



Filed by:

Kri Pelletier, Property Specialist - SBA Communications
134 Flanders Rd., Suite 125, Westborough, MA 01581
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October 5, 2016

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

Notice of Exempt Modification

38 Rich Road, North Grosvenordale, CT 06255

42 0 41.58 N

-71 51 6.87 W

AT&T #: 10128120_LTE – CT1259

Dear Ms. Bachman:

AT&T currently maintains nine (9) antennas at the 127-foot level of the existing 149-foot Monopole Tower at 38 Rich Road in North Grosvenordale (Thompson), CT. The tower is owned by SBA Infrastructure, LLC. The property is owned by the Town of Thompson. AT&T does not intend any proposed antenna changes at this time. AT&T is proposing to install (3) RRUs-12 to the 127-foot level of the tower. AT&T's proposed full scope of work is as follows:

Remove: None

Remove and Replace: None

Install:

- (3) Ericsson RRUS-12
- (12) Kathrein RET
- (6) Powerwave LGP13519 Diplexers
- (3) Powerwave 1001983 Bias T

Existing Equipment to Remain (Including entitlements):

- (9) Powerwave 7770 Panel Antennas
- (3) KMW-AM-X-CD-17-65-OOT-RET Panel Antennas
- (1) Raycap Surge Suppression System - DC/Fiber Squid
- (12) Powerwave TMAs
- (3) Ericsson RRUS-11 RRUs
- (3) T-Arms
- (12) 1-5/8" fiber
- (1) 1/2" RET
- (1) 3" flex conduit
- (2) 3/4" DC inside conduit
- (1) 7/16" line inside conduit



This facility was approved by the Council in docket # 344 on January 10, 2008. The approval was for a 150' monopole with either flush mounted or T-arm mounted antennas. There was to be a D&M plan and recalculated RF reports were to be presented when RF conditions changed. All future non-functioning equipment was to be removed. This modification complies with the aforementioned conditions.

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 Ken Beausoleil, First Selectman for the Town of North Grosvenordale (Thompson) in his capacity as elected official and representative for the property owner. (Separate notice is not being sent to tower owner, as it belongs to SBA.)

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 modifications will not result in an increase in the height of the existing structure.
2. The proposed modification 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, AT&T respectfully submits that the proposed modifications to the above-referenced telecommunication facility constitute an exempt modifications under R.C.S.A. § 16-50j-72(b)(2).

Sincerely,

Kri Pelletier
Property Specialist
SBA COMMUNICATIONS CORPORATION
134 Flanders Rd., Suite 125
Westborough, MA 01581

508.251.0720 x3804 + T
508.366.2610 + F
203.446.7700 + C
kpelletier@sbsite.com

Attachments

cc: Ken Beausoleil, First Selectman for the Town of Thompson – as elected official /rep for the property owner
Town of Thompson, 815 Riverside Drive, PO Box 899, North Grosvenordale, CT 06255



POWER DENSITY

AT&T Site Inventory and Power Data by Antenna

Sector:	A	Sector:	B	Sector:	C
Antenna #:	1	Antenna #:	1	Antenna #:	1
Make / Model:	Powerwave 7770	Make / Model:	Powerwave 7770	Make / Model:	Powerwave 7770
Gain:	11.4 / 13.4 dBd	Gain:	11.4 / 13.4 dBd	Gain:	11.4 / 13.4 dBd
Height (AGL):	127 feet	Height (AGL):	127 feet	Height (AGL):	127 feet
Frequency Bands	850 MHz / 1900 MHz (PCS)	Frequency Bands	850 MHz / 1900 MHz (PCS)	Frequency Bands	850 MHz / 1900 MHz (PCS)
Channel Count	4	Channel Count	4	Channel Count	4
Total TX Power(W):	120 Watts	Total TX Power(W):	120 Watts	Total TX Power(W):	120 Watts
ERP (W):	2,140.89	ERP (W):	2,140.89	ERP (W):	2,140.89
Antenna A1 MPE%	0.68 %	Antenna B1 MPE%	0.68 %	Antenna C1 MPE%	0.68 %
Antenna #:	2	Antenna #:	2	Antenna #:	2
Make / Model:	Powerwave 7770	Make / Model:	Powerwave 7770	Make / Model:	Powerwave 7770
Gain:	11.4 dBd	Gain:	11.4 dBd	Gain:	11.4 dBd
Height (AGL):	127 feet	Height (AGL):	127 feet	Height (AGL):	127 feet
Frequency Bands	850 MHz	Frequency Bands	850 MHz	Frequency Bands	850 MHz
Channel Count	2	Channel Count	2	Channel Count	2
Total TX Power(W):	60 Watts	Total TX Power(W):	60 Watts	Total TX Power(W):	60 Watts
ERP (W):	828.23	ERP (W):	828.23	ERP (W):	828.23
Antenna A2 MPE%	0.36 %	Antenna B2 MPE%	0.36 %	Antenna C2 MPE%	0.36 %
Antenna #:	3	Antenna #:	3	Antenna #:	3
Make / Model:	KMW AM-X-CD-17-65-00T-RET	Make / Model:	KMW AM-X-CD-17-65-00T-RET	Make / Model:	KMW AM-X-CD-17-65-00T-RET
Gain:	14.65 / 15.15 dBd	Gain:	14.65 / 15.15 dBd	Gain:	14.65 / 15.15 dBd
Height (AGL):	127 feet	Height (AGL):	127 feet	Height (AGL):	127 feet
Frequency Bands	700 MHz / 1900 MHz (PCS)	Frequency Bands	700 MHz / 1900 MHz (PCS)	Frequency Bands	700 MHz / 1900 MHz (PCS)
Channel Count	4	Channel Count	4	Channel Count	4
Total TX Power(W):	240 Watts	Total TX Power(W):	240 Watts	Total TX Power(W):	240 Watts
ERP (W):	7,429.00	ERP (W):	7,429.00	ERP (W):	7,429.00
Antenna A3 MPE%	2.81 %	Antenna B3 MPE%	2.81 %	Antenna C3 MPE%	2.81 %

Site Composite MPE%	
Carrier	MPE%
AT&T – Max per sector	3.84 %
T-Mobile	1.98 %
Verizon Wireless	3.09 %
Site Total MPE %:	8.91 %

AT&T Sector A Total:	3.84 %
AT&T Sector B Total:	3.84 %
AT&T Sector C Total:	3.84 %
Site Total:	8.91 %

AT&T Frequency Band / Technology Per Sector	# Channels	Watts ERP (Per Channel)	Height (feet)	Total Power Density ($\mu\text{W}/\text{cm}^2$)	Frequency (MHz)	Allowable MPE ($\mu\text{W}/\text{cm}^2$)	Calculated % MPE
AT&T 850 MHz UMTS	2	414.12	127	2.03	850 MHz	567	0.36%
AT&T 1900 MHz (PCS) UMTS	2	656.33	127	3.22	1900 MHz (PCS)	1000	0.32%
AT&T 850 MHz GSM	2	414.12	127	2.03	850 MHz	567	0.36%
AT&T 700 MHz LTE	2	1,750.46	127	8.60	700 MHz	467	1.84%
AT&T 1900 MHz (PCS) LTE	2	1,964.04	127	9.65	1900 MHz (PCS)	1000	0.96%
						Total*:	3.84%

*NOTE: Totals may vary by .01% due to summing of remainders

38 RICH RD #1

Location 38 RICH RD #1

Mblu 97/ 28/ 7/1 /

Acct# 001701

Owner TOWN OF THOMPSON

Assessment \$18,900

Appraisal \$27,000

PID 104423

Building Count 1

Current Value

Appraisal			
Valuation Year	Improvements	Land	Total
2015	\$27,000	\$0	\$27,000
Assessment			
Valuation Year	Improvements	Land	Total
2015	\$18,900	\$0	\$18,900

Owner of Record

Owner	TOWN OF THOMPSON	Sale Price	\$0
Co-Owner	C/O CINGULAR WIRELESS LLC	Certificate	
Address	ATTN PROPERTY TAX DEPT 575 MOROSGO DR NE ROOM 13E72 ATLANTA, GA 30324	Book & Page	0075/0087
		Sale Date	02/10/1965

Ownership History

Ownership History				
Owner	Sale Price	Certificate	Book & Page	Sale Date
TOWN OF THOMPSON	\$0		0075/0087	02/10/1965

Building Information

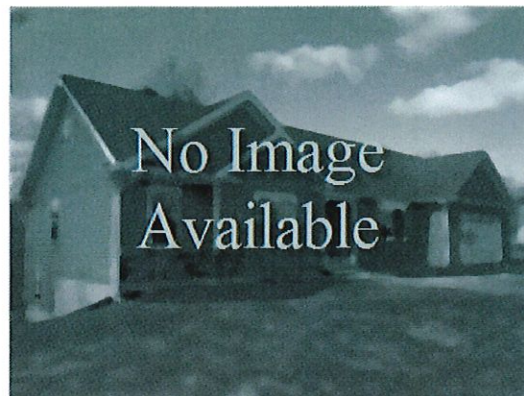
Building 1 : Section 1

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

Building Photo

Building Attributes	
Field	Description
Style	Outbuildings
Model	

Grade:	
Stories:	
Occupancy	
Exterior Wall 1	
Exterior Wall 2	
Roof Structure:	
Roof Cover	
Interior Wall 1	
Interior Wall 2	
Interior Flr 1	
Interior Flr 2	
Heat Fuel	
Heat Type:	
AC Type:	
Total Bedrooms:	
Total Bthrms:	
Total Half Baths:	
Total Xtra Fixtrs:	
Total Rooms:	
Bath Style:	
Kitchen Style:	



(http://images.vgsi.com/photos/ThompsonCTPhotos//default.jpg)

Building Layout

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 390A
Description DEVEL LAND MDL-00
Zone
Neighborhood
Alt Land Appr No
Category

Land Line Valuation

Size (Acres) 0
Frontage
Depth
Assessed Value \$0
Appraised Value \$0

Outbuildings

Outbuildings						Legend
Code	Description	Sub Code	Sub Description	Size	Value	Bldg #
CB1	PRECAST CONC CELL			240 S.F.	\$27,000	1

Valuation History

Appraisal

Valuation Year	Improvements	Land	Total
2014	\$27,000	\$0	\$27,000
2013	\$27,000	\$0	\$27,000
2012	\$27,000	\$0	\$27,000

Assessment			
Valuation Year	Improvements	Land	Total
2014	\$18,900	\$0	\$18,900
2013	\$18,900	\$0	\$18,900
2012	\$18,900	\$0	\$18,900

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

AT&T Existing Facility

Site ID: CT1259

Thompson CT Rich Rd
38 Rich Road
North Grosvenordale, CT 06255

September 23, 2016

EBI Project Number: 6216004302

Site Compliance Summary	
Compliance Status:	COMPLIANT
Site total MPE% of FCC general public allowable limit:	8.91 %



September 23, 2016

AT&T Mobility – New England
Attn: Cameron Syme, RF Manager
550 Cochituate Road
Suite 550 – 13&14
Framingham, MA 06040

Emissions Analysis for Site: **CT1259 – Thompson CT Rich Rd**

EBI Consulting was directed to analyze the proposed AT&T facility located at **38 Rich Road, North Grosvenordale, CT**, for the purpose of determining whether the emissions from the Proposed AT&T Antenna Installation located on this property are within specified federal limits.

All information used in this report was analyzed as a percentage of current Maximum Permissible Exposure (% MPE) as listed in the FCC OET Bulletin 65 Edition 97-01 and ANSI/IEEE Std C95.1. The FCC regulates Maximum Permissible Exposure in units of microwatts per square centimeter ($\mu\text{W}/\text{cm}^2$). The number of $\mu\text{W}/\text{cm}^2$ 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 ($\mu\text{W}/\text{cm}^2$). The general population exposure limits for the 700 and 850 MHz Bands are approximately $467 \mu\text{W}/\text{cm}^2$ and $567 \mu\text{W}/\text{cm}^2$ respectively. The general population exposure limit for the 1900 MHz (PCS), 2100 MHz (AWS) and 2300 MHz (WCS) bands is $1000 \mu\text{W}/\text{cm}^2$. 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 AT&T Wireless antenna facility located at **38 Rich Road, North Grosvenordale, CT**, using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65. Since AT&T is proposing highly focused directional panel antennas, which project most of the emitted energy out toward the horizon, all calculations were performed assuming a lobe representing the maximum gain of the antenna per the antenna 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 UMTS channels (850 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 (1900 MHz (PCS)) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.
- 3) 2 GSM channels (850 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 (700 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 (1900 MHz (PCS)) were considered for each sector of the proposed installation. These Channels have a transmit power of 60 Watts per Channel.



- 6) 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.
- 7) 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.
- 8) The antennas used in this modeling are the **Powerwave 7770 and the KMW AM-X-CD-17-65-00T-RET** for transmission in the 700 MHz, 850 MHz and 1900 MHz (PCS) frequency bands. This is based on feedback from the carrier with regards to anticipated antenna selection. Maximum gain values for all antennas are listed in the Inventory and Power Data table below. 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.
- 9) The antenna mounting height centerlines of the proposed antennas are **127 feet** above ground level (AGL) for **Sector A**, **127 feet** above ground level (AGL) for **Sector B** and **127 feet** above ground level (AGL) for Sector C.
- 10) 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.

All calculations were done with respect to uncontrolled / general public threshold limits.



AT&T Site Inventory and Power Data by Antenna

Sector:	A	Sector:	B	Sector:	C
Antenna #:	1	Antenna #:	1	Antenna #:	1
Make / Model:	Powerwave 7770	Make / Model:	Powerwave 7770	Make / Model:	Powerwave 7770
Gain:	11.4 / 13.4 dBd	Gain:	11.4 / 13.4 dBd	Gain:	11.4 / 13.4 dBd
Height (AGL):	127 feet	Height (AGL):	127 feet	Height (AGL):	127 feet
Frequency Bands	850 MHz / 1900 MHz (PCS)	Frequency Bands	850 MHz / 1900 MHz (PCS)	Frequency Bands	850 MHz / 1900 MHz (PCS)
Channel Count	4	Channel Count	4	Channel Count	4
Total TX Power(W):	120 Watts	Total TX Power(W):	120 Watts	Total TX Power(W):	120 Watts
ERP (W):	2,140.89	ERP (W):	2,140.89	ERP (W):	2,140.89
Antenna A1 MPE%	0.68 %	Antenna B1 MPE%	0.68 %	Antenna C1 MPE%	0.68 %
Antenna #:	2	Antenna #:	2	Antenna #:	2
Make / Model:	Powerwave 7770	Make / Model:	Powerwave 7770	Make / Model:	Powerwave 7770
Gain:	11.4 dBd	Gain:	11.4 dBd	Gain:	11.4 dBd
Height (AGL):	127 feet	Height (AGL):	127 feet	Height (AGL):	127 feet
Frequency Bands	850 MHz	Frequency Bands	850 MHz	Frequency Bands	850 MHz
Channel Count	2	Channel Count	2	Channel Count	2
Total TX Power(W):	60 Watts	Total TX Power(W):	60 Watts	Total TX Power(W):	60 Watts
ERP (W):	828.23	ERP (W):	828.23	ERP (W):	828.23
Antenna A2 MPE%	0.36 %	Antenna B2 MPE%	0.36 %	Antenna C2 MPE%	0.36 %
Antenna #:	3	Antenna #:	3	Antenna #:	3
Make / Model:	KMW AM-X-CD-17-65-00T-RET	Make / Model:	KMW AM-X-CD-17-65-00T-RET	Make / Model:	KMW AM-X-CD-17-65-00T-RET
Gain:	14.65 / 15.15 dBd	Gain:	14.65 / 15.15 dBd	Gain:	14.65 / 15.15 dBd
Height (AGL):	127 feet	Height (AGL):	127 feet	Height (AGL):	127 feet
Frequency Bands	700 MHz / 1900 MHz (PCS)	Frequency Bands	700 MHz / 1900 MHz (PCS)	Frequency Bands	700 MHz / 1900 MHz (PCS)
Channel Count	4	Channel Count	4	Channel Count	4
Total TX Power(W):	240 Watts	Total TX Power(W):	240 Watts	Total TX Power(W):	240 Watts
ERP (W):	7,429.00	ERP (W):	7,429.00	ERP (W):	7,429.00
Antenna A3 MPE%	2.81 %	Antenna B3 MPE%	2.81 %	Antenna C3 MPE%	2.81 %

Site Composite MPE%	
Carrier	MPE%
AT&T – Max per sector	3.84 %
T-Mobile	1.98 %
Verizon Wireless	3.09 %
Site Total MPE %:	8.91 %

AT&T Sector A Total:	3.84 %
AT&T Sector B Total:	3.84 %
AT&T Sector C Total:	3.84 %
Site Total:	8.91 %

AT&T _ Frequency Band / Technology Per Sector	# Channels	Watts ERP (Per Channel)	Height (feet)	Total Power Density ($\mu\text{W}/\text{cm}^2$)	Frequency (MHz)	Allowable MPE ($\mu\text{W}/\text{cm}^2$)	Calculated % MPE
AT&T 850 MHz UMTS	2	414.12	127	2.03	850 MHz	567	0.36%
AT&T 1900 MHz (PCS) UMTS	2	656.33	127	3.22	1900 MHz (PCS)	1000	0.32%
AT&T 850 MHz GSM	2	414.12	127	2.03	850 MHz	567	0.36%
AT&T 700 MHz LTE	2	1,750.46	127	8.60	700 MHz	467	1.84%
AT&T 1900 MHz (PCS) LTE	2	1,964.04	127	9.65	1900 MHz (PCS)	1000	0.96%
						Total*:	3.84%

*NOTE: Totals may vary by .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 AT&T facility as well as the site composite emissions value with regards to compliance with FCC's allowable limits for general public exposure to RF Emissions are shown here:

AT&T Sector	Power Density Value (%)
Sector A:	3.84 %
Sector B:	3.84 %
Sector C:	3.84 %
AT&T Maximum Total (per sector):	3.84 %
Site Total:	8.91 %
Site Compliance Status:	COMPLIANT

The anticipated composite MPE value for this site assuming all carriers present is **8.91 %** 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.



Tower Engineering Solutions

Phone (972) 483-0607, Fax (972) 975-9615
8445 Freepoint Parkway, Suite 375, Irving, Texas 75063

Structural Analysis Report

Existing 149 ft Nudd Corporation Monopole

Customer Name: SBA Communications Corp

Customer Site Number: CT11559-A

Customer Site Name: Thompson 1, CT

Carrier Name: AT&T

Carrier Site ID / Name: FA# 10128120 USID# CT1259

Site Location: 39 Rich Road

North Grosvenordale, Connecticut

Windham County

Latitude: 42.011550

Longitude: -71.851908

Analysis Result:

Max Structural Usage: 55.6% [Pass]

Max Foundation Usage: 38.0% [Pass]

Report Prepared by: Tawfeeq Alajaj



Introduction

The purpose of this report is to summarize the analysis results on the 149 ft Nudd Corporation Monopole to support the proposed antennas and transmission lines in addition to those currently installed. Any modification listed under Sources of Information was assumed completed and was included in this analysis.

Sources of Information

Tower Drawings	Fred A. Nudd Corporation (Project No. 308-13019) original design drawings dated April 25, 2008.
Foundation Drawing	Fred A. Nudd Corporation (Project No. 308-13019) original design drawings dated April 25, 2008.
Geotechnical Report	N/A

Analysis Criteria

The rigorous analysis was performed in accordance with the requirements and stipulations of the ANSI/TIA/EIA 222-G. In accordance with this standard, the structure was analyzed using **TESPoles**, a proprietary analysis software. The program considers the structure as an elastic 3-D model with second-order effects and temperature effects incorporated in the analysis. The analysis was performed using multiple wind directions.

Wind Speed Used in the Analysis:	Ultimate Design Wind Speed $V_{ult} = 130$ mph (3-Sec. Gust)/ Nominal Design Wind Speed $V_{asd} = 101.0$ mph (3-Sec. Gust)
Wind Speed with Ice:	50 mph (3-Sec. Gust) with 1" radial ice concurrent
Operational Wind Speed:	60 mph + 0" Radial ice
Standard/Codes:	ANSI/TIA/EIA 222-G / 2012 IBC / 2016 Connecticut State Building Code
Exposure Category:	C
Structure Class:	II
Topographic Category:	1
Crest Height:	0 ft
Seismic Parameters:	$S_S = 0.173$, $S_1 = 0.063$

Existing Antennas, Mounts and Transmission Lines

The table below summarizes the antennas, mounts and transmission lines that were considered in the analysis as existing on the tower.

Items	Elevation (ft)	Qty.	Antenna Descriptions	Mount Type & Qty.	Transmission Lines	Owner
1	148.0	3	Ericsson - AIR21 B2A B4P - Panel	(3) T-Arms	(12) 1 5/8" (1) 1 5/8" Fiber	T-Mobile
2		3	Ericsson - AIR21 B2A B4P - Panel			
3		3	Commscope - LNX-6515DS-VTM - Panel			
4		3	Ericsson KRY112 144/1 TMA			
5		3	Ericsson RRUS11-B12 RRU			
6	137.0	3	Antel/BXA-70063-6CF - Panel	(3) T-Arms	(12) 1 5/8" (1) 1 5/8" Fiber	Verizon
7		3	Antel/BXA-171085-12BF - Panel			
8		4	Antel/LPA-80080-6CF - Panel			
9		2	Antel/LPA-4019 - Panel			
10		3	ALU/RRH 2x40 AWS			
11	127.0	1	RFS DB-T1-6Z-8AB-OZ Distribution	(3) T-Arms	(12) 1 5/8" (1) 1/2" RET (1) 3" flex Conduit (2) 3/4" DC (1) 7/16"	AT&T
-		9	Powerwave - 7770.00 - Panel			
-		3	KMW - AM-X-CD-17-65-00T-RET - Panel			
-		12	Powerwave LGP21401 TMAs			
-		6	Ericsson RRUS-11 RRUs			
-		1	Raycap DC6-48-60-18-8F DC Surge Suppression System			

Proposed Carrier's Final Configuration of Antennas, Mounts and Transmission Lines

Information pertaining to the proposed carrier's final configuration of antennas and transmission lines was provided by SBA Communications Corp. The proposed antennas and lines are listed below.

Items	Elevation (ft)	Qty.	Antenna Descriptions	Mount Type & Qty.	Transmission Lines	Owner
12	127.0	9	Powerwave - 7770.00 - Panel	(3) T-Arms	(12) 1 5/8" (1) 1/2" RET [(2) 3/4" DC (1) 7/16" inside (1) 3" flex Conduit]	AT&T
13		3	KMW - AM-X-CD-17-65-00T-RET - Panel			
14		12	Powerwave LGP21401 TMAs			
15		12	Kathrein 860 10025 RET			
16		3	Ericsson RRUS-11 RRUs			
17		3	Ericsson RRUS 12 RRUs			
18		6	Powerwave LGP13519 Diplexer			
19		1	Raycap DC6-48-60-18-8F DC Surge Suppression System			
20		3	Powerwave 1001983 Bias T			

All transmission lines are considered running inside of the pole shafts.

Analysis Results

The results of the structural analysis, performed for the wind and ice loading and antenna equipment as defined above, are summarized as the following:

	Pole shafts	Anchor Bolts	Base Plate
Max. Usage:	54.6%	55.6%	33.3%
Pass/Fail	Pass	Pass	Pass

Foundations

	Moment (Kip-Ft)	Shear (Kips)
Original Design Reactions	4056.0	36.0
Analysis Reactions	3250.7	31.3
Factored Reactions*	5475.6	48.6
% of Design Reactions	59.4%	64.4%

* Per section 15.5.1 of the TIA-222-G standard, factored reactions were obtained by multiplying a 1.35 factor to the original design reactions.

The foundation has been analyzed using the supplied documents and was found adequate. Therefore, no modification to the foundation will be required. Geotechnical soil parameters were obtained from the original foundation calculations included with the referenced tower and foundation design drawings.

Operational Condition (Rigidity):

Operational characteristics of the tower are found to be within the limits prescribed by ANSI/TIA/EIA 222-G for the installed antennas. The maximum twist/sway at the elevation of the proposed equipment is 0.7940 degrees under the operational wind speed as specified in the Analysis Criteria.

Conclusions

Based on the analysis results, the existing structure and its foundation were found to be adequate to safely support the existing and proposed equipment and meet the minimum requirements per the ANSI/TIA/EIA 222-G Standard under the design basic wind speed as specified in the Analysis Criteria.

Standard Conditions

1. This analysis was performed based on the information supplied to **(TES) Tower Engineering Solutions, LLC**. Verification of the information provided was not included in the Scope of Work for **TES**. The accuracy of the analysis is dependent on the accuracy of the information provided.
2. The analysis is based on the presumption that the tower members and components along with any existing reinforcement items have been correctly and properly designed, manufactured, installed and maintained.
3. All the existing structural members were assumed to be in good condition with no physical damage or deterioration associated with corrosion.
4. An initial tension of 10% of the break strength on all the existing guy wires was assumed in all the structural analyses of guyed towers unless different values were provided by the client. **TES** cannot take responsibility for the deviations in the analysis results because of differences in the initial tension forces of the existing guy wires.
5. Secondary component or connection secondary components, welds and bolts are assumed to be able to carry their intended original design loads. **TES** cannot take responsibility for verification of the adequacy on the connections, bolts and welds present in the structure.
6. The analyses will be performed based on the codes as specified by the client or based on the best knowledge of the engineering staff of **TES**. In the absence of information to the contrary, all work will be performed in accordance with the latest relevant revision of ANSI/TIA-222. If wind speed and/or ice loads are different from the minimum values recommended by the EIA/TIA-222 standard or other codes, **TES** should be notified in writing and the applicable minimum values provided by the client.
7. The configuration of the existing mounts, antennas, coax and other appurtenances were supplied by the customer for the current structural analysis. **TES** has not visited the tower site to verify the adequacy of the information provided. If there is any discrepancy found in the report regarding the existing conditions, **TES** should be notified immediately to evaluate the effect of the discrepancy on the analysis results.
8. The client will assume responsibility for rework associated with the differences in initially provided information, including tower and foundation information, existing and/or proposed equipment and transmission lines.
9. If a feasibility analysis was performed, final acceptance of changed conditions shall be based upon a rigorous structural analysis.

Usage Diagram - Max Ratio 54.64% at 25.0ft

Structure: CT11559-A-SBA
Site Name: Thompson 1, CT
Height: 149.00 (ft)
Base Elev: 0.000 (ft)

Code: EIA/TIA-222-G
Exposure: C
Gh: 1.1

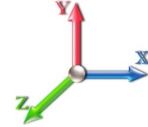
9/14/2016



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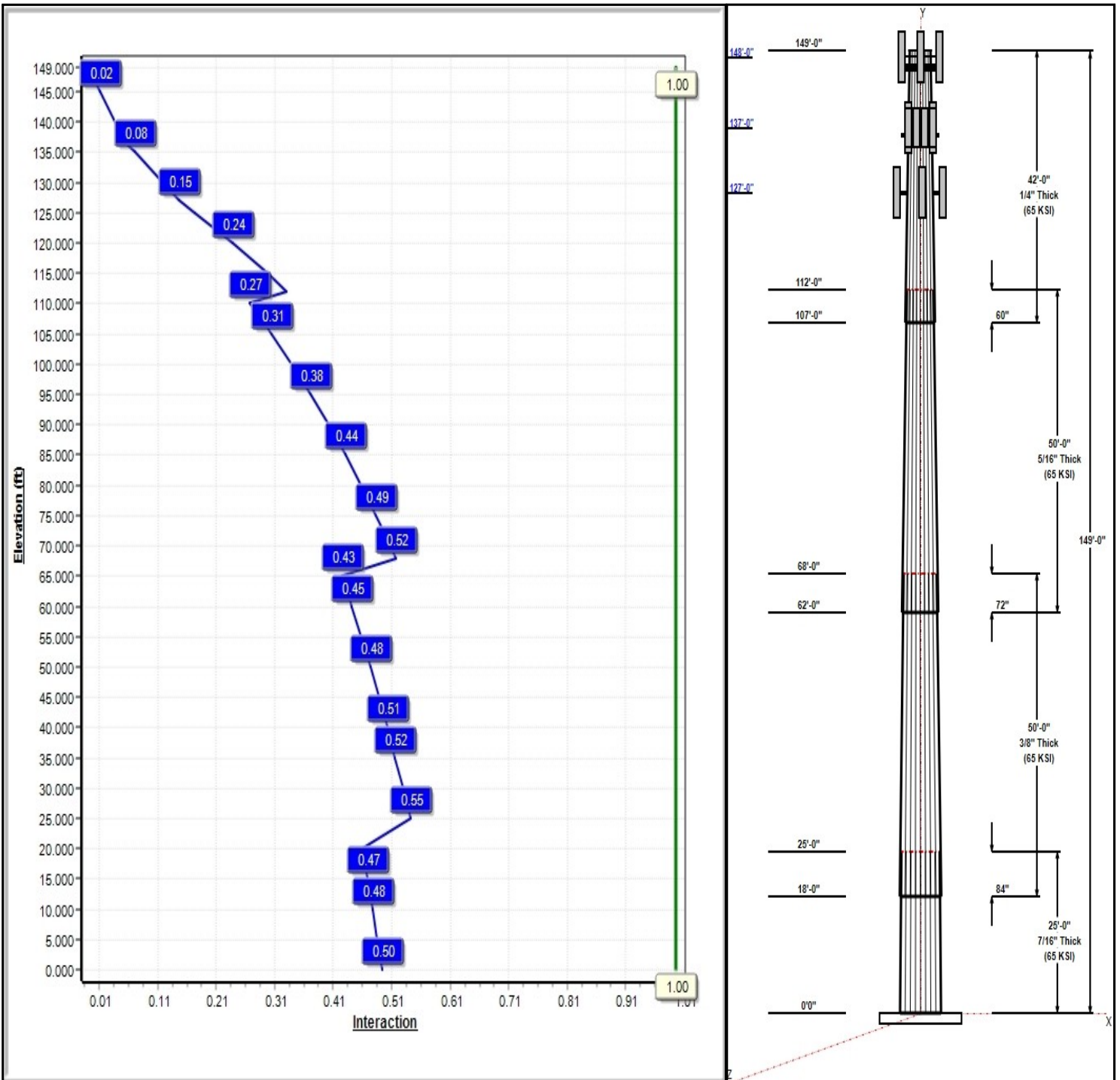
Dead Load Factor: 1.20
 Wind Load Factor: 1.60

Load Case : 1.2D + 1.6W 101 mph Wind



Iterations: 22

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Structure: CT11559-A-SBA

Type: Tapered
Site Name: Thompson 1, CT
Height: 149.00 (ft)
Base Elev: 0.00 (ft)

Base Shape: 18 Sided
Taper: 0.23532

9/14/2016

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Shaft Properties

Seq	Length (ft)	Top (in)	Bottom (in)	Thick (in)	Joint Type	Taper	Grade (ksi)
1	25.00	53.18	59.06	0.438		0.23532	65
2	50.00	43.81	55.58	0.375	Slip	0.23532	65
3	50.00	34.08	45.85	0.313	Slip	0.23532	65
4	42.00	25.88	35.76	0.250	Slip	0.23532	65

Discrete Appurtenances

Attach Elev (ft)	Force Elev (ft)	Qty	Description	Carrier
148.00	148.00	3	AIR21 B2A B4P	T-Mobile
148.00	148.00	3	AIR21 B2A B4P	T-Mobile
148.00	148.00	3	Commscope -	T-Mobile
148.00	148.00	3	Ericsson KRY112 144/1	T-Mobile
148.00	148.00	3	Ericsson RRUS11-B12	T-Mobile
148.00	148.00	1	T-Arms	T-Mobile
137.00	137.00	3	Antel/BXA-70063-6CF	Verizon
137.00	137.00	3	Antel/BXA-171085-12BF	Verizon
137.00	137.00	4	Antel/LPA-80080-6CF	Verizon
137.00	137.00	2	Antel/LPA-4019	Verizon
137.00	137.00	3	ALU/RRH 2x40 AWS	Verizon
137.00	137.00	1	RFS DB-T1-6Z-8AB-0Z	Verizon
136.00	136.00	3	T-Arms	Verizon
127.00	127.00	3	T-Arms	AT&T
127.00	127.00	9	7770.00	AT&T
127.00	127.00	3	AM-X-CD-17-65-00T-RET	AT&T
127.00	127.00	12	Powerwave LGP21401	AT&T
127.00	127.00	12	Kathrein 860 10025 RET	AT&T
127.00	127.00	3	Ericsson RRUS-11 RRUs	AT&T
127.00	127.00	3	Ericsson RRUS 12 RRUs	AT&T
127.00	127.00	6	Powerwave LGP13519	AT&T
127.00	127.00	1	Raycap DC6-48-60-18-8F	AT&T
127.00	127.00	3	Powerwave 1001983 Bias	AT&T

Linear Appurtenances

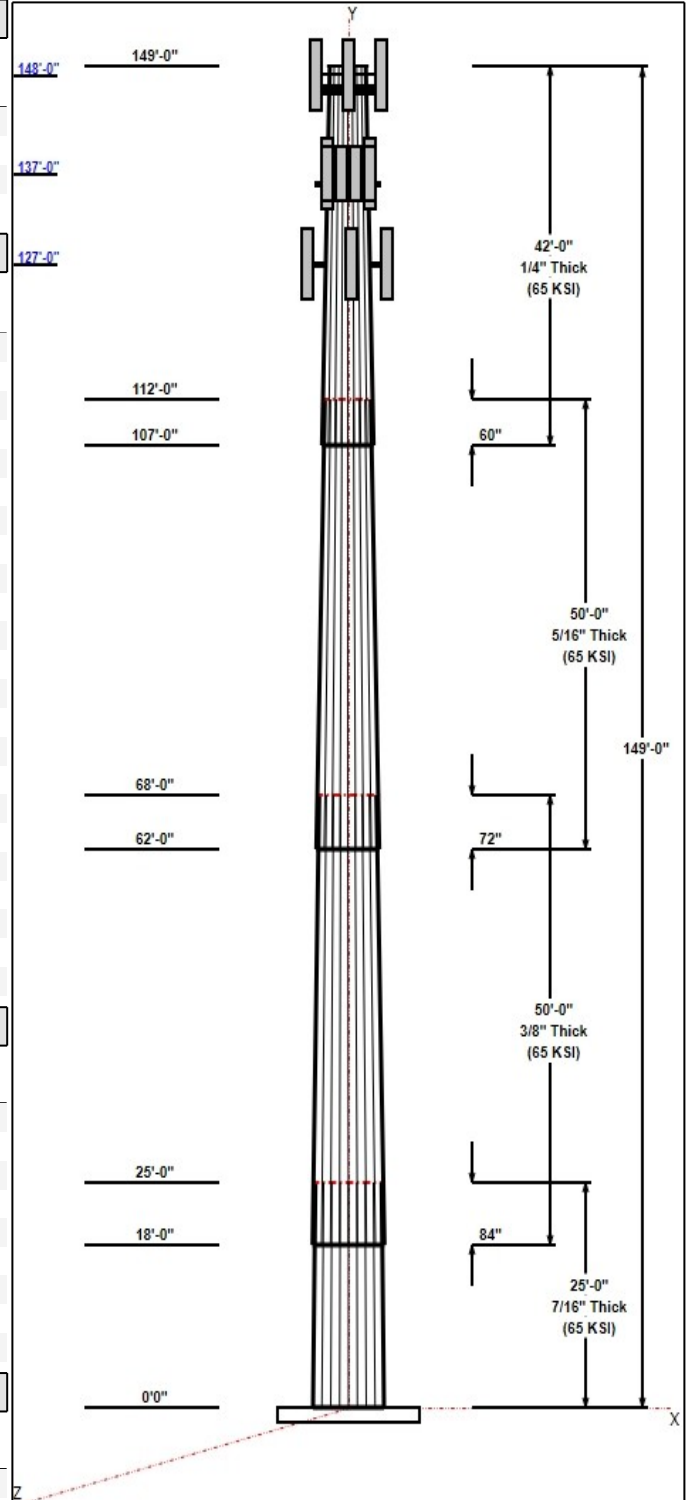
Elev From (ft)	Elev To (ft)	Placement	Description	Carrier
0.00	148.00	Inside	1 5/8" Coax	T-Mobile
0.00	148.00	Inside	1 5/8" Fiber	T-Mobile
0.00	137.00	Inside	1 5/8" Coax	Verizon
0.00	137.00	Inside	1 5/8" Fiber	Verizon
0.00	127.00	Inside	1 5/8" Coax	AT&T
0.00	127.00	Inside	1/2" RET	AT&T
0.00	127.00	Inside	3" flex Conduit	AT&T
0.00	127.00	Inside	3/4" DC	AT&T
0.00	127.00	Inside	7/16" Coax	AT&T

Anchor Bolts

Qty	Specifications	Grade (ksi)	Arrangement
18	2.00" F1554 105	105.0	Radial

Base Plate

Thickness (in)	Specifications (in)	Grade (ksi)	Geometry



Structure: CT11559-A-SBA

Type: Tapered
Site Name: Thompson 1, CT
Height: 149.00 (ft)
Base Elev: 0.00 (ft)

Base Shape: 18 Sided
Taper: 0.23532

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2.7500 72.0 50.0 Round

Reactions

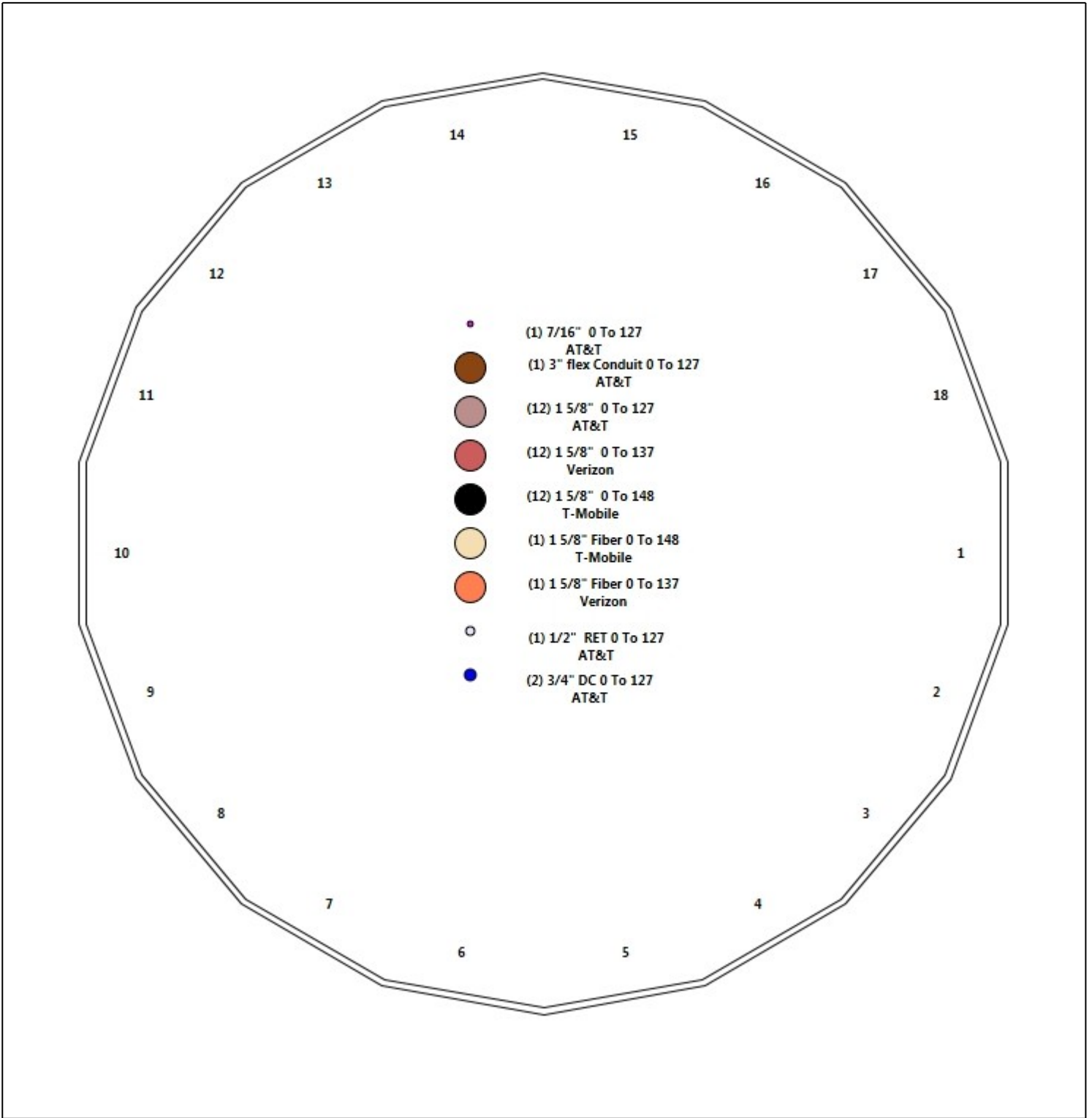
Load Case	Moment	Shear	Axial
1.2D + 1.6W 101 mph Wind	3250.7	31.3	45.0
0.9D + 1.6W 101 mph Wind	3230.7	31.3	33.7
1.2D + 1.0Di + 1.0Wi 50 mph Wind	957.1	9.1	73.5
1.2D + 1.0E	149.0	1.4	45.0
0.9D + 1.0E	148.0	1.4	33.7
1.0D + 1.0W 60 mph Wind	714.4	6.9	37.5

Structure: CT11559-A-SBA - Coax Line Placement

Type: Monopole
Site Name: Thompson 1, CT
Height: 149.00 (ft)

9/14/2016

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Shaft Properties

Structure: CT11559-A-SBA	Code: EIA/TIA-222-G	9/14/2016
Site Name: Thompson 1, CT	Exposure: C	
Height: 149.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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Sec. No.	Shape	Length (ft)	Thick (in)	Fy (ksi)	Joint Type	Overlap (in)	Weight (lb)
1	18	25.000	0.4375	65		0.00	6,578
2	18	50.000	0.3750	65	Slip	84.00	9,987
3	18	50.000	0.3125	65	Slip	72.00	6,691
4	18	42.000	0.2500	65	Slip	60.00	3,466
Total Shaft Weight:							26,722

Bottom

Top

Sec. No.	Dia (in)	Elev (ft)	Area (sqin)	Ix (in^4)	W/t Ratio	D/t Ratio	Dia (in)	Elev (ft)	Area (sqin)	Ix (in^4)	W/t Ratio	D/t Ratio	Taper
1	59.06	0.00	81.41	35348.50	22.39	135.00	53.18	25.00	73.24	25739.0	20.02	121.5	0.235319
2	55.58	18.00	65.70	25294.99	24.72	148.20	43.81	68.00	51.70	12323.0	19.19	116.8	0.235319
3	45.85	62.00	45.16	11831.43	24.46	146.71	34.08	112.00	33.49	4825.70	17.82	109.0	0.235319
4	35.76	107.0	28.17	4488.25	23.81	143.03	25.88	149.00	20.33	1686.85	16.84	103.5	0.235319

Load Summary

Structure: CT11559-A-SBA	Code: EIA/TIA-222-G	9/14/2016
Site Name: Thompson 1, CT	Exposure: C	
Height: 149.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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Discrete Appurtenances

No.	Elev (ft)	Description	Qty	No Ice			Ice			Hor. Ecc. (ft)	Vert Ecc (ft)
				Weight (lb)	CaAa (sf)	CaAa Factor	Weight (lb)	CaAa (sf)	CaAa Factor		
1	148.00	AIR21 B2A B4P	3	91.50	6.09	0.86	329.95	7.583	0.86	0.00	0.00
2	148.00	AIR21 B2A B4P	3	90.40	6.09	0.86	329.95	7.583	0.86	0.00	0.00
3	148.00	Commscope - LNX-6515DS-VTM	3	51.30	11.46	0.80	357.15	15.796	0.80	0.00	0.00
4	148.00	Ericsson KRY112 144/1 TMA	3	11.00	0.41	0.70	25.36	1.043	0.70	0.00	0.00
5	148.00	Ericsson RRUS11-B12 RRU	3	50.00	2.57	0.73	136.45	3.430	0.73	0.00	0.00
6	148.00	T-Arms	1	500.00	15.00	0.75	1197.15	41.027	0.75	0.00	0.00
7	137.00	Antel/BXA-70063-6CF	3	17.00	7.57	0.73	263.16	9.274	0.73	0.00	0.00
8	137.00	Antel/BXA-171085-12BF	3	15.00	4.74	0.84	140.43	7.844	0.84	0.00	0.00
9	137.00	Antel/LPA-80080-6CF	4	21.00	4.33	1.70	243.54	6.147	1.70	0.00	0.00
10	137.00	Antel/LPA-4019	2	41.00	12.74	1.00	598.47	48.511	1.00	0.00	0.00
11	137.00	ALU/RRH 2x40 AWS	3	44.00	2.16	0.85	124.24	3.545	0.85	0.00	0.00
12	137.00	RFS DB-T1-6Z-8AB-0Z Distributi	1	18.90	4.80	0.71	219.89	5.979	0.71	0.00	0.00
13	136.00	T-Arms	3	350.00	8.00	0.75	672.60	17.217	0.75	0.00	0.00
14	127.00	T-Arms	3	350.00	8.00	0.75	670.40	17.154	0.75	0.00	0.00
15	127.00	7770.00	9	35.00	5.50	0.73	225.00	6.925	0.73	0.00	0.00
16	127.00	AM-X-CD-17-65-00T-RET	3	59.50	11.31	0.80	403.84	13.502	0.80	0.00	0.00
17	127.00	Powerwave LGP21401 TMAs	12	14.10	1.29	1.00	46.88	2.386	1.00	0.00	0.00
18	127.00	Kathrein 860 10025 RET	12	1.10	0.14	1.00	7.02	0.561	1.00	0.00	0.00
19	127.00	Ericsson RRUS-11 RRUs	3	51.00	2.52	0.71	145.77	3.350	0.71	0.00	0.00
20	127.00	Ericsson RRUS 12 RRUs	3	60.00	2.70	0.75	157.44	4.111	0.75	0.00	0.00
21	127.00	Powerwave LGP13519 Diplexer	6	5.30	0.34	1.00	17.75	0.935	1.00	0.00	0.00
22	127.00	Raycap DC6-48-60-18-8F	1	31.80	0.92	1.00	112.87	1.494	1.00	0.00	0.00
23	127.00	Powerwave 1001983 Bias T	3	4.40	0.21	1.00	11.69	0.684	1.00	0.00	0.00
Totals:			90	4,981.20			17,784.60				

Linear Appurtenances

Bottom Elev. (ft)	Top Elev. (ft)	Description	Exposed Width	Exposed
0.00	148.00	(12) 1 5/8" Coax	0.00	Inside
0.00	148.00	(1) 1 5/8" Fiber	0.00	Inside
0.00	137.00	(12) 1 5/8" Coax	0.00	Inside
0.00	137.00	(1) 1 5/8" Fiber	0.00	Inside
0.00	127.00	(12) 1 5/8" Coax	0.00	Inside
0.00	127.00	(1) 1/2" RET	0.00	Inside
0.00	127.00	(1) 3" flex Conduit	0.00	Inside
0.00	127.00	(2) 3/4" DC	0.00	Inside
0.00	127.00	(1) 7/16" Coax	0.00	Inside

Shaft Section Properties

Structure: CT11559-A-SBA	Code: EIA/TIA-222-G	9/14/2016
Site Name: Thompson 1, CT	Exposure: C	
Height: 149.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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Increment Length: 5 (ft)

Elev (ft)	Description	Thick (in)	Dia (in)	Area (in ²)	Ix (in ⁴)	W/t Ratio	D/t Ratio	Fpy (ksi)	S (in ³)	Weight (lb)
0.00		0.4375	59.063	81.405	35348.5	22.39	135.00	75.1	1178.	0.0
5.00		0.4375	57.886	79.771	33262.6	21.92	132.31	75.6	1131.	1371.1
10.00		0.4375	56.709	78.138	31260.4	21.45	129.62	76.2	1085.	1343.3
15.00		0.4375	55.533	76.504	29340.3	20.97	126.93	76.7	1040.	1315.5
18.00	Bot - Section 2	0.4375	54.827	75.524	28226.8	20.69	125.32	77.1	1014.	776.0
20.00		0.4375	54.356	74.870	27500.4	20.50	124.24	77.3	996.5	957.0
25.00	Top - Section 1	0.3750	53.930	63.741	23097.5	23.95	143.81	0.0	0.0	2356.3
30.00		0.3750	52.753	62.341	21608.3	23.39	140.67	73.9	806.8	1072.6
35.00		0.3750	51.576	60.940	20184.6	22.84	137.54	74.5	770.8	1048.7
40.00		0.3750	50.400	59.540	18824.8	22.29	134.40	75.2	735.7	1024.9
45.00		0.3750	49.223	58.139	17527.5	21.73	131.26	75.8	701.3	1001.1
50.00		0.3750	48.047	56.739	16291.2	21.18	128.12	76.5	667.8	977.3
55.00		0.3750	46.870	55.339	15114.5	20.63	124.99	77.1	635.2	953.4
60.00		0.3750	45.693	53.938	13995.8	20.07	121.85	77.8	603.3	929.6
62.00	Bot - Section 3	0.3750	45.223	53.378	13564.3	19.85	120.59	78.0	590.8	365.2
65.00		0.3750	44.517	52.538	12933.8	19.52	118.71	78.4	572.2	998.1
68.00	Top - Section 2	0.3125	44.436	43.763	10764.6	23.66	142.19	0.0	0.0	982.4
70.00		0.3125	43.965	43.296	10423.8	23.40	140.69	73.9	467.0	296.2
75.00		0.3125	42.789	42.129	9603.5	22.73	136.92	74.7	442.1	726.7
80.00		0.3125	41.612	40.962	8827.3	22.07	133.16	75.4	417.8	706.9
85.00		0.3125	40.435	39.795	8094.2	21.40	129.39	76.2	394.3	687.0
90.00		0.3125	39.259	38.628	7402.8	20.74	125.63	77.0	371.4	667.1
95.00		0.3125	38.082	37.461	6751.9	20.08	121.86	77.8	349.2	647.3
100.00		0.3125	36.906	36.294	6140.3	19.41	118.10	78.6	327.7	627.4
105.00		0.3125	35.729	35.128	5566.9	18.75	114.33	79.3	306.9	607.6
107.00	Bot - Section 4	0.3125	35.258	34.661	5347.9	18.48	112.83	79.7	298.7	237.5
110.00		0.3125	34.552	33.961	5030.3	18.09	110.57	80.1	286.7	635.0
112.00	Top - Section 3	0.2500	34.582	27.241	4056.7	22.98	138.33	0.0	0.0	416.2
115.00		0.2500	33.876	26.681	3811.6	22.48	135.50	75.0	221.6	275.2
120.00		0.2500	32.699	25.748	3425.3	21.65	130.80	75.9	206.3	446.0
125.00		0.2500	31.523	24.814	3066.0	20.82	126.09	76.9	191.6	430.1
127.00		0.2500	31.052	24.441	2929.7	20.49	124.21	77.3	185.8	167.6
130.00		0.2500	30.346	23.880	2732.8	19.99	121.38	77.9	177.4	246.6
135.00		0.2500	29.169	22.947	2424.7	19.16	116.68	78.9	163.7	398.4
136.00		0.2500	28.934	22.760	2366.0	19.00	115.74	79.1	161.1	77.8
137.00		0.2500	28.699	22.573	2308.2	18.83	114.80	79.3	158.4	77.1
140.00		0.2500	27.993	22.013	2140.6	18.33	111.97	79.8	150.6	227.6
145.00		0.2500	26.816	21.080	1879.6	17.50	107.27	80.8	138.1	366.6
148.00		0.2500	26.110	20.519	1733.7	17.01	104.44	81.4	130.8	212.3
149.00		0.2500	25.875	20.333	1686.8	16.84	103.50	81.6	128.4	69.5

26722.3

Wind Loading - Shaft

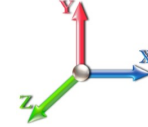
Structure: CT11559-A-SBA	Code: EIA/TIA-222-G	9/14/2016
Site Name: Thompson 1, CT	Exposure: C	
Height: 149.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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Load Case: 1.2D + 1.6W 101 mph Wind

Dead Load Factor 1.20
Wind Load Factor 1.60



Iterations 22

Elev (ft)	Description	Kzt	Kz	qz (psf)	qzGh (psf)	C (mph-ft)	Cf	Ice Thick (in)	Tributary (ft)	Aa (sf)	CfAa (sf)	Wind Force X (lb)	Dead Load Ice (lb)	Tot Dead Load (lb)
0.00		1.00	0.85	21.088	23.20	465.38	0.650	0.000	0.00	0.000	0.00	0.0	0.0	0.0
5.00		1.00	0.85	21.088	23.20	456.11	0.650	0.000	5.00	24.740	16.08	596.8	0.0	1645.3
10.00		1.00	0.85	21.088	23.20	446.84	0.650	0.000	5.00	24.242	15.76	584.8	0.0	1612.0
15.00		1.00	0.85	21.088	23.20	437.57	0.650	0.000	5.00	23.744	15.43	572.8	0.0	1578.6
18.00	Bot - Section 2	1.00	0.88	21.884	24.07	440.09	0.650	0.000	3.00	14.008	9.11	350.7	0.0	931.2
20.00		1.00	0.90	22.375	24.61	441.18	0.650	0.000	2.00	9.366	6.09	239.7	0.0	1148.4
25.00	Top - Section 1	1.00	0.95	23.451	25.80	441.89	0.650	0.000	5.00	23.066	14.99	618.8	0.0	2827.6
30.00		1.00	0.98	24.369	26.81	446.83	0.650	0.000	5.00	22.568	14.67	629.2	0.0	1287.1
35.00		1.00	1.01	25.172	27.69	444.02	0.650	0.000	5.00	22.071	14.35	635.6	0.0	1258.5
40.00		1.00	1.04	25.890	28.48	440.03	0.650	0.000	5.00	21.573	14.02	638.9	0.0	1229.9
45.00		1.00	1.07	26.540	29.19	435.12	0.650	0.000	5.00	21.075	13.70	639.9	0.0	1201.3
50.00		1.00	1.09	27.135	29.85	429.45	0.650	0.000	5.00	20.577	13.38	638.8	0.0	1172.7
55.00		1.00	1.12	27.685	30.45	423.16	0.650	0.000	5.00	20.079	13.05	636.0	0.0	1144.1
60.00		1.00	1.14	28.197	31.02	416.33	0.650	0.000	5.00	19.582	12.73	631.7	0.0	1115.5
62.00	Bot - Section 3	1.00	1.14	28.392	31.23	413.47	0.650	0.000	2.00	7.693	5.00	249.9	0.0	438.2
65.00		1.00	1.16	28.676	31.54	409.04	0.650	0.000	3.00	11.549	7.51	378.9	0.0	1197.7
68.00	Top - Section 2	1.00	1.17	28.950	31.84	404.47	0.650	0.000	3.00	11.370	7.39	376.6	0.0	1178.8
70.00		1.00	1.17	29.127	32.04	407.14	0.650	0.000	2.00	7.480	4.86	249.3	0.0	355.5
75.00		1.00	1.19	29.553	32.51	399.13	0.650	0.000	5.00	18.353	11.93	620.5	0.0	872.1
80.00		1.00	1.21	29.958	32.95	390.80	0.650	0.000	5.00	17.855	11.61	611.9	0.0	848.2
85.00		1.00	1.22	30.342	33.38	382.18	0.650	0.000	5.00	17.357	11.28	602.5	0.0	824.4
90.00		1.00	1.24	30.710	33.78	373.30	0.650	0.000	5.00	16.859	10.96	592.3	0.0	800.6
95.00		1.00	1.25	31.061	34.17	364.18	0.650	0.000	5.00	16.361	10.63	581.4	0.0	776.8
100.00		1.00	1.27	31.399	34.54	354.84	0.650	0.000	5.00	15.863	10.31	569.8	0.0	752.9
105.00		1.00	1.28	31.723	34.89	345.30	0.650	0.000	5.00	15.366	9.99	557.6	0.0	729.1
107.00	Bot - Section 4	1.00	1.28	31.849	35.03	341.43	0.650	0.000	2.00	6.007	3.90	218.9	0.0	285.0
110.00		1.00	1.29	32.035	35.24	335.56	0.650	0.000	3.00	8.988	5.84	329.4	0.0	762.0
112.00	Top - Section 3	1.00	1.30	32.157	35.37	331.62	0.650	0.000	2.00	5.892	3.83	216.8	0.0	499.4
115.00		1.00	1.30	32.336	35.57	330.54	0.650	0.000	3.00	8.689	5.65	321.4	0.0	330.3
120.00		1.00	1.32	32.627	35.89	320.49	0.650	0.000	5.00	14.084	9.15	525.7	0.0	535.2
125.00		1.00	1.33	32.909	36.20	310.29	0.650	0.000	5.00	13.586	8.83	511.5	0.0	516.1
127.00	Appurtenance(s)	1.00	1.33	33.019	36.32	306.17	0.650	0.000	2.00	5.295	3.44	200.0	0.0	201.1
130.00		1.00	1.34	33.182	36.50	299.94	0.650	0.000	3.00	7.793	5.07	295.8	0.0	296.0
135.00		1.00	1.35	33.446	36.79	289.46	0.650	0.000	5.00	12.590	8.18	481.7	0.0	478.0
136.00	Appurtenance(s)	1.00	1.35	33.498	36.85	287.35	0.650	0.000	1.00	2.458	1.60	94.2	0.0	93.3
137.00	Appurtenance(s)	1.00	1.35	33.550	36.90	285.23	0.650	0.000	1.00	2.438	1.58	93.6	0.0	92.6
140.00		1.00	1.36	33.703	37.07	278.85	0.650	0.000	3.00	7.196	4.68	277.4	0.0	273.1
145.00		1.00	1.37	33.953	37.35	268.12	0.650	0.000	5.00	11.595	7.54	450.4	0.0	439.9
148.00	Appurtenance(s)	1.00	1.37	34.100	37.51	261.62	0.650	0.000	3.00	6.718	4.37	262.1	0.0	254.8
149.00		1.00	1.38	34.148	37.56	259.45	0.650	0.000	1.00	2.199	1.43	85.9	0.0	83.4
Totals:									149.00			17,169.0		32,066.8

Discrete Appurtenance Forces

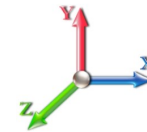
Structure: CT11559-A-SBA	Code: EIA/TIA-222-G	9/14/2016
Site Name: Thompson 1, CT	Exposure: C	
Height: 149.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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Load Case: 1.2D + 1.6W 101 mph Wind

Dead Load Factor 1.20
Wind Load Factor 1.60



Iterations 22

No.	Elev (ft)	Description	Qty	qz (psf)	qzGh (psf)	CaAa x Ka	Ka	Total CaAa (sf)	Dead Load (lb)	Horiz Ecc (ft)	Vert Ecc (ft)	Wind FX (lb)	Mom Y (lb-ft)	Mom Z (lb-ft)	
1	148.00	Commscope -	3	34.100	37.510	0.64	0.80	22.00	184.68	0.000	0.000	1320.54	0.00	0.00	
2	148.00	AIR21 B2A B4P	3	34.100	37.510	0.69	0.80	12.57	329.40	0.000	0.000	754.39	0.00	0.00	
3	148.00	AIR21 B2A B4P	3	34.100	37.510	0.69	0.80	12.57	325.44	0.000	0.000	754.39	0.00	0.00	
4	148.00	T-Arms	1	34.100	37.510	0.56	0.75	8.44	600.00	0.000	0.000	506.38	0.00	0.00	
5	148.00	Ericsson KRY112 144/1	3	34.100	37.510	0.56	0.80	0.69	39.60	0.000	0.000	41.34	0.00	0.00	
6	148.00	Ericsson RRUS11-B12	3	34.100	37.510	0.58	0.80	4.50	180.00	0.000	0.000	270.23	0.00	0.00	
7	137.00	RFS DB-T1-6Z-8AB-0Z	1	33.550	36.905	0.57	0.80	2.73	22.68	0.000	0.000	160.99	0.00	0.00	
8	137.00	ALU/RRH 2x40 AWS	3	33.550	36.905	0.85	1.00	5.51	158.40	0.000	0.000	325.24	0.00	0.00	
9	137.00	Antel/LPA-4019	2	33.550	36.905	0.80	0.80	20.38	98.40	0.000	0.000	1203.63	0.00	0.00	
10	137.00	Antel/LPA-80080-6CF	4	33.550	36.905	1.36	0.80	23.56	100.80	0.000	0.000	1390.89	0.00	0.00	
11	137.00	Antel/BXA-171085-12BF	3	33.550	36.905	0.67	0.80	9.56	54.00	0.000	0.000	564.25	0.00	0.00	
12	137.00	Antel/BXA-70063-6CF	3	33.550	36.905	0.58	0.80	13.26	61.20	0.000	0.000	783.13	0.00	0.00	
13	136.00	T-Arms	3	33.498	36.848	0.56	0.75	13.50	1260.00	0.000	0.000	795.92	0.00	0.00	
14	127.00	Kathrein 860 10025 RET	12	33.019	36.321	0.80	0.80	1.34	15.84	0.000	0.000	78.10	0.00	0.00	
15	127.00	T-Arms	3	33.019	36.321	0.56	0.75	13.50	1260.00	0.000	0.000	784.53	0.00	0.00	
16	127.00	7770.00	9	33.019	36.321	0.58	0.80	28.91	378.00	0.000	0.000	1679.94	0.00	0.00	
17	127.00	AM-X-CD-17-65-00T-RET	3	33.019	36.321	0.64	0.80	21.72	214.20	0.000	0.000	1261.94	0.00	0.00	
18	127.00	Powerwave LGP21401	12	33.019	36.321	0.80	0.80	12.38	203.04	0.000	0.000	719.67	0.00	0.00	
19	127.00	Ericsson RRUS-11 RRUs	3	33.019	36.321	0.57	0.80	4.29	183.60	0.000	0.000	249.54	0.00	0.00	
20	127.00	Ericsson RRUS 12 RRUs	3	33.019	36.321	0.60	0.80	4.86	216.00	0.000	0.000	282.43	0.00	0.00	
21	127.00	Powerwave LGP13519	6	33.019	36.321	0.80	0.80	1.63	38.16	0.000	0.000	94.84	0.00	0.00	
22	127.00	Raycap DC6-48-60-18-8F	1	33.019	36.321	0.80	0.80	0.74	38.16	0.000	0.000	42.77	0.00	0.00	
23	127.00	Powerwave 1001983 Bias	3	33.019	36.321	0.80	0.80	0.50	15.84	0.000	0.000	29.29	0.00	0.00	
Totals:									5,977.44						14,094.38

Total Applied Force Summary

Structure: CT11559-A-SBA	Code: EIA/TIA-222-G	9/14/2016
Site Name: Thompson 1, CT	Exposure: C	
Height: 149.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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Load Case: 1.2D + 1.6W 101 mph Wind

Dead Load Factor 1.20
Wind Load Factor 1.60



Iterations 22

Elev (ft)	Description	Lateral FX (-) (lb)	Axial FY (-) (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)
0.00		0.00	0.00	0.00	0.00
5.00		596.83	1899.08	0.00	0.00
10.00		584.82	1865.73	0.00	0.00
15.00		572.81	1832.37	0.00	0.00
18.00		350.69	1083.41	0.00	0.00
20.00		239.73	1249.88	0.00	0.00
25.00		618.82	3081.33	0.00	0.00
30.00		629.15	1540.82	0.00	0.00
35.00		635.57	1512.23	0.00	0.00
40.00		638.95	1483.64	0.00	0.00
45.00		639.87	1455.05	0.00	0.00
50.00		638.77	1426.46	0.00	0.00
55.00		635.95	1397.87	0.00	0.00
60.00		631.65	1369.27	0.00	0.00
62.00		249.88	539.70	0.00	0.00
65.00		378.88	1349.95	0.00	0.00
68.00		376.56	1331.07	0.00	0.00
70.00		249.26	456.99	0.00	0.00
75.00		620.48	1125.80	0.00	0.00
80.00		611.91	1101.97	0.00	0.00
85.00		602.49	1078.14	0.00	0.00
90.00		592.29	1054.32	0.00	0.00
95.00		581.38	1030.49	0.00	0.00
100.00		569.81	1006.67	0.00	0.00
105.00		557.63	982.84	0.00	0.00
107.00		218.86	386.46	0.00	0.00
110.00		329.39	914.26	0.00	0.00
112.00		216.76	600.93	0.00	0.00
115.00		321.44	482.52	0.00	0.00
120.00		525.68	788.95	0.00	0.00
125.00		511.48	769.89	0.00	0.00
127.00	(55) attachments	5423.07	2865.46	0.00	0.00
130.00		295.83	393.74	0.00	0.00
135.00		481.74	640.99	0.00	0.00
136.00	(3) attachments	890.13	1385.91	0.00	0.00
137.00	(16) attachments	4521.72	620.63	0.00	0.00
140.00		277.45	321.98	0.00	0.00
145.00		450.37	521.39	0.00	0.00
148.00	(16) attachments	3909.33	1962.80	0.00	0.00
149.00		85.92	83.41	0.00	0.00
	Totals:	31,263.37	44,994.40	0.00	0.00

Calculated Forces

Structure: CT11559-A-SBA
Site Name: Thompson 1, CT
Height: 149.00 (ft)
Base Elev: 0.000 (ft)
Gh: 1.1

Code: EIA/TIA-222-G
Exposure: C
Crest Height: 0.00
Site Class: D - Stiff Soil
Struct Class: II

9/14/2016

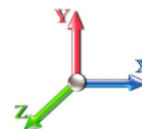
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Load Case: 1.2D + 1.6W 101 mph Wind

Iterations 22

Dead Load Factor 1.20
Wind Load Factor 1.60



Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-44.96	-31.31	0.00	-3250.7	0.00	3250.74	5499.39	2749.69	13252.7	6636.23	0.00	0.000	0.000	0.498
5.00	-42.99	-30.81	0.00	-3094.1	0.00	3094.17	5429.06	2714.53	12818.7	6418.90	0.07	-0.128	0.000	0.490
10.00	-41.06	-30.31	0.00	-2940.1	0.00	2940.12	5357.09	2678.54	12387.8	6203.11	0.27	-0.257	0.000	0.482
15.00	-39.18	-29.80	0.00	-2788.5	0.00	2788.56	5283.48	2641.74	11960.1	5988.97	0.61	-0.387	0.000	0.473
18.00	-38.06	-29.49	0.00	-2699.1	0.00	2699.16	5238.53	2619.26	11705.2	5861.33	0.88	-0.467	0.000	0.468
20.00	-36.76	-29.30	0.00	-2640.1	0.00	2640.18	5208.23	2604.11	11536.0	5776.60	1.09	-0.521	0.000	0.464
25.00	-33.62	-28.72	0.00	-2493.7	0.00	2493.70	4201.23	2100.61	9252.96	4633.35	1.71	-0.653	0.000	0.546
30.00	-32.02	-28.16	0.00	-2350.0	0.00	2350.08	4145.44	2072.72	8928.09	4470.68	2.46	-0.787	0.000	0.534
35.00	-30.45	-27.58	0.00	-2209.3	0.00	2209.31	4088.00	2044.00	8605.21	4309.00	3.37	-0.937	0.000	0.520
40.00	-28.90	-26.99	0.00	-2071.4	0.00	2071.42	4028.93	2014.47	8284.56	4148.44	4.43	-1.088	0.000	0.507
45.00	-27.39	-26.39	0.00	-1936.4	0.00	1936.48	3968.22	1984.11	7966.37	3989.11	5.65	-1.240	0.000	0.493
50.00	-25.91	-25.79	0.00	-1804.5	0.00	1804.53	3905.86	1952.93	7650.88	3831.13	7.03	-1.391	0.000	0.478
55.00	-24.46	-25.18	0.00	-1675.5	0.00	1675.58	3841.87	1920.93	7338.34	3674.63	8.57	-1.543	0.000	0.463
60.00	-23.07	-24.56	0.00	-1549.6	0.00	1549.67	3776.23	1888.12	7028.98	3519.72	10.27	-1.695	0.000	0.447
62.00	-22.50	-24.32	0.00	-1500.5	0.00	1500.56	3749.52	1874.76	6906.19	3458.23	10.99	-1.757	0.000	0.440
65.00	-21.13	-23.93	0.00	-1427.6	0.00	1427.60	3708.96	1854.48	6723.05	3366.52	12.13	-1.849	0.000	0.430
68.00	-19.78	-23.54	0.00	-1355.8	0.00	1355.81	2897.69	1448.84	5257.67	2632.74	13.32	-1.941	0.000	0.522
70.00	-19.28	-23.31	0.00	-1308.7	0.00	1308.73	2878.95	1439.48	5167.56	2587.62	14.15	-2.003	0.000	0.513
75.00	-18.11	-22.71	0.00	-1192.1	0.00	1192.17	2830.96	1415.48	4943.48	2475.42	16.34	-2.173	0.000	0.488
80.00	-16.97	-22.10	0.00	-1078.6	0.00	1078.64	2781.33	1390.66	4721.30	2364.16	18.70	-2.341	0.000	0.463
85.00	-15.86	-21.50	0.00	-968.14	0.00	968.14	2730.06	1365.03	4501.25	2253.97	21.25	-2.506	0.000	0.436
90.00	-14.77	-20.90	0.00	-860.66	0.00	860.66	2677.14	1338.57	4283.57	2144.97	23.96	-2.667	0.000	0.407
95.00	-13.72	-20.31	0.00	-756.16	0.00	756.16	2622.59	1311.30	4068.50	2037.27	26.83	-2.822	0.000	0.377
100.00	-12.69	-19.72	0.00	-654.63	0.00	654.63	2566.40	1283.20	3856.28	1931.01	29.87	-2.971	0.000	0.344
105.00	-11.71	-19.13	0.00	-556.05	0.00	556.05	2508.57	1254.28	3647.16	1826.29	33.06	-3.111	0.000	0.309
107.00	-11.31	-18.90	0.00	-517.79	0.00	517.79	2484.97	1242.49	3564.43	1784.86	34.37	-3.166	0.000	0.295
110.00	-10.40	-18.53	0.00	-461.08	0.00	461.08	2449.09	1224.55	3441.37	1723.24	36.39	-3.244	0.000	0.272
112.00	-9.79	-18.29	0.00	-424.02	0.00	424.02	1823.39	911.69	2573.73	1288.78	37.76	-3.294	0.000	0.335
115.00	-9.30	-17.96	0.00	-369.14	0.00	369.14	1799.96	899.98	2488.04	1245.87	39.85	-3.365	0.000	0.302
120.00	-8.51	-17.40	0.00	-279.34	0.00	279.34	1759.59	879.80	2346.51	1175.00	43.44	-3.486	0.000	0.243
125.00	-7.75	-16.86	0.00	-192.32	0.00	192.32	1717.59	858.79	2206.80	1105.04	47.15	-3.583	0.000	0.179
127.00	-5.23	-11.27	0.00	-158.60	0.00	158.60	1700.33	850.16	2151.49	1077.34	48.65	-3.616	0.000	0.150
130.00	-4.84	-10.95	0.00	-124.81	0.00	124.81	1673.94	836.97	2069.17	1036.12	50.94	-3.657	0.000	0.124
135.00	-4.23	-10.43	0.00	-70.06	0.00	70.06	1628.66	814.33	1933.84	968.36	54.80	-3.708	0.000	0.075
136.00	-2.90	-9.45	0.00	-59.63	0.00	59.63	1619.40	809.70	1907.07	954.95	55.57	-3.716	0.000	0.064
137.00	-2.58	-4.90	0.00	-50.17	0.00	50.17	1610.09	805.04	1880.41	941.60	56.35	-3.722	0.000	0.055
140.00	-2.27	-4.60	0.00	-35.47	0.00	35.47	1581.73	790.87	1801.05	901.87	58.70	-3.738	0.000	0.041
145.00	-1.78	-4.12	0.00	-12.45	0.00	12.45	1533.17	766.58	1671.06	836.77	62.62	-3.754	0.000	0.016
148.00	-0.08	-0.09	0.00	-0.09	0.00	0.09	1503.24	751.62	1594.49	798.43	64.98	-3.757	0.000	0.000
149.00	0.00	-0.09	0.00	0.00	0.00	0.00	1493.13	746.57	1569.22	785.78	65.76	-3.757	0.000	0.000

Wind Loading - Shaft

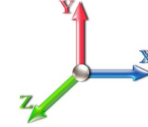
Structure: CT11559-A-SBA	Code: EIA/TIA-222-G	9/14/2016
Site Name: Thompson 1, CT	Exposure: C	
Height: 149.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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Load Case: 0.9D + 1.6W 101 mph Wind

Dead Load Factor 0.90
Wind Load Factor 1.60



Iterations 22

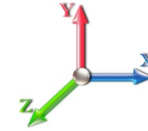
Elev (ft)	Description	Kzt	Kz	qz (psf)	qzGh (psf)	C (mph-ft)	Cf	Ice Thick (in)	Tributary (ft)	Aa (sf)	CfAa (sf)	Wind Force X (lb)	Dead Load Ice (lb)	Tot Dead Load (lb)
0.00		1.00	0.85	21.088	23.20	465.38	0.650	0.000	0.00	0.000	0.00	0.0	0.0	0.0
5.00		1.00	0.85	21.088	23.20	456.11	0.650	0.000	5.00	24.740	16.08	596.8	0.0	1234.0
10.00		1.00	0.85	21.088	23.20	446.84	0.650	0.000	5.00	24.242	15.76	584.8	0.0	1209.0
15.00		1.00	0.85	21.088	23.20	437.57	0.650	0.000	5.00	23.744	15.43	572.8	0.0	1184.0
18.00	Bot - Section 2	1.00	0.88	21.884	24.07	440.09	0.650	0.000	3.00	14.008	9.11	350.7	0.0	698.4
20.00		1.00	0.90	22.375	24.61	441.18	0.650	0.000	2.00	9.366	6.09	239.7	0.0	861.3
25.00	Top - Section 1	1.00	0.95	23.451	25.80	441.89	0.650	0.000	5.00	23.066	14.99	618.8	0.0	2120.7
30.00		1.00	0.98	24.369	26.81	446.83	0.650	0.000	5.00	22.568	14.67	629.2	0.0	965.3
35.00		1.00	1.01	25.172	27.69	444.02	0.650	0.000	5.00	22.071	14.35	635.6	0.0	943.9
40.00		1.00	1.04	25.890	28.48	440.03	0.650	0.000	5.00	21.573	14.02	638.9	0.0	922.4
45.00		1.00	1.07	26.540	29.19	435.12	0.650	0.000	5.00	21.075	13.70	639.9	0.0	901.0
50.00		1.00	1.09	27.135	29.85	429.45	0.650	0.000	5.00	20.577	13.38	638.8	0.0	879.5
55.00		1.00	1.12	27.685	30.45	423.16	0.650	0.000	5.00	20.079	13.05	636.0	0.0	858.1
60.00		1.00	1.14	28.197	31.02	416.33	0.650	0.000	5.00	19.582	12.73	631.7	0.0	836.7
62.00	Bot - Section 3	1.00	1.14	28.392	31.23	413.47	0.650	0.000	2.00	7.693	5.00	249.9	0.0	328.7
65.00		1.00	1.16	28.676	31.54	409.04	0.650	0.000	3.00	11.549	7.51	378.9	0.0	898.3
68.00	Top - Section 2	1.00	1.17	28.950	31.84	404.47	0.650	0.000	3.00	11.370	7.39	376.6	0.0	884.1
70.00		1.00	1.17	29.127	32.04	407.14	0.650	0.000	2.00	7.480	4.86	249.3	0.0	266.6
75.00		1.00	1.19	29.553	32.51	399.13	0.650	0.000	5.00	18.353	11.93	620.5	0.0	654.0
80.00		1.00	1.21	29.958	32.95	390.80	0.650	0.000	5.00	17.855	11.61	611.9	0.0	636.2
85.00		1.00	1.22	30.342	33.38	382.18	0.650	0.000	5.00	17.357	11.28	602.5	0.0	618.3
90.00		1.00	1.24	30.710	33.78	373.30	0.650	0.000	5.00	16.859	10.96	592.3	0.0	600.4
95.00		1.00	1.25	31.061	34.17	364.18	0.650	0.000	5.00	16.361	10.63	581.4	0.0	582.6
100.00		1.00	1.27	31.399	34.54	354.84	0.650	0.000	5.00	15.863	10.31	569.8	0.0	564.7
105.00		1.00	1.28	31.723	34.89	345.30	0.650	0.000	5.00	15.366	9.99	557.6	0.0	546.8
107.00	Bot - Section 4	1.00	1.28	31.849	35.03	341.43	0.650	0.000	2.00	6.007	3.90	218.9	0.0	213.7
110.00		1.00	1.29	32.035	35.24	335.56	0.650	0.000	3.00	8.988	5.84	329.4	0.0	571.5
112.00	Top - Section 3	1.00	1.30	32.157	35.37	331.62	0.650	0.000	2.00	5.892	3.83	216.8	0.0	374.6
115.00		1.00	1.30	32.336	35.57	330.54	0.650	0.000	3.00	8.689	5.65	321.4	0.0	247.7
120.00		1.00	1.32	32.627	35.89	320.49	0.650	0.000	5.00	14.084	9.15	525.7	0.0	401.4
125.00		1.00	1.33	32.909	36.20	310.29	0.650	0.000	5.00	13.586	8.83	511.5	0.0	387.1
127.00	Appurtenance(s)	1.00	1.33	33.019	36.32	306.17	0.650	0.000	2.00	5.295	3.44	200.0	0.0	150.8
130.00		1.00	1.34	33.182	36.50	299.94	0.650	0.000	3.00	7.793	5.07	295.8	0.0	222.0
135.00		1.00	1.35	33.446	36.79	289.46	0.650	0.000	5.00	12.590	8.18	481.7	0.0	358.5
136.00	Appurtenance(s)	1.00	1.35	33.498	36.85	287.35	0.650	0.000	1.00	2.458	1.60	94.2	0.0	70.0
137.00	Appurtenance(s)	1.00	1.35	33.550	36.90	285.23	0.650	0.000	1.00	2.438	1.58	93.6	0.0	69.4
140.00		1.00	1.36	33.703	37.07	278.85	0.650	0.000	3.00	7.196	4.68	277.4	0.0	204.8
145.00		1.00	1.37	33.953	37.35	268.12	0.650	0.000	5.00	11.595	7.54	450.4	0.0	329.9
148.00	Appurtenance(s)	1.00	1.37	34.100	37.51	261.62	0.650	0.000	3.00	6.718	4.37	262.1	0.0	191.1
149.00		1.00	1.38	34.148	37.56	259.45	0.650	0.000	1.00	2.199	1.43	85.9	0.0	62.6
Totals:									149.00			17,169.0		24,050.1

Discrete Appurtenance Forces

Structure: CT11559-A-SBA	Code: EIA/TIA-222-G	9/14/2016	
Site Name: Thompson 1, CT	Exposure: C		
Height: 149.00 (ft)	Crest Height: 0.00		
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil		
Gh: 1.1	Topography: 1	Struct Class: II	
		Page: 13	

Load Case: 0.9D + 1.6W 101 mph Wind

Dead Load Factor 0.90
Wind Load Factor 1.60



Iterations 22

No.	Elev (ft)	Description	Qty	qz (psf)	qzGh (psf)	CaAa x Ka	Ka	Total CaAa (sf)	Dead Load (lb)	Horiz Ecc (ft)	Vert Ecc (ft)	Wind FX (lb)	Mom Y (lb-ft)	Mom Z (lb-ft)	
1	148.00	Commscope -	3	34.100	37.510	0.64	0.80	22.00	138.51	0.000	0.000	1320.54	0.00	0.00	
2	148.00	AIR21 B2A B4P	3	34.100	37.510	0.69	0.80	12.57	247.05	0.000	0.000	754.39	0.00	0.00	
3	148.00	AIR21 B2A B4P	3	34.100	37.510	0.69	0.80	12.57	244.08	0.000	0.000	754.39	0.00	0.00	
4	148.00	T-Arms	1	34.100	37.510	0.56	0.75	8.44	450.00	0.000	0.000	506.38	0.00	0.00	
5	148.00	Ericsson KRY112 144/1	3	34.100	37.510	0.56	0.80	0.69	29.70	0.000	0.000	41.34	0.00	0.00	
6	148.00	Ericsson RRUS11-B12	3	34.100	37.510	0.58	0.80	4.50	135.00	0.000	0.000	270.23	0.00	0.00	
7	137.00	RFS DB-T1-6Z-8AB-0Z	1	33.550	36.905	0.57	0.80	2.73	17.01	0.000	0.000	160.99	0.00	0.00	
8	137.00	ALU/RRH 2x40 AWS	3	33.550	36.905	0.85	1.00	5.51	118.80	0.000	0.000	325.24	0.00	0.00	
9	137.00	Antel/LPA-4019	2	33.550	36.905	0.80	0.80	20.38	73.80	0.000	0.000	1203.63	0.00	0.00	
10	137.00	Antel/LPA-80080-6CF	4	33.550	36.905	1.36	0.80	23.56	75.60	0.000	0.000	1390.89	0.00	0.00	
11	137.00	Antel/BXA-171085-12BF	3	33.550	36.905	0.67	0.80	9.56	40.50	0.000	0.000	564.25	0.00	0.00	
12	137.00	Antel/BXA-70063-6CF	3	33.550	36.905	0.58	0.80	13.26	45.90	0.000	0.000	783.13	0.00	0.00	
13	136.00	T-Arms	3	33.498	36.848	0.56	0.75	13.50	945.00	0.000	0.000	795.92	0.00	0.00	
14	127.00	Kathrein 860 10025 RET	12	33.019	36.321	0.80	0.80	1.34	11.88	0.000	0.000	78.10	0.00	0.00	
15	127.00	T-Arms	3	33.019	36.321	0.56	0.75	13.50	945.00	0.000	0.000	784.53	0.00	0.00	
16	127.00	7770.00	9	33.019	36.321	0.58	0.80	28.91	283.50	0.000	0.000	1679.94	0.00	0.00	
17	127.00	AM-X-CD-17-65-00T-RET	3	33.019	36.321	0.64	0.80	21.72	160.65	0.000	0.000	1261.94	0.00	0.00	
18	127.00	Powerwave LGP21401	12	33.019	36.321	0.80	0.80	12.38	152.28	0.000	0.000	719.67	0.00	0.00	
19	127.00	Ericsson RRUS-11 RRUs	3	33.019	36.321	0.57	0.80	4.29	137.70	0.000	0.000	249.54	0.00	0.00	
20	127.00	Ericsson RRUS 12 RRUs	3	33.019	36.321	0.60	0.80	4.86	162.00	0.000	0.000	282.43	0.00	0.00	
21	127.00	Powerwave LGP13519	6	33.019	36.321	0.80	0.80	1.63	28.62	0.000	0.000	94.84	0.00	0.00	
22	127.00	Raycap DC6-48-60-18-8F	1	33.019	36.321	0.80	0.80	0.74	28.62	0.000	0.000	42.77	0.00	0.00	
23	127.00	Powerwave 1001983 Bias	3	33.019	36.321	0.80	0.80	0.50	11.88	0.000	0.000	29.29	0.00	0.00	
Totals:									4,483.08						14,094.38

Total Applied Force Summary

Structure: CT11559-A-SBA	Code: EIA/TIA-222-G	9/14/2016
Site Name: Thompson 1, CT	Exposure: C	
Height: 149.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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Load Case: 0.9D + 1.6W 101 mph Wind

Dead Load Factor 0.90
Wind Load Factor 1.60



Iterations 22

Elev (ft)	Description	Lateral FX (-) (lb)	Axial FY (-) (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)
0.00		0.00	0.00	0.00	0.00
5.00		596.83	1424.31	0.00	0.00
10.00		584.82	1399.30	0.00	0.00
15.00		572.81	1374.28	0.00	0.00
18.00		350.69	812.56	0.00	0.00
20.00		239.73	937.41	0.00	0.00
25.00		618.82	2311.00	0.00	0.00
30.00		629.15	1155.62	0.00	0.00
35.00		635.57	1134.17	0.00	0.00
40.00		638.95	1112.73	0.00	0.00
45.00		639.87	1091.29	0.00	0.00
50.00		638.77	1069.84	0.00	0.00
55.00		635.95	1048.40	0.00	0.00
60.00		631.65	1026.96	0.00	0.00
62.00		249.88	404.78	0.00	0.00
65.00		378.88	1012.46	0.00	0.00
68.00		376.56	998.31	0.00	0.00
70.00		249.26	342.74	0.00	0.00
75.00		620.48	844.35	0.00	0.00
80.00		611.91	826.48	0.00	0.00
85.00		602.49	808.61	0.00	0.00
90.00		592.29	790.74	0.00	0.00
95.00		581.38	772.87	0.00	0.00
100.00		569.81	755.00	0.00	0.00
105.00		557.63	737.13	0.00	0.00
107.00		218.86	289.85	0.00	0.00
110.00		329.39	685.70	0.00	0.00
112.00		216.76	450.70	0.00	0.00
115.00		321.44	361.89	0.00	0.00
120.00		525.68	591.71	0.00	0.00
125.00		511.48	577.42	0.00	0.00
127.00	(55) attachments	5423.07	2149.09	0.00	0.00
130.00		295.83	295.31	0.00	0.00
135.00		481.74	480.74	0.00	0.00
136.00	(3) attachments	890.13	1039.43	0.00	0.00
137.00	(16) attachments	4521.72	465.47	0.00	0.00
140.00		277.45	241.49	0.00	0.00
145.00		450.37	391.04	0.00	0.00
148.00	(16) attachments	3909.33	1472.10	0.00	0.00
149.00		85.92	62.55	0.00	0.00
	Totals:	31,263.37	33,745.80	0.00	0.00

Calculated Forces

Structure: CT11559-A-SBA	Code: EIA/TIA-222-G	9/14/2016
Site Name: Thompson 1, CT	Exposure: C	
Height: 149.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



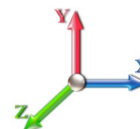
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Load Case: 0.9D + 1.6W 101 mph Wind

Iterations 22

Dead Load Factor 0.90

Wind Load Factor 1.60



Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-33.71	-31.30	0.00	-3230.6	0.00	3230.69	5499.39	2749.69	13252.7	6636.23	0.00	0.000	0.000	0.493
5.00	-32.22	-30.77	0.00	-3074.1	0.00	3074.19	5429.06	2714.53	12818.7	6418.90	0.07	-0.127	0.000	0.485
10.00	-30.75	-30.25	0.00	-2920.3	0.00	2920.32	5357.09	2678.54	12387.8	6203.11	0.27	-0.255	0.000	0.477
15.00	-29.33	-29.73	0.00	-2769.0	0.00	2769.05	5283.48	2641.74	11960.1	5988.97	0.61	-0.384	0.000	0.468
18.00	-28.48	-29.40	0.00	-2679.8	0.00	2679.88	5238.53	2619.26	11705.2	5861.33	0.88	-0.464	0.000	0.463
20.00	-27.50	-29.20	0.00	-2621.0	0.00	2621.07	5208.23	2604.11	11536.0	5776.60	1.08	-0.517	0.000	0.459
25.00	-25.13	-28.62	0.00	-2475.0	0.00	2475.08	4201.23	2100.61	9252.96	4633.35	1.69	-0.649	0.000	0.540
30.00	-23.91	-28.03	0.00	-2332.0	0.00	2332.00	4145.44	2072.72	8928.09	4470.68	2.45	-0.782	0.000	0.528
35.00	-22.72	-27.44	0.00	-2191.8	0.00	2191.85	4088.00	2044.00	8605.21	4309.00	3.35	-0.931	0.000	0.514
40.00	-21.55	-26.84	0.00	-2054.6	0.00	2054.66	4028.93	2014.47	8284.56	4148.44	4.40	-1.080	0.000	0.501
45.00	-20.40	-26.23	0.00	-1920.4	0.00	1920.49	3968.22	1984.11	7966.37	3989.11	5.61	-1.231	0.000	0.487
50.00	-19.28	-25.62	0.00	-1789.3	0.00	1789.35	3905.86	1952.93	7650.88	3831.13	6.98	-1.381	0.000	0.472
55.00	-18.18	-25.00	0.00	-1661.2	0.00	1661.28	3841.87	1920.93	7338.34	3674.63	8.51	-1.532	0.000	0.457
60.00	-17.13	-24.37	0.00	-1536.2	0.00	1536.28	3776.23	1888.12	7028.98	3519.72	10.20	-1.682	0.000	0.441
62.00	-16.70	-24.13	0.00	-1487.5	0.00	1487.53	3749.52	1874.76	6906.19	3458.23	10.91	-1.744	0.000	0.435
65.00	-15.66	-23.75	0.00	-1415.1	0.00	1415.14	3708.96	1854.48	6723.05	3366.52	12.04	-1.835	0.000	0.425
68.00	-14.64	-23.36	0.00	-1343.9	0.00	1343.90	2897.69	1448.84	5257.67	2632.74	13.22	-1.926	0.000	0.516
70.00	-14.26	-23.13	0.00	-1297.1	0.00	1297.18	2878.95	1439.48	5167.56	2587.62	14.04	-1.987	0.000	0.507
75.00	-13.37	-22.51	0.00	-1181.5	0.00	1181.56	2830.96	1415.48	4943.48	2475.42	16.22	-2.156	0.000	0.482
80.00	-12.51	-21.91	0.00	-1068.9	0.00	1068.99	2781.33	1390.66	4721.30	2364.16	18.56	-2.323	0.000	0.457
85.00	-11.67	-21.30	0.00	-959.45	0.00	959.45	2730.06	1365.03	4501.25	2253.97	21.09	-2.486	0.000	0.430
90.00	-10.85	-20.71	0.00	-852.94	0.00	852.94	2677.14	1338.57	4283.57	2144.97	23.77	-2.646	0.000	0.402
95.00	-10.05	-20.12	0.00	-749.41	0.00	749.41	2622.59	1311.30	4068.50	2037.27	26.63	-2.799	0.000	0.372
100.00	-9.28	-19.53	0.00	-648.83	0.00	648.83	2566.40	1283.20	3856.28	1931.01	29.64	-2.947	0.000	0.340
105.00	-8.54	-18.95	0.00	-551.18	0.00	551.18	2508.57	1254.28	3647.16	1826.29	32.80	-3.086	0.000	0.305
107.00	-8.24	-18.73	0.00	-513.28	0.00	513.28	2484.97	1242.49	3564.43	1784.86	34.11	-3.140	0.000	0.291
110.00	-7.55	-18.37	0.00	-457.10	0.00	457.10	2449.09	1224.55	3441.37	1723.24	36.10	-3.218	0.000	0.269
112.00	-7.09	-18.13	0.00	-420.37	0.00	420.37	1823.39	911.69	2573.73	1288.78	37.46	-3.267	0.000	0.330
115.00	-6.72	-17.80	0.00	-365.97	0.00	365.97	1799.96	899.98	2488.04	1245.87	39.54	-3.337	0.000	0.298
120.00	-6.13	-17.25	0.00	-276.96	0.00	276.96	1759.59	879.80	2346.51	1175.00	43.10	-3.457	0.000	0.240
125.00	-5.57	-16.71	0.00	-190.69	0.00	190.69	1717.59	858.79	2206.80	1105.04	46.77	-3.554	0.000	0.176
127.00	-3.75	-11.17	0.00	-157.26	0.00	157.26	1700.33	850.16	2151.49	1077.34	48.27	-3.586	0.000	0.148
130.00	-3.47	-10.86	0.00	-123.75	0.00	123.75	1673.94	836.97	2069.17	1036.12	50.54	-3.627	0.000	0.122
135.00	-3.01	-10.35	0.00	-69.46	0.00	69.46	1628.66	814.33	1933.84	968.36	54.36	-3.677	0.000	0.074
136.00	-2.03	-9.39	0.00	-59.11	0.00	59.11	1619.40	809.70	1907.07	954.95	55.13	-3.685	0.000	0.063
137.00	-1.86	-4.85	0.00	-49.71	0.00	49.71	1610.09	805.04	1880.41	941.60	55.90	-3.691	0.000	0.054
140.00	-1.63	-4.56	0.00	-35.15	0.00	35.15	1581.73	790.87	1801.05	901.87	58.23	-3.707	0.000	0.040
145.00	-1.27	-4.09	0.00	-12.35	0.00	12.35	1533.17	766.58	1671.06	836.77	62.12	-3.723	0.000	0.016
148.00	-0.06	-0.09	0.00	-0.09	0.00	0.09	1503.24	751.62	1594.49	798.43	64.46	-3.726	0.000	0.000
149.00	0.00	-0.09	0.00	0.00	0.00	0.00	1493.13	746.57	1569.22	785.78	65.24	-3.726	0.000	0.000

Wind Loading - Shaft

Structure: CT11559-A-SBA	Code: EIA/TIA-222-G	9/14/2016
Site Name: Thompson 1, CT	Exposure: C	
Height: 149.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II

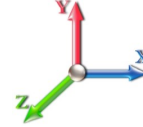


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Load Case: 1.2D + 1.0Di + 1.0Wi 50 mph Wind

Iterations 22

Dead Load Factor 1.20
Wind Load Factor 1.00



Elev (ft)	Description	Kzt	Kz	qz (psf)	qzGh (psf)	C (mph-ft)	Cf	Ice Thick (in)	Tributary (ft)	Aa (sf)	CfAa (sf)	Wind Force X (lb)	Dead Load Ice (lb)	Tot Dead Load (lb)
0.00		1.00	0.85	5.168	5.68	0.00	1.200	0.000	0.00	0.000	0.00	0.0	0.0	0.0
5.00		1.00	0.85	5.168	5.68	0.00	1.200	1.656	5.00	26.120	31.34	178.2	617.7	2263.0
10.00		1.00	0.85	5.168	5.68	0.00	1.200	1.775	5.00	25.721	30.87	175.5	650.2	2262.2
15.00		1.00	0.85	5.168	5.68	0.00	1.200	1.848	5.00	25.285	30.34	172.5	664.3	2243.0
18.00	Bot - Section 2	1.00	0.88	5.363	5.90	0.00	1.200	1.882	3.00	14.949	17.94	105.8	401.2	1332.3
20.00		1.00	0.90	5.483	6.03	0.00	1.200	1.902	2.00	10.000	12.00	72.4	271.7	1420.1
25.00	Top - Section 1	1.00	0.95	5.747	6.32	0.00	1.200	1.945	5.00	24.687	29.62	187.3	680.8	3508.4
30.00		1.00	0.98	5.972	6.57	0.00	1.200	1.981	5.00	24.219	29.06	190.9	679.1	1966.2
35.00		1.00	1.01	6.169	6.79	0.00	1.200	2.012	5.00	23.747	28.50	193.4	675.2	1933.7
40.00		1.00	1.04	6.345	6.98	0.00	1.200	2.039	5.00	23.272	27.93	194.9	669.6	1899.5
45.00		1.00	1.07	6.504	7.15	0.00	1.200	2.063	5.00	22.794	27.35	195.7	662.6	1863.9
50.00		1.00	1.09	6.650	7.32	0.00	1.200	2.085	5.00	22.315	26.78	195.9	654.6	1827.3
55.00		1.00	1.12	6.785	7.46	0.00	1.200	2.105	5.00	21.833	26.20	195.5	645.6	1789.7
60.00		1.00	1.14	6.910	7.60	0.00	1.200	2.123	5.00	21.351	25.62	194.8	635.8	1751.3
62.00	Bot - Section 3	1.00	1.14	6.958	7.65	0.00	1.200	2.130	2.00	8.403	10.08	77.2	252.7	690.9
65.00		1.00	1.16	7.028	7.73	0.00	1.200	2.140	3.00	12.619	15.14	117.1	380.2	1577.9
68.00	Top - Section 2	1.00	1.17	7.095	7.80	0.00	1.200	2.150	3.00	12.445	14.93	116.5	376.3	1555.2
70.00		1.00	1.17	7.138	7.85	0.00	1.200	2.156	2.00	8.199	9.84	77.3	249.1	604.6
75.00		1.00	1.19	7.243	7.97	0.00	1.200	2.171	5.00	20.162	24.19	192.8	611.3	1483.3
80.00		1.00	1.21	7.342	8.08	0.00	1.200	2.185	5.00	19.676	23.61	190.7	599.3	1447.5
85.00		1.00	1.22	7.436	8.18	0.00	1.200	2.198	5.00	19.189	23.03	188.4	586.9	1411.3
90.00		1.00	1.24	7.526	8.28	0.00	1.200	2.211	5.00	18.702	22.44	185.8	574.1	1374.7
95.00		1.00	1.25	7.612	8.37	0.00	1.200	2.223	5.00	18.214	21.86	183.0	561.0	1337.8
100.00		1.00	1.27	7.695	8.46	0.00	1.200	2.234	5.00	17.726	21.27	180.0	547.6	1300.5
105.00		1.00	1.28	7.774	8.55	0.00	1.200	2.245	5.00	17.237	20.68	176.9	533.9	1263.0
107.00	Bot - Section 4	1.00	1.28	7.805	8.59	0.00	1.200	2.250	2.00	6.757	8.11	69.6	211.3	496.3
110.00		1.00	1.29	7.851	8.64	0.00	1.200	2.256	3.00	10.116	12.14	104.8	316.2	1078.2
112.00	Top - Section 3	1.00	1.30	7.881	8.67	0.00	1.200	2.260	2.00	6.646	7.97	69.1	208.5	707.9
115.00		1.00	1.30	7.925	8.72	0.00	1.200	2.266	3.00	9.822	11.79	102.7	307.6	637.9
120.00		1.00	1.32	7.996	8.80	0.00	1.200	2.276	5.00	15.980	19.18	168.7	498.3	1033.5
125.00		1.00	1.33	8.065	8.87	0.00	1.200	2.285	5.00	15.490	18.59	164.9	483.6	999.7
127.00	Appurtenance(s)	1.00	1.33	8.092	8.90	0.00	1.200	2.289	2.00	6.058	7.27	64.7	191.1	392.2
130.00		1.00	1.34	8.132	8.95	0.00	1.200	2.294	3.00	8.940	10.73	96.0	281.2	577.2
135.00		1.00	1.35	8.197	9.02	0.00	1.200	2.303	5.00	14.509	17.41	157.0	453.6	931.6
136.00	Appurtenance(s)	1.00	1.35	8.210	9.03	0.00	1.200	2.304	1.00	2.842	3.41	30.8	90.1	183.4
137.00	Appurtenance(s)	1.00	1.35	8.222	9.04	0.00	1.200	2.306	1.00	2.823	3.39	30.6	89.5	182.1
140.00		1.00	1.36	8.260	9.09	0.00	1.200	2.311	3.00	8.351	10.02	91.1	263.0	536.1
145.00		1.00	1.37	8.321	9.15	0.00	1.200	2.319	5.00	13.527	16.23	148.6	422.9	862.8
148.00	Appurtenance(s)	1.00	1.37	8.357	9.19	0.00	1.200	2.324	3.00	7.880	9.46	86.9	248.1	502.9
149.00		1.00	1.38	8.369	9.21	0.00	1.200	2.325	1.00	2.587	3.10	28.6	82.1	165.5
Totals:								149.00			5,352.4	49,394.6		

Discrete Appurtenance Forces

Structure: CT11559-A-SBA	Code: EIA/TIA-222-G	9/14/2016
Site Name: Thompson 1, CT	Exposure: C	
Height: 149.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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Load Case: 1.2D + 1.0Di + 1.0Wi 50 mph Wind

Dead Load Factor 1.20
Wind Load Factor 1.00



Iterations 22

No.	Elev (ft)	Description	Qty	qz (psf)	qzGh (psf)	CaAa x Ka	Ka	Total CaAa (sf)	Dead Load (lb)	Horiz Ecc (ft)	Vert Ecc (ft)	Wind FX (lb)	Mom Y (lb-ft)	Mom Z (lb-ft)
1	148.00	Commscope -	3	8.357	9.193	0.64	0.80	30.33	904.84	0.000	0.000	278.79	0.00	0.00
2	148.00	AIR21 B2A B4P	3	8.357	9.193	0.69	0.80	15.65	1048.04	0.000	0.000	143.88	0.00	0.00
3	148.00	AIR21 B2A B4P	3	8.357	9.193	0.69	0.80	15.65	1044.08	0.000	0.000	143.88	0.00	0.00
4	148.00	T-Arms	1	8.357	9.193	0.56	0.75	23.08	1147.15	0.000	0.000	212.15	0.00	0.00
5	148.00	Ericsson KRY112 144/1	3	8.357	9.193	0.56	0.80	1.75	73.37	0.000	0.000	16.10	0.00	0.00
6	148.00	Ericsson RRUS11-B12	3	8.357	9.193	0.58	0.80	6.01	395.84	0.000	0.000	55.24	0.00	0.00
7	137.00	RFS DB-T1-6Z-8AB-0Z	1	8.222	9.044	0.57	0.80	3.40	223.67	0.000	0.000	30.72	0.00	0.00
8	137.00	ALU/RRH 2x40 AWS	3	8.222	9.044	0.85	1.00	9.04	346.91	0.000	0.000	81.75	0.00	0.00
9	137.00	Antel/LPA-4019	2	8.222	9.044	0.80	0.80	77.62	971.74	0.000	0.000	702.00	0.00	0.00
10	137.00	Antel/LPA-80080-6CF	4	8.222	9.044	1.36	0.80	33.44	797.77	0.000	0.000	302.46	0.00	0.00
11	137.00	Antel/BXA-171085-12BF	3	8.222	9.044	0.67	0.80	15.81	348.70	0.000	0.000	143.03	0.00	0.00
12	137.00	Antel/BXA-70063-6CF	3	8.222	9.044	0.58	0.80	16.25	799.68	0.000	0.000	146.95	0.00	0.00
13	136.00	T-Arms	3	8.210	9.031	0.56	0.75	29.05	2017.79	0.000	0.000	262.37	0.00	0.00
14	127.00	Kathrein 860 10025 RET	12	8.092	8.901	0.80	0.80	5.38	70.03	0.000	0.000	47.93	0.00	0.00
15	127.00	T-Arms	3	8.092	8.901	0.56	0.75	28.95	2011.19	0.000	0.000	257.67	0.00	0.00
16	127.00	7770.00	9	8.092	8.901	0.58	0.80	36.40	2088.01	0.000	0.000	324.00	0.00	0.00
17	127.00	AM-X-CD-17-65-00T-RET	3	8.092	8.901	0.64	0.80	25.92	1247.22	0.000	0.000	230.76	0.00	0.00
18	127.00	Powerwave LGP21401	12	8.092	8.901	0.80	0.80	22.90	511.26	0.000	0.000	203.88	0.00	0.00
19	127.00	Ericsson RRUS-11 RRUs	3	8.092	8.901	0.57	0.80	5.71	419.92	0.000	0.000	50.82	0.00	0.00
20	127.00	Ericsson RRUS 12 RRUs	3	8.092	8.901	0.60	0.80	7.40	444.71	0.000	0.000	65.87	0.00	0.00
21	127.00	Powerwave LGP13519	6	8.092	8.901	0.80	0.80	4.49	96.69	0.000	0.000	39.97	0.00	0.00
22	127.00	Raycap DC6-48-60-18-8F	1	8.092	8.901	0.80	0.80	1.20	101.53	0.000	0.000	10.64	0.00	0.00
23	127.00	Powerwave 1001983 Bias	3	8.092	8.901	0.80	0.80	1.64	33.22	0.000	0.000	14.61	0.00	0.00
Totals:									17,143.34			3,765.49		

Total Applied Force Summary

Structure: CT11559-A-SBA	Code: EIA/TIA-222-G	9/14/2016
Site Name: Thompson 1, CT	Exposure: C	
Height: 149.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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Load Case: 1.2D + 1.0Di + 1.0Wi 50 mph Wind

Dead Load Factor 1.20
Wind Load Factor 1.00



Iterations 22

Elev (ft)	Description	Lateral FX (-) (lb)	Axial FY (-) (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)
0.00		0.00	0.00	0.00	0.00
5.00		178.19	2516.75	0.00	0.00
10.00		175.47	2515.94	0.00	0.00
15.00		172.49	2496.69	0.00	0.00
18.00		105.83	1484.58	0.00	0.00
20.00		72.38	1521.58	0.00	0.00
25.00		187.29	3762.09	0.00	0.00
30.00		190.92	2219.94	0.00	0.00
35.00		193.38	2187.45	0.00	0.00
40.00		194.91	2153.24	0.00	0.00
45.00		195.70	2117.68	0.00	0.00
50.00		195.88	2081.01	0.00	0.00
55.00		195.54	2043.43	0.00	0.00
60.00		194.76	2005.07	0.00	0.00
62.00		77.18	792.38	0.00	0.00
65.00		117.07	1730.18	0.00	0.00
68.00		116.55	1707.40	0.00	0.00
70.00		77.26	706.09	0.00	0.00
75.00		192.76	1737.05	0.00	0.00
80.00		190.68	1701.26	0.00	0.00
85.00		188.35	1665.05	0.00	0.00
90.00		185.79	1628.46	0.00	0.00
95.00		183.02	1591.52	0.00	0.00
100.00		180.04	1554.26	0.00	0.00
105.00		176.89	1516.71	0.00	0.00
107.00		69.62	597.78	0.00	0.00
110.00		104.83	1230.42	0.00	0.00
112.00		69.13	809.44	0.00	0.00
115.00		102.75	790.15	0.00	0.00
120.00		168.67	1287.21	0.00	0.00
125.00		164.91	1253.47	0.00	0.00
127.00	(55) attachments	1310.87	7517.46	0.00	0.00
130.00		95.96	674.96	0.00	0.00
135.00		156.99	1094.60	0.00	0.00
136.00	(3) attachments	293.17	2233.82	0.00	0.00
137.00	(16) attachments	1437.55	3703.12	0.00	0.00
140.00		91.05	584.99	0.00	0.00
145.00		148.58	944.29	0.00	0.00
148.00	(16) attachments	936.97	5165.13	0.00	0.00
149.00		28.58	165.49	0.00	0.00
	Totals:	9,117.93	73,488.16	0.00	0.00

Calculated Forces

Structure: CT11559-A-SBA
Site Name: Thompson 1, CT
Height: 149.00 (ft)
Base Elev: 0.000 (ft)
Gh: 1.1

Topography: 1

Code: EIA/TIA-222-G
Exposure: C
Crest Height: 0.00
Site Class: D - Stiff Soil
Struct Class: II

9/14/2016

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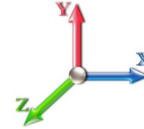


Load Case: 1.2D + 1.0Di + 1.0Wi 50 mph Wind

Iterations 22

Dead Load Factor 1.20

Wind Load Factor 1.00



Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-73.49	-9.14	0.00	-957.11	0.00	957.11	5499.39	2749.69	13252.7	6636.23	0.00	0.000	0.000	0.158
5.00	-70.96	-9.01	0.00	-911.40	0.00	911.40	5429.06	2714.53	12818.7	6418.90	0.02	-0.038	0.000	0.155
10.00	-68.44	-8.88	0.00	-866.35	0.00	866.35	5357.09	2678.54	12387.8	6203.11	0.08	-0.076	0.000	0.152
15.00	-65.94	-8.74	0.00	-821.96	0.00	821.96	5283.48	2641.74	11960.1	5988.97	0.18	-0.114	0.000	0.150
18.00	-64.45	-8.65	0.00	-795.75	0.00	795.75	5238.53	2619.26	11705.2	5861.33	0.26	-0.138	0.000	0.148
20.00	-62.93	-8.60	0.00	-778.45	0.00	778.45	5208.23	2604.11	11536.0	5776.60	0.32	-0.153	0.000	0.147
25.00	-59.16	-8.45	0.00	-735.43	0.00	735.43	4201.23	2100.61	9252.96	4633.35	0.50	-0.193	0.000	0.173
30.00	-56.93	-8.29	0.00	-693.21	0.00	693.21	4145.44	2072.72	8928.09	4470.68	0.73	-0.232	0.000	0.169
35.00	-54.74	-8.13	0.00	-651.77	0.00	651.77	4088.00	2044.00	8605.21	4309.00	0.99	-0.276	0.000	0.165
40.00	-52.58	-7.96	0.00	-611.13	0.00	611.13	4028.93	2014.47	8284.56	4148.44	1.31	-0.321	0.000	0.160
45.00	-50.46	-7.79	0.00	-571.32	0.00	571.32	3968.22	1984.11	7966.37	3989.11	1.67	-0.366	0.000	0.156
50.00	-48.37	-7.62	0.00	-532.35	0.00	532.35	3905.86	1952.93	7650.88	3831.13	2.07	-0.410	0.000	0.151
55.00	-46.33	-7.45	0.00	-494.25	0.00	494.25	3841.87	1920.93	7338.34	3674.63	2.53	-0.455	0.000	0.147
60.00	-44.32	-7.26	0.00	-457.02	0.00	457.02	3776.23	1888.12	7028.98	3519.72	3.03	-0.500	0.000	0.142
62.00	-43.53	-7.19	0.00	-442.50	0.00	442.50	3749.52	1874.76	6906.19	3458.23	3.24	-0.518	0.000	0.140
65.00	-41.79	-7.08	0.00	-420.92	0.00	420.92	3708.96	1854.48	6723.05	3366.52	3.58	-0.545	0.000	0.136
68.00	-40.08	-6.96	0.00	-399.68	0.00	399.68	2897.69	1448.84	5257.67	2632.74	3.93	-0.572	0.000	0.166
70.00	-39.37	-6.90	0.00	-385.76	0.00	385.76	2878.95	1439.48	5167.56	2587.62	4.17	-0.591	0.000	0.163
75.00	-37.63	-6.72	0.00	-351.26	0.00	351.26	2830.96	1415.48	4943.48	2475.42	4.82	-0.641	0.000	0.155
80.00	-35.93	-6.54	0.00	-317.65	0.00	317.65	2781.33	1390.66	4721.30	2364.16	5.52	-0.690	0.000	0.147
85.00	-34.26	-6.36	0.00	-284.94	0.00	284.94	2730.06	1365.03	4501.25	2253.97	6.26	-0.739	0.000	0.139
90.00	-32.63	-6.18	0.00	-253.13	0.00	253.13	2677.14	1338.57	4283.57	2144.97	7.06	-0.786	0.000	0.130
95.00	-31.04	-6.00	0.00	-222.22	0.00	222.22	2622.59	1311.30	4068.50	2037.27	7.91	-0.832	0.000	0.121
100.00	-29.48	-5.82	0.00	-192.22	0.00	192.22	2566.40	1283.20	3856.28	1931.01	8.81	-0.876	0.000	0.111
105.00	-27.97	-5.63	0.00	-163.13	0.00	163.13	2508.57	1254.28	3647.16	1826.29	9.75	-0.917	0.000	0.100
107.00	-27.37	-5.56	0.00	-151.87	0.00	151.87	2484.97	1242.49	3564.43	1784.86	10.13	-0.933	0.000	0.096
110.00	-26.14	-5.45	0.00	-135.18	0.00	135.18	2449.09	1224.55	3441.37	1723.24	10.73	-0.956	0.000	0.089
112.00	-25.33	-5.37	0.00	-124.29	0.00	124.29	1823.39	911.69	2573.73	1288.78	11.13	-0.970	0.000	0.110
115.00	-24.54	-5.27	0.00	-108.18	0.00	108.18	1799.96	899.98	2488.04	1245.87	11.75	-0.991	0.000	0.100
120.00	-23.25	-5.09	0.00	-81.85	0.00	81.85	1759.59	879.80	2346.51	1175.00	12.81	-1.026	0.000	0.083
125.00	-22.00	-4.91	0.00	-56.41	0.00	56.41	1717.59	858.79	2206.80	1105.04	13.90	-1.055	0.000	0.064
127.00	-14.50	-3.46	0.00	-46.60	0.00	46.60	1700.33	850.16	2151.49	1077.34	14.34	-1.065	0.000	0.052
130.00	-13.83	-3.36	0.00	-36.22	0.00	36.22	1673.94	836.97	2069.17	1036.12	15.02	-1.077	0.000	0.043
135.00	-12.74	-3.18	0.00	-19.44	0.00	19.44	1628.66	814.33	1933.84	968.36	16.15	-1.091	0.000	0.028
136.00	-10.51	-2.84	0.00	-16.26	0.00	16.26	1619.40	809.70	1907.07	954.95	16.38	-1.093	0.000	0.024
137.00	-6.84	-1.34	0.00	-13.42	0.00	13.42	1610.09	805.04	1880.41	941.60	16.61	-1.095	0.000	0.018
140.00	-6.25	-1.23	0.00	-9.41	0.00	9.41	1581.73	790.87	1801.05	901.87	17.30	-1.099	0.000	0.014
145.00	-5.31	-1.07	0.00	-3.24	0.00	3.24	1533.17	766.58	1671.06	836.77	18.45	-1.104	0.000	0.007
148.00	-0.16	-0.03	0.00	-0.03	0.00	0.03	1503.24	751.62	1594.49	798.43	19.15	-1.104	0.000	0.000
149.00	0.00	-0.03	0.00	0.00	0.00	0.00	1493.13	746.57	1569.22	785.78	19.38	-1.104	0.000	0.000

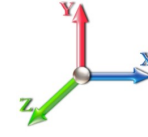
Seismic Segment Forces (Factored)

Structure: CT11559-A-SBA	Code: EIA/TIA-222-G	9/14/2016
Site Name: Thompson 1, CT	Exposure: C	
Height: 149.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



Page: 20

Load Case: 1.2D + 1.0E					Iterations 20
Gust Response Factor	1.10			Sds 0.18	Ss 0.17
Dead Load Factor	1.20	Seismic Load Factor	1.00	Sd1 0.10	S1 0.06
Wind Load Factor	0.00	Structure Frequency	0.49	SA 0.05	Seismic Importance Factor 1.00



Top Elev (ft)	Description	Wz (lb)	a	b	c	Lateral Fs (lb)	R: 1.50
0.00		0.00	0.00	0.00	0.00	0.00	
5.00		1371.1	0.00	0.03	0.02	18.44	
10.00		1343.3	0.01	0.05	0.03	27.40	
15.00		1315.5	0.02	0.06	0.04	31.70	
18.00	Bot - Section 2	775.97	0.03	0.07	0.04	19.75	
20.00		956.99	0.03	0.07	0.04	25.00	
25.00	Top - Section 1	2356.3	0.05	0.07	0.04	64.51	
30.00		1072.5	0.08	0.07	0.04	30.38	
35.00		1048.7	0.10	0.07	0.04	30.60	
40.00		1024.9	0.14	0.07	0.03	30.73	
45.00		1001.0	0.17	0.07	0.03	30.61	
50.00		977.26	0.21	0.06	0.02	30.01	
55.00		953.44	0.26	0.05	0.02	28.59	
60.00		929.61	0.31	0.04	0.01	26.02	
62.00	Bot - Section 3	365.17	0.33	0.04	0.01	9.77	
65.00		998.08	0.36	0.03	0.01	24.30	
68.00	Top - Section 2	982.36	0.39	0.02	0.01	20.87	
70.00		296.24	0.42	0.01	0.01	5.57	
75.00		726.71	0.48	-0.01	0.01	8.34	
80.00		706.86	0.54	-0.03	0.01	2.08	
85.00		687.00	0.62	-0.06	0.02	-3.92	
90.00		667.15	0.69	-0.08	0.03	-8.73	
95.00		647.29	0.77	-0.11	0.05	-11.52	
100.00		627.44	0.85	-0.12	0.07	-11.78	
105.00		607.58	0.94	-0.12	0.10	-9.29	
107.00	Bot - Section 4	237.47	0.97	-0.12	0.12	-2.98	
110.00		635.01	1.03	-0.10	0.15	-4.42	
112.00	Top - Section 3	416.19	1.07	-0.09	0.17	-0.92	
115.00		275.23	1.13	-0.05	0.20	1.77	
120.00		446.01	1.23	0.03	0.27	11.12	
125.00		430.12	1.33	0.16	0.36	20.91	
127.00	Appurtenance(s)	2303.3	1.37	0.23	0.40	137.17	
130.00		246.64	1.44	0.36	0.47	19.13	
135.00		398.36	1.55	0.64	0.61	44.53	
136.00	Appurtenance(s)	1127.7	1.57	0.70	0.64	134.50	
137.00	Appurtenance(s)	490.03	1.60	0.77	0.67	62.22	
140.00		227.58	1.67	1.01	0.77	34.45	
145.00		366.59	1.79	1.49	0.96	72.02	
148.00	Appurtenance(s)	1594.9	1.86	1.85	1.09	360.72	
149.00		69.51	1.89	1.98	1.14	16.44	
Totals:		31,703.5				1,326.0	Total Wind: 31,263.4

Seismic Base Shear is Less Than 50% of Wind Force - An Analysis is NOT Required

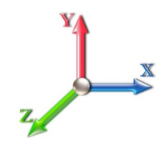
Calculated Forces

Structure: CT11559-A-SBA	Code: EIA/TIA-222-G	9/14/2016
Site Name: Thompson 1, CT	Exposure: C	
Height: 149.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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Load Case: 1.2D + 1.0E										Iterations 20
Gust Response Factor	1.10						Sds	0.18		Ss 0.17
Dead Load Factor	1.20	Seismic Load Factor	1.00	Sd1	0.10					S1 0.06
Wind Load Factor	0.00	Structure Frequency	0.49	SA	0.05	Seismic Importance Factor	1.00			



Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-44.99	-1.38	0.00	-149.00	0.00	149.00	5499.39	2749.69	13252.7	6636.23	0.00	0.00	0.00	0.031
5.00	-43.10	-1.37	0.00	-142.10	0.00	142.10	5429.06	2714.53	12818.7	6418.90	0.00	-0.01	0.00	0.030
10.00	-41.23	-1.34	0.00	-135.26	0.00	135.26	5357.09	2678.54	12387.8	6203.11	0.01	-0.01	0.00	0.030
15.00	-39.40	-1.31	0.00	-128.55	0.00	128.55	5283.48	2641.74	11960.1	5988.97	0.03	-0.02	0.00	0.029
18.00	-38.31	-1.30	0.00	-124.60	0.00	124.60	5238.53	2619.26	11705.2	5861.33	0.04	-0.02	0.00	0.029
20.00	-37.06	-1.27	0.00	-122.01	0.00	122.01	5208.23	2604.11	11536.0	5776.60	0.05	-0.02	0.00	0.028
25.00	-33.98	-1.21	0.00	-115.64	0.00	115.64	4201.23	2100.61	9252.96	4633.35	0.08	-0.03	0.00	0.033
30.00	-32.44	-1.18	0.00	-109.58	0.00	109.58	4145.44	2072.72	8928.09	4470.68	0.11	-0.04	0.00	0.032
35.00	-30.93	-1.16	0.00	-103.66	0.00	103.66	4088.00	2044.00	8605.21	4309.00	0.16	-0.04	0.00	0.032
40.00	-29.44	-1.13	0.00	-97.88	0.00	97.88	4028.93	2014.47	8284.56	4148.44	0.20	-0.05	0.00	0.031
45.00	-27.99	-1.10	0.00	-92.24	0.00	92.24	3968.22	1984.11	7966.37	3989.11	0.26	-0.06	0.00	0.030
50.00	-26.56	-1.07	0.00	-86.74	0.00	86.74	3905.86	1952.93	7650.88	3831.13	0.33	-0.06	0.00	0.029
55.00	-25.17	-1.04	0.00	-81.38	0.00	81.38	3841.87	1920.93	7338.34	3674.63	0.40	-0.07	0.00	0.029
60.00	-23.80	-1.02	0.00	-76.16	0.00	76.16	3776.23	1888.12	7028.98	3519.72	0.48	-0.08	0.00	0.028
62.00	-23.26	-1.01	0.00	-74.12	0.00	74.12	3749.52	1874.76	6906.19	3458.23	0.51	-0.08	0.00	0.028
65.00	-21.91	-0.99	0.00	-71.09	0.00	71.09	3708.96	1854.48	6723.05	3366.52	0.56	-0.09	0.00	0.027
68.00	-20.57	-0.96	0.00	-68.14	0.00	68.14	2897.69	1448.84	5257.67	2632.74	0.62	-0.09	0.00	0.033
70.00	-20.12	-0.96	0.00	-66.21	0.00	66.21	2878.95	1439.48	5167.56	2587.62	0.66	-0.09	0.00	0.033
75.00	-18.99	-0.95	0.00	-61.41	0.00	61.41	2830.96	1415.48	4943.48	2475.42	0.76	-0.10	0.00	0.032
80.00	-17.89	-0.95	0.00	-56.65	0.00	56.65	2781.33	1390.66	4721.30	2364.16	0.88	-0.11	0.00	0.030
85.00	-16.81	-0.95	0.00	-51.90	0.00	51.90	2730.06	1365.03	4501.25	2253.97	1.00	-0.12	0.00	0.029
90.00	-15.76	-0.95	0.00	-47.14	0.00	47.14	2677.14	1338.57	4283.57	2144.97	1.13	-0.13	0.00	0.028
95.00	-14.73	-0.95	0.00	-42.38	0.00	42.38	2622.59	1311.30	4068.50	2037.27	1.27	-0.14	0.00	0.026
100.00	-13.72	-0.95	0.00	-37.63	0.00	37.63	2566.40	1283.20	3856.28	1931.01	1.42	-0.15	0.00	0.025
105.00	-12.74	-0.95	0.00	-32.88	0.00	32.88	2508.57	1254.28	3647.16	1826.29	1.58	-0.16	0.00	0.023
107.00	-12.35	-0.95	0.00	-30.98	0.00	30.98	2484.97	1242.49	3564.43	1784.86	1.65	-0.16	0.00	0.022
110.00	-11.44	-0.95	0.00	-28.13	0.00	28.13	2449.09	1224.55	3441.37	1723.24	1.75	-0.16	0.00	0.021
112.00	-10.83	-0.95	0.00	-26.24	0.00	26.24	1823.39	911.69	2573.73	1288.78	1.82	-0.17	0.00	0.026
115.00	-10.35	-0.94	0.00	-23.40	0.00	23.40	1799.96	899.98	2488.04	1245.87	1.92	-0.17	0.00	0.025
120.00	-9.56	-0.93	0.00	-18.68	0.00	18.68	1759.59	879.80	2346.51	1175.00	2.10	-0.18	0.00	0.021
125.00	-8.79	-0.91	0.00	-14.02	0.00	14.02	1717.59	858.79	2206.80	1105.04	2.30	-0.19	0.00	0.018
127.00	-5.93	-0.76	0.00	-12.20	0.00	12.20	1700.33	850.16	2151.49	1077.34	2.37	-0.19	0.00	0.015
130.00	-5.53	-0.74	0.00	-9.91	0.00	9.91	1673.94	836.97	2069.17	1036.12	2.49	-0.19	0.00	0.013
135.00	-4.89	-0.70	0.00	-6.19	0.00	6.19	1628.66	814.33	1933.84	968.36	2.69	-0.19	0.00	0.009
136.00	-3.51	-0.56	0.00	-5.50	0.00	5.50	1619.40	809.70	1907.07	954.95	2.74	-0.20	0.00	0.008
137.00	-2.89	-0.49	0.00	-4.94	0.00	4.94	1610.09	805.04	1880.41	941.60	2.78	-0.20	0.00	0.007
140.00	-2.57	-0.46	0.00	-3.46	0.00	3.46	1581.73	790.87	1801.05	901.87	2.90	-0.20	0.00	0.005
145.00	-2.04	-0.38	0.00	-1.17	0.00	1.17	1533.17	766.58	1671.06	836.77	3.11	-0.20	0.00	0.003
148.00	-0.08	-0.02	0.00	-0.02	0.00	0.02	1503.24	751.62	1594.49	798.43	3.23	-0.20	0.00	0.000
149.00	0.00	-0.02	0.00	0.00	0.00	0.00	1493.13	746.57	1569.22	785.78	3.28	-0.20	0.00	0.000

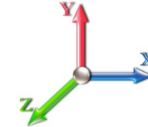
Seismic Segment Forces (Factored)

Structure: CT11559-A-SBA	Code: EIA/TIA-222-G	9/14/2016
Site Name: Thompson 1, CT	Exposure: C	
Height: 149.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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Load Case: 0.9D + 1.0E					Iterations 20
Gust Response Factor	1.10	Sds	0.18	Ss	0.17
Dead Load Factor	0.90	Seismic Load Factor	1.00	Sd1	0.10
Wind Load Factor	0.00	Structure Frequency	0.49	SA	0.05
					Seismic Importance Factor 1.00



Top Elev (ft)	Description	Wz (lb)	a	b	c	Lateral Fs (lb)	R: 1.50
0.00		0.00	0.00	0.00	0.00	0.00	
5.00		1371.1	0.00	0.03	0.02	18.44	
10.00		1343.3	0.01	0.05	0.03	27.40	
15.00		1315.5	0.02	0.06	0.04	31.70	
18.00	Bot - Section 2	775.97	0.03	0.07	0.04	19.75	
20.00		956.99	0.03	0.07	0.04	25.00	
25.00	Top - Section 1	2356.3	0.05	0.07	0.04	64.51	
30.00		1072.5	0.08	0.07	0.04	30.38	
35.00		1048.7	0.10	0.07	0.04	30.60	
40.00		1024.9	0.14	0.07	0.03	30.73	
45.00		1001.0	0.17	0.07	0.03	30.61	
50.00		977.26	0.21	0.06	0.02	30.01	
55.00		953.44	0.26	0.05	0.02	28.59	
60.00		929.61	0.31	0.04	0.01	26.02	
62.00	Bot - Section 3	365.17	0.33	0.04	0.01	9.77	
65.00		998.08	0.36	0.03	0.01	24.30	
68.00	Top - Section 2	982.36	0.39	0.02	0.01	20.87	
70.00		296.24	0.42	0.01	0.01	5.57	
75.00		726.71	0.48	-0.01	0.01	8.34	
80.00		706.86	0.54	-0.03	0.01	2.08	
85.00		687.00	0.62	-0.06	0.02	-3.92	
90.00		667.15	0.69	-0.08	0.03	-8.73	
95.00		647.29	0.77	-0.11	0.05	-11.52	
100.00		627.44	0.85	-0.12	0.07	-11.78	
105.00		607.58	0.94	-0.12	0.10	-9.29	
107.00	Bot - Section 4	237.47	0.97	-0.12	0.12	-2.98	
110.00		635.01	1.03	-0.10	0.15	-4.42	
112.00	Top - Section 3	416.19	1.07	-0.09	0.17	-0.92	
115.00		275.23	1.13	-0.05	0.20	1.77	
120.00		446.01	1.23	0.03	0.27	11.12	
125.00		430.12	1.33	0.16	0.36	20.91	
127.00	Appurtenance(s)	2303.3	1.37	0.23	0.40	137.17	
130.00		246.64	1.44	0.36	0.47	19.13	
135.00		398.36	1.55	0.64	0.61	44.53	
136.00	Appurtenance(s)	1127.7	1.57	0.70	0.64	134.50	
137.00	Appurtenance(s)	490.03	1.60	0.77	0.67	62.22	
140.00		227.58	1.67	1.01	0.77	34.45	
145.00		366.59	1.79	1.49	0.96	72.02	
148.00	Appurtenance(s)	1594.9	1.86	1.85	1.09	360.72	
149.00		69.51	1.89	1.98	1.14	16.44	
Totals:		31,703.5				1,326.0	Total Wind: 31,263.4

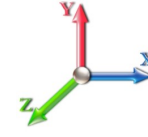
Seismic Base Shear is Less Than 50% of Wind Force - An Analysis is NOT Required

Calculated Forces

Structure: CT11559-A-SBA	Code: EIA/TIA-222-G	9/14/2016
Site Name: Thompson 1, CT	Exposure: C	
Height: 149.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



Load Case: 0.9D + 1.0E						Iterations 20
Gust Response Factor	1.10			Sds	0.18	Ss 0.17
Dead Load Factor	0.90	Seismic Load Factor	1.00	Sd1	0.10	S1 0.06
Wind Load Factor	0.00	Structure Frequency	0.49	SA	0.05	Seismic Importance Factor 1.00



Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-33.75	-1.38	0.00	-148.04	0.00	148.04	5499.39	2749.69	13252.7	6636.23	0.00	0.00	0.00	0.028
5.00	-32.32	-1.37	0.00	-141.13	0.00	141.13	5429.06	2714.53	12818.7	6418.90	0.00	-0.01	0.00	0.028
10.00	-30.92	-1.34	0.00	-134.31	0.00	134.31	5357.09	2678.54	12387.8	6203.11	0.01	-0.01	0.00	0.027
15.00	-29.55	-1.31	0.00	-127.60	0.00	127.60	5283.48	2641.74	11960.1	5988.97	0.03	-0.02	0.00	0.027
18.00	-28.73	-1.29	0.00	-123.67	0.00	123.67	5238.53	2619.26	11705.2	5861.33	0.04	-0.02	0.00	0.027
20.00	-27.80	-1.27	0.00	-121.08	0.00	121.08	5208.23	2604.11	11536.0	5776.60	0.05	-0.02	0.00	0.026
25.00	-25.49	-1.21	0.00	-114.73	0.00	114.73	4201.23	2100.61	9252.96	4633.35	0.08	-0.03	0.00	0.031
30.00	-24.33	-1.18	0.00	-108.70	0.00	108.70	4145.44	2072.72	8928.09	4470.68	0.11	-0.04	0.00	0.030
35.00	-23.20	-1.15	0.00	-102.81	0.00	102.81	4088.00	2044.00	8605.21	4309.00	0.15	-0.04	0.00	0.030
40.00	-22.08	-1.12	0.00	-97.06	0.00	97.06	4028.93	2014.47	8284.56	4148.44	0.20	-0.05	0.00	0.029
45.00	-20.99	-1.09	0.00	-91.45	0.00	91.45	3968.22	1984.11	7966.37	3989.11	0.26	-0.06	0.00	0.028
50.00	-19.92	-1.06	0.00	-85.99	0.00	85.99	3905.86	1952.93	7650.88	3831.13	0.32	-0.06	0.00	0.028
55.00	-18.87	-1.04	0.00	-80.68	0.00	80.68	3841.87	1920.93	7338.34	3674.63	0.39	-0.07	0.00	0.027
60.00	-17.85	-1.01	0.00	-75.50	0.00	75.50	3776.23	1888.12	7028.98	3519.72	0.47	-0.08	0.00	0.026
62.00	-17.44	-1.00	0.00	-73.48	0.00	73.48	3749.52	1874.76	6906.19	3458.23	0.51	-0.08	0.00	0.026
65.00	-16.43	-0.98	0.00	-70.47	0.00	70.47	3708.96	1854.48	6723.05	3366.52	0.56	-0.09	0.00	0.025
68.00	-15.43	-0.96	0.00	-67.54	0.00	67.54	2897.69	1448.84	5257.67	2632.74	0.62	-0.09	0.00	0.031
70.00	-15.09	-0.95	0.00	-65.63	0.00	65.63	2878.95	1439.48	5167.56	2587.62	0.65	-0.09	0.00	0.031
75.00	-14.24	-0.94	0.00	-60.88	0.00	60.88	2830.96	1415.48	4943.48	2475.42	0.76	-0.10	0.00	0.030
80.00	-13.42	-0.94	0.00	-56.17	0.00	56.17	2781.33	1390.66	4721.30	2364.16	0.87	-0.11	0.00	0.029
85.00	-12.61	-0.94	0.00	-51.46	0.00	51.46	2730.06	1365.03	4501.25	2253.97	0.99	-0.12	0.00	0.027
90.00	-11.82	-0.94	0.00	-46.75	0.00	46.75	2677.14	1338.57	4283.57	2144.97	1.12	-0.13	0.00	0.026
95.00	-11.04	-0.94	0.00	-42.04	0.00	42.04	2622.59	1311.30	4068.50	2037.27	1.26	-0.14	0.00	0.025
100.00	-10.29	-0.94	0.00	-37.33	0.00	37.33	2566.40	1283.20	3856.28	1931.01	1.41	-0.15	0.00	0.023
105.00	-9.55	-0.94	0.00	-32.63	0.00	32.63	2508.57	1254.28	3647.16	1826.29	1.57	-0.15	0.00	0.022
107.00	-9.26	-0.94	0.00	-30.75	0.00	30.75	2484.97	1242.49	3564.43	1784.86	1.63	-0.16	0.00	0.021
110.00	-8.58	-0.94	0.00	-27.93	0.00	27.93	2449.09	1224.55	3441.37	1723.24	1.73	-0.16	0.00	0.020
112.00	-8.13	-0.94	0.00	-26.05	0.00	26.05	1823.39	911.69	2573.73	1288.78	1.80	-0.16	0.00	0.025
115.00	-7.76	-0.94	0.00	-23.23	0.00	23.23	1799.96	899.98	2488.04	1245.87	1.91	-0.17	0.00	0.023
120.00	-7.17	-0.92	0.00	-18.55	0.00	18.55	1759.59	879.80	2346.51	1175.00	2.09	-0.18	0.00	0.020
125.00	-6.59	-0.90	0.00	-13.93	0.00	13.93	1717.59	858.79	2206.80	1105.04	2.28	-0.18	0.00	0.016
127.00	-4.45	-0.76	0.00	-12.13	0.00	12.13	1700.33	850.16	2151.49	1077.34	2.35	-0.19	0.00	0.014
130.00	-4.15	-0.74	0.00	-9.85	0.00	9.85	1673.94	836.97	2069.17	1036.12	2.47	-0.19	0.00	0.012
135.00	-3.67	-0.69	0.00	-6.16	0.00	6.16	1628.66	814.33	1933.84	968.36	2.67	-0.19	0.00	0.009
136.00	-2.63	-0.55	0.00	-5.47	0.00	5.47	1619.40	809.70	1907.07	954.95	2.71	-0.19	0.00	0.007
137.00	-2.17	-0.49	0.00	-4.91	0.00	4.91	1610.09	805.04	1880.41	941.60	2.75	-0.19	0.00	0.007
140.00	-1.92	-0.46	0.00	-3.44	0.00	3.44	1581.73	790.87	1801.05	901.87	2.88	-0.20	0.00	0.005
145.00	-1.53	-0.38	0.00	-1.16	0.00	1.16	1533.17	766.58	1671.06	836.77	3.08	-0.20	0.00	0.002
148.00	-0.06	-0.02	0.00	-0.02	0.00	0.02	1503.24	751.62	1594.49	798.43	3.21	-0.20	0.00	0.000
149.00	0.00	-0.02	0.00	0.00	0.00	0.00	1493.13	746.57	1569.22	785.78	3.25	-0.20	0.00	0.000

Wind Loading - Shaft

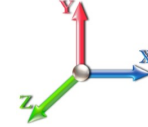
Structure: CT11559-A-SBA	Code: EIA/TIA-222-G	9/14/2016
Site Name: Thompson 1, CT	Exposure: C	
Height: 149.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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Load Case: 1.0D + 1.0W 60 mph Wind

Dead Load Factor 1.00
Wind Load Factor 1.00



Iterations 21

Elev (ft)	Description	Kzt	Kz	qz (psf)	qzGh (psf)	C (mph-ft)	Cf	Ice Thick (in)	Tributary (ft)	Aa (sf)	CfAa (sf)	Wind Force X (lb)	Dead Load Ice (lb)	Tot Dead Load (lb)
0.00		1.00	0.85	7.442	8.19	276.46	0.650	0.000	0.00	0.000	0.00	0.0	0.0	0.0
5.00		1.00	0.85	7.442	8.19	270.96	0.650	0.000	5.00	24.740	16.08	131.6	0.0	1371.1
10.00		1.00	0.85	7.442	8.19	265.45	0.650	0.000	5.00	24.242	15.76	129.0	0.0	1343.3
15.00		1.00	0.85	7.442	8.19	259.94	0.650	0.000	5.00	23.744	15.43	126.3	0.0	1315.5
18.00	Bot - Section 2	1.00	0.88	7.723	8.50	261.44	0.650	0.000	3.00	14.008	9.11	77.3	0.0	776.0
20.00		1.00	0.90	7.896	8.69	262.09	0.650	0.000	2.00	9.366	6.09	52.9	0.0	957.0
25.00	Top - Section 1	1.00	0.95	8.276	9.10	262.51	0.650	0.000	5.00	23.066	14.99	136.5	0.0	2356.3
30.00		1.00	0.98	8.600	9.46	265.45	0.650	0.000	5.00	22.568	14.67	138.8	0.0	1072.6
35.00		1.00	1.01	8.883	9.77	263.77	0.650	0.000	5.00	22.071	14.35	140.2	0.0	1048.7
40.00		1.00	1.04	9.137	10.05	261.40	0.650	0.000	5.00	21.573	14.02	140.9	0.0	1024.9
45.00		1.00	1.07	9.366	10.30	258.49	0.650	0.000	5.00	21.075	13.70	141.1	0.0	1001.1
50.00		1.00	1.09	9.576	10.53	255.12	0.650	0.000	5.00	20.577	13.38	140.9	0.0	977.3
55.00		1.00	1.12	9.770	10.75	251.38	0.650	0.000	5.00	20.079	13.05	140.3	0.0	953.4
60.00		1.00	1.14	9.951	10.95	247.33	0.650	0.000	5.00	19.582	12.73	139.3	0.0	929.6
62.00	Bot - Section 3	1.00	1.14	10.020	11.02	245.63	0.650	0.000	2.00	7.693	5.00	55.1	0.0	365.2
65.00		1.00	1.16	10.120	11.13	243.00	0.650	0.000	3.00	11.549	7.51	83.6	0.0	998.1
68.00	Top - Section 2	1.00	1.17	10.217	11.24	240.28	0.650	0.000	3.00	11.370	7.39	83.1	0.0	982.4
70.00		1.00	1.17	10.279	11.31	241.87	0.650	0.000	2.00	7.480	4.86	55.0	0.0	296.2
75.00		1.00	1.19	10.430	11.47	237.11	0.650	0.000	5.00	18.353	11.93	136.9	0.0	726.7
80.00		1.00	1.21	10.572	11.63	232.16	0.650	0.000	5.00	17.855	11.61	135.0	0.0	706.9
85.00		1.00	1.22	10.708	11.78	227.04	0.650	0.000	5.00	17.357	11.28	132.9	0.0	687.0
90.00		1.00	1.24	10.838	11.92	221.76	0.650	0.000	5.00	16.859	10.96	130.6	0.0	667.1
95.00		1.00	1.25	10.962	12.06	216.35	0.650	0.000	5.00	16.361	10.63	128.2	0.0	647.3
100.00		1.00	1.27	11.081	12.19	210.80	0.650	0.000	5.00	15.863	10.31	125.7	0.0	627.4
105.00		1.00	1.28	11.195	12.31	205.13	0.650	0.000	5.00	15.366	9.99	123.0	0.0	607.6
107.00	Bot - Section 4	1.00	1.28	11.240	12.36	202.83	0.650	0.000	2.00	6.007	3.90	48.3	0.0	237.5
110.00		1.00	1.29	11.305	12.44	199.35	0.650	0.000	3.00	8.988	5.84	72.7	0.0	635.0
112.00	Top - Section 3	1.00	1.30	11.348	12.48	197.00	0.650	0.000	2.00	5.892	3.83	47.8	0.0	416.2
115.00		1.00	1.30	11.412	12.55	196.36	0.650	0.000	3.00	8.689	5.65	70.9	0.0	275.2
120.00		1.00	1.32	11.514	12.67	190.39	0.650	0.000	5.00	14.084	9.15	115.9	0.0	446.0
125.00		1.00	1.33	11.614	12.78	184.33	0.650	0.000	5.00	13.586	8.83	112.8	0.0	430.1
127.00	Appurtenance(s)	1.00	1.33	11.653	12.82	181.88	0.650	0.000	2.00	5.295	3.44	44.1	0.0	167.6
130.00		1.00	1.34	11.710	12.88	178.18	0.650	0.000	3.00	7.793	5.07	65.2	0.0	246.6
135.00		1.00	1.35	11.803	12.98	171.96	0.650	0.000	5.00	12.590	8.18	106.3	0.0	398.4
136.00	Appurtenance(s)	1.00	1.35	11.822	13.00	170.70	0.650	0.000	1.00	2.458	1.60	20.8	0.0	77.8
137.00	Appurtenance(s)	1.00	1.35	11.840	13.02	169.44	0.650	0.000	1.00	2.438	1.58	20.6	0.0	77.1
140.00		1.00	1.36	11.894	13.08	165.65	0.650	0.000	3.00	7.196	4.68	61.2	0.0	227.6
145.00		1.00	1.37	11.982	13.18	159.28	0.650	0.000	5.00	11.595	7.54	99.3	0.0	366.6
148.00	Appurtenance(s)	1.00	1.37	12.034	13.24	155.42	0.650	0.000	3.00	6.718	4.37	57.8	0.0	212.3
149.00		1.00	1.38	12.051	13.26	154.13	0.650	0.000	1.00	2.199	1.43	19.0	0.0	69.5
Totals:									149.00			3,786.9		26,722.3

Discrete Appurtenance Forces

Structure: CT11559-A-SBA	Code: EIA/TIA-222-G	9/14/2016
Site Name: Thompson 1, CT	Exposure: C	
Height: 149.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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Load Case: 1.0D + 1.0W 60 mph Wind

Dead Load Factor 1.00
Wind Load Factor 1.00



Iterations 21

No.	Elev (ft)	Description	Qty	qz (psf)	qzGh (psf)	CaAa x Ka	Ka	Total CaAa (sf)	Dead Load (lb)	Horiz Ecc (ft)	Vert Ecc (ft)	Wind FX (lb)	Mom Y (lb-ft)	Mom Z (lb-ft)	
1	148.00	Commscope -	3	12.034	13.238	0.64	0.80	22.00	153.90	0.000	0.000	291.27	0.00	0.00	
2	148.00	AIR21 B2A B4P	3	12.034	13.238	0.69	0.80	12.57	274.50	0.000	0.000	166.39	0.00	0.00	
3	148.00	AIR21 B2A B4P	3	12.034	13.238	0.69	0.80	12.57	271.20	0.000	0.000	166.39	0.00	0.00	
4	148.00	T-Arms	1	12.034	13.238	0.56	0.75	8.44	500.00	0.000	0.000	111.69	0.00	0.00	
5	148.00	Ericsson KRY112 144/1	3	12.034	13.238	0.56	0.80	0.69	33.00	0.000	0.000	9.12	0.00	0.00	
6	148.00	Ericsson RRUS11-B12	3	12.034	13.238	0.58	0.80	4.50	150.00	0.000	0.000	59.60	0.00	0.00	
7	137.00	RFS DB-T1-6Z-8AB-OZ	1	11.840	13.024	0.57	0.80	2.73	18.90	0.000	0.000	35.51	0.00	0.00	
8	137.00	ALU/RRH 2x40 AWS	3	11.840	13.024	0.85	1.00	5.51	132.00	0.000	0.000	71.74	0.00	0.00	
9	137.00	Antel/LPA-4019	2	11.840	13.024	0.80	0.80	20.38	82.00	0.000	0.000	265.48	0.00	0.00	
10	137.00	Antel/LPA-80080-6CF	4	11.840	13.024	1.36	0.80	23.56	84.00	0.000	0.000	306.78	0.00	0.00	
11	137.00	Antel/BXA-171085-12BF	3	11.840	13.024	0.67	0.80	9.56	45.00	0.000	0.000	124.46	0.00	0.00	
12	137.00	Antel/BXA-70063-6CF	3	11.840	13.024	0.58	0.80	13.26	51.00	0.000	0.000	172.73	0.00	0.00	
13	136.00	T-Arms	3	11.822	13.004	0.56	0.75	13.50	1050.00	0.000	0.000	175.55	0.00	0.00	
14	127.00	Kathrein 860 10025 RET	12	11.653	12.818	0.80	0.80	1.34	13.20	0.000	0.000	17.23	0.00	0.00	
15	127.00	T-Arms	3	11.653	12.818	0.56	0.75	13.50	1050.00	0.000	0.000	173.04	0.00	0.00	
16	127.00	7770.00	9	11.653	12.818	0.58	0.80	28.91	315.00	0.000	0.000	370.54	0.00	0.00	
17	127.00	AM-X-CD-17-65-00T-RET	3	11.653	12.818	0.64	0.80	21.72	178.50	0.000	0.000	278.34	0.00	0.00	
18	127.00	Powerwave LGP21401	12	11.653	12.818	0.80	0.80	12.38	169.20	0.000	0.000	158.74	0.00	0.00	
19	127.00	Ericsson RRUS-11 RRUs	3	11.653	12.818	0.57	0.80	4.29	153.00	0.000	0.000	55.04	0.00	0.00	
20	127.00	Ericsson RRUS 12 RRUs	3	11.653	12.818	0.60	0.80	4.86	180.00	0.000	0.000	62.29	0.00	0.00	
21	127.00	Powerwave LGP13519	6	11.653	12.818	0.80	0.80	1.63	31.80	0.000	0.000	20.92	0.00	0.00	
22	127.00	Raycap DC6-48-60-18-8F	1	11.653	12.818	0.80	0.80	0.74	31.80	0.000	0.000	9.43	0.00	0.00	
23	127.00	Powerwave 1001983 Bias	3	11.653	12.818	0.80	0.80	0.50	13.20	0.000	0.000	6.46	0.00	0.00	
Totals:									4,981.20						3,108.75

Total Applied Force Summary

Structure: CT11559-A-SBA	Code: EIA/TIA-222-G	9/14/2016
Site Name: Thompson 1, CT	Exposure: C	
Height: 149.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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Load Case: 1.0D + 1.0W 60 mph Wind

Dead Load Factor 1.00
Wind Load Factor 1.00



Iterations 21

Elev (ft)	Description	Lateral FX (-) (lb)	Axial FY (-) (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)
0.00		0.00	0.00	0.00	0.00
5.00		131.64	1582.57	0.00	0.00
10.00		128.99	1554.77	0.00	0.00
15.00		126.34	1526.98	0.00	0.00
18.00		77.35	902.84	0.00	0.00
20.00		52.88	1041.57	0.00	0.00
25.00		136.49	2567.78	0.00	0.00
30.00		138.77	1284.02	0.00	0.00
35.00		140.19	1260.19	0.00	0.00
40.00		140.93	1236.37	0.00	0.00
45.00		141.13	1212.54	0.00	0.00
50.00		140.89	1188.71	0.00	0.00
55.00		140.27	1164.89	0.00	0.00
60.00		139.32	1141.06	0.00	0.00
62.00		55.12	449.75	0.00	0.00
65.00		83.57	1124.95	0.00	0.00
68.00		83.06	1109.23	0.00	0.00
70.00		54.98	380.82	0.00	0.00
75.00		136.86	938.16	0.00	0.00
80.00		134.97	918.31	0.00	0.00
85.00		132.89	898.45	0.00	0.00
90.00		130.64	878.60	0.00	0.00
95.00		128.23	858.74	0.00	0.00
100.00		125.68	838.89	0.00	0.00
105.00		122.99	819.03	0.00	0.00
107.00		48.27	322.05	0.00	0.00
110.00		72.65	761.88	0.00	0.00
112.00		47.81	500.77	0.00	0.00
115.00		70.90	402.10	0.00	0.00
120.00		115.95	657.46	0.00	0.00
125.00		112.82	641.57	0.00	0.00
127.00	(55) attachments	1196.15	2387.88	0.00	0.00
130.00		65.25	328.12	0.00	0.00
135.00		106.26	534.16	0.00	0.00
136.00	(3) attachments	196.33	1154.93	0.00	0.00
137.00	(16) attachments	997.34	517.19	0.00	0.00
140.00		61.20	268.32	0.00	0.00
145.00		99.34	434.49	0.00	0.00
148.00	(16) attachments	862.27	1635.67	0.00	0.00
149.00		18.95	69.51	0.00	0.00
	Totals:	6,895.65	37,495.33	0.00	0.00

Calculated Forces

Structure: CT11559-A-SBA
Site Name: Thompson 1, CT
Height: 149.00 (ft)
Base Elev: 0.000 (ft)
Gh: 1.1

Topography: 1

Code: EIA/TIA-222-G
Exposure: C
Crest Height: 0.00
Site Class: D - Stiff Soil
Struct Class: II

9/14/2016

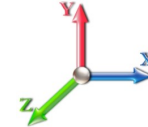
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Load Case: 1.0D + 1.0W 60 mph Wind

Dead Load Factor 1.00

Wind Load Factor 1.00



Iterations 21

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-37.49	-6.90	0.00	-714.40	0.00	714.40	5499.39	2749.69	13252.7	6636.23	0.00	0.000	0.000	0.114
5.00	-35.91	-6.79	0.00	-679.88	0.00	679.88	5429.06	2714.53	12818.7	6418.90	0.02	-0.028	0.000	0.113
10.00	-34.35	-6.68	0.00	-645.93	0.00	645.93	5357.09	2678.54	12387.8	6203.11	0.06	-0.056	0.000	0.111
15.00	-32.82	-6.56	0.00	-612.55	0.00	612.55	5283.48	2641.74	11960.1	5988.97	0.13	-0.085	0.000	0.108
18.00	-31.92	-6.49	0.00	-592.86	0.00	592.86	5238.53	2619.26	11705.2	5861.33	0.19	-0.103	0.000	0.107
20.00	-30.87	-6.45	0.00	-579.88	0.00	579.88	5208.23	2604.11	11536.0	5776.60	0.24	-0.114	0.000	0.106
25.00	-28.30	-6.32	0.00	-547.65	0.00	547.65	4201.23	2100.61	9252.96	4633.35	0.37	-0.144	0.000	0.125
30.00	-27.01	-6.19	0.00	-516.05	0.00	516.05	4145.44	2072.72	8928.09	4470.68	0.54	-0.173	0.000	0.122
35.00	-25.75	-6.06	0.00	-485.09	0.00	485.09	4088.00	2044.00	8605.21	4309.00	0.74	-0.206	0.000	0.119
40.00	-24.51	-5.93	0.00	-454.78	0.00	454.78	4028.93	2014.47	8284.56	4148.44	0.97	-0.239	0.000	0.116
45.00	-23.30	-5.80	0.00	-425.13	0.00	425.13	3968.22	1984.11	7966.37	3989.11	1.24	-0.272	0.000	0.112
50.00	-22.11	-5.66	0.00	-396.14	0.00	396.14	3905.86	1952.93	7650.88	3831.13	1.54	-0.306	0.000	0.109
55.00	-20.94	-5.53	0.00	-367.82	0.00	367.82	3841.87	1920.93	7338.34	3674.63	1.88	-0.339	0.000	0.106
60.00	-19.80	-5.39	0.00	-340.18	0.00	340.18	3776.23	1888.12	7028.98	3519.72	2.26	-0.372	0.000	0.102
62.00	-19.34	-5.34	0.00	-329.40	0.00	329.40	3749.52	1874.76	6906.19	3458.23	2.42	-0.386	0.000	0.100
65.00	-18.22	-5.25	0.00	-313.38	0.00	313.38	3708.96	1854.48	6723.05	3366.52	2.66	-0.406	0.000	0.098
68.00	-17.11	-5.17	0.00	-297.62	0.00	297.62	2897.69	1448.84	5257.67	2632.74	2.93	-0.426	0.000	0.119
70.00	-16.73	-5.12	0.00	-287.29	0.00	287.29	2878.95	1439.48	5167.56	2587.62	3.11	-0.440	0.000	0.117
75.00	-15.79	-4.98	0.00	-261.71	0.00	261.71	2830.96	1415.48	4943.48	2475.42	3.59	-0.477	0.000	0.111
80.00	-14.87	-4.85	0.00	-236.79	0.00	236.79	2781.33	1390.66	4721.30	2364.16	4.11	-0.514	0.000	0.106
85.00	-13.97	-4.72	0.00	-212.54	0.00	212.54	2730.06	1365.03	4501.25	2253.97	4.67	-0.550	0.000	0.099
90.00	-13.09	-4.59	0.00	-188.96	0.00	188.96	2677.14	1338.57	4283.57	2144.97	5.26	-0.586	0.000	0.093
95.00	-12.23	-4.46	0.00	-166.03	0.00	166.03	2622.59	1311.30	4068.50	2037.27	5.89	-0.620	0.000	0.086
100.00	-11.39	-4.33	0.00	-143.76	0.00	143.76	2566.40	1283.20	3856.28	1931.01	6.56	-0.652	0.000	0.079
105.00	-10.57	-4.20	0.00	-122.12	0.00	122.12	2508.57	1254.28	3647.16	1826.29	7.26	-0.683	0.000	0.071
107.00	-10.24	-4.15	0.00	-113.73	0.00	113.73	2484.97	1242.49	3564.43	1784.86	7.55	-0.695	0.000	0.068
110.00	-9.48	-4.07	0.00	-101.28	0.00	101.28	2449.09	1224.55	3441.37	1723.24	7.99	-0.712	0.000	0.063
112.00	-8.98	-4.02	0.00	-93.14	0.00	93.14	1823.39	911.69	2573.73	1288.78	8.29	-0.723	0.000	0.077
115.00	-8.58	-3.94	0.00	-81.09	0.00	81.09	1799.96	899.98	2488.04	1245.87	8.75	-0.739	0.000	0.070
120.00	-7.92	-3.82	0.00	-61.37	0.00	61.37	1759.59	879.80	2346.51	1175.00	9.54	-0.765	0.000	0.057
125.00	-7.28	-3.70	0.00	-42.25	0.00	42.25	1717.59	858.79	2206.80	1105.04	10.36	-0.787	0.000	0.042
127.00	-4.91	-2.48	0.00	-34.85	0.00	34.85	1700.33	850.16	2151.49	1077.34	10.69	-0.794	0.000	0.035
130.00	-4.58	-2.41	0.00	-27.42	0.00	27.42	1673.94	836.97	2069.17	1036.12	11.19	-0.803	0.000	0.029
135.00	-4.05	-2.29	0.00	-15.39	0.00	15.39	1628.66	814.33	1933.84	968.36	12.04	-0.814	0.000	0.018
136.00	-2.90	-2.08	0.00	-13.10	0.00	13.10	1619.40	809.70	1907.07	954.95	12.21	-0.816	0.000	0.016
137.00	-2.39	-1.08	0.00	-11.02	0.00	11.02	1610.09	805.04	1880.41	941.60	12.38	-0.817	0.000	0.013
140.00	-2.13	-1.01	0.00	-7.79	0.00	7.79	1581.73	790.87	1801.05	901.87	12.89	-0.821	0.000	0.010
145.00	-1.69	-0.91	0.00	-2.74	0.00	2.74	1533.17	766.58	1671.06	836.77	13.76	-0.824	0.000	0.004
148.00	-0.07	-0.02	0.00	-0.02	0.00	0.02	1503.24	751.62	1594.49	798.43	14.27	-0.825	0.000	0.000
149.00	0.00	-0.02	0.00	0.00	0.00	0.00	1493.13	746.57	1569.22	785.78	14.45	-0.825	0.000	0.000

Final Analysis Summary

Structure: CT11559-A-SBA	Code: EIA/TIA-222-G	9/14/2016
Site Name: Thompson 1, CT	Exposure: C	
Height: 149.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II
		Page: 28



Reactions

Load Case	Shear FX (kips)	Shear FZ (kips)	Axial FY (kips)	Moment MX (ft-kips)	Moment MY (ft-kips)	Moment MZ (ft-kips)
1.2D + 1.6W 101 mph Wind	31.3	0.00	44.96	0.00	0.00	3250.74
0.9D + 1.6W 101 mph Wind	31.3	0.00	33.71	0.00	0.00	3230.69
1.2D + 1.0Di + 1.0Wi 50 mph Wind	9.1	0.00	73.49	0.00	0.00	957.11
1.2D + 1.0E	1.4	0.00	44.99	0.00	0.00	149.00
0.9D + 1.0E	1.4	0.00	33.75	0.00	0.00	148.04
1.0D + 1.0W 60 mph Wind	6.9	0.00	37.49	0.00	0.00	714.40

Max Stresses

Load Case	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Elev (ft)	Stress Ratio
1.2D + 1.6W 101 mph Wind	-33.62	-28.72	0.00	-2493.7	0.00	-2493.7	4201.23	2100.6	9252.96	4633.35	25.00	0.546
0.9D + 1.6W 101 mph Wind	-25.13	-28.62	0.00	-2475.0	0.00	-2475.0	4201.23	2100.6	9252.96	4633.35	25.00	0.540
1.2D + 1.0Di + 1.0Wi 50 mph Wind	-59.16	-8.45	0.00	-735.43	0.00	-735.43	4201.23	2100.6	9252.96	4633.35	25.00	0.173
1.2D + 1.0E	-33.98	-1.21	0.00	-115.64	0.00	-115.64	4201.23	2100.6	9252.96	4633.35	25.00	0.033
0.9D + 1.0E	-15.43	-0.96	0.00	-67.54	0.00	-67.54	2897.69	1448.8	5257.67	2632.74	68.00	0.031
1.0D + 1.0W 60 mph Wind	-28.30	-6.32	0.00	-547.65	0.00	-547.65	4201.23	2100.6	9252.96	4633.35	25.00	0.125

Base Plate Summary

Structure: CT11559-A-SB	Code: EIA/TIA-222-G	9/14/2016
Site Name: Thompson 1, CT	Exposure: C	
Height: 149.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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Reactions	Base Plate	Anchor Bolts
Original Design	Yield (ksi): 50.00	Bolt Circle: 66.00
Moment (kip-ft): 4056.00	Width (in): 72.00	Number Bolts: 18.00
Axial (kip): 38.00	Style: Round	Bolt Type: 2.00" F1554 105
Shear (kip): 36.00	Polygon Sides: 0.00	Bolt Diameter (in): 2.00
Analysis	Clip Length (in): 0.00	Yield (ksi): 105.00
Moment (kip-ft): 3250.74	Effective Len (in): 16.56	Ultimate (ksi): 125.00
Axial (kip): 73.49	Moment (kip-in): 469.76	Arrangement: Radial
Shear (kip): 31.31	Allow Stress (ksi): 67.50	Cluster Dist (in): 0.00
	Applied Stress (ksi): 0.00	Start Angle (deg): 0.00
Moment Design %: 80.15	Stress Ratio: 0.33	Compression
		Force (kip): 135.43
		Allowable (kip): 250.00
		Ratio: 0.56
		Tension
		Force (kip): 127.26
		Allowable (kip): 250.00
		Ratio: 0.52



Monopole Mat Foundation Design

Date

9/14/2016

Customer Name:	AT&T	EIA/TIA Standard:	EIA-222-G
Site Name:		Structure Height (Ft.):	149
Site Number:	CT11559-A-SBA	Engineer Name:	T. Alajaj
Engr. Number:	26071	Engineer Login ID:	

Foundation Info Obtained from:

Drawings/Calculations

Structure Type:

Monopole

Analysis or Design?

Analysis

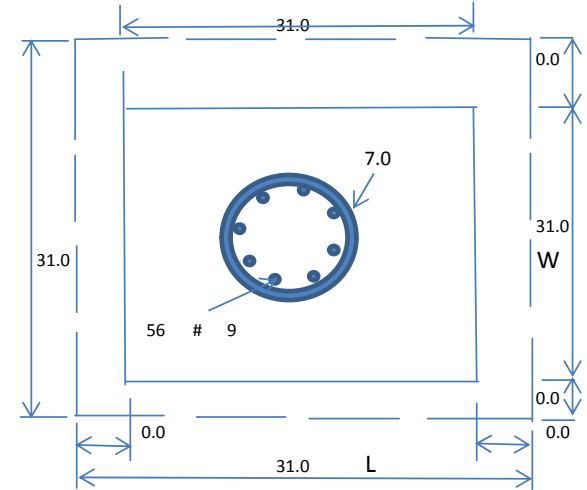
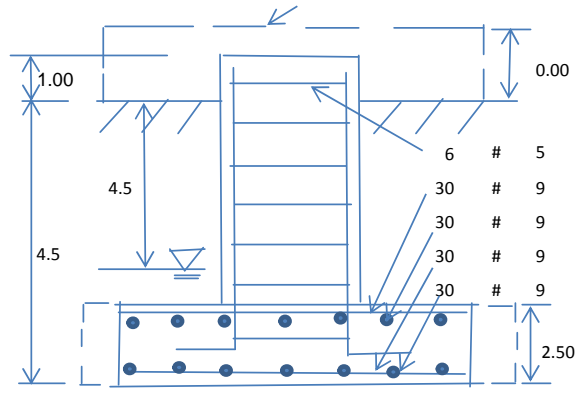
Base Reactions (Factored):

Axial Load (Kips):	73.5	Shear Force (Kips):	31.3
Uplift Force (Kips):	0.0	Moment (Kips-ft):	3250.7

Allowable overstress %: 5.0%

Foundation Geometries:

		Mods required -Yes/No ?:	No
Diameter of Pier (ft.):	7.0	Depth of Base BG (ft.):	4.5
Pier Height A. G. (ft.):	1.00	Thickness of Pad (ft):	2.50
Length of Pad (ft.):	31	Width of Pad (ft.):	31
Final Length of pad (ft)	31.0	Final width of pad (ft):	31.0
Control Value for Cell D18:	0	Control Value for Cell F18:	0



Material Properties and Rebar Info:

Concrete Strength (psi):	3000	Steel Elastic Modulus:	29000	ksi
Vertical bar yield (ksi)	60	Tie steel yield (ksi):	60	
Vertical Rebar Size #:	9	Tie / Stirrup Size #:	5	
Qty. of Vertical Rebars:	56	Tie Spacing (in):	12.0	
Pad Rebar Yield (Ksi):	60	Pad Steel Rebar Size (#):	9	
Concrete Cover (in.):	3	Unit Weight of Concrete:	150.0	pcf
Rebar at the bottom of the concrete pad:				
Qty. of Rebar in Pad (L):	30	Qty. of Rebar in Pad (W):	30	
Rebar at the top of the concrete pad:				
Qty. of Rebar in Pad (L):	30	Qty. of Rebar in Pad (W):	30	

Apply 1.35 factor for e/w Per G: 1.35

Soil Design Parameters:

Soil Unit Weight (pcf):	120.0	Soil Buoyant Weight:	50.0	Pcf
Water Table B.G.S. (ft):	4.5	Unit Weight of Water:	62.4	pcf
Ultimate Bearing Pressure (psf):	10400	Ultimate Skin Friction:	175	Psf
Consider Friction for O.T.M. (Y/N):	No	Consider Friction for bearing (Y/N):	No	
Consider soil hor. resist. for OTM.:	No	Reduction factor on the maximum soil bearing pressure:	1.00	
		Angle from Top of Pad:	30	
		Angle from Bottm of Pad:	25	
		Angle from Bottm of Pad:	25	

Foundation Analysis and Design:

Uplift Strength Reduction Factor:	0.75	Compression Strength Reduction Factor:	0.75
Total Dry Soil Volume (cu. Ft.):	1845.03	Total Dry Soil Weight (Kips):	221.40
Total Buoyant Soil Volume (cu. Ft.):	0.00	Total Buoyant Soil Weight (Kips):	0.00
Total Effective Soil Weight (Kips):	221.40	Weight from the Concrete Block at Top (K):	0.00
Total Dry Concrete Volume (cu. Ft.):	2517.95	Total Dry Concrete Weight (Kips):	377.69
Total Buoyant Concrete Volume (cu. Ft.):	0.00	Total Buoyant Concrete Weight (Kips):	0.00
Total Effective Concrete Weight (Kips):	377.69	Total Vertical Load on Base (Kips):	672.60

Check Soil Capacities:

Calculated Maxium Net Soil Pressure under the base (psf):	1688	<	Allowable Factored Soil Bearing (psf):	7800	0.22	OK!
Allowable Foundation Overturning Resistance (kips-ft.):	9496.6	>	Design Factored Momont (kips-ft):	3423	0.36	OK!
Factor of Safety Against Overturning (O. R. Moment/Design Moment):	2.77					OK!

Load/
Capacity
Ratio

Check the capacities of Reinforcing Concrete:

Strength reduction factor (Flexure and axial tension):	0.90	Strength reduction factor (Shear):	0.75	
Strength reduction factor (Axial compression):	0.65	Wind Load Factor on Concrete Design:	1.00	
				Load/ Capacity Ratio

(1) Concrete Pier:

Vertical Steel Rebar Area (sq. in./each):	1.00	Tie / Stirrup Area (sq. in./each):	0.31	
Calculated Moment Capacity (Mn,Kips-Ft):	8863.4	> Design Factored Moment (Mu, Kips-Ft)	3344.6	0.38 OK!
Calculated Shear Capacity (Kips):	663.6	> Design Factored Shear (Kips):	31.3	0.05 OK!
Calculated Tension Capacity (Tn, Kips):	3024.0	> Design Factored Tension (Tu Kips):	0.0	0.00 OK!
Calculated Compression Capacity (Pn, Kips):	7274.1	> Design Factored Axial Load (Pu Kips):	73.5	0.01 OK!
Moment & Axial Strength Combination:	0.38	OK! Check Tie Spacing (Design/Required):	1	OK!
Pier Reinforcement Ratio:	0.010	Reinforcement Ratio is satisfied per ACI		

(2).Concrete Pad:

One-Way Design Shear Capacity (L-Direction, Kips):	808.0	> One-Way Factored Shear (L-D. Kips):	334.7	0.41 OK!
One-Way Design Shear Capacity (W-Direction, Kips):	808.0	> One-Way Factored Shear (W-D., Kips)	334.7	0.41 OK!
One-Way Design Shear Capacity (Corner-Corner. Kips):	960.2	> One-Way Factored Shear (C-C, Kips):	314.5	0.33 OK!
Lower Steel Pad Reinforcement Ratio (L-Direct.):	0.0031	OK! Lower Steel Pad Reinf. Ratio (W-Direct	0.0031	
Lower Steel Pad Moment Capacity (L-Direction. Kips-ft):	3441.0	> Moment at Bottom (L-Direct. K-Ft):	1639.4	0.48 OK!
Lower Steel Pad Moment Capacity (W-Direction. Kips-ft):	3441.0	> Moment at Bottom (W-Direct. K-Ft):	1639.4	0.48 OK!
Lower Steel Pad Moment Capacity (Corner-Corner,K-ft):	4831.9	> Moment at Bottom (C-C Dir. K-Ft):	2318.5	0.48 OK!
Upper Steel Pad Reinforcement Ratio (L-Direct.):	0.0031	OK! Upper Steel Reinf. Ratio (W-Direct.):	0.0031	
Upper Steel Pad Moment Capacity (L-Direction. Kips-ft):	3441.0	> Moment at the top (L-Dir Kips-Ft):	297.1	0.09 OK!
Upper Steel Pad Moment Capacity (W-Direction. Kips-ft):	3441.0	> Moment at the top (W-Dir Kips-Ft):	297.1	0.09 OK!
Upper Steel Pad Moment Capacity (Corner-Corner. K-ft):	4831.9	> Moment at the top (C-C Direc. K-Ft):	461.8	0.10 OK!

PROJECT TEAM

SITE ACQUISITION & ZONING:

SBA COMMUNICATIONS CORP.
134 FLANDERS ROAD, SUITE
125 WESTBOROUGH, MA 01581

ENGINEERING:

TRYLON TSF
24 QUEEN ST E
BRAMPTON, ON L6V 1A2
KATYA SERAVALLE
PHONE: 519-465-4125

RF ENGINEER:

AT&T MOBILITY - NEW ENGLAND
550 COCHITUATE ROAD
SUITE 550 13 & 14
FRAMINGHAM, MA 01701
CAMERON SYME
508-596-7146
cs6970@att.com

CONSTRUCTION MANAGEMENT:

EMPIRE TELECOM
16 ESQUIRE ROAD
BILLERICA, MA 01821
GRZEGORZ "GREG" DORMAN
484-683-1750
gdorman@empiretelecomm.com

TOWER OWNER:

SBA INFRASTRUCTURE LLC
8051 CONGRESS AVENUE
BOCA RATON, FL 33487

SBA SITE ID: CT11559-A-03
SBA SITE NAME: THOMPSON 1

SBA REGIONAL SITE MANAGER: STEPHEN ROTH
(860) 539-4920
SRoth@sbsite.com

GENERAL NOTES

DO NOT SCALE DRAWINGS

CONTRACTOR SHALL VERIFY ALL PLANS AND EXISTING DIMENSIONS AND CONDITIONS ON THE JOB SITE AND SHALL IMMEDIATELY NOTIFY THE ARCHITECT/ENGINEER IN WRITING OF ANY DISCREPANCIES BEFORE PROCEEDING WITH THE WORK OR BE RESPONSIBLE FOR SAME.

THE FACILITY IS UNMANNED AND NOT FOR HUMAN HABITATION. A TECHNICIAN WILL VISIT THE SITE AS REQUIRED FOR ROUTINE MAINTENANCE. THE PROJECT WILL NOT RESULT IN ANY SIGNIFICANT DISTURBANCE OR EFFECT ON DRAINAGE; NO SANITARY SEWER SERVICE, POTABLE WATER, OR TRASH DISPOSAL IS REQUIRED AND NO COMMERCIAL SIGNAGE IS PROPOSED.

SITE INFORMATION

LATITUDE: 42° 00' 41.40" N
LONGITUDE: -71° 51' 07.300" W
LAT./LONG. TYPE: NAD 83
GROUND ELEVATION: N/A
APN/UPC: N/A
AREA OF CONSTRUCTION: EXISTING
ZONING/JURISDICTION: NORTH GROSVENORDALE
CURRENT ZONING: UNKNOWN
EXISTING USE: UNMANNED TELECOMMUNICATIONS FACILITY
COUNTY: WINDHAM
HANDICAP REQUIREMENTS: FACILITY IS UNMANNED AND NOT FOR HUMAN HABITATION. HANDICAPPED ACCESS NOT REQUIRED.



**LTE MULTI CARRIER RRU ADD
CT1259
THOMPSON CT RICH RD
38 RICH ROAD
NORTH GROSVENORDALE, CT 06255
FA CODE: 10128120**

VICINITY MAP



DRIVING DIRECTIONS

I-395 NORTH TO EXIT 100. AT THE END OF THE RAMP TAKE A RIGHT, AND THEN TAKE FIRST LEFT ONTO RICH RD. SITE ACCESS ROAD IS ON YOUR LEFT APPROX .1MILES. SITE IS A GROUND LEVEL SHELTER. SBA TOWER LOCATION # CT11559 EMERGENCY NUMBER 1-888-950-7483 CONTACT: MIKE MCFADDEN, MCF: 978-687-2356

CODE COMPLIANCE

BUILDING CODE: 2012 CONNECTICUT COMMERCIAL BUILDING CODE
ELECTRICAL CODE: 2014 CONNECTICUT ELECTRICAL CODE

SUBCONTRACTOR'S WORK SHALL COMPLY WITH ALL APPLICABLE NATIONAL, STATE, AND LOCAL CODES AS ADOPTED BY THE LOCAL AUTHORITY HAVING JURISDICTION (AHJ) FOR THE LOCATION. THE EDITION OF THE AHJ ADOPTED CODES AND STANDARDS IN EFFECT ON THE DATE OF CONTRACT AWARD SHALL GOVERN THE DESIGN.

FOR ANY CONFLICTS BETWEEN SECTIONS OF LISTED CODES AND STANDARDS REGARDING MATERIAL, METHODS OF CONSTRUCTION, OR OTHER REQUIREMENTS, THE MOST RESTRICTIVE REQUIREMENT SHALL GOVERN. WHERE THERE IS CONFLICT BETWEEN A GENERAL REQUIREMENT AND A SPECIFIC REQUIREMENT, THE SPECIFIC REQUIREMENT SHALL GOVERN.



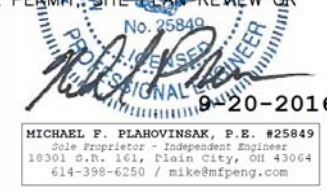
CONNECTICUT LAW REQUIRES TWO WORKING DAYS NOTICE PRIOR TO ANY EARTH MOVING ACTIVITIES BY CALLING 800-922-4455 OR DIAL 811

APPROVALS

AT&T (RF): _____ DATE: _____
AT&T (CONST.): _____ DATE: _____
AT&T (OPS): _____ DATE: _____
TOWER OWNER: _____ DATE: _____

JURISDICTIONAL APPROVAL

BASED ON INFORMATION PROVIDED BY AT&T REGULATORY COMPLIANCE PROFESSIONALS AND LEGAL COUNSEL, THIS TELECOMMUNICATIONS EQUIPMENT DEPLOYMENT IS CONSIDERED AN ELIGIBLE FACILITY UNDER THE MIDDLE CLASS TAX RELIEF AND JOB CREATION ACT OF 2012, 47 USC 1355(A) (SECTION 6708(A)), AND IS SUBJECT TO AN ELIGIBLE FACILITY REQUEST, EXPEDITED REVIEW AND LIMITED/PARTIAL ZONING PRE-EMPTION FOR LOCAL DISCRETIONARY PERMITS (VARIANCE, SPECIAL PERMIT, SITE PLAN REVIEW OR ADMINISTRATIVE REVIEW).



PROJECT DESCRIPTION

THIS PROJECT WILL BE COMPRISED OF:
CHANGES ON THE EXISTING MONOPOLE TOWER:
• INSTALL (3) NEW RRUS-12, (1) PER SECTOR FOR (3) SECTORS.
• REUSE (2) EXISTING DC TRUNK.
• REUSE (1) EXISTING FIBER TRUNK.
• REUSE (1) EXISTING DC/FIBER SQUID.
• REUSE (12) EXISTING RF CABLES.

CHANGES IN THE EXISTING AT&T EQUIPMENT ENCLOSURE AREA:
• REMOVE (1) EXISTING DUL.
• INSTALL (1) NEW DUS.

Digitally signed by Michael Plahovinsak
Date: 2016.09.20 15:55:06 -04'00'

MFP PROJECT #23216-033

SHEET	DESCRIPTION
T-1	TITLE SHEET
GN-1	GROUNDING & GENERAL NOTES
A-1	SITE PLAN
A-2	EQUIPMENT LAYOUT
A-3	ANTENNA LAYOUTS & TOWER ELEVATION
A-4	DETAILS
G-1	GROUNDING, ONE-LINE DIAGRAM & DETAILS



550 COCHITUATE ROAD
FRAMINGHAM, MA 01701



SBA COMMUNICATIONS CORP.
134 FLANDERS ROAD, SUITE
125 WESTBOROUGH, MA 01581



16 ESQUIRE ROAD
BILLERICA, MA 01821

PLANS PREPARED BY:



24 QUEEN ST E
BRAMPTON, ON
1 (519) 572-9995

NO.	DATE	DESCRIPTION	BY
A	09/07/16	FOR REVIEW	GI
B	09/20/16	ISSUE FOR CONSTRUCTION	CP

SITE INFORMATION:

**CT1259
THOMPSON CT RICH RD
FA CODE: 10128120**

38 RICH ROAD
NORTH GROSVENORDALE, CT 06255

SEAL: _____
TITLE SHEET
SHEET NUMBER: **T-1**

GENERAL NOTES:

- FOR THE PURPOSE OF CONSTRUCTION DRAWING, THE FOLLOWING DEFINITIONS SHALL APPLY:
 CONTRACTOR - EMPIRE TELECOM
 SUBCONTRACTOR - GENERAL CONTRACTOR (CONSTRUCTION)
 OWNER - AT&T MOBILITY
 OEM - ORIGINAL EQUIPMENT MANUFACTURER
- PRIOR TO THE SUBMISSION OF BIDS, THE BIDDING SUBCONTRACTOR SHALL VISIT THE CELL SITE TO FAMILIARIZE WITH THE EXISTING CONDITIONS AND TO CONFIRM THAT THE WORK CAN BE ACCOMPLISHED AS SHOWN ON THE CONSTRUCTION DRAWINGS. ANY DISCREPANCY FOUND SHALL BE BROUGHT TO THE ATTENTION OF CONTRACTOR.
- ALL MATERIALS FURNISHED AND INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS, AND ORDINANCES. SUBCONTRACTOR SHALL ISSUE ALL APPROPRIATE NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS, AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY REGARDING THE PERFORMANCE OF THE WORK. ALL WORK CARRIED OUT SHALL COMPLY WITH ALL APPLICABLE MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS AND LOCAL JURISDICTIONAL CODES, ORDINANCES AND APPLICABLE REGULATIONS.
- DRAWINGS PROVIDED HERE ARE NOT TO BE SCALED AND ARE INTENDED TO SHOW OUTLINE ONLY.
- UNLESS NOTED OTHERWISE, THE WORK SHALL INCLUDE FURNISHING MATERIALS, EQUIPMENT, APPURTENANCES, AND LABOR NECESSARY TO COMPLETE ALL INSTALLATIONS AS INDICATED ON THE DRAWINGS.
- THE SUBCONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.
- IF THE SPECIFIED EQUIPMENT CANNOT BE INSTALLED AS SHOWN ON THESE DRAWINGS, THE SUBCONTRACTOR SHALL PROPOSE AN ALTERNATIVE INSTALLATION SPACE FOR APPROVAL BY THE CONTRACTOR.
- SUBCONTRACTOR SHALL DETERMINE ACTUAL ROUTING OF CONDUIT, POWER AND T1 CABLES, GROUNDING CABLES AS SHOWN ON THE POWER, GROUNDING AND TELCO PLAN DRAWING. SUBCONTRACTOR SHALL UTILIZE EXISTING TRAYS AND/OR SHALL ADD NEW TRAYS AS NECESSARY. SUBCONTRACTOR SHALL CONFIRM THE ACTUAL ROUTING WITH THE CONTRACTOR. ROUTING OF TRENCHING SHALL BE APPROVED BY CONTRACTOR
- THE SUBCONTRACTOR SHALL PROTECT EXISTING IMPROVEMENTS, PAVEMENTS, CURBS, LANDSCAPING AND STRUCTURES. ANY DAMAGED PART SHALL BE REPAIRED AT SUBCONTRACTOR'S EXPENSE TO THE SATISFACTION OF OWNER.
- SUBCONTRACTOR SHALL LEGALLY AND PROPERLY DISPOSE OFF ALL SCR1 'AP MATERIALS SUCH AS COAXIAL CABLES AND OTHER ITEMS REMOVED FROM THE EXISTING FACILITY. ANTENNAS REMOVED SHALL BE RETURNED TO THE OWNER'S DESIGNATED LOCATION.
- SUBCONTRACTOR SHALL LEAVE PREMISES IN CLEAN CONDITION.
- ALL CONCRETE REPAIR WORK SHALL BE DONE IN ACCORDANCE WITH AMERICAN CONCRETE INSTITUTE (ACI) 301.
- ANY NEW CONCRETE NEEDED FOR THE CONSTRUCTION SHALL HAVE 4000 PSI STRENGTH AT 28 DAYS UNLESS OTHERWISE SPECIFIED. ALL CONCRETING WORK SHALL BE DONE IN ACCORDANCE WITH ACI 318 CODE REQUIREMENTS.
- ALL STRUCTURAL STEEL WORK SHALL BE DETAILED, FABRICATED AND ERECTED IN ACCORDANCE WITH AISC SPECIFICATIONS. ALL STRUCTURAL STEEL SHALL BE ASTM A36 (Fy=36 ksi). ALL STEEL EXPOSED TO WEATHER SHALL BE HOT DIPPED GALVANIZED. TOUCH UP ALL SCRATCHES AND OTHER MARKS IN THE FIELD AFTER STEEL IS ERECTED USING A COMPATIBLE ZINC RICH PAINT.
- CONSTRUCTION SHALL COMPLY WITH SPECIFICATION 25741-000-3APS-A002-00002, "GENERAL CONSTRUCTION SERVICES FOR CONSTRUCTION OF AT&T MOBILITY SITES."
- SUBCONTRACTOR SHALL VERIFY ALL EXISTING DIMENSIONS AND CONDITIONS PRIOR TO COMMENCING ANY WORK. ALL DIMENSIONS OF EXISTING CONSTRUCTION SHOWN ON THE DRAWINGS MUST BE VERIFIED. SUBCONTRACTOR SHALL NOTIFY THE CONTRACTOR OF ANY DISCREPANCIES PRIOR TO ORDERING MATERIAL OR PROCEEDING WITH CONSTRUCTION.
- THE EXISTING CELL SITE IS IN FULL COMMERCIAL OPERATION. ANY CONSTRUCTION WORK BY SUBCONTRACTOR SHALL NOT DISRUPT THE EXISTING NORMAL OPERATION. ANY WORK ON EXISTING EQUIPMENT MUST BE COORDINATED WITH CONTRACTOR. ALSO, WORK MAY NEED TO BE SCHEDULED FOR AN APPROPRIATE MAINTENANCE WINDOW USUALLY IN LOW TRAFFIC PERIODS AFTER MIDNIGHT.
- SINCE THE CELL SITE MAY BE ACTIVE, ALL SAFETY PRECAUTIONS MUST BE TAKEN WHEN WORKING AROUND HIGH LEVELS OF ELECTROMAGNETIC RADIATION. EQUIPMENT SHOULD BE SHUTDOWN PRIOR TO PERFORMING ANY WORK THAT COULD EXPOSE THE WORKERS TO DANGER. PERSONAL RF EXPOSURE MONITORS ARE REQUIRED TO BE WORN TO ALERT OF ANY DANGEROUS EXPOSURE LEVELS.
- SUBCONTRACTOR'S WORK SHALL COMPLY WITH ALL APPLICABLE NATIONAL, STATE, AND LOCAL CODES AS ADOPTED BY THE LOCAL AUTHORITY HAVING JURISDICTION (AHJ) FOR THE LOCATION. THE EDITION OF THE AHJ ADOPTED CODES AND STANDARDS IN EFFECT ON THE DATE OF CONTRACT AWARD SHALL GOVERN THE DESIGN.
 - INTERNATIONAL BUILDING CODE: IBC 2009 WITH LOCAL & COUNTY AMENDMENTS
 - NATIONAL ELECTRICAL CODE: NEC 2011 WITH LOCAL & COUNTY AMENDMENTS
 - FIRE/LIFE SAFETY CODE: NFPA-101 2009 WITH LOCAL & COUNTY AMENDMENTS
- SUBCONTRACTOR'S WORK SHALL COMPLY WITH THE LATEST EDITION OF THE FOLLOWING STANDARDS:
 - AMERICAN CONCRETE INSTITUTE (ACI) 318, BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE
 - AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC), MANUAL OF STEEL CONSTRUCTION, THIRTEENTH EDITION
 - AMERICAN SOCIETY OF TESTING OF MATERIALS, ASTM
 - TELECOMMUNICATIONS INDUSTRY ASSOCIATION (ANSI/TIA-222-G-1), STRUCTURAL STANDARDS FOR STEEL ANTENNA TOWER AND ANTENNA SUPPORTING STRUCTURES:
 - TIA 607, COMMERCIAL BUILDING GROUNDING AND BONDING REQUIREMENTS FOR TELECOMMUNICATIONS
 - OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION, OSHA
 - INSTITUTE FOR ELECTRICAL AND ELECTRONICS ENGINEERS (IEEE) 81, GUIDE FOR MEASURING EARTH RESISTIVITY, GROUND IMPEDANCE, AND EARTH SURFACE POTENTIALS OF A GROUND SYSTEM IEEE 1100 (1999) RECOMMENDED PRACTICE FOR POWERING AND GROUNDING OF ELECTRONIC EQUIPMENT
 - TELCORDIA GR-1503, COAXIAL CABLE CONNECTIONS
- FOR ANY CONFLICTS BETWEEN SECTIONS OF LISTED CODES AND STANDARDS REGARDING MATERIAL, METHODS OF CONSTRUCTION, OR OTHER REQUIREMENTS, THE MOST RESTRICTIVE REQUIREMENT SHALL GOVERN. WHERE THERE IS CONFLICT BETWEEN A GENERAL REQUIREMENT AND A SPECIFIC REQUIREMENT, THE SPECIFIC REQUIREMENT SHALL GOVERN.

GROUNDING NOTES:

- THE SUBCONTRACTOR SHALL REVIEW AND INSPECT THE EXISTING FACILITY GROUNDING SYSTEM AND LIGHTNING PROTECTION SYSTEM (AS DESIGNED AND INSTALLED) FOR STRICT COMPLIANCE WITH THE NEC (AS ADOPTED BY THE AHJ), THE SITE-SPECIFIC (UL, LPI, OR NFPA) LIGHTNING PROTECTION CODE, AND GENERAL COMPLIANCE WITH TELCORDIA AND TIA GROUNDING STANDARDS. THE SUBCONTRACTOR SHALL REPORT ANY VIOLATIONS OR ADVERSE FINDINGS TO THE CONTRACTOR FOR RESOLUTION.
- ALL GROUND ELECTRODE SYSTEMS (INCLUDING TELECOMMUNICATION, RADIO, LIGHTNING PROTECTION, AND AC POWER GES'S) SHALL BE BONDED TOGETHER, AT OR BELOW GRADE, BY TWO OR MORE COPPER BONDING CONDUCTORS IN ACCORDANCE WITH THE NEC.
- THE SUBCONTRACTOR SHALL PERFORM IEEE FALL-OF-POTENTIAL RESISTANCE TO EARTH TESTING (PER IEEE 1100 AND 81) FOR NEW GROUND ELECTRODE SYSTEMS. THE SUBCONTRACTOR SHALL FURNISH AND INSTALL SUPPLEMENTAL GROUND ELECTRODES AS NEEDED TO ACHIEVE A TEST RESULT OF 5 OHMS OR LESS. TESTS SHALL BE PERFORMED IN ACCORDANCE WITH 25471-000-3PS-EG00-0001, DESIGN & TESTING OF FACILITY GROUNDING FOR CELL SITES.
- METAL RACEWAY SHALL NOT BE USED AS THE NEC REQUIRED EQUIPMENT GROUND CONDUCTOR. STRANDED COPPER CONDUCTORS WITH GREEN INSULATION, SIZED IN ACCORDANCE WITH THE NEC, SHALL BE FURNISHED AND INSTALLED WITH THE POWER CIRCUITS TO BTS EQUIPMENT.
- EACH BTS CABINET FRAME SHALL BE DIRECTLY CONNECTED TO THE MASTER GROUND BAR WITH GREEN INSULATED SUPPLEMENTAL EQUIPMENT GROUND WIRES, 6 AWG STRANDED COPPER OR LARGER FOR INDOOR BTS; 2 AWG STRANDED COPPER FOR OUTDOOR BTS.
- EXOTHERMIC WELDS SHALL BE USED FOR ALL GROUNDING CONNECTIONS BELOW GRADE.
- APPROVED ANTIOXIDANT COATINGS (I.E., CONDUCTIVE GEL OR PASTE) SHALL BE USED ON ALL COMPRESSION AND BOLTED GROUND CONNECTIONS.
- ICE BRIDGE BONDING CONDUCTORS SHALL BE EXOTHERMICALLY BONDED OR BOLTED WITH STAINLESS STEEL HARDWARE TO THE BRIDGE AND THE TOWER GROUND BAR.
- ALUMINUM CONDUCTOR OR COPPER CLAD STEEL CONDUCTOR SHALL NOT BE USED FOR GROUNDING CONNECTIONS.
- MISCELLANEOUS ELECTRICAL AND NON-ELECTRICAL METAL BOXES, FRAMES AND SUPPORTS SHALL BE BONDED TO THE GROUND RING, IN ACCORDANCE WITH THE NEC.
- METAL CONDUIT AND TRAY SHALL BE GROUND AND MADE ELECTRICALLY CONTINUOUS WITH LISTED BONDING FITTINGS OR BY BONDING ACROSS THE DISCONTINUITY WITH 6 AWG COPPER WIRE UL APPROVED GROUNDING TYPE CONDUIT CLAMPS.
- GROUND CONDUCTORS USED IN THE FACILITY GROUND AND LIGHTNING PROTECTION SYSTEMS SHALL NOT BE ROUTED THROUGH METALLIC OBJECTS THAT FORM A RING AROUND THE CONDUCTOR, SUCH AS METALLIC CONDUITS, METAL SUPPORT CLIPS OR SLEEVES THROUGH WALLS OR FLOORS. WHEN IT IS REQUIRED TO BE HOUSED IN CONDUIT TO MEET CODE REQUIREMENTS OR LOCAL CONDITIONS, NON-METALLIC MATERIAL SUCH AS PVC PLASTIC CONDUIT SHALL BE USED. WHERE USE OF METAL CONDUIT IS UNAVOIDABLE (E.G., NON-METALLIC CONDUIT PROHIBITED BY LOCAL CODE) THE GROUND CONDUCTOR SHALL BE BONDED TO EACH END OF THE METAL CONDUIT.
- ALL TOWER GROUNDING SYSTEMS SHALL COMPLY WITH THE REQUIREMENTS OF ANSI/TIA 222. FOR TOWERS BEING BUILT TO REV-G OF THE STANDARD, THE WIRE SIZE OF THE BURIED GROUND RING AND CONNECTIONS BETWEEN THE TOWER AND THE BURIED GROUND RING SHALL BE CHANGED FROM 2 AWG TO 2/0 AWG. IN ADDITION, THE MINIMUM LENGTH OF THE GROUND RODS SHALL BE INCREASED FROM EIGHT FEET (8') TO TEN FEET (10').
- ALL NEW STRUCTURES WITH A FOUNDATION AND/OR FOOTING HAVING 20 FT. OR MORE 1/2" OR GREATER ELECTRICALLY CONDUCTIVE REINFORCING STEEL MUST HAVE IT BONDED TO THE GROUND RING USING AN EXOTHERMIC WELD CONNECTION USING #2 AWG SOLID TINNED COPPER GROUND WIRE, PER NEC 250.50.



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 BILLERICA, MA 01821

PLANS PREPARED BY:



24 QUEEN ST E
 BRAMPTON, ON
 1 (519) 572-9995

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 FA CODE: 10128120
 38 RICH ROAD
 NORTH GROSVENORDALE, CT 06255

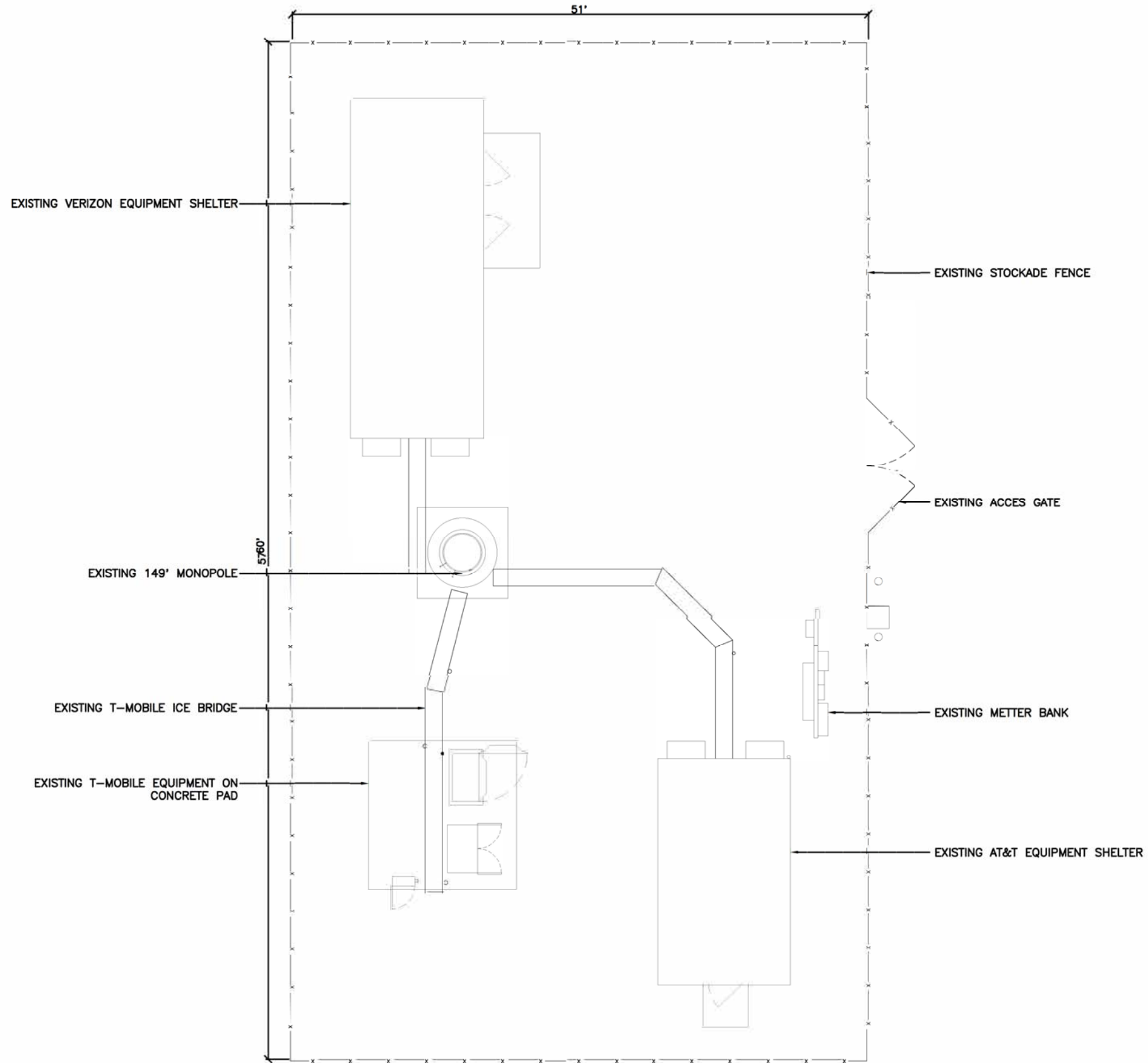
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SHEET TITLE:

GENERAL NOTES &
 GROUNDING NOTES

SHEET NUMBER:

GN-1



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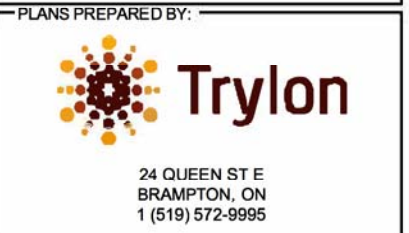
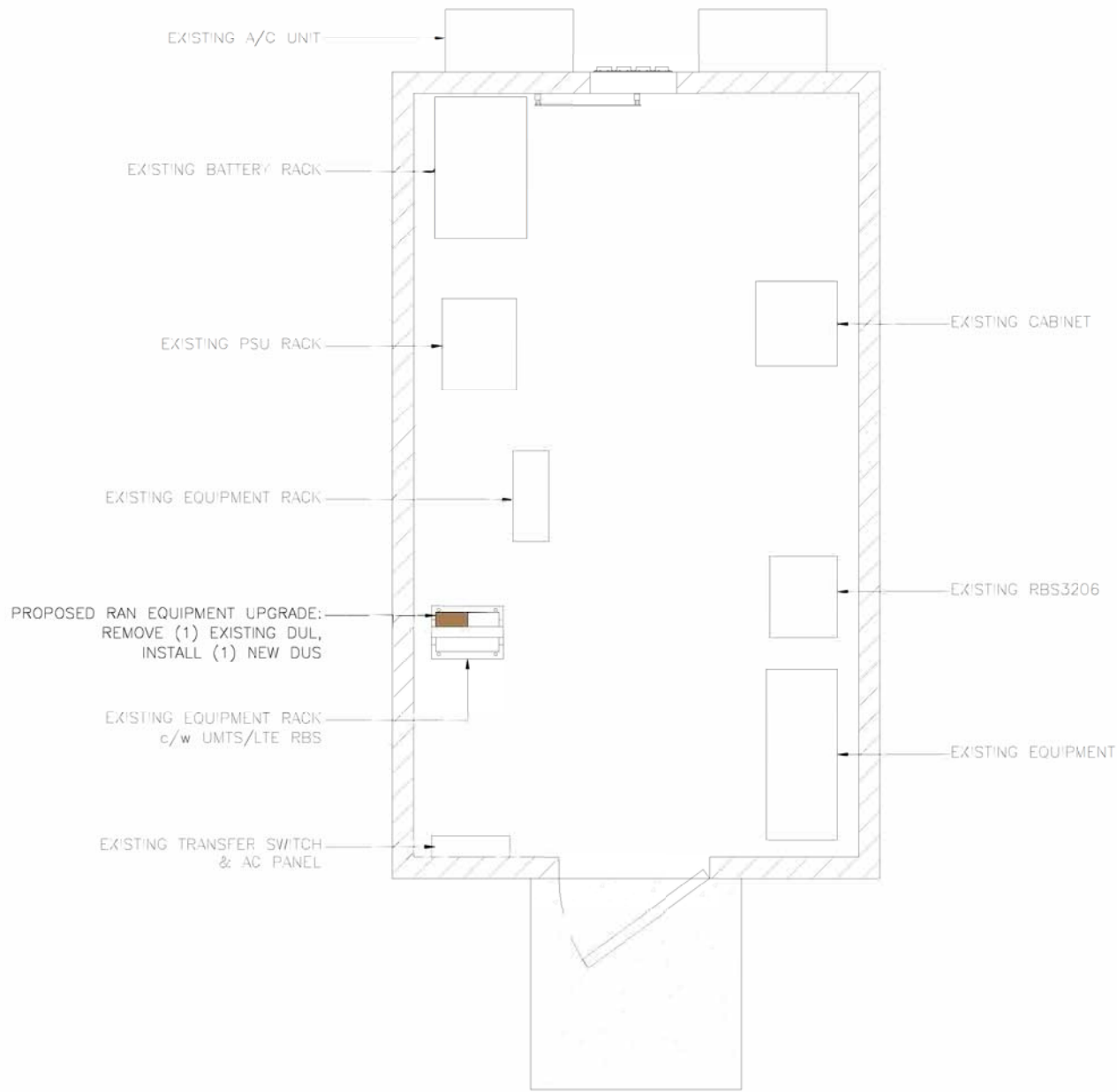
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SITE PLAN

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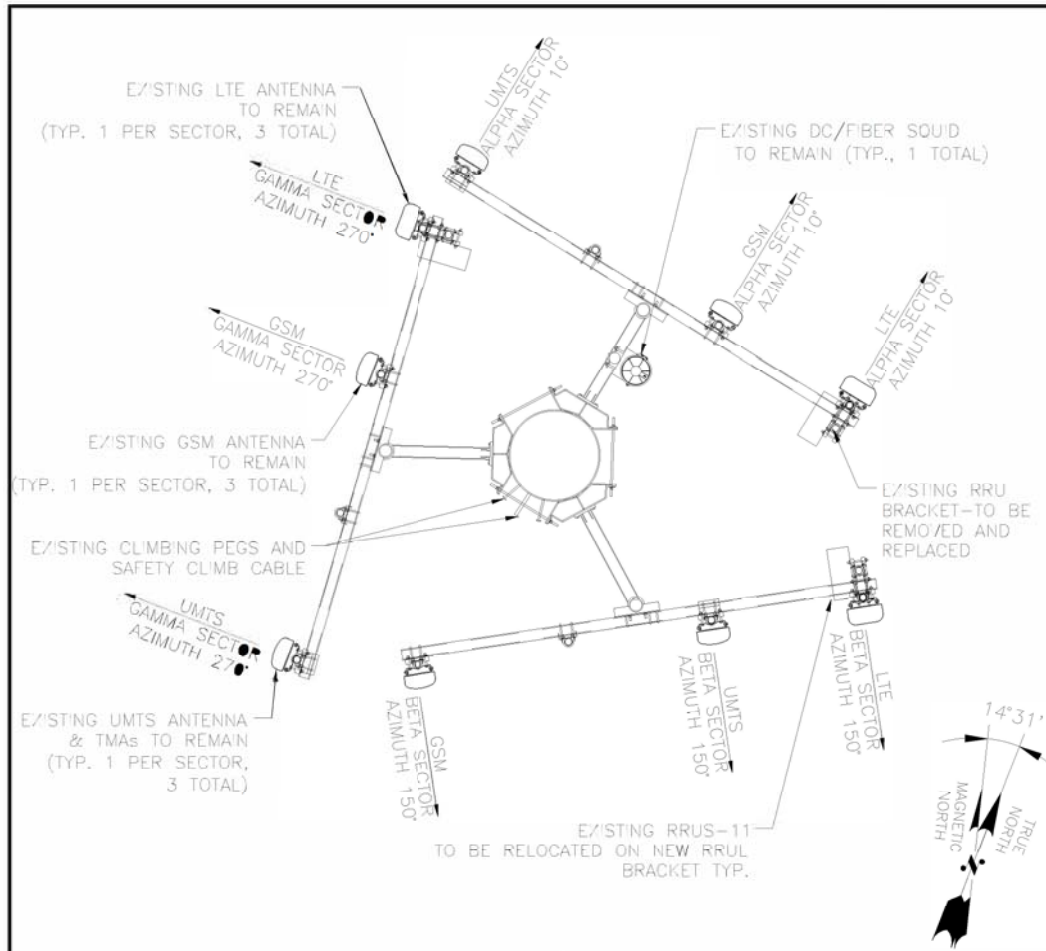
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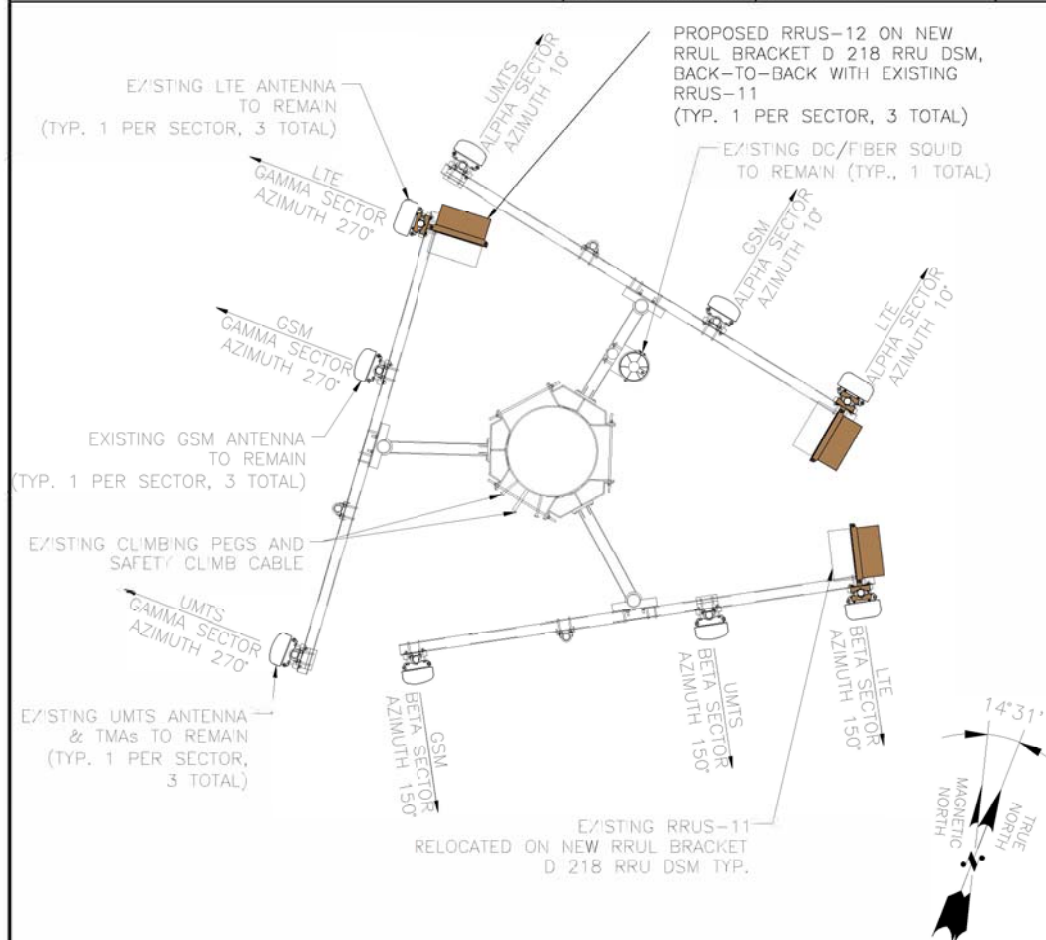
EQUIPMENT LAYOUTS

SHEET NUMBER:

A-2



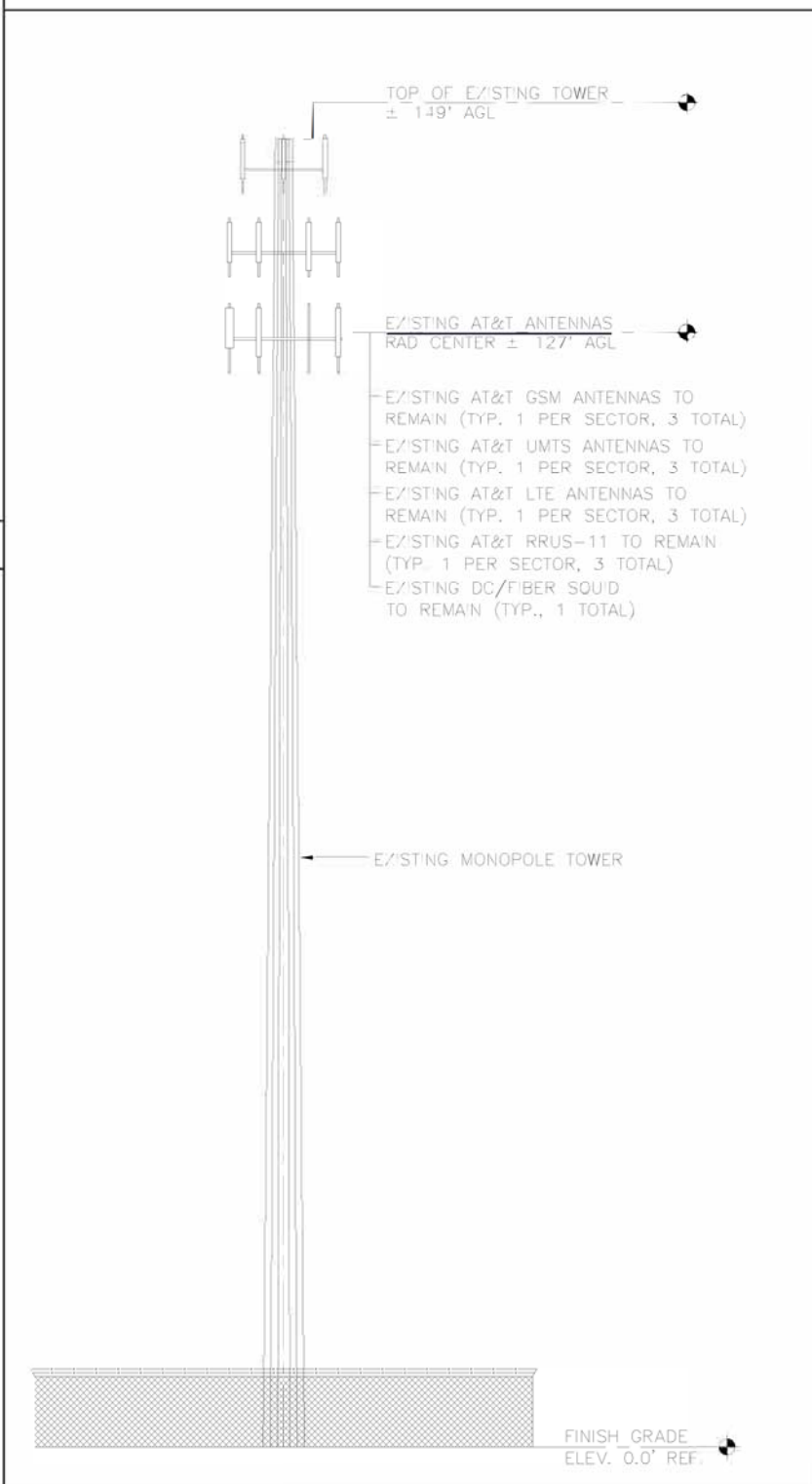
EXISTING ANTENNA LAYOUT 22"x34" SCALE: 3/8" = 1'-0" 11"x17" SCALE: 3/16" = 1'-0" 1



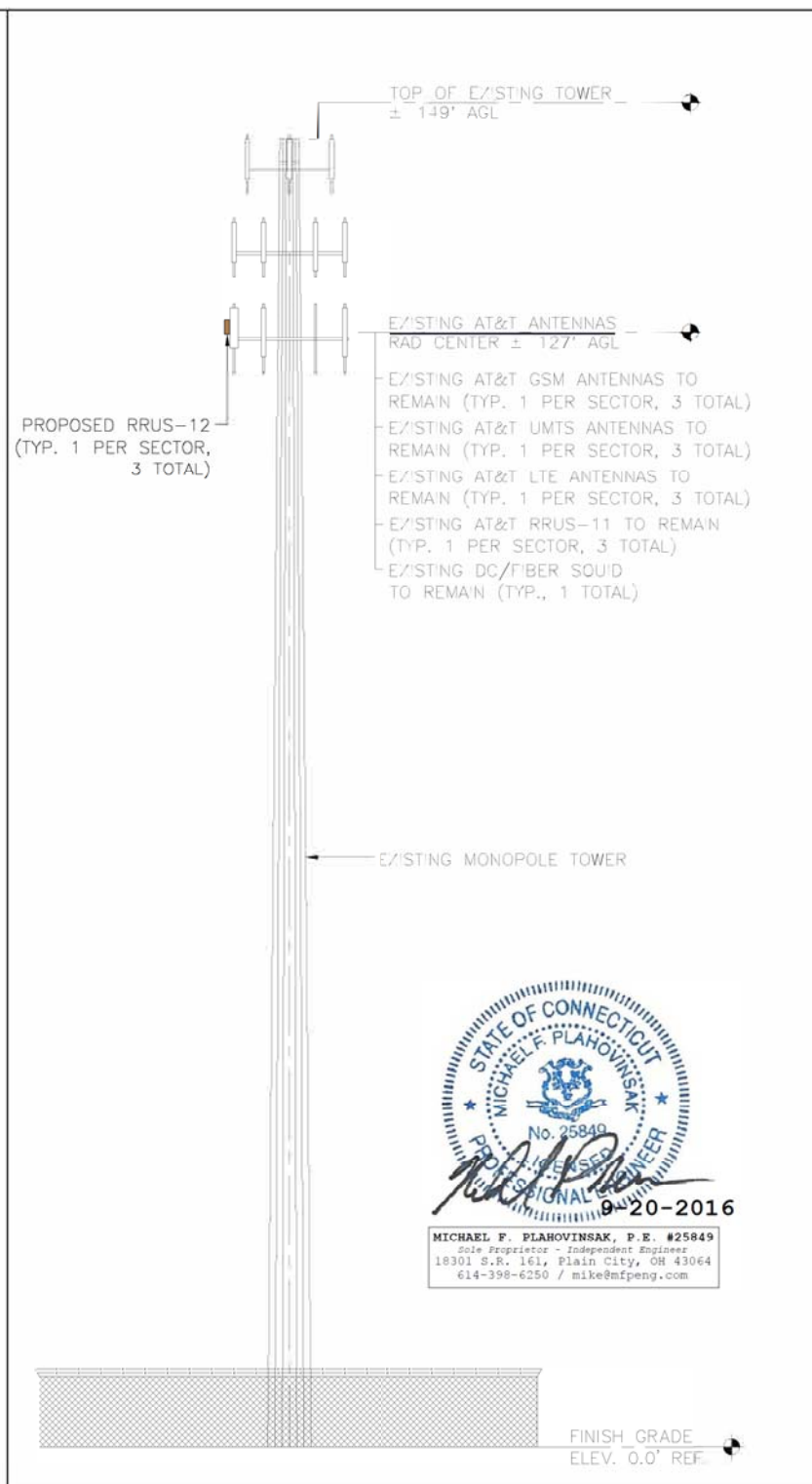
PROPOSED ANTENNA LAYOUT 22"x34" SCALE: 3/8" = 1'-0" 11"x17" SCALE: 3/16" = 1'-0" 2

SPECIAL PRE-CONSTRUCTION WORK NOTE (SBA-PROVIDED TOWER STRUCTURAL ANALYSIS SPECIAL EQUIPMENT INSTALLATION REQUIREMENTS):
 GENERAL CONTRACTOR SHALL FURNISH AND INSTALL ALL SPECIAL OR SUPPLEMENTAL ADDITIONAL TOWER-MOUNTED EQUIPMENT PER RECOMMENDATIONS FROM SBA-PROVIDED TOWER STRUCTURAL ANALYSIS FOR ANY SPECIAL SHIELDING OF TOWER TOP EQUIPMENT AND FOR ANY SPECIAL FEEDLINE BUNDLING OR RELOCATION.

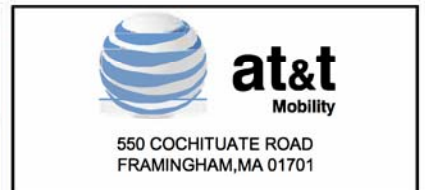
SPECIAL TOWER TOP EQUIPMENT INSTALLATION WORK NOTE (SAFETY-CLIMB ALIGNMENT REQUIREMENTS):
 GENERAL CONTRACTOR SHALL RE-ORIENT EXISTING AT&T PLATFORM COLLAR-MOUNT AND ORIENT PROPOSED PLATFORM REINFORCEMENT KIT COLLAR-MOUNTS SO THAT EXISTING SAFETY CLIMB CABLE IS NOT OBSTRUCTED/RE-ROUTED FROM VERTICAL ALIGNMENT AND IS NOT IN PHYSICAL CONTACT WITH EXISTING OR PROPOSED COLLAR-MOUNT HARDWARE. GENERAL CONTRACTOR SHALL INSTALL NEW OR ADDITIONAL SAFETY-CLIMB CABLE GUIDES IF ADDITIONAL CLEARANCE IS REQUIRED. ADDITIONAL CABLE GUIDES SHALL BE ATTACHED SECURELY TO THE POLE USING MECHANICAL FASTENERS OR FIELD WELDED BY A CERTIFIED WELDING TECHNICIAN.



EXISTING ELEVATION 22"x34" SCALE: 3/32" = 1'-0" 11"x17" SCALE: 3/64" = 1'-0" 3



PROPOSED ELEVATION 22"x34" SCALE: 3/32" = 1'-0" 11"x17" SCALE: 3/64" = 1'-0" 4



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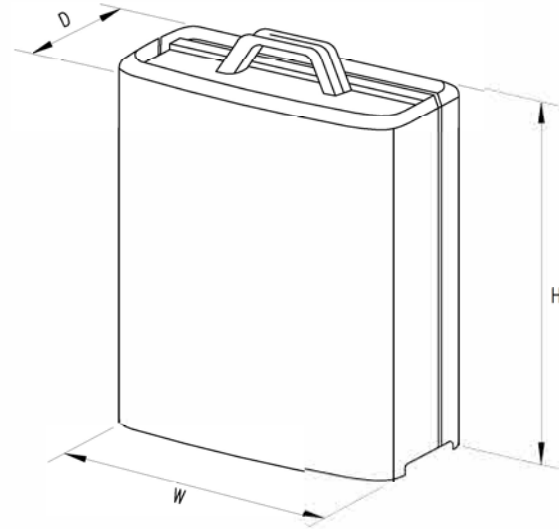
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SHEET TITLE:

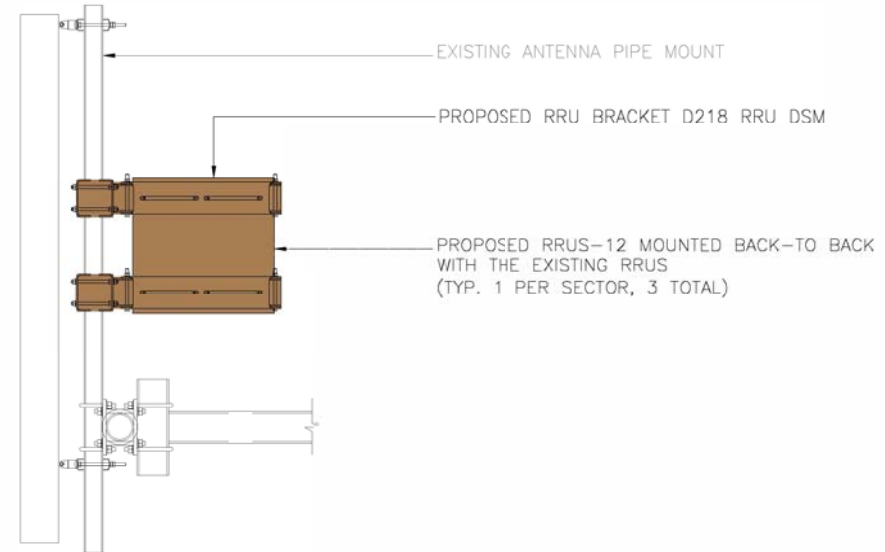
**ANTENNA LAYOUTS,
 TOWER ELEVATION &
 MOUNTING DETAILS**

SHEET NUMBER:

A-3



MODEL	H x W x D	WEIGHT
RRUS-11	19.69' x 16.97' x 7.17'	50.7 LBS
RRUS-12	20.4' x 18.5' x 7.5'	58 LBS
RRUS-32	29.9' x 13.3' x 9.5'	77 LBS
RRUS-E2	20.4' x 18.5' x 7.5'	58 LBS
A2 MODULE	16.4' x 15.2' x 3.4'	22 LBS



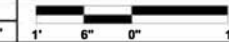
RRUS DETAILS

N.T.S

1

MOUNTING DETAIL

22"x34" SCALE: 1" = 1'-0"



2

PROPOSED RRUS-12 MOUNTED BACK-TO BACK WITH THE EXISTING RRU (TYP. 1 PER SECTOR, 3 TOTAL)



SOURCE: TRYLON 9/1/16



MICHAEL F. PLAHOVINSAK, P.E. #25849
Sole Proprietor - Independent Engineer
18301 S.R. 161, Plain City, OH 43064
614-398-6250 / mike@mpeng.com

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SEAL:

SHEET TITLE:

DETAILS

SHEET NUMBER:

A-4

RRU MOUNTING DETAIL (ONE SECTOR SHOWN, TYP OF 3)

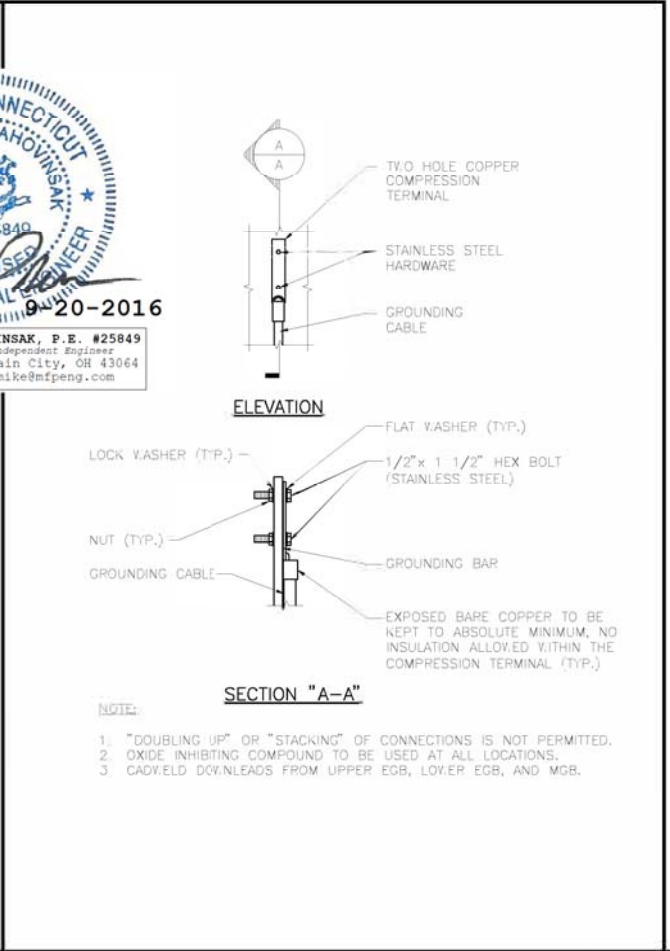
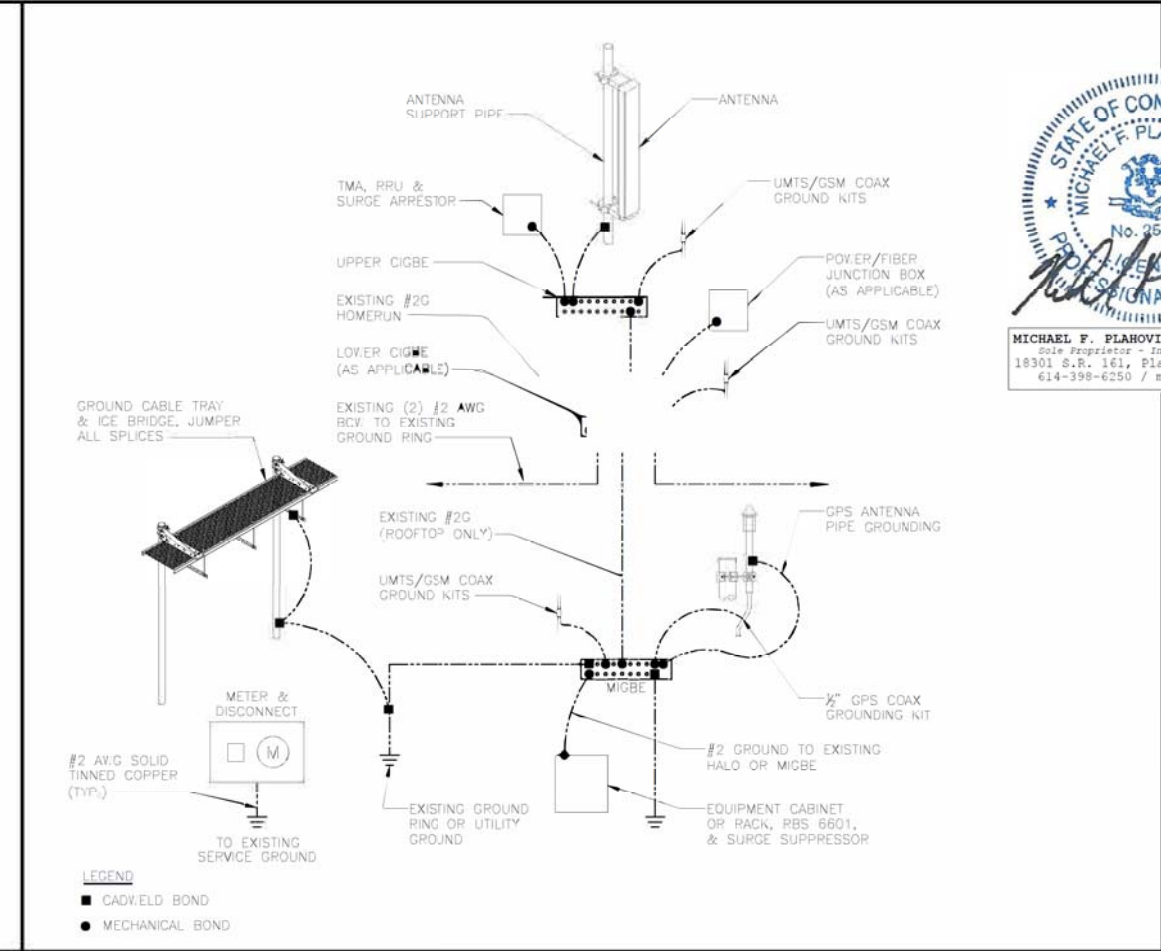
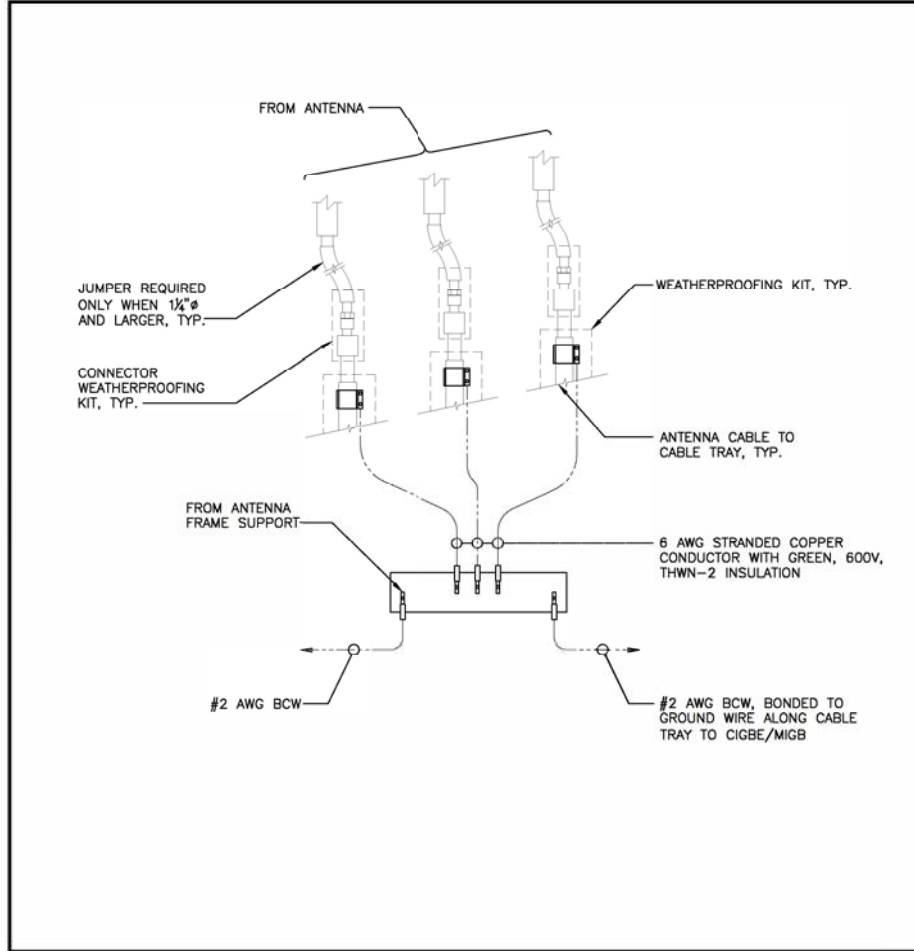
N.T.S

3

NOT USED

N.T.S

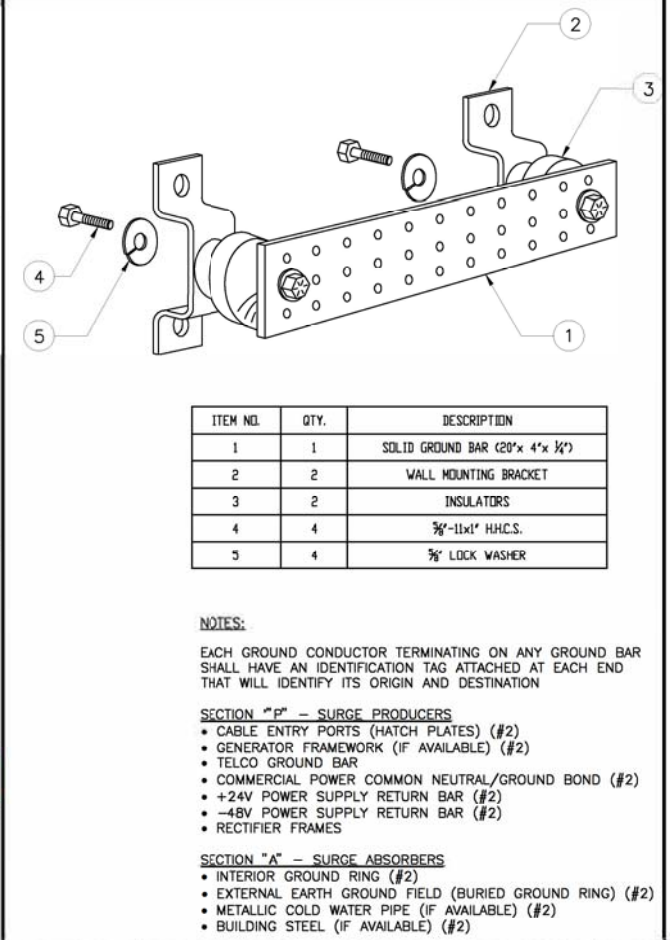
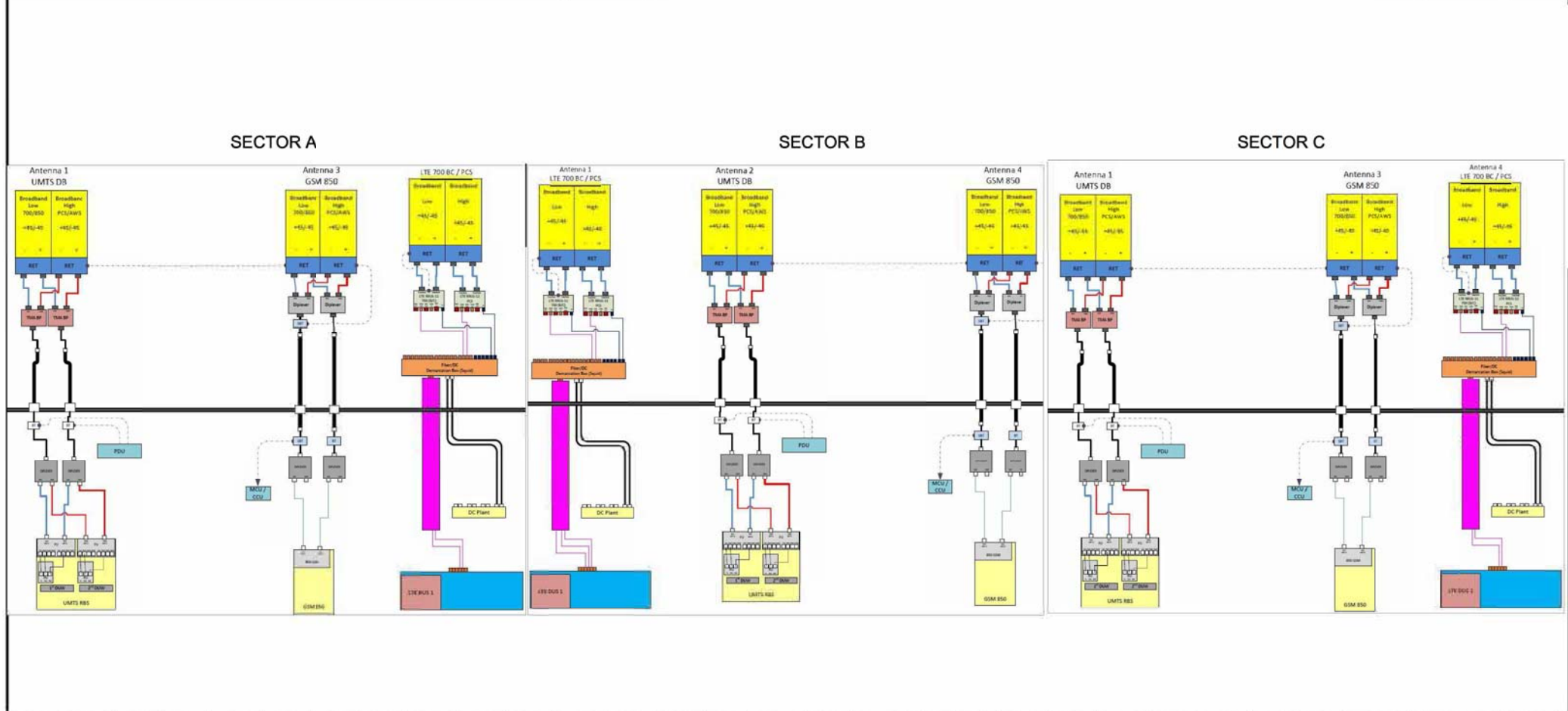
4



GROUND WIRE TO GROUND BAR CONNECTION DETAILS N.T.S 1

GROUND RISER DIAGRAM N.T.S 2

TYPICAL GROUND BAR CONN. DETAILS N.T.S 3



RAN WIRING DIAGRAM N.T.S 4

GROUND BAR DETAILS N.T.S 5

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SEAL:

SHEET TITLE:

GROUNDING, ONE-LINE DIAGRAM & DETAILS

SHEET NUMBER:

G-1