Transcend Wireless

10 Industrial Ave,
Suite 3
Mahwah NJ 07430

Phone: 201.684.0055

February 16, 2017

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

Notice of Exempt Modification
1021 Straits Turnpike, Middlebury, CT 06762
Latitude- 41.53576300
Longitude- -73.08921000

Dear Ms. Bachman,

T-Mobile currently maintains nine (9) existing antennas at the 195' level of the existing 195' lattice tower at 1021 Straits Turnpike, Middlebury, CT. The tower is owned by Phoenix Tower International. The property is owned by the Town of Middlebury. T-Mobile now intends to replace three (3) antennas with three (3) new 1900 MHz antennas. These antennas would be installed at the same 195' level of the tower. T-Mobile also intends to install one (1) new hybrid cable.

This facility was approved by the Town of Middlebury on August 24, 1999. The approval did not come with conditions that could be violated by this modification. Enclosed is a copy of the 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 Edward B. St. John, First Selectman of the Town of Middlebury, as well as the property owner and tower owner.

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

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

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

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

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

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

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

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

Sincerely,

Kyle Richers

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

cc: Edward B. St. John- as elected official
Curt Bosco- as zoning official
Phoenix Tower International- as tower owner
Town of Middlebury- as property owner

16981

APPLICATION FOR PERMIT — TOWN OF MIDDLEBURY

LOCATION OF JOB

4-06 (MAP) 425 (LOT) (BLOCK)

1021 (NO.) Straits Turnpike (STREET NAME)

Middlebury (TOWN) CT (STATE) 06762 (ZIP)

FEE SCHEDULE

BUILDING OFFICIAL MAY REQUIRE AFFIDAVIT OF ACTUAL VALUE

TYPE OF JOB

__ BUILDING __ ELECTRIC
__ PLUMBING __ MECHANICAL

__ NEW ✓ ADDITION
__ REPAIR __ ALTERATION
__ DEMOLITION
__ CHANGE OF USE

OWNER

Town of Middlebury (LAST NAME) (FIRST NAME)

PO Box 392 (NO.) (STREET NAME)

Middlebury (TOWN) CT (STATE) 06762 (ZIP)

VALUE - FEE

$100,000 CONSTRUCTION VALUE

$800.00 FEE AMOUNT

REQUIREMENTS

__ ZONING __ HEALTH DEPT.
__ FIRE MARSHAL __ PLOT PLAN
__ INSURANCE PROOF (W. C.)
__ HISTORICAL APPROVAL
__ FLOOD PLAIN APPROVAL
__ TWO SETS OF PLANS

APPLICANT

Nextel Communications (LAST NAME) (FIRST NAME)

100 Corporate Place (NO.) (STREET NAME)

Rocky Hill (TOWN) CT (STATE) 06067 (ZIP)

DECISION

APPLICATION IS HEREBY

__ APPROVED

__ DISAPPROVED

Sept. 3 1999 (DATE) DJ (CODE OFFICIAL)

TYPE OF BUILDING

CONSTRUCTION TYPE 3C - MASONRY

USE GROUP UTILITY

BUILDER / CONTRACTOR INFORMATION

~~Flaherty's Bldg. Co Inc~~ (NAME)

953 Putnam Pike (NO.) (STREET NAME)

Chepachet (TOWN) RI (STATE) 02814 (ZIP)

00900617
LICENSE OR REGISTRATION NUMBER AND CLASS

6/30/2000 (401) 567-0600
EXPIRATION DATE CONTRACTOR TELEPHONE

CONTRACTOR SIGNATURE

Need + Insurance Certificate

PERMITS EXPIRE ONE YEAR FROM DATE OF ISSUE

REMARKS OR A BRIEF DESCRIPTION OF WORK PROPOSED:
Installation of an unmanned wireless telecommunications facility at an existing Omnipoint Communications site. A 10'x 20' pre-fabricated concrete equipment shelter and 12 wireless panel antennas will be installed. New telco. and electric services will be run from the existing demarc. and meter bank.

THIS IS TO CERTIFY THAT I AM THE OWNER OR AUTHORIZED AGENT FOR THE OWNER. ALL WORK COVERED BY THIS APPLICATION HAS BEEN AUTHORIZED BY THE OWNER OF THE ABOVE DESCRIBED PROPERTY AND WILL BE DONE ACCORDING TO THE CONNECTICUT BASIC BUILDING CODE. AS THE APPLICANT I UNDERSTAND THAT A FINAL INSPECTION AND A CERTIFICATE OF USE AND OR OCCUPANCY IS REQUIRED BEFORE OCCUPANCY OR USE.

FEE PAID BY:

CK NO. 22225

AMOUNT $800.00

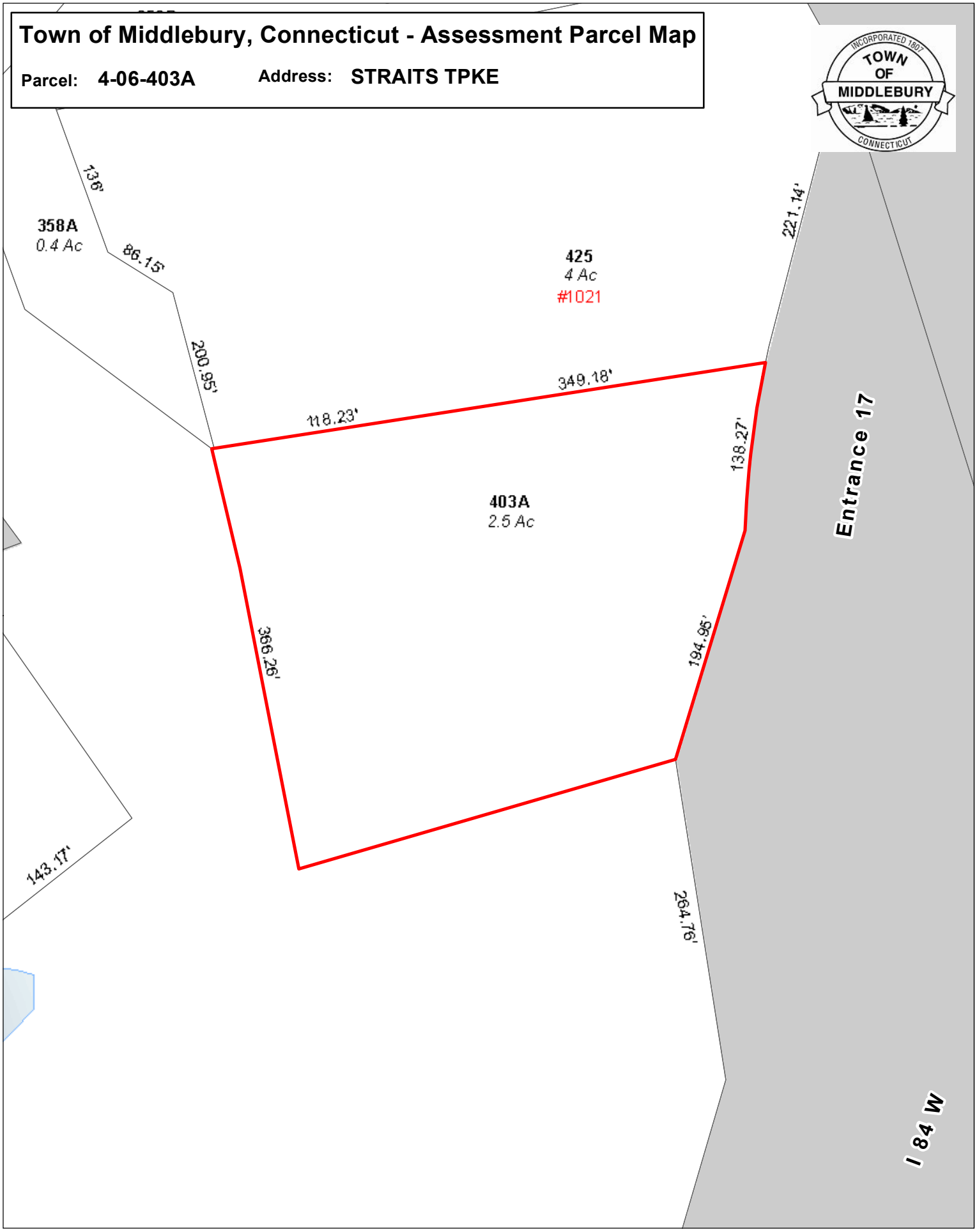
8/24/99 (DATE)

Acen M. Chasé, P.E. (APPLICANT SIGNATURE)

Dep 10.00 pd ck # 22279

Town of Middlebury, Connecticut - Assessment Parcel Map

Parcel: 4-06-403A **Address:** STRAITS TPKE



Map Produced December 2014

Approximate Scale: 1 inch = 100 feet

STRAITS TPKE

Location	STRAITS TPKE	**Mblu**	4-06/ / 403A/ /
Acct#	Z9500330	**Owner**	MIDDLEBURY TOWN OF
Assessment	$293,300	**Appraisal**	$419,000
PID	3624	**Building Count**	1

Current Value

Appraisal			
Valuation Year	**Improvements**	**Land**	**Total**
2016	$0	$419,000	$419,000
Assessment			
Valuation Year	**Improvements**	**Land**	**Total**
2016	$0	$293,300	$293,300

Owner of Record

Owner	MIDDLEBURY TOWN OF
Co-Owner	
Address	1212 WHITTEMORE RD MIDDLEBURY, CT 06762-0392

Sale Price	$0
Certificate	1990
Book & Page	119/ 942
Sale Date	08/15/1990
Instrument	XX

Ownership History

Ownership History					
Owner	**Sale Price**	**Certificate**	**Book & Page**	**Instrument**	**Sale Date**
MIDDLEBURY TOWN OF	$0	1990	119/ 942	XX	08/15/1990

Building Information

Building 1 : Section 1

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

Building Attributes	
Field	**Description**

Style	Vacant Land
Model	
Grade	
Stories	
Occupancy	
Exterior Wall A	
Exterior Wall B	
Roof Structure	
Roof Cover	
Interior Wall A	
Interior Wall B	
Interior Flr A	
Interior Flr B	
Heat Fuel	
Heat Type	
AC Type	
Total Bedrooms	
Full Bathrooms	
Half Bathrooms	
Total Xtra Fixtrs	
Total Rooms	
Bath Style	
Kitchen Style	
Fireplaces	
Whirlpool	
Fin Basement	
Fin Bsmt Quality	
Bsmt Garages	

Building Photo

(http://images.vgsi.com/photos/MiddleburyCTPhotos//default.jp

Building Layout

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

Extra Features

Extra Features	Legend
No Data for Extra Features	

Land

Land Use

Use Code	920
Description	Mun Land Com
Zone	CA40
Neighborhood	C275

Land Line Valuation

Size (Acres)	2.5
Frontage	0
Depth	0
Assessed Value	$293,300

Alt Land Appr Category No

Appraised Value $419,000

Outbuildings

Outbuildings	Legend
No Data for Outbuildings	

Valuation History

Appraisal			
Valuation Year	**Improvements**	**Land**	**Total**
2015	$0	$420,500	$420,500
2013	$0	$420,500	$420,500
2012	$0	$420,500	$420,500

Assessment			
Valuation Year	**Improvements**	**Land**	**Total**
2015	$0	$294,400	$294,400
2013	$0	$294,400	$294,400
2012	$0	$294,400	$294,400

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: CT11128E

Middlebury/ I-84 X17
1021 Straits Turnpike
Middlebury, CT 06762

February 10, 2017

EBI Project Number: 6217000477

Site Compliance Summary	
Compliance Status:	COMPLIANT
Site total MPE% of FCC general public allowable limit:	5.02 %

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

EBI Consulting
environmental | engineering | due diligence

February 10, 2017

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

Emissions Analysis for Site: **CT11128E – Middlebury/ I-84 X17**

EBI Consulting was directed to analyze the proposed T-Mobile facility located at **1021 Straits Turnpike, Middlebury, 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 public may be exposed or in which persons who are exposed as a consequence of their employment may not be made fully aware of the potential for exposure or cannot exercise control over their exposure. Therefore, members of the general public would always be considered under this category when exposure is not employment related, for example, in the case of a telecommunications tower that exposes persons in a nearby residential area.

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

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

Additional details can be found in FCC OET 65.

CALCULATIONS

Calculations were done for the proposed T-Mobile Wireless antenna facility located at **1021 Straits Turnpike, Middlebury, 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, 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) 1 LTE channel (700 MHz Band) was considered for each sector of the proposed installation. This channel has a transmit power of 30 Watts.

7) Since some radios are ground mounted there are additional cabling losses accounted for. For each ground mounted RF path the following losses were calculated. 1.23 dB of additional cable loss for all ground mounted 700 MHz Channels (700 MHz LTE), 2.27 dB of additional cable loss for all ground mounted 1900 MHz channels (1900 MHz UMTS & GSM) and 2.33 dB of additional cable loss for all ground mounted 2100 MHz channels (2100 MHz UMTS) were factored into the calculations used for this analysis. This is based on manufacturers Specifications for 220 feet of 1-5/8" coax cable on each path.

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 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 **Ericsson AIR32 B2A/B66Aa** & **RFS APX16DWV-16DWV-S-E-A20** for 1900 MHz (PCS) and 2100 MHz (AWS) channels and the **Commscope LNX-6515DS-A1M** for 700 MHz channels. This is based on feedback from the carrier with regards to anticipated antenna selection. The **Ericsson AIR32 B2A/B66Aa** has a maximum gain of **15.9 dBd** at its main lobe at 1900 MHz and 2100 MHz. The **RFS APX16DWV-16DWV-S-E-A20** has a maximum gain of **16.3 dBd** at its main lobe at 1900 MHz and 2100 MHz. The **Commscope LNX-6515DS-A1M** has a maximum gain of **14.6 dBd** at its main lobe at 700 MHz. The maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB, 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 centerlines of the proposed antennas are **195 feet & 193 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 public threshold limits.

EBI Consulting
environmental | engineering | due diligence

T-Mobile Site Inventory and Power Data

Sector:	A	Sector:	B	Sector:	C
Antenna #:	**1**	Antenna #:	**1**	Antenna #:	**1**
Make / Model:	Ericsson AIR32 B2A/B66Aa	Make / Model:	Ericsson AIR32 B2A/B66Aa	Make / Model:	Ericsson AIR32 B2A/B66Aa
Gain:	15.9 dBd	Gain:	15.9 dBd	Gain:	15.9 dBd
Height (AGL):	195	Height (AGL):	195	Height (AGL):	195
Frequency Bands	1900 MHz (PCS) / 2100 MHz (AWS)	Frequency Bands	1900 MHz (PCS) / 2100 MHz (AWS)	Frequency Bands	1900 MHz (PCS) / 2100 MHz (AWS)
Channel Count	4	Channel Count	4	Channel Count	4
Total TX Power(W):	240	Total TX Power(W):	240	Total TX Power(W):	240
ERP (W):	9,337.08	ERP (W):	9,337.08	ERP (W):	9,337.08
Antenna A1 MPE%	0.94	Antenna B1 MPE%	0.94	Antenna C1 MPE%	0.94
Antenna #:	**2**	Antenna #:	**2**	Antenna #:	**2**
Make / Model:	RFS APX16DWV-16DWV-S-E-A20	Make / Model:	RFS APX16DWV-16DWV-S-E-A20	Make / Model:	RFS APX16DWV-16DWV-S-E-A20
Gain:	16.3 dBd	Gain:	16.3 dBd	Gain:	16.3 dBd
Height (AGL):	195	Height (AGL):	195	Height (AGL):	195
Frequency Bands	1900 MHz(PCS) / 2100 MHz (AWS)	Frequency Bands	1900 MHz(PCS) / 2100 MHz (AWS)	Frequency Bands	1900 MHz(PCS) / 2100 MHz (AWS)
Channel Count	6	Channel Count	6	Channel Count	6
Total TX Power(W):	180	Total TX Power(W):	180	Total TX Power(W):	180
ERP (W):	4,531.91	ERP (W):	4,531.91	ERP (W):	4,531.91
Antenna A2 MPE%	0.46	Antenna B2 MPE%	0.46	Antenna C2 MPE%	0.46
Antenna #:	**3**	Antenna #:	**3**	Antenna #:	**3**
Make / Model:	Commscope LNX-6515DS-A1M	Make / Model:	Commscope LNX-6515DS-A1M	Make / Model:	Commscope LNX-6515DS-A1M
Gain:	14.6 dBd	Gain:	14.6 dBd	Gain:	14.6 dBd
Height (AGL):	193	Height (AGL):	193	Height (AGL):	193
Frequency Bands	700 MHz	Frequency Bands	700 MHz	Frequency Bands	700 MHz
Channel Count	1	Channel Count	1	Channel Count	1
Total TX Power(W):	30	Total TX Power(W):	30	Total TX Power(W):	30
ERP (W):	651.81	ERP (W):	651.81	ERP (W):	651.81
Antenna A3 MPE%	0.14	Antenna B3 MPE%	0.14	Antenna C3 MPE%	0.14

Site Composite MPE%	
Carrier	**MPE%**
T-Mobile (Per Sector Max)	**1.54 %**
AT&T	0.55 %
MetroPCS	0.35 %
Verizon Wireless	1.74 %
Sprint	0.84 %
Site Total MPE %:	**5.02 %**

T-Mobile Sector A Total:	1.54 %
T-Mobile Sector B Total:	1.54 %
T-Mobile Sector C Total:	1.54 %
Site Total:	5.02 %

T-Mobile _Max Values per sector	# Channels	Watts ERP (Per Channel)	Height (feet)	Total Power Density (μW/cm²)	Frequency (MHz)	Allowable MPE (μW/cm²)	Calculated % MPE
T-Mobile AWS - 2100 MHz LTE	2	2,334.27	195	4.70	AWS - 2100 MHz	1000	0.47%
T-Mobile PCS - 1900 MHz LTE	2	2,334.27	195	4.70	PCS - 1900 MHz	1000	0.47%
T-Mobile AWS - 2100 MHz UMTS	2	748.38	195	1.51	AWS - 2100 MHz	1000	0.15%
T-Mobile PCS - 1950 MHz UMTS	2	758.79	195	1.53	PCS - 1950 MHz	1000	0.15%
T-Mobile PCS - 1950 MHz GSM	2	758.79	195	1.53	PCS - 1950 MHz	1000	0.15%
T-Mobile 700 MHz LTE	1	651.81	195	0.66	700 MHz	467	0.14%
						Total*:	**1.54 %**

*NOTE: Totals may vary by 0.01% due to summing of remainders

Summary

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

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

T-Mobile Sector	Power Density Value (%)
Sector A:	1.54 %
Sector B:	1.54 %
Sector C:	1.54 %
T-Mobile Per Sector Maximum:	1.54 %
Site Total:	5.02 %
Site Compliance Status:	**COMPLIANT**

The anticipated composite MPE value for this site assuming all carriers present is **5.02%** of the allowable FCC established general public limit sampled at the ground level. This is based upon values listed in the Connecticut Siting Council database for existing carrier emissions.

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

Date: **February 1, 2017**

David C. Rodriguez
Phoenix Tower International
1001 Yamato Road, Suite 105
Boca Raton, FL 33431
(561) 257-0557

Tower Engineering Professionals
326 Tryon Road
Raleigh, NC 27603
(919) 661-6351
sjarzombek@tepgroup.net

Subject: **Structural Analysis Report**

Carrier Designation:	***T-Mobile Reconfiguration***	
	Carrier Site Number:	CT11128E
	Carrier Site Name:	Middlebury/ I84 X17
Phoenix Tower Designation:	**PTI Site Number:**	US-CT-1003
	PTI Site Name:	Straits Turnpike
Engineering Firm Designation:	**TEP Project Number:**	25628.106778
Site Data:	**1021 Straits Turnpike, Middlebury, New Haven County, CT 06762** **Latitude *41° 32' 8.78"*, Longitude *-73° 05' 21.27"*** **195 Foot - Self Support Tower**	

Dear David Rodriguez,

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

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

LC1: Existing + Proposed + Future Equipment **Sufficient Capacity**
Note: See Table 1 for the existing, proposed, and future loading

Structure Capacity	Controlling Component
90.8%	Diagonal (T1): 180' – 195'

The analysis has been performed in accordance with the ANSI/TIA-222-G-2-2009 Structural Standard for Antenna Supporting Structures and Antennas – Addendum 2 and the 2016 Connecticut State Building Code.

All modifications and equipment proposed in this report shall be installed in accordance with the appurtenances listed in Table 1 and the attached drawings for the determined available structural capacity to be effective.

We at *Tower Engineering Professionals* appreciate the opportunity of providing our continuing professional services to you and *Phoenix Tower International*. If you have any questions or need further assistance on this or any other projects please give us a call.

Structural analysis prepared by: Christopher J. Bean, E.I.

Respectfully submitted by:

Andrew T. Haldane, P.E.

STATE OF CONNECTICUT ANDREW T. HALDANE No. 26583 LICENSED PROFESSIONAL ENGINEER

2/1/2017

TABLE OF CONTENTS

1) INTRODUCTION

This tower is a 195-ft self support tower designed by Fred A. Nudd Corporation in May of 1998. The tower was originally designed for a fastest mile wind speed of 85 mph per ANSI/EIA/TIA-222-F for the appurtenances listed in Table 2. TEP visited the site in June of 2010 to gather existing steel and appurtenance information. This tower has been modified multiple times in the past to accommodate additional loading. All information provided to TEP was assumed to be accurate and complete.

2) ANALYSIS CRITERIA

The analysis has been performed in accordance with the ANSI/TIA-222-G-2-2009 Structural Standard for Antenna Supporting Structures and Antennas – Addendum 2 and the 2016 Connecticut State Building Code based upon an ultimate 3-second gust wind speed of 120 mph converted to a nominal 3-second gust wind speed of 93 mph per Section 1609.3 and Appendix N as required for use in the TIA-222-G Standard per Exception #5 of Section 1609.1.1. Exposure Category B and Risk Category II were used in this analysis

Type of Analysis: **Rigorous**
Classification of Structure: **Class II**
Exposure Category: **Exposure B**
Topographic Category: **Category 1**
Earthquake Category: **Not Considered**
Earthquake effects may be ignored per this standard for site locations where Ss does not exceed 1.0. (County Max Ss = 0.32).

Table 1 - Existing/Proposed/Future Antenna and Cable Information

Existing/ Proposed	Elevation (ft)	Qty	Antenna Model	Mount Type	Qty Coax	Coax Size	Coax[1] Location	Owner/ Tenant
Future	***195.0***	***-***	***T-Mobile Future Loading[2]***	(3) 12.5' Sector Frames	***5***	***1 5/8***	***AB Face***	***T-Mobile***
Proposed	***195.0***	***3***	***Ericsson KRD-901146-1***		***1***	***Fiber***	***AB Face***	***T-Mobile***
Existing	195.0	3	RFS APX16DWV-16DWV-S-E-A20		18	1-5/8	AB Face	T-Mobile
		6	Ericsson KRY-112-71					
Existing	193.0	3	Commscope LNX-6515DS-A1M					
Existing	188.0	3	Powerwave 7770	(3) 15.0' T-Frames with Catwalk and MT195-14 Handrail Kit	12 1 2	1-5/8 7/16"Ø Fiber 3/8"Ø Power	CA Face	AT&T
		4	Powerwave P65-17-XLH-RR					
		6	Powerwave LGP 21401 TMA					
		3	Ericsson RRUS-11					
		2	Raycap DC6-48-60-18-8F					
		6	Ericsson RRUS-12					
		3	Ericsson RRUS-32					
		6	CCI TPX-070621					
		2	KMW AM-X-CD-16-65-00T-RET					

Table 1 - Existing/Proposed/Future Antenna and Cable Information (Continued)

Existing/ Proposed	Elevation (ft)	Qty	Antenna Model	Mount Type	Qty Coax	Coax Size	Coax[1] Location	Owner/ Tenant
Existing	169.0	2	Antel BXA-70063-6CF	(3) 15.0' T-Frames with Catwalk	12 1	1-5/8 Fiber	AB Face	Verizon
		4	Decibel DB844G65ZAXY					
		1	Antel BXA 70080/6CF					
		2	Decibel DB846F65ZAXY					
		6	RFS FD9R6004/2C-3L					
		3	Alcatel Lucent RRH2x60-AWS					
		3	Alcatel Lucent RRH2x60-PCS					
		1	RFS DB-T1-6Z-8AB-0Z					
		6	HBXX-6517DS-A2M					
Existing	152.0	3	RFS APXVTM14-C-120	(3) 12.0' Sector Frames	7	1-1/4"Ø Fiber	BC Face	Sprint
		3	Decibel DB980H90T3E-M					
		3	RFS APXVSPP18-C-A20					
		3	RFS RRU 800MHz 2x50W					
		3	Alcatel-Lucent TD-RRH 8x20-25					
		3	RFS RRU 1900MHz 2x40W					
Existing	75.5	1	GPS Antenna	4.5' Standoff	1	5/8"Ø	BC Face	Unknown

Notes:
1) See "Appendix B – Coax Configuration" for assumed coax configuration.
2) T-Mobile Future Loading consists of 5,985.99 in^2 wind area and (5) feed lines at 193-ft elevation.

Table 2 - Detailed Future Loading Information

Existing/ Proposed	Elevation (ft)	Wind Area (in^2) (includes Ca factors)	Weight (lb)	Qty Coax	Coax Size	% Capacity	Owner/ Tenant
Existing/ Proposed	195/193	16,065.95	2,258.86	18 1	1 5/8 Fiber	77.9	T-Mobile
Future	***195***	***5,934.05***	***834.32***	***5***	***1 5/8***	***-***	***T-Mobile***
Total	195	22,000.00	3,093.18	23 1	1 5/8 Fiber	90.8	T-Mobile

Table 3 - Design Antenna and Cable Information

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Qty Coax	Coax Size (in)	Coax Location
197.5	197.5	6	Unknown	RV90-17-00DP	6	1-5/8	Unknown
		6	Unknown	FE15SO1P72-P73	12	1/2	Unknown
185.0	185.0	12	Unknown	DAPA 58000	12	1-5/8	Unknown
170.0	170.0	3	Unknown	PD 128	3	1-5/8	Unknown
160.0	160.0	12	Unknown	DAPA 58000	12	1-5/8	Unknown
150.0	150.0	3	Unknown	PD128	3	1-5/8	Unknown
140.0	140.0	1	Unknown	PD128	1	1-5/8	Unknown

3) ANALYSIS PROCEDURE

Table 4 - Documents Provided

Document	Remarks	Reference	Source
Tower and Foundation Drawings	Fred A. Nudd Corporation, dated May 5, 1998 Project No. 5974	25628	TEP
Structural Modification Drawings	Fred A. Nudd Corporation, dated April 30, 1999 Drawing No. 99-6726-1	25628	TEP
Steel and Appurtenance Mapping	Tower Engineering Professionals, Inc. dated June 3, 2010	102056	TEP
Post-Modification Inspection	Tower Engineering Professionals, Inc. dated April 21, 2011	102056	TEP
Geotechnical Report	Dr. Clarence Welti, P.E., P.C., dated April 17, 1998	25628	TEP
Structural Modification Drawings	Tower Engineering Professionals, Inc. dated August 29, 2011	102056	TEP
Structural Modification Drawings	Tower Engineering Professionals, Inc. dated July 26, 2012	102056	TEP
Structural Modification Analysis	Tower Engineering Professionals, Inc. dated August 1, 2013	25628_4865	TEP
Previous Structural Analysis	Tower Engineering Professionals, Inc. dated January 26, 2017	25628_105719	TEP
Structural Modification Analysis	Tower Engineering Professionals, Inc., dated August 24, 2016	25628.93911	TEP
Structural Modification Drawings	Tower Engineering Professionals, Inc., dated April 19, 2016	25628.47301	TEP
Post Modification Inspection	Tower Engineering Professionals, Inc., dated October 26, 2016	25628.58752	TEP
Correspondence	Correspondence with Phoenix Tower International with regards to the existing, proposed, and future loading.	-	PTI

3.1) Analysis Method

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

3.2) Assumptions

1) The tower and foundation were built in accordance with the manufacturer's specifications.
2) The tower and foundation have been maintained in accordance with the manufacturer's specification.
3) The configuration of antennas, transmission cables, mounts and other appurtenances are as specified in Table 1 and "Appendix B – Coax Configuration".
4) When applicable, transmission cables are considered as structural components for calculating wind loads as allowed by the standard.
5) All tower components are in sufficient condition to carry their full design capacity.
6) Serviceability with respect to antenna twist, tilt, roll, or lateral translation, is not checked and is left to the carrier or tower owner to ensure conformance.
7) All antenna mounts and mounting hardware are structurally sufficient to carry the full design capacity requirements of appurtenance wind area and weight as provided by the original manufacturer specifications. It is the carrier's responsibility to ensure compliance to the structural limitations of the existing and/or proposed antenna mounts. TEP did not verify the size, condition or capacity of the antenna mounts and did not analyze antennas supporting mounts as part of this structural analysis report.

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

4) ANALYSIS RESULTS

Table 4 - Section Capacity (Summary)

Section No.	Elevation (ft)	Component Type	Size	Critical Element	P (lb)	SF*P_{allow} (lb)	% Capacity	Pass / Fail
T1	195 - 180	Leg	PIPE 2.5 STD (SCH 40)	3	-39581.70	70532.50	56.1	Pass
T2	180 - 175	Leg	PIPE 2.5 STD (SCH 40)	45	-43458.10	77102.10	56.4	Pass
T3	175 - 170	Leg	PIPE 2.5 STD (SCH 40)	57	-53746.80	77205.80	69.6	Pass
T4	170 - 160	Leg	2.5SCH40 w/ 3SCH80 Half Sleeve	Note 1	Note 1	Note 1	72.5	Pass
T5	160 - 150	Leg	Pipe 3.5 Std (SCH40)	90	-97547.90	126932.00	76.9	Pass
T6	150 - 140	Leg	3.5SCH40 w/ 4SCH40 Half Sleeve	Note 1	Note 1	Note 1	63.6	Pass
T7	140 - 133.333	Leg	5 STD w/ 6 XH Half Sleeve	Note 1	Note 1	Note 1	49.5	Pass
T8	133.333 - 126.667	Leg	5 STD w/ 6 XH Half Sleeve	Note 1	Note 1	Note 1	49.5	Pass
T9	126.667 - 120	Leg	5 STD w/ 6 XH Half Sleeve	Note 1	Note 1	Note 1	49.5	Pass
T10	120 - 113.333	Leg	PIPE 6 STD (SCH40)	159	-171955.00	269041.00	63.9	Pass
T11	113.333 - 106.667	Leg	PIPE 6 STD (SCH40)	171	-184596.00	269071.00	68.6	Pass
T12	106.667 - 100	Leg	PIPE 6 STD (SCH40)	183	-196429.00	269098.00	73.0	Pass
T13	100 - 80	Leg	6 STD w/ 7 XH Half Sleeve	Note 1	Note 1	Note 1	52.6	Pass
T14	80 - 60	Leg	PIPE 8 STD (SCH40)	225	-268234.00	391613.00	68.5	Pass
T15	60 - 50	Leg	PIPE 8 STD (SCH40)	246	-280458.00	401143.00	69.9	Pass
T16	50 - 40	Leg	PIPE 8 STD (SCH40)	258	-297539.00	401194.00	74.2	Pass
T17	40 - 20	Leg	PIPE 8 X-STR (SCH80)	270	-331200.00	549495.00	60.3	Pass
T18	20 - 0	Leg	PIPE 8 X-STR (SCH80)	285	-361878.00	550136.00	65.8	Pass
T1	195 - 180	Diagonal	5/8	21	9028.58	9940.20	90.8	Pass
T2	180 - 175	Diagonal	L1 1/2x1 1/2x3/16	48	-4249.75	7609.55	55.8 74.7 (b)	Pass

Section No.	Elevation (ft)	Component Type	Size	Critical Element	P (lb)	SF*P_{allow} (lb)	% Capacity	Pass / Fail
T3	175 - 170	Diagonal	L2x2x3/16	60	-3320.80	12363.90	26.9 48.9 (b)	Pass
T4	170 - 160	Diagonal	2L1 1/2x1 1/2x3/16x1/4	84	-5299.88	19298.30	27.5 59.0 (b)	Pass
T5	160 - 150	Diagonal	2L2x2x3/16x1/4	93	-5777.22	28526.20	20.3 67.2 (b)	Pass
T6	150 - 140	Diagonal	2L2x2x3/16x1/4	115	-5783.43	26601.10	21.7 68.7 (b)	Pass
T7	140 - 133.333	Diagonal	L2 1/2x2 1/2x1/4	135	-5990.90	17991.90	33.3 46.3 (b)	Pass
T8	133.333 - 126.667	Diagonal	L2 1/2x2 1/2x1/4	144	-6203.70	16560.40	37.5 47.6 (b)	Pass
T9	126.667 - 120	Diagonal	L2 1/2x2 1/2x3/16	153	-6033.40	11588.10	52.1 76.1 (b)	Pass
T10	120 - 113.333	Diagonal	L3x3x1/4	163	-7126.30	22906.10	31.1 50.9 (b)	Pass
T11	113.333 - 106.667	Diagonal	L3x3x1/4	175	-7233.98	21593.20	33.5 52.8 (b)	Pass
T12	106.667 - 100	Diagonal	L2 1/2x2 1/2x1/4	187	-7342.83	11557.60	63.5	Pass
T13	100 - 80	Diagonal	L3 1/2x3 1/2x1/4	199	-7475.19	30316.40	24.7 31.2 (b)	Pass
T14	80 - 60	Diagonal	L3 1/2x3 1/2x1/4	229	-7930.72	26091.70	30.4 33.4 (b)	Pass
T15	60 - 50	Diagonal	L3x3x5/16	250	-9848.08	13914.00	70.8	Pass
T16	50 - 40	Diagonal	L3x3x5/16	262	-9635.19	12883.30	74.8	Pass
T17	40 - 20	Diagonal	L4x4x3/8	274	-9535.34	28926.60	33.0 38.4 (b)	Pass
T18	20 - 0	Diagonal	L5x5x5/16	289	-10195.20	38816.00	26.3 41.0 (b)	Pass
T1	195 - 180	Horizontal	L1 1/2x1 1/2x3/16	17	-6148.82	7512.48	81.8	Pass
T2	180 - 175	Secondary Horizontal	L2x2x3/16	53	-753.66	15868.60	4.7 11.0 (b)	Pass
T3	175 - 170	Secondary Horizontal	L2x2x3/16	65	932.08	18739.00	5.0 13.6 (b)	Pass
T4	170 - 160	Secondary Horizontal	L2x2x3/16	77	-1320.51	17128.60	7.7 19.3 (b)	Pass
T5	160 - 150	Secondary Horizontal	L2x2x3/16	98	-1691.69	15131.00	11.2 24.8 (b)	Pass
T6	150 - 140	Secondary Horizontal	L2x2x3/16	120	-2100.00	13027.80	16.1 30.7 (b)	Pass
T10	120 - 113.333	Secondary Horizontal	L3x3x3/16	167	-2982.76	19381.00	15.4 38.1 (b)	Pass
T11	113.333 - 106.667	Secondary Horizontal	L3x3x3/16	179	-3203.00	20509.90	15.6 40.9 (b)	Pass
T12	106.667 - 100	Secondary Horizontal	L3x3x3/16	192	-3407.78	17992.10	18.9 43.5 (b)	Pass
T13	100 - 80	Secondary Horizontal	L3x3x1/4	204	-4044.47	19981.80	20.2 29.1 (b)	Pass
T15	60 - 50	Secondary Horizontal	L4x4x3/8	254	-4863.74	44960.90	10.8 39.1 (b)	Pass
T16	50 - 40	Secondary Horizontal	L4x4x1/4	266	-5159.97	28993.60	17.8 35.9 (b)	Pass
T1	195 - 180	Top Girt	L1 1/2x1 1/2x3/16	5	-1473.30	7512.48	19.6	Pass
T1	195 - 180	Bottom Girt	L1 1/2x1 1/2x3/16	8	-3034.16	7512.48	40.4	Pass
							Summary	
						Leg (T4)	72.5	Pass

Section No.	Elevation (ft)	Component Type	Size	Critical Element	P (lb)	SF*P_{allow} (lb)	% Capacity	Pass / Fail
						Diagonal (T1)	90.8	Pass
						Horizontal (T1)	81.8	Pass
						Secondary Horizontal (T12)	43.5	Pass
						Top Girt (T1)	19.6	Pass
						Bottom Girt (T1)	40.4	Pass
						Bolt Checks	76.1	Pass
						RATING =	**90.8**	**Pass**

Table 5 - Tower Component Stresses vs. Capacity

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
-	Anchor Rods	-	71.9	Pass
1	Base Foundation - Soil Interaction	-	36.9	Pass
1	Base Foundation - Structural	-	52.5	Pass

Structure Rating (max from all components) =	90.8%

Note:
1) See additional documentation in "Appendix C - Additional Calculations" for calculations supporting the % capacity listed.

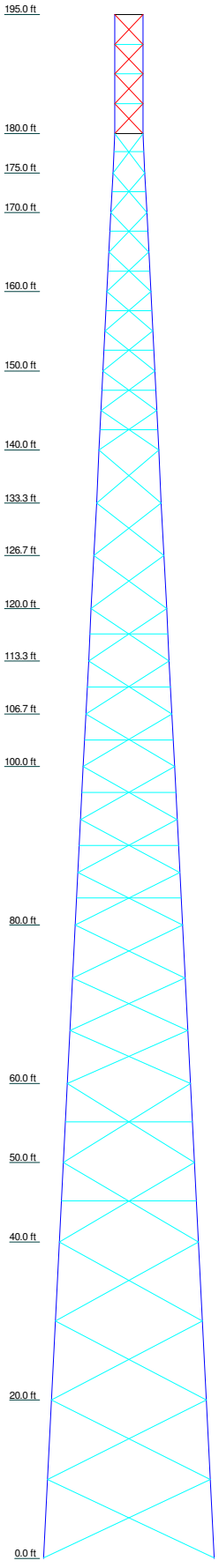
4.1) Recommendations

1) If the load differs from that described in Table 1 of this report or the provisions of this analysis are found to be invalid, another structural analysis should be performed.
2) The tower and its foundation have sufficient capacity to carry the existing, proposed, and future loading. No modifications are required at this time.

APPENDIX A

TNXTOWER OUTPUT

Section	T18	T17	T16	T15	T14	T13	T12	T11	T10	T9	T8	T7	T6	T5	T4	T3	T2	T1
Legs	PIPE 8 X-STR (SCH80)			PIPE 8 STD (SCH40)		6 STD w/ 7 XH Half Sleeve	PIPE 6 STD (SCH40)			5 STD w/ 6 XH Half Sleeve			C	B	A		PIPE 2.5 STD (SCH 40)	
Leg Grade		A572-55				A53-B-42		A572-55			A500-46		A500-50	A572-55	A53-B-35		A572-55	
Diagonals	L5x5x5/16	L4x4x3/8		L3x3x5/16		L3 1/2x3 1/2x1/4	H	L3x3x1/4		G	L2 1/2x2 1/2x1/4		2L2x2x3/16x1/4		F	E	D	SR 5/8
Diagonal Grade						A36												
Top Girts						N.A.												L1 1/2x1 1/2x3/16
Bottom Girts						N.A.												L1 1/2x1 1/2x3/16
Horizontals						N.A.												L1 1/2x1 1/2x3/16
Sec. Horizontals	N.A.		L4x4x1/4	L4x4x3/8	N.A.	L3x3x1/4		L3x3x3/16		N.A.			L2x2x3/16			N.A.		
Face Width (ft)	21.5	19.5	17.5	15.5	13.5	11.5	10.8333	10.1667	9.5	8.83333	8.16667	7.5	6.5	5.5	4.5	4	3.5	
# Panels @ (ft)		2 @ 9.95833	4 @ 10			12 @ 6.66667						8 @ 5					4 @ 3.75	
Weight (lb)	30526.3	5431.4	5068.0	1912.1	2013.3	3370.0	4304.0	863.2	839.4	788.4	842.1	829.5	1040.7	817.6	707.8	214.0	181.8	484.2



DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
Sector Mount [SM 802-3]	195	DC6-48-60-18-8F	188
HSS Top Mount	195	DC6-48-60-18-8F	188
APX16DWV-16DWV-S-E-A20 w/ Mount Pipe	195	(3) Sector Mounts 169-ft	169
APX16DWV-16DWV-S-E-A20 w/ Mount Pipe	195	(2) BXA-70063/6CF w/ Mount Pipe	169
APX16DWV-16DWV-S-E-A20 w/ Mount Pipe	195	(2) DB844G65ZAXY w/Mount Pipe	169
(2) KRY 112 71	195	(2) DB844G65ZAXY w/Mount Pipe	169
(2) KRY 112 71	195	DB-B1/T1 w/ Mount Pipe	169
(2) KRY 112 71	195	(2) HBXX-6517DS-A2M w/ Mount Pipe	169
AIR -32 B2A/B66AA	195	(2) HBXX-6517DS-A2M w/ Mount Pipe	169
AIR -32 B2A/B66AA	195	(2) HBXX-6517DS-A2M w/ Mount Pipe	169
AIR -32 B2A/B66AA	195	RRH2x60-AWS	169
TMO Future Loading	195	RRH2x60-AWS	169
LNX-6515DS-A1M W/ Mount Pipe	193	RRH2x60-AWS	169
LNX-6515DS-A1M W/ Mount Pipe	193	RRH2X60-PCS	169
LNX-6515DS-A1M W/ Mount Pipe	193	RRH2X60-PCS	169
(3) Sector Mounts 188-ft	188	RRH2X60-PCS	169
Miscellaneous [NA 510-1]	188	BXA-70080/6CF w/ Mount Pipe	169
7770.00 w/ Mount Pipe	188	DB846F65ZAXY w/Mount Pipe	169
7770.00 w/ Mount Pipe	188	DB846F65ZAXY w/Mount Pipe	169
7770.00 w/ Mount Pipe	188	(2) FD9R6004	169
P65-17-XLH-RR w/Mount Pipe	188	(2) FD9R6004	169
AM-X-CD-16-65-00T-RET w/ Mount Pipe	188	(2) FD9R6004	169
AM-X-CD-16-65-00T-RET w/ Mount Pipe	188	TD-RRH8x20-25	152
P65-17-XLH-RR w/Mount Pipe	188	APXVTM14-C-120 w/ Mount Pipe	152
P65-17-XLH-RR w/Mount Pipe	188	APXVTM14-C-120 w/ Mount Pipe	152
P65-17-XLH-RR w/Mount Pipe	188	APXVTM14-C-120 w/ Mount Pipe	152
(2) TPX - 070621	188	TD-RRH8x20-25	152
(2) TPX - 070621	188	TD-RRH8x20-25	152
(2) TPX - 070621	188	DB980H90T3E-M w/Mount Pipe	152
RRUS-12	188	DB980H90T3E-M w/Mount Pipe	152
RRUS-12	188	DB980H90T3E-M w/Mount Pipe	152
RRUS-12	188	Sector Mount [SM 502-3]	152
RRUS-12	188	APXVSPP18-C-A20 w/ Mount Pipe	152
RRUS-12	188	APXVSPP18-C-A20 w/ Mount Pipe	152
RRUS-12	188	APXVSPP18-C-A20 w/ Mount Pipe	152
(2) LGP21401	188	800MHZ 2X50W RRH	152
(2) LGP21401	188	800MHZ 2X50W RRH	152
(2) LGP21401	188	800MHZ 2X50W RRH	152
(2) RRUS-11	188	1900MHz 2X40W RRH	152
(2) RRUS-11	188	1900MHz 2X40W RRH	152
(2) RRUS-11	188	1900MHz 2X40W RRH	152
RRUS-32 B30	188	GPS0015	75.5
RRUS-32 B30	188	1.75" Dia x 5-ft Pipe	75.5
RRUS-32 B30	188		

SYMBOL LIST

MARK	SIZE	MARK	SIZE
A	2.5SCH40 w/ 3SCH80 Half Sleeve	E	L2x2x3/16
B	Pipe 3.5 Std (SCH40)	F	2L1 1/2x1 1/2x3/16x1/4
C	3.5SCH40 w/ 4SCH40 Half Sleeve	G	L2 1/2x2 1/2x3/16
D	L1 1/2x1 1/2x3/16	H	L2 1/2x2 1/2x1/4

MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A572-55	55 ksi	70 ksi	A500-50	50 ksi	62 ksi
A36	36 ksi	58 ksi	A500-46	46 ksi	62 ksi
A53-B-35	35 ksi	60 ksi	A53-B-42	42 ksi	63 ksi

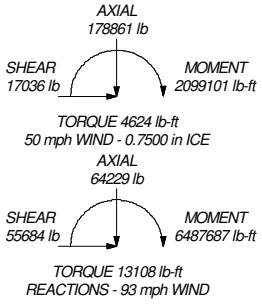
TOWER DESIGN NOTES

1. Tower is located in New Haven County, Connecticut.
2. Tower designed for Exposure B to the TIA-222-G Standard.
3. Tower designed for a 93 mph basic wind in accordance with the TIA-222-G Standard.
4. Tower is also designed for a 50 mph basic wind with 0.75 in ice. Ice is considered to increase in thickness with height.
5. Deflections are based upon a 60 mph wind.
6. Tower Structure Class II.
7. Topographic Category 1 with Crest Height of 0.00 ft

ALL REACTIONS ARE FACTORED

MAX. CORNER REACTIONS AT BASE:
DOWN: 369840 lb
SHEAR: 35890 lb

UPLIFT: -319099 lb
SHEAR: 31363 lb



TORQUE 4624 lb-ft
50 mph WIND - 0.7500 in ICE

TORQUE 13108 lb-ft
REACTIONS - 93 mph WIND

Tower Engineering Professionals

Tower Engineering Professionals, Inc.
326 Tryon Road
Raleigh, NC 27603
Phone: (919) 661-6351
FAX: (919) 661-6350

Job:	***US-CT-1003 - Straits Turnpike***		
Project:	***TEP #25628.106778***		
Client:	Phoenix Tower International	Drawn by: Christopher Bean, E.I.	App'd:
Code:	TIA-222-G	Date: 01/31/17	Scale: NTS
Path:	T:\[illegible]		Dwg No. E-1

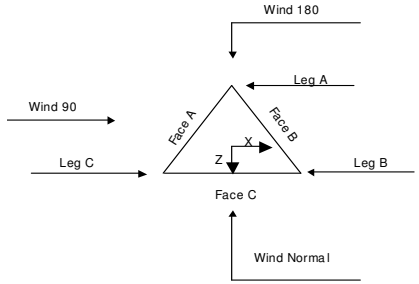
Tower Input Data

The main tower is a 3x free standing tower with an overall height of 195.00 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 3.50 ft at the top and 21.50 ft at the base.
This tower is designed using the TIA-222-G standard.
The following design criteria apply:

Tower is located in New Haven County, Connecticut.
Basic wind speed of 93 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	Assembly Database	Description	Section Width	Number of Sections	Section Length
	ft			ft		ft
T1	195.00-180.00			3.50	1	15.00
T2	180.00-175.00			3.50	1	5.00
T3	175.00-170.00			4.00	1	5.00
T4	170.00-160.00			4.50	1	10.00
T5	160.00-150.00			5.50	1	10.00
T6	150.00-140.00			6.50	1	10.00
T7	140.00-133.33			7.50	1	6.67
T8	133.33-126.67			8.17	1	6.67
T9	126.67-120.00			8.83	1	6.67
T10	120.00-113.33			9.50	1	6.67
T11	113.33-106.67			10.17	1	6.67
T12	106.67-100.00			10.83	1	6.67
T13	100.00-80.00			11.50	1	20.00
T14	80.00-60.00			13.50	1	20.00
T15	60.00-50.00			15.50	1	10.00
T16	50.00-40.00			16.50	1	10.00
T17	40.00-20.00			17.50	1	20.00
T18	20.00-0.00			19.50	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
T1	195.00-180.00	3.75	TX Brace	No	Yes	0.0000	0.0000
T2	180.00-175.00	5.00	X Brace	No	Yes	0.0000	0.0000
T3	175.00-170.00	5.00	X Brace	No	Yes	0.0000	0.0000
T4	170.00-160.00	5.00	X Brace	No	Yes	0.0000	0.0000
T5	160.00-150.00	5.00	X Brace	No	Yes	0.0000	0.0000
T6	150.00-140.00	5.00	X Brace	No	Yes	0.0000	0.0000
T7	140.00-133.33	6.67	X Brace	No	No	0.0000	0.0000
T8	133.33-126.67	6.67	X Brace	No	No	0.0000	0.0000
T9	126.67-120.00	6.67	X Brace	No	No	0.0000	0.0000
T10	120.00-113.33	6.67	X Brace	No	Yes	0.0000	0.0000
T11	113.33-106.67	6.67	X Brace	No	Yes	0.0000	0.0000
T12	106.67-100.00	6.67	X Brace	No	Yes	0.0000	0.0000
T13	100.00-80.00	6.67	X Brace	No	Yes	0.0000	0.0000
T14	80.00-60.00	6.67	X Brace	No	No	0.0000	0.0000
T15	60.00-50.00	10.00	X Brace	No	Yes	0.0000	0.0000
T16	50.00-40.00	10.00	X Brace	No	Yes	0.0000	0.0000
T17	40.00-20.00	10.00	X Brace	No	No	0.0000	0.0000
T18	20.00-0.00	9.96	X Brace	No	No	0.0000	1.0000

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Leg Type	Leg Size	Leg Grade	Diagonal Type	Diagonal Size	Diagonal Grade
T1 195.00-180.00	Pipe	PIPE 2.5 STD (SCH 40)	A572-55 (55 ksi)	Solid Round	5/8	A36 (36 ksi)
T2 180.00-175.00	Pipe	PIPE 2.5 STD (SCH 40)	A572-55 (55 ksi)	Equal Angle	L1 1/2x1 1/2x3/16	A36 (36 ksi)
T3 175.00-170.00	Pipe	PIPE 2.5 STD (SCH 40)	A572-55 (55 ksi)	Equal Angle	L2x2x3/16	A36 (36 ksi)
T4 170.00-160.00	Arbitrary Shape	2.5SCH40 w/ 3SCH80 Half Sleeve	A53-B-35 (35 ksi)	Double Equal Angle	2L1 1/2x1 1/2x3/16x1/4	A36 (36 ksi)
T5 160.00-150.00	Pipe	Pipe 3.5 Std (SCH40)	A572-55 (55 ksi)	Double Angle	2L2x2x3/16x1/4	A36 (36 ksi)
T6 150.00-140.00	Arbitrary Shape	3.5SCH40 w/ 4SCH40 Half Sleeve	A500-50 (50 ksi)	Double Angle	2L2x2x3/16x1/4	A36 (36 ksi)
T7 140.00-133.33	Arbitrary Shape	5 STD w/ 6 XH Half Sleeve	A500-46 (46 ksi)	Equal Angle	L2 1/2x2 1/2x1/4	A36 (36 ksi)
T8 133.33-126.67	Arbitrary Shape	5 STD w/ 6 XH Half Sleeve	A500-46 (46 ksi)	Equal Angle	L2 1/2x2 1/2x1/4	A36 (36 ksi)
T9 126.67-120.00	Arbitrary Shape	5 STD w/ 6 XH Half Sleeve	A500-46 (46 ksi)	Equal Angle	L2 1/2x2 1/2x3/16	A36 (36 ksi)
T10 120.00-113.33	Pipe	PIPE 6 STD (SCH40)	A572-55 (55 ksi)	Equal Angle	L3x3x1/4	A36 (36 ksi)
T11 113.33-106.67	Pipe	PIPE 6 STD (SCH40)	A572-55 (55 ksi)	Equal Angle	L3x3x1/4	A36 (36 ksi)
T12 106.67-100.00	Pipe	PIPE 6 STD (SCH40)	A572-55 (55 ksi)	Equal Angle	L2 1/2x2 1/2x1/4	A36 (36 ksi)
T13 100.00-80.00	Arbitrary Shape	6 STD w/ 7 XH Half Sleeve	A53-B-42 (42 ksi)	Equal Angle	L3 1/2x3 1/2x1/4	A36 (36 ksi)
T14 80.00-60.00	Pipe	PIPE 8 STD (SCH40)	A572-55 (55 ksi)	Equal Angle	L3 1/2x3 1/2x1/4	A36 (36 ksi)
T15 60.00-50.00	Pipe	PIPE 8 STD (SCH40)	A572-55 (55 ksi)	Equal Angle	L3x3x5/16	A36 (36 ksi)
T16 50.00-40.00	Pipe	PIPE 8 STD (SCH40)	A572-55 (55 ksi)	Equal Angle	L3x3x5/16	A36 (36 ksi)
T17 40.00-20.00	Pipe	PIPE 8 X-STR (SCH80)	A572-55	Equal Angle	L4x4x3/8	A36

Tower Elevation ft	Leg Type	Leg Size	Leg Grade	Diagonal Type	Diagonal Size	Diagonal Grade
T18 20.00-0.00	Pipe	PIPE 8 X-STR (SCH80)	(55 ksi) A572-55 (55 ksi)	Equal Angle	L5x5x5/16	(36 ksi) 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 195.00-180.00	Equal Angle	L1 1/2x1 1/2x3/16	A36 (36 ksi)	Equal Angle	L1 1/2x1 1/2x3/16	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 195.00-180.00	None	Flat Bar		A36 (36 ksi)	Equal Angle	L1 1/2x1 1/2x3/16	A36 (36 ksi)

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Secondary Horizontal Type	Secondary Horizontal Size	Secondary Horizontal Grade	Inner Bracing Type	Inner Bracing Size	Inner Bracing Grade
T2 180.00-175.00	Equal Angle	L2x2x3/16	A36 (36 ksi)	Solid Round		A36 (36 ksi)
T3 175.00-170.00	Equal Angle	L2x2x3/16	A36 (36 ksi)	Solid Round		A36 (36 ksi)
T4 170.00-160.00	Equal Angle	L2x2x3/16	A36 (36 ksi)	Solid Round		A36 (36 ksi)
T5 160.00-150.00	Equal Angle	L2x2x3/16	A36 (36 ksi)	Solid Round		A36 (36 ksi)
T6 150.00-140.00	Equal Angle	L2x2x3/16	A36 (36 ksi)	Solid Round		A36 (36 ksi)
T10 120.00-113.33	Equal Angle	L3x3x3/16	A36 (36 ksi)	Solid Round		A36 (36 ksi)
T11 113.33-106.67	Equal Angle	L3x3x3/16	A36 (36 ksi)	Solid Round		A36 (36 ksi)
T12 106.67-100.00	Equal Angle	L3x3x3/16	A36 (36 ksi)	Solid Round		A36 (36 ksi)
T13 100.00-80.00	Equal Angle	L3x3x1/4	A36 (36 ksi)	Solid Round		A36 (36 ksi)
T15 60.00-50.00	Equal Angle	L4x4x3/8	A36 (36 ksi)	Solid Round		A36 (36 ksi)

Tower Elevation ft	Secondary Horizontal Type	Secondary Horizontal Size	Secondary Horizontal Grade	Inner Bracing Type	Inner Bracing Size	Inner Bracing Grade
T16 50.00-40.00	Equal Angle	L4x4x1/4	A36 (36 ksi)	Solid Round		A36 (36 ksi)

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Gusset Area (per face) ft²	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 195.00-180.00	0.00	0.0000	A36 (36 ksi)	1	1	1	0.0000	0.0000	36.0000
T2 180.00-175.00	0.00	0.2500	A36 (36 ksi)	1	1	1	0.0000	0.0000	36.0000
T3 175.00-170.00	0.00	0.2500	A36 (36 ksi)	1	1	1	0.0000	0.0000	36.0000
T4 170.00-160.00	0.00	0.2500	A36 (36 ksi)	1	1	1	Mid-Pt	0.0000	36.0000
T5 160.00-150.00	0.00	0.2500	A36 (36 ksi)	1	1	1	Mid-Pt	0.0000	36.0000
T6 150.00-140.00	0.00	0.2500	A36 (36 ksi)	1	1	1	Mid-Pt	0.0000	36.0000
T7 140.00-133.33	0.00	0.3750	A36 (36 ksi)	1	1	1	0.0000	0.0000	36.0000
T8 133.33-126.67	0.00	0.3750	A36 (36 ksi)	1	1	1	0.0000	0.0000	36.0000
T9 126.67-120.00	0.00	0.3750	A36 (36 ksi)	1	1	1	0.0000	0.0000	36.0000
T10 120.00-113.33	0.00	0.3750	A36 (36 ksi)	1	1	1	0.0000	0.0000	36.0000
T11 113.33-106.67	0.00	0.3750	A36 (36 ksi)	1	1	1	0.0000	0.0000	36.0000
T12 106.67-100.00	0.00	0.3750	A36 (36 ksi)	1	1	1	0.0000	0.0000	36.0000
T13 100.00-80.00	0.00	0.3750	A36 (36 ksi)	1	1	1	0.0000	0.0000	36.0000
T14 80.00-60.00	0.00	0.3750	A36 (36 ksi)	1	1	1	0.0000	0.0000	36.0000
T15 60.00-50.00	0.00	0.3750	A36 (36 ksi)	1	1	1	0.0000	0.0000	36.0000
T16 50.00-40.00	0.00	0.3750	A36 (36 ksi)	1	1	1	0.0000	0.0000	36.0000
T17 40.00-20.00	0.00	0.4375	A36 (36 ksi)	1	1	1	0.0000	0.0000	36.0000
T18 20.00-0.00	0.00	0.4375	A36 (36 ksi)	1	1	1	0.0000	0.0000	36.0000

Tower Section Geometry *(cont'd)*

Tower Elevation ft	K Factors[1] Calc K Single Angles	Calc K Solid Rounds	Legs	X Brace Diags X	X Brace Diags Y	K Brace Diags X	K Brace Diags Y	Single Diags X	Single Diags Y	Girts X	Girts Y	Horiz. X	Horiz. Y	Sec. Horiz. X	Sec. Horiz. Y	Inner Brace X	Inner Brace Y
T1 195.00-180.00	Yes	Yes	1	1	1	1	1	1	1	0.96	0.96	0.96	0.96	1	1	1	1
T2 180.00-175.00	Yes	Yes	1	1	1	1	1	1	1	1	1	1	1	1	0.5	1	1
T3 175.00-170.00	No	Yes	1	1.09	1	1	1	1	1	1	1	1	1	1	0.5	1	1
T4 170.00-160.00	No	Yes	1	1.15	1	1	1	1	1	1	1	1	1	1	0.5	1	1
T5 160.00-150.00	No	Yes	1	1.25	1	1	1	1	1	1	1	1	1	1	0.5	1	1
T6 150.00-140.00	No	Yes	1	1.22	1	1	1	1	1	1	1	1	1	1	0.5	1	1
T7 140.00-133.33	Yes	Yes	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
T8 133.33-126.67	Yes	Yes	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
T9 126.67-120.00	Yes	Yes	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
T10 120.00-113.33	Yes	Yes	1	1	1	1	1	1	1	1	1	1	1	1	0.5	1	1
T11 113.33-106.67	No	Yes	1	0.98	1	1	1	1	1	1	1	1	1	1	0.5	1	1
T12 106.67-100.00	Yes	Yes	1	1	1	1	1	1	1	1	1	1	1	1	0.5	1	1
T13 100.00-80.00	No	Yes	1	0.85	1	1	1	1	1	1	1	1	1	1	0.5	1	1
T14 80.00-60.00	No	Yes	1	0.85	1	1	1	1	1	1	1	1	1	1	1	1	1
T15 60.00-50.00	Yes	Yes	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
T16 50.00-40.00	Yes	Yes	1	1	1	1	1	1	1	1	1	1	1	1	0.5	1	1
T17 40.00-20.00	Yes	Yes	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
T18 20.00-0.00	Yes	Yes	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1

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

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Leg 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 195.00-180.00	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	0.75	0.0000	1	0.0000	1
T2 180.00-175.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T3 175.00-170.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	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
T4	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
170.00-160.00														
T5	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
160.00-150.00														
T6	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
150.00-140.00														
T7	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
140.00-133.33														
T8	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
133.33-126.67														
T9	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
126.67-120.00														
T10	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
120.00-113.33														
T11	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
113.33-106.67														
T12	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
106.67-100.00														
T13	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
100.00-80.00														
T14	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
80.00-60.00														
T15	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
60.00-50.00														
T16	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
50.00-40.00														
T17	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
40.00-20.00														
T18 20.00-0.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Leg Connection Type	Leg		Diagonal		Top Girt		Bottom Girt		Mid Girt		Long Horizontal		Short Horizontal	
		Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.
T1	Flange	0.7500	4	0.0000	0	0.0000	0	0.0000	0	0.6250	0	0.0000	0	0.6250	0
195.00-180.00		A325N		A325N		A325N		A325N		A325N		A325N		A325N	
T2	Flange	0.7500	0	0.5000	1	0.0000	0	0.0000	0	0.6250	0	0.0000	0	0.6250	1
180.00-175.00		A325N		A325N		A325N		A325N		A325N		A325N		A325N	
T3	Flange	0.7500	0	0.5000	1	0.0000	0	0.0000	0	0.6250	0	0.0000	0	0.6250	1
175.00-170.00		A325N		A325X		A325N		A325N		A325N		A325N		A325N	
T4	Flange	0.7500	6	0.5000	1	0.0000	0	0.0000	0	0.6250	0	0.0000	0	0.6250	1
170.00-160.00		A325N		A325N		A325N		A325N		A325N		A325N		A325N	
T5	Flange	1.0000	0	0.5000	1	0.0000	0	0.0000	0	0.6250	0	0.0000	0	0.6250	1
160.00-150.00		A325N		A325X		A325N		A325N		A325N		A325N		A325N	
T6	Flange	1.0000	6	0.5000	1	0.0000	0	0.0000	0	0.6250	0	0.0000	0	0.6250	1
150.00-140.00		A325N		A325N		A325N		A325N		A325N		A325N		A325N	
T7	Flange	1.0000	0	0.6250	1	0.0000	0	0.0000	0	0.6250	0	0.0000	0	0.6250	0
140.00-133.33		A325N		A325X		A325N		A325N		A325N		A325N		A325N	

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.
T8	Flange	1.0000	0	0.6250	1	0.0000	0	0.0000	0	0.6250	0	0.0000	0	0.6250	0
133.33-126.67		A325N		A325X		A325N		A325N		A325N		A325N		A325N	
T9	Flange	1.0000	8	0.6250	1	0.0000	0	0.0000	0	0.6250	0	0.0000	0	0.6250	0
126.67-120.00		A325N		A325N		A325N		A325N		A325N		A325N		A325N	
T10	Flange	1.0000	0	0.6250	1	0.0000	0	0.0000	0	0.6250	0	0.0000	0	0.6250	1
120.00-113.33		A325N		A325X		A325N		A325N		A325N		A325N		A325N	
T11	Flange	1.0000	0	0.6250	1	0.0000	0	0.0000	0	0.6250	0	0.0000	0	0.6250	1
113.33-106.67		A325N		A325X		A325N		A325N		A325N		A325N		A325N	
T12	Flange	1.0000	8	0.6250	1	0.0000	0	0.0000	0	0.6250	0	0.0000	0	0.6250	1
106.67-100.00		A325N		A325X		A325N		A325N		A325N		A325N		A325N	
T13	Flange	1.2500	8	0.6250	2	0.0000	0	0.0000	0	0.6250	0	0.0000	0	0.7500	1
100.00-80.00		A325N		A325N		A325N		A325N		A325N		A325N		A325N	
T14	Flange	1.2500	8	0.6250	2	0.0000	0	0.0000	0	0.6250	0	0.0000	0	0.7500	0
80.00-60.00		A325N		A325N		A325N		A325N		A325N		A325N		A325X	
T15	Flange	1.2500	0	0.6250	2	0.0000	0	0.0000	0	0.6250	0	0.0000	0	0.6250	1
60.00-50.00		A325N		A325N		A325N		A325N		A325N		A325N		A325N	
T16	Flange	1.2500	8	0.6250	2	0.0000	0	0.0000	0	0.6250	0	0.0000	0	0.7500	1
50.00-40.00		A325N		A325N		A325N		A325N		A325N		A325N		A325X	
T17	Flange	1.2500	8	0.6250	2	0.0000	0	0.0000	0	0.6250	0	0.0000	0	0.6250	0
40.00-20.00		A325N		A325N		A325N		A325N		A325N		A325N		A325N	
T18 20.00-0.00	Flange	1.5000	8	0.6250	2	0.0000	0	0.0000	0	0.6250	0	0.0000	0	0.6250	0
		A36		A325N		A325N		A325N		A325N		A325N		A325N	

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
LDF7-50A (1-5/8 FOAM)	B	No	Ar (CaAa)	169.00 - 8.00	-2.0000	0.35	12	12	0.5000	1.9800		0.82
HB158-1-08U8-S8J18(1-5/8)	B	No	Ar (CaAa)	169.00 - 8.00	-4.0000	0.29	1	1	0.5000	0.0001		1.30
WG Rail 1.5x1.5x1/4 ****	B	No	Af (CaAa)	170.00 - 8.00	-2.0000	0.35	2	2	36.5000	1.5000		2.40
1 5/8" Hybrid	B	No	Ar (CaAa)	195.00 - 8.00	0.0000	0	1	1	1.6250	1.6250		0.75
LDF7-50A (1-5/8 FOAM)	B	No	Ar (CaAa)	195.00 - 8.00	0.0000	0	23	9	0.5000	1.9800		0.82
WG Rail 1.5x1.5x3/16 ****	B	No	Af (CaAa)	181.00 - 0.00	0.0000	0	2	2	36.0000	1.5000		1.81
5/8" dia. coax	C	No	Ar (CaAa)	75.50 - 10.00	0.0000	0	1	1	0.5000	0.6250		0.15
1 1/4" Fiber	C	No	Ar (CaAa)	152.00 - 10.00	0.0000	0.04	7	4	0.5000	1.2500		0.38
WG Rail 1.5x1.5x3/16 ****	C	No	Af (CaAa)	160.00 - 0.00	0.0000	0.1	2	2	35.0000	1.5000		1.81
LDF7-50A (1-5/8 FOAM)	A	No	Ar (CaAa)	188.00 - 8.00	0.0000	0.3	12	6	0.5000	1.9800		0.82
7/16" Fiber Cable (24 fibers Max)	A	No	Ar (CaAa)	188.00 - 8.00	0.0000	0.375	1	1	0.5000	0.4375		0.03
8AWG7	A	No	Ar (CaAa)	188.00 - 8.00	0.0000	0.35	2	2	0.5000	0.3750		0.15
WG Rail	A	No	Af (CaAa)	180.00 - 2.00	0.0000	0.3	2	2	1.5000	1.5000		1.23

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
1.5x1.5x1/8 ***												
Safety Line 3/8	A	No	Ar (CaAa)	195.00 - 0.00	0.0000	0.5	1	1	0.3750	0.3750		0.22
Step Pegs (5/8" SR) 7-in. w/30" step	A	No	Ar (CaAa)	195.00 - 0.00	0.0000	0.5	1	1	0.3500	0.3500		0.49
Step Pegs (5/8" SR) 7-in. w/30" step	B	No	Ar (CaAa)	60.00 - 0.00	0.0000	0.5	1	1	0.3500	0.3500		0.49
Step Pegs (5/8" SR) 7-in. w/30" step *****	C	No	Ar (CaAa)	60.00 - 0.00	0.0000	0.5	1	1	0.3500	0.3500		0.49
Rung L1.5x1.5x1/8 (36.25"w, 34"s)	B	No	Af (CaAa)	170.00 - 8.00	-2.0000	0.35	1	1	0.5000	0.0001		1.31
Rung L1.5x1.5x1/8 (36"w, 34"s)	B	No	Af (CaAa)	181.00 - 0.00	0.0000	0	1	1	0.5000	0.0001		1.29
Rung L2x1.5x1/8 (35"w, 48"s)	C	No	Af (CaAa)	160.00 - 0.00	0.0000	0.1	1	1	0.5000	0.0001		1.05
Rung L1.5x1.5x1/8 (36"w, 34"s) ****	A	No	Af (CaAa)	180.00 - 2.00	0.0000	0.3	1	1	0.5000	0.0001		1.29

Feed Line/Linear Appurtenances - Entered As Area

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Total Number	C_AA_A ft²/ft	Weight plf
****							
****							
****							
****							
***							
****							

Feed Line/Linear Appurtenances Section Areas

Tower Section	Tower Elevation ft	Face	A_R ft²	A_F ft²	C_AA_A In Face ft²	C_AA_A Out Face ft²	Weight lb
T1	195.00-180.00	A	0.000	0.000	21.046	0.000	91.97
		B	0.000	0.000	71.248	0.000	299.07
		C	0.000	0.000	0.000	0.000	0.00
T2	180.00-175.00	A	0.000	0.000	15.336	0.000	73.16
		B	0.000	0.000	26.083	0.000	122.63
		C	0.000	0.000	0.000	0.000	0.00
T3	175.00-170.00	A	0.000	0.000	15.336	0.000	73.16
		B	0.000	0.000	26.083	0.000	122.63

Tower Section	Tower Elevation ft	Face	A_R ft²	A_F ft²	C_AA_A In Face ft²	C_AA_A Out Face ft²	Weight lb
		C	0.000	0.000	0.000	0.000	0.00
T4	170.00-160.00	A	0.000	0.000	30.673	0.000	146.32
		B	0.000	0.000	78.549	0.000	406.64
		C	0.000	0.000	0.000	0.000	0.00
T5	160.00-150.00	A	0.000	0.000	30.673	0.000	146.32
		B	0.000	0.000	80.925	0.000	417.78
		C	0.000	0.000	6.750	0.000	51.97
T6	150.00-140.00	A	0.000	0.000	30.673	0.000	146.32
		B	0.000	0.000	80.925	0.000	417.78
		C	0.000	0.000	13.750	0.000	73.16
T7	140.00-133.33	A	0.000	0.000	20.448	0.000	97.55
		B	0.000	0.000	53.950	0.000	278.52
		C	0.000	0.000	9.167	0.000	48.77
T8	133.33-126.67	A	0.000	0.000	20.448	0.000	97.55
		B	0.000	0.000	53.950	0.000	278.52
		C	0.000	0.000	9.167	0.000	48.77
T9	126.67-120.00	A	0.000	0.000	20.448	0.000	97.55
		B	0.000	0.000	53.950	0.000	278.52
		C	0.000	0.000	9.167	0.000	48.77
T10	120.00-113.33	A	0.000	0.000	20.448	0.000	97.55
		B	0.000	0.000	53.950	0.000	278.52
		C	0.000	0.000	9.167	0.000	48.77
T11	113.33-106.67	A	0.000	0.000	20.448	0.000	97.55
		B	0.000	0.000	53.950	0.000	278.52
		C	0.000	0.000	9.167	0.000	48.77
T12	106.67-100.00	A	0.000	0.000	20.448	0.000	97.55
		B	0.000	0.000	53.950	0.000	278.52
		C	0.000	0.000	9.167	0.000	48.77
T13	100.00-80.00	A	0.000	0.000	61.345	0.000	292.64
		B	0.000	0.000	161.851	0.000	835.56
		C	0.000	0.000	27.500	0.000	146.32
T14	80.00-60.00	A	0.000	0.000	61.345	0.000	292.64
		B	0.000	0.000	161.851	0.000	835.56
		C	0.000	0.000	28.469	0.000	148.65
T15	60.00-50.00	A	0.000	0.000	30.673	0.000	146.32
		B	0.000	0.000	81.275	0.000	422.65
		C	0.000	0.000	14.725	0.000	79.53
T16	50.00-40.00	A	0.000	0.000	30.673	0.000	146.32
		B	0.000	0.000	81.275	0.000	422.65
		C	0.000	0.000	14.725	0.000	79.53
T17	40.00-20.00	A	0.000	0.000	61.345	0.000	292.64
		B	0.000	0.000	162.551	0.000	845.30
		C	0.000	0.000	29.450	0.000	159.06
T18	20.00-0.00	A	0.000	0.000	40.387	0.000	203.77
		B	0.000	0.000	101.811	0.000	550.40
		C	0.000	0.000	20.075	0.000	131.07

Feed Line/Linear Appurtenances Section Areas - With Ice

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft²	A_F ft²	C_AA_A In Face ft²	C_AA_A Out Face ft²	Weight lb
T1	195.00-180.00	A	1.785	0.000	0.000	40.891	0.000	632.08
		B		0.000	0.000	60.884	0.000	1388.09
		C		0.000	0.000	0.000	0.000	0.00
T2	180.00-175.00	A	1.775	0.000	0.000	29.768	0.000	477.32
		B		0.000	0.000	27.570	0.000	603.68
		C		0.000	0.000	0.000	0.000	0.00

Tower Section	Tower Elevation	Face or Leg	Ice Thickness	A_R	A_F	C_AA_A In Face	C_AA_A Out Face	Weight
	ft		in	ft^2	ft^2	ft^2	ft^2	lb
T3	175.00-170.00	A	1.770	0.000	0.000	29.722	0.000	475.92
		B		0.000	0.000	27.541	0.000	602.31
		C		0.000	0.000	0.000	0.000	0.00
T4	170.00-160.00	A	1.762	0.000	0.000	59.300	0.000	947.51
		B		0.000	0.000	111.136	0.000	2129.35
		C		0.000	0.000	0.000	0.000	0.00
T5	160.00-150.00	A	1.751	0.000	0.000	59.100	0.000	941.47
		B		0.000	0.000	115.400	0.000	2185.66
		C		0.000	0.000	18.488	0.000	337.22
T6	150.00-140.00	A	1.739	0.000	0.000	58.887	0.000	935.10
		B		0.000	0.000	115.143	0.000	2173.09
		C		0.000	0.000	30.308	0.000	501.87
T7	140.00-133.33	A	1.729	0.000	0.000	39.133	0.000	619.67
		B		0.000	0.000	76.610	0.000	1441.36
		C		0.000	0.000	20.140	0.000	332.35
T8	133.33-126.67	A	1.720	0.000	0.000	39.028	0.000	616.54
		B		0.000	0.000	76.483	0.000	1435.18
		C		0.000	0.000	20.086	0.000	330.48
T9	126.67-120.00	A	1.711	0.000	0.000	38.918	0.000	613.27
		B		0.000	0.000	76.350	0.000	1428.72
		C		0.000	0.000	20.029	0.000	328.53
T10	120.00-113.33	A	1.702	0.000	0.000	38.803	0.000	609.86
		B		0.000	0.000	76.210	0.000	1421.96
		C		0.000	0.000	19.969	0.000	326.49
T11	113.33-106.67	A	1.692	0.000	0.000	38.681	0.000	606.27
		B		0.000	0.000	76.062	0.000	1414.86
		C		0.000	0.000	19.906	0.000	324.34
T12	106.67-100.00	A	1.681	0.000	0.000	38.553	0.000	602.49
		B		0.000	0.000	75.907	0.000	1407.38
		C		0.000	0.000	19.840	0.000	322.09
T13	100.00-80.00	A	1.658	0.000	0.000	114.817	0.000	1782.84
		B		0.000	0.000	226.699	0.000	4173.25
		C		0.000	0.000	59.083	0.000	951.55
T14	80.00-60.00	A	1.617	0.000	0.000	113.315	0.000	1739.37
		B		0.000	0.000	224.878	0.000	4086.76
		C		0.000	0.000	64.287	0.000	996.58
T15	60.00-50.00	A	1.579	0.000	0.000	55.955	0.000	849.61
		B		0.000	0.000	115.094	0.000	2045.38
		C		0.000	0.000	36.078	0.000	536.88
T16	50.00-40.00	A	1.547	0.000	0.000	55.383	0.000	833.47
		B		0.000	0.000	114.338	0.000	2011.73
		C		0.000	0.000	35.656	0.000	524.48
T17	40.00-20.00	A	1.486	0.000	0.000	108.524	0.000	1604.70
		B		0.000	0.000	225.711	0.000	3893.24
		C		0.000	0.000	69.658	0.000	1001.27
T18	20.00-0.00	A	1.331	0.000	0.000	74.387	0.000	1034.17
		B		0.000	0.000	143.758	0.000	2343.56
		C		0.000	0.000	48.750	0.000	686.44

Feed Line Center of Pressure

Section	Elevation	CP_X	CP_Z	CP_X Ice	CP_Z Ice
	ft	in	in	in	in
T1	195.00-180.00	1.6780	-2.1673	0.8486	-1.4762
T2	180.00-175.00	1.1665	-2.6957	1.1607	-2.1271
T3	175.00-170.00	1.2681	-2.9493	1.2593	-2.3340

Section	Elevation	CP_X	CP_Z	CP_X Ice	CP_Z Ice
	ft	in	in	in	in
T4	170.00-160.00	2.5976	-1.7645	2.8212	-1.0933
T5	160.00-150.00	2.8201	-1.4739	2.8470	-0.3579
T6	150.00-140.00	3.0112	-1.2301	3.0926	-0.2839
T7	140.00-133.33	3.3075	-1.3452	3.4643	-0.3854
T8	133.33-126.67	3.5822	-1.4528	3.7560	-0.4203
T9	126.67-120.00	3.8536	-1.5590	4.0436	-0.4547
T10	120.00-113.33	3.9315	-1.5871	4.1360	-0.4667
T11	113.33-106.67	4.1756	-1.6825	4.3955	-0.4974
T12	106.67-100.00	4.4802	-1.8023	4.6862	-0.5314
T13	100.00-80.00	4.7396	-1.9014	5.0679	-0.5760
T14	80.00-60.00	5.5495	-2.1740	5.9760	-0.5247
T15	60.00-50.00	6.0463	-2.2810	6.3418	-0.1350
T16	50.00-40.00	6.3828	-2.4053	6.7099	-0.1475
T17	40.00-20.00	7.0365	-2.6479	7.5179	-0.1736
T18	20.00-0.00	5.9772	-2.5934	6.6901	-0.2486

Shielding Factor Ka

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T1	6	1 5/8" Hybrid	180.00 - 195.00	0.6000	0.3995
T1	7	LDF7-50A (1-5/8 FOAM)	180.00 - 195.00	0.6000	0.3995
T1	8	WG Rail 1.5x1.5x3/16	180.00 - 181.00	0.6000	0.3995
T1	18	LDF7-50A (1-5/8 FOAM)	180.00 - 188.00	0.6000	0.3995
T1	19	7/16" Fiber Cable (24 fibers Max)	180.00 - 188.00	0.6000	0.3995
T1	20	8AWG7	180.00 - 188.00	0.6000	0.3995
T1	29	Safety Line 3/8	180.00 - 195.00	0.6000	0.3995
T1	30	Step Pegs (5/8" SR) 7-in. w/30" step	180.00 - 195.00	0.6000	0.3995
T1	41	Rung L1.5x1.5x1/8 (36"w, 34"s)	180.00 - 181.00	0.6000	0.3995
T2	6	1 5/8" Hybrid	175.00 - 180.00	0.6000	0.4444
T2	7	LDF7-50A (1-5/8 FOAM)	175.00 - 180.00	0.6000	0.4444
T2	8	WG Rail 1.5x1.5x3/16	175.00 - 180.00	0.6000	0.4444
T2	18	LDF7-50A (1-5/8 FOAM)	175.00 - 180.00	0.6000	0.4444
T2	19	7/16" Fiber Cable (24 fibers Max)	175.00 - 180.00	0.6000	0.4444
T2	20	8AWG7	175.00 - 180.00	0.6000	0.4444
T2	21	WG Rail 1.5x1.5x1/8	175.00 - 180.00	0.6000	0.4444
T2	29	Safety Line 3/8	175.00 - 180.00	0.6000	0.4444
T2	30	Step Pegs (5/8" SR) 7-in.	175.00 -	0.6000	0.4444

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
		w/30" step	180.00		
T2	41	Rung L1.5x1.5x1/8 (36"w, 34"s)	175.00 - 180.00	0.6000	0.4444
T2	44	Rung L1.5x1.5x1/8 (36"w, 34"s)	175.00 - 180.00	0.6000	0.4444
T3	6	1 5/8" Hybrid	170.00 - 175.00	0.6000	0.4600
T3	7	LDF7-50A (1-5/8 FOAM)	170.00 - 175.00	0.6000	0.4600
T3	8	WG Rail 1.5x1.5x3/16	170.00 - 175.00	0.6000	0.4600
T3	18	LDF7-50A (1-5/8 FOAM)	170.00 - 175.00	0.6000	0.4600
T3	19	7/16" Fiber Cable (24 fibers Max)	170.00 - 175.00	0.6000	0.4600
T3	20	8AWG7	170.00 - 175.00	0.6000	0.4600
T3	21	WG Rail 1.5x1.5x1/8	170.00 - 175.00	0.6000	0.4600
T3	29	Safety Line 3/8	170.00 - 175.00	0.6000	0.4600
T3	30	Step Pegs (5/8" SR) 7-in. w/30" step	170.00 - 175.00	0.6000	0.4600
T3	41	Rung L1.5x1.5x1/8 (36"w, 34"s)	170.00 - 175.00	0.6000	0.4600
T3	44	Rung L1.5x1.5x1/8 (36"w, 34"s)	170.00 - 175.00	0.6000	0.4600
T4	1	LDF7-50A (1-5/8 FOAM)	160.00 - 169.00	0.6000	0.5462
T4	2	HB158-1-08U8-S8J18(1-5/8)	160.00 - 169.00	0.6000	0.5462
T4	3	WG Rail 1.5x1.5x1/4	160.00 - 170.00	0.6000	0.5462
T4	6	1 5/8" Hybrid	160.00 - 170.00	0.6000	0.5462
T4	7	LDF7-50A (1-5/8 FOAM)	160.00 - 170.00	0.6000	0.5462
T4	8	WG Rail 1.5x1.5x3/16	160.00 - 170.00	0.6000	0.5462
T4	18	LDF7-50A (1-5/8 FOAM)	160.00 - 170.00	0.6000	0.5462
T4	19	7/16" Fiber Cable (24 fibers Max)	160.00 - 170.00	0.6000	0.5462
T4	20	8AWG7	160.00 - 170.00	0.6000	0.5462
T4	21	WG Rail 1.5x1.5x1/8	160.00 - 170.00	0.6000	0.5462
T4	29	Safety Line 3/8	160.00 - 170.00	0.6000	0.5462
T4	30	Step Pegs (5/8" SR) 7-in. w/30" step	160.00 - 170.00	0.6000	0.5462
T4	39	Rung L1.5x1.5x1/8 (36.25"w, 34"s)	160.00 - 170.00	0.6000	0.5462
T4	41	Rung L1.5x1.5x1/8 (36"w, 34"s)	160.00 - 170.00	0.6000	0.5462
T4	44	Rung L1.5x1.5x1/8 (36"w, 34"s)	160.00 - 170.00	0.6000	0.5462
T5	1	LDF7-50A (1-5/8 FOAM)	150.00 - 160.00	0.6000	0.5278
T5	2	HB158-1-08U8-S8J18(1-5/8)	150.00 - 160.00	0.6000	0.5278
T5	3	WG Rail 1.5x1.5x1/4	150.00 -	0.6000	0.5278

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
			160.00		
T5	6	1 5/8" Hybrid	150.00 - 160.00	0.6000	0.5278
T5	7	LDF7-50A (1-5/8 FOAM)	150.00 - 160.00	0.6000	0.5278
T5	8	WG Rail 1.5x1.5x3/16	150.00 - 160.00	0.6000	0.5278
T5	11	1 1/4" Fiber	150.00 - 152.00	0.6000	0.5278
T5	12	WG Rail 1.5x1.5x3/16	150.00 - 160.00	0.6000	0.5278
T5	18	LDF7-50A (1-5/8 FOAM)	150.00 - 160.00	0.6000	0.5278
T5	19	7/16" Fiber Cable (24 fibers Max)	150.00 - 160.00	0.6000	0.5278
T5	20	8AWG7	150.00 - 160.00	0.6000	0.5278
T5	21	WG Rail 1.5x1.5x1/8	150.00 - 160.00	0.6000	0.5278
T5	29	Safety Line 3/8	150.00 - 160.00	0.6000	0.5278
T5	30	Step Pegs (5/8" SR) 7-in. w/30" step	150.00 - 160.00	0.6000	0.5278
T5	39	Rung L1.5x1.5x1/8 (36.25"w, 34"s)	150.00 - 160.00	0.6000	0.5278
T5	41	Rung L1.5x1.5x1/8 (36"w, 34"s)	150.00 - 160.00	0.6000	0.5278
T5	42	Rung L2x1.5x1/8 (35"w, 48"s)	150.00 - 160.00	0.6000	0.5278
T5	44	Rung L1.5x1.5x1/8 (36"w, 34"s)	150.00 - 160.00	0.6000	0.5278
T6	1	LDF7-50A (1-5/8 FOAM)	140.00 - 150.00	0.6000	0.5518
T6	2	HB158-1-08U8-S8J18(1-5/8)	140.00 - 150.00	0.6000	0.5518
T6	3	WG Rail 1.5x1.5x1/4	140.00 - 150.00	0.6000	0.5518
T6	6	1 5/8" Hybrid	140.00 - 150.00	0.6000	0.5518
T6	7	LDF7-50A (1-5/8 FOAM)	140.00 - 150.00	0.6000	0.5518
T6	8	WG Rail 1.5x1.5x3/16	140.00 - 150.00	0.6000	0.5518
T6	11	1 1/4" Fiber	140.00 - 150.00	0.6000	0.5518
T6	12	WG Rail 1.5x1.5x3/16	140.00 - 150.00	0.6000	0.5518
T6	18	LDF7-50A (1-5/8 FOAM)	140.00 - 150.00	0.6000	0.5518
T6	19	7/16" Fiber Cable (24 fibers Max)	140.00 - 150.00	0.6000	0.5518
T6	20	8AWG7	140.00 - 150.00	0.6000	0.5518
T6	21	WG Rail 1.5x1.5x1/8	140.00 - 150.00	0.6000	0.5518
T6	29	Safety Line 3/8	140.00 - 150.00	0.6000	0.5518
T6	30	Step Pegs (5/8" SR) 7-in. w/30" step	140.00 - 150.00	0.6000	0.5518
T6	39	Rung L1.5x1.5x1/8 (36.25"w, 34"s)	140.00 - 150.00	0.6000	0.5518
T6	41	Rung L1.5x1.5x1/8 (36"w,	140.00 -	0.6000	0.5518

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
		34"s)	150.00		
T6	42	Rung L2x1.5x1/8 (35"w, 48"s)	140.00 - 150.00	0.6000	0.5518
T6	44	Rung L1.5x1.5x1/8 (36"w, 34"s)	140.00 - 150.00	0.6000	0.5518
T7	1	LDF7-50A (1-5/8 FOAM)	133.33 - 140.00	0.6000	0.6000
T7	2	HB158-1-08U8-S8J18(1-5/8)	133.33 - 140.00	0.6000	0.6000
T7	3	WG Rail 1.5x1.5x1/4	133.33 - 140.00	0.6000	0.6000
T7	6	1 5/8" Hybrid	133.33 - 140.00	0.6000	0.6000
T7	7	LDF7-50A (1-5/8 FOAM)	133.33 - 140.00	0.6000	0.6000
T7	8	WG Rail 1.5x1.5x3/16	133.33 - 140.00	0.6000	0.6000
T7	11	1 1/4" Fiber	133.33 - 140.00	0.6000	0.6000
T7	12	WG Rail 1.5x1.5x3/16	133.33 - 140.00	0.6000	0.6000
T7	18	LDF7-50A (1-5/8 FOAM)	133.33 - 140.00	0.6000	0.6000
T7	19	7/16" Fiber Cable (24 fibers Max)	133.33 - 140.00	0.6000	0.6000
T7	20	8AWG7	133.33 - 140.00	0.6000	0.6000
T7	21	WG Rail 1.5x1.5x1/8	133.33 - 140.00	0.6000	0.6000
T7	29	Safety Line 3/8	133.33 - 140.00	0.6000	0.6000
T7	30	Step Pegs (5/8" SR) 7-in. w/30" step	133.33 - 140.00	0.6000	0.6000
T7	39	Rung L1.5x1.5x1/8 (36.25"w, 34"s)	133.33 - 140.00	0.6000	0.6000
T7	41	Rung L1.5x1.5x1/8 (36"w, 34"s)	133.33 - 140.00	0.6000	0.6000
T7	42	Rung L2x1.5x1/8 (35"w, 48"s)	133.33 - 140.00	0.6000	0.6000
T7	44	Rung L1.5x1.5x1/8 (36"w, 34"s)	133.33 - 140.00	0.6000	0.6000
T8	1	LDF7-50A (1-5/8 FOAM)	126.67 - 133.33	0.6000	0.6000
T8	2	HB158-1-08U8-S8J18(1-5/8)	126.67 - 133.33	0.6000	0.6000
T8	3	WG Rail 1.5x1.5x1/4	126.67 - 133.33	0.6000	0.6000
T8	6	1 5/8" Hybrid	126.67 - 133.33	0.6000	0.6000
T8	7	LDF7-50A (1-5/8 FOAM)	126.67 - 133.33	0.6000	0.6000
T8	8	WG Rail 1.5x1.5x3/16	126.67 - 133.33	0.6000	0.6000
T8	11	1 1/4" Fiber	126.67 - 133.33	0.6000	0.6000
T8	12	WG Rail 1.5x1.5x3/16	126.67 - 133.33	0.6000	0.6000
T8	18	LDF7-50A (1-5/8 FOAM)	126.67 - 133.33	0.6000	0.6000
T8	19	7/16" Fiber Cable (24 fibers Max)	126.67 - 133.33	0.6000	0.6000
T8	20	8AWG7	126.67 -	0.6000	0.6000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
			133.33		
T8	21	WG Rail 1.5x1.5x1/8	126.67 - 133.33	0.6000	0.6000
T8	29	Safety Line 3/8	126.67 - 133.33	0.6000	0.6000
T8	30	Step Pegs (5/8" SR) 7-in. w/30" step	126.67 - 133.33	0.6000	0.6000
T8	39	Rung L1.5x1.5x1/8 (36.25"w, 34"s)	126.67 - 133.33	0.6000	0.6000
T8	41	Rung L1.5x1.5x1/8 (36"w, 34"s)	126.67 - 133.33	0.6000	0.6000
T8	42	Rung L2x1.5x1/8 (35"w, 48"s)	126.67 - 133.33	0.6000	0.6000
T8	44	Rung L1.5x1.5x1/8 (36"w, 34"s)	126.67 - 133.33	0.6000	0.6000
T9	1	LDF7-50A (1-5/8 FOAM)	120.00 - 126.67	0.6000	0.6000
T9	2	HB158-1-08U8-S8J18(1-5/8)	120.00 - 126.67	0.6000	0.6000
T9	3	WG Rail 1.5x1.5x1/4	120.00 - 126.67	0.6000	0.6000
T9	6	1 5/8" Hybrid	120.00 - 126.67	0.6000	0.6000
T9	7	LDF7-50A (1-5/8 FOAM)	120.00 - 126.67	0.6000	0.6000
T9	8	WG Rail 1.5x1.5x3/16	120.00 - 126.67	0.6000	0.6000
T9	11	1 1/4" Fiber	120.00 - 126.67	0.6000	0.6000
T9	12	WG Rail 1.5x1.5x3/16	120.00 - 126.67	0.6000	0.6000
T9	18	LDF7-50A (1-5/8 FOAM)	120.00 - 126.67	0.6000	0.6000
T9	19	7/16" Fiber Cable (24 fibers Max)	120.00 - 126.67	0.6000	0.6000
T9	20	8AWG7	120.00 - 126.67	0.6000	0.6000
T9	21	WG Rail 1.5x1.5x1/8	120.00 - 126.67	0.6000	0.6000
T9	29	Safety Line 3/8	120.00 - 126.67	0.6000	0.6000
T9	30	Step Pegs (5/8" SR) 7-in. w/30" step	120.00 - 126.67	0.6000	0.6000
T9	39	Rung L1.5x1.5x1/8 (36.25"w, 34"s)	120.00 - 126.67	0.6000	0.6000
T9	41	Rung L1.5x1.5x1/8 (36"w, 34"s)	120.00 - 126.67	0.6000	0.6000
T9	42	Rung L2x1.5x1/8 (35"w, 48"s)	120.00 - 126.67	0.6000	0.6000
T9	44	Rung L1.5x1.5x1/8 (36"w, 34"s)	120.00 - 126.67	0.6000	0.6000
T10	1	LDF7-50A (1-5/8 FOAM)	113.33 - 120.00	0.6000	0.6000
T10	2	HB158-1-08U8-S8J18(1-5/8)	113.33 - 120.00	0.6000	0.6000
T10	3	WG Rail 1.5x1.5x1/4	113.33 - 120.00	0.6000	0.6000
T10	6	1 5/8" Hybrid	113.33 - 120.00	0.6000	0.6000
T10	7	LDF7-50A (1-5/8 FOAM)	113.33 - 120.00	0.6000	0.6000
T10	8	WG Rail 1.5x1.5x3/16	113.33 -	0.6000	0.6000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
			120.00		
T10	11	1 1/4" Fiber	113.33 - 120.00	0.6000	0.6000
T10	12	WG Rail 1.5x1.5x3/16	113.33 - 120.00	0.6000	0.6000
T10	18	LDF7-50A (1-5/8 FOAM)	113.33 - 120.00	0.6000	0.6000
T10	19	7/16" Fiber Cable (24 fibers Max)	113.33 - 120.00	0.6000	0.6000
T10	20	8AWG7	113.33 - 120.00	0.6000	0.6000
T10	21	WG Rail 1.5x1.5x1/8	113.33 - 120.00	0.6000	0.6000
T10	29	Safety Line 3/8	113.33 - 120.00	0.6000	0.6000
T10	30	Step Pegs (5/8" SR) 7-in. w/30" step	113.33 - 120.00	0.6000	0.6000
T10	39	Rung L1.5x1.5x1/8 (36.25"w, 34"s)	113.33 - 120.00	0.6000	0.6000
T10	41	Rung L1.5x1.5x1/8 (36"w, 34"s)	113.33 - 120.00	0.6000	0.6000
T10	42	Rung L2x1.5x1/8 (35"w, 48"s)	113.33 - 120.00	0.6000	0.6000
T10	44	Rung L1.5x1.5x1/8 (36"w, 34"s)	113.33 - 120.00	0.6000	0.6000
T11	1	LDF7-50A (1-5/8 FOAM)	106.67 - 113.33	0.6000	0.6000
T11	2	HB158-1-08U8-S8J18(1-5/8)	106.67 - 113.33	0.6000	0.6000
T11	3	WG Rail 1.5x1.5x1/4	106.67 - 113.33	0.6000	0.6000
T11	6	1 5/8" Hybrid	106.67 - 113.33	0.6000	0.6000
T11	7	LDF7-50A (1-5/8 FOAM)	106.67 - 113.33	0.6000	0.6000
T11	8	WG Rail 1.5x1.5x3/16	106.67 - 113.33	0.6000	0.6000
T11	11	1 1/4" Fiber	106.67 - 113.33	0.6000	0.6000
T11	12	WG Rail 1.5x1.5x3/16	106.67 - 113.33	0.6000	0.6000
T11	18	LDF7-50A (1-5/8 FOAM)	106.67 - 113.33	0.6000	0.6000
T11	19	7/16" Fiber Cable (24 fibers Max)	106.67 - 113.33	0.6000	0.6000
T11	20	8AWG7	106.67 - 113.33	0.6000	0.6000
T11	21	WG Rail 1.5x1.5x1/8	106.67 - 113.33	0.6000	0.6000
T11	29	Safety Line 3/8	106.67 - 113.33	0.6000	0.6000
T11	30	Step Pegs (5/8" SR) 7-in. w/30" step	106.67 - 113.33	0.6000	0.6000
T11	39	Rung L1.5x1.5x1/8 (36.25"w, 34"s)	106.67 - 113.33	0.6000	0.6000
T11	41	Rung L1.5x1.5x1/8 (36"w, 34"s)	106.67 - 113.33	0.6000	0.6000
T11	42	Rung L2x1.5x1/8 (35"w, 48"s)	106.67 - 113.33	0.6000	0.6000
T11	44	Rung L1.5x1.5x1/8 (36"w, 34"s)	106.67 - 113.33	0.6000	0.6000
T12	1	LDF7-50A (1-5/8 FOAM)	100.00 -	0.6000	0.6000

tnxTower	Job	Page
Tower Engineering Professionals, Inc. 326 Tryon Road Raleigh, NC 27603 Phone: (919) 661-6351 FAX: (919) 661-6350	US-CT-1003 - Straits Turnpike	18 of 45
	Project TEP #25628.106778	Date 16:49:34 01/31/17
	Client Phoenix Tower International	Designed by Christopher Bean, E.I.

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
			106.67		
T12	2	HB158-1-08U8-S8J18(1-5/8)	100.00 - 106.67	0.6000	0.6000
T12	3	WG Rail 1.5x1.5x1/4	100.00 - 106.67	0.6000	0.6000
T12	6	1 5/8" Hybrid	100.00 - 106.67	0.6000	0.6000
T12	7	LDF7-50A (1-5/8 FOAM)	100.00 - 106.67	0.6000	0.6000
T12	8	WG Rail 1.5x1.5x3/16	100.00 - 106.67	0.6000	0.6000
T12	11	1 1/4" Fiber	100.00 - 106.67	0.6000	0.6000
T12	12	WG Rail 1.5x1.5x3/16	100.00 - 106.67	0.6000	0.6000
T12	18	LDF7-50A (1-5/8 FOAM)	100.00 - 106.67	0.6000	0.6000
T12	19	7/16" Fiber Cable (24 fibers Max)	100.00 - 106.67	0.6000	0.6000
T12	20	8AWG7	100.00 - 106.67	0.6000	0.6000
T12	21	WG Rail 1.5x1.5x1/8	100.00 - 106.67	0.6000	0.6000
T12	29	Safety Line 3/8	100.00 - 106.67	0.6000	0.6000
T12	30	Step Pegs (5/8" SR) 7-in. w/30" step	100.00 - 106.67	0.6000	0.6000
T12	39	Rung L1.5x1.5x1/8 (36.25"w, 34"s)	100.00 - 106.67	0.6000	0.6000
T12	41	Rung L1.5x1.5x1/8 (36"w, 34"s)	100.00 - 106.67	0.6000	0.6000
T12	42	Rung L2x1.5x1/8 (35"w, 48"s)	100.00 - 106.67	0.6000	0.6000
T12	44	Rung L1.5x1.5x1/8 (36"w, 34"s)	100.00 - 106.67	0.6000	0.6000
T13	1	LDF7-50A (1-5/8 FOAM)	80.00 - 100.00	0.6000	0.6000
T13	2	HB158-1-08U8-S8J18(1-5/8)	80.00 - 100.00	0.6000	0.6000
T13	3	WG Rail 1.5x1.5x1/4	80.00 - 100.00	0.6000	0.6000
T13	6	1 5/8" Hybrid	80.00 - 100.00	0.6000	0.6000
T13	7	LDF7-50A (1-5/8 FOAM)	80.00 - 100.00	0.6000	0.6000
T13	8	WG Rail 1.5x1.5x3/16	80.00 - 100.00	0.6000	0.6000
T13	11	1 1/4" Fiber	80.00 - 100.00	0.6000	0.6000
T13	12	WG Rail 1.5x1.5x3/16	80.00 - 100.00	0.6000	0.6000
T13	18	LDF7-50A (1-5/8 FOAM)	80.00 - 100.00	0.6000	0.6000
T13	19	7/16" Fiber Cable (24 fibers Max)	80.00 - 100.00	0.6000	0.6000
T13	20	8AWG7	80.00 - 100.00	0.6000	0.6000
T13	21	WG Rail 1.5x1.5x1/8	80.00 - 100.00	0.6000	0.6000
T13	29	Safety Line 3/8	80.00 - 100.00	0.6000	0.6000
T13	30	Step Pegs (5/8" SR) 7-in. w/30" step	80.00 - 100.00	0.6000	0.6000
T13	39	Rung L1.5x1.5x1/8 (36.25"w, 34"s)	80.00 - 100.00	0.6000	0.6000
T13	41	Rung L1.5x1.5x1/8 (36"w, 34"s)	80.00 - 100.00	0.6000	0.6000
T13	42	Rung L2x1.5x1/8 (35"w, 48"s)	80.00 - 100.00	0.6000	0.6000
T13	44	Rung L1.5x1.5x1/8 (36"w, 34"s)	80.00 - 100.00	0.6000	0.6000
T14	1	LDF7-50A (1-5/8 FOAM)	60.00 - 80.00	0.6000	0.6000
T14	2	HB158-1-08U8-S8J18(1-5/8)	60.00 - 80.00	0.6000	0.6000
T14	3	WG Rail 1.5x1.5x1/4	60.00 - 80.00	0.6000	0.6000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T14	6	1 5/8" Hybrid	60.00 - 80.00	0.6000	0.6000
T14	7	LDF7-50A (1-5/8 FOAM)	60.00 - 80.00	0.6000	0.6000
T14	8	WG Rail 1.5x1.5x3/16	60.00 - 80.00	0.6000	0.6000
T14	10	5/8" dia. coax	60.00 - 75.50	0.6000	0.6000
T14	11	1 1/4" Fiber	60.00 - 80.00	0.6000	0.6000
T14	12	WG Rail 1.5x1.5x3/16	60.00 - 80.00	0.6000	0.6000
T14	18	LDF7-50A (1-5/8 FOAM)	60.00 - 80.00	0.6000	0.6000
T14	19	7/16" Fiber Cable (24 fibers Max)	60.00 - 80.00	0.6000	0.6000
T14	20	8AWG7	60.00 - 80.00	0.6000	0.6000
T14	21	WG Rail 1.5x1.5x1/8	60.00 - 80.00	0.6000	0.6000
T14	29	Safety Line 3/8	60.00 - 80.00	0.6000	0.6000
T14	30	Step Pegs (5/8" SR) 7-in. w/30" step	60.00 - 80.00	0.6000	0.6000
T14	39	Rung L1.5x1.5x1/8 (36.25"w, 34"s)	60.00 - 80.00	0.6000	0.6000
T14	41	Rung L1.5x1.5x1/8 (36"w, 34"s)	60.00 - 80.00	0.6000	0.6000
T14	42	Rung L2x1.5x1/8 (35"w, 48"s)	60.00 - 80.00	0.6000	0.6000
T14	44	Rung L1.5x1.5x1/8 (36"w, 34"s)	60.00 - 80.00	0.6000	0.6000
T15	1	LDF7-50A (1-5/8 FOAM)	50.00 - 60.00	0.6000	0.6000
T15	2	HB158-1-08U8-S8J18(1-5/8)	50.00 - 60.00	0.6000	0.6000
T15	3	WG Rail 1.5x1.5x1/4	50.00 - 60.00	0.6000	0.6000
T15	6	1 5/8" Hybrid	50.00 - 60.00	0.6000	0.6000
T15	7	LDF7-50A (1-5/8 FOAM)	50.00 - 60.00	0.6000	0.6000
T15	8	WG Rail 1.5x1.5x3/16	50.00 - 60.00	0.6000	0.6000
T15	10	5/8" dia. coax	50.00 - 60.00	0.6000	0.6000
T15	11	1 1/4" Fiber	50.00 - 60.00	0.6000	0.6000
T15	12	WG Rail 1.5x1.5x3/16	50.00 - 60.00	0.6000	0.6000
T15	18	LDF7-50A (1-5/8 FOAM)	50.00 - 60.00	0.6000	0.6000
T15	19	7/16" Fiber Cable (24 fibers Max)	50.00 - 60.00	0.6000	0.6000
T15	20	8AWG7	50.00 - 60.00	0.6000	0.6000
T15	21	WG Rail 1.5x1.5x1/8	50.00 - 60.00	0.6000	0.6000
T15	29	Safety Line 3/8	50.00 - 60.00	0.6000	0.6000
T15	30	Step Pegs (5/8" SR) 7-in. w/30" step	50.00 - 60.00	0.6000	0.6000
T15	31	Step Pegs (5/8" SR) 7-in. w/30" step	50.00 - 60.00	0.6000	0.6000
T15	32	Step Pegs (5/8" SR) 7-in. w/30" step	50.00 - 60.00	0.6000	0.6000
T15	39	Rung L1.5x1.5x1/8 (36.25"w, 34"s)	50.00 - 60.00	0.6000	0.6000
T15	41	Rung L1.5x1.5x1/8 (36"w, 34"s)	50.00 - 60.00	0.6000	0.6000
T15	42	Rung L2x1.5x1/8 (35"w, 48"s)	50.00 - 60.00	0.6000	0.6000
T15	44	Rung L1.5x1.5x1/8 (36"w, 34"s)	50.00 - 60.00	0.6000	0.6000
T16	1	LDF7-50A (1-5/8 FOAM)	40.00 - 50.00	0.6000	0.6000
T16	2	HB158-1-08U8-S8J18(1-5/8)	40.00 - 50.00	0.6000	0.6000
T16	3	WG Rail 1.5x1.5x1/4	40.00 - 50.00	0.6000	0.6000
T16	6	1 5/8" Hybrid	40.00 - 50.00	0.6000	0.6000
T16	7	LDF7-50A (1-5/8 FOAM)	40.00 - 50.00	0.6000	0.6000
T16	8	WG Rail 1.5x1.5x3/16	40.00 - 50.00	0.6000	0.6000
T16	10	5/8" dia. coax	40.00 - 50.00	0.6000	0.6000
T16	11	1 1/4" Fiber	40.00 - 50.00	0.6000	0.6000
T16	12	WG Rail 1.5x1.5x3/16	40.00 - 50.00	0.6000	0.6000
T16	18	LDF7-50A (1-5/8 FOAM)	40.00 - 50.00	0.6000	0.6000
T16	19	7/16" Fiber Cable (24 fibers Max)	40.00 - 50.00	0.6000	0.6000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
		Max)			
T16	20	8AWG7	40.00 - 50.00	0.6000	0.6000
T16	21	WG Rail 1.5x1.5x1/8	40.00 - 50.00	0.6000	0.6000
T16	29	Safety Line 3/8	40.00 - 50.00	0.6000	0.6000
T16	30	Step Pegs (5/8" SR) 7-in. w/30" step	40.00 - 50.00	0.6000	0.6000
T16	31	Step Pegs (5/8" SR) 7-in. w/30" step	40.00 - 50.00	0.6000	0.6000
T16	32	Step Pegs (5/8" SR) 7-in. w/30" step	40.00 - 50.00	0.6000	0.6000
T16	39	Rung L1.5x1.5x1/8 (36.25"w, 34"s)	40.00 - 50.00	0.6000	0.6000
T16	41	Rung L1.5x1.5x1/8 (36"w, 34"s)	40.00 - 50.00	0.6000	0.6000
T16	42	Rung L2x1.5x1/8 (35"w, 48"s)	40.00 - 50.00	0.6000	0.6000
T16	44	Rung L1.5x1.5x1/8 (36"w, 34"s)	40.00 - 50.00	0.6000	0.6000
T17	1	LDF7-50A (1-5/8 FOAM)	20.00 - 40.00	0.6000	0.6000
T17	2	HB158-1-08U8-S8J18(1-5/8)	20.00 - 40.00	0.6000	0.6000
T17	3	WG Rail 1.5x1.5x1/4	20.00 - 40.00	0.6000	0.6000
T17	6	1 5/8" Hybrid	20.00 - 40.00	0.6000	0.6000
T17	7	LDF7-50A (1-5/8 FOAM)	20.00 - 40.00	0.6000	0.6000
T17	8	WG Rail 1.5x1.5x3/16	20.00 - 40.00	0.6000	0.6000
T17	10	5/8" dia. coax	20.00 - 40.00	0.6000	0.6000
T17	11	1 1/4" Fiber	20.00 - 40.00	0.6000	0.6000
T17	12	WG Rail 1.5x1.5x3/16	20.00 - 40.00	0.6000	0.6000
T17	18	LDF7-50A (1-5/8 FOAM)	20.00 - 40.00	0.6000	0.6000
T17	19	7/16" Fiber Cable (24 fibers Max)	20.00 - 40.00	0.6000	0.6000
T17	20	8AWG7	20.00 - 40.00	0.6000	0.6000
T17	21	WG Rail 1.5x1.5x1/8	20.00 - 40.00	0.6000	0.6000
T17	29	Safety Line 3/8	20.00 - 40.00	0.6000	0.6000
T17	30	Step Pegs (5/8" SR) 7-in. w/30" step	20.00 - 40.00	0.6000	0.6000
T17	31	Step Pegs (5/8" SR) 7-in. w/30" step	20.00 - 40.00	0.6000	0.6000
T17	32	Step Pegs (5/8" SR) 7-in. w/30" step	20.00 - 40.00	0.6000	0.6000
T17	39	Rung L1.5x1.5x1/8 (36.25"w, 34"s)	20.00 - 40.00	0.6000	0.6000
T17	41	Rung L1.5x1.5x1/8 (36"w, 34"s)	20.00 - 40.00	0.6000	0.6000
T17	42	Rung L2x1.5x1/8 (35"w, 48"s)	20.00 - 40.00	0.6000	0.6000
T17	44	Rung L1.5x1.5x1/8 (36"w, 34"s)	20.00 - 40.00	0.6000	0.6000
T18	1	LDF7-50A (1-5/8 FOAM)	8.00 - 20.00	0.6000	0.6000
T18	2	HB158-1-08U8-S8J18(1-5/8)	8.00 - 20.00	0.6000	0.6000
T18	3	WG Rail 1.5x1.5x1/4	8.00 - 20.00	0.6000	0.6000
T18	6	1 5/8" Hybrid	8.00 - 20.00	0.6000	0.6000
T18	7	LDF7-50A (1-5/8 FOAM)	8.00 - 20.00	0.6000	0.6000
T18	8	WG Rail 1.5x1.5x3/16	0.00 - 20.00	0.6000	0.6000
T18	10	5/8" dia. coax	10.00 - 20.00	0.6000	0.6000
T18	11	1 1/4" Fiber	10.00 - 20.00	0.6000	0.6000
T18	12	WG Rail 1.5x1.5x3/16	0.00 - 20.00	0.6000	0.6000
T18	18	LDF7-50A (1-5/8 FOAM)	8.00 - 20.00	0.6000	0.6000
T18	19	7/16" Fiber Cable (24 fibers Max)	8.00 - 20.00	0.6000	0.6000
T18	20	8AWG7	8.00 - 20.00	0.6000	0.6000
T18	21	WG Rail 1.5x1.5x1/8	2.00 - 20.00	0.6000	0.6000
T18	29	Safety Line 3/8	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
T18	30	Step Pegs (5/8" SR) 7-in. w/30" step	0.00 - 20.00	0.6000	0.6000
T18	31	Step Pegs (5/8" SR) 7-in. w/30" step	0.00 - 20.00	0.6000	0.6000
T18	32	Step Pegs (5/8" SR) 7-in. w/30" step	0.00 - 20.00	0.6000	0.6000
T18	39	Rung L1.5x1.5x1/8 (36.25"w, 34"s)	8.00 - 20.00	0.6000	0.6000
T18	41	Rung L1.5x1.5x1/8 (36"w, 34"s)	0.00 - 20.00	0.6000	0.6000
T18	42	Rung L2x1.5x1/8 (35"w, 48"s)	0.00 - 20.00	0.6000	0.6000
T18	44	Rung L1.5x1.5x1/8 (36"w, 34"s)	2.00 - 20.00	0.6000	0.6000

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft	Offsets: Vert ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight lb
1.75" Dia x 5-ft Pipe	C	From Leg	2.25	0.00	-30.0000	75.50	No Ice	0.88	0.88	12.00
							1/2" Ice	1.32	1.32	19.06
				0.00			1" Ice	1.63	1.63	29.51
GPS0015	C	From Leg	4.50	0.00	-30.0000	75.50	No Ice	0.09	0.09	0.50
							1/2" Ice	0.13	0.13	2.29
				0.75			1" Ice	0.19	0.19	4.89
****										
****										
Sector Mount [SM 502-3]	C	None			0.0000	152.00	No Ice	33.02	33.02	1673.10
							1/2" Ice	47.36	47.36	2223.90
							1" Ice	61.70	61.70	2774.70
APXVSPP18-C-A20 w/ Mount Pipe	A	From Leg	5.00	0.00	0.0000	152.00	No Ice	8.02	6.71	78.90
							1/2" Ice	8.48	7.66	144.31
				0.00			1" Ice	8.94	8.49	217.47
APXVSPP18-C-A20 w/ Mount Pipe	B	From Leg	5.00	0.00	0.0000	152.00	No Ice	8.02	6.71	78.90
							1/2" Ice	8.48	7.66	144.31
				0.00			1" Ice	8.94	8.49	217.47
APXVSPP18-C-A20 w/ Mount Pipe	C	From Leg	5.00	0.00	0.0000	152.00	No Ice	8.02	6.71	78.90
							1/2" Ice	8.48	7.66	144.31
				0.00			1" Ice	8.94	8.49	217.47
800MHZ 2X50W RRH	A	From Leg	5.00	0.00	0.0000	152.00	No Ice	2.13	1.77	53.00
							1/2" Ice	2.32	1.95	74.19
				0.00			1" Ice	2.51	2.13	98.39
800MHZ 2X50W RRH	B	From Leg	5.00	0.00	0.0000	152.00	No Ice	2.13	1.77	53.00
							1/2" Ice	2.32	1.95	74.19
				0.00			1" Ice	2.51	2.13	98.39
800MHZ 2X50W RRH	C	From Leg	5.00	0.00	0.0000	152.00	No Ice	2.13	1.77	53.00
							1/2" Ice	2.32	1.95	74.19
				0.00			1" Ice	2.51	2.13	98.39
1900MHz 2X40W RRH	A	From Leg	5.00	0.00	0.0000	152.00	No Ice	2.71	2.61	59.50
							1/2" Ice	2.95	2.84	82.62

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft	Offsets: Vert ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight lb
				0.00			1" Ice	3.20	3.09	108.98
1900MHz 2X40W RRH	B	From Leg	5.00	0.00	0.0000	152.00	No Ice	2.71	2.61	59.50
							1/2" Ice	2.95	2.84	82.62
				0.00			1" Ice	3.20	3.09	108.98
1900MHz 2X40W RRH	C	From Leg	5.00	0.00	0.0000	152.00	No Ice	2.71	2.61	59.50
							1/2" Ice	2.95	2.84	82.62
				0.00			1" Ice	3.20	3.09	108.98
DB980H90T3E-M w/Mount Pipe	A	From Leg	5.00	0.00	0.0000	152.00	No Ice	4.27	3.86	34.05
							1/2" Ice	4.86	4.95	72.67
				0.00			1" Ice	5.37	5.75	117.82
DB980H90T3E-M w/Mount Pipe	B	From Leg	5.00	0.00	0.0000	152.00	No Ice	4.27	3.86	34.05
							1/2" Ice	4.86	4.95	72.67
				0.00			1" Ice	5.37	5.75	117.82
DB980H90T3E-M w/Mount Pipe	C	From Leg	5.00	0.00	0.0000	152.00	No Ice	4.27	3.86	34.05
							1/2" Ice	4.86	4.95	72.67
				0.00			1" Ice	5.37	5.75	117.82
APXVTM14-C-120 w/ Mount Pipe	A	From Leg	5.00	0.00	0.0000	152.00	No Ice	6.34	3.61	56.20
							1/2" Ice	6.72	3.97	95.73
				0.00			1" Ice	7.10	4.33	140.32
APXVTM14-C-120 w/ Mount Pipe	B	From Leg	5.00	0.00	0.0000	152.00	No Ice	6.34	3.61	56.20
							1/2" Ice	6.72	3.97	95.73
				0.00			1" Ice	7.10	4.33	140.32
APXVTM14-C-120 w/ Mount Pipe	C	From Leg	5.00	0.00	0.0000	152.00	No Ice	6.34	3.61	56.20
							1/2" Ice	6.72	3.97	95.73
				0.00			1" Ice	7.10	4.33	140.32
TD-RRH8x20-25	A	From Leg	5.00	0.00	0.0000	152.00	No Ice	4.05	1.53	70.00
							1/2" Ice	4.30	1.71	97.15
				0.00			1" Ice	4.56	1.90	127.83
TD-RRH8x20-25	B	From Leg	5.00	0.00	0.0000	152.00	No Ice	4.05	1.53	70.00
							1/2" Ice	4.30	1.71	97.15
				0.00			1" Ice	4.56	1.90	127.83
TD-RRH8x20-25	C	From Leg	5.00	0.00	0.0000	152.00	No Ice	4.05	1.53	70.00
							1/2" Ice	4.30	1.71	97.15
				0.00			1" Ice	4.56	1.90	127.83
****										
(3) Sector Mounts 169-ft	C	None			0.0000	169.00	No Ice	21.56	21.56	1395.40
							1/2" Ice	29.77	29.77	2140.10
							1" Ice	37.98	37.98	2884.80
(2) BXA-70063/6CF w/ Mount Pipe	A	From Leg	5.00	0.00	0.0000	169.00	No Ice	7.59	5.18	38.90
							1/2" Ice	8.04	6.11	95.39
				0.00			1" Ice	8.50	6.92	159.37
(2) DB844G65ZAXY w/Mount Pipe	B	From Leg	5.00	0.00	0.0000	169.00	No Ice	5.05	5.28	41.55
							1/2" Ice	5.68	6.31	92.81
				0.00			1" Ice	6.19	7.06	150.42
(2) DB844G65ZAXY w/Mount Pipe	C	From Leg	5.00	0.00	0.0000	169.00	No Ice	5.05	5.28	41.55
							1/2" Ice	5.68	6.31	92.81
				0.00			1" Ice	6.19	7.06	150.42
DB-B1/T1 w/ Mount Pipe	C	From Leg	5.00	0.00	0.0000	169.00	No Ice	4.88	4.18	57.55
							1/2" Ice	5.61	5.12	107.53
				0.00			1" Ice	6.16	5.77	163.14
(2) HBXX-6517DS-A2M w/ Mount Pipe	A	From Leg	5.00	0.00	0.0000	169.00	No Ice	8.77	6.96	67.23
							1/2" Ice	9.34	8.18	136.85
				0.00			1" Ice	9.89	9.14	214.64
(2) HBXX-6517DS-A2M w/ Mount Pipe	B	From Leg	5.00	0.00	0.0000	169.00	No Ice	8.77	6.96	67.23
							1/2" Ice	9.34	8.18	136.85
				0.00			1" Ice	9.89	9.14	214.64
(2) HBXX-6517DS-A2M w/	C	From Leg	5.00	0.00	0.0000	169.00	No Ice	8.77	6.96	67.23

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft	Vert ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight lb
Mount Pipe			0.00				1/2" Ice	9.34	8.18	136.85
			0.00				1" Ice	9.89	9.14	214.64
RRH2x60-AWS	A	From Leg	5.00		0.0000	169.00	No Ice	3.50	1.82	60.00
			0.00				1/2" Ice	3.76	2.05	82.72
			0.00				1" Ice	4.03	2.29	109.06
RRH2x60-AWS	B	From Leg	5.00		0.0000	169.00	No Ice	3.50	1.82	60.00
			0.00				1/2" Ice	3.76	2.05	82.72
			0.00				1" Ice	4.03	2.29	109.06
RRH2x60-AWS	C	From Leg	5.00		0.0000	169.00	No Ice	3.50	1.82	60.00
			0.00				1/2" Ice	3.76	2.05	82.72
			0.00				1" Ice	4.03	2.29	109.06
RRH2X60-PCS	A	From Leg	5.00		0.0000	169.00	No Ice	2.20	1.72	55.00
			0.00				1/2" Ice	2.39	1.90	75.35
			0.00				1" Ice	2.59	2.09	98.71
RRH2X60-PCS	B	From Leg	5.00		0.0000	169.00	No Ice	2.20	1.72	55.00
			0.00				1/2" Ice	2.39	1.90	75.35
			0.00				1" Ice	2.59	2.09	98.71
RRH2X60-PCS	C	From Leg	5.00		0.0000	169.00	No Ice	2.20	1.72	55.00
			0.00				1/2" Ice	2.39	1.90	75.35
			0.00				1" Ice	2.59	2.09	98.71
BXA-70080/6CF w/ Mount Pipe	A	From Leg	5.00		0.0000	169.00	No Ice	7.59	5.54	42.90
			0.00				1/2" Ice	8.04	6.48	100.79
			0.00				1" Ice	8.50	7.30	166.25
DB846F65ZAXY w/Mount Pipe	B	From Leg	5.00		0.0000	169.00	No Ice	7.27	7.82	46.55
			0.00				1/2" Ice	7.83	9.01	113.93
			0.00				1" Ice	8.35	9.91	189.25
DB846F65ZAXY w/Mount Pipe	C	From Leg	5.00		0.0000	169.00	No Ice	7.27	7.82	46.55
			0.00				1/2" Ice	7.83	9.01	113.93
			0.00				1" Ice	8.35	9.91	189.25
(2) FD9R6004	A	From Leg	5.00		0.0000	169.00	No Ice	0.37	0.08	3.10
			0.00				1/2" Ice	0.45	0.14	5.40
			0.00				1" Ice	0.54	0.20	8.79
(2) FD9R6004	B	From Leg	5.00		0.0000	169.00	No Ice	0.37	0.08	3.10
			0.00				1/2" Ice	0.45	0.14	5.40
			0.00				1" Ice	0.54	0.20	8.79
(2) FD9R6004	C	From Leg	5.00		0.0000	169.00	No Ice	0.37	0.08	3.10
			0.00				1/2" Ice	0.45	0.14	5.40
			0.00				1" Ice	0.54	0.20	8.79
****										
(3) Sector Mounts 188-ft	C	None			0.0000	188.00	No Ice	21.56	21.56	1395.40
							1/2" Ice	29.77	29.77	2140.10
							1" Ice	37.98	37.98	2884.80
Miscellaneous [NA 510-1]	C	None			0.0000	188.00	No Ice	6.00	6.00	255.70
							1/2" Ice	8.50	8.50	339.50
							1" Ice	11.00	11.00	409.12
7770.00 w/ Mount Pipe	A	From Leg	5.00		23.0000	188.00	No Ice	5.84	4.35	56.90
			0.00				1/2" Ice	6.32	5.20	105.42
			3.00				1" Ice	6.77	5.92	160.42
7770.00 w/ Mount Pipe	B	From Leg	5.00		23.0000	188.00	No Ice	5.84	4.35	56.90
			0.00				1/2" Ice	6.32	5.20	105.42
			3.00				1" Ice	6.77	5.92	160.42
7770.00 w/ Mount Pipe	C	From Leg	5.00		23.0000	188.00	No Ice	5.84	4.35	56.90
			0.00				1/2" Ice	6.32	5.20	105.42
			3.00				1" Ice	6.77	5.92	160.42
P65-17-XLH-RR w/Mount Pipe	A	From Leg	5.00		23.0000	188.00	No Ice	11.70	8.94	91.85
			0.00				1/2" Ice	12.42	10.45	177.61
			3.00				1" Ice	13.15	11.99	273.25

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft	Vert ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight lb
AM-X-CD-16-65-00T-RET w/ Mount Pipe	B	From Leg	5.00		23.0000	188.00	No Ice	8.26	6.30	74.05
			0.00				1/2" Ice	8.82	7.48	139.04
			3.00				1" Ice	9.35	8.37	211.91
AM-X-CD-16-65-00T-RET w/ Mount Pipe	C	From Leg	5.00		23.0000	188.00	No Ice	8.26	6.30	74.05
			0.00				1/2" Ice	8.82	7.48	139.04
			3.00				1" Ice	9.35	8.37	211.91
P65-17-XLH-RR w/Mount Pipe	A	From Leg	5.00		23.0000	188.00	No Ice	11.70	8.94	91.85
			0.00				1/2" Ice	12.42	10.45	177.61
			3.00				1" Ice	13.15	11.99	273.25
P65-17-XLH-RR w/Mount Pipe	B	From Leg	5.00		23.0000	188.00	No Ice	11.70	8.94	91.85
			0.00				1/2" Ice	12.42	10.45	177.61
			3.00				1" Ice	13.15	11.99	273.25
P65-17-XLH-RR w/Mount Pipe	C	From Leg	5.00		23.0000	188.00	No Ice	11.70	8.94	91.85
			0.00				1/2" Ice	12.42	10.45	177.61
			3.00				1" Ice	13.15	11.99	273.25
(2) TPX - 070621	A	From Leg	5.00		23.0000	188.00	No Ice	0.47	0.18	7.50
			0.00				1/2" Ice	0.56	0.24	10.95
			3.00				1" Ice	0.66	0.32	15.73
(2) TPX - 070621	B	From Leg	5.00		23.0000	188.00	No Ice	0.47	0.18	7.50
			0.00				1/2" Ice	0.56	0.24	10.95
			3.00				1" Ice	0.66	0.32	15.73
(2) TPX - 070621	C	From Leg	5.00		23.0000	188.00	No Ice	0.47	0.18	7.50
			0.00				1/2" Ice	0.56	0.24	10.95
			3.00				1" Ice	0.66	0.32	15.73
RRUS-12	A	From Leg	5.00		23.0000	188.00	No Ice	2.70	1.21	60.00
			0.00				1/2" Ice	2.90	1.36	81.29
			3.00				1" Ice	3.11	1.52	105.63
RRUS-12	B	From Leg	5.00		23.0000	188.00	No Ice	2.70	1.21	60.00
			0.00				1/2" Ice	2.90	1.36	81.29
			3.00				1" Ice	3.11	1.52	105.63
RRUS-12	C	From Leg	5.00		23.0000	188.00	No Ice	2.70	1.21	60.00
			0.00				1/2" Ice	2.90	1.36	81.29
			3.00				1" Ice	3.11	1.52	105.63
RRUS-12	A	From Leg	5.00		23.0000	188.00	No Ice	2.70	1.21	60.00
			0.00				1/2" Ice	2.90	1.36	81.29
			3.00				1" Ice	3.11	1.52	105.63
RRUS-12	B	From Leg	5.00		23.0000	188.00	No Ice	2.70	1.21	60.00
			0.00				1/2" Ice	2.90	1.36	81.29
			3.00				1" Ice	3.11	1.52	105.63
RRUS-12	C	From Leg	5.00		23.0000	188.00	No Ice	2.70	1.21	60.00
			0.00				1/2" Ice	2.90	1.36	81.29
			3.00				1" Ice	3.11	1.52	105.63
(2) LGP21401	A	From Leg	5.00		23.0000	188.00	No Ice	1.10	0.35	14.10
			0.00				1/2" Ice	1.24	0.44	21.26
			3.00				1" Ice	1.38	0.54	30.32
(2) LGP21401	B	From Leg	5.00		23.0000	188.00	No Ice	1.10	0.35	14.10
			0.00				1/2" Ice	1.24	0.44	21.26
			3.00				1" Ice	1.38	0.54	30.32
(2) LGP21401	C	From Leg	5.00		23.0000	188.00	No Ice	1.10	0.35	14.10
			0.00				1/2" Ice	1.24	0.44	21.26
			3.00				1" Ice	1.38	0.54	30.32
(2) RRUS-11	A	From Leg	5.00		23.0000	188.00	No Ice	2.79	1.19	50.00
			0.00				1/2" Ice	3.00	1.34	70.87
			3.00				1" Ice	3.21	1.50	94.78
(2) RRUS-11	B	From Leg	5.00		23.0000	188.00	No Ice	2.79	1.19	50.00
			0.00				1/2" Ice	3.00	1.34	70.87
			3.00				1" Ice	3.21	1.50	94.78

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight lb
(2) RRUS-11	C	From Leg	5.00	23.0000	188.00	No Ice	2.79	1.19	50.00
			0.00			1/2" Ice	3.00	1.34	70.87
			3.00			1" Ice	3.21	1.50	94.78
RRUS-32 B30	A	From Leg	5.00	23.0000	188.00	No Ice	3.31	2.42	77.00
			0.00			1/2" Ice	3.56	2.64	104.93
			3.00			1" Ice	3.81	2.86	136.47
RRUS-32 B30	B	From Leg	5.00	23.0000	188.00	No Ice	3.31	2.42	77.00
			0.00			1/2" Ice	3.56	2.64	104.93
			3.00			1" Ice	3.81	2.86	136.47
RRUS-32 B30	C	From Leg	5.00	23.0000	188.00	No Ice	3.31	2.42	77.00
			0.00			1/2" Ice	3.56	2.64	104.93
			3.00			1" Ice	3.81	2.86	136.47
DC6-48-60-18-8F	A	From Leg	0.50	0.0000	188.00	No Ice	0.92	0.92	18.90
			0.00			1/2" Ice	1.46	1.46	36.62
			3.00			1" Ice	1.64	1.64	56.82
DC6-48-60-18-8F	B	From Leg	0.50	0.0000	188.00	No Ice	0.92	0.92	18.90
			0.00			1/2" Ice	1.46	1.46	36.62
			3.00			1" Ice	1.64	1.64	56.82
****									
Sector Mount [SM 802-3]	C	None		0.0000	195.00	No Ice	24.41	24.41	930.00
						1/2" Ice	31.39	31.39	1362.00
						1" Ice	38.37	38.37	1794.00
HSS Top Mount	C	None		0.0000	195.00	No Ice	8.08	8.08	328.90
						1/2" Ice	9.70	9.70	415.20
						1" Ice	11.32	11.32	501.50
LNX-6515DS-A1M W/ Mount Pipe	A	From Leg	3.00	25.0000	193.00	No Ice	11.69	10.29	102.38
			0.00			1/2" Ice	12.40	11.81	196.03
			0.00			1" Ice	13.11	13.16	300.79
LNX-6515DS-A1M W/ Mount Pipe	B	From Leg	3.00	25.0000	193.00	No Ice	11.69	10.29	102.38
			0.00			1/2" Ice	12.40	11.81	196.03
			0.00			1" Ice	13.11	13.16	300.79
LNX-6515DS-A1M W/ Mount Pipe	C	From Leg	3.00	25.0000	193.00	No Ice	11.69	10.29	102.38
			0.00			1/2" Ice	12.40	11.81	196.03
			0.00			1" Ice	13.11	13.16	300.79
APX16DWV-16DWV-S-E-A 20 w/ Mount Pipe	A	From Leg	3.00	25.0000	195.00	No Ice	6.91	3.57	62.60
			0.00			1/2" Ice	7.39	4.41	112.02
			0.00			1" Ice	7.86	5.13	168.01
APX16DWV-16DWV-S-E-A 20 w/ Mount Pipe	B	From Leg	3.00	25.0000	195.00	No Ice	6.91	3.57	62.60
			0.00			1/2" Ice	7.39	4.41	112.02
			0.00			1" Ice	7.86	5.13	168.01
APX16DWV-16DWV-S-E-A 20 w/ Mount Pipe	C	From Leg	3.00	25.0000	195.00	No Ice	6.91	3.57	62.60
			0.00			1/2" Ice	7.39	4.41	112.02
			0.00			1" Ice	7.86	5.13	168.01
(2) KRY 112 71	A	From Leg	3.00	25.0000	195.00	No Ice	0.63	0.61	18.07
			0.00			1/2" Ice	0.75	0.79	26.97
			0.00			1" Ice	0.89	0.99	38.22
(2) KRY 112 71	B	From Leg	3.00	25.0000	195.00	No Ice	0.63	0.61	18.07
			0.00			1/2" Ice	0.75	0.79	26.97
			0.00			1" Ice	0.89	0.99	38.22
(2) KRY 112 71	C	From Leg	3.00	25.0000	195.00	No Ice	0.63	0.61	18.07
			0.00			1/2" Ice	0.75	0.79	26.97
			0.00			1" Ice	0.89	0.99	38.22
AIR -32 B2A/B66AA	A	From Leg	3.00	25.0000	195.00	No Ice	6.51	4.71	132.20
			0.00			1/2" Ice	6.89	5.07	178.02
			0.00			1" Ice	7.27	5.43	229.11
AIR -32 B2A/B66AA	B	From Leg	3.00	25.0000	195.00	No Ice	6.51	4.71	132.20
			0.00			1/2" Ice	6.89	5.07	178.02

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight lb
			0.00			1" Ice	7.27	5.43	229.11
AIR -32 B2A/B66AA	C	From Leg	3.00	25.0000	195.00	No Ice	6.51	4.71	132.20
			0.00			1/2" Ice	6.89	5.07	178.02
			0.00			1" Ice	7.27	5.43	229.11
****									
TMO Future Loading	C	None		0.0000	195.00	No Ice	41.21	41.21	834.32
						1/2" Ice	46.41	46.41	1254.79
						1" Ice	51.61	51.61	1675.26
*****									

Load Combinations

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

Comb. No.	Description
38	1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp
39	Dead+Wind 0 deg - Service
40	Dead+Wind 30 deg - Service
41	Dead+Wind 60 deg - Service
42	Dead+Wind 90 deg - Service
43	Dead+Wind 120 deg - Service
44	Dead+Wind 150 deg - Service
45	Dead+Wind 180 deg - Service
46	Dead+Wind 210 deg - Service
47	Dead+Wind 240 deg - Service
48	Dead+Wind 270 deg - Service
49	Dead+Wind 300 deg - Service
50	Dead+Wind 330 deg - Service

Maximum Member Forces

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial lb	Major Axis Moment lb-ft	Minor Axis Moment lb-ft
T1	195 - 180	Leg	Max Tension	7	23185.06	-227.68	150.34
			Max. Compression	2	-39581.68	9.09	346.92
			Max. Mx	8	-6533.97	-443.74	-70.11
			Max. My	2	-12750.25	0.89	-427.67
			Max. Vy	8	-1224.70	-0.00	-0.00
			Max. Vx	2	1225.57	0.00	-0.00
		Diagonal	Max Tension	24	9028.58	0.00	0.00
		Horizontal	Max Tension	2	685.57	0.00	0.00
			Max. Compression	12	-6148.82	0.00	0.00
			Max. Mx	35	125.35	-16.34	0.00
			Max. My	22	360.33	0.00	0.00
			Max. Vy	35	18.67	0.00	0.00
			Max. Vx	22	-0.00	0.00	0.00
		Top Girt	Max Tension	18	727.33	0.00	0.00
			Max. Compression	10	-1473.30	0.00	0.00
			Max. Mx	35	216.30	-16.34	0.00
			Max. My	22	-726.25	0.00	0.00
			Max. Vy	35	18.67	0.00	0.00
			Max. Vx	22	-0.00	0.00	0.00
		Bottom Girt	Max Tension	47	4.72	0.00	0.00
			Max. Compression	24	-3034.16	0.00	0.00
			Max. Mx	35	-40.15	-16.34	0.00
			Max. My	10	-2820.34	0.00	-0.00
			Max. Vy	35	18.67	0.00	0.00
			Max. Vx	10	0.00	0.00	0.00
T2	180 - 175	Leg	Max Tension	7	38836.82	-452.36	-2.77
			Max. Compression	2	-43458.13	-524.91	0.95
			Max. Mx	2	-43458.13	-524.91	0.95
			Max. My	8	-2932.10	-104.05	688.28
			Max. Vy	2	397.93	507.47	1.33
			Max. Vx	8	-342.50	-104.05	688.28
		Diagonal	Max Tension	23	3504.57	0.00	0.00
			Max. Compression	10	-4249.75	-22.97	8.14
			Max. Mx	25	-4051.48	-26.30	-3.87
			Max. My	10	-4106.47	-23.24	16.65
			Max. Vy	28	-14.18	13.99	-0.87
			Max. Vx	10	5.07	0.00	0.00
		Secondary Horizontal	Max Tension	2	753.66	0.00	0.00
			Max. Compression	2	-753.66	-36.69	-5.68

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial lb	Major Axis Moment lb-ft	Minor Axis Moment lb-ft
			Max. Mx	8	651.97	-43.86	-6.58
			Max. My	20	-475.19	25.91	13.91
			Max. Vy	8	-26.22	0.00	0.00
			Max. Vx	20	7.53	0.00	0.00
T3	175 - 170	Leg	Max Tension	7	47400.51	-575.99	-0.96
			Max. Compression	2	-53746.82	-211.32	6.57
			Max. Mx	2	-53744.86	712.82	-2.57
			Max. My	8	-3496.80	-104.16	688.27
			Max. Vy	2	-535.56	712.82	-2.57
			Max. Vx	8	398.04	-104.16	688.27
		Diagonal	Max Tension	12	3544.65	50.13	-0.80
			Max. Compression	12	-3320.80	0.00	0.00
			Max. Mx	2	2624.34	84.16	30.09
			Max. My	10	2359.49	83.34	31.59
			Max. Vy	27	-30.98	55.65	13.20
			Max. Vx	10	-10.32	0.00	0.00
		Secondary Horizontal	Max Tension	2	932.08	0.00	0.00
			Max. Compression	2	-932.08	20.26	-24.89
			Max. Mx	8	-62.32	42.06	-4.32
			Max. My	2	932.08	19.54	-25.12
			Max. Vy	30	-29.10	32.80	-3.44
			Max. Vx	2	-11.95	19.54	-25.12
T4	170 - 160	Leg	Max Tension	7	66898.80	-706.17	-1.94
			Max. Compression	2	-76144.86	-597.63	-0.81
			Max. Mx	2	-63361.30	883.22	6.98
			Max. My	4	-4116.12	-88.34	-606.22
			Max. Vy	2	-968.89	883.22	6.98
			Max. Vx	24	923.62	-32.60	388.43
		Diagonal	Max Tension	17	4874.56	-19.02	13.71
			Max. Compression	16	-5299.88	0.00	0.00
			Max. Mx	2	3746.51	-36.63	13.35
			Max. My	18	-5123.31	19.95	18.63
			Max. Vy	27	28.75	-33.76	7.90
			Max. Vx	18	5.31	0.00	0.00
		Secondary Horizontal	Max Tension	2	1320.51	0.00	0.00
			Max. Compression	2	-1320.51	3.57	-14.93
			Max. Mx	35	258.88	17.36	0.39
			Max. My	2	-1320.51	3.57	-14.93
			Max. Vy	35	23.38	17.36	0.39
			Max. Vx	22	-6.05	0.00	0.00
T5	160 - 150	Leg	Max Tension	7	85888.60	-1526.66	-1.22
			Max. Compression	2	-97547.88	-838.15	-0.06
			Max. Mx	2	-96524.63	1789.44	-1.24
			Max. My	4	-4637.89	-155.07	-1130.25
			Max. Vy	2	1649.42	1789.43	-1.26
			Max. Vx	4	640.33	-99.12	-882.03
		Diagonal	Max Tension	13	5555.63	-67.86	6.02
			Max. Compression	12	-5777.22	0.00	0.00
			Max. Mx	2	2889.10	-97.49	22.94
			Max. My	10	-4923.20	74.17	-29.89
			Max. Vy	27	47.34	-73.87	-12.58
			Max. Vx	10	-7.80	0.00	0.00
		Secondary Horizontal	Max Tension	2	1691.69	0.00	0.00
			Max. Compression	2	-1691.69	6.29	-16.41
			Max. Mx	30	-361.12	22.63	-2.69
			Max. My	4	-1469.49	-4.86	-19.03
			Max. Vy	30	-27.08	22.63	-2.69
			Max. Vx	24	-6.69	-5.43	-18.86

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial lb	Major Axis Moment lb-ft	Minor Axis Moment lb-ft
T6	150 - 140	Leg	Max Tension	15	106771.56	661.45	5.55
			Max. Compression	2	-121092.54	1491.60	0.91
			Max. Mx	2	-109637.80	1549.58	0.53
			Max. My	4	-6228.33	-99.18	-882.02
			Max. Vy	2	-1015.46	1491.60	0.91
			Max. Vx	4	-438.28	-99.18	-882.02
		Diagonal	Max Tension	13	5680.22	-44.15	-2.54
			Max. Compression	24	-5974.58	0.00	0.00
			Max. Mx	2	3886.60	-60.76	4.67
			Max. My	10	-5505.78	33.44	-10.58
			Max. Vy	27	46.38	-58.65	7.01
			Max. Vx	38	3.13	0.00	0.00
		Secondary Horizontal	Max Tension	2	2100.00	0.00	0.00
			Max. Compression	2	-2100.00	2.31	-8.04
			Max. Mx	34	141.75	21.83	1.84
			Max. My	4	-1175.63	4.55	9.78
			Max. Vy	34	28.88	21.83	1.84
			Max. Vx	8	-3.07	0.00	0.00
T7	140 - 133.333	Leg	Max Tension	15	118698.90	276.92	5.76
			Max. Compression	2	-134222.87	912.39	-10.64
			Max. Mx	2	-134222.87	912.39	-10.64
			Max. My	4	-7333.44	-8.85	-882.69
			Max. Vy	18	-253.54	908.55	-1.49
			Max. Vx	16	-77.06	-3.77	875.93
		Diagonal	Max Tension	12	5879.87	0.00	0.00
			Max. Compression	12	-5990.90	0.00	0.00
			Max. Mx	27	1486.10	55.31	-5.89
			Max. My	27	140.94	36.54	-7.46
			Max. Vy	29	41.79	48.60	-6.79
			Max. Vx	27	2.72	0.00	0.00
T8	133.333 - 126.667	Leg	Max Tension	15	130994.41	-889.82	14.78
			Max. Compression	2	-147782.94	633.03	6.69
			Max. Mx	2	-147500.56	912.39	-10.64
			Max. My	4	-7543.79	-9.03	-882.69
			Max. Vy	22	-111.21	-889.75	-18.91
			Max. Vx	4	-136.50	-9.03	-882.69
		Diagonal	Max Tension	12	6056.22	0.00	0.00
			Max. Compression	12	-6203.70	0.00	0.00
			Max. Mx	27	1450.07	59.55	-6.24
			Max. My	27	93.33	42.32	-8.19
			Max. Vy	29	45.00	54.92	-7.19
			Max. Vx	27	2.83	0.00	0.00
T9	126.667 - 120	Leg	Max Tension	15	142972.90	-576.25	0.73
			Max. Compression	2	-161115.67	-9.31	-20.66
			Max. Mx	2	-160833.30	633.03	6.69
			Max. My	4	-8391.93	-106.97	-1784.25
			Max. Vy	18	150.85	627.39	1.70
			Max. Vx	4	271.52	-106.97	-1784.25
		Diagonal	Max Tension	24	5955.51	0.00	0.00
			Max. Compression	12	-6033.40	0.00	0.00
			Max. Mx	27	1597.01	56.05	-6.21
			Max. My	27	94.30	43.12	-8.29
			Max. Vy	29	44.11	54.23	-7.21
			Max. Vx	27	2.73	0.00	0.00
T10	120 - 113.333	Leg	Max Tension	15	153008.12	-178.65	26.73
			Max. Compression	2	-171995.03	3920.05	5.61
			Max. Mx	2	-171850.16	3920.05	5.62
			Max. My	4	-8686.08	-237.14	-1925.54
			Max. Vy	2	1819.72	3920.05	5.62

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial lb	Major Axis Moment lb-ft	Minor Axis Moment lb-ft
			Max. Vx	4	564.98	-237.14	-1925.54
		Diagonal	Max Tension	13	6639.18	80.79	4.77
			Max. Compression	24	-7126.30	0.00	0.00
			Max. Mx	2	4182.72	110.54	9.43
			Max. My	4	-5001.50	-44.07	-14.13
			Max. Vy	27	-61.50	103.86	10.04
			Max. Vx	27	-3.47	0.00	0.00
		Secondary Horizontal	Max Tension	2	2982.76	0.00	0.00
			Max. Compression	2	-2982.76	6.70	-12.27
			Max. Mx	32	176.51	53.64	9.69
			Max. My	4	-1777.99	16.55	20.79
			Max. Vy	32	-52.18	53.64	9.69
			Max. Vx	8	-4.59	0.00	0.00
T11	113.333 - 106.667	Leg	Max Tension	15	164192.06	1693.00	11.93
			Max. Compression	2	-184694.78	4377.53	4.92
			Max. Mx	2	-184491.44	4377.53	4.92
			Max. My	4	-9298.28	-288.01	-2083.48
			Max. Vy	2	-2080.68	4377.53	4.92
			Max. Vx	4	666.01	-288.01	-2083.48
		Diagonal	Max Tension	13	6889.61	80.11	4.77
			Max. Compression	24	-7233.98	0.00	0.00
			Max. Mx	2	4303.64	108.26	7.52
			Max. My	2	-6982.70	-54.80	-13.95
			Max. Vy	27	-64.01	107.20	-10.71
			Max. Vx	27	-3.55	0.00	0.00
		Secondary Horizontal	Max Tension	2	3203.00	0.00	0.00
			Max. Compression	2	-3203.00	7.87	-9.63
			Max. Mx	36	169.45	58.07	10.61
			Max. My	4	-2302.65	19.16	18.50
			Max. Vy	36	-54.89	58.07	10.61
			Max. Vx	30	-4.03	0.00	0.00
T12	106.667 - 100	Leg	Max Tension	7	174769.96	1893.78	6.35
			Max. Compression	2	-196502.95	4007.89	7.83
			Max. Mx	2	-196502.95	4007.89	7.83
			Max. My	4	-9549.42	-288.03	-2083.47
			Max. Vy	2	-2047.60	4007.89	7.83
			Max. Vx	4	-607.39	-288.03	-2083.47
		Diagonal	Max Tension	13	6847.62	49.85	0.16
			Max. Compression	2	-7342.83	0.00	0.00
			Max. Mx	27	1057.26	90.68	7.97
			Max. My	12	1048.80	65.07	9.03
			Max. Vy	29	57.10	82.18	-5.95
			Max. Vx	27	2.74	0.00	0.00
		Secondary Horizontal	Max Tension	2	3407.78	0.00	0.00
			Max. Compression	2	-3407.78	16.58	-5.02
			Max. Mx	28	830.46	70.49	9.49
			Max. My	27	-111.60	64.31	17.37
			Max. Vy	28	58.97	70.49	9.49
			Max. Vx	31	-4.56	0.00	0.00
T13	100 - 80	Leg	Max Tension	7	206065.52	1029.68	4.24
			Max. Compression	2	-233216.65	286.21	6.11
			Max. Mx	2	-209146.64	3302.25	9.15
			Max. My	4	-10182.36	-178.68	-1882.24
			Max. Vy	2	-1504.18	3302.25	9.15
			Max. Vx	4	-545.85	-178.68	-1882.24
		Diagonal	Max Tension	13	7241.94	72.30	-0.29
			Max. Compression	24	-7655.93	0.00	0.00

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial lb	Major Axis Moment lb-ft	Minor Axis Moment lb-ft
			Max. Mx	27	1572.40	139.81	-15.72
			Max. My	33	-2346.54	109.14	18.24
			Max. Vy	29	86.31	134.56	-14.88
			Max. Vx	33	4.64	0.00	0.00
		Secondary Horizontal	Max Tension	2	4044.47	0.00	0.00
			Max. Compression	2	-4044.47	23.66	-1.88
			Max. Mx	37	-59.54	95.69	13.74
			Max. My	28	-141.54	95.19	14.75
			Max. Vy	37	-73.19	95.69	13.74
			Max. Vx	31	-4.04	0.00	0.00
T14	80 - 60	Leg	Max Tension	7	235959.14	-2249.50	2.22
			Max. Compression	2	-268234.47	-757.29	-17.13
			Max. Mx	2	-256652.29	2392.67	4.42
			Max. My	4	-14138.99	-171.66	-2760.12
			Max. Vy	2	533.36	2392.67	4.42
			Max. Vx	4	319.30	-171.66	-2760.12
		Diagonal	Max Tension	24	7757.79	0.00	0.00
			Max. Compression	24	-7930.72	0.00	0.00
			Max. Mx	27	2349.01	173.92	-18.32
			Max. My	28	-707.77	134.81	-21.88
			Max. Vy	29	96.69	166.33	-19.64
			Max. Vx	28	-5.04	0.00	0.00
T15	60 - 50	Leg	Max Tension	7	246462.89	405.42	3.63
			Max. Compression	2	-280458.12	-4904.41	13.19
			Max. Mx	2	-280243.28	7459.06	9.91
			Max. My	4	-14974.28	-654.96	-4486.32
			Max. Vy	2	2439.24	7459.06	9.91
			Max. Vx	4	969.15	-654.96	-4486.32
		Diagonal	Max Tension	13	9050.61	98.64	7.58
			Max. Compression	2	-9848.08	0.00	0.00
			Max. Mx	29	1506.78	196.60	-5.25
			Max. My	2	-9810.40	8.16	-21.77
			Max. Vy	29	96.53	196.60	-5.25
			Max. Vx	27	-4.12	0.00	0.00
		Secondary Horizontal	Max Tension	2	4863.74	0.00	0.00
			Max. Compression	2	-4863.74	66.44	4.88
			Max. Mx	38	-287.73	213.27	57.38
			Max. My	28	-327.73	212.92	58.34
			Max. Vy	38	-129.07	213.27	57.38
			Max. Vx	30	-10.35	0.00	0.00
T16	50 - 40	Leg	Max Tension	7	260800.83	3489.91	9.17
			Max. Compression	2	-297539.38	-175.89	-53.51
			Max. Mx	2	-297479.87	7142.75	13.54
			Max. My	4	-15619.11	-654.99	-4486.32
			Max. Vy	2	-2519.41	7142.75	13.54
			Max. Vx	4	-1005.04	-654.99	-4486.32
		Diagonal	Max Tension	13	9003.48	105.62	1.04
			Max. Compression	24	-9635.19	0.00	0.00
			Max. Mx	31	2203.23	206.76	-16.39
			Max. My	28	-2257.71	172.49	-17.49
			Max. Vy	29	99.81	204.20	-11.42
			Max. Vx	28	-4.28	0.00	0.00
		Secondary Horizontal	Max Tension	2	5159.97	0.00	0.00
			Max. Compression	2	-5159.97	71.99	1.37
			Max. Mx	28	1263.61	186.35	38.03
			Max. My	28	-6.54	178.35	49.00
			Max. Vy	28	113.37	186.35	38.03
			Max. Vx	30	-8.48	0.00	0.00

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial lb	Major Axis Moment lb-ft	Minor Axis Moment lb-ft
T17	40 - 20	Leg	Max Tension	7	288254.38	-2001.51	1.17
			Max. Compression	2	-331200.45	2075.44	-21.09
			Max. Mx	29	47570.67	-4266.45	-4.33
			Max. My	4	-16896.78	-87.88	-2432.90
			Max. Vy	37	679.35	-4245.31	-15.10
			Max. Vx	4	-261.66	-142.23	-2164.41
		Diagonal	Max Tension	24	9179.96	0.00	0.00
			Max. Compression	24	-9535.34	0.00	0.00
			Max. Mx	31	1821.26	355.15	-37.15
			Max. My	28	-1924.00	286.42	-42.00
			Max. Vy	29	147.15	351.19	-39.60
			Max. Vx	28	-7.76	0.00	0.00
T18	20 - 0	Leg	Max Tension	7	320388.07	1059.65	3.67
			Max. Compression	2	-371281.77	-0.00	0.03
			Max. Mx	27	-158427.82	4513.43	59.26
			Max. My	4	-20157.63	-214.62	-3761.73
			Max. Vy	18	-14881.71	-0.00	0.02
			Max. Vx	17	-3020.58	-0.00	-1.37
		Diagonal	Max Tension	24	9661.29	0.00	0.00
			Max. Compression	24	-10195.18	0.00	0.00
			Max. Mx	31	165.99	555.79	46.26
			Max. My	33	-5318.77	461.49	57.43
			Max. Vy	29	181.21	547.90	-47.34
			Max. Vx	33	-9.35	0.00	0.00

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical lb	Horizontal, X lb	Horizontal, Z lb
Leg C	Max. Vert	18	366295.43	30993.44	-17832.80
	Max. H_x	18	366295.43	30993.44	-17832.80
	Max. H_z	7	-319099.36	-27184.82	15641.25
	Min. Vert	7	-319099.36	-27184.82	15641.25
	Min. H_x	7	-319099.36	-27184.82	15641.25
	Min. H_z	18	366295.43	30993.44	-17832.80
Leg B	Max. Vert	10	368694.21	-30823.91	-18191.21
	Max. H_x	23	-316883.22	26975.14	15897.52
	Max. H_z	23	-316883.22	26975.14	15897.52
	Min. Vert	23	-316883.22	26975.14	15897.52
	Min. H_x	10	368694.21	-30823.91	-18191.21
	Min. H_z	10	368694.21	-30823.91	-18191.21
Leg A	Max. Vert	2	369839.91	374.10	35887.98
	Max. H_x	21	16430.87	2948.52	1223.90
	Max. H_z	2	369839.91	374.10	35887.98
	Min. Vert	15	-318537.89	-297.82	-31418.42
	Min. H_x	9	16708.05	-2906.20	1242.06
	Min. H_z	15	-318537.89	-297.82	-31418.42

Tower Mast Reaction Summary

Load Combination	Vertical	$Shear_x$	$Shear_z$	Overturning Moment, M_x	Overturning Moment, M_z	Torque
	lb	lb	lb	lb-ft	lb-ft	lb-ft
Dead Only	53524.17	-0.00	-0.00	-10555.79	-23508.35	0.01
1.2 Dead+1.6 Wind 0 deg - No Ice	64229.01	14.23	-55684.30	-6487612.97	-30999.77	13107.99
0.9 Dead+1.6 Wind 0 deg - No Ice	48171.75	14.42	-55684.18	-6472566.58	-23865.27	13049.90
1.2 Dead+1.6 Wind 30 deg - No Ice	64229.01	26827.13	-46620.18	-5488171.80	-3174726.89	9007.01
0.9 Dead+1.6 Wind 30 deg - No Ice	48171.76	26827.29	-46620.14	-5474889.97	-3161821.88	8985.05
1.2 Dead+1.6 Wind 60 deg - No Ice	64229.01	45762.18	-26522.26	-3140480.43	-5414947.86	1748.17
0.9 Dead+1.6 Wind 60 deg - No Ice	48171.76	45762.00	-26522.55	-3131512.11	-5397887.81	1745.11
1.2 Dead+1.6 Wind 90 deg - No Ice	64229.01	53632.82	-12.12	-15321.19	-6316622.27	-6324.98
0.9 Dead+1.6 Wind 90 deg - No Ice	48171.76	53632.87	-12.28	-12117.53	-6297937.51	-6306.46
1.2 Dead+1.6 Wind 120 deg - No Ice	64229.01	48052.16	27829.80	3222413.51	-5606156.35	-12026.62
0.9 Dead+1.6 Wind 120 deg - No Ice	48171.75	48052.16	27829.58	3219703.22	-5588838.01	-11970.08
1.2 Dead+1.6 Wind 150 deg - No Ice	64229.01	26805.58	46604.09	5460046.75	-3170325.32	-12574.03
0.9 Dead+1.6 Wind 150 deg - No Ice	48171.76	26805.48	46604.20	5453189.28	-3157415.45	-12508.58
1.2 Dead+1.6 Wind 180 deg - No Ice	64229.01	-24.58	53022.65	6238334.93	-25762.30	-12017.89
0.9 Dead+1.6 Wind 180 deg - No Ice	48171.75	-24.83	53022.64	6230009.68	-18646.86	-11964.66
1.2 Dead+1.6 Wind 210 deg - No Ice	64229.01	-26830.40	46618.30	5462667.54	3117998.82	-9005.77
0.9 Dead+1.6 Wind 210 deg - No Ice	48171.76	-26830.29	46618.42	5455804.69	3119340.60	-8983.94
1.2 Dead+1.6 Wind 240 deg - No Ice	64229.01	-48066.45	27854.48	3226930.12	5551974.84	-1877.57
0.9 Dead+1.6 Wind 240 deg - No Ice	48171.75	-48066.27	27854.58	3224211.38	5548910.52	-1869.08
1.2 Dead+1.6 Wind 270 deg - No Ice	64229.01	-53632.83	16.40	-10151.24	6259877.79	6324.01
0.9 Dead+1.6 Wind 270 deg - No Ice	48171.76	-53632.87	16.24	-6956.53	6255451.61	6305.64
1.2 Dead+1.6 Wind 300 deg - No Ice	64229.01	-45748.06	-26497.30	-3136038.28	5355597.65	11068.66
0.9 Dead+1.6 Wind 300 deg - No Ice	48171.76	-45747.85	-26497.66	-3127077.14	5352801.25	11020.25
1.2 Dead+1.6 Wind 330 deg - No Ice	64229.01	-26802.54	-46605.85	-5485620.32	3113443.97	12574.44
0.9 Dead+1.6 Wind 330 deg - No Ice	48171.76	-26802.68	-46605.82	-5472342.61	3114806.60	12508.94
1.2 Dead+1.0 Ice+1.0 Temp	178860.77	0.28	-0.25	-58087.32	-119262.40	-0.76
1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp	178860.77	0.52	-17035.64	-2058308.79	-119333.19	4623.87
1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp	178860.77	8217.51	-14259.49	-1749175.77	-1092972.21	3926.55
1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp	178860.77	14393.79	-8325.61	-1043416.02	-1821402.22	2025.12
1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp	178860.77	16434.57	-0.26	-58087.84	-2066632.44	-578.70
1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp	178860.77	14726.75	8517.26	942004.97	-1846906.04	-2851.50
1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp	178860.77	8217.04	14258.96	1632985.47	-1092911.59	-4031.76

Load Combination	Vertical	$Shear_x$	$Shear_z$	Overturning Moment, M_x	Overturning Moment, M_z	Torque
	lb	lb	lb	lb-ft	lb-ft	lb-ft
deg+1.0 Ice+1.0 Temp						
1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp	178860.77	-0.50	16650.50	1912657.01	-119168.35	-4439.28
1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp	178860.77	-8217.73	14259.37	1633056.53	854506.47	-3926.45
1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp	178860.77	-14727.13	8518.00	942119.03	1608462.10	-2100.55
1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp	178860.77	-16434.58	0.52	-57964.68	1828131.39	578.53
1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp	178860.77	-14393.41	-8324.91	-1043318.03	1582820.62	2746.57
1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp	178860.77	-8216.83	-14259.08	-1749114.10	854358.99	4031.75
Dead+Wind 0 deg - Service	53524.17	3.81	-14486.04	-1693054.00	-24294.74	3401.52
Dead+Wind 30 deg - Service	53524.17	6979.43	-12127.87	-1433329.86	-841155.34	2338.26
Dead+Wind 60 deg - Service	53524.17	11904.72	-6899.83	-823318.94	-1423254.21	451.16
Dead+Wind 90 deg - Service	53524.17	13952.43	-3.71	-11274.82	-1657540.18	-1641.27
Dead+Wind 120 deg - Service	53524.17	12500.59	7239.77	830027.24	-1472960.23	-3119.60
Dead+Wind 150 deg - Service	53524.17	6973.00	12124.16	1411429.39	-840009.17	-3262.17
Dead+Wind 180 deg - Service	53524.17	-3.73	13793.60	1613657.48	-22943.41	-3118.25
Dead+Wind 210 deg - Service	53524.17	-6979.43	12127.87	1412118.18	793933.90	-2337.13
Dead+Wind 240 deg - Service	53524.17	-12504.29	7246.21	831193.01	1426391.41	-487.69
Dead+Wind 270 deg - Service	53524.17	-13952.43	3.71	-9931.55	1610300.58	1641.16
Dead+Wind 300 deg - Service	53524.17	-11901.04	-6893.35	-822158.43	1375341.27	2876.14
Dead+Wind 330 deg - Service	53524.17	-6973.00	-12124.16	-1432662.61	792749.76	3262.22

Solution Summary

Load Comb.	Sum of Applied Forces PX	PY	PZ	Sum of Reactions PX	PY	PZ	% Error
	lb	lb	lb	lb	lb	lb	
1	0.00	-53524.17	-0.00	0.00	53524.17	0.00	0.000%
2	14.27	-64229.01	-55684.34	-14.23	64229.01	55684.30	0.000%
3	14.27	-48171.76	-55684.34	-14.42	48171.75	55684.18	0.000%
4	26828.93	-64229.01	-46619.53	-26827.13	64229.01	46620.18	0.002%
5	26828.93	-48171.76	-46619.53	-26827.29	48171.76	46620.14	0.002%
6	45761.35	-64229.01	-26523.67	-45762.18	64229.01	26522.26	0.002%
7	45761.35	-48171.76	-26523.67	-45762.00	48171.76	26522.55	0.002%
8	53633.15	-64229.01	-14.27	-53632.82	64229.01	12.12	0.003%
9	53633.15	-48171.76	-14.27	-53632.87	48171.76	12.28	0.003%
10	48052.20	-64229.01	27829.81	-48052.16	64229.01	-27829.80	0.000%
11	48052.20	-48171.76	27829.81	-48052.16	48171.75	-27829.58	0.000%
12	26804.22	-64229.01	46605.26	-26805.58	64229.01	-46604.09	0.002%
13	26804.22	-48171.76	46605.26	-26805.48	48171.76	-46604.20	0.002%
14	-14.27	-64229.01	53022.62	24.58	64229.01	-53022.65	0.012%
15	-14.27	-48171.76	53022.62	24.83	48171.75	-53022.64	0.015%
16	-26828.93	-64229.01	46619.53	26830.40	64229.01	-46618.30	0.002%
17	-26828.93	-48171.76	46619.53	26830.29	48171.76	-46618.42	0.002%
18	-48066.47	-64229.01	27854.53	48066.45	64229.01	-27854.48	0.000%
19	-48066.47	-48171.76	27854.53	48066.27	48171.75	-27854.58	0.000%
20	-53633.15	-64229.01	14.27	53632.83	64229.01	-16.40	0.003%
21	-53633.15	-48171.76	14.27	53632.87	48171.76	-16.24	0.003%
22	-45747.08	-64229.01	-26498.95	45748.06	64229.01	26497.30	0.002%
23	-45747.08	-48171.76	-26498.95	45747.85	48171.76	26497.66	0.002%
24	-26804.22	-64229.01	-46605.26	26802.54	64229.01	46605.85	0.002%
25	-26804.22	-48171.76	-46605.26	26802.68	48171.76	46605.82	0.002%
26	0.00	-178860.77	-0.00	-0.28	178860.77	0.25	0.000%
27	0.40	-178860.77	-17035.65	-0.52	178860.77	17035.64	0.000%

Load Comb.	Sum of Applied Forces PX lb	PY lb	PZ lb	Sum of Reactions PX lb	PY lb	PZ lb	% Error
28	8217.63	-178860.77	-14259.42	-8217.51	178860.77	14259.49	0.000%
29	14393.73	-178860.77	-8325.74	-14393.79	178860.77	8325.61	0.000%
30	16434.57	-178860.77	-0.40	-16434.57	178860.77	0.26	0.000%
31	14726.64	-178860.77	8517.48	-14726.75	178860.77	-8517.26	0.000%
32	8216.94	-178860.77	14259.03	-8217.04	178860.77	-14258.96	0.000%
33	-0.40	-178860.77	16650.79	0.50	178860.77	-16650.50	0.000%
34	-8217.63	-178860.77	14259.42	8217.73	178860.77	-14259.37	0.000%
35	-14727.04	-178860.77	8518.17	14727.13	178860.77	-8518.00	0.000%
36	-16434.57	-178860.77	0.40	16434.58	178860.77	-0.52	0.000%
37	-14393.34	-178860.77	-8325.05	14393.41	178860.77	8324.91	0.000%
38	-8216.94	-178860.77	-14259.03	8216.83	178860.77	14259.08	0.000%
39	3.71	-53524.17	-14486.04	-3.81	53524.17	14486.04	0.000%
40	6979.43	-53524.17	-12127.87	-6979.43	53524.17	12127.87	0.000%
41	11904.62	-53524.17	-6900.02	-11904.72	53524.17	6899.83	0.000%
42	13952.43	-53524.17	-3.71	-13952.43	53524.17	3.71	0.000%
43	12500.57	-53524.17	7239.81	-12500.59	53524.17	-7239.77	0.000%
44	6973.00	-53524.17	12124.16	-6973.00	53524.17	-12124.16	0.000%
45	-3.71	-53524.17	13793.61	3.73	53524.17	-13793.60	0.000%
46	-6979.43	-53524.17	12127.87	6979.43	53524.17	-12127.87	0.000%
47	-12504.28	-53524.17	7246.24	12504.29	53524.17	-7246.21	0.000%
48	-13952.43	-53524.17	3.71	13952.43	53524.17	-3.71	0.000%
49	-11900.91	-53524.17	-6893.59	11901.04	53524.17	6893.35	0.000%
50	-6973.00	-53524.17	-12124.16	6973.00	53524.17	12124.16	0.000%

Non-Linear Convergence Results

Load Combination	Converged?	Number of Cycles	Displacement Tolerance	Force Tolerance
1	Yes	4	0.00000001	0.00000959
2	Yes	4	0.00000001	0.00004548
3	Yes	4	0.00000001	0.00003926
4	Yes	4	0.00000001	0.00006120
5	Yes	4	0.00000001	0.00005372
6	Yes	6	0.00000001	0.00036875
7	Yes	6	0.00000001	0.00034799
8	Yes	4	0.00000001	0.00007131
9	Yes	4	0.00000001	0.00006349
10	Yes	4	0.00000001	0.00004556
11	Yes	4	0.00000001	0.00003928
12	Yes	4	0.00000001	0.00005913
13	Yes	4	0.00000001	0.00005168
14	Yes	5	0.00000001	0.00086808
15	Yes	5	0.00000001	0.00086513
16	Yes	4	0.00000001	0.00006231
17	Yes	4	0.00000001	0.00005446
18	Yes	4	0.00000001	0.00004587
19	Yes	4	0.00000001	0.00003947
20	Yes	4	0.00000001	0.00007200
21	Yes	4	0.00000001	0.00006387
22	Yes	6	0.00000001	0.00042705
23	Yes	6	0.00000001	0.00041023
24	Yes	4	0.00000001	0.00005864
25	Yes	4	0.00000001	0.00005128
26	Yes	4	0.00000001	0.00051547
27	Yes	5	0.00000001	0.00004139
28	Yes	5	0.00000001	0.00002308

29	Yes	5	0.00000001	0.00002544
30	Yes	5	0.00000001	0.00002472
31	Yes	5	0.00000001	0.00008918
32	Yes	5	0.00000001	0.00002047
33	Yes	4	0.00000001	0.00007346
34	Yes	5	0.00000001	0.00002139
35	Yes	5	0.00000001	0.00003315
36	Yes	5	0.00000001	0.00002471
37	Yes	5	0.00000001	0.00003084
38	Yes	5	0.00000001	0.00002210
39	Yes	5	0.00000001	0.00006205
40	Yes	4	0.00000001	0.00000255
41	Yes	4	0.00000001	0.00023480
42	Yes	4	0.00000001	0.00000256
43	Yes	5	0.00000001	0.00002312
44	Yes	4	0.00000001	0.00000256
45	Yes	4	0.00000001	0.00028850
46	Yes	4	0.00000001	0.00000258
47	Yes	5	0.00000001	0.00001114
48	Yes	4	0.00000001	0.00000259
49	Yes	4	0.00000001	0.00042935
50	Yes	4	0.00000001	0.00000257

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T1	195 - 180	7.159	39	0.4390	0.0491
T2	180 - 175	5.719	39	0.4011	0.0109
T3	175 - 170	5.302	39	0.3726	0.0089
T4	170 - 160	4.928	39	0.3422	0.0076
T5	160 - 150	4.238	39	0.3067	0.0072
T6	150 - 140	3.639	39	0.2590	0.0068
T7	140 - 133.333	3.122	39	0.2270	0.0064
T8	133.333 - 126.667	2.806	39	0.2160	0.0060
T9	126.667 - 120	2.504	39	0.2049	0.0056
T10	120 - 113.333	2.216	39	0.1936	0.0052
T11	113.333 - 106.667	1.952	39	0.1762	0.0048
T12	106.667 - 100	1.711	39	0.1586	0.0045
T13	100 - 80	1.494	39	0.1411	0.0041
T14	80 - 60	0.937	39	0.1150	0.0031
T15	60 - 50	0.504	39	0.0800	0.0021
T16	50 - 40	0.342	39	0.0626	0.0016
T17	40 - 20	0.219	39	0.0452	0.0012
T18	20 - 0	0.062	39	0.0225	0.0006

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
195.00	Sector Mount [SM 802-3]	39	7.159	0.4390	0.0491	21547
193.00	LNX-6515DS-A1M W/ Mount Pipe	39	6.959	0.4362	0.0423	21547
188.00	(3) Sector Mounts 188-ft	39	6.464	0.4275	0.0265	15391
169.00	(3) Sector Mounts 169-ft	39	4.855	0.3374	0.0074	15988

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
152.00	Sector Mount [SM 502-3]	39	3.752	0.2685	0.0069	13577
75.50	1.75" Dia x 5-ft Pipe	39	0.829	0.1085	0.0029	39503

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T1	195 - 180	27.401	2	1.6787	0.1602
T2	180 - 175	21.911	2	1.5349	0.0420
T3	175 - 170	20.318	2	1.4266	0.0342
T4	170 - 160	18.881	2	1.3105	0.0294
T5	160 - 150	16.241	2	1.1747	0.0278
T6	150 - 140	13.946	2	0.9923	0.0263
T7	140 - 133.333	11.963	2	0.8695	0.0246
T8	133.333 - 126.667	10.752	2	0.8276	0.0231
T9	126.667 - 120	9.598	2	0.7848	0.0216
T10	120 - 113.333	8.494	2	0.7419	0.0199
T11	113.333 - 106.667	7.480	2	0.6750	0.0187
T12	106.667 - 100	6.558	2	0.6077	0.0175
T13	100 - 80	5.728	2	0.5407	0.0159
T14	80 - 60	3.593	2	0.4406	0.0121
T15	60 - 50	1.932	2	0.3065	0.0080
T16	50 - 40	1.313	2	0.2397	0.0063
T17	40 - 20	0.839	2	0.1733	0.0045
T18	20 - 0	0.238	2	0.0861	0.0022

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
195.00	Sector Mount [SM 802-3]	2	27.401	1.6787	0.1602	5831
193.00	LNX-6515DS-A1M W/ Mount Pipe	2	26.639	1.6680	0.1392	5831
188.00	(3) Sector Mounts 188-ft	2	24.754	1.6352	0.0904	4165
169.00	(3) Sector Mounts 169-ft	2	18.605	1.2922	0.0288	4209
152.00	Sector Mount [SM 502-3]	2	14.377	1.0287	0.0267	3549
75.50	1.75" Dia x 5-ft Pipe	2	3.176	0.4156	0.0112	10319

Bolt Design Data

Section No.	Elevation ft	Component Type	Bolt Grade	Bolt Size in	Number Of Bolts	Maximum Load per Bolt lb	Allowable Load lb	Ratio Load / Allowable	Allowable Ratio	Criteria
T1	195	Leg	A325N	0.7500	4	5796.26	29820.60	0.194	1	Bolt Tension
T2	180	Diagonal	A325N	0.5000	1	3504.57	4689.84	0.747	1	Member Block Shear

Section No.	Elevation ft	Component Type	Bolt Grade	Bolt Size in	Number Of Bolts	Maximum Load per Bolt lb	Allowable Load lb	Ratio Load / Allowable	Allowable Ratio	Criteria
		Secondary Horizontal	A325N	0.6250	1	753.66	6830.86	0.110	1	Member Block Shear
T3	175	Diagonal	A325X	0.5000	1	3544.65	7245.70	0.489	1	Member Block Shear
		Secondary Horizontal	A325N	0.6250	1	932.08	6830.86	0.136	1	Member Block Shear
T4	170	Leg	A325N	0.7500	6	11141.70	29820.60	0.374	1	Bolt Tension
		Diagonal	A325N	0.5000	1	4874.56	8265.00	0.590	1	Gusset Bearing
		Secondary Horizontal	A325N	0.6250	1	1320.51	6830.86	0.193	1	Member Block Shear
T5	160	Diagonal	A325X	0.5000	1	5555.63	8265.00	0.672	1	Gusset Bearing
		Secondary Horizontal	A325N	0.6250	1	1691.69	6830.86	0.248	1	Member Block Shear
T6	150	Leg	A325N	1.0000	6	17777.80	53014.40	0.335	1	Bolt Tension
		Diagonal	A325N	0.5000	1	5680.22	8265.00	0.687	1	Gusset Bearing
		Secondary Horizontal	A325N	0.6250	1	2100.00	6830.86	0.307	1	Member Block Shear
T7	140	Diagonal	A325X	0.6250	1	5879.87	12712.50	0.463	1	Member Block Shear
T8	133.333	Diagonal	A325X	0.6250	1	6056.22	12712.50	0.476	1	Member Block Shear
T9	126.667	Leg	A325N	1.0000	8	17871.60	53014.40	0.337	1	Bolt Tension
		Diagonal	A325N	0.6250	1	5955.51	7830.00	0.761	1	Member Bearing
T10	120	Diagonal	A325X	0.6250	1	6639.18	13050.00	0.509	1	Member Bearing
		Secondary Horizontal	A325N	0.6250	1	2982.76	7830.00	0.381	1	Member Bearing
T11	113.333	Diagonal	A325X	0.6250	1	6889.61	13050.00	0.528	1	Member Bearing
		Secondary Horizontal	A325N	0.6250	1	3203.00	7830.00	0.409	1	Member Bearing
T12	106.667	Leg	A325N	1.0000	8	21820.00	53014.40	0.412	1	Bolt Tension
		Diagonal	A325X	0.6250	1	6847.62	12712.50	0.539	1	Member Block Shear
		Secondary Horizontal	A325N	0.6250	1	3407.78	7830.00	0.435	1	Member Bearing
T13	100	Leg	A325N	1.2500	8	25733.60	82835.00	0.311	1	Bolt Tension
		Diagonal	A325N	0.6250	2	3620.97	11622.70	0.312	1	Member Block Shear
		Secondary Horizontal	A325N	0.7500	1	4044.47	13898.40	0.291	1	Member Block Shear
T14	80	Leg	A325N	1.2500	8	29494.90	82835.00	0.356	1	Bolt Tension
		Diagonal	A325N	0.6250	2	3878.90	11622.70	0.334	1	Member Block Shear
T15	60	Diagonal	A325N	0.6250	2	4924.04	12425.20	0.396	1	Bolt Shear
		Secondary Horizontal	A325N	0.6250	1	4863.74	12425.20	0.391	1	Bolt Shear
T16	50	Leg	A325N	1.2500	8	32562.60	82835.00	0.393	1	Bolt Tension
		Diagonal	A325N	0.6250	2	4817.59	12425.20	0.388	1	Bolt Shear
		Secondary Horizontal	A325X	0.7500	1	5159.97	14355.00	0.359	1	Member Bearing
T17	40	Leg	A325N	1.2500	8	36031.80	82835.00	0.435	1	Bolt Tension
		Diagonal	A325N	0.6250	2	4767.67	12425.20	0.384	1	Bolt Shear
T18	20	Leg	A36	1.5000	8	40048.50	61496.70	0.651	1	Bolt Tension
		Diagonal	A325N	0.6250	2	5097.59	12425.20	0.410	1	Bolt Shear

Compression Checks

Leg Design Data (Compression)

Section No.	Elevation	Size	L	L_u	Kl/r	A	P_u	ϕP_n	Ratio $\frac{P_u}{\phi P_n}$
	ft		ft	ft		in^2	lb	lb	
T1	195 - 180	PIPE 2.5 STD (SCH 40)	15.00	3.75	47.4 K=1.00	1.7072	-39581.70	70532.50	0.561 [1]
T2	180 - 175	PIPE 2.5 STD (SCH 40)	5.01	2.67	33.8 K=1.00	1.7072	-43458.10	77102.10	0.564 [1]
T3	175 - 170	PIPE 2.5 STD (SCH 40)	5.01	2.65	33.5 K=1.00	1.7072	-53746.80	77205.80	0.696 [1]
T4	170 - 160	2.5SCH40 w/ 3SCH80 Half Sleeve 4.8.1 (1.04 CR) - 69	10.02	2.62	34.2 K=1.00	3.2300	-76144.90	72967.00	1.044 [1]
T5	160 - 150	Pipe 3.5 Std (SCH40)	10.02	2.60	23.4 K=1.00	2.6795	-97547.90	126932.00	0.769 [1]
T6	150 - 140	3.5SCH40 w/ 4SCH40 Half Sleeve	10.02	2.59	23.8 K=1.00	4.2666	-121074.00	184209.00	0.657 [1]
T7	140 - 133.333	5 STD w/ 6 XH Half Sleeve	6.68	6.68	45.4 K=1.00	8.5023	-134223.00	306442.00	0.438 [1]
T8	133.333 - 126.667	5 STD w/ 6 XH Half Sleeve	6.68	6.68	45.4 K=1.00	8.5023	-147783.00	306442.00	0.482 [1]
T9	126.667 - 120	5 STD w/ 6 XH Half Sleeve	6.68	6.68	45.4 K=1.00	8.5023	-161116.00	306442.00	0.526 [1]
T10	120 - 113.333	PIPE 6 STD (SCH40)	6.68	3.45	18.4 K=1.00	5.5858	-171955.00	269041.00	0.639 [1]
T11	113.333 - 106.667	PIPE 6 STD (SCH40)	6.68	3.44	18.4 K=1.00	5.5858	-184596.00	269071.00	0.686 [1]
T12	106.667 - 100	PIPE 6 STD (SCH40)	6.68	3.44	18.4 K=1.00	5.5858	-196429.00	269098.00	0.730 [1]
T13	100 - 80	6 STD w/ 7 XH Half Sleeve	20.03	3.42	19.5 K=1.00	11.1800	-233217.00	412800.00	0.565 [1]
T14	80 - 60	PIPE 8 STD (SCH40)	20.03	6.68	27.3 K=1.00	8.3993	-268234.00	391613.00	0.685 [1]
T15	60 - 50	PIPE 8 STD (SCH40)	10.02	5.16	21.1 K=1.00	8.3993	-280458.00	401143.00	0.699 [1]
T16	50 - 40	PIPE 8 STD (SCH40)	10.02	5.16	21.1 K=1.00	8.3993	-297539.00	401194.00	0.742 [1]
T17	40 - 20	PIPE 8 X-STR (SCH80)	20.03	10.02	41.7 K=1.00	12.7706	-331200.00	549495.00	0.603 [1]
T18	20 - 0	PIPE 8 X-STR (SCH80)	20.03	9.97	41.6 K=1.00	12.7706	-361878.00	550136.00	0.658 [1]

[1] P_u / ϕP_n controls

Diagonal Design Data (Compression)

Section No.	Elevation	Size	L	L_u	Kl/r	A	P_u	ϕP_n	Ratio $\frac{P_u}{\phi P_n}$
	ft		ft	ft		in^2	lb	lb	
T2	180 - 175	L1 1/2x1 1/2x3/16	6.25	3.03	124.0 K=1.00	0.5273	-4249.75	7609.55	0.558 [1]
T3	175 - 170	L2x2x3/16	6.56	3.29	109.2 K=1.09	0.7150	-3320.80	12363.90	0.269 [1]
T4	170 - 160	2L1 1/2x1 1/2x3/16x1/4	6.90	3.45	104.2 K=1.15	1.0547	-5299.88	19298.30	0.275 [1]

Section No.	Elevation	Size	L	L_u	Kl/r	A	P_u	ϕP_n	Ratio $\frac{P_u}{\phi P_n}$
	ft		ft	ft		in^2	lb	lb	
T5	160 - 150	2L2x2x3/16x1/4	8.01	3.95	96.0 K=1.25	1.4297	-5777.22	28526.20	0.203 [1]
T6	150 - 140	2L2x2x3/16x1/4	8.81	4.33	102.6 K=1.22	1.4297	-5783.43	26601.10	0.217 [1]
T7	140 - 133.333	L2 1/2x2 1/2x1/4	10.29	4.92	120.3 K=1.00	1.1900	-5990.90	17991.90	0.333 [1]
T8	133.333 - 126.667	L2 1/2x2 1/2x1/4	10.80	5.18	126.7 K=1.00	1.1900	-6203.70	16560.40	0.375 [1]
T9	126.667 - 120	L2 1/2x2 1/2x3/16	11.34	5.47	132.6 K=1.00	0.9020	-6033.40	11588.10	0.521 [1]
T10	120 - 113.333	L3x3x1/4	11.88	5.67	116.2 K=1.01	1.4400	-7126.30	22906.10	0.311 [1]
T11	113.333 - 106.667	L3x3x1/4	12.44	6.09	121.0 K=0.98	1.4400	-7233.98	21593.20	0.335 [1]
T12	106.667 - 100	L2 1/2x2 1/2x1/4	13.01	6.24	152.5 K=1.00	1.1900	-7342.83	11557.60	0.635 [1]
T13	100 - 80	L3 1/2x3 1/2x1/4	14.76	7.21	106.0 K=0.85	1.6900	-7475.19	30316.40	0.247 [1]
T14	80 - 60	L3 1/2x3 1/2x1/4	16.57	8.07	118.7 K=0.85	1.6900	-7930.72	26091.70	0.304 [1]
T15	60 - 50	L3x3x5/16	18.87	9.11	170.0 K=0.92	1.7800	-9848.08	13914.00	0.708 [1]
T16	50 - 40	L3x3x5/16	19.73	9.54	176.7 K=0.91	1.7800	-9635.19	12883.30	0.748 [1]
T17	40 - 20	L4x4x3/8	21.47	10.41	149.5 K=0.94	2.8600	-9535.34	28926.60	0.330 [1]
T18	20 - 0	L5x5x5/16	23.24	11.30	132.5 K=0.97	3.0300	-10195.20	38816.00	0.263 [1]

[1] P_u / ϕP_n controls

Horizontal Design Data (Compression)

Section No.	Elevation	Size	L	L_u	Kl/r	A	P_u	ϕP_n	Ratio $\frac{P_u}{\phi P_n}$
	ft		ft	ft		in^2	lb	lb	
T1	195 - 180	L1 1/2x1 1/2x3/16	3.50	3.26	124.9 K=0.94	0.5273	-6148.82	7512.48	0.818 [1]

[1] P_u / ϕP_n controls

Secondary Horizontal Design Data (Compression)

Section No.	Elevation	Size	L	L_u	Kl/r	A	P_u	ϕP_n	Ratio $\frac{P_u}{\phi P_n}$
	ft		ft	ft		in^2	lb	lb	
T2	180 - 175	L2x2x3/16	3.73	1.63	84.8 K=1.71	0.7150	-753.66	15868.60	0.047 [1]
T3	175 - 170	L2x2x3/16	4.24	2.00	60.8 K=1.00	0.7150	-932.08	19064.10	0.049 [1]
T4	170 - 160	L2x2x3/16	5.24	2.49	75.7	0.7150	-1320.51	17128.60	0.077 [1]

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
					K=1.00				
T5	160 - 150	L2x2x3/16	6.24	2.95	89.9 K=1.00	0.7150	-1691.69	15131.00	0.112 [1]
T6	150 - 140	L2x2x3/16	7.24	3.43	104.6 K=1.00	0.7150	-2100.00	13027.80	0.161 [1]
T10	120 - 113.333	L3x3x3/16	9.82	4.51	105.5 K=1.16	1.0900	-2982.76	19381.00	0.154 [1]
T11	113.333 - 106.667	L3x3x3/16	10.49	4.97	100.0 K=1.00	1.0900	-3203.00	20509.90	0.156 [1]
T12	106.667 - 100	L3x3x3/16	11.16	5.18	112.2 K=1.08	1.0900	-3407.78	17992.10	0.189 [1]
T13	100 - 80	L3x3x1/4	13.16	6.26	126.9 K=1.00	1.4400	-4044.47	19981.80	0.202 [1]
T15	60 - 50	L4x4x3/8	15.98	7.51	117.2 K=1.02	2.8600	-4863.74	44960.90	0.108 [1]
T16	50 - 40	L4x4x1/4	16.99	7.99	120.6 K=1.00	1.9400	-5159.97	28993.60	0.178 [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 lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
T1	195 - 180	L1 1/2x1 1/2x3/16	3.50	3.26	124.9 K=0.94	0.5273	-1473.30	7512.48	0.196 [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 lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
T1	195 - 180	L1 1/2x1 1/2x3/16	3.50	3.26	124.9 K=0.94	0.5273	-3034.16	7512.48	0.404 [1]

[1] P_u / ϕP_n controls

Tension Checks

Leg Design Data (Tension)

tnxTower	Job: US-CT-1003 - Straits Turnpike	Page: 42 of 45
Tower Engineering Professionals, Inc. 326 Tryon Road Raleigh, NC 27603 Phone: (919) 661-6351 FAX: (919) 661-6350	Project: TEP #25628.106778	Date: 16:49:34 01/31/17
	Client: Phoenix Tower International	Designed by: Christopher Bean, E.I.

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
T1	195 - 180	PIPE 2.5 STD (SCH 40)	15.00	3.75	47.4	1.7072	23185.10	84508.30	0.274 [1]
T2	180 - 175	PIPE 2.5 STD (SCH 40)	5.01	2.34	29.5	1.7072	38836.80	84508.30	0.460 [1]
T3	175 - 170	PIPE 2.5 STD (SCH 40)	5.01	2.36	29.8	1.7072	47400.50	84508.30	0.561 [1]
T4	170 - 160	2.5SCH40 w/ 3SCH80 Half Sleeve 4.8.1 (1.03 CR) - 67	10.02	2.38	31.1	3.2300	66898.80	101745.00	0.658 [1]
T5	160 - 150	Pipe 3.5 Std (SCH40)	10.02	2.40	21.6	2.6795	85888.60	132637.00	0.648 [1]
T6	150 - 140	3.5SCH40 w/ 4SCH40 Half Sleeve	10.02	2.42	22.2	4.2666	106772.00	191997.00	0.556 [1]
T7	140 - 133.333	5 STD w/ 6 XH Half Sleeve	6.68	6.68	45.4	8.5023	118699.00	351995.00	0.337 [1]
T8	133.333 - 126.667	5 STD w/ 6 XH Half Sleeve	6.68	6.68	45.4	8.5023	130994.00	351995.00	0.372 [1]
T9	126.667 - 120	5 STD w/ 6 XH Half Sleeve	6.68	6.68	45.4	8.5023	142973.00	351995.00	0.406 [1]
T10	120 - 113.333	PIPE 6 STD (SCH40)	6.68	3.23	17.2	5.5858	153008.00	276495.00	0.553 [1]
T11	113.333 - 106.667	PIPE 6 STD (SCH40)	6.68	3.23	17.3	5.5858	164192.00	276495.00	0.594 [1]
T12	106.667 - 100	PIPE 6 STD (SCH40)	6.68	3.24	17.3	5.5858	174770.00	276495.00	0.632 [1]
T13	100 - 80	6 STD w/ 7 XH Half Sleeve	20.03	3.25	18.6	11.1800	206066.00	422604.00	0.488 [1]
T14	80 - 60	PIPE 8 STD (SCH40)	20.03	6.68	27.3	8.3993	235959.00	415763.00	0.568 [1]
T15	60 - 50	PIPE 8 STD (SCH40)	10.02	4.85	19.8	8.3993	246463.00	415763.00	0.593 [1]
T16	50 - 40	PIPE 8 STD (SCH40)	10.02	4.86	19.9	8.3993	260801.00	415763.00	0.627 [1]
T17	40 - 20	PIPE 8 X-STR (SCH80)	20.03	10.02	41.7	12.7706	288254.00	632143.00	0.456 [1]
T18	20 - 0	PIPE 8 X-STR (SCH80)	20.03	0.08	0.3	12.7706	320388.00	632143.00	0.507 [1]

[1] P_u / ϕP_n controls

Diagonal Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
T1	195 - 180	5/8	5.13	4.78	366.9	0.3068	9028.58	9940.20	0.908 [1]
T2	180 - 175	L1 1/2x1 1/2x3/16	6.25	3.03	82.4	0.3076	3504.57	13381.30	0.262 [1]
T3	175 - 170	L2x2x3/16	6.56	3.29	64.0	0.4484	3544.65	19503.60	0.182 [1]
T4	170 - 160	2L1 1/2x1 1/2x3/16x1/4	6.90	3.45	90.6	0.6152	4874.56	26762.70	0.182 [1]
T5	160 - 150	2L2x2x3/16x1/4	8.01	3.95	76.8	0.8965	5555.63	38997.10	0.142 [1]
T6	150 - 140	2L2x2x3/16x1/4	8.40	4.13	80.3	0.8965	5680.22	38997.10	0.146 [1]
T7	140 - 133.333	L2 1/2x2 1/2x1/4	10.29	4.92	78.9	0.7519	5879.87	32706.60	0.180 [1]
T8	133.333 - 126.667	L2 1/2x2 1/2x1/4	10.80	5.18	83.0	0.7519	6056.22	32706.60	0.185 [1]
T9	126.667 - 120	L2 1/2x2 1/2x3/16	11.34	5.47	86.2	0.5710	5955.51	24839.90	0.240 [1]
T10	120 - 113.333	L3x3x1/4	11.88	5.67	74.9	0.9394	6639.18	40862.80	0.162 [1]
T11	113.333 - 106.667	L3x3x1/4	12.44	6.09	78.6	0.9394	6889.61	40862.80	0.169 [1]
T12	106.667 - 100	L2 1/2x2 1/2x1/4	13.01	6.24	99.5	0.7519	6847.62	32706.60	0.209 [1]
T13	100 - 80	L3 1/2x3 1/2x1/4	14.17	6.92	76.1	1.1269	7241.94	49019.10	0.148 [1]
T14	80 - 60	L3 1/2x3 1/2x1/4	16.57	8.07	88.9	1.1269	7757.79	49019.10	0.158 [1]
T15	60 - 50	L3x3x5/16	18.87	9.11	121.1	1.1592	9050.62	50426.00	0.179 [1]
T16	50 - 40	L3x3x5/16	19.73	9.54	126.7	1.1592	9003.48	50426.00	0.179 [1]
T17	40 - 20	L4x4x3/8	21.47	10.41	103.5	1.9341	9179.96	84131.70	0.109 [1]
T18	20 - 0	L5x5x5/16	23.24	11.30	87.9	2.0967	9661.29	91207.30	0.106 [1]

[1] P_u / ϕP_n controls

Horizontal Design Data (Tension)

Section No.	Elevation	Size	L	L_u	Kl/r	A	P_u	ϕP_n	Ratio $\frac{P_u}{\phi P_n}$
	ft		ft	ft		in^2	lb	lb	
T1	195 - 180	L1 1/2x1 1/2x3/16	3.50	3.26	85.7	0.5273	685.58	17085.90	0.040 [1]

[1] P_u / ϕP_n controls

Secondary Horizontal Design Data (Tension)

Section No.	Elevation	Size	L	L_u	Kl/r	A	P_u	ϕP_n	Ratio $\frac{P_u}{\phi P_n}$
	ft		ft	ft		in^2	lb	lb	
T2	180 - 175	L2x2x3/16	3.73	1.63	67.9	0.4308	753.66	18739.00	0.040 [1]
T3	175 - 170	L2x2x3/16	4.24	2.00	77.7	0.4308	932.08	18739.00	0.050 [1]
T4	170 - 160	L2x2x3/16	5.24	2.49	96.7	0.4308	1320.51	18739.00	0.070 [1]
T5	160 - 150	L2x2x3/16	6.24	2.95	114.9	0.4308	1691.69	18739.00	0.090 [1]
T6	150 - 140	L2x2x3/16	7.24	3.43	133.5	0.4308	2100.00	18739.00	0.112 [1]
T10	120 - 113.333	L3x3x3/16	9.82	4.51	118.5	0.7120	2982.76	30973.40	0.096 [1]
T11	113.333 - 106.667	L3x3x3/16	10.49	4.97	127.0	0.7120	3203.00	30973.40	0.103 [1]
T12	106.667 - 100	L3x3x3/16	11.16	5.18	135.5	0.7120	3407.78	30973.40	0.110 [1]
T13	100 - 80	L3x3x1/4	13.16	6.26	161.6	0.9159	4044.47	39843.30	0.102 [1]
T15	60 - 50	L4x4x3/8	15.98	7.51	148.9	1.9341	4863.74	84131.70	0.058 [1]
T16	50 - 40	L4x4x1/4	16.99	7.99	156.2	1.2909	5159.97	56155.80	0.092 [1]

[1] P_u / ϕP_n controls

Top Girt Design Data (Tension)

Section No.	Elevation	Size	L	L_u	Kl/r	A	P_u	ϕP_n	Ratio $\frac{P_u}{\phi P_n}$
	ft		ft	ft		in^2	lb	lb	
T1	195 - 180	L1 1/2x1 1/2x3/16	3.50	3.26	85.7	0.5273	727.33	17085.90	0.043 [1]

[1] P_u / ϕP_n controls

Section Capacity Table

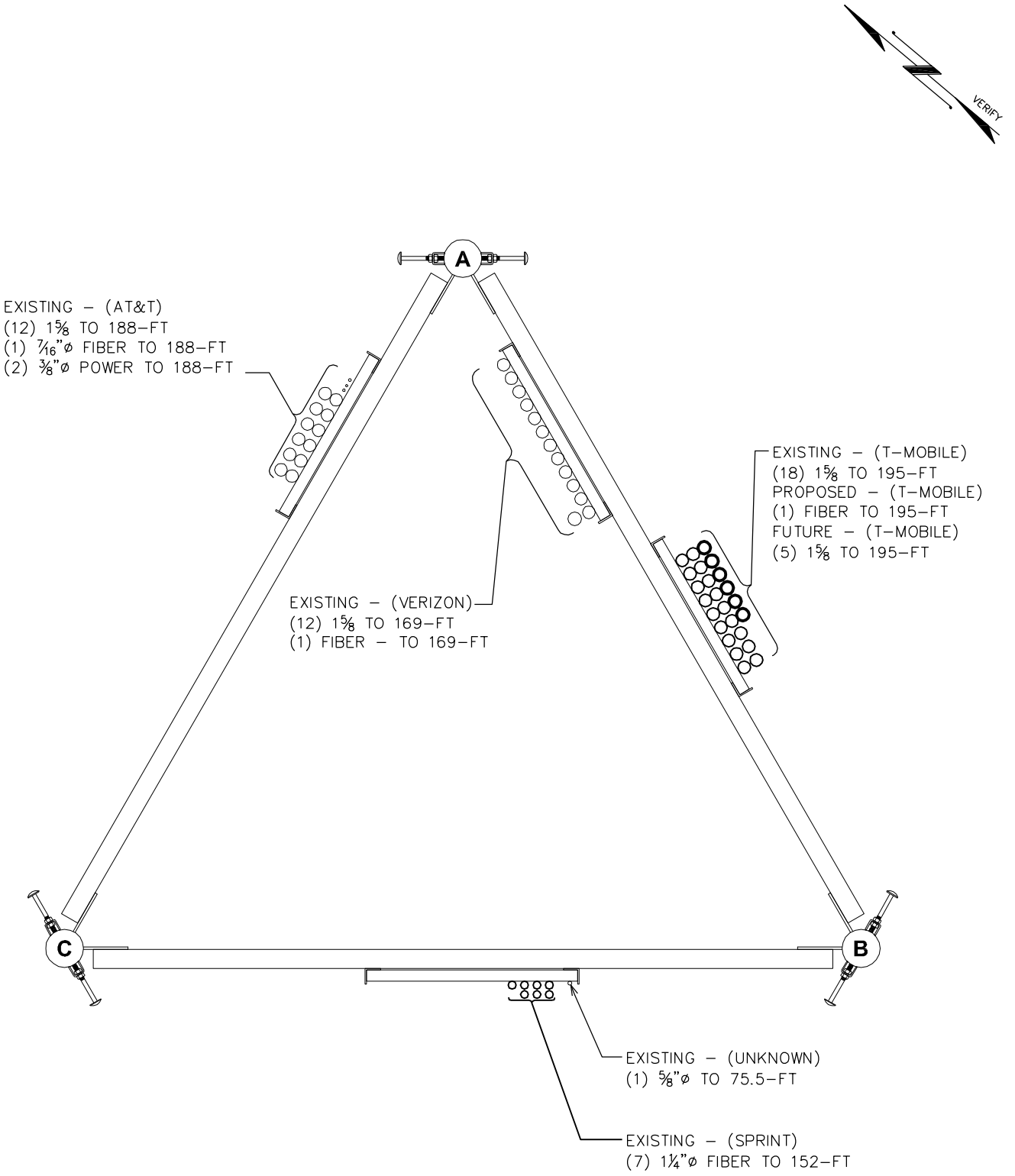
Section No.	Elevation ft	Component Type	Size	Critical Element	P lb	ϕP_{allow} lb	% Capacity	Pass Fail
T1	195 - 180	Leg	PIPE 2.5 STD (SCH 40)	3	-39581.70	70532.50	56.1	Pass
T2	180 - 175	Leg	PIPE 2.5 STD (SCH 40)	45	-43458.10	77102.10	56.4	Pass
T3	175 - 170	Leg	PIPE 2.5 STD (SCH 40)	57	-53746.80	77205.80	69.6	Pass
T4	170 - 160	Leg	2.5SCH40 w/ 3SCH80 Half Sleeve	Note 1	Note 1	Note 1	72.5	Pass

Section No.	Elevation ft	Component Type	Size	Critical Element	P lb	ϕP_{allow} lb	% Capacity	Pass Fail
T5	160 - 150	Leg	Pipe 3.5 Std (SCH40)	90	-97547.90	126932.00	76.9	Pass
T6	150 - 140	Leg	3.5SCH40 w/ 4SCH40 Half Sleeve	Note 1	Note 1	Note 1	63.6	Pass
T7	140 - 133.333	Leg	5 STD w/ 6 XH Half Sleeve	Note 1	Note 1	Note 1	49.5	Pass
T8	133.333 - 126.667	Leg	5 STD w/ 6 XH Half Sleeve	Note 1	Note 1	Note 1	49.5	Pass
T9	126.667 - 120	Leg	5 STD w/ 6 XH Half Sleeve	Note 1	Note 1	Note 1	49.5	Pass
T10	120 - 113.333	Leg	PIPE 6 STD (SCH40)	159	-171955.00	269041.00	63.9	Pass
T11	113.333 - 106.667	Leg	PIPE 6 STD (SCH40)	171	-184596.00	269071.00	68.6	Pass
T12	106.667 - 100	Leg	PIPE 6 STD (SCH40)	183	-196429.00	269098.00	73.0	Pass
T13	100 - 80	Leg	6 STD w/ 7 XH Half Sleeve	Note 1	Note 1	Note 1	52.6	Pass
T14	80 - 60	Leg	PIPE 8 STD (SCH40)	225	-268234.00	391613.00	68.5	Pass
T15	60 - 50	Leg	PIPE 8 STD (SCH40)	246	-280458.00	401143.00	69.9	Pass
T16	50 - 40	Leg	PIPE 8 STD (SCH40)	258	-297539.00	401194.00	74.2	Pass
T17	40 - 20	Leg	PIPE 8 X-STR (SCH80)	270	-331200.00	549495.00	60.3	Pass
T18	20 - 0	Leg	PIPE 8 X-STR (SCH80)	285	-361878.00	550136.00	65.8	Pass
T1	195 - 180	Diagonal	5/8	21	9028.58	9940.20	90.8	Pass
T2	180 - 175	Diagonal	L1 1/2x1 1/2x3/16	48	-4249.75	7609.55	55.8 74.7 (b)	Pass
T3	175 - 170	Diagonal	L2x2x3/16	60	-3320.80	12363.90	26.9 48.9 (b)	Pass
T4	170 - 160	Diagonal	2L1 1/2x1 1/2x3/16x1/4	84	-5299.88	19298.30	27.5 59.0 (b)	Pass
T5	160 - 150	Diagonal	2L2x2x3/16x1/4	93	-5777.22	28526.20	20.3 67.2 (b)	Pass
T6	150 - 140	Diagonal	2L2x2x3/16x1/4	115	-5783.43	26601.10	21.7 68.7 (b)	Pass
T7	140 - 133.333	Diagonal	L2 1/2x2 1/2x1/4	135	-5990.90	17991.90	33.3 46.3 (b)	Pass
T8	133.333 - 126.667	Diagonal	L2 1/2x2 1/2x1/4	144	-6203.70	16560.40	37.5 47.6 (b)	Pass
T9	126.667 - 120	Diagonal	L2 1/2x2 1/2x3/16	153	-6033.40	11588.10	52.1 76.1 (b)	Pass
T10	120 - 113.333	Diagonal	L3x3x1/4	163	-7126.30	22906.10	31.1 50.9 (b)	Pass
T11	113.333 - 106.667	Diagonal	L3x3x1/4	175	-7233.98	21593.20	33.5 52.8 (b)	Pass
T12	106.667 - 100	Diagonal	L2 1/2x2 1/2x1/4	187	-7342.83	11557.60	63.5	Pass
T13	100 - 80	Diagonal	L3 1/2x3 1/2x1/4	199	-7475.19	30316.40	24.7 31.2 (b)	Pass
T14	80 - 60	Diagonal	L3 1/2x3 1/2x1/4	229	-7930.72	26091.70	30.4 33.4 (b)	Pass
T15	60 - 50	Diagonal	L3x3x5/16	250	-9848.08	13914.00	70.8	Pass
T16	50 - 40	Diagonal	L3x3x5/16	262	-9635.19	12883.30	74.8	Pass
T17	40 - 20	Diagonal	L4x4x3/8	274	-9535.34	28926.60	33.0 38.4 (b)	Pass
T18	20 - 0	Diagonal	L5x5x5/16	289	-10195.20	38816.00	26.3 41.0 (b)	Pass
T1	195 - 180	Horizontal	L1 1/2x1 1/2x3/16	17	-6148.82	7512.48	81.8	Pass
T2	180 - 175	Secondary Horizontal	L2x2x3/16	53	-753.66	15868.60	4.7 11.0 (b)	Pass
T3	175 - 170	Secondary Horizontal	L2x2x3/16	65	932.08	18739.00	5.0 13.6 (b)	Pass
T4	170 - 160	Secondary Horizontal	L2x2x3/16	77	-1320.51	17128.60	7.7 19.3 (b)	Pass
T5	160 - 150	Secondary Horizontal	L2x2x3/16	98	-1691.69	15131.00	11.2 24.8 (b)	Pass
T6	150 - 140	Secondary Horizontal	L2x2x3/16	120	-2100.00	13027.80	16.1 30.7 (b)	Pass
T10	120 - 113.333	Secondary Horizontal	L3x3x3/16	167	-2982.76	19381.00	15.4	Pass

Section No.	Elevation ft	Component Type	Size	Critical Element	P lb	ϕP_{allow} lb	% Capacity	Pass Fail
							38.1 (b)	
T11	113.333 - 106.667	Secondary Horizontal	L3x3x3/16	179	-3203.00	20509.90	15.6 40.9 (b)	Pass
T12	106.667 - 100	Secondary Horizontal	L3x3x3/16	192	-3407.78	17992.10	18.9 43.5 (b)	Pass
T13	100 - 80	Secondary Horizontal	L3x3x1/4	204	-4044.47	19981.80	20.2 29.1 (b)	Pass
T15	60 - 50	Secondary Horizontal	L4x4x3/8	254	-4863.74	44960.90	10.8 39.1 (b)	Pass
T16	50 - 40	Secondary Horizontal	L4x4x1/4	266	-5159.97	28993.60	17.8 35.9 (b)	Pass
T1	195 - 180	Top Girt	L1 1/2x1 1/2x3/16	5	-1473.30	7512.48	19.6	Pass
T1	195 - 180	Bottom Girt	L1 1/2x1 1/2x3/16	8	-3034.16	7512.48	40.4	Pass
							Summary	
							Leg (T4) 72.5	Pass
							Diagonal (T1) 90.8	Pass
							Horizontal (T1) 81.8	Pass
							Secondary Horizontal (T12) 43.5	Pass
							Top Girt (T1) 19.6	Pass
							Bottom Girt (T1) 40.4	Pass
							Bolt Checks 76.1	Pass
							RATING = 90.8	**Pass**

APPENDIX B

COAX CONFIGURATION



COAX CONFIGURATION - N.T.S.

PREPARED BY:
TOWER ENGINEERING PROFESSIONALS
326 TRYON RD
RALEIGH, NC 27603
(919) 661-6351
www.tepgroup.net

PREPARED FOR:
PHOENIX TOWER INTERNATIONAL
1001 YAMATO ROAD, SUITE 105
BOCA RATON, FL 33431

PROJECT INFORMATION:
STRAITS TURNPIKE
SITE #: US-CT-1003
1021 STRAITS TURNPIKE
MIDDLEBURY, CT 06762
(NEW HAVEN COUNTY)

REVISION: 0
TEP JOB #:25628.106778
SHEET NUMBER:
C-1

APPENDIX C

ADDITIONAL CALCULATIONS

Project Name:	Straits Turnpike	**Engineer:**	CJB
Project Number:	TEP#25628.106778	**Check:**	RRS
Client Site Number:	US-CT-1003	**Date:**	2/1/2017
Elevation:	80 - 100ft	**CODE:**	TIA-G

Grouted/Un-Grouted Pipe Leg + Half Sleeve R/F

Φc =	0.90 - LRFD strength reduction factor (compression)	Mast St.:	1.00 - from tnxTower
ΦT =	0.90 - LRFD strength reduction factor (tension)		
Φw =	0.75 - LRFD strength reduction factor (weld shear)		
Φv =	0.75 - LRFD strength reduction factor (shear)		

Input - Loads

$P_{initial}$:	12.78	kips - force from initial load (no wind)
P_{wind}:	233.217	kips - force due to final loading including reinforcement
T_u:	206.066	kips - maximum load on leg

Quick Check

Weld Size:	OK
Weld Connection:	37.8%
Crushing Check:	44.5%
Leg Comp. Check:	44.6%
Sleeve Check:	52.6%
Built-up Check:	49.5%
Slenderness Check:	OK
Leg Tension Check:	42.2%

Input - Tower Leg

6 STD

K:	1.00	- effective length factor for leg
L_u:	3.43	ft - unbraced length of tower leg
F_{y_leg}:	55.00	ksi - minimum specified yield strength of tower leg
F_{u_leg}:	70.00	ksi - minimum specified ultimate strength of tower leg
r:	2.25	in - minimum radius of gyration of tower leg
A_{leg}:	5.58	in^2 - area of tower leg
Di:	6.07	in - inside diameter of tower leg
t_{leg}:	0.28	in - thickness of tower leg
f`$_c$:	0.00	ksi - minimum specified compressive strength of grout (If ungrouted enter 0)

Input - Sleeve R/F

7 XH Gap Check: OK

F_{y_sleeve}:	42.00	ksi - minimum specified yield strength of sleeve r/f
F_{u_sleeve}:	63.00	ksi - minimum specified ultimate strength of sleeve r/f
r_{x_sleeve}:	1.10	in - minimum radius of gyration of sleeve r/f about the x-axis
r_{y_sleeve}:	2.53	in - minimum radius of gyration of sleeve r/f about the y-axis
A_{sleeve}:	5.60	in^2 - area of sleeve r/f
t_{sleeve}:	0.50	in - thickness of tower leg

Termination: Connected to Flange

Input - Sleeve Connection to Leg

a:	12.00	in - spacing of connectors connecting the sleeve to the leg
D:	5.00	- weld size for the weld connecting the sleeve to the leg (unit = # of 16ths)
Length //:	12.00	in - length of weld on each side of the leg at the termination
Length ⊥:	11.98	in - length of weld at the bottom/top of the leg sleeve at termination (πD/2)
No:	2.00	- number of longitudinal welds per end of the leg (typically near side & far side, so 2)
F_{EXX}:	70.00	ksi - weld electrode classification
Width:	7.63	in - maximum width of the built-up leg
Gap:	0.00	in - length of leg considered for crushing

Input - Built-up Leg Section

6 STD w/7 XH Half Sleeve

r_{x_bu}:	2.10	in - minimum radius of gyration of the built-up section about the x-axis
r_{y_bu}:	2.39	in - minimum radius of gyration of the built-up section about the y-axis

Input - Grouted Leg

Ec:	0	ksi - Modulus of Elasticity of Grout
E_leg:	29,000	ksi - Modulus of Elasticity of Leg
E_sleeve:	29,000	ksi - Modulus of Elasticity of Sleeve

Project Name:	Straits Turnpike	**Engineer:**	CJB
Project Number:	TEP#25628.106778	**Check:**	RRS
Client Site Number:	US-CT-1003	**Date:**	1/31/2017
Elevation:	120 - 140ft	**CODE:**	TIA-G

Grouted/Un-Grouted Pipe Leg + Half Sleeve R/F

Φc =	0.90	- LRFD strength reduction factor (compression)	Mast St.: 1.00 - from tnxTower
ΦT =	0.90	- LRFD strength reduction factor (tension)	
Φw =	0.75	- LRFD strength reduction factor (weld shear)	
Φv =	0.75	- LRFD strength reduction factor (shear)	

Input - Loads

$P_{initial}$:	8.941	kips - force from initial load (no wind)
P_{wind}:	161.116	kips - force due to final loading including reinforcement
T_u:	142.973	kips - maximum load on leg

Quick Check

Weld Size:	OK
Weld Connection:	27.3%
Crushing Check:	40.4%
Leg Comp. Check:	40.6%
Sleeve Check:	44.0%
Built-up Check:	49.5%
Slenderness Check:	OK
Leg Tension Check:	37.0%

Input - Tower Leg

5 STD

K:	1.00	- effective length factor for leg
L_u:	6.68	ft - unbraced length of tower leg
F_{y_leg}:	55.00	ksi - minimum specified yield strength of tower leg
F_{u_leg}:	70.00	ksi - minimum specified ultimate strength of tower leg
r:	1.88	in - minimum radius of gyration of tower leg
A_{leg}:	4.30	in^2 - area of tower leg
Di:	5.05	in - inside diameter of tower leg
t_{leg}:	0.26	in - thickness of tower leg
f`c:	0.00	ksi - minimum specified compressive strength of grout (If ungrouted enter 0)

Input - Sleeve R/F

6 XH Gap Check: OK

F_{y_sleeve}:	46.00	ksi - minimum specified yield strength of sleeve r/f
F_{u_sleeve}:	62.00	ksi - minimum specified ultimate strength of sleeve r/f
r_{x_sleeve}:	0.96	in - minimum radius of gyration of sleeve r/f about the x-axis
r_{y_sleeve}:	2.19	in - minimum radius of gyration of sleeve r/f about the y-axis
A_{sleeve}:	4.20	in^2 - area of sleeve r/f
t_{sleeve}:	0.43	in - thickness of tower leg

Termination: Connected to Flange

Input - Sleeve Connection to Leg

a:	15.50	in - spacing of connectors connecting the sleeve to the leg
D:	5.00	- weld size for the weld connecting the sleeve to the leg (unit = # of 16ths)
Length //:	12.00	in - length of weld on each side of the leg at the termination
Length ⊥:	10.41	in - length of weld at the bottom/top of the leg sleeve at termination ($\pi D/2$)
No:	2.00	- number of longitudinal welds per end of the leg (typically near side & far side, so 2)
F_{EXX}:	70.00	ksi - weld electrode classification
Width:	6.63	in - maximum width of the built-up leg
Gap:	0.00	in - length of leg considered for crushing

Input - Built-up Leg Section

5 STD w/6 XH Half Sleeve

r_{x_bu}:	1.77	in - minimum radius of gyration of the built-up section about the x-axis
r_{y_bu}:	2.04	in - minimum radius of gyration of the built-up section about the y-axis

Input - Grouted Leg

Ec:	0	ksi - Modulus of Elasticity of Grout
E_leg:	29,000	ksi - Modulus of Elasticity of Leg
E_sleeve:	29,000	ksi - Modulus of Elasticity of Sleeve

Project Name:	Straits Turnpike	**Engineer:**	CJB
Project Number:	TEP#25628.106778	**Check:**	RRS
Client Site Number:	US-CT-1003	**Date:**	1/31/2017
Elevation:	140 - 150ft	**CODE:**	TIA-G

Grouted/Un-Grouted Pipe Leg + Half Sleeve R/F

Φc =	0.90 - LRFD strength reduction factor (compression)	Mast St.:	1.00 - from tnxTower
ΦT =	0.90 - LRFD strength reduction factor (tension)		
Φw =	0.75 - LRFD strength reduction factor (weld shear)		
Φv =	0.75 - LRFD strength reduction factor (shear)		

Input - Loads

$P_{initial}$:	7.291	kips - force from initial load (no wind)
P_{wind}:	121.074	kips - force due to final loading including reinforcement
T_u:	106.772	kips - maximum load on leg

Quick Check

Weld Size:	OK
Weld Connection:	29.3%
Crushing Check:	59.4%
Leg Comp. Check:	59.8%
Sleeve Check:	60.7%
Built-up Check:	63.6%
Slenderness Check:	OK
Leg Tension Check:	52.3%

Input - Tower Leg

3.5 STD

K:	1.00	- effective length factor for leg
L_u:	2.60	ft - unbraced length of tower leg
F_{y_leg}:	55.00	ksi - minimum specified yield strength of tower leg
F_{u_leg}:	70.00	ksi - minimum specified ultimate strength of tower leg
r:	1.34	in - minimum radius of gyration of tower leg
A_{leg}:	2.68	in^2 - area of tower leg
Di:	3.55	in - inside diameter of tower leg
t_{leg}:	0.23	in - thickness of tower leg
f`$_c$:	0.00	ksi - minimum specified compressive strength of grout (If ungrouted enter 0)

Input - Sleeve R/F

4 STD Gap Check: OK

F_{y_sleeve}:	50.00	ksi - minimum specified yield strength of sleeve r/f
F_{u_sleeve}:	62.00	ksi - minimum specified ultimate strength of sleeve r/f
r_{x_sleeve}:	0.66	in - minimum radius of gyration of sleeve r/f about the x-axis
r_{y_sleeve}:	1.51	in - minimum radius of gyration of sleeve r/f about the y-axis
A_{sleeve}:	1.59	in^2 - area of sleeve r/f
t_{sleeve}:	0.24	in - thickness of tower leg

Termination: Connected to Flange

Input - Sleeve Connection to Leg

a:	12.00	in - spacing of connectors connecting the sleeve to the leg
D:	3.00	- weld size for the weld connecting the sleeve to the leg (unit = # of 16ths)
Length //:	12.00	in - length of weld on each side of the leg at the termination
Length ⊥:	7.07	in - length of weld at the bottom/top of the leg sleeve at termination (πD/2)
No:	2.00	- number of longitudinal welds per end of the leg (typically near side & far side, so 2)
F_{EXX}:	70.00	ksi - weld electrode classification
Width:	4.50	in - maximum width of the built-up leg
Gap:	0.00	in - length of leg considered for crushing

Input - Built-up Leg Section

3.5 STD w/4 STD Half Sleeve

r_{x_bu}:	1.31	in - minimum radius of gyration of the built-up section about the x-axis
r_{y_bu}:	1.40	in - minimum radius of gyration of the built-up section about the y-axis

Input - Grouted Leg

Ec:	0	ksi - Modulus of Elasticity of Grout
E_leg:	29,000	ksi - Modulus of Elasticity of Leg
E_sleeve:	29,000	ksi - Modulus of Elasticity of Sleeve

Project Name:	Straits Turnpike	**Engineer:**	CJB
Project Number:	TEP#25628.106778	**Check:**	RRS
Client Site Number:	US-CT-1003	**Date:**	1/31/2017
Elevation:	160 - 170ft	**CODE:**	TIA-G

Grouted/Un-Grouted Pipe Leg + Half Sleeve R/F

Φc =	0.90	- LRFD strength reduction factor (compression)	Mast St.: 1.00 - from tnxTower
ΦT =	0.90	- LRFD strength reduction factor (tension)	
Φw =	0.75	- LRFD strength reduction factor (weld shear)	
Φv =	0.75	- LRFD strength reduction factor (shear)	

Input - Loads

$P_{initial}$:	4.977	kips - force from initial load (no wind)
P_{wind}:	76.144	kips - force due to final loading including reinforcement
T_u:	66.898	kips - maximum load on leg

Quick Check

Weld Size:	OK
Weld Connection:	24.8%
Crushing Check:	50.7%
Leg Comp. Check:	51.3%
Sleeve Check:	72.5%
Built-up Check:	65.0%
Slenderness Check:	OK
Leg Tension Check:	50.7%

Input - Tower Leg

2.5 STD

K:	1.00	- effective length factor for leg
L_u:	2.64	ft - unbraced length of tower leg
F_{y_leg}:	55.00	ksi - minimum specified yield strength of tower leg
F_{u_leg}:	70.00	ksi - minimum specified ultimate strength of tower leg
r:	0.95	in - minimum radius of gyration of tower leg
A_{leg}:	1.70	in^2 - area of tower leg
DI:	2.47	in - inside diameter of tower leg
t_{leg}:	0.20	in - thickness of tower leg
f`$_c$:	0.00	ksi - minimum specified compressive strength of grout (If ungrouted enter 0)

Input - Sleeve R/F

3 XS Gap Check: OK

F_{y_sleeve}:	35.00	ksi - minimum specified yield strength of sleeve r/f
F_{u_sleeve}:	60.00	ksi - minimum specified ultimate strength of sleeve r/f
r_{x_sleeve}:	0.50	in - minimum radius of gyration of sleeve r/f about the x-axis
r_{y_sleeve}:	1.14	in - minimum radius of gyration of sleeve r/f about the y-axis
A_{sleeve}:	1.51	in^2 - area of sleeve r/f
t_{sleeve}:	0.30	in - thickness of tower leg

Termination: Connected to Flange

Input - Sleeve Connection to Leg

a:	12.00	in - spacing of connectors connecting the sleeve to the leg
D:	3.00	- weld size for the weld connecting the sleeve to the leg (unit = # of 16ths)
Length //:	12.00	in - length of weld on each side of the leg at the termination
Length ⊥:	5.50	in - length of weld at the bottom/top of the leg sleeve at termination (πD/2)
No:	2.00	- number of longitudinal welds per end of the leg (typically near side & far side, so 2)
F_{EXX}:	70.00	ksi - weld electrode classification
Width:	3.50	in - maximum width of the built-up leg
Gap:	0.00	in - length of leg considered for crushing

Input - Built-up Leg Section

2.5 STD w/3 XS Half Sleeve

r_{x_bu}:	0.92	in - minimum radius of gyration of the built-up section about the x-axis
r_{y_bu}:	1.04	in - minimum radius of gyration of the built-up section about the y-axis

Input - Grouted Leg

Ec:	0	ksi - Modulus of Elasticity of Grout
E_leg:	29,000	ksi - Modulus of Elasticity of Leg
E_sleeve:	29,000	ksi - Modulus of Elasticity of Sleeve

Project Name:	Straits Turnpike	**Engineer:**	CJB
Project Number:	TEP #25628_106778	**Check:**	RRS
Client Site Number:	US-CT-1003	**Date:**	2/1/2017

Anchor Bolt Reinforcement:

Result Summary 71.9%

Input - Loads

Tu:	319.10	kip - maximum leg uplift
Pu:	369.84	kip - maximum leg download
Vu:	31.36	kips - maximum leg shear (uplift)
Vu:	35.89	kips - maximum leg shear (download)
η:	0.55	Eta factor (Existing)
η:	0.55	Eta factor (Proposed)

Geometry

n_1:	8	quantity of existing anchor bolts
Ex. Bolt Grade:	A36	
Ex. Bolt Size:	1.50	in
n_2:	0	quantity of reinforcing bolts
Pr. Bolt Grade:	F1554-105	
Pr. Bolt Size:	1.25	in

Case I - Max T/C in Reinforcement

T_u:	0.00	kips - maximum tension force in bolt
C_u:	0.00	kips - maximum compression force in bolt
V_u:	0.00	kips - maximum shear force in bolt (uplift)
V_u:	0.00	kips - maximum shear force in bolt (download)

Case II - Max T/C in Existing Bolts

T_u:	39.89	kips - maximum tension force in bolt
C_u:	46.23	kips - maximum compression force in bolt
V_u:	3.92	kips - maximum shear force in bolt (uplift)
V_u:	4.49	kips - maximum shear force in bolt (download)

Anchor Rods (TIA-G 4.9.9) ϕ: 0.80

	No	are the reinforcing bolts Williams Form?
A_{nt}:	0.969	in^2 - tensile area of reinforcing bolt
R_y:	105.00	ksi - minimum yeild strength of reinforcing bolt
R_u:	125.00	ksi - minimum tensile strength of reinforcing bolt
A_{nt}:	1.410	in^2 - tensile area of existing anchor bolt
F_y:	36.00	ksi - minimum yeild strength of existing bolt
F_u:	58.00	ksi - minimum tensile strength of existing bolt
ϕR_n:	96.90	kips - design capacity of reinforcement anchor bolts steel failure
ϕR_n:	65.42	kips - design capacity of existing anchor bolts

Interaction:	0.000	interaction for reinforcement anchor bolt
Interaction:	0.719	interaction for existing anchor bolt

Anchor Bolts are Adequate	71.9%

TOWER ENGINEERING PROFESSIONALS

JOB:	Straits Turnpike (US-CT-1003); TEP No. 25628.106778		
SHEET #:	1	OF	2
CALCULATED BY:	CJB	DATE	1/31/2017
CHECKED BY:	RRS	DATE	1/31/2017

Mat Foundation Design for Self Supporting Tower - TIA-222-G

q_a, ALLOWABLE SOIL PRESS. (ksf)	6
NET OR GROSS BEARING?	NET
SAFETY FACTOR IN q_a	2
SOIL DENSITY (pcf)	125
TOWER FACE WIDTH (ft.)	21.5
Tower Eccentricity (ft)	0.00

φ^*q_n = 9.0 ksf

Distance between tower centroid and the foundation centroid

F'c (ksi)	3
F'y (ksi)	60

Base Reactions LC1: 1.2D + 1.6W

M_u, MOMENT (k-ft)	6487.7
P_t, AXIAL (k)	64.2
H, SHEAR (k)	55.7

Base Reactions LC2: 0.9D + 1.6W

M, MOMENT (k-ft)	6487.7
P_t, AXIAL (k)	48.2
H, SHEAR (k)	55.7

Try:	L (ft.)	B (ft.)	t (ft.)	Soil depth to TOP of mat (ft.)	Soil depth to BOT. of mat (ft.)	Pier dia./width (ft.)	Pier Height, h (ft.)	Pier Shape
	33	33	4	5.416	9.416	4.00	5.67	Square

W_f, WEIGHT OF FOUNDATION (k) =	694.2
W_s, WEIGHT OF SOIL (k) =	704.8

Concrete Volume (cu yd) 171.4

CHECK BEARING CAPACITY FOR LC1: 1.2D + 1.6W

$P = P_t + 1.2*W_f + 1.2*W_s$ =	1743.0 k
$e = (M_{ot} + P_t*e_t)/P$ =	4.03 ft
L/6 =	5.50 ft
90 Axis: q_{max} =	1.60 ksf
Diag. Axis: q_{max} =	2.08 ksf

Capacity: **23.14%**

CHECK BEARING FAILURE[1] FOR LC2: 0.9D +1.6W

$P = P_t + 0.9*W_f + 0.9*W_s$ =		1307.3 k
90° Axis	$M_{\varphi Qn}$[2] =	19025.5 k-ft
	$M_{ot}/M_{\varphi Qn}$ =	0.369
Diag. Axis	$M_{\varphi Qn}$ =	20027.7 k-ft
	$M_{ot}/M_{\varphi Qn}$ =	0.351

Capacity: **36.93%**

[1] Per effective bearing area (AASHTO LRFD Bridge Design Specifications, 4th Ed.)

[2] $M_{\varphi Qn}$ is the applied moment for which qmax = φQ_n

CHECK OVERTURNING: LC2 CONTROLS

$M_{ot} = M+H*(t+h)$ =	7026.2 k-ft
$M_{st}=P*(L/2-e_t)+(W_{f+S}*L/2)$ =	21569.7 k-ft
M_{ot}/M_{st} =	0.326

Capacity: **32.57%**

TOWER ENGINEERING PROFESSIONALS

JOB:	Straits Turnpike (US-CT-1003); TEP No. 25628.106778		
SHEET NUMBER:	2	OF	2
CALCULATED BY:	CJB	DATE	1/31/2017

Stress and capacity calculations of reinforced concrete mat assume a fully rigid foundation and a linear (triangular or trapeziodal) contact stress distribution based on factored loads.

CHECK BEAM SHEAR

Vu =	146.6 k
φVc =	1415.3 k

Vc > Vu **O.K**

Capacity: **10.36%**

CHECK PUNCHING SHEAR

Vu =	295.6 k
φVc =	2009.1 k

Vc > Vu **O.K**

Capacity: **14.71%**

CALCULATE REINFORCING REQUIRED

F'c = 3.0 ksi F'y = 60.0 ksi

Temp & Shrinkage Reinforcement, As, temp = 0.39 in^2/ft (ACI 318 Sec. 10.5.4)

BOTTOM REINFORCING

Bar Size= 8
Bar Spacing = 11.8 in.
d = 43.5 in.

Mu= -547.4 in-k/ft

φMn=0.9*As*Fy*(d-1/2*As*Fy/(0.85*b*F'c))

Solution: As,req = 0.23 in^2/ft As,temp controls
Check, As= 0.80 in^2/ft

Capacity: **48.54%**

TOP REINFORCING

Bar Size= 8
Bar Spacing = 11.8 in.
d= 43.5 in.

Mu= 508.3 in-k/ft

φMn=0.9*As*Fy*d(1-0.59*As*Fy/(b*d*F'c))

Solution: As,req = 0.22 in^2/ft As,temp controls
Check, As= 0.80 in^2/ft

Capacity: **48.54%**

		PASS	PASS			
	Results Summary:	LC1	LC2	TEP #:	25628.106778	
	Soil Interaction:	N/A	N/A	Analysis:	CJB	2/1/2017
Drilled Caisson Tool - Pier Check	Foundation Structural:	26.4%	52.5%	Check:	RRS	2/1/2017

Straits Turnpike (US-CT-1003)

Code Revisions: TIA-222-G ACI 318-11

Tower Type: Self Support

	LC1	LC2	
Moment:	0.00	0.00	kip-ft
Axial (download):	364.15	0.00	kip
Shear:	35.42	30.91	kip
Axial (uplift):	0.00	313.84	kip

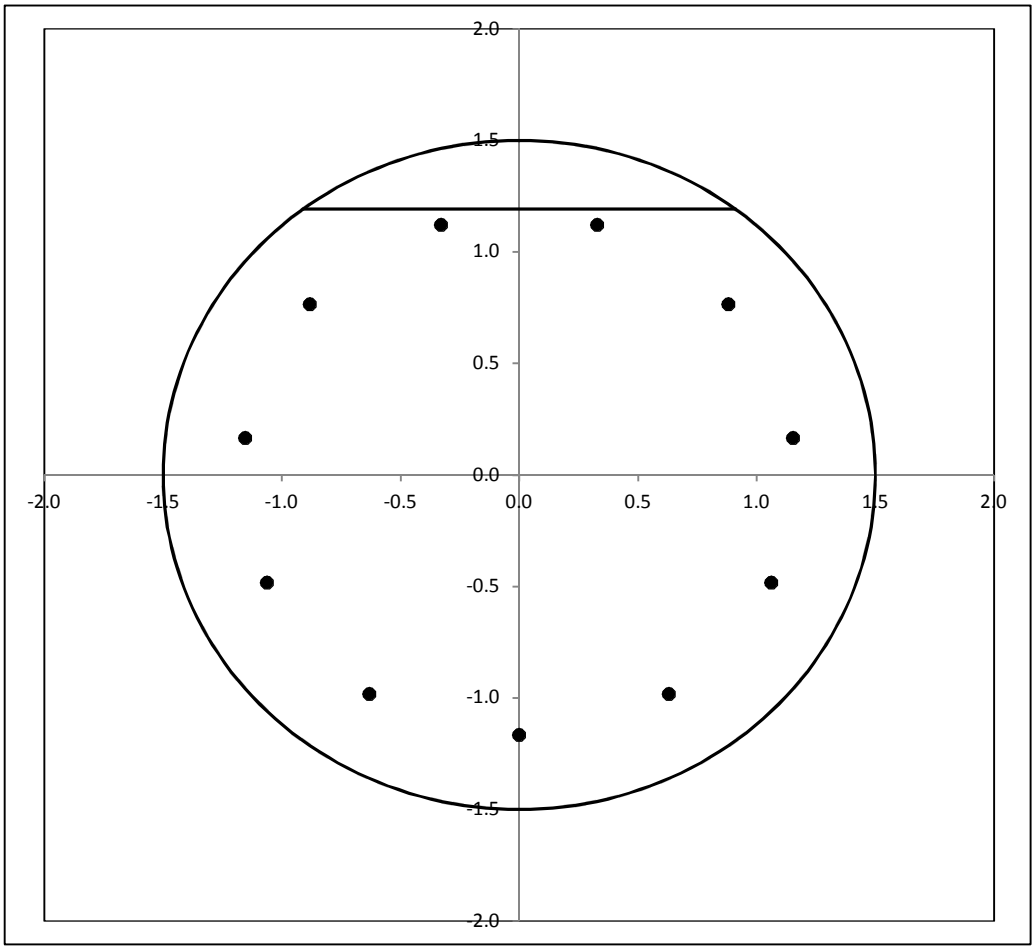
Shaft Information

Diameter:	3.00	ft
Projection:	0.25	ft
Caisson Length:	5.67	ft
f'c:	3.000	ksi
Max εc:	0.003	in/in

Cage 1 Reinforcement

Tie Bar Size:	4	*(fy = 60.0 ksi)*
Clear Cover to Tie:	3.00	*in (Cage Ø = 28.00in)*
Tie Bar Spacing:	16.00	in
Vertical Bar Size:	8	
Vertical Bar Quantity:	11	*(ρ =0.854%)*
fy:	60.0	ksi
E:	29,000	ksi

Reinforcement Capacity



		LC1	LC2	
	Vu =	35.4	35.4	kip
	Vc =	131.4	42.7	kip
fy,tie = 60.0	**Vs =**	47.1	47.1	kip
	ϕVn =	133.9	67.4	kip
	Capacity =	**26.4%**	**52.5%**	
		PASS	**PASS**	

	LC1	LC2	
Mu =	0.0	0.0	kip-ft
ϕMn =	799.3	196.3	kip-ft
Capacity =	**0.0%**	**0.0%**	
	PASS	**PASS**	

T-Mobile

WIRELESS COMMUNICATIONS FACILITY

MIDDLEBURY I84/X17
SITE ID: CT11128E - L1900
1021 STRAITS TURNPIKE
MIDDLEBURY, CT 06762

T-MOBILE RF CONFIGURATION
794DB_1xAIR+1QP+1DP

PROJECT SUMMARY

1. THE PROPOSED SCOPE OF WORK CONSISTS OF A MODIFICATION TO THE EXISTING UNMANNED TELECOMMUNICATIONS FACILITY INCLUDING THE FOLLOWING:
   a. REMOVE AND REPLACE EXISTING POSITION THREE (3) ANTENNA, TYPICAL OF (3)/(1) PER SECTOR, WITH (3) NEW AIR 32 ANTENNAS.
   b. REMOVE (18) EXISTING 1 5/8" COAX CABLES FROM EXISTING LATTICE TOWER.
   c. INSTALL (1) ERICSSON 6X12 HYBRID CABLE SYSTEM (HCS) FROM GROUND EQUIPMENT LOCATION ROUTED UP THE LATTICE TOWER AND TO EACH SECTOR.
   d. REMOVE EXISTING BREAKER AND REPLACE WITH PROPOSED 100A BREAKER.

PROJECT INFORMATION

SITE NAME:	MIDDLEBURY I84/X17
SITE ID:	CT11128E
SITE ADDRESS:	1021 STRAITS TURNPIKE MIDDLEBURY, CT 06762
APPLICANT:	T-MOBILE NORTHEAST, LLC 35 GRIFFIN ROAD SOUTH BLOOMFIELD, CT 06002
CONTACT PERSON:	BRIAN PAUL (PROJECT MANAGER) (860) 550-5971 TRANSCEND WIRELESS, LLC
ENGINEER:	CENTEK ENGINEERING, INC. 63-2 NORTH BRANFORD RD. BRANFORD, CT 06405
PROJECT COORDINATES:	LATITUDE: 41°-32'-08.74" N LONGITUDE: 73°-05'-21.15" W GROUND ELEVATION: 448'± AMSL SITE COORDINATES AND GROUND ELEVATION REFERENCED FROM GOOGLE EARTH.

SHEET INDEX

SHT. NO.	DESCRIPTION	REV.
T-1	TITLE SHEET	0
N-1	SITE LOCATION AND DESIGN NOTES	0
C-1	COMPOUND PLAN	0
C-2	EQUIPMENT PLAN, ELEVATION AND ANTENNA MOUNTING CONFIG.	0
C-3	ANTENNA 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

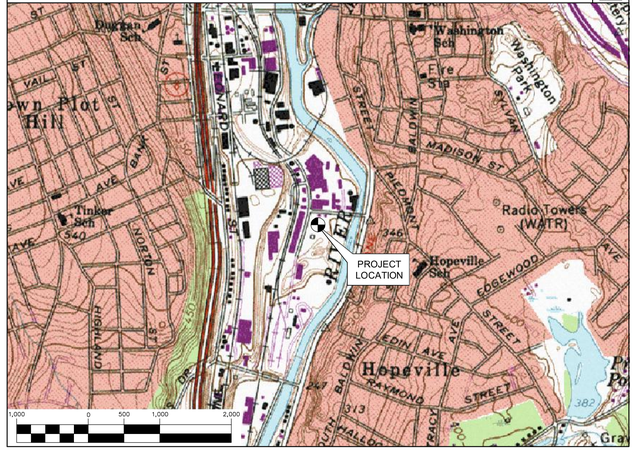
FROM: 35 GRIFFIN ROAD SOUTH, BLOOMFIELD, CT 06002

TO: 1021 STRAITS TURNPIKE, MIDDLEBURY, CT 06762

1.	HEAD NORTH ON GRIFFIN RD S TOWARD HARTMAN RD.	0.19 MI.
2.	TAKE THE 2ND RIGHT ONTO DAY HILL RD.	3.64 MI.
3.	MERGE ONTO I-91 S TOWARD HARTFORD.	7.27 MI.
4.	MERGE ONTO I-84 W VIA EXIT 32A TOWARD WATERBURY.	13.29 MI.
5.	KEEP LEFT TO TAKE I-84 W TOWARD WATERBURY	19.03 MI.
6.	TAKE THE CT-64 EXIT VIA EXIT 17 TOWARD CT-63/MIDDLEBURY/WATERTOWN	0.24 MI.
7.	STAY STRAIGHT TO TAKE CT-64/CHASE PKWY.CONTINUE TO FOLLOW CT-64	0.31 MI.
8.	TURN LEFT ONTO BRADLEYVILLE RD/CT-63	0.24 MI.
9.	TURN RIGHT ONTO WOODSIDE AVE	0.02 MI.
10.	TURN LEFT ONTO SERVICE RD.	0.05 MI.

VICINITY MAP

SCALE: 1" = 1000'



PROFESSIONAL ENGINEER SEAL

REV.	DATE	DRAWN BY	CHK'D BY	DESCRIPTION
0	02/16/17	KAW	CAG	CONSTRUCTION DRAWINGS - ISSUED FOR CONSTRUCTION

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

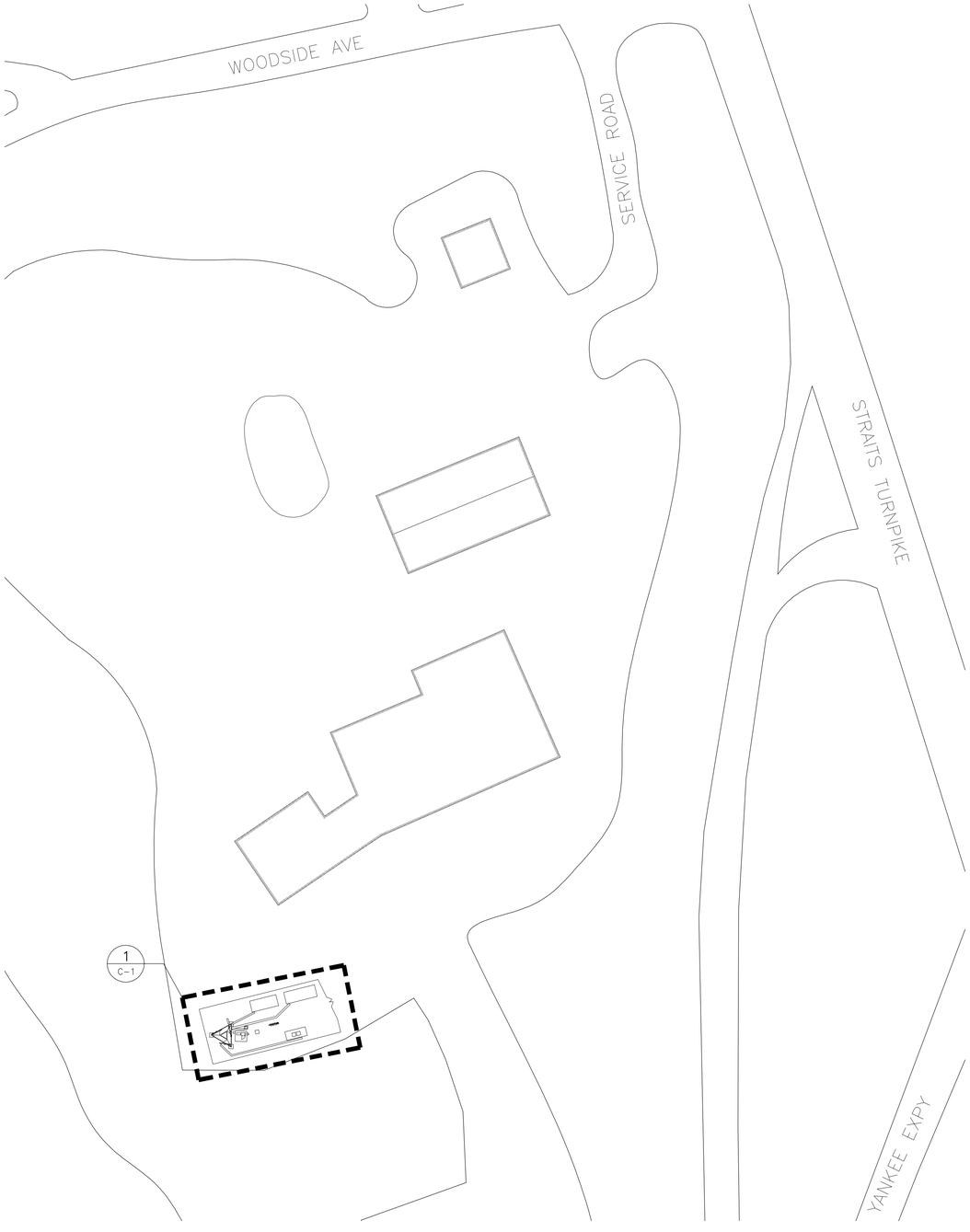
T-MOBILE NORTHEAST LLC
WIRELESS COMMUNICATIONS FACILITY
MIDDLEBURY I84/X17
SITE ID: CT11128E
1021 STRAITS TURNPIKE
MIDDLEBURY, CT 06762

DATE: 01/30/17
SCALE: AS NOTED
JOB NO. 17012.01

TITLE SHEET

T-1

Sheet No. 1 of 5



1 / C-1 **SITE LOCATION PLAN**
SCALE: 1" = 50'

TRUE NORTH

GRAPHIC SCALE
50 0 25 50 100 200
(IN FEET)
1 inch = 50 ft.

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): 95–115 MPH (3 SECOND GUST)
- RISK CATEGORY: II (BASED ON IBC TABLE 1604.5)
- NOMINAL DESIGN SPEED (OTHER STRUCTURE): 93 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	02/16/17	KAW	CAG	CONSTRUCTION DRAWINGS – ISSUED FOR CONSTRUCTION

PROFESSIONAL ENGINEER SEAL

T-Mobile-

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

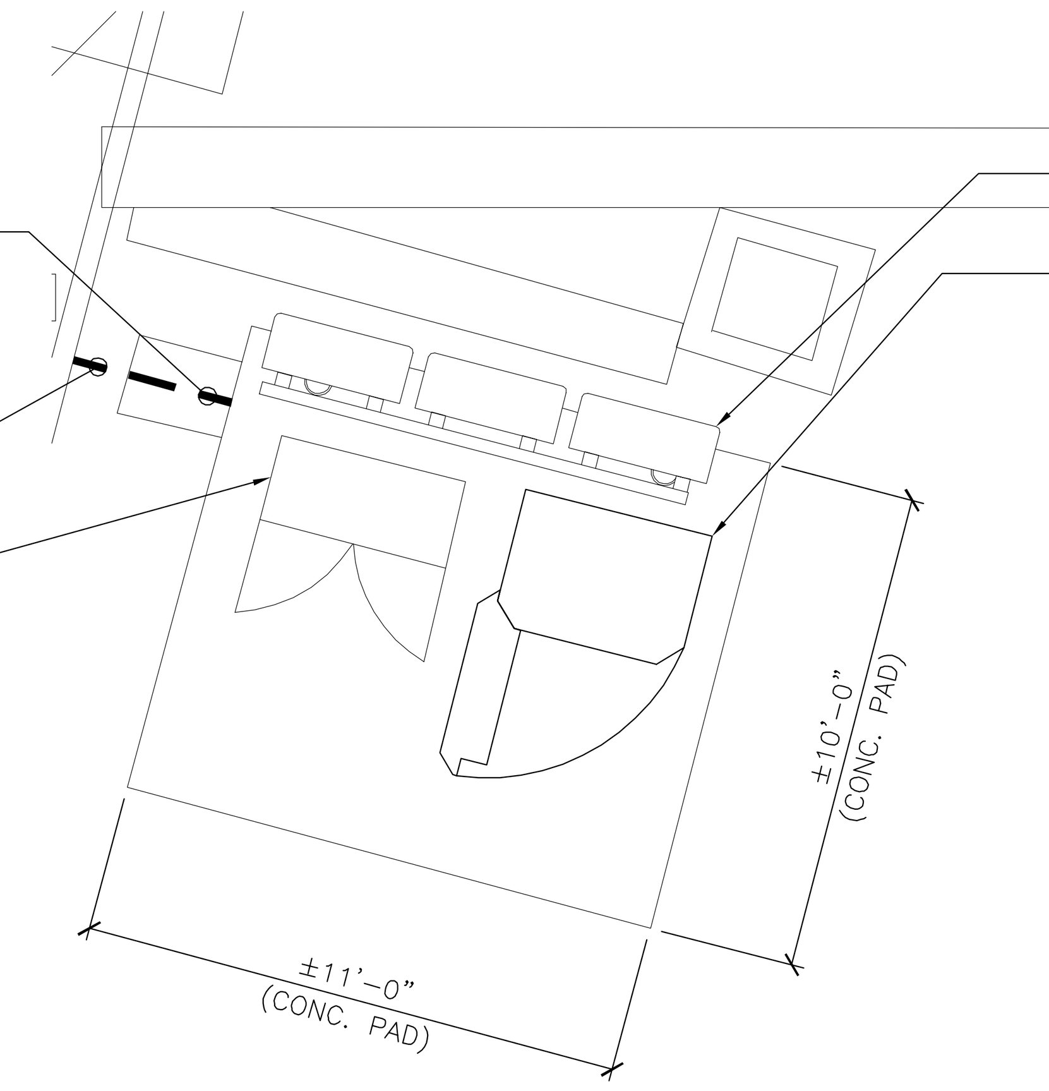
MIDDLEBURY I84/X17
SITE ID: CT11128E

1021 STRAITS TURNPIKE
MIDDLEBURY, CT 06762

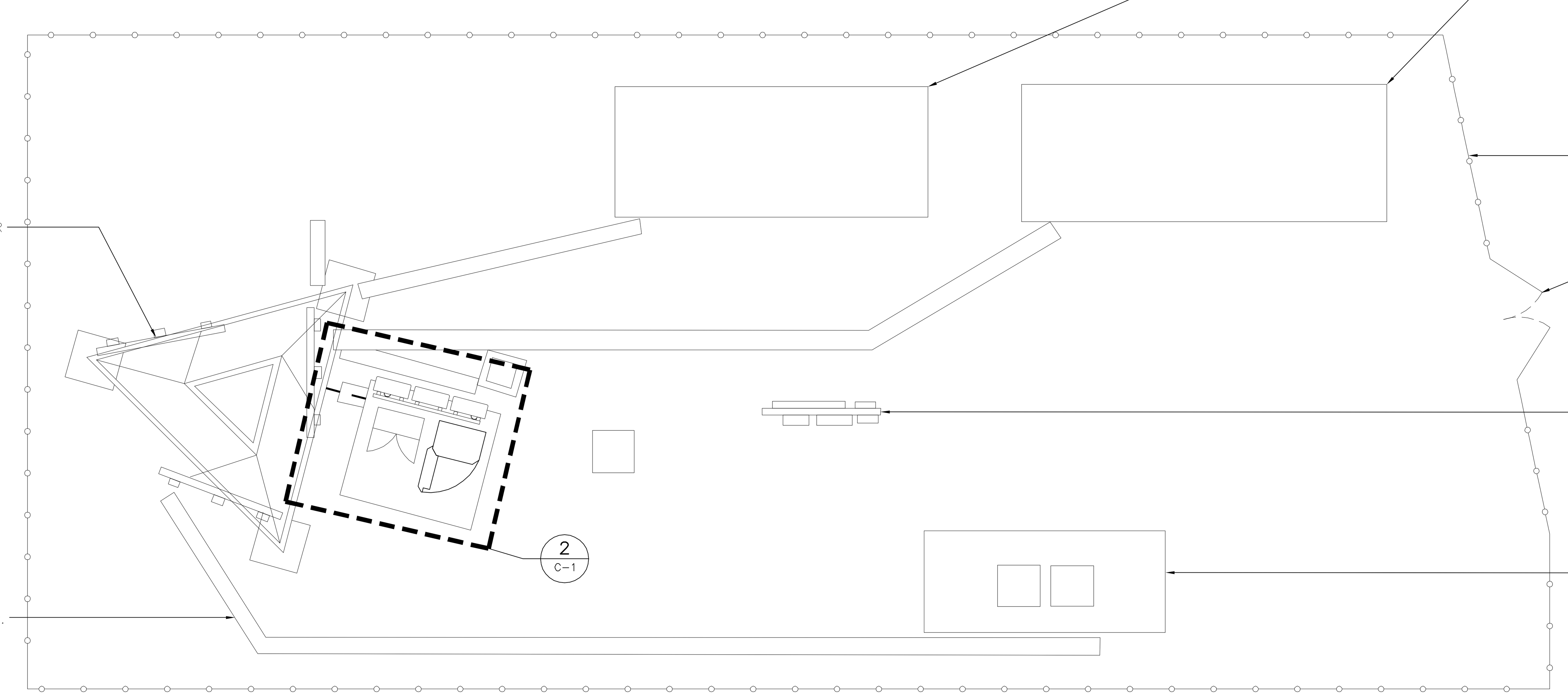
DATE: 01/30/17
SCALE: AS NOTED
JOB NO. 17012.01

SITE LOCATION AND DESIGN NOTES

N-1



2 C-1 **EQUIPMENT PLAN**
SCALE: 1/2" = 1'



1 C-1 **COMPOUND PLAN**
SCALE: 1" = 4'

REV.	DATE	DRAWN BY	CHK'D BY	DESCRIPTION
0	02/16/17	KAW	CAG	CONSTRUCTION DRAWINGS – ISSUED FOR CONSTRUCTION

PROFESSIONAL ENGINEER SEAL

STATE OF CONNECTICUT · CARLO F. CENTORE · 27517 · LICENSED · PROFESSIONAL ENGINEER

T-Mobile

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

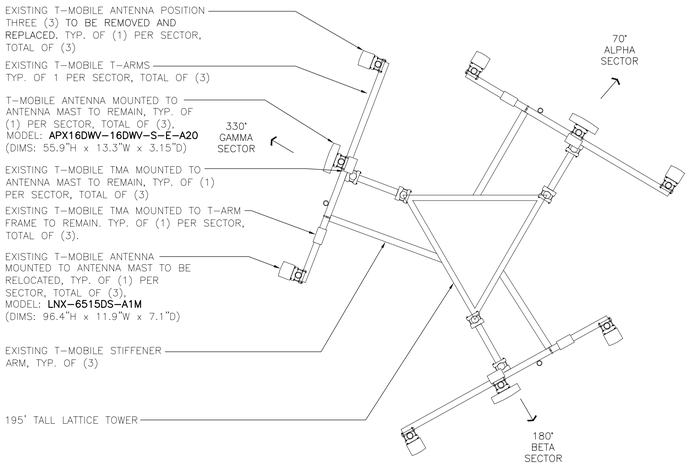
T-MOBILE NORTHEAST LLC
WIRELESS COMMUNICATIONS FACILITY
MIDDLEBURY I84/X17
SITE ID: CT11128E
1021 STRAITS TURNPIKE
MIDDLEBURY, CT 06762

DATE: 01/30/17
SCALE: AS NOTED
JOB NO. 17012.01

COMPOUND PLAN

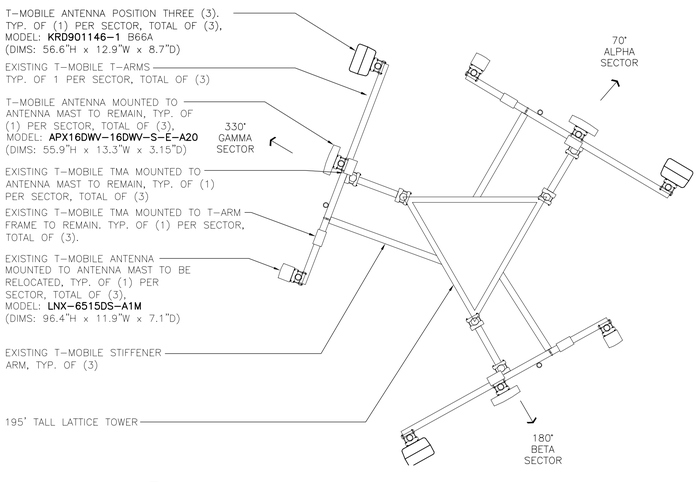
C-1

Sheet No. 3 of 5



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

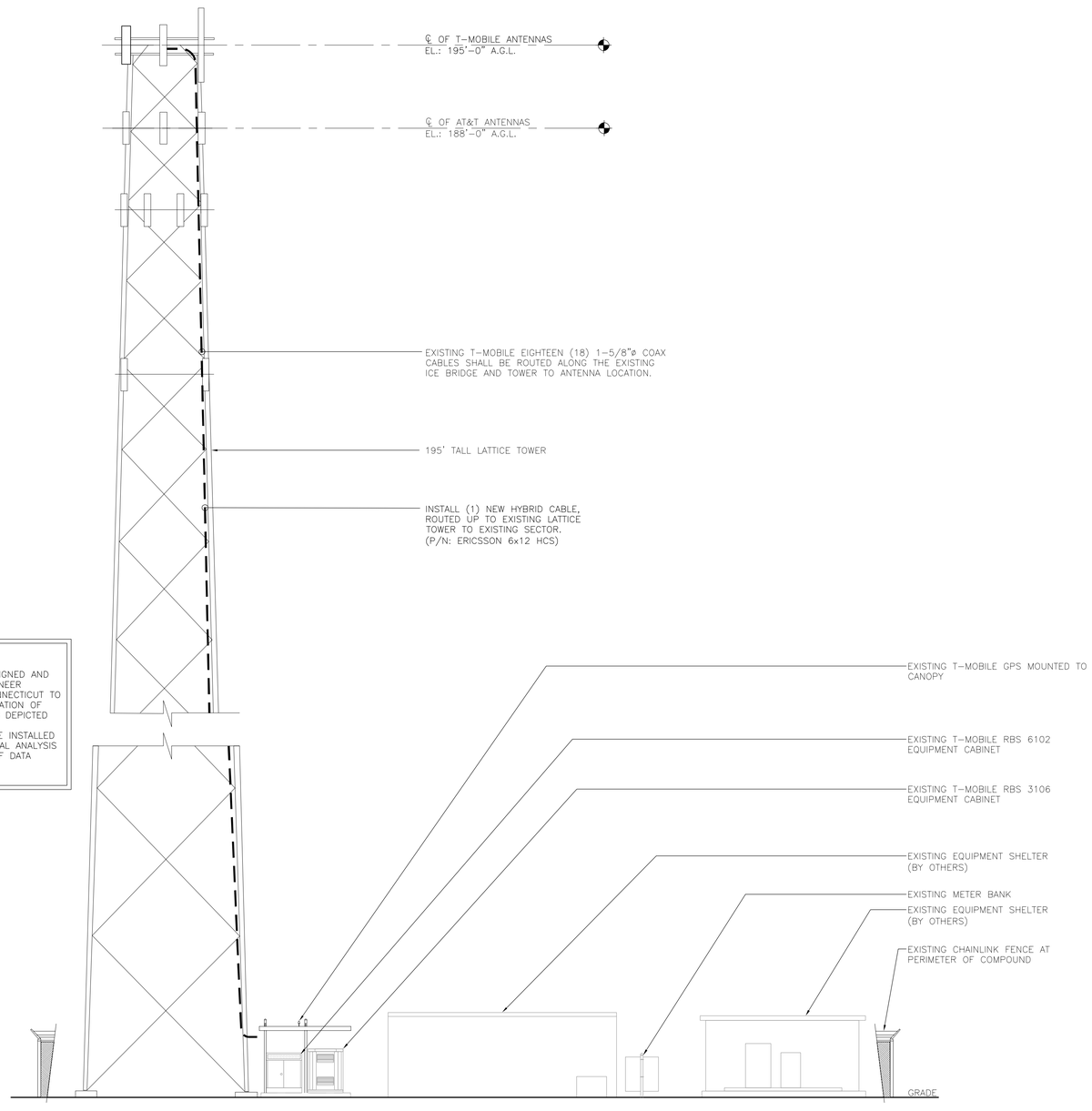
T-MOBILE RAN TEMPLATE: 794DB OUTDOOR
T-MOBILE RF CONFIGURATION: 794DB_1xAIR+1QP+1D9



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

TOWER STRUCTURAL NOTES:

1. TOWER STRUCTURAL ANALYSIS SIGNED AND SEALED BY A STRUCTURAL ENGINEER LICENSED IN THE STATE OF CONNECTICUT TO BE PROVIDED PRIOR TO INSTALLATION OF THE ADDITIONAL TOWER LOADING DEPICTED HEREIN.
2. ALL ANTENNAS AND COAX TO BE INSTALLED IN ACCORDANCE WITH STRUCTURAL ANALYSIS REPORT AND FINAL T-MOBILE RF DATA SHEET.



4 / C-2 **TOWER ELEVATION**
SCALE: 1" = 8'

GRAPHIC SCALE
8 0 4 8 16 32
(IN FEET)
1 inch = 8 ft.

REV.	DATE	DRAWN BY	CHK'D BY	DESCRIPTION
0	02/16/17	KAW	CAG	CONSTRUCTION DRAWINGS - ISSUED FOR CONSTRUCTION

PROFESSIONAL ENGINEER SEAL

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

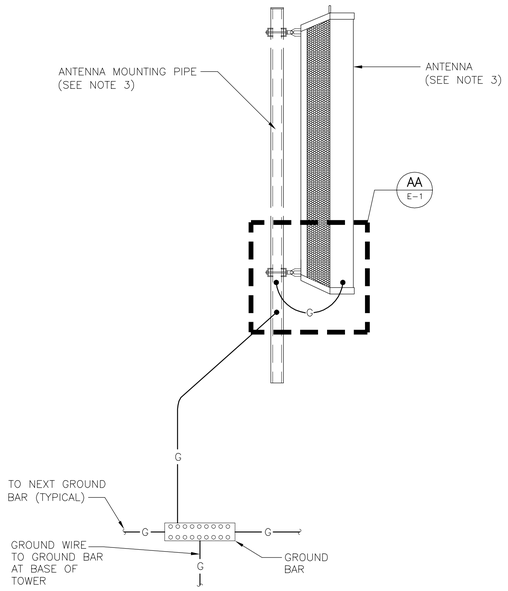
T-MOBILE NORTHEAST LLC
WIRELESS COMMUNICATIONS FACILITY

MIDDLEBURY I84/X17
SITE ID: CT11128E
1021 STRAITS TURNPIKE
MIDDLEBURY, CT 06762

DATE: 01/30/17
SCALE: AS NOTED
JOB NO. 17012.01

EQUIPMENT PLAN, ELEVATION AND ANTENNA MOUNTING CONFIG.

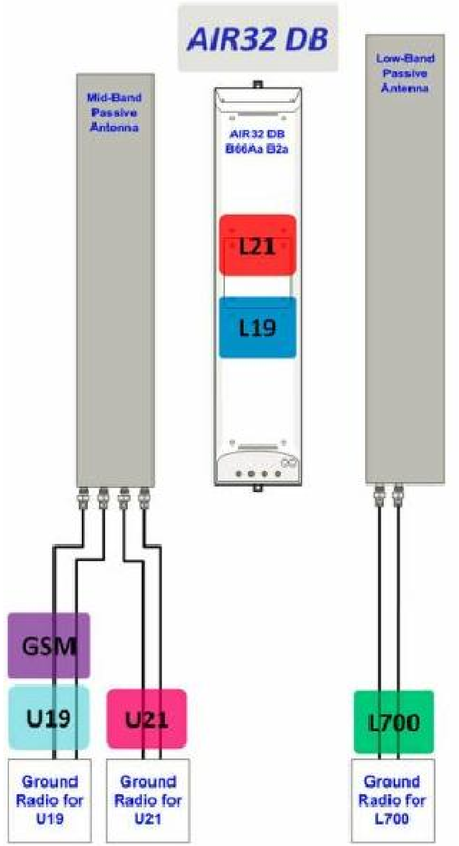
C-2
Sheet No. 4 of 5



NOTES:

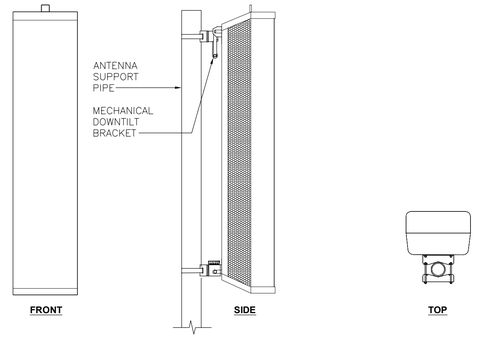
1. BOND COAXIAL CABLE GROUND KITS TO EACH OWNER'S GROUND BAR ALONG ENTIRE COAX RUN FROM ANTENNA TO SHELTER.
2. BOND ALL EQUIPMENT TO GROUND PER NEC AND MANUFACTURERS SPECIFICATIONS.
3. DETAIL IS TYPICAL FOR ALL ANTENNA SECTORS, INCLUDING GPS ANTENNA.

1 E-1 **TYPICAL ANTENNA GROUNDING DETAIL**
NOT TO SCALE



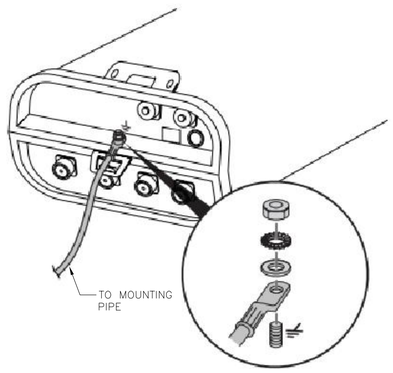
T-MOBILE RF CONFIGURATION:
794DB_1xAIR+1QP+1D9

2 E-1 **PROPOSED PLUMBING DIAGRAM**
SCALE: NOT TO SCALE



ALPHA/BETA/GAMMA/DELTA ANTENNA		
EQUIPMENT	DIMENSIONS	WEIGHT
MAKE: ERICSSON MODEL: KRD901146-1_B66A_B2A	56.65"L x 12.87"W x 8.66"D	132.2 LBS.

3 E-1 **PROPOSED ANTENNA DETAIL**
SCALE: NONE



AA E-1 **TYPICAL ANTENNA GROUNDING DETAIL**
NOT TO SCALE

REV.	DATE	DRAWN BY	CHK'D BY	DESCRIPTION
0	02/16/17	KAW	CAG	CONSTRUCTION DRAWINGS – ISSUED FOR CONSTRUCTION

PROFESSIONAL ENGINEER SEAL

T-Mobile

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

MIDDLEBURY I84/X17
SITE ID: CT11128E

1021 STRAITS TURNPIKE
MIDDLEBURY, CT 06762

DATE: 01/30/17
SCALE: AS NOTED
JOB NO. 17012.01

ANTENNA DETAILS

E-1

Sheet No. 5 of 5