Filed by:
Kri Pelletier, Property Specialist - SBA Communications
134 Flanders Rd., Suite 125, Westborough, MA 01581
508.251.0720 x 3804 - kpelletier@sbasite.com

March 6, 2017

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

Notice of Exempt Modification
175 Dickenson Road, Glastonbury, CT 05073
41 39 21.23 N
-72 31 23.72 W
AT&T #: 10042319 – CT1124

Dear Ms. Bachman:

AT&T currently maintains nine (9) antennas at the 137-foot level of the existing 176' Monopole at 175 Dickenson Rd. The tower is owned by SBA Properties, Inc. The property is owned by Brian Bronzi and Randall Chapman. AT&T now intends to replace (3) existing antennas at the 137' level of the tower. AT&T's full proposed scope of work is as follows:

Remove:

- None

Remove and Replace:

- Remove (3) KMW AM-X-CD-16-65-005- RET Antennas and replace with (3) CCI HPA-65R-BUU-H6 - Panel Antennas
- Remove (3) Ericsson RRUs-11 RRUs and replace with (3) Ericsson RRUS 32-BD-RRUs

Install:

- (3) Powerwave 1001940 Smart Bias Ts

Existing Equipment to Remain (including entitlements):

- (6) Powerwave 7770 Panel Antennas
- (6) Powerwave LGP21401 TMAs
- (3) Ericsson RRUS-11 RRUs
- (6) Powerwave LGP21903-DP
- (1) Raycap DC6-48-60-18-8F-SP
- (1) LP Platform
- (12) 1-5/8" lines
- (2) ¾" DC
- (1) ½" lines
- (1) 3" conduit

This facility was approved by the Town of Glastonbury's Zoning Board of Appeals at their Public Hearing dated 8/9/2000. Special Exception was given for a 180' monopole tower and installation and operation of antennas and associated equipment for wireless communication systems. The compound was to be 70' x 70' with room for 5 wireless arrays holding up to 12 panel antennas per array. 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 Richard J. Johnson, Town Manager for the Town of Glastonbury, Khara Dodds, Director of Land Use & Planning Services for the Town of Glastonbury, and property owners Brian Bronzi and Randall Chapman. (Separate notice is not being sent to the 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@sbasite.com

Attachments

cc: Richard J. Johnson, Town Manager–as elected official
Glastonbury Town Hall, 2155 Main Street, Glastonbury, CT 06033
Khara Dodds, Director of Land Use & Planning Services–as representative for planning & zoning
Glastonbury Town Hall, 2155 Main Street, Glastonbury, CT 06033
Brian Bronzi and Randall Chapman– as property owners
Brian Bronzi: 21 South Buckboard Lane Marlborough, CT 06447
Randall Chapman: P.O. Box 7 Troy ME 04987

POWER DENSITY
AT&T Site Inventory and Power Data

Antenna ID	Antenna Make / Model	Frequency Bands	Antenna Gain (dBd)	Channel Count	Total TX Power (W)	ERP (W)	MPE %
Antenna A1	Powerwave 7770	850 MHz / 1900 MHz (PCS)	11.4 / 13.4	4	120	2,140.89	0.58
Antenna A2	CCI HPA-65R-BUU-H6	700 MHz / 1900 MHz (PCS)	11.95 / 14.75	4	240	5,462.56	1.59
Antenna A3	Powerwave 7770	850 MHz / 1900 MHz (PCS)	11.4 / 13.4	4	120	2,140.89	0.58
						Sector A Composite MPE%	**2.76**
Antenna B1	Powerwave 7770	850 MHz / 1900 MHz (PCS)	11.4 / 13.4	4	120	2,140.89	0.58
Antenna B2	CCI HPA-65R-BUU-H6	700 MHz / 1900 MHz (PCS)	11.95 / 14.75	4	240	5,462.56	1.59
Antenna B3	Powerwave 7770	850 MHz / 1900 MHz (PCS)	11.4 / 13.4	4	120	2,140.89	0.58
						Sector B Composite MPE%	**2.76**
Antenna C1	Powerwave 7770	850 MHz / 1900 MHz (PCS)	11.4 / 13.4	4	120	2,140.89	0.58
Antenna C2	CCI HPA-65R-BUU-H6	700 MHz / 1900 MHz (PCS)	11.95 / 14.75	4	240	5,462.56	1.59
Antenna C3	Powerwave 7770	850 MHz / 1900 MHz (PCS)	11.4 / 13.4	4	120	2,140.89	0.58
						Sector C Composite MPE%	**2.76**

Table 3: AT&T Emissions Levels

Site Composite MPE%	
Carrier	**MPE%**
AT&T – Max Sector Value	**2.76 %**
T-Mobile	0.23 %
MetroPCS	0.34 %
Verizon Wireless	3.13 %
Sprint	0.20 %
Site Total MPE %:	**6.66 %**

Table 4: All Carrier MPE Contributions

AT&T Sector A Total:	2.76 %
AT&T Sector B Total:	2.76 %
AT&T Sector C Total:	2.76 %
Site Total:	6.66 %

Table 5: Site MPE Summary

AT&T _ Frequency Band / Technology (All Sectors)	# Channels	Watts ERP (Per Channel)	Height (feet)	Total Power Density ($\mu W/cm^2$)	Frequency (MHz)	Allowable MPE ($\mu W/cm^2$)	Calculated % MPE
AT&T 850 MHz UMTS	2	414.12	137	1.74	850 MHz	567	0.31%
AT&T 1900 MHz (PCS) UMTS	2	656.33	137	2.75	1900 MHz (PCS)	1000	0.27%
AT&T 700 MHz LTE	2	940.05	137	3.94	700 MHz	467	0.84%
AT&T 1900 MHz (PCS) LTE	2	1,791.23	137	7.50	1900 MHz (PCS)	1000	0.75%
AT&T 850 MHz GSM	2	414.12	137	1.74	850 MHz	567	0.31%
AT&T 1900 MHz (PCS) GSM	2	656.33	137	2.75	1900 MHz (PCS)	1000	0.27%
						Total:	2.76%

Table 6: AT&T Maximum Sector MPE Power Values

AT&T Sector	Power Density Value (%)
Sector A:	2.76 %
Sector B:	2.76 %
Sector C:	2.76 %
AT&T Maximum Total (per sector):	2.76 %
Site Total:	6.66 %
Site Compliance Status:	**COMPLIANT**

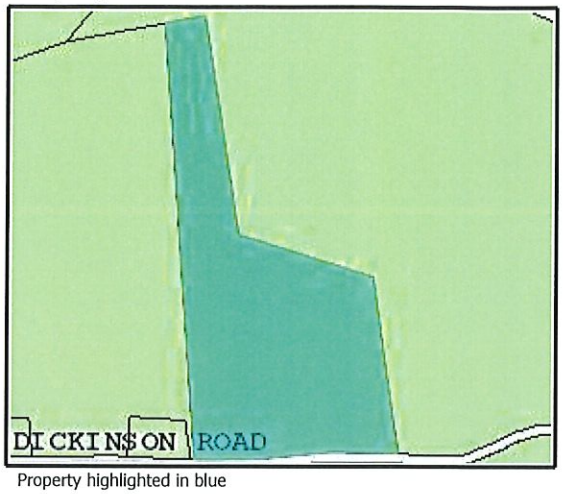
Town of Glastonbury GIS Parcel Report

Report Generated 1/25/2017 12:05:36 PM

Owner of Record

GIS ID: 18600175
Owner: CHAPMAN RANDALL S+
Co-Owner: BRONZI BRIAN J
Address: PO BOX 7
City, State ZIP: TROY , ME 04987-0007

Account Number: 18600175
Property Address: 175 DICKINSON RD



Property highlighted in blue

Parcel Information

Map/Street/Lot J12 / 1860 / N0003 **Property ID:** 1492
Developer Lot ID: **Water:** Well
Parcel Acreage: 30.35 **Sewer:** Septic
Zoning Code: RR **Census:** 5205.02

Valuation Summary

Item	Appraised Value	Assessed Value
Buildings	0	0
Land	1098900	769300
Appurtenances	0	0
Total	**1098900**	**769300**

Building Picture Not Applicable

Owner of Record	Deed / Page	Sale Date	Sale Price
CHAPMAN RANDALL S+	3057/0041	01/11/2013	0
CHAPMAN RANDALL S+	3057/0039	01/11/2013	0
CHAPMAN RANDALL S+	2684/0333	08/03/2009	0
CHAPMAN RANDALL S+	2295/0261	02/02/2006	0
CHAPMAN DONALD A (LU)+ RANDALL S+	1582/0249	05/08/2002	0
CHAPMAN DONALD A+BRONZI	0442/0018	08/25/1988	0

Building Information

Building ID 0

Year Constructed :
Building Type :
Style :
Occupany :
Stories :
Building Zone :
Roof Type :
Roof Material :
Est. Gross S.F. :
Est. Living S.F. :

Number of Rooms :
Number of Bedrooms :
Number of Bathrooms :
Number of Half-Baths :
Exterior Wall :
Interior Wall :
Interior Floor :
Interior Floor #2 :
Air Conditioning Type :
Heat Type :
Fuel Type :

Building Sketch Not Applicable

Subarea Type	Est. Gross S.F.	Est. Living S.F.

Outbuilding Type	Est. Gross S.F.	Comments

Radio Frequency Emissions Analysis Report

AT&T Existing Facility

Site ID: CT1124

Glastonbury South
175 Dickinson Road
Glastonbury, CT 6073

March 6, 2017

Centerline Communications Project Number: 950006-041

Site Compliance Summary	
Compliance Status:	**COMPLIANT**
Site total MPE% of FCC general population allowable limit:	**6.66 %**

March 6, 2017

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

Emissions Analysis for Site: **CT1124 – Glastonbury South**

Centerline Communications, LLC ("Centerline") was directed to analyze the proposed AT&T facility located at **175 Dickinson Road, Glastonbury, 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 97-01and ANSI/IEEE Std C95.1. The FCC regulates Maximum Permissible Exposure in units of microwatts per square centimeter (μW/cm2). The number of $\mu W/cm^2$ calculated at each sample point is called the power density. The exposure limit for power density varies depending upon the frequencies being utilized. Wireless Carriers and Paging Services use different frequency bands each with different exposure limits, therefore it is necessary to report results and limits in terms of percent MPE rather than power density.

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

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

Population exposure to radio frequencies is regulated and enforced in units of microwatts per square centimeter ($\mu W/cm^2$). The general population exposure limits for the 700 and 850 MHz Bands are approximately 467 $\mu W/cm^2$ and 567 $\mu W/cm^2$ respectively. The general population exposure limit for the 1900 MHz (PCS), 2100 MHz (AWS) and 2300 MHz (WCS) bands is 1000 $\mu W/cm^2$. Because each carrier will be using different frequency bands, and each frequency band has different exposure limits, it is necessary to report percent of MPE rather than power density.

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

Additional details can be found in FCC OET 65.

CALCULATIONS

Calculations were performed for the proposed AT&T Wireless antenna facility located at **175 Dickinson Road, Glastonbury, 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.

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. All power values expressed and analyzed are maximum power levels expected to be used on all radios.

All emissions values for additional carriers were taken from the Connecticut Siting Council (CSC) active MPE database. Values in this database are provided by the individual carriers themselves

For each sector the following channel counts, frequency bands and power levels were utilized as shown in *Table 1*:

Technology	Frequency Band	Channel Count	Transmit Power per Channel (W)
UMTS	850 MHz	2	30
UMTS	1900 MHz (PCS)	2	30
LTE	700 MHz	2	60
LTE	1900 MHz (PCS)	2	60
GSM	850 MHz	2	30
GSM	1900 MHz (PCS)	2	30

Table 1: Channel Data Table

The following antennas listed in *Table 2* were used in the modeling 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.

Sector	Antenna Number	Antenna Make / Model	Antenna Centerline (ft)
A	1	Powerwave 7770	137
A	2	CCI HPA-65R-BUU-H6	137
A	3	Powerwave 7770	137
B	1	Powerwave 7770	137
B	2	CCI HPA-65R-BUU-H6	137
B	3	Powerwave 7770	137
C	1	Powerwave 7770	137
C	2	CCI HPA-65R-BUU-H6	137
C	3	Powerwave 7770	137

Table 2: Antenna Data

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

RESULTS

Per the calculations completed for the proposed AT&T configurations *Table 3* shows resulting emissions power levels and percentages of the FCC's allowable general population limit.

Antenna ID	Antenna Make / Model	Frequency Bands	Antenna Gain (dBd)	Channel Count	Total TX Power (W)	ERP (W)	MPE %
Antenna A1	Powerwave 7770	850 MHz / 1900 MHz (PCS)	11.4 / 13.4	4	120	2,140.89	0.58
Antenna A2	CCI HPA-65R-BUU-H6	700 MHz / 1900 MHz (PCS)	11.95 / 14.75	4	240	5,462.56	1.59
Antenna A3	Powerwave 7770	850 MHz / 1900 MHz (PCS)	11.4 / 13.4	4	120	2,140.89	0.58
						Sector A Composite MPE%	**2.76**
Antenna B1	Powerwave 7770	850 MHz / 1900 MHz (PCS)	11.4 / 13.4	4	120	2,140.89	0.58
Antenna B2	CCI HPA-65R-BUU-H6	700 MHz / 1900 MHz (PCS)	11.95 / 14.75	4	240	5,462.56	1.59
Antenna B3	Powerwave 7770	850 MHz / 1900 MHz (PCS)	11.4 / 13.4	4	120	2,140.89	0.58
						Sector B Composite MPE%	**2.76**
Antenna C1	Powerwave 7770	850 MHz / 1900 MHz (PCS)	11.4 / 13.4	4	120	2,140.89	0.58
Antenna C2	CCI HPA-65R-BUU-H6	700 MHz / 1900 MHz (PCS)	11.95 / 14.75	4	240	5,462.56	1.59
Antenna C3	Powerwave 7770	850 MHz / 1900 MHz (PCS)	11.4 / 13.4	4	120	2,140.89	0.58
						Sector C Composite MPE%	**2.76**

Table 3: AT&T Emissions Levels

The Following table (*table 4*) shows all additional carriers on site and their MPE% as recorded in the CSC active MPE database for this facility along with the newly calculated maximum AT&T MPE contributions per this report. FCC OET 65 specifies that for carriers utilizing directional antennas that the highest recorded sector value be used for composite site MPE values due to their greatly reduced emissions contributions in the directions of the adjacent sectors. For this site, all three sectors have the same configuration yielding the same results on all three sectors. *Table 5* below shows a summary for each AT&T Sector as well as the composite MPE value for the site.

Site Composite MPE%	
Carrier	**MPE%**
AT&T – Max Sector Value	**2.76 %**
T-Mobile	0.23 %
MetroPCS	0.34 %
Verizon Wireless	3.13 %
Sprint	0.20 %
Site Total MPE %:	**6.66 %**

Table 4: All Carrier MPE Contributions

AT&T Sector A Total:	2.76 %
AT&T Sector B Total:	2.76 %
AT&T Sector C Total:	2.76 %
Site Total:	6.66 %

Table 5: Site MPE Summary

FCC OET 65 specifies that for carriers utilizing directional antennas that the highest recorded sector value be used for composite site MPE values due to their greatly reduced emissions contributions in the directions of the adjacent sectors. *Table 6* below details a breakdown by frequency band and technology for the MPE power values for the maximum calculated AT&T sector(s). For this site, all three sectors have the same configuration yielding the same results on all three sectors.

AT&T _ Frequency Band / Technology (All Sectors)	# Channels	Watts ERP (Per Channel)	Height (feet)	Total Power Density ($\mu W/cm^2$)	Frequency (MHz)	Allowable MPE ($\mu W/cm^2$)	Calculated % MPE
AT&T 850 MHz UMTS	2	414.12	137	1.74	850 MHz	567	0.31%
AT&T 1900 MHz (PCS) UMTS	2	656.33	137	2.75	1900 MHz (PCS)	1000	0.27%
AT&T 700 MHz LTE	2	940.05	137	3.94	700 MHz	467	0.84%
AT&T 1900 MHz (PCS) LTE	2	1,791.23	137	7.50	1900 MHz (PCS)	1000	0.75%
AT&T 850 MHz GSM	2	414.12	137	1.74	850 MHz	567	0.31%
AT&T 1900 MHz (PCS) GSM	2	656.33	137	2.75	1900 MHz (PCS)	1000	0.27%
						Total:	2.76%

Table 6: AT&T Maximum Sector MPE Power Values

Summary

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

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

AT&T Sector	Power Density Value (%)
Sector A:	2.76 %
Sector B:	2.76 %
Sector C:	2.76 %
AT&T Maximum Total (per sector):	2.76 %
Site Total:	6.66 %
Site Compliance Status:	**COMPLIANT**

The anticipated composite MPE value for this site assuming all carriers present is **6.66 %** of the allowable FCC established general population limit sampled at the ground level. This is based upon values listed in the Connecticut Siting Council database for existing carrier emissions.

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

Scott Heffernan
RF Engineering Director
Centerline Communications, LLC
95 Ryan Drive, Suite 1
Raynham, MA 02767

Tower Engineering Solutions
Phone (972) 483-0607, Fax (972) 975-9615
8445 Freeport Parkway, Suite 375, Irving, Texas 75063

Structural Analysis Report

Existing 176 ft. SUMMIT Monopole

Customer Name: SBA Communications Corp

Customer Site Number: CT02216-S-05

Customer Site Name: Glastonbury

Carrier Name: AT&T

Carrier Site ID / Name: FA# 10042319 USID# CT1124 / Glastonbury South

Site Location: 175 Dickenson Road

Glastonbury, Connecticut

Hartford County

Latitude: 41.655897

Longitude: -72.523255

2/27/17

Analysis Result:

Max Structural Usage: 66.2% [Pass]

Max Foundation Usage: 52.0% [Pass]

Report Prepared By : Delu Zhou

Introduction

The purpose of this report is to summarize the analysis results on the 176 ft. SUMMIT 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	Paul J. Ford and Company, Job #29200-887 dated June 19, 2000
Foundation Drawing	Paul J. Ford and Company, Job #29200-887 dated June 19, 2000
Geotechnical Report	FDH Engineering, Project #1204838EG1 dated August 13, 2012
Modification Drawings	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} = 125.0 mph (3-Sec. Gust)/ Nominal Design Wind Speed V_{asd} = 97.0 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 = 0.179, 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	177.0	6	EMS RR90-17-02DP - Panel	(3) T-Arms	(12) 1 5/8"	T-Mobile
2		12	Allen FE15501P77/75 - MHA			
3	167.0	6	Andrew SBNHH-1D65B - Panel	(1) LP Platform	(6) 1 5/8" (2) 1 5/8" Hybrid	Verizon
4		2	RFS APL868013 - Panel			
5		4	Antel LPA-80063-4CF-EDIN-5 - Panel			
6		3	ALU RRH2X60-700			
7		3	ALU RRH2X60-AWS			
8		1	RFS DB-T16Z-8AB-0Z			
9	157.0	12	Decibel DB980H90E-M - Panel	(1) LP Platform	(12) 1 5/8"	Sprint
10	147.0	3	Kathrein 742 213 - Panel	Flush Mount	(6) 1 5/8"	Metro PCS
-	137.0	6	Powerwave 7770.00 - Panel	(1) LP Platform	(12) 1 5/8" (2) 3/4" DC (1) 1/2" (1) 3" conduit	AT&T
-		3	KMW AM-X-CD-16-65-005 - RET			
-		6	Powerwave LGP21401 - TMA			
-		6	Ericsson RRUS-11 - RRU			
-		6	Powerwave LGP21903 - DP			
-		1	Raycap DC6-48-60-18-8F - SP			

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
11	137.0	6	Powerwave 7770.00 - Panel	(1) LP Platform-Round	(12) 1 5/8" (2) 3/4" DC (1) 1/2" (1) 3" conduit	AT&T
12		3	CCI HPA-65R-BUU-H6 - Panel			
13		6	Powerwave LGP21401 - TMA			
14		12	Powerwave 7020.00 RET			
15		3	Ericsson RRUS-11 - RRU			
16		3	Ericsson RRUS 32-B2 - RRU			
17		6	Powerwave LGP21903 - DP			
18		1	Raycap DC6-48-60-18-8F - SP			
19		3	Powerwave 1001940 Smart Bias T			

All transmission lines are considered running inside of the pole shafts. AT&T (2) 3/4" DC and (1) 1/2" fiber lines are within 3" flex conduit.

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:	**58.4%**	**53.3%**	**66.2%**
Pass/Fail	**Pass**	**Pass**	**Pass**

Foundations

	Moment (Kip-Ft)	Shear (Kips)	Axial (Kips)
Analysis Reactions	4215.4	34.0	99.3

The foundation has been investigated using the supplied documents and soils report and was found adequate. Therefore, no modification to the foundation will be required.

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 1.1898 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.

Antenna Mount Note:

The existing mount contributed no additional stress to the tower since it was already existing.

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.

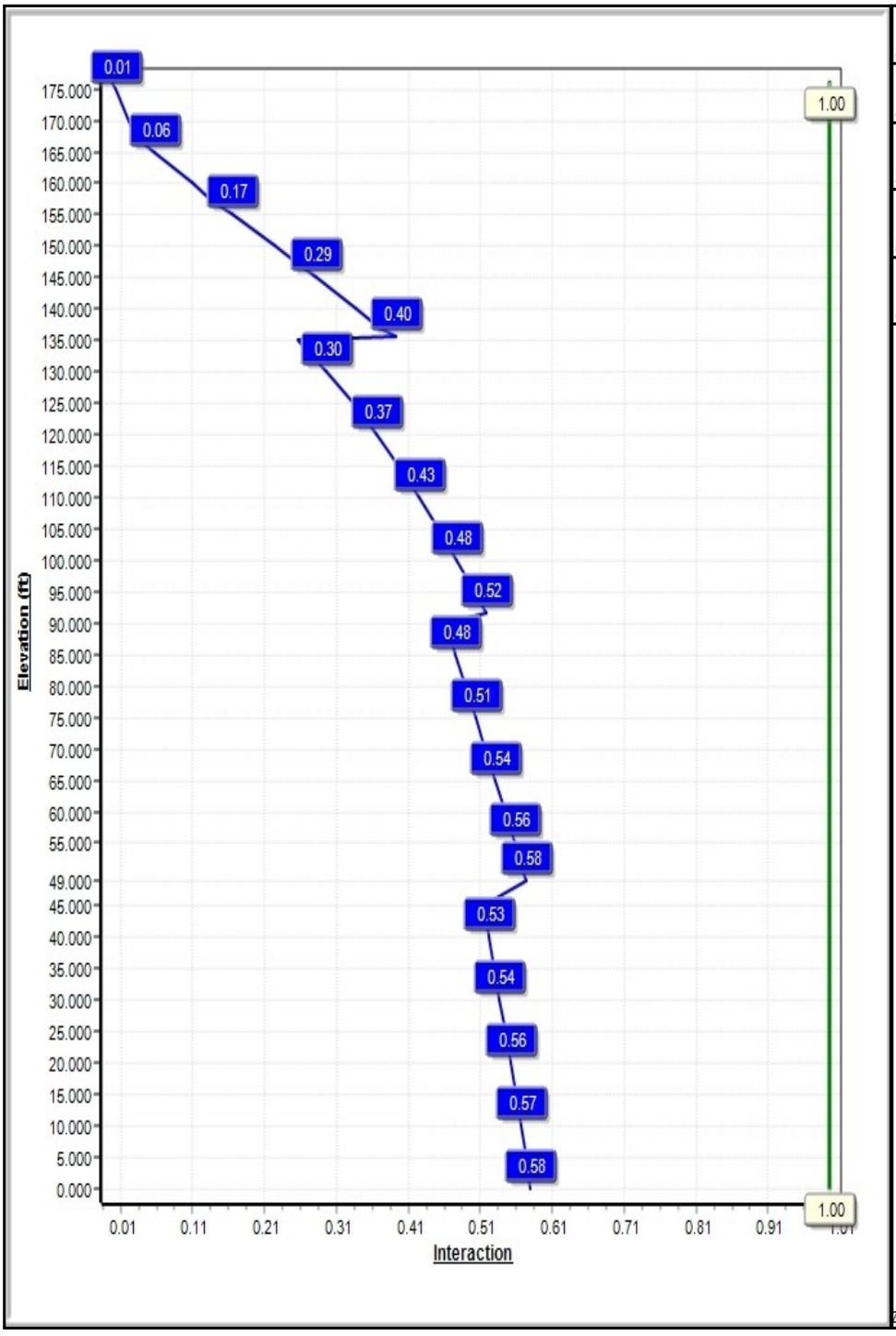
Usage Diagram - Max Ratio 58.39% at 0.0ft

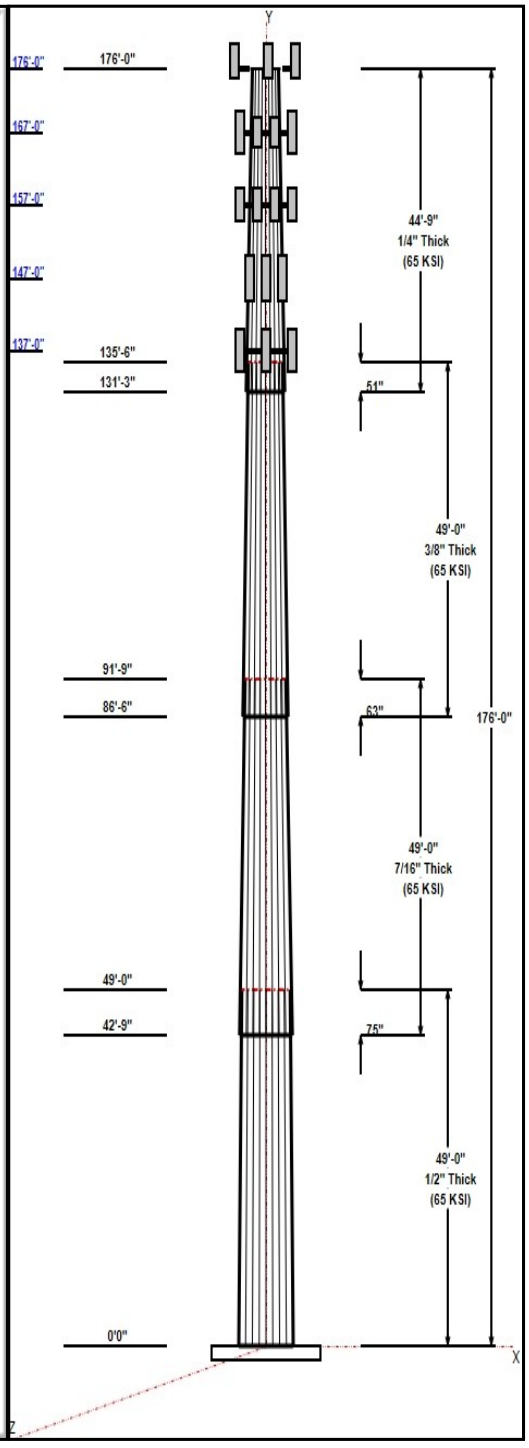
Structure:	CT02216-S-SBA	**Code:**	EIA/TIA-222-G	2/27/2017	
Site Name:	Glastonbury	**Exposure:**	C		
Height:	176.00 (ft)	**Gh:**	1.1	Page: 1	
Base Elev:	0.000 (ft)				

Tower Engineering Solutions

Dead Load Factor:	1.20	**Iterations:**	26
Wind Load Factor:	1.60		

Load Case : 1.2D + 1.6W 97 mph Wind





Structure: CT02216-S-SBA

Type: Tapered
Site Name: Glastonbury
Height: 176.00 (ft)
Base Elev: 0.00 (ft)

Base Shape: 18 Sided
Taper: 0.19702

2/27/2017

Tower Engineering Solutions

Shaft Properties

Seq	Length (ft)	Top (in)	Bottom (in)	Thick (in)	Joint Type	Taper	Grade (ksi)
1	49.00	46.90	56.55	0.500		0.19702	65
2	49.00	39.35	49.00	0.438	Slip	0.19702	65
3	49.00	31.48	41.13	0.375	Slip	0.19702	65
4	44.75	24.00	32.82	0.250	Slip	0.19702	65

Discrete Appurtenances

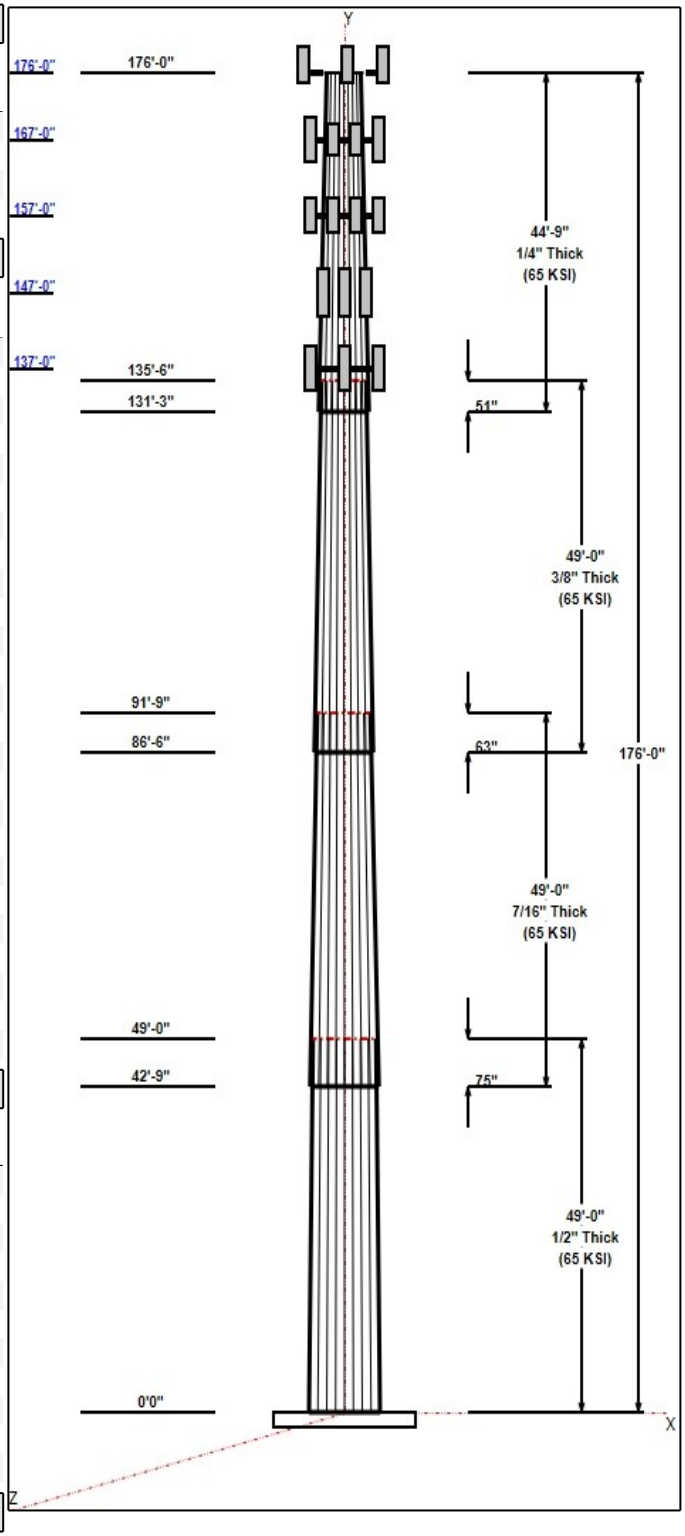
Attach Elev (ft)	Force Elev (ft)	Qty	Description	Carrier
176.00	177.00	6	RR90-17-02DP	T-Mobile
176.00	177.00	12	MHA FE15501P77/75	T-Mobile
176.00	176.00	3	T-Arms	T-Mobile
176.00	179.50	1	Lightning Rod	
167.00	167.00	1	Low Profile	Verizon
167.00	167.00	3	RRH2X60-AWS	Verizon
167.00	167.00	3	RRH2X60-700	Verizon
167.00	167.00	6	SBNHH-1D65B	Verizon
167.00	167.00	4	LPA-80063-4CF-EDIN-5	Verizon
167.00	167.00	2	APL868013	Verizon
167.00	167.00	1	DB-T16Z-8AB-0Z	Verizon
157.00	157.00	1	Low Profile Platform	Sprint
157.00	157.00	12	DB980H90E-M	Sprint
147.00	147.00	3	742 213	Metro PCS
147.00	147.00	1	Flush Mount	Metro PCS
137.00	137.00	3	HPA-65R-BUU-H6	AT&T
137.00	137.00	12	7020	AT&T
137.00	137.00	3	RRUS 32-B2	AT&T
137.00	137.00	3	Smart Bias T 1001940	AT&T
137.00	137.00	1	DC6-48-60-18-8F	AT&T
137.00	137.00	3	RRUS-11	AT&T
137.00	137.00	6	7770.00	AT&T
137.00	137.00	6	LGP21401	AT&T
137.00	137.00	6	LGP21903	AT&T
137.00	137.00	1	LP Platform-Round	AT&T

Linear Appurtenances

Elev From (ft)	Elev To (ft)	Placement	Description	Carrier
0.00	176.00	Inside	1 5/8" Coax	T-Mobile
0.00	176.00	Outside	Safety Cable	
0.00	176.00	Outside	Step bolts (ladder)	
0.00	167.00	Inside	1 5/8" Coax	Verizon
0.00	167.00	Inside	1 5/8" Hybrid	Verizon
0.00	157.00	Inside	1 5/8" Coax	Sprint
0.00	147.00	Inside	1 5/8" Coax	Metro PCS
0.00	137.00	Inside	1 5/8" Coax	AT&T
0.00	137.00	Inside	1/2" Coax	AT&T
0.00	137.00	Inside	3" conduit	AT&T
0.00	137.00	Inside	3/4" DC	AT&T

Anchor Bolts

Qty	Specifications	Grade (ksi)	Arrangement
24	2.25" 18J	75.0	Cluster



Base Plate

Thickness (in)	Specifications (in)	Grade (ksi)	Geometry
3.0000	66.0	50.0	Clipped

Reactions

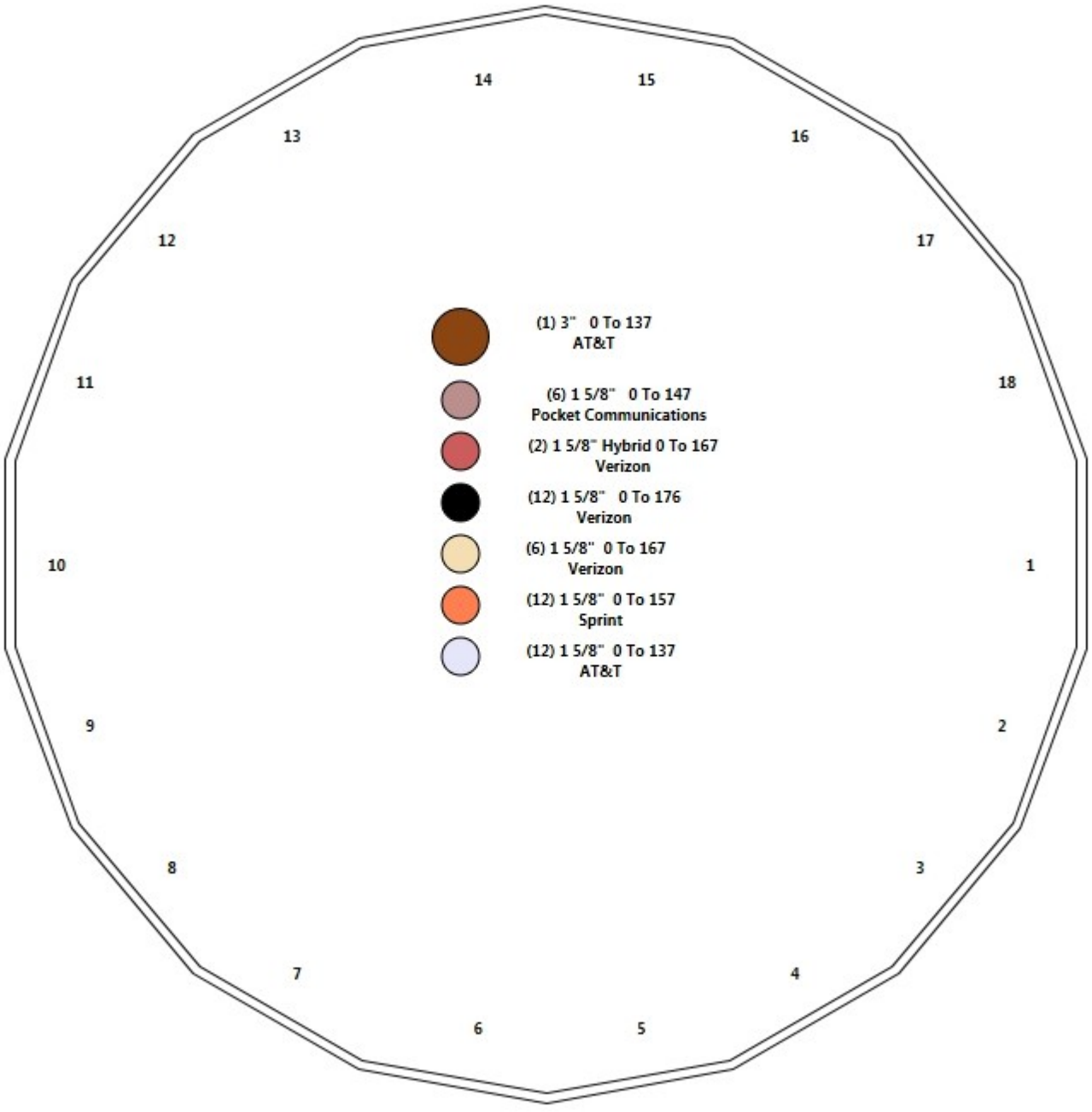
Load Case	Moment (FT-Kips)	Shear (Kips)	Axial (Kips)
1.2D + 1.6W 97 mph Wind	4215.4	34.0	61.1
0.9D + 1.6W 97 mph Wind	4165.7	34.0	45.8
1.2D + 1.0Di + 1.0Wi 50 mph Wind	1323.4	10.4	99.3
1.2D + 1.0E	232.4	1.9	61.1
0.9D + 1.0E	229.5	1.9	45.8
1.0D + 1.0W 60 mph Wind	1001.3	8.1	50.9

Structure: CT02216-S-SBA - Coax Line Placement

Type: Monopole
Site Name: Glastonbury
Height: 176.00 (ft)

2/27/2017

Tower Engineering Solutions



Shaft Properties

Structure:	CT02216-S-SBA		**Code:**	EIA/TIA-222-G	2/27/2017
Site Name:	Glastonbury		**Exposure:**	C	
Height:	176.00 (ft)		**Crest Height:**	0.00	
Base Elev:	0.000 (ft)		**Site Class:**	D - Stiff Soil	
Gh:	1.1	**Topography:** 1	**Struct Class:**	II	Page: 5

Tower Engineering Solutions

Sec. No.	Shape	Length (ft)	Thick (in)	Fy (ksi)	Joint Type	Overlap (in)	Weight (lb)
1	18	49.000	0.5000	65		0.00	13,554
2	18	49.000	0.4375	65	Slip	75.00	10,126
3	18	49.000	0.3750	65	Slip	63.00	7,131
4	18	44.750	0.2500	65	Slip	51.00	3,402
					Total Shaft Weight:		**34,213**

	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	56.55	0.00	88.95	35305.41	18.53	113.10	46.90	49.00	73.63	20024.4	15.13	93.79	0.197017
2	49.00	42.75	67.44	20095.24	18.34	112.01	39.35	91.75	54.03	10335.8	14.45	89.94	0.197017
3	41.13	86.50	48.51	10181.58	17.93	109.69	31.48	135.50	37.02	4525.14	13.39	83.94	0.197017
4	32.82	131.2	25.84	3462.57	21.74	131.27	24.00	176.00	18.84	1343.00	15.52	96.00	0.197017

Load Summary

Structure:	CT02216-S-SBA		**Code:**	EIA/TIA-222-G	2/27/2017
Site Name:	Glastonbury		**Exposure:**	C	
Height:	176.00 (ft)		**Crest Height:**	0.00	
Base Elev:	0.000 (ft)		**Site Class:**	D - Stiff Soil	
Gh:	1.1	**Topography:** 1	**Struct Class:**	II	Page: 6

Tower Engineering Solutions

Discrete Appurtenances

				No Ice			Ice				
No.	Elev (ft)	Description	Qty	Weight (lb)	CaAa (sf)	CaAa Factor	Weight (lb)	CaAa (sf)	CaAa Factor	Hor. Ecc. (ft)	Vert Ecc (ft)
1	176.00	RR90-17-02DP	6	13.50	4.36	0.68	161.46	5.741	0.68	0.00	1.00
2	176.00	MHA FE15501P77/75	12	11.00	0.93	0.65	37.10	1.886	0.68	0.00	1.00
3	176.00	T-Arms	3	350.00	8.00	0.75	681.02	17.458	0.75	0.00	0.00
4	176.00	Lightning Rod	1	35.00	1.05	1.00	77.56	4.266	1.00	0.00	3.50
5	167.00	Low Profile Platform-Round	1	1500.00	22.00	1.00	3264.05	45.803	1.00	0.00	0.00
6	167.00	RRH2X60-AWS	3	60.00	3.50	0.76	177.64	4.564	0.76	0.00	0.00
7	167.00	RRH2X60-700	3	60.00	3.50	0.76	177.64	4.564	0.76	0.00	0.00
8	167.00	SBNHH-1D65B	6	40.00	8.16	0.83	332.23	9.954	0.83	0.00	0.00
9	167.00	LPA-80063-4CF-EDIN-5	4	20.00	6.15	0.93	266.55	8.702	0.93	0.00	0.00
10	167.00	APL868013	2	6.30	2.86	0.93	163.90	4.061	0.93	0.00	0.00
11	167.00	DB-T16Z-8AB-0Z	1	18.90	4.80	1.00	224.85	6.005	1.00	0.00	0.00
12	157.00	Low Profile Platform	1	1500.00	22.00	1.00	3253.19	45.656	1.00	0.00	0.00
13	157.00	DB980H90E-M	12	8.50	3.89	0.74	170.57	5.755	0.74	0.00	0.00
14	147.00	742 213	3	22.00	5.12	0.72	188.69	6.882	0.72	0.00	0.00
15	147.00	Flush Mount	1	350.00	5.00	1.00	740.14	9.645	1.00	0.00	0.00
16	137.00	HPA-65R-BUU-H6	3	51.00	9.66	0.85	396.24	11.499	0.85	0.00	0.00
17	137.00	7020	12	2.20	0.40	0.50	15.71	1.040	0.50	0.00	0.00
18	137.00	RRUS 32-B2	3	53.00	2.74	0.67	202.22	4.026	0.67	0.00	0.00
19	137.00	Smart Bias T 1001940	3	2.00	0.09	0.67	4.64	0.400	0.67	5.70	0.00
20	137.00	DC6-48-60-18-8F	1	32.80	1.47	1.00	117.06	2.395	1.00	0.00	0.00
21	137.00	RRUS-11	3	55.00	4.42	0.68	173.86	6.401	0.68	0.00	0.00
22	137.00	7770.00	6	35.00	5.50	0.73	226.86	6.937	0.73	0.00	0.00
23	137.00	LGP21401	6	19.00	1.29	0.67	63.51	2.394	0.67	0.00	0.00
24	137.00	LGP21903	6	5.00	0.27	0.84	15.12	0.795	0.84	3.00	0.00
25	137.00	LP Platform-Round	1	1500.00	22.00	1.00	3229.47	45.336	1.00	0.00	0.00
		Totals:	**103**	**7,923.70**			**25,781.95**				

Linear Appurtenances

Bottom Elev. (ft)	Top Elev. (ft)	Description	Exposed Width	Exposed
0.00	176.00	(12) 1 5/8" Coax	0.00	Inside
0.00	176.00	(1) Safety Cable	0.00	Outside
0.00	176.00	(1) Step bolts (ladder)	1.00	Outside
0.00	167.00	(6) 1 5/8" Coax	0.00	Inside
0.00	167.00	(2) 1 5/8" Hybrid	0.00	Inside
0.00	157.00	(12) 1 5/8" Coax	0.00	Inside
0.00	147.00	(6) 1 5/8" Coax	0.00	Inside
0.00	137.00	(12) 1 5/8" Coax	0.00	Inside
0.00	137.00	(1) 1/2" Coax	0.00	Inside
0.00	137.00	(1) 3" conduit	0.00	Inside
0.00	137.00	(2) 3/4" DC	0.00	Inside

Shaft Section Properties

Structure:	CT02216-S-SBA	**Code:**	EIA/TIA-222-G	2/27/2017	
Site Name:	Glastonbury	**Exposure:**	C		
Height:	176.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 7	

Tower Engineering Solutions

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		0.5000	56.550	88.948	35305.4	18.53	113.10	79.6	1229.	0.0
5.00		0.5000	55.565	87.385	33476.4	18.18	111.13	80.0	1186.	1500.1
10.00		0.5000	54.580	85.822	31711.8	17.84	109.16	80.4	1144.	1473.5
15.00		0.5000	53.595	84.258	30010.2	17.49	107.19	80.8	1102.	1446.9
20.00		0.5000	52.610	82.695	28370.6	17.14	105.22	81.2	1062.	1420.3
25.00		0.5000	51.625	81.132	26791.9	16.79	103.25	81.6	1022.	1393.7
30.00		0.5000	50.639	79.569	25272.8	16.45	101.28	82.1	983.0	1367.1
35.00		0.5000	49.654	78.005	23812.3	16.10	99.31	82.5	944.6	1340.5
40.00		0.5000	48.669	76.442	22409.2	15.75	97.34	82.5	906.9	1313.9
42.75	Bot - Section 2	0.5000	48.128	75.582	21661.5	15.56	96.26	82.5	886.5	711.3
45.00		0.5000	47.684	74.879	21062.3	15.41	95.37	82.5	870.0	1089.9
49.00	Top - Section 1	0.4375	47.771	65.726	18605.1	17.84	109.19	0.0	0.0	1912.7
50.00		0.4375	47.574	65.453	18373.8	17.76	108.74	80.5	760.7	223.2
55.00		0.4375	46.589	64.085	17245.7	17.37	106.49	81.0	729.1	1102.0
60.00		0.4375	45.604	62.717	16164.8	16.97	104.24	81.4	698.2	1078.7
65.00		0.4375	44.619	61.349	15130.1	16.57	101.99	81.9	667.9	1055.4
70.00		0.4375	43.634	59.981	14140.4	16.18	99.73	82.4	638.3	1032.2
75.00		0.4375	42.649	58.613	13194.9	15.78	97.48	82.5	609.4	1008.9
80.00		0.4375	41.664	57.246	12292.5	15.38	95.23	82.5	581.1	985.6
85.00		0.4375	40.679	55.878	11432.2	14.98	92.98	82.5	553.5	962.3
86.50	Bot - Section 3	0.4375	40.383	55.467	11182.2	14.87	92.30	82.5	545.4	284.2
90.00		0.4375	39.693	54.510	10613.0	14.59	90.73	82.5	526.6	1227.8
91.75	Top - Section 2	0.3750	40.099	47.279	9425.9	17.44	106.93	0.0	0.0	605.9
95.00		0.3750	39.458	46.517	8977.4	17.14	105.22	81.2	448.1	518.7
100.00		0.3750	38.473	45.345	8315.6	16.68	102.60	81.8	425.7	781.5
105.00		0.3750	37.488	44.172	7687.1	16.22	99.97	82.3	403.9	761.5
110.00		0.3750	36.503	43.000	7091.1	15.75	97.34	82.5	382.6	741.6
115.00		0.3750	35.518	41.827	6526.7	15.29	94.71	82.5	361.9	721.6
120.00		0.3750	34.533	40.655	5993.1	14.83	92.09	82.5	341.8	701.7
125.00		0.3750	33.548	39.483	5489.4	14.36	89.46	82.5	322.3	681.7
130.00		0.3750	32.563	38.310	5014.7	13.90	86.83	82.5	303.3	661.8
131.25	Bot - Section 4	0.3750	32.317	38.017	4900.5	13.78	86.18	82.5	298.7	162.3
135.00		0.3750	31.578	37.138	4568.3	13.44	84.21	82.5	284.9	805.5
135.50	Top - Section 3	0.2500	31.979	25.176	3202.3	21.14	127.92	0.0	0.0	106.0
137.00		0.2500	31.684	24.942	3113.6	20.94	126.73	76.8	193.6	127.9
140.00		0.2500	31.093	24.473	2941.3	20.52	124.37	77.3	186.3	252.2
145.00		0.2500	30.108	23.691	2668.4	19.82	120.43	78.1	174.6	409.7
147.00		0.2500	29.713	23.378	2564.1	19.55	118.85	78.4	170.0	160.2
150.00		0.2500	29.122	22.909	2412.9	19.13	116.49	78.9	163.2	236.3
155.00		0.2500	28.137	22.128	2174.2	18.43	112.55	79.7	152.2	383.1
157.00		0.2500	27.743	21.815	2083.4	18.16	110.97	80.0	147.9	149.5
160.00		0.2500	27.152	21.346	1951.9	17.74	108.61	80.5	141.6	220.3
165.00		0.2500	26.167	20.565	1745.2	17.05	104.67	81.4	131.4	356.5
167.00		0.2500	25.773	20.252	1666.8	16.77	103.09	81.7	127.4	138.9
170.00		0.2500	25.182	19.783	1553.7	16.35	100.73	82.2	121.5	204.3
175.00		0.2500	24.197	19.001	1376.7	15.66	96.79	82.5	112.1	329.9
176.00		0.2500	24.000	18.845	1343.0	15.52	96.00	82.5	110.2	64.4
										34212.9

Wind Loading - Shaft

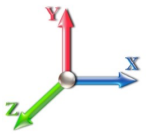
Structure:	CT02216-S-SBA	**Code:**	EIA/TIA-222-G	2/27/2017	
Site Name:	Glastonbury	**Exposure:**	C		
Height:	176.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 8	

Tower Engineering Solutions

Load Case: 1.2D + 1.6W 97 mph Wind

Dead Load Factor 1.20

Wind Load Factor 1.60



Iterations 26

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	19.450	21.40	427.94	0.650	0.000	0.00	0.000	0.00	0.0	0.0	0.0
5.00		1.00	0.85	19.450	21.40	420.48	0.650	0.000	5.00	23.718	15.42	527.7	0.0	1800.1
10.00		1.00	0.85	19.450	21.40	413.03	0.650	0.000	5.00	23.301	15.15	518.5	0.0	1768.1
15.00		1.00	0.85	19.450	21.40	405.57	0.650	0.000	5.00	22.884	14.87	509.2	0.0	1736.2
20.00		1.00	0.90	20.638	22.70	410.09	0.650	0.000	5.00	22.467	14.60	530.4	0.0	1704.3
25.00		1.00	0.95	21.630	23.79	411.98	0.650	0.000	5.00	22.050	14.33	545.6	0.0	1672.4
30.00		1.00	0.98	22.477	24.72	411.95	0.650	0.000	5.00	21.634	14.06	556.3	0.0	1640.5
35.00		1.00	1.01	23.218	25.54	410.54	0.650	0.000	5.00	21.217	13.79	563.5	0.0	1608.6
40.00		1.00	1.04	23.880	26.27	408.09	0.650	0.000	5.00	20.800	13.52	568.2	0.0	1576.6
42.75	Bot - Section 2	1.00	1.06	24.217	26.64	406.38	0.650	0.000	2.75	11.262	7.32	312.0	0.0	853.6
45.00		1.00	1.07	24.479	26.93	404.82	0.650	0.000	2.25	9.288	6.04	260.1	0.0	1307.9
49.00	Top - Section 1	1.00	1.09	24.922	27.41	401.71	0.650	0.000	4.00	16.303	10.60	464.8	0.0	2295.3
50.00		1.00	1.09	25.029	27.53	408.39	0.650	0.000	1.00	4.034	2.62	115.5	0.0	267.8
55.00		1.00	1.12	25.536	28.09	403.97	0.650	0.000	5.00	19.920	12.95	581.9	0.0	1322.4
60.00		1.00	1.14	26.008	28.61	399.06	0.650	0.000	5.00	19.503	12.68	580.3	0.0	1294.4
65.00		1.00	1.16	26.450	29.09	393.75	0.650	0.000	5.00	19.086	12.41	577.5	0.0	1266.5
70.00		1.00	1.17	26.866	29.55	388.07	0.650	0.000	5.00	18.670	12.14	573.8	0.0	1238.6
75.00		1.00	1.19	27.259	29.98	382.07	0.650	0.000	5.00	18.253	11.86	569.2	0.0	1210.7
80.00		1.00	1.21	27.632	30.39	375.79	0.650	0.000	5.00	17.836	11.59	563.8	0.0	1182.7
85.00		1.00	1.22	27.987	30.79	369.25	0.650	0.000	5.00	17.419	11.32	557.7	0.0	1154.8
86.50	Bot - Section 3	1.00	1.23	28.090	30.90	367.25	0.650	0.000	1.50	5.145	3.34	165.3	0.0	341.0
90.00		1.00	1.24	28.325	31.16	362.49	0.650	0.000	3.50	12.080	7.85	391.4	0.0	1473.3
91.75	Top - Section 2	1.00	1.24	28.441	31.28	360.07	0.650	0.000	1.75	5.963	3.88	194.0	0.0	727.1
95.00		1.00	1.25	28.650	31.51	362.40	0.650	0.000	3.25	10.940	7.11	358.5	0.0	622.4
100.00		1.00	1.27	28.961	31.86	355.26	0.650	0.000	5.00	16.486	10.72	546.2	0.0	937.8
105.00		1.00	1.28	29.260	32.19	347.95	0.650	0.000	5.00	16.069	10.45	537.9	0.0	913.8
110.00		1.00	1.29	29.548	32.50	340.47	0.650	0.000	5.00	15.653	10.17	529.1	0.0	889.9
115.00		1.00	1.30	29.826	32.81	332.83	0.650	0.000	5.00	15.236	9.90	519.9	0.0	865.9
120.00		1.00	1.32	30.094	33.10	325.06	0.650	0.000	5.00	14.819	9.63	510.2	0.0	842.0
125.00		1.00	1.33	30.354	33.39	317.14	0.650	0.000	5.00	14.402	9.36	500.1	0.0	818.1
130.00		1.00	1.34	30.605	33.67	309.11	0.650	0.000	5.00	13.986	9.09	489.7	0.0	794.1
131.25	Bot - Section 4	1.00	1.34	30.667	33.73	307.08	0.650	0.000	1.25	3.431	2.23	120.4	0.0	194.8
135.00		1.00	1.35	30.850	33.93	300.95	0.650	0.000	3.75	10.296	6.69	363.4	0.0	966.6
135.50	Top - Section 3	1.00	1.35	30.874	33.96	300.13	0.650	0.000	0.50	1.355	0.88	47.9	0.0	127.2
137.00	Appurtenance(s)	1.00	1.35	30.945	34.04	302.42	0.650	0.000	1.50	4.040	2.63	143.0	0.0	153.5
140.00		1.00	1.36	31.087	34.20	297.46	0.650	0.000	3.00	7.968	5.18	283.4	0.0	302.7
145.00		1.00	1.37	31.317	34.45	289.10	0.650	0.000	5.00	12.947	8.42	463.8	0.0	491.7
147.00	Appurtenance(s)	1.00	1.37	31.408	34.55	285.73	0.650	0.000	2.00	5.062	3.29	181.9	0.0	192.2
150.00		1.00	1.38	31.541	34.70	280.64	0.650	0.000	3.00	7.468	4.85	269.5	0.0	283.5
155.00		1.00	1.39	31.760	34.94	272.09	0.650	0.000	5.00	12.113	7.87	440.1	0.0	459.8
157.00	Appurtenance(s)	1.00	1.39	31.846	35.03	268.64	0.650	0.000	2.00	4.729	3.07	172.3	0.0	179.4
160.00		1.00	1.40	31.973	35.17	263.44	0.650	0.000	3.00	6.968	4.53	254.9	0.0	264.4
165.00		1.00	1.41	32.181	35.40	254.71	0.650	0.000	5.00	11.280	7.33	415.3	0.0	427.8
167.00	Appurtenance(s)	1.00	1.41	32.262	35.49	251.19	0.650	0.000	2.00	4.395	2.86	162.2	0.0	166.7
170.00		1.00	1.42	32.384	35.62	245.89	0.650	0.000	3.00	6.468	4.20	239.6	0.0	245.2
175.00		1.00	1.42	32.582	35.84	236.99	0.650	0.000	5.00	10.446	6.79	389.4	0.0	395.9
176.00	Appurtenance(s)	1.00	1.43	32.621	35.88	235.20	0.650	0.000	1.00	2.039	1.33	76.1	0.0	77.3

Wind Loading - Shaft

Structure:	CT02216-S-SBA		**Code:**	EIA/TIA-222-G	2/27/2017
Site Name:	Glastonbury		**Exposure:**	C	
Height:	176.00 (ft)		**Crest Height:**	0.00	
Base Elev:	0.000 (ft)		**Site Class:**	D - Stiff Soil	
Gh:	1.1	**Topography:** 1	**Struct Class:**	II	Page: 9

Totals:	**176.00**	**18,241.5**	**41,055.5**

Discrete Appurtenance Forces

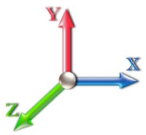
Structure:	CT02216-S-SBA	**Code:**	EIA/TIA-222-G	2/27/2017	
Site Name:	Glastonbury	**Exposure:**	C		
Height:	176.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 10	

Tower Engineering Solutions

Load Case: 1.2D + 1.6W 97 mph Wind

Dead Load Factor 1.20

Wind Load Factor 1.60



Iterations 26

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	176.00	T-Arms	3	32.621	35.883	0.56	0.75	13.50	1260.00	0.000	0.000	775.07	0.00	0.00
2	176.00	MHA FE15501P77/75	12	32.660	35.926	0.65	1.00	7.25	158.40	0.000	1.000	416.97	0.00	416.97
3	176.00	RR90-17-02DP	6	32.660	35.926	0.68	1.00	17.79	97.20	0.000	1.000	1022.53	0.00	1022.53
4	176.00	Lightning Rod	1	32.756	36.032	1.00	1.00	1.05	42.00	0.000	3.500	60.53	0.00	211.87
5	167.00	RRH2X60-700	3	32.262	35.489	0.61	0.80	6.38	216.00	0.000	0.000	362.50	0.00	0.00
6	167.00	Low Profile	1	32.262	35.489	1.00	1.00	22.00	1800.00	0.000	0.000	1249.20	0.00	0.00
7	167.00	RRH2X60-AWS	3	32.262	35.489	0.61	0.80	6.38	216.00	0.000	0.000	362.50	0.00	0.00
8	167.00	APL868013	2	32.262	35.489	0.84	0.90	4.79	15.12	0.000	0.000	271.85	0.00	0.00
9	167.00	SBNHH-1D65B	6	32.262	35.489	0.66	0.80	32.51	288.00	0.000	0.000	1845.95	0.00	0.00
10	167.00	LPA-80063-4CF-EDIN-5	4	32.262	35.489	0.74	0.80	18.30	96.00	0.000	0.000	1039.25	0.00	0.00
11	167.00	DB-T16Z-8AB-0Z	1	32.262	35.489	1.00	1.00	4.80	22.68	0.000	0.000	272.55	0.00	0.00
12	157.00	DB980H90E-M	12	31.846	35.030	0.59	0.80	27.63	122.40	0.000	0.000	1548.88	0.00	0.00
13	157.00	Low Profile Platform	1	31.846	35.030	1.00	1.00	22.00	1800.00	0.000	0.000	1233.07	0.00	0.00
14	147.00	742 213	3	31.408	34.548	0.58	0.80	8.85	79.20	0.000	0.000	489.06	0.00	0.00
15	147.00	Flush Mount	1	31.408	34.548	1.00	1.00	5.00	420.00	0.000	0.000	276.39	0.00	0.00
16	137.00	DC6-48-60-18-8F	1	30.945	34.040	1.00	1.00	1.47	39.36	0.000	0.000	80.06	0.00	0.00
17	137.00	HPA-65R-BUU-H6	3	30.945	34.040	0.68	0.80	19.71	183.60	0.000	0.000	1073.28	0.00	0.00
18	137.00	7020	12	30.945	34.040	0.40	0.80	1.92	31.68	0.000	0.000	104.57	0.00	0.00
19	137.00	RRUS 32-B2	3	30.945	34.040	0.54	0.80	4.41	190.80	0.000	0.000	239.96	0.00	0.00
20	137.00	Smart Bias T 1001940	3	30.945	34.040	0.54	0.80	0.14	7.20	7.041	0.000	7.88	34.68	0.00
21	137.00	7770.00	6	30.945	34.040	0.58	0.80	19.27	252.00	0.000	0.000	1049.62	0.00	0.00
22	137.00	RRUS-11	3	30.945	34.040	0.54	0.80	7.21	198.00	0.000	0.000	392.87	0.00	0.00
23	137.00	LGP21401	6	30.945	34.040	0.54	0.80	4.15	136.80	0.000	0.000	225.95	0.00	0.00
24	137.00	LGP21903	6	30.945	34.040	0.67	0.80	1.09	36.00	4.341	0.000	59.29	160.85	0.00
25	137.00	LP Platform-Round	1	30.945	34.040	1.00	1.00	22.00	1800.00	0.000	0.000	1198.20	0.00	0.00
							Totals:		**9,508.44**			**15,657.98**		

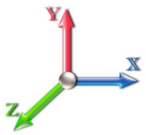
Total Applied Force Summary

Structure:	CT02216-S-SBA		**Code:**	EIA/TIA-222-G	2/27/2017
Site Name:	Glastonbury		**Exposure:**	C	
Height:	176.00 (ft)		**Crest Height:**	0.00	
Base Elev:	0.000 (ft)		**Site Class:**	D - Stiff Soil	
Gh:	1.1	**Topography:** 1	**Struct Class:**	II	Page: 11

Load Case: 1.2D + 1.6W 97 mph Wind

Dead Load Factor 1.20

Wind Load Factor 1.60



Iterations 26

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		527.74	2137.10	0.00	0.00
10.00		518.47	2105.19	0.00	0.00
15.00		509.20	2073.27	0.00	0.00
20.00		530.44	2041.35	0.00	0.00
25.00		545.64	2009.44	0.00	0.00
30.00		556.27	1977.52	0.00	0.00
35.00		563.55	1945.60	0.00	0.00
40.00		568.23	1913.69	0.00	0.00
42.75		312.01	1038.92	0.00	0.00
45.00		260.09	1459.59	0.00	0.00
49.00		464.81	2564.90	0.00	0.00
50.00		115.50	335.23	0.00	0.00
55.00		581.92	1659.40	0.00	0.00
60.00		580.28	1631.47	0.00	0.00
65.00		577.53	1603.55	0.00	0.00
70.00		573.80	1575.62	0.00	0.00
75.00		569.20	1547.69	0.00	0.00
80.00		563.81	1519.77	0.00	0.00
85.00		557.71	1491.84	0.00	0.00
86.50		165.32	442.11	0.00	0.00
90.00		391.45	1709.24	0.00	0.00
91.75		194.03	845.09	0.00	0.00
95.00		358.55	841.46	0.00	0.00
100.00		546.21	1274.80	0.00	0.00
105.00		537.90	1250.86	0.00	0.00
110.00		529.10	1226.92	0.00	0.00
115.00		519.85	1202.98	0.00	0.00
120.00		510.18	1179.05	0.00	0.00
125.00		500.12	1155.11	0.00	0.00
130.00		489.67	1131.17	0.00	0.00
131.25		120.38	279.05	0.00	0.00
135.00		363.37	1219.38	0.00	0.00
135.50		47.86	160.89	0.00	0.00
137.00	(44) attachments	4574.72	3130.04	195.53	0.00
140.00		283.37	450.09	0.00	0.00
145.00		463.84	737.39	0.00	0.00
147.00	(4) attachments	947.32	789.69	0.00	0.00
150.00		269.47	408.48	0.00	0.00
155.00		440.11	668.03	0.00	0.00
157.00	(13) attachments	2954.22	2185.15	0.00	0.00
160.00		254.86	344.40	0.00	0.00
165.00		415.26	561.24	0.00	0.00
167.00	(20) attachments	5566.01	2873.83	0.00	0.00
170.00		239.61	294.87	0.00	0.00
175.00		389.36	478.68	0.00	0.00
176.00	(22) attachments	2351.20	1651.42	0.00	1651.36

Total Applied Force Summary

Structure:	CT02216-S-SBA		**Code:**	EIA/TIA-222-G	2/27/2017
Site Name:	Glastonbury		**Exposure:**	C	
Height:	176.00 (ft)		**Crest Height:**	0.00	
Base Elev:	0.000 (ft)		**Site Class:**	D - Stiff Soil	
Gh:	1.1	**Topography:** 1	**Struct Class:**	II	Page: 12

Totals:	**33,899.52**	**61,122.55**	**195.53**	**1,651.36**

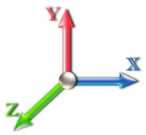
Linear Appurtenance Segment Forces (Factored)

Structure:	CT02216-S-SBA	**Code:**	EIA/TIA-222-G	2/27/2017	
Site Name:	Glastonbury	**Exposure:**	C		
Height:	176.00 (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: 1.2D + 1.6W 97 mph Wind

Dead Load Factor 1.20

Wind Load Factor 1.60



Iterations 26

Top Elev (ft)	Description	Wind Exposed	Length (ft)	Ca	Exposed Width (in)	Area (sqft)	CaAa (sqft)	Ra	Cf Adjust Factor	qz (psf)	F X (lb)	Dead Load (lb)
5.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.018	0.000	19.450	0.00	1.64
5.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.018	0.000	19.450	0.00	6.24
10.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.018	0.000	19.450	0.00	1.64
10.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.018	0.000	19.450	0.00	6.24
15.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.018	0.000	19.450	0.00	1.64
15.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.018	0.000	19.450	0.00	6.24
20.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.019	0.000	20.638	0.00	1.64
20.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.019	0.000	20.638	0.00	6.24
25.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.019	0.000	21.630	0.00	1.64
25.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.019	0.000	21.630	0.00	6.24
30.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.019	0.000	22.477	0.00	1.64
30.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.019	0.000	22.477	0.00	6.24
35.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.020	0.000	23.218	0.00	1.64
35.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.020	0.000	23.218	0.00	6.24
40.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.020	0.000	23.880	0.00	1.64
40.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.020	0.000	23.880	0.00	6.24
42.75	Safety Cable	Yes	2.75	0.000	0.38	0.09	0.00	0.021	0.000	24.217	0.00	0.90
42.75	Step bolts (ladder)	Yes	2.75	0.000	0.63	0.14	0.00	0.021	0.000	24.217	0.00	3.43
45.00	Safety Cable	Yes	2.25	0.000	0.38	0.07	0.00	0.021	0.000	24.479	0.00	0.74
45.00	Step bolts (ladder)	Yes	2.25	0.000	0.63	0.12	0.00	0.021	0.000	24.479	0.00	2.81
49.00	Safety Cable	Yes	4.00	0.000	0.38	0.13	0.00	0.021	0.000	24.922	0.00	1.31
49.00	Step bolts (ladder)	Yes	4.00	0.000	0.63	0.21	0.00	0.021	0.000	24.922	0.00	4.99
50.00	Safety Cable	Yes	1.00	0.000	0.38	0.03	0.00	0.021	0.000	25.029	0.00	0.33
50.00	Step bolts (ladder)	Yes	1.00	0.000	0.63	0.05	0.00	0.021	0.000	25.029	0.00	1.25
55.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.021	0.000	25.536	0.00	1.64
55.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.021	0.000	25.536	0.00	6.24
60.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.022	0.000	26.008	0.00	1.64
60.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.022	0.000	26.008	0.00	6.24
65.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.022	0.000	26.450	0.00	1.64
65.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.022	0.000	26.450	0.00	6.24
70.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.023	0.000	26.866	0.00	1.64
70.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.023	0.000	26.866	0.00	6.24
75.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.023	0.000	27.259	0.00	1.64
75.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.023	0.000	27.259	0.00	6.24
80.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.024	0.000	27.632	0.00	1.64
80.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.024	0.000	27.632	0.00	6.24
85.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.024	0.000	27.987	0.00	1.64
85.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.024	0.000	27.987	0.00	6.24
86.50	Safety Cable	Yes	1.50	0.000	0.38	0.05	0.00	0.025	0.000	28.090	0.00	0.49
86.50	Step bolts (ladder)	Yes	1.50	0.000	0.63	0.08	0.00	0.025	0.000	28.090	0.00	1.87
90.00	Safety Cable	Yes	3.50	0.000	0.38	0.11	0.00	0.025	0.000	28.325	0.00	1.15
90.00	Step bolts (ladder)	Yes	3.50	0.000	0.63	0.18	0.00	0.025	0.000	28.325	0.00	4.37
91.75	Safety Cable	Yes	1.75	0.000	0.38	0.06	0.00	0.025	0.000	28.441	0.00	0.57
91.75	Step bolts (ladder)	Yes	1.75	0.000	0.63	0.09	0.00	0.025	0.000	28.441	0.00	2.18
95.00	Safety Cable	Yes	3.25	0.000	0.38	0.10	0.00	0.025	0.000	28.650	0.00	1.06
95.00	Step bolts (ladder)	Yes	3.25	0.000	0.63	0.17	0.00	0.025	0.000	28.650	0.00	4.06
100.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.026	0.000	28.961	0.00	1.64

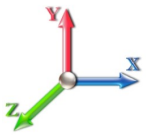
Linear Appurtenance Segment Forces (Factored)

Structure:	CT02216-S-SBA	**Code:**	EIA/TIA-222-G	2/27/2017	
Site Name:	Glastonbury	**Exposure:**	C		
Height:	176.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 14	

Load Case: 1.2D + 1.6W 97 mph Wind

Dead Load Factor 1.20

Wind Load Factor 1.60



Iterations 26

Top Elev (ft)	Description	Wind Exposed	Length (ft)	Ca	Exposed Width (in)	Area (sqft)	CaAa (sqft)	Ra	Cf Adjust Factor	qz (psf)	F X (lb)	Dead Load (lb)
100.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.026	0.000	28.961	0.00	6.24
105.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.026	0.000	29.260	0.00	1.64
105.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.026	0.000	29.260	0.00	6.24
110.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.027	0.000	29.548	0.00	1.64
110.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.027	0.000	29.548	0.00	6.24
115.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.028	0.000	29.826	0.00	1.64
115.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.028	0.000	29.826	0.00	6.24
120.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.028	0.000	30.094	0.00	1.64
120.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.028	0.000	30.094	0.00	6.24
125.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.029	0.000	30.354	0.00	1.64
125.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.029	0.000	30.354	0.00	6.24
130.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.030	0.000	30.605	0.00	1.64
130.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.030	0.000	30.605	0.00	6.24
131.25	Safety Cable	Yes	1.25	0.000	0.38	0.04	0.00	0.031	0.000	30.667	0.00	0.41
131.25	Step bolts (ladder)	Yes	1.25	0.000	0.63	0.07	0.00	0.031	0.000	30.667	0.00	1.56
135.00	Safety Cable	Yes	3.75	0.000	0.38	0.12	0.00	0.031	0.000	30.850	0.00	1.23
135.00	Step bolts (ladder)	Yes	3.75	0.000	0.63	0.20	0.00	0.031	0.000	30.850	0.00	4.68
135.50	Safety Cable	Yes	0.50	0.000	0.38	0.02	0.00	0.032	0.000	30.874	0.00	0.16
135.50	Step bolts (ladder)	Yes	0.50	0.000	0.63	0.03	0.00	0.032	0.000	30.874	0.00	0.62
137.00	Safety Cable	Yes	1.50	0.000	0.38	0.05	0.00	0.031	0.000	30.945	0.00	0.49
137.00	Step bolts (ladder)	Yes	1.50	0.000	0.63	0.08	0.00	0.031	0.000	30.945	0.00	1.87
140.00	Safety Cable	Yes	3.00	0.000	0.38	0.10	0.00	0.032	0.000	31.087	0.00	0.98
140.00	Step bolts (ladder)	Yes	3.00	0.000	0.63	0.16	0.00	0.032	0.000	31.087	0.00	3.74
145.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.033	0.000	31.317	0.00	1.64
145.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.033	0.000	31.317	0.00	6.24
147.00	Safety Cable	Yes	2.00	0.000	0.38	0.06	0.00	0.033	0.000	31.408	0.00	0.66
147.00	Step bolts (ladder)	Yes	2.00	0.000	0.63	0.10	0.00	0.033	0.000	31.408	0.00	2.50
150.00	Safety Cable	Yes	3.00	0.000	0.38	0.10	0.00	0.034	0.000	31.541	0.00	0.98
150.00	Step bolts (ladder)	Yes	3.00	0.000	0.63	0.16	0.00	0.034	0.000	31.541	0.00	3.74
155.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.035	0.000	31.760	0.00	1.64
155.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.035	0.000	31.760	0.00	6.24
157.00	Safety Cable	Yes	2.00	0.000	0.38	0.06	0.00	0.036	0.000	31.846	0.00	0.66
157.00	Step bolts (ladder)	Yes	2.00	0.000	0.63	0.10	0.00	0.036	0.000	31.846	0.00	2.50
160.00	Safety Cable	Yes	3.00	0.000	0.38	0.10	0.00	0.036	0.000	31.973	0.00	0.98
160.00	Step bolts (ladder)	Yes	3.00	0.000	0.63	0.16	0.00	0.036	0.000	31.973	0.00	3.74
165.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.037	0.000	32.181	0.00	1.64
165.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.037	0.000	32.181	0.00	6.24
167.00	Safety Cable	Yes	2.00	0.000	0.38	0.06	0.00	0.038	0.000	32.262	0.00	0.66
167.00	Step bolts (ladder)	Yes	2.00	0.000	0.63	0.10	0.00	0.038	0.000	32.262	0.00	2.50
170.00	Safety Cable	Yes	3.00	0.000	0.38	0.10	0.00	0.039	0.000	32.384	0.00	0.98
170.00	Step bolts (ladder)	Yes	3.00	0.000	0.63	0.16	0.00	0.039	0.000	32.384	0.00	3.74
175.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.040	0.000	32.582	0.00	1.64
175.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.040	0.000	32.582	0.00	6.24
176.00	Safety Cable	Yes	1.00	0.000	0.38	0.03	0.00	0.041	0.000	32.621	0.00	0.33
176.00	Step bolts (ladder)	Yes	1.00	0.000	0.63	0.05	0.00	0.041	0.000	32.621	0.00	1.25
										Totals:	**0.0**	**277.3**

Calculated Forces

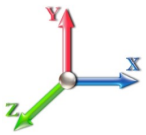
Structure:	CT02216-S-SBA	**Code:**	EIA/TIA-222-G	2/27/2017	
Site Name:	Glastonbury	**Exposure:**	C		
Height:	176.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 15	

Tower Engineering Solutions

Load Case: 1.2D + 1.6W 97 mph Wind

Dead Load Factor 1.20

Wind Load Factor 1.60



Iterations 26

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	-61.07	-33.99	-0.19	-4215.4	0.00	4215.44	6372.54	3186.27	14661.2	7341.49	0.00	0.000	0.000	0.584
5.00	-58.84	-33.63	-0.19	-4045.4	0.00	4045.49	6292.68	3146.34	14220.7	7120.95	0.09	-0.166	0.000	0.578
10.00	-56.64	-33.27	-0.19	-3877.3	0.00	3877.34	6211.66	3105.83	13784.2	6902.39	0.35	-0.335	0.000	0.571
15.00	-54.47	-32.91	-0.19	-3710.9	0.00	3710.99	6129.50	3064.75	13351.9	6685.89	0.80	-0.505	0.000	0.564
20.00	-52.34	-32.52	-0.19	-3546.4	0.00	3546.45	6046.18	3023.09	12923.8	6471.51	1.42	-0.677	0.000	0.557
25.00	-50.24	-32.10	-0.19	-3383.8	0.00	3383.87	5961.72	2980.86	12500.0	6259.33	2.22	-0.851	0.000	0.549
30.00	-48.17	-31.66	-0.19	-3223.4	0.00	3223.40	5876.11	2938.05	12080.8	6049.42	3.20	-1.026	0.000	0.541
35.00	-46.14	-31.20	-0.19	-3065.1	0.00	3065.12	5789.35	2894.67	11666.3	5841.84	4.37	-1.203	0.000	0.533
40.00	-44.17	-30.69	-0.19	-2909.1	0.00	2909.13	5679.25	2839.63	11212.8	5614.75	5.73	-1.382	0.000	0.526
42.75	-43.09	-30.42	-0.19	-2824.7	0.00	2824.72	5615.38	2807.69	10960.7	5488.51	6.55	-1.482	0.000	0.522
45.00	-41.57	-30.21	-0.19	-2756.2	0.00	2756.27	5563.11	2781.56	10756.6	5386.29	7.27	-1.564	0.000	0.519
49.00	-38.98	-29.73	-0.19	-2635.4	0.00	2635.44	4756.80	2378.40	9239.06	4626.40	8.65	-1.710	0.000	0.578
50.00	-38.58	-29.69	-0.19	-2605.7	0.00	2605.71	4742.51	2371.25	9172.60	4593.12	9.01	-1.747	0.000	0.576
55.00	-36.84	-29.18	-0.19	-2457.2	0.00	2457.28	4670.33	2335.16	8842.49	4427.82	10.94	-1.943	0.000	0.563
60.00	-35.14	-28.66	-0.19	-2311.3	0.00	2311.39	4597.00	2298.50	8516.13	4264.39	13.08	-2.140	0.000	0.550
65.00	-33.46	-28.14	-0.19	-2168.0	0.00	2168.09	4522.52	2261.26	8193.68	4102.93	15.43	-2.337	0.000	0.536
70.00	-31.82	-27.61	-0.19	-2027.4	-0.01	2027.41	4446.89	2223.45	7875.26	3943.48	17.98	-2.534	0.000	0.521
75.00	-30.20	-27.07	-0.19	-1889.3	-0.01	1889.39	4354.69	2177.34	7534.33	3772.77	20.74	-2.731	0.000	0.508
80.00	-28.62	-26.53	-0.19	-1754.0	-0.01	1754.04	4253.06	2126.53	7185.02	3597.85	23.71	-2.927	0.000	0.494
85.00	-27.10	-25.95	-0.19	-1621.4	-0.01	1621.40	4151.43	2075.72	6843.99	3427.08	26.87	-3.123	0.000	0.480
86.50	-26.63	-25.81	-0.19	-1582.4	-0.01	1582.47	4120.95	2060.47	6743.30	3376.66	27.87	-3.182	0.000	0.475
90.00	-24.90	-25.37	-0.19	-1492.1	-0.01	1492.13	4049.81	2024.90	6511.26	3260.47	30.25	-3.319	0.000	0.464
91.75	-24.02	-25.16	-0.19	-1447.7	-0.01	1447.74	3441.70	1720.85	5608.94	2808.64	31.48	-3.388	0.000	0.523
95.00	-23.13	-24.82	-0.19	-1365.9	-0.01	1365.96	3401.05	1700.53	5452.51	2730.31	33.83	-3.514	0.000	0.507
100.00	-21.81	-24.28	-0.19	-1241.8	-0.01	1241.84	3337.56	1668.78	5214.58	2611.16	37.62	-3.721	0.000	0.482
105.00	-20.51	-23.73	-0.19	-1120.4	-0.01	1120.46	3272.92	1636.46	4980.08	2493.74	41.62	-3.923	0.000	0.456
110.00	-19.25	-23.18	-0.19	-1001.8	-0.01	1001.82	3194.68	1597.34	4730.71	2368.87	45.83	-4.119	0.000	0.429
115.00	-18.01	-22.63	-0.19	-885.93	-0.01	885.93	3107.57	1553.79	4474.96	2240.81	50.24	-4.309	0.000	0.401
120.00	-16.81	-22.08	-0.19	-772.78	-0.01	772.78	3020.47	1510.23	4226.32	2116.30	54.85	-4.489	0.000	0.371
125.00	-15.64	-21.54	-0.19	-662.37	-0.01	662.37	2933.36	1466.68	3984.78	1995.35	59.64	-4.660	-0.001	0.338
130.00	-14.51	-20.98	-0.20	-554.69	-0.01	554.69	2846.25	1423.13	3750.35	1877.96	64.60	-4.817	-0.001	0.301
131.25	-14.22	-20.85	-0.20	-528.46	-0.01	528.46	2824.47	1412.24	3692.86	1849.17	65.87	-4.856	-0.001	0.291
135.00	-13.02	-20.40	-0.20	-450.26	-0.01	450.26	2759.14	1379.57	3523.03	1764.13	69.72	-4.962	-0.001	0.260
135.50	-12.85	-20.35	-0.20	-440.06	-0.01	440.06	1734.08	867.04	2260.78	1132.07	70.24	-4.976	-0.001	0.397
137.00	-10.11	-15.53	0.00	-409.54	0.00	409.54	1723.43	861.72	2225.81	1114.56	71.81	-5.016	-0.001	0.374
140.00	-9.65	-15.23	0.00	-362.95	0.00	362.95	1701.83	850.91	2156.25	1079.73	74.99	-5.122	-0.001	0.342
145.00	-8.93	-14.72	0.00	-286.81	0.00	286.81	1664.90	832.45	2041.54	1022.29	80.44	-5.279	-0.001	0.286
147.00	-8.22	-13.71	0.00	-257.37	0.00	257.37	1649.80	824.90	1996.11	999.54	82.66	-5.337	-0.001	0.263
150.00	-7.81	-13.42	0.00	-216.24	0.00	216.24	1626.81	813.41	1928.48	965.67	86.03	-5.416	-0.001	0.229
155.00	-7.17	-12.92	0.00	-149.16	0.00	149.16	1587.58	793.79	1817.22	909.96	91.76	-5.524	-0.001	0.169
157.00	-5.28	-9.78	0.00	-123.31	0.00	123.31	1571.57	785.79	1773.24	887.94	94.08	-5.559	-0.001	0.142
160.00	-4.95	-9.49	0.00	-93.98	0.00	93.98	1547.20	773.60	1707.88	855.21	97.58	-5.604	-0.001	0.113
165.00	-4.43	-9.03	0.00	-46.51	0.00	46.51	1505.67	752.84	1600.62	801.50	103.47	-5.655	-0.001	0.061
167.00	-2.12	-3.21	0.00	-28.46	0.00	28.46	1488.74	744.37	1558.33	780.32	105.84	-5.667	-0.001	0.038
170.00	-1.85	-2.94	0.00	-18.84	0.00	18.84	1462.99	731.50	1495.57	748.90	109.40	-5.679	-0.001	0.026
175.00	-1.41	-2.50	0.00	-4.15	0.00	4.15	1411.70	705.85	1385.55	693.80	115.34	-5.690	-0.001	0.007
176.00	0.00	-2.35	0.00	-1.65	0.00	1.65	1400.09	700.04	1362.73	682.38	116.53	-5.691	-0.001	0.002

Calculated Forces

Structure:	CT02216-S-SBA			**Code:**	EIA/TIA-222-G	2/27/2017
Site Name:	Glastonbury			**Exposure:**	C	
Height:	176.00 (ft)			**Crest Height:**	0.00	
Base Elev:	0.000 (ft)			**Site Class:**	D - Stiff Soil	
Gh:	1.1	**Topography:**	1	**Struct Class:**	II	Page: 16

Wind Loading - Shaft

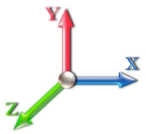
Structure:	CT02216-S-SBA	**Code:**	EIA/TIA-222-G	2/27/2017	
Site Name:	Glastonbury	**Exposure:**	C		
Height:	176.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 17	

Tower Engineering Solutions

Load Case: 0.9D + 1.6W 97 mph Wind

Dead Load Factor 0.90

Wind Load Factor 1.60



Iterations 26

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	19.450	21.40	427.94	0.650	0.000	0.00	0.000	0.00	0.0	0.0	0.0
5.00		1.00	0.85	19.450	21.40	420.48	0.650	0.000	5.00	23.718	15.42	527.7	0.0	1350.0
10.00		1.00	0.85	19.450	21.40	413.03	0.650	0.000	5.00	23.301	15.15	518.5	0.0	1326.1
15.00		1.00	0.85	19.450	21.40	405.57	0.650	0.000	5.00	22.884	14.87	509.2	0.0	1302.2
20.00		1.00	0.90	20.638	22.70	410.09	0.650	0.000	5.00	22.467	14.60	530.4	0.0	1278.2
25.00		1.00	0.95	21.630	23.79	411.98	0.650	0.000	5.00	22.050	14.33	545.6	0.0	1254.3
30.00		1.00	0.98	22.477	24.72	411.95	0.650	0.000	5.00	21.634	14.06	556.3	0.0	1230.4
35.00		1.00	1.01	23.218	25.54	410.54	0.650	0.000	5.00	21.217	13.79	563.5	0.0	1206.4
40.00		1.00	1.04	23.880	26.27	408.09	0.650	0.000	5.00	20.800	13.52	568.2	0.0	1182.5
42.75	Bot - Section 2	1.00	1.06	24.217	26.64	406.38	0.650	0.000	2.75	11.262	7.32	312.0	0.0	640.2
45.00		1.00	1.07	24.479	26.93	404.82	0.650	0.000	2.25	9.288	6.04	260.1	0.0	980.9
49.00	Top - Section 1	1.00	1.09	24.922	27.41	401.71	0.650	0.000	4.00	16.303	10.60	464.8	0.0	1721.5
50.00		1.00	1.09	25.029	27.53	408.39	0.650	0.000	1.00	4.034	2.62	115.5	0.0	200.9
55.00		1.00	1.12	25.536	28.09	403.97	0.650	0.000	5.00	19.920	12.95	581.9	0.0	991.8
60.00		1.00	1.14	26.008	28.61	399.06	0.650	0.000	5.00	19.503	12.68	580.3	0.0	970.8
65.00		1.00	1.16	26.450	29.09	393.75	0.650	0.000	5.00	19.086	12.41	577.5	0.0	949.9
70.00		1.00	1.17	26.866	29.55	388.07	0.650	0.000	5.00	18.670	12.14	573.8	0.0	928.9
75.00		1.00	1.19	27.259	29.98	382.07	0.650	0.000	5.00	18.253	11.86	569.2	0.0	908.0
80.00		1.00	1.21	27.632	30.39	375.79	0.650	0.000	5.00	17.836	11.59	563.8	0.0	887.0
85.00		1.00	1.22	27.987	30.79	369.25	0.650	0.000	5.00	17.419	11.32	557.7	0.0	866.1
86.50	Bot - Section 3	1.00	1.23	28.090	30.90	367.25	0.650	0.000	1.50	5.145	3.34	165.3	0.0	255.7
90.00		1.00	1.24	28.325	31.16	362.49	0.650	0.000	3.50	12.080	7.85	391.4	0.0	1105.0
91.75	Top - Section 2	1.00	1.24	28.441	31.28	360.07	0.650	0.000	1.75	5.963	3.88	194.0	0.0	545.3
95.00		1.00	1.25	28.650	31.51	362.40	0.650	0.000	3.25	10.940	7.11	358.5	0.0	466.8
100.00		1.00	1.27	28.961	31.86	355.26	0.650	0.000	5.00	16.486	10.72	546.2	0.0	703.3
105.00		1.00	1.28	29.260	32.19	347.95	0.650	0.000	5.00	16.069	10.45	537.9	0.0	685.4
110.00		1.00	1.29	29.548	32.50	340.47	0.650	0.000	5.00	15.653	10.17	529.1	0.0	667.4
115.00		1.00	1.30	29.826	32.81	332.83	0.650	0.000	5.00	15.236	9.90	519.9	0.0	649.5
120.00		1.00	1.32	30.094	33.10	325.06	0.650	0.000	5.00	14.819	9.63	510.2	0.0	631.5
125.00		1.00	1.33	30.354	33.39	317.14	0.650	0.000	5.00	14.402	9.36	500.1	0.0	613.6
130.00		1.00	1.34	30.605	33.67	309.11	0.650	0.000	5.00	13.986	9.09	489.7	0.0	595.6
131.25	Bot - Section 4	1.00	1.34	30.667	33.73	307.08	0.650	0.000	1.25	3.431	2.23	120.4	0.0	146.1
135.00		1.00	1.35	30.850	33.93	300.95	0.650	0.000	3.75	10.296	6.69	363.4	0.0	724.9
135.50	Top - Section 3	1.00	1.35	30.874	33.96	300.13	0.650	0.000	0.50	1.355	0.88	47.9	0.0	95.4
137.00	Appurtenance(s)	1.00	1.35	30.945	34.04	302.42	0.650	0.000	1.50	4.040	2.63	143.0	0.0	115.1
140.00		1.00	1.36	31.087	34.20	297.46	0.650	0.000	3.00	7.968	5.18	283.4	0.0	227.0
145.00		1.00	1.37	31.317	34.45	289.10	0.650	0.000	5.00	12.947	8.42	463.8	0.0	368.8
147.00	Appurtenance(s)	1.00	1.37	31.408	34.55	285.73	0.650	0.000	2.00	5.062	3.29	181.9	0.0	144.2
150.00		1.00	1.38	31.541	34.70	280.64	0.650	0.000	3.00	7.468	4.85	269.5	0.0	212.6
155.00		1.00	1.39	31.760	34.94	272.09	0.650	0.000	5.00	12.113	7.87	440.1	0.0	344.8
157.00	Appurtenance(s)	1.00	1.39	31.846	35.03	268.64	0.650	0.000	2.00	4.729	3.07	172.3	0.0	134.6
160.00		1.00	1.40	31.973	35.17	263.44	0.650	0.000	3.00	6.968	4.53	254.9	0.0	198.3
165.00		1.00	1.41	32.181	35.40	254.71	0.650	0.000	5.00	11.280	7.33	415.3	0.0	320.9
167.00	Appurtenance(s)	1.00	1.41	32.262	35.49	251.19	0.650	0.000	2.00	4.395	2.86	162.2	0.0	125.0
170.00		1.00	1.42	32.384	35.62	245.89	0.650	0.000	3.00	6.468	4.20	239.6	0.0	183.9
175.00		1.00	1.42	32.582	35.84	236.99	0.650	0.000	5.00	10.446	6.79	389.4	0.0	296.9
176.00	Appurtenance(s)	1.00	1.43	32.621	35.88	235.20	0.650	0.000	1.00	2.039	1.33	76.1	0.0	58.0

Wind Loading - Shaft

Structure:	CT02216-S-SBA		**Code:**	EIA/TIA-222-G	2/27/2017
Site Name:	Glastonbury		**Exposure:**	C	
Height:	176.00 (ft)		**Crest Height:**	0.00	
Base Elev:	0.000 (ft)		**Site Class:**	D - Stiff Soil	
Gh:	1.1	**Topography:** 1	**Struct Class:**	II	Page: 18

Totals:	**176.00**	**18,241.5**	**30,791.6**

Discrete Appurtenance Forces

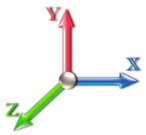
Structure:	CT02216-S-SBA	**Code:**	EIA/TIA-222-G	2/27/2017	
Site Name:	Glastonbury	**Exposure:**	C		
Height:	176.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 19	

Tower Engineering Solutions

Load Case: 0.9D + 1.6W 97 mph Wind

Dead Load Factor 0.90

Wind Load Factor 1.60



Iterations 26

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	176.00	T-Arms	3	32.621	35.883	0.56	0.75	13.50	945.00	0.000	0.000	775.07	0.00	0.00
2	176.00	MHA FE15501P77/75	12	32.660	35.926	0.65	1.00	7.25	118.80	0.000	1.000	416.97	0.00	416.97
3	176.00	RR90-17-02DP	6	32.660	35.926	0.68	1.00	17.79	72.90	0.000	1.000	1022.53	0.00	1022.53
4	176.00	Lightning Rod	1	32.756	36.032	1.00	1.00	1.05	31.50	0.000	3.500	60.53	0.00	211.87
5	167.00	RRH2X60-700	3	32.262	35.489	0.61	0.80	6.38	162.00	0.000	0.000	362.50	0.00	0.00
6	167.00	Low Profile	1	32.262	35.489	1.00	1.00	22.00	1350.00	0.000	0.000	1249.20	0.00	0.00
7	167.00	RRH2X60-AWS	3	32.262	35.489	0.61	0.80	6.38	162.00	0.000	0.000	362.50	0.00	0.00
8	167.00	APL868013	2	32.262	35.489	0.84	0.90	4.79	11.34	0.000	0.000	271.85	0.00	0.00
9	167.00	SBNHH-1D65B	6	32.262	35.489	0.66	0.80	32.51	216.00	0.000	0.000	1845.95	0.00	0.00
10	167.00	LPA-80063-4CF-EDIN-5	4	32.262	35.489	0.74	0.80	18.30	72.00	0.000	0.000	1039.25	0.00	0.00
11	167.00	DB-T16Z-8AB-0Z	1	32.262	35.489	1.00	1.00	4.80	17.01	0.000	0.000	272.55	0.00	0.00
12	157.00	DB980H90E-M	12	31.846	35.030	0.59	0.80	27.63	91.80	0.000	0.000	1548.88	0.00	0.00
13	157.00	Low Profile Platform	1	31.846	35.030	1.00	1.00	22.00	1350.00	0.000	0.000	1233.07	0.00	0.00
14	147.00	742 213	3	31.408	34.548	0.58	0.80	8.85	59.40	0.000	0.000	489.06	0.00	0.00
15	147.00	Flush Mount	1	31.408	34.548	1.00	1.00	5.00	315.00	0.000	0.000	276.39	0.00	0.00
16	137.00	DC6-48-60-18-8F	1	30.945	34.040	1.00	1.00	1.47	29.52	0.000	0.000	80.06	0.00	0.00
17	137.00	HPA-65R-BUU-H6	3	30.945	34.040	0.68	0.80	19.71	137.70	0.000	0.000	1073.28	0.00	0.00
18	137.00	7020	12	30.945	34.040	0.40	0.80	1.92	23.76	0.000	0.000	104.57	0.00	0.00
19	137.00	RRUS 32-B2	3	30.945	34.040	0.54	0.80	4.41	143.10	0.000	0.000	239.96	0.00	0.00
20	137.00	Smart Bias T 1001940	3	30.945	34.040	0.54	0.80	0.14	5.40	7.041	0.000	7.88	34.68	0.00
21	137.00	7770.00	6	30.945	34.040	0.58	0.80	19.27	189.00	0.000	0.000	1049.62	0.00	0.00
22	137.00	RRUS-11	3	30.945	34.040	0.54	0.80	7.21	148.50	0.000	0.000	392.87	0.00	0.00
23	137.00	LGP21401	6	30.945	34.040	0.54	0.80	4.15	102.60	0.000	0.000	225.95	0.00	0.00
24	137.00	LGP21903	6	30.945	34.040	0.67	0.80	1.09	27.00	4.341	0.000	59.29	160.85	0.00
25	137.00	LP Platform-Round	1	30.945	34.040	1.00	1.00	22.00	1350.00	0.000	0.000	1198.20	0.00	0.00
							Totals:		**7,131.33**			**15,657.98**		

Total Applied Force Summary

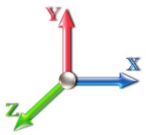
Structure:	CT02216-S-SBA		**Code:**	EIA/TIA-222-G	2/27/2017
Site Name:	Glastonbury		**Exposure:**	C	
Height:	176.00 (ft)		**Crest Height:**	0.00	
Base Elev:	0.000 (ft)		**Site Class:**	D - Stiff Soil	
Gh:	1.1	**Topography:** 1	**Struct Class:**	II	Page: 20

Tower Engineering Solutions

Load Case: 0.9D + 1.6W 97 mph Wind

Dead Load Factor 0.90

Wind Load Factor 1.60



Iterations 26

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		527.74	1602.83	0.00	0.00
10.00		518.47	1578.89	0.00	0.00
15.00		509.20	1554.95	0.00	0.00
20.00		530.44	1531.02	0.00	0.00
25.00		545.64	1507.08	0.00	0.00
30.00		556.27	1483.14	0.00	0.00
35.00		563.55	1459.20	0.00	0.00
40.00		568.23	1435.26	0.00	0.00
42.75		312.01	779.19	0.00	0.00
45.00		260.09	1094.69	0.00	0.00
49.00		464.81	1923.68	0.00	0.00
50.00		115.50	251.42	0.00	0.00
55.00		581.92	1244.55	0.00	0.00
60.00		580.28	1223.61	0.00	0.00
65.00		577.53	1202.66	0.00	0.00
70.00		573.80	1181.72	0.00	0.00
75.00		569.20	1160.77	0.00	0.00
80.00		563.81	1139.82	0.00	0.00
85.00		557.71	1118.88	0.00	0.00
86.50		165.32	331.58	0.00	0.00
90.00		391.45	1281.93	0.00	0.00
91.75		194.03	633.82	0.00	0.00
95.00		358.55	631.09	0.00	0.00
100.00		546.21	956.10	0.00	0.00
105.00		537.90	938.15	0.00	0.00
110.00		529.10	920.19	0.00	0.00
115.00		519.85	902.24	0.00	0.00
120.00		510.18	884.29	0.00	0.00
125.00		500.12	866.33	0.00	0.00
130.00		489.67	848.38	0.00	0.00
131.25		120.38	209.29	0.00	0.00
135.00		363.37	914.53	0.00	0.00
135.50		47.86	120.67	0.00	0.00
137.00	(44) attachments	4574.72	2347.53	195.53	0.00
140.00		283.37	337.57	0.00	0.00
145.00		463.84	553.04	0.00	0.00
147.00	(4) attachments	947.32	592.27	0.00	0.00
150.00		269.47	306.36	0.00	0.00
155.00		440.11	501.03	0.00	0.00
157.00	(13) attachments	2954.22	1638.86	0.00	0.00
160.00		254.86	258.30	0.00	0.00
165.00		415.26	420.93	0.00	0.00
167.00	(20) attachments	5566.01	2155.37	0.00	0.00
170.00		239.61	221.15	0.00	0.00
175.00		389.36	359.01	0.00	0.00
176.00	(22) attachments	2351.20	1238.57	0.00	1651.36

Total Applied Force Summary

Structure:	CT02216-S-SBA		**Code:**	EIA/TIA-222-G	2/27/2017
Site Name:	Glastonbury		**Exposure:**	C	
Height:	176.00 (ft)		**Crest Height:**	0.00	
Base Elev:	0.000 (ft)		**Site Class:**	D - Stiff Soil	
Gh:	1.1	**Topography:** 1	**Struct Class:**	II	Page: 21

Tower Engineering Solutions

Totals:	**33,899.52**	**45,841.91**	**195.53**	**1,651.36**

Linear Appurtenance Segment Forces (Factored)

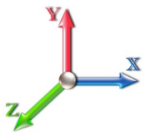
Structure:	CT02216-S-SBA	**Code:**	EIA/TIA-222-G	2/27/2017	
Site Name:	Glastonbury	**Exposure:**	C		
Height:	176.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 22	

Tower Engineering Solutions

Load Case: 0.9D + 1.6W 97 mph Wind

Dead Load Factor 0.90

Wind Load Factor 1.60



Iterations 26

Top Elev (ft)	Description	Wind Exposed	Length (ft)	Ca	Exposed Width (in)	Area (sqft)	CaAa (sqft)	Ra	Cf Adjust Factor	qz (psf)	F X (lb)	Dead Load (lb)
5.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.018	0.000	19.450	0.00	1.23
5.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.018	0.000	19.450	0.00	4.68
10.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.018	0.000	19.450	0.00	1.23
10.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.018	0.000	19.450	0.00	4.68
15.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.018	0.000	19.450	0.00	1.23
15.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.018	0.000	19.450	0.00	4.68
20.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.019	0.000	20.638	0.00	1.23
20.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.019	0.000	20.638	0.00	4.68
25.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.019	0.000	21.630	0.00	1.23
25.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.019	0.000	21.630	0.00	4.68
30.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.019	0.000	22.477	0.00	1.23
30.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.019	0.000	22.477	0.00	4.68
35.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.020	0.000	23.218	0.00	1.23
35.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.020	0.000	23.218	0.00	4.68
40.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.020	0.000	23.880	0.00	1.23
40.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.020	0.000	23.880	0.00	4.68
42.75	Safety Cable	Yes	2.75	0.000	0.38	0.09	0.00	0.021	0.000	24.217	0.00	0.68
42.75	Step bolts (ladder)	Yes	2.75	0.000	0.63	0.14	0.00	0.021	0.000	24.217	0.00	2.57
45.00	Safety Cable	Yes	2.25	0.000	0.38	0.07	0.00	0.021	0.000	24.479	0.00	0.55
45.00	Step bolts (ladder)	Yes	2.25	0.000	0.63	0.12	0.00	0.021	0.000	24.479	0.00	2.11
49.00	Safety Cable	Yes	4.00	0.000	0.38	0.13	0.00	0.021	0.000	24.922	0.00	0.98
49.00	Step bolts (ladder)	Yes	4.00	0.000	0.63	0.21	0.00	0.021	0.000	24.922	0.00	3.74
50.00	Safety Cable	Yes	1.00	0.000	0.38	0.03	0.00	0.021	0.000	25.029	0.00	0.25
50.00	Step bolts (ladder)	Yes	1.00	0.000	0.63	0.05	0.00	0.021	0.000	25.029	0.00	0.94
55.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.021	0.000	25.536	0.00	1.23
55.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.021	0.000	25.536	0.00	4.68
60.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.022	0.000	26.008	0.00	1.23
60.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.022	0.000	26.008	0.00	4.68
65.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.022	0.000	26.450	0.00	1.23
65.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.022	0.000	26.450	0.00	4.68
70.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.023	0.000	26.866	0.00	1.23
70.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.023	0.000	26.866	0.00	4.68
75.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.023	0.000	27.259	0.00	1.23
75.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.023	0.000	27.259	0.00	4.68
80.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.024	0.000	27.632	0.00	1.23
80.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.024	0.000	27.632	0.00	4.68
85.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.024	0.000	27.987	0.00	1.23
85.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.024	0.000	27.987	0.00	4.68
86.50	Safety Cable	Yes	1.50	0.000	0.38	0.05	0.00	0.025	0.000	28.090	0.00	0.37
86.50	Step bolts (ladder)	Yes	1.50	0.000	0.63	0.08	0.00	0.025	0.000	28.090	0.00	1.40
90.00	Safety Cable	Yes	3.50	0.000	0.38	0.11	0.00	0.025	0.000	28.325	0.00	0.86
90.00	Step bolts (ladder)	Yes	3.50	0.000	0.63	0.18	0.00	0.025	0.000	28.325	0.00	3.28
91.75	Safety Cable	Yes	1.75	0.000	0.38	0.06	0.00	0.025	0.000	28.441	0.00	0.43
91.75	Step bolts (ladder)	Yes	1.75	0.000	0.63	0.09	0.00	0.025	0.000	28.441	0.00	1.64
95.00	Safety Cable	Yes	3.25	0.000	0.38	0.10	0.00	0.025	0.000	28.650	0.00	0.80
95.00	Step bolts (ladder)	Yes	3.25	0.000	0.63	0.17	0.00	0.025	0.000	28.650	0.00	3.04
100.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.026	0.000	28.961	0.00	1.23

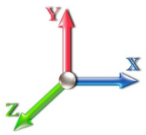
Linear Appurtenance Segment Forces (Factored)

Structure:	CT02216-S-SBA	**Code:**	EIA/TIA-222-G	2/27/2017	
Site Name:	Glastonbury	**Exposure:**	C		
Height:	176.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 23	

Load Case: 0.9D + 1.6W 97 mph Wind

Dead Load Factor 0.90

Wind Load Factor 1.60



Iterations 26

Top Elev (ft)	Description	Wind Exposed	Length (ft)	Ca	Exposed Width (in)	Area (sqft)	CaAa (sqft)	Ra	Cf Adjust Factor	qz (psf)	F X (lb)	Dead Load (lb)
100.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.026	0.000	28.961	0.00	4.68
105.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.026	0.000	29.260	0.00	1.23
105.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.026	0.000	29.260	0.00	4.68
110.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.027	0.000	29.548	0.00	1.23
110.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.027	0.000	29.548	0.00	4.68
115.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.028	0.000	29.826	0.00	1.23
115.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.028	0.000	29.826	0.00	4.68
120.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.028	0.000	30.094	0.00	1.23
120.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.028	0.000	30.094	0.00	4.68
125.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.029	0.000	30.354	0.00	1.23
125.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.029	0.000	30.354	0.00	4.68
130.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.030	0.000	30.605	0.00	1.23
130.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.030	0.000	30.605	0.00	4.68
131.25	Safety Cable	Yes	1.25	0.000	0.38	0.04	0.00	0.031	0.000	30.667	0.00	0.31
131.25	Step bolts (ladder)	Yes	1.25	0.000	0.63	0.07	0.00	0.031	0.000	30.667	0.00	1.17
135.00	Safety Cable	Yes	3.75	0.000	0.38	0.12	0.00	0.031	0.000	30.850	0.00	0.92
135.00	Step bolts (ladder)	Yes	3.75	0.000	0.63	0.20	0.00	0.031	0.000	30.850	0.00	3.51
135.50	Safety Cable	Yes	0.50	0.000	0.38	0.02	0.00	0.032	0.000	30.874	0.00	0.12
135.50	Step bolts (ladder)	Yes	0.50	0.000	0.63	0.03	0.00	0.032	0.000	30.874	0.00	0.47
137.00	Safety Cable	Yes	1.50	0.000	0.38	0.05	0.00	0.031	0.000	30.945	0.00	0.37
137.00	Step bolts (ladder)	Yes	1.50	0.000	0.63	0.08	0.00	0.031	0.000	30.945	0.00	1.40
140.00	Safety Cable	Yes	3.00	0.000	0.38	0.10	0.00	0.032	0.000	31.087	0.00	0.74
140.00	Step bolts (ladder)	Yes	3.00	0.000	0.63	0.16	0.00	0.032	0.000	31.087	0.00	2.81
145.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.033	0.000	31.317	0.00	1.23
145.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.033	0.000	31.317	0.00	4.68
147.00	Safety Cable	Yes	2.00	0.000	0.38	0.06	0.00	0.033	0.000	31.408	0.00	0.49
147.00	Step bolts (ladder)	Yes	2.00	0.000	0.63	0.10	0.00	0.033	0.000	31.408	0.00	1.87
150.00	Safety Cable	Yes	3.00	0.000	0.38	0.10	0.00	0.034	0.000	31.541	0.00	0.74
150.00	Step bolts (ladder)	Yes	3.00	0.000	0.63	0.16	0.00	0.034	0.000	31.541	0.00	2.81
155.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.035	0.000	31.760	0.00	1.23
155.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.035	0.000	31.760	0.00	4.68
157.00	Safety Cable	Yes	2.00	0.000	0.38	0.06	0.00	0.036	0.000	31.846	0.00	0.49
157.00	Step bolts (ladder)	Yes	2.00	0.000	0.63	0.10	0.00	0.036	0.000	31.846	0.00	1.87
160.00	Safety Cable	Yes	3.00	0.000	0.38	0.10	0.00	0.036	0.000	31.973	0.00	0.74
160.00	Step bolts (ladder)	Yes	3.00	0.000	0.63	0.16	0.00	0.036	0.000	31.973	0.00	2.81
165.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.037	0.000	32.181	0.00	1.23
165.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.037	0.000	32.181	0.00	4.68
167.00	Safety Cable	Yes	2.00	0.000	0.38	0.06	0.00	0.038	0.000	32.262	0.00	0.49
167.00	Step bolts (ladder)	Yes	2.00	0.000	0.63	0.10	0.00	0.038	0.000	32.262	0.00	1.87
170.00	Safety Cable	Yes	3.00	0.000	0.38	0.10	0.00	0.039	0.000	32.384	0.00	0.74
170.00	Step bolts (ladder)	Yes	3.00	0.000	0.63	0.16	0.00	0.039	0.000	32.384	0.00	2.81
175.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.040	0.000	32.582	0.00	1.23
175.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.040	0.000	32.582	0.00	4.68
176.00	Safety Cable	Yes	1.00	0.000	0.38	0.03	0.00	0.041	0.000	32.621	0.00	0.25
176.00	Step bolts (ladder)	Yes	1.00	0.000	0.63	0.05	0.00	0.041	0.000	32.621	0.00	0.94
										Totals:	**0.0**	**208.0**

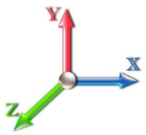
Calculated Forces

Structure:	CT02216-S-SBA	**Code:**	EIA/TIA-222-G	2/27/2017	
Site Name:	Glastonbury	**Exposure:**	C		
Height:	176.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 24	

Load Case: 0.9D + 1.6W 97 mph Wind

Dead Load Factor 0.90

Wind Load Factor 1.60



Iterations 26

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	-45.79	-33.97	-0.19	-4165.6	0.00	4165.67	6372.54	3186.27	14661.2	7341.49	0.00	0.000	0.000	0.575
5.00	-44.09	-33.56	-0.19	-3995.8	0.00	3995.84	6292.68	3146.34	14220.7	7120.95	0.09	-0.164	0.000	0.568
10.00	-42.42	-33.16	-0.19	-3828.0	0.00	3828.02	6211.66	3105.83	13784.2	6902.39	0.35	-0.331	0.000	0.562
15.00	-40.77	-32.76	-0.19	-3662.2	0.00	3662.22	6129.50	3064.75	13351.9	6685.89	0.79	-0.499	0.000	0.555
20.00	-39.15	-32.33	-0.19	-3498.4	0.00	3498.41	6046.18	3023.09	12923.8	6471.51	1.40	-0.668	0.000	0.547
25.00	-37.56	-31.88	-0.19	-3336.7	0.00	3336.75	5961.72	2980.86	12500.0	6259.33	2.19	-0.840	0.000	0.539
30.00	-35.99	-31.41	-0.19	-3177.3	0.00	3177.35	5876.11	2938.05	12080.8	6049.42	3.16	-1.013	0.000	0.531
35.00	-34.44	-30.92	-0.19	-3020.3	0.00	3020.31	5789.35	2894.67	11666.3	5841.84	4.32	-1.187	0.000	0.523
40.00	-32.95	-30.40	-0.19	-2865.6	0.00	2865.69	5679.25	2839.63	11212.8	5614.75	5.66	-1.363	0.000	0.516
42.75	-32.13	-30.12	-0.19	-2782.0	0.00	2782.09	5615.38	2807.69	10960.7	5488.51	6.47	-1.461	0.000	0.513
45.00	-30.98	-29.89	-0.19	-2714.3	0.00	2714.32	5563.11	2781.56	10756.6	5386.29	7.18	-1.543	0.000	0.510
49.00	-29.03	-29.42	-0.19	-2594.7	0.00	2594.75	4756.80	2378.40	9239.06	4626.40	8.53	-1.686	0.000	0.567
50.00	-28.72	-29.36	-0.19	-2565.3	0.00	2565.33	4742.51	2371.25	9172.60	4593.12	8.89	-1.723	0.000	0.565
55.00	-27.40	-28.83	-0.19	-2418.5	0.00	2418.55	4670.33	2335.16	8842.49	4427.82	10.80	-1.916	0.000	0.552
60.00	-26.10	-28.29	-0.19	-2274.4	0.00	2274.42	4597.00	2298.50	8516.13	4264.39	12.91	-2.109	0.000	0.539
65.00	-24.83	-27.75	-0.19	-2132.9	0.00	2132.97	4522.52	2261.26	8193.68	4102.93	15.22	-2.303	0.000	0.526
70.00	-23.58	-27.21	-0.19	-1994.2	0.00	1994.20	4446.89	2223.45	7875.26	3943.48	17.74	-2.497	0.000	0.511
75.00	-22.36	-26.66	-0.19	-1858.1	0.00	1858.16	4354.69	2177.34	7534.33	3772.77	20.45	-2.691	0.000	0.498
80.00	-21.16	-26.12	-0.19	-1724.8	-0.01	1724.84	4253.06	2126.53	7185.02	3597.85	23.37	-2.884	0.000	0.485
85.00	-20.01	-25.55	-0.19	-1594.2	-0.01	1594.25	4151.43	2075.72	6843.99	3427.08	26.50	-3.076	0.000	0.470
86.50	-19.65	-25.40	-0.19	-1555.9	-0.01	1555.94	4120.95	2060.47	6743.30	3376.66	27.47	-3.135	0.000	0.466
90.00	-18.35	-24.97	-0.19	-1467.0	-0.01	1467.05	4049.81	2024.90	6511.26	3260.47	29.82	-3.270	0.000	0.455
91.75	-17.68	-24.76	-0.19	-1423.3	-0.01	1423.36	3441.70	1720.85	5608.94	2808.64	31.03	-3.337	0.000	0.512
95.00	-17.00	-24.42	-0.19	-1342.8	-0.01	1342.88	3401.05	1700.53	5452.51	2730.31	33.35	-3.461	0.000	0.497
100.00	-16.00	-23.87	-0.19	-1220.7	-0.01	1220.79	3337.56	1668.78	5214.58	2611.16	37.08	-3.664	0.000	0.473
105.00	-15.02	-23.32	-0.19	-1101.4	-0.01	1101.44	3272.92	1636.46	4980.08	2493.74	41.02	-3.863	0.000	0.446
110.00	-14.06	-22.78	-0.19	-984.82	-0.01	984.82	3194.68	1597.34	4730.71	2368.87	45.17	-4.056	0.000	0.420
115.00	-13.13	-22.24	-0.19	-870.93	-0.01	870.93	3107.57	1553.79	4474.96	2240.81	49.51	-4.242	0.000	0.393
120.00	-12.22	-21.70	-0.19	-759.75	-0.01	759.75	3020.47	1510.23	4226.32	2116.30	54.05	-4.420	0.000	0.363
125.00	-11.34	-21.16	-0.20	-651.26	-0.01	651.26	2933.36	1466.68	3984.78	1995.35	58.76	-4.587	-0.001	0.330
130.00	-10.50	-20.62	-0.20	-545.45	-0.01	545.45	2846.25	1423.13	3750.35	1877.96	63.65	-4.742	-0.001	0.294
131.25	-10.27	-20.50	-0.20	-519.67	-0.01	519.67	2824.47	1412.24	3692.86	1849.17	64.89	-4.780	-0.001	0.285
135.00	-9.37	-20.07	-0.20	-442.80	-0.01	442.80	2759.14	1379.57	3523.03	1764.13	68.69	-4.885	-0.001	0.255
135.50	-9.25	-20.02	-0.20	-432.76	-0.01	432.76	1734.08	867.04	2260.78	1132.07	69.20	-4.898	-0.001	0.388
137.00	-7.28	-15.27	0.00	-402.74	0.00	402.74	1723.43	861.72	2225.81	1114.56	70.74	-4.938	-0.001	0.366
140.00	-6.94	-14.97	0.00	-356.94	0.00	356.94	1701.83	850.91	2156.25	1079.73	73.88	-5.042	-0.001	0.335
145.00	-6.40	-14.47	0.00	-282.09	0.00	282.09	1664.90	832.45	2041.54	1022.29	79.23	-5.196	-0.001	0.280
147.00	-5.88	-13.48	0.00	-253.15	0.00	253.15	1649.80	824.90	1996.11	999.54	81.42	-5.253	-0.001	0.257
150.00	-5.58	-13.19	0.00	-212.71	0.00	212.71	1626.81	813.41	1928.48	965.67	84.74	-5.331	-0.001	0.224
155.00	-5.11	-12.71	0.00	-146.75	0.00	146.75	1587.58	793.79	1817.22	909.96	90.38	-5.437	-0.001	0.165
157.00	-3.75	-9.62	0.00	-121.32	0.00	121.32	1571.57	785.79	1773.24	887.94	92.66	-5.472	-0.001	0.139
160.00	-3.51	-9.34	0.00	-92.46	0.00	92.46	1547.20	773.60	1707.88	855.21	96.11	-5.516	-0.001	0.111
165.00	-3.13	-8.89	0.00	-45.74	0.00	45.74	1505.67	752.84	1600.62	801.50	101.91	-5.566	-0.001	0.059
167.00	-1.52	-3.14	0.00	-27.96	0.00	27.96	1488.74	744.37	1558.33	780.32	104.24	-5.578	-0.001	0.037
170.00	-1.32	-2.88	0.00	-18.53	0.00	18.53	1462.99	731.50	1495.57	748.90	107.74	-5.590	-0.001	0.026
175.00	-1.00	-2.46	0.00	-4.11	0.00	4.11	1411.70	705.85	1385.55	693.80	113.60	-5.600	-0.001	0.007
176.00	0.00	-2.35	0.00	-1.65	0.00	1.65	1400.09	700.04	1362.73	682.38	114.77	-5.601	-0.001	0.002

Calculated Forces

Structure:	CT02216-S-SBA		**Code:**	EIA/TIA-222-G	2/27/2017
Site Name:	Glastonbury		**Exposure:**	C	
Height:	176.00 (ft)		**Crest Height:**	0.00	
Base Elev:	0.000 (ft)		**Site Class:**	D - Stiff Soil	
Gh:	1.1	**Topography:** 1	**Struct Class:**	II	Page: 25

Tower Engineering Solutions

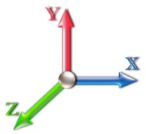
Wind Loading - Shaft

Structure:	CT02216-S-SBA	**Code:**	EIA/TIA-222-G	2/27/2017	
Site Name:	Glastonbury	**Exposure:**	C		
Height:	176.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 26	

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

Dead Load Factor 1.20

Wind Load Factor 1.00



Iterations 26

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	25.098	30.12	171.2	593.6	2393.6
10.00		1.00	0.85	5.168	5.68	0.00	1.200	1.775	5.00	24.780	29.74	169.0	626.5	2394.7
15.00		1.00	0.85	5.168	5.68	0.00	1.200	1.848	5.00	24.424	29.31	166.6	641.9	2378.1
20.00		1.00	0.90	5.483	6.03	0.00	1.200	1.902	5.00	24.053	28.86	174.1	649.5	2353.8
25.00		1.00	0.95	5.747	6.32	0.00	1.200	1.945	5.00	23.671	28.41	179.6	652.7	2325.1
30.00		1.00	0.98	5.972	6.57	0.00	1.200	1.981	5.00	23.285	27.94	183.6	652.9	2293.4
35.00		1.00	1.01	6.169	6.79	0.00	1.200	2.012	5.00	22.893	27.47	186.4	651.0	2259.5
40.00		1.00	1.04	6.345	6.98	0.00	1.200	2.039	5.00	22.499	27.00	188.4	647.5	2224.1
42.75	Bot - Section 2	1.00	1.06	6.434	7.08	0.00	1.200	2.052	2.75	12.203	14.64	103.6	354.8	1208.3
45.00		1.00	1.07	6.504	7.15	0.00	1.200	2.063	2.25	10.061	12.07	86.4	294.3	1602.2
49.00	Top - Section 1	1.00	1.09	6.622	7.28	0.00	1.200	2.081	4.00	17.690	21.23	154.6	519.7	2814.9
50.00		1.00	1.09	6.650	7.32	0.00	1.200	2.085	1.00	4.381	5.26	38.5	129.7	397.5
55.00		1.00	1.12	6.785	7.46	0.00	1.200	2.105	5.00	21.674	26.01	194.1	641.9	1964.2
60.00		1.00	1.14	6.910	7.60	0.00	1.200	2.123	5.00	21.273	25.53	194.0	634.6	1929.0
65.00		1.00	1.16	7.028	7.73	0.00	1.200	2.140	5.00	20.870	25.04	193.6	626.7	1893.2
70.00		1.00	1.17	7.138	7.85	0.00	1.200	2.156	5.00	20.466	24.56	192.8	618.3	1856.9
75.00		1.00	1.19	7.243	7.97	0.00	1.200	2.171	5.00	20.062	24.07	191.8	609.4	1820.0
80.00		1.00	1.21	7.342	8.08	0.00	1.200	2.185	5.00	19.657	23.59	190.5	600.0	1782.7
85.00		1.00	1.22	7.436	8.18	0.00	1.200	2.198	5.00	19.251	23.10	189.0	590.3	1745.1
86.50	Bot - Section 3	1.00	1.23	7.464	8.21	0.00	1.200	2.202	1.50	5.695	6.83	56.1	176.2	517.2
90.00		1.00	1.24	7.526	8.28	0.00	1.200	2.211	3.50	13.370	16.04	132.8	413.4	1886.7
91.75	Top - Section 2	1.00	1.24	7.557	8.31	0.00	1.200	2.215	1.75	6.610	7.93	65.9	205.4	932.6
95.00		1.00	1.25	7.612	8.37	0.00	1.200	2.223	3.25	12.144	14.57	122.0	377.1	999.5
100.00		1.00	1.27	7.695	8.46	0.00	1.200	2.234	5.00	18.348	22.02	186.4	569.5	1507.3
105.00		1.00	1.28	7.774	8.55	0.00	1.200	2.245	5.00	17.941	21.53	184.1	558.6	1472.4
110.00		1.00	1.29	7.851	8.64	0.00	1.200	2.256	5.00	17.533	21.04	181.7	547.4	1437.3
115.00		1.00	1.30	7.925	8.72	0.00	1.200	2.266	5.00	17.124	20.55	179.1	536.0	1402.0
120.00		1.00	1.32	7.996	8.80	0.00	1.200	2.276	5.00	16.715	20.06	176.4	524.4	1366.4
125.00		1.00	1.33	8.065	8.87	0.00	1.200	2.285	5.00	16.306	19.57	173.6	512.6	1330.7
130.00		1.00	1.34	8.132	8.95	0.00	1.200	2.294	5.00	15.897	19.08	170.6	500.6	1294.7
131.25	Bot - Section 4	1.00	1.34	8.148	8.96	0.00	1.200	2.296	1.25	3.910	4.69	42.1	124.4	319.2
135.00		1.00	1.35	8.197	9.02	0.00	1.200	2.303	3.75	11.735	14.08	127.0	371.7	1338.3
135.50	Top - Section 3	1.00	1.35	8.203	9.02	0.00	1.200	2.303	0.50	1.547	1.86	16.8	49.4	176.6
137.00	Appurtenance(s)	1.00	1.35	8.222	9.04	0.00	1.200	2.306	1.50	4.617	5.54	50.1	147.2	300.7
140.00		1.00	1.36	8.260	9.09	0.00	1.200	2.311	3.00	9.124	10.95	99.5	289.9	592.6
145.00		1.00	1.37	8.321	9.15	0.00	1.200	2.319	5.00	14.879	17.86	163.4	470.7	962.4
147.00	Appurtenance(s)	1.00	1.37	8.345	9.18	0.00	1.200	2.322	2.00	5.836	7.00	64.3	186.3	378.5
150.00		1.00	1.38	8.381	9.22	0.00	1.200	2.327	3.00	8.631	10.36	95.5	274.9	558.4
155.00		1.00	1.39	8.439	9.28	0.00	1.200	2.335	5.00	14.059	16.87	156.6	445.3	905.0
157.00	Appurtenance(s)	1.00	1.39	8.462	9.31	0.00	1.200	2.338	2.00	5.508	6.61	61.5	176.1	355.5
160.00		1.00	1.40	8.495	9.34	0.00	1.200	2.342	3.00	8.139	9.77	91.3	259.4	523.8
165.00		1.00	1.41	8.551	9.41	0.00	1.200	2.349	5.00	13.237	15.88	149.4	419.3	847.1
167.00	Appurtenance(s)	1.00	1.41	8.572	9.43	0.00	1.200	2.352	2.00	5.179	6.21	58.6	165.6	332.3
170.00		1.00	1.42	8.604	9.46	0.00	1.200	2.356	3.00	7.646	9.17	86.8	243.7	488.9
175.00		1.00	1.42	8.657	9.52	0.00	1.200	2.363	5.00	12.415	14.90	141.9	392.8	788.7
176.00	Appurtenance(s)	1.00	1.43	8.667	9.53	0.00	1.200	2.364	1.00	2.433	2.92	27.8	78.0	155.3

Wind Loading - Shaft

Structure:	CT02216-S-SBA		**Code:**	EIA/TIA-222-G	2/27/2017
Site Name:	Glastonbury		**Exposure:**	C	
Height:	176.00 (ft)		**Crest Height:**	0.00	
Base Elev:	0.000 (ft)		**Site Class:**	D - Stiff Soil	
Gh:	1.1	**Topography:** 1	**Struct Class:**	II	Page: 27

Totals:	**176.00**	**6,209.3**	**60,806.5**

Discrete Appurtenance Forces

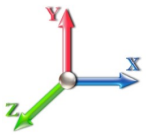
Structure:	CT02216-S-SBA	**Code:**	EIA/TIA-222-G	2/27/2017	
Site Name:	Glastonbury	**Exposure:**	C		
Height:	176.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 28	

Tower Engineering Solutions

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

Dead Load Factor 1.20

Wind Load Factor 1.00



Iterations 26

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	176.00	T-Arms	3	8.667	9.534	0.56	0.75	29.46	2043.07	0.000	0.000	280.88	0.00	0.00
2	176.00	MHA FE15501P77/75	12	8.678	9.546	0.68	1.00	15.39	405.63	0.000	1.000	146.91	0.00	146.91
3	176.00	RR90-17-02DP	6	8.678	9.546	0.68	1.00	23.42	984.94	0.000	1.000	223.60	0.00	223.60
4	176.00	Lightning Rod	1	8.703	9.574	1.00	1.00	4.27	75.56	0.000	3.500	40.84	0.00	142.94
5	167.00	RRH2X60-700	3	8.572	9.429	0.61	0.80	8.32	508.62	0.000	0.000	78.49	0.00	0.00
6	167.00	Low Profile	1	8.572	9.429	1.00	1.00	45.80	3264.05	0.000	0.000	431.90	0.00	0.00
7	167.00	RRH2X60-AWS	3	8.572	9.429	0.61	0.80	8.32	508.62	0.000	0.000	78.49	0.00	0.00
8	167.00	APL868013	2	8.572	9.429	0.84	0.90	6.80	330.32	0.000	0.000	64.10	0.00	0.00
9	167.00	SBNHH-1D65B	6	8.572	9.429	0.66	0.80	39.66	2041.39	0.000	0.000	373.93	0.00	0.00
10	167.00	LPA-80063-4CF-EDIN-5	4	8.572	9.429	0.74	0.80	25.90	872.61	0.000	0.000	244.19	0.00	0.00
11	167.00	DB-T16Z-8AB-0Z	1	8.572	9.429	1.00	1.00	6.01	228.63	0.000	0.000	56.63	0.00	0.00
12	157.00	DB980H90E-M	12	8.462	9.308	0.59	0.80	40.89	2067.23	0.000	0.000	380.55	0.00	0.00
13	157.00	Low Profile Platform	1	8.462	9.308	1.00	1.00	45.66	3253.19	0.000	0.000	424.96	0.00	0.00
14	147.00	742 213	3	8.345	9.180	0.58	0.80	11.89	579.25	0.000	0.000	109.17	0.00	0.00
15	147.00	Flush Mount	1	8.345	9.180	1.00	1.00	9.64	710.14	0.000	0.000	88.53	0.00	0.00
16	137.00	DC6-48-60-18-8F	1	8.222	9.044	1.00	1.00	2.39	106.92	0.000	0.000	21.66	0.00	0.00
17	137.00	HPA-65R-BUU-H6	3	8.222	9.044	0.68	0.80	23.46	1219.31	0.000	0.000	212.17	0.00	0.00
18	137.00	7020	12	8.222	9.044	0.40	0.80	4.99	159.06	0.000	0.000	45.14	0.00	0.00
19	137.00	RRUS 32-B2	3	8.222	9.044	0.54	0.80	6.47	638.45	0.000	0.000	58.55	0.00	0.00
20	137.00	Smart Bias T 1001940	3	8.222	9.044	0.54	0.80	0.64	8.22	7.041	0.000	5.81	40.94	0.00
21	137.00	7770.00	6	8.222	9.044	0.58	0.80	24.31	1403.18	0.000	0.000	219.85	0.00	0.00
22	137.00	RRUS-11	3	8.222	9.044	0.54	0.80	10.45	477.49	0.000	0.000	94.49	0.00	0.00
23	137.00	LGP21401	6	8.222	9.044	0.54	0.80	7.70	390.68	0.000	0.000	69.64	0.00	0.00
24	137.00	LGP21903	6	8.222	9.044	0.67	0.80	3.21	79.34	4.341	0.000	29.01	125.91	0.00
25	137.00	LP Platform-Round	1	8.222	9.044	1.00	1.00	45.34	3229.47	0.000	0.000	410.04	0.00	0.00
							Totals:		**25,585.39**			**4,189.52**		

Total Applied Force Summary

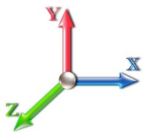
Structure:	CT02216-S-SBA		**Code:**	EIA/TIA-222-G	2/27/2017
Site Name:	Glastonbury		**Exposure:**	C	
Height:	176.00 (ft)		**Crest Height:**	0.00	
Base Elev:	0.000 (ft)		**Site Class:**	D - Stiff Soil	
Gh:	1.1	**Topography:** 1	**Struct Class:**	II	Page: 29

Tower Engineering Solutions

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

Dead Load Factor 1.20

Wind Load Factor 1.00



Iterations 26

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		171.21	2770.85	0.00	0.00
10.00		169.04	2777.32	0.00	0.00
15.00		166.62	2764.30	0.00	0.00
20.00		174.10	2742.68	0.00	0.00
25.00		179.58	2716.12	0.00	0.00
30.00		183.56	2686.27	0.00	0.00
35.00		186.43	2654.08	0.00	0.00
40.00		188.44	2620.11	0.00	0.00
42.75		103.65	1426.50	0.00	0.00
45.00		86.38	1781.02	0.00	0.00
49.00		154.63	3133.54	0.00	0.00
50.00		38.46	477.19	0.00	0.00
55.00		194.11	2363.79	0.00	0.00
60.00		194.04	2329.63	0.00	0.00
65.00		193.60	2294.77	0.00	0.00
70.00		192.85	2259.31	0.00	0.00
75.00		191.80	2223.30	0.00	0.00
80.00		190.50	2186.82	0.00	0.00
85.00		188.97	2149.92	0.00	0.00
86.50		56.11	638.70	0.00	0.00
90.00		132.82	2170.61	0.00	0.00
91.75		65.93	1074.60	0.00	0.00
95.00		122.02	1263.59	0.00	0.00
100.00		186.37	1914.26	0.00	0.00
105.00		184.11	1880.03	0.00	0.00
110.00		181.69	1845.54	0.00	0.00
115.00		179.13	1810.79	0.00	0.00
120.00		176.43	1775.80	0.00	0.00
125.00		173.60	1740.58	0.00	0.00
130.00		170.64	1705.17	0.00	0.00
131.25		42.05	421.83	0.00	0.00
135.00		126.97	1646.53	0.00	0.00
135.50		16.75	217.72	0.00	0.00
137.00	(44) attachments	1216.47	8136.16	166.85	0.00
140.00		99.47	784.71	0.00	0.00
145.00		163.43	1283.08	0.00	0.00
147.00	(4) attachments	261.99	1796.22	0.00	0.00
150.00		95.48	728.59	0.00	0.00
155.00		156.60	1189.21	0.00	0.00
157.00	(13) attachments	867.02	5789.65	0.00	0.00
160.00		91.27	649.62	0.00	0.00
165.00		149.41	1057.31	0.00	0.00
167.00	(20) attachments	1386.33	8170.68	0.00	0.00
170.00		86.84	584.86	0.00	0.00
175.00		141.87	949.11	0.00	0.00
176.00	(22) attachments	720.07	3696.59	0.00	513.44

Total Applied Force Summary

Structure:	CT02216-S-SBA		**Code:**	EIA/TIA-222-G	2/27/2017
Site Name:	Glastonbury		**Exposure:**	C	
Height:	176.00 (ft)		**Crest Height:**	0.00	
Base Elev:	0.000 (ft)		**Site Class:**	D - Stiff Soil	
Gh:	1.1	**Topography:** 1	**Struct Class:**	II	Page: 30

Totals:	**10,398.84**	**99,279.03**	**166.85**	**513.44**

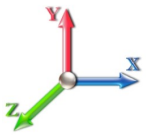
Linear Appurtenance Segment Forces (Factored)

Structure:	CT02216-S-SBA	**Code:**	EIA/TIA-222-G	2/27/2017	
Site Name:	Glastonbury	**Exposure:**	C		
Height:	176.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 31	

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

Dead Load Factor 1.20

Wind Load Factor 1.00



Iterations 26

Top Elev (ft)	Description	Wind Exposed	Length (ft)	Ca	Exposed Width (in)	Area (sqft)	CaAa (sqft)	Ra	Cf Adjust Factor	qz (psf)	F X (lb)	Dead Load (lb)
5.00	Safety Cable	Yes	5.00	0.000	0.38	1.54	0.00	0.018	0.000	5.168	0.00	20.86
5.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	1.64	0.00	0.018	0.000	5.168	0.00	27.18
10.00	Safety Cable	Yes	5.00	0.000	0.38	1.64	0.00	0.018	0.000	5.168	0.00	23.53
10.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	1.74	0.00	0.018	0.000	5.168	0.00	29.96
15.00	Safety Cable	Yes	5.00	0.000	0.38	1.70	0.00	0.018	0.000	5.168	0.00	25.26
15.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	1.80	0.00	0.018	0.000	5.168	0.00	31.77
20.00	Safety Cable	Yes	5.00	0.000	0.38	1.74	0.00	0.019	0.000	5.483	0.00	26.58
20.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	1.85	0.00	0.019	0.000	5.483	0.00	33.13
25.00	Safety Cable	Yes	5.00	0.000	0.38	1.78	0.00	0.019	0.000	5.747	0.00	27.65
25.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	1.88	0.00	0.019	0.000	5.747	0.00	34.25
30.00	Safety Cable	Yes	5.00	0.000	0.38	1.81	0.00	0.019	0.000	5.972	0.00	28.56
30.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	1.91	0.00	0.019	0.000	5.972	0.00	35.19
35.00	Safety Cable	Yes	5.00	0.000	0.38	1.83	0.00	0.020	0.000	6.169	0.00	29.35
35.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	1.94	0.00	0.020	0.000	6.169	0.00	36.02
40.00	Safety Cable	Yes	5.00	0.000	0.38	1.86	0.00	0.020	0.000	6.345	0.00	30.06
40.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	1.96	0.00	0.020	0.000	6.345	0.00	36.75
42.75	Safety Cable	Yes	2.75	0.000	0.38	1.03	0.00	0.021	0.000	6.434	0.00	16.73
42.75	Step bolts (ladder)	Yes	2.75	0.000	0.63	1.09	0.00	0.021	0.000	6.434	0.00	20.42
45.00	Safety Cable	Yes	2.25	0.000	0.38	0.84	0.00	0.021	0.000	6.504	0.00	13.82
45.00	Step bolts (ladder)	Yes	2.25	0.000	0.63	0.89	0.00	0.021	0.000	6.504	0.00	16.84
49.00	Safety Cable	Yes	4.00	0.000	0.38	1.51	0.00	0.021	0.000	6.622	0.00	24.94
49.00	Step bolts (ladder)	Yes	4.00	0.000	0.63	1.60	0.00	0.021	0.000	6.622	0.00	30.32
50.00	Safety Cable	Yes	1.00	0.000	0.38	0.38	0.00	0.021	0.000	6.650	0.00	6.26
50.00	Step bolts (ladder)	Yes	1.00	0.000	0.63	0.40	0.00	0.021	0.000	6.650	0.00	7.60
55.00	Safety Cable	Yes	5.00	0.000	0.38	1.91	0.00	0.021	0.000	6.785	0.00	31.83
55.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	2.02	0.00	0.021	0.000	6.785	0.00	38.58
60.00	Safety Cable	Yes	5.00	0.000	0.38	1.93	0.00	0.022	0.000	6.910	0.00	32.33
60.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	2.03	0.00	0.022	0.000	6.910	0.00	39.10
65.00	Safety Cable	Yes	5.00	0.000	0.38	1.94	0.00	0.022	0.000	7.028	0.00	32.80
65.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	2.05	0.00	0.022	0.000	7.028	0.00	39.59
70.00	Safety Cable	Yes	5.00	0.000	0.38	1.96	0.00	0.023	0.000	7.138	0.00	33.24
70.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	2.06	0.00	0.023	0.000	7.138	0.00	40.04
75.00	Safety Cable	Yes	5.00	0.000	0.38	1.97	0.00	0.023	0.000	7.243	0.00	33.66
75.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	2.07	0.00	0.023	0.000	7.243	0.00	40.47
80.00	Safety Cable	Yes	5.00	0.000	0.38	1.98	0.00	0.024	0.000	7.342	0.00	34.05
80.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	2.08	0.00	0.024	0.000	7.342	0.00	40.88
85.00	Safety Cable	Yes	5.00	0.000	0.38	1.99	0.00	0.024	0.000	7.436	0.00	34.43
85.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	2.09	0.00	0.024	0.000	7.436	0.00	41.27
86.50	Safety Cable	Yes	1.50	0.000	0.38	0.60	0.00	0.025	0.000	7.464	0.00	10.36
86.50	Step bolts (ladder)	Yes	1.50	0.000	0.63	0.63	0.00	0.025	0.000	7.464	0.00	12.42
90.00	Safety Cable	Yes	3.50	0.000	0.38	1.40	0.00	0.025	0.000	7.526	0.00	24.35
90.00	Step bolts (ladder)	Yes	3.50	0.000	0.63	1.47	0.00	0.025	0.000	7.526	0.00	29.15
91.75	Safety Cable	Yes	1.75	0.000	0.38	0.70	0.00	0.025	0.000	7.557	0.00	12.22
91.75	Step bolts (ladder)	Yes	1.75	0.000	0.63	0.74	0.00	0.025	0.000	7.557	0.00	14.62
95.00	Safety Cable	Yes	3.25	0.000	0.38	1.31	0.00	0.025	0.000	7.612	0.00	22.83
95.00	Step bolts (ladder)	Yes	3.25	0.000	0.63	1.37	0.00	0.025	0.000	7.612	0.00	27.30
100.00	Safety Cable	Yes	5.00	0.000	0.38	2.02	0.00	0.026	0.000	7.695	0.00	35.46

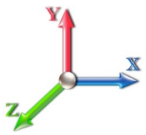
Linear Appurtenance Segment Forces (Factored)

Structure:	CT02216-S-SBA	**Code:**	EIA/TIA-222-G	2/27/2017	
Site Name:	Glastonbury	**Exposure:**	C		
Height:	176.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 32	

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

Dead Load Factor 1.20

Wind Load Factor 1.00



Iterations 26

Top Elev (ft)	Description	Wind Exposed	Length (ft)	Ca	Exposed Width (in)	Area (sqft)	CaAa (sqft)	Ra	Cf Adjust Factor	qz (psf)	F X (lb)	Dead Load (lb)
100.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	2.12	0.00	0.026	0.000	7.695	0.00	42.33
105.00	Safety Cable	Yes	5.00	0.000	0.38	2.03	0.00	0.026	0.000	7.774	0.00	35.77
105.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	2.13	0.00	0.026	0.000	7.774	0.00	42.66
110.00	Safety Cable	Yes	5.00	0.000	0.38	2.04	0.00	0.027	0.000	7.851	0.00	36.07
110.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	2.14	0.00	0.027	0.000	7.851	0.00	42.97
115.00	Safety Cable	Yes	5.00	0.000	0.38	2.05	0.00	0.028	0.000	7.925	0.00	36.37
115.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	2.15	0.00	0.028	0.000	7.925	0.00	43.28
120.00	Safety Cable	Yes	5.00	0.000	0.38	2.05	0.00	0.028	0.000	7.996	0.00	36.65
120.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	2.16	0.00	0.028	0.000	7.996	0.00	43.57
125.00	Safety Cable	Yes	5.00	0.000	0.38	2.06	0.00	0.029	0.000	8.065	0.00	36.92
125.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	2.17	0.00	0.029	0.000	8.065	0.00	43.85
130.00	Safety Cable	Yes	5.00	0.000	0.38	2.07	0.00	0.030	0.000	8.132	0.00	37.19
130.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	2.17	0.00	0.030	0.000	8.132	0.00	44.12
131.25	Safety Cable	Yes	1.25	0.000	0.38	0.52	0.00	0.031	0.000	8.148	0.00	9.31
131.25	Step bolts (ladder)	Yes	1.25	0.000	0.63	0.54	0.00	0.031	0.000	8.148	0.00	11.05
135.00	Safety Cable	Yes	3.75	0.000	0.38	1.56	0.00	0.031	0.000	8.197	0.00	28.08
135.00	Step bolts (ladder)	Yes	3.75	0.000	0.63	1.64	0.00	0.031	0.000	8.197	0.00	33.29
135.50	Safety Cable	Yes	0.50	0.000	0.38	0.21	0.00	0.032	0.000	8.203	0.00	3.75
135.50	Step bolts (ladder)	Yes	0.50	0.000	0.63	0.22	0.00	0.032	0.000	8.203	0.00	4.44
137.00	Safety Cable	Yes	1.50	0.000	0.38	0.62	0.00	0.031	0.000	8.222	0.00	11.26
137.00	Step bolts (ladder)	Yes	1.50	0.000	0.63	0.66	0.00	0.031	0.000	8.222	0.00	13.35
140.00	Safety Cable	Yes	3.00	0.000	0.38	1.25	0.00	0.032	0.000	8.260	0.00	22.61
140.00	Step bolts (ladder)	Yes	3.00	0.000	0.63	1.31	0.00	0.032	0.000	8.260	0.00	26.79
145.00	Safety Cable	Yes	5.00	0.000	0.38	2.09	0.00	0.033	0.000	8.321	0.00	37.93
145.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	2.20	0.00	0.033	0.000	8.321	0.00	44.89
147.00	Safety Cable	Yes	2.00	0.000	0.38	0.84	0.00	0.033	0.000	8.345	0.00	15.21
147.00	Step bolts (ladder)	Yes	2.00	0.000	0.63	0.88	0.00	0.033	0.000	8.345	0.00	18.00
150.00	Safety Cable	Yes	3.00	0.000	0.38	1.26	0.00	0.034	0.000	8.381	0.00	22.90
150.00	Step bolts (ladder)	Yes	3.00	0.000	0.63	1.32	0.00	0.034	0.000	8.381	0.00	27.08
155.00	Safety Cable	Yes	5.00	0.000	0.38	2.10	0.00	0.035	0.000	8.439	0.00	38.40
155.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	2.21	0.00	0.035	0.000	8.439	0.00	45.37
157.00	Safety Cable	Yes	2.00	0.000	0.38	0.84	0.00	0.036	0.000	8.462	0.00	15.39
157.00	Step bolts (ladder)	Yes	2.00	0.000	0.63	0.88	0.00	0.036	0.000	8.462	0.00	18.19
160.00	Safety Cable	Yes	3.00	0.000	0.38	1.27	0.00	0.036	0.000	8.495	0.00	23.17
160.00	Step bolts (ladder)	Yes	3.00	0.000	0.63	1.33	0.00	0.036	0.000	8.495	0.00	27.36
165.00	Safety Cable	Yes	5.00	0.000	0.38	2.12	0.00	0.037	0.000	8.551	0.00	38.84
165.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	2.22	0.00	0.037	0.000	8.551	0.00	45.83
167.00	Safety Cable	Yes	2.00	0.000	0.38	0.85	0.00	0.038	0.000	8.572	0.00	15.57
167.00	Step bolts (ladder)	Yes	2.00	0.000	0.63	0.89	0.00	0.038	0.000	8.572	0.00	18.37
170.00	Safety Cable	Yes	3.00	0.000	0.38	1.27	0.00	0.039	0.000	8.604	0.00	23.43
170.00	Step bolts (ladder)	Yes	3.00	0.000	0.63	1.34	0.00	0.039	0.000	8.604	0.00	27.63
175.00	Safety Cable	Yes	5.00	0.000	0.38	2.13	0.00	0.040	0.000	8.657	0.00	39.26
175.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	2.23	0.00	0.040	0.000	8.657	0.00	46.26
176.00	Safety Cable	Yes	1.00	0.000	0.38	0.43	0.00	0.041	0.000	8.667	0.00	7.86
176.00	Step bolts (ladder)	Yes	1.00	0.000	0.63	0.45	0.00	0.041	0.000	8.667	0.00	9.26
										Totals:	**0.0**	**2,605.9**

Calculated Forces

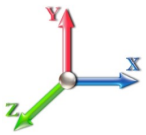
Structure:	CT02216-S-SBA	**Code:**	EIA/TIA-222-G	2/27/2017	
Site Name:	Glastonbury	**Exposure:**	C		
Height:	176.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 33	

Tower Engineering Solutions

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

Dead Load Factor 1.20

Wind Load Factor 1.00



Iterations 26

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	-99.27	-10.44	-0.17	-1323.4	0.00	1323.42	6372.54	3186.27	14661.2	7341.49	0.00	0.000	0.000	0.196
5.00	-96.49	-10.36	-0.17	-1271.2	0.00	1271.20	6292.68	3146.34	14220.7	7120.95	0.03	-0.052	0.000	0.194
10.00	-93.71	-10.28	-0.17	-1219.4	0.00	1219.40	6211.66	3105.83	13784.2	6902.39	0.11	-0.105	0.000	0.192
15.00	-90.93	-10.19	-0.17	-1168.0	0.00	1168.02	6129.50	3064.75	13351.9	6685.89	0.25	-0.159	0.000	0.190
20.00	-88.18	-10.09	-0.17	-1117.0	0.00	1117.08	6046.18	3023.09	12923.8	6471.51	0.45	-0.213	0.000	0.187
25.00	-85.46	-9.98	-0.17	-1066.6	0.00	1066.64	5961.72	2980.86	12500.0	6259.33	0.70	-0.268	0.000	0.185
30.00	-82.76	-9.86	-0.17	-1016.7	0.00	1016.75	5876.11	2938.05	12080.8	6049.42	1.01	-0.323	0.000	0.182
35.00	-80.10	-9.74	-0.17	-967.44	0.00	967.44	5789.35	2894.67	11666.3	5841.84	1.38	-0.379	0.000	0.179
40.00	-77.47	-9.59	-0.17	-918.75	0.00	918.75	5679.25	2839.63	11212.8	5614.75	1.80	-0.435	0.000	0.177
42.75	-76.04	-9.51	-0.17	-892.38	0.00	892.38	5615.38	2807.69	10960.7	5488.51	2.06	-0.467	0.000	0.176
45.00	-74.26	-9.46	-0.17	-870.97	0.00	870.97	5563.11	2781.56	10756.6	5386.29	2.29	-0.493	0.000	0.175
49.00	-71.12	-9.31	-0.17	-833.13	0.00	833.13	4756.80	2378.40	9239.06	4626.40	2.72	-0.539	0.000	0.195
50.00	-70.64	-9.32	-0.17	-823.82	0.00	823.82	4742.51	2371.25	9172.60	4593.12	2.84	-0.551	0.000	0.194
55.00	-68.27	-9.17	-0.17	-777.25	0.00	777.25	4670.33	2335.16	8842.49	4427.82	3.45	-0.613	0.000	0.190
60.00	-65.93	-9.02	-0.17	-731.40	0.00	731.40	4597.00	2298.50	8516.13	4264.39	4.12	-0.675	0.000	0.186
65.00	-63.63	-8.87	-0.17	-686.29	0.00	686.29	4522.52	2261.26	8193.68	4102.93	4.86	-0.737	0.000	0.181
70.00	-61.36	-8.71	-0.17	-641.94	0.00	641.94	4446.89	2223.45	7875.26	3943.48	5.67	-0.800	0.000	0.177
75.00	-59.13	-8.55	-0.17	-598.37	0.00	598.37	4354.69	2177.34	7534.33	3772.77	6.54	-0.862	0.000	0.172
80.00	-56.94	-8.39	-0.17	-555.61	0.00	555.61	4253.06	2126.53	7185.02	3597.85	7.47	-0.924	0.000	0.168
85.00	-54.79	-8.20	-0.17	-513.65	0.00	513.65	4151.43	2075.72	6843.99	3427.08	8.47	-0.986	0.000	0.163
86.50	-54.15	-8.17	-0.17	-501.35	0.00	501.35	4120.95	2060.47	6743.30	3376.66	8.79	-1.005	0.000	0.162
90.00	-51.97	-8.02	-0.17	-472.76	0.00	472.76	4049.81	2024.90	6511.26	3260.47	9.54	-1.048	0.000	0.158
91.75	-50.90	-7.97	-0.17	-458.72	0.00	458.72	3441.70	1720.85	5608.94	2808.64	9.93	-1.070	0.000	0.178
95.00	-49.63	-7.87	-0.17	-432.83	0.00	432.83	3401.05	1700.53	5452.51	2730.31	10.67	-1.110	0.000	0.173
100.00	-47.71	-7.70	-0.17	-393.50	0.00	393.50	3337.56	1668.78	5214.58	2611.16	11.87	-1.176	0.000	0.165
105.00	-45.82	-7.52	-0.17	-355.03	0.00	355.03	3272.92	1636.46	4980.08	2493.74	13.14	-1.240	0.000	0.156
110.00	-43.98	-7.35	-0.17	-317.42	0.00	317.42	3194.68	1597.34	4730.71	2368.87	14.47	-1.302	0.000	0.148
115.00	-42.16	-7.17	-0.17	-280.68	0.00	280.68	3107.57	1553.79	4474.96	2240.81	15.86	-1.362	0.000	0.139
120.00	-40.38	-6.99	-0.17	-244.84	0.00	244.84	3020.47	1510.23	4226.32	2116.30	17.32	-1.419	0.000	0.129
125.00	-38.64	-6.81	-0.17	-209.90	0.00	209.90	2933.36	1466.68	3984.78	1995.35	18.84	-1.473	0.000	0.118
130.00	-36.94	-6.61	-0.17	-175.87	0.00	175.87	2846.25	1423.13	3750.35	1877.96	20.41	-1.523	0.000	0.107
131.25	-36.52	-6.57	-0.17	-167.61	0.00	167.61	2824.47	1412.24	3692.86	1849.17	20.81	-1.535	0.000	0.104
135.00	-34.87	-6.41	-0.17	-142.97	0.00	142.97	2759.14	1379.57	3523.03	1764.13	22.03	-1.569	-0.001	0.094
135.50	-34.65	-6.39	-0.17	-139.76	0.00	139.76	1734.08	867.04	2260.78	1132.07	22.19	-1.573	-0.001	0.143
137.00	-26.55	-4.96	0.00	-130.17	0.00	130.17	1723.43	861.72	2225.81	1114.56	22.69	-1.586	-0.001	0.132
140.00	-25.77	-4.86	0.00	-115.27	0.00	115.27	1701.83	850.91	2156.25	1079.73	23.70	-1.620	-0.001	0.122
145.00	-24.49	-4.68	0.00	-90.96	0.00	90.96	1664.90	832.45	2041.54	1022.29	25.42	-1.670	-0.001	0.104
147.00	-22.70	-4.37	0.00	-81.61	0.00	81.61	1649.80	824.90	1996.11	999.54	26.12	-1.688	-0.001	0.095
150.00	-21.97	-4.27	0.00	-68.50	0.00	68.50	1626.81	813.41	1928.48	965.67	27.19	-1.713	-0.001	0.084
155.00	-20.78	-4.08	0.00	-47.17	0.00	47.17	1587.58	793.79	1817.22	909.96	29.00	-1.747	-0.001	0.065
157.00	-15.02	-3.04	0.00	-39.01	0.00	39.01	1571.57	785.79	1773.24	887.94	29.74	-1.758	-0.001	0.054
160.00	-14.37	-2.93	0.00	-29.89	0.00	29.89	1547.20	773.60	1707.88	855.21	30.85	-1.773	-0.001	0.044
165.00	-13.32	-2.75	0.00	-15.23	0.00	15.23	1505.67	752.84	1600.62	801.50	32.72	-1.789	-0.001	0.028
167.00	-5.20	-1.11	0.00	-9.72	0.00	9.72	1488.74	744.37	1558.33	780.32	33.47	-1.793	-0.001	0.016
170.00	-4.62	-1.01	0.00	-6.39	0.00	6.39	1462.99	731.50	1495.57	748.90	34.59	-1.797	-0.001	0.012
175.00	-3.67	-0.84	0.00	-1.35	0.00	1.35	1411.70	705.85	1385.55	693.80	36.48	-1.801	-0.001	0.005
176.00	0.00	-0.72	0.00	-0.51	0.00	0.51	1400.09	700.04	1362.73	682.38	36.85	-1.801	-0.001	0.001

Calculated Forces

Structure:	CT02216-S-SBA		**Code:**	EIA/TIA-222-G	2/27/2017
Site Name:	Glastonbury		**Exposure:**	C	
Height:	176.00 (ft)		**Crest Height:**	0.00	
Base Elev:	0.000 (ft)		**Site Class:**	D - Stiff Soil	
Gh:	1.1	**Topography:** 1	**Struct Class:**	II	Page: 34

Tower Engineering Solutions

Seismic Segment Forces (Factored)

Structure:	CT02216-S-SBA	**Code:**	EIA/TIA-222-G	2/27/2017	
Site Name:	Glastonbury	**Exposure:**	C		
Height:	176.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 35	

Tower Engineering Solutions

Load Case: 1.2D + 1.0E

Gust Response Factor	1.10			**Sds**	0.19	**Iterations**	23
Dead Load Factor	1.20	**Seismic Load Factor**	1.00	**Sd1**	0.10	**Ss**	0.18
Wind Load Factor	0.00	**Structure Frequency**	0.32	**SA**	0.03	**S1**	0.06
						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		1500.0	0.00	0.03	0.02	26.03	
10.00		1473.4	0.01	0.05	0.03	37.92	
15.00		1446.8	0.01	0.06	0.03	43.70	
20.00		1420.2	0.02	0.07	0.04	46.40	
25.00		1393.6	0.04	0.07	0.04	47.52	
30.00		1367.0	0.05	0.07	0.04	47.90	
35.00		1340.4	0.07	0.07	0.04	48.00	
40.00		1313.8	0.10	0.07	0.04	48.03	
42.75	Bot - Section 2	711.29	0.11	0.07	0.04	26.29	
45.00		1089.9	0.12	0.07	0.03	40.65	
49.00	Top - Section 1	1912.7	0.15	0.07	0.03	72.36	
50.00		223.19	0.15	0.07	0.03	8.47	
55.00		1101.9	0.18	0.06	0.03	42.21	
60.00		1078.7	0.22	0.06	0.02	41.06	
65.00		1055.4	0.26	0.05	0.02	38.84	
70.00		1032.1	0.30	0.05	0.01	35.10	
75.00		1008.8	0.34	0.03	0.01	29.40	
80.00		985.61	0.39	0.02	0.01	21.47	
85.00		962.33	0.44	0.00	0.01	11.45	
86.50	Bot - Section 3	284.16	0.46	0.00	0.01	2.42	
90.00		1227.7	0.49	-0.01	0.01	0.11	
91.75	Top - Section 2	605.94	0.51	-0.02	0.01	-2.58	
95.00		518.65	0.55	-0.03	0.01	-6.38	
100.00		781.47	0.61	-0.06	0.02	-18.47	
105.00		761.52	0.67	-0.08	0.02	-24.70	
110.00		741.57	0.74	-0.10	0.04	-28.04	
115.00		721.62	0.81	-0.11	0.06	-28.45	
120.00		701.67	0.88	-0.12	0.08	-26.10	
125.00		681.73	0.95	-0.12	0.11	-21.29	
130.00		661.78	1.03	-0.10	0.15	-14.30	
131.25	Bot - Section 4	162.33	1.05	-0.09	0.16	-3.02	
135.00		805.50	1.11	-0.06	0.19	-6.74	
135.50	Top - Section 3	105.99	1.12	-0.06	0.20	-0.73	
137.00	Appurtenance(s)	2524.1	1.15	-0.04	0.22	-5.22	
140.00		252.22	1.20	0.00	0.25	2.13	
145.00		409.73	1.28	0.10	0.32	11.84	
147.00	Appurtenance(s)	576.17	1.32	0.15	0.35	21.94	
150.00		236.26	1.37	0.23	0.40	12.51	
155.00		383.13	1.47	0.42	0.50	30.93	
157.00	Appurtenance(s)	1751.5	1.50	0.51	0.55	162.72	
160.00		220.30	1.56	0.67	0.62	24.74	
165.00		356.53	1.66	0.98	0.76	52.66	
167.00	Appurtenance(s)	2350.3	1.70	1.13	0.82	382.99	
170.00		204.34	1.76	1.38	0.92	38.22	
175.00		329.93	1.87	1.87	1.10	76.00	

Seismic Segment Forces (Factored)

Structure:	CT02216-S-SBA		**Code:**	EIA/TIA-222-G	2/27/2017
Site Name:	Glastonbury		**Exposure:**	C	
Height:	176.00 (ft)		**Crest Height:**	0.00	
Base Elev:	0.000 (ft)		**Site Class:**	D - Stiff Soil	
Gh:	1.1	**Topography:** 1	**Struct Class:**	II	Page: 36

176.00	Appurtenance(s)		1362.3	1.89	1.98	1.14	326.32	
		Totals:	**42,136.6**				**1,672.3**	**Total Wind:** **33,899.5**

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

Calculated Forces

Structure:	CT02216-S-SBA	**Code:**	EIA/TIA-222-G	2/27/2017	
Site Name:	Glastonbury	**Exposure:**	C		
Height:	176.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 37	

Tower Engineering Solutions

Load Case: 1.2D + 1.0E

Gust Response Factor	1.10			**Sds**	0.19			**Iterations**	23
Dead Load Factor	1.20	**Seismic Load Factor**	1.00	**Sd1**	0.10			**Ss**	0.18
Wind Load Factor	0.00	**Structure Frequency**	0.32	**SA**	0.03			**S1**	0.06
								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	-61.12	-1.86	0.00	-232.42	0.00	232.42	6372.54	3186.27	14661.2	7341.49		0.00	0.00	0.041
5.00	-58.98	-1.85	0.00	-223.11	0.00	223.11	6292.68	3146.34	14220.7	7120.95		0.00	-0.01	0.041
10.00	-56.88	-1.82	0.00	-213.88	0.00	213.88	6211.66	3105.83	13784.2	6902.39		0.02	-0.02	0.040
15.00	-54.81	-1.78	0.00	-204.80	0.00	204.80	6129.50	3064.75	13351.9	6685.89		0.04	-0.03	0.040
20.00	-52.76	-1.74	0.00	-195.89	0.00	195.89	6046.18	3023.09	12923.8	6471.51		0.08	-0.04	0.039
25.00	-50.75	-1.70	0.00	-187.18	0.00	187.18	5961.72	2980.86	12500.0	6259.33		0.12	-0.05	0.038
30.00	-48.78	-1.66	0.00	-178.68	0.00	178.68	5876.11	2938.05	12080.8	6049.42		0.18	-0.06	0.038
35.00	-46.83	-1.62	0.00	-170.38	0.00	170.38	5789.35	2894.67	11666.3	5841.84		0.24	-0.07	0.037
40.00	-44.92	-1.57	0.00	-162.29	0.00	162.29	5679.25	2839.63	11212.8	5614.75		0.32	-0.08	0.037
42.75	-43.88	-1.55	0.00	-157.96	0.00	157.96	5615.38	2807.69	10960.7	5488.51		0.36	-0.08	0.037
45.00	-42.42	-1.51	0.00	-154.47	0.00	154.47	5563.11	2781.56	10756.6	5386.29		0.40	-0.09	0.036
49.00	-39.85	-1.44	0.00	-148.42	0.00	148.42	4756.80	2378.40	9239.06	4626.40		0.48	-0.09	0.040
50.00	-39.52	-1.43	0.00	-146.98	0.00	146.98	4742.51	2371.25	9172.60	4593.12		0.50	-0.10	0.040
55.00	-37.86	-1.40	0.00	-139.81	0.00	139.81	4670.33	2335.16	8842.49	4427.82		0.61	-0.11	0.040
60.00	-36.23	-1.36	0.00	-132.83	0.00	132.83	4597.00	2298.50	8516.13	4264.39		0.72	-0.12	0.039
65.00	-34.62	-1.32	0.00	-126.03	0.00	126.03	4522.52	2261.26	8193.68	4102.93		0.86	-0.13	0.038
70.00	-33.05	-1.29	0.00	-119.41	0.00	119.41	4446.89	2223.45	7875.26	3943.48		1.00	-0.14	0.038
75.00	-31.50	-1.27	0.00	-112.94	0.00	112.94	4354.69	2177.34	7534.33	3772.77		1.15	-0.15	0.037
80.00	-29.98	-1.25	0.00	-106.62	0.00	106.62	4253.06	2126.53	7185.02	3597.85		1.32	-0.17	0.037
85.00	-28.49	-1.23	0.00	-100.39	0.00	100.39	4151.43	2075.72	6843.99	3427.08		1.50	-0.18	0.036
86.50	-28.05	-1.23	0.00	-98.54	0.00	98.54	4120.95	2060.47	6743.30	3376.66		1.56	-0.18	0.036
90.00	-26.34	-1.23	0.00	-94.22	0.00	94.22	4049.81	2024.90	6511.26	3260.47		1.69	-0.19	0.035
91.75	-25.49	-1.23	0.00	-92.07	0.00	92.07	3441.70	1720.85	5608.94	2808.64		1.76	-0.19	0.040
95.00	-24.65	-1.23	0.00	-88.07	0.00	88.07	3401.05	1700.53	5452.51	2730.31		1.90	-0.20	0.040
100.00	-23.37	-1.23	0.00	-81.91	0.00	81.91	3337.56	1668.78	5214.58	2611.16		2.12	-0.22	0.038
105.00	-22.12	-1.23	0.00	-75.75	0.00	75.75	3272.92	1636.46	4980.08	2493.74		2.35	-0.23	0.037
110.00	-20.90	-1.23	0.00	-69.58	0.00	69.58	3194.68	1597.34	4730.71	2368.87		2.60	-0.24	0.036
115.00	-19.69	-1.23	0.00	-63.42	0.00	63.42	3107.57	1553.79	4474.96	2240.81		2.86	-0.26	0.035
120.00	-18.51	-1.23	0.00	-57.25	0.00	57.25	3020.47	1510.23	4226.32	2116.30		3.14	-0.27	0.033
125.00	-17.36	-1.23	0.00	-51.10	0.00	51.10	2933.36	1466.68	3984.78	1995.35		3.43	-0.28	0.032
130.00	-16.23	-1.23	0.00	-44.95	0.00	44.95	2846.25	1423.13	3750.35	1877.96		3.73	-0.29	0.030
131.25	-15.95	-1.23	0.00	-43.42	0.00	43.42	2824.47	1412.24	3692.86	1849.17		3.80	-0.30	0.029
135.00	-14.73	-1.22	0.00	-38.82	0.00	38.82	2759.14	1379.57	3523.03	1764.13		4.04	-0.31	0.027
135.50	-14.57	-1.22	0.00	-38.21	0.00	38.21	1734.08	867.04	2260.78	1132.07		4.07	-0.31	0.042
137.00	-11.44	-1.21	0.00	-36.37	0.00	36.37	1723.43	861.72	2225.81	1114.56		4.17	-0.31	0.039
140.00	-10.99	-1.20	0.00	-32.76	0.00	32.76	1701.83	850.91	2156.25	1079.73		4.37	-0.32	0.037
145.00	-10.25	-1.19	0.00	-26.74	0.00	26.74	1664.90	832.45	2041.54	1022.29		4.71	-0.34	0.032
147.00	-9.46	-1.16	0.00	-24.36	0.00	24.36	1649.80	824.90	1996.11	999.54		4.86	-0.34	0.030
150.00	-9.05	-1.15	0.00	-20.87	0.00	20.87	1626.81	813.41	1928.48	965.67		5.07	-0.35	0.027
155.00	-8.38	-1.12	0.00	-15.12	0.00	15.12	1587.58	793.79	1817.22	909.96		5.44	-0.36	0.022
157.00	-6.20	-0.94	0.00	-12.89	0.00	12.89	1571.57	785.79	1773.24	887.94		5.60	-0.36	0.018
160.00	-5.85	-0.91	0.00	-10.07	0.00	10.07	1547.20	773.60	1707.88	855.21		5.82	-0.37	0.016
165.00	-5.29	-0.86	0.00	-5.50	0.00	5.50	1505.67	752.84	1600.62	801.50		6.21	-0.37	0.010
167.00	-2.42	-0.46	0.00	-3.79	0.00	3.79	1488.74	744.37	1558.33	780.32		6.37	-0.37	0.006
170.00	-2.13	-0.42	0.00	-2.42	0.00	2.42	1462.99	731.50	1495.57	748.90		6.60	-0.38	0.005
175.00	-1.65	-0.34	0.00	-0.34	0.00	0.34	1411.70	705.85	1385.55	693.80		7.00	-0.38	0.002
176.00	0.00	-0.33	0.00	0.00	0.00	0.00	1400.09	700.04	1362.73	682.38		7.08	-0.38	0.000

Calculated Forces

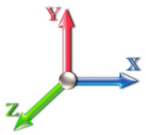
Structure:	CT02216-S-SBA			**Code:**	EIA/TIA-222-G	2/27/2017	
Site Name:	Glastonbury			**Exposure:**	C		
Height:	176.00 (ft)			**Crest Height:**	0.00		
Base Elev:	0.000 (ft)			**Site Class:**	D - Stiff Soil		
Gh:	1.1	**Topography:**	1	**Struct Class:**	II	Page: 38	

Seismic Segment Forces (Factored)

Structure:	CT02216-S-SBA	**Code:**	EIA/TIA-222-G	2/27/2017	
Site Name:	Glastonbury	**Exposure:**	C		
Height:	176.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 39	

Tower Engineering Solutions

Load Case: 0.9D + 1.0E



Gust Response Factor	1.10			**Sds**	0.19	**Iterations**	23
Dead Load Factor	0.90	**Seismic Load Factor**	1.00	**Sd1**	0.10	**Ss**	0.18
Wind Load Factor	0.00	**Structure Frequency**	0.32	**SA**	0.03	**S1**	0.06
						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		1500.0	0.00	0.03	0.02	26.03	
10.00		1473.4	0.01	0.05	0.03	37.92	
15.00		1446.8	0.01	0.06	0.03	43.70	
20.00		1420.2	0.02	0.07	0.04	46.40	
25.00		1393.6	0.04	0.07	0.04	47.52	
30.00		1367.0	0.05	0.07	0.04	47.90	
35.00		1340.4	0.07	0.07	0.04	48.00	
40.00		1313.8	0.10	0.07	0.04	48.03	
42.75	Bot - Section 2	711.29	0.11	0.07	0.04	26.29	
45.00		1089.9	0.12	0.07	0.03	40.65	
49.00	Top - Section 1	1912.7	0.15	0.07	0.03	72.36	
50.00		223.19	0.15	0.07	0.03	8.47	
55.00		1101.9	0.18	0.06	0.03	42.21	
60.00		1078.7	0.22	0.06	0.02	41.06	
65.00		1055.4	0.26	0.05	0.02	38.84	
70.00		1032.1	0.30	0.05	0.01	35.10	
75.00		1008.8	0.34	0.03	0.01	29.40	
80.00		985.61	0.39	0.02	0.01	21.47	
85.00		962.33	0.44	0.00	0.01	11.45	
86.50	Bot - Section 3	284.16	0.46	0.00	0.01	2.42	
90.00		1227.7	0.49	-0.01	0.01	0.11	
91.75	Top - Section 2	605.94	0.51	-0.02	0.01	-2.58	
95.00		518.65	0.55	-0.03	0.01	-6.38	
100.00		781.47	0.61	-0.06	0.02	-18.47	
105.00		761.52	0.67	-0.08	0.02	-24.70	
110.00		741.57	0.74	-0.10	0.04	-28.04	
115.00		721.62	0.81	-0.11	0.06	-28.45	
120.00		701.67	0.88	-0.12	0.08	-26.10	
125.00		681.73	0.95	-0.12	0.11	-21.29	
130.00		661.78	1.03	-0.10	0.15	-14.30	
131.25	Bot - Section 4	162.33	1.05	-0.09	0.16	-3.02	
135.00		805.50	1.11	-0.06	0.19	-6.74	
135.50	Top - Section 3	105.99	1.12	-0.06	0.20	-0.73	
137.00	Appurtenance(s)	2524.1	1.15	-0.04	0.22	-5.22	
140.00		252.22	1.20	0.00	0.25	2.13	
145.00		409.73	1.28	0.10	0.32	11.84	
147.00	Appurtenance(s)	576.17	1.32	0.15	0.35	21.94	
150.00		236.26	1.37	0.23	0.40	12.51	
155.00		383.13	1.47	0.42	0.50	30.93	
157.00	Appurtenance(s)	1751.5	1.50	0.51	0.55	162.72	
160.00		220.30	1.56	0.67	0.62	24.74	
165.00		356.53	1.66	0.98	0.76	52.66	
167.00	Appurtenance(s)	2350.3	1.70	1.13	0.82	382.99	
170.00		204.34	1.76	1.38	0.92	38.22	
175.00		329.93	1.87	1.87	1.10	76.00	

Seismic Segment Forces (Factored)

Structure:	CT02216-S-SBA		**Code:**	EIA/TIA-222-G	2/27/2017
Site Name:	Glastonbury		**Exposure:**	C	
Height:	176.00 (ft)		**Crest Height:**	0.00	
Base Elev:	0.000 (ft)		**Site Class:**	D - Stiff Soil	
Gh:	1.1	**Topography:** 1	**Struct Class:**	II	Page: 40

176.00	Appurtenance(s)		1362.3	1.89	1.98	1.14	326.32		
		Totals:	**42,136.6**				**1,672.3**	**Total Wind:**	**33,899.5**

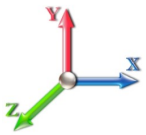
Seismic Base Shear is Less Than 50% of Wind Force - An Analysis is NOT Required

Calculated Forces

Structure:	CT02216-S-SBA	**Code:**	EIA/TIA-222-G	2/27/2017	
Site Name:	Glastonbury	**Exposure:**	C		
Height:	176.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 41	

Tower Engineering Solutions

Load Case: 0.9D + 1.0E



Gust Response Factor	1.10			**Sds**	0.19			**Iterations**	23
Dead Load Factor	0.90	**Seismic Load Factor**	1.00	**Sd1**	0.10			**Ss**	0.18
Wind Load Factor	0.00	**Structure Frequency**	0.32	**SA**	0.03			**S1**	0.06
								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	-45.84	-1.86	0.00	-229.51	0.00	229.51	6372.54	3186.27	14661.2	7341.49		0.00	0.00	0.038
5.00	-44.24	-1.84	0.00	-220.21	0.00	220.21	6292.68	3146.34	14220.7	7120.95		0.00	-0.01	0.038
10.00	-42.66	-1.81	0.00	-211.00	0.00	211.00	6211.66	3105.83	13784.2	6902.39		0.02	-0.02	0.037
15.00	-41.10	-1.77	0.00	-201.95	0.00	201.95	6129.50	3064.75	13351.9	6685.89		0.04	-0.03	0.037
20.00	-39.57	-1.73	0.00	-193.08	0.00	193.08	6046.18	3023.09	12923.8	6471.51		0.08	-0.04	0.036
25.00	-38.07	-1.69	0.00	-184.42	0.00	184.42	5961.72	2980.86	12500.0	6259.33		0.12	-0.05	0.036
30.00	-36.58	-1.65	0.00	-175.98	0.00	175.98	5876.11	2938.05	12080.8	6049.42		0.17	-0.06	0.035
35.00	-35.12	-1.60	0.00	-167.74	0.00	167.74	5789.35	2894.67	11666.3	5841.84		0.24	-0.07	0.035
40.00	-33.69	-1.56	0.00	-159.73	0.00	159.73	5679.25	2839.63	11212.8	5614.75		0.31	-0.08	0.034
42.75	-32.91	-1.53	0.00	-155.44	0.00	155.44	5615.38	2807.69	10960.7	5488.51		0.36	-0.08	0.034
45.00	-31.81	-1.49	0.00	-151.99	0.00	151.99	5563.11	2781.56	10756.6	5386.29		0.40	-0.09	0.034
49.00	-29.89	-1.42	0.00	-146.02	0.00	146.02	4756.80	2378.40	9239.06	4626.40		0.47	-0.09	0.038
50.00	-29.64	-1.42	0.00	-144.60	0.00	144.60	4742.51	2371.25	9172.60	4593.12		0.49	-0.10	0.038
55.00	-28.39	-1.38	0.00	-137.51	0.00	137.51	4670.33	2335.16	8842.49	4427.82		0.60	-0.11	0.037
60.00	-27.17	-1.34	0.00	-130.63	0.00	130.63	4597.00	2298.50	8516.13	4264.39		0.71	-0.12	0.037
65.00	-25.97	-1.30	0.00	-123.93	0.00	123.93	4522.52	2261.26	8193.68	4102.93		0.84	-0.13	0.036
70.00	-24.78	-1.27	0.00	-117.42	0.00	117.42	4446.89	2223.45	7875.26	3943.48		0.98	-0.14	0.035
75.00	-23.62	-1.24	0.00	-111.07	0.00	111.07	4354.69	2177.34	7534.33	3772.77		1.14	-0.15	0.035
80.00	-22.48	-1.22	0.00	-104.86	0.00	104.86	4253.06	2126.53	7185.02	3597.85		1.30	-0.16	0.034
85.00	-21.36	-1.21	0.00	-98.74	0.00	98.74	4151.43	2075.72	6843.99	3427.08		1.48	-0.17	0.034
86.50	-21.03	-1.21	0.00	-96.93	0.00	96.93	4120.95	2060.47	6743.30	3376.66		1.53	-0.18	0.034
90.00	-19.75	-1.21	0.00	-92.70	0.00	92.70	4049.81	2024.90	6511.26	3260.47		1.67	-0.19	0.033
91.75	-19.12	-1.21	0.00	-90.58	0.00	90.58	3441.70	1720.85	5608.94	2808.64		1.74	-0.19	0.038
95.00	-18.49	-1.21	0.00	-86.66	0.00	86.66	3401.05	1700.53	5452.51	2730.31		1.87	-0.20	0.037
100.00	-17.53	-1.21	0.00	-80.62	0.00	80.62	3337.56	1668.78	5214.58	2611.16		2.09	-0.21	0.036
105.00	-16.59	-1.21	0.00	-74.57	0.00	74.57	3272.92	1636.46	4980.08	2493.74		2.32	-0.23	0.035
110.00	-15.67	-1.21	0.00	-68.52	0.00	68.52	3194.68	1597.34	4730.71	2368.87		2.56	-0.24	0.034
115.00	-14.77	-1.21	0.00	-62.48	0.00	62.48	3107.57	1553.79	4474.96	2240.81		2.82	-0.25	0.033
120.00	-13.88	-1.21	0.00	-56.43	0.00	56.43	3020.47	1510.23	4226.32	2116.30		3.09	-0.27	0.031
125.00	-13.02	-1.21	0.00	-50.39	0.00	50.39	2933.36	1466.68	3984.78	1995.35		3.37	-0.28	0.030
130.00	-12.17	-1.20	0.00	-44.36	0.00	44.36	2846.25	1423.13	3750.35	1877.96		3.67	-0.29	0.028
131.25	-11.96	-1.20	0.00	-42.85	0.00	42.85	2824.47	1412.24	3692.86	1849.17		3.75	-0.29	0.027
135.00	-11.04	-1.20	0.00	-38.34	0.00	38.34	2759.14	1379.57	3523.03	1764.13		3.98	-0.30	0.026
135.50	-10.92	-1.20	0.00	-37.74	0.00	37.74	1734.08	867.04	2260.78	1132.07		4.01	-0.30	0.040
137.00	-8.58	-1.19	0.00	-35.94	0.00	35.94	1723.43	861.72	2225.81	1114.56		4.11	-0.31	0.037
140.00	-8.24	-1.19	0.00	-32.37	0.00	32.37	1701.83	850.91	2156.25	1079.73		4.30	-0.32	0.035
145.00	-7.69	-1.17	0.00	-26.43	0.00	26.43	1664.90	832.45	2041.54	1022.29		4.64	-0.33	0.030
147.00	-7.09	-1.15	0.00	-24.09	0.00	24.09	1649.80	824.90	1996.11	999.54		4.78	-0.34	0.028
150.00	-6.79	-1.14	0.00	-20.64	0.00	20.64	1626.81	813.41	1928.48	965.67		5.00	-0.34	0.026
155.00	-6.29	-1.10	0.00	-14.96	0.00	14.96	1587.58	793.79	1817.22	909.96		5.36	-0.35	0.020
157.00	-4.65	-0.93	0.00	-12.76	0.00	12.76	1571.57	785.79	1773.24	887.94		5.51	-0.36	0.017
160.00	-4.39	-0.90	0.00	-9.97	0.00	9.97	1547.20	773.60	1707.88	855.21		5.74	-0.36	0.014
165.00	-3.97	-0.85	0.00	-5.45	0.00	5.45	1505.67	752.84	1600.62	801.50		6.12	-0.37	0.009
167.00	-1.82	-0.45	0.00	-3.75	0.00	3.75	1488.74	744.37	1558.33	780.32		6.27	-0.37	0.006
170.00	-1.59	-0.41	0.00	-2.40	0.00	2.40	1462.99	731.50	1495.57	748.90		6.51	-0.37	0.004
175.00	-1.24	-0.33	0.00	-0.33	0.00	0.33	1411.70	705.85	1385.55	693.80		6.89	-0.37	0.001
176.00	0.00	-0.33	0.00	0.00	0.00	0.00	1400.09	700.04	1362.73	682.38		6.97	-0.37	0.000

Calculated Forces

Structure:	CT02216-S-SBA	**Code:**	EIA/TIA-222-G	2/27/2017	
Site Name:	Glastonbury	**Exposure:**	C		
Height:	176.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 42	

Wind Loading - Shaft

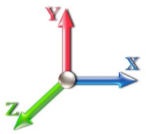
Structure:	CT02216-S-SBA	**Code:**	EIA/TIA-222-G	2/27/2017	
Site Name:	Glastonbury	**Exposure:**	C		
Height:	176.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 43	

Tower Engineering Solutions

Load Case: 1.0D + 1.0W 60 mph Wind

Dead Load Factor 1.00

Wind Load Factor 1.00



Iterations 24

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	264.70	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	260.09	0.650	0.000	5.00	23.718	15.42	126.2	0.0	1500.1
10.00		1.00	0.85	7.442	8.19	255.48	0.650	0.000	5.00	23.301	15.15	124.0	0.0	1473.5
15.00		1.00	0.85	7.442	8.19	250.87	0.650	0.000	5.00	22.884	14.87	121.8	0.0	1446.9
20.00		1.00	0.90	7.896	8.69	253.66	0.650	0.000	5.00	22.467	14.60	126.8	0.0	1420.3
25.00		1.00	0.95	8.276	9.10	254.83	0.650	0.000	5.00	22.050	14.33	130.5	0.0	1393.7
30.00		1.00	0.98	8.600	9.46	254.81	0.650	0.000	5.00	21.634	14.06	133.0	0.0	1367.1
35.00		1.00	1.01	8.883	9.77	253.94	0.650	0.000	5.00	21.217	13.79	134.8	0.0	1340.5
40.00		1.00	1.04	9.137	10.05	252.43	0.650	0.000	5.00	20.800	13.52	135.9	0.0	1313.9
42.75	Bot - Section 2	1.00	1.06	9.266	10.19	251.37	0.650	0.000	2.75	11.262	7.32	74.6	0.0	711.3
45.00		1.00	1.07	9.366	10.30	250.40	0.650	0.000	2.25	9.288	6.04	62.2	0.0	1089.9
49.00	Top - Section 1	1.00	1.09	9.536	10.49	248.48	0.650	0.000	4.00	16.303	10.60	111.2	0.0	1912.7
50.00		1.00	1.09	9.576	10.53	252.61	0.650	0.000	1.00	4.034	2.62	27.6	0.0	223.2
55.00		1.00	1.12	9.770	10.75	249.88	0.650	0.000	5.00	19.920	12.95	139.2	0.0	1102.0
60.00		1.00	1.14	9.951	10.95	246.84	0.650	0.000	5.00	19.503	12.68	138.8	0.0	1078.7
65.00		1.00	1.16	10.120	11.13	243.55	0.650	0.000	5.00	19.086	12.41	138.1	0.0	1055.4
70.00		1.00	1.17	10.279	11.31	240.04	0.650	0.000	5.00	18.670	12.14	137.2	0.0	1032.2
75.00		1.00	1.19	10.430	11.47	236.33	0.650	0.000	5.00	18.253	11.86	136.1	0.0	1008.9
80.00		1.00	1.21	10.572	11.63	232.45	0.650	0.000	5.00	17.836	11.59	134.8	0.0	985.6
85.00		1.00	1.22	10.708	11.78	228.41	0.650	0.000	5.00	17.419	11.32	133.4	0.0	962.3
86.50	Bot - Section 3	1.00	1.23	10.748	11.82	227.16	0.650	0.000	1.50	5.145	3.34	39.5	0.0	284.2
90.00		1.00	1.24	10.838	11.92	224.22	0.650	0.000	3.50	12.080	7.85	93.6	0.0	1227.8
91.75	Top - Section 2	1.00	1.24	10.882	11.97	222.72	0.650	0.000	1.75	5.963	3.88	46.4	0.0	605.9
95.00		1.00	1.25	10.962	12.06	224.16	0.650	0.000	3.25	10.940	7.11	85.7	0.0	518.7
100.00		1.00	1.27	11.081	12.19	219.75	0.650	0.000	5.00	16.486	10.72	130.6	0.0	781.5
105.00		1.00	1.28	11.195	12.31	215.23	0.650	0.000	5.00	16.069	10.45	128.6	0.0	761.5
110.00		1.00	1.29	11.305	12.44	210.60	0.650	0.000	5.00	15.653	10.17	126.5	0.0	741.6
115.00		1.00	1.30	11.412	12.55	205.88	0.650	0.000	5.00	15.236	9.90	124.3	0.0	721.6
120.00		1.00	1.32	11.514	12.67	201.07	0.650	0.000	5.00	14.819	9.63	122.0	0.0	701.7
125.00		1.00	1.33	11.614	12.78	196.17	0.650	0.000	5.00	14.402	9.36	119.6	0.0	681.7
130.00		1.00	1.34	11.710	12.88	191.20	0.650	0.000	5.00	13.986	9.09	117.1	0.0	661.8
131.25	Bot - Section 4	1.00	1.34	11.734	12.91	189.94	0.650	0.000	1.25	3.431	2.23	28.8	0.0	162.3
135.00		1.00	1.35	11.803	12.98	186.15	0.650	0.000	3.75	10.296	6.69	86.9	0.0	805.5
135.50	Top - Section 3	1.00	1.35	11.813	12.99	185.64	0.650	0.000	0.50	1.355	0.88	11.4	0.0	106.0
137.00	Appurtenance(s)	1.00	1.35	11.840	13.02	187.07	0.650	0.000	1.50	4.040	2.63	34.2	0.0	127.9
140.00		1.00	1.36	11.894	13.08	184.00	0.650	0.000	3.00	7.968	5.18	67.8	0.0	252.2
145.00		1.00	1.37	11.982	13.18	178.83	0.650	0.000	5.00	12.947	8.42	110.9	0.0	409.7
147.00	Appurtenance(s)	1.00	1.37	12.017	13.22	176.74	0.650	0.000	2.00	5.062	3.29	43.5	0.0	160.2
150.00		1.00	1.38	12.068	13.27	173.59	0.650	0.000	3.00	7.468	4.85	64.4	0.0	236.3
155.00		1.00	1.39	12.152	13.37	168.30	0.650	0.000	5.00	12.113	7.87	105.2	0.0	383.1
157.00	Appurtenance(s)	1.00	1.39	12.185	13.40	166.17	0.650	0.000	2.00	4.729	3.07	41.2	0.0	149.5
160.00		1.00	1.40	12.233	13.46	162.95	0.650	0.000	3.00	6.968	4.53	60.9	0.0	220.3
165.00		1.00	1.41	12.313	13.54	157.55	0.650	0.000	5.00	11.280	7.33	99.3	0.0	356.5
167.00	Appurtenance(s)	1.00	1.41	12.344	13.58	155.38	0.650	0.000	2.00	4.395	2.86	38.8	0.0	138.9
170.00		1.00	1.42	12.390	13.63	152.10	0.650	0.000	3.00	6.468	4.20	57.3	0.0	204.3
175.00		1.00	1.42	12.466	13.71	146.59	0.650	0.000	5.00	10.446	6.79	93.1	0.0	329.9
176.00	Appurtenance(s)	1.00	1.43	12.481	13.73	145.49	0.650	0.000	1.00	2.039	1.33	18.2	0.0	64.4

Wind Loading - Shaft

Structure:	CT02216-S-SBA		**Code:**	EIA/TIA-222-G	2/27/2017
Site Name:	Glastonbury		**Exposure:**	C	
Height:	176.00 (ft)		**Crest Height:**	0.00	
Base Elev:	0.000 (ft)		**Site Class:**	D - Stiff Soil	
Gh:	1.1	**Topography:** 1	**Struct Class:**	II	Page: 44

Totals:	**176.00**	**4,362.1**	**34,212.9**

Discrete Appurtenance Forces

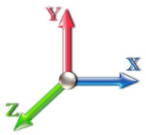
Structure:	CT02216-S-SBA	**Code:**	EIA/TIA-222-G	2/27/2017	
Site Name:	Glastonbury	**Exposure:**	C		
Height:	176.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 45	

Tower Engineering Solutions

Load Case: 1.0D + 1.0W 60 mph Wind

Dead Load Factor 1.00

Wind Load Factor 1.00



Iterations 24

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	176.00	T-Arms	3	12.481	13.729	0.56	0.75	13.50	1050.00	0.000	0.000	185.35	0.00	0.00
2	176.00	MHA FE15501P77/75	12	12.496	13.746	0.65	1.00	7.25	132.00	0.000	1.000	99.71	0.00	99.71
3	176.00	RR90-17-02DP	6	12.496	13.746	0.68	1.00	17.79	81.00	0.000	1.000	244.52	0.00	244.52
4	176.00	Lightning Rod	1	12.533	13.786	1.00	1.00	1.05	35.00	0.000	3.500	14.48	0.00	50.66
5	167.00	RRH2X60-700	3	12.344	13.578	0.61	0.80	6.38	180.00	0.000	0.000	86.68	0.00	0.00
6	167.00	Low Profile	1	12.344	13.578	1.00	1.00	22.00	1500.00	0.000	0.000	298.73	0.00	0.00
7	167.00	RRH2X60-AWS	3	12.344	13.578	0.61	0.80	6.38	180.00	0.000	0.000	86.68	0.00	0.00
8	167.00	APL868013	2	12.344	13.578	0.84	0.90	4.79	12.60	0.000	0.000	65.01	0.00	0.00
9	167.00	SBNHH-1D65B	6	12.344	13.578	0.66	0.80	32.51	240.00	0.000	0.000	441.43	0.00	0.00
10	167.00	LPA-80063-4CF-EDIN-5	4	12.344	13.578	0.74	0.80	18.30	80.00	0.000	0.000	248.52	0.00	0.00
11	167.00	DB-T16Z-8AB-0Z	1	12.344	13.578	1.00	1.00	4.80	18.90	0.000	0.000	65.18	0.00	0.00
12	157.00	DB980H90E-M	12	12.185	13.403	0.59	0.80	27.63	102.00	0.000	0.000	370.39	0.00	0.00
13	157.00	Low Profile Platform	1	12.185	13.403	1.00	1.00	22.00	1500.00	0.000	0.000	294.87	0.00	0.00
14	147.00	742 213	3	12.017	13.219	0.58	0.80	8.85	66.00	0.000	0.000	116.95	0.00	0.00
15	147.00	Flush Mount	1	12.017	13.219	1.00	1.00	5.00	350.00	0.000	0.000	66.09	0.00	0.00
16	137.00	DC6-48-60-18-8F	1	11.840	13.024	1.00	1.00	1.47	32.80	0.000	0.000	19.15	0.00	0.00
17	137.00	HPA-65R-BUU-H6	3	11.840	13.024	0.68	0.80	19.71	153.00	0.000	0.000	256.66	0.00	0.00
18	137.00	7020	12	11.840	13.024	0.40	0.80	1.92	26.40	0.000	0.000	25.01	0.00	0.00
19	137.00	RRUS 32-B2	3	11.840	13.024	0.54	0.80	4.41	159.00	0.000	0.000	57.38	0.00	0.00
20	137.00	Smart Bias T 1001940	3	11.840	13.024	0.54	0.80	0.14	6.00	7.041	0.000	1.88	13.27	0.00
21	137.00	7770.00	6	11.840	13.024	0.58	0.80	19.27	210.00	0.000	0.000	251.00	0.00	0.00
22	137.00	RRUS-11	3	11.840	13.024	0.54	0.80	7.21	165.00	0.000	0.000	93.95	0.00	0.00
23	137.00	LGP21401	6	11.840	13.024	0.54	0.80	4.15	114.00	0.000	0.000	54.03	0.00	0.00
24	137.00	LGP21903	6	11.840	13.024	0.67	0.80	1.09	30.00	4.341	0.000	14.18	61.54	0.00
25	137.00	LP Platform-Round	1	11.840	13.024	1.00	1.00	22.00	1500.00	0.000	0.000	286.53	0.00	0.00
							Totals:		**7,923.70**			**3,744.33**		

Total Applied Force Summary

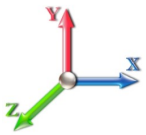
Structure:	CT02216-S-SBA		**Code:**	EIA/TIA-222-G	2/27/2017
Site Name:	Glastonbury		**Exposure:**	C	
Height:	176.00 (ft)		**Crest Height:**	0.00	
Base Elev:	0.000 (ft)		**Site Class:**	D - Stiff Soil	
Gh:	1.1	**Topography:** 1	**Struct Class:**	II	Page: 46

Tower Engineering Solutions

Load Case: 1.0D + 1.0W 60 mph Wind

Dead Load Factor 1.00

Wind Load Factor 1.00



Iterations 24

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		126.20	1780.92	0.00	0.00
10.00		123.98	1754.32	0.00	0.00
15.00		121.77	1727.73	0.00	0.00
20.00		126.84	1701.13	0.00	0.00
25.00		130.48	1674.53	0.00	0.00
30.00		133.02	1647.93	0.00	0.00
35.00		134.76	1621.34	0.00	0.00
40.00		135.88	1594.74	0.00	0.00
42.75		74.61	865.77	0.00	0.00
45.00		62.20	1216.32	0.00	0.00
49.00		111.15	2137.42	0.00	0.00
50.00		27.62	279.36	0.00	0.00
55.00		139.16	1382.83	0.00	0.00
60.00		138.76	1359.56	0.00	0.00
65.00		138.11	1336.29	0.00	0.00
70.00		137.21	1313.02	0.00	0.00
75.00		136.11	1289.74	0.00	0.00
80.00		134.83	1266.47	0.00	0.00
85.00		133.37	1243.20	0.00	0.00
86.50		39.53	368.42	0.00	0.00
90.00		93.61	1424.36	0.00	0.00
91.75		46.40	704.24	0.00	0.00
95.00		85.74	701.21	0.00	0.00
100.00		130.62	1062.33	0.00	0.00
105.00		128.63	1042.38	0.00	0.00
110.00		126.53	1022.44	0.00	0.00
115.00		124.31	1002.49	0.00	0.00
120.00		122.00	982.54	0.00	0.00
125.00		119.59	962.59	0.00	0.00
130.00		117.10	942.64	0.00	0.00
131.25		28.79	232.54	0.00	0.00
135.00		86.89	1016.15	0.00	0.00
135.50		11.45	134.07	0.00	0.00
137.00	(44) attachments	1093.96	2608.36	74.81	0.00
140.00		67.76	375.08	0.00	0.00
145.00		110.92	614.49	0.00	0.00
147.00	(4) attachments	226.54	658.07	0.00	0.00
150.00		64.44	340.40	0.00	0.00
155.00		105.25	556.69	0.00	0.00
157.00	(13) attachments	706.45	1820.95	0.00	0.00
160.00		60.95	287.00	0.00	0.00
165.00		99.30	467.70	0.00	0.00
167.00	(20) attachments	1331.02	2394.86	0.00	0.00
170.00		57.30	245.72	0.00	0.00
175.00		93.11	398.90	0.00	0.00
176.00	(22) attachments	562.25	1376.18	0.00	394.90

Total Applied Force Summary

Structure:	CT02216-S-SBA		**Code:**	EIA/TIA-222-G	2/27/2017
Site Name:	Glastonbury		**Exposure:**	C	
Height:	176.00 (ft)		**Crest Height:**	0.00	
Base Elev:	0.000 (ft)		**Site Class:**	D - Stiff Soil	
Gh:	1.1	**Topography:** 1	**Struct Class:**	II	Page: 47

Totals:	**8,106.48**	**50,935.46**	**74.81**	**394.90**

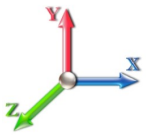
Linear Appurtenance Segment Forces (Factored)

Structure:	CT02216-S-SBA	**Code:**	EIA/TIA-222-G	2/27/2017	
Site Name:	Glastonbury	**Exposure:**	C		
Height:	176.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 48	

Load Case: 1.0D + 1.0W 60 mph Wind

Dead Load Factor 1.00

Wind Load Factor 1.00



Iterations 24

Top Elev (ft)	Description	Wind Exposed	Length (ft)	Ca	Exposed Width (in)	Area (sqft)	CaAa (sqft)	Ra	Cf Adjust Factor	qz (psf)	F X (lb)	Dead Load (lb)
5.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.018	0.000	7.442	0.00	1.37
5.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.018	0.000	7.442	0.00	5.20
10.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.018	0.000	7.442	0.00	1.37
10.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.018	0.000	7.442	0.00	5.20
15.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.018	0.000	7.442	0.00	1.37
15.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.018	0.000	7.442	0.00	5.20
20.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.019	0.000	7.896	0.00	1.37
20.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.019	0.000	7.896	0.00	5.20
25.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.019	0.000	8.276	0.00	1.37
25.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.019	0.000	8.276	0.00	5.20
30.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.019	0.000	8.600	0.00	1.37
30.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.019	0.000	8.600	0.00	5.20
35.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.020	0.000	8.883	0.00	1.37
35.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.020	0.000	8.883	0.00	5.20
40.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.020	0.000	9.137	0.00	1.37
40.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.020	0.000	9.137	0.00	5.20
42.75	Safety Cable	Yes	2.75	0.000	0.38	0.09	0.00	0.021	0.000	9.266	0.00	0.75
42.75	Step bolts (ladder)	Yes	2.75	0.000	0.63	0.14	0.00	0.021	0.000	9.266	0.00	2.86
45.00	Safety Cable	Yes	2.25	0.000	0.38	0.07	0.00	0.021	0.000	9.366	0.00	0.61
45.00	Step bolts (ladder)	Yes	2.25	0.000	0.63	0.12	0.00	0.021	0.000	9.366	0.00	2.34
49.00	Safety Cable	Yes	4.00	0.000	0.38	0.13	0.00	0.021	0.000	9.536	0.00	1.09
49.00	Step bolts (ladder)	Yes	4.00	0.000	0.63	0.21	0.00	0.021	0.000	9.536	0.00	4.16
50.00	Safety Cable	Yes	1.00	0.000	0.38	0.03	0.00	0.021	0.000	9.576	0.00	0.27
50.00	Step bolts (ladder)	Yes	1.00	0.000	0.63	0.05	0.00	0.021	0.000	9.576	0.00	1.04
55.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.021	0.000	9.770	0.00	1.37
55.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.021	0.000	9.770	0.00	5.20
60.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.022	0.000	9.951	0.00	1.37
60.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.022	0.000	9.951	0.00	5.20
65.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.022	0.000	10.120	0.00	1.37
65.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.022	0.000	10.120	0.00	5.20
70.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.023	0.000	10.279	0.00	1.37
70.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.023	0.000	10.279	0.00	5.20
75.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.023	0.000	10.430	0.00	1.37
75.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.023	0.000	10.430	0.00	5.20
80.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.024	0.000	10.572	0.00	1.37
80.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.024	0.000	10.572	0.00	5.20
85.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.024	0.000	10.708	0.00	1.37
85.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.024	0.000	10.708	0.00	5.20
86.50	Safety Cable	Yes	1.50	0.000	0.38	0.05	0.00	0.025	0.000	10.748	0.00	0.41
86.50	Step bolts (ladder)	Yes	1.50	0.000	0.63	0.08	0.00	0.025	0.000	10.748	0.00	1.56
90.00	Safety Cable	Yes	3.50	0.000	0.38	0.11	0.00	0.025	0.000	10.838	0.00	0.96
90.00	Step bolts (ladder)	Yes	3.50	0.000	0.63	0.18	0.00	0.025	0.000	10.838	0.00	3.64
91.75	Safety Cable	Yes	1.75	0.000	0.38	0.06	0.00	0.025	0.000	10.882	0.00	0.48
91.75	Step bolts (ladder)	Yes	1.75	0.000	0.63	0.09	0.00	0.025	0.000	10.882	0.00	1.82
95.00	Safety Cable	Yes	3.25	0.000	0.38	0.10	0.00	0.025	0.000	10.962	0.00	0.89
95.00	Step bolts (ladder)	Yes	3.25	0.000	0.63	0.17	0.00	0.025	0.000	10.962	0.00	3.38
100.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.026	0.000	11.081	0.00	1.37

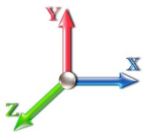
Linear Appurtenance Segment Forces (Factored)

Structure:	CT02216-S-SBA	**Code:**	EIA/TIA-222-G	2/27/2017	
Site Name:	Glastonbury	**Exposure:**	C		
Height:	176.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 49	

Load Case: 1.0D + 1.0W 60 mph Wind

Dead Load Factor 1.00

Wind Load Factor 1.00



Iterations 24

Top Elev (ft)	Description	Wind Exposed	Length (ft)	Ca	Exposed Width (in)	Area (sqft)	CaAa (sqft)	Ra	Cf Adjust Factor	qz (psf)	F X (lb)	Dead Load (lb)
100.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.026	0.000	11.081	0.00	5.20
105.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.026	0.000	11.195	0.00	1.37
105.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.026	0.000	11.195	0.00	5.20
110.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.027	0.000	11.305	0.00	1.37
110.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.027	0.000	11.305	0.00	5.20
115.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.028	0.000	11.412	0.00	1.37
115.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.028	0.000	11.412	0.00	5.20
120.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.028	0.000	11.514	0.00	1.37
120.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.028	0.000	11.514	0.00	5.20
125.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.029	0.000	11.614	0.00	1.37
125.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.029	0.000	11.614	0.00	5.20
130.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.030	0.000	11.710	0.00	1.37
130.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.030	0.000	11.710	0.00	5.20
131.25	Safety Cable	Yes	1.25	0.000	0.38	0.04	0.00	0.031	0.000	11.734	0.00	0.34
131.25	Step bolts (ladder)	Yes	1.25	0.000	0.63	0.07	0.00	0.031	0.000	11.734	0.00	1.30
135.00	Safety Cable	Yes	3.75	0.000	0.38	0.12	0.00	0.031	0.000	11.803	0.00	1.02
135.00	Step bolts (ladder)	Yes	3.75	0.000	0.63	0.20	0.00	0.031	0.000	11.803	0.00	3.90
135.50	Safety Cable	Yes	0.50	0.000	0.38	0.02	0.00	0.032	0.000	11.813	0.00	0.14
135.50	Step bolts (ladder)	Yes	0.50	0.000	0.63	0.03	0.00	0.032	0.000	11.813	0.00	0.52
137.00	Safety Cable	Yes	1.50	0.000	0.38	0.05	0.00	0.031	0.000	11.840	0.00	0.41
137.00	Step bolts (ladder)	Yes	1.50	0.000	0.63	0.08	0.00	0.031	0.000	11.840	0.00	1.56
140.00	Safety Cable	Yes	3.00	0.000	0.38	0.10	0.00	0.032	0.000	11.894	0.00	0.82
140.00	Step bolts (ladder)	Yes	3.00	0.000	0.63	0.16	0.00	0.032	0.000	11.894	0.00	3.12
145.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.033	0.000	11.982	0.00	1.37
145.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.033	0.000	11.982	0.00	5.20
147.00	Safety Cable	Yes	2.00	0.000	0.38	0.06	0.00	0.033	0.000	12.017	0.00	0.55
147.00	Step bolts (ladder)	Yes	2.00	0.000	0.63	0.10	0.00	0.033	0.000	12.017	0.00	2.08
150.00	Safety Cable	Yes	3.00	0.000	0.38	0.10	0.00	0.034	0.000	12.068	0.00	0.82
150.00	Step bolts (ladder)	Yes	3.00	0.000	0.63	0.16	0.00	0.034	0.000	12.068	0.00	3.12
155.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.035	0.000	12.152	0.00	1.37
155.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.035	0.000	12.152	0.00	5.20
157.00	Safety Cable	Yes	2.00	0.000	0.38	0.06	0.00	0.036	0.000	12.185	0.00	0.55
157.00	Step bolts (ladder)	Yes	2.00	0.000	0.63	0.10	0.00	0.036	0.000	12.185	0.00	2.08
160.00	Safety Cable	Yes	3.00	0.000	0.38	0.10	0.00	0.036	0.000	12.233	0.00	0.82
160.00	Step bolts (ladder)	Yes	3.00	0.000	0.63	0.16	0.00	0.036	0.000	12.233	0.00	3.12
165.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.037	0.000	12.313	0.00	1.37
165.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.037	0.000	12.313	0.00	5.20
167.00	Safety Cable	Yes	2.00	0.000	0.38	0.06	0.00	0.038	0.000	12.344	0.00	0.55
167.00	Step bolts (ladder)	Yes	2.00	0.000	0.63	0.10	0.00	0.038	0.000	12.344	0.00	2.08
170.00	Safety Cable	Yes	3.00	0.000	0.38	0.10	0.00	0.039	0.000	12.390	0.00	0.82
170.00	Step bolts (ladder)	Yes	3.00	0.000	0.63	0.16	0.00	0.039	0.000	12.390	0.00	3.12
175.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.040	0.000	12.466	0.00	1.37
175.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.040	0.000	12.466	0.00	5.20
176.00	Safety Cable	Yes	1.00	0.000	0.38	0.03	0.00	0.041	0.000	12.481	0.00	0.27
176.00	Step bolts (ladder)	Yes	1.00	0.000	0.63	0.05	0.00	0.041	0.000	12.481	0.00	1.04
										Totals:	**0.0**	**231.1**

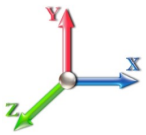
Calculated Forces

Structure:	CT02216-S-SBA	**Code:**	EIA/TIA-222-G	2/27/2017	
Site Name:	Glastonbury	**Exposure:**	C		
Height:	176.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 50	

Load Case: 1.0D + 1.0W 60 mph Wind

Dead Load Factor 1.00

Wind Load Factor 1.00



Iterations 24

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	-50.93	-8.12	-0.07	-1001.2	0.00	1001.25	6372.54	3186.27	14661.2	7341.49	0.00	0.000	0.000	0.144
5.00	-49.15	-8.03	-0.07	-960.64	0.00	960.64	6292.68	3146.34	14220.7	7120.95	0.02	-0.040	0.000	0.143
10.00	-47.39	-7.94	-0.07	-920.49	0.00	920.49	6211.66	3105.83	13784.2	6902.39	0.08	-0.079	0.000	0.141
15.00	-45.65	-7.85	-0.07	-880.80	0.00	880.80	6129.50	3064.75	13351.9	6685.89	0.19	-0.120	0.000	0.139
20.00	-43.95	-7.75	-0.07	-841.57	0.00	841.57	6046.18	3023.09	12923.8	6471.51	0.34	-0.161	0.000	0.137
25.00	-42.27	-7.64	-0.07	-802.85	0.00	802.85	5961.72	2980.86	12500.0	6259.33	0.53	-0.202	0.000	0.135
30.00	-40.61	-7.53	-0.07	-764.64	0.00	764.64	5876.11	2938.05	12080.8	6049.42	0.76	-0.244	0.000	0.133
35.00	-38.99	-7.42	-0.07	-726.99	0.00	726.99	5789.35	2894.67	11666.3	5841.84	1.04	-0.286	0.000	0.131
40.00	-37.39	-7.29	-0.07	-689.91	0.00	689.91	5679.25	2839.63	11212.8	5614.75	1.36	-0.328	0.000	0.129
42.75	-36.52	-7.23	-0.07	-669.85	0.00	669.85	5615.38	2807.69	10960.7	5488.51	1.56	-0.352	0.000	0.129
45.00	-35.30	-7.18	-0.07	-653.58	0.00	653.58	5563.11	2781.56	10756.6	5386.29	1.73	-0.371	0.000	0.128
49.00	-33.16	-7.06	-0.07	-624.88	0.00	624.88	4756.80	2378.40	9239.06	4626.40	2.05	-0.406	0.000	0.142
50.00	-32.88	-7.05	-0.07	-617.82	0.00	617.82	4742.51	2371.25	9172.60	4593.12	2.14	-0.415	0.000	0.141
55.00	-31.49	-6.92	-0.07	-582.58	0.00	582.58	4670.33	2335.16	8842.49	4427.82	2.60	-0.461	0.000	0.138
60.00	-30.13	-6.80	-0.07	-547.96	0.00	547.96	4597.00	2298.50	8516.13	4264.39	3.11	-0.508	0.000	0.135
65.00	-28.79	-6.67	-0.07	-513.97	0.00	513.97	4522.52	2261.26	8193.68	4102.93	3.66	-0.554	0.000	0.132
70.00	-27.47	-6.54	-0.07	-480.61	0.00	480.61	4446.89	2223.45	7875.26	3943.48	4.27	-0.601	0.000	0.128
75.00	-26.18	-6.41	-0.07	-447.90	0.00	447.90	4354.69	2177.34	7534.33	3772.77	4.92	-0.648	0.000	0.125
80.00	-24.91	-6.29	-0.07	-415.82	0.00	415.82	4253.06	2126.53	7185.02	3597.85	5.63	-0.694	0.000	0.121
85.00	-23.66	-6.15	-0.07	-384.40	0.00	384.40	4151.43	2075.72	6843.99	3427.08	6.38	-0.741	0.000	0.118
86.50	-23.29	-6.11	-0.07	-375.18	0.00	375.18	4120.95	2060.47	6743.30	3376.66	6.61	-0.755	0.000	0.117
90.00	-21.87	-6.01	-0.07	-353.78	0.00	353.78	4049.81	2024.90	6511.26	3260.47	7.18	-0.787	0.000	0.114
91.75	-21.16	-5.96	-0.07	-343.26	0.00	343.26	3441.70	1720.85	5608.94	2808.64	7.47	-0.804	0.000	0.128
95.00	-20.46	-5.88	-0.07	-323.88	0.00	323.88	3401.05	1700.53	5452.51	2730.31	8.03	-0.833	0.000	0.125
100.00	-19.39	-5.75	-0.07	-294.48	0.00	294.48	3337.56	1668.78	5214.58	2611.16	8.93	-0.882	0.000	0.119
105.00	-18.35	-5.62	-0.07	-265.72	0.00	265.72	3272.92	1636.46	4980.08	2493.74	9.88	-0.930	0.000	0.112
110.00	-17.32	-5.49	-0.07	-237.62	0.00	237.62	3194.68	1597.34	4730.71	2368.87	10.88	-0.977	0.000	0.106
115.00	-16.32	-5.36	-0.07	-210.16	0.00	210.16	3107.57	1553.79	4474.96	2240.81	11.92	-1.022	0.000	0.099
120.00	-15.34	-5.23	-0.07	-183.35	0.00	183.35	3020.47	1510.23	4226.32	2116.30	13.02	-1.065	0.000	0.092
125.00	-14.37	-5.11	-0.07	-157.18	0.00	157.18	2933.36	1466.68	3984.78	1995.35	14.15	-1.105	0.000	0.084
130.00	-13.43	-4.98	-0.07	-131.65	0.00	131.65	2846.25	1423.13	3750.35	1877.96	15.33	-1.143	0.000	0.075
131.25	-13.20	-4.95	-0.07	-125.43	0.00	125.43	2824.47	1412.24	3692.86	1849.17	15.63	-1.152	0.000	0.073
135.00	-12.18	-4.84	-0.07	-106.89	0.00	106.89	2759.14	1379.57	3523.03	1764.13	16.55	-1.177	0.000	0.065
135.50	-12.05	-4.83	-0.07	-104.47	0.00	104.47	1734.08	867.04	2260.78	1132.07	16.67	-1.180	0.000	0.099
137.00	-9.46	-3.68	0.00	-97.22	0.00	97.22	1723.43	861.72	2225.81	1114.56	17.04	-1.190	0.000	0.093
140.00	-9.09	-3.61	0.00	-86.17	0.00	86.17	1701.83	850.91	2156.25	1079.73	17.80	-1.215	0.000	0.085
145.00	-8.47	-3.49	0.00	-68.11	0.00	68.11	1664.90	832.45	2041.54	1022.29	19.09	-1.252	0.000	0.072
147.00	-7.82	-3.25	0.00	-61.12	0.00	61.12	1649.80	824.90	1996.11	999.54	19.62	-1.266	0.000	0.066
150.00	-7.48	-3.19	0.00	-51.36	0.00	51.36	1626.81	813.41	1928.48	965.67	20.42	-1.285	0.000	0.058
155.00	-6.92	-3.07	0.00	-35.43	0.00	35.43	1587.58	793.79	1817.22	909.96	21.78	-1.310	0.000	0.043
157.00	-5.12	-2.32	0.00	-29.29	0.00	29.29	1571.57	785.79	1773.24	887.94	22.33	-1.319	0.000	0.036
160.00	-4.83	-2.26	0.00	-22.32	0.00	22.32	1547.20	773.60	1707.88	855.21	23.17	-1.329	0.000	0.029
165.00	-4.37	-2.15	0.00	-11.04	0.00	11.04	1505.67	752.84	1600.62	801.50	24.57	-1.342	0.000	0.017
167.00	-2.00	-0.76	0.00	-6.75	0.00	6.75	1488.74	744.37	1558.33	780.32	25.13	-1.344	0.000	0.010
170.00	-1.76	-0.70	0.00	-4.47	0.00	4.47	1462.99	731.50	1495.57	748.90	25.97	-1.347	0.000	0.007
175.00	-1.36	-0.59	0.00	-0.99	0.00	0.99	1411.70	705.85	1385.55	693.80	27.39	-1.350	0.000	0.002
176.00	0.00	-0.56	0.00	-0.39	0.00	0.39	1400.09	700.04	1362.73	682.38	27.67	-1.350	0.000	0.001

Calculated Forces

Structure:	CT02216-S-SBA			**Code:**	EIA/TIA-222-G	2/27/2017
Site Name:	Glastonbury			**Exposure:**	C	
Height:	176.00 (ft)			**Crest Height:**	0.00	
Base Elev:	0.000 (ft)			**Site Class:**	D - Stiff Soil	
Gh:	1.1	**Topography:**	1	**Struct Class:**	II	Page: 51

Final Analysis Summary

Structure:	CT02216-S-SBA	**Code:**	EIA/TIA-222-G	2/27/2017	
Site Name:	Glastonbury	**Exposure:**	C		
Height:	176.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 52	

Tower Engineering Solutions

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 97 mph Wind	34.0	0.00	61.07	0.00	0.19	4215.44
0.9D + 1.6W 97 mph Wind	34.0	0.00	45.79	0.00	0.19	4165.67
1.2D + 1.0Di + 1.0Wi 50 mph Wind	10.4	0.00	99.27	0.00	0.17	1323.42
1.2D + 1.0E	1.9	0.00	61.12	0.00	0.00	232.42
0.9D + 1.0E	1.9	0.00	45.84	0.00	0.00	229.51
1.0D + 1.0W 60 mph Wind	8.1	0.00	50.93	0.00	0.07	1001.25

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 97 mph Wind	-61.07	-33.99	-0.19	-4215.4	0.00	-4215.4	6372.54	3186.2	14661.2	7341.49	0.00	0.584
0.9D + 1.6W 97 mph Wind	-45.79	-33.97	-0.19	-4165.6	0.00	-4165.6	6372.54	3186.2	14661.2	7341.49	0.00	0.575
1.2D + 1.0Di + 1.0Wi 50 mph Wind	-99.27	-10.44	-0.17	-1323.4	0.00	-1323.4	6372.54	3186.2	14661.2	7341.49	0.00	0.196
1.2D + 1.0E	-14.57	-1.22	0.00	-38.21	0.00	-38.21	1734.08	867.04	2260.78	1132.07	135.50	0.042
0.9D + 1.0E	-10.92	-1.20	0.00	-37.74	0.00	-37.74	1734.08	867.04	2260.78	1132.07	135.50	0.040
1.0D + 1.0W 60 mph Wind	-50.93	-8.12	-0.07	-1001.2	0.00	-1001.2	6372.54	3186.2	14661.2	7341.49	0.00	0.144

Base Plate Summary

Structure:	CT02216-S-SB		**Code:**	EIA/TIA-222-G	2/27/2017
Site Name:	Glastonbury		**Exposure:**	C	
Height:	176.00 (ft)		**Crest Height:**	0.00	
Base Elev:	0.000 (ft)		**Site Class:**	D - Stiff Soil	
Gh:	1.1	**Topography:** 1	**Struct Class:**	II	Page: 53

Tower Engineering Solutions

Reactions	
Original Design	
Moment (kip-ft):	5100.00
Axial (kip):	47.00
Shear (kip):	38.00
Analysis	
Moment (kip-ft):	4215.44
Axial (kip):	99.27
Shear (kip):	33.99
Moment Design %:	82.66

Base Plate	
Yield (ksi):	50.00
Width (in):	66.00
Style:	Clipped
Polygon Sides:	0.00
Clip Length (in):	16.00
Effective Len (in):	7.55
Moment (kip-in):	506.11
Allow Stress (ksi):	67.50
Applied Stress (ksi):	0.00
Stress Ratio:	0.66

Anchor Bolts	
Bolt Circle:	64.00
Number Bolts:	24.00
Bolt Type:	2.25" 18J
Bolt Diameter (in):	2.25
Yield (ksi):	75.00
Ultimate (ksi):	100.00
Arrangement:	Clustered
Cluster Dist (in):	6.00
Start Angle (deg):	45.00
Compression	
Force (kip):	135.87
Allowable (kip):	260.00
Ratio:	0.53
Tension	
Force (kip):	127.60
Allowable (kip):	260.00
Ratio:	0.50

Pier Foundation Design For Monopole

			Date: 2/27/2017
Customer Name:	AT&T	EIA/TIA Standard:	EIA-222-G
Site Name:		Structure Height (Ft.):	176
Site Number:	CT02216-S-SBA	Engineer Name:	D. Zhou
Engr. Number:	30880	Engineer Login ID:	

Foundation Info Obtained from: Drawings/Calculations

Structure Type: Monopole

Analysis or Design? Analysis

Base Reactions (Factored):

Axial Load (Kips):	61.1	Shear Force (Kips):	34.0
Uplift Force (Kips):	0.0	Moment (Kips-ft):	4215.4

Foundation Geometries:

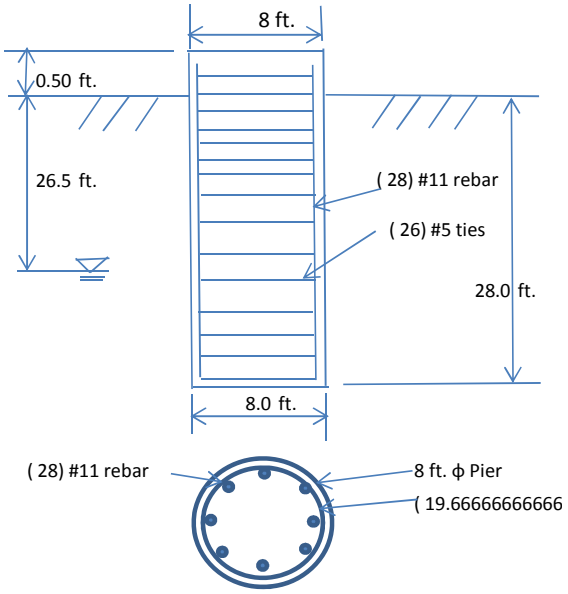
Mods required -Yes/No ?:	No			ft.
Diameter of Pier (ft.):	8.0	Depth of Base B. G. S. :	28.0	ft.
Pier Height A. G. (ft.):	0.50			

Material Properties and Reabr Info:

Concrete Strength (psi):	4000	Steel Elastic Modulus:	29000	ksi
Vertical bar yield (ksi)	60	Tie steel yield strength:	40	ksi
Vertical Rebar Size #:	11	Tie / Stirrup Size #:	5	
Qty. of Vertical Rebars:	28	Tie Spacing:	18.0	in.
Concrete Cover (in.):	4	Concrete unit weight:	150.0	pcf

Soil Design Parameters:

Water Table B.G.S. (ft):	26.5	Unit weight of water:	62.4	psf
Ratio of Uplift/Axial Skin Friction:	1.0	Pullout failure Angle:	30	(°)
Skin Frictions are to be obtained from:		Soil Report		



Monopole Pier Foundation

Depth of Layers (ft) Top	Bottom	γ_{soil} (pcf)	ϕ (°)	Cohesion (psf)	Ultimate Skin Friction (psf)	Ultimate Bearing (psf)	Soil Types
0.0	4.0	100	0	0		0	Sand
4.0	9.0	120	33	0		0	Sand
9.0	19.0	120	34	0		0	Sand
19.0	26.5	125	36	0		0	Sand
26.5	29.0	125	36			19800	Sand
29.0	34.0						

Soil weight Increase Factor for bouyant soils (1.0 to 1.15): 1.1

Foundation Analysis and Design:

Uplift Strength Reduction Factor:	0.75	Soil Bearing Strength Reduction Factor:	0.75	
Total Dry Soil Volume from Conical Failure (cu. Ft.):	13308	Dry Soil Weight from Conical Failure:	1576	Kips
Total Buoyant Soil Volume from Conical Failure (cu. Ft.):	18	Buoyant Soil Weight from Conical Failure (K	0	Kips
Total Dry Concrete Volume (cu. Ft.):	1357	Total Dry Concrete Weight:	203.6	Kips
Total Buoyant Concrete Volume (cu. Ft.):	75.4	Total Buoyant Concrete Weight:	6.60	Kips
Total Effective Concrete Weight (Kips):	210.2	Total Effective Soil Weight:	1575.4	Kips
Total Effective Vertical Load on Base (Kips):	114.7			

Check Soil Capacities:

					Usage	
Allowable Foundation Overturning Resistance (kips-ft.):	12881.9	>	Design Factored Momont (kips-ft):	4899	0.38	OK!
Factor of Safety of Passive Soil Resistance against Moment:	2.63	OK!				

Check the capacities of Reinforceing Concrete:

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

Reinforcing Concrete Pier:

					Usage	
Vertical Steel Rebar Area (sq. in./each):	1.56		Tie / Stirrup Area (sq. in./each):	0.31		
Calculated Moment Capacity (Mn,Kips-Ft):	8441.6	>	Design Factored Moment (Mu, K-Ft):	4377.7	0.52	OK!
Calculated Shear Capacity (Kips):	1471.3	>	Design Factored Shear (Kips):	429.1	0.29	OK!
Calculated Tension Capacity (Tn, Kips):	2358.7	>	Design Factored Tension (Tu Kips):	0.0	0.00	OK!
Calculated Compression Capacity (Pn, Kips):	12720	>	Design Factored Axial Load (Pu Kips):	61.1	0.00	OK!
Moment & Axial Strength Combination:	0.52	OK!	Max. Allowable Tie/Stirrup Spacing:	12.00	in.	
Pier Reinforcement Ratio:	0.006	Reinforcement Ratio is satisfied per ACI				

PROJECT TEAM

SITE ACQUISITION & ZONING:

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

ENGINEERING:

TRYLON TSF
1825 W. WALNUT HILL LANE SUITE 302
IRVING, TX 75038
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 PROPERTIES, LLC
8051 CONGRESS AVENUE
BOCA RATON, FL 33487

SBA SITE ID: CT02216-S
SBA SITE NAME: GLASTONBURY

SBA REGIONAL SITE MANAGER: STEPHEN ROTH
(860)539-4920
sroth@sbasite.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:	41° 39' 21.222" N
LONGITUDE:	-72° 31' 23.77596" W
LAT./LONG. TYPE:	NAD 83
GROUND ELEVATION:	N/A
APN/UPC:	N/A
AREA OF CONSTRUCTION:	EXISTING
ZONING/JURISDICTION:	SOUTH GLASTONBURY
CURRENT ZONING:	UNKNOWN
EXISTING USE:	UNMANNED TELECOMMUNICATIONS FACILITY
COUNTY:	HARTFORD
HANDICAP REQUIREMENTS:	FACILITY IS UNMANNED AND NOT FOR HUMAN HABITATION. HANDICAPPED ACCESS NOT REQUIRED.

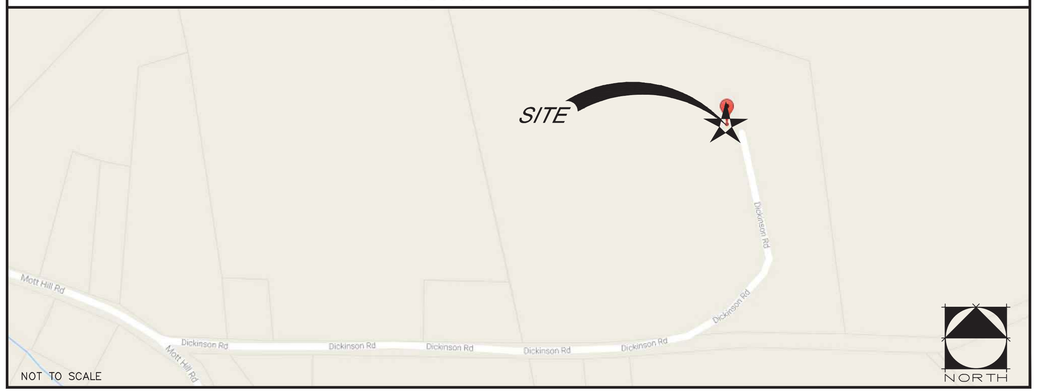
at&t Mobility

STATE OF CONNECTICUT
MICHAEL F. PLAHOVINSAK
No. 25849
LICENSED PROFESSIONAL ENGINEER
3-3-2017

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

LTE MULTI CARRIER RRU ADD
CT1124
GLASTONBURY SOUTH
175 DICKINSON ROAD
SOUTH GLASTONBURY, CT 06073
FA CODE: 10042319

VICINITY MAP



DRIVING DIRECTIONS

FROM THE HARTFORD AREA, TAKE ROUTE 2 EAST TOWARDS NORWICH. TAKE ROUTE 2 TO EXIT 10 (ROUTE 83, COUNTRY CLUB ROAD) IN GLASTOBURY. GO RIGHT OFF THE EXIT AND TRAVEL 1/10 OF A MILE TO A STOP SIGN. TURN LEFT ONTO NEW LONDON TURNPIKE AND GO 1/2 MILE TO A STOP SIGN. GO RIGHT AT THE STOP SIGN ONTO COUNTRY CLUB ROAD. GO 4/10 OF A MILE TO MOTT HILL ROAD (UP THE HILL) AND TURN LEFT ONTO MOTT HILL ROAD. YOU WILL GO 8/10 OF A MILE TO DICKINSON ROAD (A DEAD END), JUST A SHORT DISTANCE PAST THE ROAD NARROWS SIGN). GO LEFT ONTO DICKINSON ROAD 3/10 OF A MILE TO THE END OF THE ROAD AND FORK LEFT INTO THE METAL GATED SITE ACCESS ROAD. ENTER THE ACCESS ROAD INTO A SAND QUARRY AND GO UP THE SHORT STEEP HILL TO THE SITE. SITE IS A GROUND LEVEL SHELTER.

CODE COMPLIANCE

2012 INTERNATION BUILDING CODE

2014 NATIONAL ELECTRICAL CODE

TIA/EIA-222-G STRUCTURAL STANDARDS FOR ANTENNA SUPPORTING STRUCTURES AND ANTENNAS

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 ONE CALL SYSTEM, INC. 1-800-922-4455 STOP CALL BEFORE YOU DIG!

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 1455(A), SECTION 6409(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 GUYED TOWER:
- RELOCATE EXISTING ANTENNAS AND PIPE MASTS BY PLACING THEIR CENTERLINE AT THE SAME ELEVATION WITH THE EXISTING FACE HORIZONTAL PIPES (AS PER MOUNT ANALISYS REPORT, DATED 02/13/2017)
- REMOVE (3) EXISTING LTE ANTENNAS, (1) PER SECTOR FOR (3) SECTORS
- REMOVE (3) EXISTING RRUS-11, (1) PER SECTOR FOR (3) SECTORS.
- INSTALL (3) NEW LTE ANTENNAS, VERTICALLY CENTERED ON THE PLATFORM HORIZONTAL FACE FRAME, (1) PER SECTOR FOR (3) SECTORS
- INSTALL (3) NEW RRUS-32 B2, (1) PER SECTOR FOR (3) SECTORS.
- REUSE (3) EXISTING UMTS ANTENNAS, (1) PER SECTOR FOR (3) SECTORS
- REUSE (3) EXISTING GSM ANTENNAS, (1) PER SECTOR FOR (3) SECTORS
- REUSE (3) EXSITING RRUS-11, (1) PER SECTOR FOR (3) SECTORS
- REUSE (6) EXISTING TMAs, (6) DIPLEXERS, (3) SMART BIAS Ts & (12) RET MODULES.
- REUSE (1) EXISTING DC/FIBER SQUID.
- REUSE (2) EXISTING DC TRUNK.
- REUSE (1) EXISTING FIBER TRUNK.
- REUSE (12) EXISTING RF CABLES.
- REUSE (1) EXISTING 3" FLEX CONDUIT.

CHANGES IN THE EXISTING AT&T EQUIPMENT ENCLOSURE AREA:
- INSTALL (1) BBU XMU
- DUL TO DUS UPGRADE

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

at&t Mobility
550 COCHITUATE ROAD
FRAMINGHAM,MA 01701

EMPIRE telecom
16 ESQUIRE ROAD
BILLERICA, MA 01821

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

PLANS PREPARED BY:
Trylon
1825 W. WALNUT HILL LANE SUITE 302
IRVING, TX 5038
1-855-669-5421

NO.	DATE	DESCRIPTION	BY
1	02/07/17	PRELIMINARY CD	DBG
2	02/13/17	EXISTING RET MODULES ADDED	DBG
3	03/02/17	REVISED AS PER CLIENT COMMENTS	DBG

SITE INFORMATION:
CT1124
GLASTONBURY SOUTH
FA CODE: 10042319
175 DICKINSON ROAD
SOUTH GLASTONBURY, CT 06073

SEAL:
Michael Plahovinsak
Digitally signed by Michael Plahovinsak
Date: 2017.03.03 11:47:17 -05'00'

SHEET TITLE:
TITLE SHEET

SHEET NUMBER:
T-1

GENERAL NOTES:

1. 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

2. 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.

3. 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.

4. DRAWINGS PROVIDED HERE ARE NOT TO BE SCALED AND ARE INTENDED TO SHOW OUTLINE ONLY.

5. UNLESS NOTED OTHERWISE, THE WORK SHALL INCLUDE FURNISHING MATERIALS, EQUIPMENT, APPURTENANCES, AND LABOR NECESSARY TO COMPLETE ALL INSTALLATIONS AS INDICATED ON THE DRAWINGS.

6. THE SUBCONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.

7. 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.

8. 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

9. 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.

10. 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.

11. SUBCONTRACTOR SHALL LEAVE PREMISES IN CLEAN CONDITION.

12. ALL CONCRETE REPAIR WORK SHALL BE DONE IN ACCORDANCE WITH AMERICAN CONCRETE INSTITUTE (ACI) 301.

13. 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.

14. 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.

15. CONSTRUCTION SHALL COMPLY WITH SPECIFICATION 25741-000-3APS-A00Z-00002, "GENERAL CONSTRUCTION SERVICES FOR CONSTRUCTION OF AT&T MOBILITY SITES."

16. 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.

17. 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.

18. 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.

19. 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

20. 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 RESISTIVELY, 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

21. 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:

1. 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) LIGHTING 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.

2. 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.

3. 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.

4. 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.

5. 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.

6. EXOTHERMIC WELDS SHALL BE USED FOR ALL GROUNDING CONNECTIONS BELOW GRADE.

7. APPROVED ANTIOXIDANT COATINGS (I.E., CONDUCTIVE GEL OR PASTE) SHALL BE USED ON ALL COMPRESSION AND BOLTED GROUND CONNECTIONS.

8. ICE BRIDGE BONDING CONDUCTORS SHALL BE EXOTHERMICALLY BONDED OR BOLTED WITH STAINLESS STEEL HARDWARE TO THE BRIDGE AND THE TOWER GROUND BAR.

9. ALUMINUM CONDUCTOR OR COPPER CLAD STEEL CONDUCTOR SHALL NOT BE USED FOR GROUNDING CONNECTIONS.

10. MISCELLANEOUS ELECTRICAL AND NON-ELECTRICAL METAL BOXES, FRAMES AND SUPPORTS SHALL BE BONDED TO THE GROUND RING, IN ACCORDANCE WITH THE NEC.

11. METAL CONDUIT AND TRAY SHALL BE GROUNDED 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.

12. 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.

13. 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').

14. ALL NEW STRUCTURES WITH A FOUNDATION AND/OR FOOTING HAVING 20 FT. OR MORE ½" 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.

STATE OF CONNECTICUT
MICHAEL F. PLAHOVINSAK
No. 25849
PROFESSIONAL ENGINEER
3-3-2017

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

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550 COCHITUATE ROAD
FRAMINGHAM,MA 01701

EMPIRE telecom
16 ESQUIRE ROAD
BILLERICA, MA 01821

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

PLANS PREPARED BY:
Trylon
1825 W. WALNUT HILL LANE SUITE 302
IRVING, TX 5038
1-855-669-5421

NO.	DATE	DESCRIPTION	BY
1	02/07/17	PRELIMINARY CD	DBG
2	02/13/17	EXISTING RET MODULES ADDED	DBG
3	03/02/17	REVISED AS PER CLIENT COMMENTS	DBG

SITE INFORMATION:

CT1124
GLASTONBURY SOUTH
FA CODE: 10042319

175 DICKINSON ROAD
SOUTH GLASTONBURY, CT 06073

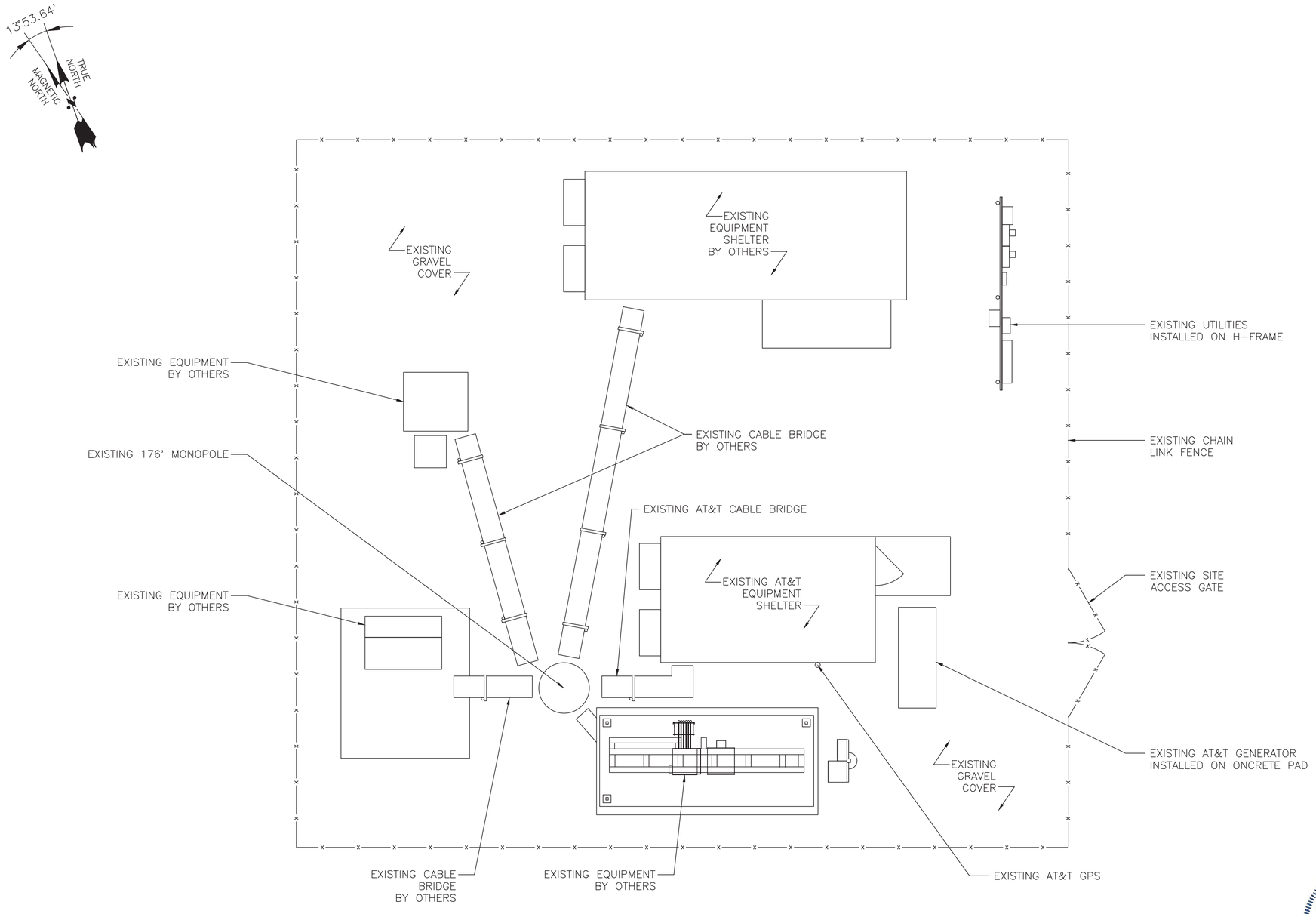
SEAL:

SHEET TITLE:

GENERAL NOTES &
GROUNDING NOTES

SHEET NUMBER:

GN-1



STATE OF CONNECTICUT
MICHAEL F. PLAHOVINSAK
No. 25849
REGISTERED PROFESSIONAL ENGINEER
3-3-2017

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

SITE PLAN

22"x34" SCALE: 3/16" = 1'-0"
11"x17" SCALE: 3/32" = 1'-0"

4' 2' 0" 4'

at&t Mobility
550 COCHITUATE ROAD
FRAMINGHAM,MA 01701

EMPIRE telecom
16 ESQUIRE ROAD
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GLASTONBURY SOUTH
FA CODE: 10042319

175 DICKINSON ROAD
SOUTH GLASTONBURY, CT 06073

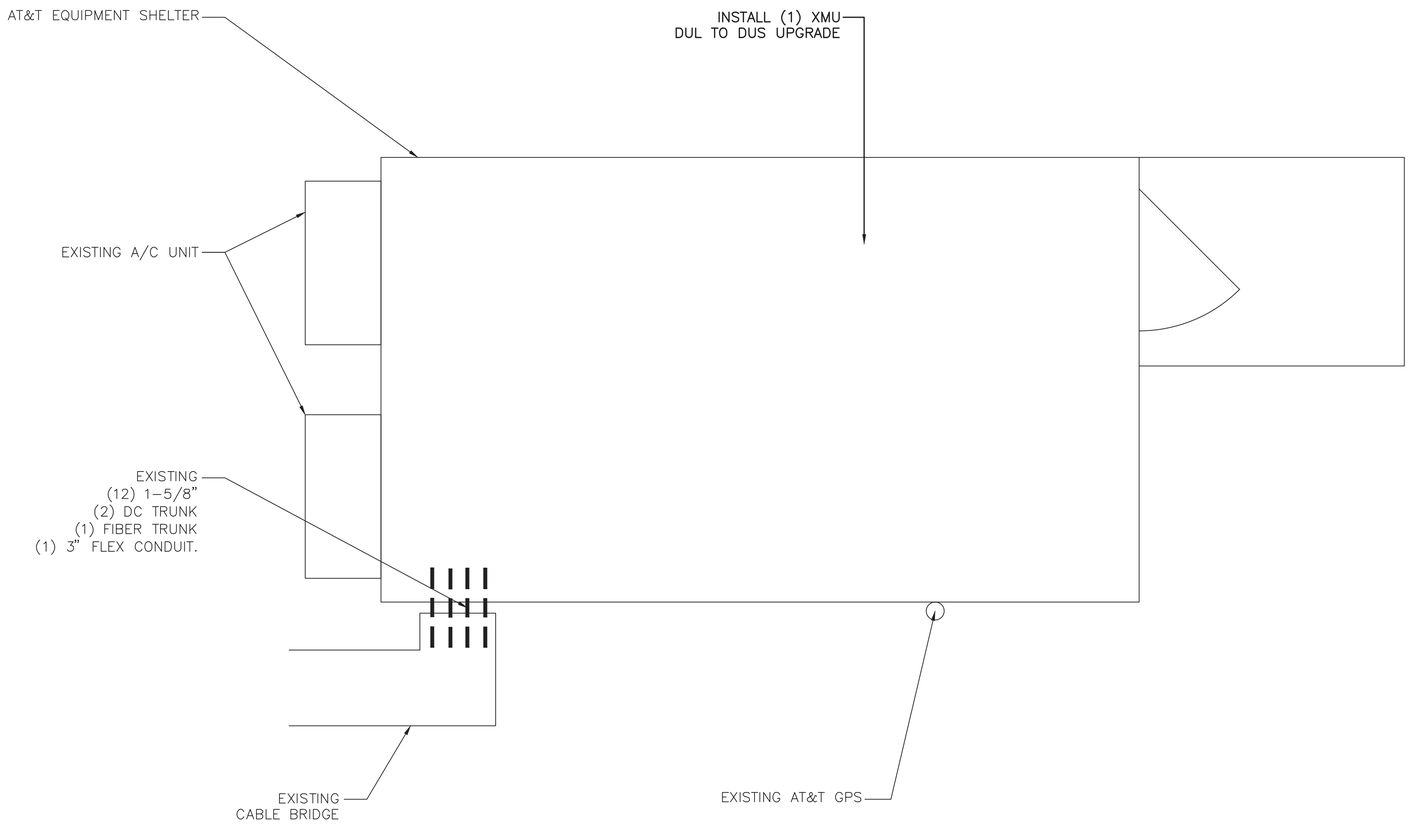
SEAL:

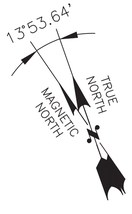
SHEET TITLE:

SITE PLAN

SHEET NUMBER:

A-1





EQUIPMENT LAYOUT

22"x34" SCALE: 1/2" = 1'-0"
11"x17" SCALE: 1/4" = 1'-0"

2' 1' 0" 2'

1

at&t Mobility
550 COCHITUATE ROAD
FRAMINGHAM,MA 01701

EMPIRE telecom
16 ESQUIRE ROAD
BILLERICA, MA 01821

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SEAL:

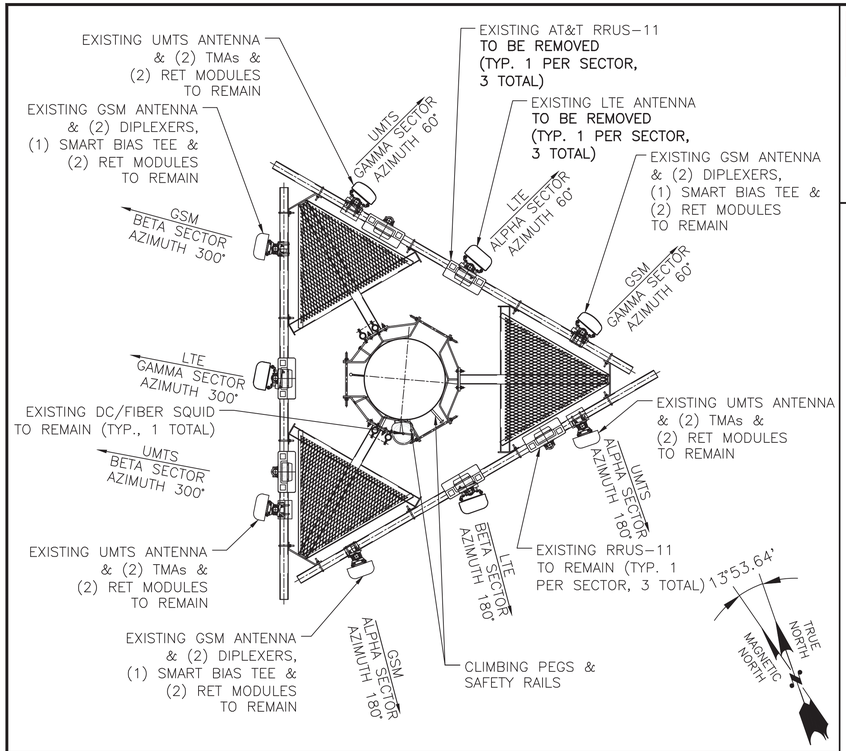
MICHAEL F. PLAHOVINSAK, P.E. #25849
Sole Proprietor - Independent Engineer
18301 S.R. 161, Plain City, OH 43064
614-398-0250 / mike@mfpeng.com

SHEET TITLE:

EQUIPMENT LAYOUT

SHEET NUMBER:

A-2

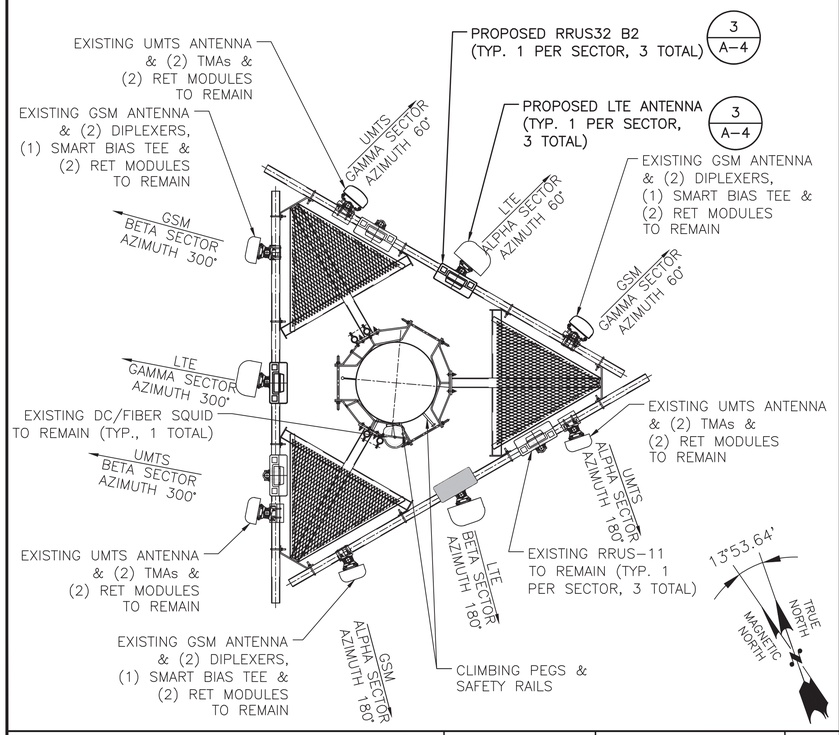


EXISTING ANTENNA LAYOUT

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

2' 1' 0" 2'

1



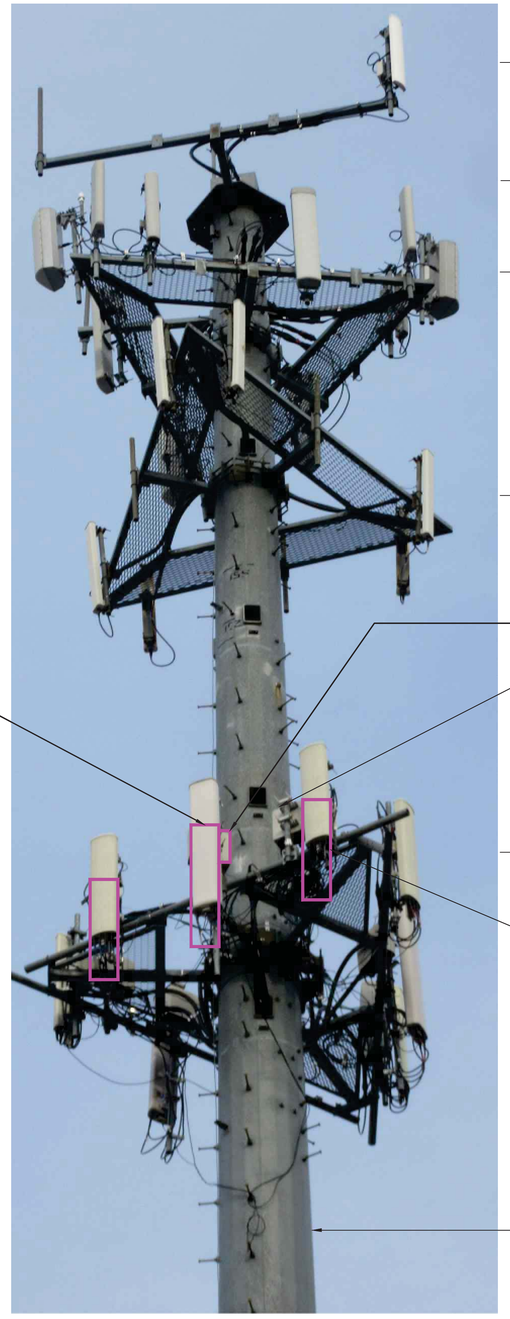
PROPOSED ANTENNA LAYOUT

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

2' 1' 0" 2'

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.



STATE OF CONNECTICUT
MICHAEL F. PLAHOVINSAK
No. 25849
REGISTERED PROFESSIONAL ENGINEER
ORIGINAL SIGNATURE
3-3-2017

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

NOTE:
CARRIER POSITIONS AND RAD ELEVATIONS PROVIDED BY SBA, TRYLON HAS NOT INDEPENDENTLY FIELD VERIFIED.

PROPOSED ELEVATION

22"x34" SCALE: 1/16" = 1'-0"
11"x17" SCALE: 1/32" = 1'-0"

16' 12' 8' 4' 0" 16'

3

at&t Mobility
550 COCHITUATE ROAD
FRAMINGHAM,MA 01701

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PLANS PREPARED BY:
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SITE INFORMATION:

CT1124
GLASTONBURY SOUTH
FA CODE: 10042319

175 DICKINSON ROAD
SOUTH GLASTONBURY, CT 06073

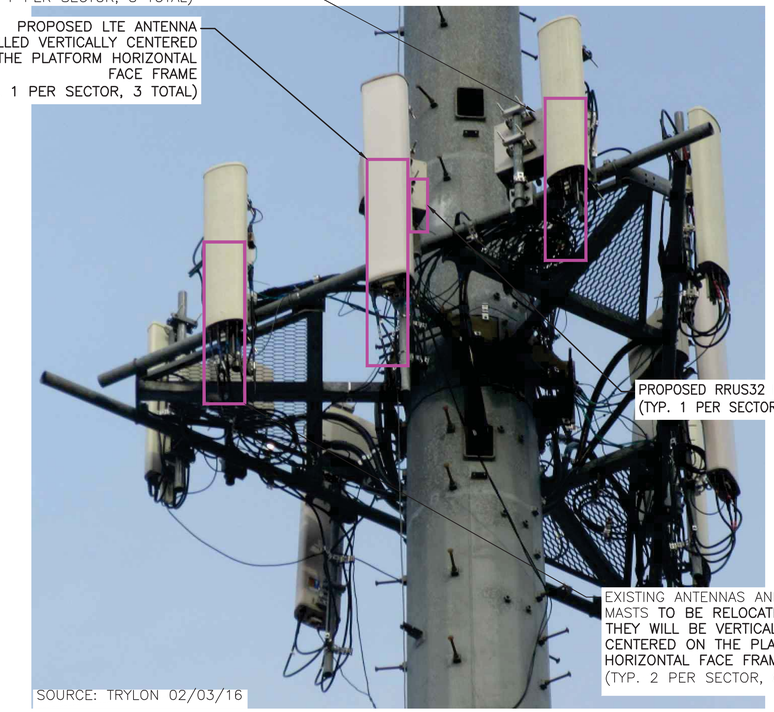
SEAL:

SHEET TITLE:

ANTENNA LAYOUTS, TOWER ELEVATION & MOUNTING DETAILS

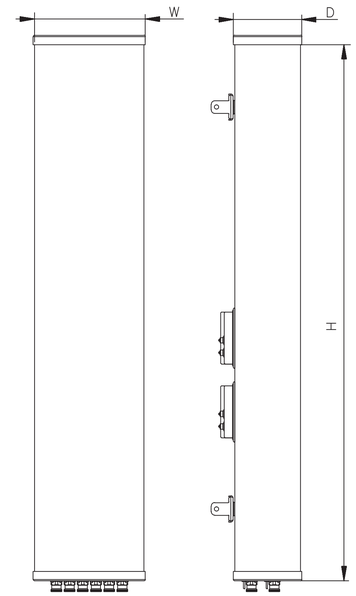
SHEET NUMBER:

A-3

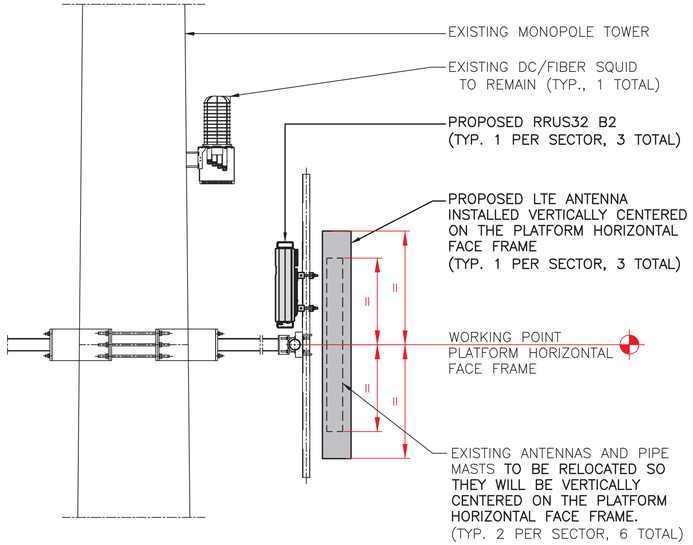


EQUIPMENT MOUNTING DETAILS — N.T.S — 1

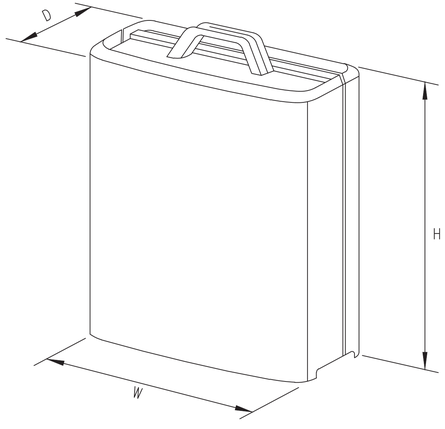
L1900 ANTENNA DIMENSIONS	
MODEL	HPA-65R-BUU-H6
MANUF.	CCI
WIDTH	14.8"
DEPTH	9.0"
HEIGHT	72.0"
WEIGHT	50.7 LBS



ANTENNA DETAILS — N.T.S — 2



MOUNTING DETAIL — 22"x34" SCALE: 1/2" = 1'-0" — 11"x17" SCALE: 1/4" = 1'-0" — 2' 1' 0" 2' — N.T.S — 3



MODEL	L x W x H	WEIGHT
RRUS-32 B2	20.9" x 9.5" x 3.3"	58 LBS

STATE OF CONNECTICUT
MICHAEL F. PLAHOVINSAK
No. 25849
LICENSED PROFESSIONAL ENGINEER
3-3-2017

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

RRUS DETAILS — N.T.S — 4

at&t Mobility
550 COCHITUATE ROAD
FRAMINGHAM,MA 01701

EMPIRE telecom
16 ESQUIRE ROAD
BILLERICA, MA 01821

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

PLANS PREPARED BY:
Trylon
1825 W. WALNUT HILL LANE SUITE 302
IRVING, TX 5038
1-855-669-5421

NO.	DATE	DESCRIPTION	BY
1	02/07/17	PRELIMINARY CD	DBG
2	02/13/17	EXISTING RET MODULES ADDED	DBG
3	03/02/17	REVISED AS PER CLIENT COMMENTS	DBG

SITE INFORMATION:

CT1124
GLASTONBURY SOUTH
FA CODE: 10042319

175 DICKINSON ROAD
SOUTH GLASTONBURY, CT 06073

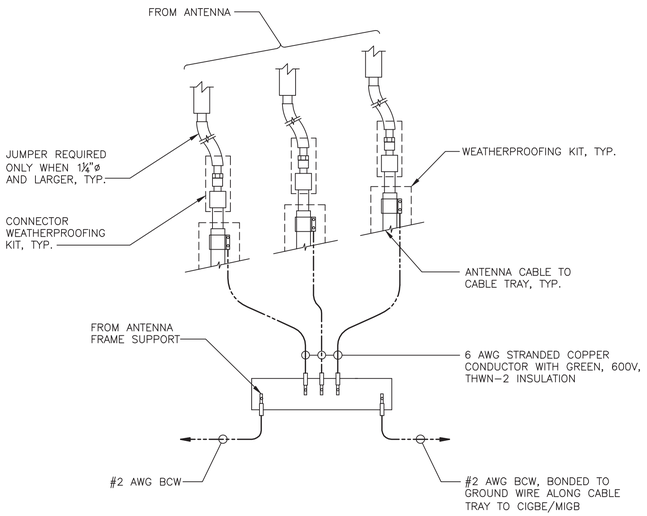
SEAL:

SHEET TITLE:

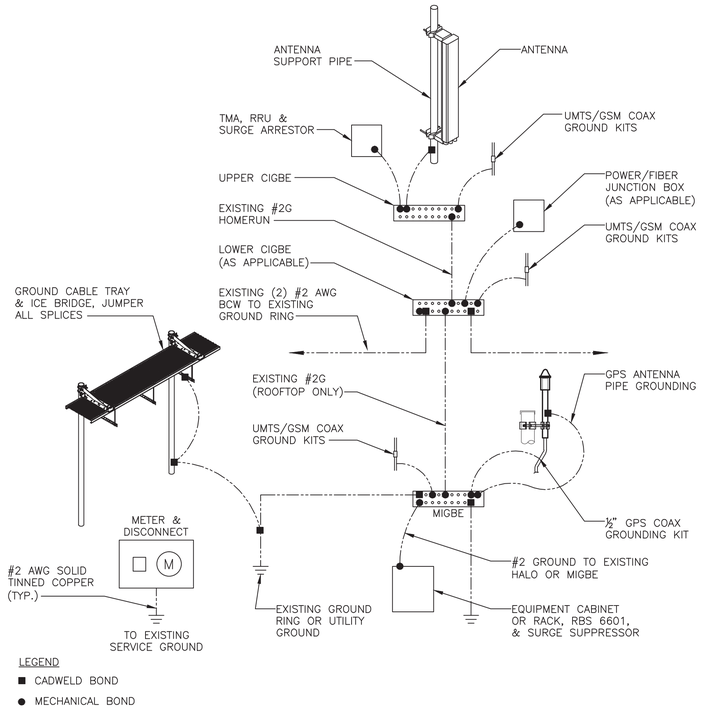
DETAILS

SHEET NUMBER:

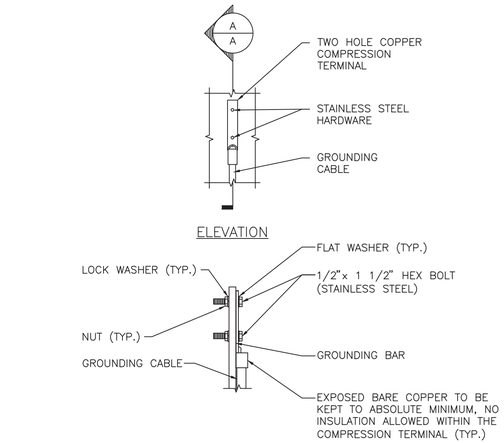
A-4



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



GROUND RISER DIAGRAM | N.T.S | 2

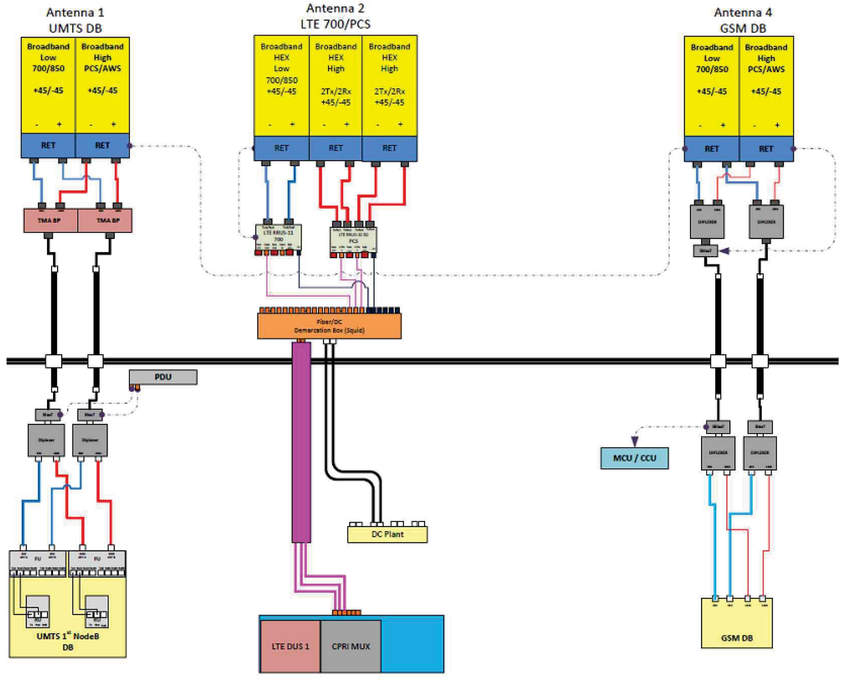


NOTE:

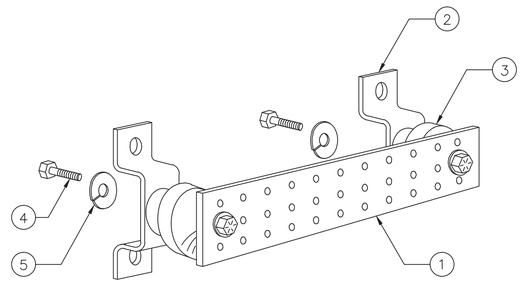
1. "DOUBLING UP" OR "STACKING" OF CONNECTIONS IS NOT PERMITTED.
2. OXIDE INHIBITING COMPOUND TO BE USED AT ALL LOCATIONS.
3. CADWELD DOWNLEADS FROM UPPER EGB, LOWER EGB, AND MGB.

TYPICAL GROUND BAR CONNECTION DETAILS | N.T.S | 3

SECTOR A/B/C



RAN WIRING DIAGRAM | N.T.S | 4



ITEM NO.	QTY.	DESCRIPTION
1	1	SOLID GROUND BAR (20"x 4"x ¼")
2	2	WALL MOUNTING BRACKET
3	2	INSULATORS
4	4	⅝"-11x1" H.H.C.S.
5	4	⅝" LOCK WASHER

NOTES:

EACH GROUND CONDUCTOR TERMINATING ON ANY GROUND BAR SHALL HAVE AN IDENTIFICATION TAG ATTACHED AT EACH END THAT WILL IDENTIFY ITS ORIGIN AND DESTINATION

SECTION "P" – SURGE PRODUCERS
- CABLE ENTRY PORTS (HATCH PLATES) (#2)
- GENERATOR FRAMEWORK (IF AVAILABLE) (#2)
- TELCO GROUND BAR
- COMMERCIAL POWER COMMON NEUTRAL/GROUND BOND (#2)
- +24V POWER SUPPLY RETURN BAR (#2)
- –48V POWER SUPPLY RETURN BAR (#2)
- RECTIFIER FRAMES

SECTION "A" – SURGE ABSORBERS
- INTERIOR GROUND RING (#2)
- EXTERNAL EARTH GROUND FIELD (BURIED GROUND RING) (#2)
- METALLIC COLD WATER PIPE (IF AVAILABLE) (#2)
- BUILDING STEEL (IF AVAILABLE) (#2)

GROUND BAR DETAILS | N.T.S | 5

STATE OF CONNECTICUT
MICHAEL F. PLAHOVINSAK
No. 25849
REGISTERED PROFESSIONAL ENGINEER
3-3-2017

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SEAL:

SHEET TITLE:

GROUNDING, ONE-LINE DIAGRAM & DETAILS

SHEET NUMBER:

G-1