Transcend Wireless

10 Industrial Avenue,
Suite 3
Mahwah, NJ 07430

Phone: 201.684.0055
Fax: 201.684.0066

July 25, 2018

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

Notice of Exempt Modification
6 Progress Avenue, Seymour, CT
Latitude-41.39168
Longitude- -73.05333

Dear Ms. Bachman,

T-Mobile currently maintains (9) existing antennas at the 247' level of the existing 280' self-support lattice at 6 Progress Lane in Seymour, Connecticut. The tower and property is owned by EMAC Communications. T-Mobile now intends to replace (6) of its existing antennas with (6) new antennas, install 3 new RRUs (1 per sector), install 3 hybrid cables, (1 per sector), remove and replace (6) TMAs, (2 per sector) swap (3) diplexers , (1 per sector) and remove two (2) equipment cabinets and install one (1) RBS612 equipment cabinet. The antennas would be installed at the same 250' level of the tower.

This facility was approved by the Council on November 14, 2000. This approval did not include conditions that could feasibly be violated by this modification. This modification complies with the aforementioned approval.

Please accept this letter as notification pursuant to Regulations of Connecticut State Agencies 16-50j-73, for construction that constitutes an exempt modification pursuant to R.C.S.A. 16-50j-72(b)(2). In accordance with R.C.S.A. 16-50j-73, a copy of this letter is being sent to W. Kurt Miller, First Selectman of the Town of Seymour, as well as the tower 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.

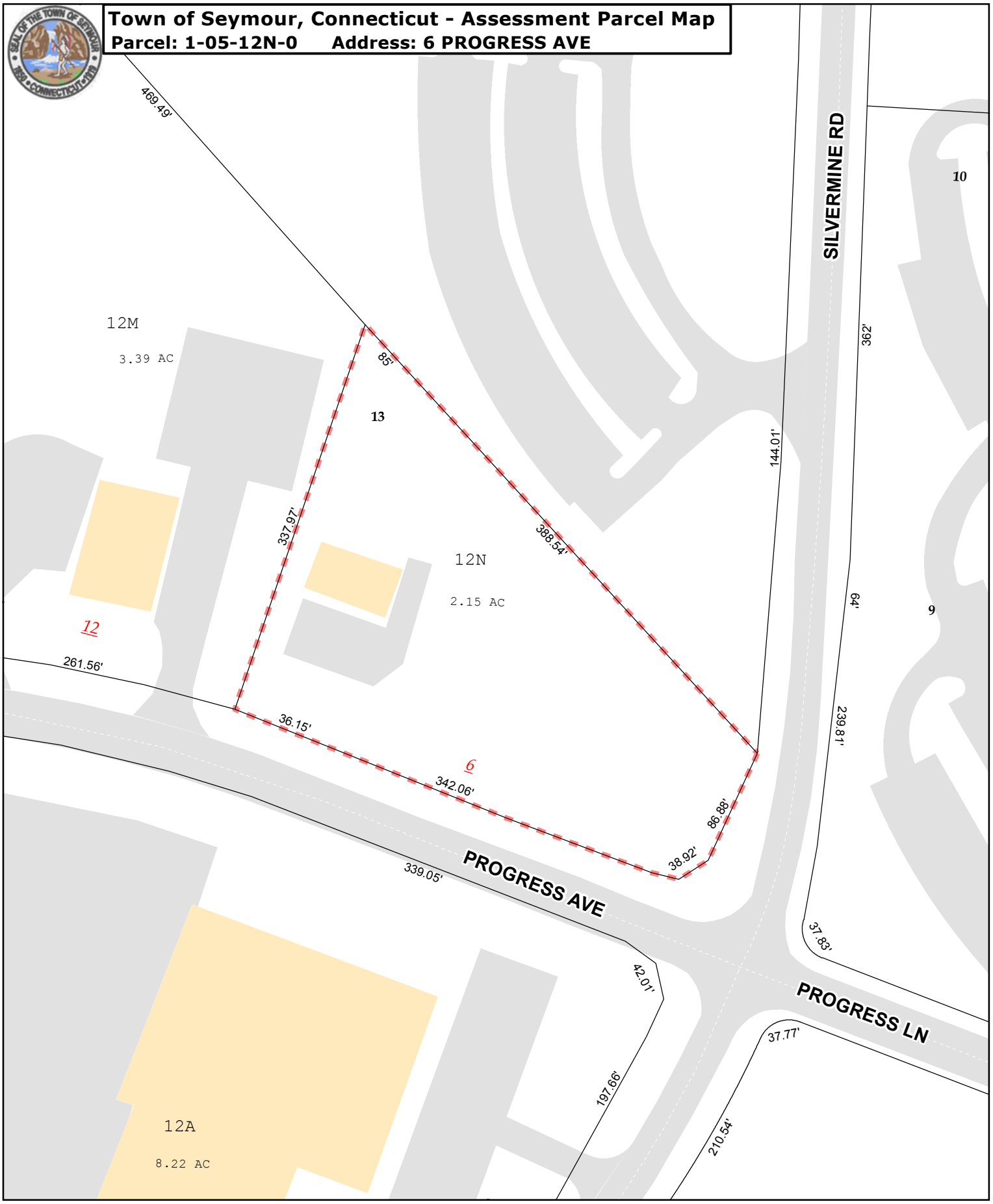
For the foregoing reasons, T-Mobile respectfully submits that the proposed modifications to the above-referenced telecommunications facility constitute an exempt modification under R.C.S.A. 16-50j-72(b)(2).

Sincerely,

Elizabeth Jamieson

Elizabeth Jamieson
Transcend Wireless
10 Industrial Ave., Suite 3
Mahwah, New Jersey 07430
860-605-7808
EJamieson@TranscendWireless.com

cc:
W. Kurt Miller, First Selectman
Bob Looker, Town Planner
Ed Maconnie, Owner


Town of Seymour, Connecticut - Assessment Parcel Map
Parcel: 1-05-12N-0 Address: 6 PROGRESS AVE
469.49'
SILVERMINE RD
10
362'
12M
3.39 AC
85'
13
144.01'
337.97'
388.54'
12N
2.15 AC
64'
9
12
261.56'
239.81'
36.15'
6
342.06'
86.88'
38.92'
339.05'
PROGRESS AVE
37.83'
42.01'
PROGRESS LN
37.77'
197.66'
210.54'
12A
8.22 AC
N
Approximate Scale: 1 inch = 100 feet
0 60 120 180
Feet
Map Produced:
March 2018
Disclaimer:
This map is for informational purposes only.
All information is subject to verification by any user.
The Town of Seymour and its mapping contractors
assume no legal responsibility for the
information contained herein.

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: CT11332C

Derby / Rt 34
2 Progress Avenue
Seymour, CT 06483

July 20, 2018

EBI Project Number: 6218005163

Site Compliance Summary	
Compliance Status:	COMPLIANT
Site total MPE% of FCC general population allowable limit:	6.99 %

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

July 20, 2018

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

Emissions Analysis for Site: **CT11332C – Derby / Rt 34**

EBI Consulting was directed to analyze the proposed T-Mobile facility located at **2 Progress Avenue, Seymour, 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 Band 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) 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 **2 Progress Avenue, Seymour, 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) 2 GSM channels (PCS Band - 1900 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.

2) 2 UMTS channels (PCS Band - 1900 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.

3) 2 UMTS channels (AWS Band – 2100 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.

4) 2 LTE channels (PCS Band - 1900 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 (AWS Band – 2100 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 60 Watts per Channel

6) 2 LTE channel (600 MHz Band) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts.

7) 2 LTE channel (700 MHz Band) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts.

8) 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.

9) 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.

10) The antennas used in this modeling are the **RFS APXV18-206516L-CT0 & the RFS APXVAARR24_43-U-NA20** for 600 MHz, 700 MHz, 1900 MHz (PCS) and 2100 MHz (AWS) 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.

11) The antenna mounting height centerline of the proposed antennas is **250 feet** above ground level (AGL).

12) 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.

13) 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 APXV18-206516L-CT0	Make / Model:	RFS APXV18-206516L-CT0	Make / Model:	RFS APXV18-206516L-CT0
Gain:	16.3dBd	Gain:	16.3dBd	Gain:	16.3dBd
Height (AGL):	250	Height (AGL):	250	Height (AGL):	250
Frequency Bands	2100 MHz (AWS)	Frequency Bands	2100 MHz (AWS)	Frequency Bands	2100 MHz (AWS)
Channel Count	2	Channel Count	2	Channel Count	2
Total TX Power(W):	120	Total TX Power(W):	120	Total TX Power(W):	120
ERP (W):	5,118.95	ERP (W):	5,118.95	ERP (W):	5,118.95
Antenna A1 MPE%	**0.31**	Antenna B1 MPE%	**0.31**	Antenna C1 MPE%	**0.31**
Antenna #:	**2**	Antenna #:	**2**	Antenna #:	**2**
Make / Model:	RFS APXVAARR24_43-U-NA20	Make / Model:	RFS APXVAARR24_43-U-NA20	Make / Model:	RFS APXVAARR24_43-U-NA20
Gain:	12.95 / 13.35 / 15.65 / 16.35 dBd	Gain:	12.95 / 13.35 / 15.65 / 16.35 dBd	Gain:	12.95 / 13.35 / 15.65 / 16.35 dBd
Height (AGL):	250	Height (AGL):	250	Height (AGL):	250
Frequency Bands	600 MHz / 700 MHz / 1900 MHz (PCS) / 2100 MHz (AWS)	Frequency Bands	600 MHz / 700 MHz / 1900 MHz (PCS) / 2100 MHz (AWS)	Frequency Bands	600 MHz / 700 MHz / 1900 MHz (PCS) / 2100 MHz (AWS)
Channel Count	10	Channel Count	10	Channel Count	10
Total TX Power(W):	340	Total TX Power(W):	340	Total TX Power(W):	340
ERP (W):	10,304.62	ERP (W):	10,304.62	ERP (W):	10,304.62
Antenna A2 MPE%	**0.78**	Antenna B2 MPE%	**0.78**	Antenna C2 MPE%	**0.78**

Site Composite MPE%	
Carrier	**MPE%**
T-Mobile (Per Sector Max)	**1.09 %**
Verizon Wireless	2.41%
AT&T	2.54%
Sprint	0.56%
Mike Gardella	0.06%
Town	0.33%
Site Total MPE %:	**6.99 %**

T-Mobile Sector A Total:	1.09 %
T-Mobile Sector B Total:	1.09 %
T-Mobile Sector C Total:	1.09 %
Site Total:	6.99 %

T-Mobile Max Power Values (Per Sector)

T-Mobile _Max Power Values (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 AWS - 2100 MHz LTE	2	2,559.48	250	3.09	AWS - 2100 MHz	1000	0.31%
T-Mobile AWS - 2100 MHz UMTS	2	1,294.56	250	1.56	AWS - 2100 MHz	1000	0.16%
T-Mobile PCS - 1900 MHz UMTS	2	1,101.85	250	1.33	PCS - 1900 MHz	1000	0.13%
T-Mobile PCS - 1900 MHz LTE	2	1,101.85	250	1.33	PCS - 1900 MHz	1000	0.13%
T-Mobile 600 MHz LTE	2	788.97	250	0.95	600 MHz	1000	0.10%
T-Mobile 700 MHz LTE	2	865.09	250	1.04	700 MHz	1000	0.26%
						Total:	**1.09%**

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:	1.09 %
Sector B:	1.09 %
Sector C:	1.09 %
T-Mobile Maximum MPE% (Per Sector):	1.09 %
Site Total:	6.99 %
Site Compliance Status:	**COMPLIANT**

The anticipated composite MPE value for this site assuming all carriers present is **6.99%** 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.

CENTEK engineering

Centered on Solutions℠

Structural Analysis Report

280' Existing PiROD Lattice Tower

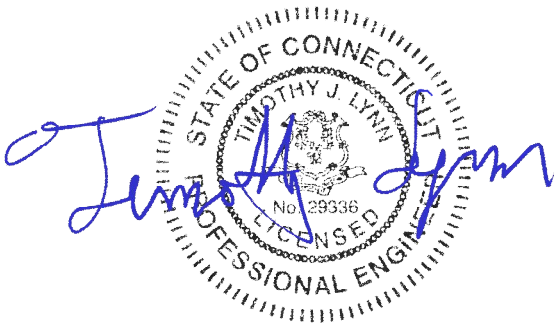
Proposed T-Mobile
Antenna Upgrade

Site Ref: CT11332C

6 Progress Avenue
Seymour, CT

CENTEK Project No. 18058.79

Date: July 3, 2018



Prepared for:

T-Mobile USA
35 Griffin Road
Bloomfield, CT 06002

Table of Contents

Introduction

The purpose of this report is to summarize the results of the non-linear, P-Δ structural analysis of the antenna upgrade proposed by T-Mobile on the existing lattice tower located in Seymour, Connecticut.

The host tower is a 280-ft, three legged, lattice tower originally designed and manufactured by PiROD eng. file no. A-116966 dated 4/21/200. The tower geometry, structure member sizes and foundation information were taken from the original design documents. Reinforcement information was obtained from the tower reanalysis report prepared by PiROD dated June 20, 2002.

Antenna and appurtenance inventory were taken from a previous structural analysis report prepared by PiROD job no. 185135-5-1 dated November 14, 2016, visual verification from grade by Centek personnel on May 24, 2018 and a RF data sheet.

The tower consists of fifteen (15) vertical sections consisting of steel truss legs conforming to ASTM A572 Gr. 50 and lateral bracing conforming to ASTM A36. The vertical tower sections are connected by bolted flange plates with the diagonal and horizontal bracing to pipe legs consisting of bolted connections. The width of the tower face is 5-ft at the top and 28-ft at the bottom.

Antenna and Appurtenance Summary

The existing tower supports several communication antennas. The existing and proposed loads considered in the analysis consist of the following:

- EMAC (Existing):
  Antenna: One (1) DB420-A dipole antenna and one (1) DB586-XC omni-directional whip antenna mounted on a 9-arm halo with an elevation of ±280-ft above grade level.
  Coax Cable: Two (2) 1-5/8" ∅ coax cables running on a leg of the existing tower as specified in Section 3 of this report.
- EMAC (Existing):
  Antenna: One (1) DB420-A dipole antenna and one (1) DB225-2-F dipole antenna mounted on a 9-arm halo with an elevation of ±235-ft above grade level.
  Coax Cable: Two (2) 1-5/8" ∅ coax cables running on a leg of the existing tower as specified in Section 3 of this report.
- Future Carrier (Reserved):
  Antenna: Nine (9) Decibel DB980H120E-M panel antennas mounted on three (3) 10-ft T-Frames with a RAD center elevation of ±200-ft above grade level.
  Coax Cable: Nine (9) 1-5/8" ∅ coax cables running on a leg of the existing tower as specified in Section 3 of this report.
- Future Carrier (Reserved):
  Antenna: Nine (9) Decibel DB980H120E-M panel antennas mounted on three (3) 10-ft T-Frames with a RAD center elevation of ±190-ft above grade level.
  Coax Cable: Nine (9) 1-5/8" ∅ coax cables running on a leg of the existing tower as specified in Section 3 of this report.

- Future Carrier (Reserved):
  Antenna: Nine (9) Decibel DB980H120E-M panel antennas mounted on three (3) 10-ft T-Frames with a RAD center elevation of ±180-ft above grade level.
  Coax Cable: Nine (9) 1-5/8" ∅ coax cables running on a leg of the existing tower as specified in Section 3 of this report.
- Sprint (Existing):
  Antenna: Three (3) RFS APXVSPP18 panel antennas, three (3) RFS APXVTM14 panel antennas, three (3) 800 MHZ RRH's, three (3) 1900 MHZ RRH's and three (3) TD-RRH8x20-25 RRH's mounted on three (3) 15-ft T-Frames with a RAD center elevation of ±170-ft above grade level.
  Coax Cable: Three (3) 1-5/8" ∅ coax cables and one (1) 1-/4" ∅ fiber cable running on a leg of the existing tower as specified in Section 3 of this report.
- AT&T (Existing/Reserved):
  Antenna: Six (6) Powerwave 7770 panel antennas, three (3) KMW AM-X-CD-16-65-00T panel antennas, twelve (12) Powerwave LGP21401TMA's and six (6) Powerwave 7020 RETs mounted on three (3) 15-ft T-Frames with a RAD center elevation of ±160-ft above grade level.
  Coax Cable: Six (6) 1-5/8" ∅ coax cables running on a leg of the existing tower as specified in Section 3 of this report.
- AT&T (Existing):
  Antennas: Six (6) Ericsson RRUS-11 and one (1) Raycap DC6-48-60-18-8F surge arrestor mounted with an elevation of 160-ft above grade level.
  Coax Cables: One (1) fiber cable and two (2) dc control cables running leg of the existing tower as specified in Section 3 of this report.
- MetroPCS (Reserved):
  Antenna: Three (3) RFS APX18-206517DS panel antennas leg mounted with a RAD center elevation of ±150-ft above grade level.
  Coax Cable: Six (6) 1-5/8" ∅ coax cables running on a leg of the existing tower as specified in Section 3 of this report.
- VERIZON (Existing):
  Antennas: Three (3) Andrew LNX-6514DS panel antennas, three (3) Andrew LNX-6514DS panel antennas, six (6) Andrew HBXX-6517DS panel antennas, three (3) Alcatel-Lucent RRH2x60-AWS remote radio heads, three (3) Alcatel-Lucent RRH2x60-PCS remote radio heads, one (1) RFS DB-T1-6Z-8AB-0Z main distribution box and six (6) RFS FD9R6004/2C-3L diplexers mounted on three (3) 12-ft T-Frames with a RAD center elevation of ±140-ft above grade level.
  Coax Cables: Twelve (12) 1-5/8" ∅ coax cables and one (1) 1-5/8" ∅ fiber cable running on a leg of the existing tower as specified in Section 3 of this report.
- T-Mobile (Existing to Remain):
  Coax Cable: Twelve (12) 1-5/8" ∅ coax cables running on a leg of the existing tower as specified in Section 3 of this report.
- T-Mobile (Existing to Remove):
  Antenna: Three (3) EMS RR90-17-02DP panel antennas, three (3) Andrew LNX-6515DS panel antennas, six (6) TMAs and three (3) diplexers mounted on three (3) 15-ft T-Frames with a RAD center elevation of ±250-ft above grade level.

- **T-Mobile (Proposed):**
  Antenna: Three (3) RFS APX18-206516L-CT0 panel antennas, three (3) RFS APXVAARR24_43-U-NA20 panel antennas, three (3) RFS ATMA4D-1A20 TMAs, three (3) RFS ATMA4P4DBP-1A20 TMAs, three (3) Ericsson KRF 102 267/2 diplexers and three (3) Ericsson 4449 B71 B12 remote radio units mounted on three (3) 15-ft T-Frames with a RAD center elevation of ±250-ft above grade level.
  Coax Cable: Two (2) 6x12 fiber cables running on a leg of the existing tower as specified in Section 3 of this report.

Primary Assumptions Used in the Analysis

- The tower structure's theoretical capacity not including any assessment of the condition of the tower.
- The tower carries the horizontal and vertical loads due to the weight of antennas, ice load and wind.
- Tower is properly installed and maintained.
- Tower is in plumb condition.
- Tower loading for antennas and mounts as listed in this report.
- All bolts are appropriately tightened providing the necessary connection continuity.
- All welds are fabricated with ER-70S-6 electrodes.
- All members are assumed to be as specified in the original tower design documents.
- All members are "hot dipped" galvanized in accordance with ASTM A123 and ASTM A153 Standards.
- All member protective coatings are in good condition.
- All tower members were properly designed, detailed, fabricated, installed and have been properly maintained since erection.
- Any deviation from the analyzed antenna loading will require a new analysis for verification of structural adequacy.
- All coax cables should be routed as specified in section 3 of this report.

Analysis

The existing tower was analyzed using a comprehensive computer program entitled tnxTower. The program analyzes the tower, considering the worst case loading condition. The tower is considered as loaded by concentric forces along the tower, and the model assumes that the tower members are subjected to bending, axial, and shear forces.

The existing tower was analyzed for the controlling basic wind speed (3-second gust) with no ice and the applicable wind and ice combination to determine stresses in members as per guidelines of TIA-222-G-2005 entitled "Structural Standard for Antenna Support Structures and Antennas", the American Institute of Steel Construction (AISC) and the Manual of Steel Construction; Load and Resistance Factor Design (LRFD).

The controlling wind speed is determined by evaluating the local available wind speed data as provided in Appendix N of the CSBC[1] and the wind speed data available in the TIA-222-G-2005 Standard.

Tower Loading

Tower loading was determined by the basic wind speed as applied to projected surface areas with modification factors per TIA-222-G-2005, gravity loads of the tower structure and its components, and the application of 0.75" radial ice on the tower structure and its components.

Basic Wind Speed:	Seymour; v = 97 mph (3 second gust)	*[Appendix N of the 2016 CT Building Code]*
Load Cases:	Load Case 1; 97 mph wind speed w/ no ice plus gravity load – used in calculation of tower stresses and rotation.	*[Appendix N of the 2016 CT Building Code]*
	Load Case 2; = 50 mph wind speed w/ 0.75" radial ice plus gravity load – used in calculation of tower stresses.	*[Annex B of TIA-222-G-2005]*

[1] The 2012 International Building Code as amended by the 2016 Connecticut State Building Code (CSBC).

Tower Capacity

- Calculated stresses were found to be within allowable limits. This tower was found to be at **77.5%** of its total capacity.

Tower Section	Elevation	Stress Ratio (percentage of capacity)	Result
Leg (T15)	0'-0"-20'-0"	70.0%	**PASS**
Diagonal (T6)	180'-0"-200'-0"	77.5%	**PASS**
Mid Girt (T6)	180'-0"-200'-0"	44.2%	**PASS**

Foundation and Anchors

The existing foundation consists of three (3) 5-ft square x 3.25-ft long reinforced concrete piers on a 38.5-ft square x 3.25-ft thick reinforced concrete pad bearing directly on existing sub grade. The sub-grade conditions used in the analysis of the existing foundation were obtained from the aforementioned PiROD design documents. Tower legs are connected to the foundation by means of (6) 2"∅, ASTM A687 anchor bolts per leg, embedded into the concrete foundation structure.

- The tower reactions developed from the governing Load Case were used in the verification of the foundation:

Reactions	Vector	Proposed Base Reactions
Base	Shear	**105 kips**
	Compression	**134 kips**
	Moment	**14593 kip-ft**
Leg	Shear	**69 kips**
	Uplift	**553 kips**
	Compression	**646 kips**

- The anchor bolts were found to be within allowable limits.

Tower Component	Design Limit	Stress Ratio (percentage of capacity)	Result
Anchor Bolts	Tension	35.8%	**PASS**

- The foundation was found to be within allowable limits.

Foundation	Design Limit	Minimum required Factor of Safety (FS) of 1.0 required per TIA-222-G section 9.4	Proposed Loading (FS)[1]	Result
Reinforced Concrete Mat	OM[2]	1.0	1.52	**PASS**

Note 1: FS denotes Factor of Safety
Note 2: OM denotes Overturning Moment.

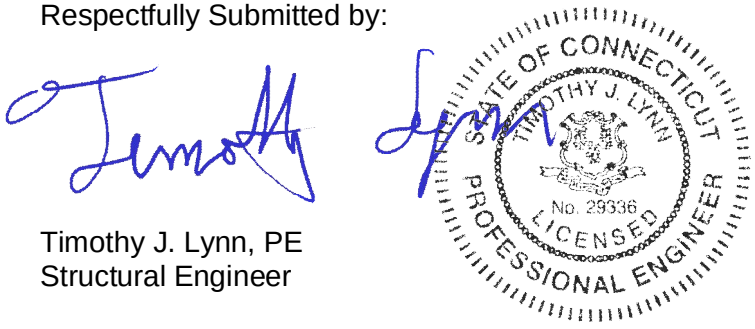
C o n c l u s i o n

This analysis shows that the subject tower **is adequate** to support the proposed modified antenna configuration.

The analysis is based, in part, on the information provided to this office by T-Mobile. If the existing conditions are different than the information in this report, Centek Engineering, Inc. must be contacted for resolution of any potential issues.

Please feel free to call with any questions or comments.

Respectfully Submitted by:



Timothy J. Lynn, PE
Structural Engineer

Standard Conditions for Furnishing of Professional Engineering Services on Existing Structures

All engineering services are performed on the basis that the information used is current and correct. This information may consist of, but is not necessarily limited to:

- Information supplied by the client regarding the structure itself, its foundations, the soil conditions, the antenna and feed line loading on the structure and its components, or other relevant information.
- Information from the field and/or drawings in the possession of Centek Engineering, Inc. or generated by field inspections or measurements of the structure.
- It is the responsibility of the client to ensure that the information provided to Centek Engineering, Inc. and used in the performance of our engineering services is correct and complete. In the absence of information to the contrary, we assume that all structures were constructed in accordance with the drawings and specifications and are in an un-corroded condition and have not deteriorated. It is therefore assumed that its capacity has not significantly changed from the “as new” condition.
- All services will be performed to the codes specified by the client, and we do not imply to meet any other codes or requirements unless explicitly agreed in writing. If wind and ice loads or other relevant parameters are to be different from the minimum values recommended by the codes, the client shall specify the exact requirement. In the absence of information to the contrary, all work will be performed in accordance with the latest revision of ANSI/ASCE10 & ANSI/EIA-222
- All services performed, results obtained, and recommendations made are in accordance with generally accepted engineering principles and practices. Centek Engineering, Inc. is not responsible for the conclusions, opinions and recommendations made by others based on the information we supply.

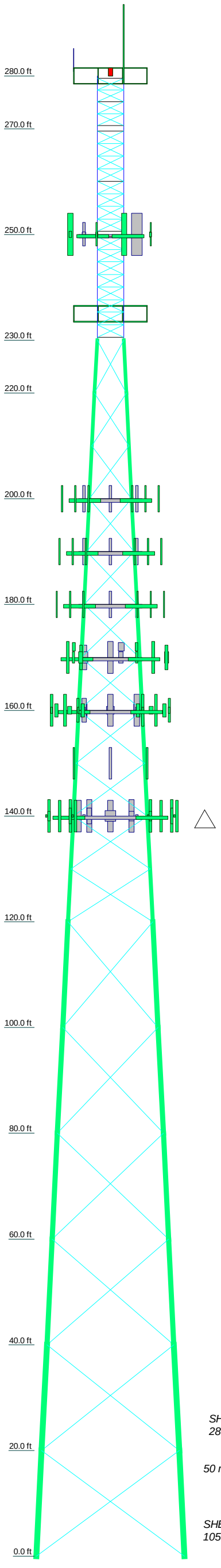
GENERAL DESCRIPTION OF STRUCTURAL ANALYSIS PROGRAM

TnxTower, is an integrated structural analysis and design software package for Designed specifically for the telecommunications industry, TnxTower, formerly ERITower, automates much of the tower analysis and design required by the TIA/EIA 222 Standard.

TnxTower Features:

- TnxTower can analyze and design 3- and 4-sided guyed towers, 3- and 4-sided self-supporting towers and either round or tapered ground mounted poles with or without guys.
- The program analyzes towers using the TIA-222-G (2005) standard or any of the previous TIA/EIA standards back to RS-222 (1959). Steel design is checked using the AISC ASD 9th Edition or the AISC LRFD specifications.
- Linear and non-linear (P-delta) analyses can be used in determining displacements and forces in the structure. Wind pressures and forces are automatically calculated.
- Extensive graphics plots include material take-off, shear-moment, leg compression, displacement, twist, feed line, guy anchor and stress plots.
- TnxTower contains unique features such as True Cable behavior, hog rod take-up, foundation stiffness and much more.

	T1	T2	T3	T4	T5	T6	T7	T8	T9	T10	T11	T12	T13	T14	T15	
Section	SR 1 3/4	SR 2	SR 2 1/2	Pirod 105245	Pirod 105218		Pirod 105219	Pirod 105220		Pirod 112743			Pirod 112744	Pirod 112745	Pirod 112740	
Legs		SR 7/8	SR 1	A	L3x3x3/16		L3x3x5/16	L3 1/2x3 1/2x5/16				2L3 1/2x3 1/2x5/16				
Leg Grade		A572-50			A36											
Diagonals					L3x3x3/16		L4x4x1/4	L3 1/2x3 1/2x5/16								
Diagonal Grade					N.A.		N.A.	N.A.								
Top Girts			SR 1		L3x3x3/16		L4x4x1/4									
Mid Girts			SR 1 1/4		L3x3x3/16		L4x4x1/4									
Bottom Girts			SR 1 1/4													
Horizontals			SR 7/8													
Face Width (ft)	5	16 @ 2.375	6	8	10	12	14	16	18	20	22	24	26	28		
# Panels @ (ft)	4 @ 2.25		11 @ 10								6 @ 20					
Weight (K)	0.7	1.4	1.9	1.2	2.6	2.9	4.6	5.3	5.2	7.3	7.4	8.1	8.3	9.2	9.3	75.2



DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
Flash Beacon Lighting (EMAC)	280	TD-RRH8x20-25 (Sprint Existing)	170
15' Lighting Rod (EMAC)	280	TD-RRH8x20-25 (Sprint Existing)	170
DB420-A (EMAC)	280	TD-RRH8x20-25 (Sprint Existing)	170
DB586-XC (EMAC)	280	Pirod 15' T-Frame Sector Mount (1) (Sprint Existing)	170
9 Arm Halo Mount (EMAC)	280	Pirod 15' T-Frame Sector Mount (1) (Sprint Existing)	170
APX18-206516L-CT0 (T-Mobile Proposed)	250	Pirod 15' T-Frame Sector Mount (1) (Sprint Existing)	170
APXVAARR24-43 (T-Mobile Proposed)	250	800-10121 (ATI Existing)	160
APX18-206516L-CT0 (T-Mobile Proposed)	250	AM-X-CD-16-65-00T-RET(72") (ATI Existing)	160
APXVAARR24-43 (T-Mobile Proposed)	250	QS66512-3 (ATI Existing)	160
APX18-206516L-CT0 (T-Mobile Proposed)	250	(2) LPG21401 TMA (ATI Existing)	160
APXVAARR24-43 (T-Mobile Proposed)	250	800-10121 (ATI Existing)	160
Radio 4449 B71 B12 (T-Mobile Proposed)	250	AM-X-CD-16-65-00T-RET(72") (ATI Existing)	160
Radio 4449 B71 B12 (T-Mobile Proposed)	250	QS66512-3 (ATI Existing)	160
Radio 4449 B71 B12 (T-Mobile Proposed)	250	(2) LPG21401 TMA (ATI Existing)	160
ATMA4D-VA20 (T-Mobile Proposed)	250	800-10121 (ATI Existing)	160
ATMA4D-VA20 (T-Mobile Proposed)	250	AM-X-CD-16-65-00T-RET(72") (ATI Existing)	160
ATMA4D-VA20 (T-Mobile Proposed)	250	QS66512-3 (ATI Existing)	160
ATMA4P4DBP-1A20 (T-Mobile Proposed)	250	(2) LPG21401 TMA (ATI Existing)	160
ATMA4P4DBP-1A20 (T-Mobile Proposed)	250	(2) RRUS-32 (ATI Existing)	160
ATMA4P4DBP-1A20 (T-Mobile Proposed)	250	(2) RRUS-32 (ATI Existing)	160
Diplexer (T-Mobile Proposed)	250	(2) RRUS-32 (ATI Existing)	160
Diplexer (T-Mobile Proposed)	250	RRUS-11 (ATI Existing)	160
Diplexer (T-Mobile Proposed)	250	RRUS-11 (ATI Existing)	160
Pirod 15' T-Frame Sector Mount (1) (T-Mobile Existing)	250	RRUS-11 (ATI Existing)	160
Pirod 15' T-Frame Sector Mount (1) (T-Mobile Existing)	250	DC6-48-60-18-8F Surge Arrestor (ATI Existing)	160
Pirod 15' T-Frame Sector Mount (1) (T-Mobile Existing)	250	Pirod 15' T-Frame Sector Mount (1) (ATI Existing)	160
DB420-A (EMAC)	245	Pirod 15' T-Frame Sector Mount (1) (ATI Existing)	160
DB225-2-F (EMAC)	235	Pirod 15' T-Frame Sector Mount (1) (ATI Existing)	160
9 Arm Halo Mount (EMAC)	235	APXV18-206517S (MetroPCS Reserved)	150
(3) DB980H120E-M (Future)	200	APXV18-206517S (MetroPCS Reserved)	150
(3) DB980H120E-M (Future)	200	APXV18-206517S (MetroPCS Reserved)	150
(3) DB980H120E-M (Future)	200	LNX-6514DS-VTM (Verizon Existing)	140
10-ft T-Frame (Future)	200	HBXX-6517DS (Verizon Existing)	140
10-ft T-Frame (Future)	200	LNX-6514DS-VTM (Verizon Existing)	140
10-ft T-Frame (Future)	200	HBXX-6517DS (Verizon Existing)	140
(3) DB980H120E-M (Future)	190	LNX-6514DS-VTM (Verizon Existing)	140
(3) DB980H120E-M (Future)	190	HBXX-6517DS (Verizon Existing)	140
(3) DB980H120E-M (Future)	190	LNX-6514DS-VTM (Verizon Existing)	140
10-ft T-Frame (Future)	190	HBXX-6517DS (Verizon Existing)	140
10-ft T-Frame (Future)	190	LNX-6514DS-VTM (Verizon Existing)	140
10-ft T-Frame (Future)	190	HBXX-6517DS (Verizon Existing)	140
(3) DB980H120E-M (Future)	180	LNX-6514DS-VTM (Verizon Existing)	140
(3) DB980H120E-M (Future)	180	HBXX-6517DS (Verizon Existing)	140
(3) DB980H120E-M (Future)	180	(2) FD9R6004/2C-3L Diplexer (Verizon Existing)	140
10-ft T-Frame (Future)	180	(2) FD9R6004/2C-3L Diplexer (Verizon Existing)	140
10-ft T-Frame (Future)	180	(2) FD9R6004/2C-3L Diplexer (Verizon Existing)	140
10-ft T-Frame (Future)	180	RRH2x60-AWS (Verizon Existing)	140
APXVSPP18-C-A20 (Sprint Existing)	170	RRH2x60-AWS (Verizon Existing)	140
APXVTM14 (Sprint Existing)	170	RRH2x60-AWS (Verizon Existing)	140
APXVSPP18-C-A20 (Sprint Existing)	170	RRH2x60-PCS (Verizon Existing)	140
APXVTM14 (Sprint Existing)	170	RRH2x60-PCS (Verizon Existing)	140
APXVSPP18-C-A20 (Sprint Existing)	170	RRH2x60-PCS (Verizon Existing)	140
APXVTM14 (Sprint Existing)	170	DB-T1-6Z-8AB-0Z (Verizon Existing)	140
FD-RRH 2x50 800 (Sprint Existing)	170	Pirod 12' T-Frame Sector Mount (1) (Verizon Existing)	140
FD-RRH 2x50 800 (Sprint Existing)	170	Pirod 12' T-Frame Sector Mount (1) (Verizon Existing)	140
FD-RRH 2x50 800 (Sprint Existing)	170	Pirod 12' T-Frame Sector Mount (1) (Verizon Existing)	140
FD-RRH 4x40 1900 (Sprint Existing)	170		
FD-RRH 4x40 1900 (Sprint Existing)	170		
FD-RRH 4x40 1900 (Sprint Existing)	170		

SYMBOL LIST

MARK	SIZE	MARK	SIZE
A	L2 1/2x2 1/2x3/16		

MATERIAL STRENGTH

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

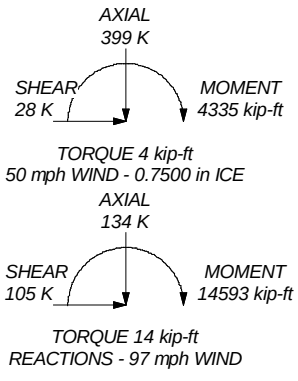
TOWER DESIGN NOTES

1. Tower designed for Exposure B to the TIA-222-G Standard.
2. Tower designed for a 97 mph basic wind in accordance with the TIA-222-G Standard.
3. Tower is also designed for a 50 mph basic wind with 0.75 in ice. Ice is considered to increase in thickness with height.
4. Deflections are based upon a 60 mph wind.
5. Tower Structure Class II.
6. Topographic Category 1 with Crest Height of 0.00 ft
7. TOWER RATING: 77.5%

ALL REACTIONS ARE FACTORED

MAX. CORNER REACTIONS AT BASE:
DOWN: 646 K
SHEAR: 69 K

UPLIFT: -553 K
SHEAR: 61 K

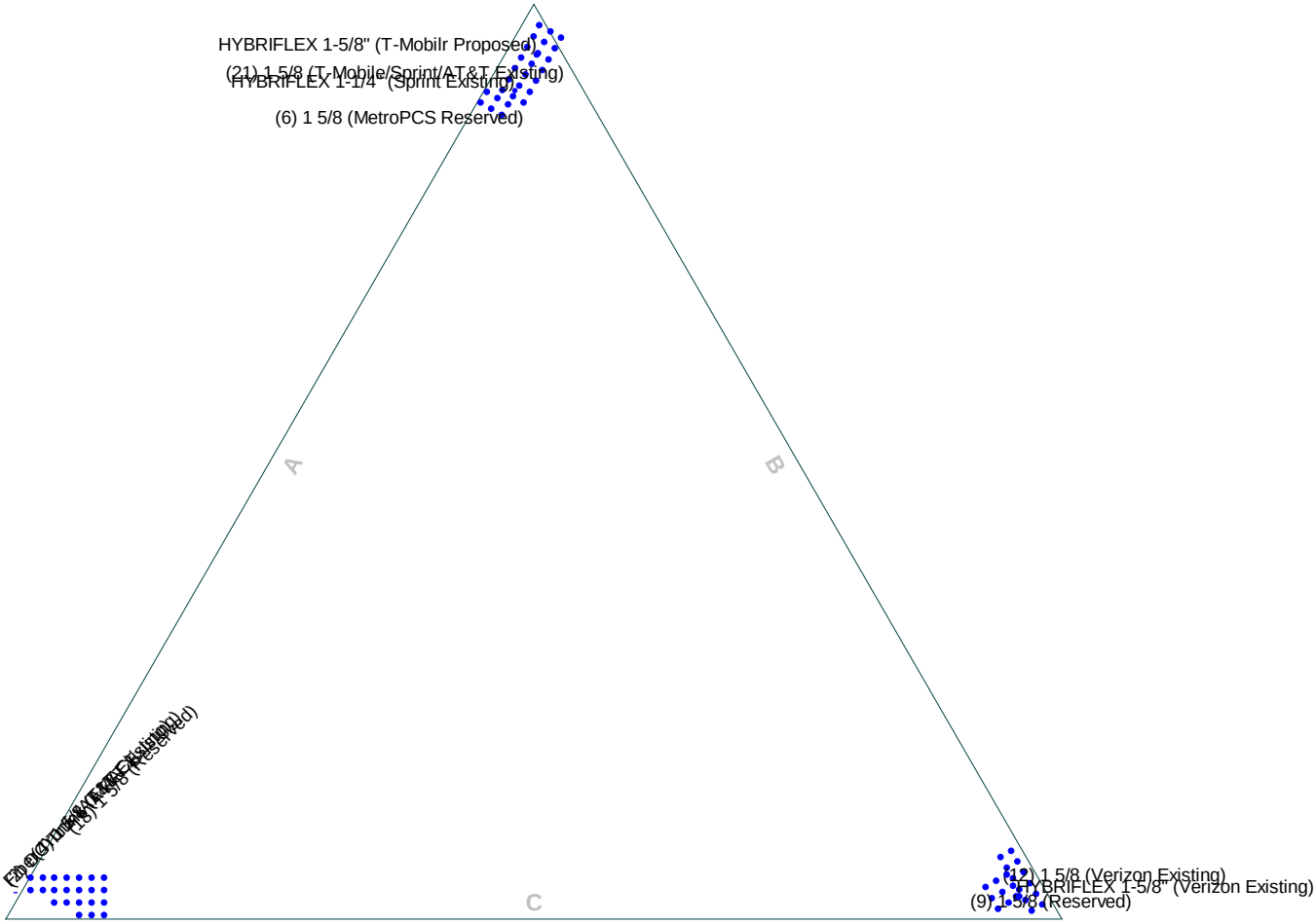


Centek Engineering Inc.
63-2 North Branford Rd.
Branford, CT 06405
Phone: (203) 488-0580
FAX: (203) 488-8587

Job: **18058.79 - CT11332C**		
Project: **280' PiROD Lattice Tower - 6 Progress Lane, Seymour, CT**		
Client: T-Mobile	Drawn by: TJL	App'd:
Code: TIA-222-G	Date: 07/03/18	Scale: NTS
Path: J:\Jobs\1805800.WI\79_CT11332C\05_Structural\Tower Analysis\Backup Documentation\CalcsER\ Files\280-ft PiROD Lattice Tower.eri		Dwg No. E-1

Feed Line Plan

Round Flat App In Face App Out Face Truss-Leg



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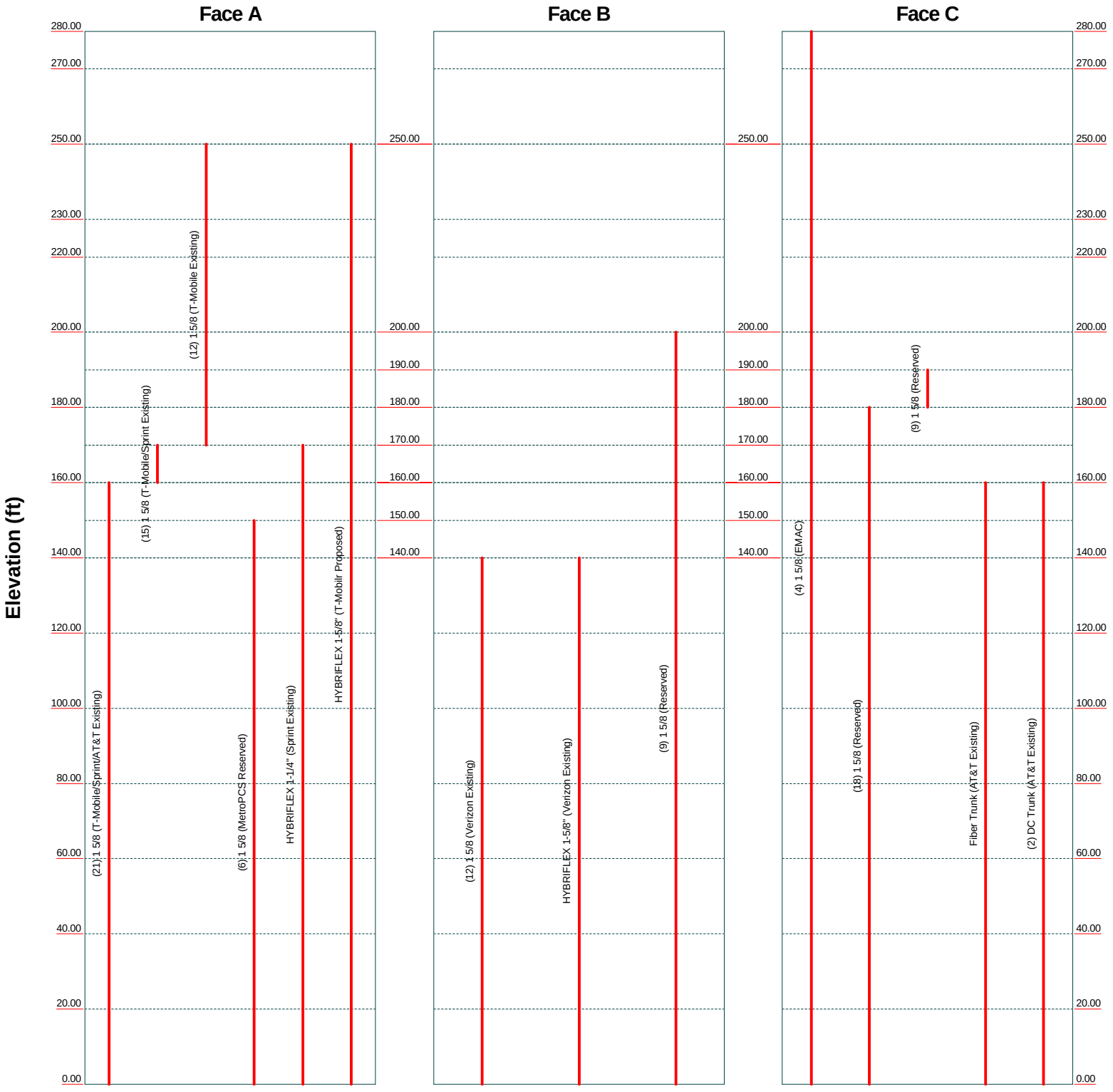
Code: TIA-222-G	Date: 07/03/18	Scale: NTS
Path: J:\Jobs\18058\00 WI\79_CT11332C\05_Structural\Tower Analysis\Backup Documentation\Calcs\ER Files\280-ft PiROD Lattice Tower.er		Dwg No. E-7

Feed Line Distribution Chart
0' - 280'

Round | Flat | App In Face | App Out Face | Truss Leg



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Code: TIA-222-G		Date: 07/03/18	Scale: NTS
Path: J:\Jobs\18058000.WI\79_CT11332C\05_Structural\Tower Analysis\Backup Documentation\Calcs\ER Files\280-ft PiROD Lattice Tower.er			Dwg No. E-7

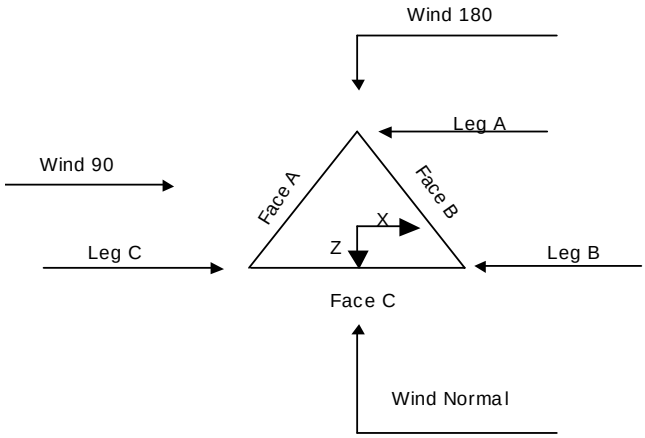
Tower Input Data

The main tower is a 3x free standing tower with an overall height of 280.00 ft above the ground line.
The base of the tower is set at an elevation of 0.00 ft above the ground line.
The face width of the tower is 5.00 ft at the top and 28.00 ft at the base.
This tower is designed using the TIA-222-G standard.
The following design criteria apply:

Basic wind speed of 97 mph.
Structure Class II.
Exposure Category B.
Topographic Category 1.
Crest Height 0.00 ft.
Nominal ice thickness of 0.7500 in.
Ice thickness is considered to increase with height.
Ice density of 56 pcf.
A wind speed of 50 mph is used in combination with ice.
Temperature drop of 50 °F.
Deflections calculated using a wind speed of 60 mph.
A non-linear (P-delta) analysis was used.
Pressures are calculated at each section.
Stress ratio used in tower member design is 1.
Local bending stresses due to climbing loads, feed line supports, and appurtenance mounts are not considered.

Options

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



Triangular Tower

Tower Section Geometry

Tower Section	Tower Elevation ft	Assembly Database	Description	Section Width ft	Number of Sections	Section Length ft
T1	280.00-270.00			5.00	1	10.00
T2	270.00-250.00			5.00	1	20.00
T3	250.00-230.00			5.00	1	20.00
T4	230.00-220.00			5.00	1	10.00
T5	220.00-200.00			6.00	1	20.00
T6	200.00-180.00			8.00	1	20.00
T7	180.00-160.00			10.00	1	20.00
T8	160.00-140.00			12.00	1	20.00
T9	140.00-120.00			14.00	1	20.00
T10	120.00-100.00			16.00	1	20.00
T11	100.00-80.00			18.00	1	20.00
T12	80.00-60.00			20.00	1	20.00
T13	60.00-40.00			22.00	1	20.00
T14	40.00-20.00			24.00	1	20.00
T15	20.00-0.00			26.00	1	20.00

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

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	280.00-270.00	2.25	X Brace	No	Steps	5.5000	6.5000
T2	270.00-250.00	2.38	X Brace	No	Steps	5.5000	6.5000
T3	250.00-230.00	2.38	X Brace	No	Steps	5.5000	6.5000
T4	230.00-220.00	10.00	X Brace	No	No	0.0000	0.0000
T5	220.00-200.00	10.00	X Brace	No	No	0.0000	0.0000
T6	200.00-180.00	10.00	X Brace	No	No	0.0000	0.0000
T7	180.00-160.00	10.00	X Brace	No	No	0.0000	0.0000
T8	160.00-140.00	10.00	X Brace	No	No	0.0000	0.0000
T9	140.00-120.00	10.00	X Brace	No	No	0.0000	0.0000
T10	120.00-100.00	20.00	X Brace	No	No	0.0000	0.0000
T11	100.00-80.00	20.00	X Brace	No	No	0.0000	0.0000
T12	80.00-60.00	20.00	X Brace	No	No	0.0000	0.0000
T13	60.00-40.00	20.00	X Brace	No	No	0.0000	0.0000
T14	40.00-20.00	20.00	X Brace	No	No	0.0000	0.0000
T15	20.00-0.00	20.00	X Brace	No	No	0.0000	0.0000

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Leg Type	Leg Size	Leg Grade	Diagonal Type	Diagonal Size	Diagonal Grade
T1 280.00-270.00	Solid Round	1 3/4	A572-50 (50 ksi)	Solid Round	7/8	A572-50 (50 ksi)
T2 270.00-250.00	Solid Round	2	A572-50 (50 ksi)	Solid Round	7/8	A572-50 (50 ksi)
T3 250.00-230.00	Solid Round	2 1/2	A572-50 (50 ksi)	Solid Round	1	A572-50 (50 ksi)
T4 230.00-220.00	Truss Leg	Pirod 105245	A572-50 (50 ksi)	Single Angle	L2 1/2x2 1/2x3/16	A36 (36 ksi)
T5 220.00-200.00	Truss Leg	Pirod 105218	A572-50 (50 ksi)	Single Angle	L3x3x3/16	A36 (36 ksi)
T6 200.00-180.00	Truss Leg	Pirod 105218	A572-50 (50 ksi)	Single Angle	L3x3x3/16	A36 (36 ksi)
T7 180.00-160.00	Truss Leg	Pirod 105219	A572-50 (50 ksi)	Single Angle	L3x3x5/16	A36 (36 ksi)
T8 160.00-140.00	Truss Leg	Pirod 105220	A572-50 (50 ksi)	Single Angle	L3 1/2x3 1/2x5/16	A36 (36 ksi)
T9 140.00-120.00	Truss Leg	Pirod 105220	A572-50 (50 ksi)	Single Angle	L3 1/2x3 1/2x5/16	A36 (36 ksi)
T10 120.00-100.00	Truss Leg	Pirod 112743	A572-50 (50 ksi)	Double Angle	2L3 1/2x3 1/2x5/16	A36 (36 ksi)
T11 100.00-80.00	Truss Leg	Pirod 112743	A572-50 (50 ksi)	Double Angle	2L3 1/2x3 1/2x5/16	A36 (36 ksi)
T12 80.00-60.00	Truss Leg	Pirod 112744	A572-50 (50 ksi)	Double Angle	2L3 1/2x3 1/2x5/16	A36 (36 ksi)
T13 60.00-40.00	Truss Leg	Pirod 112744	A572-50 (50 ksi)	Double Angle	2L3 1/2x3 1/2x5/16	A36 (36 ksi)
T14 40.00-20.00	Truss Leg	Pirod 112745	A572-50 (50 ksi)	Double Angle	2L3 1/2x3 1/2x5/16	A36 (36 ksi)
T15 20.00-0.00	Truss Leg	Pirod 112740	A572-50 (50 ksi)	Double Angle	2L3 1/2x3 1/2x5/16	A36 (36 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 280.00-270.00	Solid Round	1	A570-50 (50 ksi)	Solid Round	1	A572-50 (50 ksi)
T2 270.00-250.00	Solid Round	1	A572-50 (50 ksi)	Solid Round	1	A572-50 (50 ksi)
T3 250.00-230.00	Solid Round	1 1/4	A572-50 (50 ksi)	Solid Round	1 1/4	A572-50 (50 ksi)
T6 200.00-180.00	Single Angle	L3x3x3/16	A36 (36 ksi)	Single Angle		A36 (36 ksi)
T7 180.00-160.00	Single Angle	L4x4x1/4	A36 (36 ksi)	Single Angle		A36 (36 ksi)
T8 160.00-140.00	Single Angle	L3 1/2x3 1/2x5/16	A36 (36 ksi)	Single Angle		A36 (36 ksi)

Tower Section Geometry *(cont'd)*

Tower Elevation ft	No. of Mid Girts	Mid Girt Type	Mid Girt Size	Mid Girt Grade	Horizontal Type	Horizontal Size	Horizontal Grade
T1 280.00-270.00	1	Solid Round	1	A572-50 (50 ksi)	Solid Round	7/8	A572-50 (50 ksi)
T2 270.00-250.00	1	Solid Round	1	A572-50 (50 ksi)	Solid Round	7/8	A572-50 (50 ksi)
T3 250.00-230.00	None	Single Angle		A36 (36 ksi)	Solid Round	7/8	A572-50 (50 ksi)
T6 200.00-180.00	1	Single Angle	L3x3x3/16	A36 (36 ksi)	Pipe		A572-50 (50 ksi)
T7 180.00-160.00	1	Single Angle	L4x4x1/4	A36 (36 ksi)	Pipe		A572-50 (50 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 280.00-270.00	0.00	0.0000	A36 (36 ksi)	1	1	1	30.0000	30.0000	36.0000
T2 270.00-250.00	0.00	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000
T3 250.00-230.00	0.00	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000
T4 230.00-220.00	0.00	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000
T5 220.00-200.00	0.00	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000
T6	0.00	0.0000	A36	1	1	1	36.0000	36.0000	36.0000

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
200.00-180.00			(36 ksi)						
T7	0.00	0.0000	A36	1	1	1	36.0000	36.0000	36.0000
180.00-160.00			(36 ksi)						
T8	0.00	0.0000	A36	1	1	1	36.0000	36.0000	36.0000
160.00-140.00			(36 ksi)						
T9	0.00	0.0000	A36	1	1	1	36.0000	36.0000	36.0000
140.00-120.00			(36 ksi)						
T10	0.00	0.0000	A36	1	1	1	36.0000	36.0000	36.0000
120.00-100.00			(36 ksi)						
T11	0.00	0.0000	A36	1	1	1	36.0000	36.0000	36.0000
100.00-80.00			(36 ksi)						
T12	0.00	0.0000	A36	1	1	1	36.0000	36.0000	36.0000
80.00-60.00			(36 ksi)						
T13	0.00	0.0000	A36	1	1	1	36.0000	36.0000	36.0000
60.00-40.00			(36 ksi)						
T14	0.00	0.0000	A36	1	1	1	36.0000	36.0000	36.0000
40.00-20.00			(36 ksi)						
T15 20.00-0.00	0.00	0.0000	A36	1	1	1	36.0000	36.0000	36.0000
			(36 ksi)						

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	Yes	Yes	1	1	1	1	1	1	1	1
280.00-270.00				1	1	1	1	1	1	1
T2	Yes	Yes	1	1	1	1	1	1	1	1
270.00-250.00				1	1	1	1	1	1	1
T3	Yes	Yes	1	1	1	1	1	1	1	1
250.00-230.00				1	1	1	1	1	1	1
T4	Yes	Yes	1	1	1	1	1	1	1	1
230.00-220.00				1	1	1	1	1	1	1
T5	Yes	Yes	1	1	1	1	1	1	1	1
220.00-200.00				1	1	1	1	1	1	1
T6	Yes	Yes	1	1	1	1	1	1	1	1
200.00-180.00				1	1	1	1	1	1	1
T7	Yes	Yes	1	1	1	1	1	1	1	1
180.00-160.00				1	1	1	1	1	1	1
T8	Yes	Yes	1	1	1	1	1	1	1	1
160.00-140.00				1	1	1	1	1	1	1
T9	Yes	Yes	1	1	1	1	1	1	1	1
140.00-120.00				1	1	1	1	1	1	1
T10	Yes	Yes	1	1	1	1	1	1	1	1
120.00-100.00				1	1	1	1	1	1	1
T11	Yes	Yes	1	1	1	1	1	1	1	1
100.00-80.00				1	1	1	1	1	1	1
T12	Yes	Yes	1	1	1	1	1	1	1	1
80.00-60.00				1	1	1	1	1	1	1
T13	Yes	Yes	1	1	1	1	1	1	1	1
60.00-40.00				1	1	1	1	1	1	1
T14	Yes	Yes	1	1	1	1	1	1	1	1

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
40.00-20.00				1	1	1	1	1	1	1
T15	Yes	Yes	1	1	1	1	1	1	1	1
20.00-0.00				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	Truss-Leg K Factors: Truss-Legs Used As Leg Members — Leg Panels	X Brace Diagonals	Z Brace Diagonals	Truss-Legs Used As Inner Members — Leg Panels	X Brace Diagonals	Z Brace Diagonals
T4 230.00-220.00	1	1	1	1	0.5	0.85
T5 220.00-200.00	1	1	1	1	0.5	0.85
T6 200.00-180.00	1	1	1	1	0.5	0.85
T7 180.00-160.00	1	1	1	1	0.5	0.85
T8 160.00-140.00	1	1	1	1	0.5	0.85
T9 140.00-120.00	1	1	1	1	0.5	0.85
T10 120.00-100.00	1	1	1	1	0.5	0.85
T11 100.00-80.00	1	1	1	1	0.5	0.85
T12 80.00-60.00	1	1	1	1	0.5	0.85
T13 60.00-40.00	1	1	1	1	0.5	0.85
T14 40.00-20.00	1	1	1	1	0.5	0.85
T15 20.00-0.00	1	1	1	1	0.5	0.85

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Leg Net Width Deduct in	Leg U	Diagonal Net Width Deduct in	Diagonal U	Top Girt Net Width Deduct in	Top Girt U	Bottom Girt Net Width Deduct in	Bottom Girt U	Mid Girt Net Width Deduct in	Mid Girt U	Long Horizontal Net Width Deduct in	Long Horizontal U	Short Horizontal Net Width Deduct in	Short Horizontal U
T1 280.00-270.00	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	0.75	0.0000	1	0.0000	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 270.00-250.00	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1
T3 250.00-230.00	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1
T4 230.00-220.00	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1
T5 220.00-200.00	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1
T6 200.00-180.00	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1
T7 180.00-160.00	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1
T8 160.00-140.00	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1
T9 140.00-120.00	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1
T10 120.00-100.00	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1
T11 100.00-80.00	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1
T12 80.00-60.00	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1
T13 60.00-40.00	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1
T14 40.00-20.00	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1
T15 20.00-0.00	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1

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 280.00-270.00	Sleeve DS	0.6250 A325N	5	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T2 270.00-250.00	Sleeve DS	0.7500 A325N	5	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T3 250.00-230.00	Flange	1.0000 A325N	6	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T4 230.00-220.00	Flange	1.0000 A325N	6	1.0000 A325N	1	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T5 220.00-200.00	Flange	1.0000 A325N	6	1.0000 A325N	1	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T6 200.00-180.00	Flange	1.0000 A325N	6	1.0000 A325N	1	1.0000 A325N	1	0.6250 A325N	0	1.0000 A325N	1	0.6250 A325N	0	0.6250 A325N	0
T7 180.00-160.00	Flange	1.2500 A325N	6	1.2500 A325N	1	1.2500 A325N	1	0.6250 A325N	0	1.2500 A325N	1	0.6250 A325N	0	0.6250 A325N	0
T8 160.00-140.00	Flange	1.2500 A325N	6	1.2500 A325N	1	1.2500 A325N	1	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0

Tower Elevation ft	Leg Connection Type	Leg Bolt Size in	Leg No.	Diagonal Bolt Size in	Diagonal No.	Top Girt Bolt Size in	Top Girt No.	Bottom Girt Bolt Size in	Bottom Girt No.	Mid Girt Bolt Size in	Mid Girt No.	Long Horizontal Bolt Size in	Long Horizontal No.	Short Horizontal Bolt Size in	Short Horizontal No.
T9 140.00-120.00	Flange	1.2500 A325N	6	1.2500 A325N	1	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T10 120.00-100.00	Flange	1.2500 A325N	12	1.0000 A325N	2	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T11 100.00-80.00	Flange	1.2500 A325N	12	1.0000 A325N	2	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T12 80.00-60.00	Flange	1.2500 A325N	12	1.0000 A325N	2	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T13 60.00-40.00	Flange	1.2500 A325N	12	1.0000 A325N	2	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T14 40.00-20.00	Flange	1.2500 A325N	12	1.0000 A325N	2	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T15 20.00-0.00	Flange	2.0000 A687	6	1.0000 A325N	2	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0

Feed Line/Linear Appurtenances - Entered As Round Or Flat

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Face Offset in	Lateral Offset (Frac FW)	#	# Per Row	Clear Spacing in	Width or Diameter in	Perimeter in	Weight plf
1 5/8 (Verizon Existing)	B	No	Ar (CaAa)	140.00 - 0.00	-6.0000	0.45	12	6	1.9800	1.9800		1.04
1 5/8 (EMAC)	C	No	Ar (CaAa)	280.00 - 0.00	-12.0000	0.47	4	2	1.9800	1.9800		1.04
HYBRIFLEX 1-5/8" (Verizon Existing)	B	No	Ar (CaAa)	140.00 - 0.00	-8.0000	0.46	1	1	1.9800	1.9800		1.90
1 5/8 (Reserved)	C	No	Ar (CaAa)	180.00 - 0.00	-12.0000	0.43	18	5	1.9800	1.9800		1.04
1 5/8 (Reserved)	C	No	Ar (CaAa)	190.00 - 180.00	-12.0000	0.43	9	5	1.9800	1.9800		1.04
1 5/8 (Reserved)	B	No	Ar (CaAa)	200.00 - 0.00	-15.0000	0.45	9	3	1.9800	1.9800		1.04
1 5/8 (T-Mobile/Sprint/AT&T Existing)	A	No	Ar (CaAa)	160.00 - 0.00	-12.0000	0.45	21	7	1.9800	1.9800		1.04
1 5/8 (T-Mobile/Sprint Existing)	A	No	Ar (CaAa)	170.00 - 160.00	-12.0000	0.45	15	8	1.9800	1.9800		1.04
1 5/8 (T-Mobile Existing)	A	No	Ar (CaAa)	250.00 - 170.00	-12.0000	0.45	12	8	1.9800	1.9800		1.04
1 5/8 (MetroPCS Reserved)	A	No	Ar (CaAa)	150.00 - 0.00	-8.0000	0.4	6	2	1.9800	1.9800		1.04
HYBRIFLEX 1-1/4" (Sprint Existing)	A	No	Ar (CaAa)	170.00 - 0.00	-8.0000	0.42	1	1	1.5400	1.5400		1.30
Fiber Trunk (AT&T	C	No	Ar (CaAa)	160.00 - 0.00	-8.0000	0.49	1	1	0.4000	0.4000		1.00

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Face Offset in	Lateral Offset (Frac FW)	#	# Per Row	Clear Spacing in	Width or Diameter in	Perimeter in	Weight plf
Existing) DC Trunk (AT&T	C	No	Ar (CaAa)	160.00 - 0.00	-8.0000	0.49	2	2	0.4000	0.4000		0.11
Existing) HYBRIFLEX 1-5/8" (T-Mobilr Proposed)	A	No	Ar (CaAa)	250.00 - 0.00	-8.0000	0.46	1	1	1.9800	1.9800		1.90

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	280.00-270.00	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	7.920	0.000	0.04
T2	270.00-250.00	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	15.840	0.000	0.08
T3	250.00-230.00	A	0.000	0.000	51.480	0.000	0.29
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	15.840	0.000	0.08
T4	230.00-220.00	A	0.000	0.000	25.740	0.000	0.14
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	7.920	0.000	0.04
T5	220.00-200.00	A	0.000	0.000	51.480	0.000	0.29
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	15.840	0.000	0.08
T6	200.00-180.00	A	0.000	0.000	51.480	0.000	0.29
		B	0.000	0.000	35.640	0.000	0.19
		C	0.000	0.000	33.660	0.000	0.18
T7	180.00-160.00	A	0.000	0.000	58.960	0.000	0.33
		B	0.000	0.000	35.640	0.000	0.19
		C	0.000	0.000	87.120	0.000	0.46
T8	160.00-140.00	A	0.000	0.000	102.080	0.000	0.56
		B	0.000	0.000	35.640	0.000	0.19
		C	0.000	0.000	89.520	0.000	0.48
T9	140.00-120.00	A	0.000	0.000	113.960	0.000	0.63
		B	0.000	0.000	87.120	0.000	0.47
		C	0.000	0.000	89.520	0.000	0.48
T10	120.00-100.00	A	0.000	0.000	113.960	0.000	0.63
		B	0.000	0.000	87.120	0.000	0.47
		C	0.000	0.000	89.520	0.000	0.48
T11	100.00-80.00	A	0.000	0.000	113.960	0.000	0.63
		B	0.000	0.000	87.120	0.000	0.47
		C	0.000	0.000	89.520	0.000	0.48
T12	80.00-60.00	A	0.000	0.000	113.960	0.000	0.63
		B	0.000	0.000	87.120	0.000	0.47
		C	0.000	0.000	89.520	0.000	0.48
T13	60.00-40.00	A	0.000	0.000	113.960	0.000	0.63
		B	0.000	0.000	87.120	0.000	0.47
		C	0.000	0.000	89.520	0.000	0.48
T14	40.00-20.00	A	0.000	0.000	113.960	0.000	0.63
		B	0.000	0.000	87.120	0.000	0.47
		C	0.000	0.000	89.520	0.000	0.48

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
T15	20.00-0.00	A	0.000	0.000	113.960	0.000	0.63
		B	0.000	0.000	87.120	0.000	0.47
		C	0.000	0.000	89.520	0.000	0.48

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	280.00-270.00	A	1.854	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	17.056	0.000	0.33
T2	270.00-250.00	A	1.844	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	34.039	0.000	0.65
T3	250.00-230.00	A	1.829	0.000	0.000	98.056	0.000	2.11
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	33.935	0.000	0.65
T4	230.00-220.00	A	1.817	0.000	0.000	48.968	0.000	1.05
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	16.926	0.000	0.32
T5	220.00-200.00	A	1.805	0.000	0.000	97.809	0.000	2.09
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	33.764	0.000	0.64
T6	200.00-180.00	A	1.787	0.000	0.000	97.626	0.000	2.07
		B		0.000	0.000	47.638	0.000	1.33
		C		0.000	0.000	62.904	0.000	1.32
T7	180.00-160.00	A	1.767	0.000	0.000	102.499	0.000	2.32
		B		0.000	0.000	47.498	0.000	1.32
		C		0.000	0.000	102.353	0.000	3.16
T8	160.00-140.00	A	1.745	0.000	0.000	121.853	0.000	3.75
		B		0.000	0.000	47.342	0.000	1.32
		C		0.000	0.000	125.058	0.000	3.37
T9	140.00-120.00	A	1.720	0.000	0.000	141.790	0.000	4.17
		B		0.000	0.000	125.281	0.000	3.25
		C		0.000	0.000	124.435	0.000	3.35
T10	120.00-100.00	A	1.692	0.000	0.000	141.175	0.000	4.14
		B		0.000	0.000	124.782	0.000	3.22
		C		0.000	0.000	123.718	0.000	3.32
T11	100.00-80.00	A	1.658	0.000	0.000	140.449	0.000	4.10
		B		0.000	0.000	124.194	0.000	3.19
		C		0.000	0.000	122.873	0.000	3.28
T12	80.00-60.00	A	1.617	0.000	0.000	139.561	0.000	4.05
		B		0.000	0.000	123.474	0.000	3.15
		C		0.000	0.000	121.838	0.000	3.24
T13	60.00-40.00	A	1.564	0.000	0.000	138.406	0.000	3.99
		B		0.000	0.000	122.539	0.000	3.10
		C		0.000	0.000	120.493	0.000	3.19
T14	40.00-20.00	A	1.486	0.000	0.000	136.727	0.000	3.90
		B		0.000	0.000	121.178	0.000	3.02
		C		0.000	0.000	118.536	0.000	3.12
T15	20.00-0.00	A	1.331	0.000	0.000	133.394	0.000	3.72
		B		0.000	0.000	118.479	0.000	2.87
		C		0.000	0.000	114.651	0.000	2.97

Feed Line Center of Pressure

Section	Elevation	CP_X	CP_Z	CP_X Ice	CP_Z Ice
	ft	in	in	in	in
T1	280.00-270.00	-3.2352	0.7240	-0.7007	0.1568
T2	270.00-250.00	-3.2493	0.7271	-0.7979	0.1786
T3	250.00-230.00	-0.1091	-3.5800	0.2751	-2.3718
T4	230.00-220.00	-0.2079	-3.2189	0.1341	-1.6362
T5	220.00-200.00	-0.5363	-3.9445	0.0308	-2.5933
T6	200.00-180.00	0.0240	-1.3194	-0.0177	-1.8199
T7	180.00-160.00	-2.2194	-0.5284	-1.0858	-1.6705
T8	160.00-140.00	-2.5750	-2.5512	-1.8415	-2.0935
T9	140.00-120.00	0.7881	-1.2486	0.6673	-0.9926
T10	120.00-100.00	0.8749	-1.4192	0.7257	-1.1004
T11	100.00-80.00	0.9658	-1.5962	0.8044	-1.2356
T12	80.00-60.00	1.0490	-1.7603	0.8819	-1.3650
T13	60.00-40.00	1.1372	-1.9324	0.9634	-1.4947
T14	40.00-20.00	1.2150	-2.0864	1.0482	-1.6182
T15	20.00-0.00	1.3011	-2.2545	1.1520	-1.7384

Shielding Factor Ka

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T1	2	1 5/8	270.00 - 280.00	0.6000	0.4303
T2	2	1 5/8	250.00 - 270.00	0.6000	0.4777
T3	2	1 5/8	230.00 - 250.00	0.6000	0.4795
T3	9	1 5/8	230.00 - 250.00	0.6000	0.4795
T3	14	HYBRIFLEX 1-5/8"	230.00 - 250.00	0.6000	0.4795
T4	2	1 5/8	220.00 - 230.00	0.6000	0.3100
T4	9	1 5/8	220.00 - 230.00	0.6000	0.3100
T4	14	HYBRIFLEX 1-5/8"	220.00 - 230.00	0.6000	0.3100
T5	2	1 5/8	200.00 - 220.00	0.6000	0.4287
T5	9	1 5/8	200.00 - 220.00	0.6000	0.4287
T5	14	HYBRIFLEX 1-5/8"	200.00 - 220.00	0.6000	0.4287
T6	2	1 5/8	180.00 - 200.00	0.6000	0.4842
T6	5	1 5/8	180.00 - 190.00	0.6000	0.4842
T6	6	1 5/8	180.00 - 200.00	0.6000	0.4842
T6	9	1 5/8	180.00 - 200.00	0.6000	0.4842
T6	14	HYBRIFLEX 1-5/8"	180.00 - 200.00	0.6000	0.4842

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T7	2	1 5/8	160.00 - 180.00	0.6000	0.5372
T7	4	1 5/8	160.00 - 180.00	0.6000	0.5372
T7	6	1 5/8	160.00 - 180.00	0.6000	0.5372
T7	8	1 5/8	160.00 - 170.00	0.6000	0.5372
T7	9	1 5/8	170.00 - 180.00	0.6000	0.5372
T7	11	HYBRIFLEX 1-1/4"	160.00 - 170.00	0.6000	0.5372
T7	14	HYBRIFLEX 1-5/8"	160.00 - 180.00	0.6000	0.5372
T8	2	1 5/8	140.00 - 160.00	0.6000	0.5983
T8	4	1 5/8	140.00 - 160.00	0.6000	0.5983
T8	6	1 5/8	140.00 - 160.00	0.6000	0.5983
T8	7	1 5/8	140.00 - 160.00	0.6000	0.5983
T8	10	1 5/8	140.00 - 150.00	0.6000	0.5983
T8	11	HYBRIFLEX 1-1/4"	140.00 - 160.00	0.6000	0.5983
T8	12	Fiber Trunk	140.00 - 160.00	0.6000	0.5983
T8	13	DC Trunk	140.00 - 160.00	0.6000	0.5983
T8	14	HYBRIFLEX 1-5/8"	140.00 - 160.00	0.6000	0.5983
T9	1	1 5/8	120.00 - 140.00	0.6000	0.6000
T9	2	1 5/8	120.00 - 140.00	0.6000	0.6000
T9	3	HYBRIFLEX 1-5/8"	120.00 - 140.00	0.6000	0.6000
T9	4	1 5/8	120.00 - 140.00	0.6000	0.6000
T9	6	1 5/8	120.00 - 140.00	0.6000	0.6000
T9	7	1 5/8	120.00 - 140.00	0.6000	0.6000
T9	10	1 5/8	120.00 - 140.00	0.6000	0.6000
T9	11	HYBRIFLEX 1-1/4"	120.00 - 140.00	0.6000	0.6000
T9	12	Fiber Trunk	120.00 - 140.00	0.6000	0.6000
T9	13	DC Trunk	120.00 - 140.00	0.6000	0.6000
T9	14	HYBRIFLEX 1-5/8"	120.00 - 140.00	0.6000	0.6000
T10	1	1 5/8	100.00 - 120.00	0.6000	0.6000
T10	2	1 5/8	100.00 - 120.00	0.6000	0.6000
T10	3	HYBRIFLEX 1-5/8"	100.00 - 120.00	0.6000	0.6000
T10	4	1 5/8	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
T10	6	1 5/8	100.00 - 120.00	0.6000	0.6000
T10	7	1 5/8	100.00 - 120.00	0.6000	0.6000
T10	10	1 5/8	100.00 - 120.00	0.6000	0.6000
T10	11	HYBRIFLEX 1-1/4"	100.00 - 120.00	0.6000	0.6000
T10	12	Fiber Trunk	100.00 - 120.00	0.6000	0.6000
T10	13	DC Trunk	100.00 - 120.00	0.6000	0.6000
T10	14	HYBRIFLEX 1-5/8"	100.00 - 120.00	0.6000	0.6000
T11	1	1 5/8	80.00 - 100.00	0.6000	0.6000
T11	2	1 5/8	80.00 - 100.00	0.6000	0.6000
T11	3	HYBRIFLEX 1-5/8"	80.00 - 100.00	0.6000	0.6000
T11	4	1 5/8	80.00 - 100.00	0.6000	0.6000
T11	6	1 5/8	80.00 - 100.00	0.6000	0.6000
T11	7	1 5/8	80.00 - 100.00	0.6000	0.6000
T11	10	1 5/8	80.00 - 100.00	0.6000	0.6000
T11	11	HYBRIFLEX 1-1/4"	80.00 - 100.00	0.6000	0.6000
T11	12	Fiber Trunk	80.00 - 100.00	0.6000	0.6000
T11	13	DC Trunk	80.00 - 100.00	0.6000	0.6000
T11	14	HYBRIFLEX 1-5/8"	80.00 - 100.00	0.6000	0.6000
T12	1	1 5/8	60.00 - 80.00	0.6000	0.6000
T12	2	1 5/8	60.00 - 80.00	0.6000	0.6000
T12	3	HYBRIFLEX 1-5/8"	60.00 - 80.00	0.6000	0.6000
T12	4	1 5/8	60.00 - 80.00	0.6000	0.6000
T12	6	1 5/8	60.00 - 80.00	0.6000	0.6000
T12	7	1 5/8	60.00 - 80.00	0.6000	0.6000
T12	10	1 5/8	60.00 - 80.00	0.6000	0.6000
T12	11	HYBRIFLEX 1-1/4"	60.00 - 80.00	0.6000	0.6000
T12	12	Fiber Trunk	60.00 - 80.00	0.6000	0.6000
T12	13	DC Trunk	60.00 - 80.00	0.6000	0.6000
T12	14	HYBRIFLEX 1-5/8"	60.00 - 80.00	0.6000	0.6000
T13	1	1 5/8	40.00 - 60.00	0.6000	0.6000
T13	2	1 5/8	40.00 - 60.00	0.6000	0.6000
T13	3	HYBRIFLEX 1-5/8"	40.00 - 60.00	0.6000	0.6000
T13	4	1 5/8	40.00 - 60.00	0.6000	0.6000
T13	6	1 5/8	40.00 - 60.00	0.6000	0.6000
T13	7	1 5/8	40.00 - 60.00	0.6000	0.6000
T13	10	1 5/8	40.00 - 60.00	0.6000	0.6000
T13	11	HYBRIFLEX 1-1/4"	40.00 - 60.00	0.6000	0.6000
T13	12	Fiber Trunk	40.00 - 60.00	0.6000	0.6000
T13	13	DC Trunk	40.00 - 60.00	0.6000	0.6000
T13	14	HYBRIFLEX 1-5/8"	40.00 - 60.00	0.6000	0.6000
T14	1	1 5/8	20.00 - 40.00	0.6000	0.6000
T14	2	1 5/8	20.00 - 40.00	0.6000	0.6000
T14	3	HYBRIFLEX 1-5/8"	20.00 - 40.00	0.6000	0.6000
T14	4	1 5/8	20.00 - 40.00	0.6000	0.6000
T14	6	1 5/8	20.00 - 40.00	0.6000	0.6000
T14	7	1 5/8	20.00 - 40.00	0.6000	0.6000
T14	10	1 5/8	20.00 - 40.00	0.6000	0.6000
T14	11	HYBRIFLEX 1-1/4"	20.00 - 40.00	0.6000	0.6000
T14	12	Fiber Trunk	20.00 - 40.00	0.6000	0.6000
T14	13	DC Trunk	20.00 - 40.00	0.6000	0.6000
T14	14	HYBRIFLEX 1-5/8"	20.00 - 40.00	0.6000	0.6000
T15	1	1 5/8	0.00 - 20.00	0.6000	0.6000
T15	2	1 5/8	0.00 - 20.00	0.6000	0.6000
T15	3	HYBRIFLEX 1-5/8"	0.00 - 20.00	0.6000	0.6000
T15	4	1 5/8	0.00 - 20.00	0.6000	0.6000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T15	6	1 5/8	0.00 - 20.00	0.6000	0.6000
T15	7	1 5/8	0.00 - 20.00	0.6000	0.6000
T15	10	1 5/8	0.00 - 20.00	0.6000	0.6000
T15	11	HYBRIFLEX 1-1/4"	0.00 - 20.00	0.6000	0.6000
T15	12	Fiber Trunk	0.00 - 20.00	0.6000	0.6000
T15	13	DC Trunk	0.00 - 20.00	0.6000	0.6000
T15	14	HYBRIFLEX 1-5/8"	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
Flash Beacon Lighting (EMAC)	B	None		0.0000	280.00	No Ice 1/2" Ice 1" Ice	2.70 3.10 3.50	2.70 3.10 3.50	0.05 0.07 0.09
15' Lighting Rod (EMAC)	B	From Leg	0.00 0.00 6.00	0.0000	280.00	No Ice 1/2" Ice 1" Ice	4.50 6.03 7.58	4.50 6.03 7.58	0.05 0.08 0.12
DB420-A (EMAC)	B	From Centroid-Face	8.00 0.00 9.50	0.0000	280.00	No Ice 1/2" Ice 1" Ice	3.33 5.99 8.66	3.33 5.99 8.66	0.03 0.04 0.05
DB586-XC (EMAC)	A	From Centroid-Face	8.00 0.00 3.00	0.0000	280.00	No Ice 1/2" Ice 1" Ice	1.01 1.28 1.56	1.01 1.28 1.56	0.01 0.02 0.03
9 Arm Halo Mount (EMAC)	A	None		0.0000	280.00	No Ice 1/2" Ice 1" Ice	62.60 80.40 98.20	62.60 80.40 98.20	3.60 4.80 6.00
APX18-206516L-CT0 (T-Mobile Proposed)	A	From Leg	3.00 -5.00 0.00	0.0000	250.00	No Ice 1/2" Ice 1" Ice	3.51 3.85 4.19	2.00 2.33 2.66	0.02 0.04 0.06
APXVAARR24-43 (T-Mobile Proposed)	A	From Leg	3.00 5.00 0.00	0.0000	250.00	No Ice 1/2" Ice 1" Ice	20.24 20.89 21.54	8.89 9.49 10.09	0.16 0.27 0.39
APX18-206516L-CT0 (T-Mobile Proposed)	B	From Leg	3.00 -5.00 0.00	0.0000	250.00	No Ice 1/2" Ice 1" Ice	3.51 3.85 4.19	2.00 2.33 2.66	0.02 0.04 0.06
APXVAARR24-43 (T-Mobile Proposed)	B	From Leg	3.00 5.00 0.00	0.0000	250.00	No Ice 1/2" Ice 1" Ice	20.24 20.89 21.54	8.89 9.49 10.09	0.16 0.27 0.39
APX18-206516L-CT0 (T-Mobile Proposed)	C	From Leg	3.00 -5.00 0.00	0.0000	250.00	No Ice 1/2" Ice 1" Ice	3.51 3.85 4.19	2.00 2.33 2.66	0.02 0.04 0.06
APXVAARR24-43 (T-Mobile Proposed)	C	From Leg	3.00 5.00 0.00	0.0000	250.00	No Ice 1/2" Ice 1" Ice	20.24 20.89 21.54	8.89 9.49 10.09	0.16 0.27 0.39
Radio 4449 B71 B12 (T-Mobile Proposed)	A	From Leg	3.00 5.00 0.00	0.0000	250.00	No Ice 1/2" Ice 1" Ice	1.64 1.80 1.97	1.29 1.44 1.59	0.07 0.09 0.11
Radio 4449 B71 B12 (T-Mobile Proposed)	B	From Leg	3.00 5.00	0.0000	250.00	No Ice 1/2" Ice	1.64 1.80	1.29 1.44	0.07 0.09

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
			0.00			1" Ice	1.97	1.59	0.11
Radio 4449 B71 B12	C	From Leg	3.00	0.0000	250.00	No Ice	1.64	1.29	0.07
(T-Mobile Proposed)			5.00			1/2" Ice	1.80	1.44	0.09
			0.00			1" Ice	1.97	1.59	0.11
ATMA4D-VA20	A	From Leg	3.00	0.0000	250.00	No Ice	0.73	0.25	0.01
(T-Mobile Proposed)			-5.00			1/2" Ice	0.84	0.32	0.01
			0.00			1" Ice	0.96	0.40	0.02
ATMA4D-VA20	B	From Leg	3.00	0.0000	250.00	No Ice	0.73	0.25	0.01
(T-Mobile Proposed)			-5.00			1/2" Ice	0.84	0.32	0.01
			0.00			1" Ice	0.96	0.40	0.02
ATMA4D-VA20	C	From Leg	3.00	0.0000	250.00	No Ice	0.73	0.25	0.01
(T-Mobile Proposed)			-5.00			1/2" Ice	0.84	0.32	0.01
			0.00			1" Ice	0.96	0.40	0.02
ATMA4P4DBP-1A20	A	From Leg	3.00	0.0000	250.00	No Ice	0.75	0.46	0.02
(T-Mobile Proposed)			-5.00			1/2" Ice	0.86	0.55	0.02
			0.00			1" Ice	0.97	0.65	0.03
ATMA4P4DBP-1A20	B	From Leg	3.00	0.0000	250.00	No Ice	0.75	0.46	0.02
(T-Mobile Proposed)			-5.00			1/2" Ice	0.86	0.55	0.02
			0.00			1" Ice	0.97	0.65	0.03
ATMA4P4DBP-1A20	C	From Leg	3.00	0.0000	250.00	No Ice	0.75	0.46	0.02
(T-Mobile Proposed)			-5.00			1/2" Ice	0.86	0.55	0.02
			0.00			1" Ice	0.97	0.65	0.03
Diplexer	A	From Leg	3.00	0.0000	250.00	No Ice	0.67	0.33	0.02
(T-Mobile Proposed)			-5.00			1/2" Ice	0.77	0.41	0.02
			0.00			1" Ice	0.88	0.50	0.03
Diplexer	B	From Leg	3.00	0.0000	250.00	No Ice	0.67	0.33	0.02
(T-Mobile Proposed)			-5.00			1/2" Ice	0.77	0.41	0.02
			0.00			1" Ice	0.88	0.50	0.03
Diplexer	C	From Leg	3.00	0.0000	250.00	No Ice	0.67	0.33	0.02
(T-Mobile Proposed)			-5.00			1/2" Ice	0.77	0.41	0.02
			0.00			1" Ice	0.88	0.50	0.03
Pirod 15' T-Frame Sector	A	From Leg	1.00	0.0000	250.00	No Ice	15.00	15.00	0.50
Mount (1)			0.00			1/2" Ice	20.60	20.60	0.65
(T-Mobile Existing)			0.00			1" Ice	26.20	26.20	0.80
Pirod 15' T-Frame Sector	B	From Leg	1.00	0.0000	250.00	No Ice	15.00	15.00	0.50
Mount (1)			0.00			1/2" Ice	20.60	20.60	0.65
(T-Mobile Existing)			0.00			1" Ice	26.20	26.20	0.80
Pirod 15' T-Frame Sector	C	From Leg	1.00	0.0000	250.00	No Ice	15.00	15.00	0.50
Mount (1)			0.00			1/2" Ice	20.60	20.60	0.65
(T-Mobile Existing)			0.00			1" Ice	26.20	26.20	0.80
DB420-A	B	From	8.00	0.0000	245.00	No Ice	3.33	3.33	0.03
(EMAC)		Centroid-Fa	0.00			1/2" Ice	5.99	5.99	0.04
		ce	9.00			1" Ice	8.66	8.66	0.05
DB225-2-F	A	From	8.00	0.0000	235.00	No Ice	1.36	1.36	0.05
(EMAC)		Centroid-Fa	0.00			1/2" Ice	2.45	2.45	0.07
		ce	0.00			1" Ice	3.54	3.54	0.09
9 Arm Halo Mount	A	None		0.0000	235.00	No Ice	62.60	62.60	3.60
(EMAC)						1/2" Ice	80.40	80.40	4.80
						1" Ice	98.20	98.20	6.00
(3) DB980H120E-M	A	From Leg	3.00	0.0000	200.00	No Ice	3.75	2.17	0.01
(Future)			0.00			1/2" Ice	4.13	2.53	0.03
			0.00			1" Ice	4.51	2.90	0.05
(3) DB980H120E-M	B	From Leg	3.00	0.0000	200.00	No Ice	3.75	2.17	0.01
(Future)			0.00			1/2" Ice	4.13	2.53	0.03
			0.00			1" Ice	4.51	2.90	0.05
(3) DB980H120E-M	C	From Leg	3.00	0.0000	200.00	No Ice	3.75	2.17	0.01
(Future)			0.00			1/2" Ice	4.13	2.53	0.03

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
			0.00			1" Ice	4.51	2.90	0.05
10-ft T-Frame	A	From Leg	1.00	0.0000	200.00	No Ice	13.60	13.60	0.38
(Future)			0.00			1/2" Ice	17.50	17.50	0.53
			0.00			1" Ice	21.40	21.40	0.68
10-ft T-Frame	B	From Leg	1.00	0.0000	200.00	No Ice	13.60	13.60	0.38
(Future)			0.00			1/2" Ice	17.50	17.50	0.53
			0.00			1" Ice	21.40	21.40	0.68
10-ft T-Frame	C	From Leg	1.00	0.0000	200.00	No Ice	13.60	13.60	0.38
(Future)			0.00			1/2" Ice	17.50	17.50	0.53
			0.00			1" Ice	21.40	21.40	0.68
(3) DB980H120E-M	A	From Leg	3.00	0.0000	190.00	No Ice	3.75	2.17	0.01
(Future)			0.00			1/2" Ice	4.13	2.53	0.03
			0.00			1" Ice	4.51	2.90	0.05
(3) DB980H120E-M	B	From Leg	3.00	0.0000	190.00	No Ice	3.75	2.17	0.01
(Future)			0.00			1/2" Ice	4.13	2.53	0.03
			0.00			1" Ice	4.51	2.90	0.05
(3) DB980H120E-M	C	From Leg	3.00	0.0000	190.00	No Ice	3.75	2.17	0.01
(Future)			0.00			1/2" Ice	4.13	2.53	0.03
			0.00			1" Ice	4.51	2.90	0.05
10-ft T-Frame	A	From Leg	1.00	0.0000	190.00	No Ice	13.60	13.60	0.38
(Future)			0.00			1/2" Ice	17.50	17.50	0.53
			0.00			1" Ice	21.40	21.40	0.68
10-ft T-Frame	B	From Leg	1.00	0.0000	190.00	No Ice	13.60	13.60	0.38
(Future)			0.00			1/2" Ice	17.50	17.50	0.53
			0.00			1" Ice	21.40	21.40	0.68
10-ft T-Frame	C	From Leg	1.00	0.0000	190.00	No Ice	13.60	13.60	0.38
(Future)			0.00			1/2" Ice	17.50	17.50	0.53
			0.00			1" Ice	21.40	21.40	0.68
(3) DB980H120E-M	A	From Leg	3.00	0.0000	180.00	No Ice	3.75	2.17	0.01
(Future)			0.00			1/2" Ice	4.13	2.53	0.03
			0.00			1" Ice	4.51	2.90	0.05
(3) DB980H120E-M	B	From Leg	3.00	0.0000	180.00	No Ice	3.75	2.17	0.01
(Future)			0.00			1/2" Ice	4.13	2.53	0.03
			0.00			1" Ice	4.51	2.90	0.05
(3) DB980H120E-M	C	From Leg	3.00	0.0000	180.00	No Ice	3.75	2.17	0.01
(Future)			0.00			1/2" Ice	4.13	2.53	0.03
			0.00			1" Ice	4.51	2.90	0.05
10-ft T-Frame	A	From Leg	1.00	0.0000	180.00	No Ice	13.60	13.60	0.38
(Future)			0.00			1/2" Ice	17.50	17.50	0.53
			0.00			1" Ice	21.40	21.40	0.68
10-ft T-Frame	B	From Leg	1.00	0.0000	180.00	No Ice	13.60	13.60	0.38
(Future)			0.00			1/2" Ice	17.50	17.50	0.53
			0.00			1" Ice	21.40	21.40	0.68
10-ft T-Frame	C	From Leg	1.00	0.0000	180.00	No Ice	13.60	13.60	0.38
(Future)			0.00			1/2" Ice	17.50	17.50	0.53
			0.00			1" Ice	21.40	21.40	0.68
APXVSPP18-C-A20	A	From Leg	3.00	0.0000	170.00	No Ice	8.02	5.28	0.06
(Sprint Existing)			0.00			1/2" Ice	8.48	5.74	0.11
			0.00			1" Ice	8.94	6.20	0.16
APXVTM14	A	From Leg	3.00	0.0000	170.00	No Ice	6.34	3.61	0.06
(Sprint Existing)			-5.00			1/2" Ice	6.72	3.97	0.10
			0.00			1" Ice	7.10	4.33	0.14
APXVSPP18-C-A20	B	From Leg	3.00	0.0000	170.00	No Ice	8.02	5.28	0.06
(Sprint Existing)			0.00			1/2" Ice	8.48	5.74	0.11
			0.00			1" Ice	8.94	6.20	0.16
APXVTM14	B	From Leg	3.00	0.0000	170.00	No Ice	6.34	3.61	0.06
(Sprint Existing)			-5.00			1/2" Ice	6.72	3.97	0.10

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
			0.00			1" Ice	7.10	4.33	0.14
APXVSPP18-C-A20	C	From Leg	3.00	0.0000	170.00	No Ice	8.02	5.28	0.06
(Sprint Existing)			0.00			1/2" Ice	8.48	5.74	0.11
			0.00			1" Ice	8.94	6.20	0.16
APXVTM14	C	From Leg	3.00	0.0000	170.00	No Ice	6.34	3.61	0.06
(Sprint Existing)			-5.00			1/2" Ice	6.72	3.97	0.10
			0.00			1" Ice	7.10	4.33	0.14
FD-RRH 2x50 800	A	From Leg	0.50	0.0000	170.00	No Ice	2.06	1.93	0.06
(Sprint Existing)			2.00			1/2" Ice	2.24	2.11	0.09
			2.00			1" Ice	2.43	2.29	0.11
FD-RRH 2x50 800	B	From Leg	0.50	0.0000	170.00	No Ice	2.06	1.93	0.06
(Sprint Existing)			2.00			1/2" Ice	2.24	2.11	0.09
			2.00			1" Ice	2.43	2.29	0.11
FD-RRH 2x50 800	C	From Leg	0.50	0.0000	170.00	No Ice	2.06	1.93	0.06
(Sprint Existing)			2.00			1/2" Ice	2.24	2.11	0.09
			2.00			1" Ice	2.43	2.29	0.11
FD-RRH 4x40 1900	A	From Leg	0.50	0.0000	170.00	No Ice	2.24	2.32	0.06
(Sprint Existing)			2.00			1/2" Ice	2.44	2.53	0.08
			0.00			1" Ice	2.65	2.74	0.11
FD-RRH 4x40 1900	B	From Leg	0.50	0.0000	170.00	No Ice	2.24	2.32	0.06
(Sprint Existing)			2.00			1/2" Ice	2.44	2.53	0.08
			0.00			1" Ice	2.65	2.74	0.11
FD-RRH 4x40 1900	C	From Leg	0.50	0.0000	170.00	No Ice	2.24	2.32	0.06
(Sprint Existing)			2.00			1/2" Ice	2.44	2.53	0.08
			0.00			1" Ice	2.65	2.74	0.11
TD-RRH8x20-25	A	From Leg	3.00	0.0000	170.00	No Ice	4.05	1.53	0.07
(Sprint Existing)			-5.00			1/2" Ice	4.30	1.71	0.10
			0.00			1" Ice	4.56	1.90	0.13
TD-RRH8x20-25	B	From Leg	3.00	0.0000	170.00	No Ice	4.05	1.53	0.07
(Sprint Existing)			-5.00			1/2" Ice	4.30	1.71	0.10
			0.00			1" Ice	4.56	1.90	0.13
TD-RRH8x20-25	C	From Leg	3.00	0.0000	170.00	No Ice	4.05	1.53	0.07
(Sprint Existing)			-5.00			1/2" Ice	4.30	1.71	0.10
			0.00			1" Ice	4.56	1.90	0.13
Pirod 15' T-Frame Sector	A	From Leg	1.00	0.0000	170.00	No Ice	15.00	15.00	0.50
Mount (1)			0.00			1/2" Ice	20.60	20.60	0.65
(Sprint Existing)			0.00			1" Ice	26.20	26.20	0.80
Pirod 15' T-Frame Sector	B	From Leg	1.00	0.0000	170.00	No Ice	15.00	15.00	0.50
Mount (1)			0.00			1/2" Ice	20.60	20.60	0.65
(Sprint Existing)			0.00			1" Ice	26.20	26.20	0.80
Pirod 15' T-Frame Sector	C	From Leg	1.00	0.0000	170.00	No Ice	15.00	15.00	0.50
Mount (1)			0.00			1/2" Ice	20.60	20.60	0.65
(Sprint Existing)			0.00			1" Ice	26.20	26.20	0.80
800-10121	A	From Leg	3.00	0.0000	160.00	No Ice	5.16	3.29	0.05
(AT&T Existing)			-5.00			1/2" Ice	5.51	3.64	0.08
			0.00			1" Ice	5.87	3.99	0.12
AM-X-CD-16-65-00T-RET(7	A	From Leg	3.00	0.0000	160.00	No Ice	8.02	4.64	0.05
2")			0.00			1/2" Ice	8.48	5.09	0.10
(AT&T Existing)			0.00			1" Ice	8.94	5.54	0.15
QS66512-3	A	From Leg	3.00	0.0000	160.00	No Ice	8.13	6.80	0.11
(AT&T Existing)			5.00			1/2" Ice	8.59	7.27	0.17
			0.00			1" Ice	9.05	7.72	0.23
(2) LPG21401 TMA	A	From Leg	3.00	0.0000	160.00	No Ice	0.82	0.35	0.02
(AT&T Existing)			0.00			1/2" Ice	0.94	0.44	0.02
			0.00			1" Ice	1.06	0.54	0.03
800-10121	B	From Leg	3.00	0.0000	160.00	No Ice	5.16	3.29	0.05
(AT&T Existing)			-5.00			1/2" Ice	5.51	3.64	0.08

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
			0.00			1" Ice	5.87	3.99	0.12
AM-X-CD-16-65-00T-RET(72")	B	From Leg	3.00	0.0000	160.00	No Ice	8.02	4.64	0.05
			0.00			1/2" Ice	8.48	5.09	0.10
(AT&T Existing)			0.00			1" Ice	8.94	5.54	0.15
QS66512-3	B	From Leg	3.00	0.0000	160.00	No Ice	8.13	6.80	0.11
(AT&T Existing)			5.00			1/2" Ice	8.59	7.27	0.17
			0.00			1" Ice	9.05	7.72	0.23
(2) LPG21401 TMA	B	From Leg	3.00	0.0000	160.00	No Ice	0.82	0.35	0.02
(AT&T Existing)			0.00			1/2" Ice	0.94	0.44	0.02
			0.00			1" Ice	1.06	0.54	0.03
800-10121	C	From Leg	3.00	0.0000	160.00	No Ice	5.16	3.29	0.05
(AT&T Existing)			-5.00			1/2" Ice	5.51	3.64	0.08
			0.00			1" Ice	5.87	3.99	0.12
AM-X-CD-16-65-00T-RET(72")	C	From Leg	3.00	0.0000	160.00	No Ice	8.02	4.64	0.05
			0.00			1/2" Ice	8.48	5.09	0.10
(AT&T Existing)			0.00			1" Ice	8.94	5.54	0.15
QS66512-3	C	From Leg	3.00	0.0000	160.00	No Ice	8.13	6.80	0.11
(AT&T Existing)			5.00			1/2" Ice	8.59	7.27	0.17
			0.00			1" Ice	9.05	7.72	0.23
(2) LPG21401 TMA	C	From Leg	3.00	0.0000	160.00	No Ice	0.82	0.35	0.02
(AT&T Existing)			0.00			1/2" Ice	0.94	0.44	0.02
			0.00			1" Ice	1.06	0.54	0.03
(2) RRUS-32	A	From Leg	2.00	0.0000	160.00	No Ice	3.31	2.42	0.08
(AT&T Existing)			0.00			1/2" Ice	3.56	2.64	0.10
			0.00			1" Ice	3.81	2.86	0.14
(2) RRUS-32	B	From Leg	2.00	0.0000	160.00	No Ice	3.31	2.42	0.08
(AT&T Existing)			0.00			1/2" Ice	3.56	2.64	0.10
			0.00			1" Ice	3.81	2.86	0.14
(2) RRUS-32	C	From Leg	2.00	0.0000	160.00	No Ice	3.31	2.42	0.08
(AT&T Existing)			0.00			1/2" Ice	3.56	2.64	0.10
			0.00			1" Ice	3.81	2.86	0.14
RRUS-11	A	From Leg	2.00	0.0000	160.00	No Ice	2.57	1.07	0.05
(AT&T Existing)			0.00			1/2" Ice	2.76	1.21	0.07
			0.00			1" Ice	2.97	1.36	0.09
RRUS-11	B	From Leg	2.00	0.0000	160.00	No Ice	2.57	1.07	0.05
(AT&T Existing)			0.00			1/2" Ice	2.76	1.21	0.07
			0.00			1" Ice	2.97	1.36	0.09
RRUS-11	C	From Leg	2.00	0.0000	160.00	No Ice	2.57	1.07	0.05
(AT&T Existing)			0.00			1/2" Ice	2.76	1.21	0.07
			0.00			1" Ice	2.97	1.36	0.09
DC6-48-60-18-8F Surge Arrestor	A	From Leg	2.00	0.0000	160.00	No Ice	1.91	1.91	0.02
			0.00			1/2" Ice	2.10	2.10	0.04
(AT&T Existing)			0.00			1" Ice	2.29	2.29	0.06
Pirod 15' T-Frame Sector Mount (1)	A	From Leg	1.00	0.0000	160.00	No Ice	15.00	15.00	0.50
			0.00			1/2" Ice	20.60	20.60	0.65
(AT&T Existing)			0.00			1" Ice	26.20	26.20	0.80
Pirod 15' T-Frame Sector Mount (1)	B	From Leg	1.00	0.0000	160.00	No Ice	15.00	15.00	0.50
			0.00			1/2" Ice	20.60	20.60	0.65
(AT&T Existing)			0.00			1" Ice	26.20	26.20	0.80
Pirod 15' T-Frame Sector Mount (1)	C	From Leg	1.00	0.0000	160.00	No Ice	15.00	15.00	0.50
			0.00			1/2" Ice	20.60	20.60	0.65
(AT&T Existing)			0.00			1" Ice	26.20	26.20	0.80
APXV18-206517S (MetroPCS Reserved)	A	From Leg	0.50	0.0000	150.00	No Ice	5.17	3.04	0.03
			0.00			1/2" Ice	5.62	3.47	0.05
			0.00			1" Ice	6.08	3.91	0.09
APXV18-206517S (MetroPCS Reserved)	B	From Leg	0.50	0.0000	150.00	No Ice	5.17	3.04	0.03
			0.00			1/2" Ice	5.62	3.47	0.05

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
			0.00			1" Ice	6.08	3.91	0.09
APXV18-206517S	C	From Leg	0.50	0.0000	150.00	No Ice	5.17	3.04	0.03
(MetroPCS Reserved)			0.00			1/2" Ice	5.62	3.47	0.05
			0.00			1" Ice	6.08	3.91	0.09
LNX-6514DS-VTM	A	From Leg	3.00	0.0000	140.00	No Ice	8.17	5.41	0.04
(Verizon Existing)			-6.00			1/2" Ice	8.63	5.86	0.09
			0.00			1" Ice	9.10	6.33	0.15
HBXX-6517DS	A	From Leg	3.00	0.0000	140.00	No Ice	8.53	5.24	0.05
(Verizon Existing)			-4.00			1/2" Ice	9.00	5.71	0.10
			0.00			1" Ice	9.48	6.18	0.16
LNX-6514DS-VTM	A	From Leg	3.00	0.0000	140.00	No Ice	8.17	5.41	0.04
(Verizon Existing)			0.00			1/2" Ice	8.63	5.86	0.09
			0.00			1" Ice	9.10	6.33	0.15
HBXX-6517DS	A	From Leg	3.00	0.0000	140.00	No Ice	8.53	5.24	0.05
(Verizon Existing)			4.00			1/2" Ice	9.00	5.71	0.10
			0.00			1" Ice	9.48	6.18	0.16
LNX-6514DS-VTM	B	From Leg	3.00	0.0000	140.00	No Ice	8.17	5.41	0.04
(Verizon Existing)			-6.00			1/2" Ice	8.63	5.86	0.09
			0.00			1" Ice	9.10	6.33	0.15
HBXX-6517DS	B	From Leg	3.00	0.0000	140.00	No Ice	8.53	5.24	0.05
(Verizon Existing)			-4.00			1/2" Ice	9.00	5.71	0.10
			0.00			1" Ice	9.48	6.18	0.16
LNX-6514DS-VTM	B	From Leg	3.00	0.0000	140.00	No Ice	8.17	5.41	0.04
(Verizon Existing)			0.00			1/2" Ice	8.63	5.86	0.09
			0.00			1" Ice	9.10	6.33	0.15
HBXX-6517DS	B	From Leg	3.00	0.0000	140.00	No Ice	8.53	5.24	0.05
(Verizon Existing)			4.00			1/2" Ice	9.00	5.71	0.10
			0.00			1" Ice	9.48	6.18	0.16
LNX-6514DS-VTM	C	From Leg	3.00	0.0000	140.00	No Ice	8.17	5.41	0.04
(Verizon Existing)			-6.00			1/2" Ice	8.63	5.86	0.09
			0.00			1" Ice	9.10	6.33	0.15
HBXX-6517DS	C	From Leg	3.00	0.0000	140.00	No Ice	8.53	5.24	0.05
(Verizon Existing)			-4.00			1/2" Ice	9.00	5.71	0.10
			0.00			1" Ice	9.48	6.18	0.16
LNX-6514DS-VTM	C	From Leg	3.00	0.0000	140.00	No Ice	8.17	5.41	0.04
(Verizon Existing)			0.00			1/2" Ice	8.63	5.86	0.09
			0.00			1" Ice	9.10	6.33	0.15
HBXX-6517DS	C	From Leg	3.00	0.0000	140.00	No Ice	8.53	5.24	0.05
(Verizon Existing)			4.00			1/2" Ice	9.00	5.71	0.10
			0.00			1" Ice	9.48	6.18	0.16
(2) FD9R6004/2C-3L	A	From Leg	3.00	0.0000	140.00	No Ice	0.31	0.08	0.00
Diplexer			0.00			1/2" Ice	0.39	0.12	0.01
(Verizon Existing)			0.00			1" Ice	0.47	0.17	0.01
(2) FD9R6004/2C-3L	B	From Leg	3.00	0.0000	140.00	No Ice	0.31	0.08	0.00
Diplexer			0.00			1/2" Ice	0.39	0.12	0.01
(Verizon Existing)			0.00			1" Ice	0.47	0.17	0.01
(2) FD9R6004/2C-3L	C	From Leg	3.00	0.0000	140.00	No Ice	0.31	0.08	0.00
Diplexer			0.00			1/2" Ice	0.39	0.12	0.01
(Verizon Existing)			0.00			1" Ice	0.47	0.17	0.01
RRH2x60-AWS	A	From Leg	3.00	0.0000	140.00	No Ice	3.36	2.03	0.06
(Verizon Existing)			-4.00			1/2" Ice	3.61	2.26	0.08
			0.00			1" Ice	3.88	2.50	0.11
RRH2x60-AWS	B	From Leg	3.00	0.0000	140.00	No Ice	3.36	2.03	0.06
(Verizon Existing)			-4.00			1/2" Ice	3.61	2.26	0.08
			0.00			1" Ice	3.88	2.50	0.11
RRH2x60-AWS	C	From Leg	3.00	0.0000	140.00	No Ice	3.36	2.03	0.06
(Verizon Existing)			-4.00			1/2" Ice	3.61	2.26	0.08

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
			0.00			1" Ice	3.88	2.50	0.11
RRH2x60-PCS	A	From Leg	3.00	0.0000	140.00	No Ice	2.15	1.35	0.06
(Verizon Existing)			4.00			1/2" Ice	2.34	1.50	0.07
			0.00			1" Ice	2.54	1.67	0.09
RRH2x60-PCS	B	From Leg	3.00	0.0000	140.00	No Ice	2.15	1.35	0.06
(Verizon Existing)			4.00			1/2" Ice	2.34	1.50	0.07
			0.00			1" Ice	2.54	1.67	0.09
RRH2x60-PCS	C	From Leg	3.00	0.0000	140.00	No Ice	2.15	1.35	0.06
(Verizon Existing)			4.00			1/2" Ice	2.34	1.50	0.07
			0.00			1" Ice	2.54	1.67	0.09
DB-T1-6Z-8AB-0Z	A	From Leg	1.00	0.0000	140.00	No Ice	4.80	2.00	0.04
(Verizon Existing)			0.00			1/2" Ice	5.07	2.19	0.08
			0.00			1" Ice	5.35	2.39	0.12
Pirod 12' T-Frame Sector	A	From Leg	1.00	0.0000	140.00	No Ice	13.60	13.60	0.47
Mount (1)			0.00			1/2" Ice	18.40	18.40	0.60
(Verizon Existing)			0.00			1" Ice	23.20	23.20	0.73
Pirod 12' T-Frame Sector	B	From Leg	1.00	0.0000	140.00	No Ice	13.60	13.60	0.47
Mount (1)			0.00			1/2" Ice	18.40	18.40	0.60
(Verizon Existing)			0.00			1" Ice	23.20	23.20	0.73
Pirod 12' T-Frame Sector	C	From Leg	1.00	0.0000	140.00	No Ice	13.60	13.60	0.47
Mount (1)			0.00			1/2" Ice	18.40	18.40	0.60
(Verizon Existing)			0.00			1" Ice	23.20	23.20	0.73

Truss-Leg Properties

Section Designation	Area in^2	Area Ice in^2	Self Weight K	Ice Weight K	Equiv. Diameter in	Equiv. Diameter Ice in	Leg Area in^2
Pirod 105245	1090.3344	3227.9386	0.64	1.10	7.5718	22.4162	5.3014
Pirod 105218	2425.3141	6337.1562	0.69	2.32	8.4212	22.0040	7.2158
Pirod 105218	2425.3141	6324.3704	0.69	2.31	8.4212	21.9596	7.2158
Pirod 105219	2597.9095	6382.3106	1.03	2.34	9.0205	22.1608	9.4248
Pirod 105220	2735.0688	6438.6748	1.20	2.37	9.4968	22.3565	11.9282
Pirod 105220	2735.0688	6421.0364	1.20	2.35	9.4968	22.2953	11.9282
Pirod 112743	3389.3479	8468.0848	1.68	4.34	11.7686	29.4031	14.7262
Pirod 112743	3389.3479	8444.1744	1.68	4.31	11.7686	29.3201	14.7262
Pirod 112744	3520.4700	8486.8986	1.88	4.16	12.2239	29.4684	17.8187
Pirod 112744	3520.4700	8448.8371	1.88	3.94	12.2239	29.3362	17.8187
Pirod 112745	3701.5410	8465.4463	2.15	3.68	12.8526	29.3939	21.2058
Pirod 112740	3701.5410	8355.4870	2.15	3.08	12.8526	29.0121	21.2058

Tower Pressures - No Ice

$G_H = 0.850$

Section Elevation ft	z ft	K_Z	q_z psf	A_G ft²	Face	A_F ft²	A_R ft²	A_{leg} ft²	Leg %	C_AA_A In Face ft²	C_AA_A Out Face ft²
T1	275.00	1.319	27	51.458	A	0.000	7.235	2.917	40.31	0.000	0.000
280.00-270.00					B	0.000	7.235		40.31	0.000	0.000
					C	0.000	7.943		36.72	7.920	0.000
T2	260.00	1.298	27	103.333	A	0.000	14.118	6.667	47.22	0.000	0.000
270.00-250.00					B	0.000	14.118		47.22	0.000	0.000
					C	0.000	16.232		41.07	15.840	0.000
T3	240.00	1.269	26	104.167	A	0.000	16.405	8.333	50.80	51.480	0.000
250.00-230.00					B	0.000	16.405		50.80	0.000	0.000
					C	0.000	18.850		44.21	15.840	0.000
T4	225.00	1.246	26	66.264	A	4.235	12.641	12.641	74.90	25.740	0.000
230.00-220.00					B	4.235	12.641		74.90	0.000	0.000
					C	4.235	12.641		74.90	7.920	0.000
T5	210.00	1.222	25	162.945	A	10.467	28.118	28.118	72.87	51.480	0.000
220.00-200.00					B	10.467	28.118		72.87	0.000	0.000
					C	10.467	28.118		72.87	15.840	0.000
T6	190.00	1.187	24	202.945	A	15.714	28.118	28.118	64.15	51.480	0.000
200.00-180.00					B	15.714	28.118		64.15	35.640	0.000
					C	15.714	28.118		64.15	33.660	0.000
T7	170.00	1.15	24	243.362	A	19.853	30.118	30.118	60.27	58.960	0.000
180.00-160.00					B	19.853	30.118		60.27	35.640	0.000
					C	19.853	30.118		60.27	87.120	0.000
T8	150.00	1.11	23	283.780	A	20.877	31.709	31.709	60.30	102.080	0.000
160.00-140.00					B	20.877	31.709		60.30	35.640	0.000
					C	20.877	31.709		60.30	89.520	0.000
T9	130.00	1.065	22	323.780	A	19.635	31.709	31.709	61.76	113.960	0.000
140.00-120.00					B	19.635	31.709		61.76	87.120	0.000
					C	19.635	31.709		61.76	89.520	0.000
T10	110.00	1.016	21	374.209	A	14.190	39.294	39.294	73.47	113.960	0.000
120.00-100.00					B	14.190	39.294		73.47	87.120	0.000
					C	14.190	39.294		73.47	89.520	0.000
T11	90.00	0.959	20	414.209	A	14.825	39.294	39.294	72.61	113.960	0.000
100.00-80.00					B	14.825	39.294		72.61	87.120	0.000
					C	14.825	39.294		72.61	89.520	0.000
T12	70.00	0.892	18	454.627	A	15.712	40.814	40.814	72.20	113.960	0.000
80.00-60.00					B	15.712	40.814		72.20	87.120	0.000
					C	15.712	40.814		72.20	89.520	0.000
T13	50.00	0.811	17	494.627	A	16.624	40.814	40.814	71.06	113.960	0.000
60.00-40.00					B	16.624	40.814		71.06	87.120	0.000
					C	16.624	40.814		71.06	89.520	0.000
T14	30.00	0.701	14	535.044	A	17.558	42.913	42.913	70.96	113.960	0.000
40.00-20.00					B	17.558	42.913		70.96	87.120	0.000
					C	17.558	42.913		70.96	89.520	0.000
T15 20.00-0.00	10.00	0.7	14	575.044	A	18.514	42.913	42.913	69.86	113.960	0.000
					B	18.514	42.913		69.86	87.120	0.000
					C	18.514	42.913		69.86	89.520	0.000

Tower Pressure - With Ice

G_H = 0.850

Section Elevation ft	z ft	K_Z	q_z psf	t_Z in	A_G ft²	Face	A_F ft²	A_R ft²	A_{leg} ft²	Leg %	C_AA_A In Face ft²	C_AA_A Out Face ft²
T1	275.00	1.319	7	1.8543	54.549	A	0.000	31.077	9.098	29.27	0.000	0.000
280.00-270.00						B	0.000	31.077		29.27	0.000	0.000

Section Elevation ft	z ft	K_Z	q_z psf	t_Z in	A_G ft²	Face	A_F ft²	A_R ft²	A_{leg} ft²	Leg %	C_AA_A In Face ft²	C_AA_A Out Face ft²
						C	0.000	34.785		26.15	17.056	0.000
T2	260.00	1.298	7	1.8439	109.480	A	0.000	57.177	18.959	33.16	0.000	0.000
270.00-250.00						B	0.000	57.177		33.16	0.000	0.000
						C	0.000	68.204		27.80	34.039	0.000
T3	240.00	1.269	7	1.8292	110.264	A	0.000	57.397	20.528	35.77	98.056	0.000
250.00-230.00						B	0.000	57.397		35.77	0.000	0.000
						C	0.000	70.068		29.30	33.935	0.000
T4	225.00	1.246	7	1.8174	69.297	A	4.235	43.580	37.423	78.27	48.968	0.000
230.00-220.00						B	4.235	43.580		78.27	0.000	0.000
						C	4.235	43.580		78.27	16.926	0.000
T5	210.00	1.222	7	1.8049	168.969	A	10.467	86.064	73.469	76.11	97.809	0.000
220.00-200.00						B	10.467	86.064		76.11	0.000	0.000
						C	10.467	86.064		76.11	33.764	0.000
T6	190.00	1.187	6	1.7870	208.909	A	15.714	92.041	73.321	68.04	97.626	0.000
200.00-180.00						B	15.714	92.041		68.04	47.638	0.000
						C	15.714	92.041		68.04	62.904	0.000
T7	170.00	1.15	6	1.7672	249.260	A	19.853	95.517	73.992	64.13	102.499	0.000
180.00-160.00						B	19.853	95.517		64.13	47.498	0.000
						C	19.853	95.517		64.13	102.353	0.000
T8	150.00	1.11	6	1.7452	289.604	A	20.877	95.465	74.646	64.16	121.853	0.000
160.00-140.00						B	20.877	95.465		64.16	47.342	0.000
						C	20.877	95.465		64.16	125.058	0.000
T9	130.00	1.065	6	1.7204	329.522	A	19.635	93.744	74.441	65.66	141.790	0.000
140.00-120.00						B	19.635	93.744		65.66	125.281	0.000
						C	19.635	93.744		65.66	124.435	0.000
T10	110.00	1.016	6	1.6919	379.856	A	14.190	111.893	98.173	77.86	141.175	0.000
120.00-100.00						B	14.190	111.893		77.86	124.782	0.000
						C	14.190	111.893		77.86	123.718	0.000
T11	90.00	0.959	5	1.6583	419.744	A	14.825	111.945	97.896	77.22	140.449	0.000
100.00-80.00						B	14.825	111.945		77.22	124.194	0.000
						C	14.825	111.945		77.22	122.873	0.000
T12 80.00-60.00	70.00	0.892	5	1.6171	460.024	A	15.712	112.911	98.392	76.50	139.561	0.000
						B	15.712	112.911		76.50	123.474	0.000
						C	15.712	112.911		76.50	121.838	0.000
T13 60.00-40.00	50.00	0.811	4	1.5636	499.845	A	16.624	112.804	97.950	75.68	138.406	0.000
						B	16.624	112.804		75.68	122.539	0.000
						C	16.624	112.804		75.68	120.493	0.000
T14 40.00-20.00	30.00	0.701	4	1.4858	540.002	A	17.558	113.050	98.143	75.14	136.727	0.000
						B	17.558	113.050		75.14	121.178	0.000
						C	17.558	113.050		75.14	118.536	0.000
T15 20.00-0.00	10.00	0.7	4	1.3312	579.487	A	18.514	110.952	96.868	74.82	133.394	0.000
						B	18.514	110.952		74.82	118.479	0.000
						C	18.514	110.952		74.82	114.651	0.000

Tower Pressure - Service

G_H = 0.850

Section Elevation ft	z ft	K_Z	q_z psf	A_G ft²	Face	A_F ft²	A_R ft²	A_{leg} ft²	Leg %	C_AA_A In Face ft²	C_AA_A Out Face ft²
T1	275.00	1.319	10	51.458	A	0.000	7.235	2.917	40.31	0.000	0.000
280.00-270.00					B	0.000	7.235		40.31	0.000	0.000
					C	0.000	7.943		36.72	7.920	0.000

Section Elevation ft	z ft	K_Z	q_z psf	A_G ft²	Face	A_F ft²	A_R ft²	A_{leg} ft²	Leg %	C_AA_A In Face ft²	C_AA_A Out Face ft²
T2	260.00	1.298	10	103.333	A	0.000	14.118	6.667	47.22	0.000	0.000
270.00-250.00					B	0.000	14.118		47.22	0.000	0.000
					C	0.000	16.232		41.07	15.840	0.000
T3	240.00	1.269	10	104.167	A	0.000	16.405	8.333	50.80	51.480	0.000
250.00-230.00					B	0.000	16.405		50.80	0.000	0.000
					C	0.000	18.850		44.21	15.840	0.000
T4	225.00	1.246	10	66.264	A	4.235	12.641	12.641	74.90	25.740	0.000
230.00-220.00					B	4.235	12.641		74.90	0.000	0.000
					C	4.235	12.641		74.90	7.920	0.000
T5	210.00	1.222	10	162.945	A	10.467	28.118	28.118	72.87	51.480	0.000
220.00-200.00					B	10.467	28.118		72.87	0.000	0.000
					C	10.467	28.118		72.87	15.840	0.000
T6	190.00	1.187	9	202.945	A	15.714	28.118	28.118	64.15	51.480	0.000
200.00-180.00					B	15.714	28.118		64.15	35.640	0.000
					C	15.714	28.118		64.15	33.660	0.000
T7	170.00	1.15	9	243.362	A	19.853	30.118	30.118	60.27	58.960	0.000
180.00-160.00					B	19.853	30.118		60.27	35.640	0.000
					C	19.853	30.118		60.27	87.120	0.000
T8	150.00	1.11	9	283.780	A	20.877	31.709	31.709	60.30	102.080	0.000
160.00-140.00					B	20.877	31.709		60.30	35.640	0.000
					C	20.877	31.709		60.30	89.520	0.000
T9	130.00	1.065	8	323.780	A	19.635	31.709	31.709	61.76	113.960	0.000
140.00-120.00					B	19.635	31.709		61.76	87.120	0.000
					C	19.635	31.709		61.76	89.520	0.000
T10	110.00	1.016	8	374.209	A	14.190	39.294	39.294	73.47	113.960	0.000
120.00-100.00					B	14.190	39.294		73.47	87.120	0.000
					C	14.190	39.294		73.47	89.520	0.000
T11	90.00	0.959	8	414.209	A	14.825	39.294	39.294	72.61	113.960	0.000
100.00-80.00					B	14.825	39.294		72.61	87.120	0.000
					C	14.825	39.294		72.61	89.520	0.000
T12	70.00	0.892	7	454.627	A	15.712	40.814	40.814	72.20	113.960	0.000
80.00-60.00					B	15.712	40.814		72.20	87.120	0.000
					C	15.712	40.814		72.20	89.520	0.000
T13	50.00	0.811	6	494.627	A	16.624	40.814	40.814	71.06	113.960	0.000
60.00-40.00					B	16.624	40.814		71.06	87.120	0.000
					C	16.624	40.814		71.06	89.520	0.000
T14	30.00	0.701	5	535.044	A	17.558	42.913	42.913	70.96	113.960	0.000
40.00-20.00					B	17.558	42.913		70.96	87.120	0.000
					C	17.558	42.913		70.96	89.520	0.000
T15 20.00-0.00	10.00	0.7	5	575.044	A	18.514	42.913	42.913	69.86	113.960	0.000
					B	18.514	42.913		69.86	87.120	0.000
					C	18.514	42.913		69.86	89.520	0.000

Tower Forces - No Ice - Wind Normal To Face

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z psf	D_F	D_R	A_E ft²	F K	w plf	Ctrl. Face
T1	0.04	0.66	A	0.141	2.806	27	1	1	4.100	0.39	39.46	C
280.00-270.00			B	0.141	2.806		1	1	4.100			
			C	0.154	2.756		1	1	4.512			
T2	0.08	1.37	A	0.137	2.821	27	1	1	7.995	0.79	39.35	C
270.00-250.00			B	0.137	2.821		1	1	7.995			
			C	0.157	2.746		1	1	9.225			
T3	0.37	1.91	A	0.157	2.744	26	1	1	9.323	1.53	76.25	C
250.00-230.00			B	0.157	2.744		1	1	9.323			

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z psf	D_F	D_R	A_E ft^2	F K	w plf	Ctrl. Face
			C	0.181	2.661		1	1	10.771			
T4	0.19	1.18	A	0.255	2.424	26	1	1	11.644	1.05	104.98	C
230.00-220.00			B	0.255	2.424		1	1	11.644			
			C	0.255	2.424		1	1	11.644			
T5	0.37	2.61	A	0.237	2.478	25	1	1	26.828	2.27	113.59	C
220.00-200.00			B	0.237	2.478		1	1	26.828			
			C	0.237	2.478		1	1	26.828			
T6	0.65	2.85	A	0.216	2.543	24	1	1	31.951	3.18	158.81	C
200.00-180.00			B	0.216	2.543		1	1	31.951			
			C	0.216	2.543		1	1	31.951			
T7	0.98	4.60	A	0.205	2.578	24	1	1	37.184	4.10	205.04	C
180.00-160.00			B	0.205	2.578		1	1	37.184			
			C	0.205	2.578		1	1	37.184			
T8	1.23	5.27	A	0.185	2.646	23	1	1	39.016	4.63	231.31	C
160.00-140.00			B	0.185	2.646		1	1	39.016			
			C	0.185	2.646		1	1	39.016			
T9	1.58	5.15	A	0.159	2.74	22	1	1	37.660	5.15	257.25	C
140.00-120.00			B	0.159	2.74		1	1	37.660			
			C	0.159	2.74		1	1	37.660			
T10	1.58	7.28	A	0.143	2.798	21	1	1	36.464	4.88	244.22	C
120.00-100.00			B	0.143	2.798		1	1	36.464			
			C	0.143	2.798		1	1	36.464			
T11	1.58	7.40	A	0.131	2.844	20	1	1	37.060	4.67	233.43	C
100.00-80.00			B	0.131	2.844		1	1	37.060			
			C	0.131	2.844		1	1	37.060			
T12	1.58	8.13	A	0.124	2.868	18	1	1	38.789	4.44	221.81	C
80.00-60.00			B	0.124	2.868		1	1	38.789			
			C	0.124	2.868		1	1	38.789			
T13	1.58	8.26	A	0.116	2.9	17	1	1	39.682	4.08	204.17	C
60.00-40.00			B	0.116	2.9		1	1	39.682			
			C	0.116	2.9		1	1	39.682			
T14	1.58	9.20	A	0.113	2.912	14	1	1	41.796	3.61	180.50	C
40.00-20.00			B	0.113	2.912		1	1	41.796			
			C	0.113	2.912		1	1	41.796			
T15	1.58	9.34	A	0.107	2.937	14	1	1	42.742	3.65	182.66	C
20.00-0.00			B	0.107	2.937		1	1	42.742			
			C	0.107	2.937		1	1	42.742			
Sum Weight:	14.99	75.22						OTM	5672.83 kip-ft	48.41		

Tower Forces - No Ice - Wind 45 To Face

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z psf	D_F	D_R	A_E ft^2	F K	w plf	Ctrl. Face
T1	0.04	0.66	A	0.141	2.806	27	0.825	1	4.100	0.39	39.46	C
280.00-270.00			B	0.141	2.806		0.825	1	4.100			
			C	0.154	2.756		0.825	1	4.512			
T2	0.08	1.37	A	0.137	2.821	27	0.825	1	7.995	0.79	39.35	C
270.00-250.00			B	0.137	2.821		0.825	1	7.995			
			C	0.157	2.746		0.825	1	9.225			
T3	0.37	1.91	A	0.157	2.744	26	0.825	1	9.323	1.53	76.25	C
250.00-230.00			B	0.157	2.744		0.825	1	9.323			

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z psf	D_F	D_R	A_E ft^2	F K	w plf	Ctrl. Face
			C	0.181	2.661		0.825	1	10.771			
T4	0.19	1.18	A	0.255	2.424	26	0.825	1	10.903	1.01	101.08	C
230.00-220.00			B	0.255	2.424		0.825	1	10.903			
			C	0.255	2.424		0.825	1	10.903			
T5	0.37	2.61	A	0.237	2.478	25	0.825	1	24.996	2.18	108.77	C
220.00-200.00			B	0.237	2.478		0.825	1	24.996			
			C	0.237	2.478		0.825	1	24.996			
T6	0.65	2.85	A	0.216	2.543	24	0.825	1	29.201	3.03	151.58	C
200.00-180.00			B	0.216	2.543		0.825	1	29.201			
			C	0.216	2.543		0.825	1	29.201			
T7	0.98	4.60	A	0.205	2.578	24	0.825	1	33.710	3.92	196.08	C
180.00-160.00			B	0.205	2.578		0.825	1	33.710			
			C	0.205	2.578		0.825	1	33.710			
T8	1.23	5.27	A	0.185	2.646	23	0.825	1	35.362	4.44	221.98	C
160.00-140.00			B	0.185	2.646		0.825	1	35.362			
			C	0.185	2.646		0.825	1	35.362			
T9	1.58	5.15	A	0.159	2.74	22	0.825	1	34.224	4.97	248.52	C
140.00-120.00			B	0.159	2.74		0.825	1	34.224			
			C	0.159	2.74		0.825	1	34.224			
T10	1.58	7.28	A	0.143	2.798	21	0.825	1	33.981	4.76	238.08	C
120.00-100.00			B	0.143	2.798		0.825	1	33.981			
			C	0.143	2.798		0.825	1	33.981			
T11	1.58	7.40	A	0.131	2.844	20	0.825	1	34.466	4.55	227.27	C
100.00-80.00			B	0.131	2.844		0.825	1	34.466			
			C	0.131	2.844		0.825	1	34.466			
T12	1.58	8.13	A	0.124	2.868	18	0.825	1	36.040	4.31	215.68	C
80.00-60.00			B	0.124	2.868		0.825	1	36.040			
			C	0.124	2.868		0.825	1	36.040			
T13	1.58	8.26	A	0.116	2.9	17	0.825	1	36.773	3.96	198.22	C
60.00-40.00			B	0.116	2.9		0.825	1	36.773			
			C	0.116	2.9		0.825	1	36.773			
T14	1.58	9.20	A	0.113	2.912	14	0.825	1	38.724	3.50	175.04	C
40.00-20.00			B	0.113	2.912		0.825	1	38.724			
			C	0.113	2.912		0.825	1	38.724			
T15	1.58	9.34	A	0.107	2.937	14	0.825	1	39.502	3.54	176.86	C
20.00-0.00			B	0.107	2.937		0.825	1	39.502			
			C	0.107	2.937		0.825	1	39.502			
Sum Weight:	14.99	75.22						OTM	5491.64 kip-ft	46.88		

Tower Forces - No Ice - Wind 60 To Face

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z psf	D_F	D_R	A_E ft^2	F K	w plf	Ctrl. Face
T1	0.04	0.66	A	0.141	2.806	27	0.8	1	4.100	0.39	39.46	C
280.00-270.00			B	0.141	2.806		0.8	1	4.100			
			C	0.154	2.756		0.8	1	4.512			
T2	0.08	1.37	A	0.137	2.821	27	0.8	1	7.995	0.79	39.35	C
270.00-250.00			B	0.137	2.821		0.8	1	7.995			
			C	0.157	2.746		0.8	1	9.225			
T3	0.37	1.91	A	0.157	2.744	26	0.8	1	9.323	1.53	76.25	C
250.00-230.00			B	0.157	2.744		0.8	1	9.323			

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z psf	D_F	D_R	A_E ft²	F K	w plf	Ctrl. Face
			C	0.181	2.661		0.8	1	10.771			
T4	0.19	1.18	A	0.255	2.424	26	0.8	1	10.797	1.01	100.53	C
230.00-220.00			B	0.255	2.424		0.8	1	10.797			
			C	0.255	2.424		0.8	1	10.797			
T5	0.37	2.61	A	0.237	2.478	25	0.8	1	24.735	2.16	108.08	C
220.00-200.00			B	0.237	2.478		0.8	1	24.735			
			C	0.237	2.478		0.8	1	24.735			
T6	0.65	2.85	A	0.216	2.543	24	0.8	1	28.808	3.01	150.55	C
200.00-180.00			B	0.216	2.543		0.8	1	28.808			
			C	0.216	2.543		0.8	1	28.808			
T7	0.98	4.60	A	0.205	2.578	24	0.8	1	33.214	3.90	194.80	C
180.00-160.00			B	0.205	2.578		0.8	1	33.214			
			C	0.205	2.578		0.8	1	33.214			
T8	1.23	5.27	A	0.185	2.646	23	0.8	1	34.840	4.41	220.65	C
160.00-140.00			B	0.185	2.646		0.8	1	34.840			
			C	0.185	2.646		0.8	1	34.840			
T9	1.58	5.15	A	0.159	2.74	22	0.8	1	33.733	4.95	247.28	C
140.00-120.00			B	0.159	2.74		0.8	1	33.733			
			C	0.159	2.74		0.8	1	33.733			
T10	1.58	7.28	A	0.143	2.798	21	0.8	1	33.626	4.74	237.20	C
120.00-100.00			B	0.143	2.798		0.8	1	33.626			
			C	0.143	2.798		0.8	1	33.626			
T11	1.58	7.40	A	0.131	2.844	20	0.8	1	34.095	4.53	226.39	C
100.00-80.00			B	0.131	2.844		0.8	1	34.095			
			C	0.131	2.844		0.8	1	34.095			
T12	1.58	8.13	A	0.124	2.868	18	0.8	1	35.647	4.30	214.81	C
80.00-60.00			B	0.124	2.868		0.8	1	35.647			
			C	0.124	2.868		0.8	1	35.647			
T13	1.58	8.26	A	0.116	2.9	17	0.8	1	36.357	3.95	197.37	C
60.00-40.00			B	0.116	2.9		0.8	1	36.357			
			C	0.116	2.9		0.8	1	36.357			
T14	1.58	9.20	A	0.113	2.912	14	0.8	1	38.285	3.49	174.26	C
40.00-20.00			B	0.113	2.912		0.8	1	38.285			
			C	0.113	2.912		0.8	1	38.285			
T15	1.58	9.34	A	0.107	2.937	14	0.8	1	39.039	3.52	176.03	C
20.00-0.00			B	0.107	2.937		0.8	1	39.039			
			C	0.107	2.937		0.8	1	39.039			
Sum Weight:	14.99	75.22						OTM	5465.75 kip-ft	46.66		

Tower Forces - No Ice - Wind 90 To Face

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z psf	D_F	D_R	A_E ft²	F K	w plf	Ctrl. Face
T1	0.04	0.66	A	0.141	2.806	27	0.85	1	4.100	0.39	39.46	C
280.00-270.00			B	0.141	2.806		0.85	1	4.100			
			C	0.154	2.756		0.85	1	4.512			
T2	0.08	1.37	A	0.137	2.821	27	0.85	1	7.995	0.79	39.35	C
270.00-250.00			B	0.137	2.821		0.85	1	7.995			
			C	0.157	2.746		0.85	1	9.225			
T3	0.37	1.91	A	0.157	2.744	26	0.85	1	9.323	1.53	76.25	C
250.00-230.00			B	0.157	2.744		0.85	1	9.323			

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z psf	D_F	D_R	A_E ft^2	F K	w plf	Ctrl. Face
			C	0.181	2.661		0.85	1	10.771			
T4	0.19	1.18	A	0.255	2.424	26	0.85	1	11.009	1.02	101.64	C
230.00-220.00			B	0.255	2.424		0.85	1	11.009			
			C	0.255	2.424		0.85	1	11.009			
T5	0.37	2.61	A	0.237	2.478	25	0.85	1	25.258	2.19	109.46	C
220.00-200.00			B	0.237	2.478		0.85	1	25.258			
			C	0.237	2.478		0.85	1	25.258			
T6	0.65	2.85	A	0.216	2.543	24	0.85	1	29.594	3.05	152.61	C
200.00-180.00			B	0.216	2.543		0.85	1	29.594			
			C	0.216	2.543		0.85	1	29.594			
T7	0.98	4.60	A	0.205	2.578	24	0.85	1	34.206	3.95	197.36	C
180.00-160.00			B	0.205	2.578		0.85	1	34.206			
			C	0.205	2.578		0.85	1	34.206			
T8	1.23	5.27	A	0.185	2.646	23	0.85	1	35.884	4.47	223.31	C
160.00-140.00			B	0.185	2.646		0.85	1	35.884			
			C	0.185	2.646		0.85	1	35.884			
T9	1.58	5.15	A	0.159	2.74	22	0.85	1	34.715	5.00	249.77	C
140.00-120.00			B	0.159	2.74		0.85	1	34.715			
			C	0.159	2.74		0.85	1	34.715			
T10	1.58	7.28	A	0.143	2.798	21	0.85	1	34.336	4.78	238.96	C
120.00-100.00			B	0.143	2.798		0.85	1	34.336			
			C	0.143	2.798		0.85	1	34.336			
T11	1.58	7.40	A	0.131	2.844	20	0.85	1	34.836	4.56	228.15	C
100.00-80.00			B	0.131	2.844		0.85	1	34.836			
			C	0.131	2.844		0.85	1	34.836			
T12	1.58	8.13	A	0.124	2.868	18	0.85	1	36.432	4.33	216.56	C
80.00-60.00			B	0.124	2.868		0.85	1	36.432			
			C	0.124	2.868		0.85	1	36.432			
T13	1.58	8.26	A	0.116	2.9	17	0.85	1	37.188	3.98	199.07	C
60.00-40.00			B	0.116	2.9		0.85	1	37.188			
			C	0.116	2.9		0.85	1	37.188			
T14	1.58	9.20	A	0.113	2.912	14	0.85	1	39.163	3.52	175.82	C
40.00-20.00			B	0.113	2.912		0.85	1	39.163			
			C	0.113	2.912		0.85	1	39.163			
T15	1.58	9.34	A	0.107	2.937	14	0.85	1	39.965	3.55	177.69	C
20.00-0.00			B	0.107	2.937		0.85	1	39.965			
			C	0.107	2.937		0.85	1	39.965			
Sum Weight:	14.99	75.22						OTM	5517.52 kip-ft	47.10		

Tower Forces - With Ice - Wind Normal To Face

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z psf	D_F	D_R	A_E ft^2	F K	w plf	Ctrl. Face
T1	0.33	2.07	A	0.57	1.826	7	1	1	22.531	0.34	33.59	C
280.00-270.00			B	0.57	1.826		1	1	22.531			
			C	0.638	1.785		1	1	26.722			
T2	0.65	3.99	A	0.522	1.873	7	1	1	39.868	0.65	32.71	C
270.00-250.00			B	0.522	1.873		1	1	39.868			
			C	0.623	1.792		1	1	51.734			
T3	2.76	4.59	A	0.521	1.875	7	1	1	39.965	0.93	46.73	C
250.00-230.00			B	0.521	1.875		1	1	39.965			

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z psf	D_F	D_R	A_E ft²	F K	w plf	Ctrl. Face
			C	0.635	1.786		1	1	53.723			
T4	1.37	3.64	A	0.69	1.776	7	1	1	39.274	0.52	51.95	C
230.00-220.00			B	0.69	1.776		1	1	39.274			
			C	0.69	1.776		1	1	39.274			
T5	2.73	11.52	A	0.571	1.825	7	1	1	72.945	1.07	53.52	C
220.00-200.00			B	0.571	1.825		1	1	72.945			
			C	0.571	1.825		1	1	72.945			
T6	4.73	12.58	A	0.516	1.88	6	1	1	79.559	1.37	68.72	C
200.00-180.00			B	0.516	1.88		1	1	79.559			
			C	0.516	1.88		1	1	79.559			
T7	6.81	14.95	A	0.463	1.953	6	1	1	83.433	1.59	79.36	C
180.00-160.00			B	0.463	1.953		1	1	83.433			
			C	0.463	1.953		1	1	83.433			
T8	8.44	15.70	A	0.402	2.061	6	1	1	81.687	1.77	88.34	C
160.00-140.00			B	0.402	2.061		1	1	81.687			
			C	0.402	2.061		1	1	81.687			
T9	10.78	15.25	A	0.344	2.185	6	1	1	77.181	1.99	99.39	C
140.00-120.00			B	0.344	2.185		1	1	77.181			
			C	0.344	2.185		1	1	77.181			
T10	10.68	23.15	A	0.332	2.215	6	1	1	82.389	1.95	97.73	C
120.00-100.00			B	0.332	2.215		1	1	82.389			
			C	0.332	2.215		1	1	82.389			
T11	10.58	23.27	A	0.302	2.291	5	1	1	81.942	1.86	93.16	C
100.00-80.00			B	0.302	2.291		1	1	81.942			
			C	0.302	2.291		1	1	81.942			
T12	10.45	23.61	A	0.28	2.352	5	1	1	82.650	1.76	87.76	C
80.00-60.00			B	0.28	2.352		1	1	82.650			
			C	0.28	2.352		1	1	82.650			
T13	10.28	23.08	A	0.259	2.411	4	1	1	82.867	1.61	80.34	C
60.00-40.00			B	0.259	2.411		1	1	82.867			
			C	0.259	2.411		1	1	82.867			
T14	10.03	23.22	A	0.242	2.462	4	1	1	83.473	1.40	69.87	C
40.00-20.00			B	0.242	2.462		1	1	83.473			
			C	0.242	2.462		1	1	83.473			
T15	9.56	21.32	A	0.223	2.52	4	1	1	82.752	1.39	69.34	C
20.00-0.00			B	0.223	2.52		1	1	82.752			
			C	0.223	2.52		1	1	82.752			
Sum Weight:	100.18	221.94						OTM	2524.50 kip-ft	20.19		

Tower Forces - With Ice - Wind 45 To Face

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z psf	D_F	D_R	A_E ft²	F K	w plf	Ctrl. Face
T1	0.33	2.07	A	0.57	1.826	7	0.825	1	22.531	0.34	33.59	C
280.00-270.00			B	0.57	1.826		0.825	1	22.531			
			C	0.638	1.785		0.825	1	26.722			
T2	0.65	3.99	A	0.522	1.873	7	0.825	1	39.868	0.65	32.71	C
270.00-250.00			B	0.522	1.873		0.825	1	39.868			
			C	0.623	1.792		0.825	1	51.734			
T3	2.76	4.59	A	0.521	1.875	7	0.825	1	39.965	0.93	46.73	C
250.00-230.00			B	0.521	1.875		0.825	1	39.965			

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z psf	D_F	D_R	A_E ft²	F K	w plf	Ctrl. Face
			C	0.635	1.786		0.825	1	53.723			
T4	1.37	3.64	A	0.69	1.776	7	0.825	1	38.533	0.51	51.19	C
230.00-220.00			B	0.69	1.776		0.825	1	38.533			
			C	0.69	1.776		0.825	1	38.533			
T5	2.73	11.52	A	0.571	1.825	7	0.825	1	71.114	1.05	52.58	C
220.00-200.00			B	0.571	1.825		0.825	1	71.114			
			C	0.571	1.825		0.825	1	71.114			
T6	4.73	12.58	A	0.516	1.88	6	0.825	1	76.809	1.35	67.30	C
200.00-180.00			B	0.516	1.88		0.825	1	76.809			
			C	0.516	1.88		0.825	1	76.809			
T7	6.81	14.95	A	0.463	1.953	6	0.825	1	79.959	1.55	77.56	C
180.00-160.00			B	0.463	1.953		0.825	1	79.959			
			C	0.463	1.953		0.825	1	79.959			
T8	8.44	15.70	A	0.402	2.061	6	0.825	1	78.033	1.73	86.41	C
160.00-140.00			B	0.402	2.061		0.825	1	78.033			
			C	0.402	2.061		0.825	1	78.033			
T9	10.78	15.25	A	0.344	2.185	6	0.825	1	73.745	1.95	97.54	C
140.00-120.00			B	0.344	2.185		0.825	1	73.745			
			C	0.344	2.185		0.825	1	73.745			
T10	10.68	23.15	A	0.332	2.215	6	0.825	1	79.906	1.93	96.44	C
120.00-100.00			B	0.332	2.215		0.825	1	79.906			
			C	0.332	2.215		0.825	1	79.906			
T11	10.58	23.27	A	0.302	2.291	5	0.825	1	79.348	1.84	91.84	C
100.00-80.00			B	0.302	2.291		0.825	1	79.348			
			C	0.302	2.291		0.825	1	79.348			
T12	10.45	23.61	A	0.28	2.352	5	0.825	1	79.900	1.73	86.42	C
80.00-60.00			B	0.28	2.352		0.825	1	79.900			
			C	0.28	2.352		0.825	1	79.900			
T13	10.28	23.08	A	0.259	2.411	4	0.825	1	79.957	1.58	79.03	C
60.00-40.00			B	0.259	2.411		0.825	1	79.957			
			C	0.259	2.411		0.825	1	79.957			
T14	10.03	23.22	A	0.242	2.462	4	0.825	1	80.400	1.37	68.65	C
40.00-20.00			B	0.242	2.462		0.825	1	80.400			
			C	0.242	2.462		0.825	1	80.400			
T15	9.56	21.32	A	0.223	2.52	4	0.825	1	79.512	1.36	68.01	C
20.00-0.00			B	0.223	2.52		0.825	1	79.512			
			C	0.223	2.52		0.825	1	79.512			
Sum Weight:	100.18	221.94						OTM	2487.31 kip-ft	19.87		

Tower Forces - With Ice - Wind 60 To Face

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z psf	D_F	D_R	A_E ft²	F K	w plf	Ctrl. Face
T1	0.33	2.07	A	0.57	1.826	7	0.8	1	22.531	0.34	33.59	C
280.00-270.00			B	0.57	1.826		0.8	1	22.531			
			C	0.638	1.785		0.8	1	26.722			
T2	0.65	3.99	A	0.522	1.873	7	0.8	1	39.868	0.65	32.71	C
270.00-250.00			B	0.522	1.873		0.8	1	39.868			
			C	0.623	1.792		0.8	1	51.734			
T3	2.76	4.59	A	0.521	1.875	7	0.8	1	39.965	0.93	46.73	C
250.00-230.00			B	0.521	1.875		0.8	1	39.965			

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z psf	D_F	D_R	A_E ft²	F K	w plf	Ctrl. Face
			C	0.635	1.786		0.8	1	53.723			
T4	1.37	3.64	A	0.69	1.776	7	0.8	1	38.427	0.51	51.08	C
230.00-220.00			B	0.69	1.776		0.8	1	38.427			
			C	0.69	1.776		0.8	1	38.427			
T5	2.73	11.52	A	0.571	1.825	7	0.8	1	70.852	1.05	52.44	C
220.00-200.00			B	0.571	1.825		0.8	1	70.852			
			C	0.571	1.825		0.8	1	70.852			
T6	4.73	12.58	A	0.516	1.88	6	0.8	1	76.416	1.34	67.10	C
200.00-180.00			B	0.516	1.88		0.8	1	76.416			
			C	0.516	1.88		0.8	1	76.416			
T7	6.81	14.95	A	0.463	1.953	6	0.8	1	79.462	1.55	77.30	C
180.00-160.00			B	0.463	1.953		0.8	1	79.462			
			C	0.463	1.953		0.8	1	79.462			
T8	8.44	15.70	A	0.402	2.061	6	0.8	1	77.512	1.72	86.14	C
160.00-140.00			B	0.402	2.061		0.8	1	77.512			
			C	0.402	2.061		0.8	1	77.512			
T9	10.78	15.25	A	0.344	2.185	6	0.8	1	73.254	1.95	97.27	C
140.00-120.00			B	0.344	2.185		0.8	1	73.254			
			C	0.344	2.185		0.8	1	73.254			
T10	10.68	23.15	A	0.332	2.215	6	0.8	1	79.551	1.93	96.26	C
120.00-100.00			B	0.332	2.215		0.8	1	79.551			
			C	0.332	2.215		0.8	1	79.551			
T11	10.58	23.27	A	0.302	2.291	5	0.8	1	78.977	1.83	91.66	C
100.00-80.00			B	0.302	2.291		0.8	1	78.977			
			C	0.302	2.291		0.8	1	78.977			
T12	10.45	23.61	A	0.28	2.352	5	0.8	1	79.508	1.72	86.23	C
80.00-60.00			B	0.28	2.352		0.8	1	79.508			
			C	0.28	2.352		0.8	1	79.508			
T13	10.28	23.08	A	0.259	2.411	4	0.8	1	79.542	1.58	78.84	C
60.00-40.00			B	0.259	2.411		0.8	1	79.542			
			C	0.259	2.411		0.8	1	79.542			
T14	10.03	23.22	A	0.242	2.462	4	0.8	1	79.961	1.37	68.47	C
40.00-20.00			B	0.242	2.462		0.8	1	79.961			
			C	0.242	2.462		0.8	1	79.961			
T15	9.56	21.32	A	0.223	2.52	4	0.8	1	79.049	1.36	67.83	C
20.00-0.00			B	0.223	2.52		0.8	1	79.049			
			C	0.223	2.52		0.8	1	79.049			
Sum Weight:	100.18	221.94						OTM	2481.99 kip-ft	19.83		

Tower Forces - With Ice - Wind 90 To Face

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z psf	D_F	D_R	A_E ft²	F K	w plf	Ctrl. Face
T1	0.33	2.07	A	0.57	1.826	7	0.85	1	22.531	0.34	33.59	C
280.00-270.00			B	0.57	1.826		0.85	1	22.531			
			C	0.638	1.785		0.85	1	26.722			
T2	0.65	3.99	A	0.522	1.873	7	0.85	1	39.868	0.65	32.71	C
270.00-250.00			B	0.522	1.873		0.85	1	39.868			
			C	0.623	1.792		0.85	1	51.734			
T3	2.76	4.59	A	0.521	1.875	7	0.85	1	39.965	0.93	46.73	C
250.00-230.00			B	0.521	1.875		0.85	1	39.965			

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z psf	D_F	D_R	A_E ft²	F K	w plf	Ctrl. Face
			C	0.635	1.786		0.85	1	53.723			
T4	1.37	3.64	A	0.69	1.776	7	0.85	1	38.638	0.51	51.30	C
230.00-220.00			B	0.69	1.776		0.85	1	38.638			
			C	0.69	1.776		0.85	1	38.638			
T5	2.73	11.52	A	0.571	1.825	7	0.85	1	71.375	1.05	52.71	C
220.00-200.00			B	0.571	1.825		0.85	1	71.375			
			C	0.571	1.825		0.85	1	71.375			
T6	4.73	12.58	A	0.516	1.88	6	0.85	1	77.202	1.35	67.51	C
200.00-180.00			B	0.516	1.88		0.85	1	77.202			
			C	0.516	1.88		0.85	1	77.202			
T7	6.81	14.95	A	0.463	1.953	6	0.85	1	80.455	1.56	77.82	C
180.00-160.00			B	0.463	1.953		0.85	1	80.455			
			C	0.463	1.953		0.85	1	80.455			
T8	8.44	15.70	A	0.402	2.061	6	0.85	1	78.555	1.73	86.69	C
160.00-140.00			B	0.402	2.061		0.85	1	78.555			
			C	0.402	2.061		0.85	1	78.555			
T9	10.78	15.25	A	0.344	2.185	6	0.85	1	74.236	1.96	97.80	C
140.00-120.00			B	0.344	2.185		0.85	1	74.236			
			C	0.344	2.185		0.85	1	74.236			
T10	10.68	23.15	A	0.332	2.215	6	0.85	1	80.260	1.93	96.63	C
120.00-100.00			B	0.332	2.215		0.85	1	80.260			
			C	0.332	2.215		0.85	1	80.260			
T11	10.58	23.27	A	0.302	2.291	5	0.85	1	79.718	1.84	92.03	C
100.00-80.00			B	0.302	2.291		0.85	1	79.718			
			C	0.302	2.291		0.85	1	79.718			
T12	10.45	23.61	A	0.28	2.352	5	0.85	1	80.293	1.73	86.61	C
80.00-60.00			B	0.28	2.352		0.85	1	80.293			
			C	0.28	2.352		0.85	1	80.293			
T13	10.28	23.08	A	0.259	2.411	4	0.85	1	80.373	1.58	79.22	C
60.00-40.00			B	0.259	2.411		0.85	1	80.373			
			C	0.259	2.411		0.85	1	80.373			
T14	10.03	23.22	A	0.242	2.462	4	0.85	1	80.839	1.38	68.82	C
40.00-20.00			B	0.242	2.462		0.85	1	80.839			
			C	0.242	2.462		0.85	1	80.839			
T15	9.56	21.32	A	0.223	2.52	4	0.85	1	79.975	1.36	68.20	C
20.00-0.00			B	0.223	2.52		0.85	1	79.975			
			C	0.223	2.52		0.85	1	79.975			
Sum Weight:	100.18	221.94						OTM	2492.62 kip-ft	19.92		

Tower Forces - Service - Wind Normal To Face

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z psf	D_F	D_R	A_E ft²	F K	w plf	Ctrl. Face
T1	0.04	0.66	A	0.141	2.806	10	1	1	4.100	0.15	15.10	C
280.00-270.00			B	0.141	2.806		1	1	4.100			
			C	0.154	2.756		1	1	4.512			
T2	0.08	1.37	A	0.137	2.821	10	1	1	7.995	0.30	15.06	C
270.00-250.00			B	0.137	2.821		1	1	7.995			
			C	0.157	2.746		1	1	9.225			
T3	0.37	1.91	A	0.157	2.744	10	1	1	9.323	0.58	29.18	C
250.00-230.00			B	0.157	2.744		1	1	9.323			

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z psf	D_F	D_R	A_E ft²	F K	w plf	Ctrl. Face
			C	0.181	2.661		1	1	10.771			
T4	0.19	1.18	A	0.255	2.424	10	1	1	11.644	0.40	40.17	C
230.00-220.00			B	0.255	2.424		1	1	11.644			
			C	0.255	2.424		1	1	11.644			
T5	0.37	2.61	A	0.237	2.478	10	1	1	26.828	0.87	43.46	C
220.00-200.00			B	0.237	2.478		1	1	26.828			
			C	0.237	2.478		1	1	26.828			
T6	0.65	2.85	A	0.216	2.543	9	1	1	31.951	1.22	60.76	C
200.00-180.00			B	0.216	2.543		1	1	31.951			
			C	0.216	2.543		1	1	31.951			
T7	0.98	4.60	A	0.205	2.578	9	1	1	37.184	1.57	78.45	C
180.00-160.00			B	0.205	2.578		1	1	37.184			
			C	0.205	2.578		1	1	37.184			
T8	1.23	5.27	A	0.185	2.646	9	1	1	39.016	1.77	88.50	C
160.00-140.00			B	0.185	2.646		1	1	39.016			
			C	0.185	2.646		1	1	39.016			
T9	1.58	5.15	A	0.159	2.74	8	1	1	37.660	1.97	98.43	C
140.00-120.00			B	0.159	2.74		1	1	37.660			
			C	0.159	2.74		1	1	37.660			
T10	1.58	7.28	A	0.143	2.798	8	1	1	36.464	1.87	93.44	C
120.00-100.00			B	0.143	2.798		1	1	36.464			
			C	0.143	2.798		1	1	36.464			
T11	1.58	7.40	A	0.131	2.844	8	1	1	37.060	1.79	89.31	C
100.00-80.00			B	0.131	2.844		1	1	37.060			
			C	0.131	2.844		1	1	37.060			
T12	1.58	8.13	A	0.124	2.868	7	1	1	38.789	1.70	84.87	C
80.00-60.00			B	0.124	2.868		1	1	38.789			
			C	0.124	2.868		1	1	38.789			
T13	1.58	8.26	A	0.116	2.9	6	1	1	39.682	1.56	78.12	C
60.00-40.00			B	0.116	2.9		1	1	39.682			
			C	0.116	2.9		1	1	39.682			
T14	1.58	9.20	A	0.113	2.912	5	1	1	41.796	1.38	69.06	C
40.00-20.00			B	0.113	2.912		1	1	41.796			
			C	0.113	2.912		1	1	41.796			
T15	1.58	9.34	A	0.107	2.937	5	1	1	42.742	1.40	69.89	C
20.00-0.00			B	0.107	2.937		1	1	42.742			
			C	0.107	2.937		1	1	42.742			
Sum Weight:	14.99	75.22						OTM	2170.49 kip-ft	18.52		

Tower Forces - Service - Wind 45 To Face

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z psf	D_F	D_R	A_E ft²	F K	w plf	Ctrl. Face
T1	0.04	0.66	A	0.141	2.806	10	0.825	1	4.100	0.15	15.10	C
280.00-270.00			B	0.141	2.806		0.825	1	4.100			
			C	0.154	2.756		0.825	1	4.512			
T2	0.08	1.37	A	0.137	2.821	10	0.825	1	7.995	0.30	15.06	C
270.00-250.00			B	0.137	2.821		0.825	1	7.995			
			C	0.157	2.746		0.825	1	9.225			
T3	0.37	1.91	A	0.157	2.744	10	0.825	1	9.323	0.58	29.18	C
250.00-230.00			B	0.157	2.744		0.825	1	9.323			

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z psf	D_F	D_R	A_E ft^2	F K	w plf	Ctrl. Face
			C	0.181	2.661		0.825	1	10.771			
T4	0.19	1.18	A	0.255	2.424	10	0.825	1	10.903	0.39	38.68	C
230.00-220.00			B	0.255	2.424		0.825	1	10.903			
			C	0.255	2.424		0.825	1	10.903			
T5	0.37	2.61	A	0.237	2.478	10	0.825	1	24.996	0.83	41.62	C
220.00-200.00			B	0.237	2.478		0.825	1	24.996			
			C	0.237	2.478		0.825	1	24.996			
T6	0.65	2.85	A	0.216	2.543	9	0.825	1	29.201	1.16	58.00	C
200.00-180.00			B	0.216	2.543		0.825	1	29.201			
			C	0.216	2.543		0.825	1	29.201			
T7	0.98	4.60	A	0.205	2.578	9	0.825	1	33.710	1.50	75.02	C
180.00-160.00			B	0.205	2.578		0.825	1	33.710			
			C	0.205	2.578		0.825	1	33.710			
T8	1.23	5.27	A	0.185	2.646	9	0.825	1	35.362	1.70	84.93	C
160.00-140.00			B	0.185	2.646		0.825	1	35.362			
			C	0.185	2.646		0.825	1	35.362			
T9	1.58	5.15	A	0.159	2.74	8	0.825	1	34.224	1.90	95.09	C
140.00-120.00			B	0.159	2.74		0.825	1	34.224			
			C	0.159	2.74		0.825	1	34.224			
T10	1.58	7.28	A	0.143	2.798	8	0.825	1	33.981	1.82	91.09	C
120.00-100.00			B	0.143	2.798		0.825	1	33.981			
			C	0.143	2.798		0.825	1	33.981			
T11	1.58	7.40	A	0.131	2.844	8	0.825	1	34.466	1.74	86.96	C
100.00-80.00			B	0.131	2.844		0.825	1	34.466			
			C	0.131	2.844		0.825	1	34.466			
T12	1.58	8.13	A	0.124	2.868	7	0.825	1	36.040	1.65	82.52	C
80.00-60.00			B	0.124	2.868		0.825	1	36.040			
			C	0.124	2.868		0.825	1	36.040			
T13	1.58	8.26	A	0.116	2.9	6	0.825	1	36.773	1.52	75.84	C
60.00-40.00			B	0.116	2.9		0.825	1	36.773			
			C	0.116	2.9		0.825	1	36.773			
T14	1.58	9.20	A	0.113	2.912	5	0.825	1	38.724	1.34	66.97	C
40.00-20.00			B	0.113	2.912		0.825	1	38.724			
			C	0.113	2.912		0.825	1	38.724			
T15	1.58	9.34	A	0.107	2.937	5	0.825	1	39.502	1.35	67.67	C
20.00-0.00			B	0.107	2.937		0.825	1	39.502			
			C	0.107	2.937		0.825	1	39.502			
Sum Weight:	14.99	75.22						OTM	2101.17 kip-ft	17.94		

Tower Forces - Service - Wind 60 To Face

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z psf	D_F	D_R	A_E ft^2	F K	w plf	Ctrl. Face
T1	0.04	0.66	A	0.141	2.806	10	0.8	1	4.100	0.15	15.10	C
280.00-270.00			B	0.141	2.806		0.8	1	4.100			
			C	0.154	2.756		0.8	1	4.512			
T2	0.08	1.37	A	0.137	2.821	10	0.8	1	7.995	0.30	15.06	C
270.00-250.00			B	0.137	2.821		0.8	1	7.995			
			C	0.157	2.746		0.8	1	9.225			
T3	0.37	1.91	A	0.157	2.744	10	0.8	1	9.323	0.58	29.18	C
250.00-230.00			B	0.157	2.744		0.8	1	9.323			

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z psf	D_F	D_R	A_E ft²	F K	w plf	Ctrl. Face
			C	0.181	2.661		0.8	1	10.771			
T4	0.19	1.18	A	0.255	2.424	10	0.8	1	10.797	0.38	38.46	C
230.00-220.00			B	0.255	2.424		0.8	1	10.797			
			C	0.255	2.424		0.8	1	10.797			
T5	0.37	2.61	A	0.237	2.478	10	0.8	1	24.735	0.83	41.35	C
220.00-200.00			B	0.237	2.478		0.8	1	24.735			
			C	0.237	2.478		0.8	1	24.735			
T6	0.65	2.85	A	0.216	2.543	9	0.8	1	28.808	1.15	57.60	C
200.00-180.00			B	0.216	2.543		0.8	1	28.808			
			C	0.216	2.543		0.8	1	28.808			
T7	0.98	4.60	A	0.205	2.578	9	0.8	1	33.214	1.49	74.53	C
180.00-160.00			B	0.205	2.578		0.8	1	33.214			
			C	0.205	2.578		0.8	1	33.214			
T8	1.23	5.27	A	0.185	2.646	9	0.8	1	34.840	1.69	84.42	C
160.00-140.00			B	0.185	2.646		0.8	1	34.840			
			C	0.185	2.646		0.8	1	34.840			
T9	1.58	5.15	A	0.159	2.74	8	0.8	1	33.733	1.89	94.61	C
140.00-120.00			B	0.159	2.74		0.8	1	33.733			
			C	0.159	2.74		0.8	1	33.733			
T10	1.58	7.28	A	0.143	2.798	8	0.8	1	33.626	1.82	90.76	C
120.00-100.00			B	0.143	2.798		0.8	1	33.626			
			C	0.143	2.798		0.8	1	33.626			
T11	1.58	7.40	A	0.131	2.844	8	0.8	1	34.095	1.73	86.62	C
100.00-80.00			B	0.131	2.844		0.8	1	34.095			
			C	0.131	2.844		0.8	1	34.095			
T12	1.58	8.13	A	0.124	2.868	7	0.8	1	35.647	1.64	82.19	C
80.00-60.00			B	0.124	2.868		0.8	1	35.647			
			C	0.124	2.868		0.8	1	35.647			
T13	1.58	8.26	A	0.116	2.9	6	0.8	1	36.357	1.51	75.52	C
60.00-40.00			B	0.116	2.9		0.8	1	36.357			
			C	0.116	2.9		0.8	1	36.357			
T14	1.58	9.20	A	0.113	2.912	5	0.8	1	38.285	1.33	66.67	C
40.00-20.00			B	0.113	2.912		0.8	1	38.285			
			C	0.113	2.912		0.8	1	38.285			
T15	1.58	9.34	A	0.107	2.937	5	0.8	1	39.039	1.35	67.35	C
20.00-0.00			B	0.107	2.937		0.8	1	39.039			
			C	0.107	2.937		0.8	1	39.039			
Sum Weight:	14.99	75.22						OTM	2091.26 kip-ft	17.85		

Tower Forces - Service - Wind 90 To Face

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z psf	D_F	D_R	A_E ft²	F K	w plf	Ctrl. Face
T1	0.04	0.66	A	0.141	2.806	10	0.85	1	4.100	0.15	15.10	C
280.00-270.00			B	0.141	2.806		0.85	1	4.100			
			C	0.154	2.756		0.85	1	4.512			
T2	0.08	1.37	A	0.137	2.821	10	0.85	1	7.995	0.30	15.06	C
270.00-250.00			B	0.137	2.821		0.85	1	7.995			
			C	0.157	2.746		0.85	1	9.225			
T3	0.37	1.91	A	0.157	2.744	10	0.85	1	9.323	0.58	29.18	C
250.00-230.00			B	0.157	2.744		0.85	1	9.323			

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z psf	D_F	D_R	A_E ft^2	F K	w plf	Ctrl. Face
			C	0.181	2.661		0.85	1	10.771			
T4	0.19	1.18	A	0.255	2.424	10	0.85	1	11.009	0.39	38.89	C
230.00-220.00			B	0.255	2.424		0.85	1	11.009			
			C	0.255	2.424		0.85	1	11.009			
T5	0.37	2.61	A	0.237	2.478	10	0.85	1	25.258	0.84	41.88	C
220.00-200.00			B	0.237	2.478		0.85	1	25.258			
			C	0.237	2.478		0.85	1	25.258			
T6	0.65	2.85	A	0.216	2.543	9	0.85	1	29.594	1.17	58.39	C
200.00-180.00			B	0.216	2.543		0.85	1	29.594			
			C	0.216	2.543		0.85	1	29.594			
T7	0.98	4.60	A	0.205	2.578	9	0.85	1	34.206	1.51	75.51	C
180.00-160.00			B	0.205	2.578		0.85	1	34.206			
			C	0.205	2.578		0.85	1	34.206			
T8	1.23	5.27	A	0.185	2.646	9	0.85	1	35.884	1.71	85.44	C
160.00-140.00			B	0.185	2.646		0.85	1	35.884			
			C	0.185	2.646		0.85	1	35.884			
T9	1.58	5.15	A	0.159	2.74	8	0.85	1	34.715	1.91	95.57	C
140.00-120.00			B	0.159	2.74		0.85	1	34.715			
			C	0.159	2.74		0.85	1	34.715			
T10	1.58	7.28	A	0.143	2.798	8	0.85	1	34.336	1.83	91.43	C
120.00-100.00			B	0.143	2.798		0.85	1	34.336			
			C	0.143	2.798		0.85	1	34.336			
T11	1.58	7.40	A	0.131	2.844	8	0.85	1	34.836	1.75	87.29	C
100.00-80.00			B	0.131	2.844		0.85	1	34.836			
			C	0.131	2.844		0.85	1	34.836			
T12	1.58	8.13	A	0.124	2.868	7	0.85	1	36.432	1.66	82.86	C
80.00-60.00			B	0.124	2.868		0.85	1	36.432			
			C	0.124	2.868		0.85	1	36.432			
T13	1.58	8.26	A	0.116	2.9	6	0.85	1	37.188	1.52	76.17	C
60.00-40.00			B	0.116	2.9		0.85	1	37.188			
			C	0.116	2.9		0.85	1	37.188			
T14	1.58	9.20	A	0.113	2.912	5	0.85	1	39.163	1.35	67.27	C
40.00-20.00			B	0.113	2.912		0.85	1	39.163			
			C	0.113	2.912		0.85	1	39.163			
T15	1.58	9.34	A	0.107	2.937	5	0.85	1	39.965	1.36	67.99	C
20.00-0.00			B	0.107	2.937		0.85	1	39.965			
			C	0.107	2.937		0.85	1	39.965			
Sum Weight:	14.99	75.22						OTM	2111.07 kip-ft	18.02		

Force Totals

Load Case	Vertical Forces K	Sum of Forces X K	Sum of Forces Z K	Sum of Overturning Moments, M_x kip-ft	Sum of Overturning Moments, M_z kip-ft	Sum of Torques kip-ft
Leg Weight	51.67					
Bracing Weight	23.55					
Total Member Self-Weight	75.22			-14.91	3.15	
Total Weight	111.44			-14.91	3.15	
Wind 0 deg - No Ice		0.00	-65.61	-9061.73	3.15	1.36
Wind 30 deg - No Ice		32.04	-55.55	-7681.91	-4419.68	-3.01
Wind 45 deg - No Ice		45.27	-45.31	-6283.86	-6260.54	-4.98
Wind 60 deg - No Ice		55.25	-31.93	-4434.79	-7645.86	-6.57

Load Case	Vertical Forces K	Sum of Forces X K	Sum of Forces Z K	Sum of Overturning Moments, M_x kip-ft	Sum of Overturning Moments, M_z kip-ft	Sum of Torques kip-ft
Wind 90 deg - No Ice		64.24	0.00	-14.91	-8880.94	-8.43
Wind 120 deg - No Ice		56.64	32.73	4489.28	-7791.91	-8.15
Wind 135 deg - No Ice		46.06	46.10	6333.02	-6339.53	-7.04
Wind 150 deg - No Ice		32.04	55.55	7652.08	-4419.68	-5.40
Wind 180 deg - No Ice		0.00	63.70	8786.40	3.15	-1.38
Wind 210 deg - No Ice		-32.04	55.55	7652.08	4425.99	3.01
Wind 225 deg - No Ice		-45.27	45.31	6254.03	6266.85	4.98
Wind 240 deg - No Ice		-56.64	32.73	4489.28	7798.22	6.77
Wind 270 deg - No Ice		-64.24	0.00	-14.91	8887.25	8.43
Wind 300 deg - No Ice		-55.12	-31.85	-4415.57	7618.89	7.92
Wind 315 deg - No Ice		-46.06	-46.10	-6362.84	6345.84	7.04
Wind 330 deg - No Ice		-32.04	-55.55	-7681.91	4425.99	5.40
Member Ice	146.72					
Total Weight Ice	376.81			-86.58	27.36	
Wind 0 deg - Ice		0.00	-28.33	-4241.67	27.36	1.38
Wind 30 deg - Ice		13.88	-24.06	-3597.80	-1998.77	-0.52
Wind 45 deg - Ice		19.80	-19.81	-2998.37	-2882.91	-1.47
Wind 60 deg - Ice		24.20	-13.98	-2142.87	-3532.38	-2.30
Wind 90 deg - Ice		28.04	0.00	-86.58	-4093.70	-3.47
Wind 120 deg - Ice		24.29	14.03	1956.57	-3509.61	-3.71
Wind 135 deg - Ice		19.79	19.80	2798.37	-2856.06	-3.44
Wind 150 deg - Ice		13.88	24.06	3424.65	-1998.77	-2.92
Wind 180 deg - Ice		0.00	27.69	3957.22	27.36	-1.38
Wind 210 deg - Ice		-13.88	24.06	3424.65	2053.48	0.52
Wind 225 deg - Ice		-19.80	19.81	2825.22	2937.62	1.47
Wind 240 deg - Ice		-24.29	14.03	1956.57	3564.32	2.32
Wind 270 deg - Ice		-28.04	0.00	-86.58	4148.41	3.47
Wind 300 deg - Ice		-23.97	-13.85	-2108.47	3527.51	3.66
Wind 315 deg - Ice		-19.79	-19.80	-2971.52	2910.77	3.44
Wind 330 deg - Ice		-13.88	-24.06	-3597.80	2053.48	2.92
Total Weight	111.44			-14.91	3.15	
Wind 0 deg - Service		0.00	-25.10	-3462.42	-0.16	0.52
Wind 30 deg - Service		12.26	-21.25	-2934.48	-1692.39	-1.15
Wind 45 deg - Service		17.32	-17.34	-2399.57	-2396.73	-1.91
Wind 60 deg - Service		21.14	-12.22	-1692.09	-2926.77	-2.51
Wind 90 deg - Service		24.58	0.00	-0.99	-3399.33	-3.23
Wind 120 deg - Service		21.67	12.52	1722.37	-2982.65	-3.12
Wind 135 deg - Service		17.62	17.64	2427.81	-2426.95	-2.69
Wind 150 deg - Service		12.26	21.25	2932.50	-1692.39	-2.07
Wind 180 deg - Service		0.00	24.37	3366.50	-0.16	-0.53
Wind 210 deg - Service		-12.26	21.25	2932.50	1692.07	1.15
Wind 225 deg - Service		-17.32	17.34	2397.59	2396.40	1.91
Wind 240 deg - Service		-21.67	12.52	1722.37	2982.32	2.59
Wind 270 deg - Service		-24.58	0.00	-0.99	3399.00	3.23
Wind 300 deg - Service		-21.09	-12.19	-1684.74	2913.71	3.03
Wind 315 deg - Service		-17.62	-17.64	-2429.79	2426.62	2.69
Wind 330 deg - Service		-12.26	-21.25	-2934.48	1692.07	2.07

Load Combinations

Comb. No.	Description
1	Dead Only
2	1.2 Dead+1.6 Wind 0 deg - No Ice
3	0.9 Dead+1.6 Wind 0 deg - No Ice
4	1.2 Dead+1.6 Wind 30 deg - No Ice

Comb. No.	Description
5	0.9 Dead+1.6 Wind 30 deg - No Ice
6	1.2 Dead+1.6 Wind 45 deg - No Ice
7	0.9 Dead+1.6 Wind 45 deg - No Ice
8	1.2 Dead+1.6 Wind 60 deg - No Ice
9	0.9 Dead+1.6 Wind 60 deg - No Ice
10	1.2 Dead+1.6 Wind 90 deg - No Ice
11	0.9 Dead+1.6 Wind 90 deg - No Ice
12	1.2 Dead+1.6 Wind 120 deg - No Ice
13	0.9 Dead+1.6 Wind 120 deg - No Ice
14	1.2 Dead+1.6 Wind 135 deg - No Ice
15	0.9 Dead+1.6 Wind 135 deg - No Ice
16	1.2 Dead+1.6 Wind 150 deg - No Ice
17	0.9 Dead+1.6 Wind 150 deg - No Ice
18	1.2 Dead+1.6 Wind 180 deg - No Ice
19	0.9 Dead+1.6 Wind 180 deg - No Ice
20	1.2 Dead+1.6 Wind 210 deg - No Ice
21	0.9 Dead+1.6 Wind 210 deg - No Ice
22	1.2 Dead+1.6 Wind 225 deg - No Ice
23	0.9 Dead+1.6 Wind 225 deg - No Ice
24	1.2 Dead+1.6 Wind 240 deg - No Ice
25	0.9 Dead+1.6 Wind 240 deg - No Ice
26	1.2 Dead+1.6 Wind 270 deg - No Ice
27	0.9 Dead+1.6 Wind 270 deg - No Ice
28	1.2 Dead+1.6 Wind 300 deg - No Ice
29	0.9 Dead+1.6 Wind 300 deg - No Ice
30	1.2 Dead+1.6 Wind 315 deg - No Ice
31	0.9 Dead+1.6 Wind 315 deg - No Ice
32	1.2 Dead+1.6 Wind 330 deg - No Ice
33	0.9 Dead+1.6 Wind 330 deg - No Ice
34	1.2 Dead+1.0 Ice+1.0 Temp
35	1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp
36	1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp
37	1.2 Dead+1.0 Wind 45 deg+1.0 Ice+1.0 Temp
38	1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp
39	1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp
40	1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp
41	1.2 Dead+1.0 Wind 135 deg+1.0 Ice+1.0 Temp
42	1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp
43	1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp
44	1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp
45	1.2 Dead+1.0 Wind 225 deg+1.0 Ice+1.0 Temp
46	1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp
47	1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp
48	1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp
49	1.2 Dead+1.0 Wind 315 deg+1.0 Ice+1.0 Temp
50	1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp
51	Dead+Wind 0 deg - Service
52	Dead+Wind 30 deg - Service
53	Dead+Wind 45 deg - Service
54	Dead+Wind 60 deg - Service
55	Dead+Wind 90 deg - Service
56	Dead+Wind 120 deg - Service
57	Dead+Wind 135 deg - Service
58	Dead+Wind 150 deg - Service
59	Dead+Wind 180 deg - Service
60	Dead+Wind 210 deg - Service
61	Dead+Wind 225 deg - Service
62	Dead+Wind 240 deg - Service
63	Dead+Wind 270 deg - Service
64	Dead+Wind 300 deg - Service
65	Dead+Wind 315 deg - Service
66	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	280 - 270	Leg	Max Tension	9	6.43	0.43	-0.25
			Max. Compression	12	-9.54	-0.15	-0.10
			Max. Mx	26	-8.39	-0.48	0.04
			Max. My	2	-9.50	-0.04	-0.50
			Max. Vy	26	-1.20	0.17	-0.02
			Max. Vx	2	-1.27	0.01	0.18
		Diagonal	Max Tension	32	1.70	0.00	0.00
			Max. Compression	32	-1.69	0.00	0.00
			Max. Mx	49	0.72	-0.01	-0.00
			Max. My	28	-1.29	-0.00	0.00
			Max. Vy	49	0.01	-0.01	-0.00
			Max. Vx	28	0.00	0.00	0.00
		Horizontal	Max Tension	18	0.27	0.00	0.00
			Max. Compression	3	-0.17	0.00	0.00
			Max. Mx	35	0.04	0.03	0.00
			Max. My	28	-0.05	0.00	-0.00
			Max. Vy	35	-0.02	0.00	0.00
			Max. Vx	28	0.00	0.00	0.00
		Top Girt	Max Tension	24	0.67	0.00	0.00
			Max. Compression	8	-0.69	0.00	0.00
			Max. Mx	35	0.25	0.03	0.00
			Max. My	14	-0.17	0.00	0.00
			Max. Vy	35	-0.02	0.00	0.00
			Max. Vx	14	-0.00	0.00	0.00
		Bottom Girt	Max Tension	18	0.71	0.00	0.00
			Max. Compression	12	-0.68	0.00	0.00
			Max. Mx	34	0.04	0.03	0.00
			Max. My	14	0.21	0.00	0.00
			Max. Vy	35	-0.02	0.00	0.00
			Max. Vx	14	0.00	0.00	0.00
		Mid Girt	Max Tension	43	0.13	0.00	0.00
			Max. Compression	3	-0.01	0.00	0.00
			Max. Mx	34	0.01	0.03	0.00
			Max. My	14	0.01	0.00	0.00
			Max. Vy	35	-0.02	0.00	0.00
			Max. Vx	14	0.00	0.00	0.00
T2	270 - 250	Leg	Max Tension	19	24.93	0.02	0.73
			Max. Compression	12	-29.21	-0.22	-0.15
			Max. Mx	10	-8.50	-0.72	-0.08
			Max. My	2	-9.51	0.06	0.76
			Max. Vy	26	-1.74	0.23	-0.07
			Max. Vx	2	-1.89	0.01	0.27
		Diagonal	Max Tension	32	2.24	0.00	0.00
			Max. Compression	32	-2.24	0.00	0.00
			Max. Mx	44	0.87	-0.01	0.00
			Max. My	30	-1.83	-0.00	0.00
			Max. Vy	44	0.01	-0.01	0.00
			Max. Vx	28	0.00	0.00	0.00
		Horizontal	Max Tension	18	0.42	0.00	0.00
			Max. Compression	3	-0.32	0.00	0.00
			Max. Mx	35	0.13	0.03	0.00
			Max. My	28	-0.13	0.00	-0.00
			Max. Vy	35	-0.02	0.00	0.00
			Max. Vx	28	0.00	0.00	0.00
		Top Girt	Max Tension	24	0.79	0.00	0.00

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Compression	28	-0.78	0.00	0.00
			Max. Mx	34	-0.01	0.03	0.00
			Max. My	14	-0.21	0.00	0.00
			Max. Vy	35	-0.02	0.00	0.00
			Max. Vx	14	0.00	0.00	0.00
		Bottom Girt	Max Tension	18	0.95	0.00	0.00
			Max. Compression	3	-0.90	0.00	0.00
			Max. Mx	35	-0.29	0.03	0.00
			Max. My	26	0.10	0.00	-0.00
			Max. Vy	35	-0.02	0.00	0.00
			Max. Vx	26	0.00	0.00	0.00
		Mid Girt	Max Tension	18	0.28	0.00	0.00
			Max. Compression	3	-0.18	0.00	0.00
			Max. Mx	35	0.04	0.03	0.00
			Max. My	14	0.05	0.00	0.00
			Max. Vy	35	-0.02	0.00	0.00
			Max. Vx	14	0.00	0.00	0.00
T3	250 - 230	Leg	Max Tension	29	70.00	-0.41	-0.26
			Max. Compression	2	-80.44	0.05	2.97
			Max. Mx	24	-80.15	2.53	-1.54
			Max. My	2	-80.44	0.05	2.97
			Max. Vy	24	-5.46	2.53	-1.54
			Max. Vx	2	-6.36	0.05	2.97
		Diagonal	Max Tension	32	5.45	0.00	0.00
			Max. Compression	16	-5.53	0.00	0.00
			Max. Mx	35	1.52	-0.01	-0.00
			Max. My	30	-4.09	-0.00	0.00
			Max. Vy	35	0.02	-0.01	-0.00
			Max. Vx	30	0.00	0.00	0.00
		Horizontal	Max Tension	18	0.78	0.00	0.00
			Max. Compression	3	-0.64	0.00	0.00
			Max. Mx	34	0.27	0.03	0.00
			Max. My	26	0.07	0.00	-0.00
			Max. Vy	34	-0.02	0.00	0.00
			Max. Vx	26	0.00	0.00	0.00
		Top Girt	Max Tension	24	1.67	0.00	0.00
			Max. Compression	28	-1.63	0.00	0.00
			Max. Mx	35	0.60	0.04	0.00
			Max. My	12	-0.83	0.00	0.00
			Max. Vy	35	-0.03	0.00	0.00
			Max. Vx	12	-0.00	0.00	0.00
		Bottom Girt	Max Tension	18	1.13	0.00	0.00
			Max. Compression	3	-1.00	0.00	0.00
			Max. Mx	34	0.15	0.04	0.00
			Max. My	26	0.02	0.00	-0.00
			Max. Vy	34	-0.03	0.00	0.00
			Max. Vx	26	0.00	0.00	0.00
T4	230 - 220	Leg	Max Tension	29	74.50	-2.82	-0.10
			Max. Compression	2	-84.41	4.03	-0.04
			Max. Mx	28	73.46	-4.49	-0.09
			Max. My	26	-5.85	-0.23	-6.85
			Max. Vy	18	0.29	-4.47	0.03
			Max. Vx	26	0.69	-0.23	-6.85
		Diagonal	Max Tension	29	5.46	0.06	-0.01
			Max. Compression	12	-6.21	0.00	0.00
			Max. Mx	28	4.48	0.06	0.00
			Max. My	14	-5.88	-0.04	0.02
			Max. Vy	48	0.03	0.05	-0.01
			Max. Vx	32	0.00	0.00	0.00
T5	220 - 200	Leg	Max Tension	29	102.47	-3.94	-0.03
			Max. Compression	2	-115.46	4.96	-0.01

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Mx	2	-115.46	4.96	-0.01
			Max. My	26	-6.89	-0.23	-6.85
			Max. Vy	12	-0.24	4.94	0.02
			Max. Vx	26	-0.51	-0.06	-5.58
		Diagonal	Max Tension	14	5.43	0.00	0.00
			Max. Compression	14	-5.75	0.00	0.00
			Max. Mx	35	0.54	0.09	-0.01
			Max. My	27	-4.66	-0.04	-0.02
			Max. Vy	49	0.05	0.08	0.01
			Max. Vx	48	0.00	0.00	0.00
T6	200 - 180	Leg	Max Tension	29	130.52	-3.44	-0.01
			Max. Compression	2	-147.40	5.57	-0.01
			Max. Mx	2	-147.40	5.57	-0.01
			Max. My	26	-9.30	0.05	-4.75
			Max. Vy	18	-1.05	-4.61	0.00
			Max. Vx	32	0.88	-0.11	4.57
		Diagonal	Max Tension	29	7.88	0.00	0.00
			Max. Compression	12	-8.98	0.00	0.00
			Max. Mx	49	1.14	0.09	0.01
			Max. My	48	-2.63	0.05	-0.02
			Max. Vy	49	0.06	0.09	0.01
			Max. Vx	40	-0.00	0.00	0.00
		Top Girt	Max Tension	28	3.63	0.00	0.00
			Max. Compression	3	-2.90	0.00	0.00
			Max. Mx	34	1.13	-0.14	0.00
			Max. My	48	0.40	0.00	0.00
			Max. Vy	34	0.07	0.00	0.00
			Max. Vx	48	0.00	0.00	0.00
		Mid Girt	Max Tension	28	4.50	0.00	0.00
			Max. Compression	3	-3.47	0.00	0.00
			Max. Mx	34	1.60	-0.18	0.00
			Max. My	48	0.74	0.00	0.01
			Max. Vy	34	0.08	0.00	0.00
			Max. Vx	48	-0.00	0.00	0.00
T7	180 - 160	Leg	Max Tension	29	168.36	-3.60	0.01
			Max. Compression	2	-191.79	5.82	0.01
			Max. Mx	2	-191.79	5.82	0.01
			Max. My	26	-9.60	0.05	-4.75
			Max. Vy	8	-1.13	-3.66	0.01
			Max. Vx	32	1.46	-0.13	4.74
		Diagonal	Max Tension	9	10.80	0.00	0.00
			Max. Compression	24	-12.28	0.00	0.00
			Max. Mx	35	-0.02	0.14	0.02
			Max. My	48	-3.58	0.09	-0.02
			Max. Vy	49	0.08	0.13	0.02
			Max. Vx	40	-0.01	0.00	0.00
		Top Girt	Max Tension	28	5.81	0.00	0.00
			Max. Compression	3	-4.55	0.00	0.00
			Max. Mx	34	2.06	-0.30	0.00
			Max. My	48	0.97	0.00	0.01
			Max. Vy	34	0.12	0.00	0.00
			Max. Vx	48	0.00	0.00	0.00
		Mid Girt	Max Tension	28	6.16	0.00	0.00
			Max. Compression	3	-4.79	0.00	0.00
			Max. Mx	34	2.36	-0.36	0.00
			Max. My	48	1.25	0.00	0.01
			Max. Vy	34	0.13	0.00	0.00
			Max. Vx	48	0.00	0.00	0.00
T8	160 - 140	Leg	Max Tension	29	217.07	-4.13	-0.02
			Max. Compression	2	-250.47	4.87	-0.00
			Max. Mx	2	-219.42	5.82	0.01

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. My	32	-15.34	-0.27	7.25
			Max. Vy	18	-1.70	-5.34	-0.01
			Max. Vx	10	1.09	0.21	2.67
		Diagonal	Max Tension	20	12.80	0.00	0.00
			Max. Compression	20	-12.82	0.00	0.00
			Max. Mx	35	3.48	0.20	0.02
			Max. My	6	-11.48	-0.01	0.03
			Max. Vy	48	0.10	0.19	0.02
			Max. Vx	48	0.01	0.00	0.00
		Top Girt	Max Tension	28	4.82	0.00	0.00
			Max. Compression	3	-3.78	0.00	0.00
			Max. Mx	34	1.83	-0.41	0.00
			Max. My	41	0.33	0.00	0.01
			Max. Vy	34	-0.14	0.00	0.00
			Max. Vx	41	0.00	0.00	0.00
T9	140 - 120	Leg	Max Tension	29	269.52	-4.85	-0.00
			Max. Compression	2	-310.78	11.37	0.00
			Max. Mx	2	-310.78	11.37	0.00
			Max. My	26	-21.21	0.10	-10.45
			Max. Vy	18	-1.67	-4.88	-0.01
			Max. Vx	26	-1.87	-0.05	-4.54
		Diagonal	Max Tension	21	14.63	0.00	0.00
			Max. Compression	20	-15.19	0.00	0.00
			Max. Mx	35	4.18	0.22	0.02
			Max. My	6	-14.11	0.02	0.04
			Max. Vy	49	0.11	0.22	-0.03
			Max. Vx	48	0.01	0.00	0.00
T10	120 - 100	Leg	Max Tension	29	304.24	-10.95	-0.10
			Max. Compression	2	-349.41	11.14	-0.04
			Max. Mx	28	298.20	-13.01	-0.07
			Max. My	26	-23.83	-1.09	-20.15
			Max. Vy	18	0.50	-12.99	0.02
			Max. Vx	26	0.84	-1.09	-20.15
		Diagonal	Max Tension	7	20.12	0.00	0.00
			Max. Compression	22	-21.42	0.00	0.00
			Max. Mx	48	3.65	-0.57	0.08
			Max. My	4	-20.77	-0.05	-0.12
			Max. Vy	48	-0.20	-0.57	0.08
			Max. Vx	48	-0.02	0.00	0.00
T11	100 - 80	Leg	Max Tension	29	356.11	-12.70	-0.06
			Max. Compression	2	-409.92	16.29	-0.02
			Max. Mx	2	-409.92	16.29	-0.02
			Max. My	26	-25.84	-1.09	-20.15
			Max. Vy	12	-0.55	16.26	0.05
			Max. Vx	26	-0.89	-1.09	-20.15
		Diagonal	Max Tension	20	20.91	0.00	0.00
			Max. Compression	20	-21.77	0.00	0.00
			Max. Mx	48	4.84	-0.65	-0.10
			Max. My	49	3.81	-0.65	0.10
			Max. Vy	49	-0.22	-0.65	-0.10
			Max. Vx	50	0.01	0.00	0.00
T12	80 - 60	Leg	Max Tension	29	403.43	-14.72	-0.06
			Max. Compression	2	-465.57	11.95	-0.03
			Max. Mx	2	-463.18	16.29	-0.02
			Max. My	26	-31.83	-1.28	-18.34
			Max. Vy	43	-0.52	-5.59	-0.02
			Max. Vx	26	0.79	-1.28	-18.34
		Diagonal	Max Tension	16	20.66	0.00	0.00
			Max. Compression	16	-21.44	0.00	0.00
			Max. Mx	48	3.50	-0.73	-0.11
			Max. My	40	-1.08	-0.71	-0.11

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Vy	48	-0.24	-0.73	-0.11
			Max. Vx	40	-0.02	0.00	0.00
T13	60 - 40	Leg	Max Tension	29	447.79	-13.65	-0.06
			Max. Compression	2	-517.73	17.11	-0.02
			Max. Mx	2	-517.73	17.11	-0.02
			Max. My	26	-33.07	-1.28	-18.34
			Max. Vy	43	0.83	-12.27	-0.02
			Max. Vx	26	-0.87	-1.28	-18.34
		Diagonal	Max Tension	17	21.15	0.00	0.00
			Max. Compression	16	-22.46	0.00	0.00
			Max. Mx	48	5.54	-0.80	-0.11
			Max. My	48	5.43	-0.80	0.11
			Max. Vy	48	-0.25	-0.80	-0.11
			Max. Vx	49	0.01	0.00	0.00
T14	40 - 20	Leg	Max Tension	29	493.49	-14.94	-0.04
			Max. Compression	2	-573.48	12.38	-0.03
			Max. Mx	2	-570.77	17.11	-0.02
			Max. My	4	-39.14	-1.88	-28.15
			Max. Vy	43	-1.13	-12.27	-0.02
			Max. Vx	26	1.33	-1.86	-28.15
		Diagonal	Max Tension	16	20.89	0.00	0.00
			Max. Compression	16	-21.18	0.00	0.00
			Max. Mx	48	1.48	-0.92	0.14
			Max. My	47	-5.11	-0.77	0.15
			Max. Vy	48	-0.27	-0.92	0.14
			Max. Vx	47	0.02	0.00	0.00
T15	20 - 0	Leg	Max Tension	29	530.70	-15.02	-0.07
			Max. Compression	2	-618.14	-0.00	0.00
			Max. Mx	28	521.76	-15.50	-0.07
			Max. My	4	-39.92	-1.88	-28.15
			Max. Vy	18	-1.11	-15.50	0.01
			Max. Vx	26	-1.68	-1.86	-28.15
		Diagonal	Max Tension	31	22.93	0.00	0.00
			Max. Compression	14	-24.76	0.00	0.00
			Max. Mx	50	7.57	-0.89	-0.12
			Max. My	50	3.17	-0.87	0.12
			Max. Vy	50	-0.27	-0.89	-0.12
			Max. Vx	50	0.01	0.00	0.00

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Leg C	Max. Vert	24	645.07	59.74	-34.77
	Max. H_x	24	645.07	59.74	-34.77
	Max. H_z	9	-552.70	-52.95	30.82
	Min. Vert	9	-552.70	-52.95	30.82
	Min. H_x	9	-552.70	-52.95	30.82
	Min. H_z	24	645.07	59.74	-34.77
Leg B	Max. Vert	12	644.80	-59.72	-34.80
	Max. H_x	29	-552.90	52.93	30.86
	Max. H_z	29	-552.90	52.93	30.86
	Min. Vert	29	-552.90	52.93	30.86
	Min. H_x	12	644.80	-59.72	-34.80
	Min. H_z	12	644.80	-59.72	-34.80
Leg A	Max. Vert	2	646.40	0.04	69.18

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
	Max. H_x	27	33.99	4.53	2.68
	Max. H_z	2	646.40	0.04	69.18
	Min. Vert	19	-552.35	-0.05	-61.29
	Min. H_x	11	33.99	-4.53	2.68
	Min. H_z	19	-552.35	-0.05	-61.29

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	111.44	0.00	0.00	-14.69	3.15	-0.00
1.2 Dead+1.6 Wind 0 deg - No Ice	133.73	0.00	-104.97	-14593.47	3.83	2.13
0.9 Dead+1.6 Wind 0 deg - No Ice	100.30	0.00	-104.97	-14563.55	2.86	2.14
1.2 Dead+1.6 Wind 30 deg - No Ice	133.73	51.39	-89.09	-12424.37	-7153.22	-4.84
0.9 Dead+1.6 Wind 30 deg - No Ice	100.30	51.39	-89.09	-12398.11	-7141.59	-4.81
1.2 Dead+1.6 Wind 45 deg - No Ice	133.73	72.43	-72.49	-10118.32	-10088.30	-8.03
0.9 Dead+1.6 Wind 45 deg - No Ice	100.30	72.43	-72.49	-10096.09	-10071.50	-8.00
1.2 Dead+1.6 Wind 60 deg - No Ice	133.73	88.41	-51.08	-7139.18	-12320.36	-10.64
0.9 Dead+1.6 Wind 60 deg - No Ice	100.30	88.41	-51.08	-7122.17	-12299.63	-10.60
1.2 Dead+1.6 Wind 90 deg - No Ice	133.73	102.78	-0.00	-17.92	-14310.17	-13.70
0.9 Dead+1.6 Wind 90 deg - No Ice	100.30	102.78	-0.00	-13.43	-14285.98	-13.67
1.2 Dead+1.6 Wind 120 deg - No Ice	133.73	90.83	52.49	7270.03	-12608.79	-13.14
0.9 Dead+1.6 Wind 120 deg - No Ice	100.30	90.83	52.49	7261.78	-12587.72	-13.11
1.2 Dead+1.6 Wind 135 deg - No Ice	133.73	72.43	72.49	10082.71	-10088.17	-11.27
0.9 Dead+1.6 Wind 135 deg - No Ice	100.30	72.43	72.49	10069.43	-10071.43	-11.25
1.2 Dead+1.6 Wind 150 deg - No Ice	133.73	51.39	89.09	12388.89	-7153.12	-8.60
0.9 Dead+1.6 Wind 150 deg - No Ice	100.30	51.39	89.09	12371.55	-7141.52	-8.58
1.2 Dead+1.6 Wind 180 deg - No Ice	133.73	-0.00	102.17	14224.96	3.83	-2.16
0.9 Dead+1.6 Wind 180 deg - No Ice	100.30	-0.00	102.17	14204.35	2.86	-2.17
1.2 Dead+1.6 Wind 210 deg - No Ice	133.73	-51.39	89.09	12388.89	7160.78	4.85
0.9 Dead+1.6 Wind 210 deg - No Ice	100.30	-51.39	89.09	12371.55	7147.25	4.81
1.2 Dead+1.6 Wind 225 deg - No Ice	133.73	-72.43	72.49	10082.72	10095.83	8.04
0.9 Dead+1.6 Wind 225 deg - No Ice	100.30	-72.43	72.49	10069.43	10077.15	8.00
1.2 Dead+1.6 Wind 240 deg -	133.73	-90.83	52.49	7270.04	12616.45	10.97

Load Combination	Vertical	$Shear_x$	$Shear_z$	Overturning Moment, M_x	Overturning Moment, M_z	Torque
	K	K	K	kip-ft	kip-ft	kip-ft
No Ice						
0.9 Dead+1.6 Wind 240 deg - No Ice	100.30	-90.83	52.49	7261.78	12593.45	10.94
1.2 Dead+1.6 Wind 270 deg - No Ice	133.73	-102.78	-0.00	-17.92	14317.83	13.70
0.9 Dead+1.6 Wind 270 deg - No Ice	100.30	-102.78	-0.00	-13.43	14291.71	13.67
1.2 Dead+1.6 Wind 300 deg - No Ice	133.73	-88.41	-51.08	-7139.18	12328.02	12.76
0.9 Dead+1.6 Wind 300 deg - No Ice	100.30	-88.41	-51.08	-7122.17	12305.36	12.74
1.2 Dead+1.6 Wind 315 deg - No Ice	133.73	-72.43	-72.49	-10118.32	10095.96	11.27
0.9 Dead+1.6 Wind 315 deg - No Ice	100.30	-72.43	-72.49	-10096.09	10077.23	11.25
1.2 Dead+1.6 Wind 330 deg - No Ice	133.73	-51.39	-89.09	-12424.36	7160.88	8.60
0.9 Dead+1.6 Wind 330 deg - No Ice	100.30	-51.39	-89.09	-12398.11	7147.32	8.58
1.2 Dead+1.0 Ice+1.0 Temp	399.10	0.00	0.00	-90.08	28.59	0.00
1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp	399.10	0.00	-28.33	-4334.99	28.96	1.28
1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp	399.10	14.02	-24.30	-3738.54	-2075.47	-0.73
1.2 Dead+1.0 Wind 45 deg+1.0 Ice+1.0 Temp	399.10	19.80	-19.81	-3065.12	-2943.90	-1.69
1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp	399.10	24.20	-13.98	-2191.25	-3607.35	-2.54
1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp	399.10	28.04	-0.00	-90.29	-4180.74	-3.66
1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp	399.10	24.52	14.17	2031.40	-3644.81	-3.84
1.2 Dead+1.0 Wind 135 deg+1.0 Ice+1.0 Temp	399.10	19.80	19.81	2883.54	-2944.10	-3.53
1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp	399.10	14.02	24.30	3556.64	-2076.29	-2.96
1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp	399.10	0.00	27.96	4110.34	28.97	-1.29
1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp	399.10	-14.02	24.30	3556.65	2134.20	0.73
1.2 Dead+1.0 Wind 225 deg+1.0 Ice+1.0 Temp	399.10	-19.80	19.81	2883.55	3002.01	1.70
1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp	399.10	-24.52	14.17	2031.41	3702.73	2.56
1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp	399.10	-28.04	-0.00	-90.29	4238.66	3.66
1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp	399.10	-24.20	-13.98	-2191.25	3665.27	3.80
1.2 Dead+1.0 Wind 315 deg+1.0 Ice+1.0 Temp	399.10	-19.80	-19.81	-3065.12	3001.83	3.51
1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp	399.10	-14.02	-24.30	-3738.53	2133.39	2.96
Dead+Wind 0 deg - Service	111.44	0.00	-25.10	-3496.38	3.19	0.51
Dead+Wind 30 deg - Service	111.44	12.29	-21.30	-2978.23	-1706.33	-1.17
Dead+Wind 45 deg - Service	111.44	17.32	-17.34	-2427.40	-2407.40	-1.93
Dead+Wind 60 deg - Service	111.44	21.14	-12.22	-1715.79	-2940.55	-2.54
Dead+Wind 90 deg - Service	111.44	24.58	-0.00	-14.80	-3415.85	-3.25
Dead+Wind 120 deg - Service	111.44	21.72	12.55	1726.01	-3009.49	-3.14
Dead+Wind 135 deg - Service	111.44	17.32	17.34	2397.81	-2407.40	-2.70
Dead+Wind 150 deg - Service	111.44	12.29	21.30	2948.66	-1706.33	-2.07
Dead+Wind 180 deg - Service	111.44	0.00	24.43	3387.20	3.19	-0.52

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 210 deg - Service	111.44	-12.29	21.30	2948.66	1712.70	1.17
Dead+Wind 225 deg - Service	111.44	-17.32	17.34	2397.82	2413.77	1.93
Dead+Wind 240 deg - Service	111.44	-21.72	12.55	1726.01	3015.87	2.62
Dead+Wind 270 deg - Service	111.44	-24.58	-0.00	-14.80	3422.22	3.25
Dead+Wind 300 deg - Service	111.44	-21.14	-12.22	-1715.79	2946.92	3.05
Dead+Wind 315 deg - Service	111.44	-17.32	-17.34	-2427.40	2413.78	2.70
Dead+Wind 330 deg - Service	111.44	-12.29	-21.30	-2978.23	1712.71	2.07

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	0.00	-111.44	0.00	0.00	111.44	0.00	0.000%
2	0.00	-133.73	-104.97	-0.00	133.73	104.97	0.000%
3	0.00	-100.30	-104.97	-0.00	100.30	104.97	0.000%
4	51.39	-133.73	-89.09	-51.39	133.73	89.09	0.000%
5	51.39	-100.30	-89.09	-51.39	100.30	89.09	0.000%
6	72.43	-133.73	-72.49	-72.43	133.73	72.49	0.000%
7	72.43	-100.30	-72.49	-72.43	100.30	72.49	0.000%
8	88.41	-133.73	-51.08	-88.41	133.73	51.08	0.000%
9	88.41	-100.30	-51.08	-88.41	100.30	51.08	0.000%
10	102.78	-133.73	-0.00	-102.78	133.73	0.00	0.000%
11	102.78	-100.30	-0.00	-102.78	100.30	0.00	0.000%
12	90.83	-133.73	52.49	-90.83	133.73	-52.49	0.000%
13	90.83	-100.30	52.49	-90.83	100.30	-52.49	0.000%
14	72.43	-133.73	72.49	-72.43	133.73	-72.49	0.000%
15	72.43	-100.30	72.49	-72.43	100.30	-72.49	0.000%
16	51.39	-133.73	89.09	-51.39	133.73	-89.09	0.000%
17	51.39	-100.30	89.09	-51.39	100.30	-89.09	0.000%
18	0.00	-133.73	102.17	0.00	133.73	-102.17	0.000%
19	0.00	-100.30	102.17	0.00	100.30	-102.17	0.000%
20	-51.39	-133.73	89.09	51.39	133.73	-89.09	0.000%
21	-51.39	-100.30	89.09	51.39	100.30	-89.09	0.000%
22	-72.43	-133.73	72.49	72.43	133.73	-72.49	0.000%
23	-72.43	-100.30	72.49	72.43	100.30	-72.49	0.000%
24	-90.83	-133.73	52.49	90.83	133.73	-52.49	0.000%
25	-90.83	-100.30	52.49	90.83	100.30	-52.49	0.000%
26	-102.78	-133.73	-0.00	102.78	133.73	0.00	0.000%
27	-102.78	-100.30	-0.00	102.78	100.30	0.00	0.000%
28	-88.41	-133.73	-51.08	88.41	133.73	51.08	0.000%
29	-88.41	-100.30	-51.08	88.41	100.30	51.08	0.000%
30	-72.43	-133.73	-72.49	72.43	133.73	72.49	0.000%
31	-72.43	-100.30	-72.49	72.43	100.30	72.49	0.000%
32	-51.39	-133.73	-89.09	51.39	133.73	89.09	0.000%
33	-51.39	-100.30	-89.09	51.39	100.30	89.09	0.000%
34	0.00	-399.10	0.00	-0.00	399.10	-0.00	0.000%
35	0.00	-399.10	-28.33	-0.00	399.10	28.33	0.000%
36	14.02	-399.10	-24.30	-14.02	399.10	24.30	0.000%
37	19.80	-399.10	-19.81	-19.80	399.10	19.81	0.000%
38	24.20	-399.10	-13.98	-24.20	399.10	13.98	0.000%
39	28.04	-399.10	0.00	-28.04	399.10	0.00	0.000%
40	24.52	-399.10	14.17	-24.52	399.10	-14.17	0.000%
41	19.80	-399.10	19.81	-19.80	399.10	-19.81	0.000%
42	14.02	-399.10	24.30	-14.02	399.10	-24.30	0.000%
43	0.00	-399.10	27.96	-0.00	399.10	-27.96	0.000%
44	-14.02	-399.10	24.30	14.02	399.10	-24.30	0.000%
45	-19.80	-399.10	19.81	19.80	399.10	-19.81	0.000%

	Sum of Applied Forces			Sum of Reactions			
Load Comb.	PX K	PY K	PZ K	PX K	PY K	PZ K	% Error
46	-24.52	-399.10	14.17	24.52	399.10	-14.17	0.000%
47	-28.04	-399.10	0.00	28.04	399.10	0.00	0.000%
48	-24.20	-399.10	-13.98	24.20	399.10	13.98	0.000%
49	-19.80	-399.10	-19.81	19.80	399.10	19.81	0.000%
50	-14.02	-399.10	-24.30	14.02	399.10	24.30	0.000%
51	0.00	-111.44	-25.10	0.00	111.44	25.10	0.000%
52	12.29	-111.44	-21.30	-12.29	111.44	21.30	0.000%
53	17.32	-111.44	-17.34	-17.32	111.44	17.34	0.000%
54	21.14	-111.44	-12.22	-21.14	111.44	12.22	0.000%
55	24.58	-111.44	0.00	-24.58	111.44	0.00	0.000%
56	21.72	-111.44	12.55	-21.72	111.44	-12.55	0.000%
57	17.32	-111.44	17.34	-17.32	111.44	-17.34	0.000%
58	12.29	-111.44	21.30	-12.29	111.44	-21.30	0.000%
59	0.00	-111.44	24.43	0.00	111.44	-24.43	0.000%
60	-12.29	-111.44	21.30	12.29	111.44	-21.30	0.000%
61	-17.32	-111.44	17.34	17.32	111.44	-17.34	0.000%
62	-21.72	-111.44	12.55	21.72	111.44	-12.55	0.000%
63	-24.58	-111.44	0.00	24.58	111.44	0.00	0.000%
64	-21.14	-111.44	-12.22	21.14	111.44	12.22	0.000%
65	-17.32	-111.44	-17.34	17.32	111.44	17.34	0.000%
66	-12.29	-111.44	-21.30	12.29	111.44	21.30	0.000%

Non-Linear Convergence Results

Load Combination	Converged?	Number of Cycles	Displacement Tolerance	Force Tolerance
1	Yes	4	0.00000001	0.00000001
2	Yes	4	0.00000001	0.00000197
3	Yes	4	0.00000001	0.00000082
4	Yes	4	0.00000001	0.00000270
5	Yes	4	0.00000001	0.00000151
6	Yes	4	0.00000001	0.00000281
7	Yes	4	0.00000001	0.00000138
8	Yes	4	0.00000001	0.00000274
9	Yes	4	0.00000001	0.00000120
10	Yes	4	0.00000001	0.00000280
11	Yes	4	0.00000001	0.00000162
12	Yes	4	0.00000001	0.00000199
13	Yes	4	0.00000001	0.00000085
14	Yes	4	0.00000001	0.00000234
15	Yes	4	0.00000001	0.00000114
16	Yes	4	0.00000001	0.00000273
17	Yes	4	0.00000001	0.00000153
18	Yes	4	0.00000001	0.00000274
19	Yes	4	0.00000001	0.00000120
20	Yes	4	0.00000001	0.00000270
21	Yes	4	0.00000001	0.00000151
22	Yes	4	0.00000001	0.00000232
23	Yes	4	0.00000001	0.00000113
24	Yes	4	0.00000001	0.00000198
25	Yes	4	0.00000001	0.00000084
26	Yes	4	0.00000001	0.00000280
27	Yes	4	0.00000001	0.00000162
28	Yes	4	0.00000001	0.00000274
29	Yes	4	0.00000001	0.00000120
30	Yes	4	0.00000001	0.00000282

31	Yes	4	0.00000001	0.00000139
32	Yes	4	0.00000001	0.00000272
33	Yes	4	0.00000001	0.00000153
34	Yes	4	0.00000001	0.00000001
35	Yes	4	0.00000001	0.00003528
36	Yes	4	0.00000001	0.00003567
37	Yes	4	0.00000001	0.00003600
38	Yes	4	0.00000001	0.00003606
39	Yes	4	0.00000001	0.00003523
40	Yes	4	0.00000001	0.00003439
41	Yes	4	0.00000001	0.00003442
42	Yes	4	0.00000001	0.00003485
43	Yes	4	0.00000001	0.00003549
44	Yes	4	0.00000001	0.00003506
45	Yes	4	0.00000001	0.00003475
46	Yes	4	0.00000001	0.00003481
47	Yes	4	0.00000001	0.00003570
48	Yes	4	0.00000001	0.00003646
49	Yes	4	0.00000001	0.00003633
50	Yes	4	0.00000001	0.00003592
51	Yes	4	0.00000001	0.00000001
52	Yes	4	0.00000001	0.00000001
53	Yes	4	0.00000001	0.00000001
54	Yes	4	0.00000001	0.00000001
55	Yes	4	0.00000001	0.00000001
56	Yes	4	0.00000001	0.00000001
57	Yes	4	0.00000001	0.00000001
58	Yes	4	0.00000001	0.00000001
59	Yes	4	0.00000001	0.00000001
60	Yes	4	0.00000001	0.00000001
61	Yes	4	0.00000001	0.00000001
62	Yes	4	0.00000001	0.00000001
63	Yes	4	0.00000001	0.00000001
64	Yes	4	0.00000001	0.00000001
65	Yes	4	0.00000001	0.00000001
66	Yes	4	0.00000001	0.00000001

Maximum Tower Deflections - Service Wind

Section No.	*Elevation*	*Horz. Deflection*	*Gov. Load Comb.*	*Tilt*	*Twist*
	ft	*in*		°	°
T1	280 - 270	9.096	51	0.3246	0.0244
T2	270 - 250	8.401	51	0.3218	0.0211
T3	250 - 230	7.058	51	0.3043	0.0177
T4	230 - 220	5.809	51	0.2713	0.0134
T5	220 - 200	5.251	51	0.2496	0.0101
T6	200 - 180	4.258	51	0.2176	0.0065
T7	180 - 160	3.391	51	0.1858	0.0042
T8	160 - 140	2.647	51	0.1599	0.0032
T9	140 - 120	1.999	51	0.1375	0.0024
T10	120 - 100	1.443	51	0.1130	0.0017
T11	100 - 80	0.991	51	0.0919	0.0013
T12	80 - 60	0.636	51	0.0699	0.0010
T13	60 - 40	0.363	51	0.0512	0.0007
T14	40 - 20	0.170	51	0.0323	0.0004
T15	20 - 0	0.048	51	0.0160	0.0002

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
280.00	Flash Beacon Lighting	51	9.096	0.3246	0.0244	134193
250.00	APX18-206516L-CT0	51	7.058	0.3043	0.0177	61299
245.00	DB420-A	51	6.734	0.2976	0.0170	45138
235.00	DB225-2-F	51	6.107	0.2813	0.0149	27410
200.00	(3) DB980H120E-M	51	4.258	0.2176	0.0065	42025
190.00	(3) DB980H120E-M	51	3.810	0.2016	0.0052	39268
180.00	(3) DB980H120E-M	51	3.391	0.1858	0.0042	36593
170.00	APXVSPP18-C-A20	51	3.005	0.1720	0.0036	42971
160.00	800-10121	51	2.647	0.1599	0.0032	52660
150.00	APXV18-206517S	51	2.312	0.1488	0.0028	54407
140.00	LNX-6514DS-VTM	51	1.999	0.1375	0.0024	54462

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T1	280 - 270	37.949	2	1.3545	0.1023
T2	270 - 250	35.048	2	1.3429	0.0883
T3	250 - 230	29.444	2	1.2693	0.0743
T4	230 - 220	24.237	2	1.1314	0.0564
T5	220 - 200	21.908	2	1.0407	0.0425
T6	200 - 180	17.768	2	0.9075	0.0272
T7	180 - 160	14.150	2	0.7750	0.0176
T8	160 - 140	11.045	2	0.6671	0.0135
T9	140 - 120	8.342	2	0.5733	0.0103
T10	120 - 100	6.020	2	0.4714	0.0072
T11	100 - 80	4.135	2	0.3834	0.0055
T12	80 - 60	2.655	2	0.2917	0.0041
T13	60 - 40	1.517	2	0.2137	0.0029
T14	40 - 20	0.712	2	0.1346	0.0019
T15	20 - 0	0.199	2	0.0668	0.0009

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
280.00	Flash Beacon Lighting	2	37.949	1.3545	0.1023	32349
250.00	APX18-206516L-CT0	2	29.444	1.2693	0.0743	14621
245.00	DB420-A	2	28.092	1.2413	0.0713	10764
235.00	DB225-2-F	2	25.479	1.1729	0.0624	6568
200.00	(3) DB980H120E-M	2	17.768	0.9075	0.0272	10083
190.00	(3) DB980H120E-M	2	15.895	0.8411	0.0220	9415
180.00	(3) DB980H120E-M	2	14.150	0.7750	0.0176	8771
170.00	APXVSPP18-C-A20	2	12.539	0.7173	0.0150	10295
160.00	800-10121	2	11.045	0.6671	0.0135	12610
150.00	APXV18-206517S	2	9.647	0.6207	0.0120	13040

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
140.00	LNX-6514DS-VTM	2	8.342	0.5733	0.0103	13064

Bolt Design Data

Section No.	Elevation ft	Component Type	Bolt Grade	Bolt Size in	Number Of Bolts	Maximum Load per Bolt K	Allowable Load K	Ratio Load / Allowable	Allowable Ratio	Criteria
T1	280	Leg	A325N	0.6250	5	1.91	24.85	0.077 ✓	1	Bolt DS
T2	270	Leg	A325N	0.7500	5	5.84	35.78	0.163 ✓	1	Bolt DS
T3	250	Leg	A325N	1.0000	6	11.67	53.01	0.220 ✓	1	Bolt Tension
T4	230	Leg	A325N	1.0000	6	12.42	53.01	0.234 ✓	1	Bolt Tension
		Diagonal	A325N	1.0000	1	5.46	9.14	0.597 ✓	1	Member Block Shear
T5	220	Leg	A325N	1.0000	6	17.08	53.01	0.322 ✓	1	Bolt Tension
		Diagonal	A325N	1.0000	1	5.43	10.16	0.535 ✓	1	Member Block Shear
T6	200	Leg	A325N	1.0000	6	21.70	53.01	0.409 ✓	1	Bolt Tension
		Diagonal	A325N	1.0000	1	7.88	10.16	0.775 ✓	1	Member Block Shear
		Top Girt	A325N	1.0000	1	3.63	10.16	0.357 ✓	1	Member Block Shear
		Mid Girt	A325N	1.0000	1	4.50	10.16	0.442 ✓	1	Member Block Shear
T7	180	Leg	A325N	1.2500	6	27.96	82.83	0.338 ✓	1	Bolt Tension
		Diagonal	A325N	1.2500	1	10.80	17.14	0.630 ✓	1	Member Block Shear
		Top Girt	A325N	1.2500	1	5.81	16.43	0.353 ✓	1	Member Block Shear
		Mid Girt	A325N	1.2500	1	6.16	16.43	0.375 ✓	1	Member Block Shear
T8	160	Leg	A325N	1.2500	6	36.17	82.83	0.437 ✓	1	Bolt Tension
		Diagonal	A325N	1.2500	1	12.80	20.54	0.623 ✓	1	Member Block Shear
		Top Girt	A325N	1.2500	1	4.82	20.54	0.235 ✓	1	Member Block Shear
T9	140	Leg	A325N	1.2500	6	44.92	82.83	0.542 ✓	1	Bolt Tension
		Diagonal	A325N	1.2500	1	14.63	20.54	0.712 ✓	1	Member Block Shear
T10	120	Leg	A325N	1.2500	12	25.35	82.83	0.306 ✓	1	Bolt Tension
		Diagonal	A325N	1.0000	2	10.06	35.53	0.283 ✓	1	Member Block Shear
T11	100	Leg	A325N	1.2500	12	29.68	82.83	0.358 ✓	1	Bolt Tension
		Diagonal	A325N	1.0000	2	10.45	35.53	0.294 ✓	1	Member Block Shear
T12	80	Leg	A325N	1.2500	12	33.62	82.83	0.406 ✓	1	Bolt Tension
		Diagonal	A325N	1.0000	2	10.33	35.53	0.291 ✓	1	Member Block Shear
T13	60	Leg	A325N	1.2500	12	37.32	82.83	0.450 ✓	1	Bolt Tension

Section No.	Elevation ft	Component Type	Bolt Grade	Bolt Size in	Number Of Bolts	Maximum Load per Bolt K	Allowable Load K	Ratio Load / Allowable	Allowable Ratio	Criteria
		Diagonal	A325N	1.0000	2	10.57	35.53	0.298 ✔	1	Member Block Shear
T14	40	Leg	A325N	1.2500	12	41.12	82.83	0.496 ✔	1	Bolt Tension
		Diagonal	A325N	1.0000	2	10.45	35.53	0.294 ✔	1	Member Block Shear
T15	20	Leg	A687	2.0000	6	88.45	247.40	0.358 ✔	1	Bolt Tension
		Diagonal	A325N	1.0000	2	11.46	35.53	0.323 ✔	1	Member Block Shear

Compression Checks

Leg Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	280 - 270	1 3/4	10.00	2.25	61.7 K=1.00	2.4053	-9.54	81.93	0.116 [1] ✔
T2	270 - 250	2	20.00	2.38	57.0 K=1.00	3.1416	-29.21	111.48	0.262 [1] ✔
T3	250 - 230	2 1/2	20.00	2.38	45.6 K=1.00	4.9087	-80.44	189.74	0.424 [1] ✔
T4	230 - 220	Pirod 105245	10.02	10.02	37.8 K=1.00	5.3014	-84.41	214.86	0.393 [1] ✔
T5	220 - 200	Pirod 105218	20.03	10.02	32.4 K=1.00	7.2158	-115.46	300.68	0.384 [1] ✔
T6	200 - 180	Pirod 105218	20.03	10.02	32.4 K=1.00	7.2158	-147.40	300.68	0.490 [1] ✔
T7	180 - 160	Pirod 105219	20.03	10.02	28.4 K=1.00	9.4248	-191.79	399.87	0.480 [1] ✔
T8	160 - 140	Pirod 105220	20.03	10.02	25.2 K=1.00	11.9282	-250.47	512.38	0.489 [1] ✔
T9	140 - 120	Pirod 105220	20.03	10.02	25.2 K=1.00	11.9282	-310.78	512.38	0.607 [1] ✔
T10	120 - 100	Pirod 112743	20.03	20.03	32.6 K=1.00	14.7262	-349.41	613.14	0.570 [1] ✔
T11	100 - 80	Pirod 112743	20.03	20.03	32.6 K=1.00	14.7262	-409.92	613.14	0.669 [1] ✔
T12	80 - 60	Pirod 112744	20.03	20.03	32.6 K=1.00	17.8187	-465.57	741.99	0.627 [1] ✔
T13	60 - 40	Pirod 112744	20.03	20.03	32.6 K=1.00	17.8187	-517.73	741.99	0.698 [1] ✔
T14	40 - 20	Pirod 112745	20.03	20.03	32.5 K=1.00	21.2057	-573.48	883.14	0.649 [1] ✔
T15	20 - 0	Pirod 112740	20.03	20.03	32.5 K=1.00	21.2057	-618.14	883.14	0.700 [1] ✔

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$

[1] P_u / ϕP_n controls

Truss-Leg Diagonal Data

Section No.	Elevation ft	Diagonal Size	L_d ft	Kl/r	ϕP_n K	A in^2	V_u K	ϕV_n K	Stress Ratio
T4	230 - 220	0.5	1.47	141.2	238.57	0.1963	0.69	2.49	0.280 ✔
T5	220 - 200	0.5	1.46	140.0	324.71	0.1963	0.51	2.53	0.203 ✔
T6	200 - 180	0.5	1.46	140.0	324.71	0.1963	1.05	2.53	0.413 ✔
T7	180 - 160	0.625	1.45	111.1	424.12	0.3068	1.10	5.81	0.190 ✔
T8	160 - 140	0.625	1.43	110.2	536.77	0.3068	1.70	5.87	0.289 ✔
T9	140 - 120	0.625	1.43	110.2	536.77	0.3068	1.87	5.87	0.319 ✔
T10	120 - 100	0.75	1.73	110.5	662.68	0.4418	0.85	11.21	0.077 ✔
T11	100 - 80	0.75	1.73	110.5	662.68	0.4418	0.90	11.21	0.082 ✔
T12	80 - 60	0.75	1.71	109.5	801.84	0.4418	0.81	11.39	0.072 ✔
T13	60 - 40	0.75	1.71	109.5	801.84	0.4418	0.89	11.39	0.079 ✔
T14	40 - 20	0.875	1.70	93.0	954.26	0.6013	1.35	19.80	0.069 ✔
T15	20 - 0	0.875	1.70	93.0	954.26	0.6013	1.69	19.80	0.086 ✔

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	280 - 270	7/8	5.48	2.66	131.4 K=0.90	0.6013	-1.69	7.87	0.215 [1] ✔
T2	270 - 250	7/8	5.54	2.68	132.1 K=0.90	0.6013	-2.24	7.79	0.288 [1] ✔
T3	250 - 230	1	5.54	2.65	114.6 K=0.90	0.7854	-5.53	13.51	0.409 [1] ✔
T4	230 - 220	L2 1/2x2 1/2x3/16	11.42	5.02	121.8 K=1.00	0.9020	-6.21	13.38	0.464 [1] ✔
T5	220 - 200	L3x3x3/16	12.50	5.67	115.6 K=1.01	1.0900	-5.75	17.29	0.333 [1] ✔

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T6	200 - 180	L3x3x3/16	13.80	6.37	128.2 K=1.00	1.0900	-8.98	14.78	0.607 [1] ✔
T7	180 - 160	L3x3x5/16	15.24	7.09	144.5 K=1.00	1.7800	-12.28	19.26	0.638 [1] ✔
T8	160 - 140	L3 1/2x3 1/2x5/16	16.80	7.89	137.3 K=1.00	2.0900	-12.82	25.06	0.512 [1] ✔
T9	140 - 120	L3 1/2x3 1/2x5/16	18.45	8.73	151.8 K=1.00	2.0900	-14.23	20.49	0.694 [1] ✔
T10	120 - 100	2L3 1/2x3 1/2x5/16	26.26	12.45	134.0 K=0.97	4.1800	-21.42	52.58	0.407 [1] ✔
T11	100 - 80	2L3 1/2x3 1/2x5/16	27.59	13.14	139.9 K=0.96	4.1800	-21.77	48.27	0.451 [1] ✔
T12	80 - 60	2L3 1/2x3 1/2x5/16	29.01	13.87	146.0 K=0.95	4.1800	-21.44	44.30	0.484 [1] ✔
T13	60 - 40	2L3 1/2x3 1/2x5/16	30.49	14.62	152.4 K=0.94	4.1800	-22.46	40.67	0.552 [1] ✔
T14	40 - 20	2L3 1/2x3 1/2x5/16	32.02	15.40	159.0 K=0.93	4.1800	-21.18	37.36	0.567 [1] ✔
T15	20 - 0	2L3 1/2x3 1/2x5/16	33.61	16.20	165.8 K=0.92	4.1800	-24.76	34.37	0.720 [1] ✔

[1] P_u / ϕP_n controls

Horizontal Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	280 - 270	7/8	5.00	4.85	186.4 K=0.70	0.6013	-0.17	3.91	0.043 [1] ✔
T2	270 - 250	7/8	5.00	4.83	185.6 K=0.70	0.6013	-0.32	3.94	0.082 [1] ✔
T3	250 - 230	7/8	5.00	4.79	184.0 K=0.70	0.6013	-0.64	4.01	0.160 [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	280 - 270	1	5.00	4.85	163.1 K=0.70	0.7854	-0.69	6.67	0.104 [1] ✔
T2	270 - 250	1	5.00	4.83	162.4 K=0.70	0.7854	-0.78	6.73	0.116 [1] ✔
T3	250 - 230	1 1/4	5.00	4.79	128.8	1.2272	-1.63	16.71	0.098 [1]

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T6	200 - 180	L3x3x3/16	8.00	6.67	134.2 K=1.00	1.0900	-2.90	13.65	0.213 [1]
T7	180 - 160	L4x4x1/4	10.00	8.60	129.9 K=1.00	1.9400	-4.55	25.75	0.177 [1]
T8	160 - 140	L3 1/2x3 1/2x5/16	12.00	10.60	184.4 K=1.00	2.0900	-3.78	13.88	0.272 [1]

[1] P_u / ϕP_n controls

Bottom 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	280 - 270	1	5.00	4.85	163.1 K=0.70	0.7854	-0.68	6.67	0.102 [1]
T2	270 - 250	1	5.00	4.83	162.4 K=0.70	0.7854	-0.90	6.73	0.133 [1]
T3	250 - 230	1 1/4	5.00	4.79	128.8 K=0.70	1.2272	-1.00	16.71	0.060 [1]

[1] P_u / ϕP_n controls

Mid 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	280 - 270	1	5.00	4.85	163.1 K=0.70	0.7854	-0.01	6.67	0.002 [1]
T2	270 - 250	1	5.00	4.83	162.4 K=0.70	0.7854	-0.18	6.73	0.027 [1]
T6	200 - 180	L3x3x3/16	9.00	7.67	154.4 K=1.00	1.0900	-3.47	10.33	0.336 [1]
T7	180 - 160	L4x4x1/4	11.00	9.60	145.0 K=1.00	1.9400	-4.79	20.85	0.229 [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	280 - 270	1 3/4	10.00	2.25	61.7	1.7942	6.43	87.47	0.073 [1] [#] ✔
T2	270 - 250	2	20.00	2.38	57.0	3.1416	24.93	141.37	0.176 [1] [#] ✔
T3	250 - 230	2 1/2	20.00	2.38	45.6	4.9087	70.00	220.89	0.317 [1] ✔
T4	230 - 220	Pirod 105245	10.02	10.02	37.8	5.3014	74.50	238.57	0.312 [1] ✔
T5	220 - 200	Pirod 105218	20.03	10.02	32.4	7.2158	102.47	324.71	0.316 [1] ✔
T6	200 - 180	Pirod 105218	20.03	10.02	32.4	7.2158	130.22	324.71	0.401 [1] ✔
T7	180 - 160	Pirod 105219	20.03	10.02	28.4	9.4248	167.75	424.12	0.396 [1] ✔
T8	160 - 140	Pirod 105220	20.03	10.02	25.2	11.9282	217.05	536.77	0.404 [1] ✔
T9	140 - 120	Pirod 105220	20.03	10.02	25.2	11.9282	269.52	536.77	0.502 [1] ✔
T10	120 - 100	Pirod 112743	20.03	20.03	32.6	14.7262	304.24	662.68	0.459 [1] ✔
T11	100 - 80	Pirod 112743	20.03	20.03	32.6	14.7262	356.11	662.68	0.537 [1] ✔
T12	80 - 60	Pirod 112744	20.03	20.03	32.6	17.8187	403.43	801.84	0.503 [1] ✔
T13	60 - 40	Pirod 112744	20.03	20.03	32.6	17.8187	447.79	801.84	0.558 [1] ✔
T14	40 - 20	Pirod 112745	20.03	20.03	32.5	21.2057	493.49	954.26	0.517 [1] ✔
T15	20 - 0	Pirod 112740	20.03	20.03	32.5	21.2057	530.70	954.26	0.556 [1] ✔

[1] P_u / ϕP_n controls
[#] Based on net area of leg in section below

Truss-Leg Diagonal Data

Section No.	Elevation ft	Diagonal Size	L_d ft	Kl/r	ϕP_n K	A in^2	V_u K	ϕV_n K	Stress Ratio
T4	230 - 220	0.5	1.47	141.2	238.57	0.1963	0.69	2.49	0.280 ✔
T5	220 - 200	0.5	1.46	140.0	324.71	0.1963	0.51	2.53	0.203 ✔
T6	200 - 180	0.5	1.46	140.0	324.71	0.1963	1.05	2.53	0.413 ✔
T7	180 - 160	0.625	1.45	111.1	424.12	0.3068	1.10	5.81	0.190 ✔
T8	160 - 140	0.625	1.43	110.2	536.77	0.3068	1.70	5.87	0.289

Section No.	Elevation ft	Diagonal Size	L_d ft	Kl/r	ϕP_n K	A in^2	V_u K	ϕV_n K	Stress Ratio
T9	140 - 120	0.625	1.43	110.2	536.77	0.3068	1.87	5.87	0.319
T10	120 - 100	0.75	1.73	110.5	662.68	0.4418	0.85	11.21	0.077
T11	100 - 80	0.75	1.73	110.5	662.68	0.4418	0.90	11.21	0.082
T12	80 - 60	0.75	1.71	109.5	801.84	0.4418	0.81	11.39	0.072
T13	60 - 40	0.75	1.71	109.5	801.84	0.4418	0.89	11.39	0.079
T14	40 - 20	0.875	1.70	93.0	954.26	0.6013	1.35	19.80	0.069
T15	20 - 0	0.875	1.70	93.0	954.26	0.6013	1.69	19.80	0.086

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	280 - 270	7/8	5.48	2.66	146.0	0.6013	1.70	27.06	0.063 [1]
T2	270 - 250	7/8	5.54	2.68	146.8	0.6013	2.24	27.06	0.083 [1]
T3	250 - 230	1	5.54	2.65	127.3	0.7854	5.45	35.34	0.154 [1]
T4	230 - 220	L2 1/2x2 1/2x3/16	11.42	5.02	80.1	0.9020	5.46	29.22	0.187 [1]
T5	220 - 200	L3x3x3/16	11.93	5.42	71.5	1.0900	5.43	35.32	0.154 [1]
T6	200 - 180	L3x3x3/16	13.80	6.37	83.5	1.0900	7.88	35.32	0.223 [1]
T7	180 - 160	L3x3x5/16	15.24	7.09	94.9	1.7800	10.80	57.67	0.187 [1]
T8	160 - 140	L3 1/2x3 1/2x5/16	16.80	7.89	89.9	2.0900	12.80	67.72	0.189 [1]
T9	140 - 120	L3 1/2x3 1/2x5/16	17.62	8.32	94.6	2.0900	14.63	67.72	0.216 [1]
T10	120 - 100	2L3 1/2x3 1/2x5/16	26.26	12.45	141.6	4.1800	20.12	135.43	0.149 [1]
T11	100 - 80	2L3 1/2x3 1/2x5/16	27.59	13.14	149.3	4.1800	20.91	135.43	0.154 [1]
T12	80 - 60	2L3 1/2x3 1/2x5/16	29.01	13.87	157.3	4.1800	20.66	135.43	0.153 [1]
T13	60 - 40	2L3 1/2x3 1/2x5/16	30.49	14.62	165.7	4.1800	21.15	135.43	0.156 [1]
T14	40 - 20	2L3 1/2x3 1/2x5/16	32.02	15.40	174.3	4.1800	20.90	135.43	0.154 [1]
T15	20 - 0	2L3 1/2x3 1/2x5/16	33.61	16.20	183.2	4.1800	22.93	135.43	0.169 [1]

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
									✔

[1] P_u / ϕP_n controls

Horizontal Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	280 - 270	7/8	5.00	4.85	266.3	0.6013	0.27	27.06	0.010 [1] ✔
T2	270 - 250	7/8	5.00	4.83	265.1	0.6013	0.42	27.06	0.016 [1] ✔
T3	250 - 230	7/8	5.00	4.79	262.9	0.6013	0.78	27.06	0.029 [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	280 - 270	1	5.00	4.85	233.0	0.7854	0.67	35.34	0.019 [1] ✔
T2	270 - 250	1	5.00	4.83	232.0	0.7854	0.79	35.34	0.022 [1] ✔
T3	250 - 230	1 1/4	5.00	4.79	184.0	1.2272	1.67	55.22	0.030 [1] ✔
T6	200 - 180	L3x3x3/16	8.00	6.67	89.5	1.0900	3.63	35.32	0.103 [1] ✔
T7	180 - 160	L4x4x1/4	10.00	8.60	86.4	1.9400	5.81	62.86	0.092 [1] ✔
T8	160 - 140	L3 1/2x3 1/2x5/16	12.00	10.60	122.2	2.0900	4.82	67.72	0.071 [1] ✔

[1] P_u / ϕP_n controls

Bottom 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 $\frac{P_u}{\phi P_n}$

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	280 - 270	1	5.00	4.85	233.0	0.7854	0.71	35.34	0.020 [1] ✔
T2	270 - 250	1	5.00	4.83	232.0	0.7854	0.95	35.34	0.027 [1] ✔
T3	250 - 230	1 1/4	5.00	4.79	184.0	1.2272	1.13	55.22	0.020 [1] ✔

[1] P_u / ϕP_n controls

Mid 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	280 - 270	1	5.00	4.85	233.0	0.7854	0.13	35.34	0.004 [1] ✔
T2	270 - 250	1	5.00	4.83	232.0	0.7854	0.28	35.34	0.008 [1] ✔
T6	200 - 180	L3x3x3/16	9.00	7.67	102.2	1.0900	4.50	35.32	0.127 [1] ✔
T7	180 - 160	L4x4x1/4	11.00	9.60	96.0	1.9400	6.16	62.86	0.098 [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	280 - 270	Leg	1 3/4	2	-9.54	81.93	11.6	Pass
T2	270 - 250	Leg	2	40	-29.21	111.48	26.2	Pass
T3	250 - 230	Leg	2 1/2	107	-80.44	189.74	42.4	Pass
T4	230 - 220	Leg	Pirod 105245	171	-84.41	214.86	39.3	Pass
T5	220 - 200	Leg	Pirod 105218	180	-115.46	300.68	38.4	Pass
T6	200 - 180	Leg	Pirod 105218	195	-147.40	300.68	49.0	Pass
T7	180 - 160	Leg	Pirod 105219	216	-191.79	399.87	48.0	Pass
T8	160 - 140	Leg	Pirod 105220	237	-250.47	512.38	48.9	Pass
T9	140 - 120	Leg	Pirod 105220	255	-310.78	512.38	60.7	Pass
T10	120 - 100	Leg	Pirod 112743	270	-349.41	613.14	57.0	Pass
T11	100 - 80	Leg	Pirod 112743	279	-409.92	613.14	66.9	Pass
T12	80 - 60	Leg	Pirod 112744	288	-465.57	741.99	62.7	Pass
T13	60 - 40	Leg	Pirod 112744	297	-517.73	741.99	69.8	Pass
T14	40 - 20	Leg	Pirod 112745	306	-573.48	883.14	64.9	Pass
T15	20 - 0	Leg	Pirod 112740	315	-618.14	883.14	70.0	Pass
T1	280 - 270	Diagonal	7/8	16	-1.69	7.87	21.5	Pass
T2	270 - 250	Diagonal	7/8	54	-2.24	7.79	28.8	Pass
T3	250 - 230	Diagonal	1	116	-5.53	13.51	40.9	Pass
T4	230 - 220	Diagonal	L2 1/2x2 1/2x3/16	174	-6.21	13.38	46.4 59.7 (b)	Pass

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
T5	220 - 200	Diagonal	L3x3x3/16	183	-5.75	17.29	33.3	Pass
							53.5 (b)	
T6	200 - 180	Diagonal	L3x3x3/16	204	-8.98	14.78	60.7	Pass
							77.5 (b)	
T7	180 - 160	Diagonal	L3x3x5/16	228	-12.28	19.26	63.8	Pass
T8	160 - 140	Diagonal	L3 1/2x3 1/2x5/16	246	-12.82	25.06	51.2	Pass
							62.3 (b)	
T9	140 - 120	Diagonal	L3 1/2x3 1/2x5/16	261	-14.23	20.49	69.4	Pass
							71.2 (b)	
T10	120 - 100	Diagonal	2L3 1/2x3 1/2x5/16	276	-21.42	52.58	40.7	Pass
T11	100 - 80	Diagonal	2L3 1/2x3 1/2x5/16	285	-21.77	48.27	45.1	Pass
T12	80 - 60	Diagonal	2L3 1/2x3 1/2x5/16	291	-21.44	44.30	48.4	Pass
T13	60 - 40	Diagonal	2L3 1/2x3 1/2x5/16	300	-22.46	40.67	55.2	Pass
T14	40 - 20	Diagonal	2L3 1/2x3 1/2x5/16	309	-21.18	37.36	56.7	Pass
T15	20 - 0	Diagonal	2L3 1/2x3 1/2x5/16	318	-24.76	34.37	72.0	Pass
T1	280 - 270	Horizontal	7/8	32	-0.17	3.91	4.3	Pass
T2	270 - 250	Horizontal	7/8	98	-0.32	3.94	8.2	Pass
T3	250 - 230	Horizontal	7/8	162	-0.64	4.01	16.0	Pass
T1	280 - 270	Top Girt	1	5	-0.69	6.67	10.4	Pass
T2	270 - 250	Top Girt	1	44	-0.78	6.73	11.6	Pass
T3	250 - 230	Top Girt	1 1/4	110	-1.63	16.71	9.8	Pass
T6	200 - 180	Top Girt	L3x3x3/16	196	-2.90	13.65	21.3	Pass
							35.7 (b)	
T7	180 - 160	Top Girt	L4x4x1/4	217	-4.55	25.75	17.7	Pass
							35.3 (b)	
T8	160 - 140	Top Girt	L3 1/2x3 1/2x5/16	238	-3.78	13.88	27.2	Pass
T1	280 - 270	Bottom Girt	1	9	-0.68	6.67	10.2	Pass
T2	270 - 250	Bottom Girt	1	45	-0.90	6.73	13.3	Pass
T3	250 - 230	Bottom Girt	1 1/4	111	-1.00	16.71	6.0	Pass
T1	280 - 270	Mid Girt	1	10	0.13	35.34	0.4	Pass
T2	270 - 250	Mid Girt	1	48	-0.18	6.73	2.7	Pass
T6	200 - 180	Mid Girt	L3x3x3/16	199	-3.47	10.33	33.6	Pass
							44.2 (b)	
T7	180 - 160	Mid Girt	L4x4x1/4	220	-4.79	20.85	22.9	Pass
							37.5 (b)	
							Summary	
						Leg (T15)	70.0	Pass
						Diagonal (T6)	77.5	Pass
						Horizontal (T3)	16.0	Pass
						Top Girt (T6)	35.7	Pass
						Bottom Girt (T2)	13.3	Pass
						Mid Girt (T6)	44.2	Pass
						Bolt Checks	77.5	Pass
						RATING =	**77.5**	**Pass**

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Subject:	FOUNDATION ANALYSIS
Location:	Seymour, CT
Rev. 0: 7/3/18	Prepared by: T.J.L. Checked by: C.F.C. Job No. 18058.79

Pier and Mat Foundation Analysis:

Input Data:

Tower Data

Overturning Moment =	$OM := 14593 \cdot ft \cdot kips$	(User Input from tnxTower)	
Shear Force =	$S_t := 105 \cdot kip$	(User Input from tnxTower)	
Axial Force =	$WT_t := 134 \cdot kip$	(User Input from tnxTower)	
Max Compression Force =	$C_t := 646 \cdot kip$	(User Input from tnxTower)	
Max Uplift Force =	$U_t := 553 \cdot kip$	(User Input from tnxTower)	
Tower Height =	$H_t := 280 \cdot ft$	(User Input)	
Tower Width =	$W_t := 28 \cdot ft$	(User Input)	
Tower Position on Foundation (1=offset, 2=centered) =	$Pos_t := 1$	(User Input)	

Footing Data:

Overall Depth of Footing =	$D_f := 6.0 \cdot ft$	(User Input)	
Length of Pier =	$L_p := 3.25 \cdot ft$	(User Input)	
Extension of Pier Above Grade =	$L_{pag} := 0.5 \cdot ft$	(User Input)	
Diameter of Pier =	$d_p := 5.0 \cdot ft$	(User Input)	
Thickness of Footing =	$T_f := 3.25 \cdot ft$	(User Input)	
Width of Footing =	$W_f := 38.5 \cdot ft$	(User Input)	

Material Properties:

Concrete Compressive Strength =	$f_c := 4000 \cdot psi$	(User Input)	
Steel Reinforcment Yield Strength =	$f_y := 60000 \cdot psi$	(User Input)	
Internal Friction Angle of Soil =	$\Phi_s := 30 \cdot deg$	(User Input)	
Ultimate Soil Bearing Capacity =	$q_s := 10000 \cdot psf$	(User Input)	
Unit Weight of Soil =	$\gamma_{soil} := 120 \cdot pcf$	(User Input)	
Unit Weight of Concrete =	$\gamma_{conc} := 150 \cdot pcf$	(User Input)	
Foundation Bouyancy =	$Bouyancy := 0$	(User Input)	(Yes=1 / No=0)
Depth to Neglect =	$n := 0 \cdot ft$	(User Input)	
Cohesion of Clay Type Soil =	$c := 0 \cdot ksf$	(User Input)	(Use 0 for Sandy Soil)
Seismic Zone Factor =	$Z := 2$	(User Input)	(UBC-1997 Fig 23-2)
Coefficient of Friction Between Concrete =	$\mu := 0.45$	(User Input)	

Pier Reinforcement:

Bar Size =	$BS_{pier} := 9$	(User Input)	
Bar Diameter =	$d_{bpier} := 1.128 \cdot in$	(User Input)	
Number of Bars =	$NB_{pier} := 23$	(User Input)	
Clear Cover of Reinforcement =	$Cvr_{pier} := 3 \cdot in$	(User Input)	
Reinforcement Location Factor =	$\alpha_{pier} := 1.0$	(User Input)	(ACI-2008 12.2.4)
Coating Factor =	$\beta_{pier} := 1.0$	(User Input)	(ACI-2008 12.2.4)
Concrete Strength Factor =	$\lambda_{pier} := 1.0$	(User Input)	(ACI-2008 12.2.4)
Reinforcement Size Factor =	$\gamma_{pier} := 1.0$	(User Input)	(ACI-2008 12.2.4)
Diameter of Tie =	$d_{Tie} := 4 \cdot in$	(User Input)	

Pad Reinforcement:

Bar Size =	$BS_{top} := 11$	(User Input)	(Top of Pad)
Bar Diameter =	$d_{btop} := 1.41 \cdot in$	(User Input)	(Top of Pad)
Number of Bars =	$NB_{top} := 60$	(User Input)	(Top of Pad)
Bar Size =	$BS_{bot} := 11$	(User Input)	(Bottom of Pad)
Bar Diameter =	$d_{bbot} := 1.41 \cdot in$	(User Input)	(Bottom of Pad)
Number of Bars =	$NB_{bot} := 60$	(User Input)	(Bottom of Pad)
Clear Cover of Reinforcement =	$Cvr_{pad} := 3.0 \cdot in$	(User Input)	
Reinforcement Location Factor =	$\alpha_{pad} := 1.0$	(User Input)	(ACI-2008 12.2.4)
Coating Factor =	$\beta_{pad} := 1.0$	(User Input)	(ACI-2008 12.2.4)
Concrete Strength Factor =	$\lambda_{pad} := 1.0$	(User Input)	(ACI-2008 12.2.4)
Reinforcement Size Factor =	$\gamma_{pad} := 1.0$	(User Input)	(ACI-2008 12.2.4)

Calculated Factors:

Pier Reinforcement Bar Area = $A_{bpier} := \frac{\pi \cdot d_{bpier}^2}{4} = 0.999 \cdot in^2$

Pad Top Reinforcement Bar Area = $A_{btop} := \frac{\pi \cdot d_{btop}^2}{4} = 1.561 \cdot in^2$

Pad Bottom Reinforcement Bar Area = $A_{bbot} := \frac{\pi \cdot d_{bbot}^2}{4} = 1.561 \cdot in^2$

Coefficient of Lateral Soil Pressure = $K_p := \frac{1 + \sin(\Phi_s)}{1 - \sin(\Phi_s)} = 3$

Load Factor = $LF := 1$

Stability of Footing:

Adjusted Concrete Unit Weight = $\gamma_c := if(Bouyancy = 1, \gamma_{conc} - 62.4pcf, \gamma_{conc}) = 150 \cdot pcf$

Adjusted Soil Unit Weight = $\gamma_s := if(Bouyancy = 1, \gamma_{soil} - 62.4pcf, \gamma_{soil}) = 120 \cdot pcf$

Passive Pressure = $P_{pn} := K_p \cdot \gamma_s \cdot n + c \cdot 2 \cdot \sqrt{K_p} = 0 \cdot ksf$

$P_{pt} := K_p \cdot \gamma_s \cdot (D_f - T_f) + c \cdot 2 \cdot \sqrt{K_p} = 0.99 \cdot ksf$

$P_{top} := if[n < (D_f - T_f), P_{pt}, P_{pn}] = 0.99 \cdot ksf$

$P_{bot} := K_p \cdot \gamma_s \cdot D_f + c \cdot 2 \cdot \sqrt{K_p} = 2.16 \cdot ksf$

$P_{ave} := \frac{P_{top} + P_{bot}}{2} = 1.575 \cdot ksf$

$T_p := if[n < (D_f - T_f), T_f, (D_f - n)] = 3.25 \cdot ft$

$A_p := W_f \cdot T_p = 125.125 \cdot ft^2$

Ultimate Shear = $S_u := P_{ave} \cdot A_p = 197.072 \cdot kip$

Weight of Concrete = $WT_c := \left[\left(W_f^2 \cdot T_f\right) + (3) \cdot \left(\frac{d_p^2 \cdot \pi}{4} L_p\right)\right] \cdot \gamma_c = 751.313 \cdot kip$

Weight of Soil Above Footing = $WT_{s1} := \left[\left[W_f^2 - (3) \cdot \left(\frac{d_p^2 \cdot \pi}{4}\right)\right] \cdot \left(\left|L_p - L_{pag} - n\right|\right)\right] \cdot \gamma_s = 469.7 \cdot kip$

Weight of Soil Wedge at Back Face = $WT_{s2} := \left[\frac{(D_f - n)^2 \cdot \tan(\Phi_s)}{2} \cdot W_f\right] \cdot \gamma_s = 48.012 \cdot kip$

Foundation has undercut toe per Fred A. Nudd dwg 96-4992-1

Tower Offset = $X_{t1} := \left[\frac{W_f}{2} - \frac{(W_t \cdot \cos(30 \cdot deg))}{2}\right]$ $X_{t2} := \frac{W_f}{2} - \frac{(W_t \cdot \cos(30 \cdot deg))}{3}$

$X_t := if(Pos_t = 1, X_{t1}, X_{t2}) = 7.126$

$X_{off1} := \frac{W_f}{2} - \left[\frac{(W_t \cdot \cos(30 \cdot deg))}{3} + X_t\right] = 4.041$ $X_{off2} := 0$

$X_{off} := if(Pos_t = 1, X_{off1}, X_{off2})$ $X_{off} = 4.041 \cdot ft$

Total Weight = $WT_{tot} := 0.9WT_c + 0.75WT_{s1} = 1028.5 \cdot kip$

Resisting Moment = $M_r := (WT_{tot}) \cdot \frac{W_f}{2} + 0.9WT_t \cdot \left(\frac{W_f}{2} - X_{off}\right) + 0.75\left(S_u \cdot \frac{T_p}{3}\right) + 0.75WT_{s2} \cdot \left[W_f + \frac{(D_f - n) \cdot \tan(\Phi_s)}{3}\right] = 23220 \cdot kip \cdot ft$

Overturning Moment = $M_{ot} := OM + S_t \cdot (L_p + T_f) = 15275.5 \cdot kip \cdot ft$

Foundation has undercut toe per Fred A. Nudd dwg 96-4992-1

Factor of Safety Actual = $FS := \frac{M_r}{M_{ot}} = 1.52$

Factor of Safety Required = $FS_{req} := 1$ $OverTurning\_Moment\_Check := if(FS \geq FS_{req}, "Okay", "No Good")$

OverTurning_Moment_Check = "Okay"

Shear Capacity in Pier:

Shear Resistance of Pier = $S_p := \frac{P_{ave} \cdot A_p + \mu \cdot WT_{tot}}{FS_{req}} = 659.879 \cdot kips$

$Shear\_Check := if(S_p > S_t, "Okay", "No Good")$

Shear_Check = "Okay"

Bearing Pressure Caused by Footing:

Total Load = $Load_{tot} := WT_c + WT_{s1} + WT_t = 1355 \cdot kip$

Area of the Mat = $A_{mat} := W_f^2 = 1.482 \times 10^3$

Section Modulus of Mat = $S := \frac{W_f^3}{6} = 9511.1 \cdot ft^3$

Maximum Pressure in Mat = $P_{max} := \frac{Load_{tot}}{A_{mat}} + \frac{M_{ot}}{S} = 2.52 \cdot ksf$

$Max\_Pressure\_Check := if(P_{max} < 0.75q_s, "Okay", "No Good")$

Max_Pressure_Check = "Okay"

Minimum Pressure in Mat = $P_{min} := \frac{Load_{tot}}{A_{mat}} - \frac{M_{ot}}{S} = -0.692 \cdot ksf$

$Min\_Pressure\_Check := if[(P_{min} \geq 0) \cdot (P_{min} < 0.75q_s), "Okay", "No Good"]$

Min_Pressure_Check = "No Good"

Distance to Resultant of Pressure Distribution = $X_p := \frac{P_{max}}{\frac{P_{max} - P_{min}}{W_f}} \cdot \frac{1}{3} = 10.069$

Distance to Kern = $X_k := \frac{W_f}{6} = 6.417$

Since Resultant Force is Not in Kern, Area to which Pressure is Applied Must be Reduced.

Eccentricity = $e := \frac{M_{ot}}{Load_{tot}} = 11.273$

Adjusted Soil Pressure = $P_a := \frac{2 \cdot Load_{tot}}{3 \cdot W_f \cdot \left(\frac{W_f}{2} - e\right)} = 2.942 \cdot ksf$

$q_{adj} := if(P_{min} < 0, P_a, P_{max}) = 2.942 \cdot ksf$

$Pressure\_Check := if(q_{adj} < 0.75q_s, "Okay", "No Good")$

Pressure_Check = "Okay"

Concrete Bearing Capacity:

Strength Reduction Factor = $\Phi_c := 0.65$ (ACI-2008 9.3.2.2)

Bearing Strength Between Pier and Pad = $P_b := \Phi_c \cdot 0.85 \cdot f_c \cdot \frac{\pi \cdot d_p^2}{4} = 6.249 \times 10^3 \cdot kips$ (ACI-2008 10.14)

$Bearing\_Check := if(P_b > LF \cdot C_t, "Okay", "No Good")$

Bearing_Check = "Okay"

Shear Strength of Concrete:

Beam Shear: (Critical section located at a distance d from the face of Pier) (ACI 11.3.1.1)

$\phi_c := 0.85$ (ACI 9.3.2.5)

$d := T_f - Cvr_{pad} - d_{bbot} = 34.59 \cdot in$

$FL := LF \cdot \frac{C_t}{W_f^2} = 0.436 \cdot ksf$

$V_{req} := FL \cdot (X_t - .5 \cdot d_p - d) \cdot W_f = 29.249 \cdot kips$

$V_{Avail} := \phi_c \cdot 2 \cdot \sqrt{f_c \cdot psi} \cdot W_f \cdot d = 1718 \cdot kip$ (ACI-2008 11.2.1.1)

$Beam\_Shear\_Check := if(V_{req} < V_{Avail}, "Okay", "No Good")$

Beam_Shear_Check = "Okay"

Punching Shear: (Critical Section Located at a distance of d/2 from the face of pier) (ACI 11.11.1.2)

Critical Perimeter of Punching Shear = $b_o := (d_p + d) \cdot \pi = 24.8$

Area Included Inside Perimeter = $A_{bo} := \frac{\pi \cdot (d_p + d)^2}{4} = 48.8$

Required Shear Strength = $V_{req} := FL \cdot (W_f^2 - A_{bo}) = 625 \cdot kips$

Available Shear Strength = $V_{Avail} := \phi_c \cdot 4 \cdot \sqrt{f_c \cdot psi} \cdot b_o \cdot d = 2210.3 \cdot kip$ (ACI-2008 11.11.2.1)

$Punching\_Shear\_Check := if(V_{req} < V_{Avail}, "Okay", "No Good")$

Punching_Shear_Check = "Okay"

Steel Reinforcement in Pad:

Required Reinforcement for Bending:

Strength Reduction Factor = $\phi_m := .90$ (ACI-2008 9.3.2.1)

Maximum Moment in Pad = $M_{max} := 700 \cdot kip \cdot ft$ (User Input)

Design Moment = $M_n := \frac{LF \cdot M_{max}}{\phi_m} = 777.778 \cdot kips \cdot ft$

$$\beta := \begin{cases} 0.85 & \text{if } 2500 \cdot psi \le f_c \le 4000 \cdot psi \\ 0.65 & \text{if } f_c > 8000 \cdot psi \\ \left[0.85 - \left[\frac{\left(\frac{f_c}{psi} - 4000\right)}{1000}\right] \cdot 0.5\right] & \text{otherwise} \end{cases} = 0.85 \quad \text{(ACI-200810.2.7.3)}$$

$b_{eff} := W_t \cdot \cos(30 \cdot deg) + d_p = 350.985 \cdot in$

$A_s := \frac{M_n}{(f_y \cdot d)} = 4.497 \cdot in^2$

$a := \frac{A_s \cdot f_y}{\beta \cdot f_c \cdot b_{eff}} = 0.226 \cdot in$

$A_s := \frac{M_n}{f_y \cdot \left(d - \frac{a}{2}\right)} = 4.512 \cdot in^2$

$\rho := \frac{A_s}{b_{eff} d} = 0.00446 \cdot in$

Required Reinforcement for Temperature and Shrinkage:

$$\rho_{sh} := \begin{cases} .0018 & \text{if } f_y \geq 60000 \cdot psi \\ .0020 & \text{otherwise} \end{cases} = 0.0018 \qquad \text{(ACI-2008 7.12.2.1)}$$

Check Bottom Bars:

$$As := if\left(\rho \geq \rho_{sh}, A_s, \rho_{sh} \cdot \frac{b_{eff}}{2} \cdot d\right) = 10.9 \cdot in^2$$

$$As_{prov} := A_{bbot} \cdot NB_{bot} = 93.7 \cdot in^2$$

$$Pad\_Reinforcement\_Bot := if\left(As_{prov} > As, "Okay", "No\ Good"\right)$$

Pad_Reinforcement_Bot = "Okay"

Check top Bars:

$$As := if\left(\rho \geq \rho_{sh}, A_s, \rho_{sh} \cdot \frac{b_{eff}}{2} \cdot d\right) = 10.9 \cdot in^2$$

$$As_{prov} := A_{btop} \cdot NB_{top} = 93.7 \cdot in^2$$

$$Pad\_Reinforcement\_Top := if\left(As_{prov} > As, "Okay", "No\ Good"\right)$$

Pad_Reinforcement_Top = "Okay"

Developement Length Pad Reinforcement:

Bar Spacing =

$$B_{sPad} := \frac{W_f - 2 \cdot Cvr_{pad} - NB_{bot} \cdot d_{bbot}}{NB_{bot} - 1} = 6.29 \cdot in$$

Spacing or Cover Dimension =

$$c := if\left(Cvr_{pad} < \frac{B_{sPad}}{2}, Cvr_{pad}, \frac{B_{sPad}}{2}\right) = 3 \cdot in$$

Transverse Reinforcement Index =

$$k_{tr} := 0 \qquad \text{(ACI-2008 12.2.3)}$$

$$L_{dbt} := \frac{3 \cdot f_y \alpha_{pad} \cdot \beta_{pad} \cdot \gamma_{pad} \cdot \lambda_{pad}}{40 \cdot \sqrt{f_c \cdot psi} \cdot \frac{c + k_{tr}}{d_{bbot}}} \cdot d_{bbot} = 47.2 \cdot in$$

Minimum Development Length =

$$L_{dbmin} := 12 \cdot in \qquad \text{(ACI-2008 12.2.1)}$$

$$L_{dbtCheck} := if\left(L_{dbt} \geq L_{dbmin}, "Use\ L.dbt", "Use\ L.dbmin"\right) = "Use\ L.dbt"$$

Available Length in Pad =

$$L_{Pad} := \frac{W_f}{2} - \frac{W_t}{2} - Cvr_{pad} = 60 \cdot in$$

$$Lpad\_Check := if\left(L_{Pad} > L_{dbt}, "Okay", "No\ Good"\right)$$

Lpad_Check = "Okay"

Steel Reinforcement in Pier:

Area of Pier = $A_p := \frac{\pi \cdot d_p^2}{4} = 2827.43 \cdot in^2$

$A_{smin} := 0.01 \cdot 0.5 \cdot A_p = 14.14 \cdot in^2$ (ACI-2008 10.8.4 & 10.9.1)

$A_{sprov} := NB_{pier} \cdot A_{bpier} = 22.98 \cdot in^2$

$Steel\_Area\_Check := if(A_{sprov} > A_{smin}, "Okay", "No Good")$

Steel_Area_Check = "Okay"

Bar Spacing In Pier = $B_{sPier} := \frac{d_p \cdot \pi}{NB_{pier}} - d_{bpier} = 7.067 \cdot in$

Diameter of Reinforcement Cage = $Diam_{cage} := d_p - 2 \cdot Cvr_{pier} = 54 \cdot in$

Maximum Moment in Pier = $M_p := S_t \cdot (L_p) \cdot LF = 4095 \cdot in \cdot kips$

Pier Check evaluated from outside program and results are listed below;

$(D \ N \ n \ P_u \ M_{xu}) := \left(d_p \cdot 12 \ \ NB_{pier} \ \ BS_{pier} \ \ \frac{C_t \cdot 1.333}{kips} \ \ \frac{M_p}{in \cdot kips}\right)$

$(D \ N \ n \ P_u \ M_{xu}) = (60 \ \ 23 \ \ 9 \ \ 861.118 \ \ 4.095 \times 10^3)$

$(\phi P_n \ \ \phi M_{xn} \ \ f_{sp} \ \ \rho) := (0 \ \ 0 \ \ 0 \ \ 0)$

$(\phi P_n \ \ \phi M_{xn} \ \ f_{sp} \ \ \rho) := \phi P'_n(D, N, n, P_u, M_{xu})^T$

$(\phi P_n \ \ \phi M_{xn} \ \ f_{sp} \ \ \rho) = (4.855 \times 10^3 \ \ 2.309 \times 10^4 \ \ -13.378 \ \ 8.135 \times 10^{-3})$

$Axial\_Load\_Check := if(\phi P_n \geq P_u, "Okay", "No Good")$

Axial_Load_Check = "Okay"

$Bending\_Check := if(\phi M_{xn} \geq M_{xu}, "Okay", "No Good")$

Bending_Check = "Okay"

Development Length Pier Reinforcement:

Available Length in Foundation:

$L_{pier} := L_p - Cvr_{pier} = 36 \cdot in$

$L_{pad} := T_f - Cvr_{pad} = 36 \cdot in$

Tension: (ACI-2008 12.2.3)

Spacing or Cover Dimension =

$c := if\left(Cvr_{pier} < \frac{B_{sPier}}{2}, Cvr_{pier}, \frac{B_{sPier}}{2}\right) = 3 \cdot in$

Transverse Reinforcement =

$k_{tr} := 0$ (ACI-2008 12.2.3)

$L_{dbt} := \frac{3 \cdot f_y \cdot \alpha_{pier} \cdot \beta_{pier} \cdot \gamma_{pier} \cdot \lambda_{pier}}{40 \cdot \sqrt{f_c \cdot psi} \cdot \left(\frac{c + k_{tr}}{d_{bpier}}\right)} \cdot d_{bpier} = 30.18 \cdot in$

Minimum Development Length =

$L_{dh} := \frac{1200 \cdot d_{bpier}}{\sqrt{\frac{f_c}{psi}}} \cdot .7 = 14.982 \cdot in$ (ACI 12.2.1)

Pier reinforcement bars are standard 90 degree hooks and therefore developement in the pad is computed as follows:

$L_{db} := \max\left(L_{dbt}, L_{dbmin}\right) = 30.177 \cdot in$

$L_{tension\_Check} := if\left(L_{pier} + L_{pad} > L_{dbt}, "Okay", "No Good"\right)$

$L_{tension\_Check} = "Okay"$

Compression: (ACI-2008 12.3.2)

$L_{dbc1} := \frac{.02 \cdot d_{bpier} \cdot f_y}{\sqrt{f_c \cdot psi}} = 21.402 \cdot in$

$L_{dbmin} := 0.0003 \cdot \frac{in^2}{lb} \cdot \left(d_{bpier} \cdot f_y\right) = 20.304 \cdot in$

$L_{dbc} := if\left(L_{dbc1} \geq L_{dbmin}, L_{dbc1}, L_{dbmin}\right) = 21.402 \cdot in$

$L_{compression\_Check} := if\left(L_{pier} + L_{pad} > L_{dbc}, "Okay", "No Good"\right)$

$L_{compression\_Check} = "Okay"$

RAN Template:	A&L Template:	Power System Template:
67D95F	67D05F_1DP+1OP	Custom

CT11332C_L600_1.1_draft

Section 1 - Site Information

Site ID: CT11332C
Status: Draft
Version: 1.1
Project Type: L600
Approved: Not Approved
Approved By: Not Approved
Last Modified: 5/11/2018 3:3:48 PM
Last Modified By: GSM1900\MSEDDIK

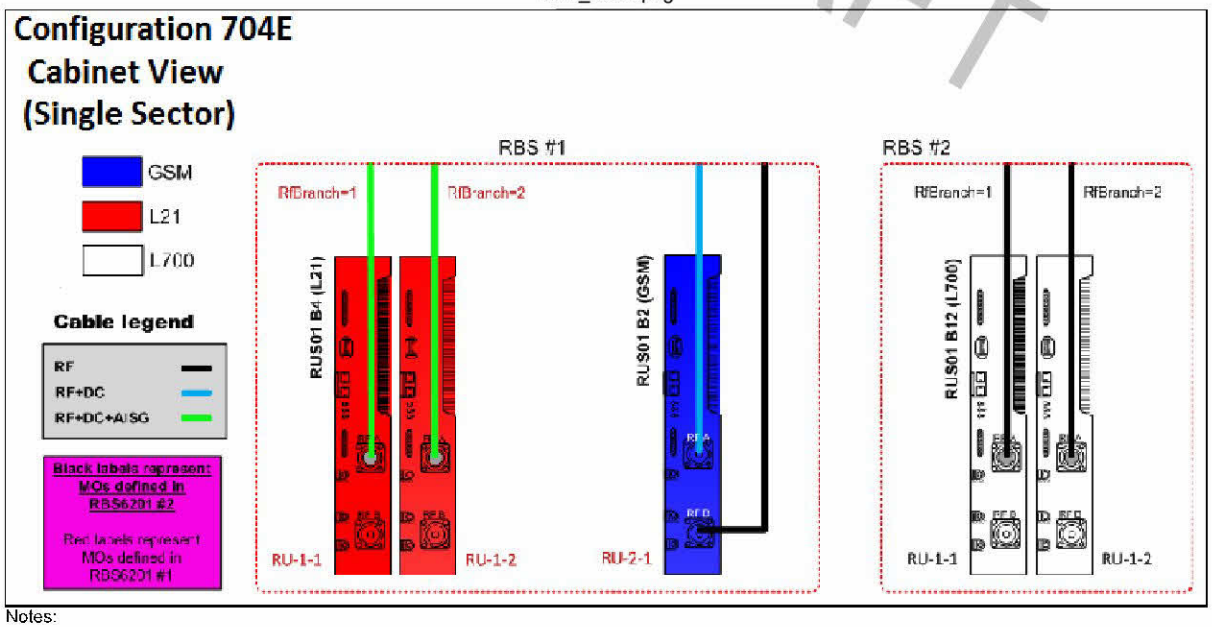
Site Name: Derby / Rt 34
Site Class: Self Support Tower
Site Type: Structure Non Building
Solution Type:
Plan Year:
Market: CONNECTICUT
Vendor: Ericsson
Landlord: <undefined>

Latitude: 41.3916637700
Longitude: -73.0528877000
Address: 2 Progress Avenue
City, State: Seymour, CT
Region: NORTHEAST

RAN Template: 67D95F			AL Template: 67D05F_1DP+1OP	
Sector Count: 3	Antenna Count: 6	Coax Line Count: 12	TMA Count: 6	RRU Count: 3

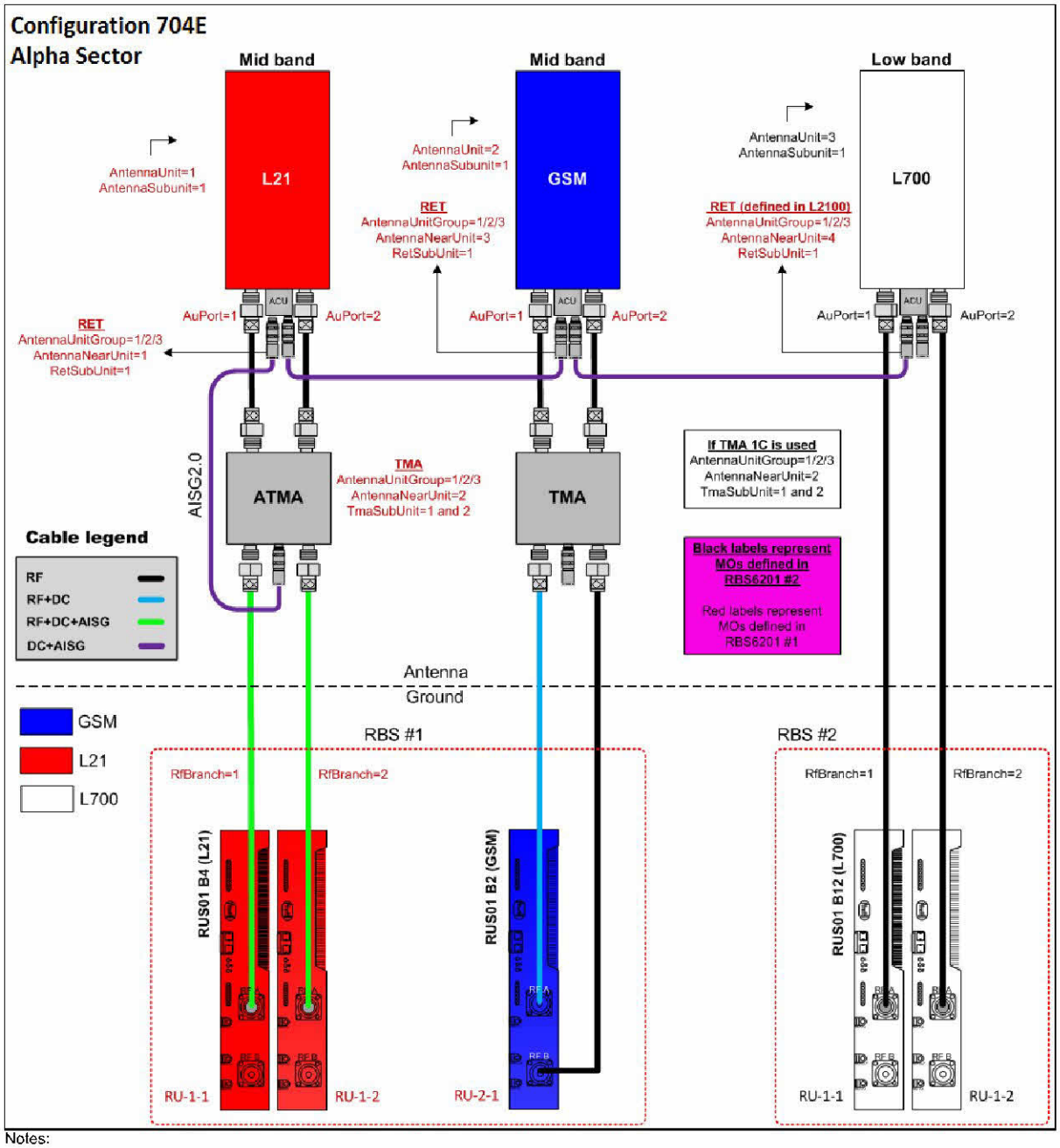
Section 2 - Existing Template Images

RAN_704E.png



Notes:

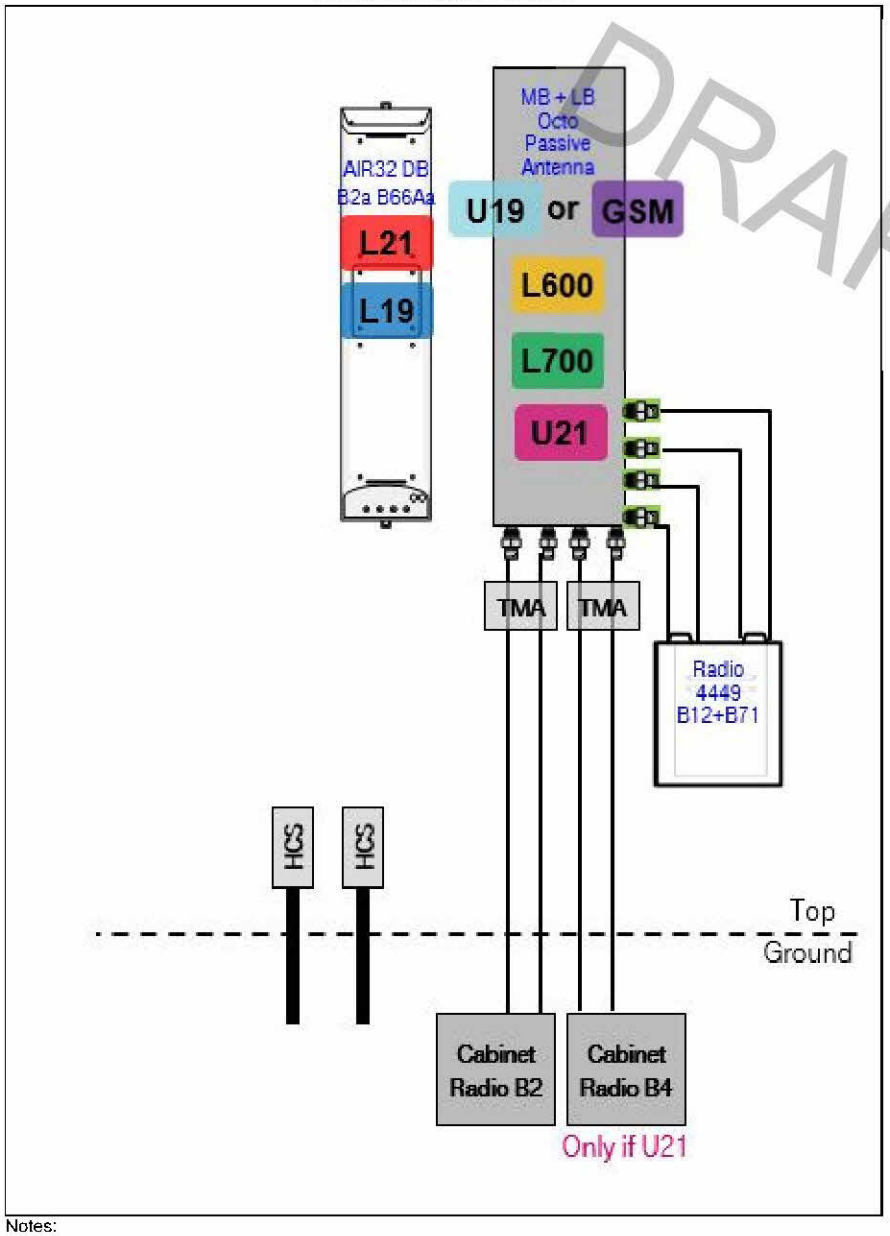
AL_704E.png


Configuration 704E
Alpha Sector
Mid band
Mid band
Low band
AntennaUnit=1
AntennaSubunit=1
L21
AntennaUnit=2
AntennaSubunit=1
GSM
AntennaUnit=3
AntennaSubunit=1
L700
RET
AntennaUnitGroup=1/2/3
AntennaNearUnit=3
RetSubUnit=1
RET (defined in L2100)
AntennaUnitGroup=1/2/3
AntennaNearUnit=4
RetSubUnit=1
ACU
AuPort=1
AuPort=2
RET
AntennaUnitGroup=1/2/3
AntennaNearUnit=1
RetSubUnit=1
AISG2.0
ATMA
TMA
AntennaUnitGroup=1/2/3
AntennaNearUnit=2
TmaSubUnit=1 and 2
If TMA 1C is used
AntennaUnitGroup=1/2/3
AntennaNearUnit=2
TmaSubUnit=1 and 2
Black labels represent MOs defined in RBS6201 #2
Red labels represent MOs defined in RBS6201 #1
Cable legend
RF
RF+DC
RF+DC+AISG
DC+AISG
Antenna
Ground
GSM
L21
L700
RBS #1
RBS #2
RfBranch=1
RfBranch=2
RUS01 B4 (L21)
RUS01 B2 (GSM)
RUS01 B12 (L700)
RU-1-1
RU-1-2
RU-2-1

Notes:

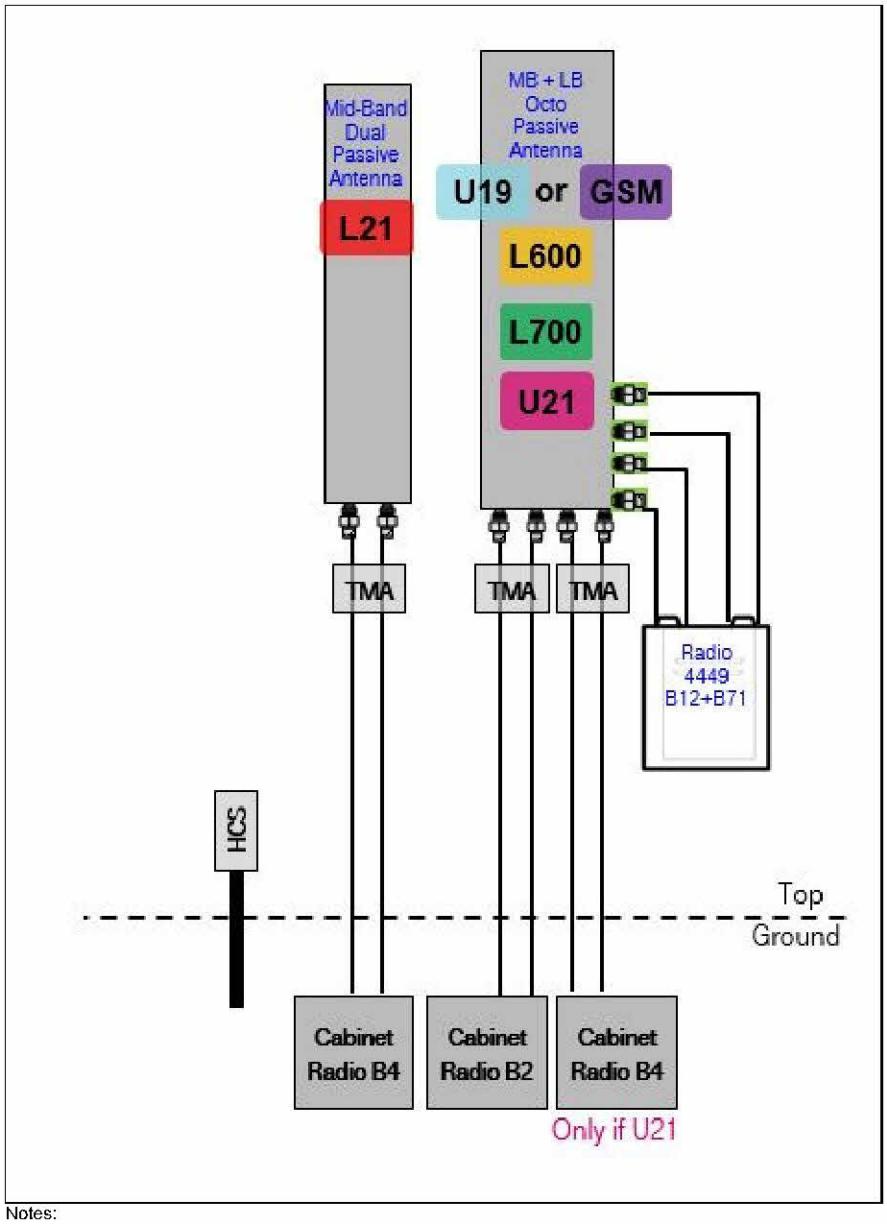
Section 3 - Proposed Template Images

67D95FDB_1xAIR+1OP.JPG



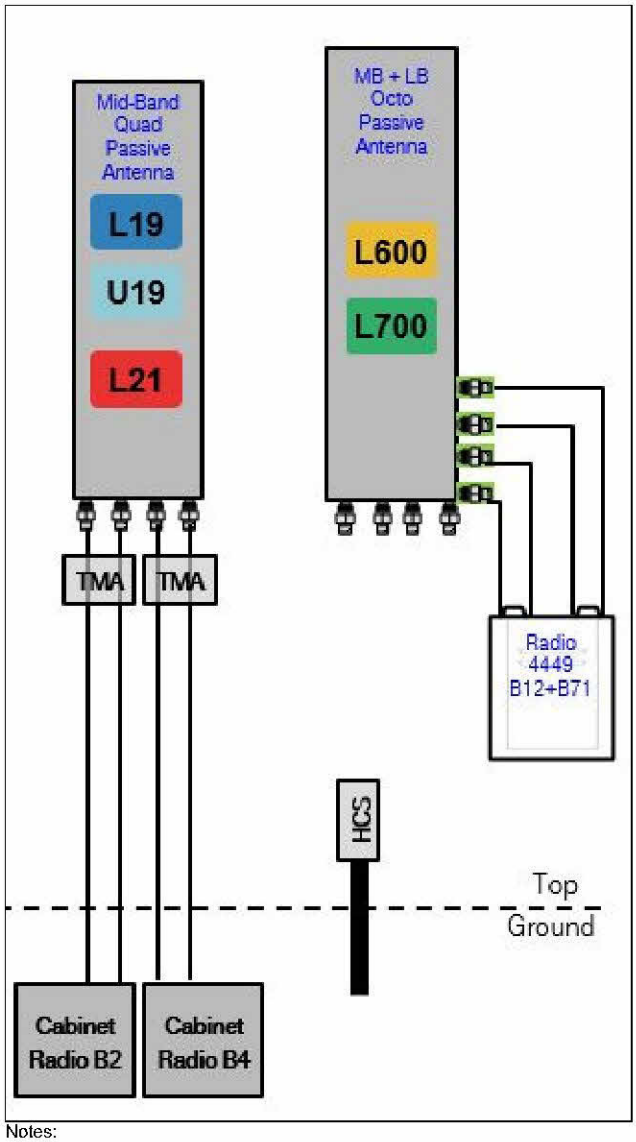
Notes:

67D05F_1DP+1OP.JPG



Notes:

67D95F_1QP+1OP.JPG


Mid-Band
Quad
Passive
Antenna
L19
U19
L21
MB + LB
Octo
Passive
Antenna
L600
L700
TMA
TMA
Radio
4449
B12+B71
HCS
Top
Ground
Cabinet
Radio B2
Cabinet
Radio B4

Notes:

Section 4 - Siteplan Images

----- This section is intentionally blank. -----

RAN Template:	A&L Template:	Power System Template:
67D95F	67D05F_1DP+1OP	Custom

CT11332C_L600_1.1_draft

Section 5 - RAN Equipment

Existing RAN Equipment

Template: 704E

Enclosure	1	2
Enclosure Type	RBS 6201 ODE	RBS 6201 ODE
Baseband	DUG20 (G1900), DUL20 (L2100)	DUL20 (L700)
Radio	RUS01 B2 (x3) (G1900), RUS01 B4 (x6) (L2100)	RUS01 B12 (x6) (L700)

Proposed RAN Equipment

Template: 67D95F

Enclosure	1	2	3
Enclosure Type	RBS 6102 MU AC	Ancillary Equipment	PTS 8003
Baseband	BB 5216 (L2100, L1900, L700, L600), DUW30 (U1900)		
Hybrid Cable System		Ericsson 6x12 HCS 6AWG 80m Ericsson 6x12 HCS 4AWG 80m	
Multiplexer	XMU (L2100, L1900, L700, L600)		
Radio	RUS01 B2 (x3) (L1900), RUS01 B2 (x3) (U1900, L1900), RUS01 B4 (x6) (L2100)		

RAN Scope of Work:

RAN Template:	A&L Template:	Power System Template:
67D95F	67D05F_1DP+1OP	Custom

CT11332C_L600_1.1_draft

Section 6 - A&L Equipment

Existing Template: 704E_3DP
Proposed Template: 67D05F_1DP+1OP

Sector 1 (Existing) view from behind		
Address	**Address:** **City, State:** , **Latitude:** 41.3916637700 **Longitude:** -73.0528877000	
Coverage Type	A - Outdoor Macro	
Antenna	1	2
Antenna Model	EMS - RR90-17-02DP (Dual)	Andrew - LNX-6515DS-A1M (Dual)
Azimuth	60	60
M. Tilt		
Height	247	247
Ports	P1	P2
Active Tech.	L2100 G1900	L700
Dark Tech.		
Restricted Tech.		
Decomm. Tech.		
E. Tilt	2	2
Cables	1-5/8" Coax - 210 ft. (x2)	1-5/8" Coax - 210 ft. (x2)
TMAs	Generic Twin Style 1B - AWS (AtAntenna) Generic Twin Style 1A - PCS (AtAntenna)	
Diplexers / Combiners	Generic AWS/PCS Diplexer (AtAntenna)	
Radio		
Sector Equipment		

Unconnected Equipment:

Scope of Work:

RAN Template:	A&L Template:	Power System Template:
67D95F	67D05F_1DP+1OP	Custom

CT11332C_L600_1.1_draft

Sector 1 (Proposed) view from behind					
Coverage Type	A - Outdoor Macro				
Antenna	1	2			
Antenna Model	RFS - APX18-206516L-CT0 (Dual)	RFS - APXVAARR24_43-U-NA20 (Octo)			
Azimuth					
M. Tilt					
Height					
Ports	P1	P2	P3	P4	P5
Active Tech.	L2100	U2100 U1900 G1900		L700 L600	L700 L600
Dark Tech.					
Restricted Tech.					
Decomm. Tech.					
E. Tilt					
Cables	Generic Feeder Coax (x2)	Generic Feeder Coax (x2) Coax Jumper (x2)		Coax Jumper (x2)	Coax Jumper (x2)
TMAs	RFS Twin Style 1BX - ATMA4D-VA20 (AtAntenna)	RFS Twin Style 3CX - ATMA4P4DBP-1A20 (AtAntenna)			
Diplexers / Combiners		Ericsson Double AWS/PCS - KRF 102 267/2 (AtAntenna)			
Radio				Radio 4449 B71+B12 (At Antenna)	
Sector Equipment					

Unconnected Equipment:

Scope of Work:

RAN Template:	A&L Template:	Power System Template:
67D95F	67D05F_1DP+1OP	Custom

CT11332C_L600_1.1_draft

Sector 2 (Existing) view from behind		
Address	Address: City, State: ,	Latitude: 41.3916637700 Longitude: -73.0528877000
Coverage Type	A - Outdoor Macro	
Antenna	1	2
Antenna Model	EMS - RR90-17-02DP (Dual)	Andrew - LNX-6515DS-A1M (Dual)
Azimuth	250	250
M. Tilt		
Height	247	247
Ports	P1	P2
Active Tech.	L2100 G1900	L700
Dark Tech.		
Restricted Tech.		
Decomm. Tech.		
E. Tilt	2	2
Cables	1-5/8" Coax - 210 ft. (x2)	1-5/8" Coax - 210 ft. (x2)
TMAs	Generic Twin Style 1B - AWS (AtAntenna) Generic Twin Style 1A - PCS (AtAntenna)	
Diplexers / Combiners	Generic AWS/PCS Diplexer (AtAntenna)	
Radio		
Sector Equipment		

Unconnected Equipment:

Scope of Work:

RAN Template:	A&L Template:	Power System Template:
67D95F	67D05F_1DP+1OP	Custom

CT11332C_L600_1.1_draft

Sector 2 (Proposed) view from behind					
Coverage Type	A - Outdoor Macro				
Antenna	1	2			
Antenna Model	RFS - APX18-206516L-CT0 (Dual)	RFS - APXVAARR24_43-U-NA20 (Octo)			
Azimuth					
M. Tilt					
Height					
Ports	P1	P2	P3	P4	P5
Active Tech.	L2100	U2100 U1900 G1900		L700 L600	L700 L600
Dark Tech.					
Restricted Tech.					
Decomm. Tech.					
E. Tilt					
Cables	Generic Feeder Coax (x2)	Generic Feeder Coax (x2) Coax Jumper (x2)		Coax Jumper (x2)	Coax Jumper (x2)
TMAs	RFS Twin Style 1BX - ATMA4D-VA20 (AtAntenna)	RFS Twin Style 3CX - ATMA4P4DBP-1A20 (AtAntenna)			
Diplexers / Combiners		Ericsson Double AWS/PCS - KRF 102 267/2 (AtAntenna)			
Radio				Radio 4449 B71+B12 (At Antenna)	
Sector Equipment					

Unconnected Equipment:

Scope of Work:

RAN Template:	A&L Template:	Power System Template:
67D95F	67D05F_1DP+1OP	Custom

CT11332C_L600_1.1_draft

Sector 3 (Existing) view from behind		
Address	Address: City, State: ,	Latitude: 41.3916637700 Longitude: -73.0528877000
Coverage Type	A - Outdoor Macro	
Antenna	1	2
Antenna Model	EMS - RR90-17-02DP (Dual)	Andrew - LNX-6515DS-A1M (Dual)
Azimuth	335	335
M. Tilt		
Height	247	247
Ports	P1	P2
Active Tech.	L2100 G1900	L700
Dark Tech.		
Restricted Tech.		
Decomm. Tech.		
E. Tilt	2	2
Cables	1-5/8" Coax - 210 ft. (x2)	1-5/8" Coax - 210 ft. (x2)
TMAs	Generic Twin Style 1B - AWS (AtAntenna) Generic Twin Style 1A - PCS (AtAntenna)	
Diplexers / Combiners	Generic AWS/PCS Diplexer (AtAntenna)	
Radio		
Sector Equipment		

Unconnected Equipment:

Scope of Work:

RAN Template:	A&L Template:	Power System Template:
67D95F	67D05F_1DP+1OP	Custom

CT11332C_L600_1.1_draft

Sector 3 (Proposed) view from behind					
Coverage Type	A - Outdoor Macro				
Antenna	1	2			
Antenna Model	RFS - APX18-206516L-CT0 (Dual)	RFS - APXVAARR24_43-U-NA20 (Octo)			
Azimuth					
M. Tilt					
Height					
Ports	P1	P2	P3	P4	P5
Active Tech.	L2100	U2100 U1900 G1900		L700 L600	L700 L600
Dark Tech.					
Restricted Tech.					
Decomm. Tech.					
E. Tilt					
Cables	Generic Feeder Coax (x2)	Generic Feeder Coax (x2) Coax Jumper (x2)		Coax Jumper (x2)	Coax Jumper (x2)
TMAs	RFS Twin Style 1BX - ATMA4D-VA20 (AtAntenna)	RFS Twin Style 3CX - ATMA4P4DBP-1A20 (AtAntenna)			
Diplexers / Combiners		Ericsson Double AWS/PCS - KRF 102 267/2 (AtAntenna)			
Radio				Radio 4449 B71+B12 (At Antenna)	
Sector Equipment					

Unconnected Equipment:

Scope of Work:

RAN Template:	A&L Template:	Power System Template:
67D95F	67D05F_1DP+1OP	Custom

CT11332C_L600_1.1_draft

Section 7 - Power Systems Equipment

Existing Power Systems Equipment

----- This section is intentionally blank. -----

Proposed Power Systems Equipment

RADIO FREQUENCY SYSTEMS
The Clear Choice®

Dual Slant Polarized Quad Band (8 Port) Antenna, 617-746/617-746/1695-2200/1695-2200MHz, 65deg, 15/15/18/18dBi, 2.4m (8ft), VET, RET, 0-12°/0-12°/2-12°/2-12°

FEATURES / BENEFITS

This antenna provides a 8 Port multi-band flexible platform for advanced use for flexible use in deployment scenarios for encompassing 600MHz, 700MHz, AWS & PCS applications.

- **24 Inch Width For Easier Zoning**
- **Field Replaceable (Integrated) AISG RET platform for reduced environmental exposure and long lasting quality**
- **Superior elevation pattern performance across the entire electrical down tilt range**
- **Includes three AISG RET motors - Includes 0.5m AISG jumper for optional diasy chain of two high band RET motors for one single AISG point of high band tilt control.**
- **Low band arrays driven by a single RET motor**

Technical Features

LOW BAND LEFT ARRAY (617-746 MHZ) [R1]

Frequency Band	MHz	617-698	698-746
Gain	dBi	15.1	15.5
Horizontal Beamwidth @3dB	Deg	65	62
Vertical Beamwidth @3dB	Deg	11.4	10.4
Electrical Downtilt Range	Deg	0-12	0-12
Upper Side Lobe Suppression 0 to +20	dB	19	20
Front-to-Back, at +/-30°, Copolar	dB	25	24
Cross Polar Discrimination (XPD) @ Boresight	dB	19	19
Cross Polar Discrimination (XPD) @ +/-60	dB	5	3
3rd Order PIM 2 x 43dBm	dBc		-153
VSWR	-	1.5:1	1.5:1
Cross Polar Isolation	dB	25	25
Maximum Effective Power per Port	Watt	250	250

LOW BAND RIGHT ARRAY (617-746 MHZ) [R2]

Frequency Band	MHz	617-698	698-746
Gain	dBi	14.8	15.1
Horizontal Beamwidth @3dB	Deg	65	62
Vertical Beamwidth @3dB	Deg	11.4	10.3
Electrical Downtilt Range	Deg	0-12	0-12
Upper Side Lobe Suppression 0 to +20	dB	19	20
Front-to-Back, at +/-30°, Copolar	dB	25	23
Cross Polar Discrimination (XPD) @ Boresight	dB	19	19
Cross Polar Discrimination (XPD) @ +/-60	dB	5	3
3rd Order PIM 2 x 43dBm	dBc		-153
VSWR	-	1.5:1	1.5:1
Cross Polar Isolation	dB	25	25
Maximum Effective Power per Port	Watt	250	250

RADIO FREQUENCY SYSTEMS
The Clear Choice®

Dual Slant Polarized Quad Band (8 Port) Antenna, 617-746/617-746/1695-2200/1695-2200MHz, 65deg, 15/15/18/18dBi, 2.4m (8ft), VET, RET, 0-12°/0-12°/2-12°/2-12°

ELECTRICAL SPECIFICATIONS

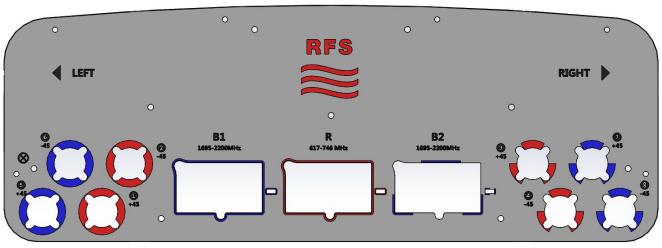
Impedance	Ohm	50.0
Polarization	Deg	±45°

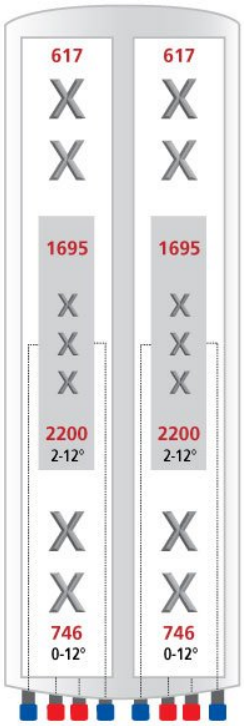
MECHANICAL SPECIFICATIONS

Dimensions - H x W x D	mm (in)	2436 x 609 x 222 (95.9 x 24 x 8.7)
Weight (Antenna Only)	kg (lb)	58 (128)
Weight (Mounting Hardware only)	kg (lb)	11.5 (25.3)
Shipping Weight	kg (lb)	80 (176)
Connector type		8 x 4.3-10 female at bottom + 6 AISG connectors (3 male, 3 female)
Adjustment mechanism		Integrated RET solution AISG compliant (Field Replaceable) + Manual Override + External Tilt Indicator
Mounting Hardware Material		Galvanized steel
Radome Material / Color		Fiber Glass / Light Grey RAL7035

TESTING AND ENVIRONMENTAL

Temperature Range	°C (°F)	-40 to 60 (-40 to 140)
Lightning protection		IEC 61000-4-5
Survival/Rated Wind Velocity	km/h	241 (150)
Environmental		ETSI 300-019-2-4 Class 4.1E





ORDERING INFORMATION

Order No.	Configuration	Mounting Hardware	Mounting pipe Diameter	Shipping Weight
APXVAARR24_43-U-NA20	Field Replace RET included (3)	APM40-5E Beam tilt kit (included)	60-120mm	80 Kg

T · · Mobile ·

WIRELESS COMMUNICATIONS FACILITY

DERBY / RT 34

SITE ID: CT11332C

2 PROGRESS AVE

SEYMOUR, CT 06483

T-MOBILE RF CONFIGURATION

67D05F_1DP+1OP

PROJECT SUMMARY

1. THE PROPOSED SCOPE OF WORK CONSISTS OF A MODIFICATION TO THE EXISTING UNMANNED TELECOMMUNICATIONS FACILITY INCLUDING THE FOLLOWING:

   A. REMOVE (6) EXISTING ANTENNAS, (2) PER SECTOR
   B. INSTALL (6) NEW RFS ANTENNAS, (2) PER SECTOR
   C. INSTALL (3) NEW RADIO 4449 B71+B12'S, (1) PER SECTOR
   D. INSTALL (2) NEW HYBRID CABLES, (1) PER SECTOR
   E. REMOVE (6) EXISTING TMAS, (2) PER SECTOR FOR (6) NEW TMA'S (2) PER SECTOR
   F. REMOVE (3) EXISTING DIPLEXERS, (1) PER SECTOR FOR (3) NEW DIPLEXERS, (1) PER SECTOR
   G. REMOVE (2) EXISTING EQUIPMENT CABINETS.
   H. INSTALL (1) RBS6102 EQUIPMENT CABINET.

PROJECT INFORMATION

SITE NAME:	DERBY / RT 34
SITE ID:	CT11332C
SITE ADDRESS:	2 PROGRESS AVE SEYMOUR, CT 06483
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°-23'-30.36" N LONGITUDE: 73°-03'-10.13" W GROUND ELEVATION: 485'± 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, ELEVATION AND ANTENNA MOUNTING CONFIG.	0
E-1	TYPICAL ELECTRICAL DETAILS	0

GENERAL NOTES

1. ALL WORK SHALL BE IN ACCORDANCE WITH THE 2012 INTERNATIONAL BUILDING CODE AS MODIFIED BY THE 2016 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

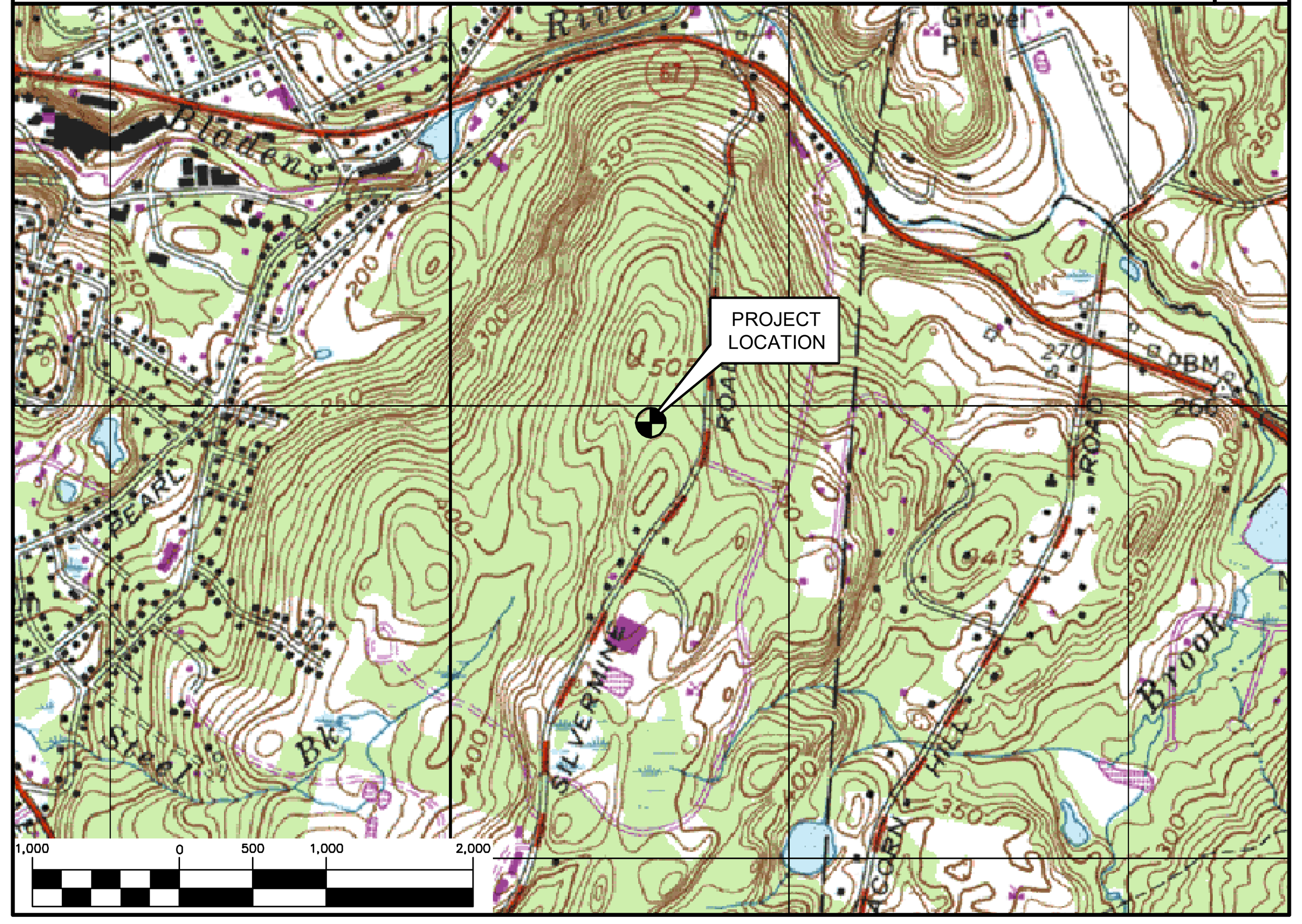
TO: 2 PROGRESS AVE, SEYMOUR, CT 06483

1.	HEAD NORTH ON GRIFFIN ROAD S. TOWARD HARTMAN RD.	0.30 MI.
2.	TAKE THE 2ND RIGHT ONTO DAY HILL RD.	3.64 MI.
3.	MERGE ONTO I-91 S TOWARD HARTFORD.	26.38 MI.
4.	MERGE ONTO CT-15 S/WILBUR CROSS PKWY S VIA EXIT 17 TOWARD E MAIN ST.	18.18 MI.
5.	TAKE THE CT-69 EXIT, EXIT 59, TOWARD CT-63/NEW HAVEN/WOODBRIDGE.	0.20 MI.
6.	TURN LEFT ONTO WHALLEY AVE/CT-69. CONTINUE TO FOLLOW CT-69.	0.12 MI.
7.	URN LEFT ONTO LUCY ST.	0.21 MI.
8.	TAKE THE 1ST RIGHT ONTO AMITY RD/CT-63.	2.96 MI.
9.	TURN LEFT ONTO SEYMOUR RD/CT-67. CONTINUE TO FOLLOW CT-67.	2.88 MI.
10.	TURN LEFT ONTO COGWHEEL LN.	0.45 MI.
11.	TAKE THE 1ST RIGHT ONTO PROGRESS AVE.	0.00 MI.
12.	2 PROGRESS AVE, SEYMOUR, CT 06483-3921, 2 PROGRESS AVE IS ON THE RIGHT.	

VICINITY MAP

SCALE: 1" = 1000'

NORTH



PROFESSIONAL ENGINEER SEAL

REV.	DATE	DRAWN BY	CHK'D BY	DESCRIPTION
0	07/12/18	KAWJR	TJL	ISSUED FOR CONSTRUCTION

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Centered on Solutions
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Branford, CT 06405
www.CentekEng.com

T-MOBILE NORTHEAST LLC
WIRELESS COMMUNICATIONS FACILITY
DERBY / RT 34
SITE ID: CT11332C
2 PROGRESS AVE
SEYMOUR, CT 06483

DATE:	05/30/18
SCALE:	AS NOTED
JOB NO.	18058.79

TITLE SHEET

T-1

DESIGN BASIS:

GOVERNING CODE: 2012 INTERNATIONAL BUILDING (IBC) AS MODIFIED BY THE 2016 CT STATE BUILDING CODE AND AMENDMENTS.

1. DESIGN CRITERIA:

- WIND LOAD: PER TIA 222 G (ANTENNA MOUNTS):
- RISK CATEGORY: II (BASED ON IBC TABLE 1604.5)
- NOMINAL DESIGN SPEED (OTHER STRUCTURE): 97 MPH (Vasd) (EXPOSURE B/IMPORTANCE FACTOR 1.0 BASED ON ASCE 7-10) PER 2012 INTERNATIONAL BUILDING CODE (IBC) AS MODIFIED BY THE 2016 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
0	07/12/18	KAWJR	TJL	ISSUED FOR CONSTRUCTION

PROFESSIONAL ENGINEER SEAL

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T-MOBILE NORTHEAST LLC
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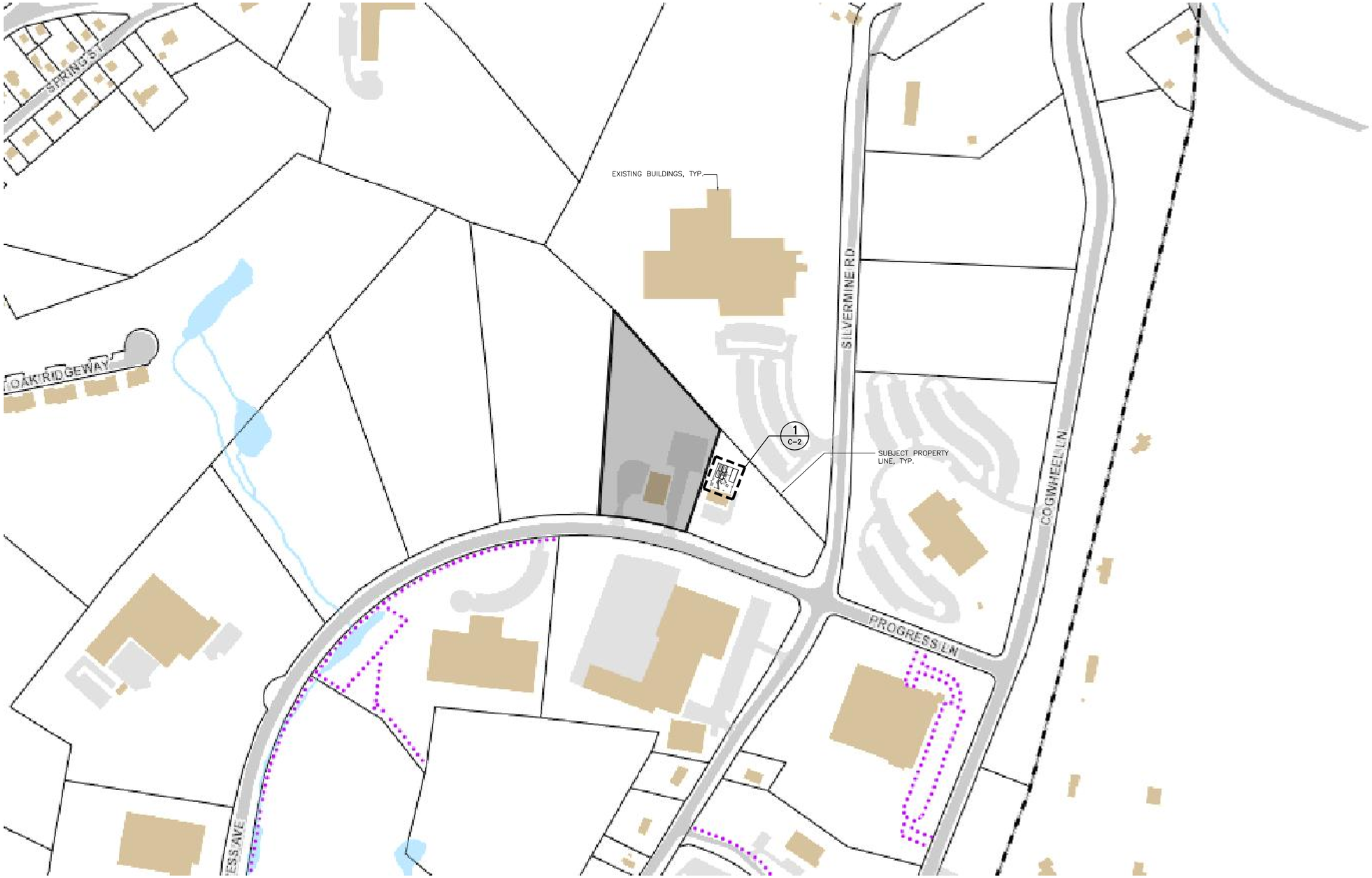
DERBY / RT 34
SITE ID: CT11332C
2 PROGRESS AVE
SEYMOUR, CT 06483

DATE: 05/30/18
SCALE: AS NOTED
JOB NO. 18058.79

DESIGN BASIS AND SITE NOTES

N-1



1 C-1 **SITE LOCATION PLAN**
SCALE: 1" = 150'

APPROX. NORTH

GRAPHIC SCALE
150 0 75 150 300 600
(IN FEET)
1 inch = 150 ft.

REV.	DATE	DRAWN BY	CHK'D BY	DESCRIPTION
0	07/12/18	KAWJR	TJL	ISSUED FOR CONSTRUCTION

PROFESSIONAL ENGINEER SEAL

STATE OF CONNECTICUT — TIMOTHY J. LYNCH — 23538 — REGISTERED PROFESSIONAL ENGINEER

T-Mobile
Transcend Wireless

CENTEK engineering
Centered on Solutions℠
(203) 488-0580
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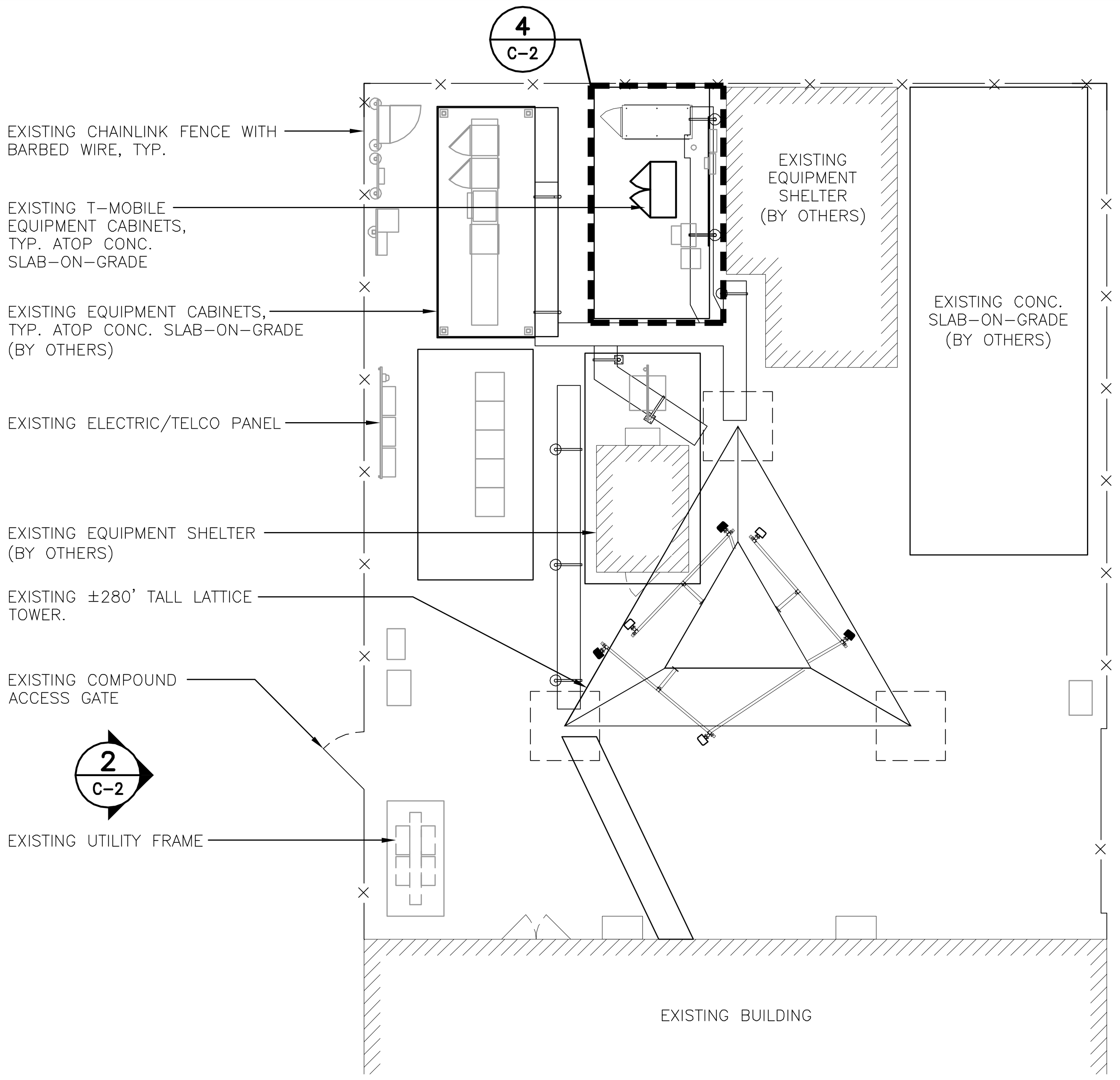
DATE: 05/30/18
SCALE: AS NOTED
JOB NO. 18058.79

SITE LOCATION PLAN

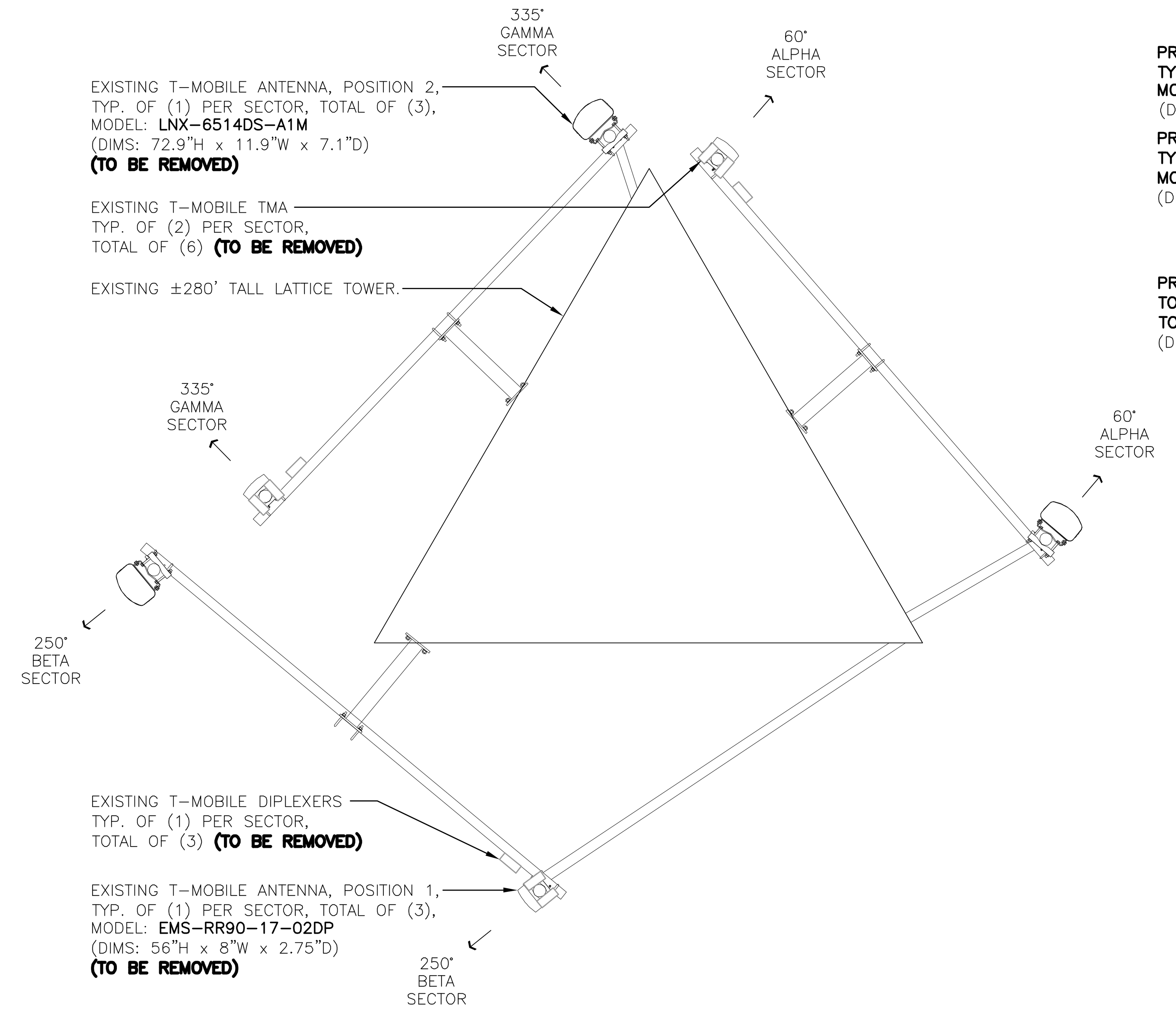
C-1

Sheet No. 3 of 5

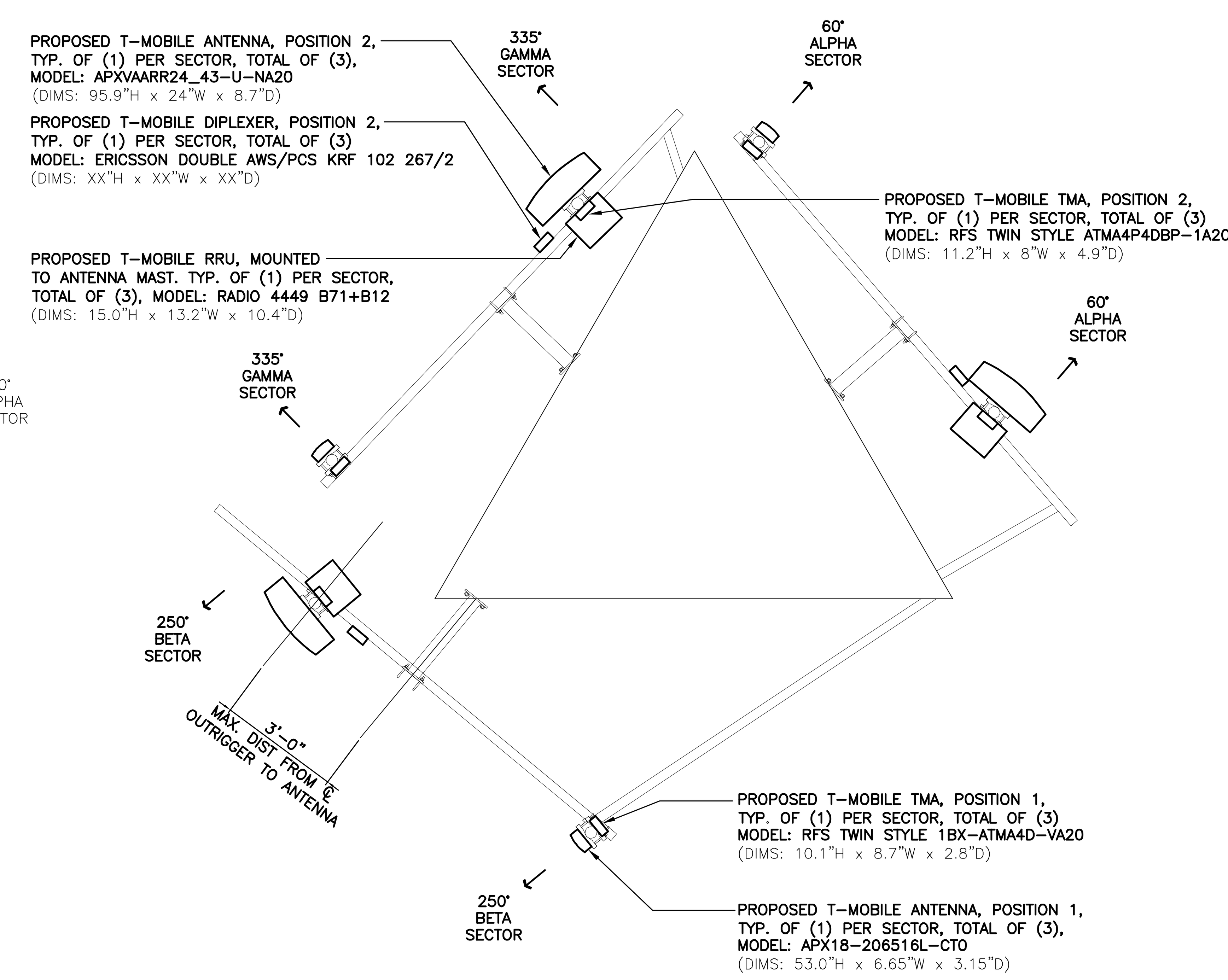


GRAPHIC SCALE
10 0 5 10 20 40
(IN FEET)
1 inch = 10 ft.

1 C-2 **COMPOUND PLAN**
SCALE: 1" = 10'
TRUE NORTH

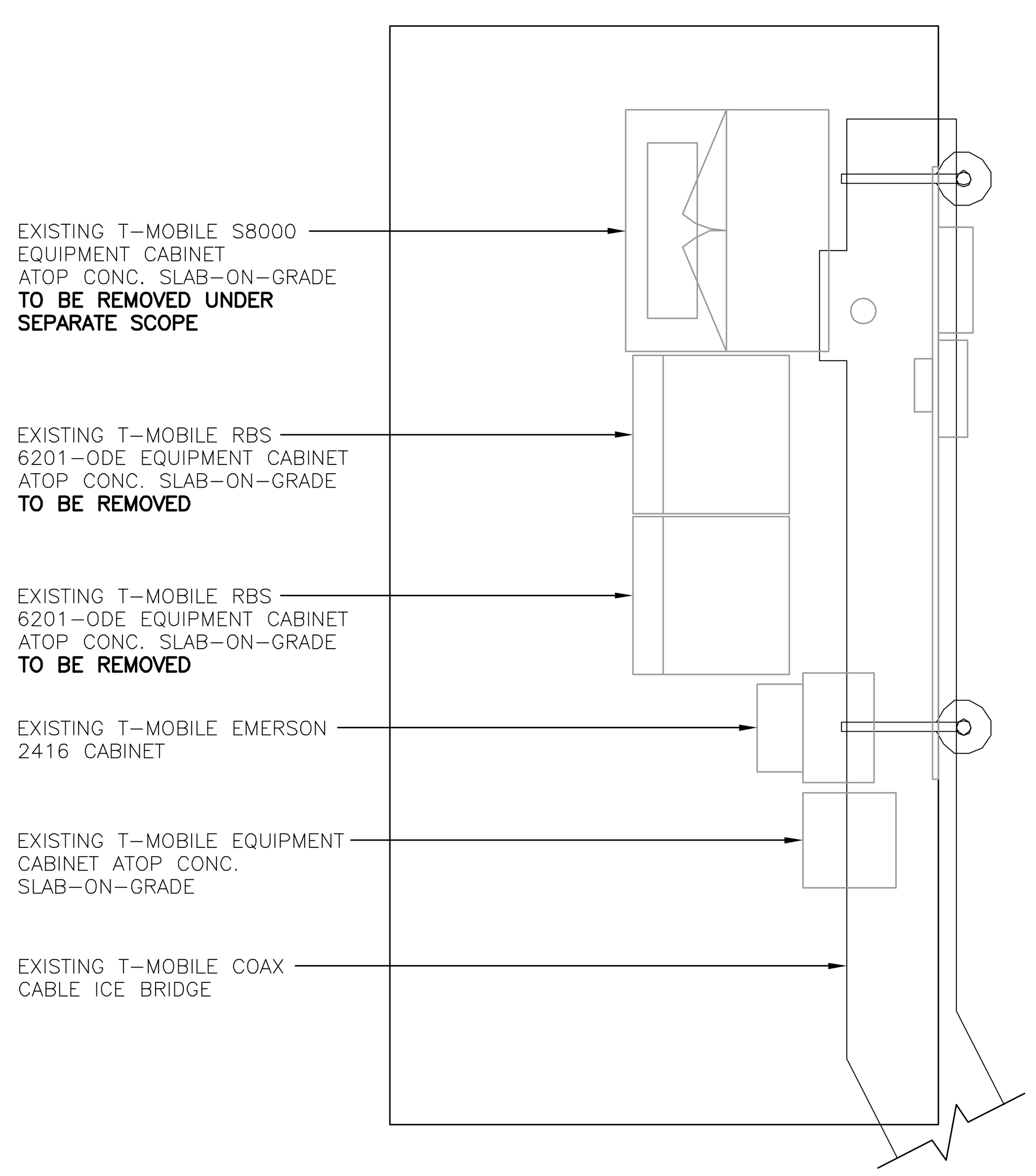


5 C-2 **EXISTING ANTENNA MOUNTING CONFIGURATION**
SCALE: 3/8" = 1'
247' ELEVATION
TRUE NORTH

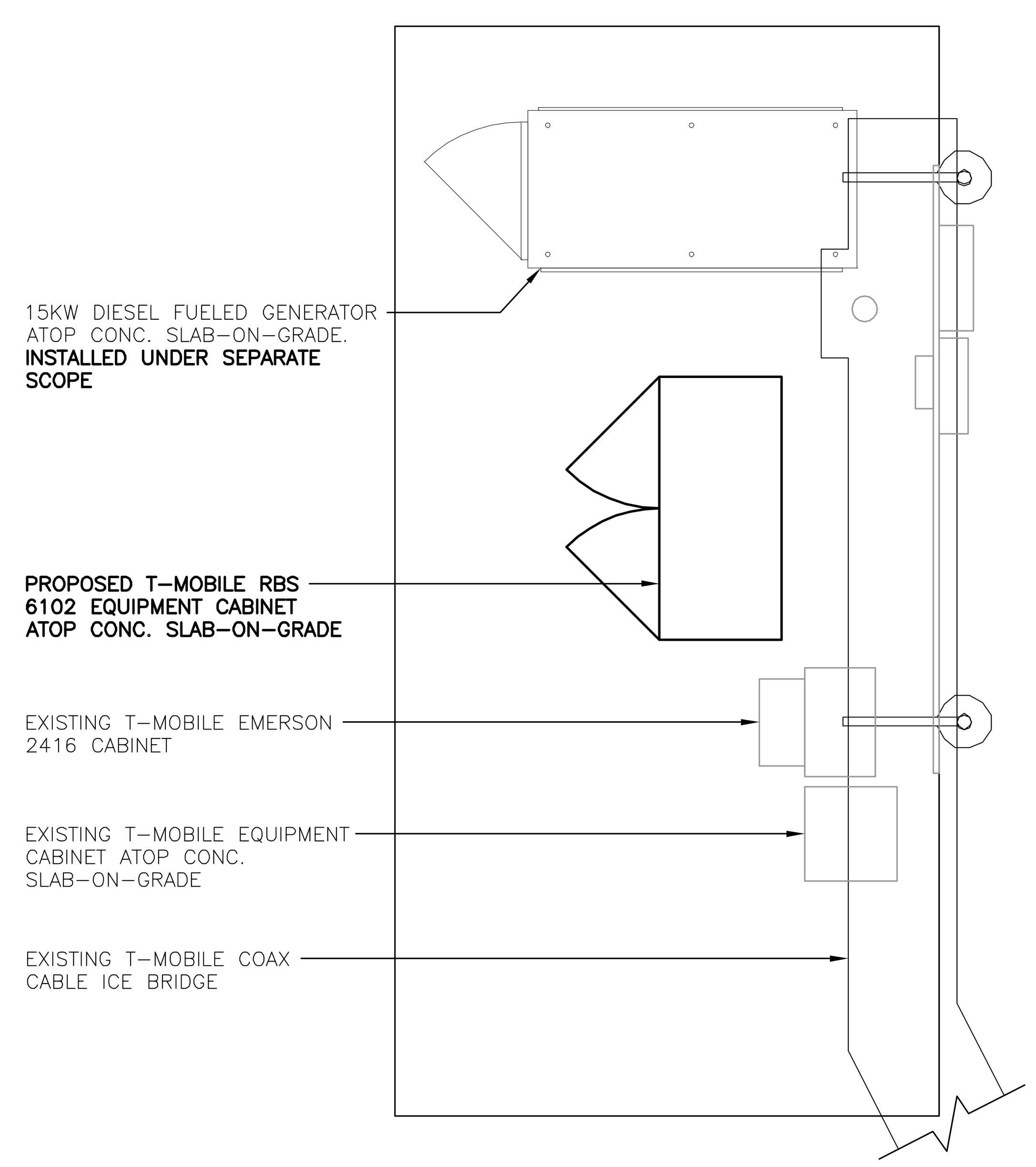


6 C-2 **PROPOSED ANTENNA MOUNTING CONFIGURATION**
SCALE: 3/8" = 1'
247' ELEVATION
TRUE NORTH

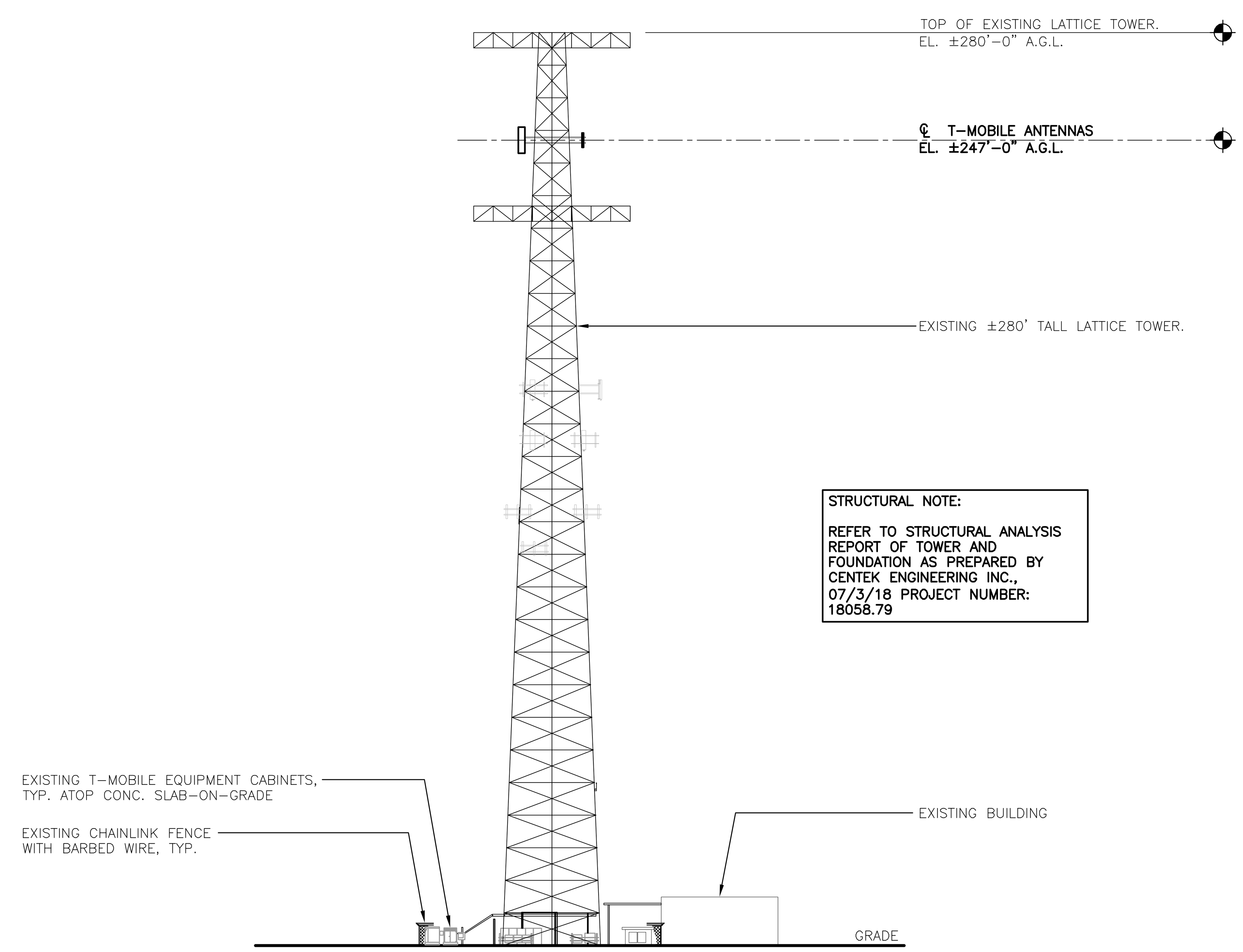
T-MOBILE RAN TEMPLATE: 67D95F
T-MOBILE RF CONFIGURATION: 67D05F_1DP+1OP



3 C-2 **EXISTING EQUIPMENT PLAN**
SCALE: 3/8" = 1'
TRUE NORTH



4 C-2 **PROPOSED EQUIPMENT PLAN**
SCALE: 3/8" = 1'
TRUE NORTH



STRUCTURAL NOTE:

REFER TO STRUCTURAL ANALYSIS REPORT OF TOWER AND FOUNDATION AS PREPARED BY CENTEK ENGINEERING INC., 07/3/18 PROJECT NUMBER: 18058.79

GRAPHIC SCALE
30 0 15 30 60 120
(IN FEET)
1 inch = 30 ft.

2 C-2 **TOWER ELEVATION**
SCALE: 1" = 30'

REV.	DATE	DRAWN BY	CHK'D BY	DESCRIPTION
0	07/12/18	KAWJR	TJL	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

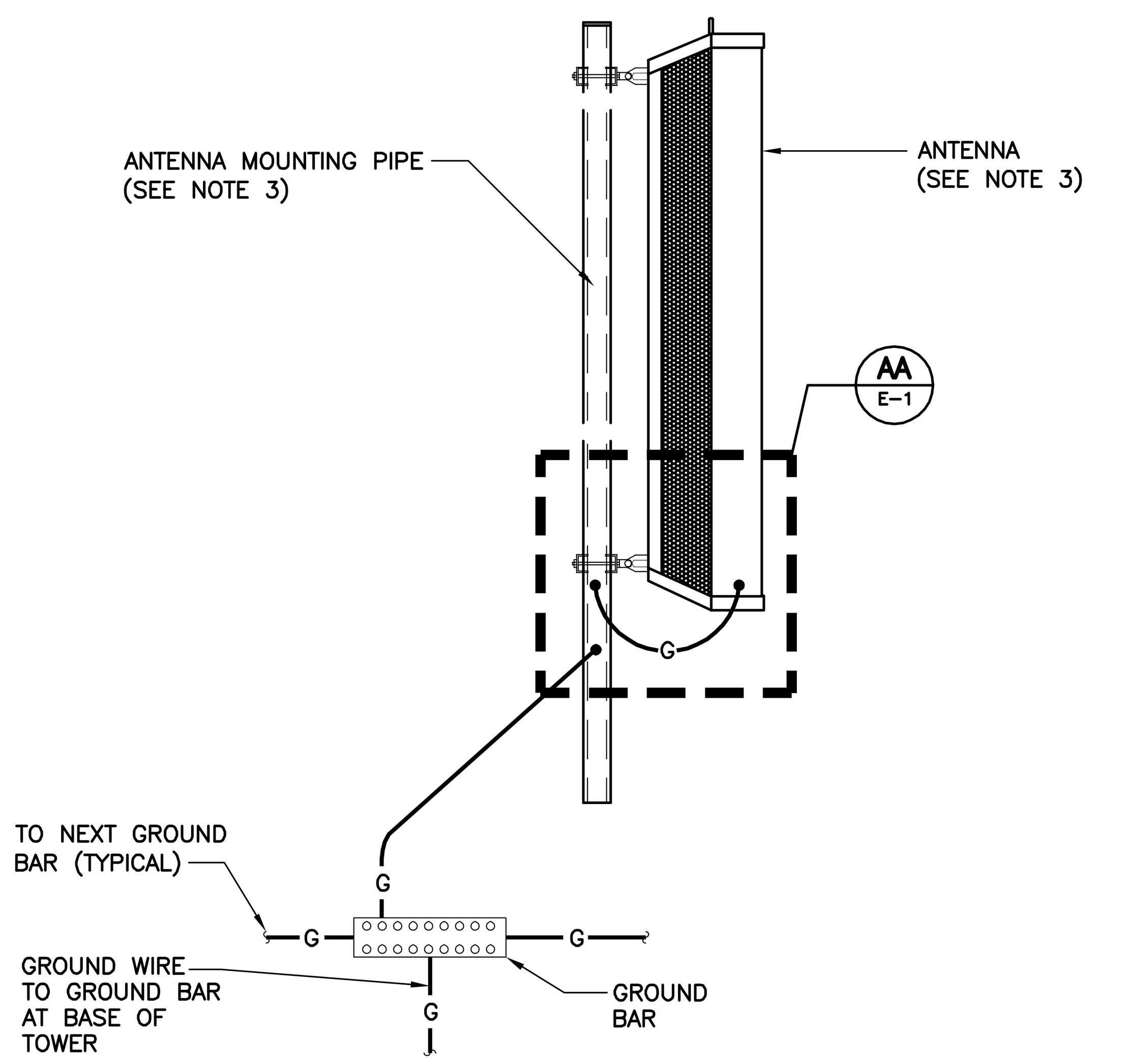
T-MOBILE NORTHEAST LLC
WIRELESS COMMUNICATIONS FACILITY
DERBY / RT 34
SITE ID: CT11332C
2 PROGRESS AVE
SEYMOUR, CT 06483

DATE:	05/30/18
SCALE:	AS NOTED
JOB NO.	18058.79

COMPOUND PLAN, ELEVATION AND ANTENNA MOUNTING CONFIG.

C-2

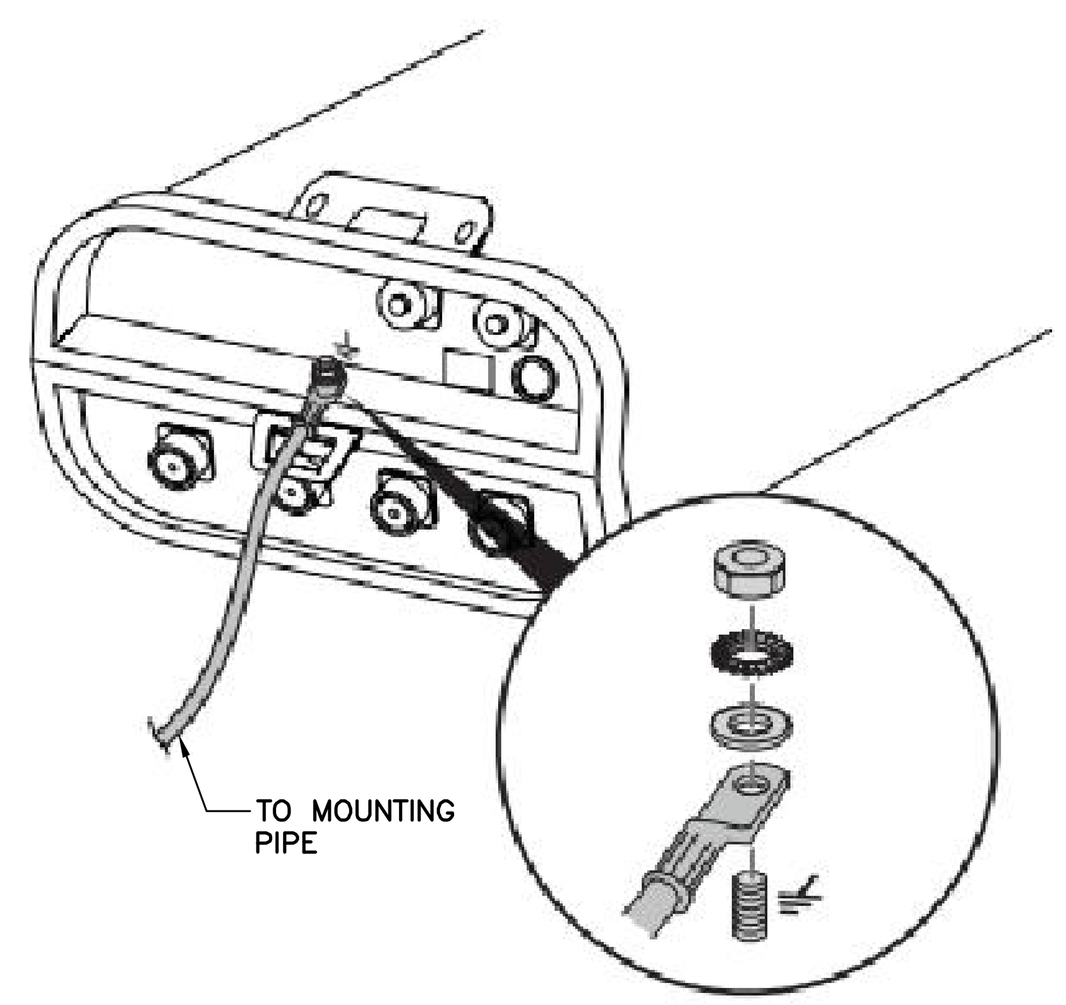
Sheet No. 4 of 5



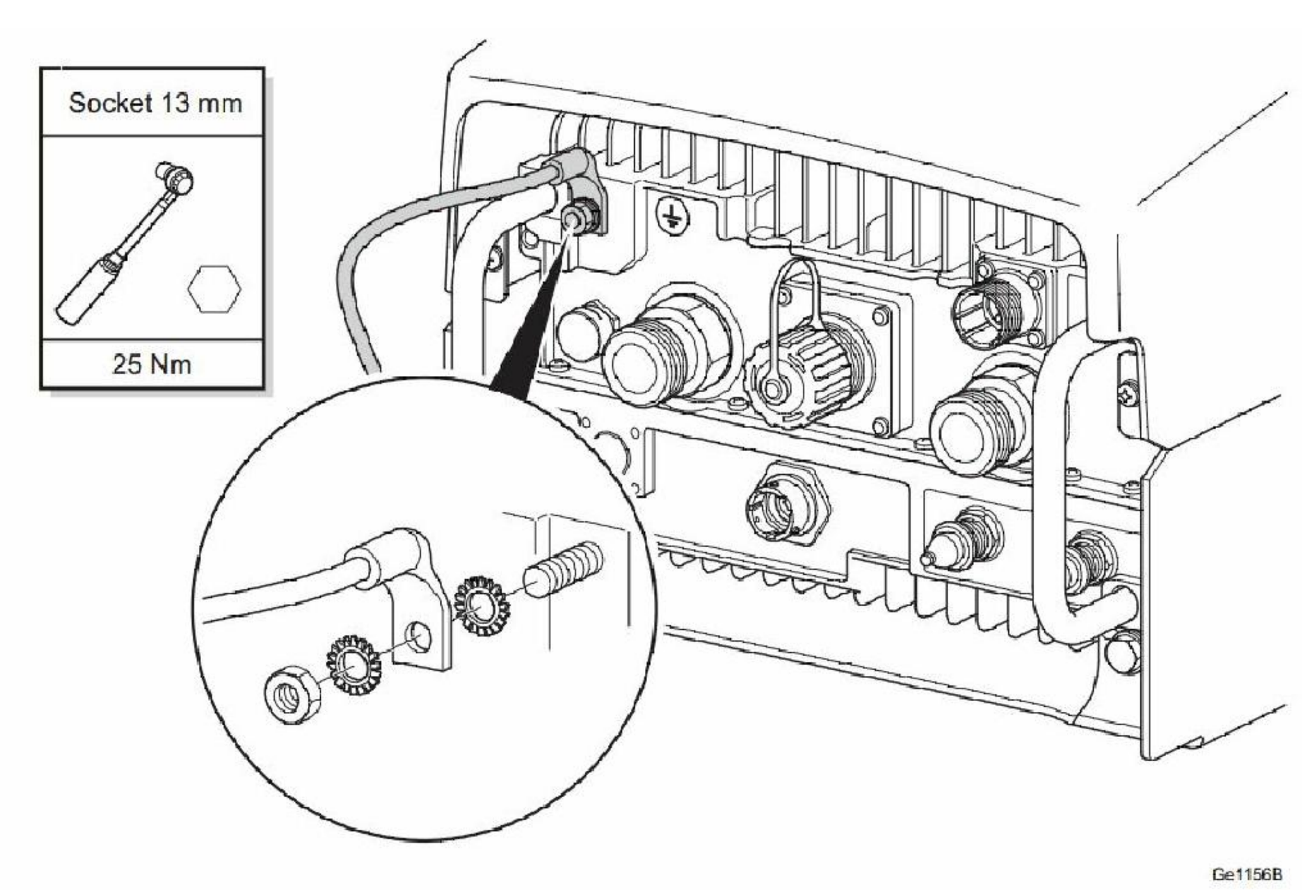
NOTES:

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.

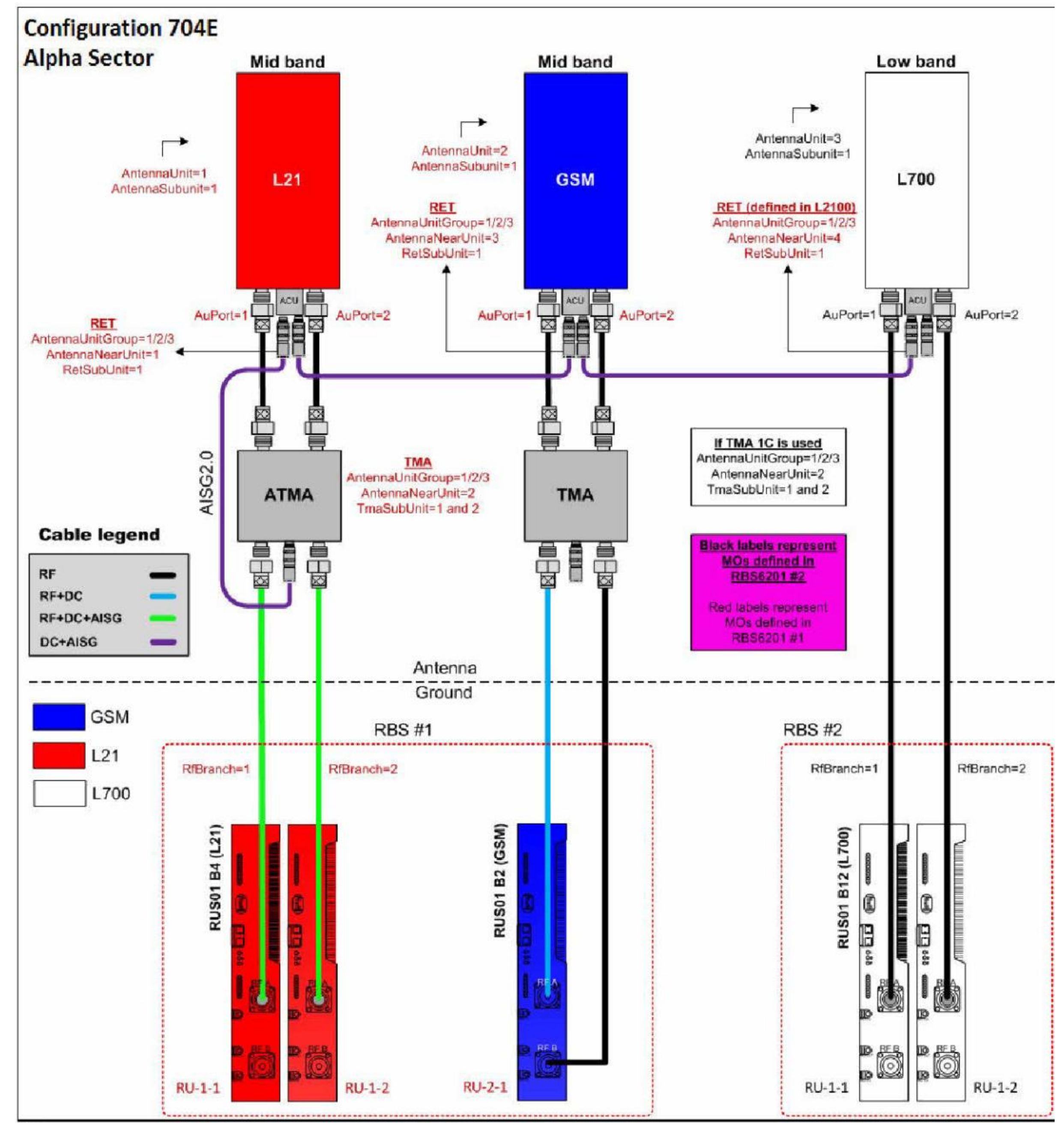
1 E-1 TYPICAL ANTENNA GROUNDING DETAIL
SCALE: NONE



AA E-1 TYPICAL ANTENNA GROUNDING DETAIL
SCALE: NONE



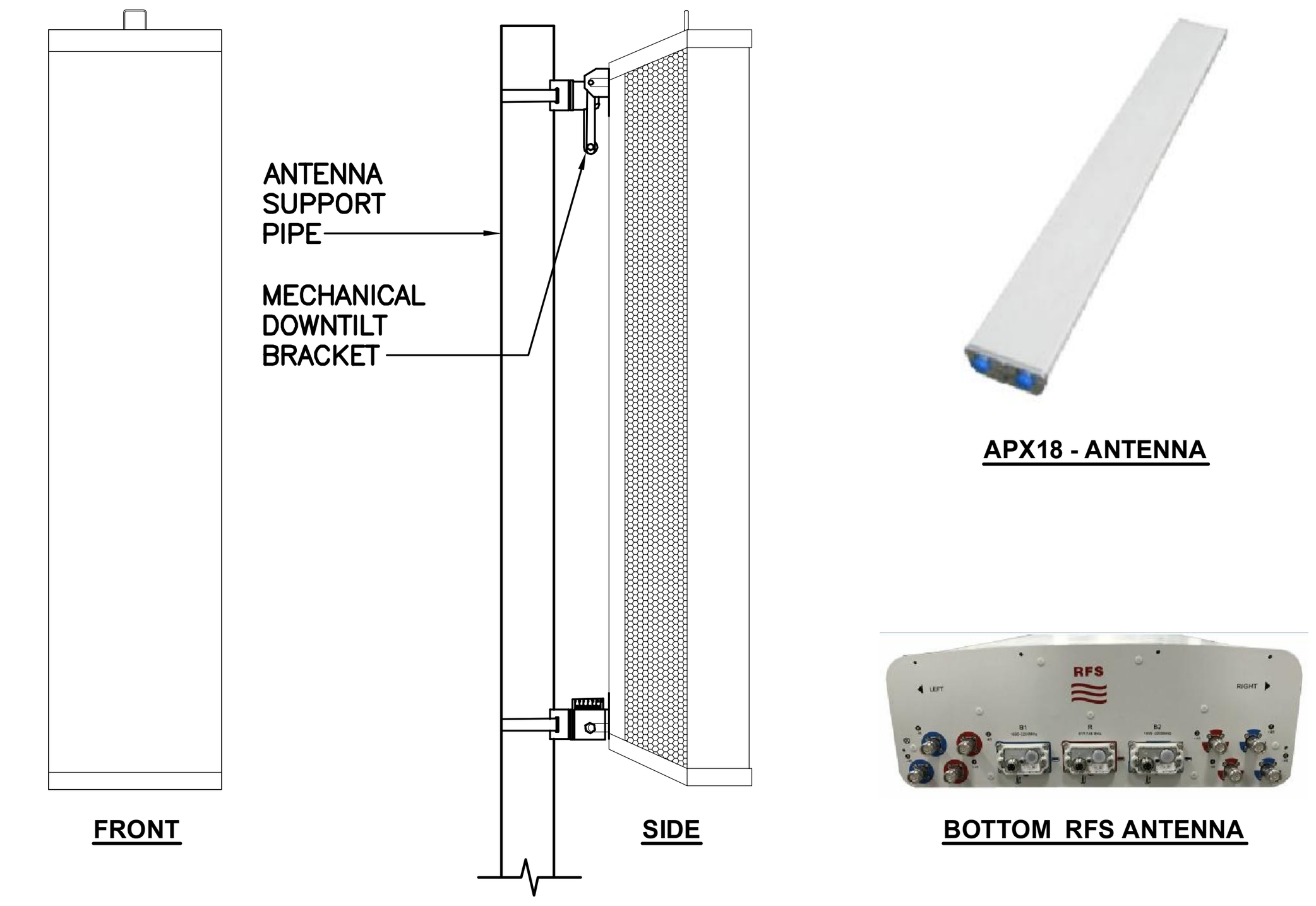
2 E-1 TYPICAL RRU GROUNDING DETAIL
NOT TO SCALE



3 E-1 PROPOSED PLUMBING DIAGRAM
SCALE: NONE

EQUIPMENT CABINET		
EQUIPMENT	DIMENSIONS	WEIGHT
MAKE: ERICSSON MODEL: 6102	57.09"H x 51.18"W x 27.56"D	727.53-LBS

4 E-1 ERICSSON RADIO CABINET DETAIL
SCALE: NTS



ALPHA/BETA/GAMMA ANTENNA		
EQUIPMENT	DIMENSIONS	WEIGHT
MAKE: RFS MODEL: APXVAARR24_43-U-NA20	95.9"L x 24.0"W x 8.7"D	153 LBS.
MAKE: RFS MODEL: APX18-206516L-CTO	53.0"L x 6.65"W x 3.15"D	18.7 LBS.

5 E-1 PROPOSED ANTENNA DETAIL
SCALE: NONE

TMA		
EQUIPMENT	DIMENSIONS	WEIGHT
MAKE: RFS MODEL: ATMA4P4DBP-1A20	11.2"H x 8"W x 4.9"D	15.85 LBS.
MAKE: RFS MODEL: ATMA4D-VA20	10.1"H 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.

6 E-1 PROPOSED TMA DETAILS
SCALE: NONE

ISOMETRIC VIEW

RRU (REMOTE RADIO UNIT)			
EQUIPMENT	DIMENSIONS	WEIGHT	CLEARANCES
MAKE: ERICSSON MODEL: RADIO 4449 B71B12	14.9"L x 13.2"W x 10.4"D	74 LBS.	ABOVE: 16" MIN. BELOW: 12" MIN. FRONT: 36" MIN.

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

7 E-1 PROPOSED RRU DETAIL
SCALE: NONE

REV.	DATE	DRAWN BY	CHK'D BY	DESCRIPTION
0	07/12/18	KAW/JR	TJL	ISSUED FOR CONSTRUCTION

PROFESSIONAL ENGINEER SEAL

T-Mobile
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T-MOBILE NORTHEAST LLC
WIRELESS COMMUNICATIONS FACILITY
DERBY / RT 34
SITE ID: CT11332C
2 PROGRESS AVE
SEYMOUR, CT 06483

DATE: 05/30/18
SCALE: AS NOTED
JOB NO. 18058.79

TYPICAL ELECTRICAL DETAILS

E-1

Sheet No. 5 of 5

Proof of Delivery

Close Window

Dear Customer,

This notice serves as proof of delivery for the shipment listed below.

Tracking Number:	1ZV257420194592628
Service:	UPS Next Day Air®
Weight:	1.00 lb
Shipped/Billed On:	07/13/2018
Delivered On:	07/26/2018 9:57 A.M.
Delivered To:	1 FIRST ST SEYMOUR, CT, US 06483
Received By:	MCMURRARY
Left At:	Inside Delivery

Thank you for giving us this opportunity to serve you.

Sincerely,

UPS

Tracking results provided by UPS: 07/27/2018 2:45 P.M. ET

Proof of Delivery

Close Window

Dear Customer,

This notice serves as proof of delivery for the shipment listed below.

Tracking Number:	1ZV257420191646638
Reference Number(s):	CT11332C
Service:	UPS Next Day Air®
Weight:	1.00 lb
Shipped/Billed On:	07/13/2018
Delivered On:	07/26/2018 9:57 A.M.
Delivered To:	1 FIRST ST SEYMOUR, CT, US 06483
Received By:	MCMURRARY
Left At:	Inside Delivery

Thank you for giving us this opportunity to serve you.

Sincerely,

UPS

Tracking results provided by UPS: 07/27/2018 2:43 P.M. ET

Proof of Delivery

Close Window

Dear Customer,

This notice serves as proof of delivery for the shipment listed below.

Tracking Number:	1ZV257420190304642
Reference Number(s):	CT11332C
Service:	UPS Next Day Air®
Weight:	1.00 lb
Shipped/Billed On:	07/13/2018
Delivered On:	07/26/2018 10:15 A.M.
Delivered To:	19 KYLE CT OXFORD, CT, US 06478
Received By:	DRIVER RELEASE
Left At:	Front Door

Thank you for giving us this opportunity to serve you.

Sincerely,

UPS

Tracking results provided by UPS: 07/27/2018 2:42 P.M. ET