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

November 7, 2022

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

RE: **Notice of Exempt Modification for ATT**
Crown #806363; ATT Site ID CTL02024
48 Cow Hill Road, Clinton, CT 06413
Latitude: 41.288944 / Longitude: -72.538472

Dear Ms. Bachman:

AT&T currently maintains twelve (12) antennas at the 190-foot level of the existing 212-foot monopole tower at 48 Cow Hill Road, Clinton, CT. The tower is owned by Crown Castle USA Inc. and the property is owned by Raymond E. Heser Trustee (c/o Crown Castle). AT&T now intends to replace nine (9) antennas with six (6) new antennas and ancillary equipment at the 190-foot level. This modification may include B2, B5, B17, B14, B29, B30, B66 & n77 hardware that is 4G(LTE) and/or 5GNR capable through remote software configuration and either or both services may be turned on or off at various times.

Panned Modification:

Tower:

Installed New:
(3) QUINTEL-QD4616-7 RRUS
(3) Ericsson-AIR6449 B77D + (3) AIR6419 B77G Stacked Antennas
(1) RAYCAP-DC9-48-60-24-8C-EV Squid
(3) 3/8" Fiber Cables
(3) 7/8" DC Cables

Remove:
(3) POWERWAVE-7770 Antennas
(3) ANDREW-SBNHH-1D65A Antennas
(3) CCI-OPA65R-BU4DA Antennas
(6) CG-1900W800-FULL-DIN TMAs
(3) RAYCAP-DC6-48-60-18 Squids
(3) 3/8" Fiber Cables

Ground:

Install New:
(1) 6648 w/XCEDE cable
(3) Rectifiers
(1) Indoor DC12

Remove:

(1) UMTS Cabinet
(6) 782 10250 Diplexers

The facility was approved by the Connecticut Siting Council in Docket No. 148 on May 5, 1992. Said approval given with conditions. AT&T's proposed exempt modification complies with the conditions of 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.C.S.A. § 16-50j-73, a copy of this letter is being sent to Town Manager Karl Kilduff, Zoning Enforcement Officer Kathleen King, and Crown Castle as the land/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, ATT 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: Domenica Tatasciore.

Sincerely,

Domenica Tatasciore
Site Acquisition Specialist
1800 W. Park Drive
Westborough, MA 01581
(508) 621-9161/ Domenica.Tatasciore@crowncastle.com

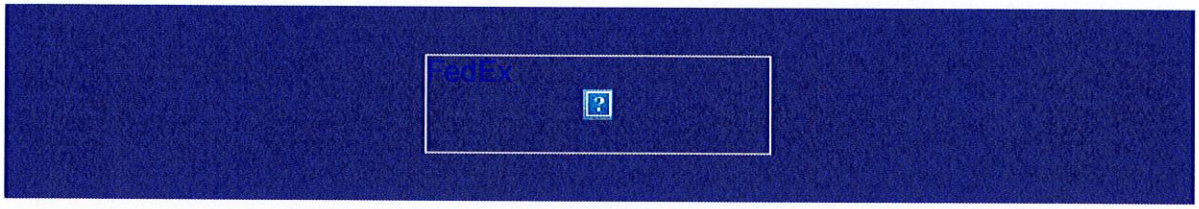
Attachments
cc:

Karl Kilduff, Town Manager
Clinton Town Hall
54 E. Main Street
Clinton, CT 06413
860-669-9333

Kathleen King, Zoning Enforcement Officer
Clinton Town Hall
54 E. Main Street
Clinton, CT 06413
860-669-6133

Raymond Heser Trustee, c/o Crown Castle
Crown Castle, Tower Owner

From: TrackingUpdates@fedex.com
To: Tatasciore, Domenica
Subject: FedEx Shipment 770352473225: Your package has been delivered
Date: Tuesday, November 8, 2022 10:39:37 AM



Hi. Your package was delivered Tue, 11/08/2022 at 10:28am.

Delivered to 54 E MAIN ST, CLINTON, CT 06413

OBTAIN PROOF OF DELIVERY

TRACKING NUMBER 770352473225

FROM Domenica Tatasciore
1800 West Park Drive
Suite 200

	WESTBOROUGH, MA, US, 01581
TO	Clinton Town Hall Karl Kilduff, Town Manager 54 E. Main Street CLINTON, CT, US, 06413
REFERENCE	799001.7680
SHIPPER REFERENCE	799001.7680
SHIP DATE	Mon 11/07/2022 08:35 PM
PACKAGING TYPE	FedEx Envelope
ORIGIN	WESTBOROUGH, MA, US, 01581
DESTINATION	CLINTON, CT, US, 06413
SPECIAL HANDLING	Deliver Weekday
NUMBER OF PIECES	1
TOTAL SHIPMENT WEIGHT	0.50 LB
SERVICE TYPE	FedEx Priority Overnight

From: TrackingUpdates@fedex.com
To: Tatasciore, Domenica
Subject: FedEx Shipment 770352487118: Your package has been delivered
Date: Tuesday, November 8, 2022 10:39:27 AM

Hi. Your package was delivered Tue, 11/08/2022 at 10:28am.

Delivered to 54 E MAIN ST, CLINTON, CT 06413

OBTAIN PROOF OF DELIVERY

TRACKING NUMBER 770352487118

FROM Domenica Tatasciore
1800 West Park Drive
Suite 200

	WESTBOROUGH, MA, US, 01581
TO	Clinton Town Hall Kathleen King, ZEO 54 E. Main Street CLINTON, CT, US, 06413
REFERENCE	799001.7680
SHIPPER REFERENCE	799001.7680
SHIP DATE	Mon 11/07/2022 08:35 PM
PACKAGING TYPE	FedEx Envelope
ORIGIN	WESTBOROUGH, MA, US, 01581
DESTINATION	CLINTON, CT, US, 06413
SPECIAL HANDLING	Deliver Weekday
NUMBER OF PIECES	1
TOTAL SHIPMENT WEIGHT	0.50 LB
SERVICE TYPE	FedEx Priority Overnight

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 DALE TRUSTEE
Assessment	$645,500	**Appraisal**	$922,100
PID	106785	**Building Count**	1

Current Value

Appraisal			
Valuation Year	**Improvements**	**Land**	**Total**
2020	$772,100	$150,000	$922,100
Assessment			
Valuation Year	**Improvements**	**Land**	**Total**
2020	$540,500	$105,000	$645,500

Owner of Record

Owner	HESER DALE TRUSTEE	**Sale Price**	$0
Co-Owner	CROWN CASTLE ATLANTIC CO LLC	**Certificate**	
Address	4017 WASHINGTON RD PMB353 MCMURRAY , PA 15317	**Book & Page**	525/568
		Sale Date	10/05/2020
		Instrument	1

Ownership History

Ownership History					
Owner	**Sale Price**	**Certificate**	**Book & Page**	**Instrument**	**Sale Date**
HESER DALE TRUSTEE	$0		525/568	1	10/05/2020
HESER RAYMOND E TRUSTEE	$0		0496/0599	4	10/17/2016
HESER RAYMOND	$0		0088/0061		08/21/1970
HESER RAYMOND	$0		/0		

Building Information

Building 1 : Section 1

Year Built:	1993
Living Area:	1,104
Replacement Cost:	$139,987

Building Percent Good: 84
Replacement Cost Less Depreciation: $117,600

Building Attributes	
Field	**Description**
STYLE	Telephone Bldg
MODEL	Ind/Comm
Grade	Average
Stories:	1
Occupancy	1.00
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
Struct Class	
Bldg Use	TEL X STA M96
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	12.00
% Comn Wall	

Building Photo

(https://images.vgsi.com/photos/ClintonCTPhotos/\00\00\71\32.jpg)

Building Layout

(https://images.vgsi.com/photos/ClintonCTPhotos//Sketches/106785_6797

Building Sub-Areas (sq ft)			Legend
Code	**Description**	**Gross Area**	**Living Area**
BAS	First Floor	1,104	1,104
		1,104	1,104

Extra Features

Extra Features	Legend
No Data for Extra Features	

Land

Land Use

Use Code	4300
Description	TEL X STA M96
Zone	I-P
Neighborhood	
Alt Land Appr	No
Category	

Land Line Valuation

Size (Acres)	0.18
Frontage	
Depth	
Assessed Value	$105,000
Appraised Value	$150,000

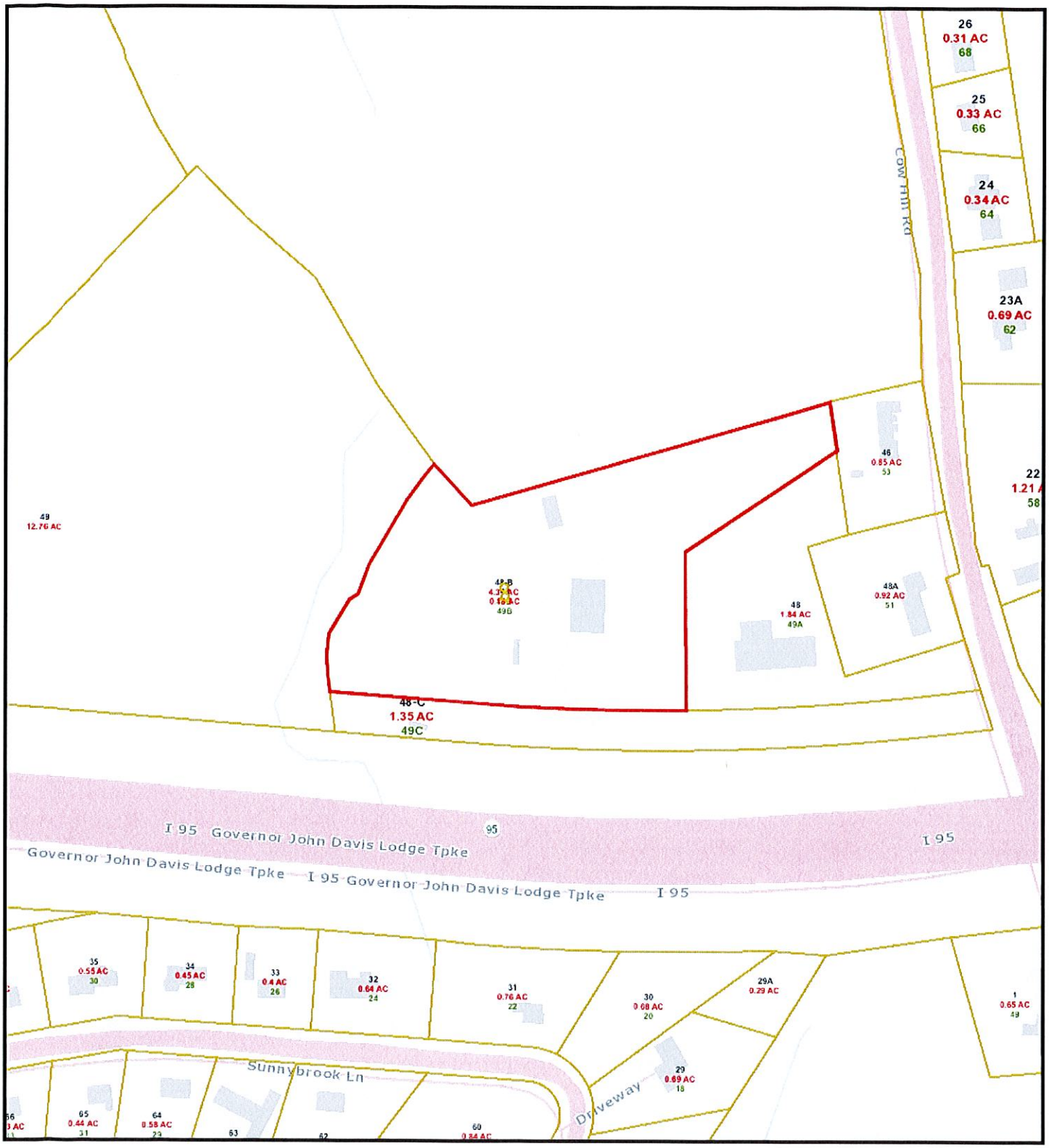
Outbuildings

Outbuildings						Legend
Code	**Description**	**Sub Code**	**Sub Description**	**Size**	**Value**	**Bldg #**
FN4	FENCE-8' CHAIN			360.00 L.F.	$2,500	1
PAV2	PAVING-CONC			1296.00 S.F.	$2,600	1
SHD5	COMM WOOD			200.00 S.F.	$2,500	1
MSC51	TOWER			250.00 UNIT	$140,600	1
MSC1				3.00 UNIT	$506,300	1

Valuation History

Appraisal			
Valuation Year	**Improvements**	**Land**	**Total**
2020	$772,100	$150,000	$922,100
2019	$234,600	$641,500	$876,100
2018	$234,600	$641,500	$876,100

Assessment			
Valuation Year	**Improvements**	**Land**	**Total**
2020	$540,500	$105,000	$645,500
2019	$164,200	$449,100	$613,300
2018	$164,200	$449,100	$613,300



48 Cow Hill Road, Clinton,

6/10/2022 3:04:05 PM

Scale: 1"=200'

Scale is approximate

The information depicted on this map is for planning purposes only. It is not adequate for legal boundary definition, regulatory interpretation, or parcel-level analyses.

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

Site Name:	CLINTON-COW HILL ROAD
Crown Castle Site#	806363
Site ID:	CTL02024
Project Name:	5G NR 1DR-1
Address:	48 COW HILL ROAD, CLINTON, CT 06413
County:	MIDDLESEX
Latitude:	41.2889361
Longitude:	-72.5384711
Structure Type:	SELF SUPPORT
Property Owner:	HESER RAYMOND E TRUSTEE
Property Contact:	VERONICA CHAPMAN

AT&T Existing Facility

Report Information

Report Writer: Sushil Dogra **Report Generated Date:** 10-27-2022

Site Compliance Statement

Compliance Status	Compliant
Cumulative General Population % MPE (Ground Level)	15.24%

October 27, 2022

Emissions Analysis for Site: **CTL02024– CLINTON-COW HILL ROAD**

MobileComm Professionals, Inc was directed to analyze the proposed AT&T facility located at **48 COW HILL ROAD, CLINTON, CT 06413**, for the purpose of determining whether the emissions from the Proposed AT&T 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 97-01 and ANSI/IEEE Std C95.1. The FCC regulates Maximum Permissible Exposure in units of milliwatts per square centimeter (mW/cm^2). The number of mW/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 public may be exposed or in which persons who are exposed as a consequence of their employment may not be made fully aware of the potential for exposure or cannot exercise control over their exposure. Therefore, members of the general public would always be considered under this category when exposure is not employment related, for example, in the case of a telecommunications tower that exposes persons in a nearby residential area.

Public exposure to radio frequencies is regulated and enforced in units of milliwatts per square centimeter (mW/cm^2). The general population exposure limits for the 700 and 850 MHz Bands are approximately 0.467 mW/cm^2 and 0.567 mW/cm^2 respectively. The general population exposure limit for the 1900 MHz (PCS), 2100 MHz (AWS), 2300 MHz (WCS), 3450 MHz (DoD Band) and 3840 MHz (C Band) bands is 1 mW/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.

1. Theoretical Calculations

Calculations were done for the proposed AT&T Wireless antenna facility located at **48 COW HILL ROAD, CLINTON, CT 06413** using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65. Since AT&T 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 manufacturer's supplied specifications, minus 10 dB for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, 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 UMTS channel (850 MHz) was considered for each sector of the proposed installation. These Channels have a transmit power of 40 Watts per Channel.
2) 2 LTE channels (700 MHz Band 29) were considered for each sector of the proposed installation. These Channels have a transmit power of 40 Watts per Channel.
3) 4 LTE channels (WCS Band – 2300 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 25 Watts per Channel.
4) 4 LTE channels (700 MHz Band 14) were considered for each sector of the proposed installation. These Channels have a transmit power of 40 Watts per Channel.
5) 4 LTE channels (2100 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 40 Watts per Channel.
6) 4 LTE channels (700 MHz Band 12) were considered for each sector of the proposed installation. These Channels have a transmit power of 40 Watts per Channel.
7) 4 5G channels (850 MHz Band) were considered for each sector of the proposed installation. These Channels have a transmit power of 40 Watts per Channel.
8) 4 LTE channels (1900 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 40 Watts per Channel.
9) 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.

10) 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 manufacturer's supplied specifications, minus 10 dB for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, 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.
11) The antennas used in this modeling are the PowerWave 7770 for the 850 MHz channel(s), the CommScope SBNHH-1D65A for the 700 MHz(Band 29) / WCS Band (2300 MHz) channel(s), the CCI OPA65R-BU4DA for the 700 MHz(Band 14) / 2100 MHz channel(s), the CCI DMP65R-BU4D for the 700 MHz(Band 12) / 850 MHz / 1900 MHz channel(s) in Sector A, the PowerWave 7770 for the 850 MHz channel(s), the CommScope SBNHH-1D65A for the 700 MHz(Band 29) / WCS Band (2300 MHz) channel(s), the CCI OPA65R-BU4DA for the 700 MHz(Band 14) / 2100 MHz channel(s), the CCI DMP65R-BU4D for the 700 MHz(Band 12) / 850 MHz / 1900 MHz channel(s) in Sector B, the PowerWave 7770 for the 850 MHz channel(s), the CommScope SBNHH-1D65A for the 700 MHz(Band 29) / WCS Band (2300 MHz) channel(s), the CCI OPA65R-BU4DA for the 700 MHz(Band 14) / 2100 MHz channel(s), the CCI DMP65R-BU4D for the 700 MHz(Band 12) / 850 MHz / 1900 MHz channel(s) in Sector C. 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 manufacturer's supplied specifications, minus 10 dB for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, 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.
12) The antenna mounting height centerline of the proposed antennas is 190 feet above ground level (AGL).
13) 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.
14) All calculations were done with respect to uncontrolled / general population threshold limits.

2. Antenna Inventory & Power Data

Sector	Ant ID	Operator	Antenna Mfg	Antenna Model	Antenna Type	FREQ. (MHz)	TECH.	AZ. (^{0})	HBW (^{0})	Antenna Gain (dBd)	Antenna Aperture (ft)	#of Channels	Transmitter Power (Watts)	Total ERP (Watts)	Total EIRP (Watts)	Total Ant Transmitter Power (Watts)	Total Ant ERP(Watts)	Ant MPE%
A	1	AT&T	PowerWave	7770	Panel	850	UMTS	27	85	11.40	4.6	1	40.00	552.35	905.86	40	552.35	0.10%
A	2	AT&T	Commscope	SBNHH-1D65A	Panel	700	LTE(B29)	27	66	11.25	4.6	2	80.00	1067.20	1750.21	180	4496.11	0.57%
A	2	AT&T	Commscope	SBNHH-1D65A	Panel	2300	LTE	27	61	15.35	4.6	4	100.00	3428.91	5623.41			
A	3	AT&T	CCI	OPA65R-BU4DA	Panel	700	LTE(B14)	27	65	11.05	4	4	160.00	2038.34	3342.87	320	6601.61	0.89%
A	3	AT&T	CCI	OPA65R-BU4DA	Panel	2100	LTE	27	65	14.55	4	4	160.00	4563.27	7483.76			
A	4	AT&T	CCI	DMP65R-BU4D	Panel	700	LTE(B12)	27	75	10.55	4	4	160.00	1816.67	2979.34	480	8021.96	1.15%
A	4	AT&T	CCI	DMP65R-BU4D	Panel	850	5G	27	67	10.85	4	4	160.00	1946.60	3192.42			
A	4	AT&T	CCI	DMP65R-BU4D	Panel	1900	LTE	27	69	14.25	4	4	160.00	4258.69	6984.25			
B	5	AT&T	PowerWave	7770	Panel	850	UMTS	148	85	11.40	4.6	1	40.00	552.35	905.86	40	552.35	0.10%
B	6	AT&T	Commscope	SBNHH-1D65A	Panel	700	LTE(B29)	148	66	11.25	4.6	2	80.00	1067.20	1750.21	180	4496.11	0.57%
B	6	AT&T	Commscope	SBNHH-1D65A	Panel	2300	LTE	148	61	15.35	4.6	4	100.00	3428.91	5623.41			
B	7	AT&T	CCI	OPA65R-BU4DA	Panel	700	LTE(B14)	148	65	11.05	4	4	160.00	2038.34	3342.87	320	6601.61	0.89%
B	7	AT&T	CCI	OPA65R-BU4DA	Panel	2100	LTE	148	65	14.55	4	4	160.00	4563.27	7483.76			
B	8	AT&T	CCI	DMP65R-BU4D	Panel	700	LTE(B12)	148	75	10.55	4	4	160.00	1816.67	2979.34	480	8021.96	1.15%
B	8	AT&T	CCI	DMP65R-BU4D	Panel	850	5G	148	67	10.85	4	4	160.00	1946.60	3192.42			
B	8	AT&T	CCI	DMP65R-BU4D	Panel	1900	LTE	148	69	14.25	4	4	160.00	4258.69	6984.25			
C	9	AT&T	PowerWave	7770	Panel	850	UMTS	269	85	11.40	4.6	1	40.00	552.35	905.86	40	552.35	0.10%
C	10	AT&T	Commscope	SBNHH-1D65A	Panel	700	LTE(B29)	269	66	11.25	4.6	2	80.00	1067.20	1750.21	180	4496.11	0.57%
C	10	AT&T	Commscope	SBNHH-1D65A	Panel	2300	LTE	269	61	15.35	4.6	4	100.00	3428.91	5623.41			
C	11	AT&T	CCI	OPA65R-BU4DA	Panel	700	LTE(B14)	269	65	11.05	4	4	160.00	2038.34	3342.87	320	6601.61	0.89%
C	11	AT&T	CCI	OPA65R-BU4DA	Panel	2100	LTE	269	65	14.55	4	4	160.00	4563.27	7483.76			
C	12	AT&T	CCI	DMP65R-BU4D	Panel	700	LTE(B12)	269	75	10.55	4	4	160.00	1816.67	2979.34	480	8021.96	1.15%
C	12	AT&T	CCI	DMP65R-BU4D	Panel	850	5G	269	67	10.85	4	4	160.00	1946.60	3192.42			
C	12	AT&T	CCI	DMP65R-BU4D	Panel	1900	LTE	269	69	14.25	4	4	160.00	4258.69	6984.25			

Table 2.1: Antenna Inventory & Power Data

Cumulative Site MPE%	
Carrier	**MPE%**
AT&T (Max MPE% at Sector A)	2.71%
T-Mobile	3.15%
MetroPCS	0.22%
Sprint	0.41%
Verizon	1.36%
Town	0.76%
MediaFLO	6.63%
Site Total MPE%	**15.24%**

Table 2.2: Cumulative Site MPE%

AT&T Max MPE% Per Sector	
AT&T Sector A Total	2.71%
AT&T Sector B Total	2.71%
AT&T Sector C Total	2.71%
Site Total MPE%	**15.24%**

Table 2.3: AT&T MPE% Per Sector

Sector	Ant ID	Operator	Antenna Mfg	Antenna Model	FREQ. (MHz)	TECH.	#of Channels	Transmitter Power (Watts)	Total ERP (Watts)	Total EIRP (Watts)	Height (ft)	Total Power Density (mW/cm^2)	Allowable MPE (mW/cm^2)	Calculated MPE%
A	1	AT&T	PowerWave	7770	850	UMTS	1	40.00	552.35	905.86	190.00	0.000550	0.567	0.10%
A	2	AT&T	Commscope	SBNHH-1D65A	700	LTE(B29)	2	80.00	1067.20	1750.21	190.00	0.001064	0.467	0.23%
A	2	AT&T	Commscope	SBNHH-1D65A	2300	LTE	4	100.00	3428.91	5623.41	190.00	0.003417	1.000	0.34%
A	3	AT&T	CCI	OPA65R-BU4DA	700	LTE(B14)	4	160.00	2038.34	3342.87	190.00	0.002031	0.467	0.44%
A	3	AT&T	CCI	OPA65R-BU4DA	2100	LTE	4	160.00	4563.27	7483.76	190.00	0.004548	1.000	0.45%
A	4	AT&T	CCI	DMP65R-BU4D	700	LTE(B12)	4	160.00	1816.67	2979.34	190.00	0.001810	0.467	0.39%
A	4	AT&T	CCI	DMP65R-BU4D	850	5G	4	160.00	1946.60	3192.42	190.00	0.001940	0.567	0.34%
A	4	AT&T	CCI	DMP65R-BU4D	1900	LTE	4	160.00	4258.69	6984.25	190.00	0.004244	1.000	0.42%
													Total	**2.71%**

Table 2.4: Detailed MPE% at AT&T Sector A

3. Compliance Summary

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

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

AT&T Sector	Power Density Value (%)
Sector A	2.71%
Sector B	2.71%
Sector C	2.71%
AT&T Maximum Total (per sector)	2.71%
Site Total MPE%	**15.24%**
Site Compliance Status	**COMPLIANT**

The anticipated composite MPE value for this site assuming all carriers present is **15.24%** of the allowable FCC established general public limit sampled at the ground level. This is based upon values listed in the Connecticut Siting Council database for existing carrier emissions.

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

Date: July 25, 2022

MTS Engineering, P.L.L.C.
1717 S. Boulder, Suite 300
Tulsa, OK 74119
(918) 587-4630
towersupport@btgrp.com

Subject:	**Mount Analysis Report**	
Carrier Designation:	**AT&T Mobility Equipment Change-Out**	
	Carrier Site Number:	CT2024
	Carrier Site Name:	CLINTON
	Carrier FA Number:	10035028
Crown Castle Designation:	**BU Number:**	806363
	Site Name:	HRT 105 943201
	JDE Job Number:	715640
	Order Number:	614848, Rev. 0
Engineering Firm Designation:	**Report Designation:**	100083.010.01
Site Data:	**48 Cow Hill Road, Clinton, CT, Middlesex County, 06413** **Latitude 41° 17' 20.20" Longitude -72° 32' 18.50"**	
Structure Information:	**Tower Height & Type:**	**212.625 ft. Self- Support Tower**
	Mount Elevation:	**189 ft.**
	Mount Type:	**14.5 ft. Sector Mount**

We are pleased to submit this **"Mount Analysis Report"** to determine the structural integrity of AT&T Mobility's antenna mounting system with the proposed appurtenance and equipment addition on the above-mentioned supporting tower structure. Analysis of the existing supporting tower structure is to be completed by others and therefore is not part of this analysis. Analysis of the antenna mounting system as a tie-off point for fall protection or rigging is not part of this document.

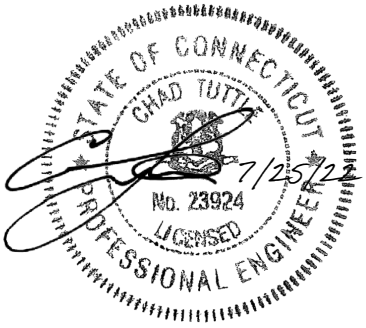
The purpose of the analysis is to determine acceptability of the mount's stress level. Based on our analysis we have determined the stress level to be:

Sector Mount (typical)	**Sufficient** **(Sufficient Capacity – 51.0%)**

This analysis has been performed in accordance with the 2018 International Building Code based upon an ultimate 3-second gust wind speed of 124 mph. Applicable Standard references and design criteria are listed in Section 2 - Analysis Criteria.

Mount structural analysis prepared by: Erik Perez

Respectfully submitted by: MTS Engineering, P.L.L.C.
COA: BER: 2386985 Expires: 02/01/2023



Chad E. Tuttle, P.E.

TABLE OF CONTENTS

1) INTRODUCTION

This is a proposed 3 - sector 14.5 ft. Sector Mount, designed by SitePro1 (Part# VFA14-WLL-30120) and analyzed by MTS Engineering, P.L.L.C.

2) ANALYSIS CRITERIA

Building Code:	2018 IBC
TIA-222 Revision:	TIA-222-H
Risk Category:	II
Ultimate Wind Speed:	124 mph
Exposure Category:	B
Topographic Factor at Base:	1
Topographic Factor at Mount:	1
Ice Thickness:	1.0 in
Wind Speed with Ice:	50 mph
Seismic S_s:	0.205
Seismic S_1:	0.054
Live Loading Wind Speed:	30 mph
Man Live Load at Mid/End-Points:	250 lb.
Man Live Load at Mount Pipes:	500 lb.

Table 1 - Proposed Equipment Configuration

Mount Centerline (ft.)	Antenna Centerline (ft.)	Number of Antennas	Manufacturer	Model / Type	Mount / Modification Details
189	190	3	CCI Antennas	DMP65R-BU4D	14.5 ft. Sector Mount
		3	Ericsson	AIR 6419 B77G	
		3	Ericsson	AIR 6449 B77D_CCVI2	
		3	Quintel Technology	QD4616-7	
		2	Ericsson	RADIO 4478 B14	
		3	Ericsson	RRUS 32	
		3	Ericsson	RRUS 32 B66	
		3	Ericsson	RRUS 4415 B25	
		3	Ericsson	RRUS 4449 B5/B12	
		3	Raycap	DC9-48-60-24-8C-EV_CCIV2	
	189	1	Ericsson	RADIO 4478 B14	

Table 2 - Documents Provided

Document	Remarks	Reference	Source
CCI Order	Proposed Loading Existing Loading	Date: 07/18/2022	Crown Castle
RFDS		Date: 07/01/2022	
Mount Mapping	MTS Engineering, P.L.L.C.	Date: 10/26/2021	On File
Mount Analysis		Date: 05/11/2021	
Mount Replacement Analysis		Date: 02/16/2022	

3) ANALYSIS PROCEDURE

3.1) Analysis Method

RISA-3D (Version 20.0.2), a commercially available analysis software package, was used to create a three-dimensional model of the antenna mounting system and calculate member stresses for various loading cases.

A tool internally developed by us, was used to calculate wind loading on all appurtenances, dishes, and mount members for various loading cases. Selected output from the analysis is included in Appendix B

This analysis was performed in accordance with Crown Castle's ENG-SOW-10208 *Tower Mount Analysis* (Revision D). In addition, this analysis is in accordance with *AT&T's Mount Technical Directive – R22.0.*

Manufacturers drawing were used to create the model.

3.2) Assumptions

1. The antenna mounting system was properly fabricated, installed and maintained in good condition in accordance with its original design, TIA Standards, and/or manufacturer's specifications.
2. The configuration of antennas, mounts, and other appurtenances are as specified in Table-1.
3. All member connections are assumed to have been designed to meet or exceed the load carrying capacity of the connected members unless otherwise specified in this report.
4. Mount areas and weights are determined from field measurements, standard material properties, and/or manufacturer product data.
5. Serviceability with respect to antenna twist, tilt, roll, or lateral translation is not checked and is left to the carrier or tower owner to ensure conformance.
6. Prior structural modifications to the tower mounting system are assumed to be installed as shown per available data.
7. The analysis will be required to be revised if the existing conditions in the field differ from those shown in the above-referenced documents or assumed in this analysis. No allowance was made for any damaged, missing, or rusted members.
8. The following material grades were assumed (Unless Noted Otherwise):
   (a) Connection Bolts : ASTM A325
   (b) Steel Pipe : ASTM A53 (GR. 35)
   (c) HSS (Round) : ASTM 500 (GR. B-42)
   (d) HSS (Rectangular) : ASTM 500 (GR. B-46)
   (e) Channel : ASTM A36 (GR. 36)
   (f) Steel Solid Rod : ASTM A36 (GR. 36)
   (g) Steel Plate : ASTM A36 (GR. 36)
   (h) Steel Angle : ASTM A36 (GR. 36)
   (i) UNISTRUT : ASTM A570 (GR. 33)

This analysis may be affected if any assumptions are not valid or have been made in error. MTS Engineering, P.L.L.C. should be notified to determine the effect on the structural integrity of the antenna mounting system.

4) ANALYSIS RESULTS

Table 3 - Mount Component Stresses vs. Capacity (Sector Mount)

Notes	Component	Centerline (ft.)	Critical Member	% Capacity	Pass / Fail
1,2	Face Horizontals	189	1	46.4	Pass
	Support Arms	189	11	33.4	Pass
	Connection Plates	189	6	40.9	Pass
	Verticals	189	29	51.0	Pass
	Diagonals	189	33	17.7	Pass
	Mount Pipes	189	52	26.9	Pass
	Tiebacks	189	46	12.1	Pass
3	Connection Bolts	189	--	23.2	Pass

Structure Rating (max from all components) =	51.0%

Notes:
1) See additional documentation in "Appendix C - Software Analysis Output" for calculations supporting the % capacity consumed.
2) All sectors are typical
3) See additional documentation in "Appendix D - Additional Calculations" for calculations supporting the % capacity reported.

Table 4 - Tieback Connection Data Table

Tower Connection Node No.	Existing / Proposed	Resultant End Reaction (lb.)	Connected Member Type	Connected Member Size	Member Compressive Capacity[3] (lb.)	Notes
82	Proposed	1032.906	Leg	ROHN 3 EH	4694.40	1
83	Proposed	738.5398				

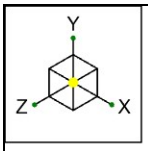
Notes:
1) Tieback connection point is within 25% of either end of the connected tower member
2) Tieback connection point is NOT within 25% of either end of the connected tower member
3) Reduced member compressive capacity according to CED-STD-10294 *Standard for Installation of Mounts and Appurtenances*

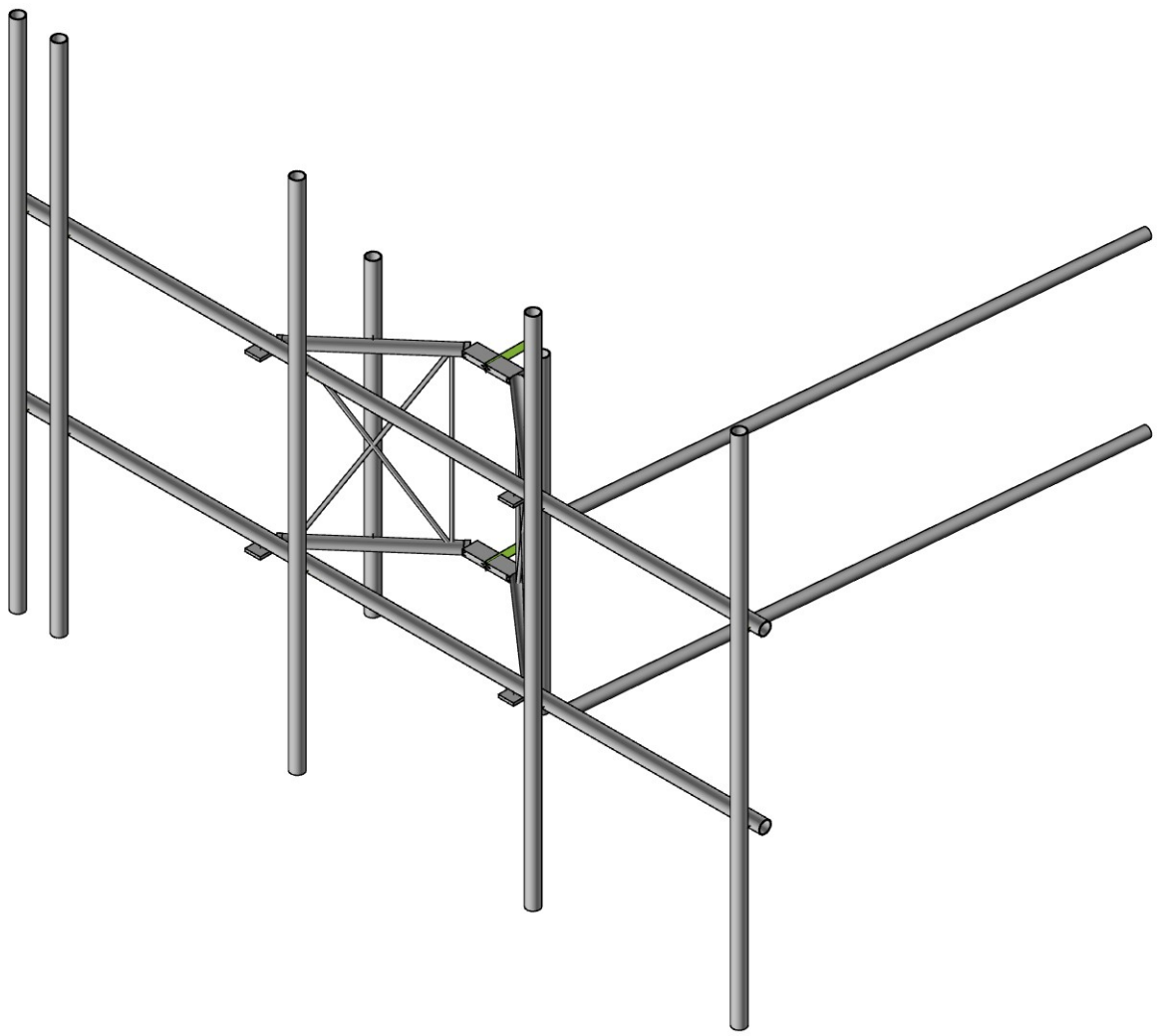
4.1) Recommendations

The SitePro1 (Part# VFA14-WLL-30120) has sufficient capacity to carry the proposed loading configuration. No modifications are required at this time.

APPENDIX A

WIRE FRAME AND RENDERED MODELS





Envelope Only Solution

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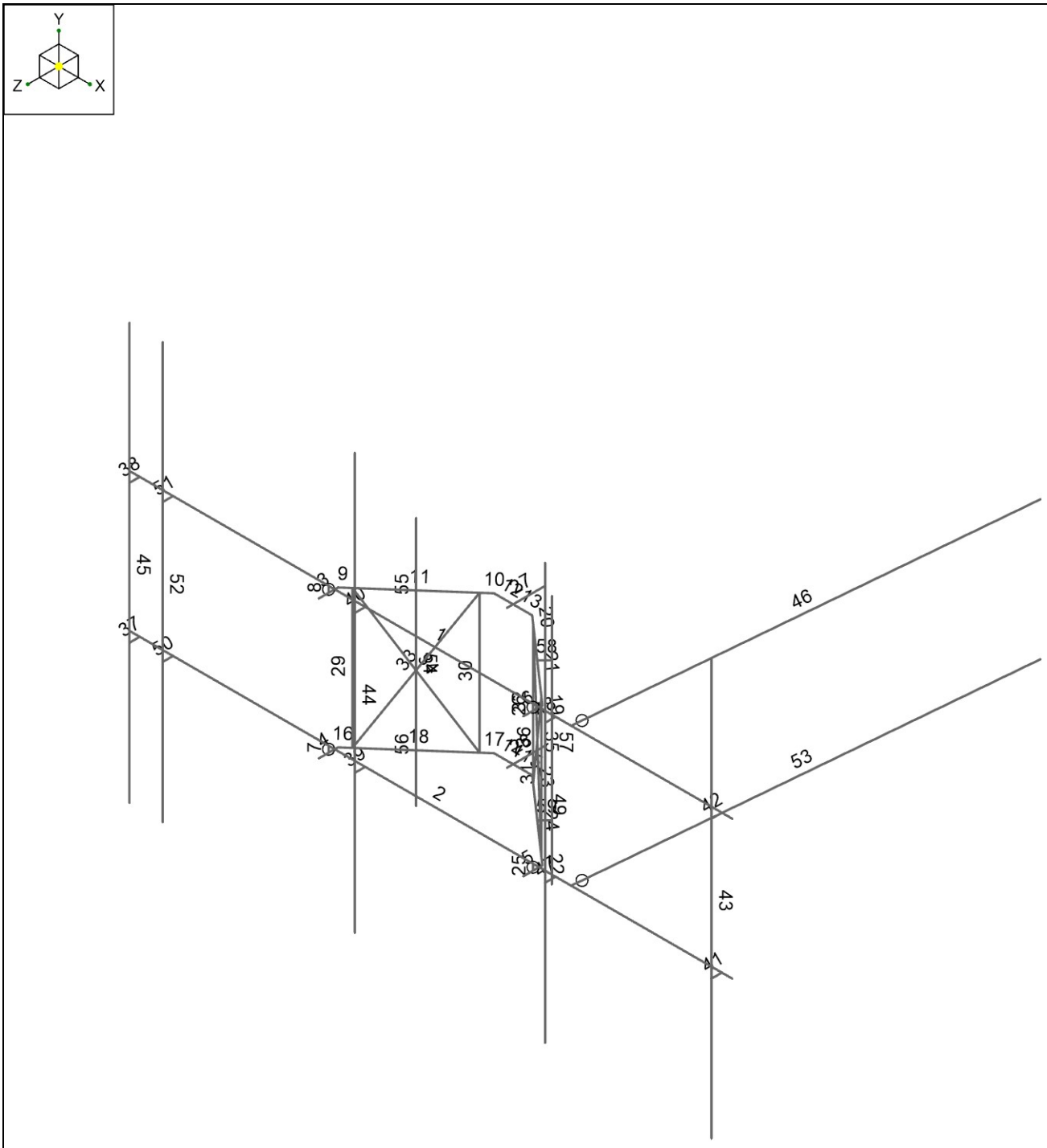

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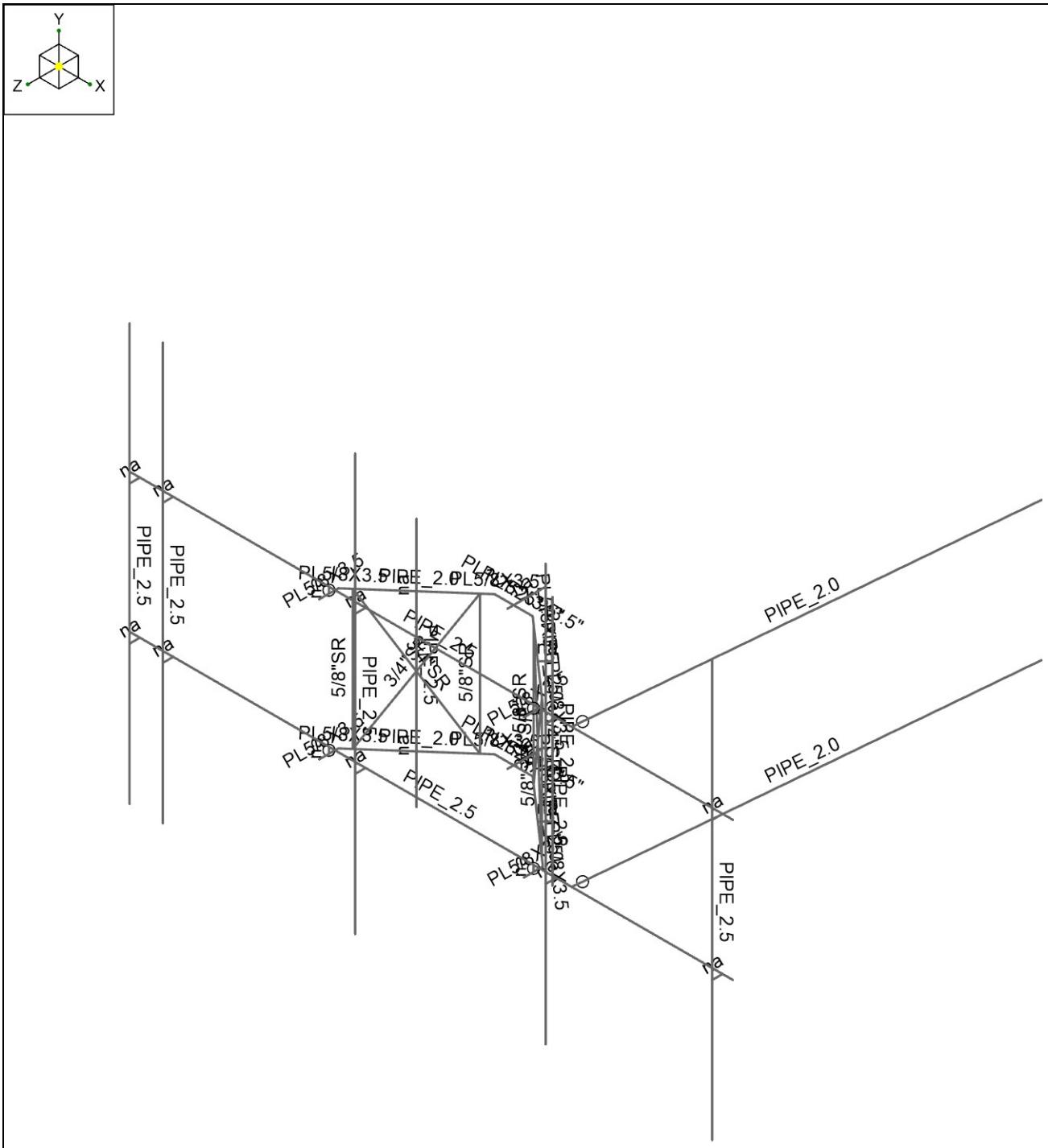

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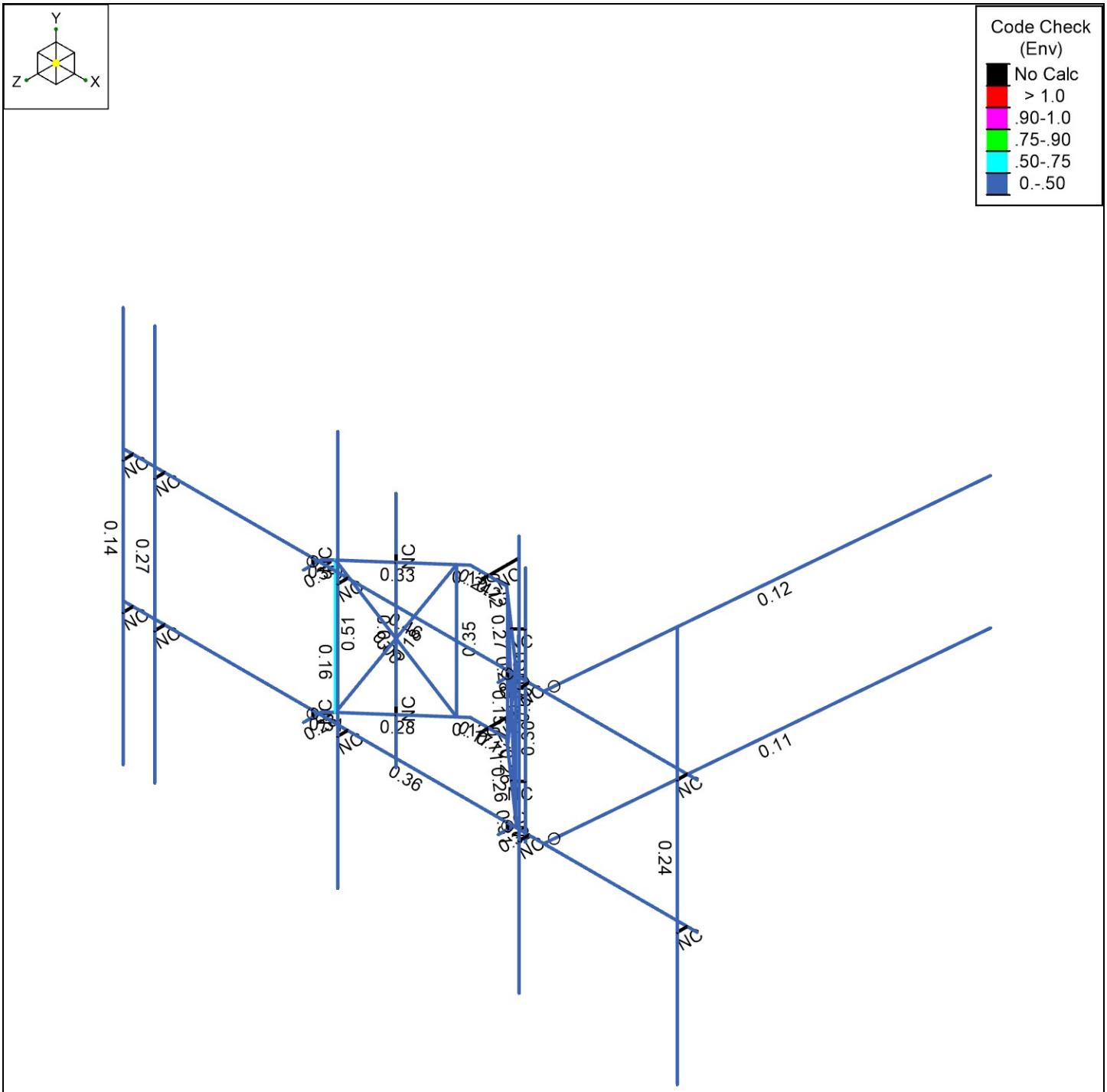

Member Code Checks Displayed (Enveloped)
Envelope Only Solution

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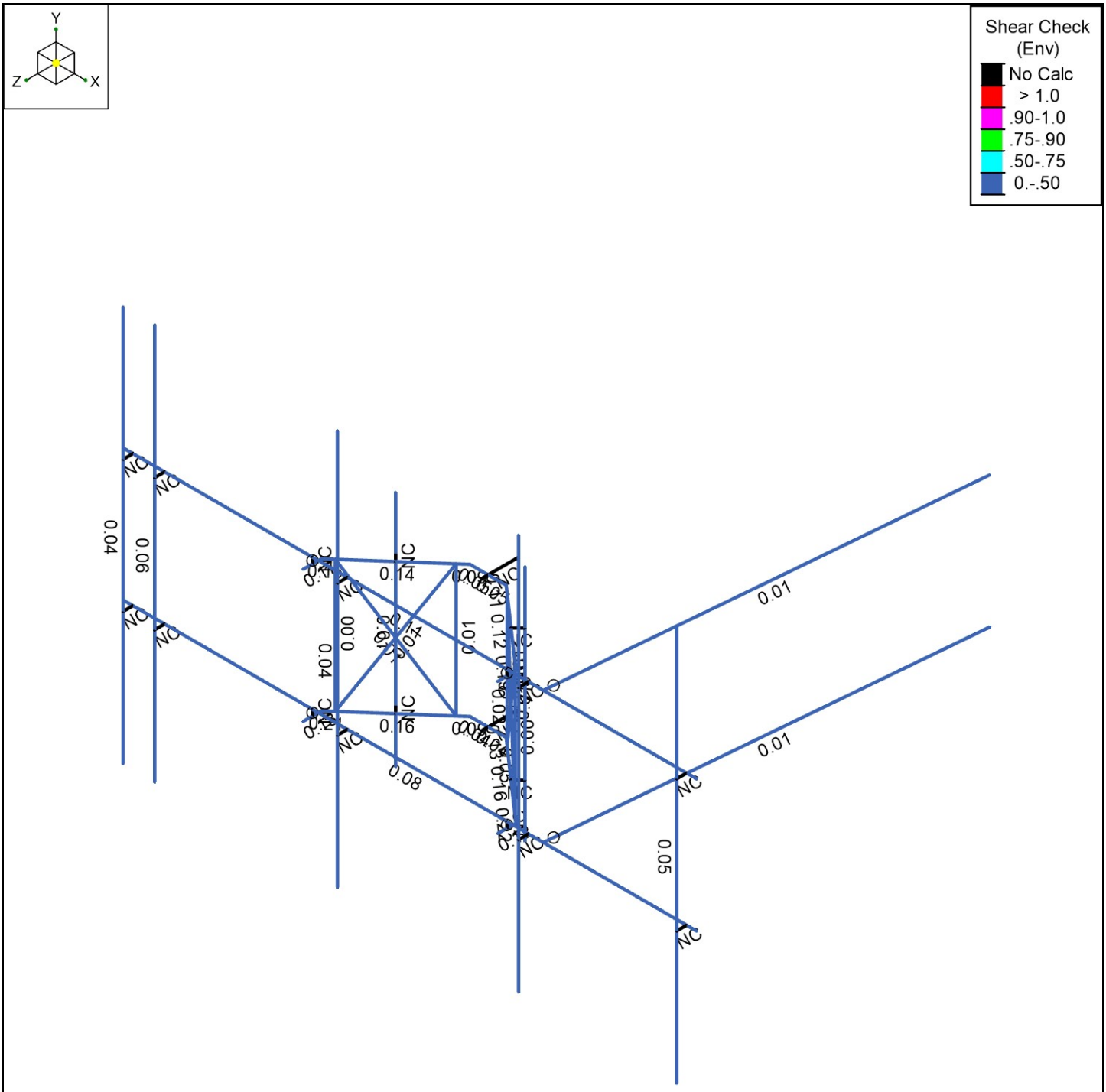

Member Shear Checks Displayed (Enveloped)
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APPENDIX B

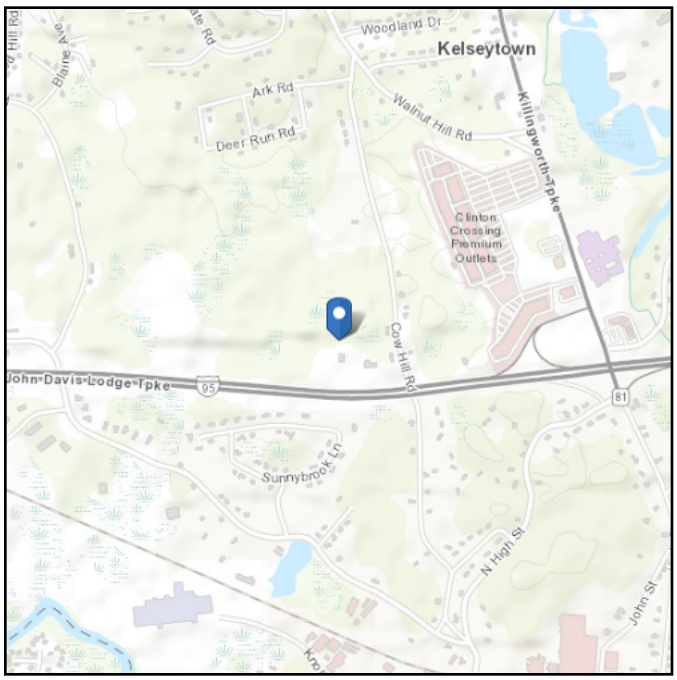
SOFTWARE INPUT CALCULATIONS

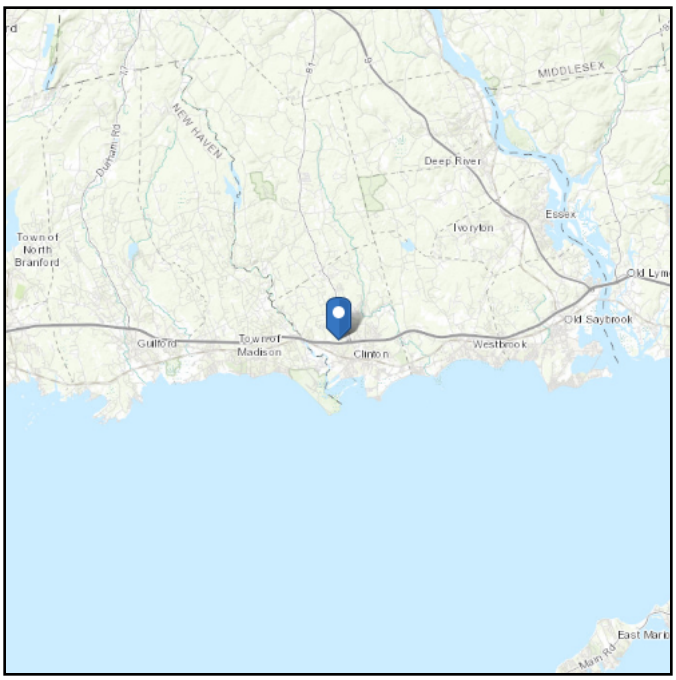
ASCE 7 Hazards Report

Address:
No Address at This Location

Standard: ASCE/SEI 7-16
Risk Category: II
Soil Class: D - Default (see Section 11.4.3)

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





Wind

Results:

Wind Speed	124 Vmph
10-year MRI	75 Vmph
25-year MRI	85 Vmph
50-year MRI	95 Vmph
100-year MRI	101 Vmph

Data Source: ASCE/SEI 7-16, Fig. 26.5-1B and Figs. CC.2-1–CC.2-4, and Section 26.5.2
Date Accessed: Sat Jul 23 2022

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 7-16 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 7-16 Section 26.2. Glazed openings need not be protected against wind-borne debris.

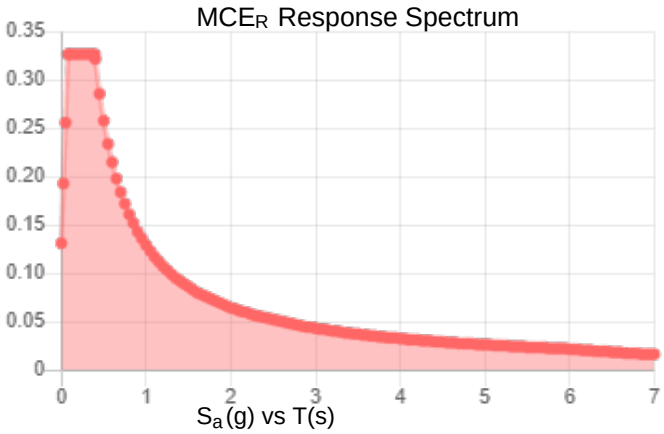
Seismic

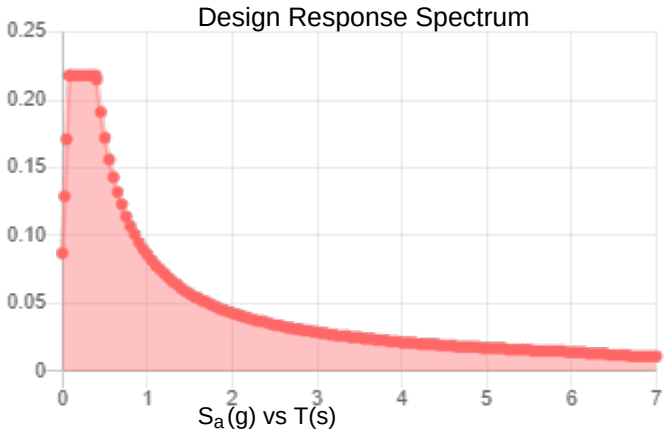
Site Soil Class: D - Default (see Section 11.4.3)

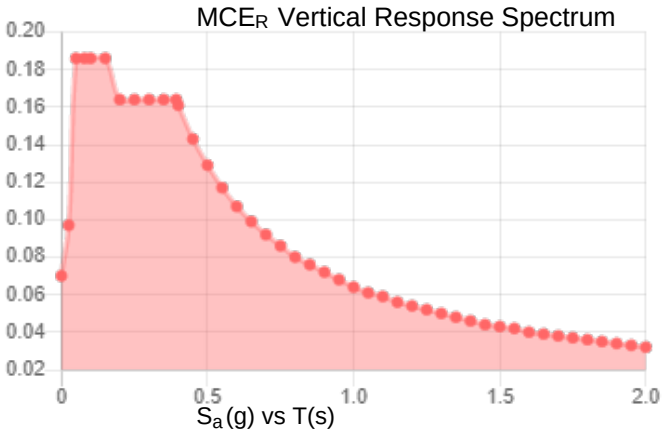
Results:

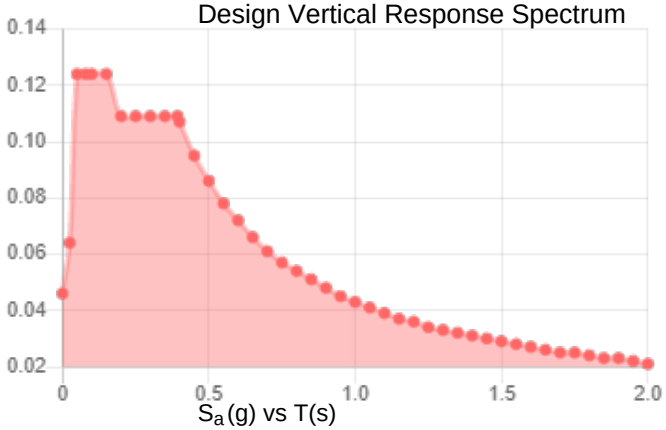
S_S :	0.205	S_{D1} :	0.086
S_1 :	0.054	T_L :	6
F_a :	1.6	PGA :	0.114
F_v :	2.4	PGA_M :	0.18
S_{MS} :	0.327	F_{PGA} :	1.571
S_{M1} :	0.129	I_e :	1
S_{DS} :	0.218	C_v :	0.709

Seismic Design Category B









Data Accessed: **Sat Jul 23 2022**

Date Source:

USGS Seismic Design Maps based on ASCE/SEI 7-16 and ASCE/SEI 7-16 Table 1.5-2. Additional data for site-specific ground motion procedures in accordance with ASCE/SEI 7-16 Ch. 21 are available from USGS.

Ice

Results:

Ice Thickness:	1.00 in.
Concurrent Temperature:	15 F
Gust Speed	50 mph
Data Source:	Standard ASCE/SEI 7-16, Figs. 10-2 through 10-8
Date Accessed:	Sat Jul 23 2022

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 500-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.

PROJECT	**100083.010.01 - HRT 105 943201, CT KSC**
SUBJECT	**Sector Mount Analysis**
DATE	**07-25-22**

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

Tower Type		:	SST		
Ground Elevation	z_s	:	19	ft	[ASCE7 Hazard Tool]
Tower Height		:	212.63	ft	
Mount Elevation		:	189.00	ft	
Antenna Elevation		:	190.00	ft	
Crest Height		:	0	ft	
Risk Category		:	II		[Table 2-1]
Exposure Category		:	B		[Sec. 2.6.5.1.2]
Topography Category		:	1.00		[Sec. 2.6.6.2]
Wind Velocity	V	:	124	mph	[ASCE7 Hazard Tool]
Ice wind Velocity	V_i	:	50	mph	[ASCE7 Hazard Tool]
Service Velocity	V_s	:	30	mph	[ASCE7 Hazard Tool]
Base Ice thickness	t_i	:	1.00	in	[ASCE7 Hazard Tool]
Seismic Design Cat.		:	B		[ASCE7 Hazard Tool]
	S_S	:	0.21		
	S_1	:	0.05		
	S_{DS}	:	0.22		
	S_{D1}	:	0.09		
Gust Factor	G_h	:	1.00		[Sec. 16.6]
Pressure Coefficient	K_z	:	1.19		[Sec. 2.6.5.2]
Topography Facto	K_{zt}	:	1.00		[Sec. 2.6.6]
Elevation Factor	K_e	:	1.00		[Sec. 2.6.8]
Directionality Factor	K_d	:	0.95		[Sec. 16.6]
Shielding Factor	K_a	:	0.90		[Sec. 16.6]
Design Ice Thickness	t_{iz}	:	1.19	in	[Sec. 2.6.10]
Importance Factor	I_e	:	1		[Table 2-3]
Response Coefficient	C_s	:	0.109		[Sec. 2.7.7.1]
Amplification	A_s	:	2.555556		[Sec. 16.7]
	q_z	:	44.30	psf	

PROJECT	**100083.010.01 - HRT 105 943201, CT KSC**
SUBJECT	**Sector Mount Analysis**
DATE	**07-25-22**

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

Manufacturer	Model	Qty	Height (in^2)	Width (in^2)	Depth (in^2)	Weight (lbs)	C_aA_a (N) (ft^2)	C_aA_a (T) (ft^2)	C_aA_a (N) Ice (ft^2)	C_aA_a (T) Ice (ft^2)	$F_{A\,(N)}$ (k)	$F_{A\,(T)}$ (k)	$F_{A\,(N)}$ Ice (k)	$F_{A\,(T)}$ Ice (k)
INTEL TECHNOLC	QD4616-7	0.5	51.5	22.0	9.6	109.0	4.82	2.10	5.46	2.64	0.21	0.09	0.04	0.02
INTEL TECHNOLC	QD4616-7	0.5					4.82	2.10	5.46	2.64	0.21	0.09	0.04	0.02
ERICSSON	TME-RRUS 32 B66	1	27.2	12.1	7.0	53.0	2.74	1.67	3.57	2.43	0.11	0.06	0.02	0.01
ERICSSON	AIR 6419 B77G	0.5	28.0	15.8	6.7	66.2	2.32	0.94	2.80	1.31	0.10	0.04	0.02	0.01
ERICSSON	AIR 6419 B77G	0.5					2.32	0.94	2.80	1.31	0.10	0.04	0.02	0.01
ERICSSON	AIR 6449 B77D_CCIV2	0.5	30.4	15.9	8.1	81.6	2.01	1.07	2.49	1.49	0.08	0.04	0.01	0.01
ERICSSON	AIR 6449 B77D_CCIV2	0.5	30.4	15.9	8.1	81.6	2.01	1.07	2.49	1.49	0.08	0.04	0.01	0.01
CCI ANTENNAS	DMP65R-BU4D	0.5	48.0	20.7	7.7	76.5	3.74	1.41	4.28	1.84	0.17	0.06	0.03	0.01
CCI ANTENNAS	DMP65R-BU4D	0.5					3.74	1.41	4.28	1.84	0.17	0.06	0.03	0.01
ERICSSON	RRUS 4449 B5/B12	1	17.9	13.2	9.4	71.0	1.97	1.41	2.63	2.00	0.08	0.06	0.01	0.01
ERICSSON	TME-RRUS 4478 B14	1	16.5	13.4	7.7	59.9	1.84	1.06	2.48	1.59	0.07	0.04	0.01	0.01
ERICSSON	RRUS 4415 B25	1	15.0	13.2	5.4	44.0	1.64	0.68	2.25	1.13	0.07	0.03	0.01	0.00
RAYCAP	E-DC9-48-60-24-8C-EV_CC	1	31.4	10.2	10.2	16.0	2.74	2.74	3.63	3.63	0.11	0.11	0.02	0.02
ERICSSON	TME-RRUS 32	1	27.6	12.4	7.4	55.1	2.86	1.78	3.70	2.55	0.11	0.07	0.02	0.01

APPENDIX C

SOFTWARE ANALYSIS OUTPUT

Node Coordinates

	Label	X [ft]	Y [ft]	Z [ft]	Detach From Diaphragm
1	1	7.25	0.145833	2.91666	
2	2	-7.25	0.145833	2.91666	
3	3	7.25	-3.1875	2.91666	
4	4	-7.25	-3.1875	2.91666	
5	5	-2.458333	0.145833	2.91666	
6	6	-2.458333	-3.1875	2.91666	
7	7	2.458333	-3.1875	2.91666	
8	8	2.458333	0.145833	2.91666	
9	9	0	0	0.16666	
10	10	-2.458333	0	2.91666	
11	11	-2.458333	-3.333334	2.91666	
12	12	2.458333	-3.333334	2.91666	
13	13	2.458333	0	2.91666	
14	14	-2.458333	0	3.151035	
15	15	-2.458333	-3.333334	3.151035	
16	16	2.458333	-3.333334	3.151035	
17	17	2.458333	0	3.151035	
18	18	-2.458333	0	2.692702	
19	19	-2.458333	-3.333334	2.692702	
20	20	2.458333	-3.333334	2.692702	
21	21	2.458333	0	2.692702	
22	22	0	-3.333334	0.16666	
23	23	0	0	1.083327	
24	24	0	-3.333334	1.083327	
25	25	0	0	0.937493	
26	26	0	-3.333334	0.937493	
27	27	0.458333	0	0.937493	
28	28	0.458333	-3.333334	0.937493	
29	29	-0.458333	0	0.937493	
30	30	-0.458333	-3.333334	0.937493	
31	31	-0.518814	0	0.990572	
32	32	-2.397829	0	2.639603	
33	33	-0.518814	-3.333334	0.990572	
34	34	-2.397829	-3.333334	2.639603	
35	35	0.518814	0	0.990572	
36	36	2.397829	0	2.639603	
37	37	0.518814	-3.333334	0.990572	
38	38	2.397829	-3.333334	2.639603	
39	39	-2.272561	0	2.529667	
40	40	-2.272561	-3.333334	2.529667	
41	41	-0.644082	0	1.100507	
42	42	-0.644082	-3.333334	1.100507	
43	43	2.272561	0	2.529667	
44	44	2.272561	-3.333334	2.529667	
45	45	0.644082	0	1.100507	
46	46	0.644082	-3.333334	1.100507	
47	47	-7.000004	0.145833	2.91666	
48	48	-7.000004	-3.1875	2.91666	
49	49	-1.577917	0.145833	2.91666	
50	50	-1.577917	-3.1875	2.91666	
51	51	7	0.145833	2.91666	
52	52	7	-3.1875	2.91666	
53	53	-7.000004	0.145833	3.16666	
54	54	-7.000004	-3.1875	3.16666	
55	55	-1.577917	0.145833	3.16666	

Node Coordinates (Continued)

	Label	X [ft]	Y [ft]	Z [ft]	Detach From Diaphragm
56	56	-1.577917	-3.1875	3.16666	
57	57	7	0.145833	3.16666	
58	58	7	-3.1875	3.16666	
59	59	-7.000004	-6.520834	3.16666	
60	60	-1.577917	-6.520834	3.16666	
61	61	7	-6.520834	3.16666	
62	62	-7.000004	3.479166	3.16666	
63	63	-1.577917	3.479166	3.16666	
64	64	7	3.479166	3.16666	
65	65	3.375	0.145833	2.91666	
66	66	3	0.145833	2.91666	
67	67	3	-3.1875	2.91666	
68	68	3	0.145833	3.16666	
69	69	3	-3.1875	3.16666	
70	70	3	-6.520834	3.16666	
71	71	3	3.479166	3.16666	
72	72	-6.200004	0.145833	2.91666	
73	73	-6.200004	-3.1875	2.91666	
74	74	-6.200004	0.145833	3.16666	
75	75	-6.200004	-3.1875	3.16666	
76	76	-6.200004	-6.520834	3.16666	
77	77	-6.200004	3.479166	3.16666	
78	78	0	0	0	
79	79	3.375	-3.1875	2.91666	
80	82	4.29868	0.146	-7.445533	
81	83	4.29868	-3.18733	-7.445533	
82	85A	-1.458322	0	1.815087	
83	86A	-1.458322	-3.333334	1.815087	
84	87	-1.635098	0	1.638311	
85	88A	-1.635098	-3.333334	1.638311	
86	89	-1.635098	1.33333	1.638311	
87	90	-1.635098	-4.66667	1.638311	
88	91	1.458322	0	1.815087	
89	92	1.458322	-3.333334	1.815087	
90	93	1.635098	0	1.638311	
91	94	1.635098	-3.333334	1.638311	
92	95	1.635098	1.33333	1.638311	
93	96	1.635098	-4.66667	1.638311	
94	97	4.29868	0	-7.445533	
95	98	-4.29868	0	-7.445533	

Node Boundary Conditions

	Node Label	X [k/in]	Y [k/in]	Z [k/in]	X Rot [k-ft/rad]	Z Rot [k-ft/rad]
1	22	Reaction	Reaction	Reaction	Reaction	Reaction
2	9	Reaction	Reaction	Reaction	Reaction	Reaction
3	78					
4	82	Reaction	Reaction	Reaction		
5	83	Reaction	Reaction	Reaction		

Hot Rolled Steel Properties

	Label	E [ksi]	G [ksi]	Nu	Therm. Coeff. [1e^{5}°F^{-1}]	Density [k/ft^{3}]	Yield [ksi]	Ry	Fu [ksi]	Rt
1	A992	29000	11154	0.3	0.65	0.49	50	1.1	65	1.1
2	A36 Gr.36	29000	11154	0.3	0.65	0.49	36	1.5	58	1.2

Hot Rolled Steel Properties (Continued)

	Label	E [ksi]	G [ksi]	Nu	Therm. Coeff. [1e⁵°F⁻¹]	Density [k/ft³]	Yield [ksi]	Ry	Fu [ksi]	Rt
3	A572 Gr.50	29000	11154	0.3	0.65	0.49	50	1.1	65	1.1
4	A500 Gr.B RND	29000	11154	0.3	0.65	0.527	42	1.4	58	1.3
5	A500 Gr.B Rect	29000	11154	0.3	0.65	0.527	46	1.4	58	1.3
6	A53 Gr.B	29000	11154	0.3	0.65	0.49	35	1.6	60	1.2
7	A1085	29000	11154	0.3	0.65	0.49	50	1.4	65	1.3

Hot Rolled Steel Section Sets

	Label	Shape	Type	Design List	Material	Design Rule	Area [in²]	Iyy [in⁴]	Izz [in⁴]	J [in⁴]
1	MF-H1	PIPE_2.5	Beam	Pipe	A53 Gr.B	Typical	1.61	1.45	1.45	2.89
2	SF-H1	PIPE_2.0	Beam	Pipe	A53 Gr.B	Typical	1.02	0.627	0.627	1.25
3	MF-CP1	PL5/8X3.5	Beam	RECT	A36 Gr.36	Typical	2.205	0.073	2.251	0.259
4	MF-CP2	PL1.25"X3.5"	Beam	RECT	A36 Gr.36	Typical	4.375	0.57	4.466	1.767
5	SF-V1	5/8"SR	Column	BAR	A36 Gr.36	Typical	0.307	0.007	0.007	0.015
6	SF-D1	3/4"SR	VBrace	BAR	A36 Gr.36	Typical	0.442	0.016	0.016	0.031
7	MF-P1	PIPE_2.5	Column	Pipe	A53 Gr.B	Typical	1.61	1.45	1.45	2.89
8	Tieback	PIPE_2.0	Beam	Pipe	A53 Gr.B	Typical	1.02	0.627	0.627	1.25

Member Primary Data

	Label	I Node	J Node	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rule
1	1	1	2		MF-H1	Beam	Pipe	A53 Gr.B	Typical
2	2	3	4		MF-H1	Beam	Pipe	A53 Gr.B	Typical
3	3	14	18	90	MF-CP1	Beam	RECT	A36 Gr.36	Typical
4	4	15	19	90	MF-CP1	Beam	RECT	A36 Gr.36	Typical
5	5	16	20	90	MF-CP1	Beam	RECT	A36 Gr.36	Typical
6	6	17	21	90	MF-CP1	Beam	RECT	A36 Gr.36	Typical
7	7	11	6		RIGID	None	None	RIGID	Typical
8	8	10	5		RIGID	None	None	RIGID	Typical
9	9	18	32	90	MF-CP1	Beam	RECT	A36 Gr.36	Typical
10	10	31	29	90	MF-CP1	Beam	RECT	A36 Gr.36	Typical
11	11	32	31		SF-H1	Beam	Pipe	A53 Gr.B	Typical
12	12	29	25	90	MF-CP2	Beam	RECT	A36 Gr.36	Typical
13	13	25	27	90	MF-CP2	Beam	RECT	A36 Gr.36	Typical
14	14	30	26	90	MF-CP2	Beam	RECT	A36 Gr.36	Typical
15	15	26	28	90	MF-CP2	Beam	RECT	A36 Gr.36	Typical
16	16	19	34	90	MF-CP1	Beam	RECT	A36 Gr.36	Typical
17	17	33	30	90	MF-CP1	Beam	RECT	A36 Gr.36	Typical
18	18	34	33		SF-H1	Beam	Pipe	A53 Gr.B	Typical
19	19	21	36	90	MF-CP1	Beam	RECT	A36 Gr.36	Typical
20	20	35	27	90	MF-CP1	Beam	RECT	A36 Gr.36	Typical
21	21	36	35		SF-H1	Beam	Pipe	A53 Gr.B	Typical
22	22	20	38	90	MF-CP1	Beam	RECT	A36 Gr.36	Typical
23	23	37	28	90	MF-CP1	Beam	RECT	A36 Gr.36	Typical
24	24	38	37		SF-H1	Beam	Pipe	A53 Gr.B	Typical
25	25	12	7		RIGID	None	None	RIGID	Typical
26	26	13	8		RIGID	None	None	RIGID	Typical
27	27	23	9		RIGID	None	None	RIGID	Typical
28	28	24	22		RIGID	None	None	RIGID	Typical
29	29	40	39		SF-V1	Column	BAR	A36 Gr.36	Typical
30	30	42	41		SF-V1	Column	BAR	A36 Gr.36	Typical
31	31	44	43		SF-V1	Column	BAR	A36 Gr.36	Typical
32	32	46	45		SF-V1	Column	BAR	A36 Gr.36	Typical
33	33	40	41		SF-D1	VBrace	BAR	A36 Gr.36	Typical
34	34	39	42		SF-D1	VBrace	BAR	A36 Gr.36	Typical

Member Primary Data (Continued)

	Label	I Node	J Node	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rule
35	35	45	44		SF-D1	VBrace	BAR	A36 Gr.36	Typical
36	36	46	43		SF-D1	VBrace	BAR	A36 Gr.36	Typical
37	37	54	48		RIGID	None	None	RIGID	Typical
38	38	53	47		RIGID	None	None	RIGID	Typical
39	39	56	50		RIGID	None	None	RIGID	Typical
40	40	55	49		RIGID	None	None	RIGID	Typical
41	41	58	52		RIGID	None	None	RIGID	Typical
42	42	57	51		RIGID	None	None	RIGID	Typical
43	43	64	61		MF-P1	Column	Pipe	A53 Gr.B	Typical
44	44	63	60		MF-P1	Column	Pipe	A53 Gr.B	Typical
45	45	62	59		MF-P1	Column	Pipe	A53 Gr.B	Typical
46	46	65	82		Tieback	Beam	Pipe	A53 Gr.B	Typical
47	47	69	67		RIGID	None	None	RIGID	Typical
48	48	68	66		RIGID	None	None	RIGID	Typical
49	49	71	70		MF-P1	Column	Pipe	A53 Gr.B	Typical
50	50	75	73		RIGID	None	None	RIGID	Typical
51	51	74	72		RIGID	None	None	RIGID	Typical
52	52	77	76		MF-P1	Column	Pipe	A53 Gr.B	Typical
53	53	79	83		Tieback	Beam	Pipe	A53 Gr.B	Typical
54	54	89	90		MF-P1	Column	Pipe	A53 Gr.B	Typical
55	55	85A	87		RIGID	None	None	RIGID	Typical
56	56	86A	88A		RIGID	None	None	RIGID	Typical
57	57	95	96		MF-P1	Column	Pipe	A53 Gr.B	Typical
58	58	91	93		RIGID	None	None	RIGID	Typical
59	59	92	94		RIGID	None	None	RIGID	Typical

Member Advanced Data

	Label	I Release	J Release	T/C Only	Physical	Deflection Ratio Options	Seismic DR
1	1				Yes	N/A	None
2	2				Yes	N/A	None
3	3				Yes	N/A	None
4	4				Yes	N/A	None
5	5				Yes	N/A	None
6	6				Yes	N/A	None
7	7		OOOOXO		Yes	** NA **	None
8	8		OOOOXO		Yes	** NA **	None
9	9				Yes	N/A	None
10	10				Yes	N/A	None
11	11				Yes	N/A	None
12	12				Yes	N/A	None
13	13				Yes	N/A	None
14	14				Yes	N/A	None
15	15				Yes	N/A	None
16	16				Yes	N/A	None
17	17				Yes	N/A	None
18	18				Yes	Default	None
19	19				Yes	N/A	None
20	20				Yes	N/A	None
21	21				Yes	N/A	None
22	22				Yes	N/A	None
23	23				Yes	N/A	None
24	24				Yes	N/A	None
25	25		OOOOXO		Yes	** NA **	None
26	26		OOOOXO		Yes	** NA **	None
27	27				Yes	** NA **	None

Member Advanced Data (Continued)

	Label	I Release	J Release	T/C Only	Physical	Deflection Ratio Options	Seismic DR
28	28				Yes	** NA **	None
29	29				Yes	** NA **	None
30	30				Yes	** NA **	None
31	31				Yes	** NA **	None
32	32				Yes	** NA **	None
33	33				Yes	** NA **	None
34	34			Euler Buckling	Yes	** NA **	None
35	35				Yes	** NA **	None
36	36			Euler Buckling	Yes	** NA **	None
37	37				Yes	** NA **	None
38	38				Yes	** NA **	None
39	39				Yes	** NA **	None
40	40				Yes	** NA **	None
41	41				Yes	** NA **	None
42	42				Yes	** NA **	None
43	43				Yes	** NA **	None
44	44				Yes	** NA **	None
45	45				Yes	** NA **	None
46	46	BenPIN			Yes	Default	None
47	47				Yes	** NA **	None
48	48				Yes	** NA **	None
49	49				Yes	** NA **	None
50	50				Yes	** NA **	None
51	51				Yes	** NA **	None
52	52				Yes	** NA **	None
53	53	BenPIN			Yes	Default	None
54	54				Yes	** NA **	None
55	55				Yes	** NA **	None
56	56				Yes	** NA **	None
57	57				Yes	** NA **	None
58	58				Yes	** NA **	None
59	59				Yes	** NA **	None

Hot Rolled Steel Design Parameters

	Label	Shape	Length [ft]	Lb y-y [ft]	Lb z-z [ft]	Lcomp top [ft]	Channel Conn.	a [ft]	Function
1	1	MF-H1	14.5			Lbyy	N/A	N/A	Lateral
2	2	MF-H1	14.5			Lbyy	N/A	N/A	Lateral
3	3	MF-CP1	0.458			Lbyy	N/A	N/A	Lateral
4	4	MF-CP1	0.458			Lbyy	N/A	N/A	Lateral
5	5	MF-CP1	0.458			Lbyy	N/A	N/A	Lateral
6	6	MF-CP1	0.458			Lbyy	N/A	N/A	Lateral
7	9	MF-CP1	0.08			Lbyy	N/A	N/A	Lateral
8	10	MF-CP1	0.08			Lbyy	N/A	N/A	Lateral
9	11	SF-H1	2.5			Lbyy	N/A	N/A	Lateral
10	12	MF-CP2	0.458			Lbyy	N/A	N/A	Lateral
11	13	MF-CP2	0.458			Lbyy	N/A	N/A	Lateral
12	14	MF-CP2	0.458			Lbyy	N/A	N/A	Lateral
13	15	MF-CP2	0.458			Lbyy	N/A	N/A	Lateral
14	16	MF-CP1	0.08			Lbyy	N/A	N/A	Lateral
15	17	MF-CP1	0.08			Lbyy	N/A	N/A	Lateral
16	18	SF-H1	2.5			Lbyy	N/A	N/A	Lateral
17	19	MF-CP1	0.08			Lbyy	N/A	N/A	Lateral
18	20	MF-CP1	0.08			Lbyy	N/A	N/A	Lateral
19	21	SF-H1	2.5			Lbyy	N/A	N/A	Lateral
20	22	MF-CP1	0.08			Lbyy	N/A	N/A	Lateral

Hot Rolled Steel Design Parameters (Continued)

	Label	Shape	Length [ft]	Lb y-y [ft]	Lb z-z [ft]	Lcomp top [ft]	Channel Conn.	a [ft]	Function
21	23	MF-CP1	0.08			Lbyy	N/A	N/A	Lateral
22	24	SF-H1	2.5			Lbyy	N/A	N/A	Lateral
23	29	SF-V1	3.333	2.5	2.5	Lbyy	N/A	N/A	Lateral
24	30	SF-V1	3.333	2.5	2.5	Lbyy	N/A	N/A	Lateral
25	31	SF-V1	3.333	2.5	2.5	Lbyy	N/A	N/A	Lateral
26	32	SF-V1	3.333	2.5	2.5	Lbyy	N/A	N/A	Lateral
27	33	SF-D1	3.976			Lbyy	N/A	N/A	Lateral
28	34	SF-D1	3.976			Lbyy	N/A	N/A	Lateral
29	35	SF-D1	3.976			Lbyy	N/A	N/A	Lateral
30	36	SF-D1	3.976			Lbyy	N/A	N/A	Lateral
31	43	MF-P1	10			Lbyy	N/A	N/A	Lateral
32	44	MF-P1	10			Lbyy	N/A	N/A	Lateral
33	45	MF-P1	10			Lbyy	N/A	N/A	Lateral
34	46	Tieback	10.403			Lbyy	N/A	N/A	Lateral
35	49	MF-P1	10			Lbyy	N/A	N/A	Lateral
36	52	MF-P1	10			Lbyy	N/A	N/A	Lateral
37	53	Tieback	10.403			Lbyy	N/A	N/A	Lateral
38	54	MF-P1	6			Lbyy	N/A	N/A	Lateral
39	57	MF-P1	6			Lbyy	N/A	N/A	Lateral

Member Point Loads (BLC 1 : Dead)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	49	Y	-0.054	%5
2	49	Y	-0.054	%45
3	49	Y	-0.053	%55
4	49	Y	0	0
5	49	Y	0	0
6	44	Y	-0.033	%5
7	44	Y	-0.033	%25
8	44	Y	-0.041	%75
9	44	Y	-0.041	%95
10	44	Y	0	0
11	52	Y	-0.038	%5
12	52	Y	-0.038	%45
13	52	Y	-0.071	%55
14	52	Y	0	0
15	52	Y	0	0
16	57	Y	-0.06	%25
17	57	Y	-0.044	%55
18	57	Y	0	0
19	57	Y	0	0
20	57	Y	0	0
21	54	Y	-0.016	%25
22	54	Y	-0.055	%55
23	54	Y	0	0
24	54	Y	0	0
25	54	Y	0	0

Member Point Loads (BLC 2 : 0 Wind - No Ice)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	49	Z	-0.214	%5
2	49	Z	-0.214	%45
3	49	Z	-0.11	%55

Member Point Loads (BLC 2 : 0 Wind - No Ice) (Continued)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
4	49	Z	0	0
5	49	Z	0	0
6	44	Z	-0.103	%5
7	44	Z	-0.103	%25
8	44	Z	-0.08	%75
9	44	Z	-0.08	%95
10	44	Z	0	0
11	52	Z	-0.166	%5
12	52	Z	-0.166	%45
13	52	Z	-0.079	%55
14	52	Z	0	0
15	52	Z	0	0
16	57	Z	-0.074	%25
17	57	Z	-0.066	%55
18	57	Z	0	0
19	57	Z	0	0
20	57	Z	0	0
21	54	Z	-0.109	%25
22	54	Z	-0.114	%55
23	54	Z	0	0
24	54	Z	0	0
25	54	Z	0	0

Member Point Loads (BLC 3 : 90 Wind - No Ice)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	49	X	-0.093	%5
2	49	X	-0.093	%45
3	49	X	-0.063	%55
4	49	X	0	0
5	49	X	0	0
6	44	X	-0.042	%5
7	44	X	-0.042	%25
8	44	X	-0.041	%75
9	44	X	-0.041	%95
10	44	X	0	0
11	52	X	-0.062	%5
12	52	X	-0.062	%45
13	52	X	-0.056	%55
14	52	X	0	0
15	52	X	0	0
16	57	X	-0.042	%25
17	57	X	-0.027	%55
18	57	X	0	0
19	57	X	0	0
20	57	X	0	0
21	54	X	-0.109	%25
22	54	X	-0.068	%55
23	54	X	0	0
24	54	X	0	0
25	54	X	0	0

Member Point Loads (BLC 4 : 0 Wind - Ice)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	49	Z	-0.039	%5
2	49	Z	-0.039	%45
3	49	Z	-0.018	%55
4	49	Z	0	0
5	49	Z	0	0
6	44	Z	-0.02	%5
7	44	Z	-0.02	%25
8	44	Z	-0.013	%75
9	44	Z	-0.013	%95
10	44	Z	0	0
11	52	Z	-0.031	%5
12	52	Z	-0.031	%45
13	52	Z	-0.013	%55
14	52	Z	0	0
15	52	Z	0	0
16	57	Z	-0.012	%25
17	57	Z	-0.011	%55
18	57	Z	0	0
19	57	Z	0	0
20	57	Z	0	0
21	54	Z	-0.018	%25
22	54	Z	-0.018	%55
23	54	Z	0	0
24	54	Z	0	0
25	54	Z	0	0

Member Point Loads (BLC 5 : 90 Wind - Ice)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	49	X	-0.019	%5
2	49	X	-0.019	%45
3	49	X	-0.01	%55
4	49	X	0	0
5	49	X	0	0
6	44	X	-0.009	%5
7	44	X	-0.009	%25
8	44	X	-0.007	%75
9	44	X	-0.007	%95
10	44	X	0	0
11	52	X	-0.013	%5
12	52	X	-0.013	%45
13	52	X	-0.009	%55
14	52	X	0	0
15	52	X	0	0
16	57	X	-0.007	%25
17	57	X	-0.004	%55
18	57	X	0	0
19	57	X	0	0
20	57	X	0	0
21	54	X	-0.018	%25
22	54	X	-0.011	%55
23	54	X	0	0
24	54	X	0	0
25	54	X	0	0

Member Point Loads (BLC 6 : 0 Wind - Service)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	49	Z	-0.013	%5
2	49	Z	-0.013	%45
3	49	Z	-0.006	%55
4	49	Z	0	0
5	49	Z	0	0
6	44	Z	-0.006	%5
7	44	Z	-0.006	%25
8	44	Z	-0.005	%75
9	44	Z	-0.005	%95
10	44	Z	0	0
11	52	Z	-0.01	%5
12	52	Z	-0.01	%45
13	52	Z	-0.005	%55
14	52	Z	0	0
15	52	Z	0	0
16	57	Z	-0.004	%25
17	57	Z	-0.004	%55
18	57	Z	0	0
19	57	Z	0	0
20	57	Z	0	0
21	54	Z	-0.006	%25
22	54	Z	-0.007	%55
23	54	Z	0	0
24	54	Z	0	0
25	54	Z	0	0

Member Point Loads (BLC 7 : 90 Wind - Service)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	49	X	-0.005	%5
2	49	X	-0.005	%45
3	49	X	-0.004	%55
4	49	X	0	0
5	49	X	0	0
6	44	X	-0.002	%5
7	44	X	-0.002	%25
8	44	X	-0.002	%75
9	44	X	-0.002	%95
10	44	X	0	0
11	52	X	-0.004	%5
12	52	X	-0.004	%45
13	52	X	-0.003	%55
14	52	X	0	0
15	52	X	0	0
16	57	X	-0.003	%25
17	57	X	-0.002	%55
18	57	X	0	0
19	57	X	0	0
20	57	X	0	0
21	54	X	-0.006	%25
22	54	X	-0.004	%55
23	54	X	0	0
24	54	X	0	0
25	54	X	0	0

Member Point Loads (BLC 8 : Ice)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	49	Y	-0.12	%5
2	49	Y	-0.12	%45
3	49	Y	-0.05	%55
4	49	Y	0	0
5	49	Y	0	0
6	44	Y	-0.06	%5
7	44	Y	-0.06	%25
8	44	Y	-0.035	%75
9	44	Y	-0.035	%95
10	44	Y	0	0
11	52	Y	-0.093	%5
12	52	Y	-0.093	%45
13	52	Y	-0.038	%55
14	52	Y	0	0
15	52	Y	0	0
16	57	Y	-0.033	%25
17	57	Y	-0.028	%55
18	57	Y	0	0
19	57	Y	0	0
20	57	Y	0	0
21	54	Y	-0.06	%25
22	54	Y	-0.052	%55
23	54	Y	0	0
24	54	Y	0	0
25	54	Y	0	0

Member Point Loads (BLC 9 : 0 Seismic)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	49	Z	-0.03	%5
2	49	Z	-0.03	%45
3	49	Z	-0.015	%55
4	49	Z	0	0
5	49	Z	0	0
6	44	Z	-0.018	%5
7	44	Z	-0.018	%25
8	44	Z	-0.023	%75
9	44	Z	-0.023	%95
10	44	Z	0	0
11	52	Z	-0.021	%5
12	52	Z	-0.021	%45
13	52	Z	-0.02	%55
14	52	Z	0	0
15	52	Z	0	0
16	57	Z	-0.017	%25
17	57	Z	-0.012	%55
18	57	Z	0	0
19	57	Z	0	0
20	57	Z	0	0
21	54	Z	-0.004	%25
22	54	Z	-0.015	%55
23	54	Z	0	0
24	54	Z	0	0
25	54	Z	0	0

Member Point Loads (BLC 10 : 90 Seismic)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	49	X	-0.03	%5
2	49	X	-0.03	%45
3	49	X	-0.015	%55
4	49	X	0	0
5	49	X	0	0
6	44	X	-0.018	%5
7	44	X	-0.018	%25
8	44	X	-0.023	%75
9	44	X	-0.023	%95
10	44	X	0	0
11	52	X	-0.021	%5
12	52	X	-0.021	%45
13	52	X	-0.02	%55
14	52	X	0	0
15	52	X	0	0
16	57	X	-0.017	%25
17	57	X	-0.012	%55
18	57	X	0	0
19	57	X	0	0
20	57	X	0	0
21	54	X	-0.004	%25
22	54	X	-0.015	%55
23	54	X	0	0
24	54	X	0	0
25	54	X	0	0

Member Point Loads (BLC 15 : Maint LL 1)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	11	Y	-0.25	%50

Member Point Loads (BLC 16 : Maint LL 2)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	21	Y	-0.25	%50

Member Point Loads (BLC 17 : Maint LL 3)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	24	Y	-0.25	%50

Member Point Loads (BLC 18 : Maint LL 4)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	18	Y	-0.25	%50

Member Point Loads (BLC 19 : Maint LL 5)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	1	Y	-0.25	%95

Member Point Loads (BLC 20 : Maint LL 6)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	2	Y	-0.25	%95

Member Distributed Loads (BLC 2 : 0 Wind - No Ice)

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
1	1	Z	-0.011	-0.011	0	%100
2	2	Z	-0.011	-0.011	0	%100
3	3	Z	-0.003	-0.003	0	%100
4	4	Z	-0.003	-0.003	0	%100
5	5	Z	-0.003	-0.003	0	%100
6	6	Z	-0.003	-0.003	0	%100
7	9	Z	-0.003	-0.003	0	%100
8	10	Z	-0.003	-0.003	0	%100
9	11	Z	-0.007	-0.007	0	%100
10	12	Z	-0.005	-0.005	0	%100
11	13	Z	-0.005	-0.005	0	%100
12	14	Z	-0.005	-0.005	0	%100
13	15	Z	-0.005	-0.005	0	%100
14	16	Z	-0.003	-0.003	0	%100
15	17	Z	-0.003	-0.003	0	%100
16	18	Z	-0.007	-0.007	0	%100
17	19	Z	-0.003	-0.003	0	%100
18	20	Z	-0.003	-0.003	0	%100
19	21	Z	-0.007	-0.007	0	%100
20	22	Z	-0.003	-0.003	0	%100
21	23	Z	-0.003	-0.003	0	%100
22	24	Z	-0.007	-0.007	0	%100
23	29	Z	-0.003	-0.003	0	%100
24	30	Z	-0.003	-0.003	0	%100
25	31	Z	-0.003	-0.003	0	%100
26	32	Z	-0.003	-0.003	0	%100
27	33	Z	-0.003	-0.003	0	%100
28	34	Z	-0.003	-0.003	0	%100
29	35	Z	-0.003	-0.003	0	%100
30	36	Z	-0.003	-0.003	0	%100
31	43	Z	-0.011	-0.011	0	%100
32	44	Z	-0.011	-0.011	0	%100
33	45	Z	-0.011	-0.011	0	%100
34	46	Z	-0.009	-0.009	0	%100
35	49	Z	-0.011	-0.011	0	%100
36	52	Z	-0.011	-0.011	0	%100
37	53	Z	-0.009	-0.009	0	%100
38	54	Z	-0.011	-0.011	0	%100
39	57	Z	-0.011	-0.011	0	%100

Member Distributed Loads (BLC 3 : 90 Wind - No Ice)

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
1	1	X	-0.011	-0.011	0	%100
2	2	X	-0.011	-0.011	0	%100
3	3	X	-0.003	-0.003	0	%100
4	4	X	-0.003	-0.003	0	%100
5	5	X	-0.003	-0.003	0	%100
6	6	X	-0.003	-0.003	0	%100

Member Distributed Loads (BLC 3 : 90 Wind - No Ice) (Continued)

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
7	9	X	-0.003	-0.003	0	%100
8	10	X	-0.003	-0.003	0	%100
9	11	X	-0.007	-0.007	0	%100
10	12	X	-0.005	-0.005	0	%100
11	13	X	-0.005	-0.005	0	%100
12	14	X	-0.005	-0.005	0	%100
13	15	X	-0.005	-0.005	0	%100
14	16	X	-0.003	-0.003	0	%100
15	17	X	-0.003	-0.003	0	%100
16	18	X	-0.007	-0.007	0	%100
17	19	X	-0.003	-0.003	0	%100
18	20	X	-0.003	-0.003	0	%100
19	21	X	-0.007	-0.007	0	%100
20	22	X	-0.003	-0.003	0	%100
21	23	X	-0.003	-0.003	0	%100
22	24	X	-0.007	-0.007	0	%100
23	29	X	-0.003	-0.003	0	%100
24	30	X	-0.003	-0.003	0	%100
25	31	X	-0.003	-0.003	0	%100
26	32	X	-0.003	-0.003	0	%100
27	33	X	-0.003	-0.003	0	%100
28	34	X	-0.003	-0.003	0	%100
29	35	X	-0.003	-0.003	0	%100
30	36	X	-0.003	-0.003	0	%100
31	43	X	-0.011	-0.011	0	%100
32	44	X	-0.011	-0.011	0	%100
33	45	X	-0.011	-0.011	0	%100
34	46	X	-0.009	-0.009	0	%100
35	49	X	-0.011	-0.011	0	%100
36	52	X	-0.011	-0.011	0	%100
37	53	X	-0.009	-0.009	0	%100
38	54	X	-0.011	-0.011	0	%100
39	57	X	-0.011	-0.011	0	%100

Member Distributed Loads (BLC 4 : 0 Wind - Ice)

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
1	1	Z	-0.002	-0.002	0	%100
2	2	Z	-0.002	-0.002	0	%100
3	3	Z	-0.003	-0.003	0	%100
4	4	Z	-0.003	-0.003	0	%100
5	5	Z	-0.003	-0.003	0	%100
6	6	Z	-0.003	-0.003	0	%100
7	9	Z	-0.007	-0.007	0	%100
8	10	Z	-0.007	-0.007	0	%100
9	11	Z	-0.002	-0.002	0	%100
10	12	Z	-0.004	-0.004	0	%100
11	13	Z	-0.004	-0.004	0	%100
12	14	Z	-0.004	-0.004	0	%100
13	15	Z	-0.004	-0.004	0	%100
14	16	Z	-0.007	-0.007	0	%100
15	17	Z	-0.007	-0.007	0	%100
16	18	Z	-0.002	-0.002	0	%100
17	19	Z	-0.007	-0.007	0	%100
18	20	Z	-0.007	-0.007	0	%100
19	21	Z	-0.002	-0.002	0	%100

Member Distributed Loads (BLC 4 : 0 Wind - Ice) (Continued)

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
20	22	Z	-0.007	-0.007	0	%100
21	23	Z	-0.007	-0.007	0	%100
22	24	Z	-0.002	-0.002	0	%100
23	29	Z	-0.002	-0.002	0	%100
24	30	Z	-0.002	-0.002	0	%100
25	31	Z	-0.002	-0.002	0	%100
26	32	Z	-0.002	-0.002	0	%100
27	33	Z	-0.002	-0.002	0	%100
28	34	Z	-0.002	-0.002	0	%100
29	35	Z	-0.002	-0.002	0	%100
30	36	Z	-0.002	-0.002	0	%100
31	43	Z	-0.002	-0.002	0	%100
32	44	Z	-0.002	-0.002	0	%100
33	45	Z	-0.002	-0.002	0	%100
34	46	Z	-0.002	-0.002	0	%100
35	49	Z	-0.002	-0.002	0	%100
36	52	Z	-0.002	-0.002	0	%100
37	53	Z	-0.002	-0.002	0	%100
38	54	Z	-0.002	-0.002	0	%100
39	57	Z	-0.002	-0.002	0	%100

Member Distributed Loads (BLC 5 : 90 Wind - Ice)

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
1	1	X	-0.002	-0.002	0	%100
2	2	X	-0.002	-0.002	0	%100
3	3	X	-0.003	-0.003	0	%100
4	4	X	-0.003	-0.003	0	%100
5	5	X	-0.003	-0.003	0	%100
6	6	X	-0.003	-0.003	0	%100
7	9	X	-0.007	-0.007	0	%100
8	10	X	-0.007	-0.007	0	%100
9	11	X	-0.002	-0.002	0	%100
10	12	X	-0.004	-0.004	0	%100
11	13	X	-0.004	-0.004	0	%100
12	14	X	-0.004	-0.004	0	%100
13	15	X	-0.004	-0.004	0	%100
14	16	X	-0.007	-0.007	0	%100
15	17	X	-0.007	-0.007	0	%100
16	18	X	-0.002	-0.002	0	%100
17	19	X	-0.007	-0.007	0	%100
18	20	X	-0.007	-0.007	0	%100
19	21	X	-0.002	-0.002	0	%100
20	22	X	-0.007	-0.007	0	%100
21	23	X	-0.007	-0.007	0	%100
22	24	X	-0.002	-0.002	0	%100
23	29	X	-0.002	-0.002	0	%100
24	30	X	-0.002	-0.002	0	%100
25	31	X	-0.002	-0.002	0	%100
26	32	X	-0.002	-0.002	0	%100
27	33	X	-0.002	-0.002	0	%100
28	34	X	-0.002	-0.002	0	%100
29	35	X	-0.002	-0.002	0	%100
30	36	X	-0.002	-0.002	0	%100
31	43	X	-0.002	-0.002	0	%100
32	44	X	-0.002	-0.002	0	%100

Member Distributed Loads (BLC 5 : 90 Wind - Ice) (Continued)

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
33	45	X	-0.002	-0.002	0	%100
34	46	X	-0.002	-0.002	0	%100
35	49	X	-0.002	-0.002	0	%100
36	52	X	-0.002	-0.002	0	%100
37	53	X	-0.002	-0.002	0	%100
38	54	X	-0.002	-0.002	0	%100
39	57	X	-0.002	-0.002	0	%100

Member Distributed Loads (BLC 6 : 0 Wind - Service)

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
1	1	Z	-0.0003	-0.0003	0	%100
2	2	Z	-0.0003	-0.0003	0	%100
3	3	Z	-0.0002	-0.0002	0	%100
4	4	Z	-0.0002	-0.0002	0	%100
5	5	Z	-0.0002	-0.0002	0	%100
6	6	Z	-0.0002	-0.0002	0	%100
7	9	Z	-0.0001	-0.0001	0	%100
8	10	Z	-0.0001	-0.0001	0	%100
9	11	Z	-0.0003	-0.0003	0	%100
10	12	Z	-0.0003	-0.0003	0	%100
11	13	Z	-0.0003	-0.0003	0	%100
12	14	Z	-0.0003	-0.0003	0	%100
13	15	Z	-0.0003	-0.0003	0	%100
14	16	Z	-0.0001	-0.0001	0	%100
15	17	Z	-0.0001	-0.0001	0	%100
16	18	Z	-0.0003	-0.0003	0	%100
17	19	Z	-0.0001	-0.0001	0	%100
18	20	Z	-0.0001	-0.0001	0	%100
19	21	Z	-0.0003	-0.0003	0	%100
20	22	Z	-0.0001	-0.0001	0	%100
21	23	Z	-0.0001	-0.0001	0	%100
22	24	Z	-0.0003	-0.0003	0	%100
23	29	Z	-0.0001	-0.0001	0	%100
24	30	Z	-0.0001	-0.0001	0	%100
25	31	Z	-0.0001	-0.0001	0	%100
26	32	Z	-0.0001	-0.0001	0	%100
27	33	Z	-0.0001	-0.0001	0	%100
28	34	Z	-0.0001	-0.0001	0	%100
29	35	Z	-0.0001	-0.0001	0	%100
30	36	Z	-0.0001	-0.0001	0	%100
31	43	Z	-0.0003	-0.0003	0	%100
32	44	Z	-0.0003	-0.0003	0	%100
33	45	Z	-0.0003	-0.0003	0	%100
34	46	Z	-0.0003	-0.0003	0	%100
35	49	Z	-0.0003	-0.0003	0	%100
36	52	Z	-0.0003	-0.0003	0	%100
37	53	Z	-0.0003	-0.0003	0	%100
38	54	Z	-0.0003	-0.0003	0	%100
39	57	Z	-0.0003	-0.0003	0	%100

Member Distributed Loads (BLC 7 : 90 Wind - Service)

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
1	1	X	-0.0003	-0.0003	0	%100
2	2	X	-0.0003	-0.0003	0	%100
3	3	X	-0.0002	-0.0002	0	%100
4	4	X	-0.0002	-0.0002	0	%100
5	5	X	-0.0002	-0.0002	0	%100
6	6	X	-0.0002	-0.0002	0	%100
7	9	X	-0.0001	-0.0001	0	%100
8	10	X	-0.0001	-0.0001	0	%100
9	11	X	-0.0003	-0.0003	0	%100
10	12	X	-0.0003	-0.0003	0	%100
11	13	X	-0.0003	-0.0003	0	%100
12	14	X	-0.0003	-0.0003	0	%100
13	15	X	-0.0003	-0.0003	0	%100
14	16	X	-0.0001	-0.0001	0	%100
15	17	X	-0.0001	-0.0001	0	%100
16	18	X	-0.0003	-0.0003	0	%100
17	19	X	-0.0001	-0.0001	0	%100
18	20	X	-0.0001	-0.0001	0	%100
19	21	X	-0.0003	-0.0003	0	%100
20	22	X	-0.0001	-0.0001	0	%100
21	23	X	-0.0001	-0.0001	0	%100
22	24	X	-0.0003	-0.0003	0	%100
23	29	X	-0.0001	-0.0001	0	%100
24	30	X	-0.0001	-0.0001	0	%100
25	31	X	-0.0001	-0.0001	0	%100
26	32	X	-0.0001	-0.0001	0	%100
27	33	X	-0.0001	-0.0001	0	%100
28	34	X	-0.0001	-0.0001	0	%100
29	35	X	-0.0001	-0.0001	0	%100
30	36	X	-0.0001	-0.0001	0	%100
31	43	X	-0.0003	-0.0003	0	%100
32	44	X	-0.0003	-0.0003	0	%100
33	45	X	-0.0003	-0.0003	0	%100
34	46	X	-0.0003	-0.0003	0	%100
35	49	X	-0.0003	-0.0003	0	%100
36	52	X	-0.0003	-0.0003	0	%100
37	53	X	-0.0003	-0.0003	0	%100
38	54	X	-0.0003	-0.0003	0	%100
39	57	X	-0.0003	-0.0003	0	%100

Member Distributed Loads (BLC 8 : Ice)

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
1	1	Y	-0.006	-0.006	0	%100
2	2	Y	-0.006	-0.006	0	%100
3	3	Y	-0.012	-0.012	0	%100
4	4	Y	-0.012	-0.012	0	%100
5	5	Y	-0.012	-0.012	0	%100
6	6	Y	-0.012	-0.012	0	%100
7	9	Y	-0.012	-0.012	0	%100
8	10	Y	-0.012	-0.012	0	%100
9	11	Y	-0.005	-0.005	0	%100
10	12	Y	-0.007	-0.007	0	%100
11	13	Y	-0.007	-0.007	0	%100
12	14	Y	-0.007	-0.007	0	%100

Member Distributed Loads (BLC 8 : Ice) (Continued)

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
13	15	Y	-0.007	-0.007	0	%100
14	16	Y	-0.012	-0.012	0	%100
15	17	Y	-0.012	-0.012	0	%100
16	18	Y	-0.005	-0.005	0	%100
17	19	Y	-0.012	-0.012	0	%100
18	20	Y	-0.012	-0.012	0	%100
19	21	Y	-0.005	-0.005	0	%100
20	22	Y	-0.012	-0.012	0	%100
21	23	Y	-0.012	-0.012	0	%100
22	24	Y	-0.005	-0.005	0	%100
23	29	Y	-0.003	-0.003	0	%100
24	30	Y	-0.003	-0.003	0	%100
25	31	Y	-0.003	-0.003	0	%100
26	32	Y	-0.003	-0.003	0	%100
27	33	Y	-0.003	-0.003	0	%100
28	34	Y	-0.003	-0.003	0	%100
29	35	Y	-0.003	-0.003	0	%100
30	36	Y	-0.003	-0.003	0	%100
31	43	Y	-0.006	-0.006	0	%100
32	44	Y	-0.006	-0.006	0	%100
33	45	Y	-0.006	-0.006	0	%100
34	46	Y	-0.005	-0.005	0	%100
35	49	Y	-0.006	-0.006	0	%100
36	52	Y	-0.006	-0.006	0	%100
37	53	Y	-0.005	-0.005	0	%100
38	54	Y	-0.006	-0.006	0	%100
39	57	Y	-0.006	-0.006	0	%100

Member Distributed Loads (BLC 9 : 0 Seismic)

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
1	1	Z	-0.002	-0.002	0	%100
2	2	Z	-0.002	-0.002	0	%100
3	3	Z	-0.002	-0.002	0	%100
4	4	Z	-0.002	-0.002	0	%100
5	5	Z	-0.002	-0.002	0	%100
6	6	Z	-0.002	-0.002	0	%100
7	9	Z	-0.002	-0.002	0	%100
8	10	Z	-0.002	-0.002	0	%100
9	11	Z	-0.001	-0.001	0	%100
10	12	Z	-0.004	-0.004	0	%100
11	13	Z	-0.004	-0.004	0	%100
12	14	Z	-0.004	-0.004	0	%100
13	15	Z	-0.004	-0.004	0	%100
14	16	Z	-0.002	-0.002	0	%100
15	17	Z	-0.002	-0.002	0	%100
16	18	Z	-0.001	-0.001	0	%100
17	19	Z	-0.002	-0.002	0	%100
18	20	Z	-0.002	-0.002	0	%100
19	21	Z	-0.001	-0.001	0	%100
20	22	Z	-0.002	-0.002	0	%100
21	23	Z	-0.002	-0.002	0	%100
22	24	Z	-0.001	-0.001	0	%100
23	29	Z	-0.0005	-0.0005	0	%100
24	30	Z	-0.0005	-0.0005	0	%100
25	31	Z	-0.0005	-0.0005	0	%100

Member Distributed Loads (BLC 9 : 0 Seismic) (Continued)

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
26	32	Z	-0.0005	-0.0005	0	%100
27	33	Z	-0.0007	-0.0007	0	%100
28	34	Z	-0.0007	-0.0007	0	%100
29	35	Z	-0.0007	-0.0007	0	%100
30	36	Z	-0.0007	-0.0007	0	%100
31	43	Z	-0.002	-0.002	0	%100
32	44	Z	-0.002	-0.002	0	%100
33	45	Z	-0.002	-0.002	0	%100
34	46	Z	-0.001	-0.001	0	%100
35	49	Z	-0.002	-0.002	0	%100
36	52	Z	-0.002	-0.002	0	%100
37	53	Z	-0.001	-0.001	0	%100
38	54	Z	-0.002	-0.002	0	%100
39	57	Z	-0.002	-0.002	0	%100

Member Distributed Loads (BLC 10 : 90 Seismic)

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
1	1	X	-0.002	-0.002	0	%100
2	2	X	-0.002	-0.002	0	%100
3	3	X	-0.002	-0.002	0	%100
4	4	X	-0.002	-0.002	0	%100
5	5	X	-0.002	-0.002	0	%100
6	6	X	-0.002	-0.002	0	%100
7	9	X	-0.002	-0.002	0	%100
8	10	X	-0.002	-0.002	0	%100
9	11	X	-0.001	-0.001	0	%100
10	12	X	-0.004	-0.004	0	%100
11	13	X	-0.004	-0.004	0	%100
12	14	X	-0.004	-0.004	0	%100
13	15	X	-0.004	-0.004	0	%100
14	16	X	-0.002	-0.002	0	%100
15	17	X	-0.002	-0.002	0	%100
16	18	X	-0.001	-0.001	0	%100
17	19	X	-0.002	-0.002	0	%100
18	20	X	-0.002	-0.002	0	%100
19	21	X	-0.001	-0.001	0	%100
20	22	X	-0.002	-0.002	0	%100
21	23	X	-0.002	-0.002	0	%100
22	24	X	-0.001	-0.001	0	%100
23	29	X	-0.0005	-0.0005	0	%100
24	30	X	-0.0005	-0.0005	0	%100
25	31	X	-0.0005	-0.0005	0	%100
26	32	X	-0.0005	-0.0005	0	%100
27	33	X	-0.0007	-0.0007	0	%100
28	34	X	-0.0007	-0.0007	0	%100
29	35	X	-0.0007	-0.0007	0	%100
30	36	X	-0.0007	-0.0007	0	%100
31	43	X	-0.002	-0.002	0	%100
32	44	X	-0.002	-0.002	0	%100
33	45	X	-0.002	-0.002	0	%100
34	46	X	-0.001	-0.001	0	%100
35	49	X	-0.002	-0.002	0	%100
36	52	X	-0.002	-0.002	0	%100
37	53	X	-0.001	-0.001	0	%100
38	54	X	-0.002	-0.002	0	%100

Member Distributed Loads (BLC 10 : 90 Seismic) (Continued)

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
39	57	X	-0.002	-0.002	0	%100

Node Loads and Enforced Displacements (BLC 11 : Live Load a)

	Node Label	L, D, M	Direction	Magnitude [(k, k-ft), (in, rad), (k*s²/ft, k*s²*ft)]
1	48	L	Y	-0.5

Node Loads and Enforced Displacements (BLC 12 : Live Load b)

	Node Label	L, D, M	Direction	Magnitude [(k, k-ft), (in, rad), (k*s²/ft, k*s²*ft)]
1	73	L	Y	-0.5

Node Loads and Enforced Displacements (BLC 13 : Live Load c)

	Node Label	L, D, M	Direction	Magnitude [(k, k-ft), (in, rad), (k*s²/ft, k*s²*ft)]
1	50	L	Y	-0.5

Node Loads and Enforced Displacements (BLC 14 : Live Load d)

	Node Label	L, D, M	Direction	Magnitude [(k, k-ft), (in, rad), (k*s²/ft, k*s²*ft)]
1	67	L	Y	-0.5

Node Loads and Enforced Displacements (BLC 21 : Maint LL 7)

	Node Label	L, D, M	Direction	Magnitude [(k, k-ft), (in, rad), (k*s²/ft, k*s²*ft)]
1	52	L	Y	-0.5

Basic Load Cases

	BLC Description	Category	Y Gravity	Nodal	Point	Distributed
1	Dead	DL	-1		25	
2	0 Wind - No Ice	WLZ			25	39
3	90 Wind - No Ice	WLX			25	39
4	0 Wind - Ice	WLZ			25	39
5	90 Wind - Ice	WLX			25	39
6	0 Wind - Service	WLZ			25	39
7	90 Wind - Service	WLX			25	39
8	Ice	OL1			25	39
9	0 Seismic	ELZ			25	39
10	90 Seismic	ELX			25	39
11	Live Load a	LL		1		
12	Live Load b	LL		1		
13	Live Load c	LL		1		
14	Live Load d	LL		1		
15	Maint LL 1	LL			1	
16	Maint LL 2	LL			1	
17	Maint LL 3	LL			1	
18	Maint LL 4	LL			1	
19	Maint LL 5	LL			1	
20	Maint LL 6	LL			1	
21	Maint LL 7	LL		1		
22	Maint LL 8	LL				
23	Maint LL 9	LL				

Basic Load Cases (Continued)

	BLC Description	Category	Y Gravity	Nodal	Point	Distributed
24	Maint LL 10	LL				
25	Maint LL 11	LL				
26	Maint LL 12	LL				
27	Maint LL 13	LL				
28	Maint LL 14	LL				
29	Maint LL 15	LL				

Load Combinations

	Description	Solve	P-Delta	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor
1	1.4 Dead	Yes	Y	1	1.4						
2	1.2 D + 1.0 - 0 W	Yes	Y	1	1.2	2	1				
3	1.2 D + 1.0 - 30 W	Yes	Y	1	1.2	2	0.866	3	0.5		
4	1.2 D + 1.0 - 60 W	Yes	Y	1	1.2	3	0.866	2	0.5		
5	1.2 D + 1.0 - 90 W	Yes	Y	1	1.2	3	1				
6	1.2 D + 1.0 - 120 W	Yes	Y	1	1.2	3	0.866	2	-0.5		
7	1.2 D + 1.0 - 150 W	Yes	Y	1	1.2	2	-0.866	3	0.5		
8	1.2 D + 1.0 - 180 W	Yes	Y	1	1.2	2	-1				
9	1.2 D + 1.0 - 210 W	Yes	Y	1	1.2	2	-0.866	3	-0.5		
10	1.2 D + 1.0 - 240 W	Yes	Y	1	1.2	3	-0.866	2	-0.5		
11	1.2 D + 1.0 - 270 W	Yes	Y	1	1.2	3	-1				
12	1.2 D + 1.0 - 300 W	Yes	Y	1	1.2	3	-0.866	2	0.5		
13	1.2 D + 1.0 - 330 W	Yes	Y	1	1.2	2	0.866	3	-0.5		
14	1.2 D + 1.0 - 0 W/Ice	Yes	Y	1	1.2	4	1			8	1
15	1.2 D + 1.0 - 30 W/Ice	Yes	Y	1	1.2	4	0.866	5	0.5	8	1
16	1.2 D + 1.0 - 60 W/Ice	Yes	Y	1	1.2	5	0.866	4	0.5	8	1
17	1.2 D + 1.0 - 90 W/Ice	Yes	Y	1	1.2	5	1			8	1
18	1.2 D + 1.0 - 120 W/Ice	Yes	Y	1	1.2	5	0.866	4	-0.5	8	1
19	1.2 D + 1.0 - 150 W/Ice	Yes	Y	1	1.2	4	-0.866	5	0.5	8	1
20	1.2 D + 1.0 - 180 W/Ice	Yes	Y	1	1.2	4	-1			8	1
21	1.2 D + 1.0 - 210 W/Ice	Yes	Y	1	1.2	4	-0.866	5	-0.5	8	1
22	1.2 D + 1.0 - 240 W/Ice	Yes	Y	1	1.2	5	-0.866	4	-0.5	8	1
23	1.2 D + 1.0 - 270 W/Ice	Yes	Y	1	1.2	5	-1			8	1
24	1.2 D + 1.0 - 300 W/Ice	Yes	Y	1	1.2	5	-0.866	4	0.5	8	1
25	1.2 D + 1.0 - 330 W/Ice	Yes	Y	1	1.2	4	0.866	5	-0.5	8	1
26	1.2 D + 1.0 E - 0	Yes	Y	1	1.2	9	1				
27	1.2 D + 1.0 E - 30	Yes	Y	1	1.2	9	0.866	10	0.5		
28	1.2 D + 1.0 E - 60	Yes	Y	1	1.2	10	0.866	9	0.5		
29	1.2 D + 1.0 E - 90	Yes	Y	1	1.2	10	1				
30	1.2 D + 1.0 E - 120	Yes	Y	1	1.2	10	0.866	9	-0.5		
31	1.2 D + 1.0 E - 150	Yes	Y	1	1.2	9	-0.866	10	0.5		
32	1.2 D + 1.0 E - 180	Yes	Y	1	1.2	9	-1				
33	1.2 D + 1.0 E - 210	Yes	Y	1	1.2	9	-0.866	10	-0.5		
34	1.2 D + 1.0 E - 240	Yes	Y	1	1.2	10	-0.866	9	-0.5		
35	1.2 D + 1.0 E - 270	Yes	Y	1	1.2	10	-1				
36	1.2 D + 1.0 E - 300	Yes	Y	1	1.2	10	-0.866	9	0.5		
37	1.2 D + 1.0 E - 330	Yes	Y	1	1.2	9	0.866	10	-0.5		
38	1.2 D + 1.5 LL a + Service - 0 W	Yes	Y	1	1.2	6	1			11	1.5
39	1.2 D + 1.5 LL a + Service - 30 W	Yes	Y	1	1.2	6	0.866	7	0.5	11	1.5
40	1.2 D + 1.5 LL a + Service - 60 W	Yes	Y	1	1.2	7	0.866	6	0.5	11	1.5
41	1.2 D + 1.5 LL a + Service - 90 W	Yes	Y	1	1.2	7	1			11	1.5
42	1.2 D + 1.5 LL a + Service - 120 W	Yes	Y	1	1.2	7	0.866	6	-0.5	11	1.5
43	1.2 D + 1.5 LL a + Service - 150 W	Yes	Y	1	1.2	6	-0.866	7	0.5	11	1.5
44	1.2 D + 1.5 LL a + Service - 180 W	Yes	Y	1	1.2	6	-1			11	1.5
45	1.2 D + 1.5 LL a + Service - 210 W	Yes	Y	1	1.2	6	-0.866	7	-0.5	11	1.5
46	1.2 D + 1.5 LL a + Service - 240 W	Yes	Y	1	1.2	7	-0.866	6	-0.5	11	1.5

Load Combinations (Continued)

	Description	Solve	P-Delta	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor
47	1.2 D + 1.5 LL a + Service - 270 W	Yes	Y	1	1.2	7	-1			11	1.5
48	1.2 D + 1.5 LL a + Service - 300 W	Yes	Y	1	1.2	7	-0.866	6	0.5	11	1.5
49	1.2 D + 1.5 LL a + Service - 330 W	Yes	Y	1	1.2	6	0.866	7	-0.5	11	1.5
50	1.2 D + 1.5 LL b + Service - 0 W	Yes	Y	1	1.2	6	1			12	1.5
51	1.2 D + 1.5 LL b + Service - 30 W	Yes	Y	1	1.2	6	0.866	7	0.5	12	1.5
52	1.2 D + 1.5 LL b + Service - 60 W	Yes	Y	1	1.2	7	0.866	6	0.5	12	1.5
53	1.2 D + 1.5 LL b + Service - 90 W	Yes	Y	1	1.2	7	1			12	1.5
54	1.2 D + 1.5 LL b + Service - 120 W	Yes	Y	1	1.2	7	0.866	6	-0.5	12	1.5
55	1.2 D + 1.5 LL b + Service - 150 W	Yes	Y	1	1.2	6	-0.866	7	0.5	12	1.5
56	1.2 D + 1.5 LL b + Service - 180 W	Yes	Y	1	1.2	6	-1			12	1.5
57	1.2 D + 1.5 LL b + Service - 210 W	Yes	Y	1	1.2	6	-0.866	7	-0.5	12	1.5
58	1.2 D + 1.5 LL b + Service - 240 W	Yes	Y	1	1.2	7	-0.866	6	-0.5	12	1.5
59	1.2 D + 1.5 LL b + Service - 270 W	Yes	Y	1	1.2	7	-1			12	1.5
60	1.2 D + 1.5 LL b + Service - 300 W	Yes	Y	1	1.2	7	-0.866	6	0.5	12	1.5
61	1.2 D + 1.5 LL b + Service - 330 W	Yes	Y	1	1.2	6	0.866	7	-0.5	12	1.5
62	1.2 D + 1.5 LL c + Service - 0 W	Yes	Y	1	1.2	6	1			13	1.5
63	1.2 D + 1.5 LL c + Service - 30 W	Yes	Y	1	1.2	6	0.866	7	0.5	13	1.5
64	1.2 D + 1.5 LL c + Service - 60 W	Yes	Y	1	1.2	7	0.866	6	0.5	13	1.5
65	1.2 D + 1.5 LL c + Service - 90 W	Yes	Y	1	1.2	7	1			13	1.5
66	1.2 D + 1.5 LL c + Service - 120 W	Yes	Y	1	1.2	7	0.866	6	-0.5	13	1.5
67	1.2 D + 1.5 LL c + Service - 150 W	Yes	Y	1	1.2	6	-0.866	7	0.5	13	1.5
68	1.2 D + 1.5 LL c + Service - 180 W	Yes	Y	1	1.2	6	-1			13	1.5
69	1.2 D + 1.5 LL c + Service - 210 W	Yes	Y	1	1.2	6	-0.866	7	-0.5	13	1.5
70	1.2 D + 1.5 LL c + Service - 240 W	Yes	Y	1	1.2	7	-0.866	6	-0.5	13	1.5
71	1.2 D + 1.5 LL c + Service - 270 W	Yes	Y	1	1.2	7	-1			13	1.5
72	1.2 D + 1.5 LL c + Service - 300 W	Yes	Y	1	1.2	7	-0.866	6	0.5	13	1.5
73	1.2 D + 1.5 LL c + Service - 330 W	Yes	Y	1	1.2	6	0.866	7	-0.5	13	1.5
74	1.2 D + 1.5 LL d + Service - 0 W	Yes	Y	1	1.2	6	1			14	1.5
75	1.2 D + 1.5 LL d + Service - 30 W	Yes	Y	1	1.2	6	0.866	7	0.5	14	1.5
76	1.2 D + 1.5 LL d + Service - 60 W	Yes	Y	1	1.2	7	0.866	6	0.5	14	1.5
77	1.2 D + 1.5 LL d + Service - 90 W	Yes	Y	1	1.2	7	1			14	1.5
78	1.2 D + 1.5 LL d + Service - 120 W	Yes	Y	1	1.2	7	0.866	6	-0.5	14	1.5
79	1.2 D + 1.5 LL d + Service - 150 W	Yes	Y	1	1.2	6	-0.866	7	0.5	14	1.5
80	1.2 D + 1.5 LL d + Service - 180 W	Yes	Y	1	1.2	6	-1			14	1.5
81	1.2 D + 1.5 LL d + Service - 210 W	Yes	Y	1	1.2	6	-0.866	7	-0.5	14	1.5
82	1.2 D + 1.5 LL d + Service - 240 W	Yes	Y	1	1.2	7	-0.866	6	-0.5	14	1.5
83	1.2 D + 1.5 LL d + Service - 270 W	Yes	Y	1	1.2	7	-1			14	1.5
84	1.2 D + 1.5 LL d + Service - 300 W	Yes	Y	1	1.2	7	-0.866	6	0.5	14	1.5
85	1.2 D + 1.5 LL d + Service - 330 W	Yes	Y	1	1.2	6	0.866	7	-0.5	14	1.5
86	1.2 D + 1.5 LL Maint (1)	Yes	Y	1	1.2					15	1.5
87	1.2 D + 1.5 LL Maint (2)	Yes	Y	1	1.2					16	1.5
88	1.2 D + 1.5 LL Maint (3)	Yes	Y	1	1.2					17	1.5
89	1.2 D + 1.5 LL Maint (4)	Yes	Y	1	1.2					18	1.5
90	1.2 D + 1.5 LL Maint (5)	Yes	Y	1	1.2					19	1.5
91	1.2 D + 1.5 LL Maint (6)	Yes	Y	1	1.2					20	1.5
92	1.2 D + 1.5 LL Maint (7)	Yes	Y	1	1.2					21	1.5
93	1.2 D + 1.5 LL Maint (8)	Yes	Y	1	1.2					22	1.5
94	1.2 D + 1.5 LL Maint (9)	Yes	Y	1	1.2					23	1.5
95	1.2 D + 1.5 LL Maint (10)	Yes	Y	1	1.2					24	1.5
96	1.2 D + 1.5 LL Maint (11)	Yes	Y	1	1.2					25	1.5
97	1.2 D + 1.5 LL Maint (12)	Yes	Y	1	1.2					26	1.5
98	1.2 D + 1.5 LL Maint (13)	Yes	Y	1	1.2					27	1.5
99	1.2 D + 1.5 LL Maint (14)	Yes	Y	1	1.2					28	1.5
100	1.2 D + 1.5 LL Maint (15)	Yes	Y	1	1.2					29	1.5

Envelope Node Reactions

	Node Label		X [k]	LC	Y [k]	LC	Z [k]	LC	MX [k-ft]	LC	MY [k-ft]	LC	MZ [k-ft]	LC
1	22	max	1.082	92	1.341	15	1.828	3	-0.571	9	0	100	0.185	92
2		min	-1.564	47	0.663	9	-0.437	9	-1.152	15	0	1	-0.273	41
3	9	max	1.597	41	1.886	21	1.976	3	-0.585	3	0	100	0.402	92
4		min	-1.093	11	0.66	3	-3.364	9	-1.589	21	0	1	-0.545	40
5	82	max	0.141	5	0.048	17	0.841	11	0	100	0	100	0	100
6		min	-0.124	11	0.021	92	-1.023	5	0	1	0	1	0	1
7	83	max	0.095	5	0.048	16	0.73	10	0	100	0	100	0	100
8		min	-0.111	11	0.021	10	-0.547	4	0	1	0	1	0	1
9	Totals:	max	2.256	5	3.292	15	3.091	2						
10		min	-2.256	11	1.586	9	-3.091	8						

Envelope AISC 15TH (360-16): LRFD Member Steel Code Checks

	Member	Shape	Code Check	Loc[ft]	LC	Shear Check	Loc[ft]	Dir	LC	phi*Pnc [k]	phi*Pnt [k]	phi*Mn y-y [k-ft]	phi*Mn z-z [k-ft]	Cb	Eqn
1	1	PIPE_2.5	0.464	9.818	8	0.108	4.682		3	10.82	50.715	3.596	3.596	1	H1-1b
2	2	PIPE_2.5	0.356	13.443	56	0.084	9.667		8	10.82	50.715	3.596	3.596	1	H1-1b
3	3	PL5/8X3.5	0.349	0.239	8	0.172	0.458	y	8	68.084	71.442	0.938	5.209	2.54	H1-1b
4	4	PL5/8X3.5	0.276	0.458	8	0.131	0.458	y	60	68.084	71.442	0.938	5.209	2.457	H1-1b
5	5	PL5/8X3.5	0.318	0.458	9	0.116	0.458	y	45	68.084	71.442	0.938	5.209	2.55	H1-1b
6	6	PL5/8X3.5	0.409	0.239	3	0.149	0.458	y	9	68.084	71.442	0.938	5.209	2.622	H1-1b
7	9	PL5/8X3.5	0.304	0.08	8	0.15	0.08	y	67	71.336	71.442	0.938	5.209	1.022	H1-1b
8	10	PL5/8X3.5	0.132	0.08	40	0.088	0.08	y	92	71.336	71.442	0.938	5.209	1.02	H1-1b
9	11	PIPE_2.0	0.334	0	3	0.142	2.5		16	29.81	32.13	1.872	1.872	1	H1-1b
10	12	PL1.25"X3.5"	0.243	0.458	43	0.053	0.458	y	19	140.027	141.75	3.691	10.336	1.372	H1-1b
11	13	PL1.25"X3.5"	0.227	0	92	0.05	0.458	y	92	140.027	141.75	3.691	10.336	1.493	H1-1b
12	14	PL1.25"X3.5"	0.167	0.458	49	0.042	0.458	y	24	140.027	141.75	3.691	10.336	1.404	H1-1b
13	15	PL1.25"X3.5"	0.165	0	92	0.041	0.458	y	17	140.027	141.75	3.691	10.336	1.521	H1-1b
14	16	PL5/8X3.5	0.306	0.08	44	0.208	0.003	y	68	71.336	71.442	0.938	5.209	1.032	H1-1b
15	17	PL5/8X3.5	0.12	0.08	46	0.09	0.08	y	92	71.336	71.442	0.938	5.209	1.02	H1-1b
16	18	PIPE_2.0	0.276	0	9	0.164	0.156		68	29.81	32.13	1.872	1.872	1	H1-1b
17	19	PL5/8X3.5	0.277	0	9	0.186	0.08	y	10	71.336	71.442	0.938	5.209	1.022	H1-1b
18	20	PL5/8X3.5	0.116	0.08	92	0.106	0.003	y	44	71.336	71.442	0.938	5.209	1.018	H1-1b
19	21	PIPE_2.0	0.27	0	9	0.118	2.5		92	29.81	32.13	1.872	1.872	1	H1-1b
20	22	PL5/8X3.5	0.311	0.08	9	0.222	0	y	9	71.336	71.442	0.938	5.209	1.017	H1-1b
21	23	PL5/8X3.5	0.106	0.08	92	0.128	0.08	y	42	71.336	71.442	0.938	5.209	1.018	H1-1b
22	24	PIPE_2.0	0.257	0.156	9	0.162	0.156		92	29.81	32.13	1.872	1.872	1	H1-1b
23	29	5/8"SR	0.51	0	38	0.004	3.333		8	1.88	9.94	0.104	0.104	1	H1-1a
24	30	5/8"SR	0.353	0	40	0.011	3.333		41	1.88	9.94	0.104	0.104	1	H1-1a
25	31	5/8"SR	0.302	0	92	0.004	3.333		44	1.88	9.94	0.104	0.104	1	H1-1a
26	32	5/8"SR	0.309	0	92	0.012	0		41	1.88	9.94	0.104	0.104	1	H1-1a
27	33	3/4"SR	0.177	3.976	43	0.015	3.976		7	1.542	14.314	0.179	0.179	1	H1-1b*
28	34	3/4"SR	0	3.976	100	0.013	3.976		13	1.542	14.314	0.179	0.179	1	H1-1a
29	35	3/4"SR	0.151	0	92	0.017	0		10	1.542	14.314	0.179	0.179	1	H1-1b*
30	36	3/4"SR	0	3.976	100	0.009	0		4	1.542	14.314	0.179	0.179	1	H1-1a
31	43	PIPE_2.5	0.236	3.333	92	0.052	6.667		92	22.373	50.715	3.596	3.596	1	H1-1b
32	44	PIPE_2.5	0.161	3.333	8	0.037	3.333		41	22.373	50.715	3.596	3.596	1	H1-1b
33	45	PIPE_2.5	0.142	6.667	41	0.039	6.667		38	22.373	50.715	3.596	3.596	1	H1-1b
34	46	PIPE_2.0	0.121	5.202	11	0.006	10.403		11	9.089	32.13	1.872	1.872	1	H1-1b
35	49	PIPE_2.5	0.259	6.667	92	0.052	6.667		92	22.373	50.715	3.596	3.596	1	H1-1b
36	52	PIPE_2.5	0.269	6.667	44	0.059	3.333		8	22.373	50.715	3.596	3.596	1	H1-1b
37	53	PIPE_2.0	0.113	5.202	11	0.006	10.403		11	9.089	32.13	1.872	1.872	1	H1-1b
38	54	PIPE_2.5	0.034	1.375	43	0.015	1.375		8	37.774	50.715	3.596	3.596	1	H1-1b
39	57	PIPE_2.5	0.035	1.375	92	0.012	1.375		2	37.774	50.715	3.596	3.596	1	H1-1b

APPENDIX D

ADDITIONAL CALCULATIONS

PROJECT	**100083.010.01 - HRT 105 943201, CT KSC**				
SUBJECT	**Sector Mount Analysis**				
DATE	**07/25/22**	PAGE	1	OF	1

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

[REF: AISC 360-05]

Reactions at Bolted Connection

Tension	:	3.364	k
Vertical Shear	:	1.886	k
Horizontal Shear	:	1.597	k
Torsion	:	0.545	k.ft
Moment from Horizontal Forces	:	0	k.ft
Moment from Vertical Forces	:	1.589	k.ft

Bolt Parameters

Bolt Grade	:	A325	
Bolt Diameter	:	0.625	in
Nominal Bolt Area	:	0.307	in^2
Bolt spacing, Horizontal	:	7	in
Bolt spacing, Vertical	:	7	in
Bolt edge distance, plate height	:	1.5	in
Bolt edge distance, plate width	:	1.5	in
Total Number of Bolts	:	4	bolts

Summary of Forces

Shear Resultant Force	:	2.47	k
Force from Horz. Moment	:	0.00	k
Force from Vert. Moment	:	2.50	k
Shear Load / Bolt	:	0.62	k
Tension Load / Bolt	:	0.84	k
Resultant from Moments / Bolt	:	1.25	k

Bolt Checks

Nominal Tensile Stress, F_{nt}	:	90.00	ksi	[AISC Table J3.2]
Available Tensile Stress, ΦR_{nt}	:	20.72	k/bolt	[Eq. J3-1]
Unity Check, Bolt Tension	:	**10.09%**		**OKAY**
Nominal Shear Stress, F_{nv}	:	48.00	ksi	[AISC Table J3.2]
Available Shear Stress, ΦR_{nv}	:	11.05	k/bolt	[Eq. J3-1]
Unity Check, Bolt Shear	:	**13.20%**		**OKAY**
Unity Check, Combined	:	**23.29%**		**OKAY**
Available Bearing Strength, ΦR_n	:	34.66	k/bolt	
Unity Check, Bolt Bearing	:	**1.78%**		**OKAY**

Date: **August 01, 2022**

Crown Castle
2000 Corporate Drive
Canonsburg, PA 15317
(724) 416-2000

Subject:	**Structural Analysis Report**	
Carrier Designation:	***AT&T Mobility* Co-Locate**	
	Site Number:	CT2024
	Site Name:	CLINTON
	FA Number:	10035028
Crown Castle Designation:	**BU Number:**	806363
	Site Name:	HRT 105 943201
	JDE Job Number:	715640
	Work Order Number:	2140002
	Order Number:	614848 Rev. 0
Engineering Firm Designation:	**Crown Castle Project Number:**	2140002
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	

Crown Castle is pleased to submit this **"Structural Analysis Report"** to determine the structural integrity of the above-mentioned tower.

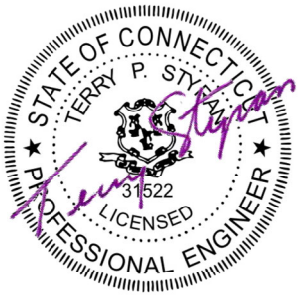
The purpose of the analysis is to determine acceptability of the tower stress level. Based on our analysis we have determined the tower stress level for the structure and foundation, under the following load case, to be:

LC7: Proposed Equipment Configuration **Sufficient Capacity – 81.2 %**

This analysis has been performed in accordance with the 2018 Connecticut State Building Code based upon an ultimate 3-second gust wind speed of 130 mph. Applicable Standard references and design criteria are listed in Section 2 - "Analysis Criteria".

Structural analysis prepared by: Michael Lopienski

Respectfully submitted by:



Terry P. Styran, P.E.
Senior Project Engineer

TABLE OF CONTENTS

1) INTRODUCTION

This tower is a 212.625 ft Self Support tower designed by ROHN. The tower has been modified in the past to accommodate additional loading.

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
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)
189.0	190.0	3	cci antennas	DMP65R-BU4D w/ Mount Pipe	6 3 3 12	13/16 3/8 7/8 1-5/8
		3	ericsson	AIR 6419 B77G w/ Mount Pipe		
		3	ericsson	AIR 6449 B77D_CCVI2 w/ Mount Pipe		
		2	ericsson	RADIO 4478 B14		
		3	ericsson	RRUS 32		
		3	ericsson	RRUS 32 B66		
		3	ericsson	RRUS 4415 B25		
		3	ericsson	RRUS 4449 B5/B12		
		3	quintel technology	QD4616-7 w/ Mount Pipe		
		3	raycap	DC9-48-60-24-8C-EV_CCIV2		
	189.0	1	tower mounts	(3)SitePro1 (Part# VFA14-WLL-30120)		
		1	ericsson	RADIO 4478 B14		

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	17	1-5/8
		3	commscope	CBC1923T-DS-43		
		6	commscope	JAHH-65B-R3B w/ Mount Pipe		
		2	rfs celwave	DB-B1-6C-12AB-0Z		
		3	samsung telecom	MT6407-77A w/ Mount Pipe		
		3	samsung telecom	RFV01U-D1A		
		3	samsung telecom	RFV01U-D2A		
	208.0	1	tower mounts	Sector Mount [SM 510-3]		
199.0	199.0	1	tower mounts	Sector Mount [SM 505-3]	3	1-5/8
	198.0	3	commscope	VV-65B-R1_TMO w/ Mount Pipe		

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
		3	ericsson	AIR 6419 B41_TMO w/ Mount Pipe		
		3	ericsson	RADIO 4460 B2/B25 B66_TMO		
		3	ericsson	Radio 4480_TMOV2		
		3	rfs celwave	APXVAALL24_43-U-NA20_TMO w/ Mount Pipe		
183.0	183.0	3	rfs celwave	APXV18-206517LS	-	-
		1	tower mounts	Pipe Mount [PM 601-3]		
175.0	179.0	2	andrew	HPD2-23	4	1/4
	176.0	12	decibel	DB844H90E-XY w/ Mount Pipe		
	175.0	1	tower mounts	Sector Mount		
167.0	173.0	1	rfs celwave	1151-3	1	7/8
	167.0	1	tower mounts	Side Arm 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	Side Arm Mount [SO 306-1]		
147.0	153.0	1	rfs celwave	1151-3	1	7/8
	147.0	1	tower mounts	Side Arm Mount [SO 306-1]		
145.0	148.0	1	sinclair	SD310-HL	1	7/8
	145.0	1	tower mounts	Side Arm Mount [SO 306-1]		
139.0	140.0	3	ericsson	ERICSSON AIR 21 B2A B4P w/ Mount Pipe	6 3 9	1-1/4 1-3/8 1-5/8
		3	ericsson	ERICSSON AIR 21 B4A B2P w/ Mount Pipe		
		3	ericsson	KRY 112 144/1		
		3	ericsson	RADIO 4449 B12/B71		
		3	rfs celwave	APXVAARR24_43-U-NA20 w/ Mount Pipe		
	139.0	1	tower mounts	(3) Site Pro 1 VFA12-HD		
128.0	132.0	1	rfs celwave	1142-2C	1	7/8
	128.0	1	tower mounts	Side Arm Mount		
117.0	118.0	3	jma wireless	MX08FRO665-21 w/ Mount Pipe	1	1-1/2
	117.0	3	fujitsu	TA08025-B604		
		3	fujitsu	TA08025-B605		
		1	raycap	RDIDC-9181-PF-48		
		1	tower mounts	Sabre C10837002C-32788 (3)		
51.0	51.0	1	tower mounts	Side Arm Mount	1	1/2
		1	gps	GPS_A		

3) ANALYSIS PROCEDURE

Table 3 - Documents Provided

Document	Reference	Source
4-GEOTECHNICAL REPORTS	262276	CCISITES
4-TOWER FOUNDATION DRAWINGS/DESIGN/SPECS	262273	CCISITES
4-TOWER MANUFACTURER DRAWINGS	262274	CCISITES
4-TOWER REINFORCEMENT DESIGN/DRAWINGS/DATA	2169576	CCISITES
4-POST-MODIFICATION INSPECTION	2146143	CCISITES

3.1) Analysis Method

tnxTower (version 8.1.1.0), 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. When applicable, Crown Castle has calculated and provided the effective area for panel antennas using approved methods following the intent of the TIA-222 standard.

3.2) Assumptions

1) Tower and structures were maintained in accordance with the TIA-222 Standard.
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. Crown Castle 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	-4.938	59.463	8.3	Pass
T2	202.458 - 182.292	Leg	ROHN 3 EH	30	-24.852	98.582	25.2	Pass
T3	182.292 - 162.104	Leg	ROHN 4 EH	69	-75.100	167.222	44.9	Pass
T4	162.104 - 141.896	Leg	ROHN 5 EH	108	-110.375	250.620	44.0	Pass
T5	141.896 - 121.688	Leg	ROHN 6 EHS	147	-139.964	255.080	54.9	Pass
T6	121.688 - 101.479	Leg	ROHN 6 EH	174	-176.168	317.349	55.5	Pass
T7	101.479 - 81.2708	Leg	ROHN 6 EH	201	-209.858	317.349	66.1	Pass
T8	81.2708 - 61	Leg	ROHN 8 EHS	228	-241.667	404.230	59.8	Pass
T9	61 - 40.6667	Leg	ROHN 8 EHS	255	-272.548	403.942	67.5	Pass
T10	40.6667 - 20.3333	Leg	ROHN 8 EH	282	-287.024	528.398	54.3	Pass
T11	20.3333 - 0	Leg	ROHN 8 EH	315	-315.610	528.520	59.7	Pass
T1	212.625 - 202.458	Diagonal	ROHN 2 STD	12	-2.479	25.020	9.9	Pass
T2	202.458 - 182.292	Diagonal	ROHN 2 STD	38	-8.592	18.418	46.7	Pass
T3	182.292 - 162.104	Diagonal	ROHN 2 STD	78	-8.963	15.917	56.3	Pass
T4	162.104 - 141.896	Diagonal	ROHN 2 STD	117	-8.542	13.677	62.5	Pass
T5	141.896 - 121.688	Diagonal	ROHN 2.5 STD	156	-12.135	17.101	71.0	Pass
T6	121.688 - 101.479	Diagonal	ROHN 2.5 STD	183	-12.175	14.992	81.2	Pass

Section No.	Elevation (ft)	Component Type	Size	Critical Element	P (K)	SF*P_allow (K)	% Capacity	Pass / Fail
T7	101.479 - 81.2708	Diagonal	ROHN 3 STD	210	-12.296	25.935	47.4	Pass
T8	81.2708 - 61	Diagonal	ROHN 3 STD	237	-12.198	22.903	53.3	Pass
T9	61 - 40.6667	Diagonal	ROHN 3 STD	264	-13.135	20.104	65.3	Pass
T10	40.6667 - 20.3333	Diagonal	ROHN 3 STD	300	-18.677	32.714	57.1	Pass
T11	20.3333 - 0	Diagonal	ROHN 3 STD	336	-20.929	31.089	67.3	Pass
T1	212.625 - 202.458	Horizontal	ROHN 1.5 STD	10	-1.757	23.711	7.4	Pass
T2	202.458 - 182.292	Horizontal	ROHN 1.5 STD	37	-4.589	23.646	19.4	Pass
T3	182.292 - 162.104	Horizontal	ROHN 1.5 STD	76	-5.733	20.100	28.5	Pass
T4	162.104 - 141.896	Horizontal	ROHN 2 STD	109	-5.911	28.570	20.7	Pass
T5	141.896 - 121.688	Horizontal	ROHN 2 STD	154	-7.232	23.772	30.4	Pass
T6	121.688 - 101.479	Horizontal	ROHN 2 STD	181	-7.948	17.707	44.9	Pass
T7	101.479 - 81.2708	Horizontal	ROHN 2.5 STD	208	-8.515	30.294	28.1	Pass
T8	81.2708 - 61	Horizontal	ROHN 2.5 STD	235	-8.897	23.656	37.6	Pass
T9	61 - 40.6667	Horizontal	ROHN 2.5 STD	262	-9.893	18.711	52.9	Pass
T10	40.6667 - 20.3333	Horizontal	ROHN 3 STD	299	-10.310	33.233	31.0	Pass
T11	20.3333 - 0	Horizontal	ROHN 3 STD	332	-11.891	27.041	44.0	Pass
T1	212.625 - 202.458	Top Girt	ROHN 1.5 STD	5	-0.221	23.767	0.9	Pass
T10	40.6667 - 20.3333	Redund Horz 1 Bracing	ROHN 1.5 STD	295	-4.982	13.657	36.5	Pass
T11	20.3333 - 0	Redund Horz 1 Bracing	ROHN 1.5 STD	328	-5.475	11.606	47.2	Pass
T10	40.6667 - 20.3333	Redund Diag 1 Bracing	ROHN 2 STD	296	-4.602	9.252	49.7	Pass
T11	20.3333 - 0	Redund Diag 1 Bracing	ROHN 2 STD	329	-4.729	8.517	55.5	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	-0.079	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	17	-0.003	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	158	-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	344	-0.018	25.662	0.4	Pass
							Summary	
						Leg (T9)	67.5	Pass
						Diagonal (T6)	81.2	Pass
						Horizontal (T9)	52.9	Pass
						Top Girt (T1)	0.9	Pass
						Redund Horz	47.2	Pass

Section No.	Elevation (ft)	Component Type	Size	Critical Element	P (K)	SF*P_allow (K)	% Capacity	Pass / Fail
						1 Bracing (T11)		
						Redund Diag 1 Bracing (T11)	55.5	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	49.8	Pass
						Rating =	81.2	Pass

Table 5 - Tower Component Stresses vs. Capacity - LC7

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
1	Anchor Rods	0	46.8	Pass
1	Base Foundation (Structure)	0	22.4	Pass
1	Base Foundation (Soil Interaction)	0	47.9	Pass

Structure Rating (max from all components) =	**81.2%**

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

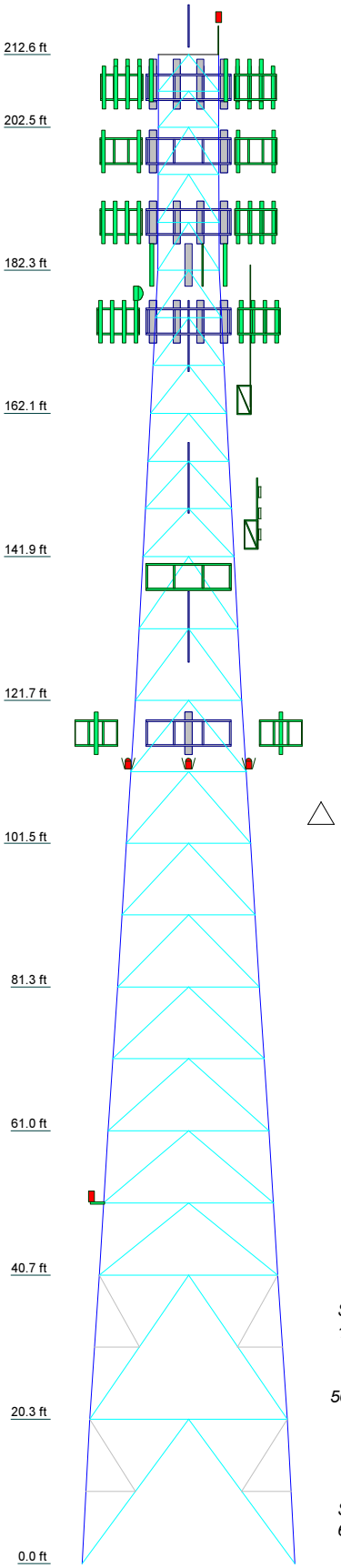
4.1) Recommendations

The tower and its foundation have sufficient capacity to carry the proposed load 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	27.8333	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	0.6
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			

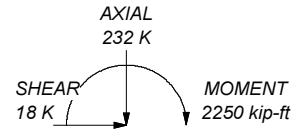
TOWER DESIGN NOTES

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 1.50 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: 81.2%

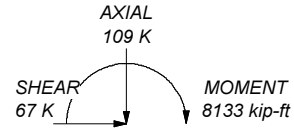
ALL REACTIONS ARE FACTORED

MAX. CORNER REACTIONS AT BASE:
DOWN: 346 K
SHEAR: 40 K

UPLIFT: -279 K
SHEAR: 36 K



TORQUE 25 kip-ft
50 mph WIND - 1.500 in ICE



TORQUE 88 kip-ft
REACTIONS - 130 mph WIND

CROWN CASTLE
The Pathway to Possible

Crown Castle
2000 Corporate Drive
Canonsburg, PA 15317
Phone: (724) 416-2000
FAX:

Job: *BU# 806869*			
Project:			
Client: Crown Castle	Drawn by: MLopienski		App'd:
Code: TIA-222-H	Date: 08/01/22		Scale: NTS
Path: C:\Work Area\806363\WO 2140002 - SA\Prod\806363.eri			Dwg No. E-1

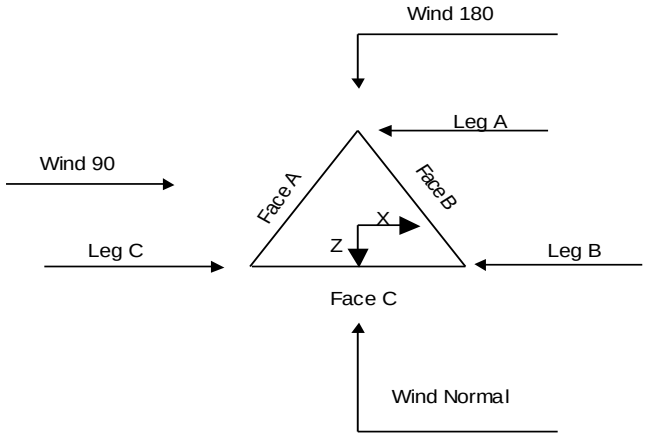
Tower Input Data

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:

- Tower is located in Middlesex County, Connecticut.
- Tower base elevation above sea level: 18.950 ft.
- Basic wind speed of 130 mph.
- Risk Category II.
- Exposure Category B.
- Simplified Topographic Factor Procedure for wind speed-up calculations is used.
- Topographic Category: 1.
- Crest Height: 0.000 ft.
- Nominal ice thickness of 1.500 in.
- Ice thickness is considered to increase with height.
- Ice density of 56.000 pcf.
- A wind speed of 50 mph is used in combination with ice.
- Temperature drop of 50.000 °F.
- Deflections calculated using a wind speed of 60 mph.
- TIA-222-H Annex S.
- A non-linear (P-delta) analysis was used.
- Pressures are calculated at each section.
- Stress ratio used in tower member design is 1.
- Tower analysis based on target reliabilities in accordance with Annex S.
- Load Modification Factors used: $K_{es}(F_w) = 0.95$, $K_{es}(t_i) = 0.85$.
- Maximum demand-capacity ratio is: 1.05.
- 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 Elevation ft	Redundant Horizontal		Redundant Diagonal		Redundant Sub-Diagonal		Redundant Sub-Horizontal		Redundant Vertical		Redundant Hip		Redundant Hip Diagonal	
	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	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75
T2 202.458-182.292	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75
T3 182.292-162.104	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75
T4 162.104-141.896	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75
T5 141.896-121.688	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75
T6 121.688-101.479	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75
T7 101.479-81.271	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75
T8 81.271-61.000	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75
T9 61.000-40.667	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75
T10 40.667-20.333	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75
T11 20.333-0.000	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	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

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Redundant Horizontal		Redundant Diagonal		Redundant Sub-Diagonal		Redundant Sub-Horizontal		Redundant Vertical		Redundant Hip		Redundant Hip Diagonal	
	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	0.625 A325N	0	0.625 A325N	0	0.625 A325N	0	0.625 A325N	0	0.625 A325N	0	0.625 A325N	0	0.625 A325N	0
T2 202.458-182.292	0.625 A325N	0	0.625 A325N	0	0.625 A325N	0	0.625 A325N	0	0.625 A325N	0	0.625 A325N	0	0.625 A325N	0
T3 182.292-162.104	0.625 A325N	0	0.625 A325N	0	0.625 A325N	0	0.625 A325N	0	0.625 A325N	0	0.625 A325N	0	0.625 A325N	0
T4 162.104-141.896	0.625 A325N	0	0.625 A325N	0	0.625 A325N	0	0.625 A325N	0	0.625 A325N	0	0.625 A325N	0	0.625 A325N	0
T5 141.896-121.688	0.625 A325N	0	0.625 A325N	0	0.625 A325N	0	0.625 A325N	0	0.625 A325N	0	0.625 A325N	0	0.625 A325N	0
T6 121.688-101.479	0.625 A325N	0	0.625 A325N	0	0.625 A325N	0	0.625 A325N	0	0.625 A325N	0	0.625 A325N	0	0.625 A325N	0
T7 101.479-81.271	0.625 A325N	0	0.625 A325N	0	0.625 A325N	0	0.625 A325N	0	0.625 A325N	0	0.625 A325N	0	0.625 A325N	0
T8 81.271-61.000	0.625 A325N	0	0.625 A325N	0	0.625 A325N	0	0.625 A325N	0	0.625 A325N	0	0.625 A325N	0	0.625 A325N	0
T9 61.000-40.667	0.625 A325N	0	0.625 A325N	0	0.625 A325N	0	0.625 A325N	0	0.625 A325N	0	0.625 A325N	0	0.625 A325N	0
T10 40.667-20.333	0.625 A325N	1	0.625 A325N	1	0.625 A325N	0	0.625 A325N	0	0.625 A325N	0	0.625 A325N	0	0.625 A325N	0
T11 20.333-0.000	0.625 A325N	1	0.625 A325N	1	0.625 A325N	0	0.625 A325N	0	0.625 A325N	0	0.625 A325N	0	0.625 A325N	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

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
HB158-21U6S24-xxM_TMO(1-5/8)	A	No	No	Ar (CaAa)	199.000 - 0.000	0.000	0.42	3	3	1.000	1.996		0.003
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-606-S(7/8)	A	No	No	Ar (CaAa)	189.000 - 0.000	0.000	-0.35	3	3	0.920	0.920		0.001
PWRT-608-S(13/16)	A	No	No	Ar (CaAa)	189.000 - 0.000	0.000	-0.34	4	4	0.820	0.820		0.001
RFFT-48SM-001-XXX(3/8) ***	A	No	No	Ar (CaAa)	189.000 - 0.000	0.000	-0.32	3	3	0.400	0.400		0.000
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
LDF7-50A(1-5/8)	C	No	No	Ar (CaAa)	208.000 - 0.000	0.000	0	15	8	1.000	1.980		0.001
HB158-1-08U8-S8J18(1-5/8)	C	No	No	Ar (CaAa)	208.000 - 0.000	2.000	0.45	2	2	1.000	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

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)	112.000 - 0.000	0.000	-0.49	1	1	0.300	0.630		0.000
LDF4-50A(1/2") ***	C	No	No	Ar (CaAa)	212.625 - 0.000	0.000	0.49	1	1	0.300	0.630		0.000
CU12PSM9P6XXX(1-1/2) ***	C	No	No	Ar (CaAa)	118.000 - 0.000	0.000	-0.49	1	1	1.600	1.600		0.002

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	22.065	0.000	0.131
T2	202.458-182.292	A	0.000	0.000	45.278	0.000	0.448
		B	0.000	0.000	0.000	0.000	0.000
		C	0.000	0.000	79.589	0.000	0.479
T3	182.292-162.104	A	0.000	0.000	104.190	0.000	0.866
		B	0.000	0.000	6.448	0.000	0.108
		C	0.000	0.000	89.410	0.000	0.643
T4	162.104-141.896	A	0.000	0.000	110.749	0.000	0.884
		B	0.000	0.000	10.104	0.000	0.170
		C	0.000	0.000	89.503	0.000	0.644
T5	141.896-121.688	A	0.000	0.000	114.952	0.000	0.896
		B	0.000	0.000	67.348	0.000	0.639
		C	0.000	0.000	89.503	0.000	0.644
T6	121.688-101.479	A	0.000	0.000	117.129	0.000	0.902
		B	0.000	0.000	76.923	0.000	0.717
		C	0.000	0.000	92.146	0.000	0.682
T7	101.479-81.271	A	0.000	0.000	117.740	0.000	0.904
		B	0.000	0.000	76.923	0.000	0.717
		C	0.000	0.000	92.736	0.000	0.691
T8	81.271-61.000	A	0.000	0.000	118.104	0.000	0.907
		B	0.000	0.000	77.161	0.000	0.719
		C	0.000	0.000	93.023	0.000	0.693
T9	61.000-40.667	A	0.000	0.000	119.119	0.000	0.911
		B	0.000	0.000	77.399	0.000	0.722
		C	0.000	0.000	93.310	0.000	0.695
T10	40.667-20.333	A	0.000	0.000	119.749	0.000	0.913
		B	0.000	0.000	77.399	0.000	0.722
		C	0.000	0.000	93.310	0.000	0.695
T11	20.333-0.000	A	0.000	0.000	119.749	0.000	0.913
		B	0.000	0.000	77.399	0.000	0.722
		C	0.000	0.000	93.310	0.000	0.695

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
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	33.577	0.000	0.607
T2	202.458-182.292	A	1.521	0.000	0.000	92.820	0.000	1.540
		B		0.000	0.000	0.000	0.000	0.000
		C		0.000	0.000	116.295	0.000	2.142
T3	182.292-162.104	A	1.504	0.000	0.000	206.692	0.000	3.287
		B		0.000	0.000	10.327	0.000	0.242
		C		0.000	0.000	131.654	0.000	2.494
T4	162.104-141.896	A	1.485	0.000	0.000	235.796	0.000	3.533
		B		0.000	0.000	16.108	0.000	0.375
		C		0.000	0.000	131.316	0.000	2.476
T5	141.896-121.688	A	1.464	0.000	0.000	243.483	0.000	3.616
		B		0.000	0.000	115.140	0.000	2.348
		C		0.000	0.000	130.782	0.000	2.452
T6	121.688-101.479	A	1.440	0.000	0.000	248.967	0.000	3.652
		B		0.000	0.000	131.020	0.000	2.652
		C		0.000	0.000	137.570	0.000	2.553
T7	101.479-81.271	A	1.412	0.000	0.000	250.333	0.000	3.629
		B		0.000	0.000	130.197	0.000	2.620
		C		0.000	0.000	138.384	0.000	2.547
T8	81.271-61.000	A	1.377	0.000	0.000	248.609	0.000	3.567
		B		0.000	0.000	129.587	0.000	2.589
		C		0.000	0.000	137.782	0.000	2.513
T9	61.000-40.667	A	1.331	0.000	0.000	249.513	0.000	3.519
		B		0.000	0.000	128.664	0.000	2.547
		C		0.000	0.000	136.861	0.000	2.467
T10	40.667-20.333	A	1.265	0.000	0.000	247.784	0.000	3.412
		B		0.000	0.000	126.738	0.000	2.474
		C		0.000	0.000	134.900	0.000	2.389
T11	20.333-0.000	A	1.133	0.000	0.000	237.837	0.000	3.144
		B		0.000	0.000	122.918	0.000	2.334
		C		0.000	0.000	131.013	0.000	2.238

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	-4.125	5.229	-6.296	3.827
T2	202.458-182.292	-9.061	2.787	-11.841	1.471
T3	182.292-162.104	-12.598	8.168	-15.447	6.975
T4	162.104-141.896	-14.768	10.156	-18.944	9.543
T5	141.896-121.688	-13.942	-4.925	-18.294	-3.122
T6	121.688-101.479	-14.857	-7.024	-19.358	-4.226
T7	101.479-81.271	-16.210	-7.327	-21.620	-4.133
T8	81.271-61.000	-17.660	-7.906	-23.420	-4.515
T9	61.000-40.667	-19.383	-8.925	-25.437	-5.859
T10	40.667-20.333	-21.632	-10.234	-27.847	-7.418
T11	20.333-0.000	-23.307	-10.982	-29.477	-8.174

Shielding Factor Ka

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

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T1	25	Safety Line 3/8	202.46 - 212.63	0.6000	0.6000
T1	35	LDF7-50A(1-5/8)	202.46 - 208.00	0.6000	0.6000
T1	36	HB158-1-08U8-S8J18(1-5/8)	202.46 - 208.00	0.6000	0.6000
T1	37	Feedline Ladder (Af)	202.46 - 208.00	0.6000	0.6000
T1	41	LDF4-50A(1/2")	202.46 - 212.63	0.6000	0.6000
T2	3	HB158-21U6S24-xxM_TMO(1-5/8)	182.29 - 199.00	0.6000	0.6000
T2	4	Feedline Ladder (Af)	182.29 - 199.00	0.6000	0.6000
T2	12	CR 50 1873(1-5/8")	182.29 - 189.00	0.6000	0.6000
T2	13	3" Conduit	182.29 - 189.00	0.6000	0.6000
T2	17	PWRT-606-S(7/8)	182.29 - 189.00	0.6000	0.6000
T2	18	PWRT-608-S(13/16)	182.29 - 189.00	0.6000	0.6000
T2	19	RFFT-48SM-001-XXX(3/8)	182.29 - 189.00	0.6000	0.6000
T2	23	Feedline Ladder (Af)	182.29 - 189.00	0.6000	0.6000
T2	25	Safety Line 3/8	182.29 - 202.46	0.6000	0.6000
T2	35	LDF7-50A(1-5/8)	182.29 - 202.46	0.6000	0.6000
T2	36	HB158-1-08U8-S8J18(1-5/8)	182.29 - 202.46	0.6000	0.6000
T2	37	Feedline Ladder (Af)	182.29 - 202.46	0.6000	0.6000
T2	38	Feedline Ladder (Af)	182.29 - 183.00	0.6000	0.6000
T2	41	LDF4-50A(1/2")	182.29 - 202.46	0.6000	0.6000
T3	3	HB158-21U6S24-xxM_TMO(1-5/8)	162.10 - 182.29	0.6000	0.6000
T3	4	Feedline Ladder (Af)	162.10 - 182.29	0.6000	0.6000
T3	9	LDF5-50A(7/8")	162.10 - 164.00	0.6000	0.6000
T3	10	LDF5-50A(7/8")	164.00 - 167.00	0.6000	0.6000
T3	12	CR 50 1873(1-5/8")	162.10 - 182.29	0.6000	0.6000
T3	13	3" Conduit	162.10 - 182.29	0.6000	0.6000
T3	17	PWRT-606-S(7/8)	162.10 - 182.29	0.6000	0.6000
T3	18	PWRT-608-S(13/16)	162.10 - 182.29	0.6000	0.6000
T3	19	RFFT-48SM-001-XXX(3/8)	162.10 - 182.29	0.6000	0.6000
T3	21	LDF1-50A(1/4")	162.10 - 175.00	0.6000	0.6000
T3	23	Feedline Ladder (Af)	162.10 - 182.29	0.6000	0.6000
T3	25	Safety Line 3/8	162.10 - 182.29	0.6000	0.6000
T3	33	Feedline Ladder (Af)	162.10 - 175.00	0.6000	0.6000
T3	35	LDF7-50A(1-5/8)	162.10 - 182.29	0.6000	0.6000
T3	36	HB158-1-08U8-S8J18(1-5/8)	162.10 - 182.29	0.6000	0.6000
T3	37	Feedline Ladder (Af)	162.10 -	0.6000	0.6000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T3	38	Feedline Ladder (Af)	182.29 - 162.10	0.6000	0.6000
T3	41	LDF4-50A(1/2")	182.29 - 162.10	0.6000	0.6000
T4	3	HB158-21U6S24-xxM_TMO(1-5/8)	182.29 - 141.90	0.6000	0.6000
T4	4	Feedline Ladder (Af)	162.10 - 141.90	0.6000	0.6000
T4	7	LDF5-50A(7/8")	162.10 - 141.90	0.6000	0.6000
T4	8	LDF5-50A(7/8")	145.00 - 141.90	0.6000	0.6000
T4	9	LDF5-50A(7/8")	147.00 - 145.00	0.6000	0.6000
T4	12	CR 50 1873(1-5/8")	162.10 - 141.90	0.6000	0.6000
T4	13	3" Conduit	162.10 - 141.90	0.6000	0.6000
T4	17	PWRT-606-S(7/8)	162.10 - 141.90	0.6000	0.6000
T4	18	PWRT-608-S(13/16)	162.10 - 141.90	0.6000	0.6000
T4	19	RFFT-48SM-001-XXX(3/8)	162.10 - 141.90	0.6000	0.6000
T4	21	LDF1-50A(1/4")	162.10 - 141.90	0.6000	0.6000
T4	22	LDF2-50(3/8")	162.00 - 141.90	0.6000	0.6000
T4	23	Feedline Ladder (Af)	162.10 - 141.90	0.6000	0.6000
T4	25	Safety Line 3/8	162.10 - 141.90	0.6000	0.6000
T4	33	Feedline Ladder (Af)	162.10 - 141.90	0.6000	0.6000
T4	35	LDF7-50A(1-5/8)	162.10 - 141.90	0.6000	0.6000
T4	36	HB158-1-08U8-S8J18(1-5/8)	162.10 - 141.90	0.6000	0.6000
T4	37	Feedline Ladder (Af)	162.10 - 141.90	0.6000	0.6000
T4	38	Feedline Ladder (Af)	162.10 - 141.90	0.6000	0.6000
T4	41	LDF4-50A(1/2")	162.10 - 141.90	0.6000	0.6000
T5	3	HB158-21U6S24-xxM_TMO(1-5/8)	141.90 - 121.69	0.6000	0.6000
T5	4	Feedline Ladder (Af)	141.90 - 121.69	0.6000	0.6000
T5	6	LDF5-50A(7/8")	141.90 - 128.00	0.6000	0.6000
T5	7	LDF5-50A(7/8")	128.00 - 121.69	0.6000	0.6000
T5	12	CR 50 1873(1-5/8")	141.90 - 121.69	0.6000	0.6000
T5	13	3" Conduit	141.90 - 121.69	0.6000	0.6000
T5	17	PWRT-606-S(7/8)	141.90 - 121.69	0.6000	0.6000
T5	18	PWRT-608-S(13/16)	141.90 - 121.69	0.6000	0.6000
T5	19	RFFT-48SM-001-XXX(3/8)	141.90 - 121.69	0.6000	0.6000
T5	21	LDF1-50A(1/4")	141.90 - 121.69	0.6000	0.6000
T5	22	LDF2-50(3/8")	141.90 - 121.69	0.6000	0.6000
T5	23	Feedline Ladder (Af)	141.90 - 121.69	0.6000	0.6000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T5	25	Safety Line 3/8	121.69 - 141.90	0.6000	0.6000
T5	28	LDF6-50A(1 1/4")	121.69 - 139.00	0.6000	0.6000
T5	29	HCS 6X12 6AWG(1-3/8")	121.69 - 139.00	0.6000	0.6000
T5	30	MLE HYBRID 9POWER/18FIBER RL 2(1-5/8)	121.69 - 139.00	0.6000	0.6000
T5	31	Feedline Ladder (Af)	121.69 - 139.00	0.6000	0.6000
T5	33	Feedline Ladder (Af)	121.69 - 141.90	0.6000	0.6000
T5	35	LDF7-50A(1-5/8)	121.69 - 141.90	0.6000	0.6000
T5	36	HB158-1-08U8-S8J18(1-5/8)	121.69 - 141.90	0.6000	0.6000
T5	37	Feedline Ladder (Af)	121.69 - 141.90	0.6000	0.6000
T5	38	Feedline Ladder (Af)	121.69 - 141.90	0.6000	0.6000
T5	41	LDF4-50A(1/2")	121.69 - 141.90	0.6000	0.6000
T6	3	HB158-21U6S24-xxM_TMO(1-5/8)	101.48 - 121.69	0.6000	0.6000
T6	4	Feedline Ladder (Af)	101.48 - 121.69	0.6000	0.6000
T6	6	LDF5-50A(7/8")	101.48 - 121.69	0.6000	0.6000
T6	12	CR 50 1873(1-5/8")	101.48 - 121.69	0.6000	0.6000
T6	13	3" Conduit	101.48 - 121.69	0.6000	0.6000
T6	17	PWRT-606-S(7/8)	101.48 - 121.69	0.6000	0.6000
T6	18	PWRT-608-S(13/16)	101.48 - 121.69	0.6000	0.6000
T6	19	RFFT-48SM-001-XXX(3/8)	101.48 - 121.69	0.6000	0.6000
T6	21	LDF1-50A(1/4")	101.48 - 121.69	0.6000	0.6000
T6	22	LDF2-50(3/8")	101.48 - 121.69	0.6000	0.6000
T6	23	Feedline Ladder (Af)	101.48 - 121.69	0.6000	0.6000
T6	25	Safety Line 3/8	101.48 - 121.69	0.6000	0.6000
T6	28	LDF6-50A(1 1/4")	101.48 - 121.69	0.6000	0.6000
T6	29	HCS 6X12 6AWG(1-3/8")	101.48 - 121.69	0.6000	0.6000
T6	30	MLE HYBRID 9POWER/18FIBER RL 2(1-5/8)	101.48 - 121.69	0.6000	0.6000
T6	31	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	LDF7-50A(1-5/8)	101.48 - 121.69	0.6000	0.6000
T6	36	HB158-1-08U8-S8J18(1-5/8)	101.48 - 121.69	0.6000	0.6000
T6	37	Feedline Ladder (Af)	101.48 - 121.69	0.6000	0.6000
T6	38	Feedline Ladder (Af)	101.48 - 121.69	0.6000	0.6000
T6	40	LDF4-50A(1/2")	101.48 - 112.00	0.6000	0.6000
T6	41	LDF4-50A(1/2")	101.48 -	0.6000	0.6000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
			121.69		
T6	43	CU12PSM9P6XXX(1-1/2)	101.48 - 118.00	0.6000	0.6000
T7	3	HB158-21U6S24-xxM_TMO(1-5/8)	81.27 - 101.48	0.6000	0.6000
T7	4	Feedline Ladder (Af)	81.27 - 101.48	0.6000	0.6000
T7	6	LDF5-50A(7/8")	81.27 - 101.48	0.6000	0.6000
T7	12	CR 50 1873(1-5/8")	81.27 - 101.48	0.6000	0.6000
T7	13	3" Conduit	81.27 - 101.48	0.6000	0.6000
T7	17	PWRT-606-S(7/8)	81.27 - 101.48	0.6000	0.6000
T7	18	PWRT-608-S(13/16)	81.27 - 101.48	0.6000	0.6000
T7	19	RFFT-48SM-001-XXX(3/8)	81.27 - 101.48	0.6000	0.6000
T7	21	LDF1-50A(1/4")	81.27 - 101.48	0.6000	0.6000
T7	22	LDF2-50(3/8")	81.27 - 101.48	0.6000	0.6000
T7	23	Feedline Ladder (Af)	81.27 - 101.48	0.6000	0.6000
T7	25	Safety Line 3/8	81.27 - 101.48	0.6000	0.6000
T7	28	LDF6-50A(1 1/4")	81.27 - 101.48	0.6000	0.6000
T7	29	HCS 6X12 6AWG(1-3/8")	81.27 - 101.48	0.6000	0.6000
T7	30	MLE HYBRID 9POWER/18FIBER RL 2(1-5/8)	81.27 - 101.48	0.6000	0.6000
T7	31	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	LDF7-50A(1-5/8)	81.27 - 101.48	0.6000	0.6000
T7	36	HB158-1-08U8-S8J18(1-5/8)	81.27 - 101.48	0.6000	0.6000
T7	37	Feedline Ladder (Af)	81.27 - 101.48	0.6000	0.6000
T7	38	Feedline Ladder (Af)	81.27 - 101.48	0.6000	0.6000
T7	40	LDF4-50A(1/2")	81.27 - 101.48	0.6000	0.6000
T7	41	LDF4-50A(1/2")	81.27 - 101.48	0.6000	0.6000
T7	43	CU12PSM9P6XXX(1-1/2)	81.27 - 101.48	0.6000	0.6000
T8	3	HB158-21U6S24-xxM_TMO(1-5/8)	61.00 - 81.27	0.6000	0.6000
T8	4	Feedline Ladder (Af)	61.00 - 81.27	0.6000	0.6000
T8	6	LDF5-50A(7/8")	61.00 - 81.27	0.6000	0.6000
T8	12	CR 50 1873(1-5/8")	61.00 - 81.27	0.6000	0.6000
T8	13	3" Conduit	61.00 - 81.27	0.6000	0.6000
T8	17	PWRT-606-S(7/8)	61.00 - 81.27	0.6000	0.6000
T8	18	PWRT-608-S(13/16)	61.00 - 81.27	0.6000	0.6000
T8	19	RFFT-48SM-001-XXX(3/8)	61.00 - 81.27	0.6000	0.6000
T8	21	LDF1-50A(1/4")	61.00 -	0.6000	0.6000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
			81.27		
T8	22	LDF2-50(3/8")	61.00 - 81.27	0.6000	0.6000
T8	23	Feedline Ladder (Af)	61.00 - 81.27	0.6000	0.6000
T8	25	Safety Line 3/8	61.00 - 81.27	0.6000	0.6000
T8	28	LDF6-50A(1 1/4")	61.00 - 81.27	0.6000	0.6000
T8	29	HCS 6X12 6AWG(1-3/8")	61.00 - 81.27	0.6000	0.6000
T8	30	MLE HYBRID 9POWER/18FIBER RL 2(1-5/8)	61.00 - 81.27	0.6000	0.6000
T8	31	Feedline Ladder (Af)	61.00 - 81.27	0.6000	0.6000
T8	33	Feedline Ladder (Af)	61.00 - 81.27	0.6000	0.6000
T8	35	LDF7-50A(1-5/8)	61.00 - 81.27	0.6000	0.6000
T8	36	HB158-1-08U8-S8J18(1-5/8)	61.00 - 81.27	0.6000	0.6000
T8	37	Feedline Ladder (Af)	61.00 - 81.27	0.6000	0.6000
T8	38	Feedline Ladder (Af)	61.00 - 81.27	0.6000	0.6000
T8	40	LDF4-50A(1/2")	61.00 - 81.27	0.6000	0.6000
T8	41	LDF4-50A(1/2")	61.00 - 81.27	0.6000	0.6000
T8	43	CU12PSM9P6XXX(1-1/2)	61.00 - 81.27	0.6000	0.6000
T9	1	LDF4-50A(1/2")	40.67 - 51.00	0.6000	0.6000
T9	3	HB158-21U6S24-xxM_TMO(1-5/8)	40.67 - 61.00	0.6000	0.6000
T9	4	Feedline Ladder (Af)	40.67 - 61.00	0.6000	0.6000
T9	6	LDF5-50A(7/8")	40.67 - 61.00	0.6000	0.6000
T9	12	CR 50 1873(1-5/8")	40.67 - 61.00	0.6000	0.6000
T9	13	3" Conduit	40.67 - 61.00	0.6000	0.6000
T9	17	PWRT-606-S(7/8)	40.67 - 61.00	0.6000	0.6000
T9	18	PWRT-608-S(13/16)	40.67 - 61.00	0.6000	0.6000
T9	19	RFFT-48SM-001-XXX(3/8)	40.67 - 61.00	0.6000	0.6000
T9	21	LDF1-50A(1/4")	40.67 - 61.00	0.6000	0.6000
T9	22	LDF2-50(3/8")	40.67 - 61.00	0.6000	0.6000
T9	23	Feedline Ladder (Af)	40.67 - 61.00	0.6000	0.6000
T9	25	Safety Line 3/8	40.67 - 61.00	0.6000	0.6000
T9	28	LDF6-50A(1 1/4")	40.67 - 61.00	0.6000	0.6000
T9	29	HCS 6X12 6AWG(1-3/8")	40.67 - 61.00	0.6000	0.6000
T9	30	MLE HYBRID 9POWER/18FIBER RL 2(1-5/8)	40.67 - 61.00	0.6000	0.6000
T9	31	Feedline Ladder (Af)	40.67 - 61.00	0.6000	0.6000
T9	33	Feedline Ladder (Af)	40.67 - 61.00	0.6000	0.6000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T9	35	LDF7-50A(1-5/8)	40.67 - 61.00	0.6000	0.6000
T9	36	HB158-1-08U8-S8J18(1-5/8)	40.67 - 61.00	0.6000	0.6000
T9	37	Feedline Ladder (Af)	40.67 - 61.00	0.6000	0.6000
T9	38	Feedline Ladder (Af)	40.67 - 61.00	0.6000	0.6000
T9	40	LDF4-50A(1/2")	40.67 - 61.00	0.6000	0.6000
T9	41	LDF4-50A(1/2")	40.67 - 61.00	0.6000	0.6000
T9	43	CU12PSM9P6XXX(1-1/2)	40.67 - 61.00	0.6000	0.6000
T10	1	LDF4-50A(1/2")	20.33 - 40.67	0.6000	0.6000
T10	3	HB158-21U6S24-xxM_TMO(1-5/8)	20.33 - 40.67	0.6000	0.6000
T10	4	Feedline Ladder (Af)	20.33 - 40.67	0.6000	0.6000
T10	6	LDF5-50A(7/8")	20.33 - 40.67	0.6000	0.6000
T10	12	CR 50 1873(1-5/8")	20.33 - 40.67	0.6000	0.6000
T10	13	3" Conduit	20.33 - 40.67	0.6000	0.6000
T10	17	PWRT-606-S(7/8)	20.33 - 40.67	0.6000	0.6000
T10	18	PWRT-608-S(13/16)	20.33 - 40.67	0.6000	0.6000
T10	19	RFFT-48SM-001-XXX(3/8)	20.33 - 40.67	0.6000	0.6000
T10	21	LDF1-50A(1/4")	20.33 - 40.67	0.6000	0.6000
T10	22	LDF2-50(3/8")	20.33 - 40.67	0.6000	0.6000
T10	23	Feedline Ladder (Af)	20.33 - 40.67	0.6000	0.6000
T10	25	Safety Line 3/8	20.33 - 40.67	0.6000	0.6000
T10	28	LDF6-50A(1 1/4")	20.33 - 40.67	0.6000	0.6000
T10	29	HCS 6X12 6AWG(1-3/8")	20.33 - 40.67	0.6000	0.6000
T10	30	MLE HYBRID 9POWER/18FIBER RL 2(1-5/8)	20.33 - 40.67	0.6000	0.6000
T10	31	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	LDF7-50A(1-5/8)	20.33 - 40.67	0.6000	0.6000
T10	36	HB158-1-08U8-S8J18(1-5/8)	20.33 - 40.67	0.6000	0.6000
T10	37	Feedline Ladder (Af)	20.33 - 40.67	0.6000	0.6000
T10	38	Feedline Ladder (Af)	20.33 - 40.67	0.6000	0.6000
T10	40	LDF4-50A(1/2")	20.33 - 40.67	0.6000	0.6000
T10	41	LDF4-50A(1/2")	20.33 - 40.67	0.6000	0.6000
T10	43	CU12PSM9P6XXX(1-1/2)	20.33 - 40.67	0.6000	0.6000
T11	1	LDF4-50A(1/2")	0.00 - 20.33	0.6000	0.6000
T11	3	HB158-21U6S24-xxM_TMO(1-5/8)	0.00 - 20.33	0.6000	0.6000
T11	4	Feedline Ladder (Af)	0.00 - 20.33	0.6000	0.6000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T11	6	LDF5-50A(7/8")	0.00 - 20.33	0.6000	0.6000
T11	12	CR 50 1873(1-5/8")	0.00 - 20.33	0.6000	0.6000
T11	13	3" Conduit	0.00 - 20.33	0.6000	0.6000
T11	17	PWRT-606-S(7/8)	0.00 - 20.33	0.6000	0.6000
T11	18	PWRT-608-S(13/16)	0.00 - 20.33	0.6000	0.6000
T11	19	RFFT-48SM-001-XXX(3/8)	0.00 - 20.33	0.6000	0.6000
T11	21	LDF1-50A(1/4")	0.00 - 20.33	0.6000	0.6000
T11	22	LDF2-50(3/8")	0.00 - 20.33	0.6000	0.6000
T11	23	Feedline Ladder (Af)	0.00 - 20.33	0.6000	0.6000
T11	25	Safety Line 3/8	0.00 - 20.33	0.6000	0.6000
T11	28	LDF6-50A(1 1/4")	0.00 - 20.33	0.6000	0.6000
T11	29	HCS 6X12 6AWG(1-3/8")	0.00 - 20.33	0.6000	0.6000
T11	30	MLE HYBRID 9POWER/18FIBER RL 2(1-5/8)	0.00 - 20.33	0.6000	0.6000
T11	31	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	LDF7-50A(1-5/8)	0.00 - 20.33	0.6000	0.6000
T11	36	HB158-1-08U8-S8J18(1-5/8)	0.00 - 20.33	0.6000	0.6000
T11	37	Feedline Ladder (Af)	0.00 - 20.33	0.6000	0.6000
T11	38	Feedline Ladder (Af)	0.00 - 20.33	0.6000	0.6000
T11	40	LDF4-50A(1/2")	0.00 - 20.33	0.6000	0.6000
T11	41	LDF4-50A(1/2")	0.00 - 20.33	0.6000	0.6000
T11	43	CU12PSM9P6XXX(1-1/2)	0.00 - 20.33	0.6000	0.6000

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft
Lightning Rod 5/8" x 6'	A	From Leg	0.000 0.000 3.000	0.000	213.625
Climb Leg Extension	A	From Leg	0.000 0.000 2.000	0.000	212.625
Flash Beacon Lighting	B	From Leg	0.000 0.000 0.500	0.000	216.625
4' x 2" Pipe Mount	B	From Leg	0.000 0.000 2.000	0.000	212.625
Side Lighting	A	From Leg	0.500 0.000 0.000	0.000	112.000
Side Lighting	B	From Leg	0.500 0.000 0.000	0.000	112.000
Side Lighting	C	From Leg	0.500 0.000 0.000	0.000	112.000
***					
MT6407-77A w/ Mount Pipe	A	From Leg	4.000 0.000 1.000	0.000	208.000
MT6407-77A w/ Mount Pipe	B	From Leg	4.000 0.000	0.000	208.000

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft
MT6407-77A w/ Mount Pipe	C	From Leg	1.000 4.000 0.000	0.000	208.000
(2) LPA-80080/6CF w/ Mount Pipe	A	From Leg	1.000 4.000 0.000	0.000	208.000
(2) LPA-80080/6CF w/ Mount Pipe	B	From Leg	1.000 4.000 0.000	0.000	208.000
(2) LPA-80080/6CF w/ Mount Pipe	C	From Leg	1.000 4.000 0.000	0.000	208.000
(2) JAHH-65B-R3B w/ Mount Pipe	A	From Leg	1.000 4.000 0.000	0.000	208.000
(2) JAHH-65B-R3B w/ Mount Pipe	B	From Leg	1.000 4.000 0.000	0.000	208.000
(2) JAHH-65B-R3B w/ Mount Pipe	C	From Leg	1.000 4.000 0.000	0.000	208.000
CBC1923T-DS-43	A	From Leg	1.000 4.000 0.000	0.000	208.000
CBC1923T-DS-43	B	From Leg	1.000 4.000 0.000	0.000	208.000
CBC1923T-DS-43	C	From Leg	1.000 4.000 0.000	0.000	208.000
DB-B1-6C-12AB-0Z	A	From Leg	1.000 4.000 0.000	0.000	208.000
DB-B1-6C-12AB-0Z	B	From Leg	1.000 4.000 0.000	0.000	208.000
RFV01U-D1A	A	From Leg	1.000 4.000 0.000	0.000	208.000
RFV01U-D1A	B	From Leg	1.000 4.000 0.000	0.000	208.000
RFV01U-D1A	C	From Leg	1.000 4.000 0.000	0.000	208.000
RFV01U-D2A	A	From Leg	1.000 4.000 0.000	0.000	208.000
RFV01U-D2A	B	From Leg	1.000 4.000 0.000	0.000	208.000
RFV01U-D2A	C	From Leg	1.000 4.000 0.000	0.000	208.000
Sector Mount [SM 510-3] ***	C	None	1.000	0.000	208.000
Sector Mount [SM 505-3]	C	None		0.000	199.000
VV-65B-R1_TMO w/ Mount Pipe	A	From Leg	4.000 0.000 -1.000	0.000	199.000
VV-65B-R1_TMO w/ Mount Pipe	B	From Leg	4.000 0.000 -1.000	0.000	199.000
VV-65B-R1_TMO w/ Mount Pipe	C	From Leg	4.000	0.000	199.000

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft Vert ft ft	Azimuth Adjustment °	Placement ft
AIR 6419 B41_TMO w/ Mount Pipe	A	From Leg	0.000 -1.000 4.000 0.000	0.000	199.000
AIR 6419 B41_TMO w/ Mount Pipe	B	From Leg	-1.000 4.000 0.000	0.000	199.000
AIR 6419 B41_TMO w/ Mount Pipe	C	From Leg	-1.000 4.000 0.000	0.000	199.000
APXVAALL24_43-U-NA20_TMO w/ Mount Pipe	A	From Leg	-1.000 4.000 0.000	0.000	199.000
APXVAALL24_43-U-NA20_TMO w/ Mount Pipe	B	From Leg	-1.000 4.000 0.000	0.000	199.000
APXVAALL24_43-U-NA20_TMO w/ Mount Pipe	C	From Leg	-1.000 4.000 0.000	0.000	199.000
RADIO 4460 B2/B25 B66_TMO	A	From Leg	-1.000 4.000 0.000	0.000	199.000
RADIO 4460 B2/B25 B66_TMO	B	From Leg	-1.000 4.000 0.000	0.000	199.000
RADIO 4460 B2/B25 B66_TMO	C	From Leg	-1.000 4.000 0.000	0.000	199.000
Radio 4480_TMOV2	A	From Leg	-1.000 4.000 0.000	0.000	199.000
Radio 4480_TMOV2	B	From Leg	-1.000 4.000 0.000	0.000	199.000
Radio 4480_TMOV2	C	From Leg	-1.000 4.000 0.000	0.000	199.000
(3) Empty Mount Pipes	A	From Leg	-1.000 4.000 0.000	0.000	199.000
(3) Empty Mount Pipes	B	From Leg	0.000 4.000 0.000	0.000	199.000
(3) Empty Mount Pipes	C	From Leg	0.000 4.000 0.000	0.000	199.000
***			0.000		
Sector Mount [SM 505-3]	C	None		0.000	189.000
DMP65R-BU4D w/ Mount Pipe	A	From Leg	4.000 0.000	0.000	189.000
DMP65R-BU4D w/ Mount Pipe	B	From Leg	1.000 4.000 0.000	0.000	189.000
DMP65R-BU4D w/ Mount Pipe	C	From Leg	1.000 4.000 0.000	0.000	189.000
AIR 6419 B77G w/ Mount Pipe	A	From Leg	1.000 4.000 0.000	0.000	189.000
AIR 6419 B77G w/ Mount Pipe	B	From Leg	1.000 4.000 0.000	0.000	189.000
AIR 6419 B77G w/ Mount Pipe	C	From Leg	1.000 4.000	0.000	189.000

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft
AIR 6449 B77D_CCVI2 w/ Mount Pipe	A	From Leg	0.000 1.000 4.000 0.000	0.000	189.000
AIR 6449 B77D_CCVI2 w/ Mount Pipe	B	From Leg	1.000 4.000 0.000	0.000	189.000
AIR 6449 B77D_CCVI2 w/ Mount Pipe	C	From Leg	1.000 4.000 0.000	0.000	189.000
QD4616-7 w/ Mount Pipe	A	From Leg	1.000 4.000 0.000	0.000	189.000
QD4616-7 w/ Mount Pipe	B	From Leg	1.000 4.000 0.000	0.000	189.000
QD4616-7 w/ Mount Pipe	C	From Leg	1.000 4.000 0.000	0.000	189.000
RADIO 4478 B14	A	From Leg	1.000 4.000 0.000	0.000	189.000
RADIO 4478 B14	B	From Leg	1.000 4.000 0.000	0.000	189.000
RADIO 4478 B14	C	From Leg	1.000 4.000 0.000	0.000	189.000
RRUS 4415 B25	A	From Leg	0.000 4.000 0.000	0.000	189.000
RRUS 4415 B25	B	From Leg	1.000 4.000 0.000	0.000	189.000
RRUS 4415 B25	C	From Leg	1.000 4.000 0.000	0.000	189.000
RRUS 4449 B5/B12	A	From Leg	1.000 4.000 0.000	0.000	189.000
RRUS 4449 B5/B12	B	From Leg	1.000 4.000 0.000	0.000	189.000
RRUS 4449 B5/B12	C	From Leg	1.000 4.000 0.000	0.000	189.000
DC9-48-60-24-8C-EV_CCIV2	A	From Leg	1.000 4.000 0.000	0.000	189.000
DC9-48-60-24-8C-EV_CCIV2	B	From Leg	1.000 4.000 0.000	0.000	189.000
DC9-48-60-24-8C-EV_CCIV2	C	From Leg	1.000 4.000 0.000	0.000	189.000
RRUS 32	A	From Leg	1.000 4.000 0.000	0.000	189.000
RRUS 32	B	From Leg	1.000 4.000 0.000	0.000	189.000
RRUS 32	C	From Leg	1.000 4.000 0.000 1.000	0.000	189.000

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft
RRUS 32 B66	A	From Leg	4.000 0.000 1.000	0.000	189.000
RRUS 32 B66	B	From Leg	4.000 0.000 1.000	0.000	189.000
RRUS 32 B66	C	From Leg	4.000 0.000 1.000	0.000	189.000
***					
Pipe Mount [PM 601-3]	C	None		0.000	183.000
APXV18-206517LS	A	From Leg	1.000 0.000 0.000	0.000	183.000
APXV18-206517LS	B	From Leg	1.000 0.000 0.000	0.000	183.000
APXV18-206517LS	C	From Leg	1.000 0.000 0.000	0.000	183.000
***					
Sector Mount	C	None		0.000	175.000
(4) DB844H90E-XY w/ Mount Pipe	A	From Leg	4.000 0.000 1.000	0.000	175.000
(4) DB844H90E-XY w/ Mount Pipe	B	From Leg	4.000 0.000 1.000	0.000	175.000
(4) DB844H90E-XY w/ Mount Pipe	C	From Leg	4.000 0.000 1.000	0.000	175.000
6' x 2" Mount Pipe	C	From Face	2.000 0.000 4.000	0.000	175.000
6' x 2" Mount Pipe	C	From Face	2.000 0.000 4.000	0.000	175.000
***					
Side Arm Mount [SO 306-1]	A	From Leg	3.000 0.000 0.000	0.000	167.000
1151-3	A	From Leg	4.000 0.000 6.000	0.000	167.000
SD310-HL	A	From Leg	4.000 0.000 -7.000	0.000	167.000
***					
Side Arm Mount [SO 306-1]	B	From Leg	3.000 0.000 0.000	0.000	164.000
1151-3	B	From Leg	4.000 0.000 9.000	0.000	164.000
***					
Side Arm Mount [SO 306-1]	A	From Leg	3.000 0.000 0.000	0.000	147.000
1151-3	A	From Leg	4.000 0.000 6.000	0.000	147.000
***					
Side Arm Mount [SO 306-1]	B	From Leg	3.000 0.000 0.000	0.000	145.000

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft Vert ft ft	Azimuth Adjustment °	Placement ft
SD310-HL	B	From Leg	4.000 0.000 3.000	0.000	145.000
***					
(3) Site Pro 1 VFA12-HD	C	None		0.000	139.000
ERICSSON AIR 21 B2A B4P w/ Mount Pipe	A	From Leg	4.000 0.000 1.000	0.000	139.000
ERICSSON AIR 21 B2A B4P w/ Mount Pipe	B	From Leg	4.000 0.000 1.000	0.000	139.000
ERICSSON AIR 21 B2A B4P w/ Mount Pipe	C	From Leg	4.000 0.000 1.000	0.000	139.000
ERICSSON AIR 21 B4A B2P w/ Mount Pipe	A	From Leg	4.000 0.000 1.000	0.000	139.000
ERICSSON AIR 21 B4A B2P w/ Mount Pipe	B	From Leg	4.000 0.000 1.000	0.000	139.000
ERICSSON AIR 21 B4A B2P w/ Mount Pipe	C	From Leg	4.000 0.000 1.000	0.000	139.000
APXVAARR24_43-U-NA20 w/ Mount Pipe	A	From Leg	4.000 0.000 1.000	0.000	139.000
APXVAARR24_43-U-NA20 w/ Mount Pipe	B	From Leg	4.000 0.000 1.000	0.000	139.000
APXVAARR24_43-U-NA20 w/ Mount Pipe	C	From Leg	4.000 0.000 1.000	0.000	139.000
KRY 112 144/1	A	From Leg	4.000 0.000 1.000	0.000	139.000
KRY 112 144/1	B	From Leg	4.000 0.000 1.000	0.000	139.000
KRY 112 144/1	C	From Leg	4.000 0.000 1.000	0.000	139.000
RADIO 4449 B12/B71	A	From Leg	4.000 0.000 1.000	0.000	139.000
RADIO 4449 B12/B71	B	From Leg	4.000 0.000 1.000	0.000	139.000
RADIO 4449 B12/B71	C	From Leg	4.000 0.000 1.000	0.000	139.000
***					
Side Arm Mount	A	From Leg	3.000 0.000 0.000	0.000	128.000
1142-2C	A	From Leg	6.000 0.000 4.000	0.000	128.000
***					
MX08FRO665-21 w/ Mount Pipe	A	From Leg	4.000 0.000 1.000	0.000	117.000
MX08FRO665-21 w/ Mount Pipe	B	From Leg	4.000 0.000 1.000	0.000	117.000
MX08FRO665-21 w/ Mount Pipe	C	From Leg	4.000	0.000	117.000

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft
			0.000 1.000		
TA08025-B604	A	From Leg	4.000 0.000 0.000	0.000	117.000
TA08025-B604	B	From Leg	4.000 0.000 0.000	0.000	117.000
TA08025-B604	C	From Leg	4.000 0.000 0.000	0.000	117.000
TA08025-B605	A	From Leg	4.000 0.000 0.000	0.000	117.000
TA08025-B605	B	From Leg	4.000 0.000 0.000	0.000	117.000
TA08025-B605	C	From Leg	4.000 0.000 0.000	0.000	117.000
RDIDC-9181-PF-48	B	From Leg	4.000 0.000 0.000	0.000	117.000
(2) 8' x 2" Mount Pipe	A	From Leg	4.000 0.000 0.000	0.000	117.000
(2) 8' x 2" Mount Pipe	B	From Leg	4.000 0.000 0.000	0.000	117.000
(2) 8' x 2" Mount Pipe	C	From Leg	4.000 0.000 0.000	0.000	117.000
Sabre C10837002C-32788 (3)	C	None		0.000	117.000
* Side Arm Mount	C	From Leg	1.000 0.000 0.000	0.000	51.000
GPS_A	C	From Leg	2.000 0.000 0.000	0.000	51.000
*** *					

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
HPD2-23	C	Paraboloid w/Shroud (HP)	From Leg	2.000 0.000 4.000	50.000		175.000	2.000
HPD2-23	C	Paraboloid w/Shroud (HP)	From Leg	2.000 0.000 4.000	-90.000		175.000	2.000
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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
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	0.077	-0.000	-0.000
			Max. Compression	31	-4.938	0.071	-0.004
			Max. Mx	2	-2.132	-0.375	-0.002
			Max. My	8	-1.710	-0.002	-0.389
			Max. Vy	2	-1.236	0.191	-0.002
			Max. Vx	4	1.250	-0.002	-0.187

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
		Diagonal	Max Tension	24	2.406	0.000	0.000
			Max. Compression	24	-2.479	0.000	0.000
			Max. Mx	38	0.534	0.042	0.000
			Max. My	2	-0.090	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	1.801	-0.009	0.002
			Max. Compression	2	-1.757	-0.010	-0.002
			Max. Mx	29	-0.134	-0.027	-0.001
			Max. My	14	-0.819	-0.010	-0.005
			Max. Vy	29	-0.027	-0.027	-0.001
			Max. Vx	14	0.001	-0.010	-0.005
		Top Girt	Max Tension	14	0.222	-0.007	0.000
			Max. Compression	2	-0.221	-0.008	-0.000
			Max. Mx	29	-0.028	-0.022	-0.000
			Max. My	22	-0.085	-0.009	-0.001
			Max. Vy	29	-0.026	-0.022	-0.000
			Max. Vx	14	0.000	-0.009	-0.001
		Inner Bracing	Max Tension	2	0.003	0.000	0.000
			Max. Compression	14	-0.003	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	15	15.822	0.138	-0.016
			Max. Compression	2	-24.853	0.243	0.084
			Max. Mx	6	-0.027	1.410	0.001
			Max. My	24	-3.611	-0.001	-1.432
			Max. Vy	6	-1.179	0.135	0.002
			Max. Vx	12	-1.207	-0.000	0.114
		Diagonal	Max Tension	4	8.518	0.000	0.000
			Max. Compression	4	-8.592	0.000	0.000
			Max. Mx	38	2.032	0.050	0.000
			Max. My	2	-0.031	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	4.630	-0.008	0.005
			Max. Compression	4	-4.589	-0.012	-0.000
			Max. Mx	33	-0.185	-0.035	-0.003
			Max. My	14	-0.701	-0.020	-0.011
			Max. Vy	33	-0.029	-0.035	-0.003
			Max. Vx	14	0.003	-0.020	-0.011
		Inner Bracing	Max Tension	2	0.006	0.000	0.000
			Max. Compression	14	-0.006	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	15	49.449	-0.524	-0.016
			Max. Compression	2	-75.100	-0.040	-0.004
			Max. Mx	14	47.620	0.645	-0.016
			Max. My	12	-6.675	-0.048	-0.404
			Max. Vy	6	-0.812	-0.306	-0.050
			Max. Vx	12	-0.847	-0.048	-0.404
		Diagonal	Max Tension	16	8.873	0.000	0.000
			Max. Compression	16	-8.963	0.000	0.000
			Max. Mx	38	1.740	0.067	0.000
			Max. My	2	0.407	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	5.382	-0.013	-0.000
			Max. Compression	16	-5.733	-0.015	0.000
			Max. Mx	37	-0.232	-0.042	-0.002
			Max. My	14	-0.352	-0.022	-0.011
			Max. Vy	37	-0.032	-0.042	-0.002
			Max. Vx	2	-0.002	-0.001	0.010
		Inner Bracing	Max Tension	25	0.005	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
			Max. Compression	14	-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	81.458	-0.329	0.007
			Max. Compression	2	-110.375	0.160	0.029
			Max. Mx	22	68.888	-1.684	0.062
			Max. My	12	-8.152	-0.063	-1.378
			Max. Vy	22	0.656	-1.684	0.062
			Max. Vx	13	0.292	-0.047	-1.372
		Diagonal	Max Tension	16	8.764	0.000	0.000
			Max. Compression	16	-8.871	0.000	0.000
			Max. Mx	38	1.771	0.085	0.000
			Max. My	2	0.570	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	14	5.955	-0.015	0.007
			Max. Compression	20	-5.911	-0.025	-0.000
			Max. Mx	29	0.046	-0.069	-0.003
			Max. My	14	0.121	-0.037	-0.015
			Max. Vy	29	-0.046	-0.069	-0.003
			Max. Vx	14	0.003	-0.037	-0.015
		Inner Bracing	Max Tension	13	0.006	0.000	0.000
			Max. Compression	14	-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
T5	141.896 - 121.688	Leg	Max Tension	15	103.749	-0.923	-0.081
			Max. Compression	2	-139.964	0.813	0.105
			Max. Mx	22	79.000	-1.684	0.062
			Max. My	12	-8.775	-0.064	-1.377
			Max. Vy	22	-0.788	-1.684	0.062
			Max. Vx	12	-0.769	-0.064	-1.377
		Diagonal	Max Tension	16	11.952	0.000	0.000
			Max. Compression	16	-12.135	0.000	0.000
			Max. Mx	38	2.727	0.175	0.000
			Max. My	2	1.283	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	14	7.371	-0.020	0.007
			Max. Compression	16	-7.232	-0.033	-0.000
			Max. Mx	29	-0.055	-0.091	-0.004
			Max. My	14	-0.725	-0.056	-0.016
			Max. Vy	29	-0.052	-0.091	-0.004
			Max. Vx	14	0.003	-0.056	-0.016
		Inner Bracing	Max Tension	25	0.005	0.000	0.000
			Max. Compression	14	-0.009	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	27	0.000	0.000	0.000
T6	121.688 - 101.479	Leg	Max Tension	15	134.447	-0.998	-0.044
			Max. Compression	2	-176.168	0.818	0.145
			Max. Mx	6	126.241	-1.022	0.042
			Max. My	24	-16.780	-0.013	1.030
			Max. Vy	22	-0.394	-0.935	0.025
			Max. Vx	24	0.416	-0.071	0.941
		Diagonal	Max Tension	16	11.945	0.000	0.000
			Max. Compression	16	-12.175	0.000	0.000
			Max. Mx	38	2.617	0.214	0.000
			Max. My	2	1.334	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	14	8.078	-0.031	0.007

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Compression	16	-7.948	-0.041	-0.000
			Max. Mx	29	-0.015	-0.108	-0.003
			Max. My	14	-0.476	-0.057	-0.015
			Max. Vy	29	-0.058	-0.108	-0.003
			Max. Vx	14	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	-0.009	-0.103	0.000
			Max. My	2	0.001	0.000	-0.000
			Max. Vy	26	0.051	0.000	0.000
			Max. Vx	2	0.000	0.000	0.000
T7	101.479 - 81.2708	Leg	Max Tension	15	164.249	-0.602	-0.060
			Max. Compression	2	-209.858	0.743	0.094
			Max. Mx	2	-192.749	0.818	0.145
			Max. My	24	-17.942	-0.013	1.030
			Max. Vy	14	-0.110	-0.818	-0.127
			Max. Vx	24	0.184	-0.013	1.030
		Diagonal	Max Tension	16	11.926	0.000	0.000
			Max. Compression	16	-12.296	0.000	0.000
			Max. Mx	38	2.436	0.314	0.000
			Max. My	2	1.309	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	14	8.683	-0.066	0.009
			Max. Compression	16	-8.515	-0.086	-0.000
			Max. Mx	37	0.156	-0.190	-0.005
			Max. My	14	0.241	-0.119	-0.020
			Max. Vy	37	-0.088	-0.190	-0.005
			Max. Vx	14	0.002	-0.119	-0.020
		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	2	-0.000	0.000	-0.000
			Max. Vy	26	0.067	0.000	0.000
			Max. Vx	2	0.000	0.000	0.000
T8	81.2708 - 61	Leg	Max Tension	15	191.598	-1.227	-0.047
			Max. Compression	2	-241.667	0.696	0.078
			Max. Mx	14	185.116	-1.232	-0.043
			Max. My	24	-21.666	-0.037	1.226
			Max. Vy	14	0.149	-1.232	-0.043
			Max. Vx	24	-0.193	-0.037	1.226
		Diagonal	Max Tension	17	11.733	0.000	0.000
			Max. Compression	16	-12.198	0.000	0.000
			Max. Mx	38	2.222	0.374	0.000
			Max. My	2	1.288	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	14	9.150	-0.090	0.008
			Max. Compression	3	-8.897	-0.095	-0.009
			Max. Mx	37	0.270	-0.224	-0.005
			Max. My	14	0.160	-0.128	-0.018
			Max. Vy	37	-0.096	-0.224	-0.005
			Max. Vx	14	0.002	-0.128	-0.018
		Inner Bracing	Max Tension	25	0.001	0.000	0.000
			Max. Compression	37	-0.016	0.000	0.000
			Max. Mx	26	-0.014	-0.250	0.000
			Max. My	2	-0.002	0.000	-0.000
			Max. Vy	26	0.094	0.000	0.000
			Max. Vx	2	0.000	0.000	0.000
T9	61 - 40.6667	Leg	Max Tension	15	217.766	-1.709	0.001
			Max. Compression	2	-272.548	-2.794	0.318
			Max. Mx	2	-272.548	-2.794	0.318
			Max. My	24	-26.737	-0.689	3.694
			Max. Vy	2	0.537	2.041	0.009
			Max. Vx	24	-0.446	-0.689	3.694
		Diagonal	Max Tension	17	12.617	0.000	0.000
			Max. Compression	16	-13.135	0.000	0.000
			Max. Mx	38	2.367	0.432	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. My	2	1.264	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	10.067	-0.131	-0.000
			Max. Compression	17	-9.893	-0.098	-0.000
			Max. Mx	37	0.624	-0.268	-0.004
			Max. My	14	0.829	-0.147	-0.017
			Max. Vy	37	-0.105	-0.268	-0.004
			Max. Vx	14	0.002	-0.147	-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	-0.306	0.000
			Max. My	2	-0.003	0.000	-0.000
			Max. Vy	26	0.102	0.000	0.000
			Max. Vx	2	0.000	0.000	0.000
T10	40.6667 - 20.3333	Leg	Max Tension	15	228.567	1.256	-0.264
			Max. Compression	2	-287.024	-8.085	0.694
			Max. Mx	2	-286.572	9.166	-0.523
			Max. My	24	-29.055	-1.441	6.125
			Max. Vy	2	1.738	9.166	-0.523
			Max. Vx	24	-1.070	-1.441	6.125
		Diagonal	Max Tension	15	18.285	-0.159	0.087
			Max. Compression	2	-18.677	0.000	0.000
			Max. Mx	22	14.276	-0.187	0.061
			Max. My	4	-17.367	0.001	-0.107
			Max. Vy	37	-0.071	-0.169	0.002
			Max. Vx	4	-0.009	0.000	0.000
		Horizontal	Max Tension	14	10.124	-0.157	0.012
			Max. Compression	3	-10.310	-0.189	-0.013
			Max. Mx	37	-0.688	-0.385	-0.007
			Max. My	2	-0.191	-0.118	0.025
			Max. Vy	37	0.134	-0.385	-0.007
			Max. Vx	2	-0.002	-0.118	0.025
		Redund Horz 1 Bracing	Max Tension	14	1.966	0.000	0.000
			Max. Compression	3	-1.737	0.000	0.000
			Max. Mx	26	0.455	0.040	0.000
			Max. My	12	0.787	0.000	-0.000
			Max. Vy	26	-0.026	0.000	0.000
		Redund Diag 1 Bracing	Max Tension	3	1.722	0.000	0.000
			Max. Compression	14	-1.734	0.000	0.000
			Max. Mx	38	-0.241	0.082	0.000
			Max. My	16	-1.495	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	14	-0.050	0.000	0.000
			Max. Mx	26	-0.012	0.040	0.000
			Max. Vy	26	-0.026	0.000	0.000
		Redund Hip Diagonal 1 Bracing	Max Tension	16	0.092	0.000	0.000
			Max. Compression	38	-0.079	0.000	0.000
			Max. Mx	38	0.067	0.287	0.000
			Max. My	24	0.032	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	15	0.002	0.000	0.000
			Max. Compression	34	-0.019	0.000	0.000
			Max. Mx	26	-0.016	0.326	0.000
			Max. My	2	-0.004	0.000	0.000
			Max. Vy	26	-0.104	0.000	0.000
			Max. Vx	2	-0.000	0.000	0.000
T11	20.3333 - 0	Leg	Max Tension	15	251.580	4.725	-0.594
			Max. Compression	2	-315.610	-0.000	0.000
			Max. Mx	2	-315.097	8.383	-0.493
			Max. My	24	-31.398	-1.443	6.122

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Vy	2	-1.667	8.383	-0.493
			Max. Vx	24	1.041	-1.443	6.122
		Diagonal	Max Tension	15	20.485	-0.155	0.084
			Max. Compression	16	-20.929	0.000	0.000
			Max. Mx	22	16.307	-0.187	0.060
			Max. My	4	-20.596	-0.023	-0.106
			Max. Vy	37	-0.072	-0.176	0.002
			Max. Vx	4	-0.008	0.000	0.000
		Horizontal	Max Tension	14	11.863	-0.200	0.012
			Max. Compression	17	-11.891	-0.179	-0.000
			Max. Mx	37	0.675	-0.398	-0.007
			Max. My	14	1.235	-0.304	-0.025
			Max. Vy	37	-0.137	-0.398	-0.007
			Max. Vx	14	0.002	-0.304	-0.025
		Redund Horz 1 Bracing	Max Tension	14	1.435	0.000	0.000
			Max. Compression	5	-1.435	0.000	0.000
			Max. Mx	34	0.457	0.045	0.000
			Max. Vy	34	-0.026	0.000	0.000
		Redund Diag 1 Bracing	Max Tension	5	1.380	0.000	0.000
			Max. Compression	14	-1.153	0.000	0.000
			Max. Mx	27	-0.240	0.089	0.000
			Max. My	10	-0.816	0.000	-0.000
			Max. Vy	27	-0.030	0.000	0.000
			Max. Vx	10	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
		Redund Hip Diagonal 1 Bracing	Max Tension	16	0.097	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	0.050	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	16	-0.018	0.000	0.000
			Max. Mx	26	-0.014	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	319.371	31.703	-19.241
	Max. H_x	18	319.371	31.703	-19.241
	Max. H_z	5	-224.882	-22.849	17.538
	Min. Vert	7	-259.322	-28.099	17.175
	Min. H_x	7	-259.322	-28.099	17.175
	Min. H_z	16	285.078	26.625	-19.492
Leg B	Max. Vert	10	337.298	-34.429	-18.850
	Max. H_x	23	-272.838	30.860	16.648
	Max. H_z	25	-242.368	26.184	17.065
	Min. Vert	23	-272.838	30.860	16.648
	Min. H_x	10	337.298	-34.429	-18.850
	Min. H_z	12	306.780	-29.964	-19.179
Leg A	Max. Vert	2	346.314	-1.132	40.027
	Max. H_x	21	29.028	6.544	2.034
	Max. H_z	2	346.314	-1.132	40.027

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
	Min. Vert	15	-279.024	1.244	-35.799
	Min. H_x	9	28.216	-6.509	1.962
	Min. H_z	15	-279.024	1.244	-35.799

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	90.645	-0.000	0.000	-39.387	-30.479	-0.000
1.2 Dead+1.0 Wind 0 deg - No Ice	108.774	-0.057	-66.229	-8066.684	-26.529	-62.218
0.9 Dead+1.0 Wind 0 deg - No Ice	81.581	-0.057	-66.235	-8042.406	-17.207	-62.333
1.2 Dead+1.0 Wind 30 deg - No Ice	108.774	30.828	-53.382	-6574.758	-3804.730	-33.385
0.9 Dead+1.0 Wind 30 deg - No Ice	81.581	30.831	-53.387	-6552.697	-3789.571	-33.432
1.2 Dead+1.0 Wind 60 deg - No Ice	108.774	52.932	-30.428	-3743.345	-6475.631	-42.656
0.9 Dead+1.0 Wind 60 deg - No Ice	81.581	52.937	-30.431	-3725.690	-6456.366	-42.628
1.2 Dead+1.0 Wind 90 deg - No Ice	108.774	62.177	0.050	-38.555	-7549.631	-18.148
0.9 Dead+1.0 Wind 90 deg - No Ice	81.581	62.183	0.050	-26.609	-7528.767	-18.054
1.2 Dead+1.0 Wind 120 deg - No Ice	108.774	56.235	32.428	3860.848	-6814.683	49.514
0.9 Dead+1.0 Wind 120 deg - No Ice	81.581	56.240	32.431	3866.837	-6794.990	49.654
1.2 Dead+1.0 Wind 150 deg - No Ice	108.774	33.687	58.165	6968.153	-4103.866	87.611
0.9 Dead+1.0 Wind 150 deg - No Ice	81.581	33.690	58.170	6969.388	-4088.334	87.761
1.2 Dead+1.0 Wind 180 deg - No Ice	108.774	0.064	66.204	7967.168	-48.171	62.038
0.9 Dead+1.0 Wind 180 deg - No Ice	81.581	0.064	66.210	7966.828	-38.846	62.153
1.2 Dead+1.0 Wind 210 deg - No Ice	108.774	-30.854	53.365	6476.622	3735.683	33.167
0.9 Dead+1.0 Wind 210 deg - No Ice	81.581	-30.857	53.369	6478.501	3739.158	33.210
1.2 Dead+1.0 Wind 240 deg - No Ice	108.774	-52.899	30.457	3653.352	6395.932	42.976
0.9 Dead+1.0 Wind 240 deg - No Ice	81.581	-52.903	30.460	3659.617	6395.323	42.947
1.2 Dead+1.0 Wind 270 deg - No Ice	108.774	-62.156	-0.067	-59.723	7471.999	18.161
0.9 Dead+1.0 Wind 270 deg - No Ice	81.581	-62.161	-0.068	-47.733	7469.785	18.067
1.2 Dead+1.0 Wind 300 deg - No Ice	108.774	-56.229	-32.439	-3957.592	6739.936	-49.538
0.9 Dead+1.0 Wind 300 deg - No Ice	81.581	-56.234	-32.442	-3939.648	6738.887	-49.678
1.2 Dead+1.0 Wind 330 deg - No Ice	108.774	-33.681	-58.174	-7064.526	4029.357	-87.667
0.9 Dead+1.0 Wind 330 deg - No Ice	81.581	-33.684	-58.179	-7041.819	4032.480	-87.816
1.2 Dead+1.0 Ice+1.0 Temp	232.100	0.000	0.000	-54.619	115.707	0.001
1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp	232.100	0.003	-17.106	-2143.504	116.000	-20.867
1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp	232.100	8.261	-14.265	-1803.199	-896.406	-15.051
1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp	232.100	14.229	-8.182	-1053.014	-1620.799	-13.205

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
1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp	232.100	16.962	-0.004	-55.765	-1937.616	-3.642
1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp	232.100	15.238	8.767	1001.958	-1722.713	15.003
1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp	232.100	8.846	15.274	1794.738	-956.019	25.353
1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp	232.100	-0.001	17.101	2032.120	116.361	20.833
1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp	232.100	-8.265	14.262	1692.095	1129.868	15.011
1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp	232.100	-14.223	8.188	943.467	1852.262	13.265
1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp	232.100	-16.958	0.001	-55.327	2169.445	3.642
1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp	232.100	-15.236	-8.768	-1112.792	1955.049	-15.007
1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp	232.100	-8.845	-15.275	-1905.532	1188.378	-25.364
Dead+Wind 0 deg - Service	90.645	-0.013	-15.348	-1873.514	-28.275	-13.967
Dead+Wind 30 deg - Service	90.645	7.161	-12.401	-1534.275	-893.465	-7.491
Dead+Wind 60 deg - Service	90.645	12.300	-7.072	-886.241	-1505.575	-9.566
Dead+Wind 90 deg - Service	90.645	14.440	0.011	-37.484	-1751.193	-4.058
Dead+Wind 120 deg - Service	90.645	13.041	7.520	854.834	-1581.505	11.122
Dead+Wind 150 deg - Service	90.645	7.802	13.474	1564.672	-960.528	19.667
Dead+Wind 180 deg - Service	90.645	0.014	15.343	1793.500	-33.162	13.922
Dead+Wind 210 deg - Service	90.645	-7.168	12.397	1454.559	833.295	7.442
Dead+Wind 240 deg - Service	90.645	-12.293	7.078	808.335	1442.981	9.634
Dead+Wind 270 deg - Service	90.645	-14.435	-0.015	-42.219	1689.098	4.062
Dead+Wind 300 deg - Service	90.645	-13.039	-7.522	-934.234	1520.046	-11.129
Dead+Wind 330 deg - Service	90.645	-7.801	-13.475	-1644.014	899.054	-19.678

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	-90.645	0.000	0.000	90.645	-0.000	0.000%
2	-0.057	-108.774	-66.252	0.057	108.774	66.229	0.018%
3	-0.057	-81.581	-66.252	0.057	81.581	66.235	0.016%
4	30.839	-108.774	-53.401	-30.828	108.774	53.382	0.018%
5	30.839	-81.581	-53.401	-30.831	81.581	53.387	0.016%
6	52.950	-108.774	-30.439	-52.932	108.774	30.428	0.017%
7	52.950	-81.581	-30.439	-52.937	81.581	30.431	0.015%
8	62.199	-108.774	0.050	-62.177	108.774	-0.050	0.017%
9	62.199	-81.581	0.050	-62.183	81.581	-0.050	0.015%
10	56.255	-108.774	32.439	-56.235	108.774	-32.428	0.018%
11	56.255	-81.581	32.439	-56.240	81.581	-32.431	0.016%
12	33.699	-108.774	58.185	-33.687	108.774	-58.165	0.018%
13	33.699	-81.581	58.185	-33.690	81.581	-58.170	0.016%
14	0.064	-108.774	66.226	-0.064	108.774	-66.204	0.017%
15	0.064	-81.581	66.226	-0.064	81.581	-66.210	0.015%
16	-30.865	-108.774	53.383	30.854	108.774	-53.365	0.017%
17	-30.865	-81.581	53.383	30.857	81.581	-53.369	0.015%
18	-52.917	-108.774	30.467	52.899	108.774	-30.457	0.017%
19	-52.917	-81.581	30.467	52.903	81.581	-30.460	0.015%
20	-62.177	-108.774	-0.068	62.156	108.774	0.067	0.017%
21	-62.177	-81.581	-0.068	62.161	81.581	0.068	0.015%
22	-56.247	-108.774	-32.450	56.229	108.774	32.439	0.017%

Load Comb.	Sum of Applied Forces PX K	PY K	PZ K	Sum of Reactions PX K	PY K	PZ K	% Error
23	-56.247	-81.581	-32.450	56.234	81.581	32.442	0.015%
24	-33.692	-108.774	-58.194	33.681	108.774	58.174	0.018%
25	-33.692	-81.581	-58.194	33.684	81.581	58.179	0.016%
26	0.000	-232.100	0.000	-0.000	232.100	-0.000	0.000%
27	0.003	-232.100	-17.111	-0.003	232.100	17.106	0.002%
28	8.263	-232.100	-14.269	-8.261	232.100	14.265	0.002%
29	14.233	-232.100	-8.185	-14.229	232.100	8.182	0.002%
30	16.967	-232.100	-0.004	-16.962	232.100	0.004	0.002%
31	15.242	-232.100	8.769	-15.238	232.100	-8.767	0.002%
32	8.849	-232.100	15.279	-8.846	232.100	-15.274	0.002%
33	-0.001	-232.100	17.106	0.001	232.100	-17.101	0.002%
34	-8.268	-232.100	14.266	8.265	232.100	-14.262	0.002%
35	-14.227	-232.100	8.190	14.223	232.100	-8.188	0.002%
36	-16.963	-232.100	0.001	16.958	232.100	-0.001	0.002%
37	-15.241	-232.100	-8.771	15.236	232.100	8.768	0.002%
38	-8.848	-232.100	-15.280	8.845	232.100	15.275	0.002%
39	-0.013	-90.645	-15.353	0.013	90.645	15.348	0.005%
40	7.163	-90.645	-12.404	-7.161	90.645	12.401	0.005%
41	12.303	-90.645	-7.074	-12.300	90.645	7.072	0.005%
42	14.444	-90.645	0.011	-14.440	90.645	-0.011	0.005%
43	13.044	-90.645	7.522	-13.041	90.645	-7.520	0.005%
44	7.805	-90.645	13.477	-7.802	90.645	-13.474	0.005%
45	0.014	-90.645	15.347	-0.014	90.645	-15.343	0.004%
46	-7.169	-90.645	12.400	7.168	90.645	-12.397	0.004%
47	-12.296	-90.645	7.080	12.293	90.645	-7.078	0.004%
48	-14.439	-90.645	-0.015	14.435	90.645	0.015	0.004%
49	-13.043	-90.645	-7.525	13.039	90.645	7.522	0.004%
50	-7.803	-90.645	-13.479	7.801	90.645	13.475	0.005%

Non-Linear Convergence Results

Load Combination	Converged?	Number of Cycles	Displacement Tolerance	Force Tolerance
1	Yes	4	0.00000001	0.00007710
2	Yes	4	0.00038140	0.00094315
3	Yes	4	0.00028515	0.00071252
4	Yes	4	0.00037353	0.00092428
5	Yes	4	0.00027720	0.00069345
6	Yes	4	0.00036422	0.00090038
7	Yes	4	0.00026811	0.00067020
8	Yes	4	0.00037214	0.00091869
9	Yes	4	0.00027603	0.00068910
10	Yes	4	0.00037995	0.00093735
11	Yes	4	0.00028402	0.00070845
12	Yes	4	0.00037017	0.00091325
13	Yes	4	0.00027480	0.00068538
14	Yes	4	0.00036072	0.00088970
15	Yes	4	0.00026559	0.00066253
16	Yes	4	0.00037132	0.00091486
17	Yes	4	0.00027575	0.00068786
18	Yes	4	0.00038030	0.00093538
19	Yes	4	0.00028445	0.00070860
20	Yes	4	0.00037099	0.00091258
21	Yes	4	0.00027557	0.00068631
22	Yes	4	0.00036047	0.00088848
23	Yes	4	0.00026547	0.00066184
24	Yes	4	0.00037001	0.00091381
25	Yes	4	0.00027453	0.00068520
26	Yes	4	0.00000001	0.00003574
27	Yes	5	0.00000001	0.00048254
28	Yes	5	0.00000001	0.00046883
29	Yes	5	0.00000001	0.00045594
30	Yes	5	0.00000001	0.00045331
31	Yes	5	0.00000001	0.00045600
32	Yes	5	0.00000001	0.00045432

33	Yes	5	0.00000001	0.00044839
34	Yes	5	0.00000001	0.00044588
35	Yes	5	0.00000001	0.00045056
36	Yes	5	0.00000001	0.00046152
37	Yes	5	0.00000001	0.00047478
38	Yes	5	0.00000001	0.00048440
39	Yes	4	0.00000001	0.00066301
40	Yes	4	0.00000001	0.00065771
41	Yes	4	0.00000001	0.00065022
42	Yes	4	0.00000001	0.00064936
43	Yes	4	0.00000001	0.00064888
44	Yes	4	0.00000001	0.00063954
45	Yes	4	0.00000001	0.00062411
46	Yes	4	0.00000001	0.00061126
47	Yes	4	0.00000001	0.00060896
48	Yes	4	0.00000001	0.00061175
49	Yes	4	0.00000001	0.00062497
50	Yes	4	0.00000001	0.00064805

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T1	212.625 - 202.458	3.772	39	0.156	0.047
T2	202.458 - 182.292	3.437	39	0.156	0.047
T3	182.292 - 162.104	2.763	39	0.149	0.045
T4	162.104 - 141.896	2.134	39	0.133	0.038
T5	141.896 - 121.688	1.600	39	0.111	0.031
T6	121.688 - 101.479	1.158	39	0.091	0.025
T7	101.479 - 81.2708	0.790	39	0.074	0.019
T8	81.2708 - 61	0.507	50	0.056	0.015
T9	61 - 40.6667	0.291	50	0.040	0.011
T10	40.6667 - 20.3333	0.136	44	0.024	0.008
T11	20.3333 - 0	0.046	44	0.012	0.004

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	39	3.772	0.156	0.047	270015
213.625	Lightning Rod 5/8" x 6'	39	3.772	0.156	0.047	270015
212.625	Climb Leg Extension	39	3.772	0.156	0.047	270015
208.000	MT6407-77A w/ Mount Pipe	39	3.620	0.156	0.047	270015
199.000	Sector Mount [SM 505-3]	39	3.322	0.155	0.047	234970
189.000	Sector Mount [SM 505-3]	39	2.986	0.153	0.047	175059
183.000	Pipe Mount [PM 601-3]	39	2.787	0.150	0.046	92164
179.000	HPD2-23	39	2.656	0.147	0.045	82561
175.000	Sector Mount	39	2.527	0.145	0.043	69343
167.000	Side Arm Mount [SO 306-1]	39	2.279	0.138	0.040	52199
164.000	Side Arm Mount [SO 306-1]	39	2.189	0.135	0.039	48096
147.000	Side Arm Mount [SO 306-1]	39	1.725	0.116	0.033	47415
145.000	Side Arm Mount [SO 306-1]	39	1.675	0.114	0.032	45987
139.000	(3) Site Pro 1 VFA12-HD	39	1.531	0.108	0.030	45863
128.000	Side Arm Mount	39	1.288	0.097	0.027	63421

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
117.000	MX08FRO665-21 w/ Mount Pipe	39	1.066	0.087	0.023	70335
112.000	Side Lighting	39	0.972	0.083	0.022	63353
51.000	Side Arm Mount	50	0.207	0.032	0.010	75697

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T1	212.625 - 202.458	15.959	2	0.645	0.210
T2	202.458 - 182.292	14.572	2	0.644	0.211
T3	182.292 - 162.104	11.780	2	0.616	0.203
T4	162.104 - 141.896	9.176	24	0.549	0.171
T5	141.896 - 121.688	6.917	24	0.471	0.138
T6	121.688 - 101.479	5.026	24	0.389	0.110
T7	101.479 - 81.2708	3.437	24	0.318	0.085
T8	81.2708 - 61	2.205	24	0.241	0.067
T9	61 - 40.6667	1.261	24	0.173	0.050
T10	40.6667 - 20.3333	0.589	12	0.104	0.034
T11	20.3333 - 0	0.197	13	0.052	0.016

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	2	15.959	0.645	0.210	61047
213.625	Lightning Rod 5/8" x 6'	2	15.959	0.645	0.210	61047
212.625	Climb Leg Extension	2	15.959	0.645	0.210	61047
208.000	MT6407-77A w/ Mount Pipe	2	15.330	0.646	0.211	61047
199.000	Sector Mount [SM 505-3]	2	14.094	0.642	0.211	53208
189.000	Sector Mount [SM 505-3]	2	12.702	0.630	0.208	42844
183.000	Pipe Mount [PM 601-3]	2	11.876	0.618	0.203	21736
179.000	HPD2-23	2	11.336	0.607	0.199	19313
175.000	Sector Mount	2	10.805	0.595	0.193	17932
167.000	Side Arm Mount [SO 306-1]	2	9.777	0.567	0.179	15738
164.000	Side Arm Mount [SO 306-1]	24	9.406	0.556	0.174	15050
147.000	Side Arm Mount [SO 306-1]	24	7.452	0.491	0.146	12189
145.000	Side Arm Mount [SO 306-1]	24	7.239	0.483	0.142	11941
139.000	(3) Site Pro 1 VFA12-HD	24	6.624	0.459	0.134	11915
128.000	Side Arm Mount	24	5.582	0.414	0.119	15908
117.000	MX08FRO665-21 w/ Mount Pipe	24	4.630	0.372	0.104	16897
112.000	Side Lighting	24	4.224	0.355	0.098	14970
51.000	Side Arm Mount	24	0.895	0.138	0.042	17519

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	0.412	30.101	0.014	1.05	Bolt Tension
		Diagonal	A325N	0.625	3	0.826	13.806	0.060	1.05	Bolt Shear
		Horizontal	A325N	0.625	2	0.900	13.806	0.065	1.05	Bolt Shear
T2	202.458	Leg	A325N	0.875	4	3.956	41.556	0.095	1.05	Bolt Tension
		Diagonal	A325N	0.625	3	2.864	13.806	0.207	1.05	Bolt Shear
		Horizontal	A325N	0.625	2	2.315	13.806	0.168	1.05	Bolt Shear
T3	182.292	Leg	A325N	1.000	4	12.362	54.517	0.227	1.05	Bolt Tension
		Diagonal	A325N	0.625	3	2.988	13.806	0.216	1.05	Bolt Shear
		Horizontal	A325N	0.625	2	2.866	13.806	0.208	1.05	Bolt Shear
T4	162.104	Leg	A325N	1.000	6	13.576	54.517	0.249	1.05	Bolt Tension
		Diagonal	A325N	0.625	3	2.957	13.806	0.214	1.05	Bolt Shear
		Horizontal	A325N	0.625	2	2.977	13.806	0.216	1.05	Bolt Shear
T5	141.896	Leg	A325N	1.000	6	17.291	54.517	0.317	1.05	Bolt Tension
		Diagonal	A325N	0.625	3	4.045	13.806	0.293	1.05	Bolt Shear
		Horizontal	A325N	0.625	2	3.685	13.806	0.267	1.05	Bolt Shear
T6	121.688	Leg	A325N	1.000	6	22.408	54.517	0.411	1.05	Bolt Tension
		Diagonal	A325N	0.625	3	4.058	13.806	0.294	1.05	Bolt Shear
		Horizontal	A325N	0.625	2	4.039	13.806	0.293	1.05	Bolt Shear
T7	101.479	Leg	A325N	1.000	8	20.531	54.517	0.377	1.05	Bolt Tension
		Diagonal	A325N	0.625	3	4.099	13.806	0.297	1.05	Bolt Shear
		Horizontal	A325N	0.625	2	4.341	13.806	0.314	1.05	Bolt Shear
T8	81.2708	Leg	A325N	1.000	8	23.950	54.517	0.439	1.05	Bolt Tension
		Diagonal	A325N	0.625	3	4.066	13.806	0.295	1.05	Bolt Shear
		Horizontal	A325N	0.625	2	4.575	13.806	0.331	1.05	Bolt Shear
T9	61	Leg	A325N	1.000	8	27.221	54.517	0.499	1.05	Bolt Tension
		Diagonal	A325N	0.625	3	4.378	13.806	0.317	1.05	Bolt Shear
		Horizontal	A325N	0.625	2	5.033	13.806	0.365	1.05	Bolt Shear
T10	40.6667	Leg	A325N	1.000	8	28.492	54.517	0.523	1.05	Bolt Tension
		Diagonal	A325N	0.750	3	6.226	19.880	0.313	1.05	Bolt Shear
		Horizontal	A325N	0.750	2	5.155	19.880	0.259	1.05	Bolt Shear
		Redund Horz 1 Bracing	A325N	0.625	1	4.982	12.110	0.411	1.05	Member Bearing
		Redund Diag 1 Bracing	A325N	0.625	1	4.602	12.862	0.358	1.05	Member Bearing
T11	20.3333	Diagonal	A325N	0.750	3	6.976	19.880	0.351	1.05	Bolt Shear
		Horizontal	A325N	0.750	2	5.945	19.880	0.299	1.05	Bolt Shear
		Redund Horz 1 Bracing	A325N	0.625	1	5.475	12.110	0.452	1.05	Member Bearing
		Redund Diag 1 Bracing	A325N	0.625	1	4.729	12.862	0.368	1.05	Member Bearing

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	-4.938	56.631	0.087 [1]
T2	202.458 - 182.292	ROHN 3 EH	20.167	6.722	71.0 K=1.00	3.016	-24.852	93.888	0.265 [1]
T3	182.292 - 162.104	ROHN 4 EH	20.223	6.741	54.8 K=1.00	4.407	-75.100	159.259	0.472 [1]
T4	162.104 - 141.896	ROHN 5 EH	20.244	6.748	44.0 K=1.00	6.112	-110.375	238.686	0.462 [1]
T5	141.896 - 121.688	ROHN 6 EHS	20.250	10.125	54.6 K=1.00	6.713	-139.964	242.933	0.576 [1]
T6	121.688 - 101.479	ROHN 6 EH	20.260	10.130	55.4 K=1.00	8.405	-176.168	302.237	0.583 [1]

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T7	101.479 - 81.2708	ROHN 6 EH	20.260	10.130	55.4 K=1.00	8.405	-209.858	302.237	0.694 [1]
T8	81.2708 - 61	ROHN 8 EHS	20.328	10.164	41.8 K=1.00	9.719	-241.667	384.981	0.628 [1]
T9	61 - 40.6667	ROHN 8 EHS	20.384	10.192	41.9 K=1.00	9.719	-272.548	384.707	0.708 [1]
T10	40.6667 - 20.3333	ROHN 8 EH	20.391	10.196	42.5 K=1.00	12.763	-287.024	503.236	0.570 [1]
T11	20.3333 - 0	ROHN 8 EH	20.373	10.187	42.5 K=1.00	12.763	-315.610	503.352	0.627 [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	-2.479	23.829	0.104 [1]
T2	202.458 - 182.292	ROHN 2 STD	7.987	7.717	117.6 K=1.00	1.075	-8.592	17.541	0.490 [1]
T3	182.292 - 162.104	ROHN 2 STD	8.602	8.301	126.5 K=1.00	1.075	-8.963	15.159	0.591 [1]
T4	162.104 - 141.896	ROHN 2 STD	9.291	8.954	136.5 K=1.00	1.075	-8.542	13.026	0.656 [1]
T5	141.896 - 121.688	ROHN 2.5 STD	12.600	12.138	153.7 K=1.00	1.704	-12.135	16.287	0.745 [1]
T6	121.688 - 101.479	ROHN 2.5 STD	13.385	12.964	164.2 K=1.00	1.704	-12.175	14.278	0.853 [1]
T7	101.479 - 81.2708	ROHN 3 STD	14.235	13.843	142.8 K=1.00	2.228	-12.296	24.700	0.498 [1]
T8	81.2708 - 61	ROHN 3 STD	15.213	14.731	151.9 K=1.00	2.228	-12.198	21.813	0.559 [1]
T9	61 - 40.6667	ROHN 3 STD	16.185	15.723	162.2 K=1.00	2.228	-13.135	19.146	0.686 [1]
T10	40.6667 - 20.3333	ROHN 3 STD	24.652	12.326	127.1 K=1.00	2.228	-18.677	31.156	0.599 [1]
T11	20.3333 - 0	ROHN 3 STD	25.288	12.644	130.4 K=1.00	2.228	-20.929	29.608	0.707 [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	-1.757	22.582	0.078 [1]
T2	202.458 - 182.292	ROHN 1.5 STD	8.597	4.153	80.0 K=1.00	0.799	-4.589	22.520	0.204 [1]
T3	182.292 - 162.104	ROHN 1.5 STD	10.014	4.819	92.9 K=1.00	0.799	-5.733	19.143	0.299 [1]
T4	162.104 - 141.896	ROHN 2 STD	12.097	5.817	88.7 K=1.00	1.075	-5.911	27.209	0.217 [1]
T5	141.896 - 121.688	ROHN 2 STD	13.917	6.682	101.9 K=1.00	1.075	-7.232	22.640	0.319 [1]
T6	121.688 - 101.479	ROHN 2 STD	16.292	7.870	120.0 K=1.00	1.075	-7.948	16.864	0.471 [1]

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T7	101.479 - 81.2708	ROHN 2.5 STD	18.792	9.120	115.5 K=1.00	1.704	-8.515	28.852	0.295 [1]
T8	81.2708 - 61	ROHN 2.5 STD	21.359	10.320	130.7 K=1.00	1.704	-8.897	22.530	0.395 [1]
T9	61 - 40.6667	ROHN 2.5 STD	23.927	11.604	147.0 K=1.00	1.704	-9.893	17.820	0.555 [1]
T10	40.6667 - 20.3333	ROHN 3 STD	25.177	12.229	126.1 K=1.00	2.228	-10.310	31.651	0.326 [1]
T11	20.3333 - 0	ROHN 3 STD	27.833	13.557	139.8 K=1.00	2.228	-11.891	25.753	0.462 [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	-0.221	22.635	0.010 [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 - 20.3333	ROHN 1.5 STD	6.294	5.935	114.4 K=1.00	0.799	-4.982	13.007	0.383 [1]
T11	20.3333 - 0	ROHN 1.5 STD	6.958	6.599	127.2 K=1.00	0.799	-5.475	11.053	0.495 [1]

[1] P_u / ϕP_n controls

Redundant Diagonal (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 - 20.3333	ROHN 2 STD	11.628	10.887	166.0 K=1.00	1.075	-4.602	8.811	0.522 [1]
T11	20.3333 - 0	ROHN 2 STD	12.021	11.347	173.0 K=1.00	1.075	-4.729	8.111	0.583 [1]

[1] P_u / ϕP_n controls

Redundant Hip (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 - 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 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 K=1.00	1.704	-0.079	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 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	4.260	4.260	128.6 K=1.00	0.484	-0.003	8.383	0.000 [1]
T2	202.458 - 182.292	L2x2x1/8	4.299	4.299	129.8 K=1.00	0.484	-0.006	8.234	0.001 [1]
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	6.049	6.049	182.6 K=1.00	0.484	-0.007	4.159	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	-0.016	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	0.078	76.682	0.001 [1]
T2	202.458 - 182.292	ROHN 3 EH	20.167	6.722	71.0	3.016	15.822	135.717	0.117 [1]
T3	182.292 - 162.104	ROHN 4 EH	20.223	6.741	54.8	4.407	49.449	198.335	0.249 [1]
T4	162.104 - 141.896	ROHN 5 EH	20.244	6.748	44.0	6.112	81.458	275.039	0.296 [1]
T5	141.896 - 121.688	ROHN 6 EHS	20.250	10.125	54.6	6.713	103.749	302.097	0.343 [1]
T6	121.688 - 101.479	ROHN 6 EH	20.260	10.130	55.4	8.405	134.447	378.222	0.355 [1]
T7	101.479 - 81.2708	ROHN 6 EH	20.260	10.130	55.4	8.405	164.249	378.222	0.434 [1]
T8	81.2708 - 61	ROHN 8 EHS	20.328	10.164	41.8	9.719	191.598	437.369	0.438 [1]
T9	61 - 40.6667	ROHN 8 EHS	20.384	10.192	41.9	9.719	217.766	437.369	0.498 [1]
T10	40.6667 - 20.3333	ROHN 8 EH	20.391	10.196	42.5	12.763	228.567	574.322	0.398 [1]
T11	20.3333 - 0	ROHN 8 EH	20.373	10.187	42.5	12.763	251.580	574.322	0.438 [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 - 202.458	ROHN 2 STD	6.639	6.453	98.4	1.075	2.406	48.354	0.050 [1]
T2	202.458 - 182.292	ROHN 2 STD	7.987	7.717	117.6	1.075	8.518	48.354	0.176 [1]
T3	182.292 - 162.104	ROHN 2 STD	8.602	8.301	126.5	1.075	8.873	48.354	0.184 [1]
T4	162.104 - 141.896	ROHN 2 STD	8.827	8.491	129.4	1.075	8.764	48.354	0.181 [1]
T5	141.896 - 121.688	ROHN 2.5 STD	12.600	12.138	153.7	1.704	11.952	76.682	0.156 [1]
T6	121.688 - 101.479	ROHN 2.5 STD	13.385	12.964	164.2	1.704	11.945	76.682	0.156 [1]
T7	101.479 - 81.2708	ROHN 3 STD	14.235	13.843	142.8	2.228	11.926	100.281	0.119 [1]
T8	81.2708 - 61	ROHN 3 STD	15.213	14.731	151.9	2.228	11.733	100.281	0.117 [1]
T9	61 - 40.6667	ROHN 3 STD	16.185	15.723	162.2	2.228	12.617	100.281	0.126 [1]
T10	40.6667 - 20.3333	ROHN 3 STD	24.652	12.326	127.1	2.228	18.285	100.281	0.182 [1]
T11	20.3333 - 0	ROHN 3 STD	25.288	12.644	130.4	2.228	20.485	100.281	0.204 [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	1.801	35.976	0.050 [1]
T2	202.458 - 182.292	ROHN 1.5 STD	8.597	4.153	80.0	0.799	4.630	35.976	0.129 [1]
T3	182.292 - 162.104	ROHN 1.5 STD	10.014	4.819	92.9	0.799	5.382	35.976	0.150 [1]

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T4	162.104 - 141.896	ROHN 2 STD	12.097	5.817	88.7	1.075	5.955	48.354	0.123 [1]
T5	141.896 - 121.688	ROHN 2 STD	13.917	6.682	101.9	1.075	7.371	48.354	0.152 [1]
T6	121.688 - 101.479	ROHN 2 STD	16.292	7.870	120.0	1.075	8.078	48.354	0.167 [1]
T7	101.479 - 81.2708	ROHN 2.5 STD	18.792	9.120	115.5	1.704	8.683	76.682	0.113 [1]
T8	81.2708 - 61	ROHN 2.5 STD	21.359	10.320	130.7	1.704	9.150	76.682	0.119 [1]
T9	61 - 40.6667	ROHN 2.5 STD	23.927	11.604	147.0	1.704	10.067	76.682	0.131 [1]
T10	40.6667 - 20.3333	ROHN 3 STD	25.177	12.229	126.1	2.228	10.124	100.281	0.101 [1]
T11	20.3333 - 0	ROHN 3 STD	27.833	13.557	139.8	2.228	11.863	100.281	0.118 [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	0.222	35.976	0.006 [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	4.982	25.902	0.192 [1]
T11	20.3333 - 0	ROHN 1.5 STD	6.958	6.599	127.2	0.799	5.475	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	10.887	166.0	1.075	4.602	34.815	0.132 [1]
T11	20.3333 - 0	ROHN 2 STD	12.021	11.347	173.0	1.075	4.729	34.815	0.136 [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	0.092	55.211	0.002 [1]
T11	20.3333 - 0	ROHN 2.5 STD	16.022	16.022	202.9	1.704	0.097	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	4.260	4.260	81.6	0.484	0.003	15.694	0.000 [1]
T2	202.458 - 182.292	L2x2x1/8	4.299	4.299	82.4	0.484	0.006	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]
T8	81.2708 - 61	L3 1/2x3 1/2x1/4	10.021	10.021	110.3	1.690	0.001	76.050	0.000 [1]
T10	40.6667 - 20.3333	ROHN 3 STD	12.589	12.589	129.8	2.228	0.002	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

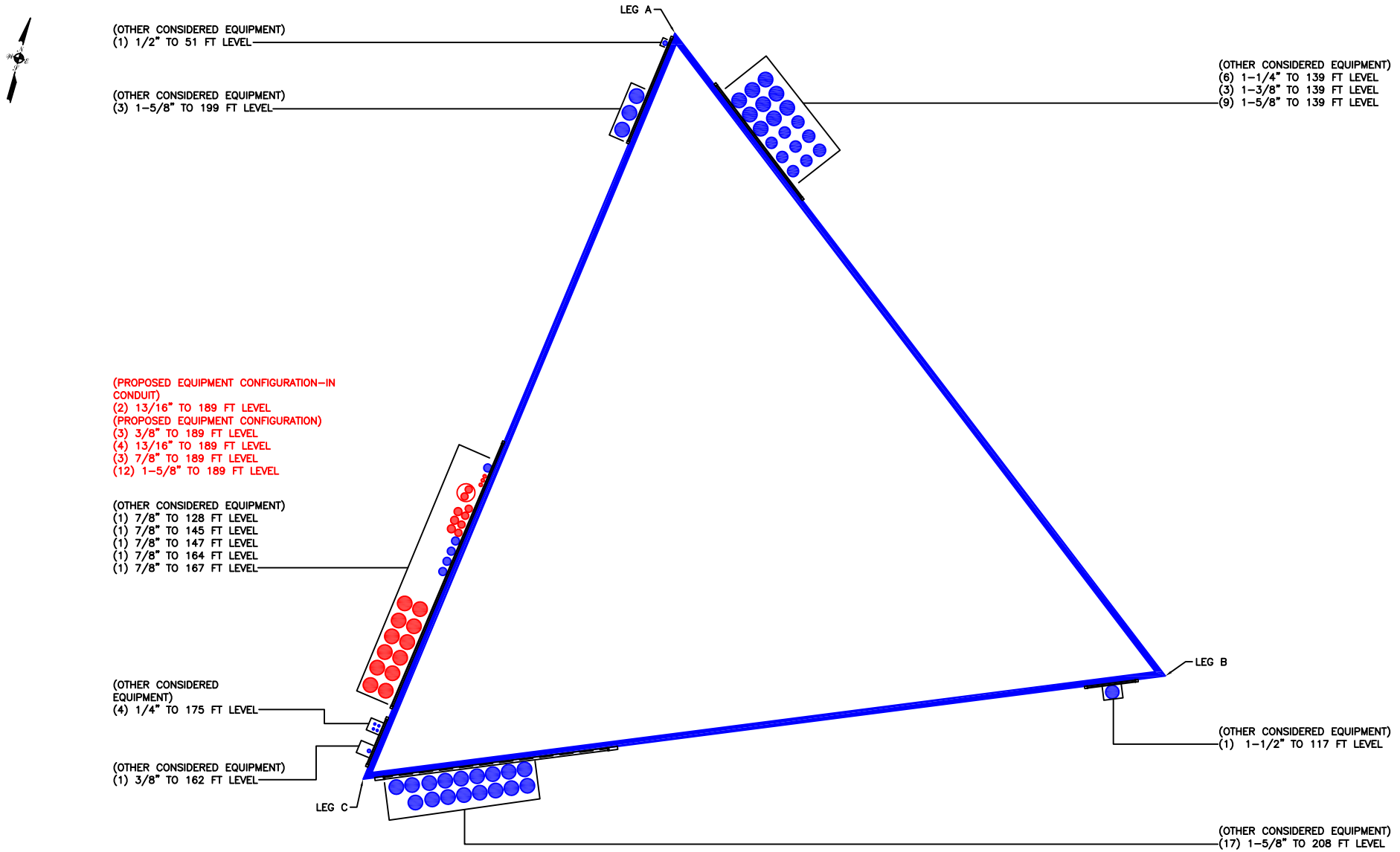
Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
T1	212.625 - 202.458	Leg	ROHN 2.5 STD	2	-4.938	59.463	8.3	Pass
T2	202.458 - 182.292	Leg	ROHN 3 EH	30	-24.852	98.582	25.2	Pass
T3	182.292 - 162.104	Leg	ROHN 4 EH	69	-75.100	167.222	44.9	Pass
T4	162.104 - 141.896	Leg	ROHN 5 EH	108	-110.375	250.620	44.0	Pass
T5	141.896 - 121.688	Leg	ROHN 6 EHS	147	-139.964	255.080	54.9	Pass
T6	121.688 - 101.479	Leg	ROHN 6 EH	174	-176.168	317.349	55.5	Pass
T7	101.479 - 81.2708	Leg	ROHN 6 EH	201	-209.858	317.349	66.1	Pass
T8	81.2708 - 61	Leg	ROHN 8 EHS	228	-241.667	404.230	59.8	Pass
T9	61 - 40.6667	Leg	ROHN 8 EHS	255	-272.548	403.942	67.5	Pass
T10	40.6667 - 20.3333	Leg	ROHN 8 EH	282	-287.024	528.398	54.3	Pass
T11	20.3333 - 0	Leg	ROHN 8 EH	315	-315.610	528.520	59.7	Pass
T1	212.625 - 202.458	Diagonal	ROHN 2 STD	12	-2.479	25.020	9.9	Pass
T2	202.458 - 182.292	Diagonal	ROHN 2 STD	38	-8.592	18.418	46.7	Pass
T3	182.292 -	Diagonal	ROHN 2 STD	78	-8.963	15.917	56.3	Pass

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
	162.104							
T4	162.104 - 141.896	Diagonal	ROHN 2 STD	117	-8.542	13.677	62.5	Pass
T5	141.896 - 121.688	Diagonal	ROHN 2.5 STD	156	-12.135	17.101	71.0	Pass
T6	121.688 - 101.479	Diagonal	ROHN 2.5 STD	183	-12.175	14.992	81.2	Pass
T7	101.479 - 81.2708	Diagonal	ROHN 3 STD	210	-12.296	25.935	47.4	Pass
T8	81.2708 - 61	Diagonal	ROHN 3 STD	237	-12.198	22.903	53.3	Pass
T9	61 - 40.6667	Diagonal	ROHN 3 STD	264	-13.135	20.104	65.3	Pass
T10	40.6667 - 20.3333	Diagonal	ROHN 3 STD	300	-18.677	32.714	57.1	Pass
T11	20.3333 - 0	Diagonal	ROHN 3 STD	336	-20.929	31.089	67.3	Pass
T1	212.625 - 202.458	Horizontal	ROHN 1.5 STD	10	-1.757	23.711	7.4	Pass
T2	202.458 - 182.292	Horizontal	ROHN 1.5 STD	37	-4.589	23.646	19.4	Pass
T3	182.292 - 162.104	Horizontal	ROHN 1.5 STD	76	-5.733	20.100	28.5	Pass
T4	162.104 - 141.896	Horizontal	ROHN 2 STD	109	-5.911	28.570	20.7	Pass
T5	141.896 - 121.688	Horizontal	ROHN 2 STD	154	-7.232	23.772	30.4	Pass
T6	121.688 - 101.479	Horizontal	ROHN 2 STD	181	-7.948	17.707	44.9	Pass
T7	101.479 - 81.2708	Horizontal	ROHN 2.5 STD	208	-8.515	30.294	28.1	Pass
T8	81.2708 - 61	Horizontal	ROHN 2.5 STD	235	-8.897	23.656	37.6	Pass
T9	61 - 40.6667	Horizontal	ROHN 2.5 STD	262	-9.893	18.711	52.9	Pass
T10	40.6667 - 20.3333	Horizontal	ROHN 3 STD	299	-10.310	33.233	31.0	Pass
T11	20.3333 - 0	Horizontal	ROHN 3 STD	332	-11.891	27.041	44.0	Pass
T1	212.625 - 202.458	Top Girt	ROHN 1.5 STD	5	-0.221	23.767	0.9	Pass
T10	40.6667 - 20.3333	Redund Horz 1 Bracing	ROHN 1.5 STD	295	-4.982	13.657	36.5	Pass
T11	20.3333 - 0	Redund Horz 1 Bracing	ROHN 1.5 STD	328	-5.475	11.606	47.2	Pass
T10	40.6667 - 20.3333	Redund Diag 1 Bracing	ROHN 2 STD	296	-4.602	9.252	49.7	Pass
T11	20.3333 - 0	Redund Diag 1 Bracing	ROHN 2 STD	329	-4.729	8.517	55.5	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	-0.079	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	17	-0.003	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	158	-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	344	-0.018	25.662	0.4	Pass

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
						Summary		
						Leg (T9)	67.5	Pass
						Diagonal (T6)	81.2	Pass
						Horizontal (T9)	52.9	Pass
						Top Girt (T1)	0.9	Pass
						Redund Horz 1 Bracing (T11)	47.2	Pass
						Redund Diag 1 Bracing (T11)	55.5	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	49.8	Pass
						RATING =	**81.2**	**Pass**

APPENDIX B

BASE LEVEL DRAWING


LEG A
(OTHER CONSIDERED EQUIPMENT)
(1) 1/2" TO 51 FT LEVEL
(OTHER CONSIDERED EQUIPMENT)
(3) 1-5/8" TO 199 FT LEVEL
(OTHER CONSIDERED EQUIPMENT)
(6) 1-1/4" TO 139 FT LEVEL
(3) 1-3/8" TO 139 FT LEVEL
(9) 1-5/8" TO 139 FT LEVEL
(PROPOSED EQUIPMENT CONFIGURATION-IN CONDUIT)
(2) 13/16" TO 189 FT LEVEL
(PROPOSED EQUIPMENT CONFIGURATION)
(3) 3/8" TO 189 FT LEVEL
(4) 13/16" TO 189 FT LEVEL
(3) 7/8" TO 189 FT LEVEL
(12) 1-5/8" 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
(1) 7/8" TO 167 FT LEVEL
LEG B
(OTHER CONSIDERED EQUIPMENT)
(4) 1/4" TO 175 FT LEVEL
(OTHER CONSIDERED EQUIPMENT)
(1) 1-1/2" TO 117 FT LEVEL
(OTHER CONSIDERED EQUIPMENT)
(1) 3/8" TO 162 FT LEVEL
LEG C
(OTHER CONSIDERED EQUIPMENT)
(17) 1-5/8" TO 208 FT LEVEL

APPENDIX C

ADDITIONAL CALCULATIONS

Self Support Anchor Rod Capacity

Site Info	
BU #	806363
Site Name	HRT 105 943201
Order #	614848 Rev. 0

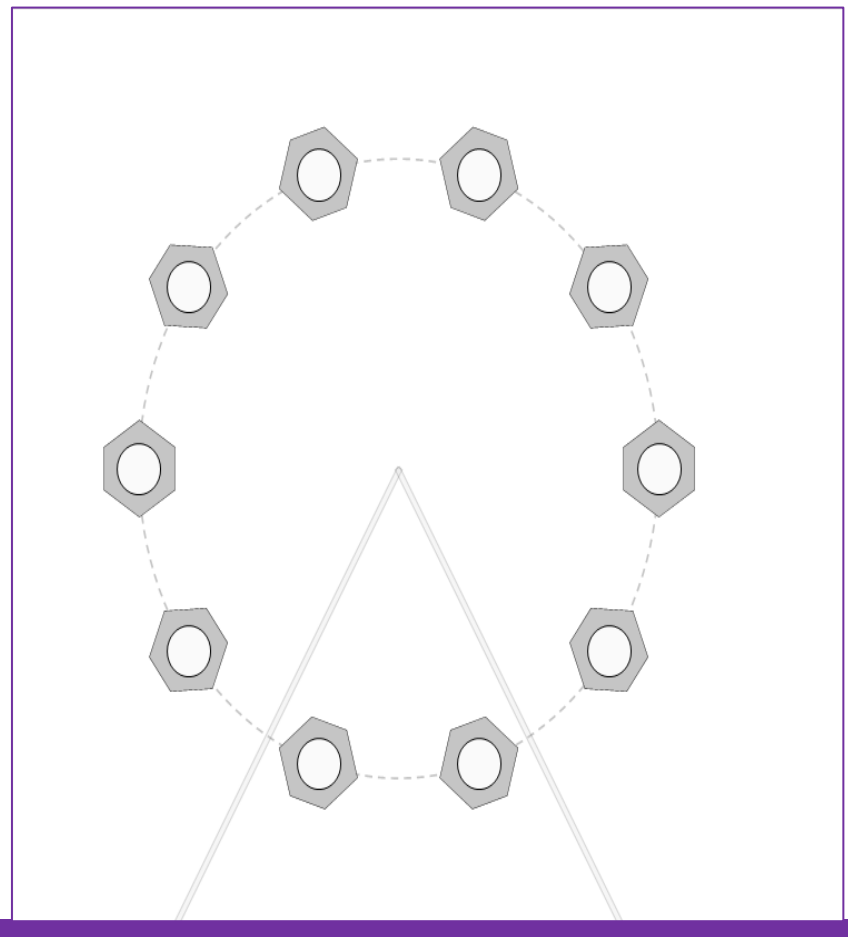
Analysis Considerations	
TIA-222 Revision	H
Grout Considered:	Yes
l_{ar} (in)	1.25

Applied Loads		
	Comp.	Uplift
Axial Force (kips)	346.31	279.02
Shear Force (kips)	40.04	35.82

**TIA-222-H Section 15.5 Applied*

Considered Eccentricity	
Leg Mod Eccentricity (in)	0.000
Anchor Rod N.A Shift (in)	0.000
Total Eccentricity (in)	0.000

**Anchor Rod Eccentricity Applied*



Connection Properties

Anchor Rod Data

(10) 1" ø bolts (A354-BC N; Fy=109 ksi, Fu=125 ksi)

l_{ar} (in): 1.25

Analysis Results

Anchor Rod Summary *(units of kips, kip-in)*

Pu_t = 27.9	ϕPn_t = 56.81	**Stress Rating**
Vu = 3.58	ϕVn = 36.82	**46.8%**
Mu = n/a	ϕMn = n/a	**Pass**

SST Unit Base Foundation

BU # :	806363
Site Name:	HRT 105 943201
App. Number:	614848 Rev. 0

TIA-222 Revision: H

Top & Bot. Pad Rein. Different?:	☐
Tower Centroid Offset?:	☐
Block Foundation?:	☑
Rectangular Pad?:	☐

Superstructure Analysis Reactions

Global Moment, **M**:	8132.85	ft-kips
Global Axial, **P**:	108.77	kips
Global Shear, **V**:	67.22	kips
Leg Compression, $\mathbf{P_{comp}}$:	346.31	kips
Leg Comp. Shear, $\mathbf{V_{u\_comp}}$:	40.04	kips
Leg Uplift, $\mathbf{P_{uplift}}$:	279.02	kips
Leg Uplift. Shear, $\mathbf{V_{u\_uplift}}$:	35.82	kips
Tower Height, **H**:	212.62	ft
Base Face Width, **BW**:	30.04	ft
BP Dist. Above Fdn, $\mathbf{bp_{dist}}$:	3	in
Anchor Bolt Circle, **BC**:	12	in

Foundation Analysis Checks

	Capacity	Demand	Rating*	Check
Lateral (Sliding) (kips)	337.82	67.22	**19.0%**	**Pass**
Bearing Pressure (ksf)	6.00	1.35	**21.5%**	**Pass**
*Overturning (kip*ft)*	17655.76	8452.15	**47.9%**	**Pass**
*Pad Flexure (kip*ft)*	7259.23	1709.09	**22.4%**	**Pass**
Pad Shear - 1-way (kips)	1971.72	196.78	**9.5%**	**Pass**
Pad Shear - Comp 2-way (ksi)	0.164	0.035	**20.5%**	**Pass**
*Flexural 2-way (Comp) (kip*ft)*	3668.31	0.00	**0.0%**	**Pass**
Pad Shear - Tension 2-way (ksi)	0.164	0.029	**16.5%**	**Pass**
*Flexural 2-way (Tension) (kip*ft)*	3668.31	0.00	**0.0%**	**Pass**

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

Structural Rating*:	**22.4%**
Soil Rating*:	**47.9%**

Pad Properties

Depth, **D**:	4.00	ft
Pad Width, $\mathbf{W_1}$:	40.25	ft
Pad Thickness, **T**:	4.50	ft
Pad Rebar Size (Bottom dir. 2), $\mathbf{Sp_2}$:	7	
Pad Rebar Quantity (Bottom dir. 2), $\mathbf{mp_2}$:	55	
Pad Clear Cover, $\mathbf{cc_{pad}}$:	3	in

Material Properties

Rebar Grade, **Fy**:	60	ksi
Concrete Compressive Strength, **F'c**:	3	ksi
Dry Concrete Density, δ**c**:	150	pcf

Soil Properties

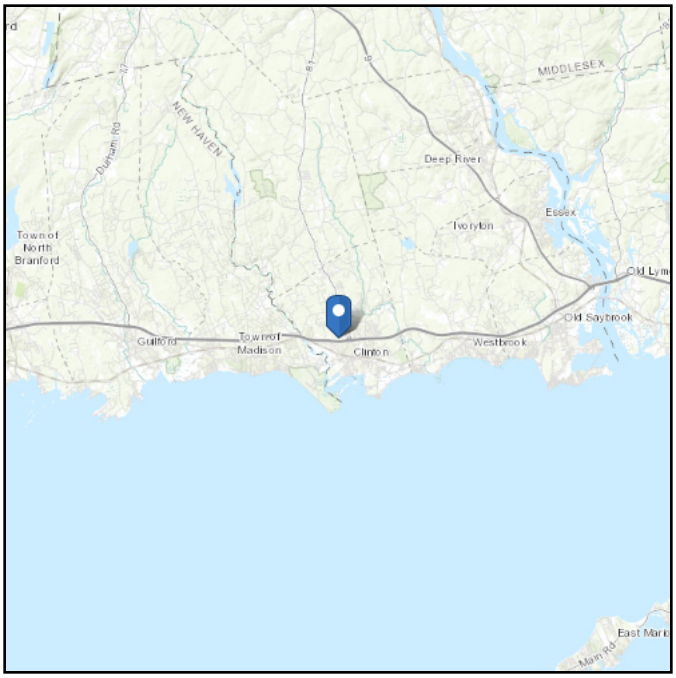
Total Soil Unit Weight, γ:	120	pcf
Ultimate Gross Bearing, Qult:	8.000	ksf
Cohesion, **Cu**:	0.000	ksf
Friction Angle, φ:	35	degrees
SPT Blow Count, $\mathbf{N_{blows}}$:	11	
Base Friction, μ:		
Neglected Depth, **N**:	3.5	ft
Foundation Bearing on Rock?	No	
Groundwater Depth, **gw**:	3	ft

<-- Toggle between Gross and Net

ASCE 7 Hazards Report

Address:
No Address at This Location

Standard:	ASCE/SEI 7-10	**Elevation:**	18.95 ft (NAVD 88)
Risk Category:	II	**Latitude:**	41.288944
Soil Class:	D - Stiff Soil	**Longitude:**	-72.538472



Wind

Results:

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, and Section 26.5.2, incorporating errata of March 12, 2014

Date Accessed: Tue Apr 13 2021

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.

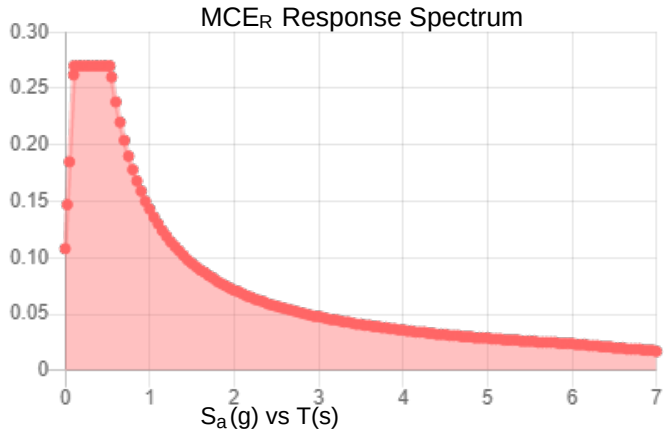
Seismic

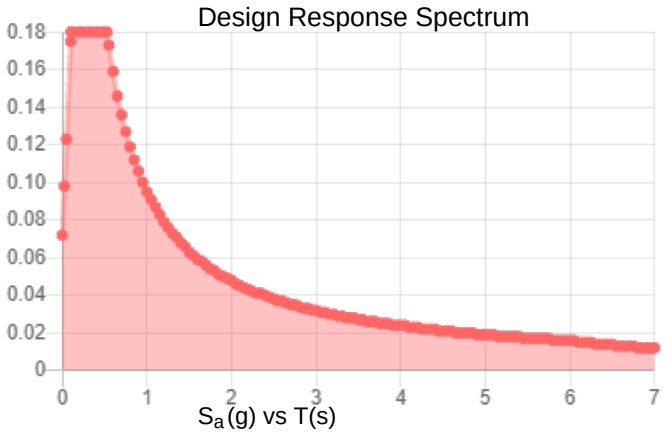
Site Soil Class: D - Stiff Soil

Results:

S_S :	0.169	S_{DS} :	0.18
S_1 :	0.059	S_{D1} :	0.095
F_a :	1.6	T_L :	6
F_v :	2.4	PGA :	0.085
S_{MS} :	0.27	PGA_M :	0.137
S_{M1} :	0.143	F_{PGA} :	1.6
		I_e :	1

Seismic Design Category B





Data Accessed: Tue Apr 13 2021

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:	Tue Apr 13 2021

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.

AT&T

AT&T SITE NUMBER:	**CTL02024**	**BUSINESS UNIT #:**	**806363**
AT&T SITE NAME:	**CLINTON**	**SITE ADDRESS:**	**48 COW HILL ROAD CLINTON, CT 06413**
AT&T FA CODE:	**10035028**		
AT&T PACE NUMBER:	**MRCTB063066, MRCTB063074, MRCTB063072, MRCTB063065**	**COUNTY:**	**MIDDLESEX**
AT&T PROJECT:	**5G NR 1SR CBAND, 5G NR ACTIVATION**	**SITE TYPE:**	**SELF SUPPORT TOWER**
		TOWER HEIGHT:	**212'-7"**

SITE INFORMATION

CROWN CASTLE USA INC. SITE NAME:	HRT 105 943201
SITE ADDRESS:	48 COW HILL ROAD CLINTON, CT 06413
COUNTY:	MIDDLESEX
MAP/PARCEL #:	32/6/48
AREA OF CONSTRUCTION:	EXISTING
LATITUDE:	41.288944
LONGITUDE:	-72.538472
LAT/LONG TYPE:	NAD83
GROUND ELEVATION:	24'
CURRENT ZONING:	IP (INDUSTRIAL PARK DISTRICT)
JURISDICTION:	CONNECTICUT SITING COUNCIL
OCCUPANCY CLASSIFICATION:	U
TYPE OF CONSTRUCTION:	IIB
A.D.A. COMPLIANCE:	FACILITY IS UNMANNED AND NOT FOR HUMAN HABITATION
PROPERTY OWNER:	HESAR RAYMOND E TRUSTEE 110 KILLINGWORTH TPKE CLINTON, CT 06413
TOWER OWNER:	CROWN CASTLE USA INC 2000 CORPORATE DRIVE CANONSBURG, PA 15317
CARRIER/APPLICANT:	AT&T TOWER ASSET GROUP 575 MOROSGO DRIVE ATLANTA, GA 30324-3300
ELECTRIC PROVIDER:	NORTHEAST UTILITIES 1-800-286-5000
TELCO PROVIDER:	LIGHTOWER

PROJECT TEAM

A&E FIRM:	B+T GROUP 1717 S. BOULDER AVE. TULSA, OK 74119 MARVIN PHILLIPS marvin.phillips@btgrp.com
CROWN CASTLE USA INC. DISTRICT CONTACTS:	3530 TORINGDON WAY, SUITE 300 CHARLOTTE, NC 28277
	VERONICA CHAPMAN - PROJECT MANAGER VERONICA.CHAPMAN@CROWNCASTLE.COM
	JASON D'AMICO - CONSTRUCTION MANAGER JASON.DAMICO@CROWNCASTLE.COM
	HEATHER MILLER - AES HEATHER.MILLER@CROWNCASTLE.COM

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

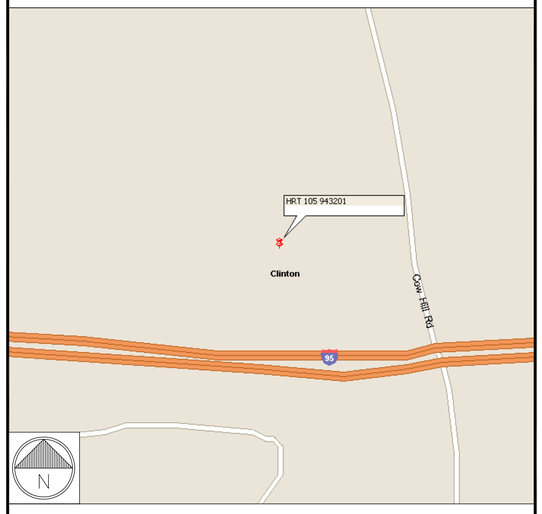
DRAWING INDEX

SHEET #	SHEET DESCRIPTION
T-1	TITLE SHEET
T-2	GENERAL NOTES
C-1.1	SITE PLAN
C-1.2	EQUIPMENT PLANS
C-2	TOWER ELEVATION & ANTENNA PLANS
C-3	ANTENNA SCHEDULE
C-4	EQUIPMENT DETAILS
C-5	EQUIPMENT SPECS.
G-1	GROUNDING DETAILS
G-2	GROUNDING DETAILS
ATTACHED	PLUMBING DIAGRAM

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

CALL CONNECTICUT ONE CALL
(800) 922-4455 CBYD.COM
CALL 2 WORKING DAYS
BEFORE YOU DIG!

LOCATION MAP



NO SCALE

SITE PHOTO

PROJECT DESCRIPTION

THE PURPOSE OF THIS PROJECT IS TO ENHANCE BROADBAND CONNECTIVITY AND CAPACITY TO THE EXISTING ELIGIBLE WIRELESS FACILITY.
TOWER SCOPE OF WORK:
- REMOVE (3) POWERWAVE - 7770 ANTENNAS
- REMOVE (3) ANDREW - SBNHH-1D65A ANTENNAS
- REMOVE (3) CCI - OPA65R-BU4DA ANTENNAS
- REMOVE (6) CG-1900W800-FULL-DIN TMAs
- REMOVE (3) RAYCAP - DC6-48-60-18 SQUIDs
- REMOVE (3) 3/8" FIBER CABLES
- RELOCATE (3) ERICSSON - RRUS-32 B30 RRHs
- RELOCATE (3) ERICSSON - 4478 B14 RRHs
- RELOCATE (3) ERICSSON - RRUS-32 B66A RRHs
- RELOCATE (3) ERICSSON - 4415 B25 RRHs
- INSTALL (3) QUINTEL - QD4616-7 RRUS
- INSTALL (3) ERICSSON - AIR6449 B77D + (3) AIR6419 B77G STACKED RRUS
- INSTALL (3) RAYCAP - DC9-48-60-24-8C-EV SQUID
- INSTALL (3) 3/8" FIBER CABLES
- INSTALL (3) 7/8" DC CABLES

GROUND SCOPE OF WORK:
- REMOVE (1) UMTS CABINET
- REMOVE (6) 782 10250 DIPLEXERS
- INSTALL (1) 6648 W/XCEDE CABLE
- INSTALL (3) RECTIFIERS
- INSTALL (1) INDOOR DC12

NOTE:
THE POWER DESIGN FOR ANY AC ELECTRICAL POWER CHANGES IS TO BE PERFORMED BY OTHERS AND IS SHOWN HERE FOR REFERENCE PURPOSES ONLY. AT&T IS SOLELY RESPONSIBLE FOR THE ELECTRICAL POWER DESIGN.

APPLICABLE CODES & REFERENCE DOCUMENTS

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

CODE TYPE	CODE
BUILDING	2021 IBC
MECHANICAL	2021 IMC
ELECTRICAL	2020 NEC

REFERENCE DOCUMENTS:

STRUCTURAL ANALYSIS:	CROWN CASTLE
DATED:	8/1/22
MOUNT ANALYSIS:	B+T GROUP
DATED:	7/25/22
RFDS REVISION:	3.00
DATED:	7/1/22
ORDER ID:	614848
REVISION:	0
AC ELECTRICAL POWER DESIGN:	N/A
DATED:	

AT&T
575 MOROSGO DRIVE
ATLANTA, GA 30324-3300

CROWN CASTLE
3530 TORINGDON WAY, SUITE 300
CHARLOTTE, NC 28277

B+T GRP
1717 S. BOULDER
SUITE 300
TULSA, OK 74119
PH: (918) 587-4630
www.btgrp.com

AT&T SITE NUMBER:
CTL02024

BU #: **806363**
HRT 105 943201

48 COW HILL ROAD
CLINTON, CT 06413

EXISTING
212'-7" SELF SUPPORT
TOWER

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
A	8/12/22	BEH	PRELIMINARY REVIEW	MTJ
B	8/30/22	BEH	PRELIMINARY REVIEW	MTJ
0	10/19/22	JTS	CONSTRUCTION	MTJ

STATE OF CONNECTICUT
MICHAEL T. JANOSKO
No. 23924
LICENSED
PROFESSIONAL ENGINEER
10/19/22

MTS ENGINEERING P.L.L.C.
BER:2386985
Expires 3/31/23

SHEET NUMBER: T-1

REVISION: 0

CROWN CASTLE USA INC. SITE ACTIVITY REQUIREMENTS:

1. NOTICE TO PROCEED– NO WORK SHALL COMMENCE PRIOR TO CROWN CASTLE USA INC. WRITTEN NOTICE TO PROCEED (NTP) AND THE ISSUANCE OF A PURCHASE ORDER. PRIOR TO ACCESSING/ENTERING THE SITE YOU MUST CONTACT THE CROWN CASTLE USA INC. NOC AT 800–788–7011 & THE CROWN CASTLE USA INC. CONSTRUCTION MANAGER.
2. "LOOK UP" – CROWN CASTLE USA INC. SAFETY CLIMB REQUIREMENT:
THE INTEGRITY OF THE SAFETY CLIMB AND ALL COMPONENTS OF THE CLIMBING FACILITY SHALL BE CONSIDERED DURING ALL STAGES OF DESIGN, INSTALLATION, AND INSPECTION. TOWER MODIFICATION, MOUNT REINFORCEMENTS, AND/OR EQUIPMENT INSTALLATIONS SHALL NOT COMPROMISE THE INTEGRITY OR FUNCTIONAL USE OF THE SAFETY CLIMB OR ANY COMPONENTS OF THE CLIMBING FACILITY ON THE STRUCTURE. THIS SHALL INCLUDE, BUT NOT BE LIMITED TO: PINCHING OF THE WIRE ROPE, BENDING OF THE WIRE ROPE FROM ITS SUPPORTS, DIRECT CONTACT OR CLOSE PROXIMITY TO THE WIRE ROPE WHICH MAY CAUSE FRICTIONAL WEAR, IMPACT TO THE ANCHORAGE POINTS IN ANY WAY, OR TO IMPEDE/BLOCK ITS INTENDED USE. ANY COMPROMISED SAFETY CLIMB, INCLUDING EXISTING CONDITIONS MUST BE TAGGED OUT AND REPORTED TO YOUR CROWN CASTLE USA INC. POC OR CALL THE NOC TO GENERATE A SAFETY CLIMB MAINTENANCE AND CONTRACTOR NOTICE TICKET.
3. PRIOR TO THE START OF CONSTRUCTION, ALL REQUIRED JURISDICTIONAL PERMITS SHALL BE OBTAINED. THIS INCLUDES, BUT IS NOT LIMITED TO, BUILDING, ELECTRICAL, MECHANICAL, FIRE, FLOOD ZONE, ENVIRONMENTAL, AND ZONING. AFTER ONSITE ACTIVITIES AND CONSTRUCTION ARE COMPLETED, ALL REQUIRED PERMITS SHALL BE SATISFIED AND CLOSED OUT ACCORDING TO LOCAL JURISDICTIONAL REQUIREMENTS.
4. ALL CONSTRUCTION MEANS AND METHODS; INCLUDING BUT NOT LIMITED TO, ERECTION PLANS, RIGGING PLANS, CLIMBING PLANS, AND RESCUE PLANS SHALL BE THE RESPONSIBILITY OF THE GENERAL CONTRACTOR RESPONSIBLE FOR THE EXECUTION OF THE WORK CONTAINED HEREIN, AND SHALL MEET ANSI/ASSE A10.48 (LATEST EDITION); FEDERAL, STATE, AND LOCAL REGULATIONS; AND ANY APPLICABLE INDUSTRY CONSENSUS STANDARDS RELATED TO THE CONSTRUCTION ACTIVITIES BEING PERFORMED. ALL RIGGING PLANS SHALL ADHERE TO ANSI/ASSE A10.48 (LATEST EDITION) AND CROWN CASTLE USA INC. STANDARD CED–STD–10253, INCLUDING THE REQUIRED INVOLVEMENT OF A QUALIFIED ENGINEER FOR CLASS IV CONSTRUCTION, TO CERTIFY THE SUPPORTING STRUCTURE(S) IN ACCORDANCE WITH ANSI/TIA–322 (LATEST EDITION).
5. ALL SITE WORK TO COMPLY WITH QAS–STD–10068 "INSTALLATION STANDARDS FOR CONSTRUCTION ACTIVITIES ON CROWN CASTLE USA INC. TOWER SITE," CED–STD–10294 "STANDARD FOR INSTALLATION OF MOUNTS AND APPURTENANCES," AND LATEST VERSION OF ANSI/TIA–1019–A–2012 "STANDARD FOR INSTALLATION, ALTERATION, AND MAINTENANCE OF ANTENNA SUPPORTING STRUCTURES AND ANTENNAS."
6. IF THE SPECIFIED EQUIPMENT CAN NOT BE INSTALLED AS SHOWN ON THESE DRAWINGS, THE CONTRACTOR SHALL PROPOSE AN ALTERNATIVE INSTALLATION FOR APPROVAL BY CROWN CASTLE USA INC. PRIOR TO PROCEEDING WITH ANY SUCH CHANGE OF INSTALLATION.
7. ALL MATERIALS FURNISHED AND INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS AND ORDINANCES. CONTRACTOR SHALL ISSUE ALL APPROPRIATE NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY REGARDING THE PERFORMANCE OF THE WORK. ALL WORK CARRIED OUT SHALL COMPLY WITH ALL APPLICABLE MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS AND LOCAL JURISDICTIONAL CODES, ORDINANCES AND APPLICABLE REGULATIONS.
8. THE CONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.
9. THE CONTRACTOR SHALL CONTACT UTILITY LOCATING SERVICES PRIOR TO THE START OF CONSTRUCTION.
10. ALL EXISTING ACTIVE SEWER, WATER, GAS, ELECTRIC AND OTHER UTILITIES WHERE ENCOUNTERED IN THE WORK, SHALL BE PROTECTED AT ALL TIMES AND WHERE REQUIRED FOR THE PROPER EXECUTION OF THE WORK, SHALL BE RELOCATED AS DIRECTED BY CONTRACTOR. EXTREME CAUTION SHOULD BE USED BY THE CONTRACTOR WHEN EXCAVATING OR DRILLING PIERS AROUND OR NEAR UTILITIES. CONTRACTOR SHALL PROVIDE SAFETY TRAINING FOR THE WORKING CREW. THIS WILL INCLUDE BUT NOT BE LIMITED TO A) FALL PROTECTION B) CONFINED SPACE C) ELECTRICAL SAFETY D) TRENCHING AND EXCAVATION E) CONSTRUCTION SAFETY PROCEDURES.
11. ALL SITE WORK SHALL BE AS INDICATED ON THE STAMPED CONSTRUCTION DRAWINGS AND PROJECT SPECIFICATIONS, LATEST APPROVED REVISION.
12. CONTRACTOR SHALL KEEP THE SITE FREE FROM ACCUMULATING WASTE MATERIAL, DEBRIS, AND TRASH AT THE COMPLETION OF THE WORK. IF NECESSARY, RUBBISH, STUMPS, DEBRIS, STICKS, STONES AND OTHER REFUSE SHALL BE REMOVED FROM THE SITE AND DISPOSED OF LEGALLY.
13. ALL EXISTING INACTIVE SEWER, WATER, GAS, ELECTRIC AND OTHER UTILITIES, WHICH INTERFERE WITH THE EXECUTION OF THE WORK, SHALL BE REMOVED AND/OR CAPPED, PLUGGED OR OTHERWISE DISCONTINUED AT POINTS WHICH WILL NOT INTERFERE WITH THE EXECUTION OF THE WORK, SUBJECT TO THE APPROVAL OF CONTRACTOR, TOWER OWNER, CROWN CASTLE USA INC., AND/OR LOCAL UTILITIES.
14. THE CONTRACTOR SHALL PROVIDE SITE SIGNAGE IN ACCORDANCE WITH THE TECHNICAL SPECIFICATION FOR SITE SIGNAGE REQUIRED BY LOCAL JURISDICTION AND SIGNAGE REQUIRED ON INDIVIDUAL PIECES OF EQUIPMENT, ROOMS, AND SHELTERS.
15. THE SITE SHALL BE GRADED TO CAUSE SURFACE WATER TO FLOW AWAY FROM THE CARRIER'S EQUIPMENT AND TOWER AREAS.
16. THE SUB GRADE SHALL BE COMPACTED AND BROUGHT TO A SMOOTH UNIFORM GRADE PRIOR TO FINISHED SURFACE APPLICATION.
17. THE AREAS OF THE OWNERS PROPERTY DISTURBED BY THE WORK AND NOT COVERED BY THE TOWER, EQUIPMENT OR DRIVEWAY, SHALL BE GRADED TO A UNIFORM SLOPE, AND STABILIZED TO PREVENT EROSION AS SPECIFIED ON THE CONSTRUCTION DRAWINGS AND/OR PROJECT SPECIFICATIONS.
18. CONTRACTOR SHALL MINIMIZE DISTURBANCE TO EXISTING SITE DURING CONSTRUCTION. EROSION CONTROL MEASURES, IF REQUIRED DURING CONSTRUCTION, SHALL BE IN CONFORMANCE WITH THE LOCAL GUIDELINES FOR EROSION AND SEDIMENT CONTROL.
19. THE CONTRACTOR SHALL PROTECT EXISTING IMPROVEMENTS, PAVEMENTS, CURBS, LANDSCAPING AND STRUCTURES. ANY DAMAGED PART SHALL BE REPAIRED AT CONTRACTOR'S EXPENSE TO THE SATISFACTION OF OWNER.
20. CONTRACTOR SHALL LEGALLY AND PROPERLY DISPOSE OF ALL SCRAP MATERIALS SUCH AS COAXIAL CABLES AND OTHER ITEMS REMOVED FROM THE EXISTING FACILITY. ANTENNAS REMOVED SHALL BE RETURNED TO THE OWNER'S DESIGNATED LOCATION.
21. CONTRACTOR SHALL LEAVE PREMISES IN CLEAN CONDITION. TRASH AND DEBRIS SHOULD BE REMOVED FROM SITE ON A DAILY BASIS.
22. NO FILL OR EMBANKMENT MATERIAL SHALL BE PLACED ON FROZEN GROUND. FROZEN MATERIALS, SNOW OR ICE SHALL NOT BE PLACED IN ANY FILL OR EMBANKMENT.

GENERAL NOTES:

1. FOR THE PURPOSE OF CONSTRUCTION DRAWING, THE FOLLOWING DEFINITIONS SHALL APPLY:
CONTRACTOR: GENERAL CONTRACTOR RESPONSIBLE FOR CONSTRUCTION
CARRIER: AT&T
TOWER OWNER: CROWN CASTLE USA INC.
2. THESE DRAWINGS HAVE BEEN PREPARED USING STANDARDS OF PROFESSIONAL CARE AND COMPLETENESS NORMALLY EXERCISED UNDER SIMILAR CIRCUMSTANCES BY REPUTABLE ENGINEERS IN THIS OR SIMILAR LOCALITIES. IT IS ASSUMED THAT THE WORK DEPICTED WILL BE PERFORMED BY AN EXPERIENCED CONTRACTOR AND/OR WORKPEOPLE WHO HAVE A WORKING KNOWLEDGE OF THE APPLICABLE CODE STANDARDS AND REQUIREMENTS AND OF INDUSTRY ACCEPTED STANDARD GOOD PRACTICE. AS NOT EVERY CONDITION OR ELEMENT IS (OR CAN BE) EXPLICITLY SHOWN ON THESE DRAWINGS, THE CONTRACTOR SHALL USE INDUSTRY ACCEPTED STANDARD GOOD PRACTICE FOR MISCELLANEOUS WORK NOT EXPLICITLY SHOWN.
3. THESE DRAWINGS REPRESENT THE FINISHED STRUCTURE. THEY DO NOT INDICATE THE MEANS OR METHODS OF CONSTRUCTION. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR THE CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES, AND PROCEDURES. THE CONTRACTOR SHALL PROVIDE ALL MEASURES NECESSARY FOR PROTECTION OF LIFE AND PROPERTY DURING CONSTRUCTION. SUCH MEASURES SHALL INCLUDE, BUT NOT BE LIMITED TO, BRACING, FORMWORK, SHORING, ETC. SITE VISITS BY THE ENGINEER OR HIS REPRESENTATIVE WILL NOT INCLUDE INSPECTION OF THESE ITEMS AND IS FOR STRUCTURAL OBSERVATION OF THE FINISHED STRUCTURE ONLY.
4. NOTES AND DETAILS IN THE CONSTRUCTION DRAWINGS SHALL TAKE PRECEDENCE OVER GENERAL NOTES AND TYPICAL DETAILS. WHERE NO DETAILS ARE SHOWN, CONSTRUCTION SHALL CONFORM TO SIMILAR WORK ON THE PROJECT, AND/OR AS PROVIDED FOR IN THE CONTRACT DOCUMENTS. WHERE DISCREPANCIES OCCUR BETWEEN PLANS, DETAILS, GENERAL NOTES, AND SPECIFICATIONS, THE GREATER, MORE STRICT REQUIREMENTS, SHALL GOVERN. IF FURTHER CLARIFICATION IS REQUIRED CONTACT THE ENGINEER OF RECORD.
5. SUBSTANTIAL EFFORT HAS BEEN MADE TO PROVIDE ACCURATE DIMENSIONS AND MEASUREMENTS ON THE DRAWINGS TO ASSIST IN THE FABRICATION AND/OR PLACEMENT OF CONSTRUCTION ELEMENTS BUT IT IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR TO FIELD VERIFY THE DIMENSIONS, MEASUREMENTS, AND/OR CLEARANCES SHOWN IN THE CONSTRUCTION DRAWINGS PRIOR TO FABRICATION OR CUTTING OF ANY NEW OR EXISTING CONSTRUCTION ELEMENTS. IF IT IS DETERMINED THAT THERE ARE DISCREPANCIES AND/OR CONFLICTS WITH THE CONSTRUCTION DRAWINGS THE ENGINEER OF RECORD IS TO BE NOTIFIED AS SOON AS POSSIBLE.
6. PRIOR TO THE SUBMISSION OF BIDS, THE BIDDING CONTRACTOR SHALL VISIT THE CELL SITE TO FAMILIARIZE WITH THE EXISTING CONDITIONS AND TO CONFIRM THAT THE WORK CAN BE ACCOMPLISHED AS SHOWN ON THE CONSTRUCTION DRAWINGS. ANY DISCREPANCY FOUND SHALL BE BROUGHT TO THE ATTENTION OF CROWN CASTLE.
7. ALL MATERIALS FURNISHED AND INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS AND ORDINANCES. CONTRACTOR SHALL ISSUE ALL APPROPRIATE NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY REGARDING THE PERFORMANCE OF THE WORK. ALL WORK CARRIED OUT SHALL COMPLY WITH ALL APPLICABLE MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS AND LOCAL JURISDICTIONAL CODES, ORDINANCES AND APPLICABLE REGULATIONS.
8. UNLESS NOTED OTHERWISE, THE WORK SHALL INCLUDE FURNISHING MATERIALS, EQUIPMENT, APPURTENANCES AND LABOR NECESSARY TO COMPLETE ALL INSTALLATIONS AS INDICATED ON THE DRAWINGS.
9. THE CONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.
10. IF THE SPECIFIED EQUIPMENT CAN NOT BE INSTALLED AS SHOWN ON THESE DRAWINGS, THE CONTRACTOR SHALL PROPOSE AN ALTERNATIVE INSTALLATION FOR APPROVAL BY THE CARRIER AND CROWN CASTLE PRIOR TO PROCEEDING WITH ANY SUCH CHANGE OF INSTALLATION.
11. CONTRACTOR IS TO PERFORM A SITE INVESTIGATION AND IS TO DETERMINE THE BEST ROUTING OF ALL CONDUITS FOR POWER, AND TELCO AND FOR GROUNDING CABLES AS SHOWN IN THE POWER, TELCO, AND GROUNDING PLAN DRAWINGS.
12. THE CONTRACTOR SHALL PROTECT EXISTING IMPROVEMENTS, PAVEMENTS, CURBS, LANDSCAPING AND STRUCTURES. ANY DAMAGED PART SHALL BE REPAIRED AT CONTRACTOR'S EXPENSE TO THE SATISFACTION OF CROWN CASTLE USA INC.
13. CONTRACTOR SHALL LEGALLY AND PROPERLY DISPOSE OF ALL SCRAP MATERIALS SUCH AS COAXIAL CABLES AND OTHER ITEMS REMOVED FROM THE EXISTING FACILITY. ANTENNAS REMOVED SHALL BE RETURNED TO THE OWNER'S DESIGNATED LOCATION.
14. CONTRACTOR SHALL LEAVE PREMISES IN CLEAN CONDITION. TRASH AND DEBRIS SHOULD BE REMOVED FROM SITE ON A DAILY BASIS.

CONCRETE, FOUNDATIONS, AND REINFORCING STEEL:

1. ALL CONCRETE WORK SHALL BE IN ACCORDANCE WITH THE ACI 301, ACI 318, ACI 336, ASTM A184, ASTM A185 AND THE DESIGN AND CONSTRUCTION SPECIFICATION FOR CAST–IN–PLACE CONCRETE.
2. UNLESS NOTED OTHERWISE, SOIL BEARING PRESSURE USED FOR DESIGN OF SLABS AND FOUNDATIONS IS ASSUMED TO BE 1000 psf.
3. ALL CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH (f'c) OF 3000 psi AT 28 DAYS, UNLESS NOTED OTHERWISE. NO MORE THAN 90 MINUTES SHALL ELAPSE FROM BATCH TIME TO TIME OF PLACEMENT UNLESS APPROVED BY THE ENGINEER OF RECORD. TEMPERATURE OF CONCRETE SHALL NOT EXCEED 90°F AT TIME OF PLACEMENT.
4. CONCRETE EXPOSED TO FREEZE–THAW CYCLES SHALL CONTAIN AIR ENTRAINING ADMIXTURES. AMOUNT OF AIR ENTRAINMENT TO BE BASED ON SIZE OF AGGREGATE AND F3 CLASS EXPOSURE (VERY SEVERE). CEMENT USED TO BE TYPE II PORTLAND CEMENT WITH A MAXIMUM WATER–TO–CEMENT RATIO (W/C) OF 0.45.
5. ALL STEEL REINFORCING SHALL CONFORM TO ASTM A615. ALL WELDED WIRE FABRIC (WWF) SHALL CONFORM TO ASTM A185. ALL SPLICES SHALL BE CLASS "B" TENSION SPLICES, UNLESS NOTED OTHERWISE. ALL HOOKS SHALL BE STANDARD 90 DEGREE HOOKS, UNLESS NOTED OTHERWISE. YIELD STRENGTH (Fy) OF STANDARD DEFORMED BARS ARE AS FOLLOWS:
#4 BARS AND SMALLER..40 ksi
#5 BARS AND LARGER..60 ksi
6. THE FOLLOWING MINIMUM CONCRETE COVER SHALL BE PROVIDED FOR REINFORCING STEEL UNLESS SHOWN OTHERWISE ON DRAWINGS:
CONCRETE CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH........................3"
CONCRETE EXPOSED TO EARTH OR WEATHER:
#6 BARS AND LARGER..2"
#5 BARS AND SMALLER..1–1/2"
CONCRETE NOT EXPOSED TO EARTH OR WEATHER:
SLAB AND WALLS..3/4"
BEAMS AND COLUMNS..1–1/2"
7. A TOOLED EDGE OR A 3/4" CHAMFER SHALL BE PROVIDED AT ALL EXPOSED EDGES OF CONCRETE, UNLESS NOTED OTHERWISE, IN ACCORDANCE WITH ACI 301 SECTION 4.2.4.

GREENFIELD GROUNDING NOTES:

1. ALL GROUND ELECTRODE SYSTEMS (INCLUDING TELECOMMUNICATION, RADIO, LIGHTNING PROTECTION AND AC POWER GES'S) SHALL BE BONDED TOGETHER AT OR BELOW GRADE, BY TWO OR MORE COPPER BONDING CONDUCTORS IN ACCORDANCE WITH THE NEC.
2. THE CONTRACTOR SHALL PERFORM IEEE FALL–OF–POTENTIAL RESISTANCE TO EARTH TESTING (PER IEEE 1100 AND 81) FOR GROUND ELECTRODE SYSTEMS. THE CONTRACTOR SHALL FURNISH AND INSTALL SUPPLEMENTAL GROUND ELECTRODES AS NEEDED TO ACHIEVE A TEST RESULT OF 5 OHMS OR LESS.
3. THE CONTRACTOR IS RESPONSIBLE FOR PROPERLY SEQUENCING GROUNDING AND UNDERGROUND CONDUIT INSTALLATION AS TO PREVENT ANY LOSS OF CONTINUITY IN THE GROUNDING SYSTEM OR DAMAGE TO THE CONDUIT AND PROVIDE TESTING RESULTS.
4. METAL CONDUIT AND TRAY SHALL BE GROUNDED AND MADE ELECTRICALLY CONTINUOUS WITH LISTED BONDING FITTINGS OR BY BONDING ACROSS THE DISCONTINUITY WITH #6 COPPER WIRE UL APPROVED GROUNDING TYPE CONDUIT CLAMPS.
5. METAL RACEWAY SHALL NOT BE USED AS THE NEC REQUIRED EQUIPMENT GROUND CONDUCTOR. STRANDED COPPER CONDUCTORS WITH GREEN INSULATION, SIZED IN ACCORDANCE WITH THE NEC, SHALL BE FURNISHED AND INSTALLED WITH THE POWER CIRCUITS TO BTS EQUIPMENT.
6. EACH CABINET FRAME SHALL BE DIRECTLY CONNECTED TO THE MASTER GROUND BAR WITH GREEN INSULATED SUPPLEMENTAL EQUIPMENT GROUND WIRES, #6 STRANDED COPPER OR LARGER FOR INDOOR BTS; #2 BARE SOLID TINNED COPPER FOR OUTDOOR BTS.
7. CONNECTIONS TO THE GROUND BUS SHALL NOT BE DOUBLED UP OR STACKED BACK TO BACK CONNECTIONS ON OPPOSITE SIDE OF THE GROUND BUS ARE PERMITTED.
8. ALL EXTERIOR GROUND CONDUCTORS BETWEEN EQUIPMENT/GROUND BARS AND THE GROUND RING SHALL BE #2 SOLID TINNED COPPER UNLESS OTHERWISE INDICATED.
9. ALUMINUM CONDUCTOR OR COPPER CLAD STEEL CONDUCTOR SHALL NOT BE USED FOR GROUNDING CONNECTIONS.
10. USE OF 90° BENDS IN THE PROTECTION GROUNDING CONDUCTORS SHALL BE AVOIDED WHEN 45° BENDS CAN BE ADEQUATELY SUPPORTED.
11. EXOTHERMIC WELDS SHALL BE USED FOR ALL GROUNDING CONNECTIONS BELOW GRADE.
12. ALL GROUND CONNECTIONS ABOVE GRADE (INTERIOR AND EXTERIOR) SHALL BE FORMED USING HIGH PRESS CRIMPS.
13. COMPRESSION GROUND CONNECTIONS MAY BE REPLACED BY EXOTHERMIC WELD CONNECTIONS.
14. ICE BRIDGE BONDING CONDUCTORS SHALL BE EXOTHERMICALLY BONDED OR BOLTED TO THE BRIDGE AND THE TOWER GROUND BAR.
15. APPROVED ANTIOXIDANT COATINGS (i.e. CONDUCTIVE GEL OR PASTE) SHALL BE USED ON ALL COMPRESSION AND BOLTED GROUND CONNECTIONS.
16. ALL EXTERIOR GROUND CONNECTIONS SHALL BE COATED WITH A CORROSION RESISTANT MATERIAL.
17. MISCELLANEOUS ELECTRICAL AND NON–ELECTRICAL METAL BOXES, FRAMES AND SUPPORTS SHALL BE BONDED TO THE GROUND RING, IN ACCORDANCE WITH THE NEC.
18. BOND ALL METALLIC OBJECTS WITHIN 6 ft OF MAIN GROUND RING WITH (1) #2 BARE SOLID TINNED COPPER GROUND CONDUCTOR.
19. GROUND CONDUCTORS USED FOR THE FACILITY GROUNDING AND LIGHTNING PROTECTION SYSTEMS SHALL NOT BE ROUTED THROUGH METALLIC OBJECTS THAT FORM A RING AROUND THE CONDUCTOR, SUCH AS METALLIC CONDUITS, METAL SUPPORT CLIPS OR SLEEVES THROUGH WALLS OR FLOORS. WHEN IT IS REQUIRED TO BE HOUSED IN CONDUIT TO MEET CODE REQUIREMENTS OR LOCAL CONDITIONS, NON–METALLIC MATERIAL SUCH AS PVC CONDUIT SHALL BE USED. WHERE USE OF METAL CONDUIT IS UNAVOIDABLE (i.e., NONMETALLIC CONDUIT PROHIBITED BY LOCAL CODE) THE GROUND CONDUCTOR SHALL BE BONDED TO EACH END OF THE METAL CONDUIT.
20. ALL GROUNDS THAT TRANSITION FROM BELOW GRADE TO ABOVE GRADE MUST BE #2 BARE SOLID TINNED COPPER IN 3/4" NON–METALLIC, FLEXIBLE CONDUIT FROM 24" BELOW GRADE TO WITHIN 3" TO 6" OF CAD–WELD TERMINATION POINT. THE EXPOSED END OF THE CONDUIT MUST BE SEALED WITH SILICONE CAULK. (ADD TRANSITIONING GROUND STANDARD DETAIL AS WELL).
21. BUILDINGS WHERE THE MAIN GROUNDING CONDUCTORS ARE REQUIRED TO BE ROUTED TO GRADE, THE CONTRACTOR SHALL ROUTE TWO GROUNDING CONDUCTORS FROM THE ROOFTOP, TOWERS, AND WATER TOWERS GROUNDING RING, TO THE EXISTING GROUNDING SYSTEM, THE GROUNDING CONDUCTORS SHALL NOT BE SMALLER THAN 2/0 COPPER. ROOFTOP GROUNDING RING SHALL BE BONDED TO THE EXISTING GROUNDING SYSTEM, THE BUILDING STEEL COLUMNS, LIGHTNING PROTECTION SYSTEM, AND BUILDING MAIN WATER LINE (FERROUS OR NONFERROUS METAL PIPING ONLY).

ELECTRICAL INSTALLATION NOTES:

1. ALL ELECTRICAL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS, NEC AND ALL APPLICABLE FEDERAL, STATE, AND LOCAL CODES/ORDINANCES.
2. CONDUIT ROUTINGS ARE SCHEMATIC. CONTRACTOR SHALL INSTALL CONDUITS SO THAT ACCESS TO EQUIPMENT IS NOT BLOCKED AND TRIP HAZARDS ARE ELIMINATED.
3. WIRING, RACEWAY AND SUPPORT METHODS AND MATERIALS SHALL COMPLY WITH THE REQUIREMENTS OF THE NEC.
4. ALL CIRCUITS SHALL BE SEGREGATED AND MAINTAIN MINIMUM CABLE SEPARATION AS REQUIRED BY THE NEC.
4.1. ALL EQUIPMENT SHALL BEAR THE UNDERWRITERS LABORATORIES LABEL OF APPROVAL, AND SHALL CONFORM TO REQUIREMENT OF THE NATIONAL ELECTRICAL CODE.
4.2. ALL OVERCURRENT DEVICES SHALL HAVE AN INTERRUPTING CURRENT RATING THAT SHALL BE GREATER THAN THE SHORT CIRCUIT CURRENT TO WHICH THEY ARE SUBJECTED, 22,000 AIC MINIMUM. VERYIFY AVAILABLE SHORT CIRCUIT CURRENT DOES NOT EXCEED THE RATING OF ELECTRICAL EQUIPMENT IN ACCORDANCE WITH ARTICLE 110.24 NEC OR THE MOST CURRENT ADOPTED CODE PRE THE GOVERNING JURISDICTION.
5. EACH END OF EVERY POWER PHASE CONDUCTOR, GROUNDING CONDUCTOR, AND TELCO CONDUCTOR OR CABLE SHALL BE LABELED WITH COLOR–CODED INSULATION OR ELECTRICAL TAPE (3M BRAND, 1/2" PLASTIC ELECTRICAL TAPE WITH UV PROTECTION, OR EQUAL). THE IDENTIFICATION METHOD SHALL CONFORM WITH NEC AND OSHA.
6. ALL ELECTRICAL COMPONENTS SHALL BE CLEARLY LABELED WITH LAMICOID TAGS SHOWING THEIR RATED VOLTAGE, PHASE CONFIGURATION, WIRE CONFIGURATION, POWER OR AMPACITY RATING AND BRANCH CIRCUIT ID NUMBERS (i.e. PANEL BOARD AND CIRCUIT ID'S).
7. PANEL BOARDS (ID NUMBERS) SHALL BE CLEARLY LABELED WITH PLASTIC LABELS.
8. ALL TIE WRAPS SHALL BE CUT FLUSH WITH APPROVED CUTTING TOOL TO REMOVE SHARP EDGES.
9. ALL POWER AND EQUIPMENT GROUND WIRING IN TUBING OR CONDUIT SHALL BE SINGLE COPPER CONDUCTOR (#14 OR LARGER) WITH TYPE THHW, THWN, THWN–2, XHHW, XHHW–2, THW, THW–2, RHW, OR RHW–2 INSULATION UNLESS OTHERWISE SPECIFIED.
10. SUPPLEMENTAL EQUIPMENT GROUND WIRING LOCATED INDOORS SHALL BE SINGLE COPPER CONDUCTOR (#6 OR LARGER) WITH TYPE THHW, THWN, THWN–2, XHHW, XHHW–2, THW, THW–2, RHW, OR RHW–2 INSULATION UNLESS OTHERWISE SPECIFIED.
11. POWER AND CONTROL WIRING IN FLEXIBLE CORD SHALL BE MULTI–CONDUCTOR, TYPE SOOW CORD (#14 OR LARGER) UNLESS OTHERWISE SPECIFIED.
12. POWER AND CONTROL WIRING FOR USE IN CABLE TRAY SHALL BE MULTI–CONDUCTOR, TYPE TC CABLE (#14 OR LARGER), WITH TYPE THHW, THWN, THWN–2, XHHW, XHHW–2, THW, THW–2, RHW, OR RHW–2 INSULATION UNLESS OTHERWISE SPECIFIED.
13. ALL POWER AND GROUNDING CONNECTIONS SHALL BE CRIMP–STYLE, COMPRESSION WIRE LUGS AND WIRE NUTS BY THOMAS AND BETTS (OR EQUAL). LUGS AND WIRE NUTS SHALL BE RATED FOR OPERATION NOT LESS THAN 75° C (90° C IF AVAILABLE).
14. RACEWAY AND CABLE TRAY SHALL BE LISTED OR LABELED FOR ELECTRICAL USE IN ACCORDANCE WITH NEMA, UL, ANSI/IEEE AND NEC.
15. ELECTRICAL METALLIC TUBING (EMT), INTERMEDIATE METAL CONDUIT (IMC), OR RIGID METAL CONDUIT (RMC) SHALL BE USED FOR EXPOSED INDOOR LOCATIONS.
16. ELECTRICAL METALLIC TUBING (EMT) OR METAL–CLAD CABLE (MC) SHALL BE USED FOR CONCEALED INDOOR LOCATIONS.
17. SCHEDULE 40 PVC UNDERGROUND ON STRAIGHTS AND SCHEDULE 80 PVC FOR ALL ELBOWS/90s AND ALL APPROVED ABOVE GRADE PVC CONDUIT.
18. LIQUID–TIGHT FLEXIBLE METALLIC CONDUIT (LIQUID–TITE FLEX) SHALL BE USED INDOORS AND OUTDOORS, WHERE VIBRATION OCCURS OR FLEXIBILITY IS NEEDED.
19. CONDUIT AND TUBING FITTINGS SHALL BE THREADED OR COMPRESSION–TYPE AND APPROVED FOR THE LOCATION USED. SET SCREW FITTINGS ARE NOT ACCEPTABLE.
20. CABINETS, BOXES AND WIRE WAYS SHALL BE LABELED FOR ELECTRICAL USE IN ACCORDANCE WITH NEMA, UL, ANSI/IEEE AND THE NEC.
21. WIREWAYS SHALL BE METAL WITH AN ENAMEL FINISH AND INCLUDE A HINGED COVER, DESIGNED TO SWING OPEN DOWNWARDS (WIREMOLD SPECMATE WIREWAY).
22. SLOTTED WIRING DUCT SHALL BE PVC AND INCLUDE COVER (PANDUIT TYPE E OR EQUAL).
23. CONDUITS SHALL BE FASTENED SECURELY IN PLACE WITH APPROVED NON–PERFORATED STRAPS AND HANGERS. EXPLOSIVE DEVICES (i.e. POWDER–ACTUATED) FOR ATTACHING HANGERS TO STRUCTURE WILL NOT BE PERMITTED. CLOSELY FOLLOW THE LINES OF THE STRUCTURE, MAINTAIN CLOSE PROXIMITY TO THE STRUCTURE AND KEEP CONDUITS IN TIGHT ENVELOPES. CHANGES IN DIRECTION TO ROUTE AROUND OBSTACLES SHALL BE MADE WITH CONDUIT OUTLET BODIES. CONDUIT SHALL BE INSTALLED IN A NEAT AND WORKMANLIKE MANNER. PARALLEL AND PERPENDICULAR TO STRUCTURE WALL AND CEILING LINES. ALL CONDUIT SHALL BE FISHED TO CLEAR OBSTRUCTIONS. ENDS OF CONDUITS SHALL BE TEMPORARILY CAPPED FLUSH TO FINISH GRADE TO PREVENT CONCRETE, PLASTER OR DIRT FROM ENTERING. CONDUITS SHALL BE RIGIDLY CLAMPED TO BOXES BY GALVANIZED MALLEABLE IRON BUSHING ON INSIDE AND GALVANIZED MALLEABLE IRON LOCKNUT ON OUTSIDE AND INSIDE.
24. EQUIPMENT CABINETS, TERMINAL BOXES, JUNCTION BOXES AND PULL BOXES SHALL BE GALVANIZED OR EPOXY–COATED SHEET STEEL. SHALL MEET OR EXCEED UL 50 AND BE RATED NEMA 1 (OR BETTER) FOR INTERIOR LOCATIONS AND NEMA 3R (OR BETTER) FOR EXTERIOR LOCATIONS.
25. METAL RECEPTACLE, SWITCH AND DEVICE BOXES SHALL BE GALVANIZED, EPOXY–COATED OR NON–CORRODING; SHALL MEET OR EXCEED UL 514A AND NEMA OS 1 AND BE RATED NEMA 1 (OR BETTER) FOR INTERIOR LOCATIONS AND WEATHER PROTECTED (WP OR BETTER) FOR EXTERIOR LOCATIONS.
26. NONMETALLIC RECEPTACLE, SWITCH AND DEVICE BOXES SHALL MEET OR EXCEED NEMA OS 2 (NEWEST REVISION) AND BE RATED NEMA 1 (OR BETTER) FOR INTERIOR LOCATIONS AND WEATHER PROTECTED (WP OR BETTER) FOR EXTERIOR LOCATIONS.
27. THE CONTRACTOR SHALL NOTIFY AND OBTAIN NECESSARY AUTHORIZATION FROM THE CARRIER AND/OR CROWN CASTLE USA INC. BEFORE COMMENCING WORK ON THE AC POWER DISTRIBUTION PANELS.
28. THE CONTRACTOR SHALL PROVIDE NECESSARY TAGGING ON THE BREAKERS, CABLES AND DISTRIBUTION PANELS IN ACCORDANCE WITH THE APPLICABLE CODES AND STANDARDS TO SAFEGUARD LIFE AND PROPERTY.
29. INSTALL LAMICOID LABEL ON THE METER CENTER TO SHOW "AT&T".
30. ALL EMPTY/SPARE CONDUITS THAT ARE INSTALLED ARE TO HAVE A METERED MULE TAPE PULL CORD INSTALLED.

CONDUCTOR COLOR CODE

SYSTEM	CONDUCTOR	COLOR
120/240V, 1Ø	A PHASE	BLACK
	B PHASE	RED
	NEUTRAL	WHITE
	GROUND	GREEN
120/208V, 3Ø	A PHASE	BLACK
	B PHASE	RED
	C PHASE	BLUE
	NEUTRAL	WHITE
	GROUND	GREEN
277/480V, 3Ø	A PHASE	BROWN
	B PHASE	ORANGE OR PURPLE
	C PHASE	YELLOW
	NEUTRAL	GREY
	GROUND	GREEN
DC VOLTAGE	POS (+)	RED**
	NEG (–)	BLACK**

* SEE NEC 210.5(C)(1) AND (2)
** POLARITY MARKED AT TERMINATION

APWA UNIFORM COLOR CODE:

WHITE	PROPOSED EXCAVATION
PINK	TEMPORARY SURVEY MARKINGS
RED	ELECTRIC POWER LINES, CABLES, CONDUIT, AND LIGHTING CABLES
YELLOW	GAS, OIL, STEAM, PETROLEUM, OR GASEOUS MATERIALS
ORANGE	COMMUNICATION, ALARM OR SIGNAL LINES, CABLES, OR CONDUIT AND TRAFFIC LOOPS
BLUE	POTABLE WATER
PURPLE	RECLAIMED WATER, IRRIGATION, AND SLURRY LINES
GREEN	SEWERS AND DRAIN LINES

ABBREVIATIONS:

ANT	ANTENNA
(E)	EXISTING
FIF	FACILITY INTERFACE FRAME
GEN	GENERATOR
GPS	GLOBAL POSITIONING SYSTEM
GSM	GLOBAL SYSTEM FOR MOBILE
LTE	LONG TERM EVOLUTION
MGB	MASTER GROUND BAR
MW	MICROWAVE
(N)	NEW
NEC	NATIONAL ELECTRIC CODE
(P)	PROPOSED
PP	POWER PLANT
QTY	QUANTITY
RECT	RECTIFIER
RBS	RADIO BASE STATION
RET	REMOTE ELECTRIC TILT
RFDS	RADIO FREQUENCY DATA SHEET
RRH	REMOTE RADIO HEAD
RRU	REMOTE RADIO UNIT
SIAD	SMART INTEGRATED DEVICE
TMA	TOWER MOUNTED AMPLIFIER
TYP	TYPICAL
UMTS	UNIVERSAL MOBILE TELECOMMUNICATIONS SYSTEM
W.P.	WORK POINT

AT&T
575 MOROSGO DRIVE
ATLANTA, GA 30324-3300

CROWN CASTLE
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B+T GRP
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TULSA, OK 74119
PH: (918) 587-4630
www.btgrp.com

AT&T SITE NUMBER:
CTL02024

BU #: **806363**
HRT 105 943201

48 COW HILL ROAD
CLINTON, CT 06413

EXISTING
212'-7" SELF SUPPORT
TOWER

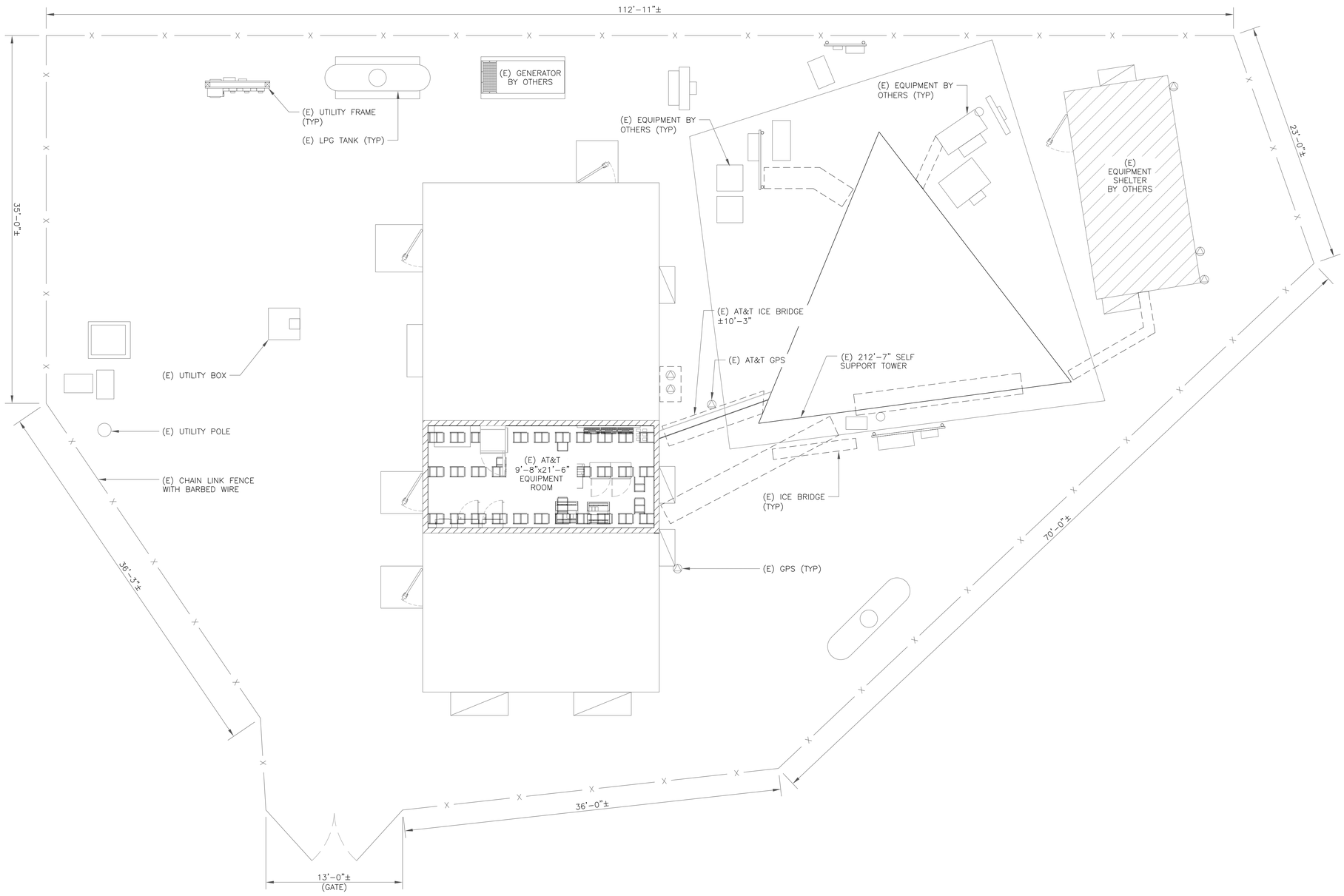
ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
A	8/12/22	BEH	PRELIMINARY REVIEW	MTJ
B	8/30/22	BEH	PRELIMINARY REVIEW	MTJ
0	10/19/22	JTS	CONSTRUCTION	MTJ

MTS ENGINEERING P.L.L.C.
BER:2386985
Expires 3/31/23

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

SHEET NUMBER:	REVISION:
T-2	0



1 SITE PLAN

SCALE: 4' 2' 0 4'

3/16"=1'-0" (FULL SIZE)
3/32"=1'-0" (11x17)

N

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STATE OF CONNECTICUT
No. 23924
LICENSED
PROFESSIONAL ENGINEER
10/19/22

MTS ENGINEERING P.L.L.C.
BER:2386985
Expires 3/31/23

SHEET NUMBER: C-1.1

REVISION: 0

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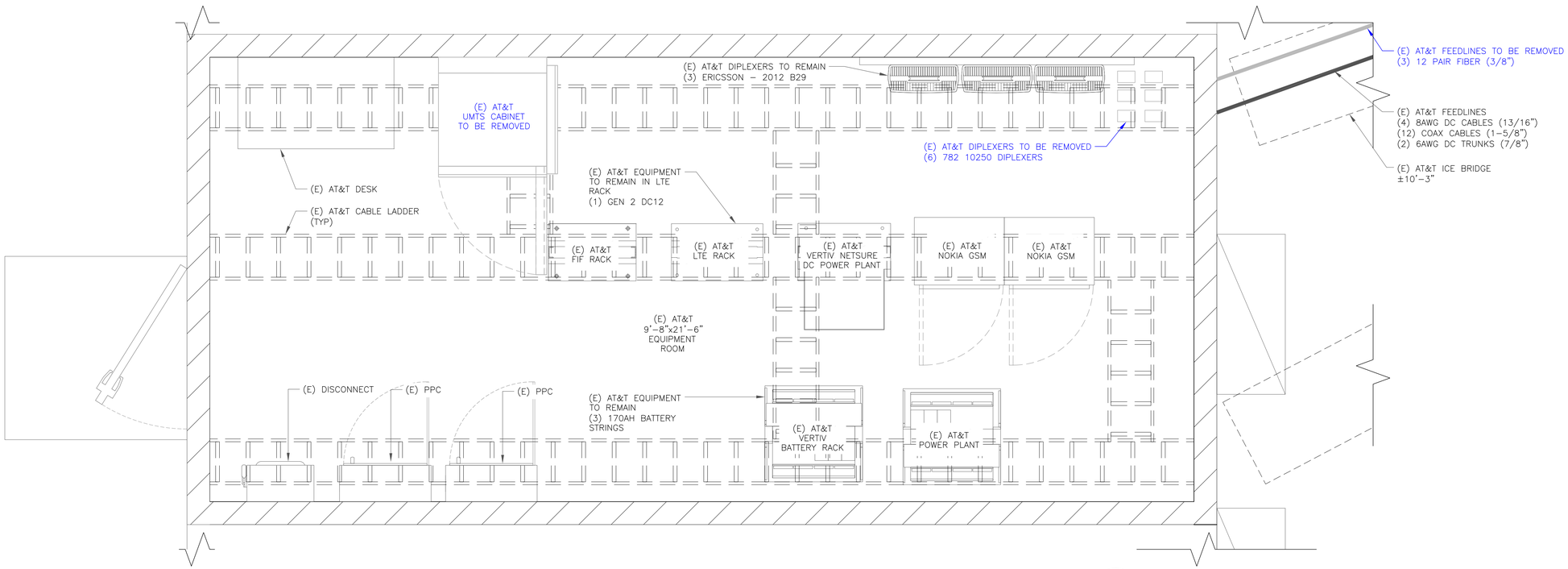
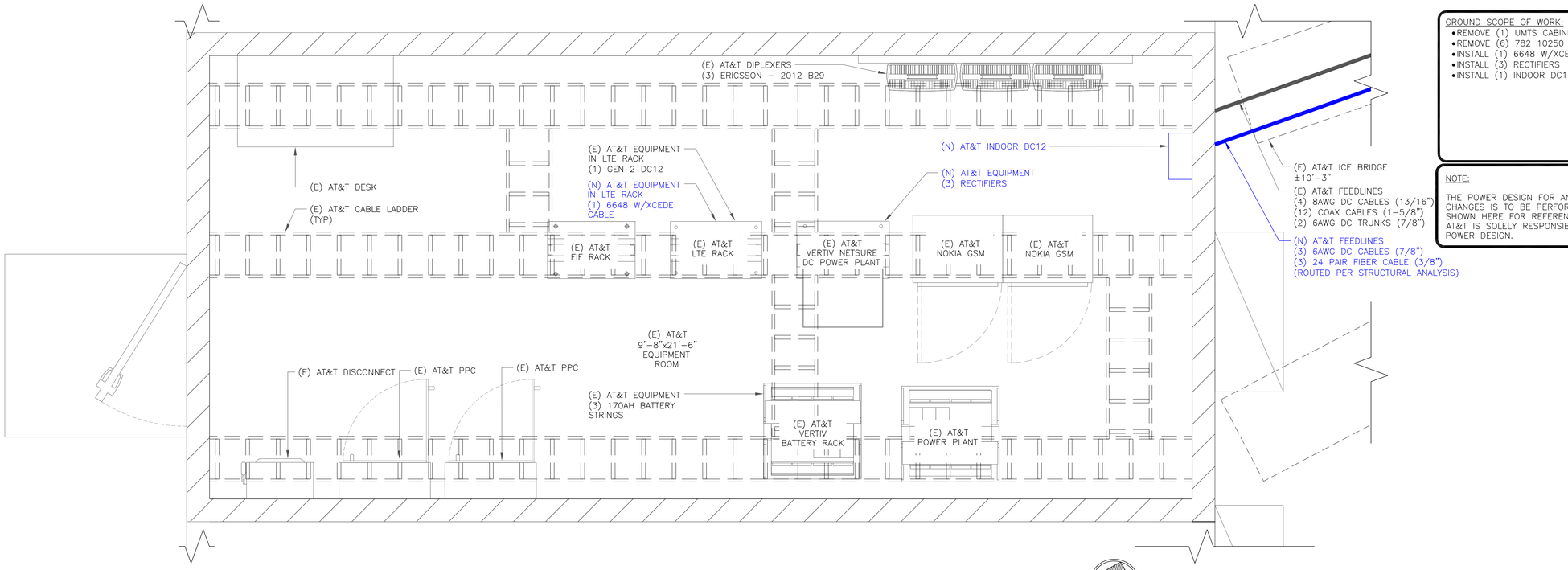


1 EXISTING EQUIPMENT PLAN

SCALE: 1' 6" 0 1' 3/4"=1'–0" (FULL SIZE) 3/8"=1'–0" (11x17)



2 FINAL EQUIPMENT PLAN

SCALE: 1' 6" 0 1' 3/4"=1'–0" (FULL SIZE) 3/8"=1'–0" (11x17)

GROUND SCOPE OF WORK:
- REMOVE (1) UMTS CABINET
- REMOVE (6) 782 10250 DIPLEXERS
- INSTALL (1) 6648 W/XCEDE CABLE
- INSTALL (3) RECTIFIERS
- INSTALL (1) INDOOR DC12

NOTE:

THE POWER DESIGN FOR ANY AC ELECTRICAL POWER CHANGES IS TO BE PERFORMED BY OTHERS AND IS SHOWN HERE FOR REFERENCE PURPOSES ONLY. AT&T IS SOLELY RESPONSIBLE FOR THE ELECTRICAL POWER DESIGN.

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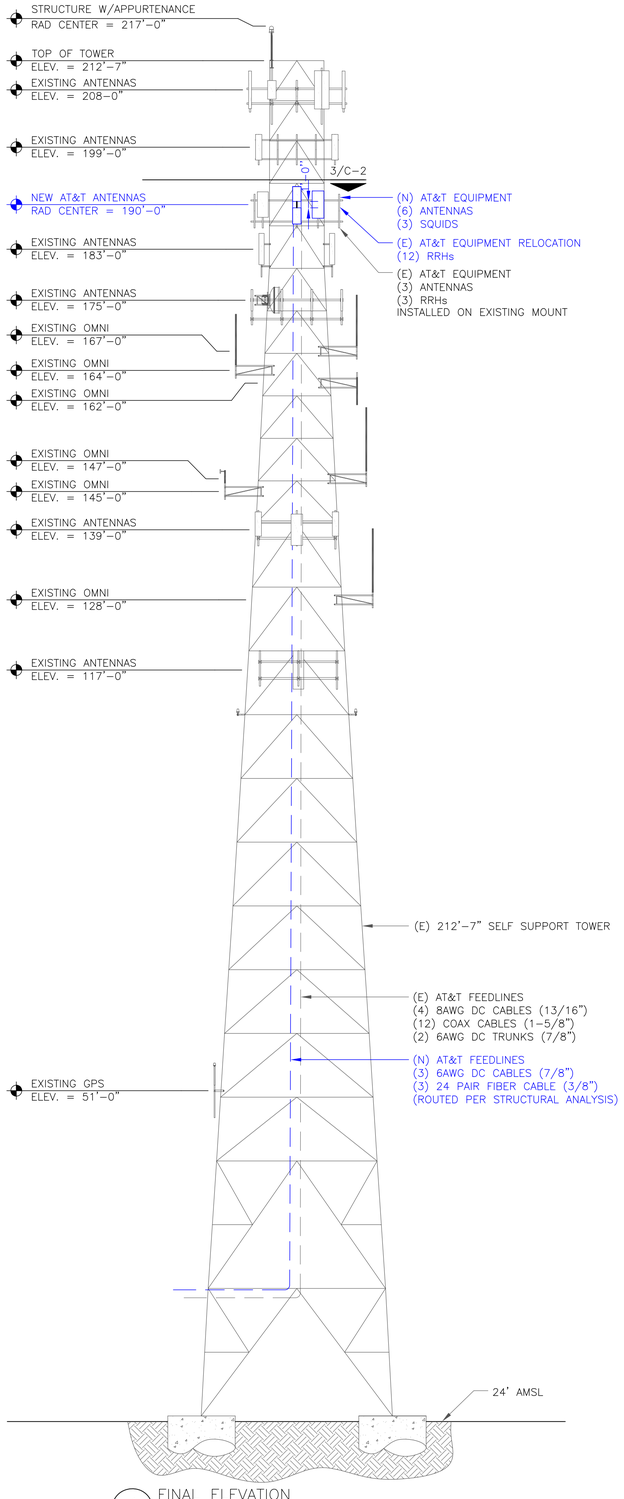
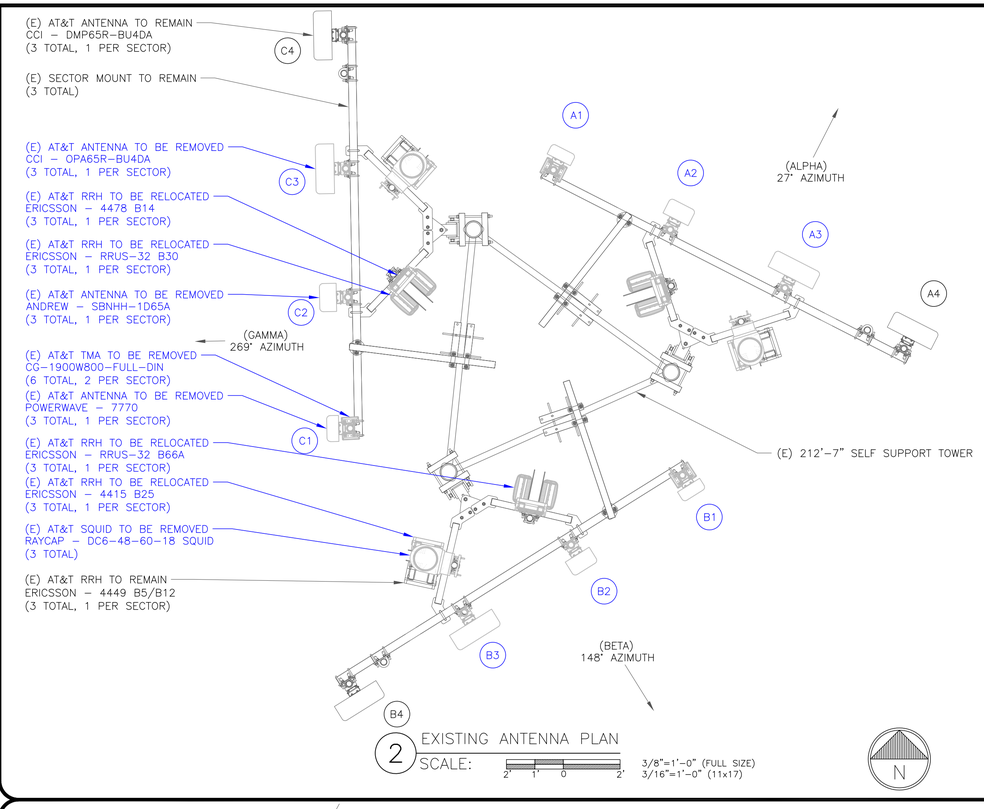
BER:2386985
Expires 3/31/23

SHEET NUMBER: C-1.2

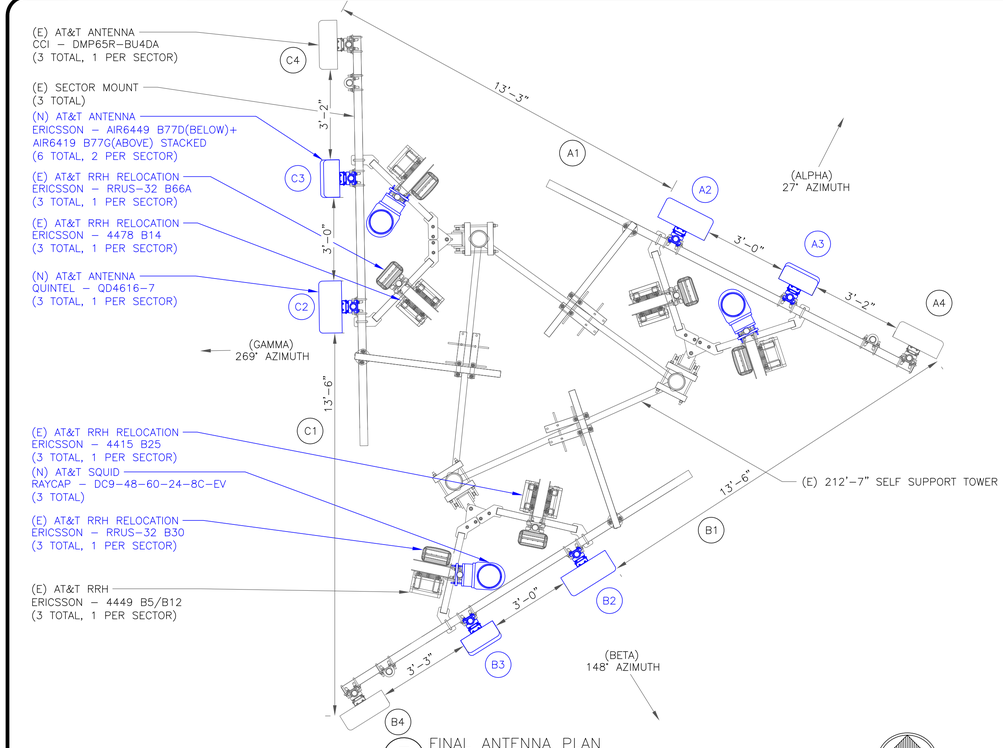
REVISION: 0



1 FINAL ELEVATION
SCALE: NOT TO SCALE



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



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

"LOOK UP" – CROWN CASTLE USA INC.
SAFETY CLIMB REQUIREMENT:

THE INTEGRITY OF THE SAFETY CLIMB AND ALL COMPONENTS OF THE CLIMBING FACILITY SHALL BE CONSIDERED DURING ALL STAGES OF DESIGN, INSTALLATION, AND INSPECTION. TOWER MODIFICATION, MOUNT REINFORCEMENTS, AND/OR EQUIPMENT INSTALLATIONS SHALL NOT COMPROMISE THE INTEGRITY OR FUNCTIONAL USE OF THE SAFETY CLIMB OR ANY COMPONENTS OF THE CLIMBING FACILITY ON THE STRUCTURE. THIS SHALL INCLUDE, BUT NOT BE LIMITED TO: PINCHING OF THE WIRE ROPE, BENDING OF THE WIRE ROPE FROM ITS SUPPORTS, DIRECT CONTACT OR CLOSE PROXIMITY TO THE WIRE ROPE WHICH MAY CAUSE FRICTIONAL WEAR, IMPACT TO THE ANCHORAGE POINTS IN ANY WAY, OR TO IMPEDE/BLOCK ITS INTENDED USE. ANY COMPROMISED SAFETY CLIMB, INCLUDING EXISTING CONDITIONS MUST BE TAGGED OUT AND REPORTED TO YOUR CROWN CASTLE USA INC. POC OR CALL THE NOC TO GENERATE A SAFETY CLIMB MAINTENANCE AND CONTRACTOR NOTICE TICKET.

INSTALLER NOTES:

1. REFERENCE C-3 FOR FINAL EQUIPMENT SCHEDULE.
2. REFERENCE C-4 FOR NEW EQUIPMENT SPECIFICATIONS.
3. CONTRACTOR TO VERIFY ALL ANTENNA TIP HEIGHTS DO NOT EXCEED BEACON BASE HEIGHT.
4. 3'-0" MINIMUM DISTANCE REQUIRED BETWEEN LTE ANTENNAS ON SAME SECTOR.
5. 6'-0" MINIMUM DISTANCE REQUIRED BETWEEN 700BC & 700DE ANTENNAS ON SAME SECTOR.
6. 4'-0" MINIMUM DISTANCE REQUIRED BETWEEN LTE 700 ANTENNAS ON OPPOSING SECTORS.
7. ALL ANTENNA MEASUREMENT DISTANCES MUST BE EDGE TO EDGE (RELOCATE ANTENNAS AS NEEDED).
8. 8" MINIMUM DISTANCE REQUIRED BETWEEN ANTENNA & RADIO. SEE GENERIC EXAMPLE DETAIL ON SHEET C-4.

AT&T
575 MOROSGO DRIVE
ATLANTA, GA 30324-3300

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1717 S. BOULDER
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TULSA, OK 74119
PH: (918) 587-4630
www.btgrp.com

AT&T SITE NUMBER:
CTL02024

BU #: **806363**
HRT 105 943201

48 COW HILL ROAD
CLINTON, CT 06413

EXISTING
212'-7" SELF SUPPORT
TOWER

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
A	8/12/22	BEH	PRELIMINARY REVIEW	MTJ
B	8/30/22	BEH	PRELIMINARY REVIEW	MTJ
0	10/19/22	JTS	CONSTRUCTION	MTJ

MTS ENGINEERING P.L.L.C.
BER:2386985
Expires 3/31/23

SHEET NUMBER: C-2

REVISION: 0

FINAL EQUIPMENT SCHEDULE
(VERIFY WITH CURRENT RFDS)

ALPHA

POSITION	ANTENNA				RADIO			DIPLEXER			TMA			SURGE PROTECTION		CABLES			
	TECH.	STATUS/MANUFACTURER MODEL	AZIMUTH	RAD CENTER	QTY.	STATUS/MODEL	LOCATION	QTY.	STATUS	LOCATION	QTY.	STATUS/MANUFACTURER MODEL	QTY.	STATUS/MODEL	QTY.	STATUS/TYPE	SIZE	LENGTH
A1	–	–	–	–	–	–	–	–	–	–	–	–	1	(N) DC9-48-60-24-8C-EV	4	(E) COAX	1-5/8"	239'-0"
A2	LTE700 /LTE 1900 /5G 1900 /5G AWS /LTE AWS	(N) QUINTEL – QD4616-7	27°	190'-0"	1 1 1 1	(E) RRUS 2012 B29 (E) RRUS 4478 B14 (E) RRUS-32 B66A (E) RRUS 4415 B25	GROUND TOWER TOWER TOWER	–	–	–	–	–			2	(E) DC	13/16"	239'-0"
A3	5G CBAND	(N) ERICSSON – AIR6449 B77D+AIR6419 B77G STACKED	27°	190'-0"	–	INTEGRATED WITHIN	TOWER	–	–	–	–	–			1	(N) FIBER	3/8"	239'-0"
A4	LTE 700/5G 850/LTE WCS	(E) CCI – DMP65R-BU4DA	27°	190'-0"	1 1	(E) RRUS-4449 B5/B12 (E) RRUS-32 B30	TOWER TOWER	–	–	–	–	–			1	(N) DC	7/8"	239'-0"

BETA

B1	–	–	–	–	–	–	–	–	–	–	–	–	1	(N) DC9-48-60-24-8C-EV	4	(E) COAX	1-5/8"	239'-0"
B2	LTE700 /LTE 1900 /5G 1900 /5G AWS /LTE AWS	(N) QUINTEL – QD4616-7	148°	190'-0"	1 1 1 1	(E) RRUS 2012 B29 (E) RRUS 4478 B14 (E) RRUS-32 B66A (E) RRUS 4415 B25	GROUND TOWER TOWER TOWER	–	–	–	–	–			2	(E) DC	13/16"	239'-0"
B3	5G CBAND	(N) ERICSSON – AIR6449 B77D+AIR6419 B77G STACKED	148°	190'-0"	–	INTEGRATED WITHIN	TOWER	–	–	–	–	–			1	(N) FIBER	3/8"	239'-0"
B4	LTE 700/5G 850/LTE WCS	(E) CCI – DMP65R-BU4DA	148°	190'-0"	1 1	(E) RRUS-4449 B5/B12 (E) RRUS-32 B30	TOWER TOWER	–	–	–	–	–			1	(N) DC	7/8"	239'-0"

GAMMA

C1	–	–	–	–	–	–	–	–	–	–	–	–	1	(N) DC9-48-60-24-8C-EV	4	(E) COAX	1-5/8"	239'-0"
C2	LTE700 /LTE 1900 /5G 1900 /5G AWS /LTE AWS	(N) QUINTEL – QD4616-7	269°	190'-0"	1 1 1 1	(E) RRUS 2012 B29 (E) RRUS 4478 B14 (E) RRUS-32 B66A (E) RRUS 4415 B25	GROUND TOWER TOWER TOWER	–	–	–	–	–			2	(E) DC	7/8"	239'-0"
C3	5G CBAND	(N) ERICSSON – AIR6449 B77D+AIR6419 B77G STACKED	269°	190'-0"	–	INTEGRATED WITHIN	TOWER	–	–	–	–	–			1	(N) FIBER	3/8"	239'-0"
C4	LTE 700/5G 850/LTE WCS	(E) CCI – DMP65R-BU4DA	269°	190'-0"	1 1	(E) RRUS-4449 B5/B12 (E) RRUS-32 B30	TOWER TOWER	–	–	–	–	–			1	(N) DC	7/8"	239'-0"
														UNUSED FEEDLINES:	–	–	–	–
															–	–	–	–

NOTE:
(E) – EXISTING
(N) – NEW

1 FINAL ANTENNA AND FEEDLINE SCHEDULE
SCALE: NOT TO SCALE

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AT&T SITE NUMBER:
CTL02024

BU #: **806363**
HRT 105 943201

48 COW HILL ROAD
CLINTON, CT 06413

EXISTING
212'-7" SELF SUPPORT
TOWER

ISSUED FOR:

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0	10/19/22	JTS	CONSTRUCTION	MTJ

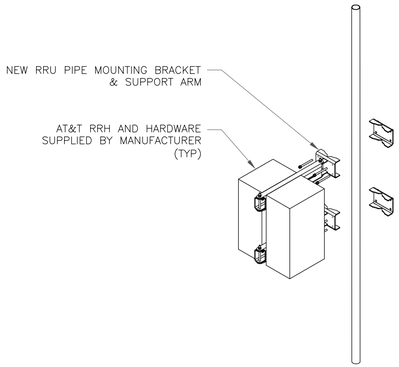
STATE OF CONNECTICUT
MICHAEL T. JONES
No. 23824
LICENSED
PROFESSIONAL ENGINEER
10/19/22

MTS ENGINEERING P.L.L.C.
BER:2386985
Expires 3/31/23

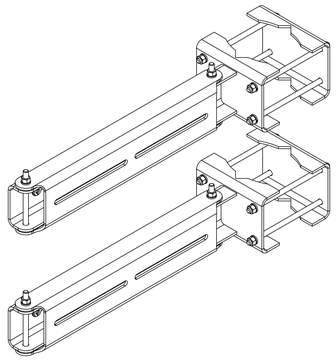
SHEET NUMBER: C-3
REVISION: 0

INSTALLER NOTES:

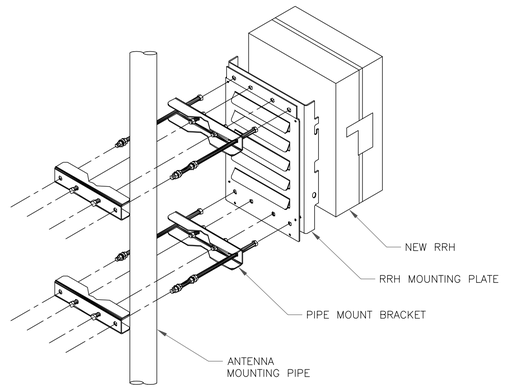
1. COMPLY WITH MANUFACTURERS INSTRUCTIONS TO ENSURE THAT ALL RRHs RECEIVE ELECTRICAL POWER WITHIN 24 HOURS OF BEING REMOVED FROM THE MANUFACTURER'S PACKAGING.
2. DO NOT OPEN RRH PACKAGES IN THE RAIN.
3. ALL PIPES, BRACKETS, AND MISCELLANEOUS HARDWARE TO BE GALVANIZED UNLESS NOTED OTHERWISE.



1 DUAL RRH MOUNTING DETAIL
SCALE: NOT TO SCALE



2 DUAL RADIO MOUNT
SCALE: NOT TO SCALE



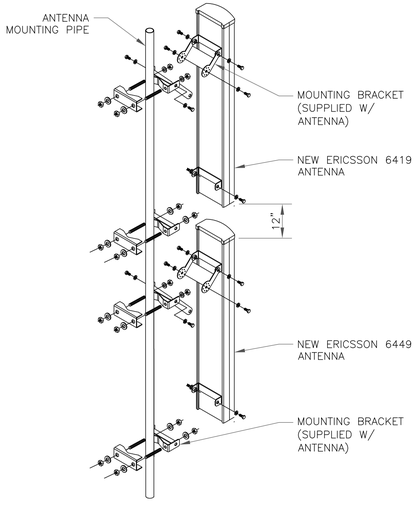
NOTE:

ANTENNA NOT SHOWN FOR CLARITY

3 SINGLE RRH MOUNTING DETAIL
SCALE: NOT TO SCALE

INSTALLER NOTE:

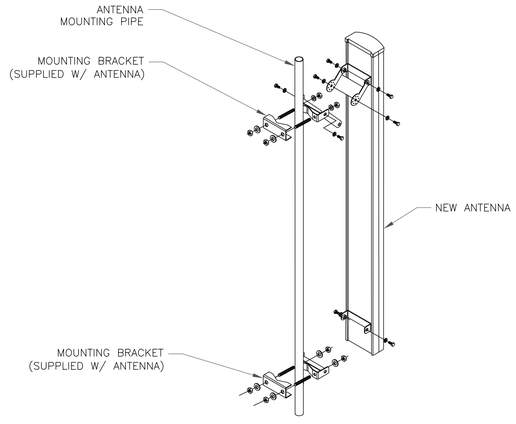
ALL PIPES, BRACKETS, AND MISCELLANEOUS HARDWARE TO BE GALVANIZED UNLESS NOTED OTHERWISE.



4 STACKED ANTENNA MOUNTING DETAIL
SCALE: NOT TO SCALE

INSTALLER NOTE:

- ALL PIPES, BRACKETS, AND MISCELLANEOUS HARDWARE TO BE GALVANIZED UNLESS NOTED OTHERWISE.
- MAINTAIN MINIMUM 8" SEPARATION BETWEEN ANTENNA AND OTHER EQUIPMENT

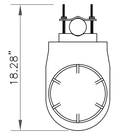


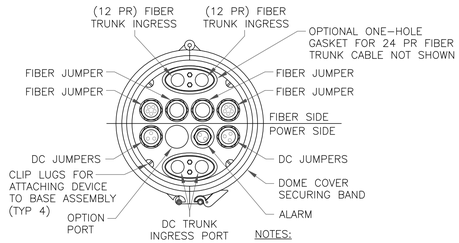
5 ANTENNA MOUNTING DETAIL
SCALE: NOT TO SCALE

RAYCAP
DC9-48-60-24-8C-EV

RAYCAP - DC9-48-60-24-8C-EV
SIZE: 10.24x31.40 IN.
WEIGHT: 26.2 LBS
NOMINAL OPERATING VOLTAGE: 48 VDC
VOLTAGE PROTECTION RATING: 330 V
WIND LOADING: 150 MPH SUSTAINED (105.7 LBS)
WIND LOADING: 195 MPH GUST (213.6 LBS)

CONTRACTOR TO USE "THREAD LUBRICANT" ON MOUNTING BOLTS DURING INSTALLATION





NOTES:

1. REMOVE CABLE SEALING GLAND AND INSTALL M32x1.5 METRIC-TO-1" NPT ADAPTER (COOPER CROUSE-HINES P/N CAP 740 994 OR EQUIVALENT MFR) WHEN CONNECTING CONDUIT TO OVP.

6 SQUID MOUNTING DETAIL
SCALE: NOT TO SCALE

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TULSA, OK 74119
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www.btgrp.com

AT&T SITE NUMBER:
CTL02024

BU #: **806363**
HRT 105 943201

48 COW HILL ROAD
CLINTON, CT 06413

EXISTING
212'-7" SELF SUPPORT
TOWER

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
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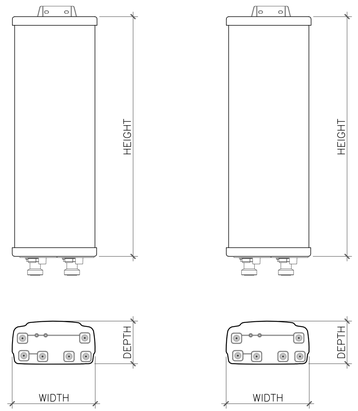
0	10/19/22	JTS	CONSTRUCTION	MTJ

MTS ENGINEERING P.L.L.C.
BER:2386985
Expires 3/31/23

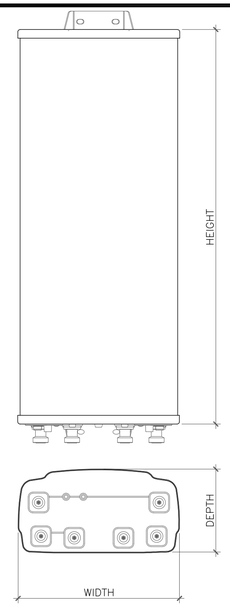
SHEET NUMBER: C-4

REVISION: 0



ANTENNA DIMENSIONS (INCHES)				
MODEL	HEIGHT	WIDTH	DEPTH	WEIGHT
ERICSSON – AIR6449_B77D	30.39"	15.87"	8.07"	81.60 lbs
ERICSSON – AIR6419_B77G	27.95"	15.75"	6.68"	66.20 lbs

1 ANTENNA DETAIL
SCALE: NOT TO SCALE



ANTENNA DIMENSIONS (INCHES)				
MODEL	HEIGHT	WIDTH	DEPTH	WEIGHT
QUINTEL – QD4616-7	51.50"	22.0"	9.60"	109.00lbs

2 ANTENNA DETAIL
SCALE: NOT TO SCALE

3 NOT USED
SCALE: NOT TO SCALE

4 NOT USED
SCALE: NOT TO SCALE

5 NOT USED
SCALE: NOT TO SCALE

6 NOT USED
SCALE: NOT TO SCALE

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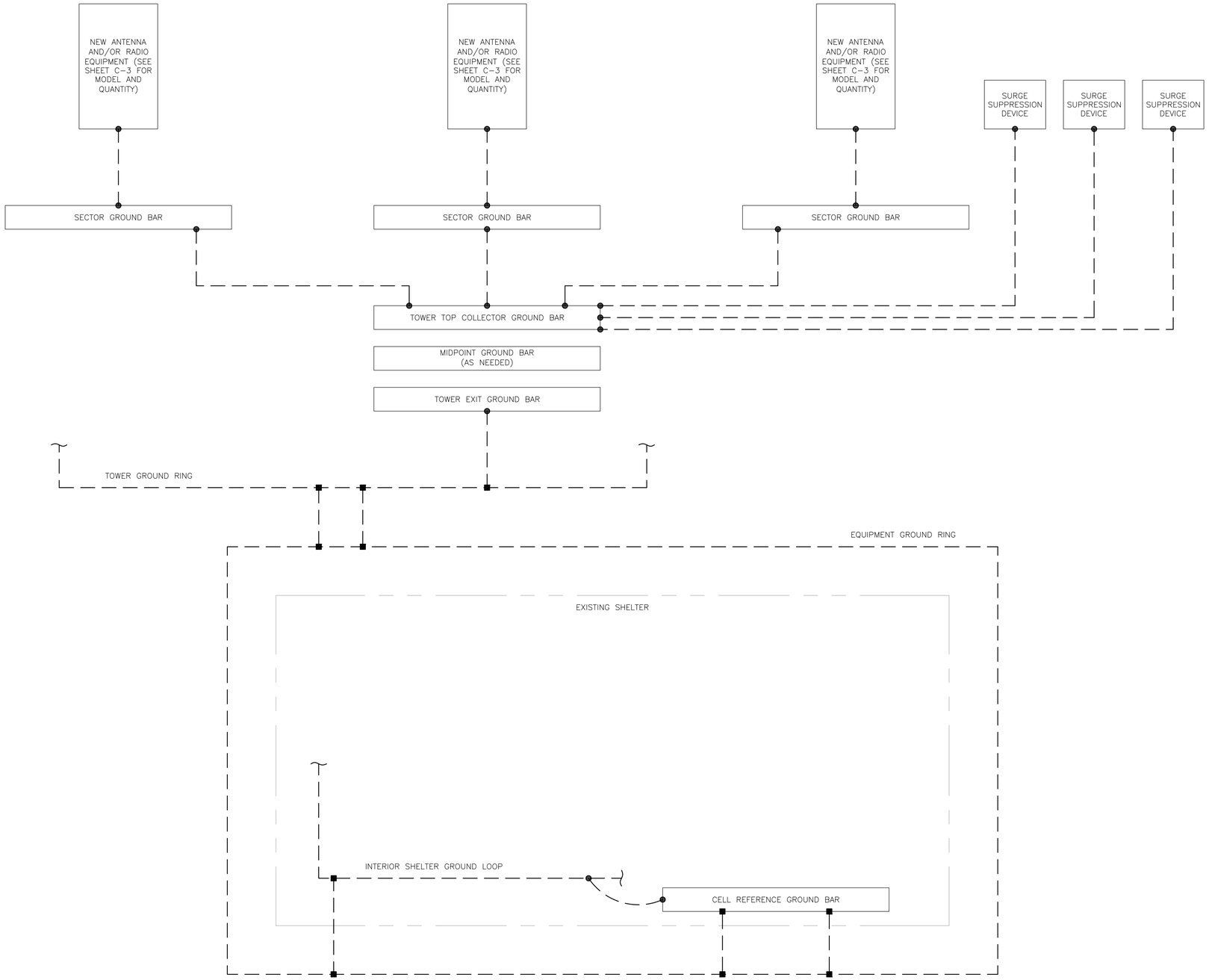
MTS ENGINEERING P.L.L.C.
BER:2386985
Expires 3/31/23

SHEET NUMBER: C-5
REVISION: 0



1 GROUNDING SCHEMATIC
SCALE: NOT TO SCALE

GROUNDING PLAN LEGEND:

- GROUND WIRE
- EXOTHERMIC WELD
- MECHANICAL CONNECTION
- COPPER GROUND ROD
- GROUND ROD W/ TEST WELL

CELL REFERENCE GROUND BAR: POINT OF GROUND REFERENCE FOR ALL COMMUNICATIONS EQUIPMENT FRAMES. ALL BONDS ARE MADE WITH #2 STRANDED GREEN INSULATED COPPER CONDUCTORS. BOND TO GROUND RING WITH (2) #2 SOLID TINNED COPPER CONDUITS (ATT-TP-76416 7.6.7).

HATCH PLATE GROUND BAR: BOND TO THE INTERIOR GROUND RING WITH (2) #2 STRANDED GREEN INSULATED COPPER CONDUCTORS. WHEN A HATCH-PLATE AND A CELL REFERENCE GROUND BAR ARE BOTH PRESENT, THE CELL SITE REFERENCE GROUND BAR MUST BE CONNECTED TO THE HATCH-PLATE AND TO THE INTERIOR GROUND RING USING (2) #2 STRANDED GREEN INSULATED COPPER CONDUCTORS.

EXTERIOR CABLE ENTRY PORT GROUND BARS: LOCATED AT THE ENTRANCE TO THE CELL SITE BUILDING. BOND TO GROUND RING WITH A #2 SOLID TINNED COPPER CONDUCTORS WITH AN EXOTHERMIC WELD AND INSPECTION SLEEVE (ATT-TP-76416 7.6.7.2).

DURING ALL DC POWER SYSTEM CHANGES INCLUDING DC SYSTEM CHANGE OUTS, RECTIFIER REPLACEMENTS OR ADDITIONS, BREAKER DISTRIBUTION CHANGES, BATTERY ADDITIONS, BATTERY REPLACEMENTS AND INSTALLATIONS OR CHANGES TO DC CONVERTER SYSTEMS IT SHALL BE REQUIRED THAT SERVICES CONTRACTORS VERIFY ALL DC POWER SYSTEMS ARE EQUIPPED WITH MASTER DC SYSTEM RETURN GROUND CONDUCTOR FROM THE DC POWER SYSTEM COMMON RETURN BUS DIRECTLY CONNECTED TO THE CELL SITE REFERENCE GROUND BAR PER TP76300 SECTION H 6 AND TP76416 FIGURE 7-11 REQUIREMENTS.

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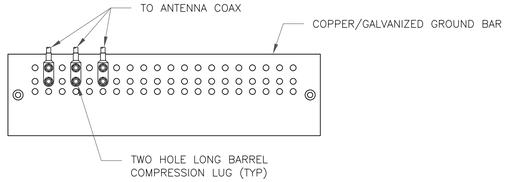
STATE OF CONNECTICUT
No. 23924
LICENSED
PROFESSIONAL ENGINEER
10/19/22

MTS ENGINEERING P.L.L.C.
BER:2386985
Expires 3/31/23

SHEET NUMBER: G-1

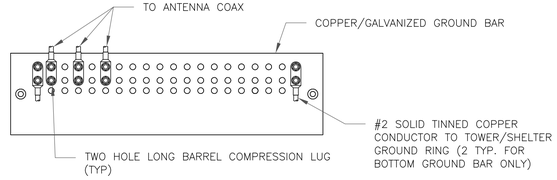
REVISION: 0



NOTES:

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

1 ANTENNA SECTOR GROUND BAR DETAIL
SCALE: NOT TO SCALE

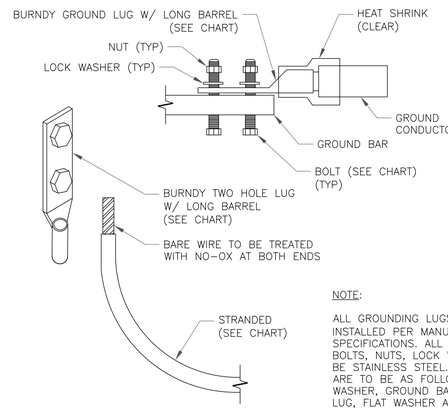


NOTES:

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

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

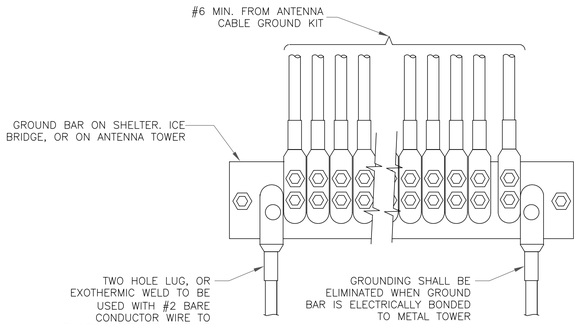
WIRE SIZE	BURNDY LUG	BOLT SIZE
#6 GREEN INSULATED	YA6C-2TC38	3/8" - 16 NC SS 2 BOLT
#2 SOLID TINNED	YA3C-2TC38	3/8" - 16 NC SS 2 BOLT
#2 STRANDED	YA2C-2TC38	3/8" - 16 NC SS 2 BOLT
#2/0 STRANDED	YA26-2TC38	3/8" - 16 NC SS 2 BOLT
#4/0 STRANDED	YA28-2N	1/2" - 16 NC SS 2 BOLT



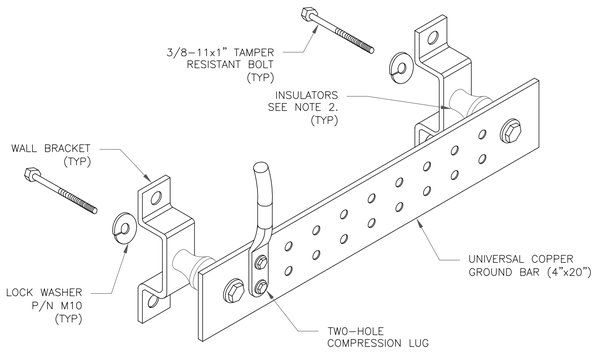
NOTE:

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

3 MECHANICAL LUG CONNECTION
SCALE: NOT TO SCALE



4 GROUNDWIRE INSTALLATION
SCALE: NOT TO SCALE

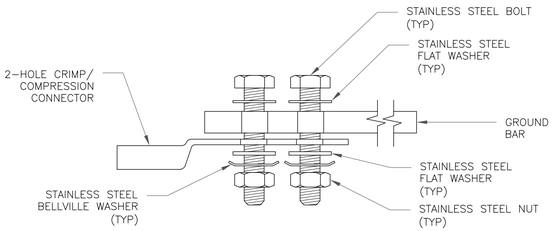


NOTES:

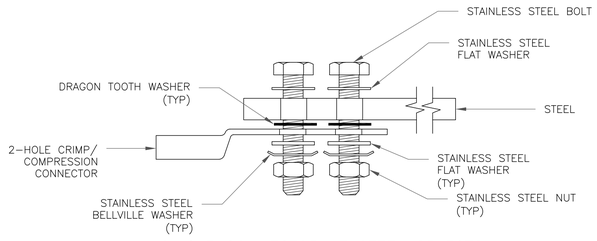
1. DOWN LEAD (HOME RUN) CONDUCTORS ARE NOT TO BE INSTALLED ON CROWN CASTLE USA INC. TOWER, PER THE GROUNDING DOWN CONDUCTOR POLICY QAS-STD-10091. NO MODIFICATION OR DRILLING TO TOWER STEEL IS ALLOWED IN ANY FORM OR FASHION, CAD-WELDING ON THE TOWER AND/OR IN THE AIR ARE NOT PERMITTED.

2. OMIT INSULATOR WHEN MOUNTING TO TOWER STEEL OR PLATFORM STEEL USE INSULATORS WHEN ATTACHING TO BUILDING OR SHELTERS.

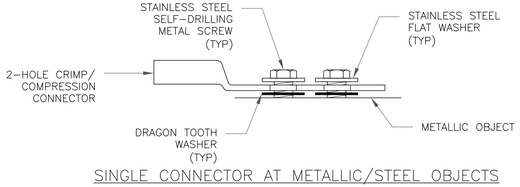
5 GROUND BAR DETAIL
SCALE: NOT TO SCALE



SINGLE CONNECTOR AT GROUND BARS

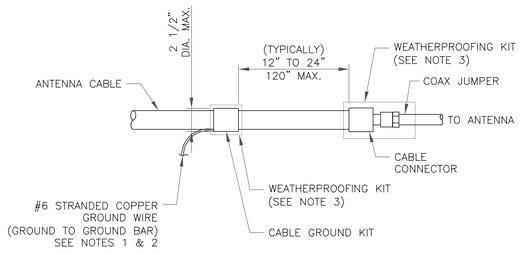


SINGLE CONNECTOR AT STEEL OBJECTS



SINGLE CONNECTOR AT METALLIC/STEEL OBJECTS

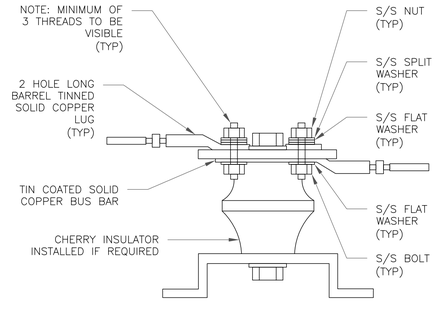
8 HARDWARE DETAIL FOR EXTERIOR CONNECTIONS
SCALE: NOT TO SCALE



NOTES:

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

6 CABLE GROUND KIT CONNECTION
SCALE: NOT TO SCALE



7 LUG DETAIL
SCALE: NOT TO SCALE

AT&T
575 MOROSGO DRIVE
ATLANTA, GA 30324-3300

CROWN CASTLE
3530 TORINGDON WAY, SUITE 300
CHARLOTTE, NC 28277

B+T GRP
1717 S. BOULDER
SUITE 300
TULSA, OK 74119
PH: (918) 587-4630
www.btgrp.com

AT&T SITE NUMBER:
CTL02024

BU #: **806363**
HRT 105 943201

48 COW HILL ROAD
CLINTON, CT 06413

EXISTING
212'-7" SELF SUPPORT
TOWER

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
A	8/12/22	BEH	PRELIMINARY REVIEW	MTJ
B	8/30/22	BEH	PRELIMINARY REVIEW	MTJ
0	10/19/22	JTS	CONSTRUCTION	MTJ

MTS ENGINEERING P.L.L.C.
BER:2386985
Expires 3/31/23

SHEET NUMBER: G-2

REVISION: 0

Diagram - Sector	A	Diagram File Name - CT2024_ABG_C-Band_DoD_Rev.1.vsd					
Atoll Site Name -	CTL02024	Location Name -	CLINTON-COW HILL ROAD	Market -	CONNECTICUT	Market Cluster -	NEW ENGLAND
Comments: "Important Note: For detailed radio to antenna wiring refer to the latest field notice - Antenna_Radio Connection Drawings Playbook v6.0_Ericsson"							

Antenna 1
Empty

Antenna 2
LTE 700(DE) / 700(B14) / PCS /AWS
16 Port Antenna

Broadband Low 700 DE +45/-45 - + | RET
Broadband Low 700 B14 +45/-45 - + | RET
Broadband Low 700 B14 +45/-45 - + | RET
Broadband Low 850 +45/-45 - + | RET
Broadband HI 4Tx/4Rx +45/-45 - + | RET
Broadband HI 4Tx/4Rx +45/-45 - + | RET
Broadband HI 4Tx/4Rx +45/-45 - + | RET
Broadband HI Tx/4Rx +45/-45 - + | RET

Antenna 3
DoD + C band

AIR DoD +45/-45 - +
AIR C-BAND +45/-45 - +

Antenna 4
LTE 700(BC) / WCS/ 5G 850

Broadband Octo Low 700/850 +45/-45 - + | RET
Broadband Octo Low 700/850 +45/-45 - + | RET
Broadband Octo High 4Tx/4Rx +45/-45 - + | RET
Broadband Octo High 4Tx/4Rx +45/-45 - + | RET

LTE PCS RRH
LTE AWS RRH
LTE WCS RRH

(Y- Cable)

Fiber/DC-9
Demarcation Box (Squid)

1 Squid per sector

DC Plant

- 3 Feet Minimum Separation between ALL Antennas
- 6 Feet Minimum Separation between 700BC & 700 DE
- 12" Vertical Separation between DoD and C Band Antenna.
- Use "Y Cable" for Dual band RRHs

6648
6630
XMU
6630

IDLe
Xcede

UMTS 1st NodeB

Diagram - Sector	B	Diagram File Name - CT2024_ABG_C-Band_DoD_Rev.1.vsd					
Atoll Site Name -	CTL02024	Location Name -	CLINTON-COW HILL ROAD	Market -	CONNECTICUT	Market Cluster -	NEW ENGLAND
Comments: "Important Note: For detailed radio to antenna wiring refer to the latest field notice - Antenna_Radio Connection Drawings Playbook v6.0_Ericsson"							

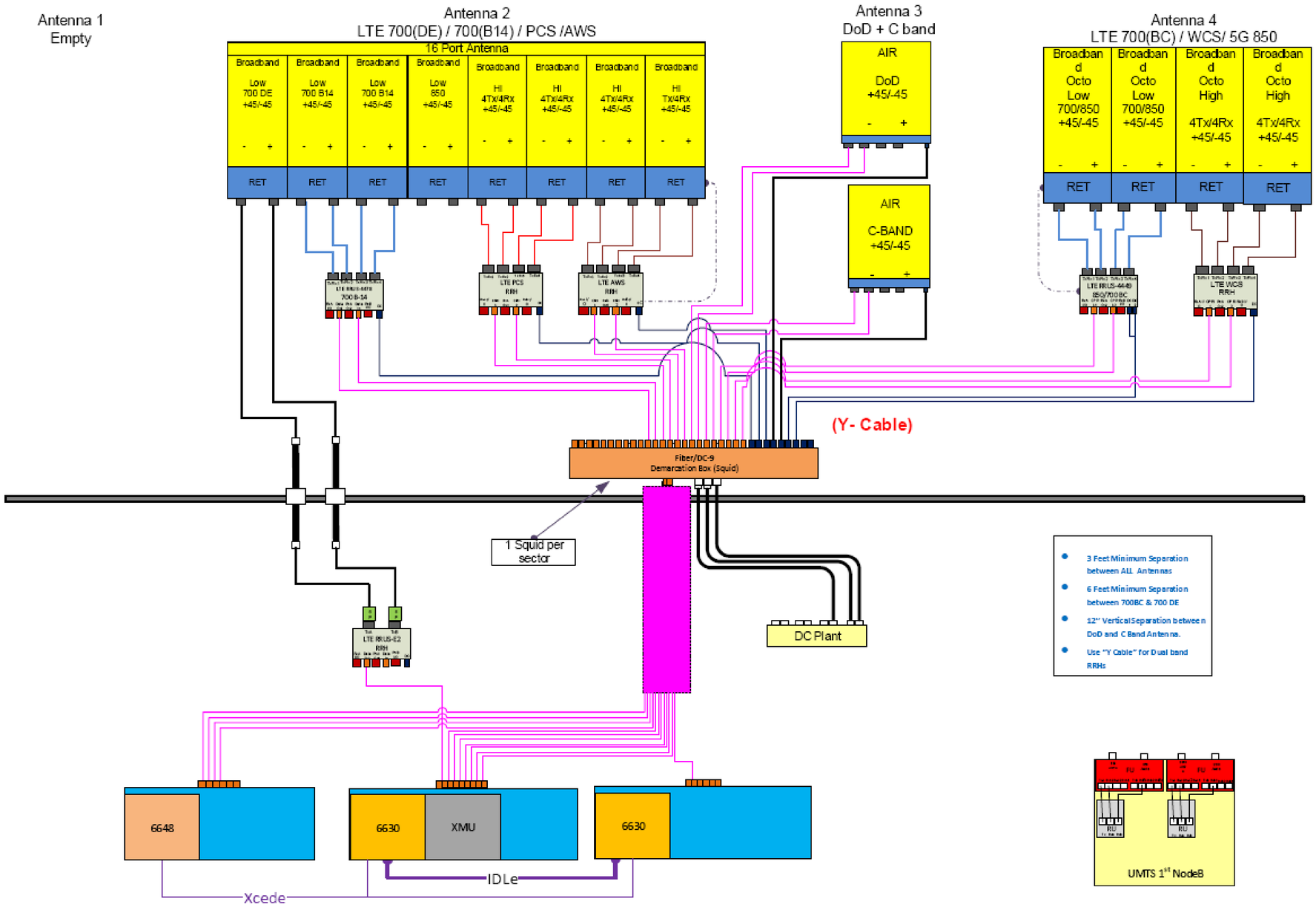


Diagram - Sector	C	Diagram File Name - CT2024_ABG_C-Band_DoD_Rev.1.vsd							
Atoll Site Name -	CTL02024	Location Name -	CLINTON-COW HILL ROAD	Market -	CONNECTICUT	Market Cluster -	NEW ENGLAND		
Comments: "Important Note: For detailed radio to antenna wiring refer to the latest field notice - Antenna_Radio Connection Drawings Playbook v6.0_Ericsson"									

Antenna 1
Empty