Transcend Wireless

10 Industrial Ave,
Suite 3
Mahwah NJ 07430

Phone: 201.684.0055
Fax: 201.684.0066

December 17, 2018

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

Notice of Exempt Modification
36 Janowski Road, Ashford, CT 06278
Latitude- 41.9519440000
Longitude- -72.1952780000

Dear Ms. Bachman,

T-Mobile currently maintains (4) existing antennas 153' level of the existing 192' lattice tower at 36 Janowski Road in Ashford, Connecticut. The tower is owned by Crown Castle. The property is owned by David H. Martin c/o Sprint Spectrum. T-Mobile now intends to remove (2) of the existing antennas and add (4) new 600/700/1900/2100 MHz antennas. These antennas would be installed at the same 153' level of the tower. T-Mobile also intends to remove (2) existing tower-mounted amplifiers and replace with (6) new tower-mounted amplifiers, as well as add (4) coax and (6) diplexers.

The tower was originally approved by the Town of Ashford Planning and Zoning Commission on November 12, 1996. The approval did not include conditions that would be violated by this modification. T-Mobile, as Omnipoint Communications, was approved for tower sharing by the Connecticut Siting Council on June 16, 1999.

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 Michael J. Zambo, First Selectmen of the Town of Ashford, Michael Gardner, Zoning Enforcement Officer for the Town of Ashford, as well as the tower owner and property owner.

The planned modifications to the facility fall squarely within those activities explicitly provided for in R.C.S.A. 16-50j-72(b)(2).

1. The proposed modification will not result in an increase in the height of the existing structure

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

3. The proposed modifications 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 Communications Commission safety standard.

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

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

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

Sincerely,

Kyle Richers

Kyle Richers
Transcend Wireless
10 Industrial Ave., Suite 3
Mahwah, New Jersey 07430
908-447-4716
krichers@transcendwireless.com

cc: Michael J. Zambo- as elected official
Michael Gardner- as zoning official
Crown Castle- as tower owner
David H. Martin c/o Sprint Spectrum.

Kyle Richers

From: UPS Quantum View <pkginfo@ups.com>
Sent: Monday, December 17, 2018 12:19 PM
To: krichers@transcendwireless.com
Subject: UPS Ship Notification, Reference Number 1: CT11353C CSC TO

You have a package coming.

This message was sent to you at the request of TRANSCEND WIRELESS to notify you that the shipment information below has been transmitted to UPS. The physical package may or may not have actually been tendered to UPS for shipment. To verify the actual transit status of your shipment, click on the tracking link below.

Shipment Details

From:	TRANSCEND WIRELESS
Tracking Number:	1ZV257424299804250
Ship To:	Crown Castle 3 Corporate Dr. CLIFTON PARK, NY 120658635 US
UPS Service:	UPS GROUND
Number of Packages:	1
Signature Required:	A signature is required for package delivery
Weight:	1.0 LBS
Reference Number 1:	CT11353C CSC TO

Kyle Richers

From: UPS Quantum View <pkginfo@ups.com>
Sent: Monday, December 17, 2018 12:26 PM
To: krichers@transcendwireless.com
Subject: UPS Ship Notification, Reference Number 1: CT11353C CSC ZO

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Shipment Details

From:	TRANSCEND WIRELESS
Tracking Number:	1ZV257424296884278
Ship To:	Michael Gardner Town of Ashford 5 Town Hall Road ASHFORD, CT 062781530 US
UPS Service:	UPS GROUND
Number of Packages:	1
Signature Required:	A signature is required for package delivery
Weight:	1.0 LBS
Reference Number 1:	CT11353C CSC ZO

Kyle Richers

From: UPS Quantum View <pkginfo@ups.com>
Sent: Monday, December 17, 2018 12:25 PM
To: krichers@transcendwireless.com
Subject: UPS Ship Notification, Reference Number 1: CT11353C CSC EO

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Shipment Details

From:	TRANSCEND WIRELESS
Tracking Number:	1ZV257424298334260
Ship To:	Michael J. Zambo Town of Ashford 5 Town Hall Road ASHFORD, CT 062781530 US
UPS Service:	UPS GROUND
Number of Packages:	1
Signature Required:	A signature is required for package delivery
Weight:	1.0 LBS
Reference Number 1:	CT11353C CSC EO

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Return Receipt Fee (Endorsement Required)	~~$0.00~~ $0.00	Postmark Here
Restricted Delivery Fee (Endorsement Required)	~~$0.00~~ $1.84	
Total Postage & Fees	$ $8.04	12/17/2018

USPS DEC 17 2018 [postmark]

Sent To: Sprint Spectrum

Street, Apt. No.; or PO Box No.: PO Box 8430

City, State, ZIP+4: Kansas City, Mo 64114

PS Form 3800, August 2006 — See Reverse for Instructions

FILE SITE #204
SKY HILL
ZONING

RECEIVED
11-13-96 bk.

MINUTES - ASHFORD PLANNING AND ZONING COMMISSION

Annual Meeting - November 12, 1996

Members present: Organ, Lawrence, Nagy, Levaur, Rossman, McCarthy & White.

Alternates present: Bartok & Specyalski.

The meeting was called to order at 9:55 p.m. after the public hearing (Sprint Spectrum, tower & Moratorium, Lake Chaffee).

Specyalski is the voting alternate for this meeting.

At the Annual Town meeting, Alex Hastillo and Kevin McCarthy were elected to 4 year terms on the Commission ending in the year 2000 and Bartok was elected to a 3 year term as Alternate ending in 1999.

Moved and seconded to consider Old and New Business first. Passed without dissent.

The Commission considered the Sprint Spectrum application for a communications tower to be located on Sky Hill. There were no objections at tonights public hearing. The tower will be able to hold three sets of antennas. Sprint Spectrum will operate a PCS digital system. It is regulated by the FCC. There will be no lights on the tower. Access will be off Frontage Road to Janowski Road to avoid the wetlands on the east end of Janowski Road. Moved and seconded to approve with conditions the application for a Special Exception under Section 5.2.3 by Sprint Spectrum L.P., Meriden, CT for a 200' communications tower to be located on land leased from David H. Martin off Janowski Road on Sky Hill.

The conditions are:
1. Utilities to the site which is approximately 2500' from Janowski Road will be located underground in the right of way.
2. Space and installation of fire, emergency and municipal communications equipment to meet present and future needs will be provided at no cost.
3. A copy of the liability insurance will be submitted to the Commission.
4. A site plan including driveway design and sedimentation and erosion control measures will be submitted to the Commission before the construction begins.
5. A copy of the lease will be part of the land records.

Motion passed without dissent.

The Commission considered the proposed Moratorium at Lake Chaffee. Tim Backus, Chairman of the Water Pollution Control Authority was the only person to speak at the public hearing. Moved and seconded to approve the following:

Moratorium at Lake Chaffee

WHEREAS, the Department of Environmental Protection has cited the Town of Ashford and the Lake Chaffee Improvement Association, Inc. to study and report upon potential pollution at Lake Chaffee resulting from construction around the lake; and

WHEREAS, the Department of Environmental Protection has found pollution in the tributaries leading to the lake, and

WHEREAS, there is a reasonable expectation that the recommendation of the study may be to limit new construction in that area, or as an alterative to require that homes in the area be connected to an alternative type of sewage disposal system, and

WHEREAS, this Commission does not want to allow any deterioration of the water in the lake or tributaries;

The Planning and Zoning Commission of the Town of Ashford, pursuant to the authority vested in it by Section 8-2 of Connecticut General Statutes, hereby amends the zoning regulations of the Town of Ashford by adoption of the following Moratorium:

"Until December 31, 1997, there shall be no new house construction allowed within the area of Lake Chaffee Improvement Association, Inc. nor any enclosed addition to any existing house in that area. The Zoning Enforcement Officer may not in that period certify that any new construction is in conformity with the zoning regulations of the town."

Motion passed without dissent.

The reasons for reinstating the moratorium include:
1. There is need for more testing of the water and septic systems in the area.
2. There have been minimal applications for construction since the last moratorium was lifted.
3. The WPCA is seeking on-site solutions.
4. There are several sets of vacant lots that may be valuable for sewage disposal systems.

Specyalski stepped down for the next item of business.

Brialee Campground - Brian Specyalski submitted a plan for a six additional campsites at the campground. It was noted that three of these butt onto adjoining property that is owned by the State of Connecticut. The others have a 100' setback that has been the minimum acceptable to the Commission. Moved and seconded to receive the plan and hold a public hearing on December 9th. Passed without dissent. A new map showing only the three sites that meet the setback requirements will be submitted. The Commission will walk the site a 7 a.m. on Saturday November 16th.

The Commission returned to the top of the agenda.

Moved and seconded to approve the minutes of the October 15th meeting. Passed without dissent.

Moved and seconded to send a letter of appreciation to George Quirk Sr., retiring member for his many years of service to the Commission. Passed without dissent.

There were no bills.

A copy of the revised Small Cities Housing Plan was received from the Office of the Selectmen. It will go to a public hearing in December. Copies will be distributed to the Commission members for review.

The revised fee schedule was approved by Town Meeting in October.

Moved and seconded to add to the agenda the election of officers and reappointment of employees. Passed without dissent.

Moved and seconded to reelect the following officers to serve until the next annual meeting of the Commission: Sidney E. Organ, Chairman, Alex Hastillo, Vice Chairman and John Bartok, Secretary. Passed without dissent. The Secretary will cast one ballot for each.

Moved and seconded to reappoint Rudolph Makray, Zoning Enforcement Officer and John Bartok, Recording Secretary for one year or until the next annual meeting. Passed without dissent.

The Commission agreed to hold a Special Meeting on Monday, December 16th at 7 p.m. to review the draft of the revised Plan of Development.

The meeting adjourned at 10:55 p.m.

Respectfully submitted.

John W. Bartok, Jr.
Recording Secretary

LEGAL NOTICE

Town of Ashford

The Ashford Planning and Zoning Commission at its meeting on November 12, 1996 took the following aotions:

APPROVED with oonditions the applioation of Sprint Speotrum, L.P., Meriden, CT for a 200' communioations tower to be built on the David Matin property looated off Route 89 on Sky Hill.

APPROVED a request by the Ashford Water Pollution Control Authority to reenstate the moratorium at Lake Chaffee until December 31, 1997 that prohibits oonstruction of new houses or enolosed additions to any existing house.

Dated in Ashford, Conneotiout this 14th day of November, 1996.

John W. Bartok,Jr.,Seo.
Ashford Planning and,
Zoning Commission


02-B-1.2
2.1 ac
02-B-2
75 ac
02-A-1
9.5 ac
02-B-1.3
3.7 ac
Ferrence Rd
01-D-1
1 ac
Janoski Rd
02-B-1.4
5.5 ac
-B-1
1 ac
02-E-1
5.4 ac
Hillside Rd
02-F-1
50.3 ac
02-F-2
9.87 ac
01-E-1
5.3 ac
02-F-2.1
2.97 ac
02-E-2
10 ac
1085 ft
02-F-3
11 ac
Mount Hope River
Sky Hill
04-B-1
57.9 ac
05-A-1.1
05-B-1.1

33 JANOSKI RD

Location	33 JANOSKI RD	**Mblu**	02/ F/ 1.1/ /
Acct#	00007410	**Owner**	MARTIN FAMILY LIV TR DTD 6/20/05,
Taxable Status		**Assessment**	$252,200
Appraisal	$360,200	**PID**	65
Building Count	1	**Legal Description**	
Lot Type		**topoTopo**	
Location			

Current Value

Appraisal					
Valuation Year	**Building**	**Extra Features**	**Outbuildings**	**Land**	**Total**
2018	$0	$0	$183,100	$177,100	$360,200
Assessment					
Valuation Year	**Building**	**Extra Features**	**Outbuildings**	**Land**	**Total**
2018	$0	$0	$128,200	$124,000	$252,200

Parcel Addreses

Additional Addresses		
Address	**City, State Zip**	**Type**
33 JANOSKI RD		Primary

Owner of Record

Owner	MARTIN FAMILY LIV TR DTD 6/20/05,
Co-Owner	MARTIN DAVID H + CAROLYN TRUSTEES
Care Of	
Address	C/O SPRINT SPECTRUM CT-03XC04 PO BOX 8430 KANSAS CITY, MO 64114-8430

Sale Price	$0
Certificate	
Book & Page	194/ 885
Sale Date	10/15/2018
Instrument	04
Qualified	U

Ownership History

Ownership History					
Owner	**Sale Price**	**Certificate**	**Book & Page**	**Instrument**	**Sale Date**

MARTIN DAVID H	$0	C	109/ 811		09/30/1996

Building Information

Building 1 : Section 1

Year Built:
Living Area: 0
Replacement Cost: $0
Building Percent Good:
Replacement Cost Less Depreciation: $0

Building Attributes	
Field	**Description**
Style	Outbuildings
Model	
Grade:	
Stories:	
Occupancy	
Exterior Wall 1	
Exterior Wall 2	
Roof Structure:	
Roof Cover	
Interior Wall 1	
Interior Wall 2	
Interior Flr 1	
Interior Flr 2	
Heat Fuel	
Heat Type:	
AC Type:	
Total Bedrooms:	
Total Bthrms:	
Total Half Baths:	
Total Xtra Fixtrs:	
Total Rooms:	
Bath Style:	
Kitchen Style:	
Bsmt. Garages	

Building Photo

(http://images.vgsi.com/photos/AshfordCTPhotos//\00\00\25/30

Building Layout

Building Layout
(http://images.vgsi.com/photos/AshfordCTPhotos//Sketches/65_

Building Sub-Areas (sq ft)	Legend
No Data for Building Sub-Areas	

Extra Features

Extra Features	Legend

No Data for Extra Features

Parcel Information

Use Code	201
Description	Commercial Vacant
Deeded Acres	0.7

Land

Land Use

Use Code	201
Description	Commercial Vacant
Zone	
Neighborhood	C3
Alt Land Appr	No
Category	

Land Line Valuation

Size (Acres)	0.7
Frontage	
Depth	
Assessed Value	$124,000
Appraised Value	$177,100

Outbuildings

Outbuildings								Legend
Code	**Description**	**Sub Code**	**Sub Description**	**Size**	**Value**	**Assessed Value**	**Bldg #**	**Comment**
TWR1	Cell Tower			192 HEIGHT	$73,400	$51,400	1	
SHD2	Pre Cast Cell			240 S.F.	$34,400	$24,100	1	
FN3	Fence 6'			260 L.F.	$3,600	$2,500	1	
SHD2	Pre Cast Cell			360 S.F.	$34,400	$24,100	1	
SHD2	Pre Cast Cell			260 S.F.	$37,300	$26,100	1	

Valuation History

Appraisal					
Valuation Year	**Building**	**Extra Features**	**Outbuildings**	**Land**	**Total**
2017	$0	$0	$183,100	$177,100	$360,200
2016	$0	$0	$183,100	$177,100	$360,200
2015	$0	$0	$182,200	$189,000	$371,200

Assessment					
Valuation Year	**Building**	**Extra Features**	**Outbuildings**	**Land**	**Total**
2017	$0	$0	$128,200	$124,000	$252,200
2016	$0	$0	$128,200	$124,000	$252,200
2015	$0	$0	$127,600	$132,300	$259,900

EBI Consulting
environmental | engineering | due diligence

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

T-Mobile Existing Facility

Site ID: CT11353C

Ashford/I-84_1
33 Janowski Road
Ashford, CT 06278

December 10, 2018

EBI Project Number: 6218007490

Site Compliance Summary	
Compliance Status:	COMPLIANT
Site total MPE% of FCC general population allowable limit:	7.51 %

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

EBI Consulting
environmental | engineering | due diligence

December 10, 2018

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

Emissions Analysis for Site: **CT11353C – Ashford/I-84_1**

EBI Consulting was directed to analyze the proposed T-Mobile facility located at **33 Janowski Road, Ashford, CT**, for the purpose of determining whether the emissions from the Proposed T-Mobile Antenna Installation located on this property are within specified federal limits.

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

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

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

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

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

Additional details can be found in FCC OET 65.

CALCULATIONS

Calculations were done for the proposed T-Mobile Wireless antenna facility located at **33 Janowski Road, Ashford, CT**, using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65. Since T-Mobile is proposing highly focused directional panel antennas, which project most of the emitted energy out toward the horizon, all calculations were performed assuming a lobe representing the maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB for directional panel antennas, was focused at the base of the tower. For this report the sample point is the top of a 6-foot person standing at the base of the tower.

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

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

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

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

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

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

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

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

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

9) The antennas used in this modeling are the **RFS APXV18-206516S-C-A20** for 1900 MHz (PCS) and 2100 MHz (AWS) channels and the **Commscope LNX-6515DS-VTM** for 600 MHz and 700 MHz channels. This is based on feedback from the carrier with regard to anticipated antenna selection. All Antenna gain values and associated transmit power levels are shown in the Site Inventory and Power Data table below. The maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB for directional panel antennas, was used for all calculations. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.

10) The antenna mounting height centerline of the proposed antennas is **153 feet** above ground level (AGL).

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

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

T-Mobile Site Inventory and Power Data

Sector:	A	Sector:	B	Sector:	C
Antenna #:	**1**	Antenna #:	**1**	Antenna #:	**1**
Make / Model:	RFS APXV18-206516S-C-A20	Make / Model:	RFS APXV18-206516S-C-A20	Make / Model:	RFS APXV18-206516S-C-A20
Gain:	16.3 dBd	Gain:	16.3 dBd	Gain:	16.3 dBd
Height (AGL):	153 feet	Height (AGL):	153 feet	Height (AGL):	153 feet
Frequency Bands	1900 MHz (PCS) / 2100 MHz (AWS)	Frequency Bands	1900 MHz (PCS) / 2100 MHz (AWS)	Frequency Bands	1900 MHz (PCS) / 2100 MHz (AWS)
Channel Count	6	Channel Count	6	Channel Count	6
Total TX Power(W):	255	Total TX Power(W):	255	Total TX Power(W):	255
ERP (W):	10,877.78	ERP (W):	10,877.78	ERP (W):	10,877.78
Antenna A1 MPE%	**1.81**	Antenna B1 MPE%	**1.81**	Antenna C1 MPE%	**1.81**
Antenna #:	**2**	Antenna #:	**2**	Antenna #:	**2**
Make / Model:	Commscope LNX-6515DS-VTM	Make / Model:	Commscope LNX-6515DS-VTM	Make / Model:	Commscope LNX-6515DS-VTM
Gain:	14.6 dBd	Gain:	14.6 dBd	Gain:	14.6 dBd
Height (AGL):	153 feet	Height (AGL):	153 feet	Height (AGL):	153 feet
Frequency Bands	700 MHz	Frequency Bands	700 MHz	Frequency Bands	700 MHz
Channel Count	4	Channel Count	4	Channel Count	4
Total TX Power(W):	40	Total TX Power(W):	40	Total TX Power(W):	40
ERP (W):	1,153.61	ERP (W):	1,153.61	ERP (W):	1,153.61
Antenna A2 MPE%	**0.41**	Antenna B2 MPE%	**0.41**	Antenna C2 MPE%	**0.41**

Site Composite MPE%	
Carrier	**MPE%**
T-Mobile (Per Sector Max)	**2.22 %**
AT&T	**2.14** %
Verizon Wireless	**2.80** %
Nextel	**0.21** %
Sprint	**0.14** %
Site Total MPE %:	**7.51 %**

T-Mobile Sector A Total:	2.22 %
T-Mobile Sector B Total:	2.22 %
T-Mobile Sector C Total:	2.22 %
Site Total:	7.51 %

T-Mobile Maximum MPE Power Values (Per Sector)

T-Mobile _Frequency Band / Technology (Per Sector)	# Channels	Watts ERP (Per Channel)	Height (feet)	Total Power Density ($\mu W/cm^2$)	Frequency (MHz)	Allowable MPE ($\mu W/cm^2$)	Calculated % MPE
T-Mobile PCS - 1900 MHz LTE	2	1,706.32	153	5.68	PCS - 1900 MHz	1000.00	0.57%
T-Mobile AWS - 2100 MHz LTE	2	2,559.48	153	8.52	AWS - 2100 MHz	1000.00	0.85%
T-Mobile PCS - 1900 MHz GSM	1	639.87	153	1.06	PCS - 1900 MHz	1000.00	0.11%
T-Mobile AWS - 2100 MHz UMTS	1	1,706.32	153	2.84	AWS - 2100 MHz	1000.00	0.28%
T-Mobile 700 MHz LTE	2	576.81	153	1.92	700 MHz	467.00	0.41%
						Total:	**2.22%**

Summary

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

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

T-Mobile Sector	Power Density Value (%)
Sector A:	2.22 %
Sector B:	2.22 %
Sector C:	2.22 %
T-Mobile Maximum MPE % (Per Sector):	2.22 %
Site Total:	7.51 %
Site Compliance Status:	**COMPLIANT**

The anticipated composite MPE value for this site assuming all carriers present is **7.51%** of the allowable FCC established general population limit sampled at the ground level. This is based upon values listed in the Connecticut Siting Council database for existing carrier emissions.

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

Date: **November 16, 2018**

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

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

Subject:	**Structural Analysis Report**	
Carrier Designation:	***T-Mobile* Co-Locate**	
	Carrier Site Number:	cT11353C
	Carrier Site Name:	Ashford/I-84_1
Crown Castle Designation:	**Crown Castle BU Number:**	876345
	Crown Castle Site Name:	SKY HILL
	Crown Castle JDE Job Number:	526831
	Crown Castle Work Order Number:	1627281
	Crown Castle Order Number:	456556 Rev. 0
Engineering Firm Designation:	**Crown Castle Project Number:**	1627281
Site Data:	**33 Janowski Road, Ashford, Windham County, CT** **Latitude *41° 57' 7.7"*, Longitude *-72° 11' 43.9"*** **192 Foot - Self Support Tower**	

Dear Denice Nicholson,

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**

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

Structural analysis prepared by: Tyler Ho, E.I.T. / Shan

Respectfully submitted by:

Maribel Dentinger

Maribel Dentinger, P.E.
Sr. Project Engineer

Nov 16 2018 1:27 PM

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1) INTRODUCTION

This tower is a 192 ft. Self Support tower designed by ROHN.

2) ANALYSIS CRITERIA

TIA-222 Revision:	TIA-222-H
Risk Category:	II
Wind Speed:	130 mph
Exposure Category:	B
Topographic Factor:	1
Ice Thickness:	2 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)
153.0	153.0	3	commscope	LNX-6515DS-VTM w/ Mount Pipe	12	7/8
		3	rfs celwave	APXV18-206516S-C-A20 w/ Mount Pipe		
		3	rfs celwave	ATM1900D-1A20		
		3	rfs celwave	ATMA4P4DBP-1A20		
		1	site pro 1	VFA12-HD3L5NP Sector Mount		
		2	tower mounts	Side Arm Mount [SO 203-1]		

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)
190.0	192.0	3	alcatel lucent	PCS 1900MHz 4x45W-65MHz	4	1-1/4
		6	alcatel lucent	RRH2X50-800		
		3	alcatel lucent	TD-RRH8x20-25		
		3	commscope	NNVV-65B-R4 w/ Mount Pipe		
		3	rfs celwave	APXVTM14-ALU-I20 w/ Mount Pipe		
	190.0	1	tower mounts	Sector Mount [SM 506-3]		
180.0	184.0	1	symmetricom	58532A	8 1	1-5/8 1/2
	181.0	3	alcatel lucent	RRH2X60-700		
		3	alcatel lucent	RRH4X45-AWS4 B66		
		6	antel	LPA-80080/4CF		
		6	commscope	JAHH-65B-R3B		
		3	nokia	BAND 5 AHCA RRH4X40		
		2	raycap	RC3DC-3315-PF-48		
	180.0	1	tower mounts	Sector Mount [SM 304-3]		
170.0	172.0	9	allgon	7130.16.33.00 w/ Mount Pipe	9	1-5/8
	170.0	1	tower mounts	Sector Mount [SM 502-3]		

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
160.0	160.0	3	andrew	HBX-6516DS-VTM w/ Mount Pipe	6	1-5/8
		1	tower mounts	Sector Mount [SM 104-3]		
140.0	141.0	3	kathrein	800 10121 w/ Mount Pipe	12 2 1 1	7/8 3/4 3/8 Conduit
		4	kmw com	AM-X-CD-14-65-00T-RET w/ Mount Pipe		
		2	kmw com	AM-X-CD-16-65-00T-RET w/ Mount Pipe		
	140.0	3	communication components inc.	DTMABP7819VG12A		
		6	ericsson	RRUS-11		
		3	powerwave tech	7020.00		
		3	powerwave tech	LGP13519		
		1	raycap	DC6-48-60-18-8F		
		1	tower mounts	Sector Mount [SM 504-3]		
98.0	102.0	1	symmetricom	58532A	-	-
	98.0	1	tower mounts	Side Arm Mount [SO 306-1]		

3) ANALYSIS PROCEDURE

Table 3 - Documents Provided

Document	Remarks	Reference	Source
4-GEOTECHNICAL REPORTS	FDH	2189896	CCISITES
4-TOWER FOUNDATION DRAWINGS/DESIGN/SPECS	ROHN	1631622	CCISITES
4-TOWER MANUFACTURER DRAWINGS	ROHN	1631630	CCISITES

3.1) Analysis Method

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

3.2) Assumptions

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

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	192 - 180	Leg	ROHN 2.5 STD	1	-7.990	66.738	12.0	Pass
T2	180 - 160	Leg	ROHN 2.5 STD	27	-38.548	59.996	64.3	Pass
T3	160 - 140	Leg	ROHN 3 EH	56	-72.834	99.054	73.5	Pass
T4	140 - 120	Leg	ROHN 4 EH	77	-112.619	167.894	67.1	Pass
T5	120 - 100	Leg	ROHN 5 EH	98	-150.323	251.315	59.8	Pass
T6	100 - 80	Leg	ROHN 6 EHS	119	-183.401	256.249	71.6	Pass
T7	80 - 60	Leg	ROHN 6 EH	134	-219.662	318.945	68.9	Pass
T8	60 - 40	Leg	ROHN 8 EHS	149	-253.950	413.331	61.4	Pass
T9	40 - 20	Leg	ROHN 8 EHS	164	-288.446	413.388	69.8	Pass
T10	20 - 0	Leg	ROHN 8 EHS	179	-322.962	413.376	78.1	Pass
T1	192 - 180	Diagonal	L1 3/4x1 3/4x3/16	7	-1.739	11.861	14.7 24.2 (b)	Pass
T2	180 - 160	Diagonal	L2x2x3/16	36	-4.273	10.369	41.2 52.8 (b)	Pass
T3	160 - 140	Diagonal	L2 1/2x2 1/2x1/4	60	-6.056	16.451	36.8 54.5 (b)	Pass
T4	140 - 120	Diagonal	L2 1/2x2 1/2x1/4	81	-7.329	12.568	58.3 66.2 (b)	Pass
T5	120 - 100	Diagonal	L3x3x1/4	102	-7.925	17.432	45.5 53.5 (b)	Pass
T6	100 - 80	Diagonal	L3 1/2x3 1/2x1/4	123	-9.317	19.016	49.0 62.4 (b)	Pass
T7	80 - 60	Diagonal	L4x4x1/4	138	-10.299	24.136	42.7 68.5 (b)	Pass
T8	60 - 40	Diagonal	L4x4x5/16	153	-9.929	24.948	39.8 53.5 (b)	Pass
T9	40 - 20	Diagonal	L4x4x5/16	168	-11.820	21.504	55.0 62.2 (b)	Pass
T10	20 - 0	Diagonal	L4x4x3/8	183	-12.414	21.945	56.6	Pass
T1	192 - 180	Top Girt	L1 3/4x1 3/4x3/16	4	-0.112	4.108	2.7	Pass
T2	180 - 160	Top Girt	L2x2x3/16	28	-0.936	6.224	15.0	Pass
							Summary	
						Leg (T10)	78.1	Pass
						Diagonal (T7)	68.5	Pass
						Top Girt (T2)	15.0	Pass
						Bolt Checks	68.5	Pass
						Rating =	78.1	Pass

Table 5 - Tower Component Stresses vs. Capacity – LC7

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
1	Anchor Rods	0	51.4	Pass
1	Base Foundation Structure	0	15.2	Pass
1	Base Foundation Soil Interaction	0	42.7	Pass
Structure Rating (max from all components) =				**78.1%**

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

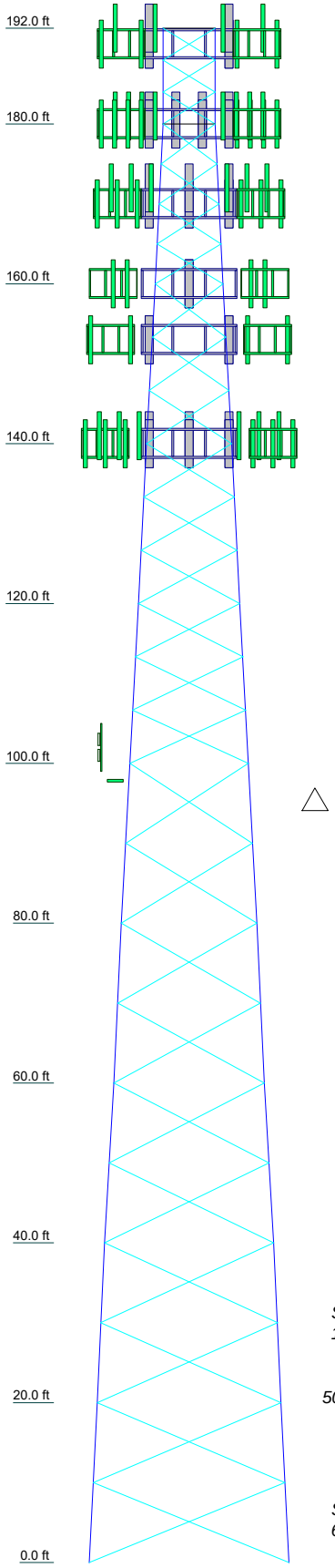
4.1) Recommendations

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	Legs	Leg Grade	Diagonals	Diagonal Grade	Top Girts	Face Width (ft)	# Panels @ (ft)	Weight (K)
T1			A	A	A	6.58	3 @ 4	0.8
T2	ROHN 2.5 STD		L2x2x3/16		L2x2x3/16		4 @ 5	1.0
T3	ROHN 3 EH		L2 1/2x2 1/2x1/4	A36		8.54		1.5
T4	ROHN 4 EH					10.61	9 @ 6.66667	2.0
T5	ROHN 5 EH	A572-50	L3x3x1/4		N.A.	12.74		2.7
T6	ROHN 6 EHS		L3 1/2x3 1/2x1/4			14.83		2.8
T7	ROHN 6 EH		L4x4x1/4	A572-50		16.92		3.5
T8			L4x4x5/16			18.88	10 @ 10	4.4
T9	ROHN 8 EHS					21.13		4.6
T10			L4x4x3/8			23.05		5.3
						25.05		28.5



SYMBOL LIST

MARK	SIZE	MARK	SIZE
A	L1 3/4x1 3/4x3/16		

MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A572-50	50 ksi	65 ksi	A36	36 ksi	58 ksi

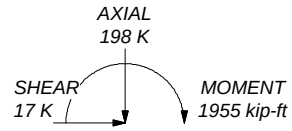
TOWER DESIGN NOTES

1. Tower is located in Windham 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 2.0 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: 78.1%

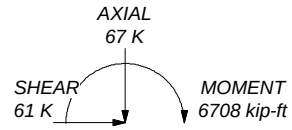
ALL REACTIONS ARE FACTORED

MAX. CORNER REACTIONS AT BASE:
DOWN: 332 K
SHEAR: 38 K

UPLIFT: -280 K
SHEAR: 33 K



TORQUE 13 kip-ft
50 mph WIND - 2.00 in ICE



TORQUE 57 kip-ft
REACTIONS - 130 mph WIND

CROWN CASTLE
The Pathway to Possible

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

Job: **BU# 876345**			
Project:			
Client: Crown Castle	Drawn by: THo	App'd:	
Code: TIA-222-H	Date: 11/15/18	Scale: NTS	
Path: R:\SA Models - Letters\Work Area\THo\WIP\876345 WO 1627281\876345.eri		Dwg No. E-1	

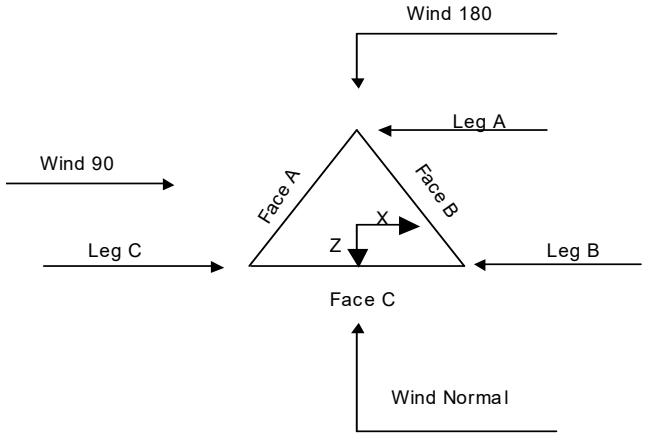
Tower Input Data

The main tower is a 3x free standing tower with an overall height of 192.000 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 6.580 ft at the top and 25.050 ft at the base.
This tower is designed using the TIA-222-H standard.
The following design criteria apply:

1) Tower is located in Windham County, Connecticut.
2) Tower base elevation above sea level: 1068.000 ft.
3) Basic wind speed of 130 mph.
4) Risk Category II.
5) Exposure Category B.
6) Simplified Topographic Factor Procedure for wind speed-up calculations is used.
7) Topographic Category: 1.
8) Crest Height 0.000 ft.
9) ice thickness of 2.0 in.
10) Ice thickness is considered to increase with height.
11) Ice density of 56.000 pcf.
12) A wind speed of 50 mph is used in combination with ice.
13) Temperature drop of 50.000 °F.
14) Deflections calculated using a wind speed of 60 mph.
15) TIA-222-H Annex S.
16) Pressures are calculated at each section.
17) Stress ratio used in tower member design is 1.05.
18) 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	192.000-180.000			6.580	1	12.000
T2	180.000-160.000			6.580	1	20.000
T3	160.000-140.000			8.540	1	20.000
T4	140.000-120.000			10.610	1	20.000
T5	120.000-100.000			12.740	1	20.000
T6	100.000-80.000			14.830	1	20.000
T7	80.000-60.000			16.920	1	20.000
T8	60.000-40.000			18.880	1	20.000
T9	40.000-20.000			21.130	1	20.000
T10	20.000-0.000			23.050	1	20.000

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	192.000-180.000	4.000	X Brace	No	No	0.000	0.000
T2	180.000-160.000	5.000	X Brace	No	No	0.000	0.000
T3	160.000-140.000	6.667	X Brace	No	No	0.000	0.000
T4	140.000-120.000	6.667	X Brace	No	No	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
T5	120.000-100.000	6.667	X Brace	No	No	0.000	0.000
T6	100.000-80.000	10.000	X Brace	No	No	0.000	0.000
T7	80.000-60.000	10.000	X Brace	No	No	0.000	0.000
T8	60.000-40.000	10.000	X Brace	No	No	0.000	0.000
T9	40.000-20.000	10.000	X Brace	No	No	0.000	0.000
T10	20.000-0.000	10.000	X Brace	No	No	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 192.000-180.000	Pipe	ROHN 2.5 STD	A572-50 (50 ksi)	Equal Angle	L1 3/4x1 3/4x3/16	A36 (36 ksi)
T2 180.000-160.000	Pipe	ROHN 2.5 STD	A572-50 (50 ksi)	Equal Angle	L2x2x3/16	A36 (36 ksi)
T3 160.000-140.000	Pipe	ROHN 3 EH	A572-50 (50 ksi)	Equal Angle	L2 1/2x2 1/2x1/4	A36 (36 ksi)
T4 140.000-120.000	Pipe	ROHN 4 EH	A572-50 (50 ksi)	Equal Angle	L2 1/2x2 1/2x1/4	A36 (36 ksi)
T5 120.000-100.000	Pipe	ROHN 5 EH	A572-50 (50 ksi)	Equal Angle	L3x3x1/4	A572-50 (50 ksi)
T6 100.000-80.000	Pipe	ROHN 6 EHS	A572-50 (50 ksi)	Equal Angle	L3 1/2x3 1/2x1/4	A572-50 (50 ksi)
T7 80.000-60.000	Pipe	ROHN 6 EH	A572-50 (50 ksi)	Equal Angle	L4x4x1/4	A572-50 (50 ksi)
T8 60.000-40.000	Pipe	ROHN 8 EHS	A572-50 (50 ksi)	Equal Angle	L4x4x5/16	A572-50 (50 ksi)
T9 40.000-20.000	Pipe	ROHN 8 EHS	A572-50 (50 ksi)	Equal Angle	L4x4x5/16	A572-50 (50 ksi)
T10 20.000-0.000	Pipe	ROHN 8 EHS	A572-50 (50 ksi)	Equal Angle	L4x4x3/8	A572-50 (50 ksi)

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Top Girt Type	Top Girt Size	Top Girt Grade	Bottom Girt Type	Bottom Girt Size	Bottom Girt Grade
T1 192.000-180.000	Equal Angle	L1 3/4x1 3/4x3/16	A36 (36 ksi)	Single Angle		A36 (36 ksi)
T2 180.000-160.000	Equal Angle	L2x2x3/16	A36 (36 ksi)	Single Angle		A36 (36 ksi)

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 192.000-180.000	0.000	0.250	A36 (36 ksi)	1.05	1	1.05	Mid-Pt	Mid-Pt	Mid-Pt
T2 180.000-160.000	0.000	0.250	A36 (36 ksi)	1.05	1	1.05	Mid-Pt	Mid-Pt	Mid-Pt

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
T3 160.000-140.000	0.000	0.250	A36 (36 ksi)	1.05	1	1.05	Mid-Pt	Mid-Pt	Mid-Pt
T4 140.000-120.000	0.000	0.250	A36 (36 ksi)	1.05	1	1.05	Mid-Pt	Mid-Pt	Mid-Pt
T5 120.000-100.000	0.000	0.375	A36 (36 ksi)	1.05	1	1.05	Mid-Pt	Mid-Pt	Mid-Pt
T6 100.000-80.000	0.000	0.375	A36 (36 ksi)	1.05	1	1.05	Mid-Pt	Mid-Pt	Mid-Pt
T7 80.000-60.000	0.000	0.375	A36 (36 ksi)	1.05	1	1.05	Mid-Pt	Mid-Pt	Mid-Pt
T8 60.000-40.000	0.000	0.375	A36 (36 ksi)	1.05	1	1.05	Mid-Pt	Mid-Pt	Mid-Pt
T9 40.000-20.000	0.000	0.375	A36 (36 ksi)	1.05	1	1.05	Mid-Pt	Mid-Pt	Mid-Pt
T10 20.000-0.000	0.000	0.375	A36 (36 ksi)	1.05	1	1.05	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 192.000-180.000	Yes	No	1	1	1	1	1	1	1	1
				1	1	1	1	1	1	1
T2 180.000-160.000	Yes	No	1	1	1	1	1	1	1	1
				1	1	1	1	1	1	1
T3 160.000-140.000	Yes	No	1	1	1	1	1	1	1	1
				1	1	1	1	1	1	1
T4 140.000-120.000	Yes	No	1	1	1	1	1	1	1	1
				1	1	1	1	1	1	1
T5 120.000-100.000	Yes	No	1	1	1	1	1	1	1	1
				1	1	1	1	1	1	1
T6 100.000-80.000	Yes	No	1	1	1	1	1	1	1	1
				1	1	1	1	1	1	1
T7 80.000-60.000	Yes	No	1	1	1	1	1	1	1	1
				1	1	1	1	1	1	1
T8 60.000-40.000	Yes	No	1	1	1	1	1	1	1	1
				1	1	1	1	1	1	1
T9 40.000-20.000	Yes	No	1	1	1	1	1	1	1	1
				1	1	1	1	1	1	1
T10 20.000-0.000	Yes	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 192.000-180.000	0.000	1	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 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
T2 180.000-160.000	0.000	1	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 160.000-140.000	0.000	1	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 140.000-120.000	0.000	1	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 120.000-100.000	0.000	1	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 100.000-80.000	0.000	1	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 80.000-60.000	0.000	1	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 60.000-40.000	0.000	1	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 40.000-20.000	0.000	1	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 20.000-0.000	0.000	1	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 192.000-180.000	Flange	0.625 A325N	4	0.625 A325N	1	0.625 A325N	1	0.625 A325N	0	0.625 A325X	0	0.625 A325N	0	0.625 A325X	0
T2 180.000-160.000	Flange	0.625 A325N	4	0.625 A325N	1	0.625 A325N	1	0.625 A325N	0	0.625 A325X	0	0.625 A325N	0	0.625 A325X	0
T3 160.000-140.000	Flange	0.875 A325N	4	0.625 A325N	1	0.625 A325N	0	0.625 A325N	0	0.625 A325X	0	0.625 A325N	0	0.625 A325X	0
T4 140.000-120.000	Flange	1.000 A325N	4	0.625 A325N	1	0.625 A325N	0	0.625 A325N	0	0.625 A325X	0	0.625 A325N	0	0.625 A325X	0
T5 120.000-100.000	Flange	1.000 A325N	6	0.750 A325N	1	0.625 A325N	0	0.000 A325N	0	0.625 A325X	0	0.625 A325N	0	0.625 A325X	0
T6 100.000-80.000	Flange	1.000 A325N	6	0.750 A325N	1	0.625 A325N	0	0.000 A325N	0	0.625 A325X	0	0.625 A325N	0	0.625 A325X	0
T7 80.000-60.000	Flange	1.000 A325N	8	0.750 A325N	1	0.625 A325N	0	0.625 A325N	0	0.625 A325X	0	0.625 A325N	0	0.625 A325X	0
T8 60.000-40.000	Flange	1.000 A325N	8	0.750 A325X	1	0.625 A325N	0	0.000 A325N	0	0.625 A325X	0	0.625 A325N	0	0.625 A325X	0
T9 40.000-20.000	Flange	1.000 A325N	8	0.750 A325X	1	0.625 A325N	0	0.625 A325N	0	0.625 A325X	0	0.625 A325N	0	0.625 A325X	0
T10 20.000-0.000	Flange	1.000 A354-BC	0	0.750 A325X	1	0.625 A325N	0	0.000 A325N	0	0.625 A325X	0	0.625 A325N	0	0.625 A325X	0

Feed Line/Linear Appurtenances - Entered As Round Or Flat

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Face Offset in	Lateral Offset (Frac FW)	#	# Per Row	Clear Spacing in	Width or Diameter in	Perimeter in	Weight klf
HB114-1-0813U4-M5J(1-1/4) *****	A	No	No	Ar (CaAa)	190.000 - 0.000	0.000	-0.45	4	4	0.850 0.750	1.540		0.001

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)	180.000 - 0.000	0.000	0.45	1	1	0.850 0.750	0.630		0.000
LDF7-50A(1-5/8")	A	No	No	Ar (CaAa)	180.000 - 0.000	0.000	0.41	8	8	0.850 0.750	1.980		0.001
*****													
LDF7-50A(1-5/8")	B	No	No	Ar (CaAa)	170.000 - 0.000	0.000	-0.4	9	9	0.850 75.000	1.980		0.001
*****													
FXL 1873 PE(1 5/8")	B	No	No	Ar (CaAa)	160.000 - 0.000	-2.000	0.45	6	3	0.850 0.750	1.980		0.000
*****													
AVA5-50(7/8")	C	No	No	Ar (CaAa)	153.000 - 0.000	0.000	0.4	12	12	0.850 0.750	1.102		0.000
*****													
FLC 78-50J(7/8")	C	No	No	Ar (CaAa)	140.000 - 0.000	0.000	-0.45	12	12	0.850 0.750	1.112		0.000
FB-L98B-002-75000(3/8)	C	No	No	Ar (CaAa)	140.000 - 0.000	1.500	-0.46	1	1	0.300	0.394		0.000
WR-VG86ST-BRD(3/4)	C	No	No	Ar (CaAa)	140.000 - 0.000	1.500	-0.47	2	2	0.300	0.795		0.001
2" Rigid Conduit	C	No	No	Ar (CaAa)	140.000 - 0.000	0.000	-0.405	1	1	2.000	2.000		0.003
*****													
Feedline Ladder (Af)	A	No	No	Af (CaAa)	190.000 - 0.000	0.000	-0.45	1	1	3.000	3.000		0.008
Feedline Ladder (Af)	A	No	No	Af (CaAa)	180.000 - 0.000	0.000	0.41	1	1	3.000	3.000		0.008
*****													
Feedline Ladder (Af)	B	No	No	Af (CaAa)	170.000 - 0.000	0.000	-0.4	1	1	3.000	3.000		0.008
Feedline Ladder (Af)	B	No	No	Af (CaAa)	160.000 - 0.000	-1.000	0.45	1	1	3.000	3.000		0.008
*****													
Feedline Ladder (Af)	C	No	No	Af (CaAa)	150.000 - 0.000	0.000	0.4	1	1	3.000	3.000		0.008
Feedline Ladder (Af)	C	No	No	Af (CaAa)	140.000 - 0.000	0.000	-0.45	1	1	3.000	3.000		0.008
*****													
Thin Flat Bar Climbing Ladder	A	No	No	Af (CaAa)	192.000 - 0.000	-6.000	0.45	1	1	2.000	2.000		0.004
Safety Line 3/8	A	No	No	Ar (CaAa)	192.000 - 0.000	-6.000	0.45	1	1	0.375	0.375		0.000
*****													

Feed Line/Linear Appurtenances - Entered As Area

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

Feed Line/Linear Appurtenances Section Areas

Tower Section	Tower Elevation ft	Face	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
T1	192.000-180.000	A	0.000	0.000	15.610	0.000	0.183
		B	0.000	0.000	0.000	0.000	0.000
		C	0.000	0.000	0.000	0.000	0.000
T2	180.000-160.000	A	0.000	0.000	72.677	0.000	0.651
		B	0.000	0.000	22.820	0.000	0.158
		C	0.000	0.000	0.000	0.000	0.000
T3	160.000-140.000	A	0.000	0.000	72.677	0.000	0.651
		B	0.000	0.000	79.400	0.000	0.484
		C	0.000	0.000	22.191	0.000	0.131
T4	140.000-120.000	A	0.000	0.000	72.677	0.000	0.651
		B	0.000	0.000	79.400	0.000	0.484
		C	0.000	0.000	81.103	0.000	0.585
T5	120.000-100.000	A	0.000	0.000	72.677	0.000	0.651
		B	0.000	0.000	79.400	0.000	0.484
		C	0.000	0.000	81.103	0.000	0.585
T6	100.000-80.000	A	0.000	0.000	72.677	0.000	0.651
		B	0.000	0.000	79.400	0.000	0.484
		C	0.000	0.000	81.103	0.000	0.585
T7	80.000-60.000	A	0.000	0.000	72.677	0.000	0.651
		B	0.000	0.000	79.400	0.000	0.484
		C	0.000	0.000	81.103	0.000	0.585
T8	60.000-40.000	A	0.000	0.000	72.677	0.000	0.651
		B	0.000	0.000	79.400	0.000	0.484
		C	0.000	0.000	81.103	0.000	0.585
T9	40.000-20.000	A	0.000	0.000	72.677	0.000	0.651
		B	0.000	0.000	79.400	0.000	0.484
		C	0.000	0.000	81.103	0.000	0.585
T10	20.000-0.000	A	0.000	0.000	72.677	0.000	0.651
		B	0.000	0.000	79.400	0.000	0.484
		C	0.000	0.000	81.103	0.000	0.585

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	192.000-180.000	A	2.021	0.000	0.000	40.592	0.000	0.777
		B		0.000	0.000	0.000	0.000	0.000
		C		0.000	0.000	0.000	0.000	0.000
T2	180.000-160.000	A	2.003	0.000	0.000	169.616	0.000	3.137
		B		0.000	0.000	45.562	0.000	0.839
		C		0.000	0.000	0.000	0.000	0.000
T3	160.000-140.000	A	1.978	0.000	0.000	168.805	0.000	3.099
		B		0.000	0.000	144.978	0.000	2.708
		C		0.000	0.000	52.843	0.000	0.873
T4	140.000-120.000	A	1.950	0.000	0.000	167.890	0.000	3.057
		B		0.000	0.000	144.391	0.000	2.675
		C		0.000	0.000	209.628	0.000	3.442
T5	120.000-100.000	A	1.918	0.000	0.000	166.838	0.000	3.009
		B		0.000	0.000	143.716	0.000	2.636
		C		0.000	0.000	208.507	0.000	3.387
T6	100.000-80.000	A	1.879	0.000	0.000	165.599	0.000	2.952
		B		0.000	0.000	142.920	0.000	2.592
		C		0.000	0.000	207.186	0.000	3.323
T7	80.000-60.000	A	1.833	0.000	0.000	164.082	0.000	2.883
		B		0.000	0.000	141.946	0.000	2.537
		C		0.000	0.000	205.569	0.000	3.244
T8	60.000-40.000	A	1.772	0.000	0.000	162.111	0.000	2.796
		B		0.000	0.000	140.680	0.000	2.467
		C		0.000	0.000	203.468	0.000	3.144
T9	40.000-20.000	A	1.684	0.000	0.000	159.246	0.000	2.670
		B		0.000	0.000	138.840	0.000	2.367
		C		0.000	0.000	200.415	0.000	3.000
T10	20.000-0.000	A	1.509	0.000	0.000	153.569	0.000	2.429
		B		0.000	0.000	135.193	0.000	2.172
		C		0.000	0.000	194.366	0.000	2.722

Feed Line Center of Pressure

Section	Elevation	CP_X	CP_Z	CP_X Ice	CP_Z Ice
	ft	in	in	in	in
T1	192.000-180.000	-4.733	0.916	-4.787	-0.936
T2	180.000-160.000	-4.908	-16.421	-5.553	-16.666
T3	160.000-140.000	-3.330	-15.926	-5.329	-16.064
T4	140.000-120.000	3.734	-13.370	5.229	-10.198
T5	120.000-100.000	3.976	-14.297	5.757	-11.380
T6	100.000-80.000	4.571	-16.387	6.584	-13.193
T7	80.000-60.000	4.757	-17.138	7.048	-14.356
T8	60.000-40.000	5.050	-18.177	7.456	-15.432
T9	40.000-20.000	5.381	-19.407	7.917	-16.819
T10	20.000-0.000	5.665	-20.474	8.210	-18.332

Shielding Factor Ka

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T1	2	HB114-1-0813U4-M5J(1-1/4)	180.00 - 190.00	0.6000	0.5487
T1	22	Feedline Ladder (Af)	180.00 - 190.00	0.6000	0.5487
T1	31	Thin Flat Bar Climbing Ladder	180.00 - 192.00	0.6000	0.5487
T1	32	Safety Line 3/8	180.00 - 192.00	0.6000	0.5487
T2	2	HB114-1-0813U4-M5J(1-1/4)	160.00 - 180.00	0.6000	0.6000
T2	7	LDF4-50A(1/2")	160.00 - 180.00	0.6000	0.6000
T2	8	LDF7-50A(1-5/8")	160.00 - 180.00	0.6000	0.6000
T2	10	LDF7-50A(1-5/8")	160.00 - 170.00	0.6000	0.6000
T2	22	Feedline Ladder (Af)	160.00 - 180.00	0.6000	0.6000
T2	23	Feedline Ladder (Af)	160.00 - 180.00	0.6000	0.6000
T2	25	Feedline Ladder (Af)	160.00 - 170.00	0.6000	0.6000
T2	31	Thin Flat Bar Climbing Ladder	160.00 - 180.00	0.6000	0.6000
T2	32	Safety Line 3/8	160.00 - 180.00	0.6000	0.6000
T3	2	HB114-1-0813U4-M5J(1-1/4)	140.00 - 160.00	0.6000	0.6000
T3	7	LDF4-50A(1/2")	140.00 - 160.00	0.6000	0.6000
T3	8	LDF7-50A(1-5/8")	140.00 - 160.00	0.6000	0.6000
T3	10	LDF7-50A(1-5/8")	140.00 - 160.00	0.6000	0.6000
T3	12	FXL 1873 PE(1 5/8")	140.00 - 160.00	0.6000	0.6000
T3	14	AVA5-50(7/8")	140.00 - 153.00	0.6000	0.6000
T3	22	Feedline Ladder (Af)	140.00 - 160.00	0.6000	0.6000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T3	23	Feedline Ladder (Af)	140.00 - 160.00	0.6000	0.6000
T3	25	Feedline Ladder (Af)	140.00 - 160.00	0.6000	0.6000
T3	26	Feedline Ladder (Af)	140.00 - 160.00	0.6000	0.6000
T3	28	Feedline Ladder (Af)	140.00 - 150.00	0.6000	0.6000
T3	31	Thin Flat Bar Climbing Ladder	140.00 - 160.00	0.6000	0.6000
T3	32	Safety Line 3/8	140.00 - 160.00	0.6000	0.6000
T4	2	HB114-1-0813U4-M5J(1-1/4)	120.00 - 140.00	0.6000	0.6000
T4	7	LDF4-50A(1/2")	120.00 - 140.00	0.6000	0.6000
T4	8	LDF7-50A(1-5/8")	120.00 - 140.00	0.6000	0.6000
T4	10	LDF7-50A(1-5/8")	120.00 - 140.00	0.6000	0.6000
T4	12	FXL 1873 PE(1 5/8")	120.00 - 140.00	0.6000	0.6000
T4	14	AVA5-50(7/8")	120.00 - 140.00	0.6000	0.6000
T4	17	FLC 78-50J(7/8")	120.00 - 140.00	0.6000	0.6000
T4	18	FB-L98B-002-75000(3/8)	120.00 - 140.00	0.6000	0.6000
T4	19	WR-VG86ST-BRD(3/4)	120.00 - 140.00	0.6000	0.6000
T4	20	2" Rigid Conduit	120.00 - 140.00	0.6000	0.6000
T4	22	Feedline Ladder (Af)	120.00 - 140.00	0.6000	0.6000
T4	23	Feedline Ladder (Af)	120.00 - 140.00	0.6000	0.6000
T4	25	Feedline Ladder (Af)	120.00 - 140.00	0.6000	0.6000
T4	26	Feedline Ladder (Af)	120.00 - 140.00	0.6000	0.6000
T4	28	Feedline Ladder (Af)	120.00 - 140.00	0.6000	0.6000
T4	29	Feedline Ladder (Af)	120.00 - 140.00	0.6000	0.6000
T4	31	Thin Flat Bar Climbing Ladder	120.00 - 140.00	0.6000	0.6000
T4	32	Safety Line 3/8	120.00 - 140.00	0.6000	0.6000
T5	2	HB114-1-0813U4-M5J(1-1/4)	100.00 - 120.00	0.6000	0.6000
T5	7	LDF4-50A(1/2")	100.00 - 120.00	0.6000	0.6000
T5	8	LDF7-50A(1-5/8")	100.00 - 120.00	0.6000	0.6000
T5	10	LDF7-50A(1-5/8")	100.00 - 120.00	0.6000	0.6000
T5	12	FXL 1873 PE(1 5/8")	100.00 - 120.00	0.6000	0.6000
T5	14	AVA5-50(7/8")	100.00 - 120.00	0.6000	0.6000
T5	17	FLC 78-50J(7/8")	100.00 - 120.00	0.6000	0.6000
T5	18	FB-L98B-002-75000(3/8)	100.00 - 120.00	0.6000	0.6000
T5	19	WR-VG86ST-BRD(3/4)	100.00 - 120.00	0.6000	0.6000
T5	20	2" Rigid Conduit	100.00 - 120.00	0.6000	0.6000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T5	22	Feedline Ladder (Af)	100.00 - 120.00	0.6000	0.6000
T5	23	Feedline Ladder (Af)	100.00 - 120.00	0.6000	0.6000
T5	25	Feedline Ladder (Af)	100.00 - 120.00	0.6000	0.6000
T5	26	Feedline Ladder (Af)	100.00 - 120.00	0.6000	0.6000
T5	28	Feedline Ladder (Af)	100.00 - 120.00	0.6000	0.6000
T5	29	Feedline Ladder (Af)	100.00 - 120.00	0.6000	0.6000
T5	31	Thin Flat Bar Climbing Ladder	100.00 - 120.00	0.6000	0.6000
T5	32	Safety Line 3/8	100.00 - 120.00	0.6000	0.6000
T6	2	HB114-1-0813U4-M5J(1-1/4)	80.00 - 100.00	0.6000	0.6000
T6	7	LDF4-50A(1/2")	80.00 - 100.00	0.6000	0.6000
T6	8	LDF7-50A(1-5/8")	80.00 - 100.00	0.6000	0.6000
T6	10	LDF7-50A(1-5/8")	80.00 - 100.00	0.6000	0.6000
T6	12	FXL 1873 PE(1 5/8")	80.00 - 100.00	0.6000	0.6000
T6	14	AVA5-50(7/8")	80.00 - 100.00	0.6000	0.6000
T6	17	FLC 78-50J(7/8")	80.00 - 100.00	0.6000	0.6000
T6	18	FB-L98B-002-75000(3/8)	80.00 - 100.00	0.6000	0.6000
T6	19	WR-VG86ST-BRD(3/4)	80.00 - 100.00	0.6000	0.6000
T6	20	2" Rigid Conduit	80.00 - 100.00	0.6000	0.6000
T6	22	Feedline Ladder (Af)	80.00 - 100.00	0.6000	0.6000
T6	23	Feedline Ladder (Af)	80.00 - 100.00	0.6000	0.6000
T6	25	Feedline Ladder (Af)	80.00 - 100.00	0.6000	0.6000
T6	26	Feedline Ladder (Af)	80.00 - 100.00	0.6000	0.6000
T6	28	Feedline Ladder (Af)	80.00 - 100.00	0.6000	0.6000
T6	29	Feedline Ladder (Af)	80.00 - 100.00	0.6000	0.6000
T6	31	Thin Flat Bar Climbing Ladder	80.00 - 100.00	0.6000	0.6000
T6	32	Safety Line 3/8	80.00 - 100.00	0.6000	0.6000
T7	2	HB114-1-0813U4-M5J(1-1/4)	60.00 - 80.00	0.6000	0.6000
T7	7	LDF4-50A(1/2")	60.00 - 80.00	0.6000	0.6000
T7	8	LDF7-50A(1-5/8")	60.00 - 80.00	0.6000	0.6000
T7	10	LDF7-50A(1-5/8")	60.00 - 80.00	0.6000	0.6000
T7	12	FXL 1873 PE(1 5/8")	60.00 - 80.00	0.6000	0.6000
T7	14	AVA5-50(7/8")	60.00 - 80.00	0.6000	0.6000
T7	17	FLC 78-50J(7/8")	60.00 - 80.00	0.6000	0.6000
T7	18	FB-L98B-002-75000(3/8)	60.00 - 80.00	0.6000	0.6000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T7	19	WR-VG86ST-BRD(3/4)	60.00 - 80.00	0.6000	0.6000
T7	20	2" Rigid Conduit	60.00 - 80.00	0.6000	0.6000
T7	22	Feedline Ladder (Af)	60.00 - 80.00	0.6000	0.6000
T7	23	Feedline Ladder (Af)	60.00 - 80.00	0.6000	0.6000
T7	25	Feedline Ladder (Af)	60.00 - 80.00	0.6000	0.6000
T7	26	Feedline Ladder (Af)	60.00 - 80.00	0.6000	0.6000
T7	28	Feedline Ladder (Af)	60.00 - 80.00	0.6000	0.6000
T7	29	Feedline Ladder (Af)	60.00 - 80.00	0.6000	0.6000
T7	31	Thin Flat Bar Climbing Ladder	60.00 - 80.00	0.6000	0.6000
T7	32	Safety Line 3/8	60.00 - 80.00	0.6000	0.6000
T8	2	HB114-1-0813U4-M5J(1-1/4)	40.00 - 60.00	0.6000	0.6000
T8	7	LDF4-50A(1/2")	40.00 - 60.00	0.6000	0.6000
T8	8	LDF7-50A(1-5/8")	40.00 - 60.00	0.6000	0.6000
T8	10	LDF7-50A(1-5/8")	40.00 - 60.00	0.6000	0.6000
T8	12	FXL 1873 PE(1 5/8")	40.00 - 60.00	0.6000	0.6000
T8	14	AVA5-50(7/8")	40.00 - 60.00	0.6000	0.6000
T8	17	FLC 78-50J(7/8")	40.00 - 60.00	0.6000	0.6000
T8	18	FB-L98B-002-75000(3/8)	40.00 - 60.00	0.6000	0.6000
T8	19	WR-VG86ST-BRD(3/4)	40.00 - 60.00	0.6000	0.6000
T8	20	2" Rigid Conduit	40.00 - 60.00	0.6000	0.6000
T8	22	Feedline Ladder (Af)	40.00 - 60.00	0.6000	0.6000
T8	23	Feedline Ladder (Af)	40.00 - 60.00	0.6000	0.6000
T8	25	Feedline Ladder (Af)	40.00 - 60.00	0.6000	0.6000
T8	26	Feedline Ladder (Af)	40.00 - 60.00	0.6000	0.6000
T8	28	Feedline Ladder (Af)	40.00 - 60.00	0.6000	0.6000
T8	29	Feedline Ladder (Af)	40.00 - 60.00	0.6000	0.6000
T8	31	Thin Flat Bar Climbing Ladder	40.00 - 60.00	0.6000	0.6000
T8	32	Safety Line 3/8	40.00 - 60.00	0.6000	0.6000
T9	2	HB114-1-0813U4-M5J(1-1/4)	20.00 - 40.00	0.6000	0.6000
T9	7	LDF4-50A(1/2")	20.00 - 40.00	0.6000	0.6000
T9	8	LDF7-50A(1-5/8")	20.00 - 40.00	0.6000	0.6000
T9	10	LDF7-50A(1-5/8")	20.00 - 40.00	0.6000	0.6000
T9	12	FXL 1873 PE(1 5/8")	20.00 - 40.00	0.6000	0.6000
T9	14	AVA5-50(7/8")	20.00 - 40.00	0.6000	0.6000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T9	17	FLC 78-50J(7/8")	20.00 - 40.00	0.6000	0.6000
T9	18	FB-L98B-002-75000(3/8)	20.00 - 40.00	0.6000	0.6000
T9	19	WR-VG86ST-BRD(3/4)	20.00 - 40.00	0.6000	0.6000
T9	20	2" Rigid Conduit	20.00 - 40.00	0.6000	0.6000
T9	22	Feedline Ladder (Af)	20.00 - 40.00	0.6000	0.6000
T9	23	Feedline Ladder (Af)	20.00 - 40.00	0.6000	0.6000
T9	25	Feedline Ladder (Af)	20.00 - 40.00	0.6000	0.6000
T9	26	Feedline Ladder (Af)	20.00 - 40.00	0.6000	0.6000
T9	28	Feedline Ladder (Af)	20.00 - 40.00	0.6000	0.6000
T9	29	Feedline Ladder (Af)	20.00 - 40.00	0.6000	0.6000
T9	31	Thin Flat Bar Climbing Ladder	20.00 - 40.00	0.6000	0.6000
T9	32	Safety Line 3/8	20.00 - 40.00	0.6000	0.6000
T10	2	HB114-1-0813U4-M5J(1-1/4)	0.00 - 20.00	0.6000	0.6000
T10	7	LDF4-50A(1/2")	0.00 - 20.00	0.6000	0.6000
T10	8	LDF7-50A(1-5/8")	0.00 - 20.00	0.6000	0.6000
T10	10	LDF7-50A(1-5/8")	0.00 - 20.00	0.6000	0.6000
T10	12	FXL 1873 PE(1 5/8")	0.00 - 20.00	0.6000	0.6000
T10	14	AVA5-50(7/8")	0.00 - 20.00	0.6000	0.6000
T10	17	FLC 78-50J(7/8")	0.00 - 20.00	0.6000	0.6000
T10	18	FB-L98B-002-75000(3/8)	0.00 - 20.00	0.6000	0.6000
T10	19	WR-VG86ST-BRD(3/4)	0.00 - 20.00	0.6000	0.6000
T10	20	2" Rigid Conduit	0.00 - 20.00	0.6000	0.6000
T10	22	Feedline Ladder (Af)	0.00 - 20.00	0.6000	0.6000
T10	23	Feedline Ladder (Af)	0.00 - 20.00	0.6000	0.6000
T10	25	Feedline Ladder (Af)	0.00 - 20.00	0.6000	0.6000
T10	26	Feedline Ladder (Af)	0.00 - 20.00	0.6000	0.6000
T10	28	Feedline Ladder (Af)	0.00 - 20.00	0.6000	0.6000
T10	29	Feedline Ladder (Af)	0.00 - 20.00	0.6000	0.6000
T10	31	Thin Flat Bar Climbing Ladder	0.00 - 20.00	0.6000	0.6000
T10	32	Safety Line 3/8	0.00 - 20.00	0.6000	0.6000

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
NNVV-65B-R4 w/ Mount Pipe	A	From Leg	4.000 0.000 2.000	0.000	190.000	No Ice 1/2" Ice 1" Ice 2" Ice	12.509 13.108 13.672 14.822	7.413 8.598 9.496 11.328	0.103 0.194 0.293 0.520
NNVV-65B-R4 w/ Mount Pipe	B	From Leg	4.000 0.000 2.000	0.000	190.000	No Ice 1/2" Ice 1" Ice	12.509 13.108 13.672 14.822	7.413 8.598 9.496 11.328	0.103 0.194 0.293 0.520

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
						2" Ice			
NNVV-65B-R4 w/ Mount Pipe	C	From Leg	4.000 0.000 2.000	0.000	190.000	No Ice 1/2" Ice 1" Ice 2" Ice	12.509 13.108 13.672 14.822	7.413 8.598 9.496 11.328	0.103 0.194 0.293 0.520
APXVTM14-ALU-I20 w/ Mount Pipe	A	From Leg	4.000 0.000 2.000	0.000	190.000	No Ice 1/2" Ice 1" Ice 2" Ice	6.580 7.031 7.473 8.385	4.959 5.754 6.472 7.941	0.077 0.132 0.193 0.339
APXVTM14-ALU-I20 w/ Mount Pipe	B	From Leg	4.000 0.000 2.000	0.000	190.000	No Ice 1/2" Ice 1" Ice 2" Ice	6.580 7.031 7.473 8.385	4.959 5.754 6.472 7.941	0.077 0.132 0.193 0.339
APXVTM14-ALU-I20 w/ Mount Pipe	C	From Leg	4.000 0.000 2.000	0.000	190.000	No Ice 1/2" Ice 1" Ice 2" Ice	6.580 7.031 7.473 8.385	4.959 5.754 6.472 7.941	0.077 0.132 0.193 0.339
TD-RRH8x20-25	A	From Leg	4.000 0.000 2.000	0.000	190.000	No Ice 1/2" Ice 1" Ice 2" Ice	4.045 4.298 4.557 5.098	1.535 1.714 1.901 2.295	0.070 0.097 0.128 0.201
TD-RRH8x20-25	B	From Leg	4.000 0.000 2.000	0.000	190.000	No Ice 1/2" Ice 1" Ice 2" Ice	4.045 4.298 4.557 5.098	1.535 1.714 1.901 2.295	0.070 0.097 0.128 0.201
TD-RRH8x20-25	C	From Leg	4.000 0.000 2.000	0.000	190.000	No Ice 1/2" Ice 1" Ice 2" Ice	4.045 4.298 4.557 5.098	1.535 1.714 1.901 2.295	0.070 0.097 0.128 0.201
PCS 1900MHz 4x45W-65MHz	A	From Leg	4.000 0.000 2.000	0.000	190.000	No Ice 1/2" Ice 1" Ice 2" Ice	2.322 2.527 2.739 3.185	2.238 2.441 2.651 3.093	0.060 0.083 0.110 0.173
PCS 1900MHz 4x45W-65MHz	B	From Leg	4.000 0.000 2.000	0.000	190.000	No Ice 1/2" Ice 1" Ice 2" Ice	2.322 2.527 2.739 3.185	2.238 2.441 2.651 3.093	0.060 0.083 0.110 0.173
PCS 1900MHz 4x45W-65MHz	C	From Leg	4.000 0.000 2.000	0.000	190.000	No Ice 1/2" Ice 1" Ice 2" Ice	2.322 2.527 2.739 3.185	2.238 2.441 2.651 3.093	0.060 0.083 0.110 0.173
(2) RRH2X50-800	A	From Leg	4.000 0.000 2.000	0.000	190.000	No Ice 1/2" Ice 1" Ice 2" Ice	1.701 1.864 2.035 2.398	1.282 1.428 1.580 1.908	0.053 0.070 0.090 0.138
(2) RRH2X50-800	B	From Leg	4.000 0.000 2.000	0.000	190.000	No Ice 1/2" Ice 1" Ice 2" Ice	1.701 1.864 2.035 2.398	1.282 1.428 1.580 1.908	0.053 0.070 0.090 0.138
(2) RRH2X50-800	C	From Leg	4.000 0.000 2.000	0.000	190.000	No Ice 1/2" Ice 1" Ice	1.701 1.864 2.035 2.398	1.282 1.428 1.580 1.908	0.053 0.070 0.090 0.138

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
						2" Ice			
Sector Mount [SM 506-3]	C	None		0.000	190.000	No Ice	35.470	35.470	1.742
						1/2" Ice	50.600	50.600	2.348
						1" Ice	65.730	65.730	2.953
						2" Ice	95.990	95.990	4.164
*******									
(2) JAHH-65B-R3B	A	From Leg	4.000 0.000 1.000	0.000	180.000	No Ice 1/2" Ice 1" Ice 2" Ice	9.113 9.579 10.052 11.018	5.983 6.442 6.909 7.856	0.061 0.119 0.183 0.331
(2) JAHH-65B-R3B	B	From Leg	4.000 0.000 1.000	0.000	180.000	No Ice 1/2" Ice 1" Ice 2" Ice	9.113 9.579 10.052 11.018	5.983 6.442 6.909 7.856	0.061 0.119 0.183 0.331
(2) JAHH-65B-R3B	C	From Leg	4.000 0.000 1.000	0.000	180.000	No Ice 1/2" Ice 1" Ice 2" Ice	9.113 9.579 10.052 11.018	5.983 6.442 6.909 7.856	0.061 0.119 0.183 0.331
BAND 5 AHCA RRH4X40	A	From Leg	4.000 0.000 1.000	0.000	180.000	No Ice 1/2" Ice 1" Ice 2" Ice	1.313 1.456 1.607 1.931	0.746 0.860 0.982 1.247	0.040 0.052 0.066 0.102
BAND 5 AHCA RRH4X40	B	From Leg	4.000 0.000 1.000	0.000	180.000	No Ice 1/2" Ice 1" Ice 2" Ice	1.313 1.456 1.607 1.931	0.746 0.860 0.982 1.247	0.040 0.052 0.066 0.102
BAND 5 AHCA RRH4X40	C	From Leg	4.000 0.000 1.000	0.000	180.000	No Ice 1/2" Ice 1" Ice 2" Ice	1.313 1.456 1.607 1.931	0.746 0.860 0.982 1.247	0.040 0.052 0.066 0.102
RRH2X60-700	A	From Leg	4.000 0.000 1.000	0.000	180.000	No Ice 1/2" Ice 1" Ice 2" Ice	3.500 3.761 4.029 4.585	1.816 2.052 2.289 2.785	0.060 0.083 0.109 0.173
RRH2X60-700	B	From Leg	4.000 0.000 1.000	0.000	180.000	No Ice 1/2" Ice 1" Ice 2" Ice	3.500 3.761 4.029 4.585	1.816 2.052 2.289 2.785	0.060 0.083 0.109 0.173
RRH2X60-700	C	From Leg	4.000 0.000 1.000	0.000	180.000	No Ice 1/2" Ice 1" Ice 2" Ice	3.500 3.761 4.029 4.585	1.816 2.052 2.289 2.785	0.060 0.083 0.109 0.173
RRH4X45-AWS4 B66	A	From Leg	4.000 0.000 1.000	0.000	180.000	No Ice 1/2" Ice 1" Ice 2" Ice	2.660 2.878 3.104 3.577	1.586 1.769 1.959 2.359	0.064 0.084 0.108 0.165
RRH4X45-AWS4 B66	B	From Leg	4.000 0.000 1.000	0.000	180.000	No Ice 1/2" Ice 1" Ice 2" Ice	2.660 2.878 3.104 3.577	1.586 1.769 1.959 2.359	0.064 0.084 0.108 0.165
RRH4X45-AWS4 B66	C	From Leg	4.000 0.000 1.000	0.000	180.000	No Ice 1/2" Ice	2.660 2.878 3.104	1.586 1.769 1.959	0.064 0.084 0.108

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
						1" Ice	3.577	2.359	0.165
						2" Ice			
(2) RC3DC-3315-PF-48	A	From Leg	4.000	0.000	180.000	No Ice	3.792	2.512	0.032
			0.000			1/2"	4.044	2.725	0.063
			1.000			Ice	4.303	2.945	0.099
						1" Ice	4.844	3.414	0.181
						2" Ice			
58532A	C	From Leg	4.000	0.000	180.000	No Ice	0.189	0.189	0.000
			0.000			1/2"	0.248	0.248	0.003
			4.000			Ice	0.315	0.315	0.006
						1" Ice	0.470	0.470	0.017
						2" Ice			
(2) LPA-80080/4CF	A	From Leg	4.000	0.000	180.000	No Ice	2.619	5.399	0.012
			0.000			1/2"	2.922	5.726	0.045
			1.000			Ice	3.232	6.061	0.083
						1" Ice	3.847	6.750	0.172
						2" Ice			
(2) LPA-80080/4CF	B	From Leg	4.000	0.000	180.000	No Ice	2.619	5.399	0.012
			0.000			1/2"	2.922	5.726	0.045
			1.000			Ice	3.232	6.061	0.083
						1" Ice	3.847	6.750	0.172
						2" Ice			
(2) LPA-80080/4CF	C	From Leg	4.000	0.000	180.000	No Ice	2.619	5.399	0.012
			0.000			1/2"	2.922	5.726	0.045
			1.000			Ice	3.232	6.061	0.083
						1" Ice	3.847	6.750	0.172
						2" Ice			
Sector Mount [SM 304-3]	C	None		0.000	180.000	No Ice	44.820	44.820	1.920
						1/2"	63.480	63.480	2.772
						Ice	82.140	82.140	3.624
						1" Ice	119.460	119.460	5.328
						2" Ice			
******									
(3) 7130.16.33.00 w/ Mount Pipe	A	From Leg	4.000	0.000	170.000	No Ice	5.555	6.584	0.037
			0.000			1/2"	5.968	7.295	0.096
			2.000			Ice	6.382	7.978	0.162
						1" Ice	7.235	9.391	0.316
						2" Ice			
(3) 7130.16.33.00 w/ Mount Pipe	B	From Leg	4.000	0.000	170.000	No Ice	5.555	6.584	0.037
			0.000			1/2"	5.968	7.295	0.096
			2.000			Ice	6.382	7.978	0.162
						1" Ice	7.235	9.391	0.316
						2" Ice			
(3) 7130.16.33.00 w/ Mount Pipe	C	From Leg	4.000	0.000	170.000	No Ice	5.555	6.584	0.037
			0.000			1/2"	5.968	7.295	0.096
			2.000			Ice	6.382	7.978	0.162
						1" Ice	7.235	9.391	0.316
						2" Ice			
Sector Mount [SM 502-3]	C	None		0.000	170.000	No Ice	33.020	33.020	1.673
						1/2"	47.360	47.360	2.224
						Ice	61.700	61.700	2.775
						1" Ice	90.380	90.380	3.876
						2" Ice			
*******									
HBX-6516DS-VTM w/ Mount Pipe	A	From Leg	4.000	0.000	160.000	No Ice	3.598	3.241	0.029
			0.000			1/2"	3.998	3.914	0.062
			0.000			Ice	4.389	4.564	0.101
						1" Ice	5.187	5.914	0.199
						2" Ice			
HBX-6516DS-VTM w/ Mount Pipe	B	From Leg	4.000	0.000	160.000	No Ice	3.598	3.241	0.029
			0.000			1/2"	3.998	3.914	0.062
			0.000			Ice	4.389	4.564	0.101
						1" Ice	5.187	5.914	0.199
						2" Ice			

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
HBX-6516DS-VTM w/ Mount Pipe	C	From Leg	4.000 0.000 0.000	0.000	160.000	No Ice 1/2" Ice 1" Ice 2" Ice	3.598 3.998 4.389 5.187	3.241 3.914 4.564 5.914	0.029 0.062 0.101 0.199
6' x 2" Mount Pipe	A	From Leg	4.000 0.000 0.000	0.000	160.000	No Ice 1/2" Ice 1" Ice 2" Ice	1.425 1.925 2.294 3.060	1.425 1.925 2.294 3.060	0.022 0.033 0.048 0.090
6' x 2" Mount Pipe	B	From Leg	4.000 0.000 0.000	0.000	160.000	No Ice 1/2" Ice 1" Ice 2" Ice	1.425 1.925 2.294 3.060	1.425 1.925 2.294 3.060	0.022 0.033 0.048 0.090
6' x 2" Mount Pipe	C	From Leg	4.000 0.000 0.000	0.000	160.000	No Ice 1/2" Ice 1" Ice 2" Ice	1.425 1.925 2.294 3.060	1.425 1.925 2.294 3.060	0.022 0.033 0.048 0.090
Sector Mount [SM 104-3]	C	None		0.000	160.000	No Ice 1/2" Ice 1" Ice 2" Ice	30.020 40.480 50.940 71.860	30.020 40.480 50.940 71.860	0.953 1.405 1.857 2.761
*******									
LNX-6515DS-VTM w/ Mount Pipe	A	From Leg	3.000 0.000 0.000	0.000	153.000	No Ice 1/2" Ice 1" Ice 2" Ice	11.683 12.404 13.135 14.512	9.842 11.366 12.914 15.267	0.083 0.173 0.273 0.506
LNX-6515DS-VTM w/ Mount Pipe	C	From Leg	3.000 0.000 0.000	0.000	153.000	No Ice 1/2" Ice 1" Ice 2" Ice	11.683 12.404 13.135 14.512	9.842 11.366 12.914 15.267	0.083 0.173 0.273 0.506
LNX-6515DS-VTM w/ Mount Pipe	B	From Leg	4.000 0.000 0.000	0.000	153.000	No Ice 1/2" Ice 1" Ice 2" Ice	11.683 12.404 13.135 14.512	9.842 11.366 12.914 15.267	0.083 0.173 0.273 0.506
APXV18-206516S-C-A20 w/ Mount Pipe	A	From Leg	3.000 0.000 0.000	0.000	153.000	No Ice 1/2" Ice 1" Ice 2" Ice	3.859 4.274 4.674 5.493	3.296 4.004 4.672 6.056	0.039 0.073 0.113 0.215
APXV18-206516S-C-A20 w/ Mount Pipe	B	From Leg	4.000 0.000 0.000	0.000	153.000	No Ice 1/2" Ice 1" Ice 2" Ice	3.859 4.274 4.674 5.493	3.296 4.004 4.672 6.056	0.039 0.073 0.113 0.215
APXV18-206516S-C-A20 w/ Mount Pipe	C	From Leg	3.000 0.000 0.000	0.000	153.000	No Ice 1/2" Ice 1" Ice 2" Ice	3.859 4.274 4.674 5.493	3.296 4.004 4.672 6.056	0.039 0.073 0.113 0.215
(2) ATM1900D-1A20	A	From Leg	3.000 0.000 0.000	0.000	153.000	No Ice 1/2" Ice 1" Ice 2" Ice	0.717 0.824 0.938 1.189	0.192 0.255 0.326 0.494	0.008 0.013 0.020 0.039
(2) ATMA4P4DBP-1A20	B	From Leg	4.000 0.000 0.000	0.000	153.000	No Ice 1/2" Ice 1" Ice	0.747 0.857 0.975 1.233	0.457 0.550 0.651 0.874	0.017 0.024 0.032 0.055

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
						2" Ice			
ATMA4P4DBP-1A20	C	From Leg	3.000 0.000 0.000	0.000	153.000	No Ice 1/2" Ice 1" Ice 2" Ice	0.747 0.857 0.975 1.233	0.457 0.550 0.651 0.874	0.017 0.024 0.032 0.055
ATM1900D-1A20	C	From Leg	3.000 0.000 0.000	0.000	153.000	No Ice 1/2" Ice 1" Ice 2" Ice	0.717 0.824 0.938 1.189	0.192 0.255 0.326 0.494	0.008 0.013 0.020 0.039
Sector Mount [SM 502-1]	B	From Leg	2.000 0.000 0.000	0.000	153.000	No Ice 1/2" Ice 1" Ice 2" Ice	15.350 21.290 27.230 39.110	14.000 20.810 27.620 41.240	0.558 0.741 0.925 1.292
Side Arm Mount [SO 203-1]	A	From Leg	1.500 0.000 0.000	0.000	153.000	No Ice 1/2" Ice 1" Ice 2" Ice	2.960 4.100 5.240 7.520	3.360 4.680 6.000 8.640	0.125 0.154 0.182 0.239
Side Arm Mount [SO 203-1]	C	From Leg	1.500 0.000 0.000	0.000	153.000	No Ice 1/2" Ice 1" Ice 2" Ice	2.960 4.100 5.240 7.520	3.360 4.680 6.000 8.640	0.125 0.154 0.182 0.239
Pipe Mount [PM 601-3]	C	None		0.000	153.000	No Ice 1/2" Ice 1" Ice 2" Ice	4.390 5.480 6.570 8.750	4.390 5.480 6.570 8.750	0.195 0.237 0.280 0.365
12' horizontal x 2" Pipe Mount	A	From Face	2.000 0.000 0.000	0.000	153.000	No Ice 1/2" Ice 1" Ice 2" Ice	2.400 3.625 4.867 7.354	0.022 0.050 0.089 0.200	0.100 0.100 0.101 0.105
12' horizontal x 2" Pipe Mount	B	From Face	2.000 0.000 0.000	0.000	153.000	No Ice 1/2" Ice 1" Ice 2" Ice	2.400 3.625 4.867 7.354	0.022 0.050 0.089 0.200	0.100 0.100 0.101 0.105
12' horizontal x 2" Pipe Mount	C	From Face	2.000 0.000 0.000	0.000	153.000	No Ice 1/2" Ice 1" Ice 2" Ice	2.400 3.625 4.867 7.354	0.022 0.050 0.089 0.200	0.100 0.100 0.101 0.105
*******									
(2) AM-X-CD-16-65-00T-RET w/ Mount Pipe	A	From Leg	4.000 0.000 1.000	0.000	140.000	No Ice 1/2" Ice 1" Ice 2" Ice	8.262 8.822 9.346 10.418	6.304 7.479 8.368 10.179	0.074 0.139 0.212 0.385
(2) AM-X-CD-14-65-00T-RET w/ Mount Pipe	B	From Leg	4.000 0.000 1.000	0.000	140.000	No Ice 1/2" Ice 1" Ice 2" Ice	5.232 5.618 6.012 6.827	4.015 4.633 5.257 6.532	0.035 0.080 0.131 0.254
(2) AM-X-CD-14-65-00T-RET w/ Mount Pipe	C	From Leg	4.000 0.000 1.000	0.000	140.000	No Ice 1/2" Ice 1" Ice 2" Ice	5.232 5.618 6.012 6.827	4.015 4.633 5.257 6.532	0.035 0.080 0.131 0.254
800 10121 w/ Mount Pipe	A	From Leg	4.000 0.000 1.000	0.000	140.000	No Ice 1/2" Ice	5.388 5.813 6.234	4.600 5.351 6.046	0.066 0.114 0.168

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
						1" Ice	7.102	7.475	0.298
						2" Ice			
800 10121 w/ Mount Pipe	B	From Leg	4.000	0.000	140.000	No Ice	5.388	4.600	0.066
			0.000			1/2"	5.813	5.351	0.114
			1.000			Ice	6.234	6.046	0.168
						1" Ice	7.102	7.475	0.298
						2" Ice			
800 10121 w/ Mount Pipe	C	From Leg	4.000	0.000	140.000	No Ice	5.388	4.600	0.066
			0.000			1/2"	5.813	5.351	0.114
			1.000			Ice	6.234	6.046	0.168
						1" Ice	7.102	7.475	0.298
						2" Ice			
DC6-48-60-18-8F	A	From Leg	4.000	0.000	140.000	No Ice	0.791	0.791	0.020
			0.000			1/2"	1.274	1.274	0.035
			0.000			Ice	1.450	1.450	0.053
						1" Ice	1.831	1.831	0.095
						2" Ice			
(2) RRUS-11	A	From Leg	4.000	0.000	140.000	No Ice	2.784	1.187	0.048
			0.000			1/2"	2.992	1.334	0.068
			0.000			Ice	3.207	1.490	0.092
						1" Ice	3.658	1.833	0.150
						2" Ice			
(2) RRUS-11	B	From Leg	4.000	0.000	140.000	No Ice	2.784	1.187	0.048
			0.000			1/2"	2.992	1.334	0.068
			0.000			Ice	3.207	1.490	0.092
						1" Ice	3.658	1.833	0.150
						2" Ice			
(2) RRUS-11	C	From Leg	4.000	0.000	140.000	No Ice	2.784	1.187	0.048
			0.000			1/2"	2.992	1.334	0.068
			0.000			Ice	3.207	1.490	0.092
						1" Ice	3.658	1.833	0.150
						2" Ice			
7020.00	A	From Leg	4.000	0.000	140.000	No Ice	0.102	0.175	0.002
			0.000			1/2"	0.147	0.239	0.005
			0.000			Ice	0.199	0.311	0.009
						1" Ice	0.326	0.476	0.022
						2" Ice			
7020.00	B	From Leg	4.000	0.000	140.000	No Ice	0.102	0.175	0.002
			0.000			1/2"	0.147	0.239	0.005
			0.000			Ice	0.199	0.311	0.009
						1" Ice	0.326	0.476	0.022
						2" Ice			
7020.00	C	From Leg	4.000	0.000	140.000	No Ice	0.102	0.175	0.002
			0.000			1/2"	0.147	0.239	0.005
			0.000			Ice	0.199	0.311	0.009
						1" Ice	0.326	0.476	0.022
						2" Ice			
LGP13519	A	From Leg	4.000	0.000	140.000	No Ice	0.290	0.181	0.005
			0.000			1/2"	0.362	0.241	0.008
			0.000			Ice	0.441	0.310	0.012
						1" Ice	0.622	0.473	0.024
						2" Ice			
LGP13519	B	From Leg	4.000	0.000	140.000	No Ice	0.290	0.181	0.005
			0.000			1/2"	0.362	0.241	0.008
			0.000			Ice	0.441	0.310	0.012
						1" Ice	0.622	0.473	0.024
						2" Ice			
LGP13519	C	From Leg	4.000	0.000	140.000	No Ice	0.290	0.181	0.005
			0.000			1/2"	0.362	0.241	0.008
			0.000			Ice	0.441	0.310	0.012
						1" Ice	0.622	0.473	0.024
						2" Ice			
DTMABP7819VG12A	A	From Leg	4.000	0.000	140.000	No Ice	0.976	0.339	0.019
			0.000			1/2"	1.100	0.419	0.026
			0.000			Ice	1.232	0.510	0.036

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
						1" Ice	1.517	0.714	0.060
						2" Ice			
DTMABP7819VG12A	B	From Leg	4.000	0.000	140.000	No Ice	0.976	0.339	0.019
			0.000			1/2" Ice	1.100	0.419	0.026
			0.000			1" Ice	1.232	0.510	0.036
						2" Ice	1.517	0.714	0.060
DTMABP7819VG12A	C	From Leg	4.000	0.000	140.000	No Ice	0.976	0.339	0.019
			0.000			1/2" Ice	1.100	0.419	0.026
			0.000			1" Ice	1.232	0.510	0.036
						2" Ice	1.517	0.714	0.060
Sector Mount [SM 504-3]	C	None		0.000	140.000	No Ice	34.250	34.250	1.708
						1/2" Ice	48.980	48.980	2.286
						1" Ice	63.710	63.710	2.864
						2" Ice	93.170	93.170	4.020
*******									
58532A	C	From Leg	4.000	0.000	98.000	No Ice	0.189	0.189	0.000
			0.000			1/2" Ice	0.248	0.248	0.003
			4.000			1" Ice	0.315	0.315	0.006
						2" Ice	0.470	0.470	0.017
Side Arm Mount [SO 306-1]	C	From Leg	2.000	0.000	98.000	No Ice	0.980	2.180	0.042
			0.000			1/2" Ice	1.700	3.800	0.062
			0.000			1" Ice	2.420	5.420	0.083
						2" Ice	3.860	8.660	0.123
*******									

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

Comb. No.	Description
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	192 - 180	Leg	Max Tension	23	5.381	-0.098	-0.065
			Max. Compression	18	-7.990	0.070	-0.063
			Max. Mx	20	-1.251	-0.952	0.002
			Max. My	2	-0.753	-0.032	-0.949
			Max. Vy	20	-0.701	0.459	-0.039
			Max. Vx	2	-0.709	-0.006	0.483
		Diagonal	Max Tension	8	1.736	0.000	0.000
			Max. Compression	20	-1.739	0.000	0.000
			Max. Mx	36	0.198	0.026	0.000
			Max. My	16	-1.666	0.003	-0.002
			Max. Vy	36	-0.029	0.026	0.000
			Max. Vx	16	-0.001	0.002	-0.002
		Top Girt	Max Tension	14	0.124	0.000	0.000
			Max. Compression	3	-0.112	0.000	0.000
			Max. Mx	26	-0.003	-0.074	0.000
			Max. Vy	26	0.045	0.000	0.000
T2	180 - 160	Leg	Max Tension	23	30.871	-0.082	-0.027
			Max. Compression	2	-38.548	0.102	0.015
			Max. Mx	10	-38.209	0.107	0.027
			Max. My	20	-2.892	-0.016	-0.162
			Max. Vy	14	-1.423	-0.066	-0.006
			Max. Vx	8	1.445	0.011	-0.007
		Diagonal	Max Tension	16	4.343	0.000	0.000
			Max. Compression	16	-4.391	0.000	0.000
			Max. Mx	27	1.246	0.048	-0.005
			Max. My	28	-1.464	0.024	0.006
			Max. Vy	27	-0.040	0.048	-0.005
			Max. Vx	28	-0.002	0.000	0.000
		Top Girt	Max Tension	3	0.908	0.000	0.000
			Max. Compression	14	-0.936	0.000	0.000
			Max. Mx	26	-0.048	-0.081	0.000
			Max. My	26	-0.045	0.000	0.002
			Max. Vy	26	0.049	0.000	0.000
			Max. Vx	26	-0.001	0.000	0.000
T3	160 - 140	Leg	Max Tension	23	60.390	-0.167	-0.025
			Max. Compression	10	-72.834	0.179	0.025

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Mx	22	37.872	-0.245	-0.032
			Max. My	8	-6.354	-0.007	0.335
			Max. Vy	22	-0.735	-0.245	-0.032
			Max. Vx	16	0.751	-0.014	0.157
		Diagonal	Max Tension	12	5.978	0.000	0.000
			Max. Compression	12	-6.056	0.000	0.000
			Max. Mx	27	1.299	0.090	0.011
			Max. My	30	1.561	0.087	0.012
			Max. Vy	37	0.061	0.078	0.011
			Max. Vx	30	-0.004	0.000	0.000
T4	140 - 120	Leg	Max Tension	23	94.909	-0.234	-0.018
			Max. Compression	10	-112.619	0.368	0.026
			Max. Mx	10	-112.619	0.368	0.026
			Max. My	8	-9.158	0.007	0.402
			Max. Vy	14	-0.996	-0.170	-0.009
			Max. Vx	20	-1.005	-0.004	-0.084
		Diagonal	Max Tension	12	7.256	0.000	0.000
			Max. Compression	12	-7.329	0.000	0.000
			Max. Mx	27	1.686	0.110	-0.014
			Max. My	36	1.646	0.106	-0.015
			Max. Vy	29	0.073	0.107	-0.013
			Max. Vx	36	0.004	0.000	0.000
T5	120 - 100	Leg	Max Tension	23	128.203	-0.351	-0.015
			Max. Compression	10	-150.323	0.779	0.033
			Max. Mx	10	-150.323	0.779	0.033
			Max. My	8	-10.968	-0.002	0.692
			Max. Vy	11	-0.120	0.779	0.033
			Max. Vx	8	-0.159	-0.002	0.692
		Diagonal	Max Tension	12	7.945	0.000	0.000
			Max. Compression	12	-7.925	0.000	0.000
			Max. Mx	27	2.147	0.155	-0.019
			Max. My	30	-1.411	0.144	0.021
			Max. Vy	29	0.095	0.153	0.020
			Max. Vx	30	-0.005	0.000	0.000
T6	100 - 80	Leg	Max Tension	23	157.091	-0.642	-0.034
			Max. Compression	10	-183.401	0.940	0.048
			Max. Mx	10	-183.401	0.940	0.048
			Max. My	8	-12.321	-0.060	1.122
			Max. Vy	18	-0.132	0.938	-0.020
			Max. Vx	8	0.202	-0.060	1.122
		Diagonal	Max Tension	12	9.265	0.000	0.000
			Max. Compression	12	-9.317	0.000	0.000
			Max. Mx	27	2.375	0.250	-0.033
			Max. My	30	2.515	0.244	0.034
			Max. Vy	29	0.122	0.244	-0.032
			Max. Vx	30	-0.007	0.000	0.000
T7	80 - 60	Leg	Max Tension	23	188.266	-0.599	-0.032
			Max. Compression	10	-219.662	1.268	0.055
			Max. Mx	10	-219.662	1.268	0.055
			Max. My	8	-14.693	0.032	1.116
			Max. Vy	18	-0.165	1.265	-0.026
			Max. Vx	8	-0.172	-0.064	0.895
		Diagonal	Max Tension	12	10.161	0.000	0.000
			Max. Compression	12	-10.299	0.000	0.000
			Max. Mx	27	2.567	0.323	-0.040
			Max. My	36	2.294	0.315	-0.041
			Max. Vy	29	0.148	0.318	-0.038
			Max. Vx	36	0.008	0.000	0.000
T8	60 - 40	Leg	Max Tension	23	216.597	-1.412	-0.028
			Max. Compression	10	-253.950	1.190	0.025
			Max. Mx	37	14.384	-2.043	-0.025
			Max. My	8	-16.710	-0.070	1.347
			Max. Vy	33	0.308	-2.036	0.014
			Max. Vx	8	-0.175	-0.070	1.347
		Diagonal	Max Tension	12	9.928	0.000	0.000
			Max. Compression	12	-9.929	0.000	0.000
			Max. Mx	29	2.359	0.393	0.056
			Max. My	30	-1.298	0.370	0.058
			Max. Vy	29	0.173	0.393	0.056

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Vx	30	-0.010	0.000	0.000
T9	40 - 20	Leg	Max Tension	23	245.103	-1.257	-0.025
			Max. Compression	10	-288.446	2.023	0.046
			Max. Mx	37	15.812	-4.174	-0.019
			Max. My	8	-19.137	-0.118	1.643
			Max. Vy	33	0.681	-4.165	0.012
			Max. Vx	8	0.232	-0.118	1.643
		Diagonal	Max Tension	12	11.547	0.000	0.000
			Max. Compression	12	-11.820	0.000	0.000
			Max. Mx	29	1.453	0.460	-0.049
			Max. My	30	3.680	0.414	0.055
			Max. Vy	29	0.179	0.416	-0.053
			Max. Vx	30	-0.009	0.000	0.000
T10	20 - 0	Leg	Max Tension	23	272.928	-1.305	-0.035
			Max. Compression	10	-322.962	0.000	-0.000
			Max. Mx	27	-154.003	4.261	0.009
			Max. My	8	-21.101	-0.201	3.001
			Max. Vy	33	-0.816	-4.165	0.012
			Max. Vx	8	0.434	-0.201	3.001
		Diagonal	Max Tension	12	11.996	0.000	0.000
			Max. Compression	10	-12.414	0.000	0.000
			Max. Mx	29	-0.459	0.590	0.059
			Max. My	30	5.190	0.418	0.069
			Max. Vy	29	0.198	0.590	0.059
			Max. Vx	30	-0.010	0.000	0.000

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Leg C	Max. Vert	18	331.062	32.636	-19.254
	Max. H_x	18	331.062	32.636	-19.254
	Max. H_z	7	-279.513	-28.132	16.633
	Min. Vert	7	-279.513	-28.132	16.633
	Min. H_x	7	-279.513	-28.132	16.633
	Min. H_z	18	331.062	32.636	-19.254
Leg B	Max. Vert	10	331.575	-32.438	-19.449
	Max. H_x	23	-279.747	27.931	16.824
	Max. H_z	23	-279.747	27.931	16.824
	Min. Vert	23	-279.747	27.931	16.824
	Min. H_x	10	331.575	-32.438	-19.449
	Min. H_z	10	331.575	-32.438	-19.449
Leg A	Max. Vert	2	329.300	0.295	37.642
	Max. H_x	20	23.298	5.477	1.957
	Max. H_z	2	329.300	0.295	37.642
	Min. Vert	15	-275.847	-0.292	-32.395
	Min. H_x	9	17.167	-5.474	1.435
	Min. H_z	15	-275.847	-0.292	-32.395

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	56.127	0.000	0.000	-12.148	-1.660	0.000
1.2 Dead+1.0 Wind 0 deg - No Ice	67.352	-0.030	-60.252	-6656.764	1.812	12.625
0.9 Dead+1.0 Wind 0 deg - No Ice	50.514	-0.030	-60.252	-6653.120	2.310	12.625

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 30 deg - No Ice	67.352	28.931	-50.236	-5581.165	-3204.945	17.581
0.9 Dead+1.0 Wind 30 deg - No Ice	50.514	28.931	-50.236	-5577.520	-3204.447	17.581
1.2 Dead+1.0 Wind 60 deg - No Ice	67.352	49.737	-28.753	-3230.599	-5561.002	-15.001
0.9 Dead+1.0 Wind 60 deg - No Ice	50.514	49.737	-28.753	-3226.955	-5560.504	-15.001
1.2 Dead+1.0 Wind 90 deg - No Ice	67.352	57.640	0.030	-10.774	-6495.934	-57.481
0.9 Dead+1.0 Wind 90 deg - No Ice	50.514	57.640	0.030	-7.130	-6495.436	-57.481
1.2 Dead+1.0 Wind 120 deg - No Ice	67.352	52.378	30.313	3349.449	-5809.748	-26.495
0.9 Dead+1.0 Wind 120 deg - No Ice	50.514	52.378	30.313	3353.094	-5809.250	-26.495
1.2 Dead+1.0 Wind 150 deg - No Ice	67.352	29.161	50.574	5617.976	-3247.423	-4.044
0.9 Dead+1.0 Wind 150 deg - No Ice	50.514	29.161	50.574	5621.620	-3246.925	-4.044
1.2 Dead+1.0 Wind 180 deg - No Ice	67.352	0.030	57.016	6345.848	-5.796	-12.625
0.9 Dead+1.0 Wind 180 deg - No Ice	50.514	0.030	57.016	6349.493	-5.298	-12.625
1.2 Dead+1.0 Wind 210 deg - No Ice	67.352	-28.931	50.236	5552.009	3200.961	-17.581
0.9 Dead+1.0 Wind 210 deg - No Ice	50.514	-28.931	50.236	5555.653	3201.459	-17.581
1.2 Dead+1.0 Wind 240 deg - No Ice	67.352	-52.539	30.371	3342.324	5801.029	15.001
0.9 Dead+1.0 Wind 240 deg - No Ice	50.514	-52.539	30.371	3345.968	5801.528	15.001
1.2 Dead+1.0 Wind 270 deg - No Ice	67.352	-57.640	-0.030	-18.382	6491.950	57.481
0.9 Dead+1.0 Wind 270 deg - No Ice	50.514	-57.640	-0.030	-14.737	6492.448	57.481
1.2 Dead+1.0 Wind 300 deg - No Ice	67.352	-49.575	-28.695	-3237.725	5561.752	26.495
0.9 Dead+1.0 Wind 300 deg - No Ice	50.514	-49.575	-28.695	-3234.080	5562.250	26.495
1.2 Dead+1.0 Wind 330 deg - No Ice	67.352	-29.161	-50.574	-5647.132	3243.439	4.044
0.9 Dead+1.0 Wind 330 deg - No Ice	50.514	-29.161	-50.574	-5643.487	3243.937	4.044
1.2 Dead+1.0 Ice+1.0 Temp	197.816	0.000	0.000	-64.882	-36.644	0.000
1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp	197.816	-0.006	-16.888	-1955.056	-36.146	5.058
1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp	197.816	8.178	-14.191	-1666.578	-959.347	4.949
1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp	197.816	13.883	-8.024	-981.543	-1621.816	-5.593
1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp	197.816	16.099	0.006	-64.384	-1883.555	-13.388
1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp	197.816	14.377	8.316	880.958	-1671.358	-8.488
1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp	197.816	8.265	14.330	1556.561	-971.323	-2.563
1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp	197.816	0.006	16.478	1790.888	-37.142	-5.058
1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp	197.816	-8.178	14.191	1536.814	886.059	-4.949
1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp	197.816	-14.238	8.229	868.982	1578.323	5.593
1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp	197.816	-16.099	-0.006	-65.380	1810.267	13.388
1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp	197.816	-14.022	-8.111	-993.519	1568.275	8.488
1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp	197.816	-8.265	-14.330	-1686.325	898.035	2.563

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
Dead+Wind 0 deg - Service	56.127	-0.006	-12.835	-1427.052	-0.850	2.689
Dead+Wind 30 deg - Service	56.127	6.163	-10.701	-1197.930	-683.946	3.745
Dead+Wind 60 deg - Service	56.127	10.595	-6.125	-697.218	-1185.828	-3.195
Dead+Wind 90 deg - Service	56.127	12.278	0.006	-11.338	-1384.985	-12.245
Dead+Wind 120 deg - Service	56.127	11.158	6.457	704.449	-1238.815	-5.644
Dead+Wind 150 deg - Service	56.127	6.212	10.773	1187.686	-692.995	-0.862
Dead+Wind 180 deg - Service	56.127	0.006	12.145	1342.735	-2.470	-2.689
Dead+Wind 210 deg - Service	56.127	-6.163	10.701	1173.634	680.626	-3.745
Dead+Wind 240 deg - Service	56.127	-11.192	6.470	702.931	1234.486	3.195
Dead+Wind 270 deg - Service	56.127	-12.278	-0.006	-12.959	1381.665	12.245
Dead+Wind 300 deg - Service	56.127	-10.560	-6.113	-698.736	1183.516	5.644
Dead+Wind 330 deg - Service	56.127	-6.212	-10.773	-1211.982	689.674	0.862

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	-56.127	0.000	0.000	56.127	-0.000	0.000%
2	-0.030	-67.352	-60.252	0.030	67.352	60.252	0.000%
3	-0.030	-50.514	-60.252	0.030	50.514	60.252	0.000%
4	28.931	-67.352	-50.236	-28.931	67.352	50.236	0.000%
5	28.931	-50.514	-50.236	-28.931	50.514	50.236	0.000%
6	49.737	-67.352	-28.753	-49.737	67.352	28.753	0.000%
7	49.737	-50.514	-28.753	-49.737	50.514	28.753	0.000%
8	57.640	-67.352	0.030	-57.640	67.352	-0.030	0.000%
9	57.640	-50.514	0.030	-57.640	50.514	-0.030	0.000%
10	52.378	-67.352	30.313	-52.378	67.352	-30.313	0.000%
11	52.378	-50.514	30.313	-52.378	50.514	-30.313	0.000%
12	29.161	-67.352	50.574	-29.161	67.352	-50.574	0.000%
13	29.161	-50.514	50.574	-29.161	50.514	-50.574	0.000%
14	0.030	-67.352	57.016	-0.030	67.352	-57.016	0.000%
15	0.030	-50.514	57.016	-0.030	50.514	-57.016	0.000%
16	-28.931	-67.352	50.236	28.931	67.352	-50.236	0.000%
17	-28.931	-50.514	50.236	28.931	50.514	-50.236	0.000%
18	-52.539	-67.352	30.371	52.539	67.352	-30.371	0.000%
19	-52.539	-50.514	30.371	52.539	50.514	-30.371	0.000%
20	-57.640	-67.352	-0.030	57.640	67.352	0.030	0.000%
21	-57.640	-50.514	-0.030	57.640	50.514	0.030	0.000%
22	-49.575	-67.352	-28.695	49.575	67.352	28.695	0.000%
23	-49.575	-50.514	-28.695	49.575	50.514	28.695	0.000%
24	-29.161	-67.352	-50.574	29.161	67.352	50.574	0.000%
25	-29.161	-50.514	-50.574	29.161	50.514	50.574	0.000%
26	0.000	-197.816	0.000	0.000	197.816	-0.000	0.000%
27	-0.006	-197.816	-16.888	0.006	197.816	16.888	0.000%
28	8.178	-197.816	-14.191	-8.178	197.816	14.191	0.000%
29	13.883	-197.816	-8.024	-13.883	197.816	8.024	0.000%
30	16.099	-197.816	0.006	-16.099	197.816	-0.006	0.000%
31	14.377	-197.816	8.316	-14.377	197.816	-8.316	0.000%
32	8.265	-197.816	14.330	-8.265	197.816	-14.330	0.000%
33	0.006	-197.816	16.478	-0.006	197.816	-16.478	0.000%
34	-8.178	-197.816	14.191	8.178	197.816	-14.191	0.000%
35	-14.238	-197.816	8.229	14.238	197.816	-8.229	0.000%
36	-16.099	-197.816	-0.006	16.099	197.816	0.006	0.000%
37	-14.022	-197.816	-8.111	14.022	197.816	8.111	0.000%
38	-8.265	-197.816	-14.330	8.265	197.816	14.330	0.000%
39	-0.006	-56.127	-12.835	0.006	56.127	12.835	0.000%
40	6.163	-56.127	-10.701	-6.163	56.127	10.701	0.000%

Load Comb.	Sum of Applied Forces PX K	PY K	PZ K	Sum of Reactions PX K	PY K	PZ K	% Error
41	10.595	-56.127	-6.125	-10.595	56.127	6.125	0.000%
42	12.278	-56.127	0.006	-12.278	56.127	-0.006	0.000%
43	11.158	-56.127	6.457	-11.158	56.127	-6.457	0.000%
44	6.212	-56.127	10.773	-6.212	56.127	-10.773	0.000%
45	0.006	-56.127	12.145	-0.006	56.127	-12.145	0.000%
46	-6.163	-56.127	10.701	6.163	56.127	-10.701	0.000%
47	-11.192	-56.127	6.470	11.192	56.127	-6.470	0.000%
48	-12.278	-56.127	-0.006	12.278	56.127	0.006	0.000%
49	-10.560	-56.127	-6.113	10.560	56.127	6.113	0.000%
50	-6.212	-56.127	-10.773	6.212	56.127	10.773	0.000%

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T1	192 - 180	3.925	39	0.192	0.024
T2	180 - 160	3.440	39	0.189	0.024
T3	160 - 140	2.672	43	0.164	0.021
T4	140 - 120	2.021	43	0.137	0.018
T5	120 - 100	1.471	43	0.112	0.014
T6	100 - 80	1.019	43	0.091	0.011
T7	80 - 60	0.660	43	0.070	0.008
T8	60 - 40	0.386	43	0.051	0.006
T9	40 - 20	0.188	43	0.035	0.004
T10	20 - 0	0.056	47	0.018	0.002

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
190.000	NNVV-65B-R4 w/ Mount Pipe	39	3.844	0.192	0.024	440222
180.000	(2) JAHH-65B-R3B	39	3.440	0.189	0.024	163424
170.000	(3) 7130.16.33.00 w/ Mount Pipe	39	3.045	0.179	0.023	55549
160.000	HBX-6516DS-VTM w/ Mount Pipe	43	2.672	0.164	0.021	34390
153.000	LNX-6515DS-VTM w/ Mount Pipe	43	2.431	0.154	0.020	37536
140.000	(2) AM-X-CD-16-65-00T-RET w/ Mount Pipe	43	2.021	0.137	0.018	49956
98.000	58532A	43	0.979	0.089	0.010	51428

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T1	192 - 180	18.458	11	0.896	0.113
T2	180 - 160	16.192	11	0.884	0.113
T3	160 - 140	12.583	11	0.772	0.098
T4	140 - 120	9.512	11	0.646	0.084
T5	120 - 100	6.923	11	0.530	0.066
T6	100 - 80	4.795	11	0.430	0.050
T7	80 - 60	3.106	11	0.328	0.037
T8	60 - 40	1.814	11	0.241	0.026

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T9	40 - 20	0.884	11	0.163	0.017
T10	20 - 0	0.265	19	0.083	0.008

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
190.000	NNVV-65B-R4 w/ Mount Pipe	11	18.079	0.896	0.113	102375
180.000	(2) JAHH-65B-R3B	11	16.192	0.884	0.113	37472
170.000	(3) 7130.16.33.00 w/ Mount Pipe	11	14.339	0.837	0.107	12210
160.000	HBX-6516DS-VTM w/ Mount Pipe	11	12.583	0.772	0.098	7498
153.000	LNX-6515DS-VTM w/ Mount Pipe	11	11.444	0.726	0.093	8149
140.000	(2) AM-X-CD-16-65-00T-RET w/ Mount Pipe	11	9.512	0.646	0.084	10694
98.000	58532A	11	4.607	0.419	0.049	10922

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	192	Leg	A325N	0.625	4	1.345	20.340	0.066	1.05	Bolt Tension
		Diagonal	A325N	0.625	1	1.736	6.831	0.254	1.05	Member Block Shear
		Top Girt	A325N	0.625	1	0.124	6.831	0.018	1.05	Member Block Shear
T2	180	Leg	A325N	0.625	4	7.718	20.340	0.379	1.05	Bolt Tension
		Diagonal	A325N	0.625	1	4.343	7.830	0.555	1.05	Member Bearing
		Top Girt	A325N	0.625	1	0.908	7.830	0.116	1.05	Member Bearing
T3	160	Leg	A325N	0.875	4	15.097	41.556	0.363	1.05	Bolt Tension
		Diagonal	A325N	0.625	1	5.978	10.440	0.573	1.05	Member Bearing
T4	140	Leg	A325N	1.000	4	23.727	54.517	0.435	1.05	Bolt Tension
		Diagonal	A325N	0.625	1	7.256	10.440	0.695	1.05	Member Bearing
T5	120	Leg	A325N	1.000	6	21.367	54.517	0.392	1.05	Bolt Tension
		Diagonal	A325N	0.750	1	7.945	14.137	0.562	1.05	Member Bearing
T6	100	Leg	A325N	1.000	6	26.182	54.517	0.480	1.05	Bolt Tension
		Diagonal	A325N	0.750	1	9.265	14.137	0.655	1.05	Member Bearing
T7	80	Leg	A325N	1.000	8	23.533	54.517	0.432	1.05	Bolt Tension
		Diagonal	A325N	0.750	1	10.161	14.137	0.719	1.05	Member Bearing
T8	60	Leg	A325N	1.000	8	27.075	54.517	0.497	1.05	Bolt Tension
		Diagonal	A325X	0.750	1	9.928	17.672	0.562	1.05	Member Bearing
T9	40	Leg	A325N	1.000	8	30.638	54.517	0.562	1.05	Bolt Tension
		Diagonal	A325X	0.750	1	11.547	17.672	0.653	1.05	Member Bearing
T10	20	Diagonal	A325X	0.750	1	11.996	20.227	0.593	1.05	Gusset 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	192 - 180	ROHN 2.5 STD	12.000	4.000	50.7 K=1.00	1.704	-7.990	63.560	0.126 [1]
T2	180 - 160	ROHN 2.5 STD	20.032	5.008	63.4 K=1.00	1.704	-38.548	57.139	0.675 [1]
T3	160 - 140	ROHN 3 EH	20.036	6.679	70.5 K=1.00	3.016	-72.834	94.337	0.772 [1]
T4	140 - 120	ROHN 4 EH	20.038	6.679	54.3 K=1.00	4.407	-112.619	159.899	0.704 [1]
T5	120 - 100	ROHN 5 EH	20.036	6.679	43.6 K=1.00	6.111	-150.323	239.348	0.628 [1]
T6	100 - 80	ROHN 6 EHS	20.036	10.018	54.0 K=1.00	6.713	-183.401	244.047	0.751 [1]
T7	80 - 60	ROHN 6 EH	20.032	10.016	54.8 K=1.00	8.405	-219.662	303.757	0.723 [1]
T8	60 - 40	ROHN 8 EHS	20.042	10.021	40.6 K=1.00	9.867	-253.950	393.649	0.645 [1]
T9	40 - 20	ROHN 8 EHS	20.031	10.015	40.5 K=1.00	9.867	-288.446	393.703	0.733 [1]
T10	20 - 0	ROHN 8 EHS	20.033	10.017	40.6 K=1.00	9.867	-322.962	393.691	0.820 [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	192 - 180	L1 3/4x1 3/4x3/16	7.700	3.590	125.4 K=1.00	0.621	-1.739	11.296	0.154 [1]
T2	180 - 160	L2x2x3/16	9.686	4.727	144.0 K=1.00	0.715	-4.273	9.875	0.433 [1]
T3	160 - 140	L2 1/2x2 1/2x1/4	12.241	6.033	147.4 K=1.00	1.190	-6.056	15.668	0.387 [1]
T4	140 - 120	L2 1/2x2 1/2x1/4	14.067	6.902	168.7 K=1.00	1.190	-7.329	11.969	0.612 [1]
T5	120 - 100	L3x3x1/4	15.944	7.773	157.6 K=1.00	1.440	-7.925	16.602	0.477 [1]
T6	100 - 80	L3 1/2x3 1/2x1/4	19.209	9.452	163.4 K=1.00	1.690	-9.317	18.110	0.514 [1]
T7	80 - 60	L4x4x1/4	20.935	10.297	155.4 K=1.00	1.940	-10.299	22.986	0.448 [1]
T8	60 - 40	L4x4x5/16	22.872	11.208	170.0 K=1.00	2.400	-9.929	23.760	0.418 [1]
T9	40 - 20	L4x4x5/16	24.688	12.072	183.1 K=1.00	2.400	-11.820	20.480	0.577 [1]
T10	20 - 0	L4x4x3/8	26.510	12.996	197.9 K=1.00	2.860	-12.414	20.900	0.594 [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	192 - 180	L1 3/4x1 3/4x3/16	6.580	6.101	213.2 K=1.00	0.621	-0.112	3.912	0.029 [1]
T2	180 - 160	KL/R > 200 (C) - 4 L2x2x3/16	6.580	6.101	185.8 K=1.00	0.715	-0.936	5.927	0.158 [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	192 - 180	ROHN 2.5 STD	12.000	4.000	50.7	1.704	5.381	76.682	0.070 [1]
T2	180 - 160	ROHN 2.5 STD	20.032	5.008	63.4	1.704	30.871	76.682	0.403 [1]
T3	160 - 140	ROHN 3 EH	20.036	6.679	70.5	3.016	60.390	135.717	0.445 [1]
T4	140 - 120	ROHN 4 EH	20.038	6.679	54.3	4.407	94.909	198.335	0.479 [1]
T5	120 - 100	ROHN 5 EH	20.036	6.679	43.6	6.111	128.203	275.012	0.466 [1]
T6	100 - 80	ROHN 6 EHS	20.036	10.018	54.0	6.713	157.091	302.097	0.520 [1]
T7	80 - 60	ROHN 6 EH	20.032	10.016	54.8	8.405	188.266	378.222	0.498 [1]
T8	60 - 40	ROHN 8 EHS	20.042	10.021	40.6	9.867	216.597	443.995	0.488 [1]
T9	40 - 20	ROHN 8 EHS	20.031	10.015	40.5	9.867	245.103	443.995	0.552 [1]
T10	20 - 0	ROHN 8 EHS	20.033	10.017	40.6	9.867	272.928	443.995	0.615 [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	192 - 180	L1 3/4x1 3/4x3/16	7.700	3.590	82.9	0.360	1.736	15.675	0.111 [1]
T2	180 - 160	L2x2x3/16	9.686	4.727	94.3	0.431	4.343	18.739	0.232 [1]
T3	160 - 140	L2 1/2x2 1/2x1/4	11.669	5.751	91.6	0.752	5.978	32.707	0.183 [1]
T4	140 - 120	L2 1/2x2 1/2x1/4	14.067	6.902	109.6	0.752	7.256	32.707	0.222 [1]
T5	120 - 100	L3x3x1/4	15.944	7.773	102.0	0.916	7.945	44.652	0.178 [1]
T6	100 - 80	L3 1/2x3 1/2x1/4	19.209	9.452	105.5	1.103	9.265	53.793	0.172 [1]
T7	80 - 60	L4x4x1/4	20.935	10.297	100.1	1.291	10.161	62.933	0.161 [1]
T8	60 - 40	L4x4x5/16	22.872	11.208	109.8	1.595	9.928	77.752	0.128 [1]
T9	40 - 20	L4x4x5/16	24.688	12.072	118.1	1.595	11.547	77.752	0.149 [1]
T10	20 - 0	L4x4x3/8	26.510	12.996	128.1	1.899	11.996	92.572	0.130 [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	192 - 180	L1 3/4x1 3/4x3/16	6.580	6.101	141.7	0.360	0.124	15.675	0.008 [1]

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T2	180 - 160	L2x2x3/16	6.580	6.101	123.3	0.431	0.908	18.739	0.048 [1]

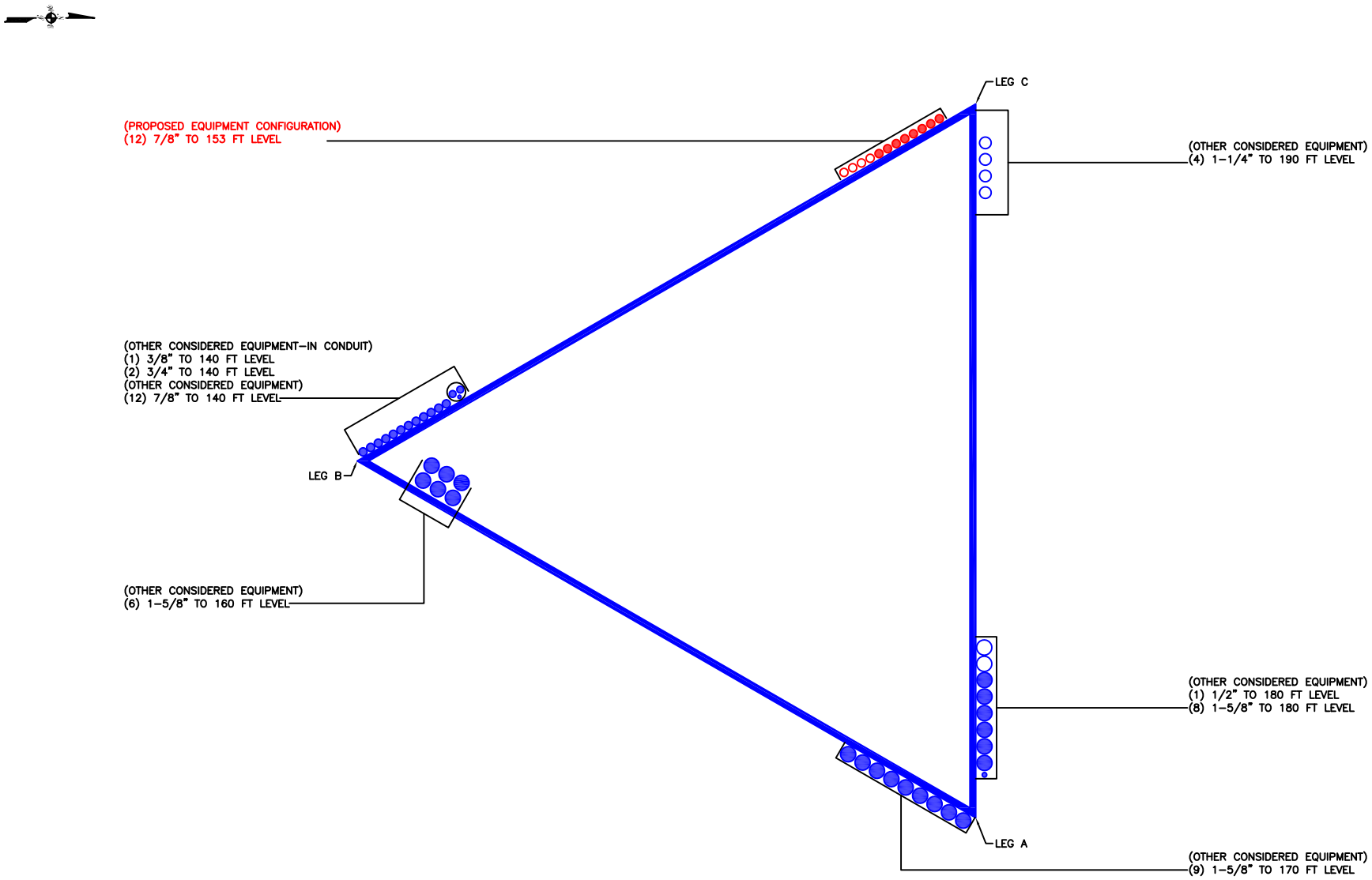
[1] P_u / ϕP_n controls

Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
T1	192 - 180	Leg	ROHN 2.5 STD	1	-7.990	66.738	12.0	Pass
T2	180 - 160	Leg	ROHN 2.5 STD	27	-38.548	59.996	64.3	Pass
T3	160 - 140	Leg	ROHN 3 EH	56	-72.834	99.054	73.5	Pass
T4	140 - 120	Leg	ROHN 4 EH	77	-112.619	167.894	67.1	Pass
T5	120 - 100	Leg	ROHN 5 EH	98	-150.323	251.315	59.8	Pass
T6	100 - 80	Leg	ROHN 6 EHS	119	-183.401	256.249	71.6	Pass
T7	80 - 60	Leg	ROHN 6 EH	134	-219.662	318.945	68.9	Pass
T8	60 - 40	Leg	ROHN 8 EHS	149	-253.950	413.331	61.4	Pass
T9	40 - 20	Leg	ROHN 8 EHS	164	-288.446	413.388	69.8	Pass
T10	20 - 0	Leg	ROHN 8 EHS	179	-322.962	413.376	78.1	Pass
T1	192 - 180	Diagonal	L1 3/4x1 3/4x3/16	7	-1.739	11.861	14.7 24.2 (b)	Pass
T2	180 - 160	Diagonal	L2x2x3/16	36	-4.273	10.369	41.2 52.8 (b)	Pass
T3	160 - 140	Diagonal	L2 1/2x2 1/2x1/4	60	-6.056	16.451	36.8 54.5 (b)	Pass
T4	140 - 120	Diagonal	L2 1/2x2 1/2x1/4	81	-7.329	12.568	58.3 66.2 (b)	Pass
T5	120 - 100	Diagonal	L3x3x1/4	102	-7.925	17.432	45.5 53.5 (b)	Pass
T6	100 - 80	Diagonal	L3 1/2x3 1/2x1/4	123	-9.317	19.016	49.0 62.4 (b)	Pass
T7	80 - 60	Diagonal	L4x4x1/4	138	-10.299	24.136	42.7 68.5 (b)	Pass
T8	60 - 40	Diagonal	L4x4x5/16	153	-9.929	24.948	39.8 53.5 (b)	Pass
T9	40 - 20	Diagonal	L4x4x5/16	168	-11.820	21.504	55.0 62.2 (b)	Pass
T10	20 - 0	Diagonal	L4x4x3/8	183	-12.414	21.945	56.6	Pass
T1	192 - 180	Top Girt	L1 3/4x1 3/4x3/16	4	-0.112	4.108	2.7	Pass
T2	180 - 160	Top Girt	L2x2x3/16	28	-0.936	6.224	15.0	Pass
							Summary	
						Leg (T10)	78.1	Pass
						Diagonal (T7)	68.5	Pass
						Top Girt (T2)	15.0	Pass
						Bolt Checks	68.5	Pass
						RATING =	**78.1**	**Pass**

APPENDIX B

BASE LEVEL DRAWING



BUSINESS UNIT: 876345 TOWER ID: C_BASELEVEL

APPENDIX C

ADDITIONAL CALCULATIONS

CCIplate

Project Information

BU #	876345
Site Name	SKY HILL
Order #	456556 Rev. 0

Tower Information

Tower Type	Self Support
TIA-222 Rev	H

☑ Apply TIA-222-H Section 15.5

Applied Loads

	Comp.	Uplift
Axial (k)	332.00	280.00
Shear (k)	38.00	33.00

Anchor Rod Data

Quantity:	10
Diameter (in):	1
Material Grade:	A354-BC
Grout Considered:	Yes
l_{ar} (in):	2
Eta Factor, η:	
Thread Type:	N-Included
Configuration:	Symmetrical

Fy=109 ksi Fu=125 ksi

Anchor Rod Results

Axial, Pu_c (kips)	33.20
Shear, Vu (kips)	3.80
Moment, Mu (kip-in)	-
Axial Cap., φPn_c (kips)	66.05
Shear Cap., ϕVn (kips)	19.82
Moment Cap., ϕMn (kip-in)	-
Stress Rating	51.4%

Pass

Drilled Pier Foundation

BU # :	876345
Site Name:	SKY HILL
Order Number:	456556 Rev. 0

TIA-222 Revison:	H
Tower Type:	Self Support

Applied Loads	Comp.	Uplift
Moment (kip-ft)	0	0
Axial Force (kips)	332	280
Shear Force (kips)	38	33

Material Properties		
Concrete Strength, f'c:	3	ksi
Rebar Strength, Fy:	60	ksi

Pier Design Data		
Depth	26	ft
Ext. Above Grade	0.5	ft
Pier Section 1		
From 0.5' above grade to 26' below grade		
Pier Diameter	5	ft
Rebar Quantity	18	
Rebar Size	9	
Rebar Cage Diameter	51	in
Tie Size	5	

Analysis Results		
Soil Lateral Capacity	*Compression*	*Uplift*
$D_{v=0}$ (ft from TOC)	11.53	11.53
Soil Safety Factor	37.13	42.75
Max Moment (kip-ft)	301.90	262.17
Rating*	*3.4%*	*3.0%*
Soil Vertical Capacity	*Compression*	*Uplift*
Skin Friction (kips)	574.16	574.16
End Bearing (kips)	374.93	-
Weight of Concrete (kips)	93.66	70.24
Total Capacity (kips)	949.09	644.40
Axial (kips)	425.66	280.00
Rating*	*42.7%*	*41.4%*
Reinforced Concrete Capacity	*Compression*	*Uplift*
Critical Depth (ft from TOC)	11.86	10.75
Critical Moment (kip-ft)	301.60	260.74
Critical Moment Capacity	2360.72	1637.70
Rating*	*12.2%*	*15.2%*

Soil Interaction Rating*	**42.7%**
Structural Foundation Rating*	**15.2%**

*Rating per TIA-222-H Section 15.5

Check Limitation	
Apply TIA-222-H Section 15.5:	☑

Soil Profile			
Groundwater Depth	None	ft	# of Layers: 5

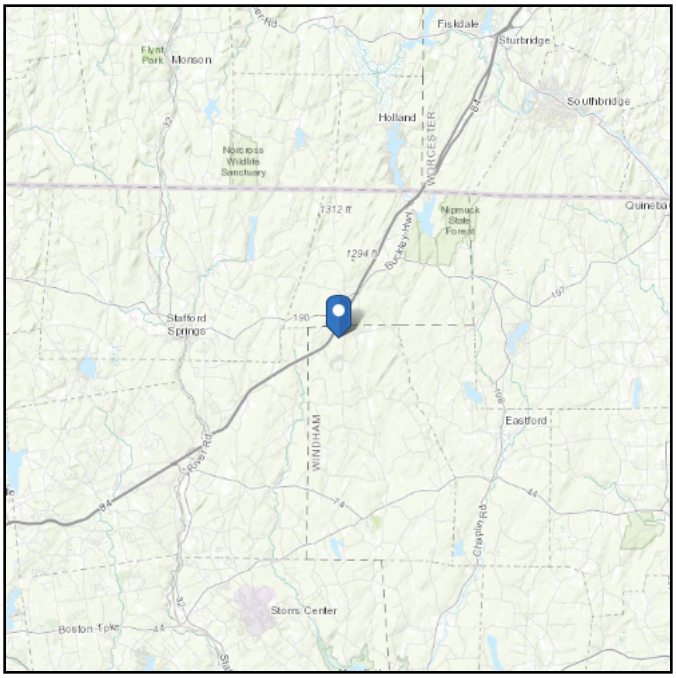
Layer	Top (ft)	Bottom (ft)	Thickness (ft)	γ_{soil} (pcf)	$\gamma_{concrete}$ (pcf)	Cohesion (ksf)	Angle of Friction (degrees)	Calculated Ultimate Skin Friction Comp (ksf)	Calculated Ultimate Skin Friction Uplift (ksf)	Ultimate Skin Friction Comp Override (ksf)	Ultimate Skin Friction Uplift Override (ksf)	Ult. Gross Bearing Capacity (ksf)	SPT Blow Count	Soil Type
1	0	2	2	120	150	0	0	0.000	0.000	0.00	0.00			Cohesionless
2	2	3.3	1.3	130	150	0	0	0.000	0.000	0.00	0.00			Cohesionless
3	3.3	5	1.7	130	150	3	0	1.650	1.650	0.00	0.00			Cohesive
4	5	6	1	135	150	5	0	2.321	2.321					Cohesive
5	6	26	20	135	150	5	0	2.321	2.321			25.46		Cohesive

ASCE 7 Hazards Report

Address:
No Address at This Location

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

Elevation: 1068.03 ft (NAVD 88)
Latitude: 41.952139
Longitude: -72.195528



Wind

Results:

Wind Speed:	125 Vmph
10-year MRI	77 Vmph
25-year MRI	87 Vmph
50-year MRI	94 Vmph
100-year MRI	101 Vmph
Data Source:	ASCE/SEI 7-10, Fig. 26.5-1A and Figs. CC-1–CC-4, incorporating errata of March 12, 2014
Date Accessed:	Fri Oct 19 2018

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

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

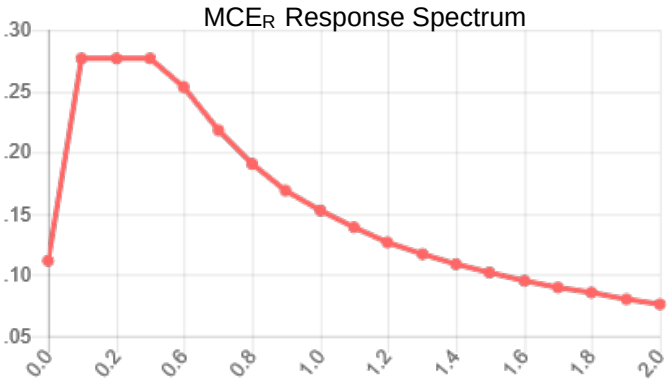
Seismic

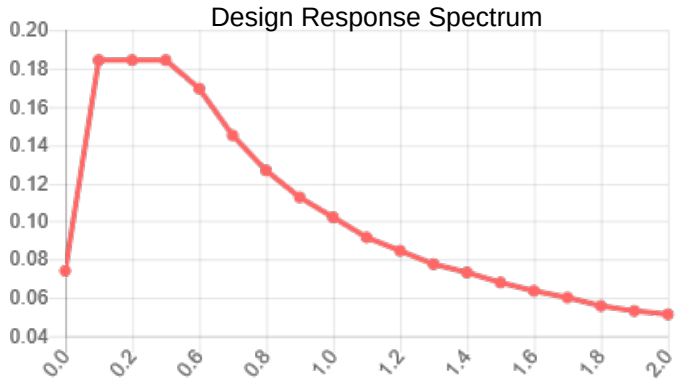
Site Soil Class: D - Stiff Soil

Results:

S_S :	0.173	S_{DS} :	0.184
S_1 :	0.064	S_{D1} :	0.102
F_a :	1.600	T_L :	6.000
F_v :	2.400	PGA :	0.085
S_{MS} :	0.277	PGA_M :	0.136
S_{M1} :	0.152	F_{PGA} :	1.600
		I_e :	1

Seismic Design Category B





Data Accessed: Fri Oct 19 2018

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

Ice

Results:

Ice Thickness:	1.00 in.
Concurrent Temperature:	5 F
Gust Speed:	50 mph
Data Source:	Standard ASCE/SEI 7-10, Figs. 10-2 through 10-8
Date Accessed:	Fri Oct 19 2018

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

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

T-Mobile

WIRELESS COMMUNICATIONS FACILITY

ASHFORD/I-84_1
SITE ID: CT11353C
36 JANOWSKI ROAD
ASHFORD, CT 06278

GENERAL NOTES

1. ALL WORK SHALL BE IN ACCORDANCE WITH THE 2015 INTERNATIONAL BUILDING CODE AS MODIFIED BY THE 2018 CONNECTICUT SUPPLEMENT, INCLUDING THE TIA/EIA-222 REVISION "G" "STRUCTURAL STANDARDS FOR STEEL ANTENNA TOWERS AND SUPPORTING STRUCTURES." 2016 CONNECTICUT FIRE SAFETY CODE, NATIONAL ELECTRICAL CODE AND LOCAL CODES.
2. CONTRACTOR SHALL REVIEW ALL DRAWINGS AND SPECIFICATIONS IN THE CONTRACT DOCUMENT SET. CONTRACTOR SHALL COORDINATE ALL WORK SHOWN IN THE SET OF DRAWINGS. THE CONTRACTOR SHALL PROVIDE A COMPLETE SET OF DRAWINGS TO ALL SUBCONTRACTORS AND ALL RELATED PARTIES. THE SUBCONTRACTORS SHALL EXAMINE ALL THE DRAWINGS AND SPECIFICATIONS FOR THE INFORMATION THAT AFFECTS THEIR WORK.
3. CONTRACTOR SHALL PROVIDE A COMPLETE BUILD-OUT WITH ALL FINISHES, STRUCTURAL, MECHANICAL, AND ELECTRICAL COMPONENTS AND PROVIDE ALL ITEMS AS SHOWN OR INDICATED ON THE DRAWINGS OR IN THE WRITTEN SPECIFICATIONS.
4. CONTRACTOR SHALL FURNISH ALL MATERIAL, LABOR AND EQUIPMENT TO COMPLETE THE WORK AND FURNISH A COMPLETED JOB ALL IN ACCORDANCE WITH LOCAL AND STATE GOVERNING AUTHORITIES AND OTHER AUTHORITIES HAVING LAWFUL JURISDICTION OVER THE WORK.
5. CONTRACTOR SHALL SECURE AND PAY FOR ALL PERMITS AND ALL INSPECTIONS REQUIRED AND SHALL ALSO PAY FEES REQUIRED FOR THE GENERAL CONSTRUCTION, PLUMBING, ELECTRICAL AND HVAC. PERMITS SHALL BE PAID FOR BY THE RESPECTIVE SUBCONTRACTORS.
6. CONTRACTOR SHALL MAINTAIN A CURRENT SET OF DRAWINGS AND SPECIFICATIONS ON SITE AT ALL TIMES AND INSURE DISTRIBUTION OF NEW DRAWINGS TO SUBCONTRACTORS AND OTHER RELEVANT PARTIES AS SOON AS THEY ARE MADE AVAILABLE. ALL OLD DRAWINGS SHALL BE MARKED VOID AND REMOVED FROM THE CONTRACT AREA. THE CONTRACTOR SHALL FURNISH AN 'AS-BUILT' SET OF DRAWINGS TO OWNER UPON COMPLETION OF PROJECT.
7. LOCATION OF EQUIPMENT, AND WORK SUPPLIED BY OTHERS THAT IS DIAGRAMMATICALLY INDICATED ON THE DRAWINGS SHALL BE DETERMINED BY THE CONTRACTOR. THE CONTRACTOR SHALL DETERMINE LOCATIONS AND DIMENSIONS SUBJECT TO STRUCTURAL CONDITIONS AND WORK OF THE SUBCONTRACTORS.
8. THE CONTRACTOR IS SOLELY RESPONSIBLE TO DETERMINE CONSTRUCTION PROCEDURE AND SEQUENCE, AND TO ENSURE THE SAFETY OF THE EXISTING STRUCTURES AND ITS COMPONENT PARTS DURING CONSTRUCTION. THIS INCLUDES THE ADDITION OF WHATEVER SHORING, BRACING, UNDERPINNING, ETC. THAT MAY BE NECESSARY.
9. DRAWINGS INDICATE THE MINIMUM STANDARDS, BUT IF ANY WORK SHOULD BE INDICATED TO BE SUBSTANDARD TO ANY ORDINANCES, LAWS, CODES, RULES, OR REGULATIONS BEARING ON THE WORK, THE CONTRACTOR SHALL INCLUDE IN HIS WORK AND SHALL EXECUTE THE WORK CORRECTLY IN ACCORDANCE WITH SUCH ORDINANCES, LAWS, CODES, RULES OR REGULATIONS WITH NO INCREASE IN COSTS.
10. ALL UTILITY WORK SHALL BE IN ACCORDANCE WITH LOCAL UTILITY COMPANY REQUIREMENTS AND SPECIFICATIONS.
11. ALL EQUIPMENT AND PRODUCTS PURCHASED ARE TO BE REVIEWED BY CONTRACTOR AND ALL APPLICABLE SUBCONTRACTORS FOR ANY CONDITION PER MFR.'S RECOMMENDATIONS. CONTRACTOR TO SUPPLY THESE ITEMS AT NO COST TO OWNER OR CONSTRUCTION MANAGER.
12. ANY AND ALL ERRORS, DISCREPANCIES, AND 'MISSED" ITEMS ARE TO BE BROUGHT TO THE ATTENTION OF THE T-MOBILE CONSTRUCTION MANAGER DURING THE BIDDING PROCESS BY THE CONTRACTOR. ALL THESE ITEMS ARE TO BE INCLUDED IN THE BID. NO 'EXTRA' WILL BE ALLOWED FOR MISSED ITEMS.
13. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL ON-SITE SAFETY FROM THE TIME THE JOB IS AWARDED UNTIL ALL WORK IS COMPLETE AND ACCEPTED BY THE OWNER.
14. CONTRACTOR TO REVIEW ALL SHOP DRAWINGS AND SUBMIT COPY TO ENGINEER FOR APPROVAL. DRAWINGS MUST BEAR THE CHECKER'S INITIALS BEFORE SUBMITTING TO THE CONSTRUCTION MANAGER FOR REVIEW.
15. THE CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS, ELEVATIONS, ANGLES, AND EXISTING CONDITIONS AT THE SITE, PRIOR TO FABRICATION AND/OR INSTALLATION OF ANY WORK IN THE CONTRACT AREA.
16. COORDINATION, LAYOUT, FURNISHING AND INSTALLATION OF CONDUIT AND ALL APPURTENANCES REQUIRED FOR PROPER INSTALLATION OF ELECTRICAL AND TELECOMMUNICATION SERVICE SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR.
17. ALL DAMAGE CAUSED TO ANY EXISTING STRUCTURE SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR. THE CONTRACTOR WILL BE HELD LIABLE FOR ALL REPAIRS REQUIRED FOR EXISTING STRUCTURES IF DAMAGED DURING CONSTRUCTION ACTIVITIES.
18. THE CONTRACTOR SHALL CONTACT "CALL BEFORE YOU DIG" AT LEAST 48 HOURS PRIOR TO ANY EXCAVATIONS AT 1-800-922-4455. ALL UTILITIES SHALL BE IDENTIFIED AND CLEARLY MARKED. CONTRACTOR SHALL MAINTAIN AND PROTECT MARKED UTILITIES THROUGHOUT PROJECT COMPLETION.
19. CONTRACTOR SHALL COMPLY WITH OWNERS ENVIRONMENTAL ENGINEER ON ALL METHODS AND PROVISIONS FOR ALL EXCAVATION ACTIVITIES INCLUDING SOIL DISPOSAL. ALL BACKFILL MATERIALS TO BE PROVIDED BY THE CONTRACTOR.

SITE DIRECTIONS

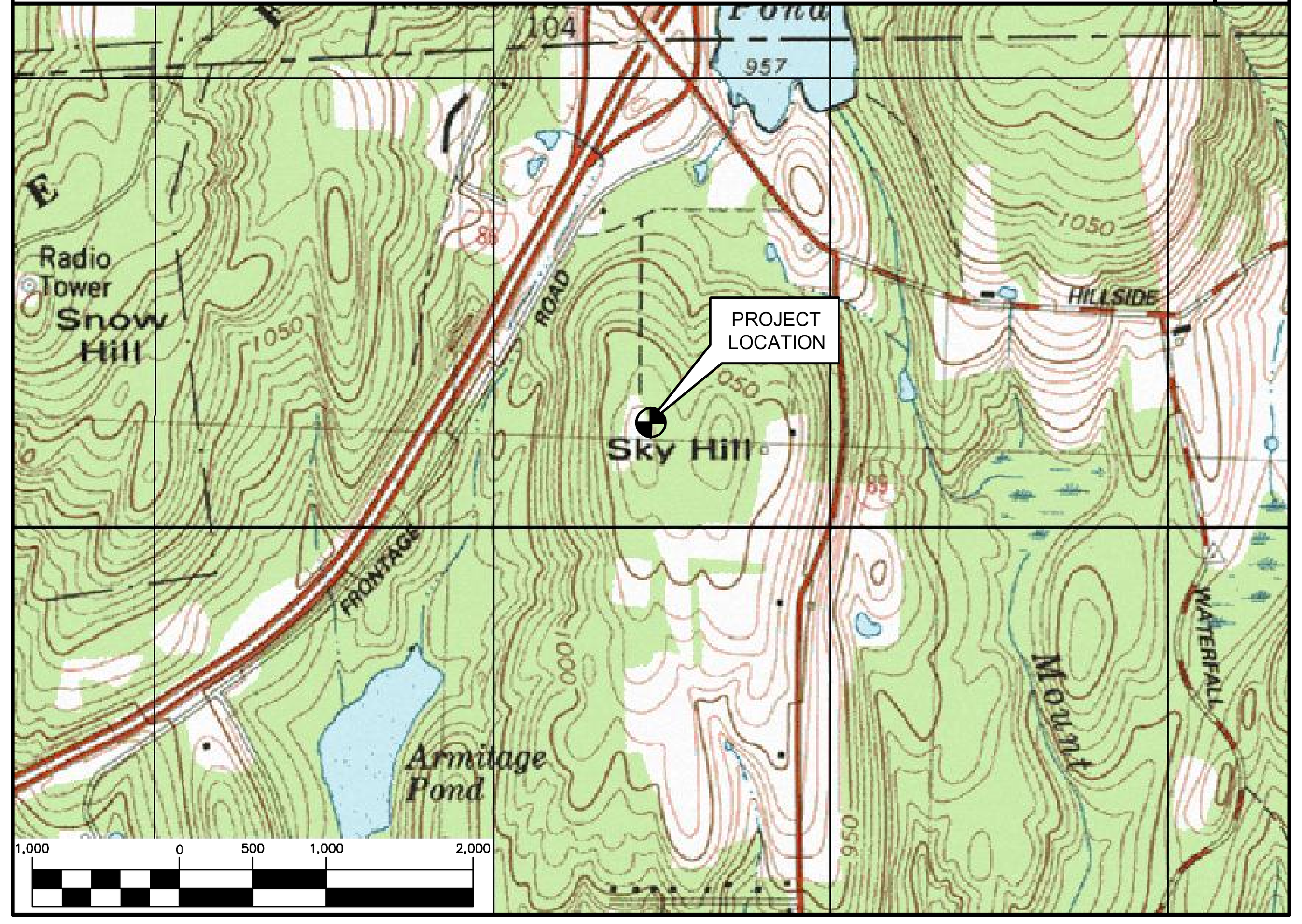
FROM: 35 GRIFFIN ROAD SOUTH, BLOOMFIELD, CT 06002
TO: 36 JANOWSKI ROAD, ASHFORD, CT 06278

1.	HEAD SOUTHEAST ON W NEWBERRY RD TOWARD GRIFFIN RD S.	0.05 MI.
2.	TURN LEFT ONTO GRIFFIN RD S.	0.60 MI.
3.	TURN RIGHT ONTO DAY HILL RD.	3.60 MI.
4.	USE THE RIGHT LANE TO MERGE ONTO I-91 S VIA THE RAMP TO HARTFORD.	0.40 MI.
5.	MERGE ONTO I-91 S.	3.60 MI.
6.	TAKE EXIT 35A FOR I-291 TOWARD MANCHESTER.	0.60 MI.
7.	CONTINUE ONTO I-291 E.	5.60 MI.
8.	USE THE LEFT LANE TO MERGE ONTO I-84 E TOWARD BOSTON.	23.40 MI.
9.	TAKE EXIT 72 FOR CT-89 TOWARD WESTFORD/ASHFROD.	0.20 MI.
10.	TURN RIGHT ONTO CT-89 S.	0.01 MI.
11.	TURN RIGHT ONTO FRONTAGE RD.	0.02 MI.
12.	TAKE THE 1ST RIGHT ONTO TOPSTONE DR.	0.20 MI.

VICINITY MAP

SCALE: 1" = 1000'

NORTH



T-MOBILE RF CONFIGURATION

CUSTOM

PROJECT SUMMARY

1. THE PROPOSED SCOPE OF WORK CONSISTS OF A MODIFICATION TO THE EXISTING UNMANNED TELECOMMUNICATIONS FACILITY INCLUDING THE FOLLOWING:
   A. REMOVE (2) EXISTING PANEL ANTENNAS.
   B. RELOCATE (2) EXISTING PANEL ANTENNAS TO NEW TOWER MOUNTS.
   C. INSTALL (4) NEW PANEL ANTENNAS ON NEW TOWER MOUNTS.
   D. REMOVE (2) TMAs.
   E. INSTALL (6) NEW TMAs ON TOWER MOUNTS.
   F. INSTALL (6) NEW DIPLEXERS ON RACK AT GRADE.
   G. INSTALL (4) NEW COAX CABLES.

PROJECT INFORMATION

SITE NAME:	ASHFORD/I-84_1
SITE ID:	CT11353C
SITE ADDRESS:	36 JANOWSKI ROAD ASHFORD, CT 06278
APPLICANT:	T-MOBILE NORTHEAST, LLC 35 GRIFFIN ROAD SOUTH BLOOMFIELD, CT 06002
CONTACT PERSON:	DAN REID (PROJECT MANAGER) TRANSCEND WIRELESS, LLC (203) 592-8291
ENGINEER:	CENTEK ENGINEERING, INC. 63-2 NORTH BRANFORD RD. BRANFORD, CT 06405
PROJECT COORDINATES:	LATITUDE: 41°-57'-07.76" N LONGITUDE: 72°-11'-43.99" W GROUND ELEVATION: 1070'± AMSL SITE COORDINATES AND GROUND ELEVATION REFERENCED FROM GOOGLE EARTH.

SHEET INDEX

SHT. NO.	DESCRIPTION	REV.
T-1	TITLE SHEET	0
N-1	DESIGN BASIS AND SITE NOTES	0
C-1	SITE LOCATION PLAN	0
C-2	COMPOUND PLAN AND ELEVATION	0
C-3	ANTENNA MOUNTING CONFIGURATION	0
E-1	TYPICAL ELECTRICAL DETAILS	0

REV.	DATE	DRAWN BY	CHK'D BY	DESCRIPTION
0	12/17/18	TJL	CAG	ISSUED FOR CONSTRUCTION

PROFESSIONAL ENGINEER SEAL

T-Mobile
Transcend Wireless

CENTEK engineering
Centered on Solutions
(203) 488-0580
(203) 488-8587 Fax
63-2 North Branford Road
Branford, CT 06405
www.CentekEng.com

T-MOBILE NORTHEAST LLC
WIRELESS COMMUNICATIONS FACILITY
ASHFORD/I-84_1
SITE ID: CT11353C
36 JANOWSKI ROAD
ASHFORD, CT 06278

DATE:	10/17/18
SCALE:	AS NOTED
JOB NO.	18127.07

TITLE SHEET

T-1

Sheet No. 1 of 6

DESIGN BASIS:

GOVERNING CODE: 2015 INTERNATIONAL BUILDING (IBC) AS MODIFIED BY THE 2018 CT STATE BUILDING CODE AND AMENDMENTS.

1. DESIGN CRITERIA:

- WIND LOAD: PER TIA 222 G (ANTENNA MOUNTS): 100–110 MPH (3 SECOND GUST)
- RISK CATEGORY: II (BASED ON IBC TABLE 1604.5)
- NOMINAL DESIGN SPEED (TOWER): 101 MPH (Vasd) (EXPOSURE B/IMPORTANCE FACTOR 1.0 BASED ON ASCE 7–10) PER 2015 INTERNATIONAL BUILDING CODE (IBC) AS MODIFIED BY THE 2018 CONNECTICUT STATE BUILDING CODE.
- SEISMIC LOAD (DOES NOT CONTROL): PER ASCE 7–10 MINIMUM DESIGN LOADS FOR BUILDING AND OTHER STRUCTURES.

GENERAL NOTES:

1. ALL CONSTRUCTION SHALL BE IN COMPLIANCE WITH THE GOVERNING BUILDING CODE.
2. DRAWINGS INDICATE THE MINIMUM STANDARDS, BUT IF ANY WORK SHOULD BE INDICATED TO BE SUBSTANDARD TO ANY ORDINANCES, LAWS, CODES, RULES, OR REGULATIONS BEARING ON THE WORK, THE CONTRACTOR SHALL INCLUDE IN HIS WORK AND SHALL EXECUTE THE WORK CORRECTLY IN ACCORDANCE WITH SUCH ORDINANCES, LAWS, CODES, RULES OR REGULATIONS WITH NO INCREASE IN COSTS.
3. BEFORE BEGINNING THE WORK, THE CONTRACTOR IS RESPONSIBLE FOR MAKING SUCH INVESTIGATIONS CONCERNING PHYSICAL CONDITIONS (SURFACE AND SUBSURFACE) AT OR CONTIGUOUS TO THE SITE WHICH MAY AFFECT PERFORMANCE AND COST OF THE WORK.
4. DIMENSIONS AND DETAILS SHALL BE CHECKED AGAINST EXISTING FIELD CONDITIONS.
5. THE CONTRACTOR SHALL VERIFY AND COORDINATE THE SIZE AND LOCATION OF ALL OPENINGS, SLEEVES AND ANCHOR BOLTS AS REQUIRED BY ALL TRADES.
6. ALL DIMENSIONS, ELEVATIONS, AND OTHER REFERENCES TO EXISTING STRUCTURES, SURFACE, AND SUBSURFACE CONDITIONS ARE APPROXIMATE. NO GUARANTEE IS MADE FOR THE ACCURACY OR COMPLETENESS OF THE INFORMATION SHOWN. THE CONTRACTOR SHALL VERIFY AND COORDINATE ALL DIMENSIONS, ELEVATIONS, ANGLES WITH EXISTING CONDITIONS AND WITH ARCHITECTURAL AND SITE DRAWINGS BEFORE PROCEEDING WITH ANY WORK.
7. AS THE WORK PROGRESSES, THE CONTRACTOR SHALL NOTIFY THE OWNER OF ANY CONDITIONS WHICH ARE IN CONFLICT OR OTHERWISE NOT CONSISTENT WITH THE CONSTRUCTION DOCUMENTS AND SHALL NOT PROCEED WITH SUCH WORK UNTIL THE CONFLICT IS SATISFACTORILY RESOLVED.
8. THE CONTRACTOR SHALL COMPLY WITH ALL APPLICABLE SAFETY CODES AND REGULATIONS DURING ALL PHASES OF CONSTRUCTION. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR PROVIDING AND MAINTAINING ADEQUATE SHORING, BRACING, AND BARRICADES AS MAY BE REQUIRED FOR THE PROTECTION OF EXISTING PROPERTY, CONSTRUCTION WORKERS, AND FOR PUBLIC SAFETY.
9. THE CONTRACTOR IS SOLELY RESPONSIBLE TO DETERMINE CONSTRUCTION PROCEDURE AND SEQUENCE, AND TO ENSURE THE SAFETY OF THE EXISTING STRUCTURES AND ITS COMPONENT PARTS DURING CONSTRUCTION. THIS INCLUDES THE ADDITION OF WHATEVER SHORING, BRACING, UNDERPINNING, ETC. THAT MAY BE NECESSARY. MAINTAIN EXISTING SITE OPERATIONS, COORDINATE WORK WITH NORTHEAST UTILITIES
10. THE STRUCTURE IS DESIGNED TO BE SELF-SUPPORTING AND STABLE AFTER FOUNDATION REMEDIATION WORK IS COMPLETE. IT IS THE CONTRACTOR'S SOLE RESPONSIBILITY TO DETERMINE ERECTION PROCEDURE AND SEQUENCE AND TO ENSURE THE SAFETY OF THE STRUCTURE AND ITS COMPONENT PARTS DURING ERECTION. THIS INCLUDES THE ADDITION OF WHATEVER SHORING, TEMPORARY BRACING, GUYS OR TIEDOWNS, WHICH MIGHT BE NECESSARY.
11. ALL DAMAGE CAUSED TO ANY EXISTING STRUCTURE SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR. THE CONTRACTOR WILL BE HELD LIABLE FOR ALL REPAIRS REQUIRED FOR EXISTING STRUCTURES IF DAMAGED DURING CONSTRUCTION ACTIVITIES.
12. SHOP DRAWINGS, CONCRETE MIX DESIGNS, TEST REPORTS, AND OTHER SUBMITTALS PERTAINING TO STRUCTURAL WORK SHALL BE FORWARDED TO THE OWNER FOR REVIEW BEFORE FABRICATION AND/OR INSTALLATION IS MADE. SHOP DRAWINGS SHALL INCLUDE ERECTION DRAWINGS AND COMPLETE DETAILS OF CONNECTIONS AS WELL AS MANUFACTURER'S SPECIFICATION DATA WHERE APPROPRIATE. SHOP DRAWINGS SHALL BE CHECKED BY THE CONTRACTOR AND BEAR THE CHECKER'S INITIALS BEFORE BEING SUBMITTED FOR REVIEW.
13. NO DRILLING WELDING OR TAPING ON EVERSOURCE OWNED EQUIPMENT.
14. REFER TO DRAWING T1 FOR ADDITIONAL NOTES AND REQUIREMENTS.

STRUCTURAL STEEL

1. ALL STRUCTURAL STEEL IS DESIGNED BY ALLOWABLE STRESS DESIGN (ASD)

   A. STRUCTURAL STEEL (W SHAPES)---ASTM A992 (FY = 50 KSI)
   B. STRUCTURAL STEEL (OTHER SHAPES)---ASTM A36 (FY = 36 KSI)
   C. STRUCTURAL HSS (RECTANGULAR SHAPES)---ASTM A500 GRADE B, (FY = 46 KSI)
   D. STRUCTURAL HSS (ROUND SHAPES)---ASTM A500 GRADE B, (FY = 42 KSI)
   E. PIPE---ASTM A53 (FY = 35 KSI)
   F. CONNECTION BOLTS---ASTM A325–N
   G. U–BOLTS---ASTM A36
   H. ANCHOR RODS---ASTM F 1554
   I. WELDING ELECTRODE---ASTM E 70XX

2. CONTRACTOR TO REVIEW ALL SHOP DRAWINGS AND SUBMIT COPY TO ENGINEER FOR APPROVAL. DRAWINGS MUST BEAR THE CHECKER'S INITIALS BEFORE SUBMITTING TO THE ENGINEER FOR REVIEW. SHOP DRAWINGS SHALL INCLUDE THE FOLLOWING: SECTION PROFILES, SIZES, CONNECTION ATTACHMENTS, REINFORCING, ANCHORAGE, SIZE AND TYPE OF FASTENERS AND ACCESSORIES. INCLUDE ERECTION DRAWINGS, ELEVATIONS AND DETAILS.
3. STRUCTURAL STEEL SHALL BE DETAILED, FABRICATED AND ERECTED IN ACCORDANCE WITH THE LATEST PROVISIONS OF AISC MANUAL OF STEEL CONSTRUCTION.
4. PROVIDE ALL PLATES, CLIP ANGLES, CLOSURE PIECES, STRAP ANCHORS, MISCELLANEOUS PIECES AND HOLES REQUIRED TO COMPLETE THE STRUCTURE.
5. FIT AND SHOP ASSEMBLE FABRICATIONS IN THE LARGEST PRACTICAL SECTIONS FOR DELIVERY TO SITE.
6. INSTALL FABRICATIONS PLUMB AND LEVEL, ACCURATELY FITTED, AND FREE FROM DISTORTIONS OR DEFECTS.
7. AFTER ERECTION OF STRUCTURES, TOUCHUP ALL WELDS, ABRASIONS AND NON–GALVANIZED SURFACES WITH A 95% ORGANIC ZINC RICH PAINT IN ACCORDANCE WITH ASTM 780.
8. ALL STEEL MATERIAL (EXPOSED TO WEATHER) SHALL BE GALVANIZED AFTER FABRICATION IN ACCORDANCE WITH ASTM A123 "ZINC (HOT DIPPED GALVANIZED) COATINGS" ON IRONS AND STEEL PRODUCTS.
9. ALL BOLTS, ANCHORS AND MISCELLANEOUS HARDWARE SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A153 "ZINC COATING (HOT–DIP) ON IRON AND STEEL HARDWARE".
10. THE ENGINEER SHALL BE NOTIFIED OF ANY INCORRECTLY FABRICATED, DAMAGED OR OTHERWISE MISFITTING OR NON CONFORMING MATERIALS OR CONDITIONS TO REMEDIAL OR CORRECTIVE ACTION. ANY SUCH ACTION SHALL REQUIRE ENGINEER REVIEW.
11. CONNECTION ANGLES SHALL HAVE A MINIMUM THICKNESS OF 1/4 INCHES.
12. STRUCTURAL CONNECTION BOLTS SHALL CONFORM TO ASTM A325. ALL BOLTS SHALL BE 3/4" DIAMETER MINIMUM AND SHALL HAVE A MINIMUM OF TWO BOLTS, UNLESS OTHERWISE ON THE DRAWINGS.
13. LOCK WASHER ARE NOT PERMITTED FOR A325 STEEL ASSEMBLIES.
14. SHOP CONNECTIONS SHALL BE WELDED OR HIGH STRENGTH BOLTED.
15. MILL BEARING ENDS OF COLUMNS, STIFFENERS, AND OTHER BEARING SURFACES TO TRANSFER LOAD OVER ENTIRE CROSS SECTION.
16. FABRICATE BEAMS WITH MILL CAMBER UP.
17. LEVEL AND PLUMB INDIVIDUAL MEMBERS OF THE STRUCTURE TO AN ACCURACY OF 1:500, BUT NOT TO EXCEED 1/4" IN THE FULL HEIGHT OF THE COLUMN.
18. COMMENCEMENT OF STRUCTURAL STEEL WORK WITHOUT NOTIFYING THE ENGINEER OF ANY DISCREPANCIES WILL BE CONSIDERED ACCEPTANCE OF PRECEDING WORK.
19. INSPECTION AND TESTING OF ALL WELDING AND HIGH STRENGTH BOLTING SHALL BE PERFORMED BY AN INDEPENDENT TESTING LABORATORY.
20. FOUR COPIES OF ALL INSPECTION TEST REPORTS SHALL BE SUBMITTED TO THE ENGINEER WITHIN TEN (10) WORKING DAYS OF THE DATE OF INSPECTION.

REV.	DATE	DRAWN BY	CHK'D BY	DESCRIPTION
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DATE: 10/17/18
SCALE: AS NOTED
JOB NO. 18127.07

DESIGN BASIS AND SITE NOTES

N-1

Sheet No. 2 of 6

1 / C-1 **SITE LOCATION PLAN**
SCALE: 1" = 200'

APPROX. NORTH

GRAPHIC SCALE
200 0 100 200 400 800
(IN FEET)
1 inch = 50 ft.

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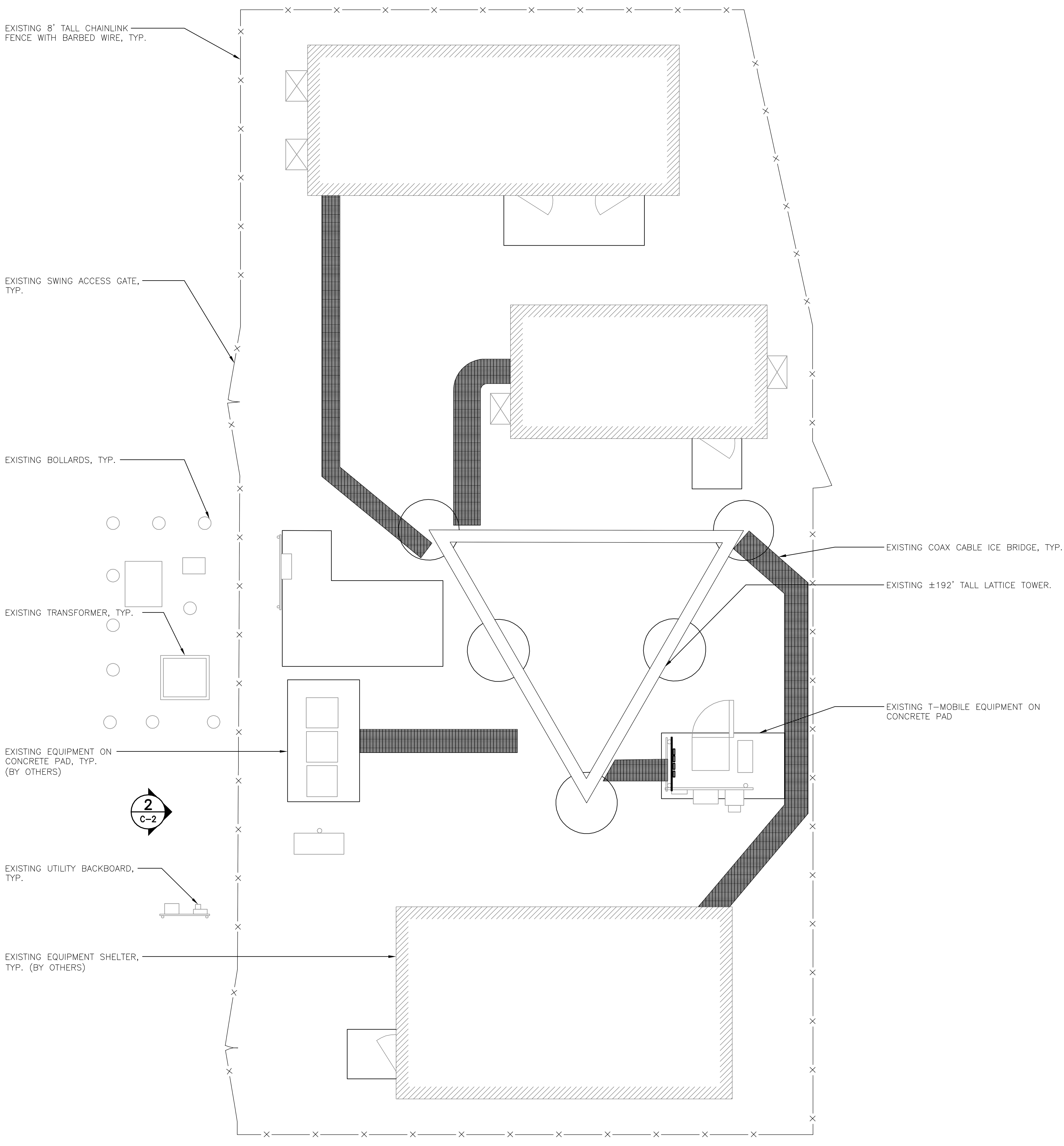
SITE LOCATION PLAN

C-1

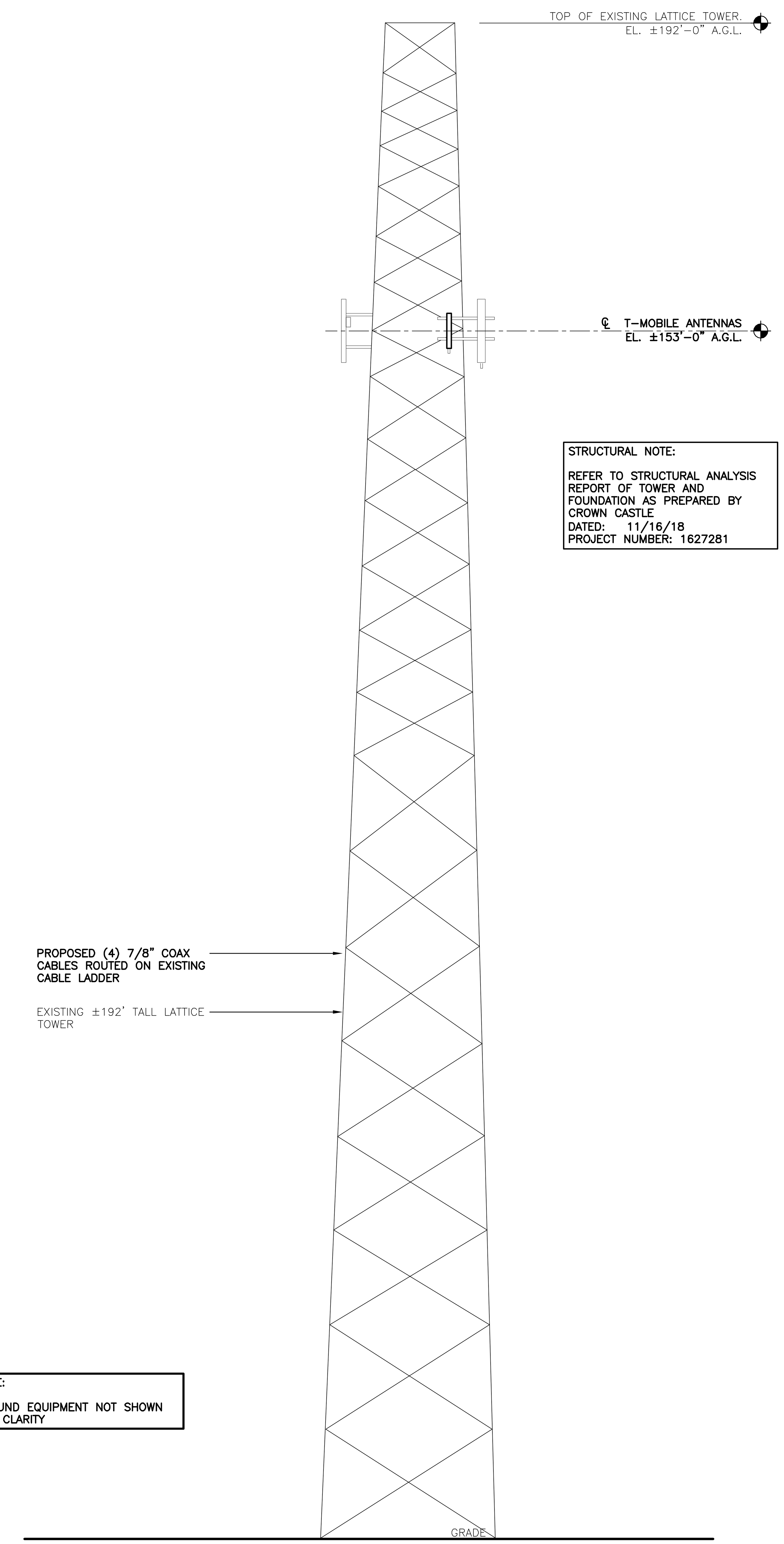
Sheet No. 3 of 6



1 C-2 **COMPOUND PLAN**
SCALE: 1" = 5'

TRUE NORTH

GRAPHIC SCALE
5 0 2.5 5 10 20
(IN FEET)
1 inch = 5 ft.



STRUCTURAL NOTE:
REFER TO STRUCTURAL ANALYSIS REPORT OF TOWER AND FOUNDATION AS PREPARED BY CROWN CASTLE
DATED: 11/16/18
PROJECT NUMBER: 1627281

NOTE:
GROUND EQUIPMENT NOT SHOWN FOR CLARITY

2 C-2 **SOUTH TOWER ELEVATION**
SCALE: 1" = 10'

GRAPHIC SCALE
10 0 5 10 20 40
(IN FEET)
1 inch = 10 ft.

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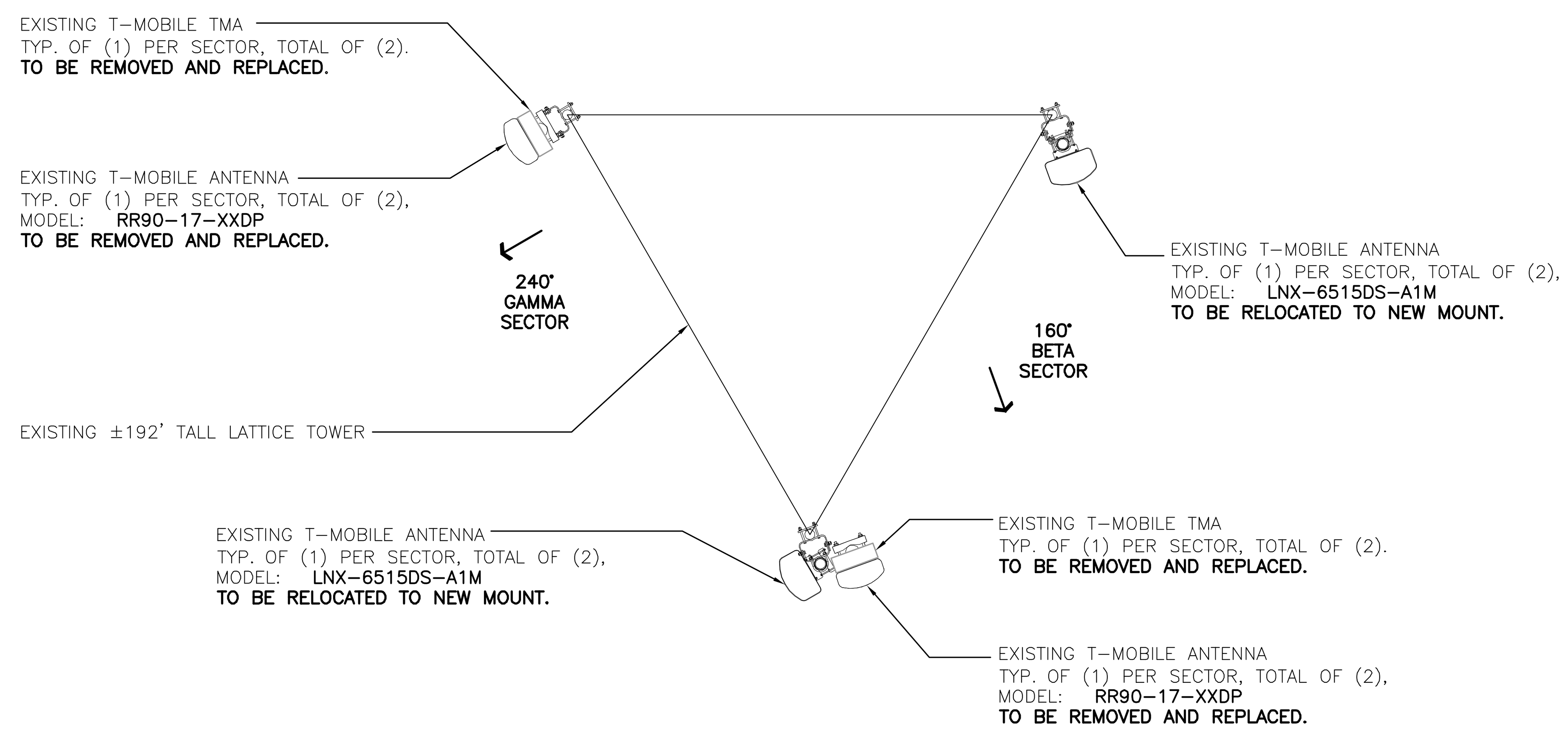
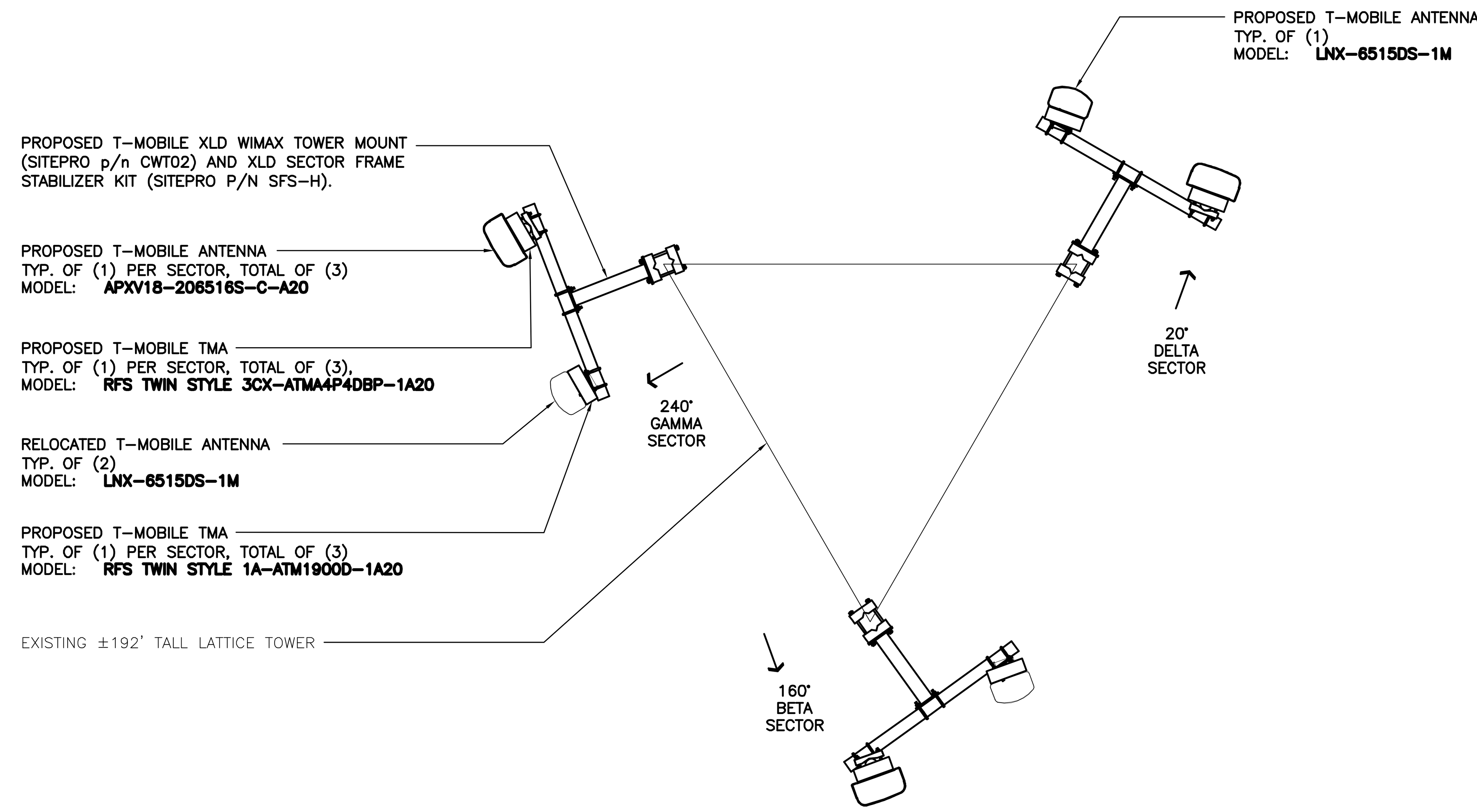
COMPOUND PLAN, AND ELEVATION

C-2

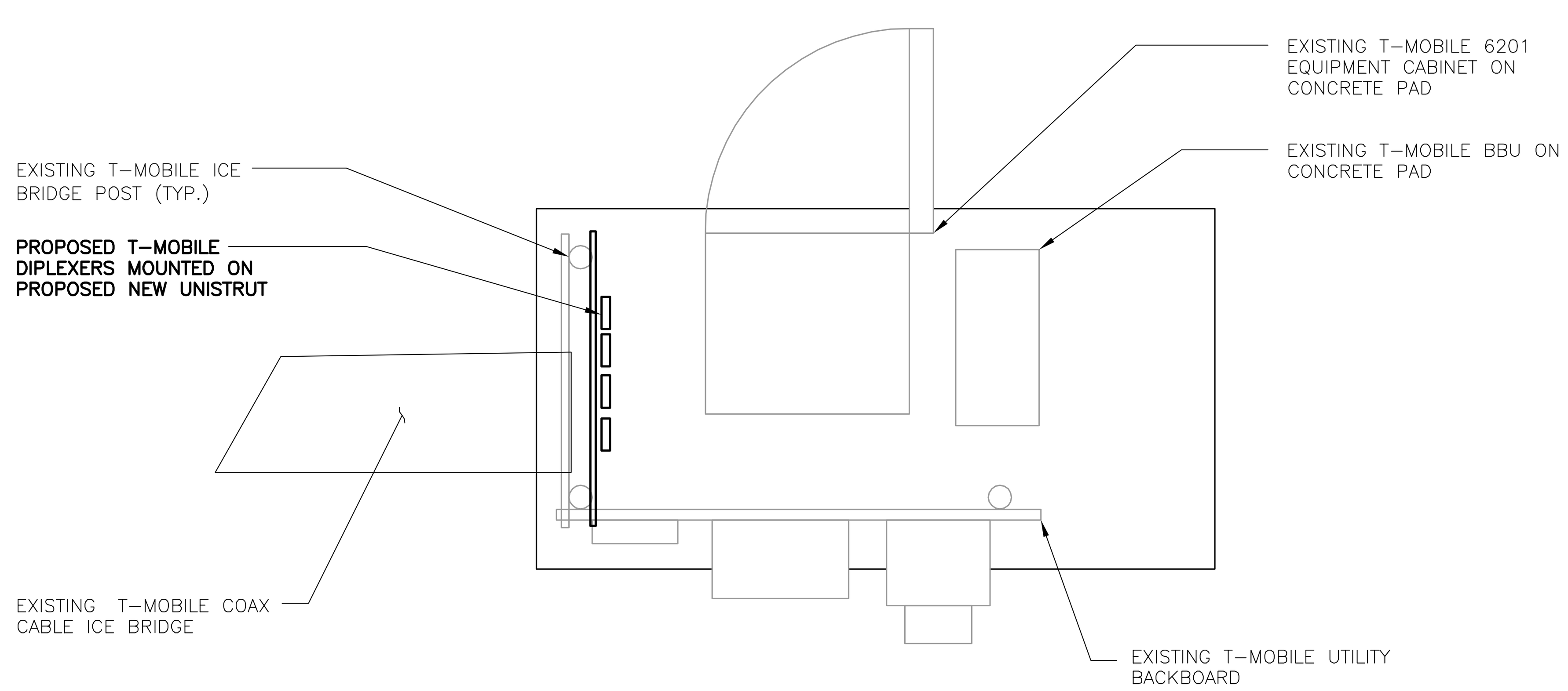
Sheet No. 4 of 6



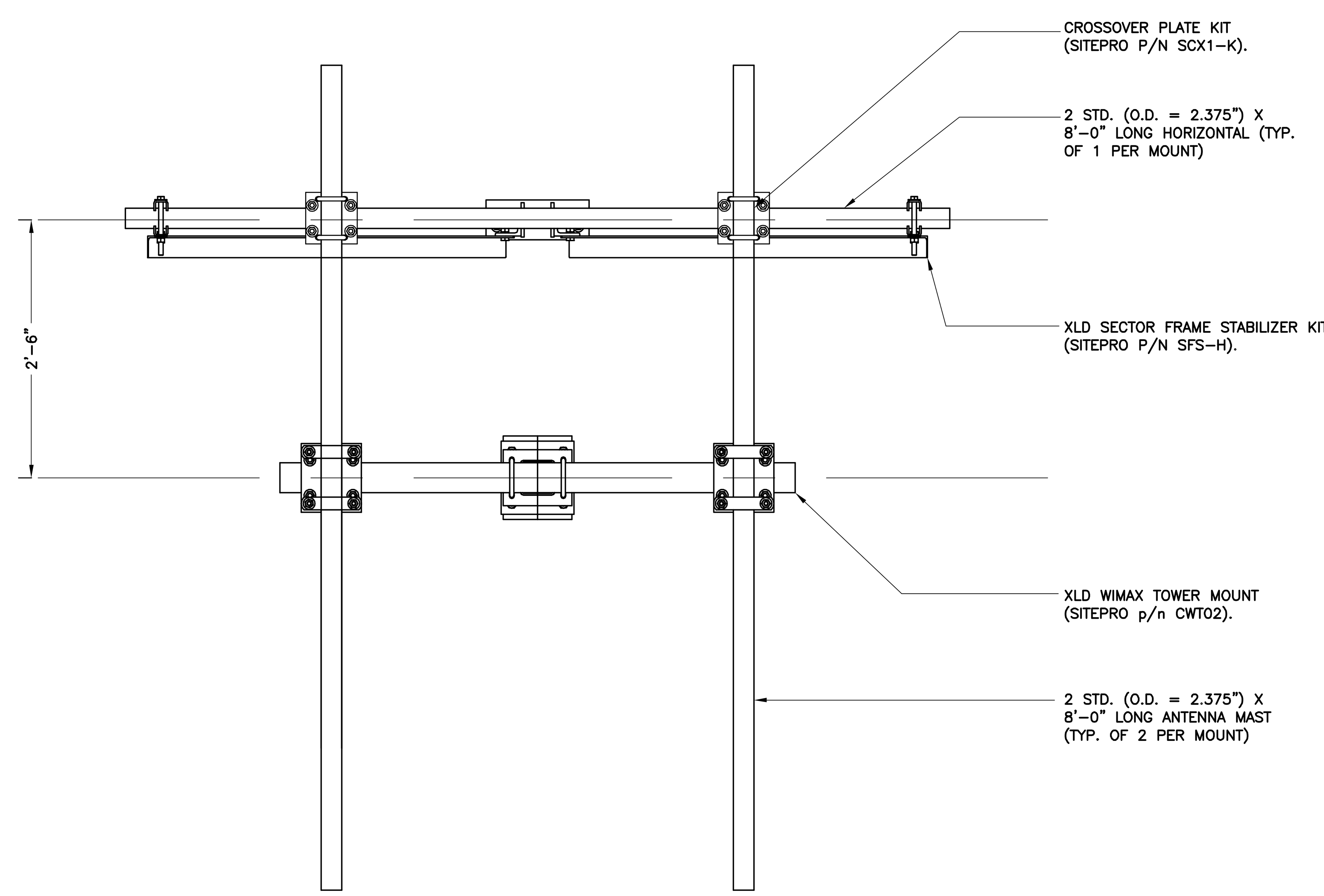
1 C-3 **EXISTING ANTENNA MOUNTING CONFIGURATION**
SCALE: 3/8" = 1'
TRUE NORTH



2 C-3 **PROPOSED ANTENNA MOUNTING CONFIGURATION**
SCALE: 3/8" = 1'
TRUE NORTH



4 C-3 **EQUIPMENT PLAN**
SCALE: 1/2" = 1'
TRUE NORTH



3 C-3 **PROPOSED TOWER MOUNT DETAIL**
SCALE: 1" = 1'

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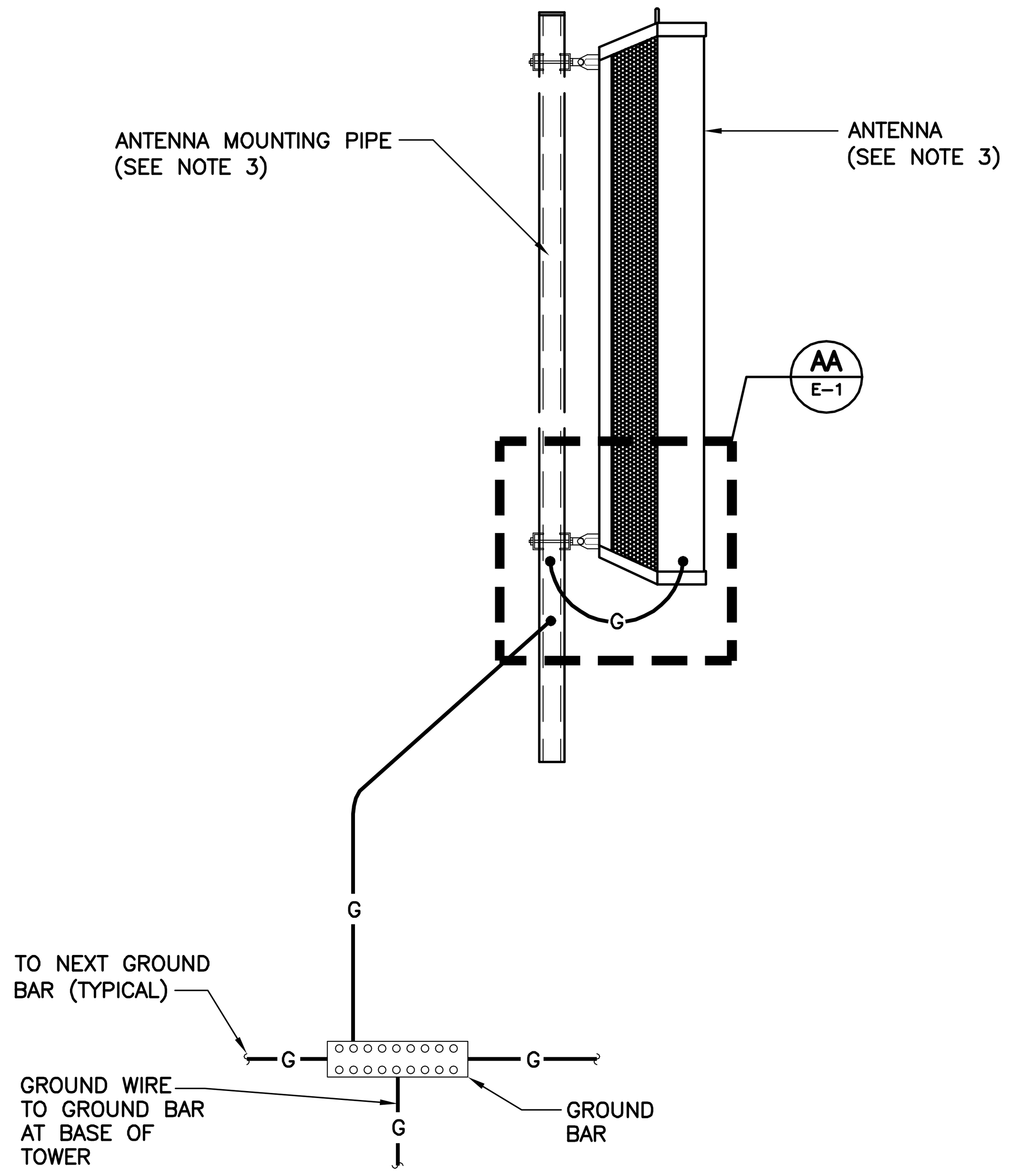
ANTENNA MOUNTING CONFIGURATION

C-3

Sheet No. 5 of 6

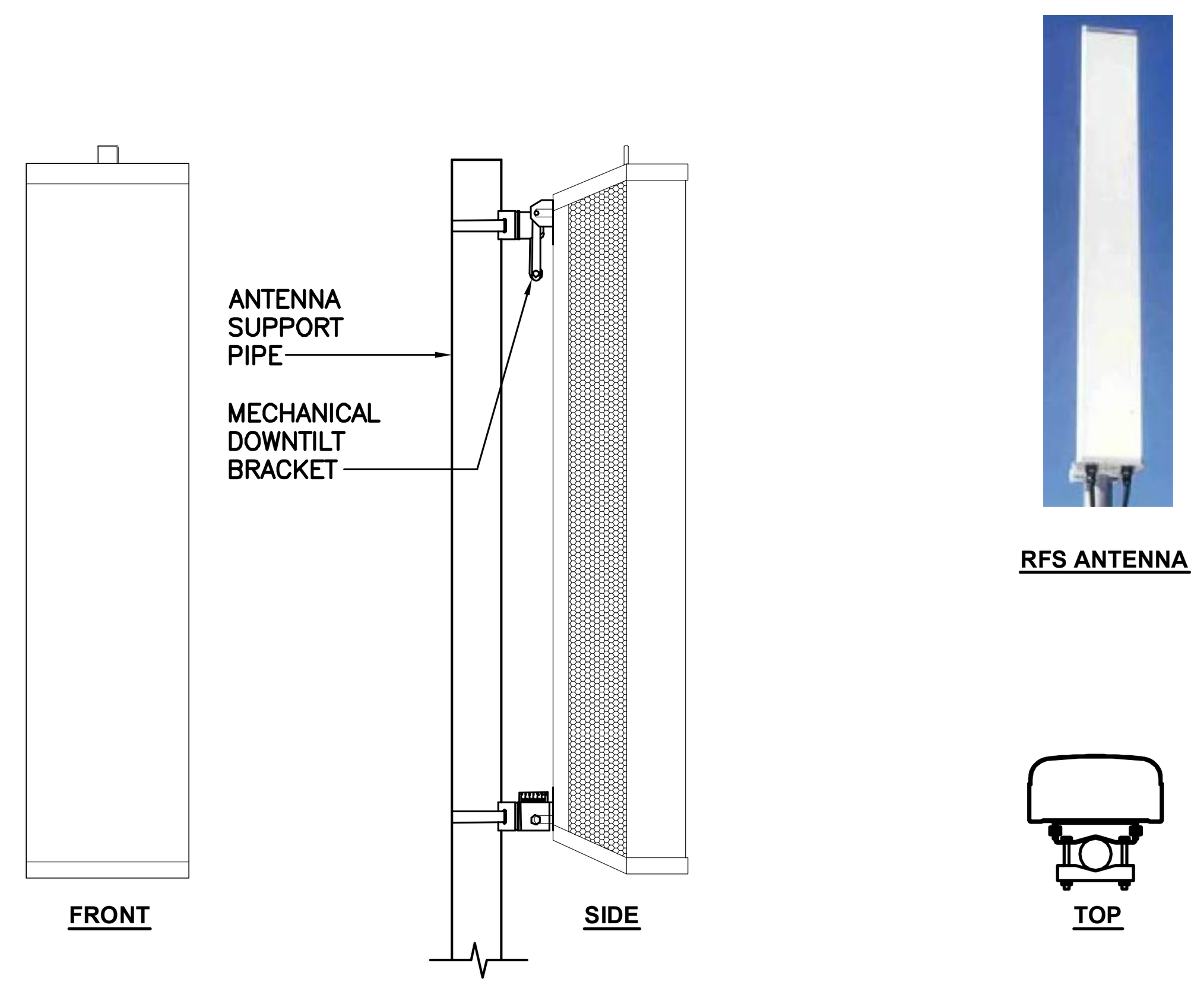


NOTES:

1. BOND COAXIAL CABLE GROUND KITS TO EACH OWNER'S GROUND BAR ALONG ENTIRE COAX RUN FROM ANTENNA TO SHELTER.
2. BOND ALL EQUIPMENT TO GROUND PER NEC AND MANUFACTURERS SPECIFICATIONS.
3. DETAIL IS TYPICAL FOR ALL ANTENNA SECTORS, INCLUDING GPS ANTENNA.

1/E-1 TYPICAL ANTENNA GROUNDING DETAIL

SCALE: NONE



ALPHA/BETA/GAMMA ANTENNA		
EQUIPMENT	DIMENSIONS	WEIGHT
MAKE: RFS MODEL: APXV18-206516S-C-A20	53.1"L x 6.9"W x 3.15"D	18.7 LBS.
MAKE: COMMSCOPE MODEL: LNX-6515DS-A1M	96.6"L x 11.9"W x 7.1"D	43.7 LBS.

2/E-1 PROPOSED ANTENNA DETAIL

SCALE: NONE

ATM1900D-1A20

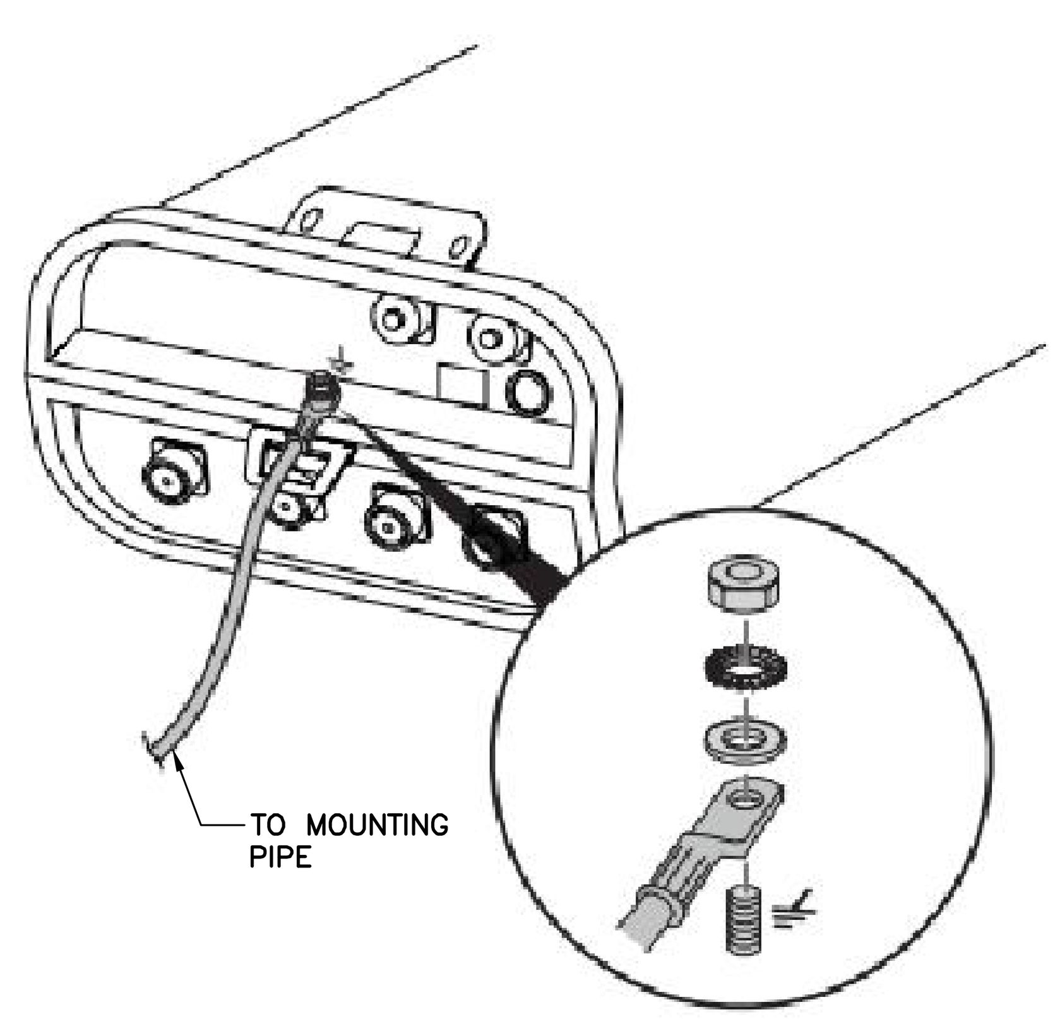
ATMA4P4DBP-1A20

TOWER MOUNTED AMPLIFIER		
EQUIPMENT	DIMENSIONS	WEIGHT
MAKE: RFS MODEL: ATMA4P4DBP-1A20	11.2"L x 8.0"W x 4.9"D	15.9 LBS.
MAKE: RFS MODEL: ATM1900D-1A20	10.1"L x 8.7"W x 2.8"D	8.4 LBS.

NOTES:
1. CONTRACTOR TO COORDINATE FINAL EQUIPMENT MODEL SELECTION WITH T-MOBILE CONSTRUCTION MANAGER PRIOR TO ORDERING.

3/E-1 PROPOSED TMA DETAIL

SCALE: NONE



AA/E-1 TYPICAL ANTENNA GROUNDING DETAIL

SCALE: NONE

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TYPICAL
ELECTRICAL
DETAILS

E-1

Sheet No. 6 of 6