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

January 4, 2019

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

RE: **Notice of Exempt Modification for T-Mobile / Crown Site BU: 806363**
T-Mobile Site ID: CT11030
Located at: 48 Cow Hill Road, Clinton, CT 06413
Latitude: 41° 17′ 20.20″ / Longitude: -72° 32′ 18.50″

Dear Ms. Bachman:

T-Mobile is requesting to file an Exempt Modification for an existing 212-foot self-support tower located at 48 Cow Hill Road, Clinton, CT 06413. T-Mobile currently maintains six (6) antennas at the 140-foot level of the existing 212-foot tower. The tower and property are owned by Crown Castle. T-Mobile now intends to add three (3) existing antenna and (3) RRUs to the modified proposed antenna platform.

This facility was approved by the Connecticut Siting Council, Docket No. 148 on May 5, 1992. There were no conditions that could feasibly be violated by this modification, including total facility height or mounting restrictions. This modification therefore complies with the aforementioned approval.

Please accept this letter as notification pursuant to Regulations of Connecticut State Agencies § 16-50j- 73, for construction that constitutes an exempt modification pursuant to R.C.S.A. § 16-50j-72(b)(2). In accordance with R.S.C.A. § 16-50j-73, a copy of this letter is being sent to Christine Goupil, First Selectman of the Town of Clinton, Town of Clinton's Zoning Officer as well as the property owner, and tower owner.

1. The proposed modifications will not result in an increase in the height of the existing tower.

2. The proposed modifications will not require the extension of the site boundary.

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

4. The operation of the replacement antennas will not increase radio frequency emissions at the facility to a level at or above the Federal Communication Commission safety standard.

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

6. The existing structure and its foundation can support the proposed loading.

For the foregoing reasons, T-Mobile respectfully submits that the proposed modifications to the above-reference telecommunications facility constitutes an exempt modification under R.C.S.A. § 16-50j-72(b)(2). Please send approval/rejection letter to Attn: William Stone.

Sincerely,

William Stone
Real Estate Specialist
3 Corporate Park Drive, Suite 101
Clifton Park, NY 12065
518-373-3543
William.stone@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)

cc:

Christine Goupil, First Selectman
Town of Clinton
54 E Main Street
Clinton, CT 06413
Phone: 860-669-9333

Zoning Officer
Town of Clinton
54 E Main Street
Clinton, CT 06413
Phone: 860-669-9333

Crown Castle

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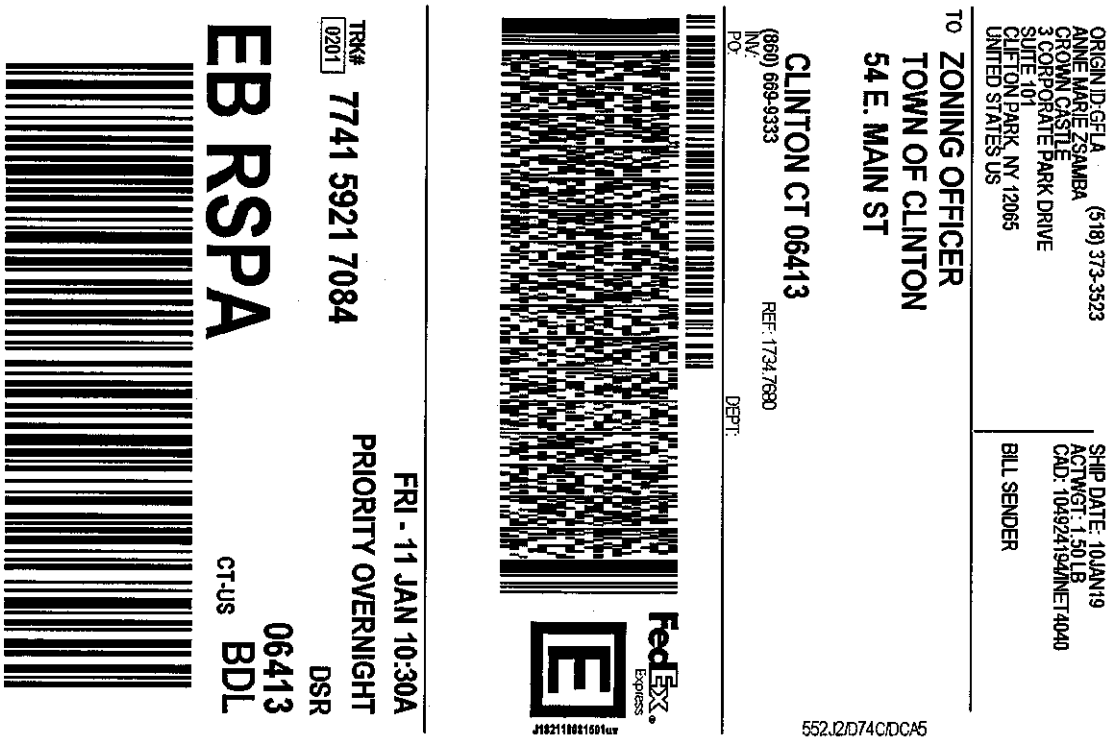
Use of this system constitutes your agreement to the service conditions in the current FedEx Service Guide, available on fedex.com.FedEx will not be responsible for any claim in excess of $100 per package, whether the result of loss, damage, delay, non-delivery,misdelivery,or misinformation, unless you declare a higher value, pay an additional charge, document your actual loss and file a timely claim.Limitations found in the current FedEx Service Guide apply. Your right to recover from FedEx for any loss, including intrinsic value of the package, loss of sales, income interest, profit, attorney's fees, costs, and other forms of damage whether direct, incidental,consequential, or special is limited to the greater of $100 or the authorized declared value. Recovery cannot exceed actual documented loss.Maximum for items of extraordinary value is $1,000, e.g. jewelry, precious metals, negotiable instruments and other items listed in our ServiceGuide. Written claims must be filed within strict time limits, see current FedEx Service Guide.



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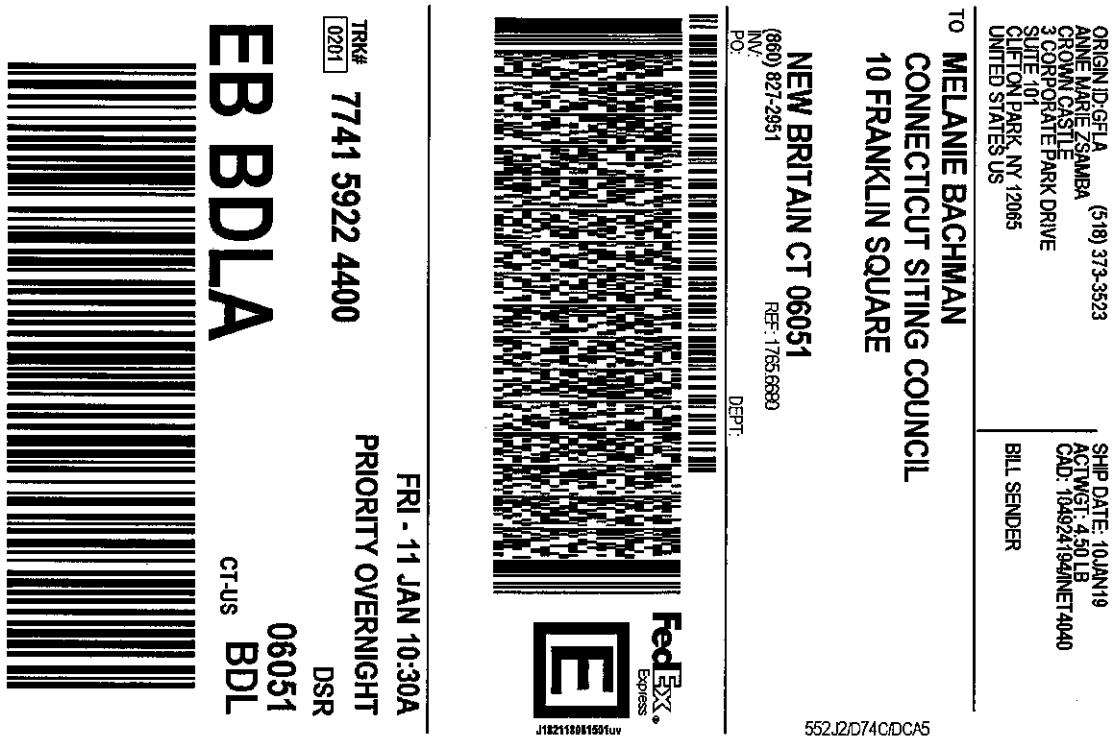

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DOCKET NO. 148 - An application of Metro Mobile CTS of Hartford, Inc., for a Certificate of Environmental Compatibility and Public Need for the construction, maintenance, and operation of a cellular telephone tower and associated equipment in the Town of Clinton, Connecticut. The proposed site is located on an interior portion of a 59 acre parcel off Glenwood Road approximately 3,500 feet north of I-95. The alternate site is located on a six acre parcel off Cow Hill Road, approximately 300 feet north of I-95.

Connecticut

Siting

Council

May 5, 1992

DECISION AND ORDER

Pursuant to the foregoing Findings of Fact and Opinion, the Connecticut Siting Council (Council) finds that the effects associated with the construction, operation, and maintenance of a cellular telecommunications tower and equipment building at the proposed Clinton, Connecticut, alternate site including effects on the natural environment; ecological integrity and balance; public health and safety; scenic, historic, and recreational values; forests and parks; air and water purity; and fish and wildlife are not disproportionate either alone or cumulatively with other effects when compared to need, are not in conflict with the policies of the State concerning such effects, and are not sufficient reason to deny the application and therefore directs that a Certificate of Environmental Compatibility and Public Need as provided by section 16-50k of the Connecticut General Statutes (CGS), be issued to Metro Mobile CTS of Hartford, Inc., (Metro Mobile), for the construction, operation, and maintenance of a cellular telecommunications tower, associated equipment, and equipment building at the proposed alternate site off Cow Hill Road in Clinton, Connecticut.

The facility shall be constructed, operated, and maintained substantially as specified in the Council's record in this matter, and subject to the following conditions:

1. The self-supporting lattice tower shall be no taller than necessary to provide the proposed communications service and in no event shall the tower exceed a total height of 223 feet above ground level, with antennas and appurtenances.

2. Prior to the commencement of construction, the Certificate Holder shall prepare a Development and Management (D&M) plan for this site in compliance with sections 16-50j-75 through 16-50j-77 of the Regulations of State Agencies. The D&M plan shall

include detailed plans of the tower, tower foundation, tower anti-climb sections, tower marking and lighting, and the locations of the equipment buildings, access road, and security fence, and all cellular antennas on the tower. In addition, the D&M plan shall include detailed plans for clearing; a site plan orienting the facility, utilities, and access road avoiding inland wetlands; and detailed plans for erosion and sedimentation control.

3. If and when tower marking and lighting become unnecessary pursuant to a determination by the Federal Aviation Administration, within six months of such determination, such tower marking and lighting shall be removed at the expense of the Certificate Holder.

4. The Certificate Holder shall comply with any existing and future radio frequency (RF) standard promulgated by State or federal regulatory agencies. Upon the establishment of any new governmental RF standards, the facility granted herein shall be brought into compliance with such standards.

5. The Certificate Holder shall provide the Council a recalculated report of electromagnetic radio frequency power density if and when circumstances in operation cause a change in power density above the levels originally calculated and provided in the application.

6. The Certificate Holder shall permit public or private entities, including Springwich Cellular Limited Partnership (Springwich) which by contract was allowed to share space on the tower, and the Town of Clinton, to share space on the proposed tower for fair consideration, or shall provide any requesting entity with specific legal, technical, environmental, or economic reasons precluding such tower sharing. Provisions shall also be made for the location of a separate Springwich equipment building.

7. If the facility does not initially provide, or permanently ceases to provide cellular service following completion of construction, this Decision and Order shall be void, and the tower and all associated equipment shall be dismantled and removed or reapplication for any new use shall be made to the Council before any such new use is made.

8. Unless otherwise approved by the Council, this Decision and Order shall be void if all construction authorized herein is not completed within three

years of the effective date of this Decision and Order or within three years after all appeals to this Decision and Order have been resolved.

Pursuant to CGS Section 16-50p, we hereby direct that a copy of the Findings of Fact, Opinion, and Decision and Order be served on each person listed below, and notice of issuance shall be published in the New Haven Register, Clinton Recorder, Hartford Courant, and the Middletown Press.

By this Decision and Order, the Council disposes of the legal rights, duties and privileges of each party named or admitted to the proceeding in accordance with Section 16-50j-17 of the Regulations of State Agencies.

The parties and intervenor to this proceeding are:

PARTY	ITS REPRESENTATIVE
Metro Mobile CTS of Hartford 20 Alexander Drive Wallingford, CT 06492 Attn: David S. Malko Mgr. Engr, & Reg. Serv.	Earl W. Phillips, Jr., Esq. Robinson & Cole One Commercial Plaza Hartford, CT 06103-3597 (203) 275-8200
Town of Clinton	Lynda Batter Munro Gould, Larson, Bennet and Munro 35 Plains Road P.O. Box 959 Essex, CT 06426
INTERVENOR	
Springwich Cellular Limited Partnership	Peter J. Tyrrell Senior Attorney Springwich Cellular Limited Partnership 227 Church St., Rm. 1021 New Haven, CT 06506 (203) 771-7381

CERTIFICATION

The undersigned members of the Connecticut Siting Council (Council) hereby certify that they have heard this case, or read the record thereof, in DOCKET NO. 148 - An application of Metro Mobile CTS of Hartford, Inc., for a Certificate of Environmental Compatibility and Public Need for the construction, maintenance, and operation of a cellular telephone tower and associated equipment in the Town of Clinton, Connecticut, and voted as follows to approve the proposed alternate tower site off of Cow Hill Road, approximately 300 feet north of I-95:

Council Members	Vote Cast
Mortimer A. Gelston Chairman	Yes
Commissioner Clifton A. Leonhardt Designee: Commissioner Richard G. Patterson	Yes
Commissioner Timothy R.E. Keeney Designee: Brian Emerick	Absent
Harry E. Covey	Yes
Daniel P. Lynch, Jr.	Yes
Gloria Dibble Pond	Absent
Paulann H. Sheets	Absent
William H. Smith	Yes
Colin C. Tait	Absent

Dated at New Britain, Connecticut, May 5, 1992.

6060E-2

STATE OF CONNECTICUT

CONNECTICUT SITING COUNCIL
136 Main Street, Suite 401
New Britain, Connecticut 06051
Phone: 827-7682

CERTIFICATE

OF

ENVIRONMENTAL COMPATIBILITY AND PUBLIC NEED

DOCKET NO. 148

Pursuant to section 16-50k of the General Statutes of Connecticut, as amended, the Connecticut Siting Council hereby issues a Certificate of Environmental Compatibility and Public Need to Metro Mobile CTS of Hartford, Inc., for the construction, maintenance, and operation of a cellular telephone tower and associated equipment on a six acre parcel off Cow Hill Road approximately 300 feet north of I-95, in the Town of Clinton, Connecticut. This Certificate is issued in accordance with and subject to the terms and conditions set forth in the Decision and Order of the Council on May 5, 1992.

By order of the Council,

Mortimer A. Gelston, Chairman

May 5, 1992

6060E-5

49B COW HILL RD

Location	49B COW HILL RD	**Mblu**	32/ 6/ 48/ H026570/A
Acct#	H0265701	**Owner**	HESER RAYMOND
Assessment	$561,600	**Appraisal**	$802,300
PID	106785	**Building Count**	1

Current Value

Appraisal			
Valuation Year	**Improvements**	**Land**	**Total**
2016	$160,800	$641,500	$802,300
Assessment			
Valuation Year	**Improvements**	**Land**	**Total**
2016	$112,500	$449,100	$561,600

Owner of Record

Owner	HESER RAYMOND	**Sale Price**	$0
Co-Owner	CROWN CASTLE ATLANTIC CO LLC	**Certificate**	
Address	4017 WASHINGTON RD PMB353 MCMURRAY, PA 15317	**Book & Page**	088/ 061
		Sale Date	

Ownership History

Ownership History				
Owner	**Sale Price**	**Certificate**	**Book & Page**	**Sale Date**
HESER RAYMOND	$0		088/ 061	
HESER RAYMOND				

Building Information

Building 1 : Section 1

Year Built:	1993
Living Area:	1104
Replacement Cost:	$176,872
Building Percent Good:	87
Replacement Cost Less Depreciation:	$153,900

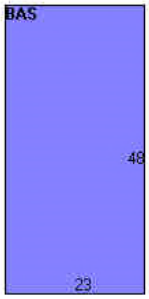
Building Photo

Building Attributes	
Field	**Description**
STYLE	Telephone Bldg
MODEL	Ind/Comm

Grade	Average
Stories:	1
Occupancy	1
Exterior Wall 1	Brick/Masonry
Exterior Wall 2	
Roof Structure	Flat
Roof Cover	Tar & Gravel
Interior Wall 1	Minim/Masonry
Interior Wall 2	
Interior Floor 1	Concr-Finished
Interior Floor 2	
Heating Fuel	Gas
Heating Type	Hot Air-no Duc
AC Type	Central
Bldg Use	TEL X STA MDL-96
Total Rooms	
Total Bedrms	00
Total Baths	0
1st Floor Use:	4300
Heat/AC	NONE
Frame Type	STEEL
Baths/Plumbing	NONE
Ceiling/Wall	NONE
Rooms/Prtns	AVERAGE
Wall Height	12
% Comn Wall	

(http://images.vgsi.com/photos/ClintonCTPhotos//\00\00\07/11.jpg)

Building Layout



Building Sub-Areas (sq ft)			Legend
Code	**Description**	**Gross Area**	**Living Area**
BAS	First Floor	1104	1104
		1104	1104

Extra Features

Extra Features	Legend
No Data for Extra Features	

Land

Land Use

Use Code	4300
Description	TEL X STA MDL-96
Zone	I-P
Neighborhood	1100
Alt Land Appr	No
Category	

Land Line Valuation

Size (Acres)	0.18
Frontage	
Depth	
Assessed Value	$449,100
Appraised Value	$641,500

Outbuildings

Outbuildings						Legend
Code	**Description**	**Sub Code**	**Sub Description**	**Size**	**Value**	**Bldg #**
FN4	FENCE-8' CHAIN			360 L.F.	$900	1
PAV2	PAVING-CONC			1296 S.F.	$2,900	1
SHD5	COMM WOOD			200 S.F.	$3,100	1

Valuation History

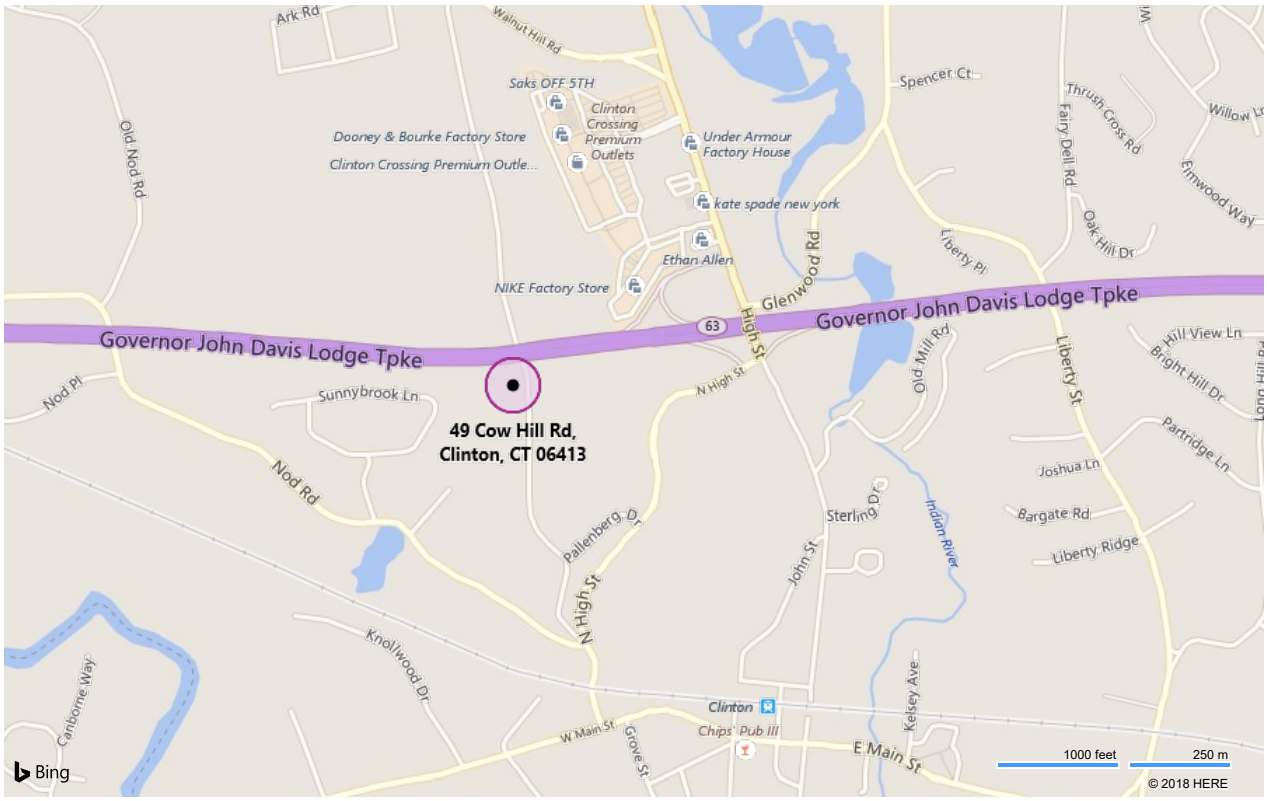
Appraisal			
Valuation Year	**Improvements**	**Land**	**Total**
2010	$131,500	$641,500	$773,000
2009	$203,500	$717,300	$920,800
2005	$203,500	$717,300	$920,800

Assessment			
Valuation Year	**Improvements**	**Land**	**Total**
2010	$92,200	$449,100	$541,300
2009	$142,600	$502,100	$644,700
2005	$142,600	$502,100	$644,700

bing maps

49 Cow Hill Rd, Clinton, CT 06413

Location: 41.28688, -72.53608



SHEET INDEX

NO.	DESCRIPTION
T1	TITLE PAGE
N1	NOTES
C1	PLAN & ELEVATION
C2	RF CHART AND ORIENTATION
D1	EQUIPMENT DETAILS
E1	GROUNDING & ELECTRICAL DETAILS
E2	RF PLUMBING DIAGRAM

TOWER OWNER NOTIFICATION

ONCE THE CONTRACTOR HAS RECEIVED AND ACCEPTED THE NOTICE TO PROCEED, CONTRACTOR WILL CONTACT THE CROWN CASTLE CONSTRUCTION MANAGER OF RECORD (NOTED ON THE FIRST PAGE ON THIS CONSTRUCTION DRAWING) A MINIMUM OF 48 HOURS PRIOR TO WORK START. UPON ARRIVAL TO THE JOB SITE, CONTRACTOR CREW IS REQUIRED CALL 1-800-788-7011 TO NOTIFY THE CROWN CASTLE NOC WORK HAS BEGUN.

T-Mobile

CROWN CASTLE

CBU

806363

SITE ID

CT11030H

SITE NAME

HRT 105943201

SITE ADDRESS

48 COW HILL ROAD
CLINTON, CT 06413

CONFIGURATION

67D04G

PROJECT SITE INFORMATION

SITE ID:	CT11030H	
SITE NAME:	HRT 105943201	
SITE ADDRESS:	48 COW HILL ROAD CLINTON, CT 06413	
PERMITTING JURISDICTION:	CITY OF CLINTON	
COUNTY:	MIDDLESEX	
ZONING:	R-30 (RESIDENCE R 30 DISTRICT)	
SITE COORDINATES:		
LATITUDE:	41°17'20.20"	(NAD 83)
LONGITUDE:	-72°32'18.50"	(NAD 83)
APPLICANT:	T-MOBILE NORTHEAST LLC 103 MONARCH DRIVE LIVERPOOL, NY 13088	

STRUCTURAL ANALYSIS INFORMATION

TOWER ANALYSIS

BASED ON THE STRUCTURAL ANALYSIS COMPLETED BY **INFINIGY** DATED **11/29/2018.** THE EXISTING TOWER IS CAPABLE OF SUPPORTING THE PROPOSED EQUIPMENT CONFIGURATION.

ANTENNA MOUNTS

INFINIGY ENGINEERING HAS NOT EVALUATED THE EXISTING **MOUNTS** FOR THIS SITE, AND ASSUMES NO RESPONSIBILITY FOR ITS STRUCTURAL INTEGRITY. REFER TO PASSING MOUNT ANALYSIS PRIOR TO ANY CONSTRUCTION.

PROJECT TEAM INFORMATION

CLIENT REPRESENTATIVE:	CROWN CASTLE 3 CORPORATE PARK DRIVE SUITE 101 CLIFTON PARK, NY 12065
CLIENT REP. CONTACT:	WILL STONE (518) 373-3543
ENGINEER:	INFINIGY 6865 DEERPATH ROAD SUITE 152 ELKRIDGE, MD 21075
ENGINEER CONTACT:	MATTHEW LIVERETTE (518) 690-0790

SCOPE OF WORK

SCOPE OF WORK:

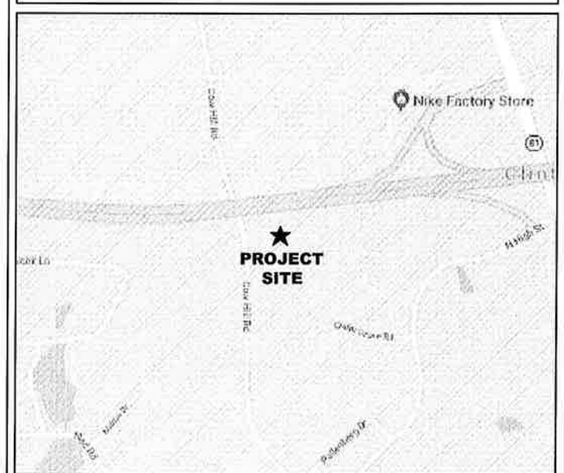
L600 4B OUTDOOR ADDING (3) ANTENNAS. ADDING (3) RRUS.

FINAL CONFIG: (9) ANTENNAS, (3) TMA'S, (12) COAX, (3) RRU'S, (6) HYBRIDS

811 Know what's below. Call before you dig.

TO OBTAIN LOCATION OF PARTICIPANTS UNDERGROUND FACILITIES BEFORE YOU DIG IN CONNECTICUT, CONTACT CALL BEFORE YOU DIG
TOLL FREE: 1-800-922-4455 OR www.cbyd.com
CONNECTICUT STATUTE REQUIRES MIN OF 2 WORKING DAYS NOTICE BEFORE YOU EXCAVATE

LOCATION MAP



GENERAL NOTES

- HANDICAP ACCESS REQUIREMENTS ARE NOT REQUIRED.
- FACILITY IS UNMANNED AND NOT FOR HUMAN HABITATION.
- FACILITY HAS NO PLUMBING OR REFRIGERANTS.
- THIS FACILITY SHALL MEET OR EXCEED ALL FAA AND FCC REGULATORY REQUIREMENTS.
- ALL NEW MATERIAL SHALL BE FURNISHED AND INSTALLED BY CONTRACTOR UNLESS NOTED OTHERWISE. EQUIPMENT, ANTENNAS/RRH AND CABLES FURNISHED BY OWNER AND INSTALLED BY CONTRACTOR.
- THE PROJECT WILL NOT RESULT IN ANY SIGNIFICANT DISTURBANCE OR EFFECT ON STORMWATER DRAINAGE.
- NO SANITARY SEWER, POTABLE WATER, OR TRASH DISPOSAL SERVICE IS REQUIRED
- NO COMMERCIAL SIGNAGE IS PROPOSED

CODE COMPLIANCE

ALL WORK AND MATERIALS SHALL BE PERFORMED AND INSTALLED IN ACCORDANCE WITH THE CURRENT EDITIONS OF THE FOLLOWING CODES AS ADOPTED WITH ANY LOCAL AMENDMENTS BY THE LOCAL GOVERNING AUTHORITIES:

- INTERNATIONAL BUILDING CODE
- NATIONAL ELECTRICAL CODE
- NATIONAL FIRE PROTECTION ASSOCIATION 101
- NATIONAL FIRE PROTECTION ASSOCIATION 1
- LOCAL BUILDING CODES
- CITY/COUNTY ORDINANCES
- AMERICAN-INSTITUTE OF STEEL CONSTRUCTION SPECIFICATIONS (AISC)
- UNDERWRITERS LABORATORIES APPROVED ELECTRICAL PRODUCTS.
- ANSI EIA/TIA 222 REV. G
- TIA 607
- INSTITUTE FOR ELECTRICAL AND ELECTRONICS ENGINEERS 81
- IEEE C2 (LATEST EDITION)
- TELCORDIA GR-1275
- ANSI T1.311

T-Mobile

T-MOBILE NORTHEAST LLC
103 MONARCH DRIVE
LIVERPOOL, NY 13088

INFINIGY

6865 DEERPATH ROAD SUITE 152
ELKRIDGE, MD 21075
TEL (443) 592-3143

STATE OF CONNECTICUT
JOHN S. STEVENS
LICENSED PROFESSIONAL ENGINEER
DEC 24 2018

UNAUTHORIZED ALTERATION OR ADDITION TO THIS DOCUMENT IS A VIOLATION OF APPLICABLE STATE AND/OR LOCAL LAWS

No.	Submittal / Revision	App'd	Date
A	ISSUED FOR REVIEW	CP	11/30/18

Drawn: CP
Designed: MRL
Checked: AJD

Project Number: 600-007

Project Title:
CT11030H
HRT 105943201
48 COW HILL ROAD
CLINTON, CT 06413

Prepared For:
CROWN CASTLE

Drawing Title
TITLE PAGE

Drawing Number
T1

GENERAL NOTES

PART 1 – GENERAL REQUIREMENTS

1.1 THE WORK SHALL COMPLY WITH APPLICABLE NATIONAL CODES AND STANDARDS, LATEST EDITION, AND PORTIONS THEREOF, INCLUDED BUT NOT LIMITED TO THE FOLLOWING:
- A. GR-63-CORE NEBS REQUIREMENTS: PHYSICAL PROTECTION
- B. GR-78-CORE GENERIC REQUIREMENTS FOR THE PHYSICAL DESIGN AND MANUFACTURE OF TELECOMMUNICATIONS EQUIPMENT.
- C. NATIONAL FIRE PROTECTION ASSOCIATION CODES AND STANDARDS (NFPA) INCLUDING NFPA 70 (NATIONAL ELECTRICAL CODE – "NEC").
- D. AND NFPA 101 (LIFE SAFETY CODE).
- E. AMERICAN SOCIETY FOR TESTING OF MATERIALS (ASTM).
- F. INSTITUTE OF ELECTRONIC AND ELECTRICAL ENGINEERS (IEEE).

1.2 DEFINITIONS:
A: WORK: THE SUM OF TASKS AND RESPONSIBILITIES IDENTIFIED IN THE CONTRACT DOCUMENTS.
B: COMPANY: T-MOBILE CORPORATION
C. ENGINEER: SYNONYMOUS WITH ARCHITECT & ENGINEER AND "A&E". THE DESIGN PROFESSIONAL HAVING PROFESSIONAL RESPONSIBILITY FOR DESIGN OF THE PROJECT.
D: CONTRACTOR: CONSTRUCTION CONTRACTOR; CONSTRUCTION VENDOR; INDIVIDUAL OR ENTITY WHO AFTER EXECUTION OF A CONTRACT IS BOUND TO ACCOMPLISH THE WORK.
E: THIRD PARTY VENDOR OR AGENCY: A VENDOR OR AGENCY ENGAGED SEPARATELY BY THE COMPANY, A&E, OR CONTRACTOR TO PROVIDE MATERIALS OR TO ACCOMPLISH SPECIFIC TASKS RELATED TO BUT NOT INCLUDED IN THE WORK.

1.3 POINT OF CONTACT: COMMUNICATION BETWEEN THE COMPANY AND THE CONTRACTOR SHALL FLOW THROUGH THE SINGLE COMPANY SITE DEVELOPMENT SPECIALIST OR OTHER PROJECT COORDINATOR APPOINTED TO MANAGE THE PROJECT FOR THE COMPANY.

1.4 ON-SITE SUPERVISION: THE CONTRACTOR SHALL SUPERVISE AND DIRECT THE WORK AND SHALL BE RESPONSIBLE FOR CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES, AND PROCEDURES IN ACCORDANCE WITH THE CONTRACT DOCUMENTS. THE CONTRACTOR SHALL EMPLOY A COMPETENT SUPERINTENDENT WHO SHALL BE IN ATTENDANCE AT THE SITE AT ALL TIMES DURING PERFORMANCE OF THE WORK.

1.5 DRAWINGS, SPECIFICATIONS AND DETAILS REQUIRED AT JOBSITE: THE CONSTRUCTION CONTRACTOR SHALL MAINTAIN A FULL SET OF THE CONSTRUCTION DRAWINGS, STANDARD CONSTRUCTION DETAILS FOR WIRELESS SITES, AND THE STANDARD CONSTRUCTION SPECIFICATIONS FOR WIRELESS SITES AT THE JOBSITE FROM MOBILIZATION THROUGH CONSTRUCTION COMPLETION.
A. THE JOBSITE DRAWINGS, SPECIFICATIONS AND DETAILS SHALL BE CLEARLY MARKED DAILY IN PENCIL WITH ANY CHANGES IN CONSTRUCTION OVER WHAT IS DEPICTED IN THE DOCUMENTS. AT CONSTRUCTION COMPLETION, THIS JOBSITE MARKUP SET SHALL BE DELIVERED TO THE COMPANY OR COMPANY'S DESIGNATED REPRESENTATIVE TO BE FORWARDED TO THE COMPANY'S A&E VENDOR FOR PRODUCTION OF "AS-BUILT" DRAWINGS.

1.6 USE OF JOB SITE: THE CONTRACTOR SHALL CONFINE ALL CONSTRUCTION AND RELATED OPERATIONS INCLUDING STAGING AND STORAGE OF MATERIALS AND EQUIPMENT, PARKING, TEMPORARY FACILITIES, AND WASTE STORAGE TO THE LEASE PARCEL UNLESS OTHERWISE PERMITTED BY THE CONTRACT DOCUMENTS.

1.7 NOTICE TO PROCEED:
A. NO WORK SHALL COMMENCE PRIOR TO COMPANY'S WRITTEN NOTICE TO PROCEED.
B. UPON RECEIVING NOTICE TO PROCEED, CONTRACTOR SHALL FULLY PERFORM ALL WORK NECESSARY TO PROVIDE T-MOBILE WITH AN OPERATIONAL WIRELESS FACILITY.

PART 2 – EXECUTION

2.1 TEMPORARY UTILITIES AND FACILITIES: THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL TEMPORARY UTILITIES AND FACILITIES NECESSARY EXCEPT AS OTHERWISE INDICATED IN THE CONSTRUCTION DOCUMENTS. TEMPORARY UTILITIES AND FACILITIES INCLUDE, POTABLE WATER, HEAT, HVAC, ELECTRICITY, SANITARY FACILITIES, WASTE DISPOSAL FACILITIES, AND TELEPHONE/COMMUNICATION SERVICES. PROVIDE TEMPORARY UTILITIES AND FACILITIES IN ACCORDANCE WITH OSHA AND THE AUTHORITY HAVING JURISDICTION. CONTRACTOR MAY UTILIZE THE COMPANY ELECTRICAL SERVICE IN THE COMPLETION OF THE WORK WHEN IT BECOMES AVAILABLE. USE OF THE LESSORS OR SITE OWNER'S UTILITIES OR FACILITIES IS EXPRESSLY FORBIDDEN EXCEPT AS OTHERWISE ALLOWED IN THE CONTRACT DOCUMENTS.

2.2 ACCESS TO WORK: THE CONTRACTOR SHALL PROVIDE ACCESS TO THE JOB SITE FOR AUTHORIZED COMPANY PERSONNEL AND AUTHORIZED REPRESENTATIVES OF THE ARCHITECT/ENGINEER DURING ALL PHASES OF THE WORK.

2.3 TESTING: REQUIREMENTS FOR TESTING BY THIS CONTRACTOR SHALL BE AS INDICATED HEREWITH, ON THE CONSTRUCTION DRAWINGS, AND IN THE INDIVIDUAL SECTIONS OF THESE SPECIFICATIONS. SHOULD COMPANY CHOOSE TO ENGAGE ANY THIRD-PARTY TO CONDUCT ADDITIONAL TESTING, THE CONTRACTOR SHALL COOPERATE WITH AND PROVIDE A WORK AREA FOR COMPANY'S TEST AGENCY.

2.4 COMPANY FURNISHED MATERIAL AND EQUIPMENT: ALL HANDLING, STORAGE AND INSTALLATION OF COMPANY FURNISHED MATERIAL AND EQUIPMENT SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF THE CONTRACT DOCUMENTS AND WITH THE MANUFACTURER'S INSTRUCTIONS AND RECOMMENDATIONS.
A. CONTRACTOR SHALL PROCURE ALL OTHER REQUIRED WORK RELATED MATERIALS NOT PROVIDED BY T-MOBILE TO SUCCESSFULLY CONSTRUCT A WIRELESS FACILITY.

2.5 DIMENSIONS: VERIFY DIMENSIONS INDICATED ON DRAWINGS WITH FIELD DIMENSIONS BEFORE FABRICATION OR ORDERING OF MATERIALS. DO NOT SCALE DRAWINGS.

2.6 EXISTING CONDITIONS: NOTIFY THE COMPANY REPRESENTATIVE OF EXISTING CONDITIONS DIFFERING FROM THOSE INDICATED ON THE DRAWINGS. DO NOT REMOVE OR ALTER STRUCTURAL COMPONENTS WITHOUT PRIOR WRITTEN APPROVAL FROM THE ARCHITECT AND ENGINEER.

PART 3 – RECEIPT OF MATERIAL & EQUIPMENT

3.1 RECEIPT OF MATERIAL AND EQUIPMENT: CONTRACTOR IS RESPONSIBLE FOR T-MOBILE PROVIDED MATERIAL AND EQUIPMENT AND UPON RECEIPT SHALL:
- A. ACCEPT DELIVERIES AS SHIPPED AND TAKE RECEIPT.
- B. VERIFY COMPLETENESS AND CONDITION OF ALL DELIVERIES.
- C. TAKE RESPONSIBILITY FOR EQUIPMENT AND PROVIDE INSURANCE PROTECTION AS REQUIRED IN AGREEMENT.
- D. RECORD ANY DEFECTS OR DAMAGES AND WITHIN TWENTY-FOUR HOURS AFTER RECEIPT, REPORT TO T-MOBILE OR ITS DESIGNATED PROJECT REPRESENTATIVE OF SUCH.
- E. PROVIDE SECURE AND NECESSARY WEATHER PROTECTED WAREHOUSING.
- F. COORDINATE SAFE AND SECURE TRANSPORTATION OF MATERIAL AND EQUIPMENT, DELIVERING AND OFF-LOADING FROM CONTRACTOR'S WAREHOUSE TO SITE.

PART 4 – GENERAL REQUIREMENTS FOR CONSTRUCTION

4.1 CONTRACTOR SHALL KEEP THE SITE FREE FROM ACCUMULATING WASTE MATERIAL, DEBRIS, AND TRASH. AT THE COMPLETION OF THE WORK, CONTRACTOR SHALL REMOVE FROM THE SITE ALL REMAINING RUBBISH, IMPLEMENTS, TEMPORARY FACILITIES, AND SURPLUS MATERIALS.

4.2 EQUIPMENT ROOMS SHALL AT ALL TIMES BE MAINTAINED "BROOM CLEAN" AND CLEAR OF DEBRIS.

4.3 CONTRACTOR SHALL TAKE ALL REASONABLE PRECAUTIONS TO DISCOVER AND LOCATE ANY HAZARDOUS CONDITION.
A. IN THE EVENT CONTRACTOR ENCOUNTERS ANY HAZARDOUS CONDITION WHICH HAS NOT BEEN ABATED OR OTHERWISE MITIGATED, CONTRACTOR AND ALL OTHER PERSONS SHALL IMMEDIATELY STOP WORK IN THE AFFECTED AREA AND NOTIFY COMPANY IN WRITING. THE WORK IN THE AFFECTED AREA SHALL NOT BE RESUMED EXCEPT BY WRITTEN NOTIFICATION BY COMPANY.
B. CONTRACTOR AGREES TO USE CARE WHILE ON THE SITE AND SHALL NOT TAKE ANY ACTION THAT WILL OR MAY RESULT IN OR CAUSE THE HAZARDOUS CONDITION TO BE FURTHER RELEASED IN THE ENVIRONMENT, OR TO FURTHER EXPOSE INDIVIDUALS TO THE HAZARD.

4.4 CONTRACTOR'S ACTIVITIES SHALL BE RESTRICTED TO THE PROJECT LIMITS. SHOULD AREAS OUTSIDE THE PROJECT LIMITS BE AFFECTED BY CONTRACTOR'S ACTIVITIES, CONTRACTOR SHALL IMMEDIATELY RETURN THEM TO ORIGINAL CONDITION.

4.5 CONDUCT TESTING AS REQUIRED HEREIN.

PART 5 – TESTS AND INSPECTIONS

5.1 TESTS AND INSPECTIONS:
- A. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL CONSTRUCTION TESTS, INSPECTIONS AND PROJECT DOCUMENTATION.
- B. CONTRACTOR SHALL COORDINATE TEST AND INSPECTION SCHEDULES WITH COMPANY'S REPRESENTATIVE WHO MUST BE ON SITE TO WITNESS SUCH TESTS AND INSPECTIONS.
- C. WHEN THE USE OF A THIRD PARTY INDEPENDENT TESTING AGENCY IS REQUIRED, THE AGENCY THAT IS SELECTED MUST PERFORM SUCH WORK ON A REGULAR BASIS IN THE STATE WHERE THE PROJECT IS LOCATED AND HAVE A THOROUGH UNDERSTANDING OF LOCAL AVAILABLE MATERIALS, INCLUDING THE SOIL, ROCK, AND GROUNDWATER CONDITIONS.
- D. THE THIRD PARTY TESTING AGENCY IS TO BE FAMILIAR WITH THE APPLICABLE REQUIREMENTS FOR THE TESTS TO BE DONE, EQUIPMENT TO BE USED, AND ASSOCIATED HEALTH AND SAFETY ISSUES.
- E. SITE RESISTANCE TO EARTH TESTING PER EXHIBIT: CELL SITE GROUNDING SYSTEM DESIGN.
- F. ANTENNA AND COAX SWEEP TESTS PER EXHIBIT: ANTENNA TRANSMISSION LINE ACCEPTANCE STANDARDS.
- G. ALL OTHER TESTS REQUIRED BY COMPANY OR JURISDICTION.

PART 6 – TRENCHING AND BACKFILLING

6.1 TRENCHING AND BACKFILLING: THE CONTRACTOR SHALL PERFORM ALL EXCAVATION OF EVERY DESCRIPTION AND OF WHATEVER SUBSTANCES ENCOUNTERED, TO THE DEPTHS INDICATED ON THE CONSTRUCTION DRAWINGS OR AS OTHERWISE SPECIFIED.

A. PROTECTION OF EXISTING UTILITIES: THE CONTRACTOR SHALL CHECK WITH THE LOCAL UTILITIES AND THE RESPECTIVE UTILITY LOCATOR COMPANIES PRIOR TO STARTING EXCAVATION OPERATIONS IN EACH RESPECTIVE AREA TO ASCERTAIN THE LOCATIONS OF KNOWN UTILITY LINES. THE LOCATIONS, NUMBER AND TYPES OF EXISTING UTILITY LINES DETAILED ON THE CONSTRUCTION DRAWINGS ARE APPROXIMATE AND DO NOT REPRESENT EXACT INFORMATION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REPAIRING ALL LINES DAMAGED DURING EXCAVATION AND ALL ASSOCIATED OPERATIONS. ALL UTILITY LINES UNCOVERED DURING THE EXCAVATION OPERATIONS, SHALL BE PROTECTED FROM DAMAGE DURING EXCAVATION AND ASSOCIATED OPERATIONS. ALL REPAIRS SHALL BE APPROVED BY THE UTILITY COMPANY.

B. HAND DIGGING: UNLESS APPROVED IN WRITING OTHERWISE, ALL DIGGING WITHIN AN EXISTING CELL SITE COMPOUND IS TO BE DONE BY HAND.

C. DURING EXCAVATION, MATERIAL SUITABLE FOR BACKFILLING SHALL BE STOCKPILED IN AN ORDERLY MANNER A SUFFICIENT DISTANCE FROM THE BANKS OF THE TRENCH TO AVOID OVERLOADING AND TO PREVENT SLIDES OR CAVE-INS. ALL EXCAVATED MATERIALS NOT REQUIRED OR SUITABLE FOR BACKFILL SHALL BE REMOVED AND DISPOSED OF AT THE CONTRACTOR'S EXPENSE.

D. GRADING SHALL BE DONE AS MAY BE NECESSARY TO PREVENT SURFACE WATER FROM FLOWING INTO TRENCHES OR OTHER EXCAVATIONS, AND ANY WATER ACCUMULATING THEREIN SHALL BE REMOVED BY PUMPING OR BY OTHER APPROVED METHOD.

E. SHEETING AND SHORING SHALL BE DONE AS NECESSARY FOR THE PROTECTION OF THE WORK AND FOR THE SAFETY OF PERSONNEL. UNLESS OTHERWISE INDICATED, EXCAVATION SHALL BE BY OPEN CUT, EXCEPT THAT SHORT SECTIONS OF A TRENCH MAY BE TUNNELED IF, THE CONDUIT CAN BE SAFELY AND PROPERLY INSTALLED AND BACKFILL CAN BE PROPERLY TAMPED IN SUCH TUNNEL SECTIONS. EARTH EXCAVATION SHALL COMPRISE ALL MATERIALS AND SHALL INCLUDE CLAY, SILT, SAND, MUCK, GRAVEL, HARDPAN, LOOSE SHALE, AND LOOSE STONE.

F. TRENCHES SHALL BE OF NECESSARY WIDTH FOR THE PROPER LAYING OF THE CONDUIT OR CABLE, AND THE BANKS SHALL BE AS NEARLY VERTICAL AS PRACTICABLE. THE BOTTOM OF THE TRENCHES SHALL BE ACCURATELY GRADED TO PROVIDE UNIFORM BEARING AND SUPPORT FOR EACH SECTION OF THE CONDUIT OR CABLE ON UNDISTURBED SOIL AT EVERY POINT ALONG ITS ENTIRE LENGTH. EXCEPT WHERE ROCK IS ENCOUNTERED, CARE SHALL BE TAKEN NOT TO EXCAVATE BELOW THE DEPTHS INDICATED. WHERE ROCK EXCAVATIONS ARE NECESSARY, THE ROCK SHALL BE EXCAVATED TO A MINIMUM OVER DEPTH OF 6 INCHES BELOW THE TRENCH DEPTHS INDICATED ON THE CONSTRUCTION DRAWINGS OR SPECIFIED. OVER DEPTHS IN THE ROCK EXCAVATION AND UNAUTHORIZED OVER DEPTHS SHALL BE THOROUGHLY BACK FILLED AND TAMPED TO THE APPROPRIATE GRADE. WHENEVER WET OR OTHERWISE UNSTABLE SOIL THAT IS INCAPABLE OF PROPERLY SUPPORTING THE CONDUIT OR CABLE IS ENCOUNTERED IN THE BOTTOM OF THE TRENCH, SUCH SOLID SHALL BE REMOVED TO A MINIMUM OVER DEPTH OF 6 INCHES AND THE TRENCH BACKFILLED TO THE PROPER GRADE WITH EARTH OF OTHER SUITABLE MATERIAL, AS HEREINAFTER SPECIFIED.

G. BACKFILLING OF TRENCHES. TRENCHES SHALL NOT BE BACKFILLED UNTIL ALL SPECIFIED TESTS HAVE BEEN PERFORMED AND ACCEPTED. WHERE COMPACTED BACKFILL IS NOT INDICATED THE TRENCHES SHALL BE CAREFULLY BACKFILLED WITH SELECT MATERIAL SUCH AS EXCAVATED SOILS THAT ARE FREE OF ROOTS, SOD, RUBBISH OR STONES, DEPOSITED IN 6 INCH LAYERS AND THOROUGHLY AND CAREFULLY RAMMED UNTIL THE CONDUIT OR CABLE HAS A COVER OF NOT LESS THAN 1 FOOT. THE REMAINDER OF THE BACKFILL MATERIAL SHALL BE GRANULAR IN NATURE AND SHALL NOT CONTAIN ROOTS, SOD, RUBBING, OR STONES OF 2-1/2 INCH MAXIMUM DIMENSION. BACKFILL SHALL BE CAREFULLY PLACED IN THE TRENCH AND IN 1 FOOT LAYERS AND EACH LAYER TAMPED. SETTLING THE BACKFILL WITH WATER WILL BE PERMITTED. THE SURFACE SHALL BE GRADED TO A REASONABLE UNIFORMITY AND THE MOUNDING OVER THE TRENCHES LEFT IN A UNIFORM AND NEAT CONDITION.

SYMBOL	DESCRIPTION
	CIRCUIT BREAKER
	NON-FUSIBLE DISCONNECT SWITCH
F	FUSIBLE DISCONNECT SWITCH
	SURFACE MOUNTED PANEL BOARD
T	TRANSFORMER
M	KILOWATT HOUR METER
JB	JUNCTION BOX
PB	PULL BOX TO NEC/TELCO STANDARDS
	UNDERGROUND UTILITIES
	EXOTHERMIC WELD CONNECTION
	MECHANICAL CONNECTION
OR	GROUND ROD
OR	GROUND ROD WITH INSPECTION SLEEVE
	GROUND BAR
	120AC DUPLEX RECEPTACLE
G	GROUND CONDUCTOR
	DC POWER AND FIBER OPTIC TRUNK CABLES
E	DC POWER CABLES
# / #	REPRESENTS DETAIL NUMBER / REF. DRAWING NUMBER

ABBREVIATIONS

CIGBE	COAX ISOLATED GROUND BAR EXTERNAL
MIGB	MASTER ISOLATED GROUND BAR
SST	SELF SUPPORTING TOWER
GPS	GLOBAL POSITIONING SYSTEM
TYP.	TYPICAL
DWG	DRAWING
BCW	BARE COPPER WIRE
BFG	BELOW FINISH GRADE
PVC	POLYVINYL CHLORIDE
CAB	CABINET
C	CONDUIT
SS	STAINLESS STEEL
G	GROUND
AWG	AMERICAN WIRE GAUGE
RGS	RIGID GALVANIZED STEEL
AHJ	AUTHORITY HAVING JURISDICTION
TTLNA	TOWER TOP LOW NOISE AMPLIFIER
UNO	UNLESS NOTED OTHERWISE
EMT	ELECTRICAL METALLIC TUBING
AGL	ABOVE GROUND LEVEL

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STATE OF CONNECTICUT
JOHN S. STEVENS
No. 24705
LICENSED PROFESSIONAL ENGINEER
DEC 7 2018

No.	Submittal / Revision	Appd.	Date
A	ISSUED FOR REVIEW	CP	11/30/18

Drawn: CP
Designed: MRL
Checked: AJD

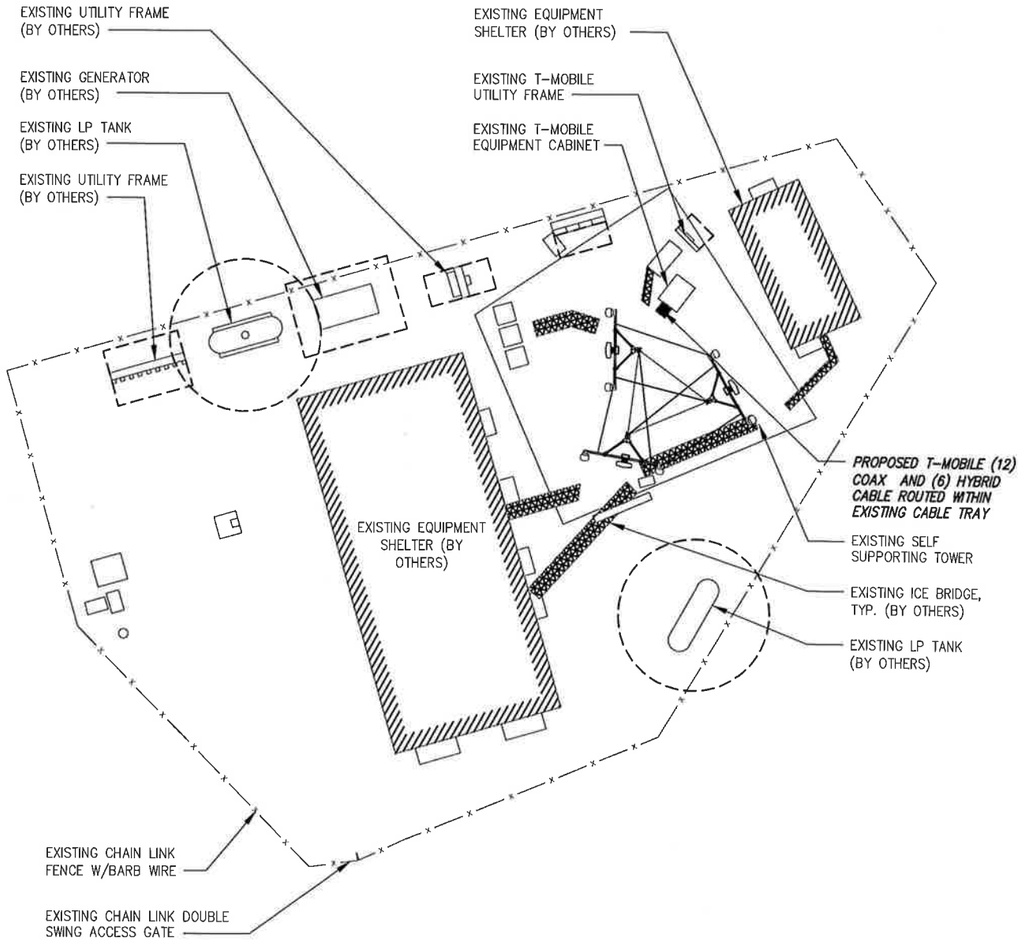
Project Number: 600-007

Project Title:
CT11030H
HRT 105943201
48 COW HILL ROAD
CLINTON, CT 06413

Prepared For:
CROWN CASTLE

Drawing Title
NOTES

Drawing Number
N1



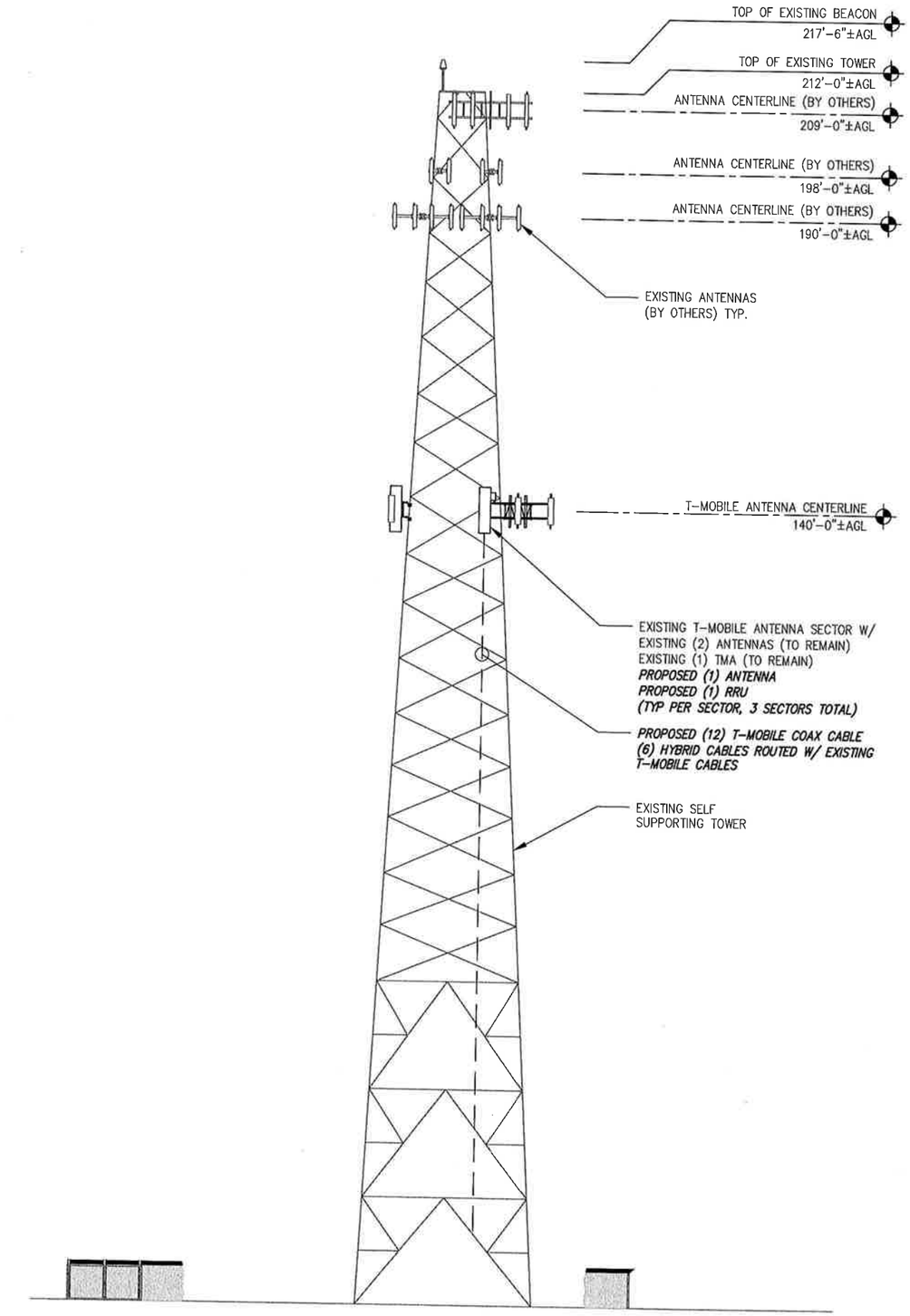
NORTH

1 / C1 PLAN VIEW
SCALE: AS NOTED

GRAPHIC SCALE:

20' 10' 0 10' 20'

SCALE (11x17): 1" = 20'-0"
SCALE (22x34): 1" = 10'-0"



2 / C1 ELEVATION
SCALE: NOT TO SCALE

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PLAN AND ELEVATION

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C1

SECTOR	ANTENNA POSITION	ANTENNA MODEL #	VENDOR	AZIMUTH	M-TILT	E-TILT	ANTENNA CENTERLINE	TMA/RRU MODEL #	CABLE LENGTH	CABLE TYPE AND QUANTITY
ALPHA	A-1	AIR21 B4A/B2P	ERICSSON	60°	0	TBD	140'-0"	-	EXISTING	(1) HYBRID CABLE (SHARED BY ALPHA) (2) 1-5/8" COAX
	A-2	**APXVAARR24_43-U-NA20**	**RFS**	**60°**	0	TBD	**140°**	**RRUS 4449 B12/B71**	**190'±**	**(1) HYBRID CABLE (SHARED BY ALPHA)**
	A-3	AIR21 B2A/B4P	ERICSSON	60°	0	TBD	140'-0"	(1) KRY 112 144/1	EXISTING	(1) HYBRID CABLE (SHARED BY ALPHA) (2) 1-1/4" COAX
BETA	B-1	AIR21 B4A/B2P	ERICSSON	190°	0	TBD	140'-0"	-	EXISTING	(1) HYBRID CABLE (SHARED BY BETA) (2) 1-5/8" COAX
	B-2	**APXVAARR24_43-U-NA20**	**RFS**	**190°**	0	TBD	**140°**	**RRUS 4449 B12/B71**	**190'±**	(1) HYBRID CABLE (SHARED BY BETA) (2) 1-1/4" COAX
	B-3	AIR21 B2A/B4P	ERICSSON	190°	0	TBD	140'-0"	(1) KRY 112 144/1	EXISTING	**(1) HYBRID CABLE (SHARED BY BETA)**
GAMMA	C-1	AIR21 B4A/B2P	ERICSSON	270°	0	TBD	140'-0"	-	EXISTING	(1) HYBRID CABLE (SHARED BY GAMMA) (2) 1-5/8" COAX
	C-2	**APXVAARR24_43-U-NA20**	**RFS**	**270°**	0	TBD	**140°**	**RRUS 4449 B12/B71**	**190'±**	**(1) HYBRID CABLE (SHARED BY GAMMA)**
	C-3	AIR21 B2A/B4P	ERICSSON	270°	0	TBD	140'-0"	(1) KRY 112 144/1	EXISTING	(1) HYBRID CABLE (SHARED BY GAMMA) (2) 1-1/4" COAX

1 C2 RF SYSTEM CHART
SCALE: NOT TO SCALE

KEY

EXISTING
PROPOSED

ANTENNA LOCATION KEY

VIEWED FROM BEHIND

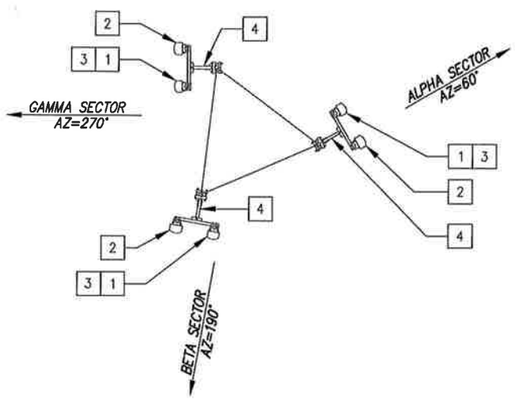
#1 #2 **#3**

GENERAL NOTES:

1. CONTRACTOR TO VERIFY PROPOSED ANTENNA INFORMATION IS THE MOST CURRENT AT TIME OF CONSTRUCTION.
2. CONTRACTOR TO CONFIRM CABLE LENGTHS FOR ANY PROPOSED CABLES/JUMPERS PRIOR TO CONSTRUCTION.

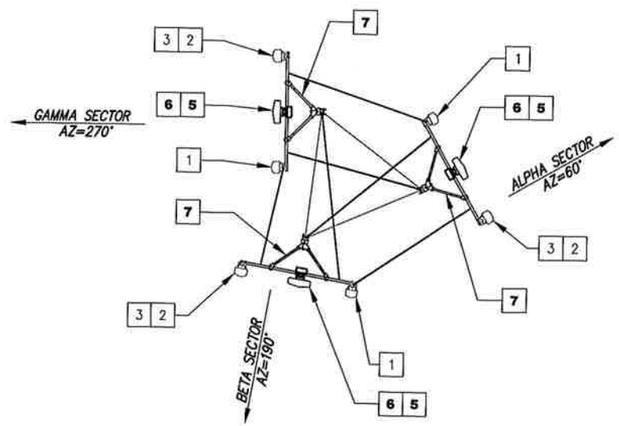
ORIENTATION PLAN KEY

KEY	DESCRIPTION	TYPE	QTY	STATUS
1	AIR21 B4A/B2P	ANTENNA	3	REMAIN
2	AIR21 B2A/B4P	ANTENNA	3	REMAIN
3	KRY 112 114/1	TMA	3	REMAIN
4	T-ARM MOUNT	MOUNT	3	REMOVED
5	**APXVAARR24_43-U-NA20**	**ANTENNA**	**3**	**PROPOSED**
6	**RRUS 4449 B12/B71**	**RRU**	**3**	**PROPOSED**
7	**VFA12-HD**	**MOUNT**	**3**	**PROPOSED**



NORTH

2 C2 EXISTING ANTENNA ORIENTATION
SCALE: NOT TO SCALE



NORTH

3 C2 PROPOSED ANTENNA ORIENTATION
SCALE: NOT TO SCALE

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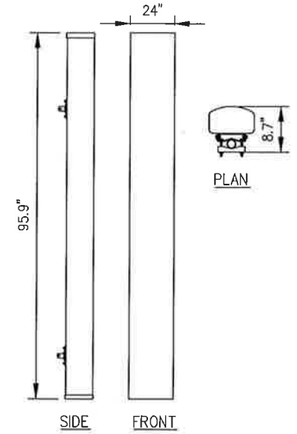
CROWN CASTLE

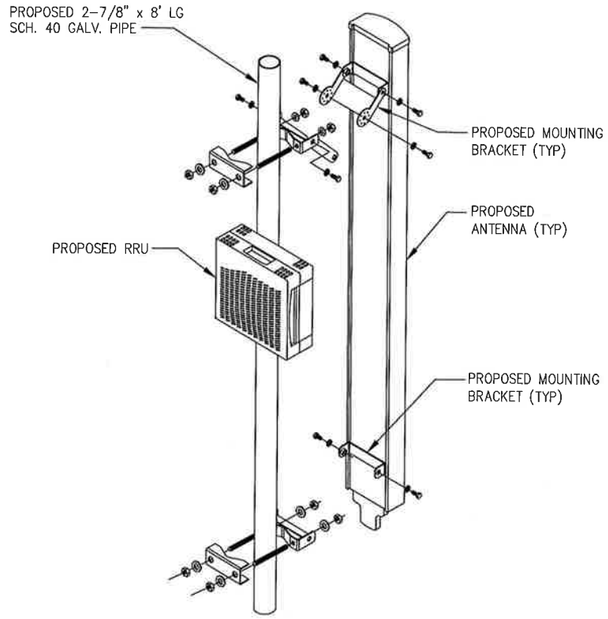
Drawing Title
RF CHART

Drawing Number
C2

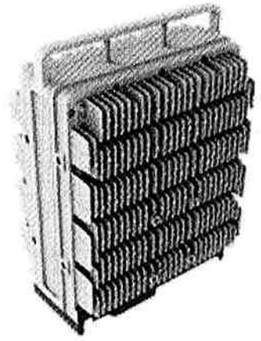


RFS MODEL NO.:	APXVAARR24_43-U-NA20
RADOME MATERIAL:	FIBERGLASS
RADOME COLOR:	LIGHT GREY
DIMENSIONS, HxWxD:	95.9"x24"x8.7"
WEIGHT, W/O MOUNTING KIT:	128 LBS

1 / D1 APX ANTENNA DETAIL
SCALE: NOT TO SCALE



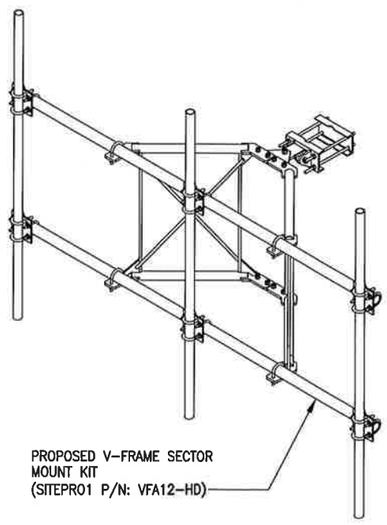
2 / D1 ANTENNA/RRU MOUNTING DETAIL
SCALE: NOT TO SCALE



ERICSSON 4449 B71+B12 SPECIFICATIONS

- HxWxD, (INCHES) : 17.91"x13.19"x10.63"
- WEIGHT (LBS) : 74.96
- COLOR : GRAY

3 / D1 4449 B71+B12 RRU DETAIL
SCALE: NOT TO SCALE



4 / D1 SITEPRO MOUNT DETAIL
SCALE: NOT TO SCALE

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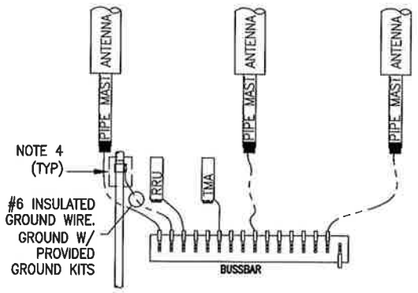
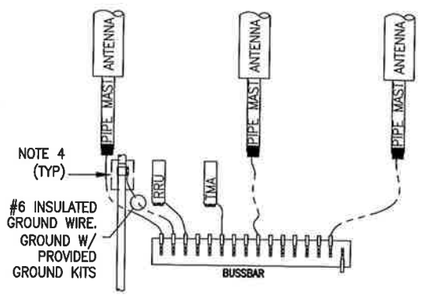
EQUIPMENT DETAILS

Drawing Number
D1

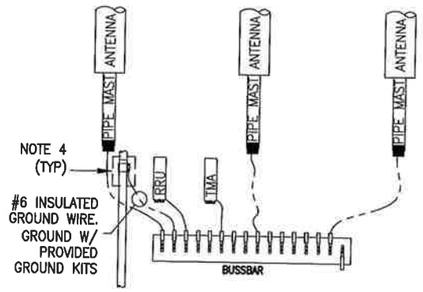
ALPHA SECTOR
(LAYOUT SHOWN GENERICALLY, SEE ANTENNA ORIENTATION)



BETA SECTOR
(LAYOUT SHOWN GENERICALLY, SEE ANTENNA ORIENTATION)

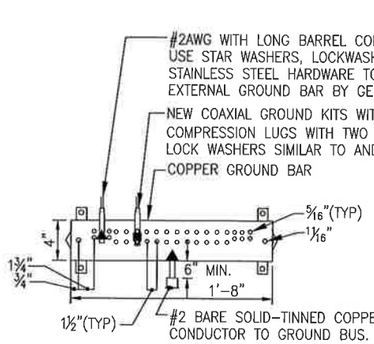


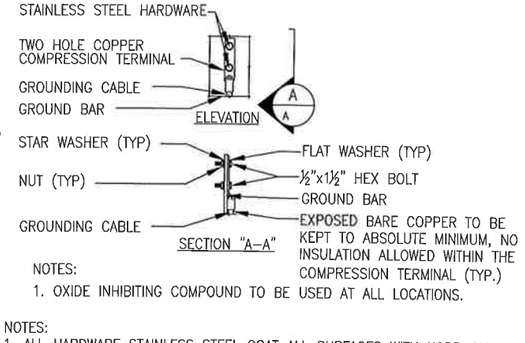
GAMMA SECTOR
(LAYOUT SHOWN GENERICALLY, SEE ANTENNA ORIENTATION)



NOTES:
1. PROVIDE #2AWG GROUNDING CONDUCTOR, U.O.N.
2. PROVIDE BONDING AND GROUNDING CONDUCTORS WITH GREEN TYPE THWN INSULATION, U.O.N.
3. PROVIDE SOLID TINNED BARE COPPER WIRE (BCW) GROUNDING CONDUCTOR.
4. PROVIDE STANDARD COAX OR HYBRID CABLE GROUNDING KIT OR FIELD FABRICATE TO SUIT CONDITIONS. TOTAL LENGTH OF GROUNDING CONDUCTOR SHALL NOT EXCEED 10'-0".
5. PROVIDE GROUNDING ELECTRODES QUANTITY, TYPE AND SIZE AS INDICATED ON SITE GROUNDING PLAN.
6. LEAVE GROUND WIRE COILED UP ABOVE GRADE. CAP END OF CONDUIT.
7. ADD COAX OR HYBRID CABLE GROUND KIT CONNECTION TO BUSSBAR WHEN LENGTH OF CABLE TRAY (FROM TOWER OR MONOPOLE TO EQUIPMENT) IS GREATER THAN 20'-0".
8. ADD #2/0 GREEN INSULATED CONDUCTOR BETWEEN CABLE TRAY AND GRIPSTRUT/COVER.
9. BUSSBARS ARE TO BE TINNED COPPER BARS (¼"X2"X12") MOUNTED ON INSULATORS, U.O.N.
10. GROUND ALL PROPOSED ANTENNAS, DIPLEXERS, TMAS, AND RRUS PER MANU. SPECS.

1 / E1 GROUNDING DIAGRAM
SCALE: NOT TO SCALE

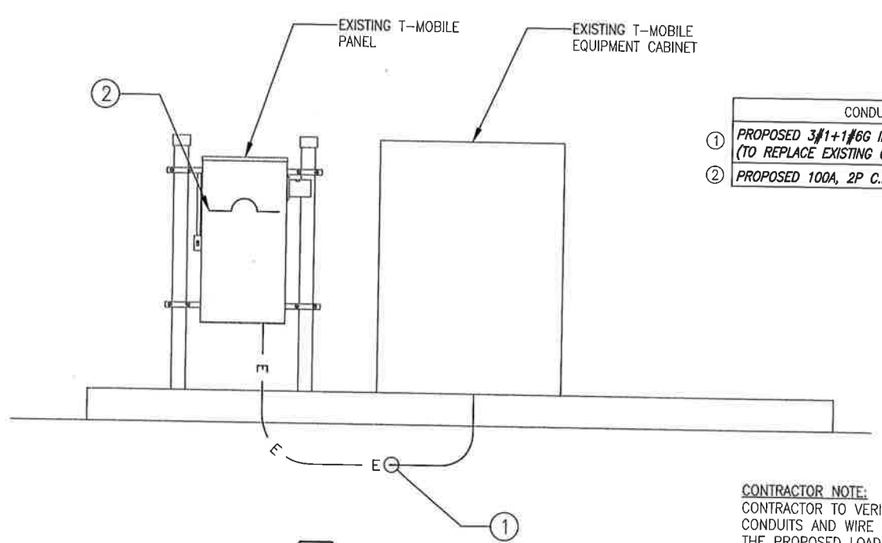




NOTES:
1. OXIDE INHIBITING COMPOUND TO BE USED AT ALL LOCATIONS.

NOTES:
1. ALL HARDWARE STAINLESS STEEL COAT ALL SURFACES WITH KOPR-SHIELD BEFORE MATING.
2. FOR GROUND BOND TO STEEL ONLY: INSERT A TOOTH WASHER BETWEEN LUG AND STEEL, COAT ALL SURFACES WITH KOPR-SHIELD.
3. ALL HOLES ARE COUNTERSUNK 1/16".

2 / E1 GROUND BAR CONNECTION DETAIL
SCALE: NOT TO SCALE



CONDUIT SCHEDULE
① PROPOSED 3#1+1#6G IN 1-1/2" CONDUIT (TO REPLACE EXISTING CONDUCTOR AND CONDUIT)
② PROPOSED 100A, 2P C.B.

3 / E1 ONE LINE DIAGRAM
SCALE: NOT TO SCALE

CONTRACTOR NOTE:
CONTRACTOR TO VERIFY THAT THE EXISTING CONDUITS AND WIRE SIZES ARE ADEQUATE FOR THE PROPOSED LOADING IN ACCORDANCE WITH NEC AND INCLUDE ELECTRICAL UPGRADES IN THE SCOPE OF WORK AS REQUIRED.

T-Mobile
T-MOBILE NORTHEAST LLC
103 MONARCH DRIVE
LIVERPOOL, NY 13088

INFINIGY
6865 DEERPATH ROAD SUITE 152
ELKRIDGE, MD 21075
TEL (443) 592-3143

STATE OF CONNECTICUT
JOHN S. STEVENS
No. 24705
LICENSED PROFESSIONAL ENGINEER
DEC 7 2018

No.	Submittal / Revision	App'd	Date
A	ISSUED FOR REVIEW	CP	11/30/18

Drawn: CP
Designed: MSL
Checked: AJD

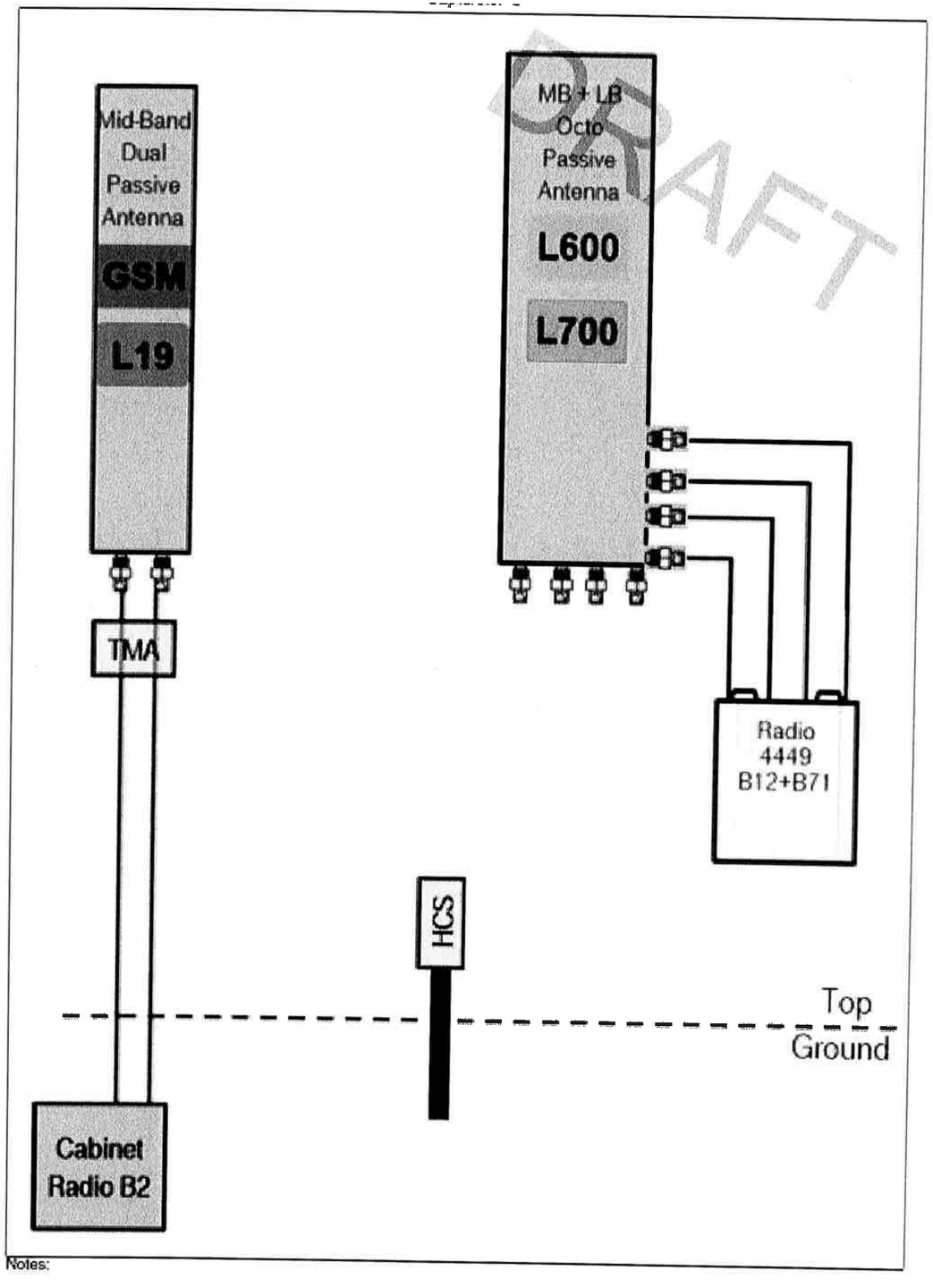
Project Number: 600-007

Project Title:
CT11030H
HRT 105943201
48 COW HILL ROAD
CLINTON, CT 06413

Prepared For:
CROWN CASTLE

Drawing Title
GROUNDING & ELECTRICAL DETAILS

Drawing Number
E1



Notes:

1 / E2 RF PLUMBING DIAGRAM
SCALE: AS NOTED

T-Mobile
T-MOBILE NORTHEAST LLC
103 MONARCH DRIVE
LIVERPOOL, NY 13088

INFINIGY
6865 DEERPATH ROAD SUITE 152
ELKRIDGE, MD 21075
TEL (443) 592-3143

STATE OF CONNECTICUT
JOHN S. STEVENS
LIC. 24795
DEC 7 2018
LICENSED PROFESSIONAL ENGINEER

No	Submittal / Revision	App'd	Date
A	ISSUED FOR REVIEW	CP	11/30/18

Drawn: CP
Designed: MRL
Checked: AJD

Project Number: 600-007

Project Title:
CT11030H
HRT 105943201

48 COW HILL ROAD
CLINTON, CT 06413

Prepared For:
CROWN CASTLE

Drawing Title
RF PLUMBING DIAGRAM

Drawing Number
E2

Date: **November 29, 2018**

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

Infinigy Engineering, PLLC
1033 Watervliet Shaker Road
Albany, NY 12205
518-690-0790
structural@infinigy.com

Subject:	**Structural Analysis Report**	
Carrier Designation:	***T-Mobile* Co-Locate**	
	Carrier Site Number:	CT11030H
	Carrier Site Name:	CLINTON/I-95/X62/Rive1
Crown Castle Designation:	**Crown Castle BU Number:**	806363
	Crown Castle Site Name:	HRT 105 943201
	Crown Castle JDE Job Number:	537517
	Crown Castle Work Order Number:	1659415
	Crown Castle Order Number:	463025 Rev. 2
Engineering Firm Designation:	**Infinity Engineering, PLLC Project Number:**	1039-Z0001-B
Site Data:	**48 COW HILL ROAD, CLINTON, Middlesex County, CT**	
	Latitude *41° 17' 20.2"*, Longitude *-72° 32' 18.5"*	
	212.625 Foot - Self Support Tower	

Dear Kevin Morrow,

Infinity Engineering, PLLC is pleased to submit this **"Structural Analysis Report"** to determine the structural integrity of the above mentioned tower.

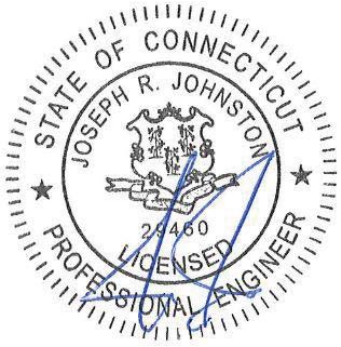
The purpose of the analysis is to determine acceptability of the tower stress level. Based on our analysis we have determined the tower stress level for the structure and foundation, under the following load case, to be:

LC7: Proposed Equipment Configuration **Sufficient Capacity**

This analysis utilizes an ultimate 3-second gust wind speed of 130 mph as required by the 2015 International Building Code and 2018 Connecticut State Building Code. Applicable standard references and design criteria are listed in Section 2 - Analysis Criteria.

Structural analysis prepared by: Jordan Everson, E.I.T.

Respectfully submitted by:
Joe Johnston, P.E.
VP Structural Engineering/Principal
518-690-0790
jjohnston@infinigy.com
CT PE License No. 29460



11/30/2018

TABLE OF CONTENTS

1) INTRODUCTION

This tower is a 212.625 ft Self Support tower designed by ROHN. The tower has been modified per reinforcement drawings prepared by Vertical Structures, Inc. in June of 2007. Reinforcement consists of replacements of redundant diagonal members between elevations 0' and 40' and removal of equipment and mounts at 180' level.

2) ANALYSIS CRITERIA

TIA-222 Revision:	TIA-222-H
Risk Category:	II
Wind Speed:	130 mph
Exposure Category:	B
Topographic Factor:	1
Ice Thickness:	1.5 in
Wind Speed with Ice:	50 mph
Seismic Ss:	0.169
Seismic S1:	0.059
Service Wind Speed:	60 mph

Table 1 – Proposed Equipment Configuration

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
139.0	140.0	3	ericsson	ERICSSON AIR 21 B2A B4P w/ Mount Pipe	9 6 3	1-5/8 1-1/4 1-3/8
		3	ericsson	ERICSSON AIR 21 B4A B2P w/ Mount Pipe		
		3	rfs celwave	APXVAARR24_43-U-NA20 w/ Mount Pipe		
		3	ericsson	KRY 112 144/1		
		3	ericsson	RADIO 4449 B12/B71		
	139.0	3	SitePro1	VFA12-HD		

Table 2 – Other Considered Equipment

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
208.0	209.0	6	antel	LPA-80080/6CF w/ Mount Pipe	2	1-5/8
		3	andrew	SBNHH-1D65B w/ Mount Pipe		
		3	commscope	CBC1923T-DS-43		
		6	commscope	JAHH-65B-R3B w/ Mount Pipe		
		2	rfs celwave	DB-B1-6C-12AB-0Z		
		3	samsung telecommunications	RFV01U-D1A		
		3	samsung telecommunications	RFV01U-D2A		
	208.0	1	tower mounts	Sector Mount [SM 510-3]		
199.0	199.0	1	tower mounts	Sector Mount [SM 505-3]	4	1-1/4
	198.0	3	alcatel lucent	1900MHz RRH (65MHz)		
		3	alcatel lucent	800MHz 2X50W RRH W/FILTER		
		3	alcatel lucent	TD-RRH8x20-25		
		3	rfs celwave	APXVSPP18-C-A20 w/ Mount Pipe		
		3	rfs celwave	APXVTM14-C-120 w/ Mount Pipe		
189.0	190.0	6	adc	DUAL BAND 800/1900 FULL BAND MASTHEAD	12 4 2 2	1-5/8 3/4 13/16 3/8
		9	andrew	SBNHH-1D65A w/ Mount Pipe		
		3	ericsson	RRUS 11		
		3	ericsson	RRUS 32		
		3	ericsson	RRUS 32 B2		
		3	ericsson	RRUS 32 B66		
		3	powerwave technologies	7020.00		
		3	powerwave technologies	7770.00 w/ Mount Pipe		
		2	raycap	DC6-48-60-18-8F		
		1	tower mounts	Sector Mount [SM 510-3]		
183.0	183.0	1	tower mounts	Pipe Mount [PM 601-3]	--	--
		3	rfs celwave	APXV18-206517LS w/ Mount Pipe		
175.0	179.0	2	radiowaves	HPD2-23	4	1/4
	176.0	12	decibel	DB844H90E-XY w/ Mount Pipe		
	175.0	1	tower mounts	Sector Mount [SM 510-3]		
167.0	173.0	1	rfs celwave	1151-3	1 1	7/8 3/8
	167.0	1	tower mounts	Standoff Mount [SO 306-1]		
	160.0	1	sinclair	SD310-HL		
164.0	173.0	1	rfs celwave	1151-3	1	7/8
	164.0	1	tower mounts	Standoff Mount [SO 30-1]		

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
147.0	153.0	1	rfs celwave	1151-3	1	7/8
	147.0	1	tower mounts	Standoff Mount [SO 308-1]		
145.0	148.0	1	sinclair	SD310-HL	1	7/8
	145.0	1	tower mounts	Standoff Mount [SO 308-1]		
128.0	132.0	1	rfs celwave	1142-2C	1	7/8
	128.0	1	tower mounts	Standoff Mount [SO 308-1]		
51.0	51.0	1	tower mounts	Standoff Mount [SO 701-1]	1	1/2
		1	Gps	GPS_A		

3) ANALYSIS PROCEDURE

Table 3 - Documents Provided

Document	Remarks	Reference	Source
3-GEOTECHNICAL REPORTS	Clarence Welti Assoc., Inc.	262276	CCISITES
3-POST-MODIFICATION INSPECTION	Vertical Structures, Inc.	2146143	CCISITES
3-TOWER FOUNDATION DRAWINGS/DESIGN/SPECS	Rohn	262273	CCISITES
3-TOWER MANUFACTURER DRAWINGS	Rohn	262274	CCISITES
3-TOWER REINFORCEMENT DESIGN/DRAWINGS/DATA	Vertical Structures, Inc.	2169576	CCISITES

3.1) Analysis Method

tnxTower (version 8.0.4.0), a commercially available analysis software package, was used to create a three-dimensional model of the tower and calculate member stresses for various loading cases. Selected output from the analysis is included in Appendix A.

3.2) Assumptions

1) Tower and structures were built and maintained in accordance with the manufacturer's specifications.
2) The configuration of antennas, transmission cables, mounts and other appurtenances are as specified in Tables 1 and 2 and the referenced drawings.

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

4) ANALYSIS RESULTS

Table 4 - Section Capacity (Summary)

Section No.	Elevation (ft)	Component Type	Size	Critical Element	P (K)	SF*P_allow (K)	% Capacity	Pass / Fail
T1	212.625 - 202.458	Leg	ROHN 2.5 STD	2	-4.668	59.463	7.8	Pass
T2	202.458 - 182.292	Leg	ROHN 3 EH	28	-27.822	98.582	28.2	Pass
T3	182.292 - 162.104	Leg	ROHN 4 EH	69	-80.026	167.222	47.9	Pass
T4	162.104 - 141.896	Leg	ROHN 5 EH	107	-117.310	250.589	46.8	Pass
T5	141.896 - 121.688	Leg	ROHN 6 EHS	146	-148.620	255.080	58.3	Pass
T6	121.688 - 101.479	Leg	ROHN 6 EH	173	-183.817	317.349	57.9	Pass
T7	101.479 - 81.2708	Leg	ROHN 6 EH	200	-215.554	317.349	67.9	Pass
T8	81.2708 - 61	Leg	ROHN 8 EHS	227	-245.437	411.906	59.6	Pass
T9	61 - 40.6667	Leg	ROHN 8 EHS	254	-274.420	411.621	66.7	Pass
T10	40.6667 - 20.3333	Leg	ROHN 8 EH	281	-287.682	528.398	54.4	Pass
T11	20.3333 - 0	Leg	ROHN 8 EH	314	-314.517	528.520	59.5	Pass
T1	212.625 - 202.458	Diagonal	ROHN 2 STD	12	-3.288	25.020	13.1	Pass
T2	202.458 - 182.292	Diagonal	ROHN 2 STD	38	-9.648	18.418	52.4	Pass
T3	182.292 - 162.104	Diagonal	ROHN 2 STD	78	-9.746	15.917	61.2	Pass
T4	162.104 - 141.896	Diagonal	ROHN 2 STD	110	-9.004	13.677	65.8	Pass
T5	141.896 - 121.688	Diagonal	ROHN 2.5 STD	156	-13.077	17.101	76.5	Pass
T6	121.688 - 101.479	Diagonal	ROHN 2.5 STD	183	-11.906	14.992	79.4	Pass
T7	101.479 - 81.2708	Diagonal	ROHN 3 STD	210	-12.009	25.935	46.3	Pass
T8	81.2708 - 61	Diagonal	ROHN 3 STD	237	-11.842	22.925	51.7	Pass
T9	61 - 40.6667	Diagonal	ROHN 3 STD	264	-12.736	20.121	63.3	Pass
T10	40.6667 - 20.3333	Diagonal	ROHN 3 STD	303	-17.822	32.714	54.5	Pass
T11	20.3333 - 0	Diagonal	ROHN 3 STD	336	-20.346	31.089	65.4	Pass
T1	212.625 - 202.458	Horizontal	ROHN 1.5 STD	10	-2.314	23.711	9.8	Pass
T2	202.458 - 182.292	Horizontal	ROHN 1.5 STD	37	-5.159	23.646	21.8	Pass
T3	182.292 - 162.104	Horizontal	ROHN 1.5 STD	76	-6.223	20.100	31.0	Pass
T4	162.104 - 141.896	Horizontal	ROHN 2 STD	109	-6.265	28.569	21.9	Pass
T5	141.896 - 121.688	Horizontal	ROHN 2 STD	154	-7.804	23.772	32.8	Pass
T6	121.688 - 101.479	Horizontal	ROHN 2 STD	181	-7.752	17.707	43.8	Pass
T7	101.479 - 81.2708	Horizontal	ROHN 2.5 STD	208	-8.315	30.294	27.4 28.7 (b)	Pass
T8	81.2708 - 61	Horizontal	ROHN 2.5 STD	235	-8.598	23.680	36.3	Pass

Section No.	Elevation (ft)	Component Type	Size	Critical Element	P (K)	SF*P_allow (K)	% Capacity	Pass / Fail
T9	61 - 40.6667	Horizontal	ROHN 2.5 STD	262	-9.581	18.728	51.2	Pass
T10	40.6667 - 20.3333	Horizontal	ROHN 3 STD	299	-9.706	33.261	29.2	Pass
T11	20.3333 - 0	Horizontal	ROHN 3 STD	332	-11.534	27.041	42.7	Pass
T1	212.625 - 202.458	Top Girt	ROHN 1.5 STD	5	-0.257	23.767	1.1	Pass
T10	40.6667 - 20.3333	Redund Horz 1 Bracing	ROHN 1.5 STD	288	-4.993	13.657	36.6	Pass
T11	20.3333 - 0	Redund Horz 1 Bracing	ROHN 1.5 STD	321	-5.456	11.606	47.0	Pass
T10	40.6667 - 20.3333	Redund Diag 1 Bracing	ROHN 2 STD	289	-4.612	9.270	49.8	Pass
T11	20.3333 - 0	Redund Diag 1 Bracing	ROHN 2 STD	322	-4.712	8.517	55.3	Pass
T10	40.6667 - 20.3333	Redund Hip 1 Bracing	ROHN 1.5 STD	306	-0.050	12.533	0.4	Pass
T11	20.3333 - 0	Redund Hip 1 Bracing	ROHN 1.5 STD	339	-0.052	10.543	0.5	Pass
T10	40.6667 - 20.3333	Redund Hip Diagonal 1 Bracing	ROHN 2.5 STD	309	-0.078	10.900	0.7	Pass
T11	20.3333 - 0	Redund Hip Diagonal 1 Bracing	ROHN 2.5 STD	342	-0.073	9.815	0.7	Pass
T1	212.625 - 202.458	Inner Bracing	L2x2x1/8	16	-0.004	8.802	0.4	Pass
T2	202.458 - 182.292	Inner Bracing	L2x2x1/8	41	-0.006	8.646	0.4	Pass
T3	182.292 - 162.104	Inner Bracing	L2x2x1/8	80	-0.006	6.373	0.5	Pass
T4	162.104 - 141.896	Inner Bracing	L2x2x1/8	120	-0.006	4.367	0.6	Pass
T5	141.896 - 121.688	Inner Bracing	L2x2x1/8	157	-0.009	3.300	0.7	Pass
T6	121.688 - 101.479	Inner Bracing	L2 1/2x2 1/2x3/16	184	-0.010	6.951	0.5	Pass
T7	101.479 - 81.2708	Inner Bracing	L3x3x3/16	213	-0.013	9.153	0.6	Pass
T8	81.2708 - 61	Inner Bracing	L3 1/2x3 1/2x1/4	240	-0.015	14.894	0.4	Pass
T9	61 - 40.6667	Inner Bracing	L3 1/2x3 1/2x1/4	267	-0.015	11.869	0.4	Pass
T10	40.6667 - 20.3333	Inner Bracing	ROHN 3 STD	311	-0.019	31.363	0.4	Pass
T11	20.3333 - 0	Inner Bracing	ROHN 3 STD	345	-0.016	25.662	0.3	Pass
							Summary	
						Leg (T7)	67.9	Pass
						Diagonal (T6)	79.4	Pass
						Horizontal (T9)	51.2	Pass
						Top Girt (T1)	1.1	Pass
						Redund Horz 1 Bracing (T11)	47.0	Pass
						Redund Diag 1 Bracing	55.3	Pass

Section No.	Elevation (ft)	Component Type	Size	Critical Element	P (K)	SF*P_allow (K)	% Capacity	Pass / Fail
						(T11)		
						Redund Hip 1 Bracing (T11)	0.5	Pass
						Redund Hip Diagonal 1 Bracing (T11)	0.7	Pass
						Inner Bracing (T5)	0.7	Pass
						Bolt Checks	51.5	Pass
						Rating =	79.4	Pass

Table 5 - Tower Component Stresses vs. Capacity – LC7

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
1	Anchor Rods	0	53.3	Pass
1	Base Foundation	0	22.5	Pass
1	Base Foundation Soil Interaction	0	47.8	Pass

Structure Rating (max from all components) =	79.4%

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

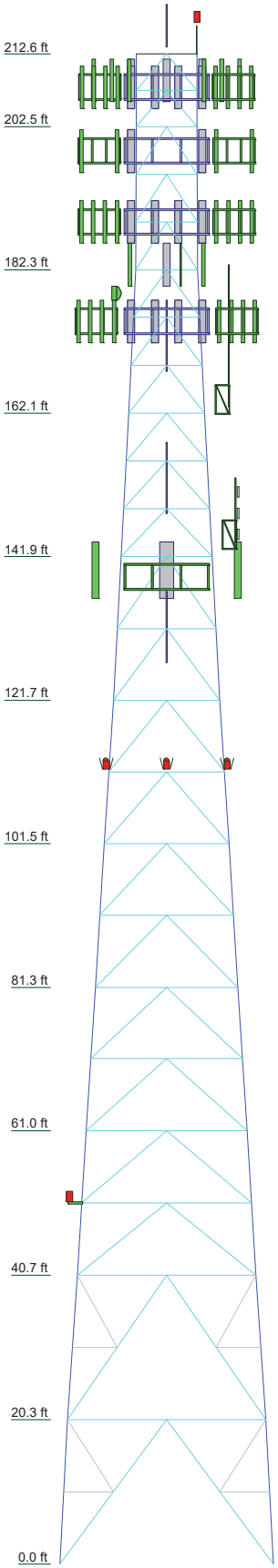
4.1) Recommendations

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

APPENDIX A

TNXTOWER OUTPUT

Section	T11	T10	T9	T8	T7	T6	T5	T4	T3	T2	T1
Legs	ROHN 8 EH		ROHN 8 EHS		ROHN 6 EH		ROHN 6 EHS	ROHN 5 EH	ROHN 4 EH	ROHN 3 EH	A
Leg Grade				A572-50							
Diagonals			ROHN 3 STD		ROHN 2.5 STD			ROHN 2 STD			
Diagonal Grade				A572-50							
Top Girts				N.A.							B
Horizontals	ROHN 3 STD			ROHN 2.5 STD			ROHN 2 STD		ROHN 1.5 STD		
Red. Horizontals	ROHN 1.5 STD						N.A.				
Red. Diagonals	ROHN 2 STD						N.A.				
Red. Hips	ROHN 1.5 STD						N.A.				
Inner Bracing	ROHN 3 STD		L3 1/2x3 1/2x1/4		L3x3x3/16	L2 1/2x2 1/2x3/16		L2x2x1/8			
Face Width (ft)	30.0417	25.1771	22.6771	20.0417	17.5417	15.0417	12.7917	10.7083	8.625	8.54167	8.5
# Panels @ (ft)		2 @ 20.3333	2 @ 10.1667	2 @ 10.1354		6 @ 10.1042		3 @ 6.73611	3 @ 6.72917	3 @ 6.72222	2 @ 5.08333
Weight (K)	35.7	5.5	5.3	4.7	4.5	3.8	3.1	2.6	2.3	1.8	1.4	0.6



SYMBOL LIST

MARK	SIZE	MARK	SIZE
A	ROHN 2.5 STD	B	ROHN 1.5 STD

MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A572-50	50 ksi	65 ksi			

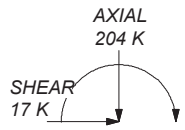
TOWER DESIGN NOTES

1. Tower is located in Middlesex County, Connecticut.
2. Tower designed for Exposure B to the TIA-222-H Standard.
3. Tower designed for a 130 mph basic wind in accordance with the TIA-222-H Standard.
4. Tower is also designed for a 50 mph basic wind with 1.27 in ice. Ice is considered to increase in thickness with height.
5. Deflections are based upon a 60 mph wind.
6. Tower Risk Category II.
7. Topographic Category 1 with Crest Height of 0.000 ft
8. TIA-222-H Annex S
9. TOWER RATING: 79.4%

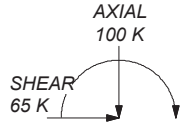
ALL REACTIONS ARE FACTORED

MAX. CORNER REACTIONS AT BASE:
DOWN: 344 K
SHEAR: 39 K

UPLIFT: -285 K
SHEAR: 35 K



TORQUE 22 kip-ft
50 mph WIND - 1.275 in ICE



TORQUE 68 kip-ft
REACTIONS - 130 mph WIND

INFINIGY
Infinigy Engineering PLLC
Infinity Engineering
26455 Rancho Parkway South
Lake Forest, CA 92630
Phone: 402-880-3002
FAX:

Job: ***HRT 105 943201 BU# 806869***			
Project: ***1039-Z0001-B***			
Client: Crown Castle	Drawn by: jeverson		App'd:
Code: TIA-222-H	Date: 11/29/18		Scale: NTS
Path:			Dwg No. E-1

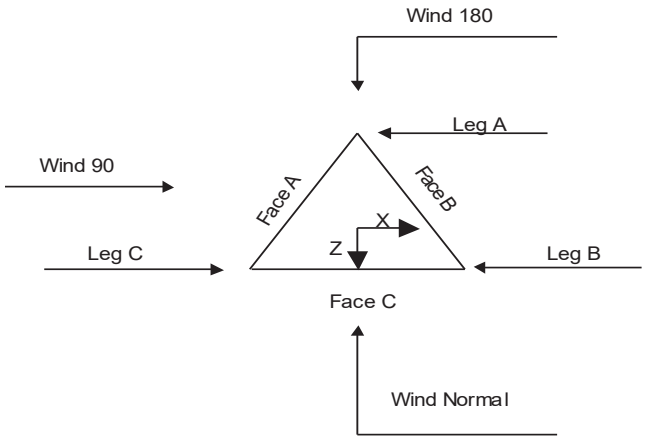
Tower Input Data

The main tower is a 3x free standing tower with an overall height of 212.625 ft above the ground line.
The base of the tower is set at an elevation of 0.000 ft above the ground line.
The face width of the tower is 8.500 ft at the top and 30.042 ft at the base.
This tower is designed using the TIA-222-H standard.
The following design criteria apply:

1) Tower is located in Middlesex County, Connecticut.
2) Tower base elevation above sea level: 18.950 ft.
3) Basic wind speed of 130 mph.
4) Risk Category II.
5) Exposure Category B.
6) Simplified Topographic Factor Procedure for wind speed-up calculations is used.
7) Topographic Category: 1.
8) Crest Height 0.000 ft.
9) Nominal ice thickness of 1.275 in.
10) Ice thickness is considered to increase with height.
11) Ice density of 56.000 pcf.
12) A wind speed of 50 mph is used in combination with ice.
13) Temperature drop of 50.000 °F.
14) Deflections calculated using a wind speed of 60 mph.
15) TIA-222-H Annex S.
16) A non-linear (P-delta) analysis was used.
17) Pressures are calculated at each section.
18) Stress ratio used in tower member design is 1.05.
19) 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-H Bracing Resist. Exemption
√	Include Bolts In Member Capacity		Autocalc Torque Arm Areas		Use TIA-222-H 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		Ignore KL/ry For 60 Deg. Angle Legs		Pole Without Linear Attachments
					Pole With Shroud Or No Appurtenances
					Outside and Inside Corner Radii Are Known



Triangular Tower

Tower Section Geometry

Tower Section	Tower Elevation ft	Assembly Database	Description	Section Width ft	Number of Sections	Section Length ft
T1	212.625-202.458			8.500	1	10.167
T2	202.458-182.292			8.542	1	20.167
T3	182.292-162.104			8.625	1	20.188
T4	162.104-141.896			10.708	1	20.208
T5	141.896-121.688			12.792	1	20.208
T6	121.688-101.479			15.042	1	20.208
T7	101.479-81.271			17.542	1	20.208
T8	81.271-61.000			20.042	1	20.271
T9	61.000-40.667			22.677	1	20.333
T10	40.667-20.333			25.177	1	20.333
T11	20.333-0.000			27.833	1	20.333

Tower Section Geometry *(cont'd)*

Tower Section	Tower Elevation ft	Diagonal Spacing ft	Bracing Type	Has K Brace End Panels	Has Horizontals	Top Girt Offset in	Bottom Girt Offset in
T1	212.625-202.458	5.083	K Brace Down	No	Yes	0.000	0.000
T2	202.458-182.292	6.722	K Brace Down	No	Yes	0.000	0.000
T3	182.292-162.104	6.729	K Brace Down	No	Yes	0.000	0.000

Tower Section	Tower Elevation ft	Diagonal Spacing ft	Bracing Type	Has K Brace End Panels	Has Horizontals	Top Girt Offset in	Bottom Girt Offset in
T4	162.104-141.896	6.736	K Brace Down	No	Yes	0.000	0.000
T5	141.896-121.688	10.104	K Brace Down	No	Yes	0.000	0.000
T6	121.688-101.479	10.104	K Brace Down	No	Yes	0.000	0.000
T7	101.479-81.271	10.104	K Brace Down	No	Yes	0.000	0.000
T8	81.271-61.000	10.135	K Brace Down	No	Yes	0.000	0.000
T9	61.000-40.667	10.167	K Brace Down	No	Yes	0.000	0.000
T10	40.667-20.333	20.333	K1 Down	No	Yes	0.000	0.000
T11	20.333-0.000	20.333	K1 Down	No	Yes	0.000	0.000

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Leg Type	Leg Size	Leg Grade	Diagonal Type	Diagonal Size	Diagonal Grade
T1 212.625-202.458	Pipe	ROHN 2.5 STD	A572-50 (50 ksi)	Pipe	ROHN 2 STD	A572-50 (50 ksi)
T2 202.458-182.292	Pipe	ROHN 3 EH	A572-50 (50 ksi)	Pipe	ROHN 2 STD	A572-50 (50 ksi)
T3 182.292-162.104	Pipe	ROHN 4 EH	A572-50 (50 ksi)	Pipe	ROHN 2 STD	A572-50 (50 ksi)
T4 162.104-141.896	Pipe	ROHN 5 EH	A572-50 (50 ksi)	Pipe	ROHN 2 STD	A572-50 (50 ksi)
T5 141.896-121.688	Pipe	ROHN 6 EHS	A572-50 (50 ksi)	Pipe	ROHN 2.5 STD	A572-50 (50 ksi)
T6 121.688-101.479	Pipe	ROHN 6 EH	A572-50 (50 ksi)	Pipe	ROHN 2.5 STD	A572-50 (50 ksi)
T7 101.479-81.271	Pipe	ROHN 6 EH	A572-50 (50 ksi)	Pipe	ROHN 3 STD	A572-50 (50 ksi)
T8 81.271-61.000	Pipe	ROHN 8 EHS	A572-50 (50 ksi)	Pipe	ROHN 3 STD	A572-50 (50 ksi)
T9 61.000-40.667	Pipe	ROHN 8 EHS	A572-50 (50 ksi)	Pipe	ROHN 3 STD	A572-50 (50 ksi)
T10 40.667-20.333	Pipe	ROHN 8 EH	A572-50 (50 ksi)	Pipe	ROHN 3 STD	A572-50 (50 ksi)
T11 20.333-0.000	Pipe	ROHN 8 EH	A572-50 (50 ksi)	Pipe	ROHN 3 STD	A572-50 (50 ksi)

Tower Section Geometry *(cont'd)*

Tower Elevation ft	No. of Mid Girts	Mid Girt Type	Mid Girt Size	Mid Girt Grade	Horizontal Type	Horizontal Size	Horizontal Grade
T1 212.625-202.458	None	Single Angle		A572-50 (50 ksi)	Pipe	ROHN 1.5 STD	A572-50 (50 ksi)
T2 202.458-182.292	None	Single Angle		A572-50 (50 ksi)	Pipe	ROHN 1.5 STD	A572-50 (50 ksi)
T3 182.292-162.104	None	Single Angle		A572-50 (50 ksi)	Pipe	ROHN 1.5 STD	A572-50 (50 ksi)
T4 162.104-141.896	None	Single Angle		A572-50 (50 ksi)	Pipe	ROHN 2 STD	A572-50 (50 ksi)
T5 141.896-121.688	None	Single Angle		A572-50 (50 ksi)	Pipe	ROHN 2 STD	A572-50 (50 ksi)
T6 121.688-101.479	None	Single Angle		A572-50 (50 ksi)	Pipe	ROHN 2 STD	A572-50 (50 ksi)
T7 101.479-81.271	None	Single Angle		A572-50 (50 ksi)	Pipe	ROHN 2.5 STD	A572-50 (50 ksi)

Tower Elevation ft	No. of Mid Girts	Mid Girt Type	Mid Girt Size	Mid Girt Grade	Horizontal Type	Horizontal Size	Horizontal Grade
T8 81.271-61.000	None	Single Angle		A572-50 (50 ksi)	Pipe	ROHN 2.5 STD	A572-50 (50 ksi)
T9 61.000-40.667	None	Single Angle		A572-50 (50 ksi)	Pipe	ROHN 2.5 STD	A572-50 (50 ksi)
T10 40.667-20.333	None	Single Angle		A572-50 (50 ksi)	Pipe	ROHN 3 STD	A572-50 (50 ksi)
T11 20.333-0.000	None	Single Angle		A572-50 (50 ksi)	Pipe	ROHN 3 STD	A572-50 (50 ksi)

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Secondary Horizontal Type	Secondary Horizontal Size	Secondary Horizontal Grade	Inner Bracing Type	Inner Bracing Size	Inner Bracing Grade
T1 212.625-202.458	Single Angle		A572-50 (50 ksi)	Equal Angle	L2x2x1/8	A36 (36 ksi)
T2 202.458-182.292	Single Angle		A572-50 (50 ksi)	Equal Angle	L2x2x1/8	A36 (36 ksi)
T3 182.292-162.104	Single Angle		A572-50 (50 ksi)	Equal Angle	L2x2x1/8	A36 (36 ksi)
T4 162.104-141.896	Single Angle		A572-50 (50 ksi)	Equal Angle	L2x2x1/8	A36 (36 ksi)
T5 141.896-121.688	Single Angle		A572-50 (50 ksi)	Equal Angle	L2x2x1/8	A36 (36 ksi)
T6 121.688-101.479	Single Angle		A572-50 (50 ksi)	Equal Angle	L2 1/2x2 1/2x3/16	A36 (36 ksi)
T7 101.479-81.271	Single Angle		A572-50 (50 ksi)	Equal Angle	L3x3x3/16	A36 (36 ksi)
T8 81.271-61.000	Single Angle		A572-50 (50 ksi)	Equal Angle	L3 1/2x3 1/2x1/4	A572-50 (50 ksi)
T9 61.000-40.667	Single Angle		A572-50 (50 ksi)	Equal Angle	L3 1/2x3 1/2x1/4	A572-50 (50 ksi)
T10 40.667-20.333	Single Angle		A572-50 (50 ksi)	Pipe	ROHN 3 STD	A572-50 (50 ksi)
T11 20.333-0.000	Single Angle		A572-50 (50 ksi)	Pipe	ROHN 3 STD	A572-50 (50 ksi)

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Redundant Bracing Grade		Redundant Type	Redundant Size	K Factor
T10 40.667-20.333	A36 (36 ksi)	Horizontal (1)	Pipe	ROHN 1.5 STD	1
		Diagonal (1)	Pipe	ROHN 2 STD	1
		Hip (1)	Pipe	ROHN 1.5 STD	1
		Hip Diagonal (1)	Pipe	ROHN 2.5 STD	1
T11 20.333-0.000	A36 (36 ksi)	Horizontal (1)	Pipe	ROHN 1.5 STD	1
		Diagonal (1)	Pipe	ROHN 2 STD	1
		Hip (1)	Pipe	ROHN 1.5 STD	1
		Hip Diagonal (1)	Pipe	ROHN 2.5 STD	1

Tower Section Geometry *(cont'd)*

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
T1 212.625-202.458	0.000	0.000	A36 (36 ksi)	1	1	1	Mid-Pt	Mid-Pt	Mid-Pt
T2 202.458-182.292	0.000	0.000	A36 (36 ksi)	1	1	1	Mid-Pt	Mid-Pt	Mid-Pt
T3 182.292-162.104	0.000	0.000	A36 (36 ksi)	1	1	1	Mid-Pt	Mid-Pt	Mid-Pt
T4 162.104-141.896	0.000	0.000	A36 (36 ksi)	1	1	1	Mid-Pt	Mid-Pt	Mid-Pt
T5 141.896-121.688	0.000	0.000	A36 (36 ksi)	1	1	1	Mid-Pt	Mid-Pt	Mid-Pt
T6 121.688-101.479	0.000	0.000	A36 (36 ksi)	1	1	1	Mid-Pt	Mid-Pt	Mid-Pt
T7 101.479-81.271	0.000	0.000	A36 (36 ksi)	1	1	1	Mid-Pt	Mid-Pt	Mid-Pt
T8 81.271-61.000	0.000	0.000	A36 (36 ksi)	1	1	1	Mid-Pt	Mid-Pt	Mid-Pt
T9 61.000-40.667	0.000	0.000	A36 (36 ksi)	1	1	1	Mid-Pt	Mid-Pt	Mid-Pt
T10 40.667-20.333	0.000	0.000	A36 (36 ksi)	1	1	1	Mid-Pt	Mid-Pt	Mid-Pt
T11 20.333-0.000	0.000	0.000	A36 (36 ksi)	1	1	1	Mid-Pt	Mid-Pt	Mid-Pt

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Calc K Single Angles	Calc K Solid Rounds	K Factors[1] Legs	X Brace Diags X Y	K Brace Diags X Y	Single Diags X Y	Girts X Y	Horiz. X Y	Sec. Horiz. X Y	Inner Brace X Y
T1 212.625-202.458	Yes	No	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
T2 202.458-182.292	Yes	No	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
T3 182.292-162.104	Yes	No	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
T4 162.104-141.896	Yes	No	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
T5 141.896-121.688	Yes	No	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
T6 121.688-101.479	Yes	No	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
T7 101.479-81.271	Yes	No	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
T8 81.271-61.000	Yes	No	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
T9 61.000-40.667	Yes	No	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
T10 40.667-20.333	No	No	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
T11 20.333-0.000	No	No	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1

[1]*Note: K factors are applied to member segment lengths. K-braces without inner supporting members will have the K factor in the out-of-plane direction applied to the overall length.*

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Leg		Diagonal		Top Girt		Bottom Girt		Mid Girt		Long Horizontal		Short Horizontal	
	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U
T1 212.625-202.458	0.000	1	0.000	1	0.000	0.75	0.000	0.75	0.000	0.75	0.000	1	0.000	0.75
T2 202.458-182.292	0.000	1	0.000	1	0.000	0.75	0.000	0.75	0.000	0.75	0.000	1	0.000	0.75
T3 182.292-162.104	0.000	1	0.000	1	0.000	0.75	0.000	0.75	0.000	0.75	0.000	1	0.000	0.75
T4 162.104-141.896	0.000	1	0.000	1	0.000	0.75	0.000	0.75	0.000	0.75	0.000	1	0.000	0.75
T5 141.896-121.688	0.000	1	0.000	1	0.000	0.75	0.000	0.75	0.000	0.75	0.000	1	0.000	0.75
T6 121.688-101.479	0.000	1	0.000	1	0.000	0.75	0.000	0.75	0.000	0.75	0.000	1	0.000	0.75
T7 101.479-81.271	0.000	1	0.000	1	0.000	0.75	0.000	0.75	0.000	0.75	0.000	1	0.000	0.75
T8 81.271-61.000	0.000	1	0.000	1	0.000	0.75	0.000	0.75	0.000	0.75	0.000	1	0.000	0.75
T9 61.000-40.667	0.000	1	0.000	1	0.000	0.75	0.000	0.75	0.000	0.75	0.000	1	0.000	0.75
T10 40.667-20.333	0.000	1	0.000	1	0.000	0.75	0.000	0.75	0.000	0.75	0.000	1	0.000	0.75
T11 20.333-0.000	0.000	1	0.000	1	0.000	0.75	0.000	0.75	0.000	0.75	0.000	1	0.000	0.75

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Leg Connection Type	Leg		Diagonal		Top Girt		Bottom Girt		Mid Girt		Long Horizontal		Short Horizontal	
		Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.
T1 212.625-202.458	Flange	0.750 A325N	4	0.625 A325N	3	0.625 A325N	0	0.625 A325X	0	0.625 A325X	0	0.625 A325N	2	0.625 A325X	0
T2 202.458-182.292	Flange	0.875 A325N	4	0.625 A325N	3	0.625 A325N	0	0.625 A325X	0	0.625 A325X	0	0.625 A325N	2	0.625 A325X	0
T3 182.292-162.104	Flange	1.000 A325N	4	0.625 A325N	3	0.625 A325N	0	0.625 A325X	0	0.625 A325X	0	0.625 A325N	2	0.625 A325X	0
T4 162.104-141.896	Flange	1.000 A325N	6	0.625 A325N	3	0.625 A325N	0	0.625 A325X	0	0.625 A325X	0	0.625 A325N	2	0.625 A325X	0
T5 141.896-121.688	Flange	1.000 A325N	6	0.625 A325N	3	0.625 A325N	0	0.625 A325X	0	0.625 A325X	0	0.625 A325N	2	0.625 A325X	0
T6 121.688-101.479	Flange	1.000 A325N	6	0.625 A325N	3	0.625 A325N	0	0.625 A325X	0	0.625 A325X	0	0.625 A325N	2	0.625 A325X	0
T7 101.479-81.271	Flange	1.000 A325N	8	0.625 A325N	3	0.625 A325N	0	0.625 A325X	0	0.625 A325X	0	0.625 A325N	2	0.625 A325X	0
T8 81.271-61.000	Flange	1.000 A325N	8	0.625 A325N	3	0.625 A325N	0	0.625 A325X	0	0.625 A325X	0	0.625 A325N	2	0.625 A325X	0
T9 61.000-40.667	Flange	1.000 A325N	8	0.625 A325N	3	0.625 A325N	0	0.625 A325X	0	0.625 A325X	0	0.625 A325N	2	0.625 A325X	0
T10 40.667-20.333	Flange	1.000 A325N	8	0.750 A325N	3	0.625 A325N	0	0.625 A325X	0	0.625 A325X	0	0.750 A325N	2	0.625 A325X	0
T11 20.333-0.000	Flange	1.000 A354-BC	0	0.750 A325N	3	0.625 A325N	0	0.625 A325X	0	0.625 A325X	0	0.750 A325N	2	0.625 A325X	0

Feed Line/Linear Appurtenances - Entered As Round Or Flat

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Face Offset in	Lateral Offset (Frac FW)	#	# Per Row	Clear Spacing in	Width or Diameter in	Perimeter in	Weight klf
LDF4-50A(1/2")	A	No	No	Ar (CaAa)	51.000 - 0.000	0.000	0.46	1	1	0.630	0.630		0.000
HB114-1-08U4-M5J(1 1/4")	A	No	No	Ar (CaAa)	199.000 - 0.000	0.000	0.42	4	4	0.850 0.750	1.540		0.001
Feedline Ladder (Af) ***	A	No	No	Af (CaAa)	199.000 - 0.000	0.000	0.43	1	1	3.000	3.000		0.008
LDF5-50A(7/8")	A	No	No	Ar (CaAa)	128.000 - 0.000	0.000	-0.4	5	5	1.000	1.090		0.000
LDF5-50A(7/8")	A	No	No	Ar (CaAa)	145.000 - 128.000	0.000	-0.4	4	4	1.000	1.090		0.000
LDF5-50A(7/8")	A	No	No	Ar (CaAa)	147.000 - 145.000	0.000	-0.4	3	3	1.000	1.090		0.000
LDF5-50A(7/8")	A	No	No	Ar (CaAa)	164.000 - 147.000	0.000	-0.4	2	2	1.000	1.090		0.000
LDF5-50A(7/8") ***	A	No	No	Ar (CaAa)	167.000 - 164.000	0.000	-0.4	1	1	1.000	1.090		0.000
CR 50 1873(1-5/8")	A	No	No	Ar (CaAa)	189.000 - 0.000	0.000	-0.44	12	6	0.850 0.750	1.980		0.001
3" Conduit	A	No	No	Ar (CaAa)	189.000 - 0.000	0.000	-0.4	1	1	3.000	3.000		0.003
PWRT-608-S(13/16)	A	No	No	Ar (CaAa)	189.000 - 0.000	0.000	-0.36	2	1	0.850 0.750	0.820		0.001
LDF2-50(3/8")	A	No	No	Ar (CaAa)	189.000 - 0.000	0.000	-0.36	2	2	0.440	0.440		0.000
WR-VG86ST-BRD(3/4) ***	A	No	No	Ar (CaAa)	189.000 - 0.000	0.000	-0.35	4	2	0.850 0.750	0.795		0.001
LDF1-50A(1/4")	A	No	No	Ar (CaAa)	175.000 - 0.000	0.000	-0.47	4	2	0.345	0.345		0.000
LDF2-50(3/8")	A	No	No	Ar (CaAa)	162.000 - 0.000	0.000	-0.48	1	1	0.440	0.440		0.000
Feedline Ladder (Af) ***	A	No	No	Af (CaAa)	189.000 - 0.000	0.000	-0.4	1	1	3.000	3.000		0.008
Safety Line 3/8 ***	A	No	No	Ar (CaAa)	212.625 - 0.000	0.000	0.5	1	1	0.375	0.375		0.000
LDF6-50A(1 1/4")	B	No	No	Ar (CaAa)	139.000 - 0.000	0.000	-0.41	6	3	1.550	1.550		0.001
HCS 6X12 6AWG(1-3/8")	B	No	No	Ar (CaAa)	139.000 - 0.000	6.000	-0.41	3	3	1.380	1.380		0.002
MLE HYBRID 9POWER/18 FIBER RL 2(1-5/8)	B	No	No	Ar (CaAa)	139.000 - 0.000	0.000	-0.44	9	3	1.625	1.625		0.001
Feedline Ladder (Af) ***	B	No	No	Af (CaAa)	139.000 - 0.000	0.000	-0.45	1	1	3.000	3.000		0.008
Feedline Ladder (Af) ***	B	No	No	Af (CaAa)	175.000 - 0.000	0.000	0.4	1	1	3.000	3.000		0.008
HB158-1-08U8-S8J18(1-5/8)	C	No	No	Ar (CaAa)	208.000 - 0.000	2.000	0.45	2	2	1.980	1.980		0.001
Feedline Ladder (Af)	C	No	No	Af (CaAa)	208.000 - 0.000	0.000	0.43	1	1	3.000	3.000		0.008
Feedline Ladder (Af) ***	C	No	No	Af (CaAa)	183.000 - 0.000	0.000	-0.45	1	1	3.000	3.000		0.008
LDF4-50A(1/2")	A	No	No	Ar (CaAa)	112.000 - 0.000	0.000	-0.49	1	1	0.300	0.630		0.000
LDF4-	C	No	No	Ar (CaAa)	212.625 -	0.000	0.49	1	1	0.300	0.630		0.000

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Face Offset in	Lateral Offset (Frac FW)	#	# Per Row	Clear Spacing in	Width or Diameter in	Perimeter in	Weight klf
50A(1/2") ***					0.000								

Feed Line/Linear Appurtenances - Entered As Area

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Total Number	C_AA_A ft^2/ft	Weight klf
***								

Feed Line/Linear Appurtenances Section Areas

Tower Section	Tower Elevation ft	Face	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
T1	212.625-202.458	A	0.000	0.000	0.381	0.000	0.002
		B	0.000	0.000	0.000	0.000	0.000
		C	0.000	0.000	5.606	0.000	0.062
T2	202.458-182.292	A	0.000	0.000	44.532	0.000	0.384
		B	0.000	0.000	0.000	0.000	0.000
		C	0.000	0.000	19.694	0.000	0.231
T3	182.292-162.104	A	0.000	0.000	101.429	0.000	0.769
		B	0.000	0.000	6.448	0.000	0.108
		C	0.000	0.000	29.454	0.000	0.395
T4	162.104-141.896	A	0.000	0.000	107.984	0.000	0.787
		B	0.000	0.000	10.104	0.000	0.170
		C	0.000	0.000	29.484	0.000	0.395
T5	141.896-121.688	A	0.000	0.000	112.188	0.000	0.800
		B	0.000	0.000	67.348	0.000	0.639
		C	0.000	0.000	29.484	0.000	0.395
T6	121.688-101.479	A	0.000	0.000	114.365	0.000	0.806
		B	0.000	0.000	76.923	0.000	0.717
		C	0.000	0.000	29.484	0.000	0.395
T7	101.479-81.271	A	0.000	0.000	114.975	0.000	0.807
		B	0.000	0.000	76.923	0.000	0.717
		C	0.000	0.000	29.484	0.000	0.395
T8	81.271-61.000	A	0.000	0.000	115.331	0.000	0.810
		B	0.000	0.000	77.161	0.000	0.719
		C	0.000	0.000	29.575	0.000	0.396
T9	61.000-40.667	A	0.000	0.000	116.337	0.000	0.814
		B	0.000	0.000	77.399	0.000	0.722
		C	0.000	0.000	29.666	0.000	0.398
T10	40.667-20.333	A	0.000	0.000	116.967	0.000	0.815
		B	0.000	0.000	77.399	0.000	0.722
		C	0.000	0.000	29.666	0.000	0.398
T11	20.333-0.000	A	0.000	0.000	116.968	0.000	0.815
		B	0.000	0.000	77.399	0.000	0.722
		C	0.000	0.000	29.666	0.000	0.398

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
T1	212.625-202.458	A	1.532	0.000	0.000	3.497	0.000	0.039
		B		0.000	0.000	0.000	0.000	0.000
		C		0.000	0.000	15.375	0.000	0.235
T2	202.458-182.292	A	1.521	0.000	0.000	90.167	0.000	1.461
		B		0.000	0.000	0.000	0.000	0.000
		C		0.000	0.000	50.131	0.000	0.794
T3	182.292-162.104	A	1.504	0.000	0.000	196.864	0.000	3.129
		B		0.000	0.000	10.327	0.000	0.242
		C		0.000	0.000	65.528	0.000	1.152
T4	162.104-141.896	A	1.485	0.000	0.000	225.946	0.000	3.375
		B		0.000	0.000	16.108	0.000	0.375
		C		0.000	0.000	65.242	0.000	1.141
T5	141.896-121.688	A	1.464	0.000	0.000	233.619	0.000	3.459
		B		0.000	0.000	115.140	0.000	2.348
		C		0.000	0.000	64.842	0.000	1.128
T6	121.688-101.479	A	1.440	0.000	0.000	239.086	0.000	3.494
		B		0.000	0.000	131.020	0.000	2.652
		C		0.000	0.000	64.383	0.000	1.112
T7	101.479-81.271	A	1.412	0.000	0.000	240.433	0.000	3.471
		B		0.000	0.000	130.197	0.000	2.620
		C		0.000	0.000	63.842	0.000	1.095
T8	81.271-61.000	A	1.377	0.000	0.000	238.653	0.000	3.409
		B		0.000	0.000	129.587	0.000	2.589
		C		0.000	0.000	63.375	0.000	1.076
T9	61.000-40.667	A	1.331	0.000	0.000	239.493	0.000	3.360
		B		0.000	0.000	128.664	0.000	2.547
		C		0.000	0.000	62.702	0.000	1.052
T10	40.667-20.333	A	1.265	0.000	0.000	237.714	0.000	3.254
		B		0.000	0.000	126.738	0.000	2.474
		C		0.000	0.000	61.437	0.000	1.012
T11	20.333-0.000	A	1.133	0.000	0.000	227.660	0.000	2.987
		B		0.000	0.000	122.918	0.000	2.334
		C		0.000	0.000	58.928	0.000	0.935

Feed Line Center of Pressure

Section	Elevation ft	CP_X in	CP_Z in	CP_X Ice in	CP_Z Ice in
T1	212.625-202.458	-5.814	2.795	-7.987	1.868
T2	202.458-182.292	-13.802	-0.523	-15.105	-1.855
T3	182.292-162.104	-17.109	6.152	-17.681	4.480
T4	162.104-141.896	-19.456	8.019	-21.360	7.047
T5	141.896-121.688	-17.479	-7.879	-20.003	-6.770
T6	121.688-101.479	-19.595	-10.954	-22.766	-9.179
T7	101.479-81.271	-20.107	-12.445	-25.672	-9.703
T8	81.271-61.000	-21.610	-13.356	-27.572	-10.492
T9	61.000-40.667	-23.606	-14.874	-29.853	-12.415
T10	40.667-20.333	-26.448	-16.921	-32.756	-14.725
T11	20.333-0.000	-28.403	-18.142	-34.705	-16.017

Shielding Factor Ka

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T1	21	Safety Line 3/8	202.46 - 212.63	0.6000	0.6000
T1	31	HB158-1-08U8-S8J18(1-	202.46 -	0.6000	0.6000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
		5/8)	208.00		
T1	32	Feedline Ladder (Af)	202.46 - 208.00	0.6000	0.6000
T1	36	LDF4-50A(1/2")	202.46 - 212.63	0.6000	0.6000
T2	2	HB114-1-08U4-M5J(1 1/4")	182.29 - 199.00	0.6000	0.6000
T2	3	Feedline Ladder (Af)	182.29 - 199.00	0.6000	0.6000
T2	11	CR 50 1873(1-5/8")	182.29 - 189.00	0.6000	0.6000
T2	12	3" Conduit	182.29 - 189.00	1.0000	0.6000
T2	13	PWRT-608-S(13/16)	182.29 - 189.00	0.0000	0.0000
T2	14	LDF2-50(3/8")	182.29 - 189.00	0.6000	0.6000
T2	15	WR-VG86ST-BRD(3/4)	182.29 - 189.00	0.6000	0.6000
T2	19	Feedline Ladder (Af)	182.29 - 189.00	0.6000	0.6000
T2	21	Safety Line 3/8	182.29 - 202.46	0.6000	0.6000
T2	31	HB158-1-08U8-S8J18(1-5/8)	182.29 - 202.46	0.6000	0.6000
T2	32	Feedline Ladder (Af)	182.29 - 202.46	0.6000	0.6000
T2	33	Feedline Ladder (Af)	182.29 - 183.00	0.6000	0.6000
T2	36	LDF4-50A(1/2")	182.29 - 202.46	0.6000	0.6000
T3	2	HB114-1-08U4-M5J(1 1/4")	162.10 - 182.29	0.6000	0.6000
T3	3	Feedline Ladder (Af)	162.10 - 182.29	0.6000	0.6000
T3	8	LDF5-50A(7/8")	162.10 - 164.00	0.6000	0.6000
T3	9	LDF5-50A(7/8")	164.00 - 167.00	0.6000	0.6000
T3	11	CR 50 1873(1-5/8")	162.10 - 182.29	0.6000	0.6000
T3	12	3" Conduit	162.10 - 182.29	1.0000	0.6000
T3	13	PWRT-608-S(13/16)	162.10 - 182.29	0.0000	0.0000
T3	14	LDF2-50(3/8")	162.10 - 182.29	0.6000	0.6000
T3	15	WR-VG86ST-BRD(3/4)	162.10 - 182.29	0.6000	0.6000
T3	17	LDF1-50A(1/4")	162.10 - 175.00	0.6000	0.6000
T3	19	Feedline Ladder (Af)	162.10 - 182.29	0.6000	0.6000
T3	21	Safety Line 3/8	162.10 - 182.29	0.6000	0.6000
T3	29	Feedline Ladder (Af)	162.10 - 175.00	0.6000	0.6000
T3	31	HB158-1-08U8-S8J18(1-5/8)	162.10 - 182.29	0.6000	0.6000
T3	32	Feedline Ladder (Af)	162.10 - 182.29	0.6000	0.6000
T3	33	Feedline Ladder (Af)	162.10 - 182.29	0.6000	0.6000
T3	36	LDF4-50A(1/2")	162.10 - 182.29	0.6000	0.6000
T4	2	HB114-1-08U4-M5J(1 1/4")	141.90 - 162.10	0.6000	0.6000
T4	3	Feedline Ladder (Af)	141.90 - 162.10	0.6000	0.6000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T4	6	LDF5-50A(7/8")	141.90 - 145.00	0.6000	0.6000
T4	7	LDF5-50A(7/8")	145.00 - 147.00	0.6000	0.6000
T4	8	LDF5-50A(7/8")	147.00 - 162.10	0.6000	0.6000
T4	11	CR 50 1873(1-5/8")	141.90 - 162.10	0.6000	0.6000
T4	12	3" Conduit	141.90 - 162.10	1.0000	0.6000
T4	13	PWRT-608-S(13/16)	141.90 - 162.10	0.0000	0.0000
T4	14	LDF2-50(3/8")	141.90 - 162.10	0.6000	0.6000
T4	15	WR-VG86ST-BRD(3/4)	141.90 - 162.10	0.6000	0.6000
T4	17	LDF1-50A(1/4")	141.90 - 162.10	0.6000	0.6000
T4	18	LDF2-50(3/8")	141.90 - 162.00	0.6000	0.6000
T4	19	Feedline Ladder (Af)	141.90 - 162.10	0.6000	0.6000
T4	21	Safety Line 3/8	141.90 - 162.10	0.6000	0.6000
T4	29	Feedline Ladder (Af)	141.90 - 162.10	0.6000	0.6000
T4	31	HB158-1-08U8-S8J18(1-5/8)	141.90 - 162.10	0.6000	0.6000
T4	32	Feedline Ladder (Af)	141.90 - 162.10	0.6000	0.6000
T4	33	Feedline Ladder (Af)	141.90 - 162.10	0.6000	0.6000
T4	36	LDF4-50A(1/2")	141.90 - 162.10	0.6000	0.6000
T5	2	HB114-1-08U4-M5J(1 1/4")	121.69 - 141.90	0.6000	0.6000
T5	3	Feedline Ladder (Af)	121.69 - 141.90	0.6000	0.6000
T5	5	LDF5-50A(7/8")	121.69 - 128.00	0.6000	0.6000
T5	6	LDF5-50A(7/8")	128.00 - 141.90	0.6000	0.6000
T5	11	CR 50 1873(1-5/8")	121.69 - 141.90	0.6000	0.6000
T5	12	3" Conduit	121.69 - 141.90	1.0000	0.6000
T5	13	PWRT-608-S(13/16)	121.69 - 141.90	0.0000	0.0000
T5	14	LDF2-50(3/8")	121.69 - 141.90	0.6000	0.6000
T5	15	WR-VG86ST-BRD(3/4)	121.69 - 141.90	0.6000	0.6000
T5	17	LDF1-50A(1/4")	121.69 - 141.90	0.6000	0.6000
T5	18	LDF2-50(3/8")	121.69 - 141.90	0.6000	0.6000
T5	19	Feedline Ladder (Af)	121.69 - 141.90	0.6000	0.6000
T5	21	Safety Line 3/8	121.69 - 141.90	0.6000	0.6000
T5	24	LDF6-50A(1 1/4")	121.69 - 139.00	0.6000	0.6000
T5	25	HCS 6X12 6AWG(1-3/8")	121.69 - 139.00	0.6000	0.6000
T5	26	MLE HYBRID 9POWER/18FIBER RL 2(1-5/8)	121.69 - 139.00	0.6000	0.6000
T5	27	Feedline Ladder (Af)	121.69 - 139.00	0.6000	0.6000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T5	29	Feedline Ladder (Af)	121.69 - 141.90	0.6000	0.6000
T5	31	HB158-1-08U8-S8J18(1-5/8)	121.69 - 141.90	0.6000	0.6000
T5	32	Feedline Ladder (Af)	121.69 - 141.90	0.6000	0.6000
T5	33	Feedline Ladder (Af)	121.69 - 141.90	0.6000	0.6000
T5	36	LDF4-50A(1/2")	121.69 - 141.90	0.6000	0.6000
T6	2	HB114-1-08U4-M5J(1 1/4")	101.48 - 121.69	0.6000	0.6000
T6	3	Feedline Ladder (Af)	101.48 - 121.69	0.6000	0.6000
T6	5	LDF5-50A(7/8")	101.48 - 121.69	0.6000	0.6000
T6	11	CR 50 1873(1-5/8")	101.48 - 121.69	0.6000	0.6000
T6	12	3" Conduit	101.48 - 121.69	1.0000	0.6000
T6	13	PWRT-608-S(13/16)	101.48 - 121.69	0.0000	0.0000
T6	14	LDF2-50(3/8")	101.48 - 121.69	0.6000	0.6000
T6	15	WR-VG86ST-BRD(3/4)	101.48 - 121.69	0.6000	0.6000
T6	17	LDF1-50A(1/4")	101.48 - 121.69	0.6000	0.6000
T6	18	LDF2-50(3/8")	101.48 - 121.69	0.6000	0.6000
T6	19	Feedline Ladder (Af)	101.48 - 121.69	0.6000	0.6000
T6	21	Safety Line 3/8	101.48 - 121.69	0.6000	0.6000
T6	24	LDF6-50A(1 1/4")	101.48 - 121.69	0.6000	0.6000
T6	25	HCS 6X12 6AWG(1-3/8")	101.48 - 121.69	0.6000	0.6000
T6	26	MLE HYBRID 9POWER/18FIBER RL 2(1-5/8)	101.48 - 121.69	0.6000	0.6000
T6	27	Feedline Ladder (Af)	101.48 - 121.69	0.6000	0.6000
T6	29	Feedline Ladder (Af)	101.48 - 121.69	0.6000	0.6000
T6	31	HB158-1-08U8-S8J18(1-5/8)	101.48 - 121.69	0.6000	0.6000
T6	32	Feedline Ladder (Af)	101.48 - 121.69	0.6000	0.6000
T6	33	Feedline Ladder (Af)	101.48 - 121.69	0.6000	0.6000
T6	35	LDF4-50A(1/2")	101.48 - 112.00	0.6000	0.6000
T6	36	LDF4-50A(1/2")	101.48 - 121.69	0.6000	0.6000
T7	2	HB114-1-08U4-M5J(1 1/4")	81.27 - 101.48	0.6000	0.6000
T7	3	Feedline Ladder (Af)	81.27 - 101.48	0.6000	0.6000
T7	5	LDF5-50A(7/8")	81.27 - 101.48	0.6000	0.6000
T7	11	CR 50 1873(1-5/8")	81.27 - 101.48	0.6000	0.6000
T7	12	3" Conduit	81.27 - 101.48	0.6000	0.6000
T7	13	PWRT-608-S(13/16)	81.27 - 101.48	0.0000	0.0000
T7	14	LDF2-50(3/8")	81.27 - 101.48	0.6000	0.6000

Tower Section	*Feed Line Record No.*	*Description*	*Feed Line Segment Elev.*	*K_a No Ice*	*K_a Ice*
T7	15	WR-VG86ST-BRD(3/4)	81.27 - 101.48	0.6000	0.6000
T7	17	LDF1-50A(1/4")	81.27 - 101.48	0.6000	0.6000
T7	18	LDF2-50(3/8")	81.27 - 101.48	0.6000	0.6000
T7	19	Feedline Ladder (Af)	81.27 - 101.48	0.6000	0.6000
T7	21	Safety Line 3/8	81.27 - 101.48	0.6000	0.6000
T7	24	LDF6-50A(1 1/4")	81.27 - 101.48	0.6000	0.6000
T7	25	HCS 6X12 6AWG(1-3/8")	81.27 - 101.48	0.6000	0.6000
T7	26	MLE HYBRID 9POWER/18FIBER RL 2(1-5/8)	81.27 - 101.48	0.6000	0.6000
T7	27	Feedline Ladder (Af)	81.27 - 101.48	0.6000	0.6000
T7	29	Feedline Ladder (Af)	81.27 - 101.48	0.6000	0.6000
T7	31	HB158-1-08U8-S8J18(1-5/8)	81.27 - 101.48	0.6000	0.6000
T7	32	Feedline Ladder (Af)	81.27 - 101.48	0.6000	0.6000
T7	33	Feedline Ladder (Af)	81.27 - 101.48	0.6000	0.6000
T7	35	LDF4-50A(1/2")	81.27 - 101.48	0.6000	0.6000
T7	36	LDF4-50A(1/2")	81.27 - 101.48	0.6000	0.6000
T8	2	HB114-1-08U4-M5J(1 1/4")	61.00 - 81.27	0.6000	0.6000
T8	3	Feedline Ladder (Af)	61.00 - 81.27	0.6000	0.6000
T8	5	LDF5-50A(7/8")	61.00 - 81.27	0.6000	0.6000
T8	11	CR 50 1873(1-5/8")	61.00 - 81.27	0.6000	0.6000
T8	12	3" Conduit	61.00 - 81.27	0.6000	0.6000
T8	13	PWRT-608-S(13/16)	61.00 - 81.27	0.0000	0.0000
T8	14	LDF2-50(3/8")	61.00 - 81.27	0.6000	0.6000
T8	15	WR-VG86ST-BRD(3/4)	61.00 - 81.27	0.6000	0.6000
T8	17	LDF1-50A(1/4")	61.00 - 81.27	0.6000	0.6000
T8	18	LDF2-50(3/8")	61.00 - 81.27	0.6000	0.6000
T8	19	Feedline Ladder (Af)	61.00 - 81.27	0.6000	0.6000
T8	21	Safety Line 3/8	61.00 - 81.27	0.6000	0.6000
T8	24	LDF6-50A(1 1/4")	61.00 - 81.27	0.6000	0.6000
T8	25	HCS 6X12 6AWG(1-3/8")	61.00 - 81.27	0.6000	0.6000
T8	26	MLE HYBRID 9POWER/18FIBER RL 2(1-5/8)	61.00 - 81.27	0.6000	0.6000
T8	27	Feedline Ladder (Af)	61.00 - 81.27	0.6000	0.6000
T8	29	Feedline Ladder (Af)	61.00 - 81.27	0.6000	0.6000
T8	31	HB158-1-08U8-S8J18(1-5/8)	61.00 - 81.27	0.6000	0.6000
T8	32	Feedline Ladder (Af)	61.00 -	0.6000	0.6000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T8	33	Feedline Ladder (Af)	81.27 61.00 -	0.6000	0.6000
T8	35	LDF4-50A(1/2")	81.27 61.00 -	0.6000	0.6000
T8	36	LDF4-50A(1/2")	81.27 61.00 -	0.6000	0.6000
T9	1	LDF4-50A(1/2")	81.27 40.67 -	0.6000	0.6000
T9	2	HB114-1-08U4-M5J(1 1/4")	51.00 40.67 -	0.6000	0.6000
T9	3	Feedline Ladder (Af)	61.00 40.67 -	0.6000	0.6000
T9	5	LDF5-50A(7/8")	61.00 40.67 -	0.6000	0.6000
T9	11	CR 50 1873(1-5/8")	61.00 40.67 -	0.6000	0.6000
T9	12	3" Conduit	61.00 40.67 -	0.6000	0.6000
T9	13	PWRT-608-S(13/16)	61.00 40.67 -	0.0000	0.0000
T9	14	LDF2-50(3/8")	61.00 40.67 -	0.6000	0.6000
T9	15	WR-VG86ST-BRD(3/4)	61.00 40.67 -	0.6000	0.6000
T9	17	LDF1-50A(1/4")	61.00 40.67 -	0.6000	0.6000
T9	18	LDF2-50(3/8")	61.00 40.67 -	0.6000	0.6000
T9	19	Feedline Ladder (Af)	61.00 40.67 -	0.6000	0.6000
T9	21	Safety Line 3/8	61.00 40.67 -	0.6000	0.6000
T9	24	LDF6-50A(1 1/4")	61.00 40.67 -	0.6000	0.6000
T9	25	HCS 6X12 6AWG(1-3/8")	61.00 40.67 -	0.6000	0.6000
T9	26	MLE HYBRID 9POWER/18FIBER RL 2(1-5/8")	61.00 40.67 - 61.00	0.6000	0.6000
T9	27	Feedline Ladder (Af)	40.67 -	0.6000	0.6000
T9	29	Feedline Ladder (Af)	61.00 40.67 -	0.6000	0.6000
T9	31	HB158-1-08U8-S8J18(1-5/8)	61.00 40.67 - 61.00	0.6000	0.6000
T9	32	Feedline Ladder (Af)	40.67 -	0.6000	0.6000
T9	33	Feedline Ladder (Af)	61.00 40.67 -	0.6000	0.6000
T9	35	LDF4-50A(1/2")	61.00 40.67 -	0.6000	0.6000
T9	36	LDF4-50A(1/2")	61.00 40.67 -	0.6000	0.6000
T10	1	LDF4-50A(1/2")	61.00 20.33 -	0.6000	0.6000
T10	2	HB114-1-08U4-M5J(1 1/4")	40.67 20.33 -	0.6000	0.6000
T10	3	Feedline Ladder (Af)	40.67 20.33 -	0.6000	0.6000
T10	5	LDF5-50A(7/8")	40.67 20.33 -	0.6000	0.6000
T10	11	CR 50 1873(1-5/8")	40.67 20.33 -	0.6000	0.6000
T10	12	3" Conduit	40.67 20.33 -	0.6000	0.6000
T10	13	PWRT-608-S(13/16)	40.67 20.33 -	0.0000	0.0000
T10	14	LDF2-50(3/8")	40.67 20.33 -	0.6000	0.6000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
			40.67		
T10	15	WR-VG86ST-BRD(3/4)	20.33 - 40.67	0.6000	0.6000
T10	17	LDF1-50A(1/4")	20.33 - 40.67	0.6000	0.6000
T10	18	LDF2-50(3/8")	20.33 - 40.67	0.6000	0.6000
T10	19	Feedline Ladder (Af)	20.33 - 40.67	0.6000	0.6000
T10	21	Safety Line 3/8	20.33 - 40.67	0.6000	0.6000
T10	24	LDF6-50A(1 1/4")	20.33 - 40.67	0.6000	0.6000
T10	25	HCS 6X12 6AWG(1-3/8")	20.33 - 40.67	0.6000	0.6000
T10	26	MLE HYBRID 9POWER/18FIBER RL 2(1-5/8)	20.33 - 40.67	0.6000	0.6000
T10	27	Feedline Ladder (Af)	20.33 - 40.67	0.6000	0.6000
T10	29	Feedline Ladder (Af)	20.33 - 40.67	0.6000	0.6000
T10	31	HB158-1-08U8-S8J18(1-5/8)	20.33 - 40.67	0.6000	0.6000
T10	32	Feedline Ladder (Af)	20.33 - 40.67	0.6000	0.6000
T10	33	Feedline Ladder (Af)	20.33 - 40.67	0.6000	0.6000
T10	35	LDF4-50A(1/2")	20.33 - 40.67	0.6000	0.6000
T10	36	LDF4-50A(1/2")	20.33 - 40.67	0.6000	0.6000
T11	1	LDF4-50A(1/2")	0.00 - 20.33	0.6000	0.6000
T11	2	HB114-1-08U4-M5J(1 1/4")	0.00 - 20.33	0.6000	0.6000
T11	3	Feedline Ladder (Af)	0.00 - 20.33	0.6000	0.6000
T11	5	LDF5-50A(7/8")	0.00 - 20.33	0.6000	0.6000
T11	11	CR 50 1873(1-5/8")	0.00 - 20.33	0.6000	0.6000
T11	12	3" Conduit	0.00 - 20.33	0.6000	0.6000
T11	13	PWRT-608-S(13/16)	0.00 - 20.33	0.0000	0.0000
T11	14	LDF2-50(3/8")	0.00 - 20.33	0.6000	0.6000
T11	15	WR-VG86ST-BRD(3/4)	0.00 - 20.33	0.6000	0.6000
T11	17	LDF1-50A(1/4")	0.00 - 20.33	0.6000	0.6000
T11	18	LDF2-50(3/8")	0.00 - 20.33	0.6000	0.6000
T11	19	Feedline Ladder (Af)	0.00 - 20.33	0.6000	0.6000
T11	21	Safety Line 3/8	0.00 - 20.33	0.6000	0.6000
T11	24	LDF6-50A(1 1/4")	0.00 - 20.33	0.6000	0.6000
T11	25	HCS 6X12 6AWG(1-3/8")	0.00 - 20.33	0.6000	0.6000
T11	26	MLE HYBRID 9POWER/18FIBER RL 2(1-5/8)	0.00 - 20.33	0.6000	0.6000
T11	27	Feedline Ladder (Af)	0.00 - 20.33	0.6000	0.6000
T11	29	Feedline Ladder (Af)	0.00 - 20.33	0.6000	0.6000
T11	31	HB158-1-08U8-S8J18(1-5/8)	0.00 - 20.33	0.6000	0.6000
T11	32	Feedline Ladder (Af)	0.00 - 20.33	0.6000	0.6000
T11	33	Feedline Ladder (Af)	0.00 - 20.33	0.6000	0.6000
T11	35	LDF4-50A(1/2")	0.00 - 20.33	0.6000	0.6000
T11	36	LDF4-50A(1/2")	0.00 - 20.33	0.6000	0.6000

Discrete Tower Loads

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
Lightning Rod 5/8" x 6'	A	From Leg	0.000 0.000 3.000	0.000	213.625	No Ice 1/2" Ice 1" Ice 2" Ice	0.375 0.989 1.619 2.464	0.375 0.989 1.619 2.464	0.006 0.010 0.019 0.047
Climb Leg Extension	A	From Leg	0.000 0.000 2.000	0.000	212.625	No Ice 1/2" Ice 1" Ice 2" Ice	1.473 1.803 2.119 2.780	1.473 1.803 2.119 2.780	0.025 0.038 0.054 0.098
Flash Beacon Lighting	B	From Leg	0.000 0.000 0.500	0.000	216.625	No Ice 1/2" Ice 1" Ice 2" Ice	2.700 3.100 3.500 4.300	2.700 3.100 3.500 4.300	0.050 0.070 0.090 0.130
4' x 2" Pipe Mount	B	From Leg	0.000 0.000 2.000	0.000	212.625	No Ice 1/2" Ice 1" Ice 2" Ice	0.785 1.028 1.281 1.814	0.785 1.028 1.281 1.814	0.029 0.035 0.044 0.072
Side Lighting	A	From Leg	0.500 0.000 0.000	0.000	112.000	No Ice 1/2" Ice 1" Ice 2" Ice	0.110 0.170 0.233 0.389	0.110 0.170 0.233 0.389	0.005 0.007 0.010 0.019
Side Lighting	B	From Leg	0.500 0.000 0.000	0.000	112.000	No Ice 1/2" Ice 1" Ice 2" Ice	0.110 0.170 0.233 0.389	0.110 0.170 0.233 0.389	0.005 0.007 0.010 0.019
Side Lighting	C	From Leg	0.500 0.000 0.000	0.000	112.000	No Ice 1/2" Ice 1" Ice 2" Ice	0.110 0.170 0.233 0.389	0.110 0.170 0.233 0.389	0.005 0.007 0.010 0.019
***									
Sector Mount [SM 510-3]	C	None		0.000	208.000	No Ice 1/2" Ice 1" Ice 2" Ice	40.100 57.330 74.560 109.020	40.100 57.330 74.560 109.020	2.396 3.089 3.782 5.167
(2) LPA-80080/6CF w/ Mount Pipe	A	From Leg	4.000 0.000 1.000	0.000	208.000	No Ice 1/2" Ice 1" Ice 2" Ice	4.564 5.105 5.612 6.651	10.259 11.427 12.312 14.129	0.046 0.113 0.187 0.363
(2) LPA-80080/6CF w/ Mount Pipe	B	From Leg	4.000 0.000 1.000	0.000	208.000	No Ice 1/2" Ice 1" Ice 2" Ice	4.564 5.105 5.612 6.651	10.259 11.427 12.312 14.129	0.046 0.113 0.187 0.363
(2) LPA-80080/6CF w/ Mount Pipe	C	From Leg	4.000 0.000 1.000	0.000	208.000	No Ice 1/2" Ice 1" Ice 2" Ice	4.564 5.105 5.612 6.651	10.259 11.427 12.312 14.129	0.046 0.113 0.187 0.363
(2) JAHH-65B-R3B w/ Mount Pipe	A	From Leg	4.000 0.000 1.000	0.000	208.000	No Ice 1/2" Ice 1" Ice 2" Ice	9.351 9.921 10.455 11.547	7.646 8.833 9.734 11.562	0.086 0.163 0.247 0.445
(2) JAHH-65B-R3B w/ Mount Pipe	B	From Leg	4.000 0.000 1.000	0.000	208.000	No Ice 1/2" Ice 1" Ice	9.351 9.921 10.455 11.547	7.646 8.833 9.734 11.562	0.086 0.163 0.247 0.445

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
						2" Ice			
(2) JAHH-65B-R3B w/ Mount Pipe	C	From Leg	4.000 0.000 1.000	0.000	208.000	No Ice 1/2" Ice 1" Ice 2" Ice	9.351 9.921 10.455 11.547	7.646 8.833 9.734 11.562	0.086 0.163 0.247 0.445
SBNHH-1D65B w/ Mount Pipe	A	From Leg	4.000 0.000 1.000	0.000	208.000	No Ice 1/2" Ice 1" Ice 2" Ice	8.386 8.950 9.480 10.560	7.084 8.275 9.188 11.027	0.076 0.146 0.223 0.404
SBNHH-1D65B w/ Mount Pipe	B	From Leg	4.000 0.000 1.000	0.000	208.000	No Ice 1/2" Ice 1" Ice 2" Ice	8.386 8.950 9.480 10.560	7.084 8.275 9.188 11.027	0.076 0.146 0.223 0.404
SBNHH-1D65B w/ Mount Pipe	C	From Leg	4.000 0.000 1.000	0.000	208.000	No Ice 1/2" Ice 1" Ice 2" Ice	8.386 8.950 9.480 10.560	7.084 8.275 9.188 11.027	0.076 0.146 0.223 0.404
RFV01U-D2A	A	From Leg	4.000 0.000 1.000	0.000	208.000	No Ice 1/2" Ice 1" Ice 2" Ice	1.875 2.045 2.223 2.601	1.013 1.145 1.284 1.585	0.070 0.087 0.106 0.153
RFV01U-D2A	B	From Leg	4.000 0.000 1.000	0.000	208.000	No Ice 1/2" Ice 1" Ice 2" Ice	1.875 2.045 2.223 2.601	1.013 1.145 1.284 1.585	0.070 0.087 0.106 0.153
RFV01U-D2A	C	From Leg	4.000 0.000 1.000	0.000	208.000	No Ice 1/2" Ice 1" Ice 2" Ice	1.875 2.045 2.223 2.601	1.013 1.145 1.284 1.585	0.070 0.087 0.106 0.153
CBC1923T-DS-43	A	From Leg	4.000 0.000 1.000	0.000	208.000	No Ice 1/2" Ice 1" Ice 2" Ice	0.316 0.389 0.469 0.651	0.230 0.294 0.366 0.531	0.008 0.012 0.016 0.030
CBC1923T-DS-43	B	From Leg	4.000 0.000 1.000	0.000	208.000	No Ice 1/2" Ice 1" Ice 2" Ice	0.316 0.389 0.469 0.651	0.230 0.294 0.366 0.531	0.008 0.012 0.016 0.030
CBC1923T-DS-43	C	From Leg	4.000 0.000 1.000	0.000	208.000	No Ice 1/2" Ice 1" Ice 2" Ice	0.316 0.389 0.469 0.651	0.230 0.294 0.366 0.531	0.008 0.012 0.016 0.030
DB-B1-6C-12AB-0Z	A	From Leg	4.000 0.000 1.000	0.000	208.000	No Ice 1/2" Ice 1" Ice 2" Ice	3.364 3.597 3.838 4.343	2.192 2.395 2.606 3.049	0.021 0.050 0.082 0.158
DB-B1-6C-12AB-0Z	B	From Leg	4.000 0.000 1.000	0.000	208.000	No Ice 1/2" Ice 1" Ice 2" Ice	3.364 3.597 3.838 4.343	2.192 2.395 2.606 3.049	0.021 0.050 0.082 0.158
RFV01U-D1A	A	From Leg	4.000 0.000 1.000	0.000	208.000	No Ice 1/2" Ice 1" Ice	1.875 2.045 2.223 2.601	1.250 1.393 1.543 1.865	0.084 0.103 0.124 0.175

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
						2" Ice			
RFV01U-D1A	B	From Leg	4.000 0.000 1.000	0.000	208.000	No Ice 1/2" Ice 1" Ice 2" Ice	1.875 2.045 2.223 2.601	1.250 1.393 1.543 1.865	0.084 0.103 0.124 0.175
RFV01U-D1A	C	From Leg	4.000 0.000 1.000	0.000	208.000	No Ice 1/2" Ice 1" Ice 2" Ice	1.875 2.045 2.223 2.601	1.250 1.393 1.543 1.865	0.084 0.103 0.124 0.175
***									
Sector Mount [SM 505-3]	C	None		0.000	199.000	No Ice 1/2" Ice 1" Ice 2" Ice	34.860 49.790 64.720 94.580	34.860 49.790 64.720 94.580	1.725 2.317 2.909 4.092
APXVSPP18-C-A20 w/ Mount Pipe	A	From Leg	4.000 0.000 -1.000	0.000	199.000	No Ice 1/2" Ice 1" Ice 2" Ice	8.262 8.822 9.346 10.418	6.946 8.127 9.021 10.844	0.083 0.151 0.227 0.406
APXVSPP18-C-A20 w/ Mount Pipe	B	From Leg	4.000 0.000 -1.000	0.000	199.000	No Ice 1/2" Ice 1" Ice 2" Ice	8.262 8.822 9.346 10.418	6.946 8.127 9.021 10.844	0.083 0.151 0.227 0.406
APXVSPP18-C-A20 w/ Mount Pipe	C	From Leg	4.000 0.000 -1.000	0.000	199.000	No Ice 1/2" Ice 1" Ice 2" Ice	8.262 8.822 9.346 10.418	6.946 8.127 9.021 10.844	0.083 0.151 0.227 0.406
APXVTM14-C-120 w/ Mount Pipe	A	From Leg	4.000 0.000 -1.000	0.000	199.000	No Ice 1/2" Ice 1" Ice 2" Ice	6.580 7.031 7.473 8.385	4.959 5.754 6.472 7.941	0.074 0.128 0.190 0.335
APXVTM14-C-120 w/ Mount Pipe	B	From Leg	4.000 0.000 -1.000	0.000	199.000	No Ice 1/2" Ice 1" Ice 2" Ice	6.580 7.031 7.473 8.385	4.959 5.754 6.472 7.941	0.074 0.128 0.190 0.335
APXVTM14-C-120 w/ Mount Pipe	C	From Leg	4.000 0.000 -1.000	0.000	199.000	No Ice 1/2" Ice 1" Ice 2" Ice	6.580 7.031 7.473 8.385	4.959 5.754 6.472 7.941	0.074 0.128 0.190 0.335
800MHz 2X50W RRH W/FILTER	A	From Leg	4.000 0.000 -1.000	0.000	199.000	No Ice 1/2" Ice 1" Ice 2" Ice	2.058 2.240 2.429 2.829	1.932 2.109 2.293 2.684	0.064 0.086 0.111 0.172
800MHz 2X50W RRH W/FILTER	B	From Leg	4.000 0.000 -1.000	0.000	199.000	No Ice 1/2" Ice 1" Ice 2" Ice	2.058 2.240 2.429 2.829	1.932 2.109 2.293 2.684	0.064 0.086 0.111 0.172
800MHz 2X50W RRH W/FILTER	C	From Leg	4.000 0.000 -1.000	0.000	199.000	No Ice 1/2" Ice 1" Ice 2" Ice	2.058 2.240 2.429 2.829	1.932 2.109 2.293 2.684	0.064 0.086 0.111 0.172
1900MHz RRH (65MHz)	A	From Leg	4.000 0.000 -1.000	0.000	199.000	No Ice 1/2" Ice Ice	2.313 2.517 2.728	2.375 2.581 2.794	0.060 0.084 0.111

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment ° °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
						1" Ice	3.174	3.243	0.176
						2" Ice			
1900MHz RRH (65MHz)	B	From Leg	4.000 0.000 -1.000	0.000	199.000	No Ice	2.313	2.375	0.060
						1/2" Ice	2.517	2.581	0.084
						1" Ice	2.728	2.794	0.111
						2" Ice	3.174	3.243	0.176
1900MHz RRH (65MHz)	C	From Leg	4.000 0.000 -1.000	0.000	199.000	No Ice	2.313	2.375	0.060
						1/2" Ice	2.517	2.581	0.084
						1" Ice	2.728	2.794	0.111
						2" Ice	3.174	3.243	0.176
TD-RRH8x20-25	A	From Leg	4.000 0.000 -1.000	0.000	199.000	No Ice	4.045	1.535	0.070
						1/2" Ice	4.298	1.714	0.097
						1" Ice	4.557	1.901	0.128
						2" Ice	5.098	2.295	0.201
TD-RRH8x20-25	B	From Leg	4.000 0.000 -1.000	0.000	199.000	No Ice	4.045	1.535	0.070
						1/2" Ice	4.298	1.714	0.097
						1" Ice	4.557	1.901	0.128
						2" Ice	5.098	2.295	0.201
TD-RRH8x20-25	C	From Leg	4.000 0.000 -1.000	0.000	199.000	No Ice	4.045	1.535	0.070
						1/2" Ice	4.298	1.714	0.097
						1" Ice	4.557	1.901	0.128
						2" Ice	5.098	2.295	0.201
(3) Empty Mount Pipes	A	From Leg	4.000 0.000 0.000	0.000	199.000	No Ice	0.785	0.785	0.029
						1/2" Ice	1.028	1.028	0.035
						1" Ice	1.281	1.281	0.044
						2" Ice	1.814	1.814	0.072
(3) Empty Mount Pipes	B	From Leg	4.000 0.000 0.000	0.000	199.000	No Ice	0.785	0.785	0.029
						1/2" Ice	1.028	1.028	0.035
						1" Ice	1.281	1.281	0.044
						2" Ice	1.814	1.814	0.072
(3) Empty Mount Pipes	C	From Leg	4.000 0.000 0.000	0.000	199.000	No Ice	0.785	0.785	0.029
						1/2" Ice	1.028	1.028	0.035
						1" Ice	1.281	1.281	0.044
						2" Ice	1.814	1.814	0.072
***									
Sector Mount [SM 510-3]	C	None		0.000	189.000	No Ice	40.100	40.100	2.396
						1/2" Ice	57.330	57.330	3.089
						1" Ice	74.560	74.560	3.782
						2" Ice	109.020	109.020	5.167
7770.00 w/ Mount Pipe	A	From Leg	4.000 0.000 1.000	0.000	189.000	No Ice	5.746	4.254	0.055
						1/2" Ice	6.179	5.014	0.103
						1" Ice	6.607	5.711	0.157
						2" Ice	7.488	7.155	0.287
7770.00 w/ Mount Pipe	B	From Leg	4.000 0.000 1.000	0.000	189.000	No Ice	5.746	4.254	0.055
						1/2" Ice	6.179	5.014	0.103
						1" Ice	6.607	5.711	0.157
						2" Ice	7.488	7.155	0.287
7770.00 w/ Mount Pipe	C	From Leg	4.000 0.000 1.000	0.000	189.000	No Ice	5.746	4.254	0.055
						1/2" Ice	6.179	5.014	0.103
						1" Ice	6.607	5.711	0.157
						2" Ice	7.488	7.155	0.287
(2) SBNHH-1D65A w/ Mount Pipe	A	From Leg	4.000 0.000	0.000	189.000	No Ice	5.954	5.190	0.061
						1/2"	6.390	5.961	0.114

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
			1.000			Ice	6.820	6.658	0.174
						1" Ice	7.706	8.089	0.316
						2" Ice			
(2) SBNHH-1D65A w/ Mount Pipe	B	From Leg	4.000 0.000 1.000	0.000	189.000	No Ice 1/2" Ice 1" Ice 2" Ice	5.954 6.390 6.820 7.706	5.190 5.961 6.658 8.089	0.061 0.114 0.174 0.316
(2) SBNHH-1D65A w/ Mount Pipe	C	From Leg	4.000 0.000 1.000	0.000	189.000	No Ice 1/2" Ice 1" Ice 2" Ice	5.954 6.390 6.820 7.706	5.190 5.961 6.658 8.089	0.061 0.114 0.174 0.316
7020.00	A	From Leg	4.000 0.000 1.000	0.000	189.000	No Ice 1/2" Ice 1" Ice 2" Ice	0.102 0.147 0.199 0.326	0.175 0.239 0.311 0.476	0.002 0.005 0.009 0.022
7020.00	B	From Leg	4.000 0.000 1.000	0.000	189.000	No Ice 1/2" Ice 1" Ice 2" Ice	0.102 0.147 0.199 0.326	0.175 0.239 0.311 0.476	0.002 0.005 0.009 0.022
7020.00	C	From Leg	4.000 0.000 1.000	0.000	189.000	No Ice 1/2" Ice 1" Ice 2" Ice	0.102 0.147 0.199 0.326	0.175 0.239 0.311 0.476	0.002 0.005 0.009 0.022
(2) DUAL BAND 800/1900 FULL BAND MASTHEAD	A	From Leg	4.000 0.000 1.000	0.000	189.000	No Ice 1/2" Ice 1" Ice 2" Ice	1.328 1.473 1.625 1.951	0.693 0.808 0.930 1.197	0.027 0.038 0.052 0.086
(2) DUAL BAND 800/1900 FULL BAND MASTHEAD	B	From Leg	4.000 0.000 1.000	0.000	189.000	No Ice 1/2" Ice 1" Ice 2" Ice	1.328 1.473 1.625 1.951	0.693 0.808 0.930 1.197	0.027 0.038 0.052 0.086
(2) DUAL BAND 800/1900 FULL BAND MASTHEAD	C	From Leg	4.000 0.000 1.000	0.000	189.000	No Ice 1/2" Ice 1" Ice 2" Ice	1.328 1.473 1.625 1.951	0.693 0.808 0.930 1.197	0.027 0.038 0.052 0.086
RRUS 11	A	From Leg	4.000 0.000 1.000	0.000	189.000	No Ice 1/2" Ice 1" Ice 2" Ice	2.784 2.992 3.207 3.658	1.187 1.334 1.490 1.833	0.048 0.068 0.092 0.150
RRUS 11	B	From Leg	4.000 0.000 1.000	0.000	189.000	No Ice 1/2" Ice 1" Ice 2" Ice	2.784 2.992 3.207 3.658	1.187 1.334 1.490 1.833	0.048 0.068 0.092 0.150
RRUS 11	C	From Leg	4.000 0.000 1.000	0.000	189.000	No Ice 1/2" Ice 1" Ice 2" Ice	2.784 2.992 3.207 3.658	1.187 1.334 1.490 1.833	0.048 0.068 0.092 0.150
DC6-48-60-18-8F	A	From Leg	1.000 0.000 1.000	0.000	189.000	No Ice 1/2" Ice 1" Ice 2" Ice	0.791 1.274 1.450 1.831	0.791 1.274 1.450 1.831	0.020 0.035 0.053 0.095
DC6-48-60-18-8F	C	From Leg	1.000 0.000	0.000	189.000	No Ice 1/2"	0.791 1.274	0.791 1.274	0.020 0.035

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
			1.000			Ice	1.450	1.450	0.053
						1" Ice	1.831	1.831	0.095
						2" Ice			
SBNHH-1D65A w/ Mount Pipe	A	From Leg	4.000 0.000 1.000	0.000	189.000	No Ice 1/2" Ice 1" Ice 2" Ice	5.954 6.390 6.820 7.706	5.190 5.961 6.658 8.089	0.061 0.114 0.174 0.316
SBNHH-1D65A w/ Mount Pipe	B	From Leg	4.000 0.000 1.000	0.000	189.000	No Ice 1/2" Ice 1" Ice 2" Ice	5.954 6.390 6.820 7.706	5.190 5.961 6.658 8.089	0.061 0.114 0.174 0.316
SBNHH-1D65A w/ Mount Pipe	C	From Leg	4.000 0.000 1.000	0.000	189.000	No Ice 1/2" Ice 1" Ice 2" Ice	5.954 6.390 6.820 7.706	5.190 5.961 6.658 8.089	0.061 0.114 0.174 0.316
RRUS 32	A	From Leg	4.000 0.000 1.000	0.000	189.000	No Ice 1/2" Ice 1" Ice 2" Ice	2.857 3.083 3.316 3.805	1.777 1.968 2.166 2.583	0.055 0.077 0.103 0.165
RRUS 32	B	From Leg	4.000 0.000 1.000	0.000	189.000	No Ice 1/2" Ice 1" Ice 2" Ice	2.857 3.083 3.316 3.805	1.777 1.968 2.166 2.583	0.055 0.077 0.103 0.165
RRUS 32	C	From Leg	4.000 0.000 1.000	0.000	189.000	No Ice 1/2" Ice 1" Ice 2" Ice	2.857 3.083 3.316 3.805	1.777 1.968 2.166 2.583	0.055 0.077 0.103 0.165
RRUS 32 B66	A	From Leg	4.000 0.000 1.000	0.000	189.000	No Ice 1/2" Ice 1" Ice 2" Ice	2.743 2.965 3.194 3.675	1.668 1.855 2.049 2.458	0.053 0.074 0.098 0.157
RRUS 32 B66	B	From Leg	4.000 0.000 1.000	0.000	189.000	No Ice 1/2" Ice 1" Ice 2" Ice	2.743 2.965 3.194 3.675	1.668 1.855 2.049 2.458	0.053 0.074 0.098 0.157
RRUS 32 B66	C	From Leg	4.000 0.000 1.000	0.000	189.000	No Ice 1/2" Ice 1" Ice 2" Ice	2.743 2.965 3.194 3.675	1.668 1.855 2.049 2.458	0.053 0.074 0.098 0.157
RRUS 32 B2	A	From Leg	4.000 0.000 1.000	0.000	189.000	No Ice 1/2" Ice 1" Ice 2" Ice	2.731 2.953 3.182 3.663	1.668 1.855 2.049 2.458	0.053 0.074 0.098 0.157
RRUS 32 B2	B	From Leg	4.000 0.000 1.000	0.000	189.000	No Ice 1/2" Ice 1" Ice 2" Ice	2.731 2.953 3.182 3.663	1.668 1.855 2.049 2.458	0.053 0.074 0.098 0.157
RRUS 32 B2	C	From Leg	4.000 0.000 1.000	0.000	189.000	No Ice 1/2" Ice 1" Ice 2" Ice	2.731 2.953 3.182 3.663	1.668 1.855 2.049 2.458	0.053 0.074 0.098 0.157
***									
Pipe Mount [PM 601-3]	C	None		0.000	183.000	No Ice	4.390	4.390	0.195

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
						1/2" Ice	5.480	5.480	0.237
						1" Ice	6.570	6.570	0.280
						2" Ice	8.750	8.750	0.365
APXV18-206517LS	A	From Leg	1.000 0.000 0.000	0.000	183.000	No Ice 1/2" Ice 1" Ice 2" Ice	5.049 5.497 5.954 6.888	3.011 3.441 3.878 4.775	0.000 0.026 0.058 0.138
APXV18-206517LS	B	From Leg	1.000 0.000 0.000	0.000	183.000	No Ice 1/2" Ice 1" Ice 2" Ice	5.049 5.497 5.954 6.888	3.011 3.441 3.878 4.775	0.000 0.026 0.058 0.138
APXV18-206517LS	C	From Leg	1.000 0.000 0.000	0.000	183.000	No Ice 1/2" Ice 1" Ice 2" Ice	5.049 5.497 5.954 6.888	3.011 3.441 3.878 4.775	0.000 0.026 0.058 0.138
***									
Sector Mount	C	None		0.000	175.000	No Ice 1/2" Ice 1" Ice 2" Ice	40.100 57.330 74.560 109.020	40.100 57.330 74.560 109.020	2.396 3.089 3.782 5.167
(4) DB844H90E-XY w/ Mount Pipe	A	From Leg	4.000 0.000 1.000	0.000	175.000	No Ice 1/2" Ice 1" Ice 2" Ice	3.299 3.667 4.035 4.796	4.802 5.416 6.040 7.337	0.032 0.072 0.117 0.228
(4) DB844H90E-XY w/ Mount Pipe	B	From Leg	4.000 0.000 1.000	0.000	175.000	No Ice 1/2" Ice 1" Ice 2" Ice	3.299 3.667 4.035 4.796	4.802 5.416 6.040 7.337	0.032 0.072 0.117 0.228
(4) DB844H90E-XY w/ Mount Pipe	C	From Leg	4.000 0.000 1.000	0.000	175.000	No Ice 1/2" Ice 1" Ice 2" Ice	3.299 3.667 4.035 4.796	4.802 5.416 6.040 7.337	0.032 0.072 0.117 0.228
6' x 2" Mount Pipe	C	From Face	2.000 0.000 4.000	0.000	175.000	No Ice 1/2" Ice 1" Ice 2" Ice	1.425 1.925 2.294 3.060	1.425 1.925 2.294 3.060	0.022 0.033 0.048 0.090
6' x 2" Mount Pipe	C	From Face	2.000 0.000 4.000	0.000	175.000	No Ice 1/2" Ice 1" Ice 2" Ice	1.425 1.925 2.294 3.060	1.425 1.925 2.294 3.060	0.022 0.033 0.048 0.090
***									
Side Arm Mount [SO 306-1]	A	From Leg	3.000 0.000 0.000	0.000	167.000	No Ice 1/2" Ice 1" Ice 2" Ice	0.980 1.700 2.420 3.860	2.180 3.800 5.420 8.660	0.042 0.062 0.083 0.123
1151-3	A	From Leg	4.000 0.000 6.000	0.000	167.000	No Ice 1/2" Ice 1" Ice 2" Ice	4.180 5.731 7.299 10.485	4.180 5.731 7.299 10.485	0.016 0.047 0.087 0.197
SD310-HL	A	From Leg	4.000 0.000 -7.000	0.000	167.000	No Ice 1/2" Ice 1" Ice	1.078 1.357 1.617 2.163	1.078 1.357 1.617 2.163	6.500 6.510 6.524 6.559

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
						2" Ice			
***									
Side Arm Mount [SO 306-1]	B	From Leg	3.000 0.000 0.000	0.000	164.000	No Ice 1/2" Ice 1" Ice 2" Ice	0.980 1.700 2.420 3.860	2.180 3.800 5.420 8.660	0.042 0.062 0.083 0.123
1151-3	B	From Leg	4.000 0.000 9.000	0.000	164.000	No Ice 1/2" Ice 1" Ice 2" Ice	4.180 5.731 7.299 10.485	4.180 5.731 7.299 10.485	0.016 0.047 0.087 0.197
***									
Side Arm Mount [SO 306-1]	A	From Leg	3.000 0.000 0.000	0.000	147.000	No Ice 1/2" Ice 1" Ice 2" Ice	0.980 1.700 2.420 3.860	2.180 3.800 5.420 8.660	0.042 0.062 0.083 0.123
1151-3	A	From Leg	4.000 0.000 6.000	0.000	147.000	No Ice 1/2" Ice 1" Ice 2" Ice	4.180 5.731 7.299 10.485	4.180 5.731 7.299 10.485	0.016 0.047 0.087 0.197
***									
Side Arm Mount [SO 306-1]	B	From Leg	3.000 0.000 0.000	0.000	145.000	No Ice 1/2" Ice 1" Ice 2" Ice	0.980 1.700 2.420 3.860	2.180 3.800 5.420 8.660	0.042 0.062 0.083 0.123
SD310-HL	B	From Leg	4.000 0.000 3.000	0.000	145.000	No Ice 1/2" Ice 1" Ice 2" Ice	1.093 1.357 1.617 2.163	1.093 1.357 1.617 2.163	6.500 6.510 6.524 6.559
***									
(3) Site Pro 1 VFA12-HD	C	None		0.000	139.000	No Ice 1/2" Ice 1" Ice 2" Ice	33.640 48.170 62.700 91.760	33.640 48.170 62.700 91.760	1.690 2.255 2.820 3.949
ERICSSON AIR 21 B2A B4P w/ Mount Pipe	A	From Leg	4.000 0.000 1.000	0.000	139.000	No Ice 1/2" Ice 1" Ice 2" Ice	6.329 6.775 7.214 8.117	5.642 6.426 7.131 8.591	0.112 0.169 0.233 0.383
ERICSSON AIR 21 B2A B4P w/ Mount Pipe	B	From Leg	4.000 0.000 1.000	0.000	139.000	No Ice 1/2" Ice 1" Ice 2" Ice	6.329 6.775 7.214 8.117	5.642 6.426 7.131 8.591	0.112 0.169 0.233 0.383
ERICSSON AIR 21 B2A B4P w/ Mount Pipe	C	From Leg	4.000 0.000 1.000	0.000	139.000	No Ice 1/2" Ice 1" Ice 2" Ice	6.329 6.775 7.214 8.117	5.642 6.426 7.131 8.591	0.112 0.169 0.233 0.383
ERICSSON AIR 21 B4A B2P w/ Mount Pipe	A	From Leg	4.000 0.000 1.000	0.000	139.000	No Ice 1/2" Ice 1" Ice 2" Ice	6.329 6.775 7.214 8.117	5.642 6.426 7.131 8.591	0.112 0.169 0.233 0.383
ERICSSON AIR 21 B4A B2P w/ Mount Pipe	B	From Leg	4.000 0.000 1.000	0.000	139.000	No Ice 1/2" Ice 1" Ice 2" Ice	6.329 6.775 7.214 8.117	5.642 6.426 7.131 8.591	0.112 0.169 0.233 0.383

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 B4A B2P w/ Mount Pipe	C	From Leg	4.000 0.000 1.000	0.000	139.000	No Ice 1/2" Ice 1" Ice 2" Ice	6.329 6.775 7.214 8.117	5.642 6.426 7.131 8.591	0.112 0.169 0.233 0.383
APXVAARR24_43-U-NA20 w/ Mount Pipe	A	From Leg	4.000 0.000 1.000	0.000	139.000	No Ice 1/2" Ice 1" Ice 2" Ice	20.480 21.231 21.990 23.444	11.024 12.550 14.099 16.451	0.161 0.297 0.444 0.775
APXVAARR24_43-U-NA20 w/ Mount Pipe	B	From Leg	4.000 0.000 1.000	0.000	139.000	No Ice 1/2" Ice 1" Ice 2" Ice	20.480 21.231 21.990 23.444	11.024 12.550 14.099 16.451	0.161 0.297 0.444 0.775
APXVAARR24_43-U-NA20 w/ Mount Pipe	C	From Leg	4.000 0.000 1.000	0.000	139.000	No Ice 1/2" Ice 1" Ice 2" Ice	20.480 21.231 21.990 23.444	11.024 12.550 14.099 16.451	0.161 0.297 0.444 0.775
KRY 112 144/1	A	From Leg	4.000 0.000 1.000	0.000	139.000	No Ice 1/2" Ice 1" Ice 2" Ice	0.350 0.426 0.509 0.698	0.175 0.234 0.301 0.456	0.011 0.014 0.019 0.032
KRY 112 144/1	B	From Leg	4.000 0.000 1.000	0.000	139.000	No Ice 1/2" Ice 1" Ice 2" Ice	0.350 0.426 0.509 0.698	0.175 0.234 0.301 0.456	0.011 0.014 0.019 0.032
KRY 112 144/1	C	From Leg	4.000 0.000 1.000	0.000	139.000	No Ice 1/2" Ice 1" Ice 2" Ice	0.350 0.426 0.509 0.698	0.175 0.234 0.301 0.456	0.011 0.014 0.019 0.032
RADIO 4449 B12/B71	A	From Leg	4.000 0.000 1.000	0.000	139.000	No Ice 1/2" Ice 1" Ice 2" Ice	1.650 1.810 1.978 2.336	1.163 1.301 1.447 1.762	0.074 0.090 0.109 0.155
RADIO 4449 B12/B71	B	From Leg	4.000 0.000 1.000	0.000	139.000	No Ice 1/2" Ice 1" Ice 2" Ice	1.650 1.810 1.978 2.336	1.163 1.301 1.447 1.762	0.074 0.090 0.109 0.155
RADIO 4449 B12/B71	C	From Leg	4.000 0.000 1.000	0.000	139.000	No Ice 1/2" Ice 1" Ice 2" Ice	1.650 1.810 1.978 2.336	1.163 1.301 1.447 1.762	0.074 0.090 0.109 0.155
***									
Side Arm Mount	A	From Leg	3.000 0.000 0.000	0.000	128.000	No Ice 1/2" Ice 1" Ice 2" Ice	0.980 1.700 2.420 3.860	3.030 5.220 7.410 11.790	0.053 0.079 0.105 0.156
1142-2C	A	From Leg	6.000 0.000 4.000	0.000	128.000	No Ice 1/2" Ice 1" Ice 2" Ice	2.092 3.374 4.673 7.320	2.092 3.374 4.673 7.320	0.024 0.041 0.066 0.140
***									
Side Arm Mount	C	From Leg	1.000 0.000 0.000	0.000	51.000	No Ice 1/2" Ice	0.850 1.140 1.430	1.670 2.340 3.010	0.065 0.079 0.093

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
						1" Ice	2.010	4.350	0.121
						2" Ice			
GPS_A	C	From Leg	2.000	0.000	51.000	No Ice	0.255	0.255	0.001
			0.000			1/2"	0.320	0.320	0.005
			0.000			Ice	0.393	0.393	0.010
						1" Ice	0.561	0.561	0.025
						2" 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
HPD2-23	C	Paraboloid w/Shroud (HP)	From Leg	2.000 0.000 4.000	50.000		175.000	2.000	No Ice 1/2" Ice 1" Ice 2" Ice	3.142 3.409 3.676 4.211	0.027 0.044 0.062 0.097
HPD2-23	C	Paraboloid w/Shroud (HP)	From Leg	2.000 0.000 4.000	-90.000		175.000	2.000	No Ice 1/2" Ice 1" Ice 2" Ice	3.142 3.409 3.676 4.211	0.027 0.044 0.062 0.097
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Load Combinations

Comb. No.	Description
1	Dead Only
2	1.2 Dead+1.0 Wind 0 deg - No Ice
3	0.9 Dead+1.0 Wind 0 deg - No Ice
4	1.2 Dead+1.0 Wind 30 deg - No Ice
5	0.9 Dead+1.0 Wind 30 deg - No Ice
6	1.2 Dead+1.0 Wind 60 deg - No Ice
7	0.9 Dead+1.0 Wind 60 deg - No Ice
8	1.2 Dead+1.0 Wind 90 deg - No Ice
9	0.9 Dead+1.0 Wind 90 deg - No Ice
10	1.2 Dead+1.0 Wind 120 deg - No Ice
11	0.9 Dead+1.0 Wind 120 deg - No Ice
12	1.2 Dead+1.0 Wind 150 deg - No Ice
13	0.9 Dead+1.0 Wind 150 deg - No Ice
14	1.2 Dead+1.0 Wind 180 deg - No Ice
15	0.9 Dead+1.0 Wind 180 deg - No Ice
16	1.2 Dead+1.0 Wind 210 deg - No Ice
17	0.9 Dead+1.0 Wind 210 deg - No Ice
18	1.2 Dead+1.0 Wind 240 deg - No Ice
19	0.9 Dead+1.0 Wind 240 deg - No Ice
20	1.2 Dead+1.0 Wind 270 deg - No Ice
21	0.9 Dead+1.0 Wind 270 deg - No Ice
22	1.2 Dead+1.0 Wind 300 deg - No Ice
23	0.9 Dead+1.0 Wind 300 deg - No Ice
24	1.2 Dead+1.0 Wind 330 deg - No Ice
25	0.9 Dead+1.0 Wind 330 deg - No Ice
26	1.2 Dead+1.0 Ice+1.0 Temp

Comb. No.	Description
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
T1	212.625 - 202.458	Leg	Max Tension	7	0.082	-0.000	-0.000
			Max. Compression	31	-4.668	0.069	-0.003
			Max. Mx	2	-2.263	-0.489	-0.002
			Max. My	8	-1.639	-0.002	-0.507
			Max. Vy	10	-1.720	0.299	0.002
			Max. Vx	8	-1.725	-0.002	0.283
		Diagonal	Max Tension	24	3.216	0.000	0.000
			Max. Compression	24	-3.288	0.000	0.000
			Max. Mx	38	0.702	0.042	0.000
			Max. My	2	-0.092	0.000	0.000
			Max. Vy	38	0.025	0.000	0.000
			Max. Vx	2	-0.000	0.000	0.000
		Horizontal	Max Tension	14	2.360	-0.009	0.003
			Max. Compression	2	-2.314	0.000	0.000
			Max. Mx	29	0.083	-0.026	-0.002
			Max. My	22	-1.002	-0.010	-0.006
			Max. Vy	29	-0.027	-0.026	-0.002
			Max. Vx	22	0.002	-0.010	-0.006
		Top Girt	Max Tension	14	0.258	-0.007	0.000
			Max. Compression	2	-0.257	-0.008	-0.000
			Max. Mx	29	-0.031	-0.022	-0.000
			Max. My	6	-0.096	-0.009	-0.001
			Max. Vy	29	-0.026	-0.022	-0.000
			Max. Vx	6	0.000	-0.009	-0.001
		Inner Bracing	Max Tension	2	0.004	0.000	0.000
			Max. Compression	2	-0.004	0.000	0.000
			Max. Mx	26	-0.000	-0.023	0.000
			Max. My	27	0.001	0.000	-0.000
			Max. Vy	26	0.022	0.000	0.000
			Max. Vx	27	0.000	0.000	0.000
T2	202.458 - 182.292	Leg	Max Tension	23	19.351	0.129	0.006
			Max. Compression	18	-27.822	0.286	-0.026
			Max. Mx	6	1.726	1.393	0.017
			Max. My	24	-3.231	-0.001	-1.402
			Max. Vy	6	-1.412	0.127	0.012

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Vx	12	-1.433	-0.000	0.119
		Diagonal	Max Tension	4	9.574	0.000	0.000
			Max. Compression	4	-9.648	0.000	0.000
			Max. Mx	38	2.329	0.050	0.000
			Max. My	2	-0.029	0.000	0.000
			Max. Vy	38	-0.025	0.000	0.000
			Max. Vx	2	-0.000	0.000	0.000
		Horizontal	Max Tension	4	5.198	-0.012	-0.000
			Max. Compression	4	-5.159	-0.012	-0.000
			Max. Mx	37	0.300	-0.035	-0.003
			Max. My	22	-0.929	-0.021	-0.012
			Max. Vy	37	-0.029	-0.035	-0.003
			Max. Vx	22	0.003	-0.021	-0.012
		Inner Bracing	Max Tension	10	0.007	0.000	0.000
			Max. Compression	22	-0.007	0.000	0.000
			Max. Mx	26	-0.000	-0.023	0.000
			Max. My	27	0.002	0.000	-0.000
			Max. Vy	26	0.022	0.000	0.000
			Max. Vx	27	0.000	0.000	0.000
T3	182.292 - 162.104	Leg	Max Tension	23	57.512	-0.235	-0.001
			Max. Compression	2	-80.026	-0.021	-0.005
			Max. Mx	14	53.435	-0.646	-0.017
			Max. My	12	-6.141	-0.047	-0.442
			Max. Vy	6	-0.970	-0.354	-0.044
			Max. Vx	12	-1.002	-0.047	-0.442
		Diagonal	Max Tension	16	9.656	0.000	0.000
			Max. Compression	16	-9.746	0.000	0.000
			Max. Mx	38	1.911	0.067	0.000
			Max. My	2	0.447	0.000	0.000
			Max. Vy	38	-0.031	0.000	0.000
			Max. Vx	2	-0.000	0.000	0.000
		Horizontal	Max Tension	8	5.910	0.000	0.000
			Max. Compression	16	-6.223	-0.015	0.000
			Max. Mx	37	0.643	-0.041	-0.003
			Max. My	22	-1.206	-0.023	-0.012
			Max. Vy	37	-0.032	-0.041	-0.003
			Max. Vx	10	-0.003	0.000	0.011
		Inner Bracing	Max Tension	25	0.005	0.000	0.000
			Max. Compression	22	-0.007	0.000	0.000
			Max. Mx	26	-0.004	-0.031	0.000
			Max. My	27	-0.002	0.000	-0.000
			Max. Vy	26	0.025	0.000	0.000
			Max. Vx	27	-0.000	0.000	0.000
T4	162.104 - 141.896	Leg	Max Tension	23	92.931	-0.316	0.000
			Max. Compression	10	-117.310	1.195	-0.084
			Max. Mx	22	80.577	-1.965	0.035
			Max. My	12	-7.246	-0.059	-1.594
			Max. Vy	22	0.710	-1.965	0.035
			Max. Vx	13	0.320	-0.043	-1.589
		Diagonal	Max Tension	16	9.401	0.000	0.000
			Max. Compression	16	-9.507	0.000	0.000
			Max. Mx	38	1.841	0.085	0.000
			Max. My	2	0.624	0.000	0.000
			Max. Vy	38	-0.037	0.000	0.000
			Max. Vx	2	-0.000	0.000	0.000
		Horizontal	Max Tension	8	6.195	0.000	0.000
			Max. Compression	20	-6.265	-0.024	-0.000
			Max. Mx	29	0.727	-0.069	-0.003
			Max. My	10	0.854	-0.002	0.016
			Max. Vy	29	-0.046	-0.069	-0.003
			Max. Vx	10	-0.003	-0.002	0.016
		Inner Bracing	Max Tension	13	0.006	0.000	0.000
			Max. Compression	22	-0.008	0.000	0.000
			Max. Mx	26	-0.004	-0.045	0.000
			Max. My	27	-0.003	0.000	-0.000
			Max. Vy	26	0.030	0.000	0.000
			Max. Vx	27	0.000	0.000	0.000

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
T5	141.896 - 121.688	Leg	Max Tension	7	116.024	-1.254	0.139
			Max. Compression	10	-148.620	0.539	-0.027
			Max. Mx	22	91.280	-1.965	0.035
			Max. My	12	-7.826	-0.059	-1.594
			Max. Vy	22	-1.018	-1.965	0.035
			Max. Vx	12	-0.987	-0.059	-1.594
		Diagonal	Max Tension	16	12.893	0.000	0.000
			Max. Compression	16	-13.077	0.000	0.000
			Max. Mx	38	2.883	0.175	0.000
			Max. My	2	1.366	0.000	0.001
			Max. Vy	38	0.056	0.000	0.000
			Max. Vx	2	-0.000	0.000	0.000
		Horizontal	Max Tension	22	7.703	-0.019	0.008
			Max. Compression	16	-7.804	-0.033	-0.000
			Max. Mx	29	0.880	-0.090	-0.004
			Max. My	22	-1.393	-0.058	-0.017
			Max. Vy	29	-0.052	-0.090	-0.004
			Max. Vx	22	0.003	-0.058	-0.017
		Inner Bracing	Max Tension	25	0.005	0.000	0.000
			Max. Compression	22	-0.010	0.000	0.000
			Max. Mx	26	-0.007	-0.058	0.000
			Max. My	37	-0.009	0.000	0.000
			Max. Vy	26	0.034	0.000	0.000
			Max. Vx	37	-0.000	0.000	0.000
T6	121.688 - 101.479	Leg	Max Tension	7	145.955	-0.654	0.079
			Max. Compression	10	-183.817	0.934	-0.076
			Max. Mx	22	140.493	-0.943	0.057
			Max. My	24	-14.366	-0.027	1.072
			Max. Vy	14	0.124	-0.920	-0.136
			Max. Vx	24	-0.181	-0.027	1.072
		Diagonal	Max Tension	16	11.815	0.000	0.000
			Max. Compression	16	-12.027	0.000	0.000
			Max. Mx	38	2.408	0.214	0.000
			Max. My	2	1.431	0.000	0.001
			Max. Vy	38	-0.064	0.000	0.000
			Max. Vx	2	-0.000	0.000	0.000
		Horizontal	Max Tension	16	7.649	0.000	0.000
			Max. Compression	16	-7.752	-0.041	-0.000
			Max. Mx	29	1.009	-0.107	-0.003
			Max. My	22	-1.648	-0.057	-0.015
			Max. Vy	29	-0.058	-0.107	-0.003
			Max. Vx	22	0.002	-0.057	-0.015
		Inner Bracing	Max Tension	25	0.003	0.000	0.000
			Max. Compression	37	-0.010	0.000	0.000
			Max. Mx	26	-0.008	-0.103	0.000
			Max. My	10	0.001	0.000	-0.000
			Max. Vy	26	0.051	0.000	0.000
			Max. Vx	10	0.000	0.000	0.000
T7	101.479 - 81.2708	Leg	Max Tension	23	174.612	-0.602	0.012
			Max. Compression	10	-215.554	0.792	-0.046
			Max. Mx	22	155.247	-0.943	0.057
			Max. My	24	-15.456	-0.028	1.072
			Max. Vy	14	-0.126	-0.920	-0.136
			Max. Vx	12	-0.175	-0.032	-1.070
		Diagonal	Max Tension	16	11.704	0.000	0.000
			Max. Compression	16	-12.046	0.000	0.000
			Max. Mx	38	2.222	0.314	0.000
			Max. My	2	1.424	0.000	0.001
			Max. Vy	38	0.088	0.000	0.000
			Max. Vx	2	-0.000	0.000	0.000
		Horizontal	Max Tension	16	8.262	0.000	0.000
			Max. Compression	16	-8.315	-0.085	-0.000
			Max. Mx	37	1.258	-0.188	-0.005
			Max. My	22	-1.962	-0.120	-0.019
			Max. Vy	37	-0.087	-0.188	-0.005
			Max. Vx	22	0.002	-0.120	-0.019

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
		Inner Bracing	Max Tension	25	0.002	0.000	0.000
			Max. Compression	37	-0.013	0.000	0.000
			Max. Mx	26	-0.011	-0.157	0.000
			Max. My	10	-0.000	0.000	-0.000
			Max. Vy	26	0.067	0.000	0.000
			Max. Vx	10	-0.000	0.000	0.000
T8	81.2708 - 61	Leg	Max Tension	23	201.067	-1.312	0.006
			Max. Compression	10	-245.437	0.761	-0.041
			Max. Mx	10	-230.987	1.321	-0.041
			Max. My	24	-18.991	-0.039	1.275
			Max. Vy	14	0.159	-1.279	-0.043
			Max. Vx	24	-0.186	-0.039	1.275
		Diagonal	Max Tension	17	11.374	0.000	0.000
			Max. Compression	16	-11.842	0.000	0.000
			Max. Mx	38	1.984	0.374	0.000
			Max. My	2	1.394	0.000	0.001
			Max. Vy	38	-0.098	0.000	0.000
			Max. Vx	2	-0.000	0.000	0.000
		Horizontal	Max Tension	16	8.632	0.000	0.000
			Max. Compression	16	-8.598	-0.105	-0.000
			Max. Mx	37	1.426	-0.222	-0.004
			Max. My	22	-2.260	-0.128	-0.017
			Max. Vy	37	-0.096	-0.222	-0.004
			Max. Vx	22	0.002	-0.128	-0.017
		Inner Bracing	Max Tension	1	0.000	0.000	0.000
			Max. Compression	37	-0.015	0.000	0.000
			Max. Mx	26	-0.014	-0.250	0.000
			Max. My	10	-0.002	0.000	-0.000
			Max. Vy	26	-0.094	0.000	0.000
			Max. Vx	10	0.000	0.000	0.000
T9	61 - 40.6667	Leg	Max Tension	23	226.291	-1.836	-0.018
			Max. Compression	10	-274.420	-2.867	-0.161
			Max. Mx	10	-274.420	-2.867	-0.161
			Max. My	24	-23.826	-0.636	3.593
			Max. Vy	10	0.567	2.149	-0.004
			Max. Vx	24	-0.420	-0.636	3.593
		Diagonal	Max Tension	17	12.215	0.000	0.000
			Max. Compression	16	-12.737	0.000	0.000
			Max. Mx	38	2.130	0.432	0.000
			Max. My	2	1.365	0.000	0.000
			Max. Vy	38	-0.107	0.000	0.000
			Max. Vx	2	-0.000	0.000	0.000
		Horizontal	Max Tension	16	9.755	0.000	0.000
			Max. Compression	17	-9.581	-0.098	-0.000
			Max. Mx	37	1.593	-0.266	-0.004
			Max. My	22	-2.548	-0.146	-0.016
			Max. Vy	37	-0.105	-0.266	-0.004
			Max. Vx	22	0.002	-0.146	-0.016
		Inner Bracing	Max Tension	1	0.000	0.000	0.000
			Max. Compression	37	-0.015	0.000	0.000
			Max. Mx	26	-0.014	-0.306	0.000
			Max. My	10	-0.003	0.000	-0.000
			Max. Vy	26	-0.102	0.000	0.000
			Max. Vx	10	0.000	0.000	0.000
T10	40.6667 - 20.3333	Leg	Max Tension	23	236.481	1.463	0.128
			Max. Compression	10	-287.682	-8.168	-0.317
			Max. Mx	10	-287.471	9.336	0.238
			Max. My	24	-26.083	-1.298	5.682
			Max. Vy	10	1.775	9.336	0.238
			Max. Vx	24	-0.981	-1.298	5.682
		Diagonal	Max Tension	17	17.004	-0.137	0.092
			Max. Compression	16	-17.822	0.000	0.000
			Max. Mx	6	12.456	-0.197	0.059
			Max. My	4	-16.765	0.002	-0.109
			Max. Vy	37	0.072	-0.177	0.005
			Max. Vx	4	-0.009	0.000	0.000
		Horizontal	Max Tension	16	9.303	0.000	0.000
			Max. Compression	16	-9.706	-0.197	-0.000

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Mx	37	-1.630	-0.381	-0.006
			Max. My	10	1.693	-0.116	0.024
			Max. Vy	37	0.134	-0.381	-0.006
			Max. Vx	10	-0.002	-0.116	0.024
		Redund Horz 1 Bracing	Max Tension	10	4.993	0.000	0.000
			Max. Compression	10	-4.993	0.000	0.000
			Max. Mx	26	0.906	0.040	0.000
			Max. Vy	26	-0.026	0.000	0.000
		Redund Diag 1 Bracing	Max Tension	10	4.612	0.000	0.000
			Max. Compression	10	-4.612	0.000	0.000
			Max. Mx	38	1.957	0.082	0.000
			Max. My	16	3.737	0.000	-0.000
			Max. Vy	38	-0.028	0.000	0.000
			Max. Vx	16	0.000	0.000	0.000
		Redund Hip 1 Bracing	Max Tension	1	0.000	0.000	0.000
			Max. Compression	16	-0.050	0.000	0.000
			Max. Mx	26	-0.013	0.040	0.000
			Max. Vy	26	-0.026	0.000	0.000
		Redund Hip Diagonal 1 Bracing	Max Tension	16	0.091	0.000	0.000
			Max. Compression	38	-0.078	0.000	0.000
			Max. Mx	38	0.067	0.287	0.000
			Max. My	24	0.030	0.000	0.000
			Max. Vy	38	-0.076	0.000	0.000
			Max. Vx	24	-0.000	0.000	0.000
		Inner Bracing	Max Tension	17	0.001	0.000	0.000
			Max. Compression	18	-0.019	0.000	0.000
			Max. Mx	26	-0.016	0.326	0.000
			Max. My	10	-0.003	0.000	0.000
			Max. Vy	26	-0.104	0.000	0.000
			Max. Vx	10	-0.000	0.000	0.000
T11	20.3333 - 0	Leg	Max Tension	23	258.664	5.165	0.305
			Max. Compression	10	-314.517	-0.000	0.000
			Max. Mx	10	-314.243	8.479	0.214
			Max. My	24	-28.287	-1.299	5.680
			Max. Vy	10	-1.695	8.479	0.214
			Max. Vx	24	0.953	-1.299	5.680
		Diagonal	Max Tension	17	19.540	-0.131	0.091
			Max. Compression	16	-20.346	0.000	0.000
			Max. Mx	6	14.304	-0.195	0.057
			Max. My	4	-19.969	-0.023	-0.107
			Max. Vy	37	-0.073	-0.183	0.005
			Max. Vx	4	-0.009	0.000	0.000
		Horizontal	Max Tension	16	11.490	0.000	0.000
			Max. Compression	17	-11.534	-0.177	-0.000
			Max. Mx	37	1.858	-0.394	-0.006
			Max. My	11	0.984	-0.107	0.024
			Max. Vy	37	-0.136	-0.394	-0.006
			Max. Vx	22	0.002	-0.304	-0.024
		Redund Horz 1 Bracing	Max Tension	10	5.456	0.000	0.000
			Max. Compression	10	-5.456	0.000	0.000
			Max. Mx	34	2.213	0.045	0.000
			Max. Vy	34	-0.026	0.000	0.000
		Redund Diag 1 Bracing	Max Tension	10	4.712	0.000	0.000
			Max. Compression	10	-4.712	0.000	0.000
			Max. Mx	27	2.124	0.089	0.000
			Max. My	18	4.469	0.000	-0.000
			Max. Vy	27	-0.030	0.000	0.000
			Max. Vx	18	0.000	0.000	0.000
		Redund Hip 1 Bracing	Max Tension	1	0.000	0.000	0.000
			Max. Compression	16	-0.052	0.000	0.000
			Max. Mx	26	-0.010	0.045	0.000
			Max. Vy	26	-0.026	0.000	0.000

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
		Redund Hip Diagonal 1 Bracing	Max Tension	16	0.095	0.000	0.000
			Max. Compression	38	-0.073	0.000	0.000
			Max. Mx	37	0.063	0.310	0.000
			Max. My	2	0.045	0.000	0.000
			Max. Vy	37	-0.077	0.000	0.000
			Max. Vx	2	-0.000	0.000	0.000
		Inner Bracing	Max Tension	17	0.003	0.000	0.000
			Max. Compression	18	-0.018	0.000	0.000
			Max. Mx	26	-0.013	0.376	0.000
			Max. My	2	-0.004	0.000	0.000
			Max. Vy	26	-0.108	0.000	0.000
			Max. Vx	2	-0.000	0.000	0.000

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Leg C	Max. Vert	18	326.202	31.458	-19.598
	Max. H_x	18	326.202	31.458	-19.598
	Max. H_z	7	-271.884	-28.137	17.712
	Min. Vert	7	-271.884	-28.137	17.712
	Min. H_x	7	-271.884	-28.137	17.712
	Min. H_z	18	326.202	31.458	-19.598
Leg B	Max. Vert	10	344.009	-34.193	-19.144
	Max. H_x	23	-285.373	30.910	17.118
	Max. H_z	23	-285.373	30.910	17.118
	Min. Vert	23	-285.373	30.910	17.118
	Min. H_x	10	344.009	-34.193	-19.144
	Min. H_z	10	344.009	-34.193	-19.144
Leg A	Max. Vert	2	329.333	-1.209	36.793
	Max. H_x	21	27.197	6.826	1.898
	Max. H_z	2	329.333	-1.209	36.793
	Min. Vert	15	-266.559	1.321	-32.810
	Min. H_x	9	26.217	-6.791	1.811
	Min. H_z	15	-266.559	1.321	-32.810

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	83.023	-0.000	0.000	-49.978	-29.764	-0.000
1.2 Dead+1.0 Wind 0 deg - No Ice	99.628	-0.068	-60.327	-7704.199	-23.551	-66.274
0.9 Dead+1.0 Wind 0 deg - No Ice	74.721	-0.068	-60.333	-7677.938	-14.443	-66.390
1.2 Dead+1.0 Wind 30 deg - No Ice	99.628	29.131	-50.479	-6498.506	-3749.097	-61.509
0.9 Dead+1.0 Wind 30 deg - No Ice	74.721	29.134	-50.484	-6473.958	-3734.546	-61.551
1.2 Dead+1.0 Wind 60 deg - No Ice	99.628	52.857	-30.391	-3887.791	-6702.236	-65.404
0.9 Dead+1.0 Wind 60 deg - No Ice	74.721	52.862	-30.394	-3867.102	-6683.433	-65.361
1.2 Dead+1.0 Wind 90 deg - No Ice	99.628	63.772	0.060	-49.213	-7998.538	-34.594
0.9 Dead+1.0 Wind 90 deg - No Ice	74.721	63.778	0.060	-34.088	-7977.937	-34.475
1.2 Dead+1.0 Wind 120 deg	99.628	56.114	32.378	3980.973	-7038.524	29.947

Load Combination	Vertical	$Shear_x$	$Shear_z$	Overturning Moment, M_x	Overturning Moment, M_z	Torque
	K	K	K	kip-ft	kip-ft	kip-ft
- No Ice 0.9 Dead+1.0 Wind 120 deg	74.721	56.119	32.381	3990.309	-7019.337	30.112
- No Ice 1.2 Dead+1.0 Wind 150 deg	99.628	31.621	54.600	6803.185	-4014.512	67.693
- No Ice 0.9 Dead+1.0 Wind 150 deg	74.721	31.624	54.604	6808.411	-3999.676	67.854
- No Ice 1.2 Dead+1.0 Wind 180 deg	99.628	0.075	60.301	7578.973	-49.540	66.085
- No Ice 0.9 Dead+1.0 Wind 180 deg	74.721	0.075	60.306	7583.025	-40.433	66.201
- No Ice 1.2 Dead+1.0 Wind 210 deg	99.628	-29.159	50.462	6374.703	3682.030	61.280
- No Ice 0.9 Dead+1.0 Wind 210 deg	74.721	-29.161	50.466	6380.468	3685.682	61.325
- No Ice 1.2 Dead+1.0 Wind 240 deg	99.628	-52.823	30.421	3772.532	6623.912	65.741
- No Ice 0.9 Dead+1.0 Wind 240 deg	74.721	-52.827	30.424	3782.137	6623.331	65.698
- No Ice 1.2 Dead+1.0 Wind 270 deg	99.628	-63.750	-0.079	-74.763	7922.365	34.608
- No Ice 0.9 Dead+1.0 Wind 270 deg	74.721	-63.755	-0.079	-59.580	7919.980	34.489
- No Ice 1.2 Dead+1.0 Wind 300 deg	99.628	-56.107	-32.389	-4103.324	6965.368	-29.972
- No Ice 0.9 Dead+1.0 Wind 300 deg	74.721	-56.112	-32.392	-4082.352	6964.392	-30.137
- No Ice 1.2 Dead+1.0 Wind 330 deg	99.628	-31.615	-54.608	-6925.131	3941.551	-67.753
- No Ice 0.9 Dead+1.0 Wind 330 deg	74.721	-31.617	-54.613	-6900.052	3944.927	-67.913
- No Ice 1.2 Dead+1.0 Ice+1.0 Temp	203.957	0.000	0.001	-129.967	123.173	0.001
1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp	203.957	-0.003	-16.267	-2189.074	124.188	-21.966
1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp	203.957	8.014	-13.851	-1886.048	-892.371	-20.366
1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp	203.957	14.187	-8.158	-1156.706	-1662.955	-18.279
1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp	203.957	16.991	0.002	-129.966	-1998.324	-8.728
1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp	203.957	14.951	8.609	942.766	-1741.065	8.242
1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp	203.957	8.465	14.615	1703.343	-939.396	20.333
1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp	203.957	0.005	16.263	1927.258	122.563	21.930
1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp	203.957	-8.019	13.848	1624.523	1140.282	20.325
1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp	203.957	-14.181	8.165	896.818	1908.764	18.341
1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp	203.957	-16.987	-0.005	-131.548	2244.517	8.727
1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp	203.957	-14.949	-8.610	-1203.935	1987.716	-8.245
1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp	203.957	-8.464	-14.616	-1964.542	1186.141	-20.344
Dead+Wind 0 deg - Service	83.023	-0.015	-12.851	-1676.870	-27.247	-14.136
Dead+Wind 30 deg - Service	83.023	6.206	-10.754	-1420.262	-820.111	-13.107
Dead+Wind 60 deg - Service	83.023	11.260	-6.474	-864.673	-1448.593	-13.930
Dead+Wind 90 deg - Service	83.023	13.585	0.013	-47.740	-1724.473	-7.353
Dead+Wind 120 deg - Service	83.023	11.954	6.898	809.930	-1520.172	6.405
Dead+Wind 150 deg - Service	83.023	6.736	11.631	1410.524	-876.647	14.444
Dead+Wind 180 deg - Service	83.023	0.016	12.846	1575.614	-32.818	14.090
Dead+Wind 210 deg - Service	83.023	-6.212	10.750	1319.335	761.321	13.058
Dead+Wind 240 deg -	83.023	-11.253	6.481	765.555	1387.407	13.999

Load Combination	Vertical	$Shear_x$	$Shear_z$	Overturning Moment, M_x	Overturning Moment, M_z	Torque
	K	K	K	kip-ft	kip-ft	kip-ft
Service						
Dead+Wind 270 deg - Service	83.023	-13.581	-0.017	-53.174	1663.756	7.356
Dead+Wind 300 deg - Service	83.023	-11.953	-6.900	-910.550	1460.098	-6.413
Dead+Wind 330 deg - Service	83.023	-6.735	-11.633	-1511.102	816.549	-14.459

Solution Summary

	Sum of Applied Forces			Sum of Reactions			
Load Comb.	PX	PY	PZ	PX	PY	PZ	% Error
	K	K	K	K	K	K	
1	0.000	-83.023	0.000	0.000	83.023	-0.000	0.000%
2	-0.068	-99.628	-60.348	0.068	99.628	60.327	0.018%
3	-0.068	-74.721	-60.348	0.068	74.721	60.333	0.017%
4	29.141	-99.628	-50.497	-29.131	99.628	50.479	0.018%
5	29.141	-74.721	-50.497	-29.134	74.721	50.484	0.016%
6	52.875	-99.628	-30.401	-52.857	99.628	30.391	0.018%
7	52.875	-74.721	-30.401	-52.862	74.721	30.394	0.016%
8	63.794	-99.628	0.061	-63.772	99.628	-0.060	0.018%
9	63.794	-74.721	0.061	-63.778	74.721	-0.060	0.016%
10	56.133	-99.628	32.389	-56.114	99.628	-32.378	0.019%
11	56.133	-74.721	32.389	-56.119	74.721	-32.381	0.017%
12	31.632	-99.628	54.618	-31.621	99.628	-54.600	0.018%
13	31.632	-74.721	54.618	-31.624	74.721	-54.604	0.016%
14	0.075	-99.628	60.321	-0.075	99.628	-60.301	0.017%
15	0.075	-74.721	60.321	-0.075	74.721	-60.306	0.015%
16	-29.169	-99.628	50.479	29.159	99.628	-50.462	0.017%
17	-29.169	-74.721	50.479	29.161	74.721	-50.466	0.016%
18	-52.841	-99.628	30.431	52.823	99.628	-30.421	0.018%
19	-52.841	-74.721	30.431	52.827	74.721	-30.424	0.016%
20	-63.771	-99.628	-0.079	63.750	99.628	0.079	0.018%
21	-63.771	-74.721	-0.079	63.755	74.721	0.079	0.016%
22	-56.125	-99.628	-32.399	56.107	99.628	32.389	0.018%
23	-56.125	-74.721	-32.399	56.112	74.721	32.392	0.016%
24	-31.625	-99.628	-54.627	31.615	99.628	54.608	0.018%
25	-31.625	-74.721	-54.627	31.617	74.721	54.613	0.016%
26	0.000	-203.957	0.000	-0.000	203.957	-0.001	0.000%
27	-0.003	-203.957	-16.272	0.003	203.957	16.267	0.002%
28	8.016	-203.957	-13.855	-8.014	203.957	13.851	0.002%
29	14.191	-203.957	-8.161	-14.187	203.957	8.158	0.002%
30	16.996	-203.957	0.002	-16.991	203.957	-0.002	0.002%
31	14.955	-203.957	8.611	-14.951	203.957	-8.609	0.002%
32	8.467	-203.957	14.619	-8.465	203.957	-14.615	0.002%
33	0.005	-203.957	16.267	-0.005	203.957	-16.263	0.002%
34	-8.021	-203.957	13.851	8.019	203.957	-13.848	0.002%
35	-14.185	-203.957	8.167	14.181	203.957	-8.165	0.002%
36	-16.992	-203.957	-0.005	16.987	203.957	0.005	0.002%
37	-14.953	-203.957	-8.613	14.949	203.957	8.610	0.002%
38	-8.466	-203.957	-14.621	8.464	203.957	14.616	0.003%
39	-0.014	-83.023	-12.855	0.015	83.023	12.851	0.005%
40	6.208	-83.023	-10.757	-6.206	83.023	10.754	0.005%
41	11.263	-83.023	-6.476	-11.260	83.023	6.474	0.005%
42	13.589	-83.023	0.013	-13.585	83.023	-0.013	0.005%
43	11.957	-83.023	6.899	-11.954	83.023	-6.898	0.005%
44	6.738	-83.023	11.635	-6.736	83.023	-11.631	0.004%
45	0.016	-83.023	12.849	-0.016	83.023	-12.846	0.004%
46	-6.213	-83.023	10.753	6.212	83.023	-10.750	0.004%
47	-11.256	-83.023	6.482	11.253	83.023	-6.481	0.004%
48	-13.584	-83.023	-0.017	13.581	83.023	0.017	0.004%
49	-11.956	-83.023	-6.902	11.953	83.023	6.900	0.004%
50	-6.737	-83.023	-11.637	6.735	83.023	11.633	0.005%

Non-Linear Convergence Results

Load Combination	Converged?	Number of Cycles	Displacement Tolerance	Force Tolerance
1	Yes	4	0.00000001	0.00008266
2	Yes	4	0.00035241	0.00088216
3	Yes	4	0.00026373	0.00066635
4	Yes	4	0.00034453	0.00086315
5	Yes	4	0.00025584	0.00064701
6	Yes	4	0.00033474	0.00083844
7	Yes	4	0.00024627	0.00062244
8	Yes	4	0.00034302	0.00085832
9	Yes	4	0.00025459	0.00064271
10	Yes	4	0.00035171	0.00087932
11	Yes	4	0.00026332	0.00066430
12	Yes	4	0.00034193	0.00085468
13	Yes	4	0.00025398	0.00064084
14	Yes	4	0.00033239	0.00083063
15	Yes	4	0.00024472	0.00061771
16	Yes	4	0.00034255	0.00085554
17	Yes	4	0.00025454	0.00064244
18	Yes	4	0.00035199	0.00087832
19	Yes	4	0.00026366	0.00066469
20	Yes	4	0.00034206	0.00085364
21	Yes	4	0.00025418	0.00064055
22	Yes	4	0.00033141	0.00082799
23	Yes	4	0.00024387	0.00061496
24	Yes	4	0.00034180	0.00085484
25	Yes	4	0.00025373	0.00064045
26	Yes	4	0.00000001	0.00011527
27	Yes	5	0.00000001	0.00047961
28	Yes	5	0.00000001	0.00047106
29	Yes	5	0.00000001	0.00046155
30	Yes	5	0.00000001	0.00045506
31	Yes	5	0.00000001	0.00044706
32	Yes	5	0.00000001	0.00043446
33	Yes	5	0.00000001	0.00042592
34	Yes	5	0.00000001	0.00043112
35	Yes	5	0.00000001	0.00044637
36	Yes	5	0.00000001	0.00046178
37	Yes	5	0.00000001	0.00047321
38	Yes	5	0.00000001	0.00048026
39	Yes	4	0.00000001	0.00062351
40	Yes	4	0.00000001	0.00062286
41	Yes	4	0.00000001	0.00062200
42	Yes	4	0.00000001	0.00062417
43	Yes	4	0.00000001	0.00062079
44	Yes	4	0.00000001	0.00060411
45	Yes	4	0.00000001	0.00058451
46	Yes	4	0.00000001	0.00057820
47	Yes	4	0.00000001	0.00058660
48	Yes	4	0.00000001	0.00059261
49	Yes	4	0.00000001	0.00059946
50	Yes	4	0.00000001	0.00061342

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T1	212.625 - 202.458	3.643	42	0.155	0.034
T2	202.458 - 182.292	3.317	42	0.154	0.034
T3	182.292 -	2.665	42	0.147	0.033

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
	162.104				
T4	162.104 - 141.896	2.057	42	0.131	0.028
T5	141.896 - 121.688	1.520	42	0.112	0.023
T6	121.688 - 101.479	1.085	42	0.090	0.018
T7	101.479 - 81.2708	0.732	43	0.072	0.014
T8	81.2708 - 61	0.465	43	0.053	0.011
T9	61 - 40.6667	0.263	43	0.038	0.008
T10	40.6667 - 20.3333	0.121	49	0.023	0.006
T11	20.3333 - 0	0.040	49	0.011	0.003

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
216.625	Flash Beacon Lighting	42	3.643	0.155	0.034	291088
213.625	Lightning Rod 5/8" x 6'	42	3.643	0.155	0.034	291088
212.625	Climb Leg Extension	42	3.643	0.155	0.034	291088
208.000	Sector Mount [SM 510-3]	42	3.495	0.154	0.034	291088
199.000	Sector Mount [SM 505-3]	42	3.205	0.154	0.034	287128
189.000	Sector Mount [SM 510-3]	42	2.880	0.150	0.034	148864
183.000	Pipe Mount [PM 601-3]	42	2.687	0.147	0.034	82726
179.000	HPD2-23	42	2.562	0.145	0.033	72538
175.000	Sector Mount	42	2.438	0.142	0.032	62463
167.000	Side Arm Mount [SO 306-1]	42	2.198	0.135	0.030	48511
164.000	Side Arm Mount [SO 306-1]	42	2.111	0.133	0.029	45064
147.000	Side Arm Mount [SO 306-1]	42	1.646	0.117	0.024	45522
145.000	Side Arm Mount [SO 306-1]	42	1.596	0.115	0.024	44265
139.000	(3) Site Pro 1 VFA12-HD	42	1.451	0.109	0.022	43739
128.000	Side Arm Mount	42	1.211	0.096	0.020	57628
112.000	Side Lighting	42	0.905	0.081	0.016	60295
51.000	Side Arm Mount	49	0.186	0.030	0.007	79532

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T1	212.625 - 202.458	16.423	10	0.675	0.160
T2	202.458 - 182.292	14.976	10	0.674	0.161
T3	182.292 - 162.104	12.074	10	0.639	0.157
T4	162.104 - 141.896	9.383	10	0.568	0.133
T5	141.896 - 121.688	7.006	10	0.491	0.107
T6	121.688 - 101.479	5.039	10	0.402	0.086
T7	101.479 - 81.2708	3.419	10	0.325	0.066
T8	81.2708 - 61	2.176	10	0.244	0.052
T9	61 - 40.6667	1.234	10	0.175	0.039
T10	40.6667 - 20.3333	0.569	22	0.105	0.026

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T11	20.3333 - 0	0.186	23	0.052	0.013

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
216.625	Flash Beacon Lighting	10	16.423	0.675	0.160	63138
213.625	Lightning Rod 5/8" x 6'	10	16.423	0.675	0.160	63138
212.625	Climb Leg Extension	10	16.423	0.675	0.160	63138
208.000	Sector Mount [SM 510-3]	10	15.767	0.675	0.160	63138
199.000	Sector Mount [SM 505-3]	10	14.477	0.671	0.161	61215
189.000	Sector Mount [SM 510-3]	10	13.029	0.656	0.160	33598
183.000	Pipe Mount [PM 601-3]	10	12.174	0.641	0.158	18252
179.000	HPD2-23	10	11.616	0.629	0.154	16323
175.000	Sector Mount	10	11.069	0.615	0.150	15354
167.000	Side Arm Mount [SO 306-1]	10	10.009	0.586	0.140	13769
164.000	Side Arm Mount [SO 306-1]	10	9.623	0.575	0.135	13270
147.000	Side Arm Mount [SO 306-1]	10	7.569	0.511	0.113	11415
145.000	Side Arm Mount [SO 306-1]	10	7.345	0.503	0.111	11037
139.000	(3) Site Pro 1 VFA12-HD	10	6.699	0.479	0.104	11044
128.000	Side Arm Mount	10	5.613	0.430	0.093	13934
112.000	Side Lighting	10	4.218	0.365	0.076	13736
51.000	Side Arm Mount	22	0.871	0.139	0.033	17275

Bolt Design Data

Section No.	Elevation ft	Component Type	Bolt Grade	Bolt Size in	Number Of Bolts	Maximum Load per Bolt K	Allowable Load per Bolt K	Ratio Load / Allowable	Allowable Ratio	Criteria
T1	212.625	Leg	A325N	0.750	4	0.389	30.101	0.013	1.05	Bolt Tension
		Diagonal	A325N	0.625	3	1.096	13.806	0.079	1.05	Bolt Shear
		Horizontal	A325N	0.625	2	1.180	13.806	0.085	1.05	Bolt Shear
T2	202.458	Leg	A325N	0.875	4	4.838	41.556	0.116	1.05	Bolt Tension
		Diagonal	A325N	0.625	3	3.216	13.806	0.233	1.05	Bolt Shear
		Horizontal	A325N	0.625	2	2.599	13.806	0.188	1.05	Bolt Shear
T3	182.292	Leg	A325N	1.000	4	14.378	54.517	0.264	1.05	Bolt Tension
		Diagonal	A325N	0.625	3	3.249	13.806	0.235	1.05	Bolt Shear
		Horizontal	A325N	0.625	2	3.112	13.806	0.225	1.05	Bolt Shear
T4	162.104	Leg	A325N	1.000	6	15.489	54.517	0.284	1.05	Bolt Tension
		Diagonal	A325N	0.625	3	3.169	13.806	0.230	1.05	Bolt Shear
		Horizontal	A325N	0.625	2	3.132	13.806	0.227	1.05	Bolt Shear
T5	141.896	Leg	A325N	1.000	6	19.337	54.517	0.355	1.05	Bolt Tension
		Diagonal	A325N	0.625	3	4.359	13.806	0.316	1.05	Bolt Shear
		Horizontal	A325N	0.625	2	3.902	13.806	0.283	1.05	Bolt Shear
T6	121.688	Leg	A325N	1.000	6	24.326	54.517	0.446	1.05	Bolt Tension
		Diagonal	A325N	0.625	3	4.009	13.806	0.290	1.05	Bolt Shear
		Horizontal	A325N	0.625	2	3.876	13.806	0.281	1.05	Bolt Shear
T7	101.479	Leg	A325N	1.000	8	21.826	54.517	0.400	1.05	Bolt Tension
		Diagonal	A325N	0.625	3	4.015	13.806	0.291	1.05	Bolt Shear
		Horizontal	A325N	0.625	2	4.157	13.806	0.301	1.05	Bolt Shear
T8	81.2708	Leg	A325N	1.000	8	25.133	54.517	0.461	1.05	Bolt Tension
		Diagonal	A325N	0.625	3	3.947	13.806	0.286	1.05	Bolt Shear
		Horizontal	A325N	0.625	2	4.316	13.806	0.313	1.05	Bolt Shear
T9	61	Leg	A325N	1.000	8	28.286	54.517	0.519	1.05	Bolt Tension
		Diagonal	A325N	0.625	3	4.245	13.806	0.308	1.05	Bolt Shear
		Horizontal	A325N	0.625	2	4.877	13.806	0.353	1.05	Bolt Shear
T10	40.6667	Leg	A325N	1.000	8	29.502	54.517	0.541	1.05	Bolt Tension
		Diagonal	A325N	0.750	3	5.941	19.880	0.299	1.05	Bolt Shear
		Horizontal	A325N	0.750	2	4.853	19.880	0.244	1.05	Bolt Shear

Section No.	Elevation ft	Component Type	Bolt Grade	Bolt Size in	Number Of Bolts	Maximum Load per Bolt K	Allowable Load per Bolt K	Ratio Load / Allowable	Allowable Ratio	Criteria
T11	20.3333	Diagonal	A325N	0.750	3	6.782	19.880	0.341	1.05	Bolt Shear
		Horizontal	A325N	0.750	2	5.767	19.880	0.290	1.05	Bolt Shear

Compression Checks

Leg Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	212.625 - 202.458	ROHN 2.5 STD	10.167	5.083	64.4 K=1.00	1.704	-4.668	56.631	0.082 [1]
T2	202.458 - 182.292	ROHN 3 EH	20.167	6.722	71.0 K=1.00	3.016	-27.822	93.888	0.296 [1]
T3	182.292 - 162.104	ROHN 4 EH	20.223	6.741	54.8 K=1.00	4.407	-80.026	159.259	0.502 [1]
T4	162.104 - 141.896	ROHN 5 EH	20.244	6.748	44.0 K=1.00	6.111	-117.310	238.656	0.492 [1]
T5	141.896 - 121.688	ROHN 6 EHS	20.250	10.125	54.6 K=1.00	6.713	-148.620	242.933	0.612 [1]
T6	121.688 - 101.479	ROHN 6 EH	20.260	10.130	55.4 K=1.00	8.405	-183.817	302.237	0.608 [1]
T7	101.479 - 81.2708	ROHN 6 EH	20.260	10.130	55.4 K=1.00	8.405	-215.554	302.237	0.713 [1]
T8	81.2708 - 61	ROHN 8 EHS	20.328	10.164	41.1 K=1.00	9.867	-245.437	392.291	0.626 [1]
T9	61 - 40.6667	ROHN 8 EHS	20.384	10.192	41.3 K=1.00	9.867	-274.420	392.020	0.700 [1]
T10	40.6667 - 20.3333	ROHN 8 EH	20.391	10.196	42.5 K=1.00	12.763	-287.682	503.236	0.572 [1]
T11	20.3333 - 0	ROHN 8 EH	20.373	10.187	42.5 K=1.00	12.763	-314.517	503.352	0.625 [1]

[1] P_u / ϕP_n controls

Diagonal Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	212.625 - 202.458	ROHN 2 STD	6.639	6.453	98.4 K=1.00	1.075	-3.288	23.829	0.138 [1]
T2	202.458 - 182.292	ROHN 2 STD	7.987	7.717	117.6 K=1.00	1.075	-9.648	17.541	0.550 [1]
T3	182.292 - 162.104	ROHN 2 STD	8.602	8.301	126.5 K=1.00	1.075	-9.746	15.159	0.643 [1]
T4	162.104 - 141.896	ROHN 2 STD	9.291	8.954	136.5 K=1.00	1.075	-9.004	13.026	0.691 [1]
T5	141.896 - 121.688	ROHN 2.5 STD	12.600	12.138	153.7 K=1.00	1.704	-13.077	16.287	0.803 [1]
T6	121.688 - 101.479	ROHN 2.5 STD	13.385	12.964	164.2 K=1.00	1.704	-11.906	14.278	0.834 [1]
T7	101.479 - 81.2708	ROHN 3 STD	14.235	13.843	142.8 K=1.00	2.228	-12.009	24.700	0.486 [1]
T8	81.2708 - 61	ROHN 3 STD	15.213	14.724	151.9 K=1.00	2.228	-11.842	21.833	0.542 [1]

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T9	61 - 40.6667	ROHN 3 STD	16.185	15.717	162.1 K=1.00	2.228	-12.736	19.163	0.665 [1]
T10	40.6667 - 20.3333	ROHN 3 STD	24.652	12.326	127.1 K=1.00	2.228	-17.822	31.156	0.572 [1]
T11	20.3333 - 0	ROHN 3 STD	25.288	12.644	130.4 K=1.00	2.228	-20.346	29.608	0.687 [1]

[1] P_u / ϕP_n controls

Horizontal Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	212.625 - 202.458	ROHN 1.5 STD	8.521	4.141	79.8 K=1.00	0.799	-2.314	22.582	0.102 [1]
T2	202.458 - 182.292	ROHN 1.5 STD	8.597	4.153	80.0 K=1.00	0.799	-5.159	22.520	0.229 [1]
T3	182.292 - 162.104	ROHN 1.5 STD	10.014	4.819	92.9 K=1.00	0.799	-6.223	19.143	0.325 [1]
T4	162.104 - 141.896	ROHN 2 STD	12.097	5.817	88.7 K=1.00	1.075	-6.265	27.209	0.230 [1]
T5	141.896 - 121.688	ROHN 2 STD	13.917	6.682	101.9 K=1.00	1.075	-7.804	22.640	0.345 [1]
T6	121.688 - 101.479	ROHN 2 STD	16.292	7.870	120.0 K=1.00	1.075	-7.752	16.864	0.460 [1]
T7	101.479 - 81.2708	ROHN 2.5 STD	18.792	9.120	115.5 K=1.00	1.704	-8.315	28.852	0.288 [1]
T8	81.2708 - 61	ROHN 2.5 STD	21.359	10.315	130.7 K=1.00	1.704	-8.598	22.552	0.381 [1]
T9	61 - 40.6667	ROHN 2.5 STD	23.927	11.599	146.9 K=1.00	1.704	-9.581	17.836	0.537 [1]
T10	40.6667 - 20.3333	ROHN 3 STD	25.177	12.224	126.1 K=1.00	2.228	-9.706	31.677	0.306 [1]
T11	20.3333 - 0	ROHN 3 STD	27.833	13.557	139.8 K=1.00	2.228	-11.534	25.753	0.448 [1]

[1] P_u / ϕP_n controls

Top Girt Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	212.625 - 202.458	ROHN 1.5 STD	8.500	4.130	79.6 K=1.00	0.799	-0.257	22.635	0.011 [1]

[1] P_u / ϕP_n controls

Redundant Horizontal (1) Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T10	40.6667 -	ROHN 1.5 STD	6.294	5.935	114.4	0.799	-4.993	13.007	0.384 [1]

Section No.	Elevation	Size	L	L_u	Kl/r	A	P_u	ϕP_n	Ratio $\frac{P_u}{\phi P_n}$
	ft		ft	ft		in^2	K	K	
	20.3333				K=1.00				
T11	20.3333 - 0	ROHN 1.5 STD	6.958	6.599	127.2	0.799	-5.456	11.053	0.494 [1]
					K=1.00				

[1] P_u / ϕP_n controls

Redundant Diagonal (1) Design Data (Compression)

Section No.	Elevation	Size	L	L_u	Kl/r	A	P_u	ϕP_n	Ratio $\frac{P_u}{\phi P_n}$
	ft		ft	ft		in^2	K	K	
T10	40.6667 - 20.3333	ROHN 2 STD	11.628	10.877	165.8 K=1.00	1.075	-4.612	8.829	0.522 [1]
T11	20.3333 - 0	ROHN 2 STD	12.021	11.347	173.0 K=1.00	1.075	-4.712	8.111	0.581 [1]

[1] P_u / ϕP_n controls

Redundant Hip (1) Design Data (Compression)

Section No.	Elevation	Size	L	L_u	Kl/r	A	P_u	ϕP_n	Ratio $\frac{P_u}{\phi P_n}$
	ft		ft	ft		in^2	K	K	
T10	40.6667 - 20.3333	ROHN 1.5 STD	6.294	6.294	121.3 K=1.00	0.799	-0.050	11.936	0.004 [1]
T11	20.3333 - 0	ROHN 1.5 STD	6.958	6.958	134.1 K=1.00	0.799	-0.052	10.041	0.005 [1]

[1] P_u / ϕP_n controls

Redundant Hip Diagonal (1) Design Data (Compression)

Section No.	Elevation	Size	L	L_u	Kl/r	A	P_u	ϕP_n	Ratio $\frac{P_u}{\phi P_n}$
	ft		ft	ft		in^2	K	K	
T10	40.6667 - 20.3333	ROHN 2.5 STD	15.204	15.204	192.6 K=1.00	1.704	-0.078	10.381	0.008 [1]
T11	20.3333 - 0	ROHN 2.5 STD	16.022	16.022	202.9 K=1.00	1.704	-0.073	9.348	0.008 [1]

[1] P_u / ϕP_n controls

Inner Bracing Design Data (Compression)

Section No.	Elevation	Size	L	L_u	Kl/r	A	P_u	ϕP_n	Ratio $\frac{P_u}{\phi P_n}$
	ft		ft	ft		in^2	K	K	
T1	212.625 - 202.458	L2x2x1/8	4.250	4.250	128.3 K=1.00	0.484	-0.004	8.424	0.001 [1]
T2	202.458 -	L2x2x1/8	4.299	4.299	129.8	0.484	-0.007	8.234	0.001 [1]

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
	182.292				K=1.00				
T3	182.292 - 162.104	L2x2x1/8	5.007	5.007	151.1 K=1.00	0.484	-0.006	6.069	0.001 [1]
T4	162.104 - 141.896	L2x2x1/8	5.701	5.701	172.1 K=1.00	0.484	-0.008	4.681	0.002 [1]
T5	141.896 - 121.688	L2x2x1/8	6.958	6.958	210.0 K=1.00	0.484	-0.009	3.142	0.003 [1]
T6	121.688 - 101.479	L2 1/2x2 1/2x3/16	8.146	8.146	197.5 K=1.00	0.902	-0.010	6.620	0.002 [1]
T7	101.479 - 81.2708	L3x3x3/16	9.396	9.396	189.2 K=1.00	1.090	-0.013	8.717	0.002 [1]
T8	81.2708 - 61	L3 1/2x3 1/2x1/4	10.680	10.680	184.7 K=1.00	1.690	-0.015	14.185	0.001 [1]
T9	61 - 40.6667	L3 1/2x3 1/2x1/4	11.964	11.964	206.9 K=1.00	1.690	-0.015	11.304	0.001 [1]
T10	40.6667 - 20.3333	ROHN 3 STD	12.589	12.589	129.8 K=1.00	2.228	-0.019	29.869	0.001 [1]
T11	20.3333 - 0	ROHN 3 STD	13.917	13.917	143.5 K=1.00	2.228	-0.018	24.440	0.001 [1]

[1] P_u / ϕP_n controls

Tension Checks

Leg Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	212.625 - 202.458	ROHN 2.5 STD	10.167	5.083	64.4	1.704	0.082	76.682	0.001 [1]
T2	202.458 - 182.292	ROHN 3 EH	20.167	6.722	71.0	3.016	19.351	135.717	0.143 [1]
T3	182.292 - 162.104	ROHN 4 EH	20.223	6.741	54.8	4.407	57.512	198.335	0.290 [1]
T4	162.104 - 141.896	ROHN 5 EH	20.244	6.748	44.0	6.111	92.931	275.012	0.338 [1]
T5	141.896 - 121.688	ROHN 6 EHS	20.250	10.125	54.6	6.713	116.024	302.097	0.384 [1]
T6	121.688 - 101.479	ROHN 6 EH	20.260	10.130	55.4	8.405	145.955	378.222	0.386 [1]
T7	101.479 - 81.2708	ROHN 6 EH	20.260	10.130	55.4	8.405	174.612	378.222	0.462 [1]
T8	81.2708 - 61	ROHN 8 EHS	20.328	10.164	41.1	9.867	201.067	443.995	0.453 [1]
T9	61 - 40.6667	ROHN 8 EHS	20.384	10.192	41.3	9.867	226.291	443.995	0.510 [1]
T10	40.6667 - 20.3333	ROHN 8 EH	20.391	10.196	42.5	12.763	236.481	574.322	0.412 [1]
T11	20.3333 - 0	ROHN 8 EH	20.373	10.187	42.5	12.763	258.664	574.322	0.450 [1]

[1] P_u / ϕP_n controls

Diagonal Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	212.625 -	ROHN 2 STD	6.639	6.453	98.4	1.075	3.216	48.354	0.067 [1]

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
	202.458								
T2	202.458 - 182.292	ROHN 2 STD	7.987	7.717	117.6	1.075	9.574	48.354	0.198 [1]
T3	182.292 - 162.104	ROHN 2 STD	8.602	8.301	126.5	1.075	9.656	48.354	0.200 [1]
T4	162.104 - 141.896	ROHN 2 STD	8.827	8.491	129.4	1.075	9.401	48.354	0.194 [1]
T5	141.896 - 121.688	ROHN 2.5 STD	12.600	12.138	153.7	1.704	12.893	76.682	0.168 [1]
T6	121.688 - 101.479	ROHN 2.5 STD	12.984	12.563	159.1	1.704	11.815	76.682	0.154 [1]
T7	101.479 - 81.2708	ROHN 3 STD	13.802	13.410	138.3	2.228	11.704	100.281	0.117 [1]
T8	81.2708 - 61	ROHN 3 STD	15.213	14.724	151.9	2.228	11.374	100.281	0.113 [1]
T9	61 - 40.6667	ROHN 3 STD	16.185	15.717	162.1	2.228	12.215	100.281	0.122 [1]
T10	40.6667 - 20.3333	ROHN 3 STD	24.652	12.326	127.1	2.228	17.004	100.281	0.170 [1]
T11	20.3333 - 0	ROHN 3 STD	25.288	12.644	130.4	2.228	19.540	100.281	0.195 [1]

[1] P_u / ϕP_n controls

Horizontal Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	212.625 - 202.458	ROHN 1.5 STD	8.521	4.141	79.8	0.799	2.360	35.976	0.066 [1]
T2	202.458 - 182.292	ROHN 1.5 STD	8.597	4.153	80.0	0.799	5.198	35.976	0.144 [1]
T3	182.292 - 162.104	ROHN 1.5 STD	10.014	4.819	92.9	0.799	5.910	35.976	0.164 [1]
T4	162.104 - 141.896	ROHN 2 STD	11.403	5.470	83.4	1.075	6.195	48.354	0.128 [1]
T5	141.896 - 121.688	ROHN 2 STD	13.917	6.682	101.9	1.075	7.703	48.354	0.159 [1]
T6	121.688 - 101.479	ROHN 2 STD	16.292	7.870	120.0	1.075	7.649	48.354	0.158 [1]
T7	101.479 - 81.2708	ROHN 2.5 STD	18.792	9.120	115.5	1.704	8.262	76.682	0.108 [1]
T8	81.2708 - 61	ROHN 2.5 STD	21.359	10.315	130.7	1.704	8.632	76.682	0.113 [1]
T9	61 - 40.6667	ROHN 2.5 STD	23.927	11.599	146.9	1.704	9.755	76.682	0.127 [1]
T10	40.6667 - 20.3333	ROHN 3 STD	25.177	12.224	126.1	2.228	9.303	100.281	0.093 [1]
T11	20.3333 - 0	ROHN 3 STD	27.833	13.557	139.8	2.228	11.490	100.281	0.115 [1]

[1] P_u / ϕP_n controls

Top Girt Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	212.625 - 202.458	ROHN 1.5 STD	8.500	4.130	79.6	0.799	0.258	35.976	0.007 [1]

[1] P_u / ϕP_n controls

Redundant Horizontal (1) Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T10	40.6667 - 20.3333	ROHN 1.5 STD	6.294	5.935	114.4	0.799	4.993	25.902	0.193 [1]
T11	20.3333 - 0	ROHN 1.5 STD	6.958	6.599	127.2	0.799	5.456	25.902	0.211 [1]

[1] P_u / ϕP_n controls

Redundant Diagonal (1) Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T10	40.6667 - 20.3333	ROHN 2 STD	11.628	10.877	165.8	1.075	4.612	34.815	0.132 [1]
T11	20.3333 - 0	ROHN 2 STD	12.021	11.347	173.0	1.075	4.712	34.815	0.135 [1]

[1] P_u / ϕP_n controls

Redundant Hip Diagonal (1) Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T10	40.6667 - 20.3333	ROHN 2.5 STD	15.204	15.204	192.6	1.704	0.091	55.211	0.002 [1]
T11	20.3333 - 0	ROHN 2.5 STD	16.022	16.022	202.9	1.704	0.095	55.211	0.002 [1]

[1] P_u / ϕP_n controls

Inner Bracing Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	212.625 - 202.458	L2x2x1/8	4.250	4.250	81.4	0.484	0.004	15.694	0.000 [1]
T2	202.458 - 182.292	L2x2x1/8	4.299	4.299	82.4	0.484	0.007	15.694	0.000 [1]
T3	182.292 - 162.104	L2x2x1/8	4.660	4.660	89.3	0.484	0.005	15.694	0.000 [1]
T4	162.104 - 141.896	L2x2x1/8	5.354	5.354	102.6	0.484	0.006	15.694	0.000 [1]
T5	141.896 - 121.688	L2x2x1/8	6.396	6.396	122.6	0.484	0.005	15.694	0.000 [1]
T6	121.688 - 101.479	L2 1/2x2 1/2x3/16	7.521	7.521	116.0	0.902	0.003	29.225	0.000 [1]
T7	101.479 - 81.2708	L3x3x3/16	8.771	8.771	112.1	1.090	0.002	35.316	0.000 [1]
T10	40.6667 - 20.3333	ROHN 3 STD	12.589	12.589	129.8	2.228	0.001	100.281	0.000 [1]
T11	20.3333 - 0	ROHN 3 STD	13.917	13.917	143.5	2.228	0.003	100.281	0.000 [1]

[1] P_u / ϕP_n controls

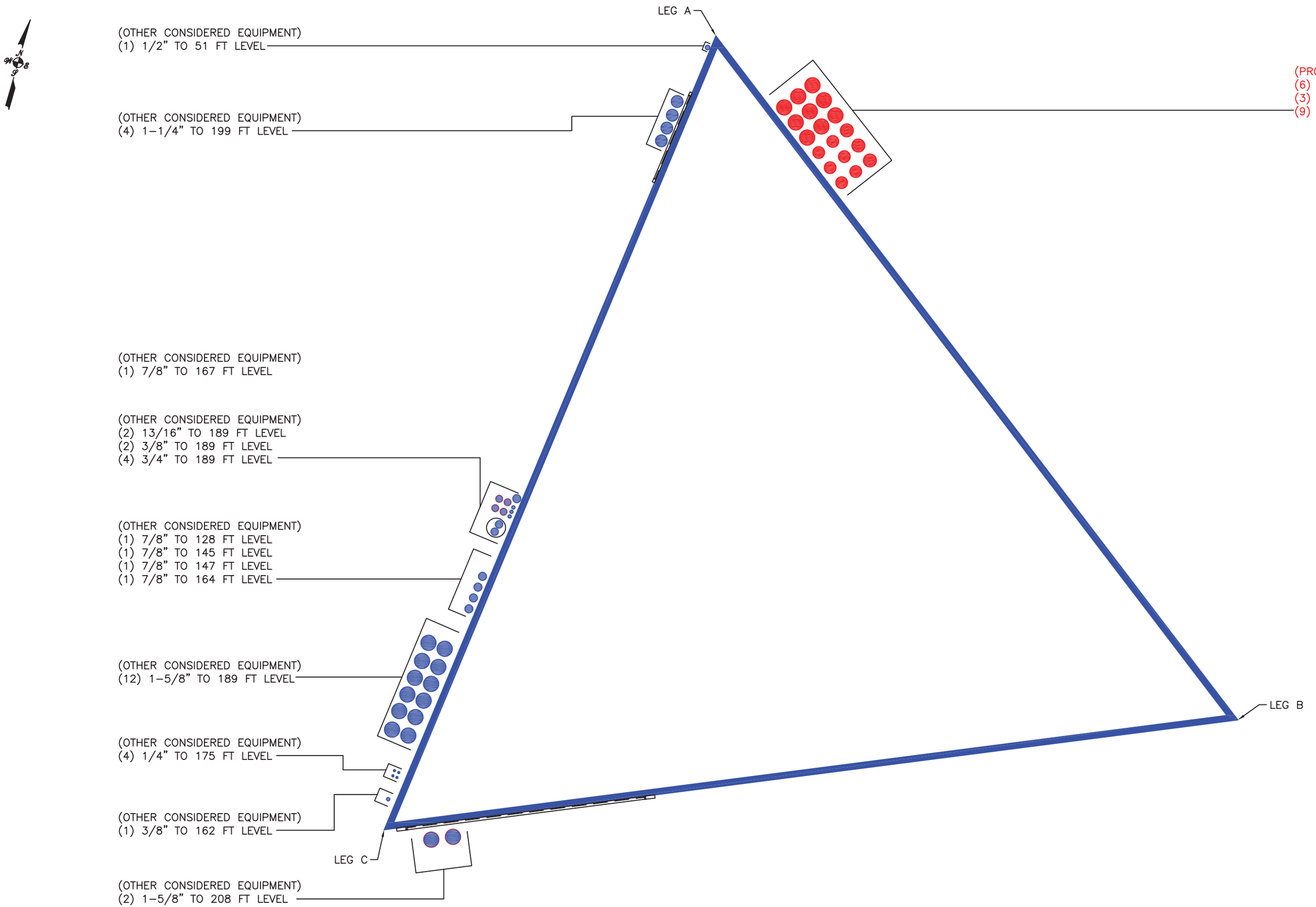
Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
T1	212.625 - 202.458	Leg	ROHN 2.5 STD	2	-4.668	59.463	7.8	Pass
T2	202.458 - 182.292	Leg	ROHN 3 EH	28	-27.822	98.582	28.2	Pass
T3	182.292 - 162.104	Leg	ROHN 4 EH	69	-80.026	167.222	47.9	Pass
T4	162.104 - 141.896	Leg	ROHN 5 EH	107	-117.310	250.589	46.8	Pass
T5	141.896 - 121.688	Leg	ROHN 6 EHS	146	-148.620	255.080	58.3	Pass
T6	121.688 - 101.479	Leg	ROHN 6 EH	173	-183.817	317.349	57.9	Pass
T7	101.479 - 81.2708	Leg	ROHN 6 EH	200	-215.554	317.349	67.9	Pass
T8	81.2708 - 61	Leg	ROHN 8 EHS	227	-245.437	411.906	59.6	Pass
T9	61 - 40.6667	Leg	ROHN 8 EHS	254	-274.420	411.621	66.7	Pass
T10	40.6667 - 20.3333	Leg	ROHN 8 EH	281	-287.682	528.398	54.4	Pass
T11	20.3333 - 0	Leg	ROHN 8 EH	314	-314.517	528.520	59.5	Pass
T1	212.625 - 202.458	Diagonal	ROHN 2 STD	12	-3.288	25.020	13.1	Pass
T2	202.458 - 182.292	Diagonal	ROHN 2 STD	38	-9.648	18.418	52.4	Pass
T3	182.292 - 162.104	Diagonal	ROHN 2 STD	78	-9.746	15.917	61.2	Pass
T4	162.104 - 141.896	Diagonal	ROHN 2 STD	110	-9.004	13.677	65.8	Pass
T5	141.896 - 121.688	Diagonal	ROHN 2.5 STD	156	-13.077	17.101	76.5	Pass
T6	121.688 - 101.479	Diagonal	ROHN 2.5 STD	183	-11.906	14.992	79.4	Pass
T7	101.479 - 81.2708	Diagonal	ROHN 3 STD	210	-12.009	25.935	46.3	Pass
T8	81.2708 - 61	Diagonal	ROHN 3 STD	237	-11.842	22.925	51.7	Pass
T9	61 - 40.6667	Diagonal	ROHN 3 STD	264	-12.736	20.121	63.3	Pass
T10	40.6667 - 20.3333	Diagonal	ROHN 3 STD	303	-17.822	32.714	54.5	Pass
T11	20.3333 - 0	Diagonal	ROHN 3 STD	336	-20.346	31.089	65.4	Pass
T1	212.625 - 202.458	Horizontal	ROHN 1.5 STD	10	-2.314	23.711	9.8	Pass
T2	202.458 - 182.292	Horizontal	ROHN 1.5 STD	37	-5.159	23.646	21.8	Pass
T3	182.292 - 162.104	Horizontal	ROHN 1.5 STD	76	-6.223	20.100	31.0	Pass
T4	162.104 - 141.896	Horizontal	ROHN 2 STD	109	-6.265	28.569	21.9	Pass
T5	141.896 - 121.688	Horizontal	ROHN 2 STD	154	-7.804	23.772	32.8	Pass
T6	121.688 - 101.479	Horizontal	ROHN 2 STD	181	-7.752	17.707	43.8	Pass
T7	101.479 - 81.2708	Horizontal	ROHN 2.5 STD	208	-8.315	30.294	27.4 28.7 (b)	Pass
T8	81.2708 - 61	Horizontal	ROHN 2.5 STD	235	-8.598	23.680	36.3	Pass
T9	61 - 40.6667	Horizontal	ROHN 2.5 STD	262	-9.581	18.728	51.2	Pass
T10	40.6667 - 20.3333	Horizontal	ROHN 3 STD	299	-9.706	33.261	29.2	Pass
T11	20.3333 - 0	Horizontal	ROHN 3 STD	332	-11.534	27.041	42.7	Pass
T1	212.625 - 202.458	Top Girt	ROHN 1.5 STD	5	-0.257	23.767	1.1	Pass
T10	40.6667 - 20.3333	Redund Horz 1 Bracing	ROHN 1.5 STD	288	-4.993	13.657	36.6	Pass
T11	20.3333 - 0	Redund Horz 1	ROHN 1.5 STD	321	-5.456	11.606	47.0	Pass

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
T10	40.6667 - 20.3333	Bracing Redund Diag 1 Bracing	ROHN 2 STD	289	-4.612	9.270	49.8	Pass
T11	20.3333 - 0	Redund Diag 1 Bracing	ROHN 2 STD	322	-4.712	8.517	55.3	Pass
T10	40.6667 - 20.3333	Redund Hip 1 Bracing	ROHN 1.5 STD	306	-0.050	12.533	0.4	Pass
T11	20.3333 - 0	Redund Hip 1 Bracing	ROHN 1.5 STD	339	-0.052	10.543	0.5	Pass
T10	40.6667 - 20.3333	Redund Hip Diagonal 1 Bracing	ROHN 2.5 STD	309	-0.078	10.900	0.7	Pass
T11	20.3333 - 0	Redund Hip Diagonal 1 Bracing	ROHN 2.5 STD	342	-0.073	9.815	0.7	Pass
T1	212.625 - 202.458	Inner Bracing	L2x2x1/8	16	-0.004	8.802	0.4	Pass
T2	202.458 - 182.292	Inner Bracing	L2x2x1/8	41	-0.006	8.646	0.4	Pass
T3	182.292 - 162.104	Inner Bracing	L2x2x1/8	80	-0.006	6.373	0.5	Pass
T4	162.104 - 141.896	Inner Bracing	L2x2x1/8	120	-0.006	4.367	0.6	Pass
T5	141.896 - 121.688	Inner Bracing	L2x2x1/8	157	-0.009	3.300	0.7	Pass
T6	121.688 - 101.479	Inner Bracing	L2 1/2x2 1/2x3/16	184	-0.010	6.951	0.5	Pass
T7	101.479 - 81.2708	Inner Bracing	L3x3x3/16	213	-0.013	9.153	0.6	Pass
T8	81.2708 - 61	Inner Bracing	L3 1/2x3 1/2x1/4	240	-0.015	14.894	0.4	Pass
T9	61 - 40.6667	Inner Bracing	L3 1/2x3 1/2x1/4	267	-0.015	11.869	0.4	Pass
T10	40.6667 - 20.3333	Inner Bracing	ROHN 3 STD	311	-0.019	31.363	0.4	Pass
T11	20.3333 - 0	Inner Bracing	ROHN 3 STD	345	-0.016	25.662	0.3	Pass
						Summary		
						Leg (T7)	67.9	Pass
						Diagonal (T6)	79.4	Pass
						Horizontal (T9)	51.2	Pass
						Top Girt (T1)	1.1	Pass
						Redund Horz 1 Bracing (T11)	47.0	Pass
						Redund Diag 1 Bracing (T11)	55.3	Pass
						Redund Hip 1 Bracing (T11)	0.5	Pass
						Redund Hip Diagonal 1 Bracing (T11)	0.7	Pass
						Inner Bracing (T5)	0.7	Pass
						Bolt Checks	51.5	Pass
						RATING =	**79.4**	**Pass**

APPENDIX B

BASE LEVEL DRAWING


LEG A
(OTHER CONSIDERED EQUIPMENT)
(1) 1/2" TO 51 FT LEVEL
(OTHER CONSIDERED EQUIPMENT)
(4) 1-1/4" TO 199 FT LEVEL
(PROPOSED EQUIPMENT CONSIDERED)
(6) 1-1/4" TO 139 FT LEVEL
(3) 1-3/8" TO 139 FT LEVEL
(9) 1-5/8" TO 139 FT LEVEL
(OTHER CONSIDERED EQUIPMENT)
(1) 7/8" TO 167 FT LEVEL
(OTHER CONSIDERED EQUIPMENT)
(2) 13/16" TO 189 FT LEVEL
(2) 3/8" TO 189 FT LEVEL
(4) 3/4" TO 189 FT LEVEL
(OTHER CONSIDERED EQUIPMENT)
(1) 7/8" TO 128 FT LEVEL
(1) 7/8" TO 145 FT LEVEL
(1) 7/8" TO 147 FT LEVEL
(1) 7/8" TO 164 FT LEVEL
(OTHER CONSIDERED EQUIPMENT)
(12) 1-5/8" TO 189 FT LEVEL
LEG B
(OTHER CONSIDERED EQUIPMENT)
(4) 1/4" TO 175 FT LEVEL
(OTHER CONSIDERED EQUIPMENT)
(1) 3/8" TO 162 FT LEVEL
LEG C
(OTHER CONSIDERED EQUIPMENT)
(2) 1-5/8" TO 208 FT LEVEL

APPENDIX C

ADDITIONAL CALCULATIONS

CCIplate

Project Information

BU #	806363
Site Name	HRT 105 943201
Order #	463025

Tower Information

Tower Type	Self Support
TIA-222 Rev	H

☑ Apply TIA-222-H Section 15.5

Applied Loads

	Comp.	Uplift
Axial (k)	344.00	285.00
Shear (k)	39.00	35.00

Anchor Rod Data

Quantity:	10
Diameter (in):	1
Material Grade:	A354-BC
Grout Considered:	Yes
l_{ar} (in):	1.25
Eta Factor, η:	0.5
Thread Type:	N-Included
Configuration:	Symmetrical

Fy=109 ksi Fu=125 ksi

Anchor Rod Results

Axial, Pu_c (kips)	34.40
Shear, Vu (kips)	3.90
Moment, Mu (kip-in)	-
Axial Cap., φPn_c (kips)	66.05
Shear Cap., ϕVn (kips)	19.82
Moment Cap., ϕMn (kip-in)	-
Stress Rating	53.3%

Pass

SST Unit Base Foundation

BU # :	806363
Site Name:	HRT 105 943201
App. Number:	463025 Rev. 2

TIA-222 Revision: H

Tower Centroid Offset?:	☐
Block Foundation?:	☑

Superstructure Analysis Reactions

Global Moment, **M**:	8086	ft-kips
Global Axial, **P**:	100	kips
Global Shear, **V**:	65	kips
Leg Compression, P_{comp}:	344	kips
Leg Comp. Shear, V_{u_comp}:	39	kips
Leg Uplift, P_{uplift}:	285	kips
Leg Uplift. Shear, V_{u_uplift}:	35	kips
Tower Height, **H**:	212.625	ft
Base Face Width, **BW**:	30.041667	ft
BP Dist. Above Fdn, bp_{dist}:	3	in
Anchor Bolt Circle, **BC**:	12	in

Foundation Analysis Checks

	Capacity	Demand	Rating*	Check
Lateral (Sliding) (kips)	335.69	65.00	**18.4%**	**Pass**
Bearing Pressure (ksf)	6.00	1.34	**21.3%**	**Pass**
*Overturning (kip*ft)*	17549.85	8394.75	**47.8%**	**Pass**
*Pad Flexure (kip*ft)*	7259.23	1688.50	**22.2%**	**Pass**
Pad Shear - 1-way (kips)	1971.72	194.42	**9.4%**	**Pass**
Pad Shear - Comp 2-way (ksi)	0.164	0.035	**20.4%**	**Pass**
*Flexural 2-way (Comp) (kip*ft)*	1833.86	0.00	**0.0%**	**Pass**
Pad Shear - Tension 2-way (ksi)	0.164	0.039	**22.5%**	**Pass**
*Flexural 2-way (Tension) (kip*ft)*	1833.86	0.00	**0.0%**	**Pass**

**Rating per TIA-222-H Section 15.5*

Soil Rating*:	**47.8%**
Structural Rating*:	**22.5%**

Pad Properties

Depth, **D**:	4.00	ft
Pad Width, **W**:	40.25	ft
Pad Thickness, **T**:	4.50	ft
Pad Rebar Size (Bottom), **Sp**:	7	
Pad Rebar Quantity (Bottom), **mp**:	55	
Pad Clear Cover, cc_{pad}:	3	in

Material Properties

Rebar Grade, **Fy**:	60000	psi
Concrete Compressive Strength, **F'c**:	3000	psi
Dry Concrete Density, δ**c**:	150	pcf

Soil Properties

Total Soil Unit Weight, γ:	120	pcf
Ultimate Gross Bearing, Qult:	8.000	ksf
Cohesion, **Cu**:	0.000	ksf
Friction Angle, φ:	35	degrees
SPT Blow Count, N_{blows}:	11	
Base Friction, μ:		
Neglected Depth, **N**:	3.5	ft
Foundation Bearing on Rock?	No	
Groundwater Depth, **gw**:	3	ft

<-- Toggle between Gross and Net

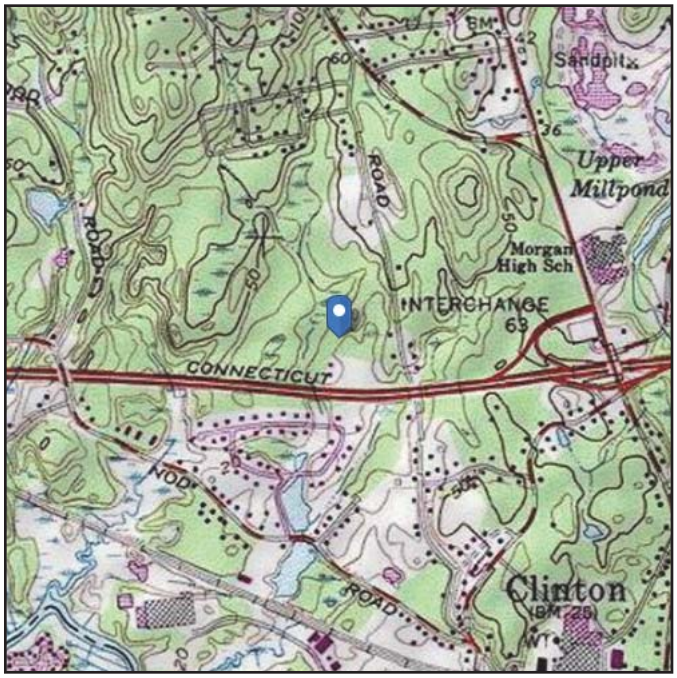
Version 3.0.3

ASCE 7 Hazards Report

Address:
No Address at This Location

Standard: ASCE/SEI 7-10
Risk Category: II
Soil Class: D - Stiff Soil

Elevation: 18.95 ft (NAVD 88)
Latitude: 41.288944
Longitude: -72.538472



Wind

Results:	**78 Vmph**
Wind Speed:	130 Vmph
10-year MRI	78 Vmph
25-year MRI	88 Vmph
50-year MRI	97 Vmph
100-year MRI	106 Vmph
Data Source:	ASCE/SEI 7-10, Fig. 26.5-1A and Figs. CC-1–CC-4, incorporating errata of March 12, 2014
Date Accessed:	Wed Nov 21 2018

Value provided is 3-second gust wind speeds at 33 ft above ground for Exposure C Category, based on linear interpolation between contours. Wind speeds are interpolated in accordance with the 7-10 Standard. Wind speeds correspond to approximately a 7% probability of exceedance in 50 years (annual exceedance probability = 0.00143, MRI = 700 years).

Site is in a hurricane-prone region as defined in ASCE/SEI 7-10 Section 26.2. Glazed openings need not be protected against wind-borne debris.

Mountainous terrain, gorges, ocean promontories, and special wind regions should be examined for unusual wind conditions.

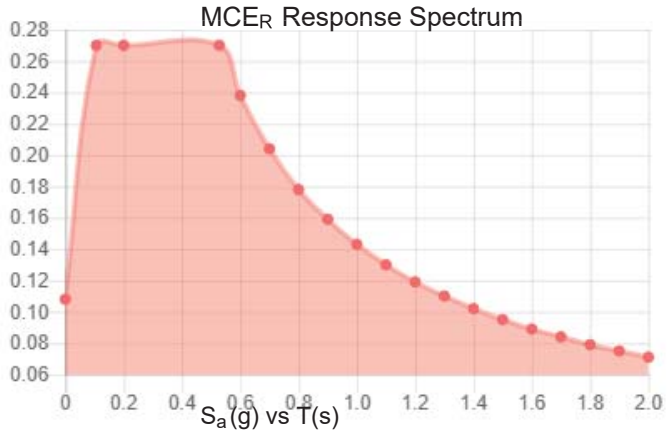
Seismic

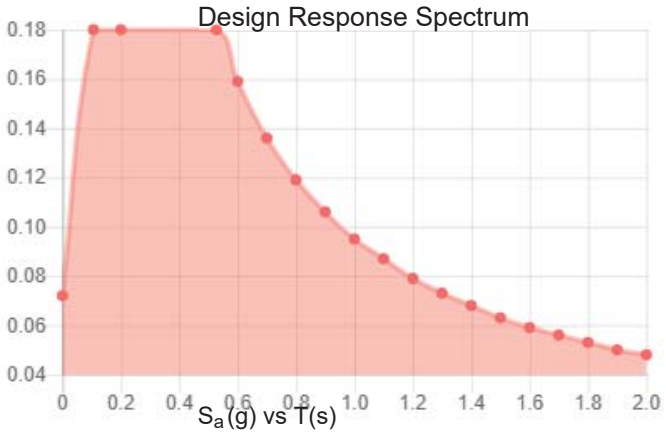
Site Soil Class: D - Stiff Soil

Results:

S_S :	0.169	S_{DS} :	0.180
S_1 :	0.059	S_{D1} :	0.095
F_a :	1.600	T_L :	6.000
F_v :	2.400	PGA :	0.085
S_{MS} :	0.270	PGA_M :	0.137
S_{M1} :	0.143	F_{PGA} :	1.600
		I_e :	1

Seismic Design Category B





Data Accessed: Wed Nov 21 2018

Date Source: USGS Seismic Design Maps based on ASCE/SEI 7-10, incorporating Supplement 1 and errata of March 31, 2013, and ASCE/SEI 7-10 Table 1.5-2. Additional data for site-specific ground motion procedures in accordance with ASCE/SEI 7-10 Ch. 21 are available from USGS.

Ice

Results:

Ice Thickness:	0.75 in.
Concurrent Temperature:	15 F
Gust Speed:	50 mph
Data Source:	Standard ASCE/SEI 7-10, Figs. 10-2 through 10-8
Date Accessed:	Wed Nov 21 2018

Ice thicknesses on structures in exposed locations at elevations higher than the surrounding terrain and in valleys and gorges may exceed the mapped values.

Values provided are equivalent radial ice thicknesses due to freezing rain with concurrent 3-second gust speeds, for a 50-year mean recurrence interval, and temperatures concurrent with ice thicknesses due to freezing rain. Thicknesses for ice accretions caused by other sources shall be obtained from local meteorological studies. Ice thicknesses in exposed locations at elevations higher than the surrounding terrain and in valleys and gorges may exceed the mapped values.

CENTEK engineering

Centered on Solutions℠

Structural Analysis Report

Antenna Mount Analysis

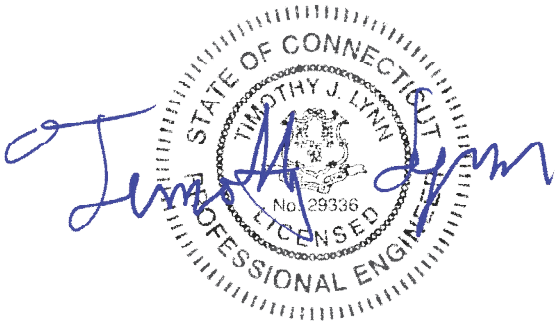
T-Mobile Site #: CT11030H

48 Cow Hill Road
Clinton, CT

Centek Project No. 18127.20

Date: October 10, 2018

Max Stress Ratio = 74.5%



Prepared for:

T-Mobile USA
35 Griffin Road
Bloomfield, CT 06002

Table of Contents

CENTEK engineering

Centered on Solutions℠

October 10, 2018

Mr. Dan Reid
Transcend Wireless
10 Industrial Ave
Mahwah, NJ 07430

Re: Structural Letter ~ Antenna Mount
T-Mobile – Site Ref: CT11030H
48 Cow Hill Road
Clinton, CT 06413

Centek Project No. 18127.20

Dear Mr. Reid,

Centek Engineering, Inc. has reviewed the T-Mobile antenna installation at the above referenced site. The purpose of the review is to determine the structural adequacy of the proposed replacement mount, consisting of three (3) 12-ft V-Frames to support the equipment configuration. The review considered the effects of wind load, dead load and ice load in accordance with the 2015 International Building Code as modified by the 2018 Connecticut State Building Code (CTBC) including ASCE 7-10 and ANSI/TIA-222-G *Structural Standards for Steel Antenna Towers and Supporting Structures*.

The loads considered in this analysis consist of the following:

- **T-Mobile:**
  V-Frames: Three (3) RFS APXVAARR24-43-NA20 panel antennas, six (6) Ericsson AIR21 panel antennas, three (3) TMAs and three (3) Ericsson 4449 B71_B12 remote radio units mounted on three (3) V-Frames with a RAD center elevation of 143-ft +/- AGL.

The antenna mount was analyzed per the requirements of the 2015 International Building Code as modified by the 2018 Connecticut State Building Code considering a nominal design wind speed of 105 mph for Clinton as required in Appendix N of the 2016 Connecticut State Building Code.

A structural analysis of tower and foundation needs to be completed prior to any work.

Based on our review of the installation, it is our opinion that the **proposed replacement antenna frames (SitePro p/n VFA12-HD) are structurally adequate to support the proposed equipment configuration.** If there are any questions regarding this matter, please feel free to call.

Respectfully Submitted by:

Timothy J. Lynn, PE
Structural Engineer

Section 2 - Calculations

CENTEK engineering
Centered on Solutions℠ www.centekeng.com
63-2 North Branford Road P: (203) 488-0580
Branford, CT 06405 F: (203) 488-8587

Subject: TIA-222-G Loads

Location: Clinton, CT

Rev. 0: 10/10/18

Prepared by: T.J.L. Checked by: C.F.C.
Job No. 18127.20

Development of Design Heights, Exposure Coefficients, and Velocity Pressures Per TIA-222-G

Wind Speeds

Basic Wind Speed $V := 105$ mph (User Input - 2016 CSBC Appendix N)

Basic Wind Speed with Ice $V_i := 50$ mph (User Input per Annex B of TIA-222-G)

Input

Structure Type = $Structure\_Type := Lattice$ (User Input)

Structure Category = $SC := II$ (User Input)

Exposure Category = $Exp := C$ (User Input)

Structure Height = $h := 210$ ft (User Input)

Height to Center of Antennas = $z_{Ant} := 143$ ft (User Input)

Radial Ice Thickness = $t_i := 0.75$ in (User Input per Annex B of TIA-222-G)

Radial Ice Density = $Id := 56.00$ pcf (User Input)

Topograpic Factor = $K_{zt} := 1.0$ (User Input)

$K_a := 1.0$ (User Input)

Gust Response Factor = $G_H = 0.85$ (User Input)

Output

Wind Direction Probability Factor = $K_d := \begin{cases} 0.95 & \text{if } Structure\_Type = Pole \\ 0.85 & \text{if } Structure\_Type = Lattice \end{cases} = 0.85$ (Per Table 2-2 of TIA-222-G)

Importance Factors = $I_{Wind} := \begin{cases} 0.87 & \text{if } SC = 1 \\ 1.00 & \text{if } SC = 2 \\ 1.15 & \text{if } SC = 3 \end{cases} = 1$ (Per Table 2-3 of TIA-222-G)

$I_{Wind\_w\_Ice} := \begin{cases} 0 & \text{if } SC = 1 \\ 1.00 & \text{if } SC = 2 \\ 1.00 & \text{if } SC = 3 \end{cases} = 1$

$I_{ice} := \begin{cases} 0 & \text{if } SC = 1 \\ 1.00 & \text{if } SC = 2 \\ 1.25 & \text{if } SC = 3 \end{cases} = 1$

$K_{iz} := \left(\frac{z_{Ant}}{33}\right)^{0.1} = 1.158$

$t_{iz} := 2.0 \cdot t_i \cdot I_{ice} \cdot K_{iz} \cdot K_{zt}^{0.35} = 1.737$

Velocity Pressure Coefficient Antennas = $Kz_{Ant} := 2.01\left(\left(\frac{z_{Ant}}{zg}\right)\right)^{\frac{2}{\alpha}} = 1.365$

Velocity Pressure w/o Ice Antennas = $qz_{Ant} := 0.00256 \cdot K_d \cdot Kz_{Ant} \cdot V^2 \cdot I_{Wind} = 32.737$

Velocity Pressure with Ice Antennas = $qz_{ice.Ant} := 0.00256 \cdot K_d \cdot Kz_{Ant} \cdot V_i^2 \cdot I_{Wind} = 7.423$

CENTEK engineering
Centered on Solutions℠ www.centekeng.com
63-2 North Branford Road P: (203) 488-0580
Branford, CT 06405 F: (203) 488-8587

Subject:	TIA-222-G Loads
Location:	Clinton, CT
Rev. 0: 10/10/18	Prepared by: T.J.L. Checked by: C.F.C. Job No. 18127.20

Development of Wind & Ice Load on Antennas

Antenna Data:

Antenna Model =	RFSAPXVAARR24-43		
Antenna Shape =	Flat		(User Input)
Antenna Height =	$L_{ant} := 95.9$	in	(User Input)
Antenna Width =	$W_{ant} := 24$	in	(User Input)
Antenna Thickness =	$T_{ant} := 8.7$	in	(User Input)
Antenna Weight =	$WT_{ant} := 153$	lbs	(User Input)
Number of Antennas =	$N_{ant} := 1$		(User Input)
Antenna Aspect Ratio =	$Ar_{ant} := \frac{L_{ant}}{W_{ant}} = 4.0$		
Antenna Force Coefficient =	$Ca_{ant} = 1.27$		

Wind Load (without ice)

Surface Area for One Antenna =	$SA_{antF} := \frac{L_{ant} \cdot W_{ant}}{144} = 16$	sf
Total Antenna Wind Force =	$F_{ant} := qz_{Ant} \cdot G_H \cdot Ca_{ant} \cdot K_a \cdot SA_{antF} = 563$	lbs
Surface Area for One Antenna =	$SA_{antS} := \frac{L_{ant} \cdot T_{ant}}{144} = 5.8$	sf
Total Antenna Wind Force =	$F_{ant} := qz_{Ant} \cdot G_H \cdot Ca_{ant} \cdot K_a \cdot SA_{antS} = 204$	lbs

Wind Load (with ice)

Surface Area for One Antenna w/ Ice =	$SA_{ICEantF} := \frac{(L_{ant} + 2 \cdot t_{iz}) \cdot (W_{ant} + 2 \cdot t_{iz})}{144} = 19$	sf
Total Antenna Wind Force w/ Ice =	$Fi_{ant} := qz_{ice.Ant} \cdot G_H \cdot Ca_{ant} \cdot K_a \cdot SA_{ICEantF} = 152$	lbs
Surface Area for One Antenna w/ Ice =	$SA_{ICEantS} := \frac{(L_{ant} + 2 \cdot t_{iz}) \cdot (T_{ant} + 2 \cdot t_{iz})}{144} = 8.4$	sf
Total Antenna Wind Force w/ Ice =	$Fi_{ant} := qz_{ice.Ant} \cdot G_H \cdot Ca_{ant} \cdot K_a \cdot SA_{ICEantS} = 67$	lbs

Gravity Load (without ice)

Weight of All Antennas =	$WT_{ant} \cdot N_{ant} = 153$	lbs

Gravity Loads (ice only)

Volume of Each Antenna =	$V_{ant} := L_{ant} \cdot W_{ant} \cdot T_{ant} = 2 \times 10^4$	cu in
Volume of Ice on Each Antenna =	$V_{ice} := (L_{ant} + 2 \cdot t_{iz})(W_{ant} + 2 \cdot t_{iz}) \cdot (T_{ant} + 2 \cdot t_{iz}) - V_{ant} = 1 \times 10^4$	cu in
Weight of Ice on Each Antenna =	$W_{ICEant} := \frac{V_{ice}}{1728} \cdot Id = 428$	lbs
Weight of Ice on All Antennas =	$W_{ICEant} \cdot N_{ant} = 428$	lbs

Development of Wind & Ice Load on Antennas

Antenna Data:

Antenna Model =	Ericsson AIR21		
Antenna Shape =	Flat		(User Input)
Antenna Height =	$L_{ant} := 56$	in	(User Input)
Antenna Width =	$W_{ant} := 12.1$	in	(User Input)
Antenna Thickness =	$T_{ant} := 7.9$	in	(User Input)
Antenna Weight =	$WT_{ant} := 90$	lbs	(User Input)
Number of Antennas =	$N_{ant} := 1$		(User Input)
Antenna Aspect Ratio =	$Ar_{ant} := \frac{L_{ant}}{W_{ant}} = 4.6$		
Antenna Force Coefficient =	$Ca_{ant} = 1.29$		

Wind Load (without ice)

Surface Area for One Antenna =	$SA_{antF} := \frac{L_{ant} \cdot W_{ant}}{144} = 4.7$	sf
Total Antenna Wind Force =	$F_{ant} := qz_{Ant} \cdot G_H \cdot Ca_{ant} \cdot K_a \cdot SA_{antF} = 170$	lbs
Surface Area for One Antenna =	$SA_{antS} := \frac{L_{ant} \cdot T_{ant}}{144} = 3.1$	sf
Total Antenna Wind Force =	$F_{ant} := qz_{Ant} \cdot G_H \cdot Ca_{ant} \cdot K_a \cdot SA_{antS} = 111$	lbs

Wind Load (with ice)

Surface Area for One Antenna w/ Ice =	$SA_{ICEantF} := \frac{(L_{ant} + 2 \cdot t_{iz}) \cdot (W_{ant} + 2 \cdot t_{iz})}{144} = 6.4$	sf
Total Antenna Wind Force w/ Ice =	$Fi_{ant} := qz_{ice.Ant} \cdot G_H \cdot Ca_{ant} \cdot K_a \cdot SA_{ICEantF} = 53$	lbs
Surface Area for One Antenna w/ Ice =	$SA_{ICEantS} := \frac{(L_{ant} + 2 \cdot t_{iz}) \cdot (T_{ant} + 2 \cdot t_{iz})}{144} = 4.7$	sf
Total Antenna Wind Force w/ Ice =	$Fi_{ant} := qz_{ice.Ant} \cdot G_H \cdot Ca_{ant} \cdot K_a \cdot SA_{ICEantS} = 38$	lbs

Gravity Load (without ice)

Weight of All Antennas =	$WT_{ant} \cdot N_{ant} = 90$	lbs

Gravity Loads (ice only)

Volume of Each Antenna =	$V_{ant} := L_{ant} \cdot W_{ant} \cdot T_{ant} = 5353$	cu in
Volume of Ice on Each Antenna =	$V_{ice} := (L_{ant} + 2 \cdot t_{iz})(W_{ant} + 2 \cdot t_{iz}) \cdot (T_{ant} + 2 \cdot t_{iz}) - V_{ant} = 5182$	cu in
Weight of Ice on Each Antenna =	$W_{ICEant} := \frac{V_{ice}}{1728} \cdot Id = 168$	lbs
Weight of Ice on All Antennas =	$W_{ICEant} \cdot N_{ant} = 168$	lbs

Development of Wind & Ice Load on RRUS's

RRUS Data:

RRUS Model = Ericsson 4449 B71B12

RRUS Shape = Flat (User Input)

RRUS Height = $L_{RRUS} := 14.9$ in (User Input)

RRUS Width = $W_{RRUS} := 13.2$ in (User Input)

RRUS Thickness = $T_{RRUS} := 10.4$ in (User Input)

RRUS Weight = $WT_{RRUS} := 74$ lbs (User Input)

Number of RRUS's = $N_{RRUS} := 1$ (User Input)

RRUS Aspect Ratio = $Ar_{RRUS} := \frac{L_{RRUS}}{W_{RRUS}} = 1.1$

RRUS Force Coefficient = $Ca_{RRUS} = 1.2$

Wind Load (without ice)

Surface Area for One RRUS = $SA_{RRUSF} := \frac{L_{RRUS} \cdot W_{RRUS}}{144} = 1.4$ sf

Total RRUS Wind Force = $F_{RRUS} := qz_{Ant} \cdot G_H \cdot Ca_{RRUS} \cdot K_a \cdot SA_{RRUSF} = 46$ lbs

Surface Area for One RRUS = $SA_{RRUSS} := \frac{L_{RRUS} \cdot T_{RRUS}}{144} = 1.1$ sf

Total RRUS Wind Force = $F_{RRUS} := qz_{Ant} \cdot G_H \cdot Ca_{RRUS} \cdot K_a \cdot SA_{RRUSS} = 36$ lbs

Wind Load (with ice)

Surface Area for One RRUS w/ Ice = $SA_{ICERRUSF} := \frac{(L_{RRUS} + 2 \cdot t_{iz}) \cdot (W_{RRUS} + 2 \cdot t_{iz})}{144} = 2.1$ sf

Total RRUS Wind Force w/ Ice = $Fi_{RRUS} := qz_{ice.Ant} \cdot G_H \cdot Ca_{RRUS} \cdot K_a \cdot SA_{ICERRUSF} = 16$ lbs

Surface Area for One RRUS w/ Ice = $SA_{ICERRUSS} := \frac{(L_{RRUS} + 2 \cdot t_{iz}) \cdot (T_{RRUS} + 2 \cdot t_{iz})}{144} = 1.8$ sf

Total RRUS Wind Force w/ Ice = $Fi_{RRUS} := qz_{ice.Ant} \cdot G_H \cdot Ca_{RRUS} \cdot K_a \cdot SA_{ICERRUSS} = 13$ lbs

Gravity Load (without ice)

Weight of All RRUSs = $WT_{RRUS} \cdot N_{RRUS} = 74$ lbs

Gravity Loads (ice only)

Volume of Each RRUS = $V_{RRUS} := L_{RRUS} \cdot W_{RRUS} \cdot T_{RRUS} = 2045$ cu in

Volume of Ice on Each RRUS = $V_{ice} := (L_{RRUS} + 2 \cdot t_{iz})(W_{RRUS} + 2 \cdot t_{iz}) \cdot (T_{RRUS} + 2 \cdot t_{iz}) - V_{RRUS} = 2206$ cu in

Weight of Ice on Each RRUS = $W_{ICERRUS} := \frac{V_{ice}}{1728} \cdot Id = 71$ lbs

Weight of Ice on All RRUSs = $W_{ICERRUS} \cdot N_{RRUS} = 71$ lbs

Development of Wind & Ice Load on TMA's

TMA Data:

TMA Model =	TMA		
TMA Shape =	Flat		(User Input)
TMA Height =	$L_{TMA} := 7.7$	in	(User Input)
TMA Width =	$W_{TMA} := 7.5$	in	(User Input)
TMA Thickness =	$T_{TMA} := 3.4$	in	(User Input)
TMA Weight =	$WT_{TMA} := 11$	lbs	(User Input)
Number of TMA's =	$N_{TMA} := 1$		(User Input)
TMA Aspect Ratio =	$Ar_{TMA} := \frac{L_{TMA}}{W_{TMA}} = 1$		
TMA Force Coefficient =	$Ca_{TMA} = 1.2$		

Wind Load (without ice)

Surface Area for One TMA =	$SA_{TMAF} := \frac{L_{TMA} \cdot W_{TMA}}{144} = 0.4$	sf
Total TMA Wind Force =	$F_{TMA} := qz_{Ant} \cdot G_H \cdot Ca_{TMA} \cdot K_a \cdot SA_{TMAF} = 13$	lbs
Surface Area for One TMA =	$SA_{TMAS} := \frac{L_{TMA} \cdot T_{TMA}}{144} = 0.2$	sf
Total TMA Wind Force =	$F_{TMA} := qz_{Ant} \cdot G_H \cdot Ca_{TMA} \cdot K_a \cdot SA_{TMAS} = 6$	lbs

Wind Load (with ice)

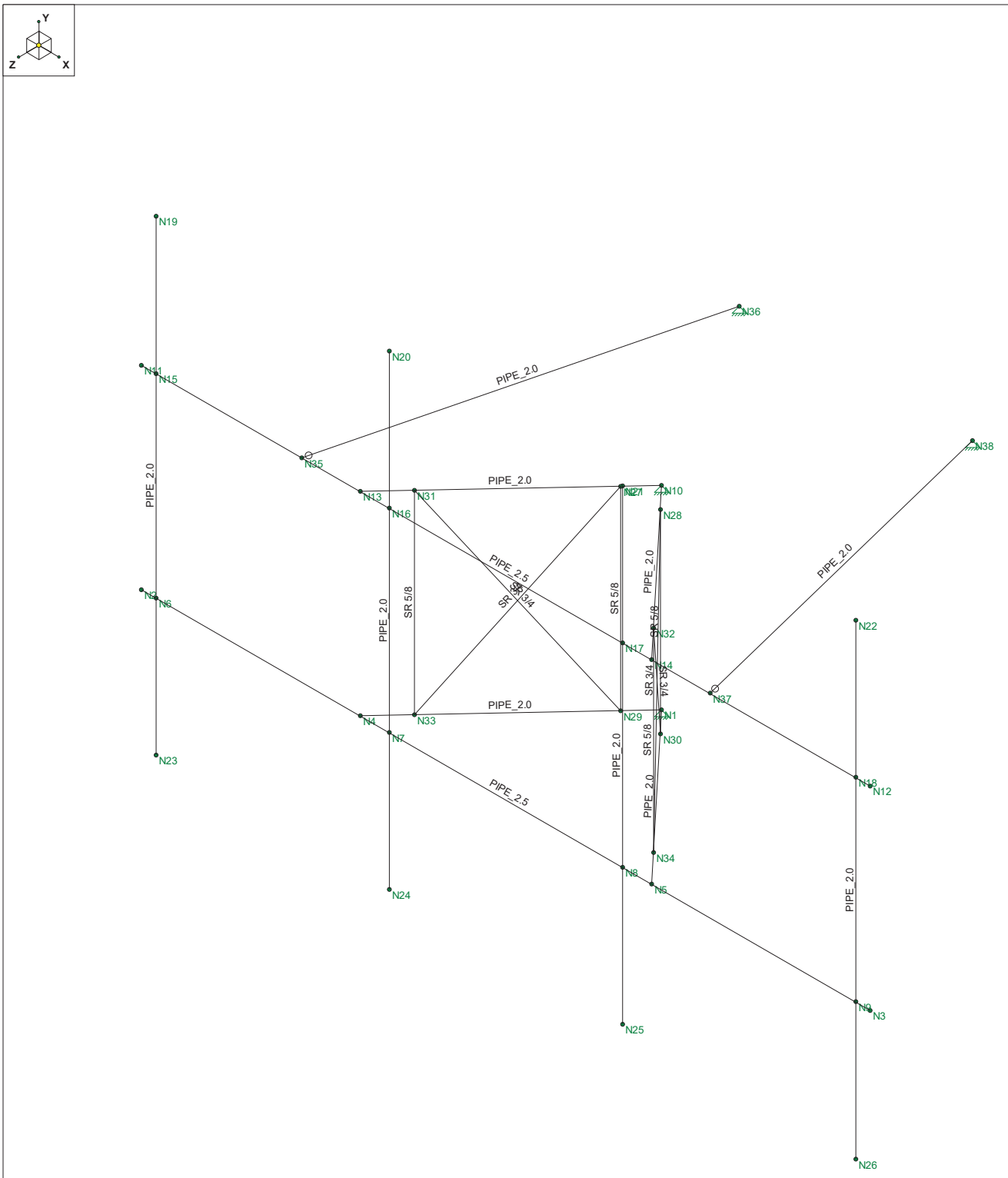
Surface Area for One TMA w/ Ice =	$SA_{ICETMAF} := \frac{(L_{TMA} + 2 \cdot t_{iz}) \cdot (W_{TMA} + 2 \cdot t_{iz})}{144} = 0.9$	sf
Total TMA Wind Force w/ Ice =	$Fi_{TMA} := qz_{ice.Ant} \cdot G_H \cdot Ca_{TMA} \cdot K_a \cdot SA_{ICETMAF} = 6$	lbs
Surface Area for One TMA w/ Ice =	$SA_{ICETMAS} := \frac{(L_{TMA} + 2 \cdot t_{iz}) \cdot (T_{TMA} + 2 \cdot t_{iz})}{144} = 0.5$	sf
Total TMA Wind Force w/ Ice =	$Fi_{TMA} := qz_{ice.Ant} \cdot G_H \cdot Ca_{TMA} \cdot K_a \cdot SA_{ICETMAS} = 4$	lbs

Gravity Load (without ice)

Weight of All TMAs =	$WT_{TMA} \cdot N_{TMA} = 11$	lbs

Gravity Loads (ice only)

Volume of Each TMA =	$V_{TMA} := L_{TMA} \cdot W_{TMA} \cdot T_{TMA} = 196$	cu in
Volume of Ice on Each TMA =	$V_{ice} := (L_{TMA} + 2 \cdot t_{iz})(W_{TMA} + 2 \cdot t_{iz}) \cdot (T_{TMA} + 2 \cdot t_{iz}) - V_{TMA} = 647$	cu in
Weight of Ice on Each TMA =	$W_{ICETMA} := \frac{V_{ice}}{1728} \cdot Id = 21$	lbs
Weight of Ice on All TMAs =	$W_{ICETMA} \cdot N_{TMA} = 21$	lbs



Envelope Only Solution

Centek		
TJL	CT11030H - Mount	Oct 10, 2018 at 9:22 AM
18127.20	Member Framing	Mount.r3d

(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	AISC 14th(360-10): LRFD
Adjust Stiffness?	Yes(Iterative)
RISAConnection Code	AISC 14th(360-10): ASD
Cold Formed Steel Code	AISI S100-10: ASD
Wood Code	AWC NDS-12: ASD
Wood Temperature	< 100F
Concrete Code	ACI 318-11
Masonry Code	ACI 530-11: ASD
Aluminum Code	AA ADM1-10: ASD - Building
Stainless Steel Code	AISC 14th(360-10): ASD
Adjust Stiffness?	Yes(Iterative)

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	4
Cd X	4
Rho Z	1
Rho X	1
Footing Overturning Safety Factor	1
Optimize for OTM/Sliding	No
Check Concrete Bearing	No
Footing Concrete Weight (k/ft^3)	150.001
Footing Concrete f'c (ksi)	4
Footing Concrete Ec (ksi)	3644
Lambda	1
Footing Steel fy (ksi)	60
Minimum Steel	0.0018
Maximum Steel	0.0075
Footing Top Bar	#3
Footing Top Bar Cover (in)	2
Footing Bottom Bar	#3
Footing Bottom Bar Cover (in)	3.5
Pedestal Bar	#3
Pedestal Bar Cover (in)	1.5
Pedestal Ties	#3

Hot Rolled Steel Properties

	Label	E [ksi]	G [ksi]	Nu	Therm (\1...	Density[k/ft^3]	Yield[ksi]	Ry	Fu[ksi]	Rt
1	A36 Gr.36	29000	11154	.3	.65	.49	36	1.5	58	1.2
2	A572 Gr.50	29000	11154	.3	.65	.49	50	1.1	58	1.2
3	A992	29000	11154	.3	.65	.49	50	1.1	58	1.2
4	A500 Gr.42	29000	11154	.3	.65	.49	42	1.3	58	1.1
5	A500 Gr.46	29000	11154	.3	.65	.49	46	1.2	58	1.1
6	A53 Grade B	29000	11154	.3	.65	.49	35	1.5	58	1.2

Hot Rolled Steel Section Sets

	Label	Shape	Type	Design List	Material	Design ...	A [in2]	Iyy [in4]	Izz [in4]	J [in4]
1	Antenna Mast	PIPE_2.0	Column	Wide Flange	A53 Grade B	Typical	1.02	.627	.627	1.25
2	Horz	PIPE_2.5	Beam	Pipe	A53 Grade B	Typical	1.61	1.45	1.45	2.89
3	2 Std	PIPE_2.0	Beam	Pipe	A53 Grade B	Typical	1.02	.627	.627	1.25
4	3/4" SR	SR 3/4	Beam	Pipe	A36 Gr.36	Typical	.442	.016	.016	.031
5	5/8" SR	SR 5/8	Column	Wide Flange	A36 Gr.36	Typical	.307	.007	.007	.015
6	Stabilizer	PIPE_2.0	Beam	Pipe	A53 Grade B	Typical	1.02	.627	.627	1.25

Hot Rolled Steel Design Parameters

	Label	Shape	Length[ft]	Lbyy[ft]	Lbzz[ft]	Lcomp top[ft]	Lcomp bot[ft]	L-torqu...	Kyy	Kzz	Cb	Function
1	M1	2 Std	3.658			Lbyy						Lateral
2	M2	2 Std	3.658			Lbyy						Lateral
3	M3	2 Std	3.658			Lbyy						Lateral
4	M4	2 Std	3.658			Lbyy						Lateral
5	M5	Horz	12.5			Lbyy						Lateral
6	M6	Horz	12.5			Lbyy						Lateral
7	M7	5/8" SR	3.333			Lbyy						Lateral
8	M8	5/8" SR	3.333			Lbyy						Lateral
9	M9	5/8" SR	3.333			Lbyy						Lateral
10	M10	5/8" SR	3.333			Lbyy						Lateral
11	M11	3/4" SR	4.166			Lbyy						Lateral
12	M12	3/4" SR	4.166			Lbyy						Lateral
13	M13	3/4" SR	4.166			Lbyy						Lateral
14	M14	3/4" SR	4.166			Lbyy						Lateral
15	M15	Antenna Mast	7.999			Lbyy						Lateral
16	M16	Antenna Mast	7.999			Lbyy						Lateral
17	M17	Antenna Mast	7.999			Lbyy						Lateral
18	M18	Antenna Mast	7.999			Lbyy						Lateral
19	M19	Stabilizer	6.185			Lbyy						Lateral
20	M20	Stabilizer	6.185			Lbyy						Lateral

Member Primary Data

	Label	I Joint	J Joint	K Joint	Rotate(d...	Section/Shape	Type	Design List	Material	Design Rul...
1	M1	N10	N13			2 Std	Beam	Pipe	A53 Gra...	Typical
2	M2	N10	N14			2 Std	Beam	Pipe	A53 Gra...	Typical
3	M3	N1	N4			2 Std	Beam	Pipe	A53 Gra...	Typical
4	M4	N1	N5			2 Std	Beam	Pipe	A53 Gra...	Typical
5	M5	N11	N12			Horz	Beam	Pipe	A53 Gra...	Typical
6	M6	N2	N3			Horz	Beam	Pipe	A53 Gra...	Typical
7	M7	N31	N33			5/8" SR	Column	Wide Flange	A36 Gr.36	Typical
8	M8	N29	N27			5/8" SR	Column	Wide Flange	A36 Gr.36	Typical
9	M9	N28	N30			5/8" SR	Column	Wide Flange	A36 Gr.36	Typical
10	M10	N32	N34			5/8" SR	Column	Wide Flange	A36 Gr.36	Typical
11	M11	N31	N29			3/4" SR	Beam	Pipe	A36 Gr.36	Typical
12	M12	N27	N33			3/4" SR	Beam	Pipe	A36 Gr.36	Typical
13	M13	N28	N34			3/4" SR	Beam	Pipe	A36 Gr.36	Typical
14	M14	N32	N30			3/4" SR	Beam	Pipe	A36 Gr.36	Typical
15	M15	N19	N23			Antenna Mast	Column	Wide Flange	A53 Gra...	Typical
16	M16	N20	N24			Antenna Mast	Column	Wide Flange	A53 Gra...	Typical

Member Primary Data (Continued)

	Label	I Joint	J Joint	K Joint	Rotate(d...	Section/Shape	Type	Design List	Material	Design Rul...
17	M17	N21	N25			Antenna Mast	Column	Wide Flange	A53 Gra...	Typical
18	M18	N22	N26			Antenna Mast	Column	Wide Flange	A53 Gra...	Typical
19	M19	N35	N36			Stabilizer	Beam	Pipe	A53 Gra...	Typical
20	M20	N37	N38			Stabilizer	Beam	Pipe	A53 Gra...	Typical

Joint Coordinates and Temperatures

	Label	X [ft]	Y [ft]	Z [ft]	Temp [F]	Detach From Dia...
1	N1	0	0	0	0	
2	N2	-6.25	0	2.67	0	
3	N3	6.25	0	2.67	0	
4	N4	-2.5	0	2.67	0	
5	N5	2.5	0	2.67	0	
6	N6	-6	0	2.67	0	
7	N7	-2	0	2.67	0	
8	N8	2	0	2.67	0	
9	N9	6	0	2.67	0	
10	N10	0	3.333	0	0	
11	N11	-6.25	3.333	2.67	0	
12	N12	6.25	3.333	2.67	0	
13	N13	-2.5	3.333	2.67	0	
14	N14	2.5	3.333	2.67	0	
15	N15	-6	3.333	2.67	0	
16	N16	-2	3.333	2.67	0	
17	N17	2	3.333	2.67	0	
18	N18	6	3.333	2.67	0	
19	N19	-6	5.666	2.67	0	
20	N20	-2	5.666	2.67	0	
21	N21	2	5.666	2.67	0	
22	N22	6	5.666	2.67	0	
23	N23	-6	-2.333	2.67	0	
24	N24	-2	-2.333	2.67	0	
25	N25	2	-2.333	2.67	0	
26	N26	6	-2.333	2.67	0	
27	N27	-0.341743	3.333	0.364982	0	
28	N28	0.341743	3.333	0.364982	0	
29	N29	-0.341743	0	0.364982	0	
30	N30	0.341743	0	0.364982	0	
31	N31	-2.050459	3.333	2.18989	0	
32	N32	2.050459	3.333	2.18989	0	
33	N33	-2.050459	0	2.18989	0	
34	N34	2.050459	0	2.18989	0	
35	N35	-3.5	3.333	2.67	0	
36	N36	-2	3.333	-3.33	0	
37	N37	3.5	3.333	2.67	0	
38	N38	2	3.333	-3.33	0	

Joint Boundary Conditions

	Joint Label	X [k/in]	Y [k/in]	Z [k/in]	X Rot.[k-ft/rad]	Y Rot.[k-ft/rad]	Z Rot.[k-ft/rad]
1	N1	Reaction	Reaction	Reaction			
2	N10	Reaction	Reaction	Reaction			
3	N36	Reaction	Reaction	Reaction			
4	N38	Reaction	Reaction	Reaction			

Member Point Loads (BLC 2 : Equipment Weight)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	M15	Y	-.045	1.5
2	M18	Y	-.045	1.5
3	M15	Y	-.045	6.5
4	M18	Y	-.045	6.5
5	M16	Y	-.077	.5
6	M16	Y	-.077	7.5
7	M16	Y	-.074	%50
8	M18	Y	-.011	%50

Member Point Loads (BLC 3 : Ice Weight)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	M15	Y	-.084	1.5
2	M18	Y	-.084	1.5
3	M15	Y	-.084	6.5
4	M18	Y	-.084	6.5
5	M16	Y	-.214	.5
6	M16	Y	-.214	7.5
7	M16	Y	-.071	%50
8	M18	Y	-.021	%50

Member Point Loads (BLC 4 : Wind w/ Ice X)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	M15	X	.019	1.5
2	M18	X	.019	1.5
3	M15	X	.019	6.5
4	M18	X	.019	6.5
5	M16	X	.034	.5
6	M16	X	.034	7.5
7	M16	X	.013	%50
8	M18	X	.006	%50

Member Point Loads (BLC 5 : Wind X)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	M15	X	.056	1.5
2	M18	X	.056	1.5
3	M15	X	.056	6.5
4	M18	X	.056	6.5
5	M16	X	.102	.5
6	M16	X	.102	7.5
7	M16	X	.036	%50
8	M18	X	.013	%50

Member Point Loads (BLC 6 : Wind w/ Ice Z)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	M15	Z	.027	1.5
2	M18	Z	.027	1.5
3	M15	Z	.027	6.5
4	M18	Z	.027	6.5
5	M16	Z	.076	.5
6	M16	Z	.076	7.5

Member Point Loads (BLC 7 : Wind Z)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	M15	Z	.085	1.5
2	M18	Z	.085	1.5
3	M15	Z	.085	6.5
4	M18	Z	.085	6.5
5	M16	Z	.282	.5
6	M16	Z	.282	7.5

Member Distributed Loads (BLC 4 : Wind w/ Ice X)

	Member Label	Direction	Start Magnitude[k/ft,F,ksf]	End Magnitude[k/...	Start Location[ft,%]	End Location[ft,%]
1	M15	X	.002	.002	0	0
2	M16	X	.002	.002	0	0
3	M17	X	.002	.002	0	0
4	M18	X	.002	.002	0	0
5	M20	X	.002	.002	0	0
6	M19	X	.002	.002	0	0
7	M1	X	.002	.002	0	0
8	M3	X	.002	.002	0	0
9	M11	X	.002	.002	0	0
10	M12	X	.002	.002	0	0
11	M7	X	.002	.002	0	0
12	M8	X	.002	.002	0	0
13	M2	X	.002	.002	0	0
14	M4	X	.002	.002	0	0
15	M9	X	.002	.002	0	0
16	M10	X	.002	.002	0	0
17	M13	X	.002	.002	0	0
18	M14	X	.002	.002	0	0

Member Distributed Loads (BLC 5 : Wind X)

	Member Label	Direction	Start Magnitude[k/ft,F,ksf]	End Magnitude[k/...	Start Location[ft,%]	End Location[ft,%]
1	M15	X	.008	.008	0	0
2	M16	X	.008	.008	0	0
3	M17	X	.008	.008	0	0
4	M18	X	.008	.008	0	0
5	M20	X	.008	.008	0	0
6	M19	X	.008	.008	0	0
7	M1	X	.008	.008	0	0
8	M3	X	.008	.008	0	0
9	M11	X	.008	.008	0	0
10	M12	X	.008	.008	0	0

Member Distributed Loads (BLC 5 : Wind X) (Continued)

	Member Label	Direction	Start Magnitude[k/ft,F,ksf]	End Magnitude[k/...	Start Location[ft,%]	End Location[ft,%]
11	M7	X	.008	.008	0	0
12	M8	X	.008	.008	0	0
13	M2	X	.008	.008	0	0
14	M4	X	.008	.008	0	0
15	M9	X	.008	.008	0	0
16	M10	X	.008	.008	0	0
17	M13	X	.008	.008	0	0
18	M14	X	.008	.008	0	0

Member Distributed Loads (BLC 6 : Wind w/ Ice Z)

	Member Label	Direction	Start Magnitude[k/ft,F,ksf]	End Magnitude[k/...	Start Location[ft,%]	End Location[ft,%]
1	M5	Z	.002	.002	0	0
2	M6	Z	.002	.002	0	0
3	M17	Z	.002	.002	0	0
4	M1	Z	.002	.002	0	0
5	M3	Z	.002	.002	0	0
6	M7	Z	.002	.002	0	0
7	M8	Z	.002	.002	0	0
8	M12	Z	.002	.002	0	0
9	M11	Z	.002	.002	0	0
10	M2	Z	.002	.002	0	0
11	M4	Z	.002	.002	0	0
12	M9	Z	.002	.002	0	0
13	M10	Z	.002	.002	0	0
14	M13	Z	.002	.002	0	0
15	M14	Z	.002	.002	0	0

Member Distributed Loads (BLC 7 : Wind Z)

	Member Label	Direction	Start Magnitude[k/ft,F,ksf]	End Magnitude[k/...	Start Location[ft,%]	End Location[ft,%]
1	M5	Z	.008	.008	0	0
2	M6	Z	.008	.008	0	0
3	M17	Z	.008	.008	0	0
4	M1	Z	.008	.008	0	0
5	M3	Z	.008	.008	0	0
6	M7	Z	.008	.008	0	0
7	M8	Z	.008	.008	0	0
8	M12	Z	.008	.008	0	0
9	M11	Z	.008	.008	0	0
10	M2	Z	.008	.008	0	0
11	M4	Z	.008	.008	0	0
12	M9	Z	.008	.008	0	0
13	M10	Z	.008	.008	0	0
14	M13	Z	.008	.008	0	0
15	M14	Z	.008	.008	0	0

Basic Load Cases

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Joint	Point	Distribu...	Area(M...	Surface...
1	Self Weight	DL		-1						
2	Equipment Weight	DL					8			

Basic Load Cases (Continued)

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Joint	Point	Distribu...	Area(M...	Surface...
3	Ice Weight	DL					8			
4	Wind w/ Ice X	None					8	18		
5	Wind X	None					8	18		
6	Wind w/ Ice Z	None					6	15		
7	Wind Z	None					6	15		

Load Combinations

	Description	So...	P...	S...	BLC	Fac...	BLC	Fac...	BLC	Fac...	BLC	Fac...	BLC	Fac...	BLC	Fac...	BLC	Fac...	BLC	Fac...	BLC	Fac...	BLC	Fac...
1	1.2D + 1.6W (X-d..	Yes	Y		1	1.2	2	1.2	5	1.6														
2	0.9D + 1.6W (X-d..	Yes	Y		1	.9	2	.9	5	1.6														
3	1.2D + 1.0Di + 1....	Yes	Y		1	1.2	2	1.2	3	1	4	1												
4	1.2D + 1.6W (Z-d..	Yes	Y		1	1.2	2	1.2	7	1.6														
5	0.9D + 1.6W (Z-d..	Yes	Y		1	.9	2	.9	7	1.6														
6	1.2D + 1.0Di + 1....	Yes	Y		1	1.2	2	1.2	3	1	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	N1	max	-.105	5	.897	3	1.39	3	0	6	0	6	0	6
2		min	-1.012	1	.281	5	-.692	5	0	1	0	1	0	1
3	N10	max	.378	6	.908	6	-.506	2	0	6	0	6	0	6
4		min	-1.207	2	.322	2	-1.328	3	0	1	0	1	0	1
5	N36	max	.225	4	.013	4	-.164	3	0	6	0	6	0	6
6		min	.035	3	.01	2	-.902	4	0	1	0	1	0	1
7	N38	max	.138	2	.013	4	.71	2	0	6	0	6	0	6
8		min	-.085	4	.01	2	-.338	4	0	1	0	1	0	1
9	Totals:	max	0	6	1.816	6	0	3						
10		min	-1.902	1	.72	2	-2.44	4						

Envelope Joint Displacements

	Joint		X [in]	LC	Y [in]	LC	Z [in]	LC	X Rotation [...	LC	Y Rotation [...	LC	Z Rotation [...	LC
1	N1	max	0	6	0	6	0	6	1.64e-03	3	3.838e-03	2	1.289e-03	1
2		min	0	1	0	1	0	1	5.363e-04	5	1.911e-04	6	6.652e-04	5
3	N2	max	.1	2	-.071	5	.198	5	-2.33e-05	3	4.072e-03	5	2.463e-03	1
4		min	.005	6	-.14	3	.009	3	-4.284e-03	5	-2.6e-04	3	1.283e-03	5
5	N3	max	.1	2	.011	2	.097	5	2.983e-03	1	3.678e-04	1	1.264e-03	2
6		min	.004	6	-.119	6	-.137	1	-1.113e-03	5	-4.052e-03	5	-1.637e-03	6
7	N4	max	.1	2	-.008	5	.092	2	6.154e-04	3	2.181e-03	2	1.713e-03	1
8		min	.005	6	-.031	3	.003	6	-2.973e-03	5	2.34e-04	6	9.076e-04	5
9	N5	max	.1	2	-.003	5	-.005	6	1.366e-03	1	2.234e-03	1	6.735e-05	2
10		min	.005	6	-.017	3	-.093	2	-3.493e-04	5	-3.594e-04	5	-1.34e-03	6
11	N6	max	.1	2	-.067	5	.185	5	-2.33e-05	3	4.072e-03	5	2.463e-03	1
12		min	.005	6	-.135	3	.009	3	-4.284e-03	5	-2.6e-04	3	1.283e-03	5
13	N7	max	.1	2	-.006	5	.078	2	4.131e-04	3	2.59e-03	2	1.582e-03	1
14		min	.005	6	-.024	3	.002	6	-3.938e-03	5	2.115e-04	6	3.29e-04	5
15	N8	max	.1	2	-.003	5	-.005	6	1.197e-03	1	2.619e-03	2	2.203e-04	2
16		min	.005	6	-.011	3	-.078	2	-5.821e-04	5	-3.008e-05	6	-6.644e-04	6
17	N9	max	.1	2	.007	2	.085	5	2.983e-03	1	3.678e-04	1	1.264e-03	2

Envelope Joint Displacements (Continued)

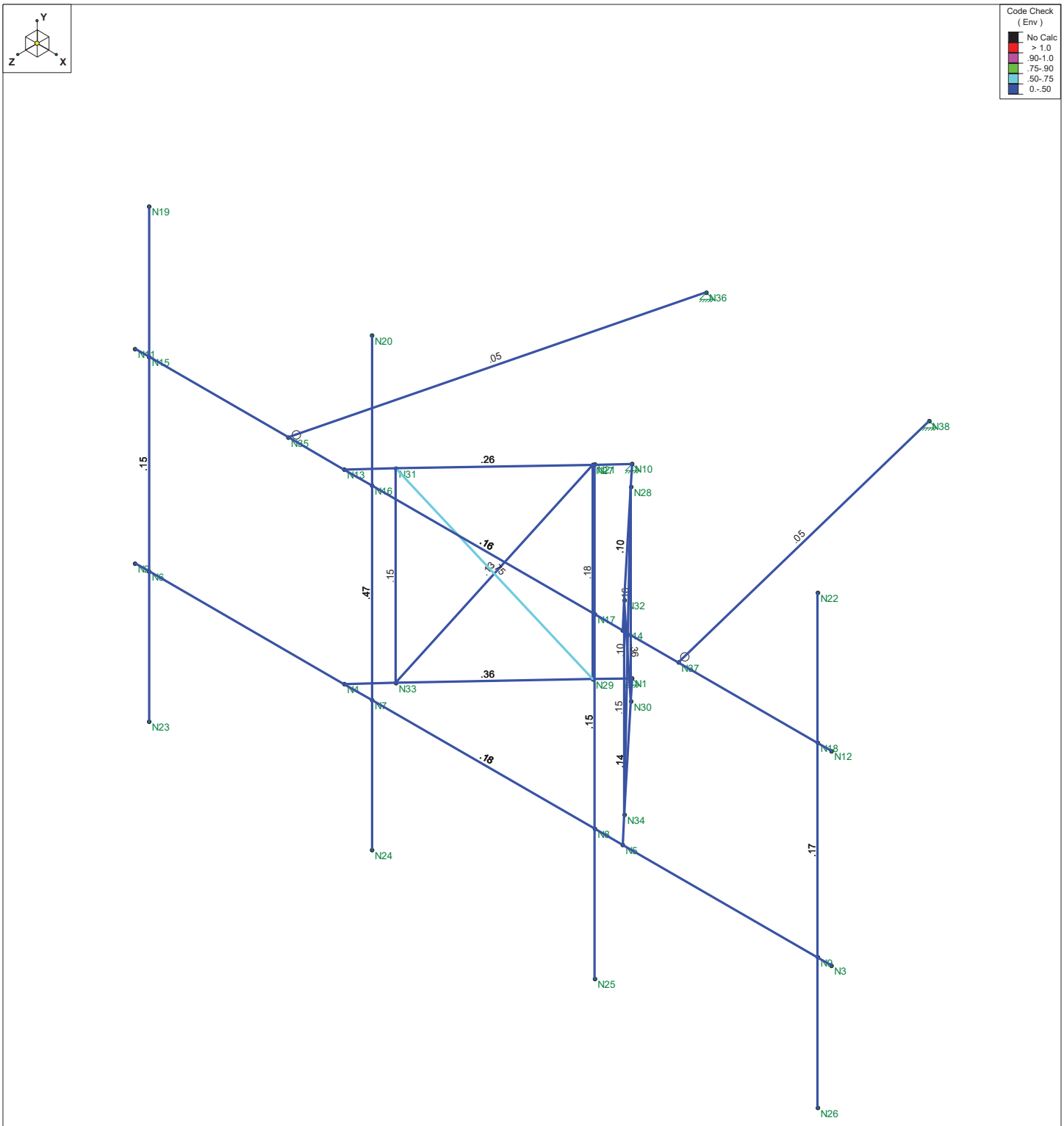
	Joint		X [in]	LC	Y [in]	LC	Z [in]	LC	X Rotation [...	LC	Y Rotation [...	LC	Z Rotation [...	LC
18		min	.004	6	-.115	6	-.136	1	-1.113e-03	5	-4.052e-03	5	-1.637e-03	6
19	N10	max	0	6	0	6	0	6	1.651e-03	6	1.841e-03	2	1.404e-03	1
20		min	0	1	0	1	0	1	6.845e-04	2	1.036e-04	6	5.962e-04	5
21	N11	max	.028	2	-.07	5	.09	5	5.013e-04	6	3.458e-03	4	2.128e-03	1
22		min	.001	6	-.14	3	-.007	2	-2.779e-03	2	-1.823e-04	2	1.159e-03	5
23	N12	max	.028	1	.009	2	.1	4	2.993e-03	1	-5.178e-05	3	5.316e-04	2
24		min	.002	6	-.119	6	.002	3	4.241e-04	6	-3.755e-03	4	-1.604e-03	6
25	N13	max	.028	2	-.013	2	.024	1	2.234e-03	4	-1.846e-04	6	1.566e-03	3
26		min	.001	6	-.031	6	.003	6	-9.927e-04	2	-6.382e-04	1	8.658e-04	5
27	N14	max	.028	2	-.003	2	0	6	1.38e-03	1	5.913e-05	6	4.026e-04	2
28		min	.002	6	-.017	6	-.023	2	6.043e-04	6	-5.561e-04	2	-1.374e-03	6
29	N15	max	.028	2	-.067	5	.079	5	5.013e-04	6	3.458e-03	4	2.128e-03	1
30		min	.001	6	-.135	3	-.007	2	-2.779e-03	2	-1.823e-04	2	1.159e-03	5
31	N16	max	.028	2	-.007	5	.026	1	3.32e-03	4	1.833e-04	2	9.769e-04	4
32		min	.001	6	-.024	3	.004	6	-9.152e-04	2	-3.03e-04	4	4.588e-04	2
33	N17	max	.028	2	-.004	5	0	6	1.479e-03	4	3.241e-04	4	5.182e-04	2
34		min	.002	6	-.011	3	-.024	2	5.212e-04	3	1.179e-04	3	-7.282e-04	6
35	N18	max	.028	1	.007	2	.089	4	2.993e-03	1	-5.178e-05	3	5.317e-04	2
36		min	.002	6	-.115	6	.002	3	4.241e-04	6	-3.755e-03	4	-1.604e-03	6
37	N19	max	-.013	2	-.067	5	.097	4	6.837e-04	4	3.458e-03	4	1.69e-03	3
38		min	-.045	6	-.135	3	-.085	2	-2.781e-03	2	-1.823e-04	2	1.16e-03	5
39	N20	max	.078	2	-.007	5	.264	4	1.084e-02	4	1.833e-04	2	9.783e-04	4
40		min	-.025	6	-.024	3	0	2	-9.161e-04	2	-3.03e-04	4	-2.525e-03	2
41	N21	max	.022	3	-.004	5	.038	4	1.748e-03	4	3.241e-04	4	2.5e-04	2
42		min	.016	5	-.011	3	.008	2	5.213e-04	3	1.179e-04	3	-7.283e-04	6
43	N22	max	.05	3	.007	2	.143	4	2.996e-03	1	-5.178e-05	3	3.895e-05	5
44		min	.011	5	-.115	6	.022	3	5.179e-04	6	-3.755e-03	4	-1.611e-03	3
45	N23	max	.182	1	-.067	5	.317	5	-2.325e-05	3	4.072e-03	5	3.037e-03	1
46		min	.052	6	-.135	3	.01	3	-4.749e-03	5	-2.6e-04	3	1.282e-03	5
47	N24	max	.206	1	-.006	5	.297	5	4.113e-04	3	2.59e-03	2	4.562e-03	1
48		min	.028	6	-.024	3	0	3	-1.144e-02	5	2.115e-04	6	3.286e-04	5
49	N25	max	.112	2	-.003	5	-.01	6	1.197e-03	1	2.619e-03	2	4.884e-04	2
50		min	-.014	6	-.011	3	-.111	1	-8.502e-04	5	-3.008e-05	6	-6.643e-04	6
51	N26	max	.149	2	.007	2	.127	5	2.98e-03	1	3.678e-04	1	1.839e-03	2
52		min	-.041	6	-.115	6	-.219	1	-1.58e-03	5	-4.052e-03	5	-1.634e-03	6
53	N27	max	.008	2	-.006	5	.007	1	1.223e-03	6	1.772e-03	1	1.304e-03	1
54		min	0	6	-.011	3	0	6	2.48e-04	2	1.506e-04	6	3.982e-04	5
55	N28	max	.008	1	.002	2	0	6	1.296e-03	3	1.741e-03	2	1.344e-03	1
56		min	0	6	-.004	6	-.007	2	5.542e-04	5	5.178e-05	6	5.67e-04	5
57	N29	max	.017	1	-.005	5	.015	2	1.191e-03	3	3.764e-03	2	1.073e-03	1
58		min	0	6	-.011	3	0	6	2.431e-04	5	1.575e-04	6	5.751e-04	6
59	N30	max	.017	2	.002	2	0	6	1.263e-03	3	3.759e-03	2	1.099e-03	1
60		min	0	6	-.004	6	-.016	2	5.681e-04	5	2.182e-04	6	5.314e-04	5
61	N31	max	.03	2	-.006	5	.027	1	7.512e-04	6	-3.633e-05	3	1.28e-03	1
62		min	.002	6	-.018	3	.003	6	-8.782e-04	2	-1.946e-04	4	-2.388e-04	5
63	N32	max	.03	2	.001	2	0	6	1.238e-03	1	2.169e-04	4	7.674e-04	2
64		min	.001	6	-.008	6	-.025	2	4.772e-04	6	-6.001e-05	2	-7.301e-04	6
65	N33	max	.087	2	-.009	5	.08	2	5.377e-04	3	2.442e-03	2	1.854e-03	4
66		min	.004	6	-.018	3	.002	6	-1.204e-03	5	1.425e-04	6	1.214e-03	3
67	N34	max	.086	2	.001	2	-.005	6	1.101e-03	1	2.468e-03	2	2.472e-04	2
68		min	.005	6	-.008	6	-.08	2	2.086e-04	5	4.958e-05	6	-7.963e-04	6
69	N35	max	.028	2	-.026	5	.009	2	1.658e-03	4	4.131e-04	5	2.605e-03	3

Envelope Joint Displacements (Continued)

	Joint		X [in]	LC	Y [in]	LC	Z [in]	LC	X Rotation [...	LC	Y Rotation [...	LC	Z Rotation [...	LC
70		min	.001	6	-.057	3	0	6	-1.503e-03	2	-1.247e-03	1	1.285e-03	5
71	N36	max	0	6	0	6	0	6	5.97e-04	6	1.61e-03	2	2.709e-03	1
72		min	0	1	0	1	0	1	1.578e-04	2	2.064e-05	6	9.992e-04	5
73	N37	max	.028	2	0	2	0	6	1.841e-03	1	-1.74e-04	3	1.523e-04	2
74		min	.002	6	-.041	6	-.009	2	5.528e-04	6	-1.536e-03	5	-2.444e-03	6
75	N38	max	0	6	0	6	0	6	5.37e-04	1	1.611e-03	2	4.911e-04	2
76		min	0	1	0	1	0	1	3.812e-04	5	2.339e-05	6	-2.404e-03	6

Envelope AISC 14th(360-10): LRFD Steel Code Checks

	Member	Shape	Code Check	Loc...	LC	Shea..	Loc.....	L..	phi*Pn..	phi*Pn..	phi*M...	phi*M...	...	Eqn
1	M1	PIPE_2.0	.259	3.6...	5	.085	0	3	27.368	32.13	1.872	1.872	3..	H1-1b
2	M2	PIPE_2.0	.096	3.6...	5	.070	0	6	27.368	32.13	1.872	1.872	3..	H1-1b
3	M3	PIPE_2.0	.358	3.6...	4	.170	3.01	4	27.368	32.13	1.872	1.872	3..	H1-1b
4	M4	PIPE_2.0	.144	3.6...	4	.072	3.01	4	27.368	32.13	1.872	1.872	2..	H1-1b
5	M5	PIPE_2.5	.159	2.7...	4	.206	3.7...	5	14.559	50.715	3.596	3.596	1..	H1-1b
6	M6	PIPE_2.5	.180	3.7...	4	.210	3.7...	4	14.559	50.715	3.596	3.596	3..	H1-1b
7	M7	SR 5/8	.155	0	4	.016	0	2	1.058	9.94	.104	.104	1..	H1-1b
8	M8	SR 5/8	.178	3.3...	4	.014	0	2	1.058	9.94	.104	.104	2..	H1-1b
9	M9	SR 5/8	.163	0	4	.014	3.3...	1	1.058	9.94	.104	.104	2..	H1-1b
10	M10	SR 5/8	.148	0	1	.016	0	1	1.058	9.94	.104	.104	2..	H1-1b
11	M11	SR 3/4	.745	4.1...	3	.015	4.1...	2	1.404	14.314	.179	.179	2..	H1-1a
12	M12	SR 3/4	.131	4.1...	1	.008	4.1...	4	1.404	14.314	.179	.179	2..	H1-1b
13	M13	SR 3/4	.101	4.1...	4	.008	0	1	1.404	14.314	.179	.179	2..	H1-1b
14	M14	SR 3/4	.362	0	6	.017	4.1...	1	1.404	14.314	.179	.179	2..	H1-1a
15	M15	PIPE_2.0	.152	5.6...	6	.025	5.6...	5	14.919	32.13	1.872	1.872	4..	H1-1b
16	M16	PIPE_2.0	.470	5.6...	5	.082	5.6...	5	14.919	32.13	1.872	1.872	3..	H1-1b
17	M17	PIPE_2.0	.148	2.3...	1	.060	2.3...	1	14.919	32.13	1.872	1.872	3..	H1-1b
18	M18	PIPE_2.0	.168	2.3...	3	.026	2.3...	1	14.919	32.13	1.872	1.872	4..	H1-1b
19	M19	PIPE_2.0	.045	3.0...	1	.004	0	1	20.311	32.13	1.872	1.872	1..	H1-1b
20	M20	PIPE_2.0	.051	3.0...	1	.004	0	1	20.311	32.13	1.872	1.872	1..	H1-1b



Member Code Checks Displayed (Enveloped)
Envelope Only Solution

Centek		
TJL	CT11030H - Mount	Oct 10, 2018 at 9:22 AM
18127.20	Unity Check	Mount.r3d

EBI Consulting
environmental | engineering | due diligence

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

T-Mobile Existing Facility

Site ID: CT11030H

Clinton/ I-95/ X62/ Rive1
48 Cow Hill Road
Clinton, CT 06413

January 8, 2019

EBI Project Number: 6219000020

Site Compliance Summary	
Compliance Status:	COMPLIANT
Site total MPE% of FCC general population allowable limit:	13.32 %

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

EBI Consulting
environmental | engineering | due diligence

January 8, 2019

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

Emissions Analysis for Site: **CT11030H – Clinton/ I-95/ X62/ Rive1**

EBI Consulting was directed to analyze the proposed T-Mobile facility located at **48 Cow Hill Road, Clinton, CT**, for the purpose of determining whether the emissions from the Proposed T-Mobile Antenna Installation located on this property are within specified federal limits.

All information used in this report was analyzed as a percentage of current Maximum Permissible Exposure (% MPE) as listed in the FCC OET Bulletin 65 Edition 97-01and ANSI/IEEE Std C95.1. The FCC regulates Maximum Permissible Exposure in units of microwatts per square centimeter (μW/cm2). The number of $\mu W/cm^2$ calculated at each sample point is called the power density. The exposure limit for power density varies depending upon the frequencies being utilized. Wireless Carriers and Paging Services use different frequency bands each with different exposure limits, therefore it is necessary to report results and limits in terms of percent MPE rather than power density.

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

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

Public exposure to radio frequencies is regulated and enforced in units of microwatts per square centimeter ($\mu W/cm^2$). The general population exposure limits for the 600 MHz and 700 MHz frequency bands are approximately 400 $\mu W/cm^2$ and 467 $\mu W/cm^2$ respectively. The general population exposure limit for the 1900 MHz (PCS), 2100 MHz (AWS frequency bands is 1000 $\mu W/cm^2$. Because each carrier will be using different frequency bands, and each frequency band has different exposure limits, it is necessary to report percent of MPE rather than power density.

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

Additional details can be found in FCC OET 65.

CALCULATIONS

Calculations were done for the proposed T-Mobile Wireless antenna facility located at **48 Cow Hill Road, Clinton, CT**, using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65. Since T-Mobile is proposing highly focused directional panel antennas, which project most of the emitted energy out toward the horizon, all calculations were performed assuming a lobe representing the maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB for directional panel antennas, was focused at the base of the tower. For this report the sample point is the top of a 6-foot person standing at the base of the tower.

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

1) 1 GSM channels (PCS Band - 1900 MHz) was considered for each sector of the proposed installation. These Channels have a transmit power of 15 Watts per Channel.

2) 1 UMTS channel (AWS Band – 2100 MHz) was considered for each sector of the proposed installation. These Channels have a transmit power of 40 Watts per Channel.

3) 2 LTE channels (PCS Band - 1900 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 40 Watts per Channel.

4) 2 LTE channels (AWS Band – 2100 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 60 Watts per Channel.

5) 2 LTE channels (600 MHz Band) were considered for each sector of the proposed installation. These Channels have a transmit power of 40 Watts per Channel.

6) 2 LTE channels (700 MHz Band) were considered for each sector of the proposed installation. These Channels have a transmit power of 20 Watts per Channel.

7) All radios at the proposed installation were considered to be running at full power and were uncombined in their RF transmissions paths per carrier prescribed configuration. Per FCC OET Bulletin No. 65 - Edition 97-01 recommendations to achieve the maximum anticipated value at each sample point, all power levels emitting from the proposed antenna installation are increased by a factor of 2.56 to account for possible in-phase reflections from the surrounding environment. This is rarely the case, and if so, is never continuous.

8) For the following calculations the sample point was the top of a 6-foot person standing at the base of the tower. The maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB for directional panel antennas, was used in this direction. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.

9) The antennas used in this modeling are the **Ericsson AIR21 B2A/B4P** & **Ericsson AIR21 B4A/B2P** for 1900 MHz (PCS) and 2100 MHz (AWS) channels and the **RFS APXVAARR24_43-U-NA20** for 600 MHz and 700 MHz channels. This is based on feedback from the carrier with regard to anticipated antenna selection. All Antenna gain values and associated transmit power levels are shown in the Site Inventory and Power Data table below. The maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB for directional panel antennas, was used for all calculations. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.

10) The antenna mounting height centerline of the proposed antennas is **140 feet** above ground level (AGL).

11) Emissions values for additional carriers were taken from the Connecticut Siting Council active database. Values in this database are provided by the individual carriers themselves.

12) All calculations were done with respect to uncontrolled / general population threshold limits.

T-Mobile Site Inventory and Power Data

Sector:	A	Sector:	B	Sector:	C
Antenna #:	**1**	Antenna #:	**1**	Antenna #:	**1**
Make / Model:	Ericsson AIR21 B2A/B4P	Make / Model:	Ericsson AIR21 B2A/B4P	Make / Model:	Ericsson AIR21 B2A/B4P
Gain:	15.9 dBd	Gain:	15.9 dBd	Gain:	15.9 dBd
Height (AGL):	140 feet	Height (AGL):	140 feet	Height (AGL):	140 feet
Frequency Bands	1900 MHz (PCS) / 2100 MHz (AWS)	Frequency Bands	1900 MHz (PCS) / 2100 MHz (AWS)	Frequency Bands	1900 MHz (PCS) / 2100 MHz (AWS)
Channel Count	4	Channel Count	4	Channel Count	4
Total TX Power(W):	135	Total TX Power(W):	135	Total TX Power(W):	135
ERP (W):	5,252.11	ERP (W):	5,252.11	ERP (W):	5,252.11
Antenna A1 MPE%	**1.05**	Antenna B1 MPE%	**1.05**	Antenna C1 MPE%	**1.05**
Antenna #:	**2**	Antenna #:	**2**	Antenna #:	**2**
Make / Model:	Ericsson AIR21 B4A/B2P	Make / Model:	Ericsson AIR21 B4A/B2P	Make / Model:	Ericsson AIR21 B4A/B2P
Gain:	15.9 dBd	Gain:	15.9 dBd	Gain:	15.9 dBd
Height (AGL):	140 feet	Height (AGL):	140 feet	Height (AGL):	140 feet
Frequency Bands	2100 MHz (AWS)	Frequency Bands	2100 MHz (AWS)	Frequency Bands	2100 MHz (AWS)
Channel Count	2	Channel Count	2	Channel Count	2
Total TX Power(W):	120	Total TX Power(W):	120	Total TX Power(W):	120
ERP (W):	4,668.54	ERP (W):	4,668.54	ERP (W):	4,668.54
Antenna A2 MPE%	**0.94**	Antenna B2 MPE%	**0.94**	Antenna C2 MPE%	**0.94**
Antenna #:	**3**	Antenna #:	**3**	Antenna #:	**3**
Make / Model:	RFS APXVAARR24_43-U-NA20	Make / Model:	RFS APXVAARR24_43-U-NA20	Make / Model:	RFS APXVAARR24_43-U-NA20
Gain:	12.95 / 13.35 dBd	Gain:	12.95 / 13.35 dBd	Gain:	12.95 / 13.35 dBd
Height (AGL):	140 feet	Height (AGL):	140 feet	Height (AGL):	140 feet
Frequency Bands	600 MHz / 700 MHz	Frequency Bands	600 MHz / 700 MHz	Frequency Bands	600 MHz / 700 MHz
Channel Count	4	Channel Count	4	Channel Count	4
Total TX Power(W):	120	Total TX Power(W):	120	Total TX Power(W):	120
ERP (W):	2,443.03	ERP (W):	2,443.03	ERP (W):	2,443.03
Antenna A3 MPE%	**1.16**	Antenna B3 MPE%	**1.16**	Antenna C3 MPE%	**1.16**

Site Composite MPE%	
Carrier	**MPE%**
T-Mobile (Per Sector Max)	**3.15 %**
AT&T	**1.13** %
MetroPCS	**0.22** %
Sprint	**0.41** %
Verizon Wireless	**1.02** %
Town	**0.76** %
MediaFLO	**6.63** %
Site Total MPE %:	**13.32 %**

T-Mobile Sector A Total:	3.15 %
T-Mobile Sector B Total:	3.15 %
T-Mobile Sector C Total:	3.15 %
Site Total:	13.32 %

T-Mobile Maximum MPE Power Values (Per Sector)

T-Mobile _Frequency Band / Technology (Per Sector)	# Channels	Watts ERP (Per Channel)	Height (feet)	Total Power Density ($\mu W/cm^2$)	Frequency (MHz)	Allowable MPE ($\mu W/cm^2$)	Calculated % MPE
T-Mobile PCS - 1900 MHz LTE	2	1,556.18	140	6.23	PCS - 1900 MHz	1000.00	0.62%
T-Mobile PCS - 1900 MHz GSM	1	583.57	140	1.17	PCS - 1900 MHz	1000.00	0.12%
T-Mobile AWS - 2100 MHz UMTS	1	1,556.18	140	3.12	AWS - 2100 MHz	1000.00	0.31%
T-Mobile PCS - 1900 MHz LTE	2	2,334.27	140	9.35	PCS - 1900 MHz	1000.00	0.94%
T-Mobile 600 MHz LTE	2	788.97	140	3.16	600 MHz	400.00	0.79%
T-Mobile 700 MHz LTE	2	432.54	140	1.73	700 MHz	467.00	0.37%
						Total:	**3.15%**

Summary

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

The anticipated maximum composite contributions from the T-Mobile facility as well as the site composite emissions value with regards to compliance with FCC's allowable limits for general population exposure to RF Emissions are shown here:

T-Mobile Sector	Power Density Value (%)
Sector A:	3.15 %
Sector B:	3.15 %
Sector C:	3.15 %
T-Mobile Maximum MPE % (Per Sector):	3.15 %
Site Total:	13.32 %
Site Compliance Status:	**COMPLIANT**

The anticipated composite MPE value for this site assuming all carriers present is **13.32%** of the allowable FCC established general population limit sampled at the ground level. This is based upon values listed in the Connecticut Siting Council database for existing carrier emissions.

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