Crown Castle
3 Corporate Park Drive, Suite 101
Clifton Park, NY 12065

April 18, 2018

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

RE: **Request of Sigfox NIP LLC for an Order to Approve the Shared Use of an Existing Tower at 300 Governors Highway, South Windsor, CT 06074**

Dear Ms. Bachman:

Pursuant to Connecticut General Statutes ("C.G.S.") §16-50aa, as amended, Sigfox NIP LLC ("Sigfox") hereby requests an order from the Connecticut Siting Council ("Council") to approve the shared use by Sigfox of an existing telecommunication tower at 300 Governors Highway, South Windsor, Connecticut (the "Property"). The existing 165-foot monopole is owned by Crown Castle International Corp. ("Crown Castle"), the underlying property is owned by Electron Technologies Corporation. Sigfox requests that the Council find that the proposed shared use of the Crown Castle tower satisfies the criteria of C.G.S. §16-50aa and issue an order approving the proposed shared us. A copy of this filing is being mailed to the land owner, The Honorable Dr. M. Saud Anwar and Michele R. Lipe, Director of Planning.

Background

The existing Crown Castle facility consists of a 165-foot monopole tower on a 2500 square foot on the east side of the intersection of US-5 and Governors Highway. Verizon maintains antennas at the 108-foot level. Equipment associated with the Verizon antennas is located northeast, and southwest of the tower. Clearwire maintains antennas at the 128-foot level. Equipment associated with the Clearwire antennas is located south of the tower. The Metro PCS maintains equipment at the 138-foot level. Equipment associated with the Metro PCS antennas is located west of the tower. AT&T maintains antennas at the 156-foot level. Equipment associated with the AT&T antennas is located northeast and south of the tower. T-Mobile maintains antennas at the 165-foot level. Equipment associated with the T-Mobile antennas is located east and south of the tower.

Sigfox is licensed by the Federal Communications Commission ("FCC") to provide wireless services throughout the State of Connecticut. Sigfox and Crown Castle have agreed to the proposed shared use of the 300 Governors Highway tower pursuant to mutually acceptable terms and conditions. Likewise, Sigfox and Crown Castle have agreed to the proposed installation of equipment cabinets on the ground on the southeast side of the tower. Crown Castle has authorized Sigfox to apply for all necessary permits and approvals that may be required to share the existing tower. (See Owner's authorization letter).

Sigfox proposes add one (1) omni antenna, one (1) line of coaxial cable; one (1) filter, and one (1) TMA on the existing tower at 119 feet above ground level. They propose to add one (1) equipment cabinet within the existing ground space. Included in the Construction Drawings are Sigfox's project specifications for locations of all proposed site improvements.

C.G.S. § 16-50aa(c)(1) provides that, upon written request for approval of a proposed shared use, "if the Council finds that het proposed shared use of the facility is technically, legally, environmentally and economically feasible and meets public safety concerns, the council shall issue an order approving such a shared use." Sigfox respectfully submits that the shared use of the tower satisfies these criteria.

A. Technical Feasibility. The existing Crown Castle tower is structurally capable of supporting Sigfox's proposed improvements. The prosed shared use of this tower is, therefore, technically feasible. A Feasibility Structural Analysis Report ("Structural Report") prepared for this project confirms that this tower can support Sigfox's proposed loading. A copy of the Structural Report has been included in this application.

B. Legal Feasibility. Under C.G.S. § 16-50aa, the Council has been authorized to issue order approving the shared use of an existing tower such as the Crown Castle tower. This authority complements the Council's prior-existing authority under C.G.S. § 16-50p to issue orders approving the construction of new towers that are subject to the Council's jurisdiction. In addition, § 16-50x(a) directs the Council to "give such consideration to the other state laws and municipal regulations as it shall deem appropriate" in ruling on requests for the shared use of existing tower facilities. Under the statutory authority vested in the Council, an order by the Council approving the requested shared use would permit the Applicant to obtain a building permit for the proposed installations.

C. Environmental Feasibility. The proposed shared use of the Crown Castle tower would have a minimal environmental effect for the following reasons:

1. The proposed installation of one (1) omni antenna, one (1) line of coaxial cable; one (1) filter, and one (1) TMA on the existing tower at 119 feet above ground level, would have no visual impact on the area of the tower. Sigfox's cabinet will be installed within the facility compound. Sigfox's shared use of this tower therefore, does not cause any significant change or alteration in the physical or environmental characteristics of the existing site.

2. Operation of Sigfox's antennas at this site would not exceed the RF emissions standard adopted by the Federal Communications Commission ("FCC"). Included in the EME report of this filing are the approximation tables that demonstrate that Sigfox's proposed facility will operate well within the FCC RF emissions safety standards.

3. Under ordinary operating conditions, the proposed installation would not require the use of any water or sanitary facilities and would not generate air emissions or discharges to water bodies or sanitary facilities. After construction is complete the proposed installations would not generate any increased traffic to the Crown Castle facility other than periodic maintenance. The proposed shared use of the Crown Castle tower, would, therefore, have a minimal environmental effect, and is environmentally feasible.

D. Economic Feasibility. As previously mentioned, Sigfox has entered into an agreement with Crown Castle for the shared use of the existing facility subject to mutually agreeable terms. The proposed tower sharing is, therefore, economically feasible. (Please see included authorization.)

E. Public Safety Concerns. As discussed above, the tower is structurally capable of supporting Sigfox's full array of one (1) omni antenna, one (1) line of coaxial cable; one (1) filter, and one (1) TMA and all related equipment. Sigfox is not aware of any public safety concerns relative to the proposed sharing of the existing Crown Castle tower.

Conclusion

For the reasons discussed above, the proposed shared use of the existing Crown Castle tower at 300 Governors Highway satisfies the criteria state in C.G.S. §16-50aa and advances the General Assembly's and the Council's goal of preventing the unnecessary proliferation of towers in Connecticut. The Applicant, therefore, respectfully requests that the Council issue an order approving the prosed shared use.

Sincerely,

Amanda Cornwall
Real Estate Specialist
12 Gill Street, Suite 5800,
Woburn, MA 01801
339-205-7017
Amanda.Cornwall@crowncastle.com

Attachments:

Tab 1: Exhibit-1: Compound plan and elevation depicting the planned changes
Tab 2: Exhibit-2: Structural Modification Report
Tab 3: Exhibit-3: General Power Density Table report (RF Emissions Analysis Report)

Copies to:

The Honorable Dr. M. Saud Anwar
1540 Sullivan Ave
South Windsor, CT 06074

Michele R. Lipe, AICP – Director of Planning
1540 Sullivan Avenue
South Windsor, CT 06074

Crown Castle (Tower Owner)
12 Gill Street, Suite 5800
Worburn, MA 01801

Electron Technologies (Land Owner)
300 Governors Hwy
South Windsor, CT 06074

Ex. Shipping Tracking Printing Services Locations Support Amanda

IMPORTANT!
FedEx is closely monitoring the winter storms across portions of the U.S. Learn More

772028445968

Ship date:
Wed 4/18/2018

Crown Castle
Amanda Cornwall
Suite 5800
12 Gill St
Woburn, MA US 01801
339 205-7017

Delivered
Signed for by: N.ELOL

Actual delivery:
Thu 4/19/2018 8:52 am

ELECTRON TECHNOLOGIES CORPORATION
300 GOVERNORS HWY
SOUTH WINDSOR, CT US 06074
860 289-7451

Travel History

Date/Time	Activity	Location
- 4/19/2018 - Thursday		
8:52 am	Delivered	SOUTH WINDSOR, CT
8:20 am	On FedEx vehicle for delivery	WINDSOR LOCKS, CT
7:29 am	At local FedEx facility	WINDSOR LOCKS, CT
6:55 am	At destination sort facility	EAST GRANBY, CT
3:30 am	Departed FedEx location	NEWARK, NJ
- 4/18/2018 - Wednesday		
11:20 pm	Arrived at FedEx location	NEWARK, NJ
8:05 pm	Left FedEx origin facility	WILMINGTON, MA
6:23 pm	Picked up	WILMINGTON, MA
11:01 am	Shipment information sent to FedEx	

Shipment Facts

Tracking Number	772028445968	**Service**	FedEx Priority Overnight
Reference	1766.6680	**Weight**	1 lbs / 0.45 kgs
Delivery attempts	1	**Delivered To**	Shipping/Receiving
Total pieces	1	**Total shipment weight**	1 lbs / 0.45 kgs
Terms	Not Available	**Invoice number**	907651
Shipper reference	1766.6680	**Packaging**	FedEx Envelope
Special handling section	Deliver Weekday	**Standard transit**	4/19/2018 by 10:30 am

Ask FedEx

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772028347946

Ship date:
Wed 4/18/2018

Crown Castle
Amanda Cornwall
Suite 5800
12 Gill St
Woburn, MA US 01801
339 205-7017

Delivered
Signed for by: B.ARMSTRONG

Actual delivery:
Thu 4/19/2018 9:10 am

Mayor's Office
Dr. M. Saud Anwar
1540 Sullivan Ave
SOUTH WINDSOR, CT US 06074
860 281-7982

Travel History

Date/Time	Activity	Location
- 4/19/2018 - Thursday		
9:10 am	Delivered	SOUTH WINDSOR, CT
8:15 am	On FedEx vehicle for delivery	WINDSOR LOCKS, CT
7:37 am	At local FedEx facility	WINDSOR LOCKS, CT
6:55 am	At destination sort facility	EAST GRANBY, CT
3:30 am	Departed FedEx location	NEWARK, NJ
- 4/18/2018 - Wednesday		
11:20 pm	Arrived at FedEx location	NEWARK, NJ
8:05 pm	Left FedEx origin facility	WILMINGTON, MA
6:23 pm	Picked up	WILMINGTON, MA
10:55 am	Shipment information sent to FedEx	

Shipment Facts

Tracking Number	772028347946	**Service**	FedEx Priority Overnight
Reference	1766.6680	**Weight**	1 lbs / 0.45 kgs
Delivery attempts	1	**Delivered To**	Receptionist/Front Desk
Total pieces	1	**Total shipment weight**	1 lbs / 0.45 kgs
Terms	Not Available	**Invoice number**	907651
Shipper reference	1766.6680	**Packaging**	FedEx Envelope
Special handling section	Deliver Weekday	**Standard transit**	4/19/2018 by 10:30 am

Ask FedEx

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Ex. Shipping Tracking Printing Services Locations Support Amanda

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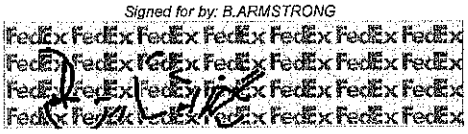
772028285602

Ship date:
Wed 4/18/2018

Crown Castle
Amanda Cornwall
Suite 5800
12 Gill St
Woburn, MA US 01801
339 205-7017

Delivered
Signed for by: B.ARMSTRONG



Actual delivery:
Thu 4/19/2018 9:10 am

Town of South Windsor
Michele R. Lipe
Planning Department
1540 Sullivan Avenue
SOUTH WINDSOR, CT US 06074
860 644-2511

Travel History

Date/Time	Activity	Location
- 4/19/2018 - Thursday		
9:10 am	Delivered	SOUTH WINDSOR, CT
8:15 am	On FedEx vehicle for delivery	WINDSOR LOCKS, CT
7:28 am	At local FedEx facility	WINDSOR LOCKS, CT
6:55 am	At destination sort facility	EAST GRANBY, CT
3:30 am	Departed FedEx location	NEWARK, NJ
- 4/18/2018 - Wednesday		
11:20 pm	Arrived at FedEx location	NEWARK, NJ
8:05 pm	Left FedEx origin facility	WILMINGTON, MA
6:23 pm	Picked up	WILMINGTON, MA
10:51 am	Shipment information sent to FedEx	

Shipment Facts

Tracking Number	772028285602	**Service**	FedEx Priority Overnight
Reference	1766.6680	**Weight**	1 lbs / 0.45 kgs
Delivery attempts	1	**Delivered To**	Receptionist/Front Desk
Total pieces	1	**Total shipment weight**	1 lbs / 0.45 kgs
Terms	Not Available	**Invoice number**	907651
Shipper reference	1766.6680	**Packaging**	FedEx Envelope
Special handling section	Deliver Weekday	**Standard transit**	4/19/2018 by 10:30 am

Ask FedEx

OUR COMPANY MORE FROM FEDEX LANGUAGE

Town of South Windsor
1540 SULLIVAN AVENUE • SOUTH WINDSOR, CT 06074-2786
AREA CODE 860/644-2511
FAX 860/644-3781

CERTIFIED MAIL

September 21, 1999

Mr. Thomas M. Gilligan
Omnipoint Communications, Inc.
100 Filley Street
Bloomfield, CT 06002

Dear Mr. Gilligan:

Re: Appl 99-51P, Omnipoint Communications Services

We are pleased to advise you that the Planning & Zoning Commission voted on September 14, 1999 to approve with modifications the above referenced application for a request for a Special Exception to Section XVI for the construction of a 175 ft. multi-carrier telecommunications monopole on property located at 300 Governor's Highway, I zone as shown on plans prepared by Arcnet, Job No. A 99506823A, dated 5/9/99, as revised. This approval is subject to the following modifications:

1. Prior to commencement of any site work, a meeting must be held with Town Staff.

2. No building permit will be issued until the final mylars have been filed in the Town Clerk's office.

3. An as-built plan is required prior to issuance of a Certificate of Occupancy per Section 8.1.10 of the Zoning Regulations.

4. All plans used in the field by the developer must bear the stamp and authorized signature of the Town of South Windsor.

5. Special Exception approval is granted for five years and must be renewed prior to September 14, 2004. The attached Special Exception form must be completed and filed in the Town Clerk's office. The special exception will take effect upon filing.

Black and white transparent mylars of Sheet S-1 with the above modifications, together with three blueprint copies of the entire set of plans must be submitted to this Commission within 30 days to be stamped and signed.

After the mylars have been signed by the Commission, they will be returned to you for filing in the Office of the Town Clerk. After filing these plans, a copy of the receipt must be submitted to the Planning Department.

Sincerely,

Sue W. Larsen /dlw

Sue W. Larsen, Chairperson
Planning and Zoning Commission

SL/dlw

Attachment

cc: Town Engineer
Chief Building Official
Assessor
Superintendent of Pollution Control
Fire Marshal

300 GOVERNORS HIGHWAY

Location	300 GOVERNORS HIGHWAY	**Mblu**	71/ 22/ / /
Acct#	36900300	**Owner**	ELECTRON TECHNOLOGIES CORPORATIO
Assessment	$776,200	**Appraisal**	$1,108,900
PID	2698	**Building Count**	1

Current Value

Appraisal			
Valuation Year	**Improvements**	**Land**	**Total**
2017	$628,200	$480,700	$1,108,900

Assessment			
Valuation Year	**Improvements**	**Land**	**Total**
2017	$439,700	$336,500	$776,200

Owner of Record

Owner	ELECTRON TECHNOLOGIES CORPORATIO	**Sale Price**	$800,000
Co-Owner	P.O.BOX 316	**Certificate**	
Address	300 GOVERNORS HIGHWAY SOUTH WINDSOR, CT 06074	**Book & Page**	540/ 418
		Sale Date	10/04/1988
		Instrument	00

Ownership History

Ownership History					
Owner	**Sale Price**	**Certificate**	**Book & Page**	**Instrument**	**Sale Date**
ELECTRON TECHNOLOGIES CORPORATIO	$800,000		540/ 418	00	10/04/1988

Building Information

Building 1 : Section 1

Year Built:	1965
Living Area:	22,060
Replacement Cost:	$960,272
Building Percent Good:	63
Replacement Cost Less Depreciation:	$605,000

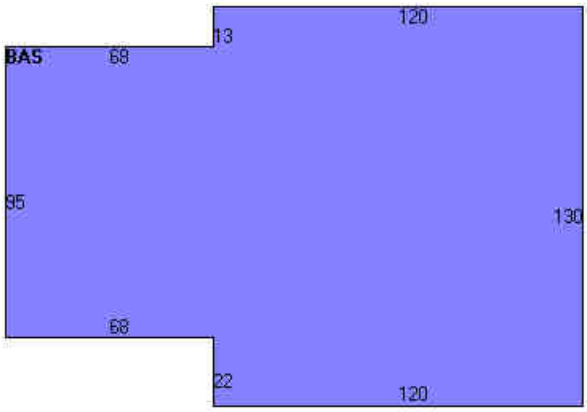
Building Attributes

Field	Description
STYLE	Light Industrial
MODEL	Comm/Ind
Grade	C
Stories:	1.00
Occupancy	1
Exterior Wall 1	Precast Panel
Exterior Wall 2	
Roof Structure	Flat
Roof Cover	Tar & Gravel
Interior Wall 1	Minimum
Interior Wall 2	Drywall
Interior Floor 1	Concrete
Interior Floor 2	Carpet
Heating Fuel	Gas
Heating Type	Forced Hot Air
% Central Air	100
Foundation	Poured Conc
Bldg Use	Industrial
Total Rooms	0
Total Bedrms	0
Total Fixtures	12
% Wet Sprinkler	
% Dry Sprinkler	
1st Floor Use	
Heat/AC	HEAT/AC SPLIT
Frame Type	MASONRY
Baths/Plumbing	AVERAGE
% Finished	25
Class	C
Wall Height	16

Building Photo

(http://images.vgsi.com/photos/SouthWindsorCTPhotos//\00\00\

Building Layout



Building Sub-Areas (sq ft)			Legend
Code	Description	Gross Area	Living Area
BAS	First Floor	22,060	22,060
		22,060	22,060

Extra Features

Extra Features	Legend
No Data for Extra Features	

Land

Land Use

Land Line Valuation

Use Code	301	**Size (Acres)**	6.03
Description	Industrial	**Frontage**	0
Zone	I	**Depth**	0
Neighborhood	C400	**Assessed Value**	$336,500
Alt Land Appr	No	**Appraised Value**	$480,700
Category			

Outbuildings

Outbuildings						Legend
Code	**Description**	**Sub Code**	**Sub Description**	**Size**	**Value**	**Bldg #**
PAV1	Paving	AS	Asphalt	36700 S.F.	$19,300	1
FN1	Fence			1080 L.F.	$3,200	1
LT1	Lights			1 UNITS	$700	1

Valuation History

Appraisal			
Valuation Year	**Improvements**	**Land**	**Total**
2017	$628,200	$480,700	$1,108,900
2016	$666,600	$318,700	$985,300
2015	$666,600	$318,700	$985,300

Assessment			
Valuation Year	**Improvements**	**Land**	**Total**
2017	$439,700	$336,500	$776,200
2016	$466,600	$223,100	$689,700
2015	$466,600	$223,100	$689,700

Crown Castle
3530 Toringdon Way, Suite 300
Charlotte, NC 28277

Crown Castle, does hereby authorize **Sigfox NIP LLC** and its authorized contractors/agents to act as "Applicant" in the processing of all applications, permits, research and other related activities associated with the processing, planning, design review, permitting, entitlement and construction of additional equipment, antennas and site improvements for the Crown Castle existing wireless communications facility described as follows:

Customer Site Name:	**CT8589**	**Crown Castle Site ID Number:**	**828054**
Site Address:	**300 Governors Highway, South Windsor, CT 06074**	**Crown Castle Site Name:**	**South Windsor/Rt 5**

This authorization is fully contingent upon **Sigfox NIP LLC** authorized contractors/agents' compliance with the following conditions:

1. Crown Castle must review the application prior to submittal. Crown Castle must be provided all applications, narratives, drawings and attachments at least 72 hours in advance of their submittal to the locality. Use of email and electronic attachments is encouraged. A Crown Castle Zoning Subject Matter Expert (SME) will review and provide written comment to the customer within 48 hours of receipt of a complete set of application materials. If Crown Castle indicates that changes are required, submissions shall be altered in accordance with Crown Castle comments prior to submission to the locality. Verification of corrections should also be accomplished via emails and attachments.
2. In no event may **Sigfox NIP LLC** encourage, suggest, participate in, or permit the imposition of any restrictions or additional obligations whatsoever on the tower site or Crown Castle's current or future use or ability to license space at the tower site as part of or in exchange for obtaining any approval, permit, exception or variance.
3. A copy of the final permit and/or a written summary of the zoning/entitlement decision rendered by the locality and any/all conditions placed on that decision shall be communicated in detail to Crown Castle well within the appeal period provided by the locality (typically 10-15 days).
4. All conditions of approval pertinent to the construction of the proposed project must be included in the construction drawings for the project. The conditions of approval pertinent to the construction of the project shall be copied verbatim from the zoning permit approval language, and shall be present in the drawings prior to submission for building permits and contractor bidding. Crown Castle shall verify the inclusion of appropriate conditions of approval in the construction drawing redline process.
5. Crown Castle will provide a Notice To Proceed (NTP) to construction to the customer upon receipt of the final approved zoning permit and the approved Building Permit.

By Crown Castle:

Signature: *Amanda Cornwall*

Printed Name: Amanda Cornwall

Title: Real Estate Specialist – East Area

Date: April 18, 2018

300 Governors Hwy

Imagery ©2018 Google, Map data ©2018 Google 100 ft

SIGFOX
One network A billion dreams

SIGFOX SITE NUMBER: CT8589
SIGFOX SITE NAME: CT8589
SITE TYPE: MONOPOLE
TOWER HEIGHT: 165'-0"

CROWN CASTLE BU #: 828054
SITE ADDRESS: 300 GOVERNORS HIGHWAY SOUTH WINDSOR, CT 06074
COUNTY: HARTFORD
JURISDICTION: TOWN OF SOUTH WINDSOR

SIGFOX PHASE 1

SITE INFORMATION

CROWN CASTLE SITE NAME:	SOUTH WINDSOR/RT 5
SITE ADDRESS:	300 GOVERNORS HIGHWAY SOUTH WINDSOR, CT 06074
COUNTY:	HARTFORD
MAP/PARCEL #:	SWIN-003690-000300
AREA OF CONSTRUCTION:	EXISTING
LATITUDE:	41° 50' 00.40"
LONGITUDE:	-72° 36' 11.00"
LAT/LONG TYPE:	NAD83
GROUND ELEVATION:	70 FT.
CURRENT ZONING:	INDUSTRIAL
JURISDICTION:	TOWN OF SOUTH WINDSOR
OCCUPANCY CLASSIFICATION:	U
TYPE OF CONSTRUCTION:	IIB
A.D.A. COMPLIANCE:	FACILITY IS UNMANNED AND NOT FOR HUMAN HABITATION
PROPERTY OWNER:	ELECTRON TECHNOLOGIES COR 300 GOVERNORS HWY PO BOX 316 SOUTH WINDSOR, CT 06074
TOWER OWNER:	CCTMO LLC 2000 CORPORATE DRIVE CANONSBURG, PA 15317
CARRIER/APPLICANT:	SIGFOX 545 BOYLSTON ST. 10TH FLOOR BOSTON, MA 02116
CROWN CASTLE APPLICATION ID:	427898
ELECTRIC PROVIDER:	CONNECTICUT LIGHT & POWER CO (800) 286-2000
TELCO PROVIDER:	AT&T (866) 620-6900

PROJECT TEAM

CROWN CASTLE A&E FIRM:	CROWN CASTLE 2000 CORPORATE DRIVE CANONSBURG, PA 15317 CROWNAE.APPROVAL@CROWNCASTLE.COM
CROWN CASTLE CONTACTS:	12 GILL STREET, SUITE 5800 WOBURN, MA 01801 BRENT MCPHERSON - PROJECT MANAGER (980) 209-8249 JASON D'AMICO - CONSTRUCTION MANAGER (860) 209-0104 AMANDA CORNWALL - A&E PROJECT MANAGER AMANDA.CORNWALL @CROWNCASTLE.COM (339) 205-7017
SIGFOX CONTACT:	FRANCO CORBO (201) 887-2226

DRAWING INDEX

SHEET #	SHEET DESCRIPTION
T-1	TITLE SHEET
T-2	GENERAL NOTES
C-1	OVERALL SITE PLAN
C-2	TOWER ELEVATION & ANTENNA LAYOUT
C-3	DETAILS
C-4	UTILITY FRAME ELEVATION
C-5	BILL OF MATERIALS
E-1	ONE LINE DIAGRAM
G-1	GROUNDING DETAILS
G-2	GROUNDING DETAILS

ALL DRAWINGS CONTAINED HEREIN ARE FORMATTED FOR 11x17. CONTRACTOR SHALL VERIFY ALL PLANS AND EXISTING DIMENSIONS AND CONDITIONS ON THE JOB SITE AND SHALL IMMEDIATELY NOTIFY THE ENGINEER IN WRITING OF ANY DISCREPANCIES BEFORE PROCEEDING WITH THE WORK OR BE RESPONSIBLE FOR SAME.

PROJECT DESCRIPTION

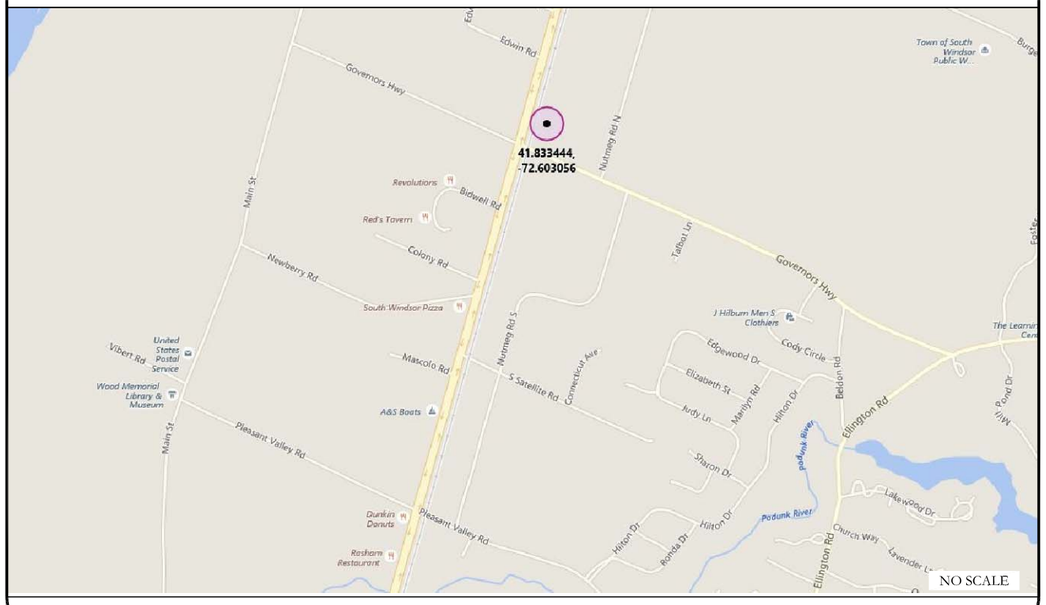
THE PURPOSE OF THIS PROJECT IS TO ENHANCE BROADBAND CONNECTIVITY AND CAPACITY TO THE EXISTING ELIGIBLE WIRELESS FACILITY.

TOWER SCOPE OF WORK
- INSTALL VALMONT RING MOUNT W/ 2-1/2" SCH 40 PIPE
- INSTALL CONNECT-IT - S4 4'-0" STAND OFF
- INSTALL (1) PROCOM - CXL 900-3LW OMNI ANTENNA W/ MOUNTING CLAMPS
- INSTALL LNA W/ CAVITY FILTER
- INSTALL (1) 1/2" EC4-50 FEEDLINE

GROUND SCOPE OF WORK
- REMOVE ABANDONED EQUIPMENT CABINET
- INSTALL BASE STATION, UPS, PRIMARY CONNECTIVITY MODEM, & BACKUP CONNECTIVITY GSM USB KEY IN NEW CABINET IN A 3'-0"x3'-0" AREA ON NEW UTILITY FRAME
- INSTALL POWER TO CABINET

DESIGN PACKAGE BASED ON THE APPLICATION
ID: 427898
REVISION: 3

LOCATION MAP



APPLICABLE CODES/REFERENCE DOCUMENTS

ALL WORK SHALL BE PERFORMED AND MATERIALS INSTALLED IN ACCORDANCE WITH THE CURRENT EDITIONS OF THE FOLLOWING CODES AS ADOPTED BY THE LOCAL GOVERNING AUTHORITIES. NOTHING IN THESE PLANS IS TO BE CONSTRUED TO PERMIT WORK NOT CONFORMING TO THESE CODES:

CODE TYPE	CODE
BUILDING	2016 CONNECTICUT STATE BUILDING CODE/2012 IBC W/ CT AMMENDMENTS
MECHANICAL	2016 CONNECTICUT STATE BUILDING CODE/2012 IMC W/ CT AMMENDMENTS
ELECTRICAL	2016 CONNECTICUT STATE BUILDING CODE/2014 NEC W/ CT AMMENDMENTS

REFERENCE DOCUMENTS:

STRUCTURAL ANALYSIS: PAUL J. FORD AND COMPANY DATED MARCH 22, 2018

MOUNT ANALYSIS: BY OTHERS

NOTE:
PRIOR TO ACCESSING/ENTERING THE SITE YOU MUST CONTACT THE CROWN NOC AT (800) 788-7011 & CROWN CONSTRUCTION MANAGER

CALL CONNECTICUT ONE CALL
(800) 922-4455
CALL 3 WORKING DAYS
BEFORE YOU DIG!

SIGFOX
One network A billion dreams
545 BOYLSTON ST. 10TH FLOOR
BOSTON, MA 02116

CROWN CASTLE
12 GILL STREET, SUITE 5800
WOBURN, MA 01801

SIGFOX SITE NUMBER:
CT8589

BU #: **828054**
SOUTH WINDSOR/RT 5

300 GOVERNORS HIGHWAY
SOUTH WINDSOR, CT 06074

EXISTING 165'-0" MONOPOLE

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
A	03/27/18	JAS	PRELIMINARY	ZTK
B	03/29/18	JAS	PRELIMINARY	ZTK
0	04/05/18	ZTK	CONSTRUCTION	JPL

DocuSigned by:
Justin Linette
1B4005B2847C41F...

STATE OF CONNECTICUT
JUSTIN PETER LINETTE
No. 31965
LICENSED PROFESSIONAL ENGINEER

4/6/2018 | 11:23:13 AM EDT

Crown Castle USA Inc. Certificate of Registration #PEC.0001101

SHEET NUMBER: T-1

REVISION: 0

SITE WORK GENERAL NOTES:

1. THE SUBCONTRACTOR SHALL CONTACT UTILITY LOCATING SERVICES PRIOR TO THE START OF CONSTRUCTION.
2. ALL EXISTING ACTIVE SEWER, WATER, GAS, ELECTRIC AND OTHER UTILITIES WHERE ENCOUNTERED IN THE WORK, SHALL BE PROTECTED AT ALL TIMES AND WHERE REQUIRED FOR THE PROPER EXECUTION OF THE WORK, SHALL BE RELOCATED AS DIRECTED BY CONTRACTOR. EXTREME CAUTION SHOULD BE USED BY THE SUBCONTRACTOR WHEN EXCAVATING OR DRILLING PIERS AROUND OR NEAR UTILITIES, SUBCONTRACTOR SHALL PROVIDE SAFETY TRAINING FOR THE WORKING CREW. THIS WILL INCLUDE BUT NOT BE LIMITED TO A) FALL PROTECTION B) CONFINED SPACE C) ELECTRICAL SAFETY D) TRENCHING AND EXCAVATION.
3. ALL SITE WORK TO COMPLY WITH QAS–STD–10068 "INSTALLATION STANDARDS FOR CONSTRUCTION ACTIVITIES ON CROWN CASTLE TOWER SITE" AND LATEST VERSION OF TIA 1019 "STANDARD FOR INSTALLATION, ALTERATION, AND MAINTENANCE OF ANTENNA SUPPORTING STRUCTURES AND ANTENNAS."
4. ALL SITE WORK SHALL BE AS INDICATED ON THE STAMPED CONSTRUCTION DRAWINGS AND PROJECT SPECIFICATIONS.
5. IF NECESSARY, RUBBISH, STUMPS, DEBRIS, STICKS, STONES AND OTHER REFUSE SHALL BE REMOVED FROM THE SITE AND DISPOSED OF LEGALLY.
6. ALL EXISTING INACTIVE SEWER, WATER, GAS, ELECTRIC AND OTHER UTILITIES, WHICH INTERFERE WITH THE EXECUTION OF THE WORK, SHALL BE REMOVED AND/OR CAPPED, PLUGGED OR OTHERWISE DISCONTINUED AT POINTS WHICH WILL NOT INTERFERE WITH THE EXECUTION OF THE WORK, SUBJECT TO THE APPROVAL OF CONTRACTOR, OWNER AND/OR LOCAL UTILITIES.
7. THE SUBCONTRACTOR SHALL PROVIDE SITE SIGNAGE IN ACCORDANCE WITH THE TECHNICAL SPECIFICATION FOR SITE SIGNAGE.
8. THE SITE SHALL BE GRADED TO CAUSE SURFACE WATER TO FLOW AWAY FROM THE BTS EQUIPMENT AND TOWER AREAS.
9. NO FILL OR EMBANKMENT MATERIAL SHALL BE PLACED ON FROZEN GROUND. FROZEN MATERIALS, SNOW OR ICE SHALL NOT BE PLACED IN ANY FILL OR EMBANKMENT.
10. THE SUB GRADE SHALL BE COMPACTED AND BROUGHT TO A SMOOTH UNIFORM GRADE PRIOR TO FINISHED SURFACE APPLICATION.
11. THE AREAS OF THE OWNERS PROPERTY DISTURBED BY THE WORK AND NOT COVERED BY THE TOWER, EQUIPMENT OR DRIVEWAY, SHALL BE GRADED TO A UNIFORM SLOPE, AND STABILIZED TO PREVENT EROSION AS SPECIFIED ON THE PROJECT SPECIFICATIONS.
12. SUBCONTRACTOR SHALL MINIMIZE DISTURBANCE TO EXISTING SITE DURING CONSTRUCTION. EROSION CONTROL MEASURES, IF REQUIRED DURING CONSTRUCTION, SHALL BE IN CONFORMANCE WITH THE LOCAL GUIDELINES FOR EROSION AND SEDIMENT CONTROL.
13. NOTICE TO PROCEED– NO WORK TO COMMENCE PRIOR TO COMPANY'S WRITTEN NOTICE TO PROCEED AND THE ISSUANCE OF A PURCHASE ORDER.
14. ALL CONSTRUCTION MEANS AND METHODS; INCLUDING BUT NOT LIMITED TO, ERECTION PLANS, RIGGING PLANS, CLIMBING PLANS, AND RESCUE PLANS SHALL BE THE RESPONSIBILITY OF THE GENERAL CONTRACTOR RESPONSIBLE FOR THE EXECUTION OF THE WORK CONTAINED HEREIN AND SHALL MEET ANSI/TIA 1019 (LATEST EDITION), OSHA, AND GENERAL INDUSTRY STANDARDS. ALL RIGGING PLANS SHALL ADHERE TO ANSI/TIA–1019 (LATEST EDITION) INCLUDING THE REQUIRED INVOLVEMENT OF A QUALIFIED ENGINEER FOR CLASS IV CONSTRUCTION.

STRUCTURAL STEEL NOTES:

1. ALL STEEL WORK SHALL BE PAINTED IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS AND IN ACCORDANCE WITH ASTM A36 UNLESS OTHERWISE NOTED.
2. BOLTED CONNECTIONS SHALL BE ASTM A325 BEARING TYPE (3/4"ø) CONNECTIONS AND SHALL HAVE MINIMUM OF TWO BOLTS UNLESS NOTED OTHERWISE.
3. NON–STRUCTURAL CONNECTIONS FOR STEEL GRATING MAY USE 5/8"ø ASTM A307 BOLTS UNLESS NOTED OTHERWISE.
4. INSTALLATION OF CONCRETE EXPANSION/WEDGE ANCHOR, SHALL BE PER MANUFACTURER'S RECOMMENDED PROCEDURE. THE ANCHOR BOLT, DOWEL OR ROD SHALL CONFORM TO MANUFACTURER'S RECOMMENDATION FOR EMBEDMENT DEPTH OR AS SHOWN ON THE DRAWINGS. NO REBAR SHALL BE CUT WITHOUT PRIOR CONTRACTOR APPROVAL WHEN DRILLING HOLES IN CONCRETE. SPECIAL INSPECTIONS, REQUIRED BY GOVERNING CODES, SHALL BE PERFORMED IN ORDER TO MAINTAIN MANUFACTURER'S MAXIMUM ALLOWABLE LOADS.

CONCRETE AND REINFORCING STEEL NOTES:

1. ALL CONCRETE WORK SHALL BE IN ACCORDANCE WITH THE ACI 301, ACI 318, ACI 336, ASTM A184, ASTM A185 AND THE DESIGN AND CONSTRUCTION SPECIFICATION FOR CAST–IN–PLACE CONCRETE.
2. ALL CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 3000 PSI AT 28 DAYS, UNLESS NOTED OTHERWISE. SLAB FOUNDATION DESIGN ASSUMING ALLOWABLE SOIL BEARING PRESSURE OF 2000 PSF.
3. REINFORCING STEEL SHALL CONFORM TO ASTM A615, GRADE 60, DEFORMED UNLESS NOTED OTHERWISE. WELDED WIRE FABRIC SHALL CONFORM TO ASTM A185 WELDED STEEL WIRE FABRIC UNLESS NOTED OTHERWISE. SPLICES SHALL BE CLASS "B" AND ALL HOOKS SHALL BE STANDARD, UNO.
4. THE FOLLOWING MINIMUM CONCRETE COVER SHALL BE PROVIDED FOR REINFORCING STEEL UNLESS SHOWN OTHERWISE ON DRAWINGS:

   CONCRETE CAST AGAINST EARTH.....3 IN.
   CONCRETE EXPOSED TO EARTH OR WEATHER:
   #6 AND LARGER.....2 IN.
   #5 AND SMALLER & WWF.....1 1/2 IN.
   CONCRETE NOT EXPOSED TO EARTH OR WEATHER OR NOT CAST AGAINST THE GROUND:
   SLAB AND WALLS.....3/4 IN.
   BEAMS AND COLUMNS.....1 1/2 IN.

5. A CHAMFER 3/4" SHALL BE PROVIDED AT ALL EXPOSED EDGES OF CONCRETE, UNLESS NOTED OTHERWISE. IN ACCORDANCE WITH ACI 301 SECTION 4.2.4.

MASONRY NOTES:

1. HOLLOW CONCRETE MASONRY UNITS SHALL MEET A.S.T.M. SPECIFICATION C90, GRADE N. TYPE 1. THE SPECIFIED DESIGN COMPRESSIVE STRENGTH OF CONCRETE MASONRY (F'm) SHALL BE 1500 PSI.
2. MORTAR SHALL MEET THE PROPERTY SPECIFICATION OF A.S.T.M. C270 TYP. "S" MORTAR AND SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 2000 PSI.
3. GROUT SHALL MEET A.S.T.M. SPECIFICATION C475 AND HAVE A MINIMUM 28 DAY COMPRESSIVE STRENGTH OF 2000 PSI.
4. CONCRETE MASONRY SHALL BE LAID IN RUNNING (COMMON) BOND.
5. WALL SHALL RECEIVE TEMPORARY BRACING. TEMPORARY BRACING SHALL NOT BE REMOVED UNTIL GROUT IS FULLY CURED.

GENERAL NOTES:

1. FOR THE PURPOSE OF CONSTRUCTION DRAWING, THE FOLLOWING DEFINITIONS SHALL APPLY:

CONTRACTOR–	
SUBCONTRACTOR–	GENERAL CONTRACTOR (CONSTRUCTION)
CARRIER–	SIGFOX
TOWER OWNER–	CROWN CASTLE
OEM–	ORIGINAL EQUIPMENT MANUFACTURER

2. PRIOR TO THE SUBMISSION OF BIDS, THE BIDDING SUBCONTRACTOR SHALL VISIT THE CELL SITE TO FAMILIARIZE WITH THE EXISTING CONDITIONS AND TO CONFIRM THAT THE WORK CAN BE ACCOMPLISHED AS SHOWN ON THE CONSTRUCTION DRAWINGS. ANY DISCREPANCY FOUND SHALL BE BROUGHT TO THE ATTENTION OF CONTRACTOR AND CROWN CASTLE.
3. ALL MATERIALS FURNISHED AND INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS AND ORDINANCES. SUBCONTRACTOR SHALL ISSUE ALL APPROPRIATE NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY REGARDING THE PERFORMANCE OF THE WORK. ALL WORK CARRIED OUT SHALL COMPLY WITH ALL APPLICABLE MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS AND LOCAL JURISDICTIONAL CODES, ORDINANCES AND APPLICABLE REGULATIONS.
4. DRAWINGS PROVIDED HERE ARE NOT TO SCALE AND ARE INTENDED TO SHOW OUTLINE ONLY.
5. UNLESS NOTED OTHERWISE, THE WORK SHALL INCLUDE FURNISHING MATERIALS, EQUIPMENT, APPURTENANCES AND LABOR NECESSARY TO COMPLETE ALL INSTALLATIONS AS INDICATED ON THE DRAWINGS.
6. "KITTING LIST" SUPPLIED WITH THE BID PACKAGE IDENTIFIES ITEMS THAT WILL BE SUPPLIED BY CONTRACTOR. ITEMS NOT INCLUDED IN THE BILL OF MATERIALS AND KITTING LIST SHALL BE SUPPLIED BY THE SUBCONTRACTOR.
7. THE SUBCONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.
8. IF THE SPECIFIED EQUIPMENT CAN NOT BE INSTALLED AS SHOWN ON THESE DRAWINGS, THE SUBCONTRACTOR SHALL PROPOSE AN ALTERNATIVE INSTALLATION FOR APPROVAL BY THE CONTRACTOR AND CROWN CASTLE PRIOR TO PROCEEDING WITH ANY SUCH CHANGE OF INSTALLATION.
9. SUBCONTRACTOR SHALL DETERMINE ACTUAL ROUTING OF CONDUIT, POWER AND T1 CABLES, GROUNDING CABLES AS SHOWN ON THE POWER, GROUNDING AND TELCO PLAN DRAWINGS.
10. THE SUBCONTRACTOR SHALL PROTECT EXISTING IMPROVEMENTS, PAVEMENTS, CURBS, LANDSCAPING AND STRUCTURES. ANY DAMAGED PART SHALL BE REPAIRED AT SUBCONTRACTOR'S EXPENSE TO THE SATISFACTION OF OWNER.
11. SUBCONTRACTOR SHALL LEGALLY AND PROPERLY DISPOSE OF ALL SCRAP MATERIALS SUCH AS COAXIAL CABLES AND OTHER ITEMS REMOVED FROM THE EXISTING FACILITY. ANTENNAS REMOVED SHALL BE RETURNED TO THE OWNER'S DESIGNATED LOCATION.
12. SUBCONTRACTOR SHALL LEAVE PREMISES IN CLEAN CONDITION. TRASH AND DEBRIS SHOULD BE REMOVED FROM SITE ON A DAILY BASIS.

ABBREVIATIONS AND SYMBOLS:

ABBREVIATIONS:

AGL	ABOVE GRADE LEVEL
BTS	BASE TRANSCEIVER STATION
(E)	EXISTING
MIN.	MINIMUM
REF	REFERENCE
RF	RADIO FREQUENCY
T.B.D.	TO BE DETERMINED
T.B.R.	TO BE RESOLVED
TYP	TYPICAL
REQ	REQUIRED
EGR	EQUIPMENT GROUND RING
AWG	AMERICAN WIRE GAUGE
MGB	MASTER GROUND BAR
EG	EQUIPMENT GROUND
BCW	BARE COPPER WIRE
SIAD	SMART INTEGRATED ACCESS DEVICE
GEN	GENERATOR
IGR	INTERIOR GROUND RING (HALO)
RBS	RADIO BASE STATION

SYMBOLS:

S/G	SOLID GROUND BUS BAR
S/N	SOLID NEUTRAL BUS BAR
	SUPPLEMENTAL GROUND CONDUCTOR
	2–POLE THERMAL–MAGNETIC CIRCUIT BREAKER
	SINGLE–POLE THERMAL–MAGNETIC CIRCUIT BREAKER
	CHEMICAL GROUND ROD
	TEST WELL
	DISCONNECT SWITCH
M	METER
	EXOTHERMIC WELD (CADWELD) (UNLESS OTHERWISE NOTED)
	MECHANICAL CONNECTION
	GROUNDING WIRE

ELECTRICAL INSTALLATION NOTES:

1. ALL ELECTRICAL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS, NEC AND ALL APPLICABLE FEDERAL, STATE, AND LOCAL CODES/ORDINANCES.
2. CONDUIT ROUTINGS ARE SCHEMATIC. SUBCONTRACTOR SHALL INSTALL CONDUITS SO THAT ACCESS TO EQUIPMENT IS NOT BLOCKED AND TRIP HAZARDS ARE ELIMINATED.
3. WIRING, RACEWAY AND SUPPORT METHODS AND MATERIALS SHALL COMPLY WITH THE REQUIREMENTS OF THE NEC. HILTI EPOXY ANCHORS ARE REQUIRED BY CROWN CASTLE.
4. ALL CIRCUITS SHALL BE SEGREGATED AND MAINTAIN MINIMUM CABLE SEPARATION AS REQUIRED BY THE NEC.
5. CABLES SHALL NOT BE ROUTED THROUGH LADDER–STYLE CABLE TRAY RUNGS.
6. EACH END OF EVERY POWER, POWER PHASE CONDUCTOR (I.E., HOTS), GROUNDING AND T1 CONDUCTOR AND CABLE SHALL BE LABELED WITH COLOR–CODED INSULATION OR ELECTRICAL TAPE (3M BRAND, 1/2" PLASTIC ELECTRICAL TAPE WITH UV PROTECTION, OR EQUAL). THE IDENTIFICATION METHOD SHALL CONFORM WITH NEC AND OSHA.
7. ALL ELECTRICAL COMPONENTS SHALL BE CLEARLY LABELED WITH PLASTIC TAPE PER COLOR SCHEDULE. ALL EQUIPMENT SHALL BE LABELED WITH THEIR VOLTAGE RATING, PHASE CONFIGURATION, WIRE CONFIGURATION, POWER OR AMPACITY RATING AND BRANCH CIRCUIT ID NUMBERS (I.E. PANEL BOARD AND CIRCUIT ID'S).
8. PANEL BOARDS (ID NUMBERS) AND INTERNAL CIRCUIT BREAKERS (CIRCUIT ID NUMBERS) SHALL BE CLEARLY LABELED WITH PLASTIC LABELS.
9. ALL TIE WRAPS SHALL BE CUT FLUSH WITH APPROVED CUTTING TOOL TO REMOVE SHARP EDGES.
10. POWER, CONTROL AND EQUIPMENT GROUND WIRING IN TUBING OR CONDUIT SHALL BE SINGLE CONDUCTOR (#14 AWG OR LARGER), 600 V, OIL RESISTANT THHN OR THWN–2, CLASS B STRANDED COPPER CABLE RATED FOR 90° C (WET & DRY) OPERATION LISTED OR LABELED FOR THE LOCATION AND RACEWAY SYSTEM USED UNLESS OTHERWISE SPECIFIED.
11. SUPPLEMENTAL EQUIPMENT GROUND WIRING LOCATED INDOORS SHALL BE SINGLE CONDUCTOR (#6 AWG OR LARGER), 600V, OIL RESISTANT THHN OR THWN–2 GREEN INSULATION CLASS B STRANDED COPPER CABLE RATED FOR 90° C (WET AND DRY) OPERATION LISTED OR LABELED FOR THE LOCATION AND RACEWAY SYSTEM USED UNLESS OTHERWISE SPECIFIED.
12. POWER AND CONTROL WIRING, NOT IN TUBING OR CONDUIT, SHALL BE MULTI–CONDUCTOR, TYPE TC CABLE (#14 AWG OR LARGER), 600 V, OIL RESISTANT THHN OR THWN–2, CLASS B STRANDED COPPER CABLE RATED FOR 90° C (WET AND DRY) OPERATION WITH OUTER JACKET LISTED OR LABELED FOR THE LOCATION USED UNLESS OTHERWISE SPECIFIED.
13. ALL POWER AND GROUNDING CONNECTIONS SHALL BE CRIMP–STYLE, COMPRESSION WIRE LUGS AND WIRE NUTS BY THOMAS AND BETTS (OR EQUAL). LUGS AND WIRE NUTS SHALL BE RATED FOR OPERATION AT NO LESS THAN 75° C (90° C IF AVAILABLE).
14. RACEWAY AND CABLE TRAY SHALL BE LISTED OR LABELED FOR ELECTRICAL USE IN ACCORDANCE WITH NEMA, UL, ANSI/IEEE AND NEC.
15. ELECTRICAL METALLIC TUBING (EMT) OR RIGID NONMETALLIC CONDUIT (I.E. RIGID PVC SCHEDULE 40 OR RIGID PVC SCHEDULE 80 FOR LOCATIONS SUBJECT TO PHYSICAL DAMAGE) SHALL BE USED FOR EXPOSED INDOOR LOCATIONS.
16. ELECTRICAL METALLIC TUBING (EMT), ELECTRICAL NONMETALLIC TUBING (ENT) OR RIGID NONMETALLIC CONDUIT (RIGID PVC, SCHEDULE 40) SHALL BE USED FOR CONCEALED INDOOR LOCATIONS.
17. SCHEDULE 40 PVC UNDERGROUND ON STRAIGHTS AND SCHEDULE 80 PVC FOR ALL ELBOWS/90s AND ALL APPROVED ABOVE GRADE PVC CONDUIT.
18. LIQUID–TIGHT FLEXIBLE METALLIC CONDUIT (LIQUID–TITE FLEX) SHALL BE USED INDOORS AND OUTDOORS, WHERE VIBRATION OCCURS OR FLEXIBILITY IS NEEDED.
19. CONDUIT AND TUBING FITTINGS SHALL BE THREADED OR COMPRESSION–TYPE AND APPROVED FOR THE LOCATION USED. SET SCREW FITTINGS ARE NOT ACCEPTABLE.
20. CABINETS, BOXES AND WIRE WAYS SHALL BE LABELED FOR ELECTRICAL USE IN ACCORDANCE WITH NEMA, UL, ANSI/IEEE AND NEC.
21. WIREWAYS SHALL BE EPOXY–COATED (GRAY) AND INCLUDE A HINGED COVER, DESIGNED TO SWING OPEN DOWNWARDS; SHALL BE PANDUIT TYPE E (OR EQUAL); AND RATED NEMA 1 (OR BETTER).
22. CONDUITS SHALL BE FASTENED SECURELY IN PLACE WITH APPROVED NON–PERFORATED STRAPS AND HANGERS. EXPLOSIVE DEVICES FOR ATTACHING HANGERS TO STRUCTURE WILL NOT BE PERMITTED. CLOSELY FOLLOW THE LINES OF THE STRUCTURE, MAINTAIN CLOSE PROXIMITY TO THE STRUCTURE AND KEEP CONDUITS IN TIGHT ENVELOPES. CHANGES IN DIRECTION TO ROUTE AROUND OBSTACLES SHALL BE MADE WITH CONDUIT OUTLET BODIES. CONDUIT SHALL BE INSTALLED IN A NEAT AND WORKMANLIKE MANNER. PARALLEL AND PERPENDICULAR TO STRUCTURE WALL AND CEILING LINES. ALL CONDUIT SHALL BE FISHED TO CLEAR OBSTRUCTIONS. ENDS OF CONDUITS SHALL BE TEMPORARILY CAPPED FLUSH TO FINISH GRADE TO PREVENT CONCRETE, PLASTER OR DIRT FROM ENTERING. CONDUITS SHALL BE RIGIDLY CLAMPED TO BOXES BY GALVANIZED MALLEABLE IRON BUSHIN ON INSIDE AND GALVANIZED MALLEABLE IRON LOCKNUT ON OUTSIDE AND INSIDE.
23. EQUIPMENT CABINETS, TERMINAL BOXES, JUNCTION BOXES AND PULL BOXES SHALL BE GALVANIZED OR EPOXY–COATED SHEET STEEL; SHALL MEET OR EXCEED UL 50 AND RATED NEMA 1 (OR BETTER) INDOORS OR NEMA 3R (OR BETTER) OUTDOORS.
24. METAL RECEPTACLE, SWITCH AND DEVICE BOXES SHALL BE GALVANIZED, EPOXY–COATED OR NON–CORRODING; SHALL MEET OR EXCEED UL 514A AND NEMA OS 1; AND RATED NEMA 1 (OR BETTER) INDOORS OR WEATHER PROTECTED (WP OR BETTER) OUTDOORS.
25. NONMETALLIC RECEPTACLE, SWITCH AND DEVICE BOXES SHALL MEET OR EXCEED NEMA OS 2; AND RATED NEMA 1 (OR BETTER) INDOORS OR WEATHER PROTECTED (WP OR BETTER) OUTDOORS.
26. THE SUBCONTRACTOR SHALL NOTIFY AND OBTAIN NECESSARY AUTHORIZATION FROM THE CONTRACTOR BEFORE COMMENCING WORK ON THE AC POWER DISTRIBUTION PANELS.
27. THE SUBCONTRACTOR SHALL PROVIDE NECESSARY TAGGING ON THE BREAKERS, CABLES AND DISTRIBUTION PANELS IN ACCORDANCE WITH THE APPLICABLE CODES AND STANDARDS TO SAFEGUARD LIFE AND PROPERTY.
28. INSTALL PLASTIC LABEL ON THE METER CENTER TO SHOW "SIGFOX".
29. ALL CONDUITS THAT ARE INSTALLED ARE TO HAVE A METERED MULE TAPE PULL CORD INSTALLED.

GREENFIELD GROUNDING NOTES:

1. ALL GROUND ELECTRODE SYSTEMS (INCLUDING TELECOMMUNICATION, RADIO, LIGHTNING PROTECTION AND AC POWER GES'S) SHALL BE BONDED TOGETHER AT OR BELOW GRADE, BY TWO OR MORE COPPER BONDING CONDUCTORS IN ACCORDANCE WITH THE NEC.
2. THE SUBCONTRACTOR SHALL PERFORM IEEE FALL–OF–POTENTAL RESISTANCE TO EARTH TESTING (PER IEEE 1100 AND 81) FOR GROUND ELECTRODE SYSTEMS, THE SUBCONTRACTOR SHALL FURNISH AND INSTALL SUPPLEMENTAL GROUND ELECTRODES AS NEEDED TO ACHIEVE A TEST RESULT OF 5 OHMS OR LESS.
3. THE SUBCONTRACTOR IS RESPONSIBLE FOR PROPERLY SEQUENCING GROUNDING AND UNDERGROUND CONDUIT INSTALLATION AS TO PREVENT ANY LOSS OF CONTINUITY IN THE GROUNDING SYSTEM OR DAMAGE TO THE CONDUIT AND PROVIDE TESTING RESULTS.
4. METAL CONDUIT AND TRAY SHALL BE GROUNDED AND MADE ELECTRICALLY CONTINUOUS WITH LISTED BONDING FITTINGS OR BY BONDING ACROSS THE DISCONTINUITY WITH #6 AWG COPPER WIRE UL APPROVED GROUNDING TYPE CONDUIT CLAMPS.
5. METAL RACEWAY SHALL NOT BE USED AS THE NEC REQUIRED EQUIPMENT GROUND CONDUCTOR. STRANDED COPPER CONDUCTORS WITH GREEN INSULATION, SIZED IN ACCORDANCE WITH THE NEC, SHALL BE FURNISHED AND INSTALLED WITH THE POWER CIRCUITS TO BTS EQUIPMENT.
6. EACH CABINET FRAME SHALL BE DIRECTLY CONNECTED TO THE MASTER GROUND BAR WITH GREEN INSULATED SUPPLEMENTAL EQUIPMENT GROUND WIRES, 6 AWG STRANDED COPPER OR LARGER FOR INDOOR BTS; #2 AWG SOLID TINNED COPPER FOR OUTDOOR BTS.
7. CONNECTIONS TO THE GROUND BUS SHALL NOT BE DOUBLED UP OR STACKED BACK TO BACK CONNECTIONS ON OPPOSITE SIDE OF THE GROUND BUS ARE PERMITTED.
8. ALL EXTERIOR GROUND CONDUCTORS BETWEEN EQUIPMENT/GROUND BARS AND THE GROUND RING SHALL BE #2 AWG SOLID TINNED COPPER UNLESS OTHERWISE INDICATED.
9. ALUMINUM CONDUCTOR OR COPPER CLAD STEEL CONDUCTOR SHALL NOT BE USED FOR GROUNDING CONNECTIONS.
10. USE OF 90° BENDS IN THE PROTECTION GROUNDING CONDUCTORS SHALL BE AVOIDED WHEN 45° BENDS CAN BE ADEQUATELY SUPPORTED.
11. EXOTHERMIC WELDS SHALL BE USED FOR ALL GROUNDING CONNECTIONS BELOW GRADE.
12. ALL GROUND CONNECTIONS ABOVE GRADE (INTERIOR AND EXTERIOR) SHALL BE FORMED USING HIGH PRESS CRIMPS.
13. COMPRESSION GROUND CONNECTIONS MAY BE REPLACED BY EXOTHERMIC WELD CONNECTIONS.
14. ICE BRIDGE BONDING CONDUCTORS SHALL BE EXOTHERMICALLY BONDED OR BOLTED TO THE BRIDGE AND THE TOWER GROUND BAR.
15. APPROVED ANTIOXIDANT COATINGS (I.E. CONDUCTIVE GEL OR PASTE) SHALL BE USED ON ALL COMPRESSION AND BOLTED GROUND CONNECTIONS.
16. ALL EXTERIOR GROUND CONNECTIONS SHALL BE COATED WITH A CORROSION RESISTANT MATERIAL.
17. MISCELLANEOUS ELECTRICAL AND NON–ELECTRICAL METAL BOXES, FRAMES AND SUPPORTS SHALL BE BONDED TO THE GROUND RING, IN ACCORDANCE WITH THE NEC.
18. BOND ALL METALLIC OBJECTS WITHIN 6 FT. OF MAIN GROUND WIRES WITH 1–#2 AWG TIN–PLATED COPPER GROUND CONDUCTOR.
19. GROUND CONDUCTORS USED IN THE FACILITY GROUND AND LIGHTNING PROTECTION SYSTEMS SHALL NOT BE ROUTED THROUGH METALLIC OBJECTS THAT FORM A RING AROUND THE CONDUCTOR, SUCH AS METALLIC CONDUITS, METAL SUPPORT CLIPS OR SLEEVES THROUGH WALLS OR FLOORS, WHEN IT IS REQUIRED TO BE HOUSED IN CONDUIT TO MEET CODE REQUIREMENTS OR LOCAL CONDITIONS, NON–METALLIC MATERIAL SUCH AS PVC PLASTIC CONDUIT SHALL BE USED. WHERE USE OF METAL CONDUIT IS UNAVOIDABLE (E.G., NONMETALLIC CONDUIT PROHIBITED BY LOCAL CODE) THE GROUND CONDUCTOR SHALL BE BONDED TO EACH END OF THE METAL CONDUIT.
20. ALL GROUNDS THAT TRANSITION FROM BELOW GRADE TO ABOVE GRADE MUST BE #2 TINNED SOLID IN 3/4" LIQUID TIGHT CONDUIT FROM 24" BELOW GRADE TO WITHIN 3" TO 6" OF CAD–WELD TERMINATION POINT. THE EXPOSED END OF THE LIQUID TIGHT CONDUIT MUST BE SEALED WITH SILICONE CAULK. (ADD TRANSITIONING GROUND STANDARD DETAIL AS WELL).

NEC INSULATOR COLOR CODE

DESCRIPTION	PHASE/CODE LETTER	WIRE COLOR
240/120 1Ø	LEG 1	BLACK
	LEG 2	RED
AC NEUTRAL	N	WHITE
GROUND (EGC)	G	GREEN
VDC POS	+	*RED–POLARITY MARK AT TERMINATION
VDC NEG	–	*BLACK–POLARITY MARK AT TERMINATION
240V OR 208V, 3Ø	PHASE A	BLACK
	PHASE B	RED(ORG. IF HI LEG)
	PHASE C	BLUE
480V, 3Ø	PHASE A	BROWN
	PHASE B	ORANGE
	PHASE C	YELLOW

* SEE NEC 210.5(C)(1) AND (2)

SIGFOX
One network A billion dreams
545 BOYLSTON ST. 10TH FLOOR
BOSTON, MA 02116

CROWN CASTLE
12 GILL STREET, SUITE 5800
WOBURN, MA 01801

SIGFOX SITE NUMBER:
CT8589

BU #: **828054**
SOUTH WINDSOR/RT 5

300 GOVERNORS HIGHWAY
SOUTH WINDSOR, CT 06074

EXISTING 165'-0" MONOPOLE

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
A	03/27/18	JAS	PRELIMINARY	ZTK
B	03/29/18	JAS	PRELIMINARY	ZTK
0	04/05/18	ZTK	CONSTRUCTION	JPL

DocuSigned by:
Justin Linette
1B4005B2847C4D5...

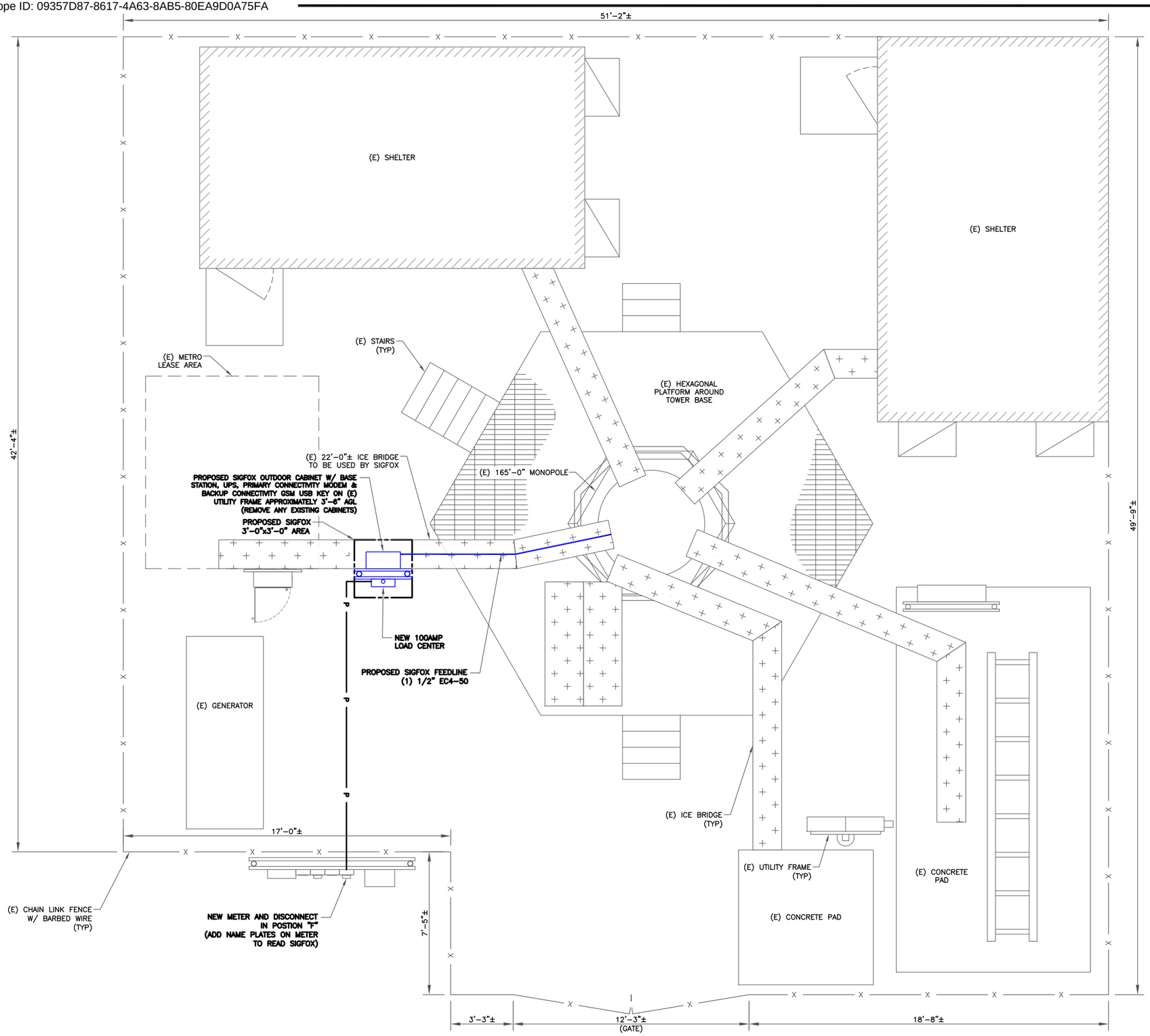
STATE OF CONNECTICUT
JUSTIN PETER LINETTE
No. 31965
LICENSED PROFESSIONAL ENGINEER

4/6/2018 | 11:28:13 AM EDT

Crown Castle USA Inc. Certificate of Registration #PEC.0001101

SHEET NUMBER: T-2

REVISION: 0



1 OVERALL SITE PLAN
SCALE: 2' 1' 0 2' 3/8"=1'-0" (FULL SIZE) 3/16"=1'-0" (11x17)

SIGFOX
One network A billion dreams
545 BOYLSTON ST. 10TH FLOOR
BOSTON, MA 02116

CROWN CASTLE
12 GILL STREET, SUITE 5800
WOBURN, MA 01801

SIGFOX SITE NUMBER:
CT8589

BU #: **828054**
SOUTH WINDSOR/RT 5

300 GOVERNORS HIGHWAY
SOUTH WINDSOR, CT 06074

EXISTING 165'-0" MONOPOLE

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
A	03/27/18	JAS	PRELIMINARY	ZTK
B	03/29/18	JAS	PRELIMINARY	ZTK
0	04/05/18	ZTK	CONSTRUCTION	JPL

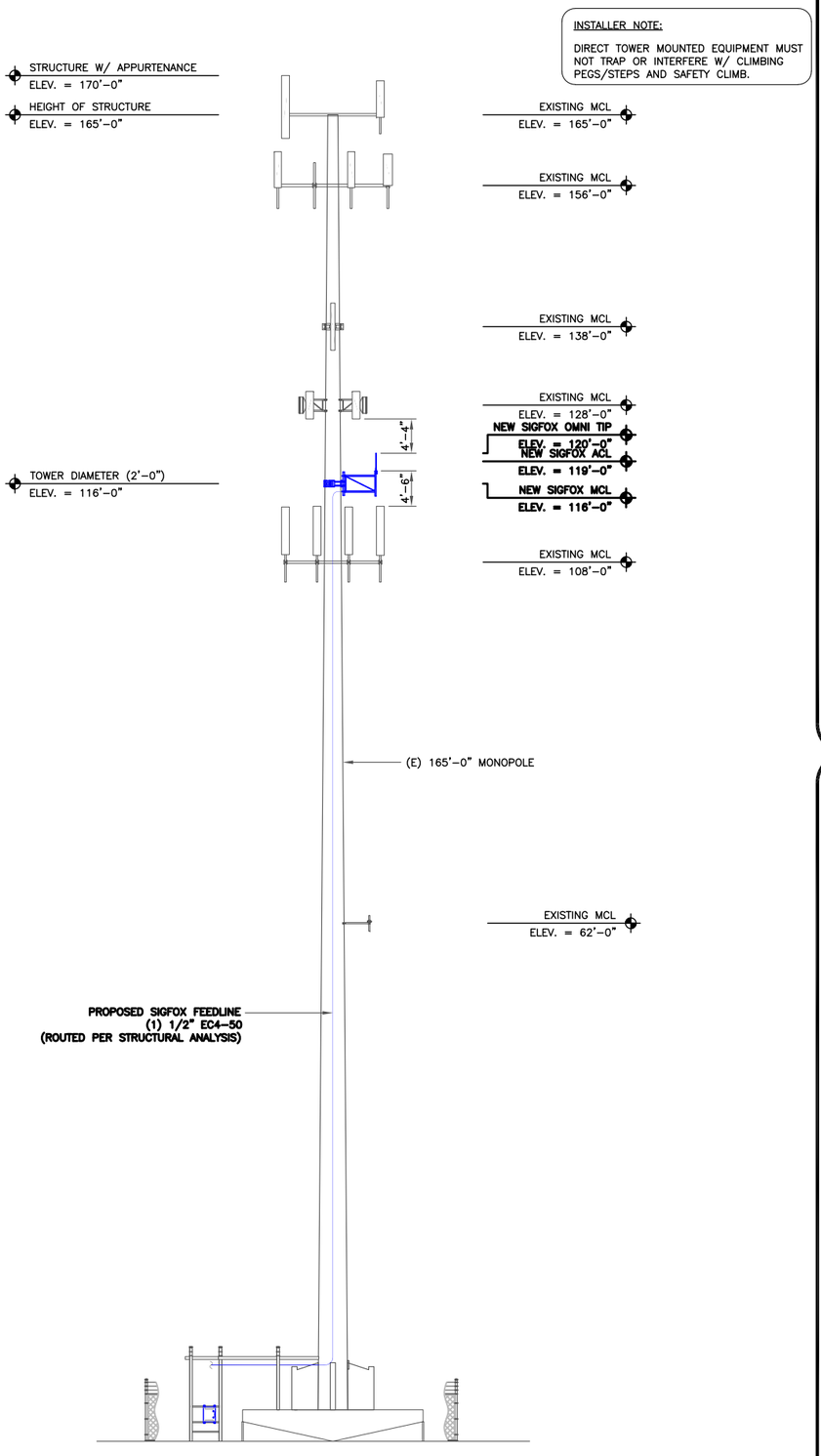
DocuSigned by:
Justin Linette
1B4095B2347C4FF...

STATE OF CONNECTICUT
JUSTIN PETER LINETTE
No. 31965
LICENSED PROFESSIONAL ENGINEER

4/6/2018 | 11:29:13 AM EDT

Crown Castle USA Inc. Certificate of Registration #PEC.0001101

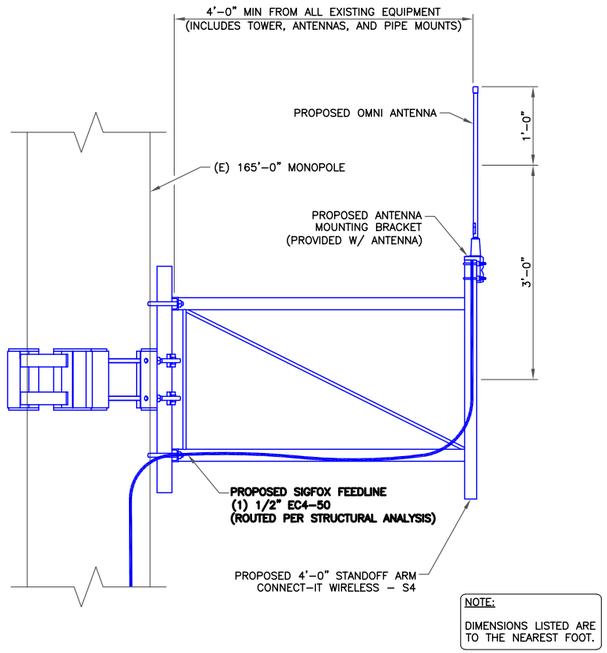
SHEET NUMBER: C-1
REVISION: 0



INSTALLER NOTE:

DIRECT TOWER MOUNTED EQUIPMENT MUST NOT TRAP OR INTERFERE W/ CLIMBING PEGS/STEPS AND SAFETY CLIMB.

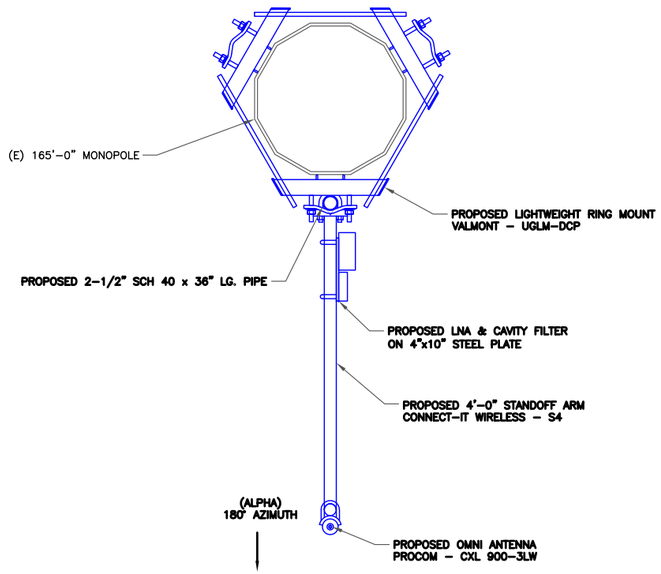
1 FINAL ELEVATION
SCALE: NOT TO SCALE



NOTE:

DIMENSIONS LISTED ARE TO THE NEAREST FOOT.

2 TYPICAL MOUNTING DETAIL
SCALE: NOT TO SCALE



3 FINAL ANTENNA LAYOUT
SCALE: NOT TO SCALE

N

SIGFOX
One network A billion dreams
545 BOYLSTON ST. 10TH FLOOR
BOSTON, MA 02116

CROWN CASTLE
12 GILL STREET, SUITE 5800
WOBURN, MA 01801

SIGFOX SITE NUMBER:
CT8589

BU #: **828054**
SOUTH WINDSOR/RT 5

300 GOVERNORS HIGHWAY
SOUTH WINDSOR, CT 06074

EXISTING 165'-0" MONOPOLE

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
A	03/27/18	JAS	PRELIMINARY	ZTK
B	03/29/18	JAS	PRELIMINARY	ZTK
0	04/05/18	ZTK	CONSTRUCTION	JPL

DocuSigned by:
Justin Linette
1B4095B2347C41F...

STATE OF CONNECTICUT
JUSTIN PETER LINETTE
No. 31965
LICENSED PROFESSIONAL ENGINEER

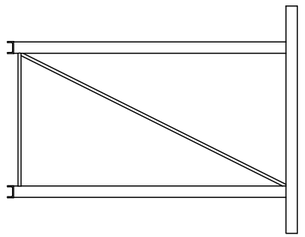
4/6/2018 | 11:23:13 AM EDT

Crown Castle USA Inc. Certificate of Registration #PEC.0001101

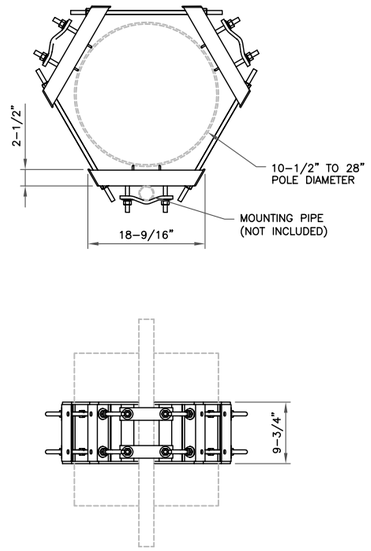
SHEET NUMBER: C-2

REVISION: 0

Product Specifications	
Material	Galvanized Steel, 1-1/2" ID (1.9" OD)
Standoff	4'
End Pipe Length	38"
Horizontal Pipes' Length	46-1/2"
Max Combined Load Weight	90 lbs
Max Combined Load Force (P.A.)	350 lbs
Max Combined Load Area at 140 MPH	1,006 Square Inches (P-0.348 LBS/IN.2)
Max Combined Load Area at 150 MPH	875 Square Inches (P-0.400 LBS/IN.2)
Max Projected Assembly Area	77 Square Inches (EPAT)
Max Normal Projected Assembly Area	275 Square Inches (EPAN)
Weight	42 lbs

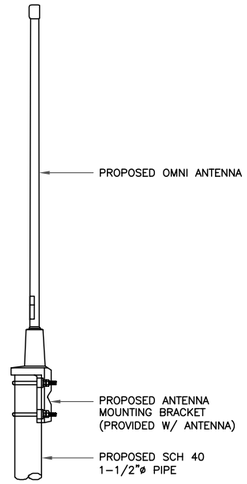


1 CONNECT–IT WIRELESS STANDOFF ARM
SCALE: NOT TO SCALE



2 VALMONT – UGLM–DCP
SCALE: NOT TO SCALE

SPECIFICATIONS	
MODEL	CXL 900–3LW
RADIATION	OMNIDIRECTIONAL
FREQUENCY	824–960 MHz
TOTAL HEIGHT	27.5"
DIA. AT TOP	0.47"
DIA. AT END	0.63"
WEIGHT	1.5 LBS



3 PROCOM – CXL 900–3LW
SCALE: NOT TO SCALE

SIGFOX SBS-T-902

SIGFOX SBS-T-902 series are ultra wide range, high linearity transceivers and feature first class performance radio and innovative software defined processing, for use in Ultra Narrow Band Machine-To-Machine wireless communication systems. SBS-T-902 variant is targeting M2M applications compliant with FCC regulations. It operates in the band 902-928 MHz. SIGFOX TAP series are indoor units with aluminum chassis, suitable for wall mount, rack mount or desktop installations.

ABOUT SIGFOX TECHNOLOGY

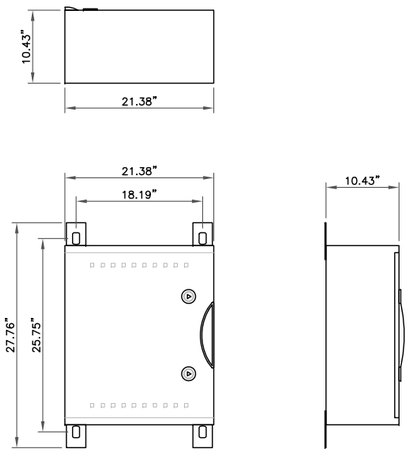
SIGFOX is the first and only operator of a cellular network fully dedicated to low-throughput communication for connected objects. With an extremely cost effective and very low energy consuming out-of-the-box connectivity offer, SIGFOX brings a revolution to the world of Internet of –Things and M2M. The network, which already connects tens of thousands of objects, is being rolled out worldwide.

Key Features

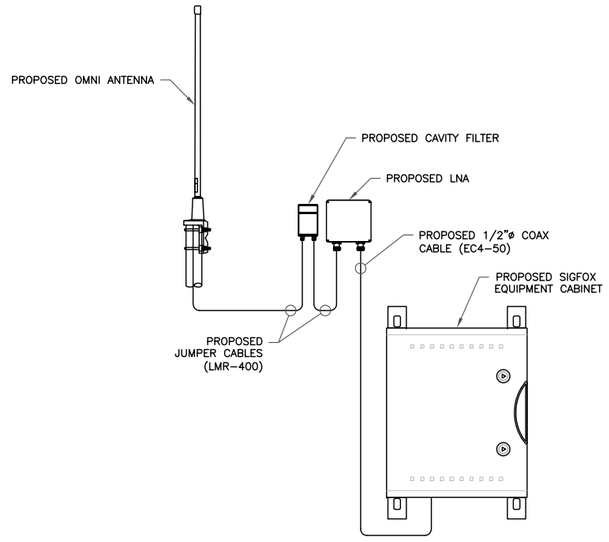
- Ultra Wide Flange Radio transmitter
- Software Defined Radio operation
- -134 dBm receiver sensitivity
- 120dB receiver linearity
- 200kHz monitor spectrum
- Web based management tools
- Remote firmware upgrade

RADIO INTERFERANCE CHARACTERISTICS	
Standard	SIGFOX Ultra Narrow Band Protocol for M2M
Operating Frequency	902.2 to 918.1 MHz -- Rx and Tx
Monitored Spectrum Bandwidth	192 kHz
Radio Mode	Access Point
Receiver Sensitivity	Typ. - 134 dBm @ 600bps
Transmit Power	Max 36 dBm e.i.r.p. with specific omnidirectional antenna (8dBa gain) Max 28 dBm conducted power at base station output with specific omnidirectional antenna (8dBi gain)
Date Rate and Modulation	600 bps D-BPSK
Pre-amplifier Filter	NF 2db G=20db/rejection 30db @ +/- 10MHz
Antenna Connector	Type N Female
INTERFACES	
Ethernet	1 x 10/100BaseT (RJ45)
USB	2x USB 2.0 ports (optional for 3G key and or external inverter)
Maintenance port	RJ45 socket with specific cable (only for maintenance)
POWER SUPPLY	
Power Consumption	40 W typical, 70W max peak (in transmit mode)
Power Supply	100-240 VAC 50Hz-60Hz - 120VDC/7A max
MECHANICAL & ENVIROMENTAL	
Product Dimensions	480 x 350 x 85 mm (19";2U standard format)
Product Weight	Cr 8kg (16 lbs)
Operating Temperature	-20 to +50°C
Storage Temperature	-40°C to +85°C
Maximum Altitude Operation	2000m
Pollution Degree	2
Overvoltage Category	II
Casting Material	Aluminum
COMPLIANCE	
Compliance	CE (EMC EN 301 489 radio EN 300 220, safety EN60950-1) FCC ID: 2ACK7SBST902 IC ID: 12204A-SBST902

4 SIGFOX – SBS–T–902
SCALE: NOT TO SCALE



5 EQUIPMENT CABINET DETAIL
SCALE: NOT TO SCALE



6 EQUIPMENT DIAGRAM
SCALE: NOT TO SCALE

SIGFOX
One network A billion dreams
545 BOYLSTON ST. 10TH FLOOR
BOSTON, MA 02116

CROWN CASTLE
12 GILL STREET, SUITE 5800
WOBURN, MA 01801

SIGFOX SITE NUMBER:
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BU #: **828054**
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EXISTING 165'-0" MONOPOLE

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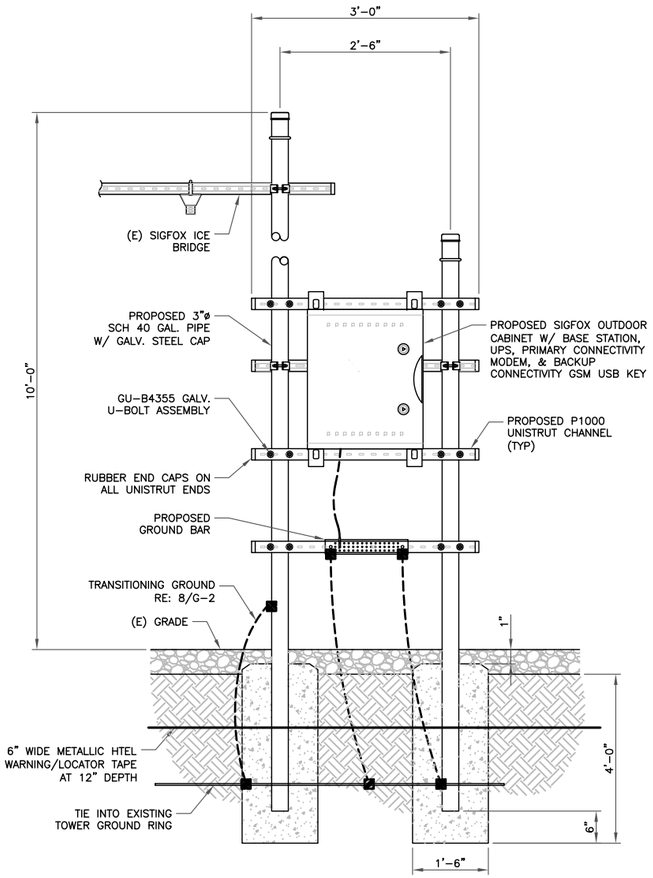
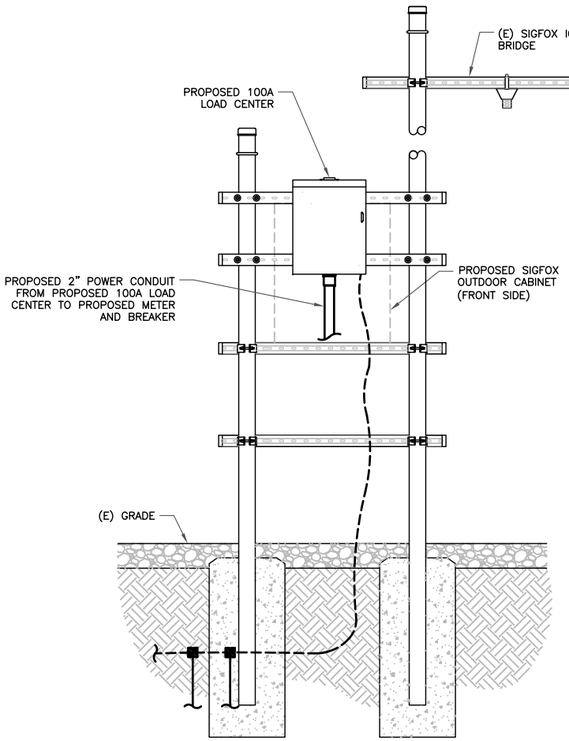
SHEET NUMBER: C-3
REVISION: 0

NOTE:
1. ALL EXPOSED ELECTRICAL CONDUIT MUST BE GALVANIZED STEEL RIGID CONDUIT.
2. THREADLESS CONNECTORS ARE NOT ALLOWED.
3. EMT CONDUIT CAN ONLY BE USED INSIDE.
4. USE ONLY COMPRESSION TYPE FITTINGS ON EMT CONDUIT.
5. USE ONLY STRANDED CONDUCTORS FOR ALL ELECTRICAL WIRING. (EXCEPT TELCO AND THERMOSTAT)
6. USE SCHEDULE 80 CONDUIT UNDER DRIVEWAYS AND/OR ANY VEHICLE CROSSING AREA.



1 UTILITY FRAME ELEVATION (FRONT)
SCALE: NOT TO SCALE



2 UTILITY FRAME ELEVATION (BACK)
SCALE: NOT TO SCALE

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SHEET NUMBER: C-4
REVISION: 0

ANTENNA AND FEEDER

COMPONENT	DESCRIPTION	INDEX	SUPPLIER	QUANTITY
ANTENNA	OMNIDIRECTIONAL ANTENNA (2.1M HIGH MAX)	–	SIGFOX	1
ANTENNA MOUNTING SUPPORT	RING MOUNT (VALMONT UGLM–DCP) STANDOFF ARM (CONNECT–IT S4) 2–1/2" SCH 40 x 36" LG. PIPE	–	CROWN CASTLE	1
LOW NOISE AMPLIFIER	SIGFOX PREAMP 868	–	SIGFOX	1
LNA V2 MOUNTING PLATE	4"x10" STEEL PLATE	–	CROWN CASTLE	1
FEEDER CABLE	1/2" COAXIAL CABLE (< 262'–0") 7/8" COAXIAL CABLE (> 262'–0")	2	CROWN CASTLE	1
	JUMPER CABLE LMR400 : ANT<–>LNA (L=1.5M MAX) CONNECTOR NMALE/NFEMALE	1	CROWN CASTLE	1
	JUMPER CABLE LMR400 : LNA<–>FEEDER (L=1.5M MAX) CONNECTOR NMALE/NFEMALE	7	CROWN CASTLE	1
	JUMPER CABLE LMR400 : FEEDER<–>TAP (L=1.5M MAX) CONNECTOR NMALE/NFEMALE	8	CROWN CASTLE	1 OR 2
CONNECTOR	NMALE FEEDER CONNECTOR	–	CROWN CASTLE	2
SURGE SUPPRESSOR	TELEGARTNER 90V J01028A0034	–	SIGFOX	1
GROUNDING KIT FOR FEEDER	CLICK–ON COAX GROUNDING KIT (SABRE INDUSTRIES C20–114–001)	–	CROWN CASTLE	1
BARREL CUSHION	VALMONT BCU12X FOR 1/2" COAX VALMONT BCU78X FOR 7/8" COAX	–	CROWN CASTLE	TBD
BUTTERFLY HANGER	VALMONT BUG12 FOR 1/2" COAX VALMONT BUG78 FOR 7/8" COAX	–	CROWN CASTLE	TBD
HOISTING GRIP	VALMONT GRIP12 FOR 1/2" COAX VALMONT GRIP78 FOR 7/8" COAX	–	CROWN CASTLE	1
ANGLE ADAPTER	GALVANIZED 3/8" ANGLE ADAPTERS (VALMONT GAP38)	–	CROWN CASTLE	TBD

BASE STATION

COMPONENT	DESCRIPTION	INDEX	SUPPLIER	QUANTITY
TAP	TAP–868 V2	–	SIGFOX	1

INTERNET CONNECTION

COMPONENT	DESCRIPTION	INDEX	SUPPLIER	QUANTITY
MODEM	ADSL MODEM + POWER CABLE	–	SIGFOX	TO BE CONFIRMED
ETHERNET CABLE	CABLE RJ45 1M	3	SIGFOX	1
USB 3G KEY	3G KEY SIGFOX APPROVED MODEL : HUAWEI E352/K3806	–	SIGFOX	1
	STANDARD M2M SIM CARD WITHOUT PIN CODE NEITHER PASSWORD	–	SIGFOX	1
	USB CABLE – 50CM	5	SIGFOX	1

ELECTRICAL PANEL

COMPONENT	DESCRIPTION	INDEX	SUPPLIER	QUANTITY
20A, SINGLE POLE BREAKER	BREAKER TO BE SAME TYPE AND HAVE SAME AIC RATING AS EXISTING BREAKERS	–	CROWN CASTLE	1
#12 STRANDED COPPER WIRE	INSULATED ELECTRICAL CONDUCTORS TYPE THWN–2 OR XHHW–2 (90° C)	–	CROWN CASTLE	TBD
3/4" CONDUIT AND FITTINGS	ELECTRICAL METALLIC TUBING (EMT)	–	CROWN CASTLE	1

POWER SUPPLY

COMPONENT	DESCRIPTION	INDEX	SUPPLIER	QUANTITY
BASE STATION POWER CABLE	POWER CABLE (PLUG TO FEM) TO TAP	11–1	SIGFOX	1
100A, 12 SPACE LOAD CENTER	SQUARE D PART No. QO112M100RB	–	CROWN CASTLE	1

UTILITY FRAME

COMPONENT	DESCRIPTION	INDEX	SUPPLIER	QUANTITY
UNISTRUTS	3'–0" LONG UNISTRUTS W/ RUBBER END CAPS ON ALL UNISTRUT ENDS	–	CROWN CASTLE	3
U–BOLTS	GU–B4355 GALV. U–BOLT ASSEMBLY	–	CROWN CASTLE	6
3"ø SCH 40 PIPE 10'–0" ABOVE GRADE	GALV. PIPE W/ GALV. STEEL CAP (TYP)	–	CROWN CASTLE	2

1 BILL OF MATERIALS
SCALE: NOT TO SCALE

SIGFOX
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STATE OF CONNECTICUT
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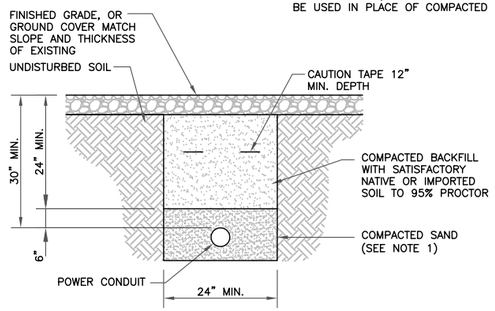
Crown Castle USA Inc. Certificate of Registration #PEC.0001101

SHEET NUMBER: C-5

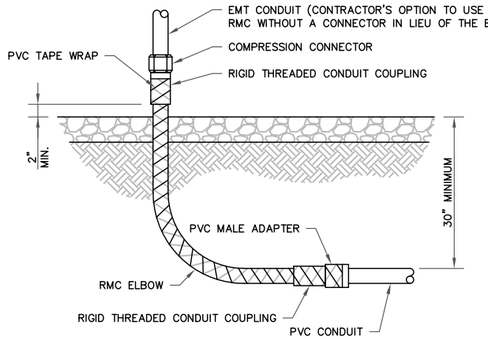
REVISION: 0

NOTES:

1. LEAN CONCRETE, RED-COLORED TOP, MAY BE USED IN PLACE OF COMPACTED SAND



1 TYP TRENCH DETAIL
SCALE: NOT TO SCALE

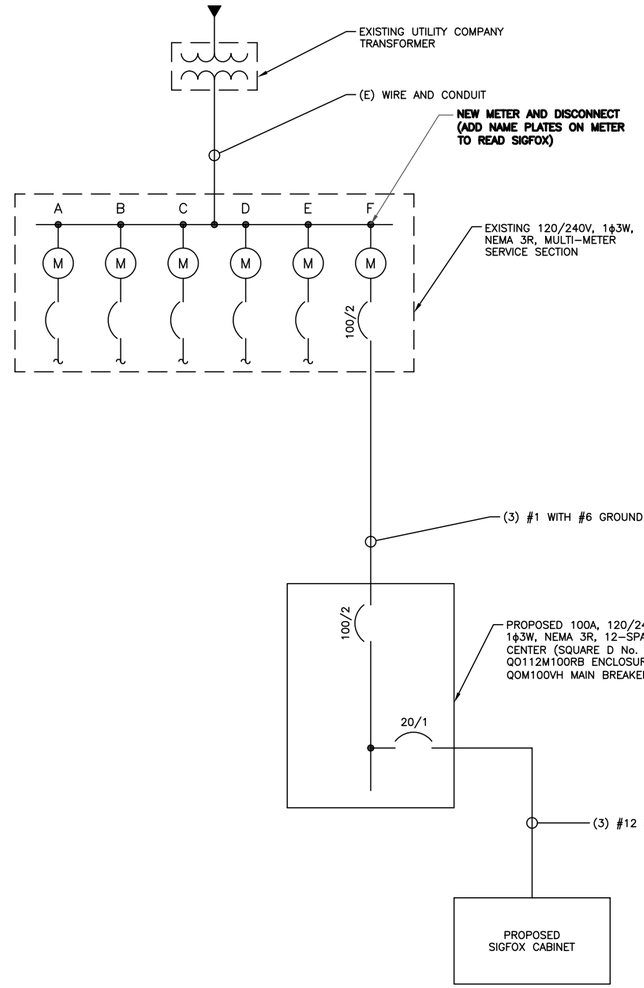


ALL METAL CONDUIT INSTALLED IN DIRECT CONTACT WITH THE EARTH SHALL BE CONSIDERED TO BE INSTALLED IN A SEVERELY CORROSIVE ENVIRONMENT AND IS REQUIRED TO HAVE SUPPLEMENTAL PROTECTION AGAINST CORROSION (NEC ARTICLE 342.10(B) & 344.10(B)(1)). THIS PROTECTION SHALL EITHER BE AN APPROVED MANUFACTURER INSTALLED PROTECTIVE COATING ON THE CONDUIT OR SHALL BE (2) LAYERS OF 10 MIL PVC PIPE WRAP TAPE INSTALLED USING OPPOSING SPIRAL WRAPS. ON VERTICAL PIPE THE OUTSIDE LAYER OF TAPE SHALL BE WRAPPED SO AS TO PROVIDE SHEDDING OF WATER (i.e. TAPE SHOULD WRAP IN AN UPWARD DIRECTION WITH LOWER WRAP BEING BENEATH THE WRAP ABOVE). SPIRAL WRAPS SHALL HAVE A MINIMUM OF 1/4" OVERLAP WITH THE PRECEDING TAPE WRAP. ANY OTHER METHODS OF CORROSION PROTECTION SHALL REQUIRE APPROVAL BY THE ENGINEER OF RECORD PRIOR TO BEING USED.

2 CONDUIT STUB UP DETAIL
SCALE: NOT TO SCALE

NOTES:

1. ALL NEW CONDUCTOR WIRE TO BE INSTALLED SHALL BE COPPER. ALL WIRE LARGER THAN #10 SHALL BE XHHW-2, THWN-2, THW-2, OR RHW-2 UNLESS NOTED OTHERWISE.
2. CONTRACTOR IS TO FIELD VERIFY ALL EXISTING ITEMS SHOWN ON THE ELECTRICAL ONE-LINE DIAGRAM AND NOTIFY THE ENGINEER OF ANY DISCREPANCIES.
3. ALL GROUNDING AND BONDING PER THE NEC.



3 ONE LINE DIAGRAM
SCALE: NOT TO SCALE

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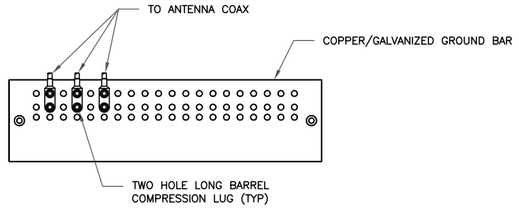
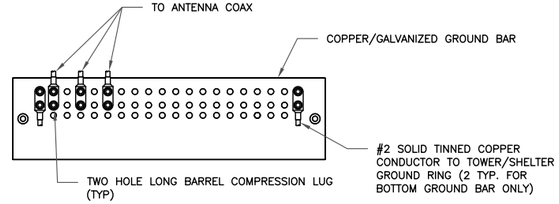
REVISION: 0



NOTES:

1. DOUBLING UP "OR STACKING" OF CONNECTIONS IS NOT PERMITTED.
2. EXTERIOR ANTIOXIDANT JOINT COMPOUND TO BE USED ON ALL EXTERIOR CONNECTIONS.
3. GROUND BAR SHALL NOT BE ISOLATED FROM TOWER. MOUNT DIRECTLY TO TOWER STEEL.

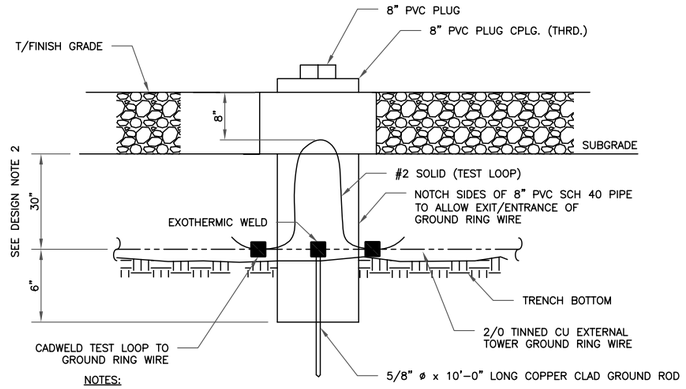
1 ANTENNA GROUND BAR DETAIL
SCALE: NOT TO SCALE



NOTES:

1. EXTERIOR ANTIOXIDANT JOINT COMPOUND TO BE USED ON ALL EXTERIOR CONNECTIONS.
2. GROUND BAR SHALL NOT BE ISOLATED FROM TOWER. MOUNT DIRECTLY TO TOWER STEEL (TOWER ONLY).
3. GROUND BAR SHALL BE ISOLATED FROM BUILDING OR SHELTER.

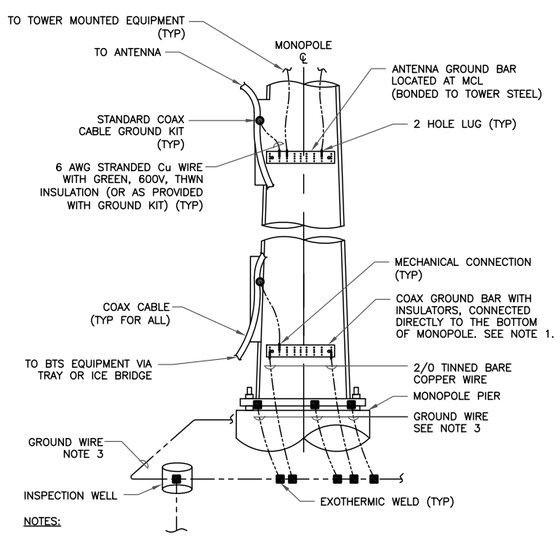
2 TOWER/SHELTER GROUND BAR DETAIL
SCALE: NOT TO SCALE



NOTES:

1. GROUND ROD SHALL BE DRIVEN VERTICALLY, NOT TO EXCEED 45 DEGREES FROM THE VERTICAL
2. GROUND WIRE SHALL BE MIN. 30" BELOW GRADE OR 6" BELOW FROST LINE. (WHICH EVER IS GREATER) AS PER N.E.C. ARTICLE 250-50(D)

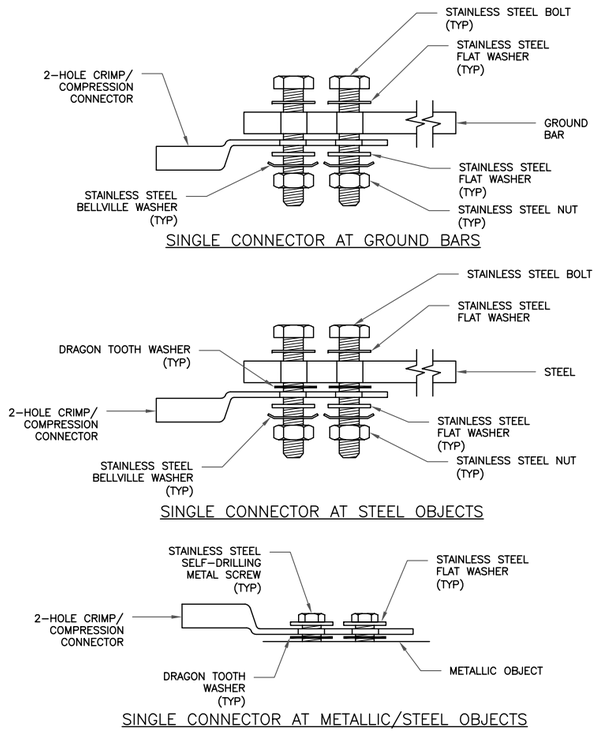
3 INSPECTION WELL DETAIL
SCALE: NOT TO SCALE



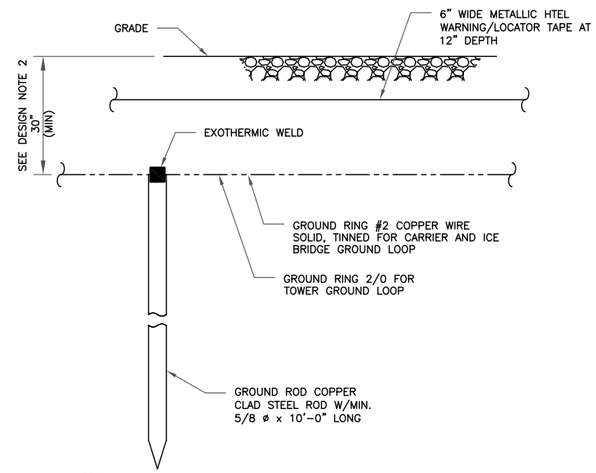
NOTES:

1. NUMBER OF GROUNDING BARS MAY VARY DEPENDING ON THE TYPE OF TOWER, ANTENNA LOCATIONS AND CONNECTION ORIENTATION. COAXIAL CABLES EXCEEDING 200 FEET ON THE TOWER SHALL HAVE GROUND KITS AT THE MIDPOINT. PROVIDE AS REQUIRED.
2. ONLY MECHANICAL CONNECTIONS ARE ALLOWED TO BE MADE TO CROWN CASTLE TOWERS. ALL MECHANICAL CONNECTIONS SHALL BE TREATED WITH AN ANTI-OXIDANT COATING.
3. ALL TOWER GROUNDING SYSTEMS SHALL COMPLY WITH THE REQUIREMENTS OF THE RECOGNIZED EDITION OF ANSI/TIA 222 AND NFPA 780.

4 TYPICAL ANTENNA CABLE GROUNDING
SCALE: NOT TO SCALE



5 HARDWARE DETAIL FOR EXTERIOR CONNECTIONS
SCALE: NOT TO SCALE



NOTES:

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6 GROUND ROD DETAIL
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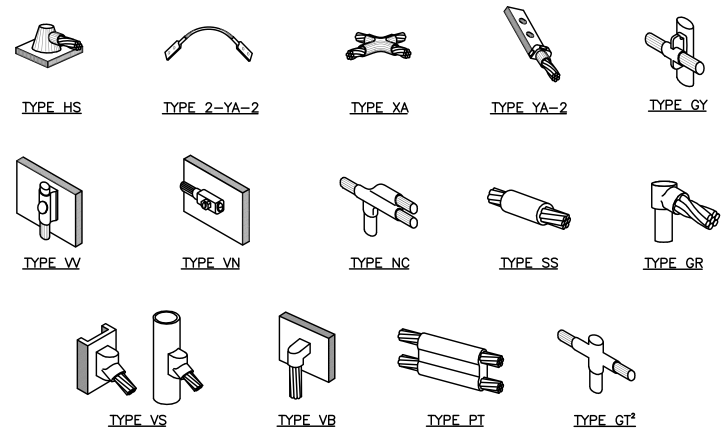
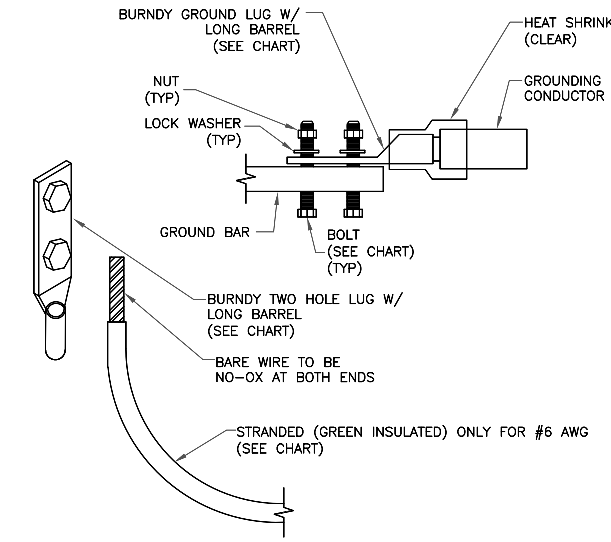


NOTE:

1. ERICO EXOTHERMIC "MOLD TYPES" SHOWN HERE ARE EXAMPLES. CONSULT WITH CONSTRUCTION MANAGER FOR SPECIFIC MOLDS TO BE USED FOR THIS PROJECT.
2. MOLD TYPE ONLY TO BE USED BELOW GRADE WHEN CONNECTING GROUND RING TO GROUND ROD.

1 CADWELD GROUNDING CONNECTIONS
SCALE: NOT TO SCALE

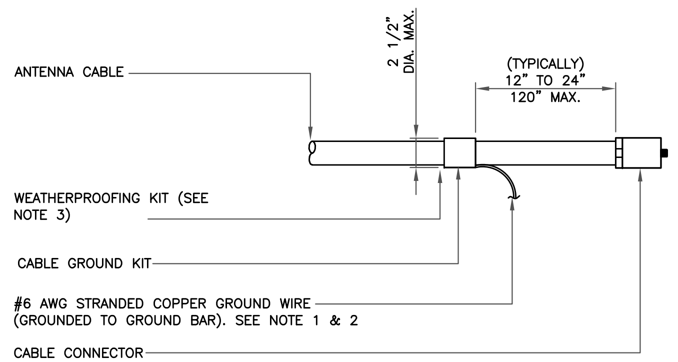
WIRE SIZE	BURNDY LUG	BOLT SIZE
#6 AWG GREEN INSULATED	YA6C-2TC38	3/8" - 16 NC S 2 BOLT
#2 AWG SOLID TINNED	YA3C-2TC38	3/8" - 16 NC S 2 BOLT
#2 AWG STRANDED	YA2C-2TC38	3/8" - 16 NC S 2 BOLT
#2/0 AWG STRANDED	YA26-2TC38	3/8" - 16 NC S 2 BOLT
#4/0 AWG STRANDED	YA28-2N	1/2" - 16 NC S 2 BOLT



NOTES:

1. ALL GROUNDING LUGS ARE TO BE INSTALLED PER MANUFACTURER'S SPECIFICATIONS. ALL HARDWARE BOLTS, NUTS, LOCK WASHERS SHALL BE STAINLESS STEEL. ALL HARDWARE ARE TO BE AS FOLLOWS: BOLT, FLAT WASHER,GROUND BAR, GROUND LUG, FLAT WASHER AND NUT.

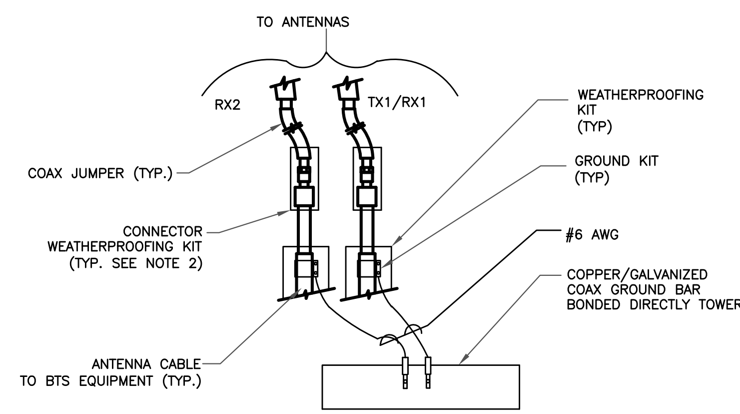
2 MECHANICAL LUG CONNECTION
SCALE: NOT TO SCALE



NOTES:

1. DO NOT INSTALL CABLE GROUND KIT AT A BEND AND ALWAYS DIRECT GROUND WIRE DOWN TO GROUND BAR.
2. GROUNDING KIT SHALL BE TYPE AND PART NUMBER AS SUPPLIED OR RECOMMENDED BY CABLE MANUFACTURER.
3. WEATHER PROOFING SHALL BE TWO-PART TAPE KIT, COLD SHRINK SHALL NOT BE USED.

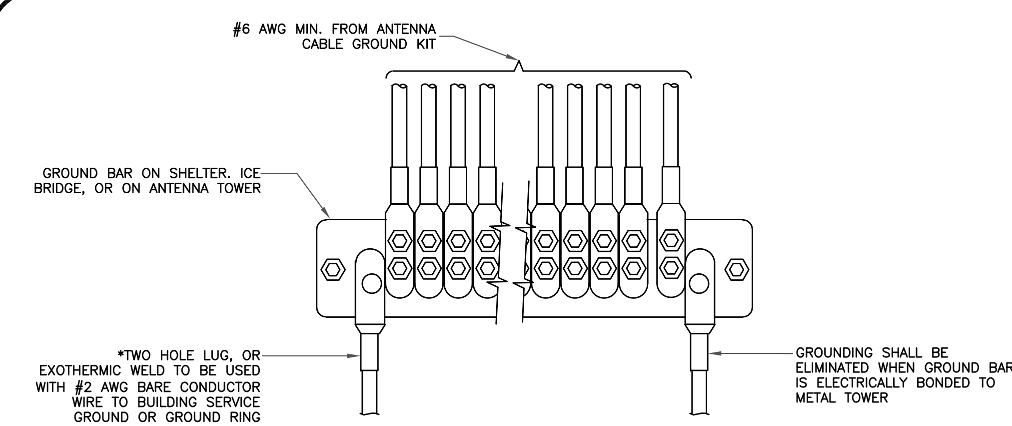
3 CABLE GROUND KIT CONNECTION
SCALE: NOT TO SCALE



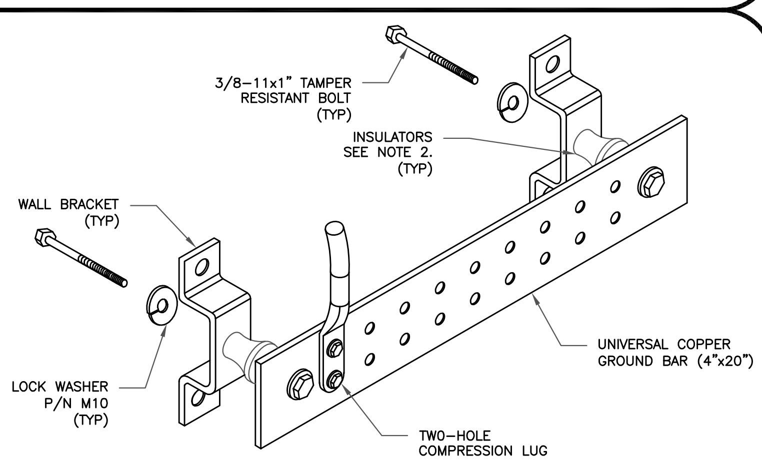
NOTES:

1. DO NOT INSTALL CABLE GROUND KIT AT A BEND AND ALWAYS DIRECT GROUND WIRE DOWN TO ANTENNA GROUND BAR.
2. WEATHER PROOFING SHALL BE TWO-PART TAPE KIT. COLD SHRINK SHALL NOT BE USED.

4 GROUND CABLE CONNECTION
SCALE: NOT TO SCALE



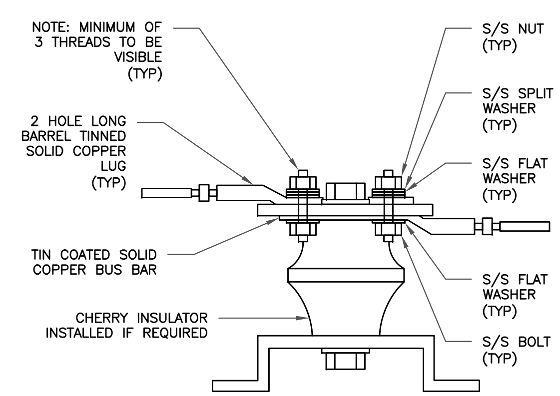
5 GROUNDWIRE INSTALLATION
SCALE: NOT TO SCALE



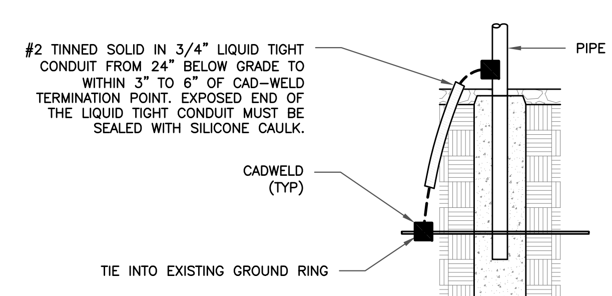
NOTES:

1. DOWN LEAD (HOME RUN) CONDUCTORS ARE NOT TO BE INSTALLED ON CROWN CASTLE TOWER, PER THE GROUNDING DOWN CONDUCTOR POLICY QAS-STD-10091. NO MODIFICATION OR DRILLING TO TOWER STEEL IS ALLOWED IN ANY FORM OR FASHION, CAD-WELDING ON THE TOWER AND/OR IN THE AIR ARE NOT PERMITTED.
2. OMIT INSULATOR WHEN MOUNTING TO TOWER STEEL OR PLATFORM STEEL USE INSULATORS WHEN ATTACHING TO BUILDING OR SHELTERS.

6 GROUND BAR DETAIL
SCALE: NOT TO SCALE



7 LUG DETAIL
SCALE: NOT TO SCALE



8 TRANSITIONING GROUND DETAIL
SCALE: NOT TO SCALE

SIGFOX
One network A billion dreams
545 BOYLSTON ST. 10TH FLOOR
BOSTON, MA 02116

CROWN CASTLE
12 GILL STREET, SUITE 5800
WOBURN, MA 01801

SIGFOX SITE NUMBER:
CT8589

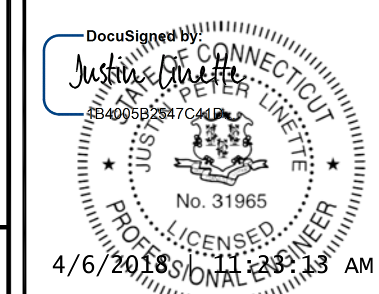
BU #: **828054**
SOUTH WINDSOR/RT 5

300 GOVERNORS HIGHWAY
SOUTH WINDSOR, CT 06074

EXISTING 165'-0" MONOPOLE

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
A	03/27/18	JAS	PRELIMINARY	ZTK
B	03/29/18	JAS	PRELIMINARY	ZTK
0	04/05/18	ZTK	CONSTRUCTION	JPL



4/6/2018 | 11:23:13 AM EDT

Crown Castle USA Inc. Certificate of Registration #PEC.0001101

IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS THEY ARE ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, TO ALTER THIS DOCUMENT.

SHEET NUMBER: G-2

REVISION: 0

PAUL J. FORD & COMPANY

Date: **March 20, 2018**

Timothy Howell
Crown Castle
3530 Toringdon Way Suite 300
Charlotte, NC 28277

Paul J. Ford and Company
250 East Broad st., Suite 600
Columbus, OH 43215
(614) 221-6679

Subject: **Structural Analysis Report**

Carrier Designation:	***SIGFOX SA* Co-Locate**	
	Carrier Site Number:	CT8589
	Carrier Site Name:	N/A
Crown Castle Designation:	**Crown Castle BU Number:**	828054
	Crown Castle Site Name:	South Windsor/Rt 5
	Crown Castle JDE Job Number:	487897
	Crown Castle Work Order Number:	1544505
	Crown Castle Order Number:	427898 Rev. 2
Engineering Firm Designation:	**Paul J. Ford and Company Project Number:**	37518-0525.002.7805
Site Data:	**300 Governors Highway, South Windsor, Hartford County, CT** **Latitude *41° 50' 0.4"*, Longitude *-72° 36' 11"*** **169 Foot - Monopole Tower**	

Dear Timothy Howell,

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 1158727, in accordance with order 427898, revision 2.

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.

This analysis has been performed in accordance with the 2016 Connecticut State Building Code based upon an ultimate 3-second gust wind speed of 125 mph converted to a nominal 3-second gust wind speed of 97 mph per Section 1609.3 and Appendix N as required for use in the ANSI/TIA-222-G-2005 Standard, "Structural Standard for Antenna Supporting Structures and Antennas", with ANSI/TIA-222-G-1-2007 and ANSI/TIA-222-G-2-2009 Addenda per Exception #5 of Section 1609.1.1. Risk Category II, Exposure Category C and Topographic Category 1 with a maximum Topographic Factor, Kzt, of 1.0 were used in this analysis.

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

Respectfully submitted by:

Jaime Acuna
Structural Designer
jacuna@pjfweb.com

STATE OF CONNECTICUT
JUSTIN T. KLINE
No. 30301
LICENSED
PROFESSIONAL ENGINEER
3-22-18

tnxTower Report - version 7.0.5.1

PAUL J. FORD & COMPANY

Date: **March 20, 2018**

Timothy Howell
Crown Castle
3530 Toringdon Way Suite 300
Charlotte, NC 28277

Paul J. Ford and Company
250 East Broad st., Suite 600
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We at *Paul J. Ford and Company* appreciate the opportunity of providing our continuing professional services to you and Crown Castle. If you have any questions or need further assistance on this or any other projects please give us a call.

Respectfully submitted by:

Jaime Acuna
Structural Designer
jacuna@pjfweb.com

TABLE OF CONTENTS

1) INTRODUCTION

This tower is a 169 ft Monopole tower designed by Engineered Endeavors Incorporated in January of 2000. The tower was originally designed for a wind speed of 80 mph per TIA/EIA-222-F.

2) ANALYSIS CRITERIA

This analysis has been performed in accordance with the 2016 Connecticut State Building Code based upon an ultimate 3-second gust wind speed of 125 mph converted to a nominal 3-second gust wind speed of 97 mph per Section 1609.3 and Appendix N as required for use in the ANSI/TIA-222-G-2005 Standard, “Structural Standard for Antenna Supporting Structures and Antennas”, with ANSI/TIA-222-G-1-2007 and ANSI/TIA-222-G-2-2009 Addenda per Exception #5 of Section 1609.1.1. Risk Category II, Exposure Category C and Topographic Category 1 with a maximum Topographic Factor, Kzt, of 1.0 were used in this analysis.

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
118.0	119.0	1	sigfox	CAVITY FILTER	1	1/2	-
		1	sigfox	CXL 900-3LW			
		1	sigfox	LNA			
118.0	118.0	1	tower mounts	Side Arm [SO 304-1]			

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
165.0	167.0	3	ericsson	ERICSSON AIR 21 B2A B4P w/ Mount Pipe	6 1	1-5/8 1-1/4	1
		3	ericsson	KRY 112 144/1			
	166.0	3	ericsson	Ericsson Air 21 B4A B12P-B5P 8FT w/ Mount Pipe			
		3	ericsson	RRUS 11 B12			
	165.0	1	tower mounts	Platform Mount [LP 601-1]			
156.0	158.0	1	cci antennas	HPA-65R-BUU-H6 w/ Mount Pipe	-	-	2
		2	cci antennas	HPA-65R-BUU-H8 w/ Mount Pipe			
		3	communication components inc.	DTMABP7819VG12A			
		3	ericsson	RRUS12/RRUS A2			
		3	communication components inc.	DTMABP7819VG12A	3 12	3/8 1-5/8	1
		3	ericsson	RRUS 11			
		6	powerwave technologies	7770.00 w/ Mount Pipe			
		1	raycap	DC6-48-60-18-8F			
	156.0	1	tower mounts	Platform Mount [LP 714-1]			
		1	tower mounts	Miscellaneous [NA 510-1]	-	-	2
148.0	148.0	3	alcatel lucent	800MHZ RRH	3	1-1/4	1
		3	alcatel lucent	PCS 1900MHZ 4X45W-65MHZ			
		3	rfs celwave	APXVSPP18-C-A20 w/ Mount Pipe			
		1	tower mounts	T-Arm Mount [TA 702-3]			
138.0	138.0	3	rfs celwave	APXV18-206517-A	6	1-5/8	1
		1	tower mounts	Pipe Mount [PM 601-3]			
128.0	128.0	3	argus technologies	LLPX310R w/ Mount Pipe	6 3 1	1/2 1/4 5/16	1
		3	dragonwave	A-ANT-18G-2-C			
		3	dragonwave	HORIZON DUO			
		3	samsung telecommunications	WIMAX DAP HEAD			
		1	tower mounts	Side Arm Mount [SO 701-3]			
108.0	112.0	3	alcatel lucent	RRH2X60-AWS	2 18	1-1/4 1-5/8	1
		3	alcatel lucent	RRH2X60-PCS			

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)	Note
		6	andrew	HBXX-6517DS-A2M w/ Mount Pipe			
		6	andrew	LNX-6514DS-A1M w/ Mount Pipe			
		2	rfs celwave	DB-T1-6Z-8AB-0Z			
	108.0	1	tower mounts	Platform Mount [LP 303-1]			

Notes:
1) Existing Equipment
2) Reserve Equipment.

Table 3 - Design Antenna and Cable Information

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

3) ANALYSIS PROCEDURE

Table 4 - Documents Provided

Document	Remarks	Reference	Source
4-GEOTECHNICAL REPORTS	FPA, 99A076AR1, 01/11/2000	3436696	CCISITES
4-POST-MODIFICATION INSPECTION	GPD, 2012712.97, 06/29/2012	3773024	CCISITES
4-POST-MODIFICATION INSPECTION	TEP, 103179, 12/03/2010	3773025	CCISITES
4-TOWER FOUNDATION DRAWINGS/DESIGN/SPECS	EEI, 6255 REV 1, 03/10/2000	3436661	CCISITES
4-TOWER MANUFACTURER DRAWINGS	EEI, 99-1371 REV. 1, 01/31/2000	3436681	CCISITES
4-POST-MODIFICATION INSPECTION	FDH Velocitel, 15BZLZ1500, 12/03/2015	6000997	CCISITES
4-POST-MODIFICATION INSPECTION	Crown Castle, 1352522, 05/16/2017	6861018	CCISITES
4-TOWER STRUCTURAL ANALYSIS REPORTS	Centek Engineering, 10003.C04, 10/20/2010	3487016	CCISITES

3.1) Analysis Method

tnxTower (version 7.0.5.1), a commercially available analysis software package, was used to create a three-dimensional model of the tower and calculate member stresses for various loading cases. Selected output from the analysis is included in Appendix A.

3.2) Assumptions

1) Tower and structures were built in accordance with the manufacturer's specifications.
2) The tower and structures have been maintained in accordance with the manufacturer's specification.
3) The configuration of antennas, transmission cables, mounts and other appurtenances are as specified in Tables 1 and 2 and the referenced drawings.
4) For existing modifications: monopole was modified 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 5 - Section Capacity (Summary)

Section No.	Elevation (ft)	Component Type	Size	Critical Element	% Capacity	Pass / Fail
L1	169 - 164	Pole	TP16.455x15.5x0.25	Pole	3.1%	Pass
L2	164 - 159	Pole	TP17.409x16.455x0.25	Pole	10.7%	Pass
L3	159 - 154	Pole	TP18.364x17.409x0.25	Pole	22.5%	Pass
L4	154 - 149	Pole	TP19.318x18.364x0.25	Pole	34.9%	Pass
L5	149 - 144	Pole	TP20.273x19.318x0.25	Pole	47.2%	Pass
L6	144 - 139	Pole	TP21.228x20.273x0.25	Pole	57.9%	Pass
L7	139 - 136.66	Pole	TP22.31x21.228x0.25	Pole	62.6%	Pass
L8	136.66 - 131.66	Pole	TP22.115x21.174x0.3125	Pole	60.6%	Pass
L9	131.66 - 126.66	Pole	TP23.055x22.115x0.3125	Pole	67.5%	Pass
L10	126.66 - 121.66	Pole	TP23.996x23.055x0.3125	Pole	73.9%	Pass
L11	121.66 - 116.66	Pole	TP24.937x23.996x0.3125	Pole	79.5%	Pass
L12	116.66 - 111.66	Pole	TP25.877x24.937x0.3125	Pole	84.3%	Pass
L13	111.66 - 111	Pole	TP26.001x25.877x0.3125	Pole	84.9%	Pass
L14	111 - 110.75	Pole + Reinf.	TP26.048x26.001x0.575	Reinf. 6 Tension Rupture	76.2%	Pass
L15	110.75 - 105.75	Pole + Reinf.	TP26.989x26.048x0.5625	Reinf. 6 Tension Rupture	84.0%	Pass
L16	105.75 - 101.5	Pole + Reinf.	TP27.788x26.989x0.55	Reinf. 6 Tension Rupture	90.0%	Pass
L17	101.5 - 101.25	Pole + Reinf.	TP27.835x27.788x0.9875	Reinf. 12 Tension Rupture	61.4%	Pass
L18	101.25 - 101	Pole + Reinf.	TP27.882x27.835x0.9875	Reinf. 12 Tension Rupture	61.6%	Pass
L19	101 - 100.75	Pole + Reinf.	TP27.93x27.882x0.725	Reinf. 12 Tension Rupture	82.1%	Pass
L20	100.75 - 95.75	Pole + Reinf.	TP28.87x27.93x0.7125	Reinf. 12 Tension Rupture	88.4%	Pass
L21	95.75 - 92.16	Pole + Reinf.	TP30.36x28.87x0.7	Reinf. 12 Tension Rupture	92.7%	Pass
L22	92.16 - 86.83	Pole + Reinf.	TP29.924x28.92x0.9375	Reinf. 12 Tension Rupture	77.0%	Pass
L23	86.83 - 81.83	Pole + Reinf.	TP30.865x29.924x0.925	Reinf. 12 Tension Rupture	81.4%	Pass
L24	81.83 - 81.5	Pole + Reinf.	TP30.927x30.865x0.925	Reinf. 12 Tension Rupture	81.7%	Pass
L25	81.5 - 81.25	Pole + Reinf.	TP30.974x30.927x0.95	Reinf. 11 Tension Rupture	69.4%	Pass

Section No.	Elevation (ft)	Component Type	Size	Critical Element	% Capacity	Pass / Fail
L26	81.25 - 76.25	Pole + Reinf.	TP31.915x30.974x0.925	Reinf. 11 Tension Rupture	73.0%	Pass
L27	76.25 - 71.25	Pole + Reinf.	TP32.856x31.915x0.9	Reinf. 11 Tension Rupture	76.5%	Pass
L28	71.25 - 66.25	Pole + Reinf.	TP33.797x32.856x0.875	Reinf. 11 Tension Rupture	79.8%	Pass
L29	66.25 - 61.25	Pole + Reinf.	TP34.738x33.797x0.8625	Reinf. 11 Tension Rupture	83.0%	Pass
L30	61.25 - 56.25	Pole + Reinf.	TP35.679x34.738x0.85	Reinf. 11 Tension Rupture	86.1%	Pass
L31	56.25 - 51.25	Pole + Reinf.	TP36.619x35.679x0.825	Reinf. 11 Tension Rupture	89.0%	Pass
L32	51.25 - 48.66	Pole + Reinf.	TP38.11x36.619x0.825	Reinf. 11 Tension Rupture	90.5%	Pass
L33	48.66 - 42.33	Pole + Reinf.	TP37.546x36.357x1.0375	Reinf. 11 Tension Rupture	77.4%	Pass
L34	42.33 - 37.4	Pole + Reinf.	TP38.473x37.546x1.025	Reinf. 11 Tension Rupture	79.8%	Pass
L35	37.4 - 37.15	Pole + Reinf.	TP38.52x38.473x1.025	Reinf. 7 Tension Rupture	79.9%	Pass
L36	37.15 - 32.15	Pole + Reinf.	TP39.459x38.52x1	Reinf. 7 Tension Rupture	82.2%	Pass
L37	32.15 - 27.15	Pole + Reinf.	TP40.399x39.459x0.975	Reinf. 7 Tension Rupture	84.4%	Pass
L38	27.15 - 22.15	Pole + Reinf.	TP41.338x40.399x0.9625	Reinf. 7 Tension Rupture	86.5%	Pass
L39	22.15 - 19.5	Pole + Reinf.	TP41.836x41.338x0.95	Reinf. 7 Tension Rupture	87.6%	Pass
L40	19.5 - 19.25	Pole + Reinf.	TP41.883x41.836x1.025	Reinf. 7 Tension Rupture	81.9%	Pass
L41	19.25 - 14.25	Pole + Reinf.	TP42.822x41.883x1	Reinf. 7 Tension Rupture	83.9%	Pass
L42	14.25 - 9.25	Pole + Reinf.	TP43.762x42.822x1	Reinf. 7 Tension Rupture	85.7%	Pass
L43	9.25 - 9	Pole + Reinf.	TP43.809x43.762x1	Reinf. 7 Tension Rupture	85.8%	Pass
L44	9 - 8.75	Pole + Reinf.	TP43.856x43.809x1.025	Reinf. 7 Tension Rupture	82.7%	Pass
L45	8.75 - 7	Pole + Reinf.	TP44.185x43.856x1.025	Reinf. 7 Tension Rupture	83.3%	Pass
L46	7 - 6.75	Pole + Reinf.	TP44.232x44.185x0.975	Reinf. 7 Tension	86.6%	Pass

Section No.	Elevation (ft)	Component Type	Size	Critical Element	% Capacity	Pass / Fail
				Rupture		
L47	6.75 - 5	Pole + Reinf.	TP44.561x44.232x0.975	Reinf. 7 Tension Rupture	87.2%	Pass
L48	5 - 4.75	Pole + Reinf.	TP44.607x44.561x1.45	Reinf. 3 Connection	68.9%	Pass
L49	4.75 - 3	Pole + Reinf.	TP44.936x44.607x1.425	Reinf. 3 Connection	69.4%	Pass
L50	3 - 2.75	Pole + Reinf.	TP44.983x44.936x1.45	Reinf. 7 Tension Rupture	61.1%	Pass
L51	2.75 - 2.25	Pole + Reinf.	TP45.077x44.983x1.45	Reinf. 7 Tension Rupture	61.2%	Pass
L52	2.25 - 2	Pole + Reinf.	TP45.124x45.077x1.2	Reinf. 8 Tension Rupture	73.4%	Pass
L53	2 - 0	Pole + Reinf.	TP45.5x45.124x1.175	Reinf. 8 Tension Rupture	74.1%	Pass
					Summary	
				Pole	84.9%	Pass
				Reinforcement	92.7%	Pass
				Overall	92.7%	Pass

Table 6 - Tower Component Stresses vs. Capacity - LC7

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
1	Base Foundation	0	90.9	Pass
1	Anchor rods	0	81.0	Pass

Structure Rating (max from all components) =	92.7%

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

4.1) Recommendations

The monopole and its foundation have sufficient capacity to carry the proposed loading configuration. 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-222-G standard.
The following design criteria apply:

Tower is located in Hartford County, Connecticut.
ASCE 7-10 Wind Data is used (wind speeds converted to nominal values).
Basic wind speed of 97 mph.
Structure Class II.
Exposure Category C.
Topographic Category 1.
Crest Height 0.00 ft.
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 50 mph is used in combination with ice.
Temperature drop of 50 °F.
Deflections calculated using a wind speed of 60 mph.
A non-linear (P-delta) analysis was used.
Pressures are calculated at each section.
Stress ratio used in pole design is 1.
Local bending stresses due to climbing loads, feed line supports, and appurtenance mounts are not considered.

Options

	Consider Moments - Legs		Distribute Leg Loads As Uniform		Use ASCE 10 X-Brace Ly Rules
	Consider Moments - Horizontals		Assume Legs Pinned		Calculate Redundant Bracing Forces
	Consider Moments - Diagonals	√	Assume Rigid Index Plate		Ignore Redundant Members in FEA
	Use Moment Magnification	√	Use Clear Spans For Wind Area		SR Leg Bolts Resist Compression
√	Use Code Stress Ratios		Use Clear Spans For KL/r		All Leg Panels Have Same Allowable
√	Use Code Safety Factors - Guys		Retension Guys To Initial Tension		Offset Girt At Foundation
	Escalate Ice	√	Bypass Mast Stability Checks	√	Consider Feed Line Torque
	Always Use Max Kz	√	Use Azimuth Dish Coefficients		Include Angle Block Shear Check
	Use Special Wind Profile	√	Project Wind Area of Appurt.		Use TIA-222-G Bracing Resist. Exemption
	Include Bolts In Member Capacity		Autocalc Torque Arm Areas		Use TIA-222-G Tension Splice Exemption
	Leg Bolts Are At Top Of Section		Add IBC .6D+W Combination		Poles
	Secondary Horizontal Braces Leg		Sort Capacity Reports By Component	√	Include Shear-Torsion Interaction
	Use Diamond Inner Bracing (4 Sided)		Triangulate Diamond Inner Bracing		Always Use Sub-Critical Flow
	SR Members Have Cut Ends		Treat Feed Line Bundles As Cylinder		Use Top Mounted Sockets
	SR Members Are Concentric				

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	169.00-164.00	5.00	0.00	18	15.5000	16.4546	0.2500	1.0000	A572-65 (65 ksi)
L2	164.00-159.00	5.00	0.00	18	16.4546	17.4092	0.2500	1.0000	A572-65 (65 ksi)
L3	159.00-154.00	5.00	0.00	18	17.4092	18.3638	0.2500	1.0000	A572-65 (65 ksi)
L4	154.00-149.00	5.00	0.00	18	18.3638	19.3183	0.2500	1.0000	A572-65 (65 ksi)
L5	149.00-144.00	5.00	0.00	18	19.3183	20.2729	0.2500	1.0000	A572-65 (65 ksi)
L6	144.00-139.00	5.00	0.00	18	20.2729	21.2275	0.2500	1.0000	A572-65 (65 ksi)
L7	139.00-133.33	5.67	3.33	18	21.2275	22.3100	0.2500	1.0000	A572-65

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
									(65 ksi)
L8	133.33-131.66	5.00	0.00	18	21.1742	22.1148	0.3125	1.2500	A572-65 (65 ksi)
L9	131.66-126.66	5.00	0.00	18	22.1148	23.0554	0.3125	1.2500	A572-65 (65 ksi)
L10	126.66-121.66	5.00	0.00	18	23.0554	23.9960	0.3125	1.2500	A572-65 (65 ksi)
L11	121.66-116.66	5.00	0.00	18	23.9960	24.9366	0.3125	1.2500	A572-65 (65 ksi)
L12	116.66-111.66	5.00	0.00	18	24.9366	25.8772	0.3125	1.2500	A572-65 (65 ksi)
L13	111.66-111.00	0.66	0.00	18	25.8772	26.0013	0.3125	1.2500	A572-65 (65 ksi)
L14	111.00-110.75	0.25	0.00	18	26.0013	26.0484	0.5750	2.3000	A572-65 (65 ksi)
L15	110.75-105.75	5.00	0.00	18	26.0484	26.9889	0.5625	2.2500	A572-65 (65 ksi)
L16	105.75-101.50	4.25	0.00	18	26.9889	27.7884	0.5500	2.2000	A572-65 (65 ksi)
L17	101.50-101.25	0.25	0.00	18	27.7884	27.8355	0.9875	3.9500	A572-65 (65 ksi)
L18	101.25-101.00	0.25	0.00	18	27.8355	27.8825	0.9875	3.9500	A572-65 (65 ksi)
L19	101.00-100.75	0.25	0.00	18	27.8825	27.9295	0.7250	2.9000	A572-65 (65 ksi)
L20	100.75-95.75	5.00	0.00	18	27.9295	28.8701	0.7125	2.8500	A572-65 (65 ksi)
L21	95.75-87.83	7.92	4.33	18	28.8701	30.3600	0.7000	2.8000	A572-65 (65 ksi)
L22	87.83-86.83	5.33	0.00	18	28.9205	29.9235	0.9375	3.7500	A572-65 (65 ksi)
L23	86.83-81.83	5.00	0.00	18	29.9235	30.8645	0.9250	3.7000	A572-65 (65 ksi)
L24	81.83-81.50	0.33	0.00	18	30.8645	30.9266	0.9250	3.7000	A572-65 (65 ksi)
L25	81.50-81.25	0.25	0.00	18	30.9266	30.9737	0.9500	3.8000	A572-65 (65 ksi)
L26	81.25-76.25	5.00	0.00	18	30.9737	31.9146	0.9250	3.7000	A572-65 (65 ksi)
L27	76.25-71.25	5.00	0.00	18	31.9146	32.8556	0.9000	3.6000	A572-65 (65 ksi)
L28	71.25-66.25	5.00	0.00	18	32.8556	33.7966	0.8750	3.5000	A572-65 (65 ksi)
L29	66.25-61.25	5.00	0.00	18	33.7966	34.7376	0.8625	3.4500	A572-65 (65 ksi)
L30	61.25-56.25	5.00	0.00	18	34.7376	35.6785	0.8500	3.4000	A572-65 (65 ksi)
L31	56.25-51.25	5.00	0.00	18	35.6785	36.6195	0.8250	3.3000	A572-65 (65 ksi)
L32	51.25-43.33	7.92	5.33	18	36.6195	38.1100	0.8250	3.3000	A572-65 (65 ksi)
L33	43.33-42.33	6.33	0.00	18	36.3569	37.5463	1.0375	4.1500	A572-65 (65 ksi)
L34	42.33-37.40	4.93	0.00	18	37.5463	38.4726	1.0250	4.1000	A572-65 (65 ksi)
L35	37.40-37.15	0.25	0.00	18	38.4726	38.5196	1.0250	4.1000	A572-65 (65 ksi)
L36	37.15-32.15	5.00	0.00	18	38.5196	39.4591	1.0000	4.0000	A572-65 (65 ksi)
L37	32.15-27.15	5.00	0.00	18	39.4591	40.3986	0.9750	3.9000	A572-65 (65 ksi)
L38	27.15-22.15	5.00	0.00	18	40.3986	41.3381	0.9625	3.8500	A572-65 (65 ksi)
L39	22.15-19.50	2.65	0.00	18	41.3381	41.8360	0.9500	3.8000	A572-65 (65 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
L40	19.50-19.25	0.25	0.00	18	41.8360	41.8830	1.0250	4.1000	A572-65 (65 ksi)
L41	19.25-14.25	5.00	0.00	18	41.8830	42.8225	1.0000	4.0000	A572-65 (65 ksi)
L42	14.25-9.25	5.00	0.00	18	42.8225	43.7620	1.0000	4.0000	A572-65 (65 ksi)
L43	9.25-9.00	0.25	0.00	18	43.7620	43.8089	1.0000	4.0000	A572-65 (65 ksi)
L44	9.00-8.75	0.25	0.00	18	43.8089	43.8559	1.0250	4.1000	A572-65 (65 ksi)
L45	8.75-7.00	1.75	0.00	18	43.8559	44.1847	1.0250	4.1000	A572-65 (65 ksi)
L46	7.00-6.75	0.25	0.00	18	44.1847	44.2317	0.9750	3.9000	A572-65 (65 ksi)
L47	6.75-5.00	1.75	0.00	18	44.2317	44.5605	0.9750	3.9000	A572-65 (65 ksi)
L48	5.00-4.75	0.25	0.00	18	44.5605	44.6075	1.4500	5.8000	A572-65 (65 ksi)
L49	4.75-3.00	1.75	0.00	18	44.6075	44.9363	1.4250	5.7000	A572-65 (65 ksi)
L50	3.00-2.75	0.25	0.00	18	44.9363	44.9833	1.4500	5.8000	A572-65 (65 ksi)
L51	2.75-2.25	0.50	0.00	18	44.9833	45.0772	1.4500	5.8000	A572-65 (65 ksi)
L52	2.25-2.00	0.25	0.00	18	45.0772	45.1242	1.2000	4.8000	A572-65 (65 ksi)
L53	2.00-0.00	2.00		18	45.1242	45.5000	1.1750	4.7000	A572-65 (65 ksi)

Tapered Pole Properties

Section	Tip Dia. in	Area in^2	I in^4	r in	C in	I/C in^3	J in^4	It/Q in^2	w in	w/t
L1	15.7391	12.1009	355.5445	5.4138	7.8740	45.1542	711.5567	6.0516	2.2880	9.152
	16.7084	12.8583	426.5776	5.7526	8.3589	51.0326	853.7164	6.4304	2.4560	9.824
L2	16.7084	12.8583	426.5776	5.7526	8.3589	51.0326	853.7164	6.4304	2.4560	9.824
	17.6777	13.6158	506.4925	6.0915	8.8439	57.2705	1013.6514	6.8092	2.6240	10.496
L3	17.6777	13.6158	506.4925	6.0915	8.8439	57.2705	1013.6514	6.8092	2.6240	10.496
	18.6470	14.3733	595.8124	6.4304	9.3288	63.8682	1192.4089	7.1880	2.7920	11.168
L4	18.6470	14.3733	595.8124	6.4304	9.3288	63.8682	1192.4089	7.1880	2.7920	11.168
	19.6164	15.1307	695.0606	6.7693	9.8137	70.8254	1391.0358	7.5668	2.9600	11.84
L5	19.6164	15.1307	695.0606	6.7693	9.8137	70.8254	1391.0358	7.5668	2.9600	11.84
	20.5857	15.8882	804.7602	7.1081	10.2986	78.1424	1610.5794	7.9456	3.1280	12.512
L6	20.5857	15.8882	804.7602	7.1081	10.2986	78.1424	1610.5794	7.9456	3.1280	12.512
	21.5550	16.6456	925.4345	7.4470	10.7836	85.8189	1852.0868	8.3244	3.2960	13.184
L7	21.5550	16.6456	925.4345	7.4470	10.7836	85.8189	1852.0868	8.3244	3.2960	13.184
	22.6542	17.5046	1076.2196	7.8313	11.3335	94.9593	2153.8554	8.7540	3.4866	13.946
L8	22.1370	20.6922	1137.7489	7.4059	10.7565	105.7730	2276.9949	10.3481	3.1767	10.165
	22.4560	21.6252	1298.6833	7.7398	11.2343	115.5995	2599.0754	10.8146	3.3422	10.695
L9	22.4560	21.6252	1298.6833	7.7398	11.2343	115.5995	2599.0754	10.8146	3.3422	10.695
	23.4111	22.5581	1474.1202	8.0737	11.7122	125.8625	2950.1801	11.2812	3.5078	11.225
L10	23.4111	22.5581	1474.1202	8.0737	11.7122	125.8625	2950.1801	11.2812	3.5078	11.225
	24.3662	23.4911	1664.6854	8.4076	12.1900	136.5619	3331.5612	11.7478	3.6733	11.755
L11	24.3662	23.4911	1664.6854	8.4076	12.1900	136.5619	3331.5612	11.7478	3.6733	11.755
	25.3213	24.4240	1871.0044	8.7416	12.6678	147.6978	3744.4707	12.2143	3.8388	12.284
L12	25.3213	24.4240	1871.0044	8.7416	12.6678	147.6978	3744.4707	12.2143	3.8388	12.284
	26.2764	25.3570	2093.7030	9.0755	13.1456	159.2702	4190.1609	12.6809	4.0044	12.814
L13	26.2764	25.3570	2093.7030	9.0755	13.1456	159.2702	4190.1609	12.6809	4.0044	12.814
	26.4024	25.4801	2124.3562	9.1195	13.2087	160.8304	4251.5076	12.7425	4.0262	12.884
L14	26.4024	46.4043	3790.2095	9.0263	13.2087	286.9485	7585.4063	23.2066	3.5642	6.199
	26.4502	46.4902	3811.2799	9.0430	13.2326	288.0227	7627.5747	23.2495	3.5725	6.213
L15	26.4502	45.5018	3733.9174	9.0475	13.2326	282.1764	7472.7479	22.7552	3.5945	6.39
	27.4053	47.1811	4162.7761	9.3814	13.7104	303.6222	8331.0298	23.5950	3.7601	6.685

Section	Tip Dia. in	Area in^2	I in^4	r in	C in	I/C in^3	J in^4	It/Q in^2	w in	w/t
L16	27.4053	46.1545	4076.0486	9.3858	13.7104	297.2965	8157.4605	23.0816	3.7821	6.876
	28.2171	47.5501	4457.1145	9.6696	14.1165	315.7373	8920.0938	23.7796	3.9228	7.132
L17	28.2171	84.0029	7623.0995	9.5143	14.1165	540.0124	15256.2298	42.0094	3.1528	3.193
	28.2649	84.1503	7663.3002	9.5310	14.1404	541.9429	15336.6839	42.0831	3.1610	3.201
L18	28.2649	84.1503	7663.3002	9.5310	14.1404	541.9429	15336.6839	42.0831	3.1610	3.201
	28.3126	84.2977	7703.6419	9.5477	14.1643	543.8770	15417.4204	42.1568	3.1693	3.209
L19	28.3126	62.4935	5823.0659	9.6409	14.1643	411.1083	11653.7940	31.2527	3.6313	5.009
	28.3604	62.6017	5853.3701	9.6576	14.1882	412.5520	11714.4423	31.3068	3.6396	5.02
L20	28.3604	61.5506	5760.3830	9.6620	14.1882	405.9981	11528.3458	30.7812	3.6616	5.139
	29.3155	63.6777	6378.4737	9.9960	14.6660	434.9152	12765.3403	31.8449	3.8271	5.371
L21	29.3155	62.5884	6274.9201	10.0004	14.6660	427.8544	12558.0969	31.3001	3.8491	5.499
	30.8284	65.8986	7324.1268	10.5293	15.4229	474.8871	14657.8908	32.9556	4.1114	5.873
L22	30.1941	83.2668	8237.5165	9.9339	14.6916	560.6960	16485.8721	41.6413	3.4400	3.669
	30.3851	86.2516	9155.4967	10.2900	15.2012	602.2896	18323.0405	43.1340	3.6165	3.858
L23	30.3851	85.1382	9045.1152	10.2945	15.2012	595.0282	18102.1323	42.5772	3.6385	3.934
	31.3406	87.9009	9954.5110	10.6285	15.6792	634.8877	19922.1205	43.9588	3.8042	4.113
L24	31.3406	87.9009	9954.5110	10.6285	15.6792	634.8877	19922.1205	43.9588	3.8042	4.113
	31.4037	88.0832	10016.5863	10.6506	15.7107	637.5639	20046.3527	44.0500	3.8151	4.124
L25	31.4037	90.3885	10261.6094	10.6417	15.7107	653.1598	20536.7212	45.2028	3.7711	3.97
	31.4515	90.5303	10310.0024	10.6584	15.7346	655.2433	20633.5710	45.2738	3.7794	3.978
L26	31.4515	88.2214	10063.7844	10.6673	15.7346	639.5951	20140.8110	44.1191	3.8234	4.133
	32.4070	90.9840	11039.1419	11.0013	16.2126	680.8976	22092.8094	45.5006	3.9890	4.312
L27	32.4070	88.5964	10766.8022	11.0102	16.2126	664.0996	21547.7716	44.3066	4.0330	4.481
	33.3625	91.2844	11776.8187	11.3442	16.6906	705.5939	23569.1336	45.6509	4.1986	4.665
L28	33.3625	88.8181	11476.5783	11.3531	16.6906	687.6054	22968.2578	44.4175	4.2426	4.849
	34.3179	91.4315	12519.7123	11.6872	17.1687	729.2189	25055.8983	45.7244	4.4082	5.038
L29	34.3179	90.1595	12354.9217	11.6916	17.1687	719.6206	24726.1003	45.0883	4.4302	5.136
	35.2734	92.7355	13444.4598	12.0256	17.6467	761.8692	26906.6102	46.3766	4.5958	5.328
L30	35.2734	91.4252	13264.2854	12.0301	17.6467	751.6591	26546.0244	45.7213	4.6178	5.433
	36.2289	93.9639	14400.2003	12.3641	18.1247	794.5074	28819.3487	46.9909	4.7834	5.628
L31	36.2289	91.2657	14006.7840	12.3730	18.1247	772.8013	28031.9985	45.6415	4.8274	5.851
	37.1844	93.7297	15172.1509	12.7070	18.6027	815.5884	30364.2656	46.8737	4.9930	6.052
L32	37.1844	93.7297	15172.1509	12.7070	18.6027	815.5884	30364.2656	46.8737	4.9930	6.052
	38.6979	97.6326	17147.4981	13.2362	19.3599	885.7234	34317.5593	48.8256	5.2554	6.37

Section	Tip Dia. in	Area in^2	I in^4	r in	C in	I/C in^3	J in^4	It/Q in^2	w in	w/t
L33	37.9347	116.3077	18330.4553	12.5384	18.4693	992.4815	36685.0303	58.1649	4.5728	4.408
	38.1255	120.2244	20245.3629	12.9606	19.0735	1061.4379	40517.3652	60.1236	4.7822	4.609
L34	38.1255	118.8166	20021.9944	12.9651	19.0735	1049.7269	40070.3343	59.4196	4.8042	4.687
	39.0661	121.8303	21584.4886	13.2939	19.5441	1104.3990	43197.3786	60.9267	4.9672	4.846
L35	39.0661	121.8303	21584.4886	13.2939	19.5441	1104.3990	43197.3786	60.9267	4.9672	4.846
	39.1138	121.9831	21665.8172	13.3106	19.5680	1107.2084	43360.1429	61.0032	4.9755	4.854
L36	39.1138	119.0873	21179.6917	13.3195	19.5680	1082.3655	42387.2522	59.5550	5.0195	5.019
	40.0678	122.0692	22810.8724	13.6530	20.0452	1137.9704	45651.7599	61.0462	5.1848	5.185
L37	40.0678	119.0948	22284.0007	13.6619	20.0452	1111.6862	44597.3232	59.5587	5.2288	5.363
	41.0218	122.0022	23956.1780	13.9954	20.5225	1167.3137	47943.8782	61.0127	5.3942	5.532
L38	41.0218	120.4763	23671.5498	13.9998	20.5225	1153.4447	47374.2473	60.2496	5.4162	5.627
	41.9758	123.3464	25403.9552	14.3333	20.9997	1209.7269	50841.3375	61.6849	5.5815	5.799
L39	41.9758	121.7822	25097.3291	14.3378	20.9997	1195.1255	50227.6820	60.9027	5.6035	5.898
	42.4814	123.2836	26037.0633	14.5145	21.2527	1225.1185	52108.3868	61.6535	5.6911	5.991
L40	42.4814	132.7725	27938.3076	14.4879	21.2527	1314.5775	55913.3772	66.3989	5.5591	5.424
	42.5291	132.9253	28034.8914	14.5046	21.2766	1317.6425	56106.6719	66.4753	5.5674	5.432
L41	42.5291	129.7626	27401.3507	14.5135	21.2766	1287.8661	54838.7569	64.8936	5.6114	5.611
	43.4831	132.7445	29334.1325	14.8470	21.7538	1348.4594	58706.8636	66.3849	5.7768	5.777
L42	43.4831	132.7445	29334.1325	14.8470	21.7538	1348.4594	58706.8636	66.3849	5.7768	5.777
	44.4370	135.7264	31355.7292	15.1805	22.2311	1410.4462	62752.7170	67.8761	5.9421	5.942
L43	44.4370	135.7264	31355.7292	15.1805	22.2311	1410.4462	62752.7170	67.8761	5.9421	5.942
	44.4847	135.8755	31459.1762	15.1972	22.2549	1413.5821	62959.7471	67.9507	5.9504	5.95
L44	44.4847	139.1911	32189.1951	15.1883	22.2549	1446.3847	64420.7456	69.6088	5.9064	5.762
	44.5324	139.3439	32295.3372	15.2050	22.2788	1449.5997	64633.1695	69.6852	5.9146	5.77
L45	44.5324	139.3439	32295.3372	15.2050	22.2788	1449.5997	64633.1695	69.6852	5.9146	5.77
	44.8663	140.4137	33044.8726	15.3217	22.4458	1472.2049	66133.2265	70.2202	5.9725	5.827
L46	44.8663	133.7190	31542.2982	15.3395	22.4458	1405.2627	63126.1005	66.8722	6.0605	6.216
	44.9140	133.8643	31645.2812	15.3561	22.4697	1408.3535	63332.2020	66.9449	6.0688	6.224
L47	44.9140	133.8643	31645.2812	15.3561	22.4697	1408.3535	63332.2020	66.9449	6.0688	6.224
	45.2479	134.8819	32372.4452	15.4729	22.6367	1430.0842	64787.4869	67.4538	6.1267	6.284
L48	45.2479	198.4075	46586.7032	15.3042	22.6367	2058.0128	93234.7064	99.2226	5.2907	3.649
	45.2956	198.6237	46739.1553	15.3209	22.6606	2062.5732	93539.8112	99.3307	5.2989	3.654
L49	45.2956	195.3122	46013.1779	15.3298	22.6606	2030.5362	92086.9012	97.6747	5.3429	3.749

Section	Tip Dia. in	Area in^2	I in^4	r in	C in	I/C in^3	J in^4	It/Q in^2	w in	w/t
	45.6295	196.7995	47072.3268	15.4465	22.8276	2062.0755	94206.5925	98.4184	5.4008	3.79
L50	45.6295	200.1370	47815.6429	15.4376	22.8276	2094.6376	95694.2029	100.0875	5.3568	3.694
	45.6772	200.3532	47970.7630	15.4543	22.8515	2099.2384	96004.6472	100.1957	5.3651	3.7
L51	45.6772	200.3532	47970.7630	15.4543	22.8515	2099.2384	96004.6472	100.1957	5.3651	3.7
	45.7726	200.7856	48282.0089	15.4877	22.8992	2108.4552	96627.5486	100.4119	5.3816	3.711
L52	45.7726	167.1196	40648.3821	15.5764	22.8992	1775.0979	81350.2505	83.5757	5.8216	4.851
	45.8203	167.2985	40779.0746	15.5931	22.9231	1778.9514	81611.8073	83.6652	5.8299	4.858
L53	45.8203	163.9064	39997.7285	15.6020	22.9231	1744.8659	80048.0869	81.9688	5.8739	4.999
	46.2019	165.3079	41032.5467	15.7354	23.1140	1775.2248	82119.0850	82.6696	5.9400	5.055

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	Double Angle Stitch Bolt Spacing Redundants in
L1 169.00-164.00				1	1	1			
L2 164.00-159.00				1	1	1			
L3 159.00-154.00				1	1	1			
L4 154.00-149.00				1	1	1			
L5 149.00-144.00				1	1	1			
L6 144.00-139.00				1	1	1			
L7 139.00-133.33				1	1	1			
L8 133.33-131.66				1	1	1			
L9 131.66-126.66				1	1	1			
L10 126.66-121.66				1	1	1			
L11 121.66-116.66				1	1	1			
L12 116.66-111.66				1	1	1			
L13 111.66-111.00				1	1	1			
L14 111.00-110.75				1	1	0.936271			
L15 110.75-105.75				1	1	0.942334			
L16 105.75-101.50				1	1	0.951697			
L17 101.50-101.25				1	1	0.894841			
L18 101.25-101.00				1	1	0.893829			
L19 101.00-100.75				1	1	0.916808			
L20 100.75-95.75				1	1	0.915966			
L21 95.75-				1	1	0.920543			

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	Double Angle Stitch Bolt Spacing Redundants in
87.83									
L22 87.83-86.83				1	1	0.912119			
L23 86.83-81.83				1	1	0.907746			
L24 81.83-81.50				1	1	0.906706			
L25 81.50-81.25				1	1	0.899386			
L26 81.25-76.25				1	1	0.907211			
L27 76.25-71.25				1	1	0.916495			
L28 71.25-66.25				1	1	0.92727			
L29 66.25-61.25				1	1	0.926308			
L30 61.25-56.25				1	1	0.926118			
L31 56.25-51.25				1	1	0.940381			
L32 51.25-43.33				1	1	0.933854			
L33 43.33-42.33				1	1	0.941952			
L34 42.33-37.40				1	1	0.938586			
L35 37.40-37.15				1	1	0.937868			
L36 37.15-32.15				1	1	0.946368			
L37 32.15-27.15				1	1	0.956053			
L38 27.15-22.15				1	1	0.9547			
L39 22.15-19.50				1	1	0.959994			
L40 19.50-19.25				1	1	0.954729			
L41 19.25-14.25				1	1	0.964453			
L42 14.25-9.25				1	1	0.951503			
L43 9.25-9.00				1	1	0.95087			
L44 9.00-8.75				1	1	0.963488			
L45 8.75-7.00				1	1	0.958934			
L46 7.00-6.75				1	1	0.968915			
L47 6.75-5.00				1	1	0.964507			
L48 5.00-4.75				1	1	0.856655			
L49 4.75-3.00				1	1	0.866584			
L50 3.00-2.75				1	1	0.876449			
L51 2.75-2.25				1	1	0.875119			
L52 2.25-2.00				1	1	0.856349			
L53 2.00-0.00				1	1	0.869367			

Feed Line/Linear Appurtenances - Entered As Round Or Flat

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

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

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
LDF7-50A(1-5/8)	C	No	CaAa (Out Of Face)	165.00 - 0.00	1	No Ice	0.20	0.82
						1/2" Ice	0.30	2.33
						1" Ice	0.40	4.46
LDF7-50A(1-5/8)	C	No	CaAa (Out Of Face)	165.00 - 0.00	5	No Ice	0.00	0.82
						1/2" Ice	0.00	2.33
						1" Ice	0.00	4.46
LDF6-50A(1-1/4)	C	No	CaAa (Out Of Face)	165.00 - 0.00	1	No Ice	0.16	0.60
						1/2" Ice	0.25	1.85
						1" Ice	0.35	3.72
****								
LDF2-50(3/8")	C	No	Inside Pole	156.00 - 0.00	2	No Ice	0.00	0.08
						1/2" Ice	0.00	0.08
						1" Ice	0.00	0.08
100266(3/8")	C	No	Inside Pole	156.00 - 0.00	1	No Ice	0.00	0.09
						1/2" Ice	0.00	0.09
						1" Ice	0.00	0.09
LDF7-50A(1-5/8")	C	No	Inside Pole	156.00 - 0.00	12	No Ice	0.00	0.82
						1/2" Ice	0.00	0.82
						1" Ice	0.00	0.82
3" (Nominal) Conduit	C	No	Inside Pole	156.00 - 0.00	1	No Ice	0.00	1.49
						1/2" Ice	0.00	1.49
						1" Ice	0.00	1.49
****								
HB114-1-08U4-M5F(1-1/4)	C	No	Inside Pole	148.00 - 0.00	3	No Ice	0.00	1.08
						1/2" Ice	0.00	1.08
						1" Ice	0.00	1.08
HB114-08U3M12-XXXF(7/8)	C	No	Inside Pole	148.00 - 0.00	1	No Ice	0.00	0.68
						1/2" Ice	0.00	0.68
						1" Ice	0.00	0.68
****								
LDF7-50A(1-5/8")	C	No	CaAa (Out Of Face)	138.00 - 0.00	6	No Ice	0.00	0.82
						1/2" Ice	0.00	2.33
						1" Ice	0.00	4.46
***								
LDF4-50A(1/2")	C	No	CaAa (Out Of Face)	128.00 - 0.00	2	No Ice	0.00	0.15
						1/2" Ice	0.00	0.84
						1" Ice	0.00	2.14
LDF4-50A(1/2")	C	No	Inside Pole	128.00 - 0.00	4	No Ice	0.00	0.15
						1/2" Ice	0.00	0.15
						1" Ice	0.00	0.15
LDF1-50A(1/4")	C	No	Inside Pole	128.00 - 0.00	3	No Ice	0.00	0.06
						1/2" Ice	0.00	0.06
						1" Ice	0.00	0.06
9207(5/16")	C	No	Inside Pole	128.00 - 0.00	1	No Ice	0.00	0.06
						1/2" Ice	0.00	0.06
						1" Ice	0.00	0.06
2" (Nominal) Conduit	C	No	CaAa (Out Of Face)	128.00 - 0.00	2	No Ice	0.00	0.72
						1/2" Ice	0.00	2.48
						1" Ice	0.00	4.84
****								
EC4-50(1/2)	C	No	CaAa (Out Of Face)	118.00 - 0.00	1	No Ice	0.00	0.16
						1/2" Ice	0.00	0.85
						1" Ice	0.00	2.15
****								
LDF6-50A(1-1/4)	C	No	CaAa (Out Of	108.00 - 0.00	1	No Ice	0.16	0.60

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Total Number		C_AA_A ft^2/ft	Weight plf
			Face)			1/2" Ice	0.25	1.85
						1" Ice	0.35	3.72
LDF6-50A(1-1/4)	C	No	CaAa (Out Of Face)	108.00 - 0.00	1	No Ice	0.00	0.60
						1/2" Ice	0.00	1.85
						1" Ice	0.00	3.72
HB158-1-08U8-S8J18(1-5/8)	C	No	CaAa (Out Of Face)	108.00 - 0.00	2	No Ice	0.20	1.30
						1/2" Ice	0.30	2.81
						1" Ice	0.40	4.94
LDF7-50A(1-5/8)	C	No	CaAa (Out Of Face)	108.00 - 0.00	16	No Ice	0.00	0.82
						1/2" Ice	0.00	2.33
						1" Ice	0.00	4.46
***								
1 1/4" Flat Reinforcement	C	No	CaAa (Out Of Face)	104.00 - 0.00	2	No Ice	0.21	0.00
						1/2" Ice	0.32	0.00
						1" Ice	0.43	0.00
***								
1" Flat Reinforcement	C	No	CaAa (Out Of Face)	113.50 - 104.00	1	No Ice	0.17	0.00
						1/2" Ice	0.28	0.00
						1" Ice	0.39	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	169.00-164.00	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	0.353	0.01
L2	164.00-159.00	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	1.765	0.03
L3	159.00-154.00	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	1.765	0.05
L4	154.00-149.00	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	1.765	0.09
L5	149.00-144.00	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	1.765	0.10
L6	144.00-139.00	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	1.765	0.11
L7	139.00-133.33	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	2.002	0.14
L8	133.33-131.66	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	0.590	0.04
L9	131.66-126.66	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	1.765	0.13
L10	126.66-121.66	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	1.765	0.14
L11	121.66-116.66	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	1.765	0.14
L12	116.66-111.66	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	2.072	0.14
L13	111.66-111.00	A	0.000	0.000	0.000	0.000	0.00

Tower Section	Tower Elevation ft	Face	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.343	0.02
L14	111.00-110.75	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	0.130	0.01
L15	110.75-105.75	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	3.838	0.18
L16	105.75-101.50	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	5.175	0.19
L17	101.50-101.25	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	0.330	0.01
L18	101.25-101.00	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	0.330	0.01
L19	101.00-100.75	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	0.330	0.01
L20	100.75-95.75	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	6.603	0.23
L21	95.75-87.83	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	10.460	0.36
L22	87.83-86.83	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	1.321	0.05
L23	86.83-81.83	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	6.603	0.23
L24	81.83-81.50	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	0.436	0.02
L25	81.50-81.25	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	0.330	0.01
L26	81.25-76.25	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	6.603	0.23
L27	76.25-71.25	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	6.603	0.23
L28	71.25-66.25	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	6.603	0.23
L29	66.25-61.25	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	6.603	0.23
L30	61.25-56.25	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	6.603	0.23
L31	56.25-51.25	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	6.603	0.23
L32	51.25-43.33	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	10.460	0.36
L33	43.33-42.33	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	1.321	0.05
L34	42.33-37.40	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	6.511	0.22

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
L35	37.40-37.15	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	0.330	0.01
L36	37.15-32.15	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	6.603	0.23
L37	32.15-27.15	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	6.603	0.23
L38	27.15-22.15	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	6.603	0.23
L39	22.15-19.50	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	3.500	0.12
L40	19.50-19.25	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	0.330	0.01
L41	19.25-14.25	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	6.603	0.23
L42	14.25-9.25	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	6.603	0.23
L43	9.25-9.00	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	0.330	0.01
L44	9.00-8.75	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	0.330	0.01
L45	8.75-7.00	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	2.311	0.08
L46	7.00-6.75	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	0.330	0.01
L47	6.75-5.00	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	2.311	0.08
L48	5.00-4.75	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	0.330	0.01
L49	4.75-3.00	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	2.311	0.08
L50	3.00-2.75	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	0.330	0.01
L51	2.75-2.25	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	0.660	0.02
L52	2.25-2.00	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	0.330	0.01
L53	2.00-0.00	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	2.641	0.09

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

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	169.00-164.00	A	2.351	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	1.294	0.10
L2	164.00-159.00	A	2.344	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	6.453	0.48
L3	159.00-154.00	A	2.337	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	6.439	0.50
L4	154.00-149.00	A	2.329	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	6.423	0.53
L5	149.00-144.00	A	2.321	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	6.408	0.55
L6	144.00-139.00	A	2.313	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	6.392	0.55
L7	139.00-133.33	A	2.305	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	7.228	0.99
L8	133.33-131.66	A	2.298	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	2.129	0.32
L9	131.66-126.66	A	2.292	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	6.350	1.00
L10	126.66-121.66	A	2.283	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	6.332	1.17
L11	121.66-116.66	A	2.274	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	6.313	1.18
L12	116.66-111.66	A	2.264	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	7.526	1.20
L13	111.66-111.00	A	2.259	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	1.271	0.16
L14	111.00-110.75	A	2.258	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	0.481	0.06
L15	110.75-105.75	A	2.252	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	13.886	1.77
L16	105.75-101.50	A	2.242	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	18.069	2.09
L17	101.50-101.25	A	2.238	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	1.138	0.12
L18	101.25-101.00	A	2.237	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	1.138	0.12
L19	101.00-100.75	A	2.236	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	1.138	0.12
L20	100.75-95.75	A	2.231	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	22.713	2.44
L21	95.75-87.83	A	2.215	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	35.803	3.82
L22	87.83-86.83	A	2.204	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
		C		0.000	0.000	0.000	4.521	0.48
L23	86.83-81.83	A	2.197	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	22.468	2.38
L24	81.83-81.50	A	2.190	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	1.480	0.16
L25	81.50-81.25	A	2.189	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	1.121	0.12
L26	81.25-76.25	A	2.182	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	22.360	2.35
L27	76.25-71.25	A	2.167	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	22.257	2.33
L28	71.25-66.25	A	2.152	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	22.147	2.30
L29	66.25-61.25	A	2.136	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	22.031	2.27
L30	61.25-56.25	A	2.119	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	21.905	2.24
L31	56.25-51.25	A	2.100	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	21.770	2.20
L32	51.25-43.33	A	2.073	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	34.176	3.41
L33	43.33-42.33	A	2.053	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	4.315	0.43
L34	42.33-37.40	A	2.038	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	21.024	2.06
L35	37.40-37.15	A	2.025	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	1.061	0.10
L36	37.15-32.15	A	2.010	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	21.118	2.04
L37	32.15-27.15	A	1.979	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	20.893	2.00
L38	27.15-22.15	A	1.942	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	20.632	1.96
L39	22.15-19.50	A	1.910	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	10.811	1.02
L40	19.50-19.25	A	1.896	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	1.015	0.10
L41	19.25-14.25	A	1.869	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	20.100	1.87
L42	14.25-9.25	A	1.804	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	19.630	1.80
L43	9.25-9.00	A	1.759	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	0.965	0.09
L44	9.00-8.75	A	1.754	0.000	0.000	0.000	0.000	0.00

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
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.964	0.09
L45	8.75-7.00	A	1.733	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	6.692	0.60
L46	7.00-6.75	A	1.710	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	0.948	0.08
L47	6.75-5.00	A	1.683	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	6.565	0.58
L48	5.00-4.75	A	1.652	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	0.927	0.08
L49	4.75-3.00	A	1.614	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	6.392	0.55
L50	3.00-2.75	A	1.567	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	0.896	0.08
L51	2.75-2.25	A	1.545	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	1.776	0.15
L52	2.25-2.00	A	1.520	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	0.879	0.07
L53	2.00-0.00	A	1.410	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	6.714	0.54

Feed Line Center of Pressure

Section	Elevation ft	CP_X in	CP_Z in	CP_X Ice in	CP_Z Ice in
L1	169.00-164.00	-0.0879	0.0507	-0.2288	0.1321
L2	164.00-159.00	-0.3623	0.2092	-0.7597	0.4386
L3	159.00-154.00	-0.3662	0.2114	-0.7814	0.4512
L4	154.00-149.00	-0.3697	0.2135	-0.8020	0.4630
L5	149.00-144.00	-0.3730	0.2153	-0.8214	0.4742
L6	144.00-139.00	-0.3760	0.2171	-0.8397	0.4848
L7	139.00-133.33	-0.3790	0.2188	-0.8581	0.4954
L8	133.33-131.66	-0.3795	0.2191	-0.8616	0.4974
L9	131.66-126.66	-0.3812	0.2201	-0.8714	0.5031
L10	126.66-121.66	-0.3836	0.2215	-0.8866	0.5119
L11	121.66-116.66	-0.3858	0.2228	-0.9009	0.5201
L12	116.66-111.66	-0.4452	0.2570	-1.0286	0.5939
L13	111.66-111.00	-0.5375	0.3104	-1.2022	0.6941
L14	111.00-110.75	-0.5379	0.3105	-1.2040	0.6952
L15	110.75-105.75	-0.7340	0.4238	-1.4818	0.8555
L16	105.75-101.50	-1.0220	0.5900	-1.8167	1.0489
L17	101.50-101.25	-1.0822	0.6248	-1.8831	1.0872
L18	101.25-101.00	-1.0829	0.6252	-1.8851	1.0884
L19	101.00-100.75	-1.0835	0.6256	-1.8872	1.0896
L20	100.75-95.75	-1.0903	0.6295	-1.9085	1.1019
L21	95.75-87.83	-1.1064	0.6388	-1.9596	1.1314
L22	87.83-86.83	-1.1092	0.6404	-1.9689	1.1368
L23	86.83-81.83	-1.1163	0.6445	-1.9895	1.1486
L24	81.83-81.50	-1.1225	0.6481	-2.0093	1.1601
L25	81.50-81.25	-1.1232	0.6485	-2.0115	1.1613
L26	81.25-76.25	-1.1291	0.6519	-2.0306	1.1724
L27	76.25-71.25	-1.1401	0.6582	-2.0661	1.1929
L28	71.25-66.25	-1.1507	0.6643	-2.1004	1.2126

Section	Elevation ft	CP_X in	CP_Z in	CP_X Ice in	CP_Z Ice in
L29	66.25-61.25	-1.1608	0.6702	-2.1333	1.2316
L30	61.25-56.25	-1.1706	0.6759	-2.1648	1.2498
L31	56.25-51.25	-1.1801	0.6813	-2.1948	1.2672
L32	51.25-43.33	-1.1917	0.6881	-2.2313	1.2882
L33	43.33-42.33	-1.1926	0.6885	-2.2344	1.2900
L34	42.33-37.40	-1.1977	0.6915	-2.2437	1.2954
L35	37.40-37.15	-1.2022	0.6941	-2.2564	1.3027
L36	37.15-32.15	-1.2066	0.6966	-2.2687	1.3098
L37	32.15-27.15	-1.2147	0.7013	-2.2900	1.3222
L38	27.15-22.15	-1.2226	0.7059	-2.3084	1.3328
L39	22.15-19.50	-1.2285	0.7093	-2.3198	1.3393
L40	19.50-19.25	-1.2307	0.7105	-2.3234	1.3414
L41	19.25-14.25	-1.2346	0.7128	-2.3285	1.3444
L42	14.25-9.25	-1.2418	0.7170	-2.3320	1.3464
L43	9.25-9.00	-1.2456	0.7191	-2.3286	1.3444
L44	9.00-8.75	-1.2459	0.7193	-2.3280	1.3441
L45	8.75-7.00	-1.2473	0.7201	-2.3249	1.3423
L46	7.00-6.75	-1.2487	0.7209	-2.3207	1.3399
L47	6.75-5.00	-1.2501	0.7217	-2.3149	1.3365
L48	5.00-4.75	-1.2515	0.7225	-2.3070	1.3319
L49	4.75-3.00	-1.2528	0.7233	-2.2960	1.3256
L50	3.00-2.75	-1.2542	0.7241	-2.2803	1.3165
L51	2.75-2.25	-1.2547	0.7244	-2.2725	1.3120
L52	2.25-2.00	-1.2552	0.7247	-2.2631	1.3066
L53	2.00-0.00	-1.2567	0.7255	-2.2173	1.2802

Shielding Factor Ka

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice

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
*****									
ERICSSON AIR 21 B2A B4P w/ Mount Pipe	A	From Face	4.00 0.00 2.00	0.000	165.00	No Ice 1/2" Ice 1" Ice	6.33 6.78 7.21	5.64 6.43 7.13	0.11 0.17 0.23
ERICSSON AIR 21 B2A B4P w/ Mount Pipe	B	From Face	4.00 0.00 2.00	0.000	165.00	No Ice 1/2" Ice 1" Ice	6.33 6.78 7.21	5.64 6.43 7.13	0.11 0.17 0.23
ERICSSON AIR 21 B2A B4P w/ Mount Pipe	C	From Face	4.00 0.00 2.00	0.000	165.00	No Ice 1/2" Ice 1" Ice	6.33 6.78 7.21	5.64 6.43 7.13	0.11 0.17 0.23
Ericsson Air 21 B4A B12P-B5P 8FT w/ Mount Pipe	A	From Face	4.00 0.00 1.00	0.000	165.00	No Ice 1/2" Ice 1" Ice	11.78 12.50 13.23	11.04 12.56 14.12	0.16 0.25 0.36
Ericsson Air 21 B4A B12P-B5P 8FT w/ Mount Pipe	B	From Face	4.00 0.00 1.00	0.000	165.00	No Ice 1/2" Ice 1" Ice	11.78 12.50 13.23	11.04 12.56 14.12	0.16 0.25 0.36

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
Ericsson Air 21 B4A B12P-B5P 8FT w/ Mount Pipe	C	From Face	4.00 0.00 1.00	0.000	165.00	No Ice 1/2" Ice 1" Ice	11.78 12.50 13.23	11.04 12.56 14.12	0.16 0.25 0.36
KRY 112 144/1	A	From Face	4.00 0.00 2.00	0.000	165.00	No Ice 1/2" Ice 1" Ice	0.35 0.43 0.51	0.17 0.23 0.30	0.01 0.01 0.02
KRY 112 144/1	B	From Face	4.00 0.00 2.00	0.000	165.00	No Ice 1/2" Ice 1" Ice	0.35 0.43 0.51	0.17 0.23 0.30	0.01 0.01 0.02
KRY 112 144/1	C	From Face	4.00 0.00 2.00	0.000	165.00	No Ice 1/2" Ice 1" Ice	0.35 0.43 0.51	0.17 0.23 0.30	0.01 0.01 0.02
RRUS 11 B12	A	From Face	4.00 0.00 1.00	0.000	165.00	No Ice 1/2" Ice 1" Ice	2.83 3.04 3.26	1.18 1.33 1.48	0.05 0.07 0.10
RRUS 11 B12	B	From Face	4.00 0.00 1.00	0.000	165.00	No Ice 1/2" Ice 1" Ice	2.83 3.04 3.26	1.18 1.33 1.48	0.05 0.07 0.10
RRUS 11 B12	C	From Face	4.00 0.00 1.00	0.000	165.00	No Ice 1/2" Ice 1" Ice	2.83 3.04 3.26	1.18 1.33 1.48	0.05 0.07 0.10
8-ft Ladder	C	None		0.000	165.00	No Ice 1/2" Ice 1" Ice	5.00 7.00 9.00	5.00 7.00 9.00	0.04 0.07 0.08
Platform Mount [LP 601-1]	C	None		0.000	165.00	No Ice 1/2" Ice 1" Ice	28.47 33.59 38.71	28.47 33.59 38.71	1.12 1.51 1.91
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(2) 7770.00 w/ Mount Pipe	A	From Face	4.00 0.00 2.00	0.000	156.00	No Ice 1/2" Ice 1" Ice	5.75 6.18 6.61	4.25 5.01 5.71	0.06 0.10 0.16
(2) 7770.00 w/ Mount Pipe	B	From Face	4.00 0.00 2.00	0.000	156.00	No Ice 1/2" Ice 1" Ice	5.75 6.18 6.61	4.25 5.01 5.71	0.06 0.10 0.16
(2) 7770.00 w/ Mount Pipe	C	From Face	4.00 0.00 2.00	0.000	156.00	No Ice 1/2" Ice 1" Ice	5.75 6.18 6.61	4.25 5.01 5.71	0.06 0.10 0.16
HPA-65R-BUU-H8 w/ Mount Pipe	A	From Face	4.00 0.00 2.00	0.000	156.00	No Ice 1/2" Ice 1" Ice	13.21 13.90 14.59	9.58 11.05 12.50	0.10 0.20 0.30
HPA-65R-BUU-H8 w/ Mount Pipe	B	From Face	4.00 0.00 2.00	0.000	156.00	No Ice 1/2" Ice 1" Ice	13.21 13.90 14.59	9.58 11.05 12.50	0.10 0.20 0.30
HPA-65R-BUU-H6 w/ Mount Pipe	C	From Face	4.00 0.00 2.00	0.000	156.00	No Ice 1/2" Ice 1" Ice	9.90 10.47 11.01	8.11 9.30 10.21	0.08 0.16 0.25

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
DTMABP7819VG12A	A	From Face	4.00	0.000	156.00	No Ice	0.98	0.34	0.02
			0.00			1/2" Ice	1.10	0.42	0.03
			2.00			1" Ice	1.23	0.51	0.04
DTMABP7819VG12A	B	From Face	4.00	0.000	156.00	No Ice	0.98	0.34	0.02
			0.00			1/2" Ice	1.10	0.42	0.03
			2.00			1" Ice	1.23	0.51	0.04
DTMABP7819VG12A	C	From Face	4.00	0.000	156.00	No Ice	0.98	0.34	0.02
			0.00			1/2" Ice	1.10	0.42	0.03
			2.00			1" Ice	1.23	0.51	0.04
RRUS 11	A	From Face	4.00	0.000	156.00	No Ice	2.79	1.19	0.05
			0.00			1/2" Ice	3.00	1.34	0.07
			2.00			1" Ice	3.21	1.50	0.10
RRUS 11	B	From Face	4.00	0.000	156.00	No Ice	2.79	1.19	0.05
			0.00			1/2" Ice	3.00	1.34	0.07
			2.00			1" Ice	3.21	1.50	0.10
RRUS 11	C	From Face	4.00	0.000	156.00	No Ice	2.79	1.19	0.05
			0.00			1/2" Ice	3.00	1.34	0.07
			2.00			1" Ice	3.21	1.50	0.10
DC6-48-60-18-8F	B	From Face	4.00	0.000	156.00	No Ice	0.92	0.92	0.02
			0.00			1/2" Ice	1.46	1.46	0.04
			2.00			1" Ice	1.64	1.64	0.06
DTMABP7819VG12A	A	From Face	4.00	0.000	156.00	No Ice	0.98	0.34	0.02
			0.00			1/2" Ice	1.10	0.42	0.03
			2.00			1" Ice	1.23	0.51	0.04
DTMABP7819VG12A	B	From Face	4.00	0.000	156.00	No Ice	0.98	0.34	0.02
			0.00			1/2" Ice	1.10	0.42	0.03
			2.00			1" Ice	1.23	0.51	0.04
DTMABP7819VG12A	C	From Face	4.00	0.000	156.00	No Ice	0.98	0.34	0.02
			0.00			1/2" Ice	1.10	0.42	0.03
			2.00			1" Ice	1.23	0.51	0.04
RRUS12/RRUS A2	A	From Face	4.00	0.000	156.00	No Ice	3.14	1.84	0.07
			0.00			1/2" Ice	3.36	2.01	0.10
			2.00			1" Ice	3.59	2.20	0.13
RRUS12/RRUS A2	B	From Face	4.00	0.000	156.00	No Ice	3.14	1.84	0.07
			0.00			1/2" Ice	3.36	2.01	0.10
			2.00			1" Ice	3.59	2.20	0.13
RRUS12/RRUS A2	C	From Face	4.00	0.000	156.00	No Ice	3.14	1.84	0.07
			0.00			1/2" Ice	3.36	2.01	0.10
			2.00			1" Ice	3.59	2.20	0.13
Platform Mount [LP 714-1]	C	None		0.000	156.00	No Ice	37.47	37.47	1.60
						1/2" Ice	44.23	44.23	2.04
						1" Ice	50.99	50.99	2.48
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800MHZ RRH	A	From Leg	4.00	0.000	148.00	No Ice	2.13	1.77	0.05
			0.00			1/2" Ice	2.32	1.95	0.07
			0.00			1" Ice	2.51	2.13	0.10

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft Vert ft ft	Azimuth Adjustment ° °	Placement ft ft		C_AA_A Front ft^2 ft^2	C_AA_A Side ft^2 ft^2	Weight K K
800MHZ RRH	B	From Leg	4.00 0.00 0.00	0.000	148.00	No Ice 1/2" Ice 1" Ice	2.13 2.32 2.51	1.77 1.95 2.13	0.05 0.07 0.10
800MHZ RRH	C	From Leg	4.00 0.00 0.00	0.000	148.00	No Ice 1/2" Ice 1" Ice	2.13 2.32 2.51	1.77 1.95 2.13	0.05 0.07 0.10
PCS 1900MHZ 4X45W-65MHZ	A	From Leg	4.00 0.00 0.00	0.000	148.00	No Ice 1/2" Ice 1" Ice	2.32 2.53 2.74	2.24 2.44 2.65	0.06 0.08 0.11
PCS 1900MHZ 4X45W-65MHZ	B	From Leg	4.00 0.00 0.00	0.000	148.00	No Ice 1/2" Ice 1" Ice	2.32 2.53 2.74	2.24 2.44 2.65	0.06 0.08 0.11
PCS 1900MHZ 4X45W-65MHZ	C	From Leg	4.00 0.00 0.00	0.000	148.00	No Ice 1/2" Ice 1" Ice	2.32 2.53 2.74	2.24 2.44 2.65	0.06 0.08 0.11
APXVSPP18-C-A20 w/ Mount Pipe	A	From Leg	4.00 0.00 0.00	0.000	148.00	No Ice 1/2" Ice 1" Ice	8.26 8.82 9.35	6.95 8.13 9.02	0.08 0.15 0.23
APXVSPP18-C-A20 w/ Mount Pipe	B	From Leg	4.00 0.00 0.00	0.000	148.00	No Ice 1/2" Ice 1" Ice	8.26 8.82 9.35	6.95 8.13 9.02	0.08 0.15 0.23
APXVSPP18-C-A20 w/ Mount Pipe	C	From Leg	4.00 0.00 0.00	0.000	148.00	No Ice 1/2" Ice 1" Ice	8.26 8.82 9.35	6.95 8.13 9.02	0.08 0.15 0.23
T-Arm Mount [TA 702-3]	C	None		0.000	148.00	No Ice 1/2" Ice 1" Ice	5.64 6.55 7.46	5.64 6.55 7.46	0.34 0.43 0.52
****									
**									
APXV18-206517-A	A	From Face	1.00 0.00 0.00	0.000	138.00	No Ice 1/2" Ice 1" Ice	5.17 5.62 6.08	3.04 3.47 3.91	0.03 0.05 0.09
APXV18-206517-A	B	From Face	1.00 0.00 0.00	0.000	138.00	No Ice 1/2" Ice 1" Ice	5.17 5.62 6.08	3.04 3.47 3.91	0.03 0.05 0.09
APXV18-206517-A	C	From Face	1.00 0.00 0.00	0.000	138.00	No Ice 1/2" Ice 1" Ice	5.17 5.62 6.08	3.04 3.47 3.91	0.03 0.05 0.09
Pipe Mount [PM 601-3]	C	None		0.000	138.00	No Ice 1/2" Ice 1" Ice	4.39 5.48 6.57	4.39 5.48 6.57	0.20 0.24 0.28
***									
LLPX310R w/ Mount Pipe	A	From Face	3.00 0.00 0.00	0.000	128.00	No Ice 1/2" Ice 1" Ice	4.46 4.79 5.12	2.85 3.37 3.91	0.04 0.08 0.12
LLPX310R w/ Mount Pipe	B	From Face	3.00 0.00	0.000	128.00	No Ice 1/2"	4.46 4.79	2.85 3.37	0.04 0.08

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
			0.00				Ice	5.12	3.91	0.12
							1" Ice			
LLPX310R w/ Mount Pipe	C	From Face	3.00	0.000		128.00	No Ice	4.46	2.85	0.04
			0.00				1/2"	4.79	3.37	0.08
			0.00				Ice	5.12	3.91	0.12
							1" Ice			
HORIZON DUO	A	From Face	3.00	0.000		128.00	No Ice	0.47	0.29	0.01
			0.00				1/2"	0.56	0.37	0.01
			0.00				Ice	0.65	0.44	0.02
							1" Ice			
HORIZON DUO	B	From Face	3.00	0.000		128.00	No Ice	0.47	0.29	0.01
			0.00				1/2"	0.56	0.37	0.01
			0.00				Ice	0.65	0.44	0.02
							1" Ice			
HORIZON DUO	C	From Face	3.00	0.000		128.00	No Ice	0.47	0.29	0.01
			0.00				1/2"	0.56	0.37	0.01
			0.00				Ice	0.65	0.44	0.02
							1" Ice			
WIMAX DAP HEAD	A	From Face	3.00	0.000		128.00	No Ice	1.55	0.68	0.03
			0.00				1/2"	1.70	0.80	0.04
			0.00				Ice	1.87	0.92	0.06
							1" Ice			
WIMAX DAP HEAD	B	From Face	3.00	0.000		128.00	No Ice	1.55	0.68	0.03
			0.00				1/2"	1.70	0.80	0.04
			0.00				Ice	1.87	0.92	0.06
							1" Ice			
WIMAX DAP HEAD	C	From Face	3.00	0.000		128.00	No Ice	1.55	0.68	0.03
			0.00				1/2"	1.70	0.80	0.04
			0.00				Ice	1.87	0.92	0.06
							1" Ice			
2.375" OD x 5' Mount Pipe	A	From Face	3.00	0.000		128.00	No Ice	1.19	1.19	0.02
			0.00				1/2"	1.50	1.50	0.03
			0.00				Ice	1.81	1.81	0.04
							1" Ice			
2.375" OD x 5' Mount Pipe	B	From Face	3.00	0.000		128.00	No Ice	1.19	1.19	0.02
			0.00				1/2"	1.50	1.50	0.03
			0.00				Ice	1.81	1.81	0.04
							1" Ice			
2.375" OD x 5' Mount Pipe	C	From Face	3.00	0.000		128.00	No Ice	1.19	1.19	0.02
			0.00				1/2"	1.50	1.50	0.03
			0.00				Ice	1.81	1.81	0.04
							1" Ice			
Side Arm Mount [SO 701-3]	C	None		0.000		128.00	No Ice	2.83	2.83	0.20
							1/2"	3.92	3.92	0.24
							Ice	5.01	5.01	0.28
							1" Ice			
*******										
CXL 900-3LW	B	From Leg	2.00	60.000		118.00	No Ice	0.14	0.14	0.00
			0.00				1/2"	0.33	0.33	0.00
			1.00				Ice	0.48	0.48	0.01
							1" Ice			
LNA	B	From Leg	2.00	60.000		118.00	No Ice	0.14	0.05	0.00
			0.00				1/2"	0.19	0.09	0.00
			1.00				Ice	0.25	0.13	0.00
							1" Ice			
CAVITY FILTER	B	From Leg	2.00	60.000		118.00	No Ice	0.19	0.08	0.00
			0.00				1/2"	0.25	0.12	0.00
			1.00				Ice	0.32	0.17	0.01
							1" Ice			
Side Arm Mount [SO 304-1]	B	From Leg	0.00	60.000		118.00	No Ice	0.63	0.94	0.02
			0.00				1/2"	1.00	1.45	0.03

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft Vert ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
			0.00			Ice	1.37	1.96	0.04
						1" Ice			
***									
(2) HBXX-6517DS-A2M w/ Mount Pipe	A	From Face	4.00	0.000	108.00	No Ice	8.77	6.96	0.07
			0.00			1/2"	9.34	8.18	0.14
			4.00			Ice	9.89	9.14	0.21
						1" Ice			
(2) HBXX-6517DS-A2M w/ Mount Pipe	B	From Face	4.00	0.000	108.00	No Ice	8.77	6.96	0.07
			0.00			1/2"	9.34	8.18	0.14
			4.00			Ice	9.89	9.14	0.21
						1" Ice			
(2) HBXX-6517DS-A2M w/ Mount Pipe	C	From Face	4.00	0.000	108.00	No Ice	8.77	6.96	0.07
			0.00			1/2"	9.34	8.18	0.14
			4.00			Ice	9.89	9.14	0.21
						1" Ice			
(2) LNX-6514DS-A1M w/ Mount Pipe	A	From Face	4.00	0.000	108.00	No Ice	8.41	7.08	0.06
			0.00			1/2"	8.97	8.27	0.13
			4.00			Ice	9.50	9.18	0.21
						1" Ice			
(2) LNX-6514DS-A1M w/ Mount Pipe	B	From Face	4.00	0.000	108.00	No Ice	8.41	7.08	0.06
			0.00			1/2"	8.97	8.27	0.13
			4.00			Ice	9.50	9.18	0.21
						1" Ice			
(2) LNX-6514DS-A1M w/ Mount Pipe	C	From Face	4.00	0.000	108.00	No Ice	8.41	7.08	0.06
			0.00			1/2"	8.97	8.27	0.13
			4.00			Ice	9.50	9.18	0.21
						1" Ice			
(2) RRH2X60-PCS	A	From Face	4.00	0.000	108.00	No Ice	2.20	1.72	0.06
			0.00			1/2"	2.39	1.90	0.08
			4.00			Ice	2.59	2.09	0.10
						1" Ice			
RRH2X60-PCS	C	From Face	4.00	0.000	108.00	No Ice	2.20	1.72	0.06
			0.00			1/2"	2.39	1.90	0.08
			4.00			Ice	2.59	2.09	0.10
						1" Ice			
RRH2X60-AWS	A	From Face	4.00	0.000	108.00	No Ice	1.88	1.24	0.04
			0.00			1/2"	2.06	1.39	0.06
			4.00			Ice	2.24	1.54	0.08
						1" Ice			
RRH2X60-AWS	B	From Face	4.00	0.000	108.00	No Ice	1.88	1.24	0.04
			0.00			1/2"	2.06	1.39	0.06
			4.00			Ice	2.24	1.54	0.08
						1" Ice			
RRH2X60-AWS	C	From Face	4.00	0.000	108.00	No Ice	1.88	1.24	0.04
			0.00			1/2"	2.06	1.39	0.06
			4.00			Ice	2.24	1.54	0.08
						1" Ice			
(2) DB-T1-6Z-8AB-0Z	B	From Face	4.00	0.000	108.00	No Ice	4.80	2.00	0.04
			0.00			1/2"	5.07	2.19	0.08
			4.00			Ice	5.35	2.39	0.12
						1" Ice			
Platform Mount [LP 303-1]	C	None		0.000	108.00	No Ice	14.66	14.66	1.25
						1/2"	18.87	18.87	1.48
						Ice	23.08	23.08	1.71
						1" Ice			
**									

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
A-ANT-18G-2-C	A	Paraboloid w/Radome	From Leg	3.00 0.00 0.00	0.000		128.00	2.17	No Ice 1/2" Ice 1" Ice	3.72 4.01 4.30	0.03 0.04 0.05
A-ANT-18G-2-C	B	Paraboloid w/Radome	From Leg	3.00 0.00 0.00	0.000		128.00	2.17	No Ice 1/2" Ice 1" Ice	3.72 4.01 4.30	0.03 0.04 0.05
A-ANT-18G-2-C	C	Paraboloid w/Radome	From Leg	3.00 0.00 0.00	0.000		128.00	2.17	No Ice 1/2" Ice 1" Ice	3.72 4.01 4.30	0.03 0.04 0.05

Tower Pressures - No Ice

G_H = 1.100

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 169.00-164.00	166.48	1.409	32.24	6.760	A	0.000	6.760	6.760	100.00	0.000	0.000
					B	0.000	6.760		100.00	0.000	0.000
					C	0.000	6.760		100.00	0.000	0.353
L2 164.00-159.00	161.48	1.4	32.03	7.164	A	0.000	7.164	7.164	100.00	0.000	0.000
					B	0.000	7.164		100.00	0.000	0.000
					C	0.000	7.164		100.00	0.000	1.765
L3 159.00-154.00	156.48	1.391	31.82	7.568	A	0.000	7.568	7.568	100.00	0.000	0.000
					B	0.000	7.568		100.00	0.000	0.000
					C	0.000	7.568		100.00	0.000	1.765
L4 154.00-149.00	151.48	1.381	31.61	7.972	A	0.000	7.972	7.972	100.00	0.000	0.000
					B	0.000	7.972		100.00	0.000	0.000
					C	0.000	7.972		100.00	0.000	1.765
L5 149.00-144.00	146.48	1.372	31.38	8.375	A	0.000	8.375	8.375	100.00	0.000	0.000
					B	0.000	8.375		100.00	0.000	0.000
					C	0.000	8.375		100.00	0.000	1.765
L6 144.00-139.00	141.48	1.362	31.16	8.779	A	0.000	8.779	8.779	100.00	0.000	0.000
					B	0.000	8.779		100.00	0.000	0.000
					C	0.000	8.779		100.00	0.000	1.765
L7 139.00-133.33	136.14	1.351	30.90	10.444	A	0.000	10.444	10.444	100.00	0.000	0.000
					B	0.000	10.444		100.00	0.000	0.000
					C	0.000	10.444		100.00	0.000	2.002
L8 133.33-131.66	132.49	1.343	30.73	3.103	A	0.000	3.103	3.103	100.00	0.000	0.000
					B	0.000	3.103		100.00	0.000	0.000
					C	0.000	3.103		100.00	0.000	0.590
L9 131.66-126.66	129.14	1.336	30.56	9.556	A	0.000	9.556	9.556	100.00	0.000	0.000
					B	0.000	9.556		100.00	0.000	0.000
					C	0.000	9.556		100.00	0.000	1.765
L10 126.66-121.66	124.14	1.325	30.31	9.954	A	0.000	9.954	9.954	100.00	0.000	0.000
					B	0.000	9.954		100.00	0.000	0.000
					C	0.000	9.954		100.00	0.000	1.765
L11 121.66-116.66	119.14	1.313	30.05	10.352	A	0.000	10.352	10.352	100.00	0.000	0.000
					B	0.000	10.352		100.00	0.000	0.000
					C	0.000	10.352		100.00	0.000	1.765
L12 116.66-111.66	114.14	1.301	29.78	10.750	A	0.000	10.750	10.750	100.00	0.000	0.000
					B	0.000	10.750		100.00	0.000	0.000
					C	0.000	10.750		100.00	0.000	2.072
L13 111.66-111.00	111.33	1.295	29.62	1.449	A	0.000	1.449	1.449	100.00	0.000	0.000
					B	0.000	1.449		100.00	0.000	0.000
					C	0.000	1.449		100.00	0.000	0.343
L14 111.00-110.75	110.87	1.293	29.60	0.551	A	0.000	0.551	0.551	100.00	0.000	0.000
					B	0.000	0.551		100.00	0.000	0.000
					C	0.000	0.551		100.00	0.000	0.130
L15 110.75-105.75	108.24	1.287	29.45	11.220	A	0.000	11.220	11.220	100.00	0.000	0.000
					B	0.000	11.220		100.00	0.000	0.000

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
					C	0.000	11.220		100.00	0.000	3.838
L16 105.75-101.50	103.61	1.275	29.18	9.850	A	0.000	9.850	9.850	100.00	0.000	0.000
					B	0.000	9.850		100.00	0.000	0.000
					C	0.000	9.850		100.00	0.000	5.175
L17 101.50-101.25	101.37	1.269	29.04	0.588	A	0.000	0.588	0.588	100.00	0.000	0.000
					B	0.000	0.588		100.00	0.000	0.000
					C	0.000	0.588		100.00	0.000	0.330
L18 101.25-101.00	101.12	1.269	29.03	0.589	A	0.000	0.589	0.589	100.00	0.000	0.000
					B	0.000	0.589		100.00	0.000	0.000
					C	0.000	0.589		100.00	0.000	0.330
L19 101.00-100.75	100.87	1.268	29.01	0.590	A	0.000	0.590	0.590	100.00	0.000	0.000
					B	0.000	0.590		100.00	0.000	0.000
					C	0.000	0.590		100.00	0.000	0.330
L20 100.75-95.75	98.24	1.261	28.85	12.016	A	0.000	12.016	12.016	100.00	0.000	0.000
					B	0.000	12.016		100.00	0.000	0.000
					C	0.000	12.016		100.00	0.000	6.603
L21 95.75-87.83	91.76	1.243	28.44	19.847	A	0.000	19.847	19.847	100.00	0.000	0.000
					B	0.000	19.847		100.00	0.000	0.000
					C	0.000	19.847		100.00	0.000	10.460
L22 87.83-86.83	87.33	1.23	28.15	2.524	A	0.000	2.524	2.524	100.00	0.000	0.000
					B	0.000	2.524		100.00	0.000	0.000
					C	0.000	2.524		100.00	0.000	1.321
L23 86.83-81.83	84.32	1.221	27.94	12.860	A	0.000	12.860	12.860	100.00	0.000	0.000
					B	0.000	12.860		100.00	0.000	0.000
					C	0.000	12.860		100.00	0.000	6.603
L24 81.83-81.50	81.66	1.213	27.75	0.863	A	0.000	0.863	0.863	100.00	0.000	0.000
					B	0.000	0.863		100.00	0.000	0.000
					C	0.000	0.863		100.00	0.000	0.436
L25 81.50-81.25	81.37	1.212	27.73	0.655	A	0.000	0.655	0.655	100.00	0.000	0.000
					B	0.000	0.655		100.00	0.000	0.000
					C	0.000	0.655		100.00	0.000	0.330
L26 81.25-76.25	78.74	1.204	27.54	13.304	A	0.000	13.304	13.304	100.00	0.000	0.000
					B	0.000	13.304		100.00	0.000	0.000
					C	0.000	13.304		100.00	0.000	6.603
L27 76.25-71.25	73.74	1.187	27.16	13.702	A	0.000	13.702	13.702	100.00	0.000	0.000
					B	0.000	13.702		100.00	0.000	0.000
					C	0.000	13.702		100.00	0.000	6.603
L28 71.25-66.25	68.74	1.17	26.76	14.100	A	0.000	14.100	14.100	100.00	0.000	0.000
					B	0.000	14.100		100.00	0.000	0.000
					C	0.000	14.100		100.00	0.000	6.603
L29 66.25-61.25	63.74	1.151	26.34	14.498	A	0.000	14.498	14.498	100.00	0.000	0.000
					B	0.000	14.498		100.00	0.000	0.000
					C	0.000	14.498		100.00	0.000	6.603
L30 61.25-56.25	58.74	1.132	25.89	14.896	A	0.000	14.896	14.896	100.00	0.000	0.000
					B	0.000	14.896		100.00	0.000	0.000
					C	0.000	14.896		100.00	0.000	6.603
L31 56.25-51.25	53.74	1.111	25.41	15.294	A	0.000	15.294	15.294	100.00	0.000	0.000
					B	0.000	15.294		100.00	0.000	0.000
					C	0.000	15.294		100.00	0.000	6.603
L32 51.25-43.33	47.26	1.081	24.73	25.041	A	0.000	25.041	25.041	100.00	0.000	0.000
					B	0.000	25.041		100.00	0.000	0.000
					C	0.000	25.041		100.00	0.000	10.460
L33 43.33-42.33	42.83	1.059	24.23	3.169	A	0.000	3.169	3.169	100.00	0.000	0.000
					B	0.000	3.169		100.00	0.000	0.000
					C	0.000	3.169		100.00	0.000	1.321
L34 42.33-37.40	39.85	1.043	23.86	15.856	A	0.000	15.856	15.856	100.00	0.000	0.000
					B	0.000	15.856		100.00	0.000	0.000
					C	0.000	15.856		100.00	0.000	6.511
L35 37.40-37.15	37.27	1.028	23.53	0.814	A	0.000	0.814	0.814	100.00	0.000	0.000
					B	0.000	0.814		100.00	0.000	0.000
					C	0.000	0.814		100.00	0.000	0.330
L36 37.15-32.15	34.64	1.012	23.17	16.496	A	0.000	16.496	16.496	100.00	0.000	0.000
					B	0.000	16.496		100.00	0.000	0.000
					C	0.000	16.496		100.00	0.000	6.603

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
L37 32.15-27.15	29.64	0.98	22.42	16.894	A	0.000	16.894	16.894	100.00	0.000	0.000
					B	0.000	16.894		100.00	0.000	0.000
					C	0.000	16.894		100.00	0.000	6.603
L38 27.15-22.15	24.64	0.942	21.56	17.291	A	0.000	17.291	17.291	100.00	0.000	0.000
					B	0.000	17.291		100.00	0.000	0.000
					C	0.000	17.291		100.00	0.000	6.603
L39 22.15-19.50	20.82	0.91	20.81	9.325	A	0.000	9.325	9.325	100.00	0.000	0.000
					B	0.000	9.325		100.00	0.000	0.000
					C	0.000	9.325		100.00	0.000	3.500
L40 19.50-19.25	19.37	0.896	20.50	0.886	A	0.000	0.886	0.886	100.00	0.000	0.000
					B	0.000	0.886		100.00	0.000	0.000
					C	0.000	0.886		100.00	0.000	0.330
L41 19.25-14.25	16.74	0.869	19.88	17.919	A	0.000	17.919	17.919	100.00	0.000	0.000
					B	0.000	17.919		100.00	0.000	0.000
					C	0.000	17.919		100.00	0.000	6.603
L42 14.25-9.25	11.74	0.85	19.45	18.317	A	0.000	18.317	18.317	100.00	0.000	0.000
					B	0.000	18.317		100.00	0.000	0.000
					C	0.000	18.317		100.00	0.000	6.603
L43 9.25-9.00	9.12	0.85	19.45	0.926	A	0.000	0.926	0.926	100.00	0.000	0.000
					B	0.000	0.926		100.00	0.000	0.000
					C	0.000	0.926		100.00	0.000	0.330
L44 9.00-8.75	8.87	0.85	19.45	0.927	A	0.000	0.927	0.927	100.00	0.000	0.000
					B	0.000	0.927		100.00	0.000	0.000
					C	0.000	0.927		100.00	0.000	0.330
L45 8.75-7.00	7.87	0.85	19.45	6.519	A	0.000	6.519	6.519	100.00	0.000	0.000
					B	0.000	6.519		100.00	0.000	0.000
					C	0.000	6.519		100.00	0.000	2.311
L46 7.00-6.75	6.87	0.85	19.45	0.935	A	0.000	0.935	0.935	100.00	0.000	0.000
					B	0.000	0.935		100.00	0.000	0.000
					C	0.000	0.935		100.00	0.000	0.330
L47 6.75-5.00	5.87	0.85	19.45	6.574	A	0.000	6.574	6.574	100.00	0.000	0.000
					B	0.000	6.574		100.00	0.000	0.000
					C	0.000	6.574		100.00	0.000	2.311
L48 5.00-4.75	4.87	0.85	19.45	0.943	A	0.000	0.943	0.943	100.00	0.000	0.000
					B	0.000	0.943		100.00	0.000	0.000
					C	0.000	0.943		100.00	0.000	0.330
L49 4.75-3.00	3.87	0.85	19.45	6.630	A	0.000	6.630	6.630	100.00	0.000	0.000
					B	0.000	6.630		100.00	0.000	0.000
					C	0.000	6.630		100.00	0.000	2.311
L50 3.00-2.75	2.87	0.85	19.45	0.951	A	0.000	0.951	0.951	100.00	0.000	0.000
					B	0.000	0.951		100.00	0.000	0.000
					C	0.000	0.951		100.00	0.000	0.330
L51 2.75-2.25	2.50	0.85	19.45	1.905	A	0.000	1.905	1.905	100.00	0.000	0.000
					B	0.000	1.905		100.00	0.000	0.000
					C	0.000	1.905		100.00	0.000	0.660
L52 2.25-2.00	2.12	0.85	19.45	0.954	A	0.000	0.954	0.954	100.00	0.000	0.000
					B	0.000	0.954		100.00	0.000	0.000
					C	0.000	0.954		100.00	0.000	0.330
L53 2.00-0.00	1.00	0.85	19.45	7.669	A	0.000	7.669	7.669	100.00	0.000	0.000
					B	0.000	7.669		100.00	0.000	0.000
					C	0.000	7.669		100.00	0.000	2.641

Tower Pressure - With Ice

G_H = 1.100

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 169.00-164.00	166.48	1.409	8.57	2.3513	8.719	A	0.000	8.719	8.719	100.00	0.000	0.000
						B	0.000	8.719		100.00	0.000	0.000
						C	0.000	8.719		100.00	0.000	1.294

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
L2 164.00-159.00	161.48	1.4	8.51	2.3442	9.117	A	0.000	9.117	9.117	100.00	0.000	0.000
						B	0.000	9.117		100.00	0.000	0.000
						C	0.000	9.117		100.00	0.000	6.453
L3 159.00-154.00	156.48	1.391	8.46	2.3368	9.515	A	0.000	9.515	9.515	100.00	0.000	0.000
						B	0.000	9.515		100.00	0.000	0.000
						C	0.000	9.515		100.00	0.000	6.439
L4 154.00-149.00	151.48	1.381	8.40	2.3292	9.913	A	0.000	9.913	9.913	100.00	0.000	0.000
						B	0.000	9.913		100.00	0.000	0.000
						C	0.000	9.913		100.00	0.000	6.423
L5 149.00-144.00	146.48	1.372	8.34	2.3214	10.310	A	0.000	10.310	10.310	100.00	0.000	0.000
						B	0.000	10.310		100.00	0.000	0.000
						C	0.000	10.310		100.00	0.000	6.408
L6 144.00-139.00	141.48	1.362	8.28	2.3134	10.707	A	0.000	10.707	10.707	100.00	0.000	0.000
						B	0.000	10.707		100.00	0.000	0.000
						C	0.000	10.707		100.00	0.000	6.392
L7 139.00-133.33	136.14	1.351	8.21	2.3045	12.622	A	0.000	12.622	12.622	100.00	0.000	0.000
						B	0.000	12.622		100.00	0.000	0.000
						C	0.000	12.622		100.00	0.000	7.228
L8 133.33-131.66	132.49	1.343	8.16	2.2983	3.744	A	0.000	3.744	3.744	100.00	0.000	0.000
						B	0.000	3.744		100.00	0.000	0.000
						C	0.000	3.744		100.00	0.000	2.129
L9 131.66-126.66	129.14	1.336	8.12	2.2924	11.466	A	0.000	11.466	11.466	100.00	0.000	0.000
						B	0.000	11.466		100.00	0.000	0.000
						C	0.000	11.466		100.00	0.000	6.350
L10 126.66-121.66	124.14	1.325	8.05	2.2833	11.856	A	0.000	11.856	11.856	100.00	0.000	0.000
						B	0.000	11.856		100.00	0.000	0.000
						C	0.000	11.856		100.00	0.000	6.332
L11 121.66-116.66	119.14	1.313	7.98	2.2740	12.247	A	0.000	12.247	12.247	100.00	0.000	0.000
						B	0.000	12.247		100.00	0.000	0.000
						C	0.000	12.247		100.00	0.000	6.313
L12 116.66-111.66	114.14	1.301	7.91	2.2642	12.636	A	0.000	12.636	12.636	100.00	0.000	0.000
						B	0.000	12.636		100.00	0.000	0.000
						C	0.000	12.636		100.00	0.000	7.526
L13 111.66-111.00	111.33	1.295	7.87	2.2586	1.697	A	0.000	1.697	1.697	100.00	0.000	0.000
						B	0.000	1.697		100.00	0.000	0.000
						C	0.000	1.697		100.00	0.000	1.271
L14 111.00-110.75	110.87	1.293	7.86	2.2577	0.645	A	0.000	0.645	0.645	100.00	0.000	0.000
						B	0.000	0.645		100.00	0.000	0.000
						C	0.000	0.645		100.00	0.000	0.481
L15 110.75-105.75	108.24	1.287	7.82	2.2522	13.097	A	0.000	13.097	13.097	100.00	0.000	0.000
						B	0.000	13.097		100.00	0.000	0.000
						C	0.000	13.097		100.00	0.000	13.886
L16 105.75-101.50	103.61	1.275	7.75	2.2424	11.438	A	0.000	11.438	11.438	100.00	0.000	0.000
						B	0.000	11.438		100.00	0.000	0.000
						C	0.000	11.438		100.00	0.000	18.069
L17 101.50-101.25	101.37	1.269	7.72	2.2375	0.682	A	0.000	0.682	0.682	100.00	0.000	0.000
						B	0.000	0.682		100.00	0.000	0.000
						C	0.000	0.682		100.00	0.000	1.138
L18 101.25-101.00	101.12	1.269	7.71	2.2370	0.683	A	0.000	0.683	0.683	100.00	0.000	0.000
						B	0.000	0.683		100.00	0.000	0.000
						C	0.000	0.683		100.00	0.000	1.138
L19 101.00-100.75	100.87	1.268	7.71	2.2364	0.684	A	0.000	0.684	0.684	100.00	0.000	0.000
						B	0.000	0.684		100.00	0.000	0.000
						C	0.000	0.684		100.00	0.000	1.138
L20 100.75-95.75	98.24	1.261	7.67	2.2305	13.875	A	0.000	13.875	13.875	100.00	0.000	0.000
						B	0.000	13.875		100.00	0.000	0.000
						C	0.000	13.875		100.00	0.000	22.713
L21 95.75-87.83	91.76	1.243	7.56	2.2154	22.772	A	0.000	22.772	22.772	100.00	0.000	0.000
						B	0.000	22.772		100.00	0.000	0.000
						C	0.000	22.772		100.00	0.000	35.803
L22 87.83-86.83	87.33	1.23	7.48	2.2044	2.893	A	0.000	2.893	2.893	100.00	0.000	0.000
						B	0.000	2.893		100.00	0.000	0.000
						C	0.000	2.893		100.00	0.000	4.521
L23 86.83-	84.32	1.221	7.42	2.1967	14.690	A	0.000	14.690	14.690	100.00	0.000	0.000

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
81.83						B	0.000	14.690		100.00	0.000	0.000
						C	0.000	14.690		100.00	0.000	22.468
L24 81.83-81.50	81.66	1.213	7.37	2.1897	0.983	A	0.000	0.983	0.983	100.00	0.000	0.000
						B	0.000	0.983		100.00	0.000	0.000
						C	0.000	0.983		100.00	0.000	1.480
L25 81.50-81.25	81.37	1.212	7.37	2.1889	0.746	A	0.000	0.746	0.746	100.00	0.000	0.000
						B	0.000	0.746		100.00	0.000	0.000
						C	0.000	0.746		100.00	0.000	1.121
L26 81.25-76.25	78.74	1.204	7.32	2.1817	15.122	A	0.000	15.122	15.122	100.00	0.000	0.000
						B	0.000	15.122		100.00	0.000	0.000
						C	0.000	15.122		100.00	0.000	22.360
L27 76.25-71.25	73.74	1.187	7.22	2.1674	15.508	A	0.000	15.508	15.508	100.00	0.000	0.000
						B	0.000	15.508		100.00	0.000	0.000
						C	0.000	15.508		100.00	0.000	22.257
L28 71.25-66.25	68.74	1.17	7.11	2.1523	15.894	A	0.000	15.894	15.894	100.00	0.000	0.000
						B	0.000	15.894		100.00	0.000	0.000
						C	0.000	15.894		100.00	0.000	22.147
L29 66.25-61.25	63.74	1.151	7.00	2.1361	16.278	A	0.000	16.278	16.278	100.00	0.000	0.000
						B	0.000	16.278		100.00	0.000	0.000
						C	0.000	16.278		100.00	0.000	22.031
L30 61.25-56.25	58.74	1.132	6.88	2.1187	16.662	A	0.000	16.662	16.662	100.00	0.000	0.000
						B	0.000	16.662		100.00	0.000	0.000
						C	0.000	16.662		100.00	0.000	21.905
L31 56.25-51.25	53.74	1.111	6.75	2.0999	17.044	A	0.000	17.044	17.044	100.00	0.000	0.000
						B	0.000	17.044		100.00	0.000	0.000
						C	0.000	17.044		100.00	0.000	21.770
L32 51.25-43.33	47.26	1.081	6.57	2.0732	27.778	A	0.000	27.778	27.778	100.00	0.000	0.000
						B	0.000	27.778		100.00	0.000	0.000
						C	0.000	27.778		100.00	0.000	34.176
L33 43.33-42.33	42.83	1.059	6.44	2.0528	3.515	A	0.000	3.515	3.515	100.00	0.000	0.000
						B	0.000	3.515		100.00	0.000	0.000
						C	0.000	3.515		100.00	0.000	4.315
L34 42.33-37.40	39.85	1.043	6.34	2.0381	17.531	A	0.000	17.531	17.531	100.00	0.000	0.000
						B	0.000	17.531		100.00	0.000	0.000
						C	0.000	17.531		100.00	0.000	21.024
L35 37.40-37.15	37.27	1.028	6.25	2.0245	0.899	A	0.000	0.899	0.899	100.00	0.000	0.000
						B	0.000	0.899		100.00	0.000	0.000
						C	0.000	0.899		100.00	0.000	1.061
L36 37.15-32.15	34.64	1.012	6.16	2.0097	18.171	A	0.000	18.171	18.171	100.00	0.000	0.000
						B	0.000	18.171		100.00	0.000	0.000
						C	0.000	18.171		100.00	0.000	21.118
L37 32.15-27.15	29.64	0.98	5.96	1.9786	18.543	A	0.000	18.543	18.543	100.00	0.000	0.000
						B	0.000	18.543		100.00	0.000	0.000
						C	0.000	18.543		100.00	0.000	20.893
L38 27.15-22.15	24.64	0.942	5.73	1.9424	18.910	A	0.000	18.910	18.910	100.00	0.000	0.000
						B	0.000	18.910		100.00	0.000	0.000
						C	0.000	18.910		100.00	0.000	20.632
L39 22.15-19.50	20.82	0.91	5.53	1.9100	10.169	A	0.000	10.169	10.169	100.00	0.000	0.000
						B	0.000	10.169		100.00	0.000	0.000
						C	0.000	10.169		100.00	0.000	10.811
L40 19.50-19.25	19.37	0.896	5.45	1.8963	0.965	A	0.000	0.965	0.965	100.00	0.000	0.000
						B	0.000	0.965		100.00	0.000	0.000
						C	0.000	0.965		100.00	0.000	1.015
L41 19.25-14.25	16.74	0.869	5.28	1.8688	19.477	A	0.000	19.477	19.477	100.00	0.000	0.000
						B	0.000	19.477		100.00	0.000	0.000
						C	0.000	19.477		100.00	0.000	20.100
L42 14.25-9.25	11.74	0.85	5.17	1.8036	19.820	A	0.000	19.820	19.820	100.00	0.000	0.000
						B	0.000	19.820		100.00	0.000	0.000
						C	0.000	19.820		100.00	0.000	19.630
L43 9.25-9.00	9.12	0.85	5.17	1.7587	1.000	A	0.000	1.000	1.000	100.00	0.000	0.000
						B	0.000	1.000		100.00	0.000	0.000
						C	0.000	1.000		100.00	0.000	0.965
L44 9.00-8.75	8.87	0.85	5.17	1.7539	1.000	A	0.000	1.000	1.000	100.00	0.000	0.000
						B	0.000	1.000		100.00	0.000	0.000

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
						C	0.000	1.000		100.00	0.000	0.964
L45 8.75-7.00	7.87	0.85	5.17	1.7330	7.024	A	0.000	7.024	7.024	100.00	0.000	0.000
						B	0.000	7.024		100.00	0.000	0.000
						C	0.000	7.024		100.00	0.000	6.692
L46 7.00-6.75	6.87	0.85	5.17	1.7096	1.006	A	0.000	1.006	1.006	100.00	0.000	0.000
						B	0.000	1.006		100.00	0.000	0.000
						C	0.000	1.006		100.00	0.000	0.948
L47 6.75-5.00	5.87	0.85	5.17	1.6830	7.065	A	0.000	7.065	7.065	100.00	0.000	0.000
						B	0.000	7.065		100.00	0.000	0.000
						C	0.000	7.065		100.00	0.000	6.565
L48 5.00-4.75	4.87	0.85	5.17	1.6519	1.012	A	0.000	1.012	1.012	100.00	0.000	0.000
						B	0.000	1.012		100.00	0.000	0.000
						C	0.000	1.012		100.00	0.000	0.927
L49 4.75-3.00	3.87	0.85	5.17	1.6143	7.101	A	0.000	7.101	7.101	100.00	0.000	0.000
						B	0.000	7.101		100.00	0.000	0.000
						C	0.000	7.101		100.00	0.000	6.392
L50 3.00-2.75	2.87	0.85	5.17	1.5669	1.016	A	0.000	1.016	1.016	100.00	0.000	0.000
						B	0.000	1.016		100.00	0.000	0.000
						C	0.000	1.016		100.00	0.000	0.896
L51 2.75-2.25	2.50	0.85	5.17	1.5452	2.034	A	0.000	2.034	2.034	100.00	0.000	0.000
						B	0.000	2.034		100.00	0.000	0.000
						C	0.000	2.034		100.00	0.000	1.776
L52 2.25-2.00	2.12	0.85	5.17	1.5202	1.017	A	0.000	1.017	1.017	100.00	0.000	0.000
						B	0.000	1.017		100.00	0.000	0.000
						C	0.000	1.017		100.00	0.000	0.879
L53 2.00-0.00	1.00	0.85	5.17	1.4097	8.138	A	0.000	8.138	8.138	100.00	0.000	0.000
						B	0.000	8.138		100.00	0.000	0.000
						C	0.000	8.138		100.00	0.000	6.714

Tower Pressure - Service

G_H = 1.100

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 169.00-164.00	166.48	1.409	11.04	6.760	A	0.000	6.760	6.760	100.00	0.000	0.000
					B	0.000	6.760		100.00	0.000	0.000
					C	0.000	6.760		100.00	0.000	0.353
L2 164.00-159.00	161.48	1.4	10.97	7.164	A	0.000	7.164	7.164	100.00	0.000	0.000
					B	0.000	7.164		100.00	0.000	0.000
					C	0.000	7.164		100.00	0.000	1.765
L3 159.00-154.00	156.48	1.391	10.89	7.568	A	0.000	7.568	7.568	100.00	0.000	0.000
					B	0.000	7.568		100.00	0.000	0.000
					C	0.000	7.568		100.00	0.000	1.765
L4 154.00-149.00	151.48	1.381	10.82	7.972	A	0.000	7.972	7.972	100.00	0.000	0.000
					B	0.000	7.972		100.00	0.000	0.000
					C	0.000	7.972		100.00	0.000	1.765
L5 149.00-144.00	146.48	1.372	10.74	8.375	A	0.000	8.375	8.375	100.00	0.000	0.000
					B	0.000	8.375		100.00	0.000	0.000
					C	0.000	8.375		100.00	0.000	1.765
L6 144.00-139.00	141.48	1.362	10.67	8.779	A	0.000	8.779	8.779	100.00	0.000	0.000
					B	0.000	8.779		100.00	0.000	0.000
					C	0.000	8.779		100.00	0.000	1.765
L7 139.00-133.33	136.14	1.351	10.58	10.444	A	0.000	10.444	10.444	100.00	0.000	0.000
					B	0.000	10.444		100.00	0.000	0.000
					C	0.000	10.444		100.00	0.000	2.002
L8 133.33-131.66	132.49	1.343	10.52	3.103	A	0.000	3.103	3.103	100.00	0.000	0.000
					B	0.000	3.103		100.00	0.000	0.000
					C	0.000	3.103		100.00	0.000	0.590
L9 131.66-126.66	129.14	1.336	10.46	9.556	A	0.000	9.556	9.556	100.00	0.000	0.000
					B	0.000	9.556		100.00	0.000	0.000

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
					C	0.000	9.556		100.00	0.000	1.765
L10 126.66-121.66	124.14	1.325	10.38	9.954	A	0.000	9.954	9.954	100.00	0.000	0.000
					B	0.000	9.954		100.00	0.000	0.000
					C	0.000	9.954		100.00	0.000	1.765
L11 121.66-116.66	119.14	1.313	10.29	10.352	A	0.000	10.352	10.352	100.00	0.000	0.000
					B	0.000	10.352		100.00	0.000	0.000
					C	0.000	10.352		100.00	0.000	1.765
L12 116.66-111.66	114.14	1.301	10.19	10.750	A	0.000	10.750	10.750	100.00	0.000	0.000
					B	0.000	10.750		100.00	0.000	0.000
					C	0.000	10.750		100.00	0.000	2.072
L13 111.66-111.00	111.33	1.295	10.14	1.449	A	0.000	1.449	1.449	100.00	0.000	0.000
					B	0.000	1.449		100.00	0.000	0.000
					C	0.000	1.449		100.00	0.000	0.343
L14 111.00-110.75	110.87	1.293	10.13	0.551	A	0.000	0.551	0.551	100.00	0.000	0.000
					B	0.000	0.551		100.00	0.000	0.000
					C	0.000	0.551		100.00	0.000	0.130
L15 110.75-105.75	108.24	1.287	10.08	11.220	A	0.000	11.220	11.220	100.00	0.000	0.000
					B	0.000	11.220		100.00	0.000	0.000
					C	0.000	11.220		100.00	0.000	3.838
L16 105.75-101.50	103.61	1.275	9.99	9.850	A	0.000	9.850	9.850	100.00	0.000	0.000
					B	0.000	9.850		100.00	0.000	0.000
					C	0.000	9.850		100.00	0.000	5.175
L17 101.50-101.25	101.37	1.269	9.94	0.588	A	0.000	0.588	0.588	100.00	0.000	0.000
					B	0.000	0.588		100.00	0.000	0.000
					C	0.000	0.588		100.00	0.000	0.330
L18 101.25-101.00	101.12	1.269	9.94	0.589	A	0.000	0.589	0.589	100.00	0.000	0.000
					B	0.000	0.589		100.00	0.000	0.000
					C	0.000	0.589		100.00	0.000	0.330
L19 101.00-100.75	100.87	1.268	9.93	0.590	A	0.000	0.590	0.590	100.00	0.000	0.000
					B	0.000	0.590		100.00	0.000	0.000
					C	0.000	0.590		100.00	0.000	0.330
L20 100.75-95.75	98.24	1.261	9.88	12.016	A	0.000	12.016	12.016	100.00	0.000	0.000
					B	0.000	12.016		100.00	0.000	0.000
					C	0.000	12.016		100.00	0.000	6.603
L21 95.75-87.83	91.76	1.243	9.74	19.847	A	0.000	19.847	19.847	100.00	0.000	0.000
					B	0.000	19.847		100.00	0.000	0.000
					C	0.000	19.847		100.00	0.000	10.460
L22 87.83-86.83	87.33	1.23	9.64	2.524	A	0.000	2.524	2.524	100.00	0.000	0.000
					B	0.000	2.524		100.00	0.000	0.000
					C	0.000	2.524		100.00	0.000	1.321
L23 86.83-81.83	84.32	1.221	9.56	12.860	A	0.000	12.860	12.860	100.00	0.000	0.000
					B	0.000	12.860		100.00	0.000	0.000
					C	0.000	12.860		100.00	0.000	6.603
L24 81.83-81.50	81.66	1.213	9.50	0.863	A	0.000	0.863	0.863	100.00	0.000	0.000
					B	0.000	0.863		100.00	0.000	0.000
					C	0.000	0.863		100.00	0.000	0.436
L25 81.50-81.25	81.37	1.212	9.49	0.655	A	0.000	0.655	0.655	100.00	0.000	0.000
					B	0.000	0.655		100.00	0.000	0.000
					C	0.000	0.655		100.00	0.000	0.330
L26 81.25-76.25	78.74	1.204	9.43	13.304	A	0.000	13.304	13.304	100.00	0.000	0.000
					B	0.000	13.304		100.00	0.000	0.000
					C	0.000	13.304		100.00	0.000	6.603
L27 76.25-71.25	73.74	1.187	9.30	13.702	A	0.000	13.702	13.702	100.00	0.000	0.000
					B	0.000	13.702		100.00	0.000	0.000
					C	0.000	13.702		100.00	0.000	6.603
L28 71.25-66.25	68.74	1.17	9.16	14.100	A	0.000	14.100	14.100	100.00	0.000	0.000
					B	0.000	14.100		100.00	0.000	0.000
					C	0.000	14.100		100.00	0.000	6.603
L29 66.25-61.25	63.74	1.151	9.02	14.498	A	0.000	14.498	14.498	100.00	0.000	0.000
					B	0.000	14.498		100.00	0.000	0.000
					C	0.000	14.498		100.00	0.000	6.603
L30 61.25-56.25	58.74	1.132	8.86	14.896	A	0.000	14.896	14.896	100.00	0.000	0.000
					B	0.000	14.896		100.00	0.000	0.000
					C	0.000	14.896		100.00	0.000	6.603

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
L31 56.25-51.25	53.74	1.111	8.70	15.294	A	0.000	15.294	15.294	100.00	0.000	0.000
					B	0.000	15.294		100.00	0.000	0.000
					C	0.000	15.294		100.00	0.000	6.603
L32 51.25-43.33	47.26	1.081	8.47	25.041	A	0.000	25.041	25.041	100.00	0.000	0.000
					B	0.000	25.041		100.00	0.000	0.000
					C	0.000	25.041		100.00	0.000	10.460
L33 43.33-42.33	42.83	1.059	8.29	3.169	A	0.000	3.169	3.169	100.00	0.000	0.000
					B	0.000	3.169		100.00	0.000	0.000
					C	0.000	3.169		100.00	0.000	1.321
L34 42.33-37.40	39.85	1.043	8.17	15.856	A	0.000	15.856	15.856	100.00	0.000	0.000
					B	0.000	15.856		100.00	0.000	0.000
					C	0.000	15.856		100.00	0.000	6.511
L35 37.40-37.15	37.27	1.028	8.05	0.814	A	0.000	0.814	0.814	100.00	0.000	0.000
					B	0.000	0.814		100.00	0.000	0.000
					C	0.000	0.814		100.00	0.000	0.330
L36 37.15-32.15	34.64	1.012	7.93	16.496	A	0.000	16.496	16.496	100.00	0.000	0.000
					B	0.000	16.496		100.00	0.000	0.000
					C	0.000	16.496		100.00	0.000	6.603
L37 32.15-27.15	29.64	0.98	7.68	16.894	A	0.000	16.894	16.894	100.00	0.000	0.000
					B	0.000	16.894		100.00	0.000	0.000
					C	0.000	16.894		100.00	0.000	6.603
L38 27.15-22.15	24.64	0.942	7.38	17.291	A	0.000	17.291	17.291	100.00	0.000	0.000
					B	0.000	17.291		100.00	0.000	0.000
					C	0.000	17.291		100.00	0.000	6.603
L39 22.15-19.50	20.82	0.91	7.13	9.325	A	0.000	9.325	9.325	100.00	0.000	0.000
					B	0.000	9.325		100.00	0.000	0.000
					C	0.000	9.325		100.00	0.000	3.500
L40 19.50-19.25	19.37	0.896	7.02	0.886	A	0.000	0.886	0.886	100.00	0.000	0.000
					B	0.000	0.886		100.00	0.000	0.000
					C	0.000	0.886		100.00	0.000	0.330
L41 19.25-14.25	16.74	0.869	6.81	17.919	A	0.000	17.919	17.919	100.00	0.000	0.000
					B	0.000	17.919		100.00	0.000	0.000
					C	0.000	17.919		100.00	0.000	6.603
L42 14.25-9.25	11.74	0.85	6.66	18.317	A	0.000	18.317	18.317	100.00	0.000	0.000
					B	0.000	18.317		100.00	0.000	0.000
					C	0.000	18.317		100.00	0.000	6.603
L43 9.25-9.00	9.12	0.85	6.66	0.926	A	0.000	0.926	0.926	100.00	0.000	0.000
					B	0.000	0.926		100.00	0.000	0.000
					C	0.000	0.926		100.00	0.000	0.330
L44 9.00-8.75	8.87	0.85	6.66	0.927	A	0.000	0.927	0.927	100.00	0.000	0.000
					B	0.000	0.927		100.00	0.000	0.000
					C	0.000	0.927		100.00	0.000	0.330
L45 8.75-7.00	7.87	0.85	6.66	6.519	A	0.000	6.519	6.519	100.00	0.000	0.000
					B	0.000	6.519		100.00	0.000	0.000
					C	0.000	6.519		100.00	0.000	2.311
L46 7.00-6.75	6.87	0.85	6.66	0.935	A	0.000	0.935	0.935	100.00	0.000	0.000
					B	0.000	0.935		100.00	0.000	0.000
					C	0.000	0.935		100.00	0.000	0.330
L47 6.75-5.00	5.87	0.85	6.66	6.574	A	0.000	6.574	6.574	100.00	0.000	0.000
					B	0.000	6.574		100.00	0.000	0.000
					C	0.000	6.574		100.00	0.000	2.311
L48 5.00-4.75	4.87	0.85	6.66	0.943	A	0.000	0.943	0.943	100.00	0.000	0.000
					B	0.000	0.943		100.00	0.000	0.000
					C	0.000	0.943		100.00	0.000	0.330
L49 4.75-3.00	3.87	0.85	6.66	6.630	A	0.000	6.630	6.630	100.00	0.000	0.000
					B	0.000	6.630		100.00	0.000	0.000
					C	0.000	6.630		100.00	0.000	2.311
L50 3.00-2.75	2.87	0.85	6.66	0.951	A	0.000	0.951	0.951	100.00	0.000	0.000
					B	0.000	0.951		100.00	0.000	0.000
					C	0.000	0.951		100.00	0.000	0.330
L51 2.75-2.25	2.50	0.85	6.66	1.905	A	0.000	1.905	1.905	100.00	0.000	0.000
					B	0.000	1.905		100.00	0.000	0.000
					C	0.000	1.905		100.00	0.000	0.660
L52 2.25-2.00	2.12	0.85	6.66	0.954	A	0.000	0.954	0.954	100.00	0.000	0.000

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
L53 2.00-0.00	1.00	0.85	6.66	7.669	B	0.000	0.954		100.00	0.000	0.000
					C	0.000	0.954		100.00	0.000	0.330
					A	0.000	7.669	7.669	100.00	0.000	0.000
					B	0.000	7.669		100.00	0.000	0.000
					C	0.000	7.669		100.00	0.000	2.641

Load Combinations

Comb. No.	Description
1	Dead Only
2	1.2 Dead+1.6 Wind 0 deg - No Ice
3	0.9 Dead+1.6 Wind 0 deg - No Ice
4	1.2 Dead+1.6 Wind 30 deg - No Ice
5	0.9 Dead+1.6 Wind 30 deg - No Ice
6	1.2 Dead+1.6 Wind 60 deg - No Ice
7	0.9 Dead+1.6 Wind 60 deg - No Ice
8	1.2 Dead+1.6 Wind 90 deg - No Ice
9	0.9 Dead+1.6 Wind 90 deg - No Ice
10	1.2 Dead+1.6 Wind 120 deg - No Ice
11	0.9 Dead+1.6 Wind 120 deg - No Ice
12	1.2 Dead+1.6 Wind 150 deg - No Ice
13	0.9 Dead+1.6 Wind 150 deg - No Ice
14	1.2 Dead+1.6 Wind 180 deg - No Ice
15	0.9 Dead+1.6 Wind 180 deg - No Ice
16	1.2 Dead+1.6 Wind 210 deg - No Ice
17	0.9 Dead+1.6 Wind 210 deg - No Ice
18	1.2 Dead+1.6 Wind 240 deg - No Ice
19	0.9 Dead+1.6 Wind 240 deg - No Ice
20	1.2 Dead+1.6 Wind 270 deg - No Ice
21	0.9 Dead+1.6 Wind 270 deg - No Ice
22	1.2 Dead+1.6 Wind 300 deg - No Ice
23	0.9 Dead+1.6 Wind 300 deg - No Ice
24	1.2 Dead+1.6 Wind 330 deg - No Ice
25	0.9 Dead+1.6 Wind 330 deg - No Ice
26	1.2 Dead+1.0 Ice+1.0 Temp
27	1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp
28	1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp
29	1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp
30	1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp
31	1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp
32	1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp
33	1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp
34	1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp
35	1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp
36	1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp
37	1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp
38	1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp
39	Dead+Wind 0 deg - Service
40	Dead+Wind 30 deg - Service
41	Dead+Wind 60 deg - Service
42	Dead+Wind 90 deg - Service
43	Dead+Wind 120 deg - Service
44	Dead+Wind 150 deg - Service
45	Dead+Wind 180 deg - Service
46	Dead+Wind 210 deg - Service
47	Dead+Wind 240 deg - Service
48	Dead+Wind 270 deg - Service
49	Dead+Wind 300 deg - Service
50	Dead+Wind 330 deg - Service

Maximum Member Forces

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L1	169 - 164	Pole	Max Tension	48	0.00	-0.00	-0.00
			Max. Compression	26	-8.33	0.07	-0.04
			Max. Mx	20	-2.03	9.22	-0.00
			Max. My	14	-2.03	0.00	-9.22
			Max. Vy	20	-5.24	9.22	-0.00
			Max. Vx	2	-5.23	0.00	9.21
			Max. Torque	13			-0.01
L2	164 - 159	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-9.37	0.45	-0.25
			Max. Mx	20	-2.24	36.96	-0.01
			Max. My	14	-2.24	0.02	-36.94
			Max. Vy	20	-5.86	36.96	-0.01
			Max. Vx	2	-5.86	0.02	36.92
			Max. Torque	13			-0.08
L3	159 - 154	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-20.45	0.34	0.38
			Max. Mx	8	-4.87	-87.15	0.09
			Max. My	2	-4.89	-0.03	86.89
			Max. Vy	20	-12.54	87.05	0.08
			Max. Vx	2	-12.45	-0.03	86.89
			Max. Torque	20			-0.37
L4	154 - 149	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-21.61	0.85	0.10
			Max. Mx	8	-5.25	-151.02	0.08
			Max. My	2	-5.28	-0.01	150.34
			Max. Vy	20	-13.03	150.97	0.06
			Max. Vx	2	-12.94	-0.01	150.34
			Max. Torque	20			-0.36
L5	149 - 144	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-26.36	1.40	-0.20
			Max. Mx	20	-6.50	225.45	0.04
			Max. My	2	-6.52	0.01	224.36
			Max. Vy	20	-15.55	225.45	0.04
			Max. Vx	2	-15.46	0.01	224.36
			Max. Torque	20			-0.32
L6	144 - 139	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-27.59	1.98	-0.52
			Max. Mx	20	-7.00	304.40	0.01
			Max. My	2	-7.03	0.04	302.82
			Max. Vy	20	-16.03	304.40	0.01
			Max. Vx	2	-15.94	0.04	302.82
			Max. Torque	18			-0.29
L7	139 - 133.33	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-29.39	2.38	-0.74
			Max. Mx	20	-7.49	343.27	-0.00
			Max. My	2	-7.52	0.06	341.46
			Max. Vy	20	-17.07	343.27	-0.00
			Max. Vx	2	-16.98	0.06	341.46
			Max. Torque	18			-0.29
L8	133.33 - 131.66	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-31.55	3.28	-1.25
			Max. Mx	20	-8.33	430.05	-0.04
			Max. My	2	-8.35	0.11	427.71
			Max. Vy	20	-17.62	430.05	-0.04
			Max. Vx	2	-17.53	0.11	427.71
			Max. Torque	17			-0.32
L9	131.66 - 126.66	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-35.66	4.30	-1.82
			Max. Mx	20	-9.56	521.23	-0.11
			Max. My	2	-9.58	0.17	518.40

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Vy	20	-19.51	521.23	-0.11
			Max. Vx	2	-19.45	0.17	518.40
			Max. Torque	17			-0.49
L10	126.66 - 121.66	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-37.70	5.50	-2.50
			Max. Mx	20	-10.31	619.98	-0.29
			Max. My	2	-10.34	0.23	616.73
			Max. Vy	20	-19.98	619.98	-0.29
			Max. Vx	2	-19.92	0.23	616.73
			Max. Torque	17			-0.54
L11	121.66 - 116.66	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-39.90	6.51	-3.33
			Max. Mx	20	-11.13	721.13	-0.49
			Max. My	2	-11.15	0.27	717.46
			Max. Vy	20	-20.51	721.13	-0.49
			Max. Vx	2	-20.44	0.27	717.46
			Max. Torque	17			-0.56
L12	116.66 - 111.66	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-42.02	7.81	-4.07
			Max. Mx	20	-11.96	824.93	-0.67
			Max. My	2	-11.98	0.34	820.80
			Max. Vy	20	-21.01	824.93	-0.67
			Max. Vx	2	-20.93	0.34	820.80
			Max. Torque	17			-0.53
L13	111.66 - 111	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-42.30	7.99	-4.17
			Max. Mx	20	-12.08	838.82	-0.70
			Max. My	2	-12.09	0.35	834.63
			Max. Vy	20	-21.08	838.82	-0.70
			Max. Vx	2	-21.00	0.35	834.63
			Max. Torque	17			-0.54
L14	111 - 110.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-42.43	8.06	-4.21
			Max. Mx	20	-12.14	844.10	-0.71
			Max. My	2	-12.16	0.36	839.88
			Max. Vy	20	-21.11	844.10	-0.71
			Max. Vx	2	-21.03	0.36	839.88
			Max. Torque	17			-0.54
L15	110.75 - 105.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-55.26	9.41	-4.02
			Max. Mx	20	-15.69	983.71	-1.24
			Max. My	2	-15.72	0.17	978.25
			Max. Vy	20	-27.71	983.71	-1.24
			Max. Vx	2	-27.52	0.17	978.25
			Max. Torque	17			-0.77
L16	105.75 - 101.5	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-58.51	11.71	-5.34
			Max. Mx	20	-16.76	1103.43	-1.80
			Max. My	2	-16.79	-0.05	1096.93
			Max. Vy	20	-28.58	1103.43	-1.80
			Max. Vx	2	-28.39	-0.05	1096.93
			Max. Torque	17			-0.92
L17	101.5 - 101.25	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-58.74	11.86	-5.42
			Max. Mx	20	-16.87	1110.59	-1.84
			Max. My	2	-16.90	-0.06	1104.03
			Max. Vy	20	-28.63	1110.59	-1.84
			Max. Vx	2	-28.44	-0.06	1104.03
			Max. Torque	17			-0.93

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L18	101.25 - 101	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-58.96	12.00	-5.50
			Max. Mx	20	-16.96	1117.76	-1.87
			Max. My	2	-16.99	-0.07	1111.14
			Max. Vy	20	-28.69	1117.76	-1.87
			Max. Vx	2	-28.50	-0.07	1111.14
			Max. Torque	17			-0.94
L19	101 - 100.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-59.16	12.13	-5.58
			Max. Mx	20	-17.04	1124.95	-1.91
			Max. My	2	-17.07	-0.09	1118.26
			Max. Vy	20	-28.75	1124.95	-1.91
			Max. Vx	2	-28.55	-0.09	1118.26
			Max. Torque	17			-0.95
L20	100.75 - 95.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-63.24	14.90	-7.16
			Max. Mx	20	-18.53	1271.54	-2.57
			Max. My	2	-18.55	-0.35	1263.62
			Max. Vy	20	-29.84	1271.54	-2.57
			Max. Vx	2	-29.65	-0.35	1263.62
			Max. Torque	3			1.27
L21	95.75 - 87.83	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-66.18	16.96	-8.34
			Max. Mx	20	-19.62	1380.14	-3.06
			Max. My	2	-19.65	-0.52	1371.33
			Max. Vy	20	-30.61	1380.14	-3.06
			Max. Vx	2	-30.42	-0.52	1371.33
			Max. Torque	3			1.52
L22	87.83 - 86.83	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-72.38	20.02	-10.09
			Max. Mx	20	-22.66	1547.01	-3.78
			Max. My	2	-22.69	-0.78	1536.86
			Max. Vy	20	-31.93	1547.01	-3.78
			Max. Vx	2	-31.73	-0.78	1536.86
			Max. Torque	3			1.90
L23	86.83 - 81.83	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-76.85	22.93	-11.76
			Max. Mx	20	-24.60	1709.53	-4.46
			Max. My	2	-24.62	-1.02	1698.12
			Max. Vy	20	-33.03	1709.53	-4.46
			Max. Vx	2	-32.84	-1.02	1698.12
			Max. Torque	3			2.25
L24	81.83 - 81.5	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-77.14	23.13	-11.87
			Max. Mx	20	-24.74	1720.46	-4.51
			Max. My	2	-24.76	-1.04	1708.96
			Max. Vy	20	-33.10	1720.46	-4.51
			Max. Vx	2	-32.91	-1.04	1708.96
			Max. Torque	3			2.27
L25	81.5 - 81.25	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-77.37	23.28	-11.96
			Max. Mx	20	-24.84	1728.75	-4.54
			Max. My	2	-24.87	-1.05	1717.19
			Max. Vy	20	-33.16	1728.75	-4.54
			Max. Vx	2	-32.96	-1.05	1717.19
			Max. Torque	3			2.29
L26	81.25 - 76.25	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-81.88	26.23	-13.65
			Max. Mx	20	-26.83	1897.43	-5.22
			Max. My	2	-26.86	-1.28	1884.60

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Vy	20	-34.26	1897.43	-5.22
			Max. Vx	2	-34.07	-1.28	1884.60
			Max. Torque	3			2.65
L27	76.25 - 71.25	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-86.40	29.23	-15.37
			Max. Mx	20	-28.88	2071.61	-5.91
			Max. My	2	-28.90	-1.51	2057.49
			Max. Vy	20	-35.35	2071.61	-5.91
			Max. Vx	2	-35.16	-1.51	2057.49
			Max. Torque	25			3.07
L28	71.25 - 66.25	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-90.92	32.27	-17.12
			Max. Mx	20	-30.95	2251.21	-6.61
			Max. My	2	-30.98	-1.73	2235.79
			Max. Vy	20	-36.43	2251.21	-6.61
			Max. Vx	2	-36.24	-1.73	2235.79
			Max. Torque	25			3.50
L29	66.25 - 61.25	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-95.44	35.34	-18.88
			Max. Mx	20	-33.07	2436.17	-7.30
			Max. My	2	-33.09	-1.95	2419.45
			Max. Vy	20	-37.50	2436.17	-7.30
			Max. Vx	2	-37.31	-1.95	2419.45
			Max. Torque	25			3.94
L30	61.25 - 56.25	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-99.96	38.43	-20.65
			Max. Mx	20	-35.21	2626.41	-8.00
			Max. My	2	-35.23	-2.16	2608.39
			Max. Vy	20	-38.55	2626.41	-8.00
			Max. Vx	2	-38.36	-2.16	2608.39
			Max. Torque	25			4.38
L31	56.25 - 51.25	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-104.48	41.52	-22.43
			Max. Mx	20	-37.40	2821.86	-8.70
			Max. My	2	-37.41	-2.36	2802.52
			Max. Vy	20	-39.58	2821.86	-8.70
			Max. Vx	2	-39.38	-2.36	2802.52
			Max. Torque	25			4.82
L32	51.25 - 43.33	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-106.82	43.13	-23.35
			Max. Mx	20	-38.54	2925.11	-9.07
			Max. My	2	-38.56	-2.46	2905.08
			Max. Vy	20	-40.10	2925.11	-9.07
			Max. Vx	2	-39.91	-2.46	2905.08
			Max. Torque	25			5.05
L33	43.33 - 42.33	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-115.61	47.06	-25.61
			Max. Mx	20	-43.80	3183.79	-9.96
			Max. My	2	-43.82	-2.70	3162.08
			Max. Vy	20	-41.55	3183.79	-9.96
			Max. Vx	2	-41.36	-2.70	3162.08
			Max. Torque	25			5.61
L34	42.33 - 37.4	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-120.49	50.06	-27.34
			Max. Mx	20	-46.47	3391.19	-10.66
			Max. My	2	-46.49	-2.89	3368.16
			Max. Vy	20	-42.53	3391.19	-10.66
			Max. Vx	2	-42.34	-2.89	3368.16

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Torque	25			6.04
L35	37.4 - 37.15	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-120.73	50.22	-27.43
			Max. Mx	20	-46.63	3401.83	-10.70
			Max. My	2	-46.64	-2.90	3378.74
			Max. Vy	20	-42.57	3401.83	-10.70
			Max. Vx	2	-42.37	-2.90	3378.74
			Max. Torque	25			6.07
L36	37.15 - 32.15	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-125.65	53.23	-29.16
			Max. Mx	20	-49.36	3617.24	-11.40
			Max. My	2	-49.37	-3.08	3592.81
			Max. Vy	20	-43.53	3617.24	-11.40
			Max. Vx	2	-43.34	-3.08	3592.81
			Max. Torque	25			6.50
L37	32.15 - 27.15	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-130.56	56.23	-30.89
			Max. Mx	20	-52.14	3837.32	-12.11
			Max. My	2	-52.15	-3.26	3811.54
			Max. Vy	20	-44.44	3837.32	-12.11
			Max. Vx	2	-44.25	-3.26	3811.54
			Max. Torque	25			6.93
L38	27.15 - 22.15	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-135.45	59.20	-32.60
			Max. Mx	20	-54.95	4061.86	-12.82
			Max. My	2	-54.96	-3.43	4034.74
			Max. Vy	20	-45.32	4061.86	-12.82
			Max. Vx	2	-45.13	-3.43	4034.74
			Max. Torque	25			7.36
L39	22.15 - 19.5	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-138.04	60.76	-33.50
			Max. Mx	20	-56.45	4182.61	-13.20
			Max. My	2	-56.45	-3.52	4154.77
			Max. Vy	20	-45.76	4182.61	-13.20
			Max. Vx	2	-45.58	-3.52	4154.77
			Max. Torque	25			7.58
L40	19.5 - 19.25	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-138.29	60.91	-33.59
			Max. Mx	20	-56.62	4194.06	-13.24
			Max. My	2	-56.63	-3.53	4166.16
			Max. Vy	20	-45.79	4194.06	-13.24
			Max. Vx	2	-45.60	-3.53	4166.16
			Max. Torque	25			7.60
L41	19.25 - 14.25	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-143.30	63.80	-35.25
			Max. Mx	20	-59.63	4425.20	-13.95
			Max. My	2	-59.63	-3.69	4395.94
			Max. Vy	20	-46.60	4425.20	-13.95
			Max. Vx	2	-46.41	-3.69	4395.94
			Max. Torque	25			8.01
L42	14.25 - 9.25	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-148.26	66.61	-36.87
			Max. Mx	20	-62.67	4660.27	-14.66
			Max. My	2	-62.68	-3.84	4629.65
			Max. Vy	20	-47.37	4660.27	-14.66
			Max. Vx	2	-47.18	-3.84	4629.65
			Max. Torque	25			8.42
L43	9.25 - 9	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-148.50	66.74	-36.95
			Max. Mx	20	-62.84	4672.13	-14.70
			Max. My	2	-62.84	-3.85	4641.44

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Vy	20	-47.39	4672.13	-14.70
			Max. Vx	2	-47.21	-3.85	4641.44
			Max. Torque	25			8.44
L44	9 - 8.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-148.75	66.88	-37.02
			Max. Mx	20	-63.00	4683.99	-14.73
			Max. My	2	-63.00	-3.86	4653.24
			Max. Vy	20	-47.43	4683.99	-14.73
			Max. Vx	2	-47.25	-3.86	4653.24
			Max. Torque	25			8.46
L45	8.75 - 7	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-150.50	67.80	-37.56
			Max. Mx	20	-64.09	4767.32	-14.98
			Max. My	2	-64.09	-3.91	4736.09
			Max. Vy	20	-47.74	4767.32	-14.98
			Max. Vx	2	-47.55	-3.91	4736.09
			Max. Torque	25			8.60
L46	7 - 6.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-150.74	67.93	-37.63
			Max. Mx	20	-64.27	4779.26	-15.02
			Max. My	2	-64.27	-3.92	4747.97
			Max. Vy	20	-47.74	4779.26	-15.02
			Max. Vx	2	-47.56	-3.92	4747.97
			Max. Torque	25			8.62
L47	6.75 - 5	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-152.44	68.83	-38.15
			Max. Mx	20	-65.32	4863.13	-15.27
			Max. My	2	-65.32	-3.97	4831.36
			Max. Vy	20	-48.05	4863.13	-15.27
			Max. Vx	2	-47.86	-3.97	4831.36
			Max. Torque	25			8.77
L48	5 - 4.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-152.72	68.96	-38.23
			Max. Mx	20	-65.54	4875.15	-15.30
			Max. My	2	-65.55	-3.98	4843.31
			Max. Vy	20	-48.05	4875.15	-15.30
			Max. Vx	2	-47.87	-3.98	4843.31
			Max. Torque	25			8.79
L49	4.75 - 3	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-154.66	69.82	-38.73
			Max. Mx	20	-66.88	4959.59	-15.55
			Max. My	2	-66.88	-4.03	4927.27
			Max. Vy	20	-48.37	4959.59	-15.55
			Max. Vx	2	-48.19	-4.03	4927.27
			Max. Torque	25			8.94
L50	3 - 2.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-154.94	69.94	-38.80
			Max. Mx	20	-67.10	4971.69	-15.59
			Max. My	2	-67.10	-4.04	4939.31
			Max. Vy	20	-48.39	4971.69	-15.59
			Max. Vx	2	-48.20	-4.04	4939.31
			Max. Torque	25			8.96
L51	2.75 - 2.25	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-155.50	70.18	-38.93
			Max. Mx	20	-67.49	4995.93	-15.66
			Max. My	2	-67.49	-4.05	4963.41
			Max. Vy	20	-48.48	4995.93	-15.66
			Max. Vx	2	-48.29	-4.05	4963.41
			Max. Torque	25			9.00
L52	2.25 - 2	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-155.75	70.30	-39.00
			Max. Mx	20	-67.66	5008.07	-15.69
			Max. My	2	-67.66	-4.06	4975.48
			Max. Vy	20	-48.51	5008.07	-15.69
			Max. Vx	2	-48.33	-4.06	4975.48

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Torque	25			9.02
L53	2 - 0	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-157.64	71.15	-39.49
			Max. Mx	20	-68.99	5105.52	-15.98
			Max. My	2	-68.99	-4.11	5072.39
			Max. Vy	20	-48.85	5105.52	-15.98
			Max. Vx	2	-48.67	-4.11	5072.39
			Max. Torque	25			9.19

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Pole	Max. Vert	26	157.64	-0.00	0.00
	Max. H_x	21	51.75	48.83	-0.11
	Max. H_z	3	51.75	-0.08	48.65
	Max. M_x	2	5072.39	-0.08	48.65
	Max. M_z	8	5094.23	-48.83	0.06
	Max. Torsion	25	9.19	24.32	42.08
	Min. Vert	21	51.75	48.83	-0.11
	Min. H_x	9	51.75	-48.83	0.06
	Min. H_z	14	69.00	0.08	-48.58
	Min. M_x	14	-5068.85	0.08	-48.58
	Min. M_z	20	-5105.52	48.83	-0.11
	Min. Torsion	13	-9.18	-24.36	-42.05

Tower Mast Reaction Summary

Load Combination	Vertical K	$Shear_x$ K	$Shear_z$ K	Overturning Moment, M_x kip-ft	Overturning Moment, M_z kip-ft	Torque kip-ft
Dead Only	57.50	-0.00	0.00	2.27	4.56	0.00
1.2 Dead+1.6 Wind 0 deg - No Ice	69.00	0.08	-48.65	-5072.39	-4.11	-8.31
0.9 Dead+1.6 Wind 0 deg - No Ice	51.75	0.08	-48.65	-5020.40	-5.47	-8.32
1.2 Dead+1.6 Wind 30 deg - No Ice	69.00	24.46	-42.16	-4396.35	-2549.86	-5.21
0.9 Dead+1.6 Wind 30 deg - No Ice	51.75	24.46	-42.16	-4351.37	-2524.76	-5.21
1.2 Dead+1.6 Wind 60 deg - No Ice	69.00	42.29	-24.36	-2538.62	-4410.75	-0.49
0.9 Dead+1.6 Wind 60 deg - No Ice	51.75	42.29	-24.36	-2512.95	-4366.31	-0.49
1.2 Dead+1.6 Wind 90 deg - No Ice	69.00	48.83	-0.06	-3.49	-5094.23	4.35
0.9 Dead+1.6 Wind 90 deg - No Ice	51.75	48.83	-0.06	-4.15	-5042.74	4.35
1.2 Dead+1.6 Wind 120 deg - No Ice	69.00	42.27	24.25	2531.94	-4409.00	7.80
0.9 Dead+1.6 Wind 120 deg - No Ice	51.75	42.27	24.25	2504.94	-4364.56	7.81
1.2 Dead+1.6 Wind 150 deg - No Ice	69.00	24.36	42.05	4388.78	-2539.01	9.17
0.9 Dead+1.6 Wind 150 deg - No Ice	51.75	24.36	42.05	4342.50	-2514.00	9.18
1.2 Dead+1.6 Wind 180 deg - No Ice	69.00	-0.08	48.58	5068.85	15.36	8.30
0.9 Dead+1.6 Wind 180 deg	51.75	-0.08	48.58	5015.50	13.83	8.31

Load Combination	Vertical K	$Shear_x$ K	$Shear_z$ K	Overturning Moment, M_x kip-ft	Overturning Moment, M_z kip-ft	Torque kip-ft
- No Ice						
1.2 Dead+1.6 Wind 210 deg - No Ice	69.00	-24.51	42.14	4398.49	2567.11	5.21
0.9 Dead+1.6 Wind 210 deg - No Ice	51.75	-24.51	42.14	4352.12	2539.05	5.21
1.2 Dead+1.6 Wind 240 deg - No Ice	69.00	-42.35	24.40	2548.79	4429.96	0.51
0.9 Dead+1.6 Wind 240 deg - No Ice	51.75	-42.35	24.40	2521.64	4382.55	0.51
1.2 Dead+1.6 Wind 270 deg - No Ice	69.00	-48.83	0.11	15.98	5105.52	-4.33
0.9 Dead+1.6 Wind 270 deg - No Ice	51.75	-48.83	0.11	15.14	5051.13	-4.34
1.2 Dead+1.6 Wind 300 deg - No Ice	69.00	-42.21	-24.22	-2521.80	4412.34	-7.81
0.9 Dead+1.6 Wind 300 deg - No Ice	51.75	-42.21	-24.22	-2496.27	4365.09	-7.82
1.2 Dead+1.6 Wind 330 deg - No Ice	69.00	-24.32	-42.08	-4386.67	2544.28	-9.18
0.9 Dead+1.6 Wind 330 deg - No Ice	51.75	-24.32	-42.08	-4341.78	2516.44	-9.19
1.2 Dead+1.0 Ice+1.0 Temp	157.64	0.00	-0.00	39.49	71.15	0.00
1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp	157.64	0.02	-13.91	-1569.30	69.28	-4.58
1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp	157.64	6.98	-12.05	-1354.51	-736.15	-2.75
1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp	157.64	12.07	-6.96	-765.45	-1325.23	-0.13
1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp	157.64	13.94	-0.01	38.44	-1541.60	2.52
1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp	157.64	12.07	6.94	842.28	-1325.23	4.45
1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp	157.64	6.96	12.03	1430.78	-734.24	5.19
1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp	157.64	-0.02	13.89	1646.12	73.19	4.58
1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp	157.64	-6.99	12.04	1432.74	880.09	2.75
1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp	157.64	-12.08	6.97	845.66	1469.65	0.13
1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp	157.64	-13.94	0.02	42.34	1684.07	-2.52
1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp	157.64	-12.05	-6.93	-762.07	1465.75	-4.45
1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp	157.64	-6.95	-12.03	-1352.55	875.24	-5.18
Dead+Wind 0 deg - Service	57.50	0.02	-10.41	-1078.06	2.62	0.08
Dead+Wind 30 deg - Service	57.50	5.23	-9.02	-934.34	-539.42	-0.04
Dead+Wind 60 deg - Service	57.50	9.05	-5.21	-538.80	-935.65	-0.11
Dead+Wind 90 deg - Service	57.50	10.45	-0.01	0.99	-1080.98	-0.15
Dead+Wind 120 deg - Service	57.50	9.04	5.19	540.84	-935.27	-0.19
Dead+Wind 150 deg - Service	57.50	5.21	9.00	936.18	-537.10	-0.19
Dead+Wind 180 deg - Service	57.50	-0.02	10.39	1080.75	6.77	-0.08
Dead+Wind 210 deg - Service	57.50	-5.24	9.02	938.26	550.09	0.04
Dead+Wind 240 deg - Service	57.50	-9.06	5.22	544.43	946.74	0.11
Dead+Wind 270 deg - Service	57.50	-10.45	0.02	5.13	1090.38	0.15
Dead+Wind 300 deg - Service	57.50	-9.03	-5.18	-535.21	942.97	0.19

Load Combination	Vertical K	$Shear_x$ K	$Shear_z$ K	Overturning Moment, M_x kip-ft	Overturning Moment, M_z kip-ft	Torque kip-ft
Dead+Wind 330 deg - Service	57.50	-5.20	-9.00	-932.27	545.22	0.18

Solution Summary

	Sum of Applied Forces			Sum of Reactions			
Load Comb.	PX K	PY K	PZ K	PX K	PY K	PZ K	% Error
1	0.00	-57.50	0.00	0.00	57.50	-0.00	0.000%
2	0.08	-69.00	-48.65	-0.08	69.00	48.65	0.001%
3	0.08	-51.75	-48.65	-0.08	51.75	48.65	0.001%
4	24.46	-69.00	-42.16	-24.46	69.00	42.16	0.000%
5	24.46	-51.75	-42.16	-24.46	51.75	42.16	0.000%
6	42.29	-69.00	-24.36	-42.29	69.00	24.36	0.000%
7	42.29	-51.75	-24.36	-42.29	51.75	24.36	0.000%
8	48.83	-69.00	-0.06	-48.83	69.00	0.06	0.001%
9	48.83	-51.75	-0.06	-48.83	51.75	0.06	0.001%
10	42.27	-69.00	24.25	-42.27	69.00	-24.25	0.000%
11	42.27	-51.75	24.25	-42.27	51.75	-24.25	0.000%
12	24.36	-69.00	42.05	-24.36	69.00	-42.05	0.000%
13	24.36	-51.75	42.05	-24.36	51.75	-42.05	0.000%
14	-0.08	-69.00	48.58	0.08	69.00	-48.58	0.000%
15	-0.08	-51.75	48.58	0.08	51.75	-48.58	0.001%
16	-24.51	-69.00	42.14	24.51	69.00	-42.14	0.000%
17	-24.51	-51.75	42.14	24.51	51.75	-42.14	0.000%
18	-42.35	-69.00	24.40	42.35	69.00	-24.40	0.000%
19	-42.35	-51.75	24.40	42.35	51.75	-24.40	0.000%
20	-48.83	-69.00	0.11	48.83	69.00	-0.11	0.001%
21	-48.83	-51.75	0.11	48.83	51.75	-0.11	0.001%
22	-42.21	-69.00	-24.22	42.21	69.00	24.22	0.000%
23	-42.21	-51.75	-24.22	42.21	51.75	24.22	0.000%
24	-24.32	-69.00	-42.08	24.32	69.00	42.08	0.000%
25	-24.32	-51.75	-42.08	24.32	51.75	42.08	0.000%
26	0.00	-157.64	0.00	-0.00	157.64	0.00	0.000%
27	0.02	-157.64	-13.91	-0.02	157.64	13.91	0.000%
28	6.98	-157.64	-12.05	-6.98	157.64	12.05	0.000%
29	12.07	-157.64	-6.96	-12.07	157.64	6.96	0.000%
30	13.94	-157.64	-0.01	-13.94	157.64	0.01	0.000%
31	12.07	-157.64	6.94	-12.07	157.64	-6.94	0.000%
32	6.96	-157.64	12.03	-6.96	157.64	-12.03	0.000%
33	-0.02	-157.64	13.89	0.02	157.64	-13.89	0.000%
34	-6.99	-157.64	12.04	6.99	157.64	-12.04	0.000%
35	-12.08	-157.64	6.97	12.08	157.64	-6.97	0.000%
36	-13.94	-157.64	0.02	13.94	157.64	-0.02	0.000%
37	-12.05	-157.64	-6.93	12.05	157.64	6.93	0.000%
38	-6.95	-157.64	-12.03	6.95	157.64	12.03	0.000%
39	0.02	-57.50	-10.41	-0.02	57.50	10.41	0.003%
40	5.23	-57.50	-9.02	-5.23	57.50	9.02	0.001%
41	9.05	-57.50	-5.21	-9.05	57.50	5.21	0.001%
42	10.45	-57.50	-0.01	-10.45	57.50	0.01	0.003%
43	9.04	-57.50	5.19	-9.04	57.50	-5.19	0.001%
44	5.21	-57.50	9.00	-5.21	57.50	-9.00	0.001%
45	-0.02	-57.50	10.39	0.02	57.50	-10.39	0.003%
46	-5.24	-57.50	9.02	5.24	57.50	-9.02	0.001%
47	-9.06	-57.50	5.22	9.06	57.50	-5.22	0.001%
48	-10.45	-57.50	0.02	10.45	57.50	-0.02	0.003%
49	-9.03	-57.50	-5.18	9.03	57.50	5.18	0.001%
50	-5.20	-57.50	-9.00	5.20	57.50	9.00	0.001%

Non-Linear Convergence Results

Load Combination	Converged?	Number of Cycles	Displacement Tolerance	Force Tolerance
1	Yes	6	0.00000001	0.00000001
2	Yes	22	0.00000001	0.00014063
3	Yes	22	0.00000001	0.00010583
4	Yes	27	0.00000001	0.00000000
5	Yes	27	0.00000001	0.00000000
6	Yes	27	0.00000001	0.00000000
7	Yes	27	0.00000001	0.00000000
8	Yes	21	0.00001465	0.00011213
9	Yes	21	0.00000001	0.00008537
10	Yes	27	0.00000001	0.00000000
11	Yes	27	0.00000001	0.00000000
12	Yes	27	0.00000001	0.00000000
13	Yes	27	0.00000001	0.00000000
14	Yes	23	0.00000001	0.00009033
15	Yes	22	0.00000001	0.00012115
16	Yes	27	0.00000001	0.00000000
17	Yes	27	0.00000001	0.00000000
18	Yes	27	0.00000001	0.00000000
19	Yes	27	0.00000001	0.00000000
20	Yes	21	0.00001464	0.00014884
21	Yes	21	0.00000001	0.00011283
22	Yes	27	0.00000001	0.00000000
23	Yes	27	0.00000001	0.00000000
24	Yes	27	0.00000001	0.00000000
25	Yes	27	0.00000001	0.00000000
26	Yes	18	0.00000001	0.00013130
27	Yes	25	0.00000001	0.00011023
28	Yes	26	0.00000001	0.00009438
29	Yes	26	0.00000001	0.00009659
30	Yes	25	0.00000001	0.00010506
31	Yes	26	0.00000001	0.00010598
32	Yes	26	0.00000001	0.00009798
33	Yes	25	0.00000001	0.00011488
34	Yes	26	0.00000001	0.00011638
35	Yes	26	0.00000001	0.00011331
36	Yes	25	0.00000001	0.00011361
37	Yes	26	0.00000001	0.00010323
38	Yes	26	0.00000001	0.00011201
39	Yes	17	0.00012701	0.00004646
40	Yes	20	0.00000001	0.00010408
41	Yes	20	0.00000001	0.00010685
42	Yes	17	0.00012701	0.00005156
43	Yes	20	0.00000001	0.00010211
44	Yes	20	0.00000001	0.00010780
45	Yes	17	0.00012698	0.00004562
46	Yes	20	0.00000001	0.00010831
47	Yes	20	0.00000001	0.00010599
48	Yes	17	0.00012696	0.00004995
49	Yes	20	0.00000001	0.00010887
50	Yes	20	0.00000001	0.00010280

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	169 - 164	32.47	47	1.971	0.002
L2	164 - 159	30.40	47	1.970	0.002
L3	159 - 154	28.35	47	1.955	0.002
L4	154 - 149	26.32	47	1.924	0.002
L5	149 - 144	24.33	47	1.868	0.002
L6	144 - 139	22.41	47	1.793	0.001
L7	139 - 133.33	20.58	47	1.700	0.001
L8	136.66 - 131.66	19.76	47	1.652	0.001

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L9	131.66 - 126.66	18.06	47	1.586	0.001
L10	126.66 - 121.66	16.45	47	1.482	0.001
L11	121.66 - 116.66	14.96	47	1.372	0.001
L12	116.66 - 111.66	13.58	47	1.257	0.001
L13	111.66 - 111	12.33	47	1.139	0.001
L14	111 - 110.75	12.17	47	1.123	0.001
L15	110.75 - 105.75	12.11	47	1.120	0.001
L16	105.75 - 101.5	10.97	47	1.050	0.001
L17	101.5 - 101.25	10.07	47	0.987	0.000
L18	101.25 - 101	10.02	47	0.985	0.000
L19	101 - 100.75	9.96	47	0.983	0.000
L20	100.75 - 95.75	9.91	47	0.980	0.000
L21	95.75 - 87.83	8.92	47	0.920	0.000
L22	92.16 - 86.83	8.24	47	0.875	0.000
L23	86.83 - 81.83	7.28	47	0.841	0.000
L24	81.83 - 81.5	6.43	47	0.789	0.000
L25	81.5 - 81.25	6.38	47	0.785	0.000
L26	81.25 - 76.25	6.34	47	0.783	0.000
L27	76.25 - 71.25	5.54	47	0.731	0.000
L28	71.25 - 66.25	4.81	47	0.677	0.000
L29	66.25 - 61.25	4.13	47	0.622	0.000
L30	61.25 - 56.25	3.50	47	0.567	0.000
L31	56.25 - 51.25	2.94	47	0.512	0.000
L32	51.25 - 43.33	2.43	47	0.455	0.000
L33	48.66 - 42.33	2.19	47	0.426	0.000
L34	42.33 - 37.4	1.65	47	0.389	0.000
L35	37.4 - 37.15	1.27	47	0.341	0.000
L36	37.15 - 32.15	1.26	47	0.339	0.000
L37	32.15 - 27.15	0.93	47	0.290	0.000
L38	27.15 - 22.15	0.65	47	0.241	0.000
L39	22.15 - 19.5	0.42	47	0.192	0.000
L40	19.5 - 19.25	0.32	47	0.166	0.000
L41	19.25 - 14.25	0.31	47	0.164	0.000
L42	14.25 - 9.25	0.17	47	0.118	0.000
L43	9.25 - 9	0.07	47	0.072	0.000
L44	9 - 8.75	0.06	47	0.070	0.000
L45	8.75 - 7	0.06	47	0.068	0.000
L46	7 - 6.75	0.04	47	0.053	0.000
L47	6.75 - 5	0.03	47	0.050	0.000
L48	5 - 4.75	0.02	47	0.034	0.000
L49	4.75 - 3	0.02	47	0.033	0.000
L50	3 - 2.75	0.01	47	0.022	0.000
L51	2.75 - 2.25	0.01	47	0.020	0.000
L52	2.25 - 2	0.00	47	0.017	0.000
L53	2 - 0	0.00	47	0.015	0.000

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
165.00	ERICSSON AIR 21 B2A B4P w/ Mount Pipe	47	30.82	1.971	0.002	41109
156.00	(2) 7770.00 w/ Mount Pipe	47	27.12	1.939	0.002	8265
148.00	800MHZ RRH	47	23.94	1.855	0.002	4122
138.00	APXV18-206517-A	47	20.23	1.679	0.001	3394
128.00	A-ANT-18G-2-C	47	16.87	1.512	0.001	2752
118.00	CXL 900-3LW	47	13.94	1.288	0.001	2479
108.00	(2) HBXX-6517DS-A2M w/ Mount Pipe	47	11.48	1.084	0.001	3857

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	169 - 164	151.80	20	9.243	0.013
L2	164 - 159	142.16	20	9.238	0.013
L3	159 - 154	132.56	20	9.169	0.013
L4	154 - 149	123.06	20	9.023	0.013
L5	149 - 144	113.78	20	8.762	0.013
L6	144 - 139	104.82	20	8.407	0.012
L7	139 - 133.33	96.26	20	7.972	0.012
L8	136.66 - 131.66	92.42	20	7.747	0.012
L9	131.66 - 126.66	84.47	20	7.434	0.012
L10	126.66 - 121.66	76.96	18	6.947	0.011
L11	121.66 - 116.66	69.98	18	6.431	0.011
L12	116.66 - 111.66	63.55	18	5.892	0.010
L13	111.66 - 111	57.68	18	5.337	0.010
L14	111 - 110.75	56.95	18	5.264	0.010
L15	110.75 - 105.75	56.68	18	5.248	0.010
L16	105.75 - 101.5	51.36	18	4.921	0.009
L17	101.5 - 101.25	47.12	18	4.625	0.009
L18	101.25 - 101	46.88	18	4.615	0.009
L19	101 - 100.75	46.64	18	4.604	0.009
L20	100.75 - 95.75	46.40	18	4.591	0.009
L21	95.75 - 87.83	41.75	18	4.310	0.009
L22	92.16 - 86.83	38.59	18	4.102	0.009
L23	86.83 - 81.83	34.10	18	3.940	0.008
L24	81.83 - 81.5	30.11	18	3.696	0.008
L25	81.5 - 81.25	29.85	18	3.680	0.008
L26	81.25 - 76.25	29.66	18	3.668	0.008
L27	76.25 - 71.25	25.95	18	3.423	0.008
L28	71.25 - 66.25	22.50	18	3.172	0.007
L29	66.25 - 61.25	19.32	18	2.916	0.007
L30	61.25 - 56.25	16.40	18	2.657	0.006
L31	56.25 - 51.25	13.76	18	2.397	0.006
L32	51.25 - 43.33	11.39	18	2.131	0.005
L33	48.66 - 42.33	10.27	18	1.994	0.005
L34	42.33 - 37.4	7.73	18	1.820	0.004
L35	37.4 - 37.15	5.97	18	1.598	0.004
L36	37.15 - 32.15	5.88	18	1.587	0.004
L37	32.15 - 27.15	4.34	18	1.359	0.003
L38	27.15 - 22.15	3.04	18	1.130	0.003
L39	22.15 - 19.5	1.97	18	0.900	0.002
L40	19.5 - 19.25	1.51	18	0.779	0.002
L41	19.25 - 14.25	1.47	18	0.768	0.002
L42	14.25 - 9.25	0.78	18	0.552	0.001
L43	9.25 - 9	0.31	18	0.338	0.001
L44	9 - 8.75	0.29	18	0.328	0.001
L45	8.75 - 7	0.28	18	0.318	0.001
L46	7 - 6.75	0.17	18	0.246	0.001
L47	6.75 - 5	0.16	18	0.236	0.001
L48	5 - 4.75	0.09	18	0.161	0.000
L49	4.75 - 3	0.08	18	0.154	0.000
L50	3 - 2.75	0.03	18	0.102	0.000
L51	2.75 - 2.25	0.03	18	0.095	0.000
L52	2.25 - 2	0.02	18	0.080	0.000
L53	2 - 0	0.01	18	0.071	0.000

Critical Deflections and Radius of Curvature - Design Wind

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

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
165.00	ERICSSON AIR 21 B2A B4P w/ Mount Pipe	20	144.09	9.243	0.013	9228
156.00	(2) 7770.00 w/ Mount Pipe	20	126.84	9.093	0.013	1850
148.00	800MHZ RRH	20	111.96	8.697	0.013	918
138.00	APXV18-206517-A	20	94.61	7.872	0.012	750
128.00	A-ANT-18G-2-C	20	78.92	7.090	0.011	604
118.00	CXL 900-3LW	18	65.22	6.035	0.010	540
108.00	(2) HBXX-6517DS-A2M w/ Mount Pipe	18	53.71	5.081	0.009	835

Compression Checks

Pole Design Data

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K
L1	169 - 164 (1)	TP16.4546x15.5x0.25	5.00	0.00	0.0	12.8583	-2.03
L2	164 - 159 (2)	TP17.4092x16.4546x0.25	5.00	0.00	0.0	13.6158	-2.24
L3	159 - 154 (3)	TP18.3638x17.4092x0.25	5.00	0.00	0.0	14.3733	-4.87
L4	154 - 149 (4)	TP19.3183x18.3638x0.25	5.00	0.00	0.0	15.1307	-5.25
L5	149 - 144 (5)	TP20.2729x19.3183x0.25	5.00	0.00	0.0	15.8882	-6.50
L6	144 - 139 (6)	TP21.2275x20.2729x0.25	5.00	0.00	0.0	16.6456	-7.00
L7	139 - 133.33 (7)	TP22.31x21.2275x0.25	5.67	0.00	0.0	17.0001	-7.49
L8	133.33 - 131.66 (8)	TP22.1148x21.1742x0.3125	5.00	0.00	0.0	21.6252	-8.33
L9	131.66 - 126.66 (9)	TP23.0554x22.1148x0.3125	5.00	0.00	0.0	22.5581	-9.56
L10	126.66 - 121.66 (10)	TP23.996x23.0554x0.3125	5.00	0.00	0.0	23.4911	-10.31
L11	121.66 - 116.66 (11)	TP24.9366x23.996x0.3125	5.00	0.00	0.0	24.4240	-11.13
L12	116.66 - 111.66 (12)	TP25.8772x24.9366x0.3125	5.00	0.00	0.0	25.3570	-11.96
L13	111.66 - 111 (13)	TP26.0013x25.8772x0.3125	0.66	0.00	0.0	25.4801	-12.07
L14	111 - 110.75 (14)	TP26.0484x26.0013x0.575	0.25	0.00	0.0	46.4902	-12.14
L15	110.75 - 105.75 (15)	TP26.9889x26.0484x0.5625	5.00	0.00	0.0	47.1811	-15.69
L16	105.75 - 101.5 (16)	TP27.7884x26.9889x0.55	4.25	0.00	0.0	47.5501	-16.76
L17	101.5 - 101.25 (17)	TP27.8355x27.7884x0.9875	0.25	0.00	0.0	84.1503	-16.87
L18	101.25 - 101 (18)	TP27.8825x27.8355x0.9875	0.25	0.00	0.0	84.2977	-16.96
L19	101 - 100.75 (19)	TP27.9295x27.8825x0.725	0.25	0.00	0.0	62.6017	-17.04
L20	100.75 - 95.75 (20)	TP28.8701x27.9295x0.7125	5.00	0.00	0.0	63.6777	-18.52
L21	95.75 - 87.83 (21)	TP30.36x28.8701x0.7	7.92	0.00	0.0	64.0888	-19.62
L22	87.83 - 86.83 (22)	TP29.9235x28.9205x0.9375	5.33	0.00	0.0	86.2516	-22.66
L23	86.83 - 81.83	TP30.8645x29.9235x0.92	5.00	0.00	0.0	87.900	-24.59

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K
	(23)	5				9	
L24	81.83 - 81.5	TP30.9266x30.8645x0.92	0.33	0.00	0.0	88.083	-24.73
	(24)	5				2	
L25	81.5 - 81.25	TP30.9737x30.9266x0.95	0.25	0.00	0.0	90.530	-24.83
	(25)					3	
L26	81.25 - 76.25	TP31.9146x30.9737x0.92	5.00	0.00	0.0	90.984	-26.83
	(26)	5				0	
L27	76.25 - 71.25	TP32.8556x31.9146x0.9	5.00	0.00	0.0	91.284	-28.87
	(27)					4	
L28	71.25 - 66.25	TP33.7966x32.8556x0.87	5.00	0.00	0.0	91.431	-30.95
	(28)	5				4	
L29	66.25 - 61.25	TP34.7376x33.7966x0.86	5.00	0.00	0.0	92.735	-33.06
	(29)	25				5	
L30	61.25 - 56.25	TP35.6785x34.7376x0.85	5.00	0.00	0.0	93.963	-35.21
	(30)					9	
L31	56.25 - 51.25	TP36.6195x35.6785x0.82	5.00	0.00	0.0	93.729	-37.39
	(31)	5				7	
L32	51.25 - 43.33	TP38.11x36.6195x0.825	7.92	0.00	0.0	95.006	-38.54
	(32)					0	
L33	43.33 - 42.33	TP37.5463x36.3569x1.03	6.33	0.00	0.0	120.22	-43.80
	(33)	75				40	
L34	42.33 - 37.4	TP38.4726x37.5463x1.02	4.93	0.00	0.0	121.83	-46.47
	(34)	5				00	
L35	37.4 - 37.15	TP38.5196x38.4726x1.02	0.25	0.00	0.0	121.98	-46.62
	(35)	5				30	
L36	37.15 - 32.15	TP39.4591x38.5196x1	5.00	0.00	0.0	122.06	-49.36
	(36)					90	
L37	32.15 - 27.15	TP40.3986x39.4591x0.97	5.00	0.00	0.0	122.00	-52.14
	(37)	5				20	
L38	27.15 - 22.15	TP41.3381x40.3986x0.96	5.00	0.00	0.0	123.34	-54.95
	(38)	25				60	
L39	22.15 - 19.5	TP41.836x41.3381x0.95	2.65	0.00	0.0	123.28	-56.45
	(39)					40	
L40	19.5 - 19.25	TP41.883x41.836x1.025	0.25	0.00	0.0	132.92	-56.62
	(40)					50	
L41	19.25 - 14.25	TP42.8225x41.883x1	5.00	0.00	0.0	132.74	-59.63
	(41)					50	
L42	14.25 - 9.25	TP43.762x42.8225x1	5.00	0.00	0.0	135.72	-62.67
	(42)					60	
L43	9.25 - 9 (43)	TP43.8089x43.762x1	0.25	0.00	0.0	135.87	-62.84
						60	
L44	9 - 8.75 (44)	TP43.8559x43.8089x1.02	0.25	0.00	0.0	139.34	-63.00
		5				40	
L45	8.75 - 7 (45)	TP44.1847x43.8559x1.02	1.75	0.00	0.0	140.41	-64.09
		5				40	
L46	7 - 6.75 (46)	TP44.2317x44.1847x0.97	0.25	0.00	0.0	133.86	-64.27
		5				40	
L47	6.75 - 5 (47)	TP44.5605x44.2317x0.97	1.75	0.00	0.0	134.88	-65.32
		5				20	
L48	5 - 4.75 (48)	TP44.6075x44.5605x1.45	0.25	0.00	0.0	198.62	-65.54
						40	
L49	4.75 - 3 (49)	TP44.9363x44.6075x1.42	1.75	0.00	0.0	196.79	-66.88
		5				90	
L50	3 - 2.75 (50)	TP44.9833x44.9363x1.45	0.25	0.00	0.0	200.35	-67.10
						30	
L51	2.75 - 2.25	TP45.0772x44.9833x1.45	0.50	0.00	0.0	200.78	-67.49
	(51)					60	
L52	2.25 - 2 (52)	TP45.1242x45.0772x1.2	0.25	0.00	0.0	167.29	-67.66
						90	
L53	2 - 0 (53)	TP45.5x45.1242x1.175	2.00	0.00	0.0	165.30	-68.99
						80	

Pole Bending Design Data

Section No.	Elevation ft	Size	M_{ux} kip-ft	M_{uy} kip-ft
L1	169 - 164 (1)	TP16.4546x15.5x0.25	9.22	0.00
L2	164 - 159 (2)	TP17.4092x16.4546x0.25	36.97	0.00
L3	159 - 154 (3)	TP18.3638x17.4092x0.25	87.15	0.00
L4	154 - 149 (4)	TP19.3183x18.3638x0.25	151.02	0.00
L5	149 - 144 (5)	TP20.2729x19.3183x0.25	225.45	0.00
L6	144 - 139 (6)	TP21.2275x20.2729x0.25	304.40	0.00
L7	139 - 133.33 (7)	TP22.31x21.2275x0.25	343.27	0.00
L8	133.33 - 131.66 (8)	TP22.1148x21.1742x0.3125	430.05	0.00
L9	131.66 - 126.66 (9)	TP23.0554x22.1148x0.3125	521.23	0.00
L10	126.66 - 121.66 (10)	TP23.996x23.0554x0.3125	619.98	0.00
L11	121.66 - 116.66 (11)	TP24.9366x23.996x0.3125	721.13	0.00
L12	116.66 - 111.66 (12)	TP25.8772x24.9366x0.3125	824.93	0.00
L13	111.66 - 111 (13)	TP26.0013x25.8772x0.3125	838.83	0.00
L14	111 - 110.75 (14)	TP26.0484x26.0013x0.575	844.10	0.00
L15	110.75 - 105.75 (15)	TP26.9889x26.0484x0.5625	983.71	0.00
L16	105.75 - 101.5 (16)	TP27.7884x26.9889x0.55	1103.43	0.00
L17	101.5 - 101.25 (17)	TP27.8355x27.7884x0.9875	1110.59	0.00
L18	101.25 - 101 (18)	TP27.8825x27.8355x0.9875	1117.76	0.00
L19	101 - 100.75 (19)	TP27.9295x27.8825x0.725	1124.95	0.00
L20	100.75 - 95.75 (20)	TP28.8701x27.9295x0.7125	1271.69	0.00
L21	95.75 - 87.83 (21)	TP30.36x28.8701x0.7	1380.48	0.00
L22	87.83 - 86.83 (22)	TP29.9235x28.9205x0.9375	1547.63	0.00
L23	86.83 - 81.83 (23)	TP30.8645x29.9235x0.925	1710.42	0.00
L24	81.83 - 81.5 (24)	TP30.9266x30.8645x0.925	1721.36	0.00
L25	81.5 - 81.25 (25)	TP30.9737x30.9266x0.95	1729.67	0.00
L26	81.25 - 76.25 (26)	TP31.9146x30.9737x0.925	1898.62	0.00
L27	76.25 - 71.25 (27)	TP32.8556x31.9146x0.9	2073.06	0.00
L28	71.25 - 66.25 (28)	TP33.7966x32.8556x0.875	2252.93	0.00
L29	66.25 - 61.25 (29)	TP34.7376x33.7966x0.8625	2438.16	0.00
L30	61.25 - 56.25 (30)	TP35.6785x34.7376x0.85	2628.68	0.00
L31	56.25 - 51.25 (31)	TP36.6195x35.6785x0.825	2824.39	0.00
L32	51.25 - 43.33 (32)	TP38.11x36.6195x0.825	2927.78	0.00
L33	43.33 - 42.33 (33)	TP37.5463x36.3569x1.0375	3186.82	0.00
L34	42.33 - 37.4 (34)	TP38.4726x37.5463x1.025	3394.47	0.00
L35	37.4 - 37.15 (35)	TP38.5196x38.4726x1.025	3405.14	0.00
L36	37.15 - 32.15	TP39.4591x38.5196x1	3620.82	0.00

Section No.	Elevation ft	Size	M_{ux} kip-ft	M_{uy} kip-ft
	(36)			
L37	32.15 - 27.15 (37)	TP40.3986x39.4591x0.975	3841.17	0.00
L38	27.15 - 22.15 (38)	TP41.3381x40.3986x0.9625	4065.99	0.00
L39	22.15 - 19.5 (39)	TP41.836x41.3381x0.95	4186.88	0.00
L40	19.5 - 19.25 (40)	TP41.883x41.836x1.025	4198.35	0.00
L41	19.25 - 14.25 (41)	TP42.8225x41.883x1	4429.76	0.00
L42	14.25 - 9.25 (42)	TP43.762x42.8225x1	4665.11	0.00
L43	9.25 - 9 (43)	TP43.8089x43.762x1	4676.98	0.00
L44	9 - 8.75 (44)	TP43.8559x43.8089x1.025	4688.85	0.00
L45	8.75 - 7 (45)	TP44.1847x43.8559x1.025	4772.27	0.00
L46	7 - 6.75 (46)	TP44.2317x44.1847x0.975	4784.23	0.00
L47	6.75 - 5 (47)	TP44.5605x44.2317x0.975	4868.20	0.00
L48	5 - 4.75 (48)	TP44.6075x44.5605x1.45	4880.23	0.00
L49	4.75 - 3 (49)	TP44.9363x44.6075x1.425	4964.77	0.00
L50	3 - 2.75 (50)	TP44.9833x44.9363x1.45	4976.88	0.00
L51	2.75 - 2.25 (51)	TP45.0772x44.9833x1.45	5001.15	0.00
L52	2.25 - 2 (52)	TP45.1242x45.0772x1.2	5013.30	0.00
L53	2 - 0 (53)	TP45.5x45.1242x1.175	5110.86	0.00

Pole Shear Design Data

Section No.	Elevation ft	Size	Actual V_u K	Actual T_u kip-ft
L1	169 - 164 (1)	TP16.4546x15.5x0.25	5.24	0.00
L2	164 - 159 (2)	TP17.4092x16.4546x0.25	5.86	0.00
L3	159 - 154 (3)	TP18.3638x17.4092x0.25	12.53	0.36
L4	154 - 149 (4)	TP19.3183x18.3638x0.25	13.03	0.32
L5	149 - 144 (5)	TP20.2729x19.3183x0.25	15.55	0.28
L6	144 - 139 (6)	TP21.2275x20.2729x0.25	16.03	0.25
L7	139 - 133.33 (7)	TP22.31x21.2275x0.25	17.07	0.23
L8	133.33 - 131.66 (8)	TP22.1148x21.1742x0.3125	17.62	0.19
L9	131.66 - 126.66 (9)	TP23.0554x22.1148x0.3125	19.51	0.01
L10	126.66 - 121.66 (10)	TP23.996x23.0554x0.3125	19.98	0.04
L11	121.66 - 116.66 (11)	TP24.9366x23.996x0.3125	20.51	0.13
L12	116.66 - 111.66 (12)	TP25.8772x24.9366x0.3125	21.01	0.19
L13	111.66 - 111 (13)	TP26.0013x25.8772x0.3125	21.08	0.20
L14	111 - 110.75 (14)	TP26.0484x26.0013x0.575	21.11	0.20
L15	110.75 - 105.75 (15)	TP26.9889x26.0484x0.5625	27.71	0.13
L16	105.75 - 101.5 (16)	TP27.7884x26.9889x0.55	28.58	0.04
L17	101.5 -	TP27.8355x27.7884x0.98	28.63	0.05

Section No.	Elevation ft	Size	Actual V_u K	Actual T_u kip-ft
	101.25 (17)	75		
L18	101.25 - 101 (18)	TP27.8825x27.8355x0.98 75	28.69	0.06
L19	101 - 100.75 (19)	TP27.9295x27.8825x0.72 5	28.75	0.07
L20	100.75 - 95.75 (20)	TP28.8701x27.9295x0.71 25	29.89	0.51
L21	95.75 - 87.83 (21)	TP30.36x28.8701x0.7	30.66	0.51
L22	87.83 - 86.83 (22)	TP29.9235x28.9205x0.93 75	31.97	0.51
L23	86.83 - 81.83 (23)	TP30.8645x29.9235x0.92 5	33.08	0.51
L24	81.83 - 81.5 (24)	TP30.9266x30.8645x0.92 5	33.16	0.51
L25	81.5 - 81.25 (25)	TP30.9737x30.9266x0.95	33.22	0.51
L26	81.25 - 76.25 (26)	TP31.9146x30.9737x0.92 5	34.31	0.51
L27	76.25 - 71.25 (27)	TP32.8556x31.9146x0.9	35.40	0.51
L28	71.25 - 66.25 (28)	TP33.7966x32.8556x0.87 5	36.48	0.51
L29	66.25 - 61.25 (29)	TP34.7376x33.7966x0.86 25	37.55	0.51
L30	61.25 - 56.25 (30)	TP35.6785x34.7376x0.85	38.59	0.51
L31	56.25 - 51.25 (31)	TP36.6195x35.6785x0.82 5	39.62	0.51
L32	51.25 - 43.33 (32)	TP38.11x36.6195x0.825	40.15	0.51
L33	43.33 - 42.33 (33)	TP37.5463x36.3569x1.03 75	41.60	0.51
L34	42.33 - 37.4 (34)	TP38.4726x37.5463x1.02 5	42.58	0.51
L35	37.4 - 37.15 (35)	TP38.5196x38.4726x1.02 5	42.61	0.51
L36	37.15 - 32.15 (36)	TP39.4591x38.5196x1	43.58	0.51
L37	32.15 - 27.15 (37)	TP40.3986x39.4591x0.97 5	44.49	0.51
L38	27.15 - 22.15 (38)	TP41.3381x40.3986x0.96 25	45.36	0.51
L39	22.15 - 19.5 (39)	TP41.836x41.3381x0.95	45.81	0.51
L40	19.5 - 19.25 (40)	TP41.883x41.836x1.025	45.83	0.51
L41	19.25 - 14.25 (41)	TP42.8225x41.883x1	46.64	0.51
L42	14.25 - 9.25 (42)	TP43.762x42.8225x1	47.42	0.51
L43	9.25 - 9 (43)	TP43.8089x43.762x1	47.44	0.51
L44	9 - 8.75 (44)	TP43.8559x43.8089x1.02 5	47.48	0.51
L45	8.75 - 7 (45)	TP44.1847x43.8559x1.02 5	47.78	0.51
L46	7 - 6.75 (46)	TP44.2317x44.1847x0.97 5	47.79	0.51
L47	6.75 - 5 (47)	TP44.5605x44.2317x0.97 5	48.09	0.51
L48	5 - 4.75 (48)	TP44.6075x44.5605x1.45	48.10	0.51
L49	4.75 - 3 (49)	TP44.9363x44.6075x1.42 5	48.42	0.51
L50	3 - 2.75 (50)	TP44.9833x44.9363x1.45	48.43	0.51
L51	2.75 - 2.25	TP45.0772x44.9833x1.45	48.52	0.51

Section No.	Elevation ft	Size	Actual V_u K	Actual T_u kip-ft
	(51)			
L52	2.25 - 2 (52)	TP45.1242x45.0772x1.2	48.56	0.51
L53	2 - 0 (53)	TP45.5x45.1242x1.175	48.90	0.51

CCIpole

per TIA-222- G

Site BU: 828054

Work Order: _____

Pole Geometry

	Pole Height Above Base (ft)	Section Length (ft)	Lap Splice Length (ft)	Number of Sides	Top Diameter (in)	Bottom Diameter (in)	Wall Thickness (in)	Bend Radius (in)	Pole Material
1	169	35.67	3.33	18	15.5	22.31	0.25	1	A572-65
2	136.66	48.83	4.33	18	21.17	30.36	0.3125	1.25	A572-65
3	92.16	48.83	5.33	18	28.92	38.11	0.375	1.5	A572-65
4	48.66	48.66	0	18	36.36	45.5	0.375	1.5	A572-65

Reinforcement Configuration

	Bottom Effective Elevation (ft)	Top Effective Elevation (ft)	Type	Model	Number	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
1	2.25	19.5	plate	I-065125; (1) (1.1875)	4		o				o					o				o			
2	19.5	44.58	plate	I-060100; (1) (1.1875)	4		o				o					o				o			
3	3	5	plate	FP 1.25 x 8_1	4		o				o					o				o			
4	81.5	88.5	plate	I-045100; (1) (1.1875)	3			o						o						o			
5	0	3	plate	FP 1.25 x 6_1	6	o			o			o			o			o			o		
6	101	111	plate	I-060100; (1) (1.1875)	3			o						o						o			
7	0	37.4	plate	6 x 1.25; (1) (1.1875)	4	o						o			o						o		
8	0	7	plate	6 x 1.25; (1) (1.1875)	2				o									o					
9	9	37.4	plate	6 x 1.25; (1) (1.1875)	2				o									o					
10	7	9	plate	FP 4 x 1.25_1	4			o		o							o		o				
11	37.4	81.5	plate	6 x 1.25; (1) (1.1875)	6	o			o			o			o			o			o		
12	81.5	101.5	plate	4 x 1.25; (1) (1.1875)	6	o			o			o			o			o			o		
13																							

Reinforcement Details

	B (in)	H (in)	Gross Area (in^2)	Pole Face to Centroid (in)	Bottom Termination Length (in)	Top Termination Length (in)	L_u (in)	Net Area (in^2)	Bolt Hole Size (in)	Reinforcement Material
1	6.5	1.25	8.125	0.625	n/a	33.000	19.000	6.563	1.1875	A572-65
2	6	1	6	0.5	33.000	33.000	16.000	4.750	1.1875	A572-65
3	1.25	8	10	4	n/a	n/a	0.000	10.000	0.0000	A572-65
4	4.5	1	4.5	0.5	18.000	18.000	20.000	3.250	1.1875	A572-65
5	1.25	6	7.5	3	n/a	n/a	0.000	7.500	0.0000	A572-65
6	6	1	6	0.5	33.000	33.000	16.000	4.750	1.1875	A572-65
7	6	1.25	7.5	0.625	36.000	36.000	12.000	5.938	1.1875	A572-65
8	6	1.25	7.5	0.625	36.000	36.000	12.000	5.938	1.1875	A572-65
9	6	1.25	7.5	0.625	36.000	36.000	12.000	5.938	1.1875	A572-65
10	4	1.25	5	0.625	n/a	n/a	12.000	5.000	0.0000	A572-65
11	6	1.25	7.5	0.625	36.000	36.000	12.000	5.938	1.1875	A572-65
12	4	1.25	5	0.625	30.000	30.000	18.000	3.438	1.1875	A572-65

TNX Geometry Input

Increment (ft): 5

	Section Height (ft)	Section Length (ft)	Lap Splice Length (ft)	Number of Sides	Top Diameter (in)	Bottom Diameter (in)	Wall Thickness (in)	Tapered Pole Grade	Weight Multiplier
1	169 - 164	5		18	15.500	16.455	0.25	A572-65	1.000
2	164 - 159	5		18	16.455	17.409	0.25	A572-65	1.000
3	159 - 154	5		18	17.409	18.364	0.25	A572-65	1.000
4	154 - 149	5		18	18.364	19.318	0.25	A572-65	1.000
5	149 - 144	5		18	19.318	20.273	0.25	A572-65	1.000
6	144 - 139	5		18	20.273	21.228	0.25	A572-65	1.000
7	139 - 136.66	5.67	3.33	18	21.228	22.310	0.25	A572-65	1.000
8	136.66 - 131.66	5		18	21.174	22.115	0.3125	A572-65	1.000
9	131.66 - 126.66	5		18	22.115	23.055	0.3125	A572-65	1.000
10	126.66 - 121.66	5		18	23.055	23.996	0.3125	A572-65	1.000
11	121.66 - 116.66	5		18	23.996	24.937	0.3125	A572-65	1.000
12	116.66 - 111.66	5		18	24.937	25.877	0.3125	A572-65	1.000
13	111.66 - 111	0.66		18	25.877	26.001	0.3125	A572-65	1.000
14	111 - 110.75	0.25		18	26.001	26.048	0.575	A572-65	0.936
15	110.75 - 105.75	5		18	26.048	26.989	0.5625	A572-65	0.942
16	105.75 - 101.5	4.25		18	26.989	27.788	0.55	A572-65	0.952
17	101.5 - 101.25	0.25		18	27.788	27.835	0.9875	A572-65	0.895
18	101.25 - 101	0.25		18	27.835	27.882	0.9875	A572-65	0.894
19	101 - 100.75	0.25		18	27.882	27.930	0.725	A572-65	0.917
20	100.75 - 95.75	5		18	27.930	28.870	0.7125	A572-65	0.916
21	95.75 - 92.16	7.92	4.33	18	28.870	30.360	0.7	A572-65	0.921
22	92.16 - 86.83	5.33		18	28.920	29.924	0.9375	A572-65	0.912
23	86.83 - 81.83	5		18	29.924	30.865	0.925	A572-65	0.908
24	81.83 - 81.5	0.33		18	30.865	30.927	0.925	A572-65	0.907
25	81.5 - 81.25	0.25		18	30.927	30.974	0.95	A572-65	0.899
26	81.25 - 76.25	5		18	30.974	31.915	0.925	A572-65	0.907
27	76.25 - 71.25	5		18	31.915	32.856	0.9	A572-65	0.916
28	71.25 - 66.25	5		18	32.856	33.797	0.875	A572-65	0.927
29	66.25 - 61.25	5		18	33.797	34.738	0.8625	A572-65	0.926
30	61.25 - 56.25	5		18	34.738	35.679	0.85	A572-65	0.926
31	56.25 - 51.25	5		18	35.679	36.619	0.825	A572-65	0.940
32	51.25 - 48.66	7.92	5.33	18	36.619	38.110	0.825	A572-65	0.934
33	48.66 - 42.33	6.33		18	36.357	37.546	1.0375	A572-65	0.942
34	42.33 - 37.4	4.93		18	37.546	38.473	1.025	A572-65	0.939
35	37.4 - 37.15	0.25		18	38.473	38.520	1.025	A572-65	0.938
36	37.15 - 32.15	5		18	38.520	39.459	1	A572-65	0.946
37	32.15 - 27.15	5		18	39.459	40.399	0.975	A572-65	0.956
38	27.15 - 22.15	5		18	40.399	41.338	0.9625	A572-65	0.955
39	22.15 - 19.5	2.65		18	41.338	41.836	0.95	A572-65	0.960
40	19.5 - 19.25	0.25		18	41.836	41.883	1.025	A572-65	0.955
41	19.25 - 14.25	5		18	41.883	42.822	1	A572-65	0.964
42	14.25 - 9.25	5		18	42.822	43.762	1	A572-65	0.952
43	9.25 - 9	0.25		18	43.762	43.809	1	A572-65	0.951
44	9 - 8.75	0.25		18	43.809	43.856	1.025	A572-65	0.963
45	8.75 - 7	1.75		18	43.856	44.185	1.025	A572-65	0.959
46	7 - 6.75	0.25		18	44.185	44.232	0.975	A572-65	0.969
47	6.75 - 5	1.75		18	44.232	44.561	0.975	A572-65	0.965
48	5 - 4.75	0.25		18	44.561	44.607	1.45	A572-65	0.857
49	4.75 - 3	1.75		18	44.607	44.936	1.425	A572-65	0.867
50	3 - 2.75	0.25		18	44.936	44.983	1.45	A572-65	0.876
51	2.75 - 2.25	0.5		18	44.983	45.077	1.45	A572-65	0.875
52	2.25 - 2	0.25		18	45.077	45.124	1.2	A572-65	0.856
53	2 - 0	2		18	45.124	45.500	1.175	A572-65	0.869

TNX Section Forces

Increment (ft):	5	TNX Output		
	Section Height (ft)	P_u (K)	M_{ux} (kip-ft)	V_u (K)
1	169 - 164	2.03	9.22	5.24
2	164 - 159	2.24	36.97	5.86
3	159 - 154	4.87	87.15	12.53
4	154 - 149	5.25	151.02	13.03
5	149 - 144	6.50	225.45	15.55
6	144 - 139	7.00	304.40	16.03
7	139 - 136.66	7.49	343.27	17.07
8	136.66 - 131.66	8.33	430.05	17.62
9	131.66 - 126.66	9.56	521.23	19.51
10	126.66 - 121.66	10.31	619.98	19.98
11	121.66 - 116.66	11.13	721.13	20.51
12	116.66 - 111.66	11.96	824.93	21.01
13	111.66 - 111	12.08	838.82	21.08
14	111 - 110.75	12.14	844.10	21.11
15	110.75 - 105.75	15.69	983.71	27.71
16	105.75 - 101.5	16.76	######	28.58
17	101.5 - 101.25	16.87	######	28.63
18	101.25 - 101	16.96	######	28.69
19	101 - 100.75	17.04	######	28.75
20	100.75 - 95.75	18.52	######	29.89
21	95.75 - 92.16	19.62	######	30.66
22	92.16 - 86.83	22.66	######	31.97
23	86.83 - 81.83	24.59	######	33.08
24	81.83 - 81.5	24.73	######	33.16
25	81.5 - 81.25	24.83	######	33.22
26	81.25 - 76.25	26.83	######	34.31
27	76.25 - 71.25	28.87	######	35.40
28	71.25 - 66.25	30.95	######	36.48
29	66.25 - 61.25	33.06	######	37.55
30	61.25 - 56.25	35.21	######	38.59
31	56.25 - 51.25	37.39	######	39.62
32	51.25 - 48.66	38.54	######	40.15
33	48.66 - 42.33	43.80	######	41.60
34	42.33 - 37.4	46.47	######	42.58
35	37.4 - 37.15	46.62	######	42.61
36	37.15 - 32.15	49.36	######	43.58
37	32.15 - 27.15	52.14	######	44.49
38	27.15 - 22.15	54.95	######	45.36
39	22.15 - 19.5	56.45	######	45.81
40	19.5 - 19.25	56.62	######	45.83
41	19.25 - 14.25	59.63	######	46.64
42	14.25 - 9.25	62.67	######	47.42
43	9.25 - 9	62.84	######	47.44
44	9 - 8.75	63.00	######	47.48
45	8.75 - 7	64.09	######	47.78
46	7 - 6.75	64.27	######	47.79
47	6.75 - 5	65.32	######	48.09
48	5 - 4.75	65.54	######	48.10
49	4.75 - 3	66.88	######	48.42
50	3 - 2.75	67.10	######	48.43
51	2.75 - 2.25	67.49	######	48.52
52	2.25 - 2	67.66	######	48.56
53	2 - 0	68.99	######	48.90

Analysis Results

Elevation (ft)	Component Type	Size	Critical Element	% Capacity	Pass / Fail
169 - 164	Pole	TP16.455x15.5x0.25	Pole	3.1%	Pass
164 - 159	Pole	TP17.409x16.455x0.25	Pole	10.7%	Pass
159 - 154	Pole	TP18.364x17.409x0.25	Pole	22.5%	Pass
154 - 149	Pole	TP19.318x18.364x0.25	Pole	34.9%	Pass
149 - 144	Pole	TP20.273x19.318x0.25	Pole	47.2%	Pass
144 - 139	Pole	TP21.228x20.273x0.25	Pole	57.9%	Pass
139 - 136.66	Pole	TP22.31x21.228x0.25	Pole	62.6%	Pass
136.66 - 131.66	Pole	TP22.115x21.174x0.3125	Pole	60.6%	Pass
131.66 - 126.66	Pole	TP23.055x22.115x0.3125	Pole	67.5%	Pass
126.66 - 121.66	Pole	TP23.996x23.055x0.3125	Pole	73.9%	Pass
121.66 - 116.66	Pole	TP24.937x23.996x0.3125	Pole	79.5%	Pass
116.66 - 111.66	Pole	TP25.877x24.937x0.3125	Pole	84.3%	Pass
111.66 - 111	Pole	TP26.001x25.877x0.3125	Pole	84.9%	Pass
111 - 110.75	Pole + Reinf.	TP26.048x26.001x0.575	Reinf. 6 Tension Rupture	76.2%	Pass
110.75 - 105.75	Pole + Reinf.	TP26.989x26.048x0.5625	Reinf. 6 Tension Rupture	84.0%	Pass
105.75 - 101.5	Pole + Reinf.	TP27.788x26.989x0.55	Reinf. 6 Tension Rupture	90.0%	Pass
101.5 - 101.25	Pole + Reinf.	TP27.835x27.788x0.9875	Reinf. 12 Tension Rupture	61.4%	Pass
101.25 - 101	Pole + Reinf.	TP27.882x27.835x0.9875	Reinf. 12 Tension Rupture	61.6%	Pass
101 - 100.75	Pole + Reinf.	TP27.93x27.882x0.725	Reinf. 12 Tension Rupture	82.1%	Pass
100.75 - 95.75	Pole + Reinf.	TP28.87x27.93x0.7125	Reinf. 12 Tension Rupture	88.4%	Pass
95.75 - 92.16	Pole + Reinf.	TP30.36x28.87x0.7	Reinf. 12 Tension Rupture	92.7%	Pass
92.16 - 86.83	Pole + Reinf.	TP29.924x28.92x0.9375	Reinf. 12 Tension Rupture	77.0%	Pass
86.83 - 81.83	Pole + Reinf.	TP30.865x29.924x0.925	Reinf. 12 Tension Rupture	81.4%	Pass
81.83 - 81.5	Pole + Reinf.	TP30.927x30.865x0.925	Reinf. 12 Tension Rupture	81.7%	Pass
81.5 - 81.25	Pole + Reinf.	TP30.974x30.927x0.95	Reinf. 11 Tension Rupture	69.4%	Pass
81.25 - 76.25	Pole + Reinf.	TP31.915x30.974x0.925	Reinf. 11 Tension Rupture	73.0%	Pass
76.25 - 71.25	Pole + Reinf.	TP32.856x31.915x0.9	Reinf. 11 Tension Rupture	76.5%	Pass
71.25 - 66.25	Pole + Reinf.	TP33.797x32.856x0.875	Reinf. 11 Tension Rupture	79.8%	Pass
66.25 - 61.25	Pole + Reinf.	TP34.738x33.797x0.8625	Reinf. 11 Tension Rupture	83.0%	Pass
61.25 - 56.25	Pole + Reinf.	TP35.679x34.738x0.85	Reinf. 11 Tension Rupture	86.1%	Pass
56.25 - 51.25	Pole + Reinf.	TP36.619x35.679x0.825	Reinf. 11 Tension Rupture	89.0%	Pass
51.25 - 48.66	Pole + Reinf.	TP38.11x36.619x0.825	Reinf. 11 Tension Rupture	90.5%	Pass
48.66 - 42.33	Pole + Reinf.	TP37.546x36.357x1.0375	Reinf. 11 Tension Rupture	77.4%	Pass
42.33 - 37.4	Pole + Reinf.	TP38.473x37.546x1.025	Reinf. 11 Tension Rupture	79.8%	Pass
37.4 - 37.15	Pole + Reinf.	TP38.52x38.473x1.025	Reinf. 7 Tension Rupture	79.9%	Pass
37.15 - 32.15	Pole + Reinf.	TP39.459x38.52x1	Reinf. 7 Tension Rupture	82.2%	Pass
32.15 - 27.15	Pole + Reinf.	TP40.399x39.459x0.975	Reinf. 7 Tension Rupture	84.4%	Pass
27.15 - 22.15	Pole + Reinf.	TP41.338x40.399x0.9625	Reinf. 7 Tension Rupture	86.5%	Pass
22.15 - 19.5	Pole + Reinf.	TP41.836x41.338x0.95	Reinf. 7 Tension Rupture	87.6%	Pass
19.5 - 19.25	Pole + Reinf.	TP41.883x41.836x1.025	Reinf. 7 Tension Rupture	81.9%	Pass
19.25 - 14.25	Pole + Reinf.	TP42.822x41.883x1	Reinf. 7 Tension Rupture	83.9%	Pass
14.25 - 9.25	Pole + Reinf.	TP43.762x42.822x1	Reinf. 7 Tension Rupture	85.7%	Pass
9.25 - 9	Pole + Reinf.	TP43.809x43.762x1	Reinf. 7 Tension Rupture	85.8%	Pass
9 - 8.75	Pole + Reinf.	TP43.856x43.809x1.025	Reinf. 7 Tension Rupture	82.7%	Pass
8.75 - 7	Pole + Reinf.	TP44.185x43.856x1.025	Reinf. 7 Tension Rupture	83.3%	Pass
7 - 6.75	Pole + Reinf.	TP44.232x44.185x0.975	Reinf. 7 Tension Rupture	86.6%	Pass
6.75 - 5	Pole + Reinf.	TP44.561x44.232x0.975	Reinf. 7 Tension Rupture	87.2%	Pass
5 - 4.75	Pole + Reinf.	TP44.607x44.561x1.45	Reinf. 3 Connection	68.9%	Pass
4.75 - 3	Pole + Reinf.	TP44.936x44.607x1.425	Reinf. 3 Connection	69.4%	Pass
3 - 2.75	Pole + Reinf.	TP44.983x44.936x1.45	Reinf. 7 Tension Rupture	61.1%	Pass
2.75 - 2.25	Pole + Reinf.	TP45.077x44.983x1.45	Reinf. 7 Tension Rupture	61.2%	Pass
2.25 - 2	Pole + Reinf.	TP45.124x45.077x1.2	Reinf. 8 Tension Rupture	73.4%	Pass
2 - 0	Pole + Reinf.	TP45.5x45.124x1.175	Reinf. 8 Tension Rupture	74.1%	Pass
				Summary	
			Pole	84.9%	Pass
			Reinforcement	92.7%	Pass
			Overall	92.7%	Pass

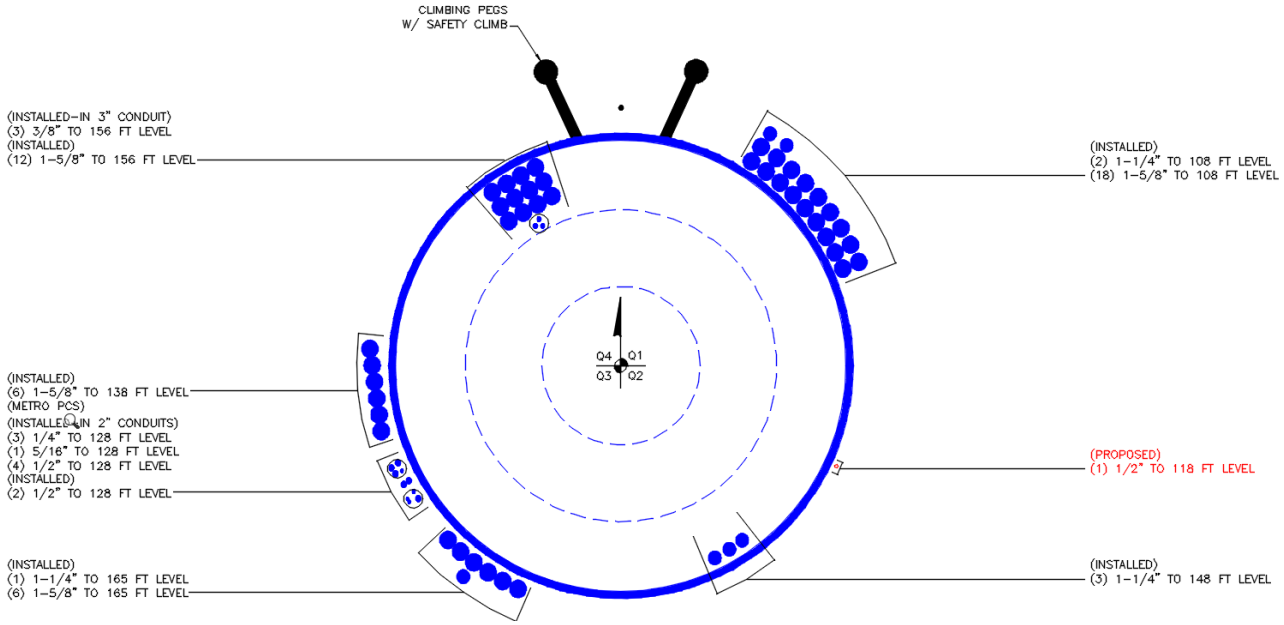
Additional Calculations

Section Elevation (ft)	Moment of Inertia (in^4)			Area (in^2)			% Capacity											
	Pole	Reinf.	Total	Pole	Reinf.	Total	Pole	R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11	R12
169 - 164	426	n/a	426	12.86	n/a	12.86	3.1%												
164 - 159	506	n/a	506	13.62	n/a	13.62	10.7%												
159 - 154	596	n/a	596	14.37	n/a	14.37	22.5%												
154 - 149	695	n/a	695	15.13	n/a	15.13	34.9%												
149 - 144	804	n/a	804	15.89	n/a	15.89	47.2%												
144 - 139	925	n/a	925	16.65	n/a	16.65	57.9%												
139 - 136.66	985	n/a	985	17.00	n/a	17.00	62.6%												
136.66 - 131.66	1298	n/a	1298	21.62	n/a	21.62	60.6%												
131.66 - 126.66	1474	n/a	1474	22.56	n/a	22.56	67.5%												
126.66 - 121.66	1664	n/a	1664	23.49	n/a	23.49	73.9%												
121.66 - 116.66	1870	n/a	1870	24.42	n/a	24.42	79.5%												
116.66 - 111.66	2093	n/a	2093	25.36	n/a	25.36	84.3%												
111.66 - 111	2124	n/a	2124	25.48	n/a	25.48	84.9%												
111 - 110.75	2135	1674	3809	25.53	18.00	43.53	47.1%						76.2%						
110.75 - 105.75	2378	1790	4168	26.46	18.00	44.46	52.0%						84.0%						
105.75 - 101.5	2598	1892	4491	27.25	18.00	45.25	55.8%						90.0%						
101.5 - 101.25	2612	5093	7705	27.30	48.00	75.30	32.8%						52.9%						61.4%
101.25 - 101	2625	5109	7734	27.35	48.00	75.35	32.9%						53.1%						61.6%
101 - 100.75	2639	3215	5853	27.39	30.00	57.39	43.9%												82.1%
100.75 - 95.75	2918	3424	6342	28.32	30.00	58.32	47.3%												88.4%
95.75 - 92.16	3129	3578	6708	28.99	30.00	58.99	49.7%												92.7%
92.16 - 86.83	3878	5292	9170	35.17	43.50	78.67	41.3%				72.8%								77.0%
86.83 - 81.83	4261	5615	9876	36.29	43.50	79.79	43.7%				76.9%								81.4%
81.83 - 81.5	4287	5636	9923	36.36	43.50	79.86	43.9%				77.2%								81.7%
81.5 - 81.25	4307	5911	10218	36.42	45.00	81.42	42.8%											69.4%	
81.25 - 76.25	4716	6257	10974	37.54	45.00	82.54	45.1%											73.0%	
76.25 - 71.25	5151	6613	11765	38.66	45.00	83.66	47.3%											76.5%	
71.25 - 66.25	5612	6979	12591	39.78	45.00	84.78	49.4%											79.8%	
66.25 - 61.25	6099	7355	13455	40.90	45.00	85.90	51.5%											83.0%	
61.25 - 56.25	6614	7741	14356	42.02	45.00	87.02	53.4%											86.1%	
56.25 - 51.25	7157	8137	15295	43.14	45.00	88.14	55.3%											89.0%	
51.25 - 48.66	7450	8346	15796	43.72	45.00	88.72	56.2%											90.5%	
48.66 - 42.33	7721	12538	20258	44.24	69.00	113.24	48.9%		75.1%									77.4%	
42.33 - 37.4	8312	13139	21452	45.34	69.00	114.34	50.6%		77.4%									79.8%	
37.4 - 37.15	8343	13170	21513	45.40	69.00	114.40	50.7%		77.5%					79.9%		75.6%			
37.15 - 32.15	8975	13796	22771	46.52	69.00	115.52	52.5%		79.8%					82.2%		77.8%			
32.15 - 27.15	9638	14436	24074	47.64	69.00	116.64	54.3%		81.9%					84.4%		79.9%			
27.15 - 22.15	10332	15091	25423	48.75	69.00	117.75	56.1%		84.0%					86.5%		82.0%			
22.15 - 19.5	10714	15444	26158	49.35	69.00	118.35	57.0%		85.1%					87.6%		83.0%			
19.5 - 19.25	10750	17315	28066	49.40	77.50	126.90	53.4%	78.0%						81.9%		76.5%			
19.25 - 14.25	11497	18072	29569	50.52	77.50	128.02	55.0%	79.9%						83.9%		78.3%			
14.25 - 9.25	12277	18845	31122	51.64	77.50	129.14	56.6%	81.7%						85.7%		80.1%			
9.25 - 9	12317	18884	31201	51.70	77.50	129.20	56.7%	81.8%						85.8%		80.2%			
9 - 8.75	12357	20125	32482	51.75	82.50	134.25	54.7%	78.8%						82.7%			67.9%		
8.75 - 7	12640	20418	33058	52.14	82.50	134.64	55.2%	79.4%						83.3%			68.4%		
7 - 6.75	12680	19237	31918	52.20	77.50	129.70	57.4%	82.5%						86.6%	81.0%				
6.75 - 5	12968	19515	32482	52.59	77.50	130.09	58.0%	83.1%						87.2%	81.6%				
5 - 4.75	13009	33772	46781	52.65	117.50	170.15	40.6%	59.0%		68.9%				63.3%	55.7%				
4.75 - 3	13301	34230	47531	53.04	117.50	170.54	41.1%	59.5%		69.4%				63.9%	56.2%				
3 - 2.75	13343	34565	47909	53.09	122.50	175.59	40.7%	58.7%				54.8%		61.1%	58.4%				
2.75 - 2.25	13428	34700	48127	53.20	122.50	175.70	40.9%	58.9%				54.9%		61.2%	58.5%				
2.25 - 2	13470	26940	40410	53.26	90.00	143.26	48.3%					65.8%		73.4%	73.4%				
2 - 0	13812	27354	41166	53.71	90.00	143.71	48.9%					66.4%		74.1%	74.1%				

Note: Section capacity checked in 5 degree increments.

APPENDIX B

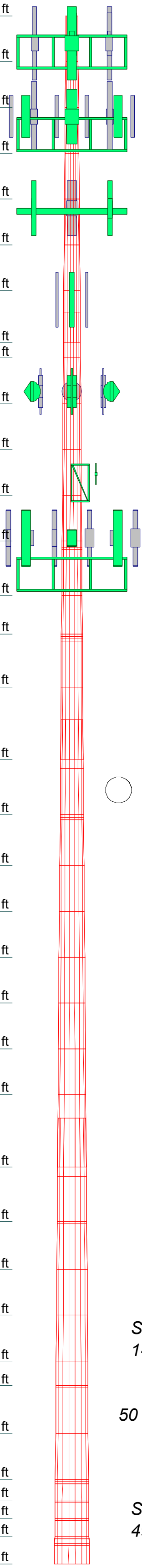
BASE LEVEL DRAWING


CLIMBING PEGS
W/ SAFETY CLIMB
(INSTALLED-IN 3" CONDUIT)
(3) 3/8" TO 156 FT LEVEL
(INSTALLED)
(12) 1-5/8" TO 156 FT LEVEL
(INSTALLED)
(2) 1-1/4" TO 108 FT LEVEL
(18) 1-5/8" TO 108 FT LEVEL
Q4
Q1
Q3
Q2
(INSTALLED)
(6) 1-5/8" TO 138 FT LEVEL
(METRO PCS)
(INSTALLED-IN 2" CONDUITS)
(3) 1/4" TO 128 FT LEVEL
(1) 5/16" TO 128 FT LEVEL
(4) 1/2" TO 128 FT LEVEL
(INSTALLED)
(2) 1/2" TO 128 FT LEVEL
(PROPOSED)
(1) 1/2" TO 118 FT LEVEL
(INSTALLED)
(1) 1-1/4" TO 165 FT LEVEL
(6) 1-5/8" TO 165 FT LEVEL
(INSTALLED)
(3) 1-1/4" TO 148 FT LEVEL

APPENDIX C

ADDITIONAL CALCULATIONS

Section	Length (ft)	Number of Sides	Thickness (in)	Socket Length (ft)	Top Dia (in)	Bot Dia (in)	Grade	Weight (K)
1	5.00	18	0.2500		15.5000	16.4546	A572-65	0.2
2	5.00	18	0.2500		16.4546	17.4092		0.2
3	5.00	18	0.2500		17.4092	18.3638		0.2
4	5.00	18	0.2500		18.3638	19.3183		0.3
5	5.00	18	0.2500		19.3183	20.2729		0.3
6	5.00	18	0.2500		20.2729	21.2275		0.3
7	5.00 / 6.67	18	0.2500	3.33	21.2275	22.3100		0.3
8	[illegible]	18	[illegible]		[illegible]	[illegible]		0.4
9	5.00	18	0.3125		[illegible]	[illegible]		0.4
10	5.00	18	0.3125		23.0554	23.9960		0.4
11	5.00	18	0.3125		23.9960	24.9366		0.4
12	5.00	18	[illegible]		[illegible]	[illegible]		0.4
13	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]		[illegible]
14	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]		[illegible]
15	5.00	18	[illegible]		[illegible]	[illegible]		0.7
16	[illegible]	18	[illegible]		[illegible]	[illegible]		0.6
17	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]		[illegible]
18	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]		[illegible]
19	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]		[illegible]
20	5.00	18	[illegible]		[illegible]	[illegible]		1.0
21	5.33 / 7.92	18	0.7000	4.33	28.8701	30.3600		1.6
22	[illegible]	18	[illegible]		[illegible]	[illegible]		1.4
23	5.00	18	[illegible]		[illegible]	[illegible]		1.3
24	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]		[illegible]
25	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]		0.1
26	5.00	18	[illegible]		[illegible]	[illegible]		1.4
27	5.00	18	0.9000		31.9146	32.8556		1.4
28	5.00	18	0.8750		32.8556	33.7966		1.4
29	5.00	18	0.8625		33.7966	34.7376		1.4
30	5.00	18	0.8500		34.7376	35.6785		1.5
31	5.00	18	0.8250		35.6785	36.6195		1.5
32	6.33 / 7.92	18	0.8250	5.33	36.6195	38.1100		2.4
33	[illegible]	18	[illegible]		[illegible]	[illegible]		2.4
34	[illegible]	18	[illegible]		[illegible]	[illegible]		1.9
35	[illegible]	18	[illegible]		[illegible]	[illegible]		0.1
36	5.00	18	[illegible]		[illegible]	[illegible]		1.9
37	5.00	18	0.9750		39.4591	40.3986		2.0
38	5.00	18	0.9625		40.3986	41.3381		2.0
39	[illegible]	18	[illegible]		[illegible]	[illegible]		1.1
40	[illegible]	18	[illegible]		[illegible]	[illegible]		0.1
41	5.00	18	[illegible]		[illegible]	[illegible]		2.2
42	5.00	18	[illegible]		[illegible]	[illegible]		2.2
43–53	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]		[illegible]
								42.3



DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
ERICSSON AIR 21 B2A B4P w/ Mount Pipe	165	PCS 1900MHZ 4X45W-65MHZ	148
		PCS 1900MHZ 4X45W-65MHZ	148
ERICSSON AIR 21 B2A B4P w/ Mount Pipe	165	APXVSPP18-C-A20 w/ Mount Pipe	148
		APXVSPP18-C-A20 w/ Mount Pipe	148
ERICSSON AIR 21 B2A B4P w/ Mount Pipe	165	APXVSPP18-C-A20 w/ Mount Pipe	148
		T-Arm Mount [TA 702-3]	148
Ericsson Air 21 B4A B12P-B5P 8FT w/ Mount Pipe	165	APXV18-206517-A	138
		APXV18-206517-A	138
Ericsson Air 21 B4A B12P-B5P 8FT w/ Mount Pipe	165	APXV18-206517-A	138
		Pipe Mount [PM 601-3]	138
Ericsson Air 21 B4A B12P-B5P 8FT w/ Mount Pipe	165	LLPX310R w/ Mount Pipe	128
KRY 112 144/1	165	LLPX310R w/ Mount Pipe	128
KRY 112 144/1	165	LLPX310R w/ Mount Pipe	128
KRY 112 144/1	165	HORIZON DUO	128
RRUS 11 B12	165	HORIZON DUO	128
RRUS 11 B12	165	HORIZON DUO	128
RRUS 11 B12	165	WIMAX DAP HEAD	128
8-ft Ladder	165	WIMAX DAP HEAD	128
Platform Mount [LP 601-1]	165	WIMAX DAP HEAD	128
(2) 7770.00 w/ Mount Pipe	156	2.375" OD x 5' Mount Pipe	128
(2) 7770.00 w/ Mount Pipe	156	2.375" OD x 5' Mount Pipe	128
(2) 7770.00 w/ Mount Pipe	156	2.375" OD x 5' Mount Pipe	128
HPA-65R-BUU-H8 w/ Mount Pipe	156	Side Arm Mount [SO 701-3]	128
HPA-65R-BUU-H8 w/ Mount Pipe	156	A-ANT-18G-2-C	128
HPA-65R-BUU-H6 w/ Mount Pipe	156	A-ANT-18G-2-C	128
DTMABP7819VG12A	156	A-ANT-18G-2-C	128
DTMABP7819VG12A	156	Side Arm Mount [SO 304-1]	118
DTMABP7819VG12A	156	CXL 900-3LW	118
RRUS 11	156	LNA	118
RRUS 11	156	CAVITY FILTER	118
RRUS 11	156	(2) LNX-6514DS-A1M w/ Mount Pipe	108
DC6-48-60-18-8F	156	(2) LNX-6514DS-A1M w/ Mount Pipe	108
DTMABP7819VG12A	156	(2) LNX-6514DS-A1M w/ Mount Pipe	108
DTMABP7819VG12A	156	(2) RRH2X60-PCS	108
DTMABP7819VG12A	156	RRH2X60-PCS	108
RRUS12/RRUS A2	156	RRH2X60-AWS	108
RRUS12/RRUS A2	156	RRH2X60-AWS	108
RRUS12/RRUS A2	156	RRH2X60-AWS	108
Platform Mount [LP 714-1]	156	(2) DB-T1-6Z-8AB-0Z	108
800MHZ RRH	148	Platform Mount [LP 303-1]	108
800MHZ RRH	148	(2) HBXX-6517DS-A2M w/ Mount Pipe	108
800MHZ RRH	148	(2) HBXX-6517DS-A2M w/ Mount Pipe	108
PCS 1900MHZ 4X45W-65MHZ	148	(2) HBXX-6517DS-A2M w/ Mount Pipe	108

MATERIAL STRENGTH

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

TOWER DESIGN NOTES

1. Tower is located in Hartford County, Connecticut.
2. Tower designed for Exposure C to the TIA-222-G Standard.
3. Tower designed for a 97 mph basic wind in accordance with the TIA-222-G Standard.
4. Tower is also designed for a 50 mph basic wind with 1.00 in ice. Ice is considered to increase in thickness with height.
5. Deflections are based upon a 60 mph wind.
6. Tower Structure Class II.
7. Topographic Category 1 with Crest Height of 0.00 ft

ALL REACTIONS ARE FACTORED

AXIAL 158 K

SHEAR 14 K

MOMENT 1696 kip-ft

TORQUE 5 kip-ft

50 mph WIND - 1.0000 in ICE

AXIAL 69 K

SHEAR 49 K

MOMENT 5111 kip-ft

TORQUE 9 kip-ft

REACTIONS - 97 mph WIND

Paul J. Ford and Company 250 East Broad st., Suite 600 Columbus, OH 43215 Phone: (614) 221-6679 FAX:	Job: ***165-Ft Monopole / South Windsor/Rt 5***		
	Project: ***PJF# 37518-0525.002.7805 / BU# 828054***		
	Client: Crown Castle	Drawn by: jacuna	App'd:
	Code: TIA-222-G	Date: 03/21/18	Scale: NTS
	Path: G:\TOWER\375_Crown_Castle\2018\37518-0525_828054_South Windsor-Rt 5\37518-0525.002.7805_SA_1544505\37518-0525.002.7805_Reinforced_CCIPOLE.eri		Dwg No. E-1

PAUL J. FORD & COMPANY
250 E Broad St, Ste 600 • Columbus, OH 43215
Phone 614.221.6679 www.pauljford.com

v4.4 - Effective 7-12-13

Date: 3/22/2018
PJF Project: 37518-0525.002.7805
Client Ref. # BU XXXXX
Site Name:
Description: 165.0 Ft Monopole
Owner: CCI
Engineer: KAT / JAB

Asymmetric Anchor Rod Analysis

Moment =	3391	k-ft	TIA Ref.	G	Location =	Base Plate		
Axial =	45.8	kips	ASIF =	1.0000	η =	0.50	for BP, Rev. G Sect. 4.9.9	
Shear =	49.0	kips	Max Ratio =	105.0%	Threads =	N/A	for FP, Rev. G	
Anchor Qty =	12							

**** 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	A354 Gr BC	109	125	6.5	54.00	0.00	3.98	254.96	247.33	263.13	0.00	325.00	81.0%
2	2.250	A354 Gr BC	109	125	53.5	54.00	0.00	3.98	254.96	247.33	263.13	0.00	325.00	81.0%
3	2.250	A354 Gr BC	109	125	66.5	54.00	0.00	3.98	254.96	247.33	263.13	0.00	325.00	81.0%
4	2.250	A354 Gr BC	109	125	113.5	54.00	0.00	3.98	254.96	247.33	263.13	0.00	325.00	81.0%
5	2.250	A354 Gr BC	109	125	126.5	54.00	0.00	3.98	254.96	247.33	263.13	0.00	325.00	81.0%
6	2.250	A354 Gr BC	109	125	173.5	54.00	0.00	3.98	254.96	247.33	263.13	0.00	325.00	81.0%
7	2.250	A354 Gr BC	109	125	186.5	54.00	0.00	3.98	254.96	247.33	263.13	0.00	325.00	81.0%
8	2.250	A354 Gr BC	109	125	233.5	54.00	0.00	3.98	254.96	247.33	263.13	0.00	325.00	81.0%
9	2.250	A354 Gr BC	109	125	246.5	54.00	0.00	3.98	254.96	247.33	263.13	0.00	325.00	81.0%
10	2.250	A354 Gr BC	109	125	293.5	54.00	0.00	3.98	254.96	247.33	263.13	0.00	325.00	81.0%
11	2.250	A354 Gr BC	109	125	306.5	54.00	0.00	3.98	254.96	247.33	263.13	0.00	325.00	81.0%
12	2.250	A354 Gr BC	109	125	353.5	54.00	0.00	3.98	254.96	247.33	263.13	0.00	325.00	81.0%
								47.71						

PAUL J. FORD & COMPANY

Date:	3/22/2018
Job #:	37518-0525.002.7805

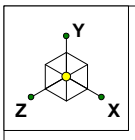
Applied Reactions for RISA 3D		
TNX Moment =	5111	k-ft
TNX Axial =	69	kips
TNX Shear =	49	kips
Total Unfactored Axial =	**57.50**	**kips**
Side Bending Moment =	**5160**	**k-ft**
Corner Bending Moment (Mx) =	**3648.7**	**k-ft**
Corner Bending Moment (Mz)=	**3648.7**	**k-ft**

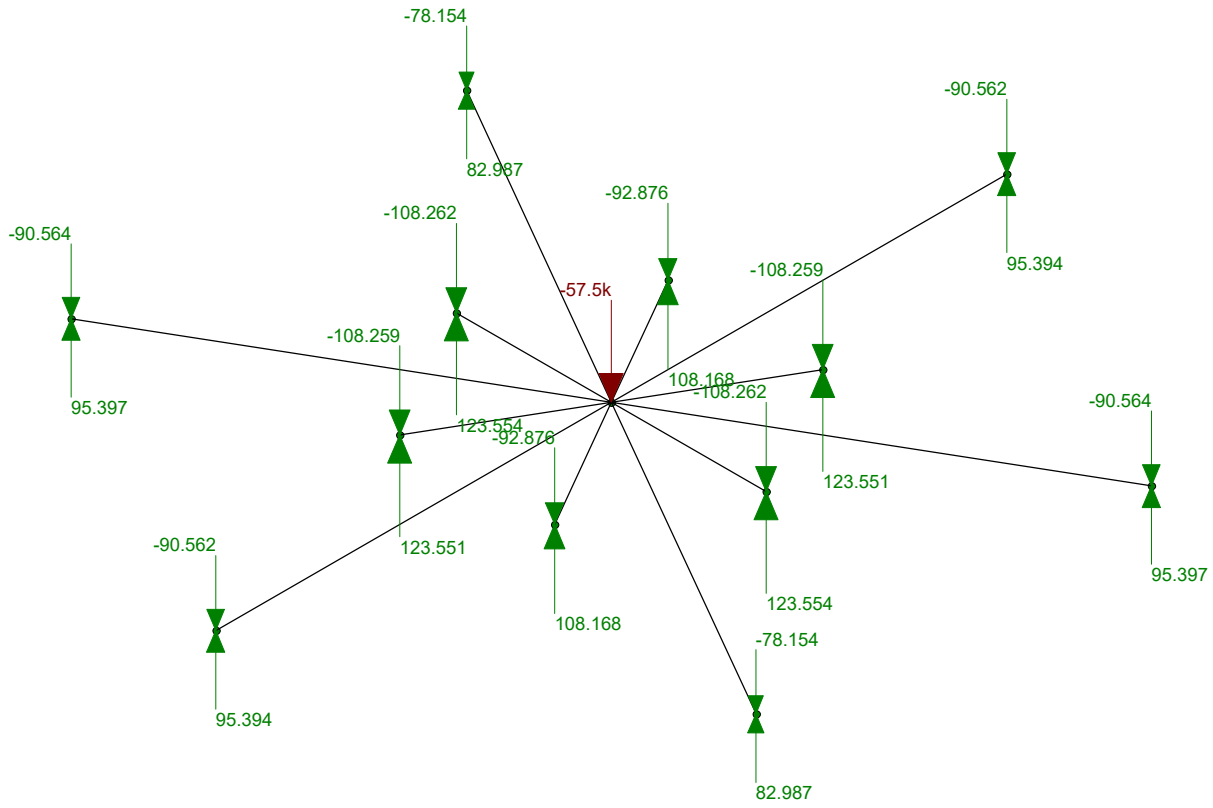
Micropile Spring Constant		
Ag =	4.03	in^2
E =	29000	ksi
Lu =	10	ft
k = An*E / Lu =	973.92	k/in

Helical Anchor Spring Constant		
Ag =	8.28	in^2
E =	29000	ksi
Lu =	65	ft
k = An*E / Lu =	307.85	k/in

Micropile Capacity		
Max Tension from RISA =	123.554	kips
Anchor Type =	Micropile	
Ultimate Load, Pu' =	418	kips
An =		in^2
Capacity (Kips)= 0.8*Pu =	334.4	
Ratio = 123.554 / 334.4 =	**36.9%**	

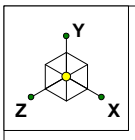
Helical Anchor Capacity		
Max Tension from RISA =	95.394	kips
Anchors per	2	
Helical Anchor Type =	RD4500.337	
Design Torque =	21000	ft-lbs
Ultimate Capacity =	140	kips
Installed Torque =	15000	ft-lbs
Installed Capacity =	100	kips
Total Capacity =	105	kips
Ratio = 95.394 / 105 =	**90.9%**	

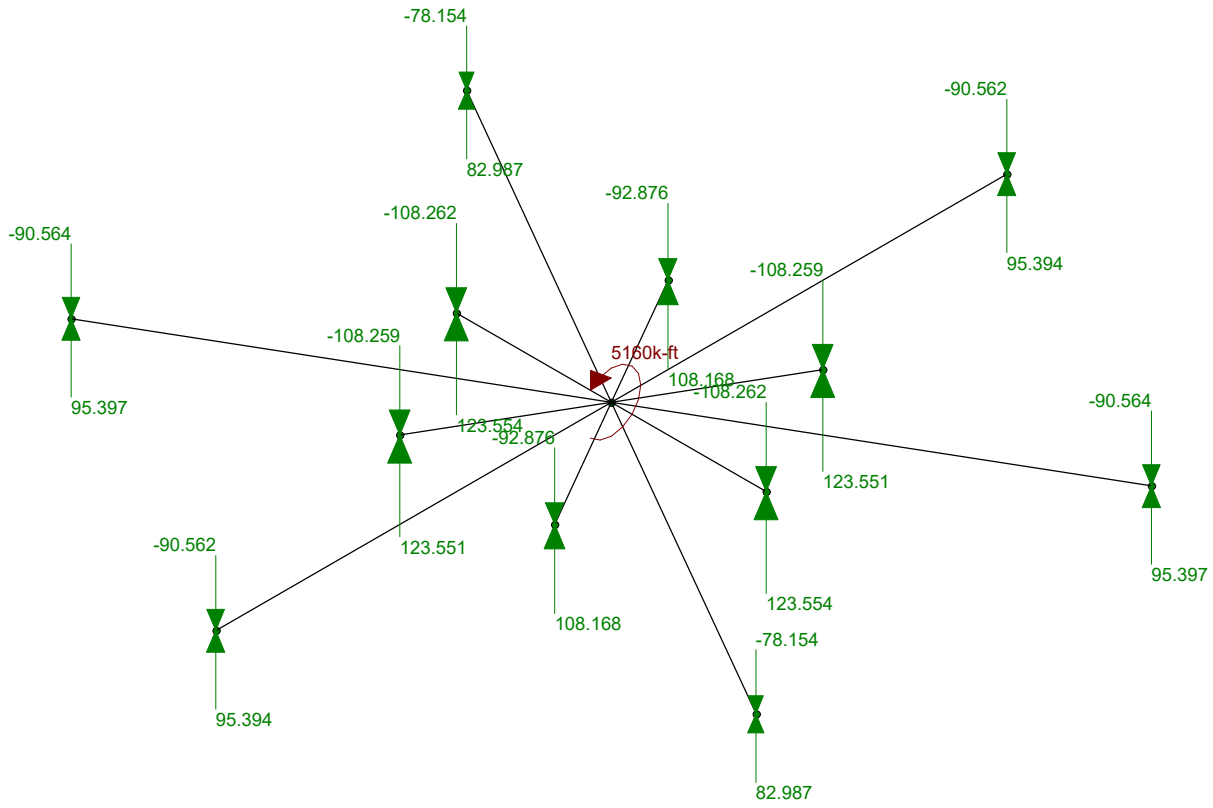




Loads: BLC 1, Dead
Envelope Only Solution
Y-direction Reaction Units are k and k-ft (Enveloped)

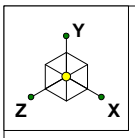
Paul J. Ford and Company	BU 828054 / South Windsor- Rt 5	SK - 1
KAT/JAB		Mar 22, 2018 at 10:03 AM
37518-0525.002.7805		375418-0525.002_Composite Fou...

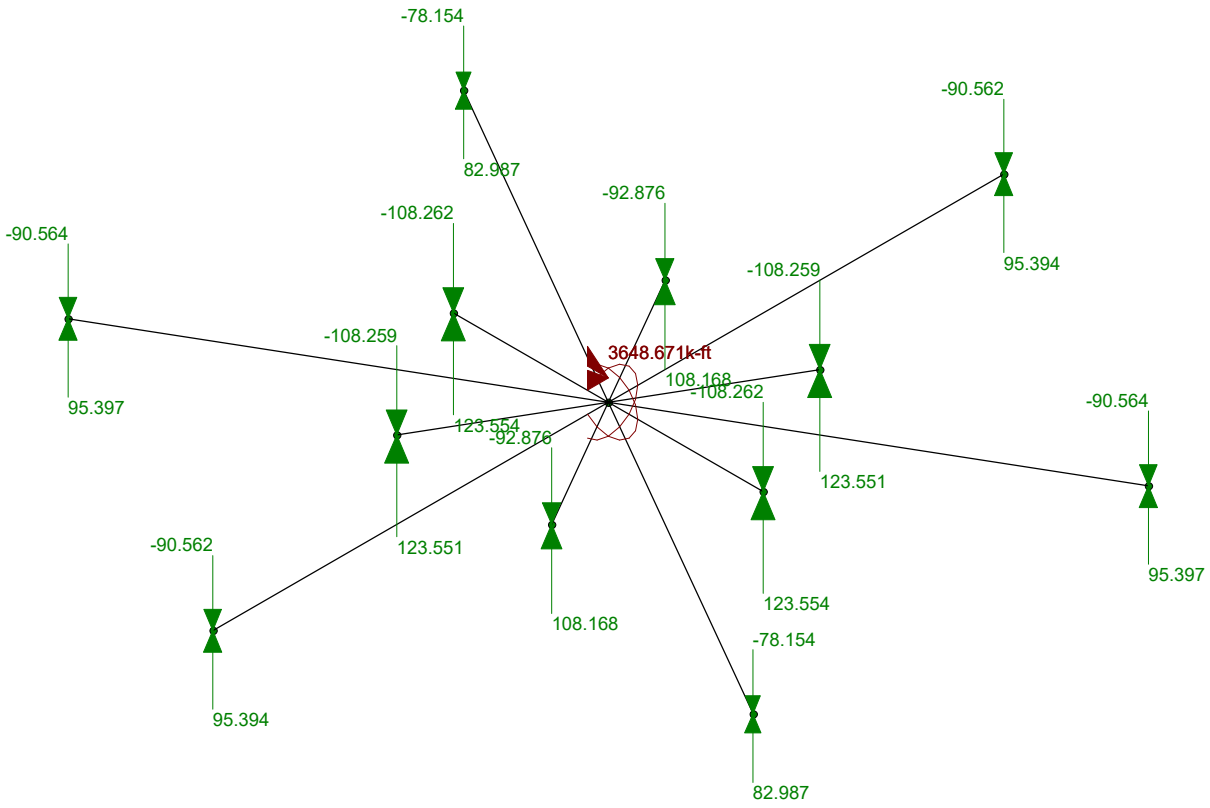




Loads: BLC 2, WInd 0
Envelope Only Solution
Y-direction Reaction Units are k and k-ft (Enveloped)

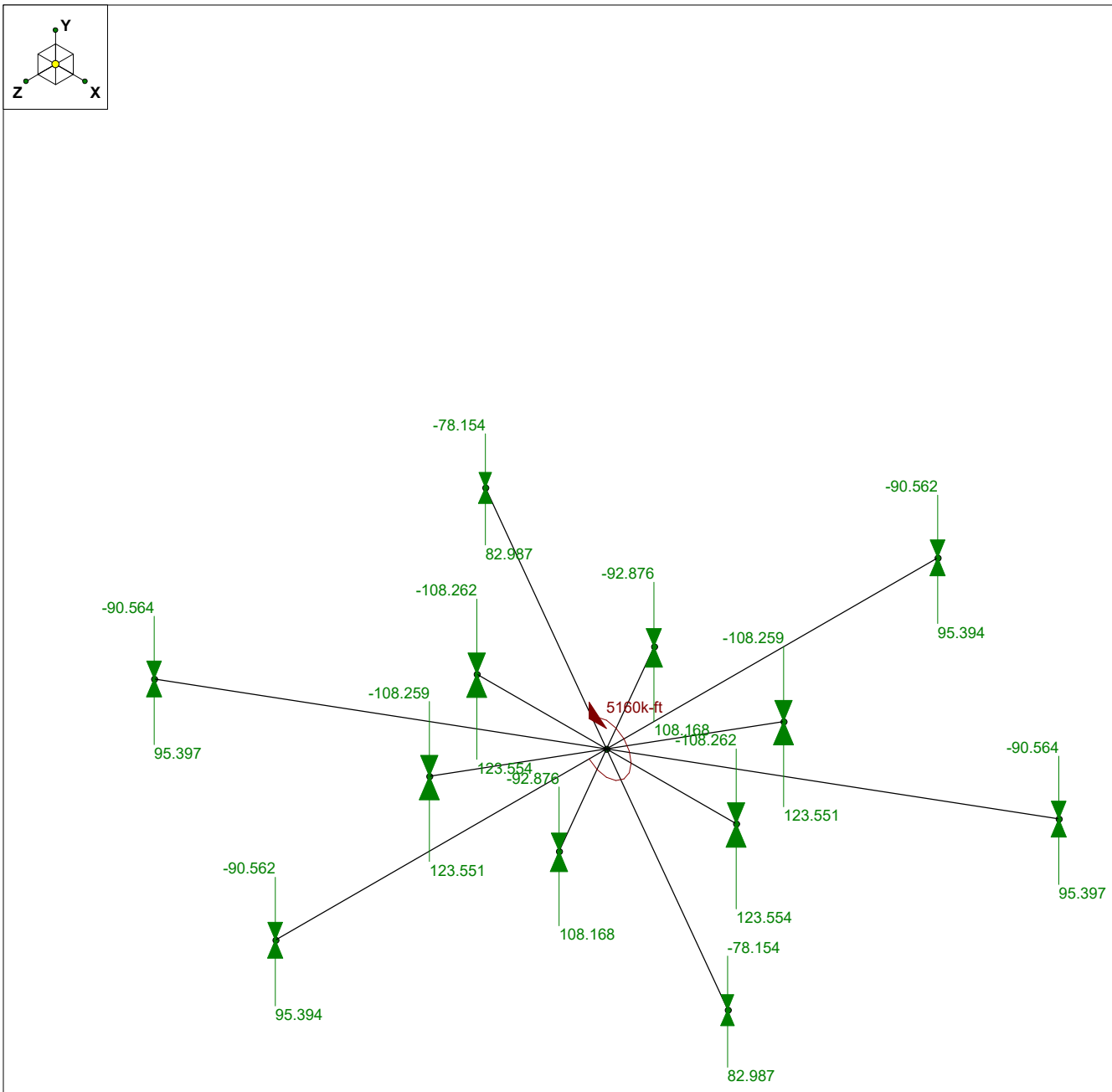
Paul J. Ford and Company	BU 828054 / South Windsor- Rt 5	SK - 2
KAT/JAB		Mar 22, 2018 at 10:03 AM
37518-0525.002.7805		375418-0525.002_Composite Fou...





Loads: BLC 4, Wind 45
Envelope Only Solution
Y-direction Reaction Units are k and k-ft (Enveloped)

Paul J. Ford and Company	BU 828054 / South Windsor- Rt 5	SK - 3
KAT/JAB		Mar 22, 2018 at 10:03 AM
37518-0525.002.7805		375418-0525.002_Composite Fou...



Loads: BLC 6, Wind 90
Envelope Only Solution
Y-direction Reaction Units are k and k-ft (Enveloped)

Paul J. Ford and Company	BU 828054 / South Windsor- Rt 5	SK - 4
KAT/JAB		Mar 22, 2018 at 10:03 AM
37518-0525.002.7805		375418-0525.002_Composite Fou...

(Global) Model Settings

Display Sections for Member Calcs	5
Max Internal Sections for Member Calcs	97
Include Shear Deformation?	Yes
Increase Nailing Capacity for Wind?	Yes
Include Warping?	Yes
Trans Load Btwn Intersecting Wood Wall?	Yes
Area Load Mesh (in^2)	144
Merge Tolerance (in)	.12
P-Delta Analysis Tolerance	0.50%
Include P-Delta for Walls?	Yes
Automatically Iterate Stiffness for Walls?	Yes
Max Iterations for Wall Stiffness	3
Gravity Acceleration (ft/sec^2)	32.2
Wall Mesh Size (in)	12
Eigensolution Convergence Tol. (1.E-)	4
Vertical Axis	Y
Global Member Orientation Plane	XZ
Static Solver	Sparse Accelerated
Dynamic Solver	Accelerated Solver

Hot Rolled Steel Code	None
RISAConnection Code	None
Cold Formed Steel Code	None
Wood Code	None
Wood Temperature	< 100F
Concrete Code	ACI 318-11
Masonry Code	None
Aluminum Code	None - Building

Number of Shear Regions	4
Region Spacing Increment (in)	4
Biaxial Column Method	Exact Integration
Parme Beta Factor (PCA)	.65
Concrete Stress Block	Rectangular
Use Cracked Sections?	Yes
Use Cracked Sections Slab?	Yes
Bad Framing Warnings?	No
Unused Force Warnings?	Yes
Min 1 Bar Diam. Spacing?	No
Concrete Rebar Set	REBAR_SET_ASTMA615
Min % Steel for Column	1
Max % Steel for Column	8

(Global) Model Settings, Continued

Seismic Code	ASCE 7-10
Seismic Base Elevation (ft)	Not Entered
Add Base Weight?	Yes
Ct X	.02
Ct Z	.02
T X (sec)	Not Entered
T Z (sec)	Not Entered
R X	3
R Z	3
Ct Exp. X	.75
Ct Exp. Z	.75
SD1	1
SDS	1
S1	1
TL (sec)	5
Risk Cat	I or II
Drift Cat	Other
Om Z	1
Om X	1
Cd Z	1
Cd X	1
Rho Z	1
Rho X	1

Member Primary Data

	Label	I Joint	J Joint	K Joint	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rules
1	M1	CENTER	N2			RIGID	None	None	RIGID	Typical
2	M2	CENTER	N4			RIGID	None	None	RIGID	Typical
3	M3	CENTER	N6			RIGID	None	None	RIGID	Typical
4	M4	CENTER	N8			RIGID	None	None	RIGID	Typical
5	M5	CENTER	N10			RIGID	None	None	RIGID	Typical
6	M6	CENTER	N12			RIGID	None	None	RIGID	Typical
7	M7	CENTER	N8A			RIGID	None	None	RIGID	Typical
8	M8	CENTER	N10A			RIGID	None	None	RIGID	Typical
9	M9	CENTER	N12A			RIGID	None	None	RIGID	Typical
10	M10	CENTER	N14			RIGID	None	None	RIGID	Typical
11	M11	CENTER	N16			RIGID	None	None	RIGID	Typical
12	M12	CENTER	N18			RIGID	None	None	RIGID	Typical

Member Advanced Data

	Label	I Release	J Release	I Offset[in]	J Offset[in]	T/C Only	Physical	Analysis ...	Inactive	Seismic Design ...
1	M1						Yes			None
2	M2						Yes			None
3	M3						Yes			None
4	M4						Yes			None
5	M5						Yes			None
6	M6						Yes			None
7	M7						Yes			None
8	M8						Yes			None
9	M9						Yes			None
10	M10						Yes			None
11	M11						Yes			None
12	M12						Yes			None

Joint Coordinates and Temperatures

	Label	X [ft]	Y [ft]	Z [ft]	Temp [F]	Detach From Diap...
1	CENTER	0	0	0	0	
2	N2	0	0	12.49995	0	
3	N4	10.824885	0	6.249975	0	
4	N6	10.824885	0	-6.249975	0	
5	N8	-0.	0	-12.49995	0	
6	N10	-10.824885	0	-6.249975	0	
7	N12	-10.824885	0	6.249975	0	
8	N8A	4.895638	0	0	0	
9	N10A	2.447819	0	-4.239899	0	
10	N12A	-2.447819	0	-4.239899	0	
11	N14	-4.895638	0	0.	0	
12	N16	-2.447819	0	4.239899	0	
13	N18	2.447819	0	4.239899	0	

Basic Load Cases

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Joint	Point	Distributed	Area(Me...	Surface(P...
1	Dead	None		-1		1				
2	WInd 0	None				1				
3	Wind 30	None				2				
4	Wind 45	None				2				
5	Wind 60	None				2				
6	Wind 90	None				1				

Load Combinations

	Description	S...	PDelta	SRSS	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...
1	1.2 Dead + Wind 0	Y...	Y		1	1.2	2	1																
2	0.9 Dead + Wind 0	Y...	Y		1	.9	2	1																
3	1.2 Dead + Wind 30	Y...	Y		1	1.2	3	1																
4	0.9 Dead + Wind 30	Y...	Y		1	.9	3	1																
5	1.2 Dead + Wind 45	Y...	Y		1	1.2	4	1																
6	0.9 Dead + Wind 45	Y...	Y		1	.9	4	1																
7	1.2 Dead + Wind 60	Y...	Y		1	1.2	5	1																
8	0.9 Dead + Wind 60	Y...	Y		1	.9	5	1																
9	1.2 Dead + Wind 90	Y...	Y		1	1.2	6	1																
10	0.9 Dead + Wind 90	Y...	Y		1	.9	6	1																
11	1.2 Dead + Wind 180	Y...	Y		1	1.2	2	-1																
12	0.9 Dead + Wind 180	Y...	Y		1	.9	2	-1																
13	1.2 Dead + Wind 210	Y...	Y		1	1.2	3	-1																
14	0.9 Dead + Wind 210	Y...	Y		1	.9	3	-1																
15	1.2 Dead + Wind 225	Y...	Y		1	1.2	4	-1																
16	0.9 Dead + Wind 225	Y...	Y		1	.9	4	-1																
17	1.2 Dead + Wind 240	Y...	Y		1	1.2	5	-1																
18	0.9 Dead + Wind 240	Y...	Y		1	.9	5	-1																
19	1.2 Dead + Wind 270	Y...	Y		1	1.2	6	-1																
20	0.9 Dead + Wind 270	Y...	Y		1	.9	6	-1																

Envelope Joint Reactions

	Joint		X [k]	LC	Y [k]	LC	Z [k]	LC	MX [k-ft]	LC	MY [k-ft]	LC	MZ [k-ft]	LC
1	N14	max	0	1	123.554	9	0	1	0	1	0	1	0	1
2		min	0	1	-108.262	20	0	1	0	1	0	1	0	1
3	N16	max	0	1	123.551	3	0	1	0	1	0	1	0	1

Envelope Joint Reactions (Continued)

	Joint		X [k]	LC	Y [k]	LC	Z [k]	LC	MX [k-ft]	LC	MY [k-ft]	LC	MZ [k-ft]	LC
4		min	0	1	-108.259	14	0	1	0	1	0	1	0	1
5	N18	max	0	1	108.168	1	0	1	0	1	0	1	0	1
6		min	0	1	-92.876	12	0	1	0	1	0	1	0	1
7	N8A	max	0	1	123.554	19	0	1	0	1	0	1	0	1
8		min	0	1	-108.262	10	0	1	0	1	0	1	0	1
9	N10A	max	0	1	123.551	13	0	1	0	1	0	1	0	1
10		min	0	1	-108.259	4	0	1	0	1	0	1	0	1
11	N12A	max	0	1	108.168	11	0	1	0	1	0	1	0	1
12		min	0	1	-92.876	2	0	1	0	1	0	1	0	1
13	N10	max	0	1	82.987	9	0	1	0	1	0	1	0	1
14		min	0	1	-78.154	20	0	1	0	1	0	1	0	1
15	N8	max	0	1	95.394	11	0	1	0	1	0	1	0	1
16		min	0	1	-90.562	2	0	1	0	1	0	1	0	1
17	N6	max	0	1	95.397	17	0	1	0	1	0	1	0	1
18		min	0	1	-90.564	8	0	1	0	1	0	1	0	1
19	N4	max	0	1	82.987	19	0	1	0	1	0	1	0	1
20		min	0	1	-78.154	10	0	1	0	1	0	1	0	1
21	N2	max	0	1	95.394	1	0	1	0	1	0	1	0	1
22		min	0	1	-90.562	12	0	1	0	1	0	1	0	1
23	N12	max	0	1	95.397	7	0	1	0	1	0	1	0	1
24		min	0	1	-90.564	18	0	1	0	1	0	1	0	1
25	CENTER	max	0	1	0	1	0	1	0	1	0	1	0	1
26		min	0	1	0	1	0	1	0	1	0	1	0	1
27	Totals:	max	0	1	69	19	0	1						
28		min	0	1	51.75	10	0	1						

Joint Loads and Enforced Displacements (BLC 1 : Dead)

	Joint Label	L,D,M	Direction	Magnitude[(k,k-ft), (in,rad), (k*s^2/ft, k*s^2*ft)]
1	CENTER	L	Y	-57.5

Joint Loads and Enforced Displacements (BLC 2 : Wind 0)

	Joint Label	L,D,M	Direction	Magnitude[(k,k-ft), (in,rad), (k*s^2/ft, k*s^2*ft)]
1	CENTER	L	Mx	5160

Joint Loads and Enforced Displacements (BLC 3 : Wind 30)

	Joint Label	L,D,M	Direction	Magnitude[(k,k-ft), (in,rad), (k*s^2/ft, k*s^2*ft)]
1	CENTER	L	Mx	4468.691
2	CENTER	L	Mz	2580

Joint Loads and Enforced Displacements (BLC 4 : Wind 45)

	Joint Label	L,D,M	Direction	Magnitude[(k,k-ft), (in,rad), (k*s^2/ft, k*s^2*ft)]
1	CENTER	L	Mx	3648.671
2	CENTER	L	Mz	3648.671

Joint Loads and Enforced Displacements (BLC 5 : Wind 60)

	Joint Label	L,D,M	Direction	Magnitude[(k,k-ft), (in,rad), (k*s^2/ft, k*s^2*ft)]
1	CENTER	L	Mx	2580
2	CENTER	L	Mz	4468.691

Joint Loads and Enforced Displacements (BLC 6 : Wind 90)

	Joint Label	L,D,M	Direction	Magnitude[(k,k-ft), (in,rad), (k*s^2/ft, k*s^2*ft)]
1	CENTER	L	Mz	5160

Envelope Joint Reactions - Overstrength

Joint	X [k]	LC	Y [k]	LC	Z [k]	LC	MX [k-ft]	LC	MY [k-ft]	LC	MZ [k-ft]	LC
No Data to Print ...												

RF EMISSIONS COMPLIANCE REPORT

Crown Castle on behalf of SigFox

Crown Castle Site ID: 828054
Crown Castle Site Name: South Windsor/Rt 5
SigFox Site Number: CT8589
Application ID: 427898
300 Governors Hwy
South Windsor, CT
4/16/2018

Report Status:

SigFox Is Compliant

Prepared By:

Sitesafe, LLC

200 North Glebe Road, Suite 1000 Arlington, VA 22203 Voice 703-276-1100
Fax 703-276-1169

Engineering Statement in Re:
Electromagnetic Energy Analysis
Crown Castle
South Windsor, CT

My signature on the cover of this document indicates:

That I am registered as a Professional Engineer in the jurisdiction indicated; and

That I have extensive professional experience in the wireless communications engineering industry; and

That I am an employee of Sitesafe, LLC in Arlington, Virginia; and

That I am thoroughly familiar with the Rules and Regulations of the Federal Communications Commission ("the FCC" and "the FCC Rules") both in general and specifically as they apply to the FCC's Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields; and

That the technical information serving as the basis for this report was supplied by Crown Castle (See attached Site Summary and Carrier documents), and that SigFox's installations involve communications equipment, antennas and associated technical equipment at a location referred to as the "South Windsor/Rt 5" ("the site"); and

That SigFox proposes to operate at the site with transmit antennas listed in the carrier summary and with a maximum effective radiated power as specified by SigFox and shown on the worksheet, and that worst-case 100% duty cycle have been assumed; and

That in addition to the emitters specified in the worksheet, there are additional collocated point-to-point microwave facilities on this structure and, the antennas used are highly directional oriented at angles at or just below the horizontal and, that the energy present at ground level is typically so low as to be considered insignificant and have not been included in this analysis; and

That this analysis has been performed with the assumption that the ground immediately surrounding the tower is primarily flat or falling; and

That at this time, the FCC requires that certain licensees address specific levels of radio-frequency energy to which workers or members of the public might possibly be exposed (at §1.1307(b) of the FCC Rules); and

That such consideration of possible exposure of humans to radio-frequency radiation must utilize the standards set by the FCC, which is the Federal Agency having jurisdiction over communications facilities; and

That the FCC rules define two tiers of permissible exposure guidelines: 1) "uncontrolled environments," defined as situations in which persons may not be aware of (the "general public"), or may not be able to control their exposure to a transmission facility; and (2) "controlled environments," which defines situations in which persons are aware of their potential for exposure (industry personnel); and

That this statement specifically addresses the uncontrolled environment (which is more conservative than the controlled environment) and the limit set forth in the FCC rules for licensees of SigFox's operating frequency as shown on the attached antenna worksheet; and

That when applying the uncontrolled environment standards, the predicted Maximum Power Density at two meters above ground level from the proposed SigFox operation is no more than 0.034% of the maximum in any accessible area on the ground and

That it is understood per FCC Guidelines and OET65 Appendix A, that regardless of the existent radio-frequency environment, only those licenses whose contributions exceed five percent of the exposure limit pertinent to their operation(s) bear any responsibility for bringing any non-compliant area(s) into compliance; and

That when applying the uncontrolled environment standards, the cumulative predicted energy density from the proposed operation is no more than 3.405% of the maximum in any accessible area up to two meters above the ground per OET-65; and

That the calculations provided in this report are based on data provided by the client and antenna pattern data supplied by the antenna manufacturer, in accordance with FCC guidelines listed in OET-65. Horizontal and vertical antenna patterns are combined for modeling purposes to accurately reflect the energy two meters above ground level where on-axis energy refers to maximum energy two meters above the ground along the azimuth of the antenna and where area energy refers to the maximum energy anywhere two meters above the ground regardless of the antenna azimuth, accounting for cumulative energy from multiple antennas for the carrier and frequency range indicated; and

That the Occupational Safety and Health Administration has policies in place which address worker safety in and around communications sites, thus individual companies will be responsible for their employees' training regarding Radio Frequency Safety.

In summary, it is stated here that the proposed operation at the site would not result in exposure of the Public to excessive levels of radio-frequency energy as defined in the FCC Rules and Regulations, specifically 47 CFR 1.1307 and that SigFox's proposed operation is completely compliant.

Finally, it is stated that access to the tower should be restricted to communication industry professionals, and approved contractor personnel trained in radio-frequency safety; and that the instant analysis addresses exposure levels at two meters above ground level and does not address exposure levels on the tower, or in the immediate proximity of the antennas.

Crown Castle
South Windsor/Rt 5
Site Summary

Carrier	Area Maximum Percentage MPE
AT&T Mobility, LLC	0.314 %
AT&T Mobility, LLC	0.343 %
MetroPCS	0.158 %
SigFox (Proposed)	0.034 %
Sprint	0.124 %
Sprint	0.061 %
T-Mobile	0.072 %
T-Mobile	0.071 %
Verizon Wireless	0.445 %
Verizon Wireless	0.448 %
Verizon Wireless	0.89 %
Verizon Wireless	0.445 %

Composite Site MPE: 3.405 %

AT&T Mobility, LLC
South Windsor/Rt 5
Carrier Summary

Frequency:	1900	MHz
Maximum Permissible Exposure (MPE):	1000	µW/cm^2
Maximum power density at ground level:	3.14028	µW/cm^2
Highest percentage of Maximum Permissible Exposure:	0.31403	%

					On Axis		Area	
Antenna Make	**Model**	**Height (feet)**	**Orientation (degrees true)**	**ERP (Watts)**	**Max Power Density (µW/cm^2)**	**Percent of MPE**	**Max Power Density (µW/cm^2)**	**Percent of MPE**
CSS	DUO1417-8686	158	20	2472	0.8732	0.08732	1.684301	0.16843
Powerwave	7770	158	20	2339	0.497214	0.049721	1.038868	0.103887
CSS	DUO1417-8686	158	160	2472	0.871635	0.087164	1.684301	0.16843
Powerwave	7770	158	160	2339	0.497214	0.049721	1.038868	0.103887
CSS	DUO1417-8686	158	280	2472	0.8732	0.08732	1.684301	0.16843
Powerwave	7770	158	280	2339	0.497214	0.049721	1.038868	0.103887

AT&T Mobility, LLC
South Windsor/Rt 5
Carrier Summary

Frequency:	850	MHz
Maximum Permissible Exposure (MPE):	566.67	µW/cm^2
Maximum power density at ground level:	1.94582	µW/cm^2
Highest percentage of Maximum Permissible Exposure:	0.34338	%

					On Axis		Area	
Antenna Make	**Model**	**Height (feet)**	**Orientation (degrees true)**	**ERP (Watts)**	**Max Power Density (µW/cm^2)**	**Percent of MPE**	**Max Power Density (µW/cm^2)**	**Percent of MPE**
CSS	DUO1417-8686	158	20	1239	0.495569	0.087453	0.584139	0.103083
Powerwave	7770	158	20	1094	0.415593	0.07334	0.647507	0.114266
CSS	DUO1417-8686	158	160	1239	0.496419	0.087603	0.584139	0.103083
Powerwave	7770	158	160	1094	0.416123	0.073434	0.647507	0.114266
CSS	DUO1417-8686	158	280	1239	0.496419	0.087603	0.584139	0.103083
Powerwave	7770	158	280	1094	0.416123	0.073434	0.647507	0.114266

MetroPCS
South Windsor/Rt 5
Carrier Summary

Frequency:	1900	MHz
Maximum Permissible Exposure (MPE):	1000	µW/cm^2
Maximum power density at ground level:	1.57677	µW/cm^2
Highest percentage of Maximum Permissible Exposure:	0.15768	%

					On Axis		Area	
Antenna Make	**Model**	**Height (feet)**	**Orientation (degrees true)**	**ERP (Watts)**	**Max Power Density (µW/cm^2)**	**Percent of MPE**	**Max Power Density (µW/cm^2)**	**Percent of MPE**
RFS	APXV18-206517-A	138	20	2912	0.538608	0.053861	0.992955	0.099296
RFS	APXV18-206517-A	138	160	2912	0.538608	0.053861	0.992955	0.099296
RFS	APXV18-206517-A	138	280	2912	0.538608	0.053861	0.992955	0.099296

SigFox (Proposed)
South Windsor/Rt 5
Carrier Summary

Frequency:	902.2	MHz
Maximum Permissible Exposure (MPE):	601.47	µW/cm^2
Maximum power density at ground level:	0.20444	µW/cm^2
Highest percentage of Maximum Permissible Exposure:	0.03399	%

					On Axis		Area	
Antenna Make	**Model**	**Height (feet)**	**Orientation (degrees true)**	**ERP (Watts)**	**Max Power Density (µW/cm^2)**	**Percent of MPE**	**Max Power Density (µW/cm^2)**	**Percent of MPE**
SigFox	CXL 900-3LW	118	180	61	0.204436	0.03399	0.204436	0.03399

Sprint
South Windsor/Rt 5
Carrier Summary

Frequency:	1900	MHz
Maximum Permissible Exposure (MPE):	1000	µW/cm^2
Maximum power density at ground level:	1.24085	µW/cm^2
Highest percentage of Maximum Permissible Exposure:	0.12408	%

					On Axis		Area	
Antenna Make	**Model**	**Height (feet)**	**Orientation (degrees true)**	**ERP (Watts)**	**Max Power Density (µW/cm^2)**	**Percent of MPE**	**Max Power Density (µW/cm^2)**	**Percent of MPE**
RFS	APXVSPP18-C-A20	148	355	2536	0.554318	0.055432	1.040922	0.104092
RFS	APXVSPP18-C-A20	148	120	2536	0.554318	0.055432	1.040922	0.104092
RFS	APXVSPP18-C-A20	148	250	2536	0.554318	0.055432	1.040922	0.104092

Sprint
South Windsor/Rt 5
Carrier Summary

Frequency:	850	MHz
Maximum Permissible Exposure (MPE):	566.67	µW/cm^2
Maximum power density at ground level:	0.34302	µW/cm^2
Highest percentage of Maximum Permissible Exposure:	0.06053	%

					On Axis		Area	
Antenna Make	**Model**	**Height (feet)**	**Orientation (degrees true)**	**ERP (Watts)**	**Max Power Density (µW/cm^2)**	**Percent of MPE**	**Max Power Density (µW/cm^2)**	**Percent of MPE**
RFS	APXVSPP18-C-A20	148	355	867	0.278251	0.049103	0.283118	0.049962
RFS	APXVSPP18-C-A20	148	120	867	0.278251	0.049103	0.283118	0.049962
RFS	APXVSPP18-C-A20	148	250	867	0.278251	0.049103	0.283118	0.049962

T-Mobile
South Windsor/Rt 5
Carrier Summary

Frequency:	2100	MHz
Maximum Permissible Exposure (MPE):	1000	µW/cm^2
Maximum power density at ground level:	0.71997	µW/cm^2
Highest percentage of Maximum Permissible Exposure:	0.072	%

					On Axis		Area	
Antenna Make	**Model**	**Height (feet)**	**Orientation (degrees true)**	**ERP (Watts)**	**Max Power Density (µW/cm^2)**	**Percent of MPE**	**Max Power Density (µW/cm^2)**	**Percent of MPE**
Ericsson	AIR 21 B4A B2P	166	0	2061	0.358178	0.035818	0.409338	0.040934
Ericsson	AIR 21 B4A B2P	166	120	2061	0.358313	0.035831	0.409338	0.040934
Ericsson	AIR 21 B4A B2P	166	210	2061	0.358313	0.035831	0.409338	0.040934

T-Mobile
South Windsor/Rt 5
Carrier Summary

Frequency:	1900	MHz
Maximum Permissible Exposure (MPE):	1000	µW/cm^2
Maximum power density at ground level:	0.71132	µW/cm^2
Highest percentage of Maximum Permissible Exposure:	0.07113	%

					On Axis		Area	
Antenna Make	**Model**	**Height (feet)**	**Orientation (degrees true)**	**ERP (Watts)**	**Max Power Density (µW/cm^2)**	**Percent of MPE**	**Max Power Density (µW/cm^2)**	**Percent of MPE**
Ericsson	AIR 21 B2A B4P	167	0	2061	0.35372	0.035372	0.404222	0.040422
Ericsson	AIR 21 B2A B4P	167	120	2061	0.353856	0.035386	0.404222	0.040422
Ericsson	AIR 21 B2A B4P	167	210	2061	0.353856	0.035386	0.404222	0.040422

Verizon Wireless
South Windsor/Rt 5
Carrier Summary

Frequency:	700	MHz
Maximum Permissible Exposure (MPE):	466.67	µW/cm^2
Maximum power density at ground level:	2.07677	µW/cm^2
Highest percentage of Maximum Permissible Exposure:	0.44502	%

					On Axis		Area	
Antenna Make	**Model**	**Height (feet)**	**Orientation (degrees true)**	**ERP (Watts)**	**Max Power Density (µW/cm^2)**	**Percent of MPE**	**Max Power Density (µW/cm^2)**	**Percent of MPE**
ANDREW	LNX-6514DS-A1M	112	0	1919	2.068887	0.443333	2.068887	0.443333
ANDREW	LNX-6514DS-A1M	112	120	1919	2.068887	0.443333	2.068887	0.443333
ANDREW	LNX-6514DS-A1M	112	240	1919	2.068887	0.443333	2.068887	0.443333

Verizon Wireless
South Windsor/Rt 5
Carrier Summary

Frequency:	2100	MHz
Maximum Permissible Exposure (MPE):	1000	µW/cm^2
Maximum power density at ground level:	4.48168	µW/cm^2
Highest percentage of Maximum Permissible Exposure:	0.44817	%

					On Axis		Area	
Antenna Make	**Model**	**Height (feet)**	**Orientation (degrees true)**	**ERP (Watts)**	**Max Power Density (µW/cm^2)**	**Percent of MPE**	**Max Power Density (µW/cm^2)**	**Percent of MPE**
ANDREW	HBXX-6517DS-A2M	112	0	5621	2.029915	0.202992	4.098744	0.409874
ANDREW	HBXX-6517DS-A2M	112	120	5621	2.020924	0.202092	4.098743	0.409874
ANDREW	HBXX-6517DS-A2M	112	240	5621	2.029916	0.202992	4.098743	0.409874

Verizon Wireless
South Windsor/Rt 5
Carrier Summary

Frequency:	850	MHz
Maximum Permissible Exposure (MPE):	566.67	µW/cm^2
Maximum power density at ground level:	5.04248	µW/cm^2
Highest percentage of Maximum Permissible Exposure:	0.88985	%

					On Axis		Area	
Antenna Make	**Model**	**Height (feet)**	**Orientation (degrees true)**	**ERP (Watts)**	**Max Power Density (µW/cm^2)**	**Percent of MPE**	**Max Power Density (µW/cm^2)**	**Percent of MPE**
ANDREW	LNX-6514DS-A1M	112	0	4509	4.331725	0.764422	4.990588	0.880692
ANDREW	LNX-6514DS-A1M	112	120	4509	4.331725	0.764422	4.990587	0.880692
ANDREW	LNX-6514DS-A1M	112	240	4509	4.331725	0.764422	4.990587	0.880692

Verizon Wireless
South Windsor/Rt 5
Carrier Summary

Frequency:	1900	MHz
Maximum Permissible Exposure (MPE):	1000	µW/cm^2
Maximum power density at ground level:	4.44757	µW/cm^2
Highest percentage of Maximum Permissible Exposure:	0.44476	%

					On Axis		Area	
Antenna Make	**Model**	**Height (feet)**	**Orientation (degrees true)**	**ERP (Watts)**	**Max Power Density (µW/cm^2)**	**Percent of MPE**	**Max Power Density (µW/cm^2)**	**Percent of MPE**
ANDREW	HBXX-6517DS-A2M	112	0	5130	2.182289	0.218229	4.129041	0.412904
ANDREW	HBXX-6517DS-A2M	112	120	5130	2.169909	0.216991	4.129041	0.412904
ANDREW	HBXX-6517DS-A2M	112	240	5130	2.182289	0.218229	4.129041	0.412904