0	3	andrew	ONEBASE TWIN DUAL DUPLEX TMA	-	-	3
		3	ems wireless	RR90-17-02DP w/ Mount Pipe			
		3	ericsson	KRY 112 71/1			
		3	rfs celwave	APX16DWV-16DWV-S-E-ACU w/ Mount Pipe			
	116.0	1	tower mounts	Side Arm Mount [SO 103-3]	6 (E) 6 (E)	1-5/8 1-1/4	1
		1	tower mounts	Side Arm Mount [SO 701-3]			
106.0	108.0	3	andrew	ATM200-A20	1 (E) 6 (E)	5/16 7/8	1
		3	andrew	HBX-6516DS-VTM w/ Mount Pipe			
	106.0	1	tower mounts	T-Arm Mount [TA 602-3]			
50.0	50.0	1	symmetricom	58532A	1 (E)	1/2	2
		1	tower mounts	Platform Mount [LP 301-1]			
47.0	48.0	1	lucent	KS24019-L112A	1 (E)	7/8	1
	47.0	1	tower mounts	Side Arm Mount [SO 701-1]			

Notes:
1) Existing Equipment
2) Reserved Equipment
3) Equipment To Be Removed
(E) Coax to be mounted externally and exposed to the wind. See coax layout in Appendix B.
(I) Coax to be mounted internally and shielded from the wind. See coax layout in Appendix B.
(C) Coax to be mounted inside of a rigid conduit and shielded from the wind. See coax layout in Appendix B.

3) ANALYSIS PROCEDURE

Table 3 - Documents Provided

Document	Remarks	Reference	Source
4-GEOTECHNICAL REPORTS	FDH Engineering 07/26/2007	821582	CCISITES
4-TOWER FOUNDATION DRAWINGS/DESIGN/SPECS	SAC Engineering, Inc. 11/16/1991	821581	CCISITES
4-TOWER MANUFACTURER DRAWINGS	Valmont 11/09/1991	822743	CCISITES
4-TOWER REINFORCEMENT DESIGN/DRAWINGS/DATA	PJF, 37512-1571 BP, 07/24/2012	3277409	CCISITES

3.1) Analysis Method

tnxTower (version 6.0.3.0), 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 and the referenced drawings.
4) Monopole was reinforced in conformance with the referenced modification drawings.

This analysis may be affected if any assumptions are not valid or have been made in error. Paul J. Ford and Company should be notified to determine the effect on the structural integrity of the tower.

4) ANALYSIS RESULTS

Table 4 - Section Capacity (Summary)

Section No.	Elevation (ft)	Component Type	Size	Critical Element	P (K)	SF*P_allow (K)	% Capacity	Pass / Fail
L1	160 - 150.5	Pole	TP20x20x0.25	1	-2.49	434.22	25.3	Pass
L2	150.5 - 150	Pole	TP20.3x20x0.25	2	-2.52	440.81	26.0	Pass
L3	150 - 120	Pole	TP26.4495x20.3x0.25	3	-8.78	1096.44	86.0	Pass
L4	120 - 111.75	Pole	TP28.1407x26.4495x0.3593	4	-10.88	1614.78	76.0	Pass
L5	111.75 - 97.1667	Pole	TP31.13x28.1407x0.3876	5	-13.32	1854.26	84.0	Pass
L6	97.1667 - 75	Pole	TP35.1757x29.364x0.4931	6	-19.96	2762.15	88.1	Pass
L7	75 - 49.0833	Pole	TP40.49x35.1757x0.4792	7	-25.05	3011.45	98.9	Pass
L8	49.0833 - 37.75	Pole	TP42.0625x38.3183x0.5349	8	-32.91	3603.58	97.2	Pass
L9	37.75 - 0	Pole	TP49.8x42.0625x0.5589	9	-45.92	4606.70	95.6	Pass
							Summary	
						Pole (L7)	98.9	Pass
						Rating =	98.9	Pass

Table 5 - Tower Component Stresses vs. Capacity – LC7

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
1	Extension Connection	150	17.4	Pass
1,2	Anchor Rods	0	96.8	Pass
1	Base Plate	0	65.9	Pass
1	Base Foundation Structural Steel	0	69.6	Pass
1,3	Base Foundation Soil Interaction	0	87.6	Pass

Structure Rating (max from all components) =	98.9%

Notes:
1) See additional documentation in "Appendix C – Additional Calculations" for calculations supporting the % capacity consumed.
2) Worst case scenario between post-installed anchors and existing anchors.
3) According to the procedures prescribed and agreed to by the Crown Castle Engineering Foundation Committee, held in January 2010, the existing caisson foundation was analyzed using the methodology in the software 'PLS-Caisson' (Version 8.10, or newer, by Power Line Systems, Inc.). Per the methods in PLS-Caisson, the soil reactions of cohesive soils are calculated using 8CD independent of the depth of the soil layer. The depth of soil to be ignored at the top of the caisson is the greater of the geotechnical report's recommendation, the frost depth of the site or half of the caisson diameter.

4.1) Recommendations

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

APPENDIX A

TNXTOWER OUTPUT

Tower Input Data

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

Tower is located in Hartford County, Connecticut.
Basic wind speed of 80.00 mph.
Nominal ice thickness of 1.0000 in.
Ice thickness is considered to increase with height.
Ice density of 56.00 pcf.
A wind speed of 37.60 mph is used in combination with ice.
Temperature drop of 50.00 °F.
Deflections calculated using a wind speed of 50.00 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	160.0000-150.5000	9.5000	0.00	Round	20.0000	20.0000	0.2500		A53-B-35 (35 ksi)
L2	150.5000-150.0000	0.5000	0.00	Round	20.0000	20.3000	0.2500		A53-B-35 (35 ksi)
L3	150.0000-120.0000	30.0000	0.00	12	20.3000	26.4495	0.2500	1.0000	A572-65 (65 ksi)
L4	120.0000-111.7500	8.2500	0.00	12	26.4495	28.1407	0.3593	1.4373	Reinf 62.81 ksi (63 ksi)
L5	111.7500-97.1667	14.5833	4.83	12	28.1407	31.1300	0.3876	1.5506	Reinf 62.43 ksi (62 ksi)
L6	97.1667-75.0000	27.0000	0.00	12	29.3640	35.1757	0.4931	1.9725	Reinf 62.71 ksi (63 ksi)
L7	75.0000-49.0833	25.9167	5.92	12	35.1757	40.4900	0.4792	1.9170	Reinf 62.89 ksi (63 ksi)
L8	49.0833-	17.2500	0.00	12	38.3183	42.0625	0.5349	2.1397	Reinf 62.99 ksi

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
L9	37.7500 37.7500- 0.0000	37.7500		12	42.0625	49.8000	0.5589	2.2355	(63 ksi) Reinf 65.00 ksi (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/ft
L1	20.0000	15.5116	756.8919	6.9915	10.0000	75.6892	1511.7218	7.7512	0.0000	0
	20.0000	15.5116	756.8919	6.9915	10.0000	75.6892	1511.7218	7.7512	0.0000	0
L2	20.0000	15.5116	756.8919	6.9915	10.0000	75.6892	1511.7218	7.7512	0.0000	0
	20.3000	15.7472	791.9097	7.0977	10.1500	78.0207	1581.6621	7.8689	0.0000	0
L3	21.0161	16.1403	828.1804	7.1779	10.5154	78.7588	1678.1181	7.9437	4.7704	19.082
	27.3826	21.0906	1847.8314	9.3794	13.7009	134.8698	3744.2073	10.3802	6.4185	25.674
L4	27.3826	30.1875	2622.8142	9.3403	13.7009	191.4343	5314.5326	14.8574	6.1255	17.047
	29.1333	32.1442	3166.6053	9.9457	14.5769	217.2351	6416.4008	15.8204	6.5787	18.308
L5	29.1333	34.6413	3405.6553	9.9356	14.5769	233.6344	6900.7809	17.0494	6.5028	16.775
	32.2281	38.3726	4628.9450	11.0058	16.1253	287.0603	9379.4975	18.8858	7.3040	18.842
L6	31.4769	45.8434	4877.3178	10.3358	15.2105	320.6540	9882.7682	22.5627	6.5480	13.278
	36.4165	55.0717	8455.4346	12.4163	18.2210	464.0490	17133.0028	27.1046	8.1055	16.437
L7	36.4165	53.5419	8227.1470	12.4213	18.2210	451.5201	16670.4303	26.3517	8.1427	16.991
	41.9183	61.7427	12616.1047	14.3239	20.9738	601.5168	25563.6485	30.3879	9.5670	19.963
L8	40.9996	65.0797	11858.5718	13.5264	19.8489	597.4432	24028.6814	32.0302	8.8357	16.518
	43.5463	71.5288	15744.9112	14.8669	21.7884	722.6292	31903.4587	35.2043	9.8392	18.394
L9	43.5463	74.6883	16421.4141	14.8583	21.7884	753.6780	33274.2371	36.7593	9.7750	17.491
	51.5568	88.6124	27424.3695	17.6283	25.7964	1063.1084	55569.2077	43.6123	11.8486	21.201

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 160.0000-150.5000				1	1	1		
L2 150.5000-150.0000				1	1	1		
L3 150.0000-120.0000				1	1	1		
L4 120.0000-111.7500				1	1	1		
L5 111.7500-97.1667				1	1	1		
L6 97.1667-75.0000				1	1	1		
L7 75.0000-49.0833				1	1	1		
L8 49.0833-37.7500				1	1	1		
L9 37.7500-0.0000				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
2" Rigid Conduit (1-1/2" Thick-wall Condiut)	C	No	CaAa (Out Of Face)	158.0000 - 0.0000	1	No Ice	0.0000	2.60
						1/2" Ice	0.0000	4.07
						1" Ice	0.0000	6.14
						2" Ice	0.0000	12.13
						4" Ice	0.0000	31.43
FB-L98B-002-75000(3/8")	C	No	CaAa (Out Of Face)	158.0000 - 0.0000	1	No Ice	0.0000	0.06
						1/2" Ice	0.0000	0.60
						1" Ice	0.0000	1.76
						2" Ice	0.0000	5.91
						4" Ice	0.0000	21.53
WR-VG86ST-BRD(3/4)	C	No	CaAa (Out Of Face)	158.0000 - 0.0000	2	No Ice	0.0000	0.59
						1/2" Ice	0.0000	1.37
						1" Ice	0.0000	2.76
						2" Ice	0.0000	7.37
						4" Ice	0.0000	23.92
LDF7-50A(1-5/8")	C	No	CaAa (Out Of Face)	158.0000 - 0.0000	3	No Ice	0.1980	0.82
						1/2" Ice	0.2980	2.33
						1" Ice	0.3980	4.46
						2" Ice	0.5980	10.54
						4" Ice	0.9980	30.04
LDF7-50A(1-5/8")	C	No	CaAa (Out Of Face)	158.0000 - 0.0000	9	No Ice	0.0000	0.82
						1/2" Ice	0.0000	2.33
						1" Ice	0.0000	4.46
						2" Ice	0.0000	10.54
						4" Ice	0.0000	30.04
**								
LDF5-50A(7/8")	C	No	Inside Pole	149.0000 - 0.0000	12	No Ice	0.0000	0.33
						1/2" Ice	0.0000	0.33
						1" Ice	0.0000	0.33
						2" Ice	0.0000	0.33
						4" Ice	0.0000	0.33
**								
FSJ4-50B(1/2")	C	No	CaAa (Out Of Face)	135.0000 - 0.0000	3	No Ice	0.0000	0.14
						1/2" Ice	0.0000	0.76
						1" Ice	0.0000	2.00
						2" Ice	0.0000	6.30
						4" Ice	0.0000	22.23
LDF1-50A(1/4")	C	No	Inside Pole	135.0000 - 0.0000	6	No Ice	0.0000	0.06
						1/2" Ice	0.0000	0.06
						1" Ice	0.0000	0.06
						2" Ice	0.0000	0.06
						4" Ice	0.0000	0.06
2" Conduit	C	No	CaAa (Out Of Face)	135.0000 - 0.0000	1	No Ice	0.2000	0.95
						1/2" Ice	0.3000	2.48
						1" Ice	0.4000	4.62
						2" Ice	0.6000	10.72
						4" Ice	1.0000	30.27
HB114-1-08U4-M5J(1 1/4")	C	No	CaAa (Out Of Face)	135.0000 - 0.0000	3	No Ice	0.0000	1.08
						1/2" Ice	0.0000	2.33
						1" Ice	0.0000	4.18
						2" Ice	0.0000	9.73
						4" Ice	0.0000	28.15
**								
LDF5-50A(7/8")	C	No	CaAa (Out Of Face)	126.0000 - 0.0000	9	No Ice	0.0000	0.33
						1/2" Ice	0.0000	1.30
						1" Ice	0.0000	2.88
						2" Ice	0.0000	7.88
						4" Ice	0.0000	25.20
**								
LDF7-50A(1-5/8")	C	No	CaAa (Out Of Face)	116.0000 - 0.0000	6	No Ice	0.0000	0.82
						1/2" Ice	0.0000	2.33
						1" Ice	0.0000	4.46
						2" Ice	0.0000	10.54
						4" Ice	0.0000	30.04
LDF6-50A(1-1/4")	C	No	CaAa (Out Of Face)	116.0000 - 0.0000	6	No Ice	0.0000	0.66
						1/2" Ice	0.0000	1.91
						1" Ice	0.0000	3.78
						2" Ice	0.0000	9.33
						4" Ice	0.0000	27.78

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Total Number		C_AA_A ft^2/ft	Weight plf
MLE Hybrid 9Power/18Fiber RL 2(1 5/8)	C	No	CaAa (Out Of Face)	116.0000 - 0.0000	1	No Ice	0.0000	1.07
						1/2" Ice	0.0000	2.37
						1" Ice	0.0000	4.28
						2" Ice	0.0000	9.93
						4" Ice	0.0000	28.56
**								
FXL 780 PE(7/8)	C	No	CaAa (Out Of Face)	106.0000 - 0.0000	6	No Ice	0.0000	0.25
						1/2" Ice	0.0000	1.22
						1" Ice	0.0000	2.80
						2" Ice	0.0000	7.80
						4" Ice	0.0000	25.12
ATCB-B01(5/16)	C	No	CaAa (Out Of Face)	106.0000 - 0.0000	1	No Ice	0.0000	0.07
						1/2" Ice	0.0000	0.57
						1" Ice	0.0000	1.68
						2" Ice	0.0000	5.73
						4" Ice	0.0000	21.16
**								
FLC 12-50J(1/2")	C	No	CaAa (Out Of Face)	50.0000 - 0.0000	1	No Ice	0.0000	0.17
						1/2" Ice	0.0000	0.87
						1" Ice	0.0000	2.17
						2" Ice	0.0000	6.62
						4" Ice	0.0000	22.85
**								
LDF4-50A(1/2")	C	No	CaAa (Out Of Face)	47.0000 - 0.0000	1	No Ice	0.0000	0.15
						1/2" Ice	0.0000	0.84
						1" Ice	0.0000	2.14
						2" Ice	0.0000	6.58
						4" Ice	0.0000	22.78
**********								
1" Flat Reinforcement	C	No	CaAa (Out Of Face)	113.5000 - 0.0000	1	No Ice	0.1667	0.00
						1/2" Ice	0.2778	0.00
						1" Ice	0.3889	0.00
						2" Ice	0.6111	0.00
						4" Ice	1.0556	0.00
3/4" Flat Reinforcement	C	No	CaAa (Out Of Face)	121.2500 - 113.5000	1	No Ice	0.1250	0.00
						1/2" Ice	0.2361	0.00
						1" Ice	0.3472	0.00
						2" Ice	0.5694	0.00
						4" Ice	1.0139	0.00

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	160.0000-150.5000	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	4.455	0.10
L2	150.5000-150.0000	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.297	0.01
L3	150.0000-120.0000	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	20.976	0.62
L4	120.0000-111.7500	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	7.655	0.25
L5	111.7500-97.1667	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	14.010	0.53
L6	97.1667-75.0000	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	21.295	0.82
L7	75.0000-49.0833	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	24.897	0.96

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
L8	49.0833-37.7500	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	10.888	0.42
L9	37.7500-0.0000	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	36.265	1.41

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	160.0000-150.5000	A	1.204	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	9.874	0.64
L2	150.5000-150.0000	A	1.199	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.657	0.04
L3	150.0000-120.0000	A	1.183	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	46.158	3.29
L4	120.0000-111.7500	A	1.163	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	17.459	1.51
L5	111.7500-97.1667	A	1.148	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	31.125	3.28
L6	97.1667-75.0000	A	1.122	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	47.311	5.20
L7	75.0000-49.0833	A	1.078	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	53.458	5.56
L8	49.0833-37.7500	A	1.033	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	23.377	2.48
L9	37.7500-0.0000	A	1.000	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	74.854	7.43

Feed Line Center of Pressure

Section	Elevation ft	CP_X in	CP_Z in	CP_X Ice in	CP_Z Ice in
L1	160.0000-150.5000	-0.4754	0.2745	-0.7742	0.4470
L2	150.5000-150.0000	-0.5700	0.3291	-0.8975	0.5182
L3	150.0000-120.0000	-0.6753	0.3899	-1.0681	0.6167
L4	120.0000-111.7500	-0.8563	0.4944	-1.3641	0.7876
L5	111.7500-97.1667	-0.8985	0.5187	-1.4279	0.8244
L6	97.1667-75.0000	-0.9233	0.5331	-1.4978	0.8647
L7	75.0000-49.0833	-0.9565	0.5522	-1.5658	0.9040
L8	49.0833-37.7500	-0.9732	0.5619	-1.6151	0.9325
L9	37.7500-0.0000	-0.9976	0.5759	-1.6495	0.9523

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
SBNH-1D6565C w/ Mount Pipe	A	From Face	4.0000 0.00 0.00	0.0000	158.0000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	11.5561 12.2227 12.8929 14.2911 17.4280	9.7151 11.1857 12.5942 14.8689 19.6184	0.10 0.18 0.28 0.51 1.15
SBNH-1D6565C w/ Mount Pipe	B	From Face	4.0000 0.00 0.00	0.0000	158.0000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	11.5561 12.2227 12.8929 14.2911 17.4280	9.7151 11.1857 12.5942 14.8689 19.6184	0.10 0.18 0.28 0.51 1.15
SBNH-1D6565C w/ Mount Pipe	C	From Face	4.0000 0.00 0.00	0.0000	158.0000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	11.5561 12.2227 12.8929 14.2911 17.4280	9.7151 11.1857 12.5942 14.8689 19.6184	0.10 0.18 0.28 0.51 1.15
(2) RRUS-11	A	From Face	4.0000 0.00 0.00	0.0000	158.0000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	3.2486 3.4905 3.7411 4.2682 5.4260	1.3726 1.5510 1.7380 2.1381 3.0418	0.05 0.07 0.09 0.15 0.31
(2) RRUS-11	B	From Face	4.0000 0.00 0.00	0.0000	158.0000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	3.2486 3.4905 3.7411 4.2682 5.4260	1.3726 1.5510 1.7380 2.1381 3.0418	0.05 0.07 0.09 0.15 0.31
(2) RRUS-11	C	From Face	4.0000 0.00 0.00	0.0000	158.0000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	3.2486 3.4905 3.7411 4.2682 5.4260	1.3726 1.5510 1.7380 2.1381 3.0418	0.05 0.07 0.09 0.15 0.31
DC6-48-60-18-8F	A	From Face	4.0000 0.00 0.00	0.0000	158.0000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	1.4667 1.6667 1.8778 2.3333 3.3778	1.4667 1.6667 1.8778 2.3333 3.3778	0.02 0.04 0.06 0.11 0.24
(2) 7770.00 w/ Mount Pipe	A	From Face	4.0000 0.00 3.00	0.0000	158.0000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	6.1194 6.6258 7.1283 8.1643 10.3599	4.2543 5.0137 5.7109 7.1553 10.4117	0.06 0.10 0.16 0.29 0.66
(2) 7770.00 w/ Mount Pipe	B	From Face	4.0000 0.00 3.00	0.0000	158.0000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	6.1194 6.6258 7.1283 8.1643 10.3599	4.2543 5.0137 5.7109 7.1553 10.4117	0.06 0.10 0.16 0.29 0.66
(2) 7770.00 w/ Mount Pipe	C	From Face	4.0000 0.00 3.00	0.0000	158.0000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	6.1194 6.6258 7.1283 8.1643 10.3599	4.2543 5.0137 5.7109 7.1553 10.4117	0.06 0.10 0.16 0.29 0.66
(2) LGP13519	A	From Face	4.0000 0.00	0.0000	158.0000	No Ice 1/2"	0.3379 0.4220	0.2074 0.2804	0.01 0.01

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
			3.00			Ice	0.5147	0.3621	0.01
						1" Ice	0.7260	0.5513	0.02
						2" Ice	1.2523	1.0335	0.07
						4" Ice			
(2) LGP13519	B	From Face	4.0000 0.00 3.00	0.0000	158.0000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	0.3379 0.4220 0.5147 0.7260 1.2523	0.2074 0.2804 0.3621 0.5513 1.0335	0.01 0.01 0.01 0.02 0.07
(2) LGP13519	C	From Face	4.0000 0.00 3.00	0.0000	158.0000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	0.3379 0.4220 0.5147 0.7260 1.2523	0.2074 0.2804 0.3621 0.5513 1.0335	0.01 0.01 0.01 0.02 0.07
(2) LGP21401	A	From Face	4.0000 0.00 3.00	0.0000	158.0000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	1.2880 1.4453 1.6112 1.9690 2.7882	0.2326 0.3134 0.4028 0.6076 1.1210	0.01 0.02 0.03 0.05 0.14
(2) LGP21401	B	From Face	4.0000 0.00 3.00	0.0000	158.0000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	1.2880 1.4453 1.6112 1.9690 2.7882	0.2326 0.3134 0.4028 0.6076 1.1210	0.01 0.02 0.03 0.05 0.14
(2) LGP21401	C	From Face	4.0000 0.00 3.00	0.0000	158.0000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	1.2880 1.4453 1.6112 1.9690 2.7882	0.2326 0.3134 0.4028 0.6076 1.1210	0.01 0.02 0.03 0.05 0.14
Platform Mount [LP 301-1]	C	None		0.0000	158.0000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	30.1000 40.8000 51.5000 72.9000 115.7000	30.1000 40.8000 51.5000 72.9000 115.7000	1.59 2.03 2.47 3.35 5.11
***									
(2) LPA-80063/4CF w/ Mount Pipe	A	From Face	4.0000 0.00 0.00	0.0000	149.0000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	7.2481 7.7190 8.2003 9.1945 11.3199	7.2599 7.9574 8.6723 10.1556 13.3910	0.04 0.10 0.18 0.34 0.80
(2) LPA-80080/4CF w/ Mount Pipe	B	From Face	4.0000 0.00 0.00	0.0000	149.0000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	2.8561 3.2195 3.5922 4.4498 6.3182	7.2274 7.9217 8.6338 10.1119 13.3391	0.03 0.07 0.13 0.25 0.61
(2) LPA-80080/4CF w/ Mount Pipe	C	From Face	4.0000 0.00 0.00	0.0000	149.0000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	2.8561 3.2195 3.5922 4.4498 6.3182	7.2274 7.9217 8.6338 10.1119 13.3391	0.03 0.07 0.13 0.25 0.61
BXA-70063/6CFx6 w/ Mount Pipe	A	From Face	4.0000 0.00 0.00	0.0000	149.0000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	7.9686 8.6091 9.2158 10.4591 13.0655	5.3981 6.5465 7.4089 9.1837 12.9333	0.04 0.10 0.17 0.33 0.79

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
BXA-70063/6CFx4 w/ Mount Pipe	B	From Face	4.0000 0.00 0.00	0.0000	149.0000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	7.9686 8.6091 9.2158 10.4591 13.0655	5.3981 6.5465 7.4089 9.1837 12.9333	0.04 0.10 0.17 0.33 0.79
BXA-70063/6CFx4 w/ Mount Pipe	C	From Face	4.0000 0.00 0.00	0.0000	149.0000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	7.9686 8.6091 9.2158 10.4591 13.0655	5.3981 6.5465 7.4089 9.1837 12.9333	0.04 0.10 0.17 0.33 0.79
BXA-185063/8CF w/ Mount Pipe	A	From Face	4.0000 0.00 0.00	0.0000	149.0000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	3.1811 3.5589 3.9627 4.8550 6.7735	2.9966 3.6145 4.2361 5.5293 8.4233	0.03 0.06 0.09 0.19 0.47
BXA-185090/8CFx2 w/ Mount Pipe	B	From Face	4.0000 0.00 0.00	0.0000	149.0000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	3.1574 3.5312 3.9415 4.8273 6.7342	3.3303 3.9423 4.5633 5.8553 8.8407	0.03 0.06 0.10 0.19 0.49
BXA-185090/8CFx2 w/ Mount Pipe	C	From Face	4.0000 0.00 0.00	0.0000	149.0000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	3.1574 3.5312 3.9415 4.8273 6.7342	3.3303 3.9423 4.5633 5.8553 8.8407	0.03 0.06 0.10 0.19 0.49
(2) FD9R6004/2C-3L	A	From Face	4.0000 0.00 0.00	0.0000	149.0000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	0.3665 0.4506 0.5433 0.7546 1.2808	0.0846 0.1362 0.1965 0.3430 0.7396	0.00 0.01 0.01 0.02 0.06
(2) FD9R6004/2C-3L	B	From Face	4.0000 0.00 0.00	0.0000	149.0000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	0.3665 0.4506 0.5433 0.7546 1.2808	0.0846 0.1362 0.1965 0.3430 0.7396	0.00 0.01 0.01 0.02 0.06
(2) FD9R6004/2C-3L	C	From Face	4.0000 0.00 0.00	0.0000	149.0000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	0.3665 0.4506 0.5433 0.7546 1.2808	0.0846 0.1362 0.1965 0.3430 0.7396	0.00 0.01 0.01 0.02 0.06
Platform Mount [LP 602-1]	C	None		0.0000	149.0000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	32.0300 38.7100 45.3900 58.7500 85.4700	32.0300 38.7100 45.3900 58.7500 85.4700	1.34 1.80 2.26 3.17 5.00
***									
LLPX310R-V1 w/ Mount Pipe	A	From Face	4.0000 0.00 0.00	0.0000	135.0000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	5.0651 5.4798 5.9052 6.7881 8.7045	2.9834 3.5263 4.0859 5.3127 8.1308	0.05 0.08 0.13 0.23 0.54
LLPX310R-V1 w/ Mount Pipe	B	From Face	4.0000 0.00 0.00	0.0000	135.0000	No Ice 1/2" Ice 1" Ice	5.0651 5.4798 5.9052 6.7881	2.9834 3.5263 4.0859 5.3127	0.05 0.08 0.13 0.23

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
						2" Ice	8.7045	8.1308	0.54
						4" Ice			
LLPX310R-V1 w/ Mount Pipe	C	From Face	4.0000 0.00 0.00	0.0000	135.0000	No Ice	5.0651	2.9834	0.05
						1/2" Ice	5.4798	3.5263	0.08
						1" Ice	5.9052	4.0859	0.13
						2" Ice	6.7881	5.3127	0.23
						4" Ice	8.7045	8.1308	0.54
WIMAX DAP HEAD	A	From Face	4.0000 0.00 0.00	0.0000	135.0000	No Ice	1.8044	0.7778	0.03
						1/2" Ice	1.9877	0.9182	0.04
						1" Ice	2.1795	1.0673	0.06
						2" Ice	2.5891	1.3914	0.09
						4" Ice	3.5121	2.1432	0.20
WIMAX DAP HEAD	B	From Face	4.0000 0.00 0.00	0.0000	135.0000	No Ice	1.8044	0.7778	0.03
						1/2" Ice	1.9877	0.9182	0.04
						1" Ice	2.1795	1.0673	0.06
						2" Ice	2.5891	1.3914	0.09
						4" Ice	3.5121	2.1432	0.20
WIMAX DAP HEAD	C	From Face	4.0000 0.00 0.00	0.0000	135.0000	No Ice	1.8044	0.7778	0.03
						1/2" Ice	1.9877	0.9182	0.04
						1" Ice	2.1795	1.0673	0.06
						2" Ice	2.5891	1.3914	0.09
						4" Ice	3.5121	2.1432	0.20
HORIZON COMPACT	A	From Face	4.0000 0.00 4.00	0.0000	135.0000	No Ice	0.8409	0.4295	0.01
						1/2" Ice	0.9658	0.5249	0.02
						1" Ice	1.0993	0.6289	0.03
						2" Ice	1.3922	0.8629	0.05
						4" Ice	2.0819	1.4345	0.12
HORIZON COMPACT	C	From Face	4.0000 0.00 4.00	0.0000	135.0000	No Ice	0.8409	0.4295	0.01
						1/2" Ice	0.9658	0.5249	0.02
						1" Ice	1.0993	0.6289	0.03
						2" Ice	1.3922	0.8629	0.05
						4" Ice	2.0819	1.4345	0.12
TIMING 2000	A	From Face	4.0000 0.00 0.00	0.0000	135.0000	No Ice	0.1258	0.1258	0.00
						1/2" Ice	0.1771	0.1771	0.00
						1" Ice	0.2370	0.2370	0.01
						2" Ice	0.3827	0.3827	0.01
						4" Ice	0.7778	0.7778	0.05
APXVSPP18-C-A20 w/ Mount Pipe	A	From Face	4.0000 0.00 0.00	0.0000	135.0000	No Ice	8.4975	6.9458	0.08
						1/2" Ice	9.1490	8.1266	0.15
						1" Ice	9.7672	9.0212	0.22
						2" Ice	11.0311	10.8440	0.41
						4" Ice	13.6786	14.8507	0.91
APXV9ERR18-C-A20 w/ Mount Pipe	B	From Face	4.0000 0.00 0.00	0.0000	135.0000	No Ice	8.4975	7.4708	0.09
						1/2" Ice	9.1490	8.6564	0.16
						1" Ice	9.7672	9.5559	0.23
						2" Ice	11.0311	11.3884	0.42
						4" Ice	13.6786	15.5274	0.94
APXVSPP18-C-A20 w/ Mount Pipe	C	From Face	4.0000 0.00 0.00	0.0000	135.0000	No Ice	8.4975	6.9458	0.08
						1/2" Ice	9.1490	8.1266	0.15
						1" Ice	9.7672	9.0212	0.22
						2" Ice	11.0311	10.8440	0.41
						4" Ice	13.6786	14.8507	0.91
Platform Mount [LP 602-1]	C	None		0.0000	135.0000	No Ice	32.0300	32.0300	1.34
						1/2" Ice	38.7100	38.7100	1.80
						1" Ice	45.3900	45.3900	2.26

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
						1" Ice	58.7500	58.7500	3.17
						2" Ice	85.4700	85.4700	5.00
						4" Ice			
***									
800MHz 2X50W RRH W/FILTER	A	From Face	2.0000 0.00 0.00	0.0000	132.0000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	2.4014 2.6131 2.8335 3.3002 4.3372	2.2536 2.4602 2.6753 3.1316 4.1479	0.06 0.09 0.11 0.17 0.34
800MHz 2X50W RRH W/FILTER	B	From Face	2.0000 0.00 0.00	0.0000	132.0000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	2.4014 2.6131 2.8335 3.3002 4.3372	2.2536 2.4602 2.6753 3.1316 4.1479	0.06 0.09 0.11 0.17 0.34
800MHz 2X50W RRH W/FILTER	C	From Face	2.0000 0.00 0.00	0.0000	132.0000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	2.4014 2.6131 2.8335 3.3002 4.3372	2.2536 2.4602 2.6753 3.1316 4.1479	0.06 0.09 0.11 0.17 0.34
PCS 1900MHz 4x45W-65MHz	A	From Face	2.0000 0.00 0.00	0.0000	132.0000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	2.7087 2.9477 3.1953 3.7164 4.8623	2.6111 2.8475 3.0925 3.6084 4.7439	0.06 0.08 0.11 0.17 0.35
PCS 1900MHz 4x45W-65MHz	B	From Face	2.0000 0.00 0.00	0.0000	132.0000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	2.7087 2.9477 3.1953 3.7164 4.8623	2.6111 2.8475 3.0925 3.6084 4.7439	0.06 0.08 0.11 0.17 0.35
PCS 1900MHz 4x45W-65MHz	C	From Face	2.0000 0.00 0.00	0.0000	132.0000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	2.7087 2.9477 3.1953 3.7164 4.8623	2.6111 2.8475 3.0925 3.6084 4.7439	0.06 0.08 0.11 0.17 0.35
Side Arm Mount [SO 102-3]	C	None		0.0000	132.0000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	3.0000 3.4800 3.9600 4.9200 6.8400	3.0000 3.4800 3.9600 4.9200 6.8400	0.08 0.11 0.14 0.20 0.32
***									
(3) DB844H90E-XY w/ Mount Pipe	A	From Face	4.0000 0.00 1.00	0.0000	126.0000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	3.2986 3.6900 4.1185 5.0070 6.9197	4.9208 5.5962 6.2837 7.7123 10.8330	0.03 0.07 0.12 0.23 0.56
(3) DB844H90E-XY w/ Mount Pipe	B	From Face	4.0000 0.00 1.00	0.0000	126.0000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	3.2986 3.6900 4.1185 5.0070 6.9197	4.9208 5.5962 6.2837 7.7123 10.8330	0.03 0.07 0.12 0.23 0.56
(3) DB844H90E-XY w/ Mount Pipe	C	From Face	4.0000 0.00 1.00	0.0000	126.0000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	3.2986 3.6900 4.1185 5.0070 6.9197	4.9208 5.5962 6.2837 7.7123 10.8330	0.03 0.07 0.12 0.23 0.56

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
T-Arm Mount [TA 901-3]	C	None		0.0000	126.0000	No Ice	17.5000	17.5000	0.75
						1/2" Ice	20.7000	20.7000	1.00
						1" Ice	23.9000	23.9000	1.26
						2" Ice	30.3000	30.3000	1.76
						4" Ice	43.1000	43.1000	2.76
***									
ERICSSON AIR 21 B2A B4P w/ Mount Pipe	A	From Face	4.0000 0.00 1.00	0.0000	116.0000	No Ice	6.8253	5.6424	0.11
						1/2" Ice	7.3471	6.4800	0.17
						1" Ice	7.8631	7.2567	0.23
						2" Ice	8.9261	8.8640	0.38
						4" Ice	11.1755	12.2932	0.81
ERICSSON AIR 21 B2A B4P w/ Mount Pipe	B	From Face	4.0000 0.00 1.00	0.0000	116.0000	No Ice	6.8253	5.6424	0.11
						1/2" Ice	7.3471	6.4800	0.17
						1" Ice	7.8631	7.2567	0.23
						2" Ice	8.9261	8.8640	0.38
						4" Ice	11.1755	12.2932	0.81
ERICSSON AIR 21 B2A B4P w/ Mount Pipe	C	From Face	4.0000 0.00 1.00	0.0000	116.0000	No Ice	6.8253	5.6424	0.11
						1/2" Ice	7.3471	6.4800	0.17
						1" Ice	7.8631	7.2567	0.23
						2" Ice	8.9261	8.8640	0.38
						4" Ice	11.1755	12.2932	0.81
ERICSSON AIR 21 B4A B2P w/ Mount Pipe	A	From Face	4.0000 0.00 1.00	0.0000	116.0000	No Ice	6.8253	5.6424	0.11
						1/2" Ice	7.3471	6.4800	0.17
						1" Ice	7.8631	7.2567	0.23
						2" Ice	8.9261	8.8640	0.38
						4" Ice	11.1755	12.2932	0.81
ERICSSON AIR 21 B4A B2P w/ Mount Pipe	B	From Face	4.0000 0.00 1.00	0.0000	116.0000	No Ice	6.8253	5.6424	0.11
						1/2" Ice	7.3471	6.4800	0.17
						1" Ice	7.8631	7.2567	0.23
						2" Ice	8.9261	8.8640	0.38
						4" Ice	11.1755	12.2932	0.81
ERICSSON AIR 21 B4A B2P w/ Mount Pipe	C	From Face	4.0000 0.00 1.00	0.0000	116.0000	No Ice	6.8253	5.6424	0.11
						1/2" Ice	7.3471	6.4800	0.17
						1" Ice	7.8631	7.2567	0.23
						2" Ice	8.9261	8.8640	0.38
						4" Ice	11.1755	12.2932	0.81
KRY 112 144/1	A	From Face	4.0000 0.00 1.00	0.0000	116.0000	No Ice	0.4083	0.2042	0.01
						1/2" Ice	0.4969	0.2733	0.01
						1" Ice	0.5941	0.3511	0.02
						2" Ice	0.8145	0.5326	0.03
						4" Ice	1.3590	0.9992	0.08
KRY 112 144/1	B	From Face	4.0000 0.00 1.00	0.0000	116.0000	No Ice	0.4083	0.2042	0.01
						1/2" Ice	0.4969	0.2733	0.01
						1" Ice	0.5941	0.3511	0.02
						2" Ice	0.8145	0.5326	0.03
						4" Ice	1.3590	0.9992	0.08
KRY 112 144/1	C	From Face	4.0000 0.00 1.00	0.0000	116.0000	No Ice	0.4083	0.2042	0.01
						1/2" Ice	0.4969	0.2733	0.01
						1" Ice	0.5941	0.3511	0.02
						2" Ice	0.8145	0.5326	0.03
						4" Ice	1.3590	0.9992	0.08
Side Arm Mount [SO 103-3]	C	None		0.0000	116.0000	No Ice	9.5000	9.5000	0.22
						1/2" Ice	11.8000	11.8000	0.32
						1" Ice	14.1000	14.1000	0.41
						2" Ice	18.7000	18.7000	0.60

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
							2" Ice	27.9000	27.9000	0.97
							4" Ice			
Side Arm Mount [SO 701-3]	C	None			0.0000	116.0000	No Ice	2.8300	2.8300	0.20
							1/2" Ice	3.9200	3.9200	0.24
								5.0100	5.0100	0.28
							1" Ice	7.1900	7.1900	0.36
							2" Ice	11.5500	11.5500	0.53
							4" Ice			
***										
HBX-6516DS-VTM w/ Mount Pipe	A	From Face	4.0000		0.0000	106.0000	No Ice	3.5975	3.2406	0.03
			0.00				1/2" Ice	3.9981	3.9135	0.06
			2.00					4.4346	4.5638	0.10
							1" Ice	5.3677	5.9143	0.20
							2" Ice	7.3611	8.8773	0.50
							4" Ice			
HBX-6516DS-VTM w/ Mount Pipe	B	From Face	4.0000		0.0000	106.0000	No Ice	3.5975	3.2406	0.03
			0.00				1/2" Ice	3.9981	3.9135	0.06
			2.00					4.4346	4.5638	0.10
							1" Ice	5.3677	5.9143	0.20
							2" Ice	7.3611	8.8773	0.50
							4" Ice			
HBX-6516DS-VTM w/ Mount Pipe	C	From Face	4.0000		0.0000	106.0000	No Ice	3.5975	3.2406	0.03
			0.00				1/2" Ice	3.9981	3.9135	0.06
			2.00					4.4346	4.5638	0.10
							1" Ice	5.3677	5.9143	0.20
							2" Ice	7.3611	8.8773	0.50
							4" Ice			
ATM200-A20	A	From Face	4.0000		0.0000	106.0000	No Ice	0.2178	0.1633	0.00
			0.00				1/2" Ice	0.2921	0.2331	0.00
			2.00					0.3751	0.3115	0.01
							1" Ice	0.5669	0.4943	0.02
							2" Ice	1.0543	0.9636	0.06
							4" Ice			
ATM200-A20	B	From Face	4.0000		0.0000	106.0000	No Ice	0.2178	0.1633	0.00
			0.00				1/2" Ice	0.2921	0.2331	0.00
			2.00					0.3751	0.3115	0.01
							1" Ice	0.5669	0.4943	0.02
							2" Ice	1.0543	0.9636	0.06
							4" Ice			
ATM200-A20	C	From Face	4.0000		0.0000	106.0000	No Ice	0.2178	0.1633	0.00
			0.00				1/2" Ice	0.2921	0.2331	0.00
			2.00					0.3751	0.3115	0.01
							1" Ice	0.5669	0.4943	0.02
							2" Ice	1.0543	0.9636	0.06
							4" Ice			
T-Arm Mount [TA 602-3]	C	None			0.0000	106.0000	No Ice	11.5900	11.5900	0.77
							1/2" Ice	15.4400	15.4400	0.99
								19.2900	19.2900	1.21
							1" Ice	26.9900	26.9900	1.64
							2" Ice	42.3900	42.3900	2.50
							4" Ice			
***										
58532A	C	From Face	2.0000		0.0000	50.0000	No Ice	0.2209	0.2209	0.00
			0.00				1/2" Ice	0.2897	0.2897	0.00
			0.00					0.3672	0.3672	0.01
							1" Ice	0.5481	0.5481	0.02
							2" Ice	1.0137	1.0137	0.06
							4" Ice			
Platform Mount [LP 301-1]	C	None			0.0000	50.0000	No Ice	30.1000	30.1000	1.59
							1/2" Ice	40.8000	40.8000	2.03
								51.5000	51.5000	2.47
							1" Ice	72.9000	72.9000	3.35
							2" Ice	115.7000	115.7000	5.11
							4" Ice			
***										

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
KS24019-L112A	B	From Face	2.0000 0.00 1.00	0.0000	47.0000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	0.1556 0.2247 0.3025 0.4840 0.9506	0.1556 0.2247 0.3025 0.4840 0.9506	0.01 0.01 0.01 0.02 0.06
Side Arm Mount [SO 701-1]	B	None		0.0000	47.0000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	0.8500 1.1400 1.4300 2.0100 3.1700	1.6700 2.3400 3.0100 4.3500 7.0300	0.07 0.08 0.09 0.12 0.18
**********									

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 ft^2	Weight K
VHLP2.5-11	A	Paraboloid w/Shroud (HP)	From Face	4.0000 0.00 4.00	0.0000		135.0000	2.9167	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	6.6800 7.0700 7.4600 8.2300 9.7800	0.05 0.08 0.12 0.19 0.34
VHLP2.5-11	C	Paraboloid w/Shroud (HP)	From Face	4.0000 0.00 4.00	0.0000		135.0000	2.9167	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	6.6800 7.0700 7.4600 8.2300 9.7800	0.05 0.08 0.12 0.19 0.34

Tower Pressures - No Ice

G_H = 1.690

Section Elevation ft	z ft	K_Z	q_z psf	A_G ft^2	Face	A_F ft^2	A_R ft^2	A_{leg} ft^2	Leg % %	C_AA_A In Face ft^2	C_AA_A Out Face ft^2
L1 160.0000-150.5000	155.2500	1.556	25.50	15.833	A	0.000	15.833	15.833	100.00	0.000	0.000
					B	0.000	15.833		100.00	0.000	0.000
					C	0.000	15.833		100.00	0.000	4.455
L2 150.5000-150.0000	150.2494	1.542	25.26	0.840	A	0.000	0.840	0.840	100.00	0.000	0.000
					B	0.000	0.840		100.00	0.000	0.000
					C	0.000	0.840		100.00	0.000	0.297
L3 150.0000-120.0000	134.3423	1.493	24.47	58.437	A	0.000	58.437	58.437	100.00	0.000	0.000
					B	0.000	58.437		100.00	0.000	0.000
					C	0.000	58.437		100.00	0.000	20.976
L4 120.0000-111.7500	115.8324	1.432	23.45	18.765	A	0.000	18.765	18.765	100.00	0.000	0.000
					B	0.000	18.765		100.00	0.000	0.000
					C	0.000	18.765		100.00	0.000	7.655
L5 111.7500-97.1667	104.3358	1.389	22.76	36.015	A	0.000	36.015	36.015	100.00	0.000	0.000
					B	0.000	36.015		100.00	0.000	0.000
					C	0.000	36.015		100.00	0.000	14.010

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
L6 97.1667-75.0000	85.8146	1.314	21.53	60.570	A	0.000	60.570	60.570	100.00	0.000	0.000
					B	0.000	60.570		100.00	0.000	0.000
					C	0.000	60.570		100.00	0.000	21.295
L7 75.0000-49.0833	61.7383	1.196	19.60	81.709	A	0.000	81.709	81.709	100.00	0.000	0.000
					B	0.000	81.709		100.00	0.000	0.000
					C	0.000	81.709		100.00	0.000	24.897
L8 49.0833-37.7500	43.3598	1.081	17.71	38.564	A	0.000	38.564	38.564	100.00	0.000	0.000
					B	0.000	38.564		100.00	0.000	0.000
					C	0.000	38.564		100.00	0.000	10.888
L9 37.7500-0.0000	18.3451	1	16.38	144.492	A	0.000	144.492	144.492	100.00	0.000	0.000
					B	0.000	144.492		100.00	0.000	0.000
					C	0.000	144.492		100.00	0.000	36.265

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 160.0000-150.5000	155.2500	1.556	5.63	1.2042	17.740	A	0.000	17.740	17.740	100.00	0.000	0.000
						B	0.000	17.740		100.00	0.000	0.000
						C	0.000	17.740		100.00	0.000	9.874
L2 150.5000-150.0000	150.2494	1.542	5.58	1.1995	0.940	A	0.000	0.940	0.940	100.00	0.000	0.000
						B	0.000	0.940		100.00	0.000	0.000
						C	0.000	0.940		100.00	0.000	0.657
L3 150.0000-120.0000	134.3423	1.493	5.41	1.1835	64.354	A	0.000	64.354	64.354	100.00	0.000	0.000
						B	0.000	64.354		100.00	0.000	0.000
						C	0.000	64.354		100.00	0.000	46.158
L4 120.0000-111.7500	115.8324	1.432	5.18	1.1626	20.364	A	0.000	20.364	20.364	100.00	0.000	0.000
						B	0.000	20.364		100.00	0.000	0.000
						C	0.000	20.364		100.00	0.000	17.459
L5 111.7500-97.1667	104.3358	1.389	5.03	1.1481	38.806	A	0.000	38.806	38.806	100.00	0.000	0.000
						B	0.000	38.806		100.00	0.000	0.000
						C	0.000	38.806		100.00	0.000	31.125
L6 97.1667-75.0000	85.8146	1.314	4.76	1.1215	64.812	A	0.000	64.812	64.812	100.00	0.000	0.000
						B	0.000	64.812		100.00	0.000	0.000
						C	0.000	64.812		100.00	0.000	47.311
L7 75.0000-49.0833	61.7383	1.196	4.33	1.0781	86.365	A	0.000	86.365	86.365	100.00	0.000	0.000
						B	0.000	86.365		100.00	0.000	0.000
						C	0.000	86.365		100.00	0.000	53.458
L8 49.0833-37.7500	43.3598	1.081	3.91	1.0333	40.600	A	0.000	40.600	40.600	100.00	0.000	0.000
						B	0.000	40.600		100.00	0.000	0.000
						C	0.000	40.600		100.00	0.000	23.377
L9 37.7500-0.0000	18.3451	1	3.62	1.0000	150.784	A	0.000	150.784	150.784	100.00	0.000	0.000
						B	0.000	150.784		100.00	0.000	0.000
						C	0.000	150.784		100.00	0.000	74.854

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 160.0000-150.5000	155.2500	1.556	9.96	15.833	A	0.000	15.833	15.833	100.00	0.000	0.000
					B	0.000	15.833		100.00	0.000	0.000
					C	0.000	15.833		100.00	0.000	4.455

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
L2 150.5000-150.0000	150.2494	1.542	9.87	0.840	A	0.000	0.840	0.840	100.00	0.000	0.000
					B	0.000	0.840		100.00	0.000	0.000
					C	0.000	0.840		100.00	0.000	0.297
L3 150.0000-120.0000	134.3423	1.493	9.56	58.437	A	0.000	58.437	58.437	100.00	0.000	0.000
					B	0.000	58.437		100.00	0.000	0.000
					C	0.000	58.437		100.00	0.000	20.976
L4 120.0000-111.7500	115.8324	1.432	9.16	18.765	A	0.000	18.765	18.765	100.00	0.000	0.000
					B	0.000	18.765		100.00	0.000	0.000
					C	0.000	18.765		100.00	0.000	7.655
L5 111.7500-97.1667	104.3358	1.389	8.89	36.015	A	0.000	36.015	36.015	100.00	0.000	0.000
					B	0.000	36.015		100.00	0.000	0.000
					C	0.000	36.015		100.00	0.000	14.010
L6 97.1667-75.0000	85.8146	1.314	8.41	60.570	A	0.000	60.570	60.570	100.00	0.000	0.000
					B	0.000	60.570		100.00	0.000	0.000
					C	0.000	60.570		100.00	0.000	21.295
L7 75.0000-49.0833	61.7383	1.196	7.65	81.709	A	0.000	81.709	81.709	100.00	0.000	0.000
					B	0.000	81.709		100.00	0.000	0.000
					C	0.000	81.709		100.00	0.000	24.897
L8 49.0833-37.7500	43.3598	1.081	6.92	38.564	A	0.000	38.564	38.564	100.00	0.000	0.000
					B	0.000	38.564		100.00	0.000	0.000
					C	0.000	38.564		100.00	0.000	10.888
L9 37.7500-0.0000	18.3451	1	6.40	144.492	A	0.000	144.492	144.492	100.00	0.000	0.000
					B	0.000	144.492		100.00	0.000	0.000
					C	0.000	144.492		100.00	0.000	36.265

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	160 - 150.5	53.440	37	3.0545	0.0052
L2	150.5 - 150	47.384	37	3.0253	0.0047
L3	150 - 120	47.068	37	3.0218	0.0047
L4	120 - 111.75	29.555	37	2.4410	0.0028
L5	111.75 - 97.1667	25.498	37	2.2533	0.0024
L6	102 - 75	21.131	37	2.0218	0.0020
L7	75 - 49.0833	11.134	37	1.4707	0.0013
L8	55 - 37.75	5.934	37	1.0137	0.0008
L9	37.75 - 0	2.752	37	0.7096	0.0005

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
158.0000	SBNH-1D6565C w/ Mount Pipe	37	52.161	3.0518	0.0056	16724
149.0000	(2) LPA-80063/4CF w/ Mount Pipe	37	46.436	3.0138	0.0052	6377
139.0000	VHLP2.5-11	37	40.256	2.8715	0.0044	3572
135.0000	LLPX310R-V1 w/ Mount Pipe	37	37.871	2.7905	0.0041	3077
132.0000	800MHz 2X50W RRH W/FILTER	37	36.123	2.7241	0.0038	2788
126.0000	(3) DB844H90E-XY w/ Mount Pipe	37	32.746	2.5830	0.0033	2346
116.0000	ERICSSON AIR 21 B2A B4P w/ Mount Pipe	37	27.542	2.3502	0.0027	2207
106.0000	HBX-6516DS-VTM w/ Mount Pipe	37	22.873	2.1159	0.0022	2835
50.0000	58532A	37	4.880	0.9177	0.0007	2990
47.0000	KS24019-L112A	37	4.294	0.8647	0.0007	2733

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	160 - 150.5	135.748	12	7.7702	0.0131
L2	150.5 - 150	120.414	6	7.6965	0.0124
L3	150 - 120	119.613	6	7.6876	0.0124
L4	120 - 111.75	75.220	6	6.2162	0.0074
L5	111.75 - 97.1667	64.914	6	5.7396	0.0063
L6	102 - 75	53.814	6	5.1514	0.0052
L7	75 - 49.0833	28.378	6	3.7491	0.0033
L8	55 - 37.75	15.132	6	2.5850	0.0021
L9	37.75 - 0	7.019	6	1.8099	0.0014

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
158.0000	SBNH-1D6565C w/ Mount Pipe	12	132.510	7.7635	0.0138	6826
149.0000	(2) LPA-80063/4CF w/ Mount Pipe	6	118.014	7.6674	0.0126	2602
139.0000	VHLP2.5-11	6	102.361	7.3070	0.0109	1456
135.0000	LLPX310R-V1 w/ Mount Pipe	6	96.316	7.1019	0.0102	1252
132.0000	800MHz 2X50W RRH W/FILTER	6	91.883	6.9336	0.0096	1132
126.0000	(3) DB844H90E-XY w/ Mount Pipe	6	83.320	6.5761	0.0084	950
116.0000	ERICSSON AIR 21 B2A B4P w/ Mount Pipe	6	70.107	5.9858	0.0068	889
106.0000	HBX-6516DS-VTM w/ Mount Pipe	6	58.243	5.3904	0.0056	1135
50.0000	58532A	6	12.443	2.3403	0.0018	1177
47.0000	KS24019-L112A	6	10.950	2.2053	0.0017	1075

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	160 - 150.5 (1)	TP20x20x0.25	9.5000	0.0000	0.0	21.000	15.5116	-2.49	325.74	0.008
L2	150.5 - 150 (2)	TP20.3x20x0.25	0.5000	0.0000	0.0	21.000	15.7472	-2.52	330.69	0.008
L3	150 - 120 (3)	TP26.4495x20.3x0.25	30.0000	0.0000	0.0	39.000	21.0906	-8.78	822.53	0.011
L4	120 - 111.75 (4)	TP28.1407x26.4495x0.3593	8.2500	0.0000	0.0	37.686	32.1442	-10.88	1211.39	0.009
L5	111.75 - 97.1667 (5)	TP31.13x28.1407x0.3876	14.5833	0.0000	0.0	37.458	37.1360	-13.32	1391.04	0.010
L6	97.1667 - 75 (6)	TP35.1757x29.364x0.4931	27.0000	0.0000	0.0	37.626	55.0717	-19.96	2072.13	0.010
L7	75 - 49.0833 (7)	TP40.49x35.1757x0.4792	25.9167	0.0000	0.0	37.734	59.8705	-25.05	2259.15	0.011
L8	49.0833 - 37.75 (8)	TP42.0625x38.3183x0.5349	17.2500	0.0000	0.0	37.794	71.5288	-32.91	2703.36	0.012
L9	37.75 - 0 (9)	TP49.8x42.0625x0.5589	37.7500	0.0000	0.0	39.000	88.6124	-45.92	3455.89	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	160 - 150.5 (1)	TP20x20x0.25	47.83	7.584	23.100	0.328	0.00	0.000	23.100	0.000
L2	150.5 - 150 (2)	TP20.3x20x0.25	50.83	7.818	23.100	0.338	0.00	0.000	23.100	0.000
L3	150 - 120 (3)	TP26.4495x20.3x0.25	497.23	44.241	39.000	1.134	0.00	0.000	39.000	0.000
L4	120 - 111.75 (4)	TP28.1407x26.4495x0.3593	684.59	37.816	37.686	1.003	0.00	0.000	37.686	0.000
L5	111.75 - 97.1667 (5)	TP31.13x28.1407x0.3876	930.73	41.559	37.458	1.109	0.00	0.000	37.458	0.000
L6	97.1667 - 75 (6)	TP35.1757x29.364x0.4931	1694.79	43.826	37.626	1.165	0.00	0.000	37.626	0.000
L7	75 - 49.0833 (7)	TP40.49x35.1757x0.4792	2323.05	49.306	37.734	1.307	0.00	0.000	37.734	0.000
L8	49.0833 - 37.75 (8)	TP42.0625x38.3183x0.5349	2920.28	48.494	37.794	1.283	0.00	0.000	37.794	0.000
L9	37.75 - 0 (9)	TP49.8x42.0625x0.5589	4353.99	49.146	39.000	1.260	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	160 - 150.5 (1)	TP20x20x0.25	5.95	0.384	14.000	0.055	0.14	0.011	14.000	0.001
L2	150.5 - 150 (2)	TP20.3x20x0.25	6.01	0.382	14.000	0.055	0.03	0.002	14.000	0.000
L3	150 - 120 (3)	TP26.4495x20.3x0.25	20.89	0.990	26.000	0.077	0.68	0.029	26.000	0.001
L4	120 - 111.75 (4)	TP28.1407x26.4495x0.3593	24.10	0.750	25.124	0.061	0.76	0.020	25.124	0.001
L5	111.75 - 97.1667 (5)	TP31.13x28.1407x0.3876	26.41	0.711	24.972	0.058	1.03	0.022	24.972	0.001
L6	97.1667 - 75 (6)	TP35.1757x29.364x0.4931	30.20	0.548	25.084	0.044	1.31	0.016	25.084	0.001
L7	75 - 49.0833 (7)	TP40.49x35.1757x0.4792	32.73	0.547	25.156	0.044	1.53	0.015	25.156	0.001
L8	49.0833 - 37.75 (8)	TP42.0625x38.3183x0.5349	36.01	0.503	25.196	0.041	1.72	0.013	25.196	0.001
L9	37.75 - 0 (9)	TP49.8x42.0625x0.5589	40.05	0.452	26.000	0.035	1.97	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	160 - 150.5 (1)	0.008	0.328	0.000	0.055	0.001	0.337 ✔	1.333	H1-3+VT ✔
L2	150.5 - 150 (2)	0.008	0.338	0.000	0.055	0.000	0.347 ✔	1.333	H1-3+VT ✔
L3	150 - 120 (3)	0.011	1.134	0.000	0.077	0.001	1.147 ✔	1.333	H1-3+VT ✔
L4	120 - 111.75 (4)	0.009	1.003	0.000	0.061	0.001	1.013 ✔	1.333	H1-3+VT ✔

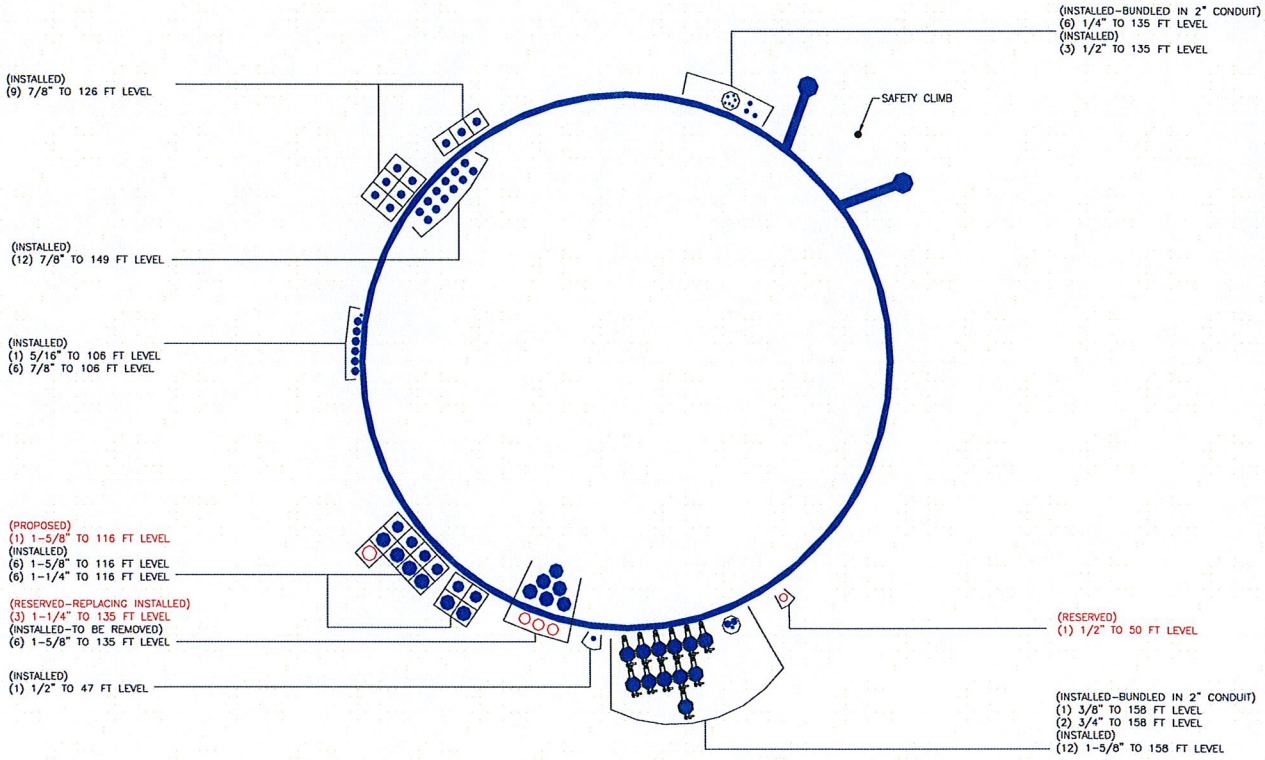
Section No.	Elevation ft	Ratio $\frac{P}{P_a}$	Ratio $\frac{f_{bx}}{F_{bx}}$	Ratio $\frac{f_{by}}{F_{by}}$	Ratio $\frac{f_v}{F_v}$	Ratio $\frac{f_{vt}}{F_{vt}}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
L5	111.75 - 97.1667 (5)	0.010	1.109	0.000	0.058	0.001	1.120 ✔	1.333	H1-3+VT ✔
L6	97.1667 - 75 (6)	0.010	1.165	0.000	0.044	0.001	1.175 ✔	1.333	H1-3+VT ✔
L7	75 - 49.0833 (7)	0.011	1.307	0.000	0.044	0.001	1.318 ✔	1.333	H1-3+VT ✔
L8	49.0833 - 37.75 (8)	0.012	1.283	0.000	0.041	0.001	1.296 ✔	1.333	H1-3+VT ✔
L9	37.75 - 0 (9)	0.013	1.260	0.000	0.035	0.000	1.274 ✔	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	160 - 150.5	Pole	TP20x20x0.25	1	-2.49	434.22	25.3	Pass
L2	150.5 - 150	Pole	TP20.3x20x0.25	2	-2.52	440.81	26.0	Pass
L3	150 - 120	Pole	TP26.4495x20.3x0.25	3	-8.78	1096.44	86.0	Pass
L4	120 - 111.75	Pole	TP28.1407x26.4495x0.3593	4	-10.88	1614.78	76.0	Pass
L5	111.75 - 97.1667	Pole	TP31.13x28.1407x0.3876	5	-13.32	1854.26	84.0	Pass
L6	97.1667 - 75	Pole	TP35.1757x29.364x0.4931	6	-19.96	2762.15	88.1	Pass
L7	75 - 49.0833	Pole	TP40.49x35.1757x0.4792	7	-25.05	3011.45	98.9	Pass
L8	49.0833 - 37.75	Pole	TP42.0625x38.3183x0.5349	8	-32.91	3603.58	97.2	Pass
L9	37.75 - 0	Pole	TP49.8x42.0625x0.5589	9	-45.92	4606.70	95.6	Pass
							Summary	
						Pole (L7)	98.9	Pass
						RATING =	**98.9**	**Pass**

APPENDIX B

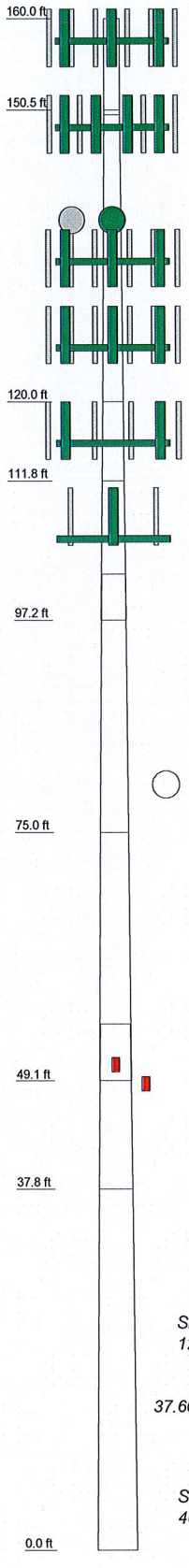
BASE LEVEL DRAWING

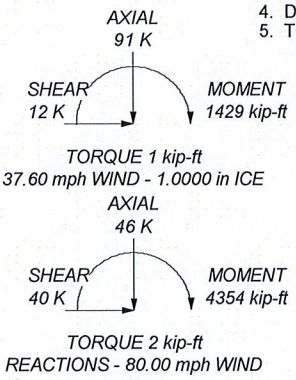


APPENDIX C

ADDITIONAL CALCULATIONS

Section	1	2	3	4	5	6	7	8	9
Length (ft)	0.5	9.5000	30.0000	8.2500	14.5833	27.0000	25.9167	17.2500	37.7500
Number of Sides	0	0.5000	1.9	0.9	1.8	4.6	5.1	4.0	10.5
Thickness (in)	1	1	12	12	12	12	12	12	12
Socket Length (ft)	0.2500	0.2500	0.2500	0.3593	0.3876	0.4931	0.4792	0.5349	0.5589
Top Dia (in)	20.0000	20.0000	20.3000	26.4495	28.1407	29.3640	35.1757	38.3183	42.0625
Bot Dia (in)	20.3000	20.0000	26.4495	28.1407	31.1300	35.1757	40.4900	42.0625	49.8000
Grade	A53-B-35		A572-65	Reinf 62.81 ksi	Reinf 62.43 ksi	Reinf 62.71 ksi	Reinf 62.89 ksi	Reinf 62.99 ksi	Reinf 65.00 ksi
Weight (K)	0.0	0.5	1.9	0.9	1.8	4.6	5.1	4.0	10.5





DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
SBNH-1D6565C w/ Mount Pipe	158	Platform Mount [LP 602-1]	135
SBNH-1D6565C w/ Mount Pipe	158	VHLP2.5-11	135
SBNH-1D6565C w/ Mount Pipe	158	VHLP2.5-11	135
(2) RRUS-11	158	800MHz 2X50W RRH W/FILTER	132
(2) RRUS-11	158	PCS 1900MHz 4x45W-65MHz	132
(2) RRUS-11	158	PCS 1900MHz 4x45W-65MHz	132
DC6-48-60-18-8F	158	PCS 1900MHz 4x45W-65MHz	132
(2) 7770.00 w/ Mount Pipe	158	Side Arm Mount [SO 102-3]	132
(2) 7770.00 w/ Mount Pipe	158	800MHz 2X50W RRH W/FILTER	132
(2) 7770.00 w/ Mount Pipe	158	800MHz 2X50W RRH W/FILTER	132
(2) LGP13519	158	(3) DB844H90E-XY w/ Mount Pipe	126
(2) LGP13519	158	T-Arm Mount [TA 901-3]	126
(2) LGP13519	158	(3) DB844H90E-XY w/ Mount Pipe	126
(2) LGP21401	158	(3) DB844H90E-XY w/ Mount Pipe	126
(2) LGP21401	158	ERICSSON AIR 21 B2A B4P w/ Mount Pipe	116
(2) LGP21401	158		
Platform Mount [LP 301-1]	158	ERICSSON AIR 21 B4A B2P w/ Mount Pipe	116
(2) LPA-80063/4CF w/ Mount Pipe	149		
(2) LPA-80080/4CF w/ Mount Pipe	149	ERICSSON AIR 21 B4A B2P w/ Mount Pipe	116
(2) LPA-80080/4CF w/ Mount Pipe	149	ERICSSON AIR 21 B4A B2P w/ Mount Pipe	116
BXA-70063/6CFx6 w/ Mount Pipe	149		
BXA-70063/6CFx4 w/ Mount Pipe	149	KRY 112 144/1	116
BXA-70063/6CFx4 w/ Mount Pipe	149	KRY 112 144/1	116
BXA-185063/8CF w/ Mount Pipe	149	KRY 112 144/1	116
BXA-185090/8CFx2 w/ Mount Pipe	149	Side Arm Mount [SO 103-3]	116
BXA-185090/8CFx2 w/ Mount Pipe	149	Side Arm Mount [SO 701-3]	116
(2) FD9R6004/2C-3L	149	ERICSSON AIR 21 B2A B4P w/ Mount Pipe	116
(2) FD9R6004/2C-3L	149		
(2) FD9R6004/2C-3L	149	ERICSSON AIR 21 B2A B4P w/ Mount Pipe	116
Platform Mount [LP 602-1]	149		
LLPX310R-V1 w/ Mount Pipe	135	HBX-6516DS-VTM w/ Mount Pipe	106
LLPX310R-V1 w/ Mount Pipe	135	ATM200-A20	106
LLPX310R-V1 w/ Mount Pipe	135	ATM200-A20	106
WIMAX DAP HEAD	135	ATM200-A20	106
WIMAX DAP HEAD	135	T-Arm Mount [TA 602-3]	106
WIMAX DAP HEAD	135	HBX-6516DS-VTM w/ Mount Pipe	106
HORIZON COMPACT	135	HBX-6516DS-VTM w/ Mount Pipe	106
HORIZON COMPACT	135	58532A	50
TIMING 2000	135	Platform Mount [LP 301-1]	50
APXVSPP18-C-A20 w/ Mount Pipe	135	KS24019-L112A	47
APXV9ERR18-C-A20 w/ Mount Pipe	135	Side Arm Mount [SO 701-1]	47
APXVSPP18-C-A20 w/ Mount Pipe	135		

MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A53-B-35	35 ksi	58 ksi	Reinf 62.71 ksi	63 ksi	79 ksi
A572-65	65 ksi	80 ksi	Reinf 62.89 ksi	63 ksi	79 ksi
Reinf 62.81 ksi	63 ksi	79 ksi	Reinf 62.99 ksi	63 ksi	79 ksi
Reinf 62.43 ksi	62 ksi	79 ksi	Reinf 65.00 ksi	65 ksi	65 ksi

TOWER DESIGN NOTES

1. Tower is located in Hartford County, Connecticut.
2. Tower designed for a 80.00 mph basic wind in accordance with the TIA/EIA-222-F Standard.
3. Tower is also designed for a 37.60 mph basic wind with 1.00 in ice. Ice is considered to increase in thickness with height.
4. Deflections are based upon a 50.00 mph wind.
5. TOWER RATING: 98.9%

Paul J. Ford and Company
250 East Broad Street, Suite 1500
Columbus, Ohio 43215
Phone: (614) 221-6679
FAX: (614) 448-4118

Job: *160' Monopole / HRT 101 943232*		
Project: *PJF 37513-1266 / BU 806373*		
Client: Crown Castle	Drawn by: Kyle Thorpe	App'd:
Code: TIA/EIA-222-F	Date: 04/19/13	Scale: NTS
Path: G:\TOWER\375_Crown_Castle\2013\37513-1266 BU 806373\37513-1266_Reinforced.er		Dwg No. E-1

PAUL J. FORD AND COMPANY
STRUCTURAL ENGINEERS
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Page	1	of	1
By	KAT	Date	4/19/2013
Project	37513-1266		
Client	Crown Castle		
PROJ#	806373		

Rev. Date: 4/2/2013

Stilt Extension Connection

@ 150 ' elevation

Assume 3 legs w/ 22.54 " Channel Circle

Reactions from TNXTower:

Moment =	50.82	k-ft
Axial =	2.45	kips
Shear =	6.01	kips

$$I = \frac{N * (B.C.)^2}{8}$$

Revision =	F
Unbraced length =	12 in.
K =	1
Existing Pole Top O.D. =	20.3 in.
Number of Bolt Rows (N) =	6 Even Number
Bolt Spacing (S) =	3
Allowable Stress Increase =	1.33333
Design/Analysis =	Analysis

I =	190.5	in^2	T =	35.3 kips	x =	1.12 in
My/I =	36.1	kips	C =	36.9 kips	A =	8.37 in^2
Axial/leg =	0.8167	kips	M =	72.12 k-in	r =	1.16 in
					S =	25.3 in^3
Using	MC10X28.5		Fy =	50 ksi	Z =	30 in^3

Available Strength in Axial Compression

Kl/r =	10.34	Cc =	107.00
Kl/rCc =	0.097		
CA =	0.551	Table 3, page 5-119 (Green Book)	
Fa =	36.73 ksi	Fa=4/3*Fy*Cc	
P =	36.07 kips	P = T + Axial / #legs	
fa =	4.31 ksi	fa=P/A	
Ratio =	11.7%		

Available Flexural Strength

Fb =	50.00 ksi	Fb = 4/3 * 0.75 * Fy
Mb =	72.12 kip*in	Mb =Shear * lu
fb =	2.85 ksi	fb = Mb / S
Ratio =	5.7%	

Combined Strength

fa/Fa =	0.117	< 0.15	H1-3 of Green Book
Fe' =	1860.559 ksi		
Eqn H1-1			
Eqn H1-2			
Eqn H1-3	0.174343		
Ratio =	17.4%		

Bolt Check

Tension Force (Tapplied) =	36.075	kips
Eccentricity (e) =	1.12	in.
Vallow (Ajax Bolt) =	31.0	kips
Tallow (Ajax Bolt) =	15.0	kips
Sum r2 =	157.5	in2
Ry (Shear Force) =	6.012	kips
Rx (Tension Force) =	3.069	kips
Stress Ratio =	13.6%	

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v4.1 - Effective 7-3-12

Date: 7/24/2012
PJF Project: 37513-1266
Client Ref. # BU 806373
Site Name: HRT 101 943232
Description: 151-ft pole w/ 10-ft propsed extension
Owner: CROWN
Engineer: KAT

Asymmetric Anchor Rod Analysis

Moment =	4354	k-ft	TIA Ref.	F	Location =	Base Plate		
Axial =	46.0	kips	ASIF =	1.3333	η =	N/A	for BP, Rev. G Sect. 4.9.9	
Shear =	40.0	kips	Max Ratio =	100.0%	Threads =	N/A	for FP, Rev. G	
Anchor Qty =	19							

**** For Post Installed Anchors: Check anchors for embedment, epoxy/grout bond, and capacity based on proof load. ****

Item	Nominal Anchor Dia, in	Spec	Fy, ksi	Fu, ksi	Location, degrees	Anchor Circle, in	Area Override, in^2	Area, in^2	Max Net Compression, kips	Max Net Tension, kips	Load for Capacity Calc, kips	Capacity Override, kips	Capacity, kips	Capacity Ratio
1	2.250	#18J A615 Gr 75	75	100	0.0	58.06	0.00	3.98	188.73	183.88	183.88	0.00	195.00	94.3%
2	2.250	#18J A615 Gr 75	75	100	22.5	58.06	0.00	3.98	184.85	180.00	180.00	0.00	195.00	92.3%
3	2.250	#18J A615 Gr 75	75	100	45.0	58.06	0.00	3.98	182.56	177.72	177.72	0.00	195.00	91.1%
4	2.250	#18J A615 Gr 75	75	100	67.5	58.06	0.00	3.98	182.86	178.02	178.02	0.00	195.00	91.3%
5	2.250	#18J A615 Gr 75	75	100	90.0	58.06	0.00	3.98	185.17	180.33	180.33	0.00	195.00	92.5%
6	2.250	#18J A615 Gr 75	75	100	112.5	58.06	0.00	3.98	187.74	182.90	182.90	0.00	195.00	93.8%
7	2.250	#18J A615 Gr 75	75	100	135.0	58.06	0.00	3.98	188.87	184.03	184.03	0.00	195.00	94.4%
8	2.250	#18J A615 Gr 75	75	100	157.5	58.06	0.00	3.98	187.84	182.99	182.99	0.00	195.00	93.8%
9	2.250	#18J A615 Gr 75	75	100	180.0	58.06	0.00	3.98	185.29	180.45	180.45	0.00	195.00	92.5%
10	2.250	#18J A615 Gr 75	75	100	202.5	58.06	0.00	3.98	182.93	178.09	178.09	0.00	195.00	91.3%
11	2.250	#18J A615 Gr 75	75	100	225.0	58.06	0.00	3.98	182.52	177.67	177.67	0.00	195.00	91.1%
12	2.250	#18J A615 Gr 75	75	100	247.5	58.06	0.00	3.98	184.70	179.86	179.86	0.00	195.00	92.2%
13	2.250	#18J A615 Gr 75	75	100	270.0	58.06	0.00	3.98	188.55	183.70	183.70	0.00	195.00	94.2%
14	2.250	#18J A615 Gr 75	75	100	292.5	58.06	0.00	3.98	192.11	187.27	187.27	0.00	195.00	96.0%
15	2.250	#18J A615 Gr 75	75	100	315.0	58.06	0.00	3.98	193.58	188.74	188.74	0.00	195.00	96.8%
16	2.250	#18J A615 Gr 75	75	100	337.5	58.06	0.00	3.98	192.23	187.39	187.39	0.00	195.00	96.1%
17	2.250	A193 Gr B7	105	125	22.5	63.00	0.00	3.98	200.09	195.25	195.25	0.00	218.68	89.3%
18	2.250	A193 Gr B7	105	125	135.5	63.00	0.00	3.98	204.74	199.90	199.90	0.00	218.68	91.4%
19	2.250	A193 Gr B7	105	125	248.5	63.00	0.00	3.98	200.09	195.25	195.25	0.00	218.68	89.3%
								75.61						

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

TIA Rev F

Site Data

BU#: *806373*
Site Name: *HRT 101 943232*
App #:

Pole Manufacturer:	*Other*

Reactions			
Moment:	3699.6	ft-kips	Reactions modified to account for post-installed anchors
Axial:	38.7	kips	
Shear:	33.7	kips	

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

Anchor Rod Data		
Qty:	16	
Diam:	2.25	in
Rod Material:	A615-J	
Strength (Fu):	100	ksi
Yield (Fy):	75	ksi
Bolt Circle:	58.06	in

Anchor Rod Results

		Rigid
Maximum Rod Tension:	188.7 Kips	Service, ASD
Allowable Tension:	195.0 Kips	Fty*ASIF
Anchor Rod Stress Ratio:	96.8% **Pass**	

Plate Data		
Diam:	64.06	in
Thick:	2.75	in
Grade:	60	ksi
Single-Rod B-eff:	10.01	in

Base Plate Results

	Flexural Check	Rigid
Base Plate Stress:	39.5 ksi	Service ASD
Allowable Plate Stress:	60.0 ksi	0.75*Fy*ASIF
Base Plate Stress Ratio:	65.9% **Pass**	Y.L. Length: 29.85

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

n/a

Stiffener Results

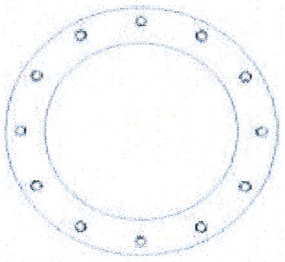
Horizontal Weld :	n/a
Vertical Weld:	n/a
Plate Flex+Shear, fb/Fb+(fv/Fv)^2:	n/a
Plate Tension+Shear, ft/Ft+(fv/Fv)^2:	n/a
Plate Comp. (AISC Bracket):	n/a

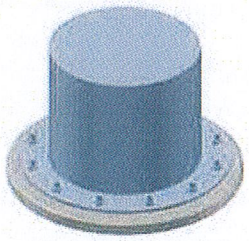
Pole Data		
Diam:	49.8	in
Thick:	0.4375	in
Grade:	65	ksi
# of Sides:	12	"0" IF Round
Fu	80	ksi
Reinf. Fillet Weld	0	"0" if None

Pole Results

Pole Punching Shear Check: n/a

Stress Increase Factor		
ASIF:	1.333	





* 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

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Job Number:	37512-1571 R1 B	**Page:**	1
Site Number:	806373	**By:**	KAT
Site Name:	HRT 101 943232	**Date:**	4/19/2013

DRILLED PIER SOIL AND STEEL ANALYSIS - TIA/EIA-222-F

Unfactored Base Reactions from RISA

	Comp. (+)	Tension (-)	
Moment, M =	4354.0		k-ft
Shear, V =	40.0		kips
Axial Load, P =	46.0		kips
OTM =	4394.0	0.0	k-ft @ Ground

Safety Factors / Load Factors / Φ Factors

Tower Type =	Monopole DP
ACI Code =	ACI 318-02
Seismic Design Category =	D
Reference Standard =	TIA/EIA-222-F
Use 1.3 Load Factor?	Yes
Load Factor =	1.30

Drilled Pier Parameters

Diameter =	7	ft
Height Above Grade =	1	ft
Depth Below Grade =	24.5	ft
fc' =	3	ksi
εc =	0.003	in/in
Mat Ftdn. Cap Width =		ft
Mat Ftdn. Cap Length =		ft
Depth Below Grade =		ft

	Safety Factor	Φ Factor
Soil Lateral Resistance =	2.00	0.75
Skin Friction =	2.00	0.75
End Bearing =	2.00	0.75
Concrete Wt. Resist Uplift =	1.25	

Load Combinations Checked per TIA/EIA-222-F

1. Ult. Skin Friction/2.00 + Ult. End Bearing/2.00
+ Effective Soil Wt. - Buoyant Conc. Wt. ≥ Compression
2. Ult. Skin Friction/2.00 + Buoyant Conc. Wt./1.25 ≥ Uplift
3. Ult. Skin Friction/1.50 + Buoyant Conc. Wt./1.50 ≥ Uplift

Steel Parameters

Number of Bars =	36	
Rebar Size =	#11	
Rebar Fy =	60	ksi
Rebar MOE =	29000	ksi
Tie Size =	#4	
Side Clear Cover to Ties =	3	in

Soil Parameters

Water Table Depth =	5.00	ft
Depth to Ignore Soil =	3.50	ft
Depth to Full Cohesion =	0	ft
Full Cohesion Starts at?	Ground	

Above Full Cohesion Lateral Resistance = 4(Cohesion)(Dia)(H)
Below Full Cohesion Lateral Resistance = 8(Cohesion)(Dia)(H)

Direct Embed Pole Shaft Parameters

Dia @ Grade =		in
Dia @ Depth Below Grade =		in
Number of Sides =		
Thickness =		in
Fy =		ksi
Backfill Condition =		

Maximum Capacity Ratios

Maximum Soil Ratio =	100.0%
Maximum Steel Ratio =	100.0%

Define Soil Layers

Note: Cohesion = Undrained Shear Strengh = Unconfined Compressive Strength / 2

Layer	Thickness ft	Unit Weight pcf	Cohesion psf	Friction Angle degrees	Soil Type	Ultimate End Bearing psf	Comp. Ult. Skin Friction psf	Tension Ult. Skin Friction psf	Depth ft
1	3.5	100							3.5
2	0.5	100	0	28	Sand	78000			4
3	1	125	0	42	Sand	78000			5
4	26.5	127.4	0	42	Sand	78000			31.5
5									
6									
7									
8									
9									
10									
11									
12									

Soil Results: Overturning

Depth to COR =	17.35	ft, from Grade	Shear, V =	40.00	kips
Bending Moment, M =	5088.16	k-ft, from COR	Resisting Shear, Va =	45.65	kips
Resisting Moment, Ma =	5807.42	k-ft, from COR			

MOMENT RATIO = **87.6%** **OK** **SHEAR RATIO =** **87.6%** **OK**

Soil Results: Uplift

Uplift, T =	0.00	kips
Allowable Uplift Cap., Ta =	80.30	kips

UPLIFT RATIO = **0.0%** **OK**

Soil Results: Compression

Compression, C =	46.00	kips
Allowable Comp. Cap., Ca =	1469.50	kips

COMPRESSION RATIO = **3.1%** **OK**

Steel Results (ACI 318-02):

Minimum Steel Area =	18.47	sq in	Axial Load, P =	81.48	kips @ 5.25 ft Below Grade
Actual Steel Area =	56.16	sq in	Moment, M =	4580.48	k-ft @ 5.25 ft Below Grade
			Allowable Moment, Ma =	6577.38	k-ft
Allowable Min Axial, Pa =	-2332.80	kips, Where Ma = 0 k-ft			
Allowable Max Axial, Pa =	6943.16	kips, Where Ma = 0 k-ft			

MOMENT RATIO = **69.6%** **OK**

Moment Capacity of Drilled Concrete Shaft (Caisson) for TIA Rev F or G

Note: Shaft assumed to have ties, not spiral, transverse reinforcing

Site Data

BU#: *806373*
Site Name: *HRT 101 943232*
App #:

Enter Load Factors Below:		
For M (WL)	1.3	<---- Enter Factor
For P (DL)	1.3	<---- Enter Factor

Pier Properties

Concrete:

Pier Diameter =	7.0	ft
Concrete Area =	5541.8	in^2

Reinforcement:

Clear Cover to **Tie**=	3.00	in
Horiz. **Tie** Bar Size=	4	
Vert. Cage Diameter =	6.30	ft
Vert. Cage Diameter =	75.59	in
Vertical Bar Size =	11	
Bar Diameter =	1.41	in
Bar Area =	1.56	in^2
Number of Bars =	36	
As Total=	56.16	in^2
A s/ Aconc, Rho:	0.0101	1.01%

ACI 10.5 , ACI 21.10.4, and IBC 1810.
Min As for Flexural, Tension Controlled, Shafts:
(3)*(Sqrt(f'c)/Fy: 0.0027
200 / Fy: 0.0033

Minimum Rho Check:

Actual Req'd Min. Rho:	0.33%	Flexural
Provided Rho:	1.01%	OK

Ref. Shaft Max Axial Capacities, ϕ Max(Pn or Tn):		
Max Pu = (φ=0.65) Pn.		
Pn per ACI 318 (10-2)	9026.11	kips
at Mu=(ϕ=0.65)Mn=	5472.88	ft-kips
Max Tu, (φ=0.9) Tn =	3032.64	kips
at Mu=ϕ=(0.90)Mn=	0.00	ft-kips

Maximum Shaft Superimposed Forces

TIA Revision:	F	
Max. Service Shaft M:	4580.48	ft-kips **(* Note)**
Max. Service Shaft P:	81.48	kips
Max Axial Force Type:	Comp.	

(*) Note: Max Shaft Superimposed Moment does not necessarily equal to the shaft top reaction moment

Load Factor	Shaft Factored Loads		
1.30	Mu:	5954.624	ft-kips
1.30	Pu:	105.924	kips

Material Properties

Concrete Comp. strength, f'c =	3000	psi
Reinforcement yield strength, Fy =	60	ksi
Reinforcing Modulus of Elasticity, E =	29000	ksi
Reinforcement yield strain =	0.00207	
Limiting compressive strain =	0.003	

ACI 318 Code

Select Analysis ACI Code= 2002

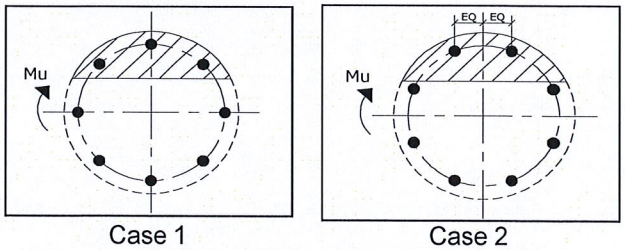
Seismic Properties

Seismic Design Category = D
Seismic Risk = **High**

Solve (Run) <-- Press Upon Completing All Input

Results:

Governing Orientation Case: **2**



Case 1 Case 2

Dist. From Edge to Neutral Axis: **17.67** in
Extreme Steel Strain, εt: **0.0105**
εt > 0.0050, Tension Controlled
Reduction Factor,φ: **0.900**

Output Note: Negative Pu=Tension

For Axial Compression, φ Pn = Pu:	105.92	kips
Drilled Shaft Moment Capacity, φMn:	**8550.60**	ft-kips
Drilled Shaft Superimposed Mu:	**5954.62**	ft-kips

(Mu/φMn, Drilled Shaft Flexure CSR:	**69.6%**

PAUL J. FORD AND COMPANY
STRUCTURAL ENGINEERS
250 East Broad Street • Suite 1500 • Columbus, Ohio 43215-3708

Date: **April 19, 2013**

David Grimes
Crown Castle USA Inc.
3530 Toringdon Way Suite 300
Charlotte, NC 28277
(704) 405-6548

Paul J. Ford and Company
250 East Broad Street, Suite 1500
Columbus, Ohio 43215
(614) 221-6679
kthorpe@pjfweb.com

Subject: **Structural Analysis Report**

Carrier Designation:	***T-Mobile* Co-Locate**	
	Carrier Site Number:	CT11066A
	Carrier Site Name:	CT11066A
Crown Castle Designation:	**Crown Castle BU Number:**	806373
	Crown Castle Site Name:	HRT 101 943232
	Crown Castle JDE Job Number:	232398
	Crown Castle Work Order Number:	600692
	Crown Castle Application Number:	186714 Rev. 4
Engineering Firm Designation:	**Paul J. Ford and Company Project Number:**	37513-1266
Site Data:	**4 Oliver Road, ENFIELD, Hartford County, CT** **Latitude *41° 57' 36.2"*, Longitude *-72° 35' 32.3"*** **160 Foot - Monopole Tower**	

Dear David Grimes,

Paul J. Ford and Company 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 539143, in accordance with application 186714, revision 4.

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

LC7: Existing + Reserved + Proposed Equipment **Sufficient Capacity**
Note: See Table I and Table II for the proposed and existing/reserved loading, respectively.

The structural analysis was performed for this tower in accordance with the requirements of the 2005 Connecticut Building Code and the TIA/EIA-222-F Structural Standards for Steel Antenna Towers and Antenna Supporting Structures using a fastest mile wind speed of 80 mph with no ice, 37.6 mph with 1 inch ice thickness and 50 mph under service loads.

We at *Paul J. Ford and Company* 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:

Kyle Thorpe, E.I.
Structural Designer

tnxTower Report - version 6.0.3.0

APR 2 2 2013

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

T-Mobile Existing Facility

Site ID: CT11066A

Enfield
4 Oliver Road
Enfield, CT 06082

May 15, 2013

EBI Project Number: 62136363

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

EBI Consulting
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May 15, 2013

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

Re: Emissions Values for Site: **CT11066A - Enfield**

EBI Consulting was directed to analyze the proposed T-Mobile facility located at 4 Oliver Road, Enfield, CT, for the purpose of determining whether the emissions from the Proposed T-Mobile Antenna Installation located on this property are within specified federal limits.

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

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

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

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

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

Additional details can be found in FCC OET 65.

CALCULATIONS

Calculations were done for the proposed T-Mobile Wireless antenna facility located at 4 Oliver Road, Enfield, CT, using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65. Since T-Mobile is proposing highly focused directional panel antennas, which project most of the emitted energy out toward the horizon, the actual antenna pattern gain value in the direction of the sample area was used. For this report the sample point is a 6 foot person standing at the base of the tower

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

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

7) The antenna mounting height centerline of the proposed antennas is **117 feet** above ground level (AGL)
8) Emissions values for additional carriers were taken from the Connecticut Siting Council active database. Values in this database are provided by the individual carriers themselves.

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

Site ID	CT11066A - Enfield
Site Addresss	4 Oliver Road, Enfield, CT 06082
Site Type	Monopole

Sector 1

Antenna Number	Antenna Make	Antenna Model	Status	Frequency Band	Technology	Power Out Per Channel (Watts)	Number of Channels	Composite Power	Antenna Gain in direction of sample point (dBd)	Antenna Height (ft)	analysis height	Cable Size	Cable Loss (dB)	Additional Loss	ERP	Power Density Value	Power Density Percentage
1a	Ericsson	AIR21 B4A/B2P	Active	AWS - 2100 MHz	LTE	60	2	120	-3.95	117	111	None	0	0	48.326044	1.410072	0.14101%
1b	Ericsson	AIR21 B4A/B2P	Not Used	-	-			0	-3.95	117	111	None	0	0	0	0	0.00000%
2a	Ericsson	AIR21 B2A / B4P	Active	PCS - 1950 MHz	GSM / UMTS	30	2	60	-3.95	117	111	1-5/8"	0	0	24.163022	0.705036	0.07050%
2B	Ericsson	AIR21 B2A / B4P	Passive	AWS - 2100 MHz	UMTS	30	2	60	-3.95	117	111	1-5/8"	0	0	24.163022	0.705036	0.07050%
														Sector total Power Density Value:			0.282%

Sector 2

Antenna Number	Antenna Make	Antenna Model	Status	Frequency Band	Technology	Power Out Per Channel (Watts)	Number of Channels	Composite Power	Antenna Gain in direction of sample point (dBd)	Antenna Height (ft)	analysis height	Cable Size	Cable Loss (dB)	Additional Loss	ERP	Power Density Value	Power Density Percentage
1a	Ericsson	AIR21 B4A/B2P	Active	AWS - 2100 MHz	LTE	60	2	120	-3.95	117	111	None	0	0	48.326044	1.410072	0.14101%
1b	Ericsson	AIR21 B4A/B2P	Not Used	-	-			0	-3.95	117	111	None	0	0	0	0	0.00000%
2a	Ericsson	AIR21 B2A / B4P	Active	PCS - 1950 MHz	GSM / UMTS	30	2	60	-3.95	117	111	1-5/8"	0	0	24.163022	0.705036	0.07050%
28	Ericsson	AIR21 B2A / B4P	Passive	AWS - 2100 MHz	UMTS	30	2	60	-3.95	117	111	1-5/8"	0	0	24.163022	0.705036	0.07050%
														Sector total Power Density Value:			0.282%

Sector 3

Antenna Number	Antenna Make	Antenna Model	Status	Frequency Band	Technology	Power Out Per Channel (Watts)	Number of Channels	Composite Power	Antenna Gain in direction of sample point (dBd)	Antenna Height (ft)	analysis height	Cable Size	Cable Loss (dB)	Additional Loss	ERP	Power Density Value	Power Density Percentage
1a	Ericsson	AIR21 B4A/B2P	Active	AWS - 2100 MHz	LTE	60	2	120	-3.95	117	111	None	0	0	48.326044	1.410072	0.14101%
1b	Ericsson	AIR21 B4A/B2P	Not Used	-	-			0	-3.95	117	111	None	0	0	0	0	0.00000%
2a	Ericsson	AIR21 B2A / B4P	Active	PCS - 1950 MHz	GSM / UMTS	30	2	60	-3.95	117	111	1-5/8"	0	0	24.163022	0.705036	0.07050%
28	Ericsson	AIR21 B2A / B4P	Passive	AWS - 2100 MHz	UMTS	30	2	60	-3.95	117	111	1-5/8"	0	0	24.163022	0.705036	0.07050%
														Sector total Power Density Value:			0.282%

Site Composite MPE %	
Carrier	MPE %
T-Mobile	0.846%
AT&T	12.740%
Verizon Wireless	11.570%
Clearwire	0.980%
MetroPCS	10.820%
Sprint	5.380%
Nextel	2.030%
XM	1.170%
PageNET	2.450%
Total Site MPE %	**47.986%**

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Summary

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

The anticipated Maximum Composite contributions from the T-Mobile facility are **0.846% (0.282% from each sector)** of the allowable FCC established general public limit considering all three sectors simultaneously sampled at the ground level.

The anticipated composite MPE value for this site assuming all carriers present is **47.986%** of the allowable FCC established general public limit sampled at the ground level. This is based upon values listed in the Connecticut Siting Council database for existing carrier emissions

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

Scott Heffernan
RF Engineering Director

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