



Filed by:

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March 13, 2017

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

Notice of Exempt Modification

LOT 5 Burr Mountain Road, Torrington, CT 06790

41 52 23.72 N

-73 5 18.26 W

T-Mobile #: CTNH402A_L700

Dear Ms. Bachman:

T-Mobile currently maintains six (6) antennas at the 155-foot level of the existing 195-foot Monopole at Lot 5 Burr Mountain Rd. The tower is owned by SBA 2012 TC Assets, LLC. The property is owned by O&G Industries Inc. T-Mobile intends to add (3) new L700MHz antennas. These antennas would be installed at the 155-foot level of the tower. T-Mobile's full scope of proposed work is as follows:

Remove: None

Remove and Replace: None

Install:

- (3) Commscope LNX 6515DS A1M Panel Antennas
- (3) Commscope ATSBT-TOP-FM-4G Smart bias T
- (1) Commscope VSR-MS-B V-brace

Existing Equipment to Remain:

- (3) Ericsson Air 21 B4A/B2P Panel Antennas
- (3) Ericsson Air 21 B2A/B4P Panel Antennas
- (3) Ericsson KRY 112 114 TMAs
- (3) T-Arms
- (12) 1-5/8" Lines
- (1) 1-5/8" Hybrid

This facility was originally approved by the CT Siting Council on April 26, 2004 under Docket 277. The Tower was not to exceed 198' and was to be designed with a yield point to reduce the area of setback radius so that it was contained within the property of O&G Industries. A D&M plan was to be provided and reasonable space was to be allowed for municipal equipment. This proposed modification is in full compliance with the conditions set forth.



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 Elinor Carbone, Mayor of the City of Torrington, Martin Connor, City Planner for the City of Torrington, and the property owner, O&G Industries. (Separate notice is not being sent to tower owner, as it belongs to SBA.)

The planned modifications to the facility fall squarely within those activities explicitly provided for in R.C.S.A. §16.50j-72(b)(2).

1. The proposed modifications will not result in an increase in the height of the existing structure.
2. The proposed modification will not require the extension of the site boundary.
3. The proposed modifications will not increase noise levels at the facility by six decibels or more, or to levels that exceed state and local criteria.
4. The operation of the replacement antennas will not increase radio frequency emissions at the facility to a level at or above the Federal Communications Commission safety standard.
5. The proposed modification will not cause a change or alteration in the physical or environmental characteristics of the site.
6. The existing structure and its foundation can support the proposed loading with certain modifications.

For the foregoing reasons, T-Mobile 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

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508.366.2610 + F

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Attachments

cc: Elinor Carbone, Mayor of the City of Torrington—as elected official
City of Torrington, 140 Main Street, Torrington CT 06790
Martin Connor, City Planner – as representative for respective planning and zoning department
City of Torrington, 140 Main Street, Torrington CT 06790
O&G Industries--as property owner
112 Wall Street, Torrington CT 06790-5464



POWER DENSITY

T-Mobile Site Inventory and Power Data

Sector:	A	Sector:	B	Sector:	C
Antenna #:	1	Antenna #:	1	Antenna #:	1
Make / Model:	Ericsson AIR21 B2P/B4A	Make / Model:	Ericsson AIR21 B2P/B4A	Make / Model:	Ericsson AIR21 B2P/B4A
Gain:	15.9 dBd	Gain:	15.9 dBd	Gain:	15.9 dBd
Height (AGL):	155	Height (AGL):	155	Height (AGL):	155
Frequency Bands	1900 MHz (PCS) / 2100 MHz (AWS)	Frequency Bands	1900 MHz (PCS) / 2100 MHz (AWS)	Frequency Bands	1900 MHz (PCS) / 2100 MHz (AWS)
Channel Count	2	Channel Count	2	Channel Count	2
Total TX Power(W):	120	Total TX Power(W):	120	Total TX Power(W):	120
ERP (W):	4,668.54	ERP (W):	4,668.54	ERP (W):	4,668.54
Antenna A1 MPE%	0.76	Antenna B1 MPE%	0.76	Antenna C1 MPE%	0.76
Antenna #:	2	Antenna #:	2	Antenna #:	2
Make / Model:	Ericsson AIR21 B2A/B4P	Make / Model:	Ericsson AIR21 B2A/B4P	Make / Model:	Ericsson AIR21 B2A/B4P
Gain:	15.9 dBd	Gain:	15.9 dBd	Gain:	15.9 dBd
Height (AGL):	155	Height (AGL):	155	Height (AGL):	155
Frequency Bands	1900 MHz (PCS) / 2100 MHz (AWS)	Frequency Bands	1900 MHz (PCS) / 2100 MHz (AWS)	Frequency Bands	1900 MHz (PCS) / 2100 MHz (AWS)
Channel Count	6	Channel Count	6	Channel Count	6
Total TX Power(W):	180	Total TX Power(W):	180	Total TX Power(W):	180
ERP (W):	6,410.96	ERP (W):	6,410.96	ERP (W):	6,410.96
Antenna A2 MPE%	1.04	Antenna B2 MPE%	1.04	Antenna C2 MPE%	1.04
Antenna #:	3	Antenna #:	3	Antenna #:	3
Make / Model:	Commscope LNX-6515DS-A1M	Make / Model:	Commscope LNX-6515DS-A1M	Make / Model:	Commscope LNX-6515DS-A1M
Gain:	14.6 dBd	Gain:	14.6 dBd	Gain:	14.6 dBd
Height (AGL):	155	Height (AGL):	155	Height (AGL):	155
Frequency Bands	700 MHz	Frequency Bands	700 MHz	Frequency Bands	700 MHz
Channel Count	1	Channel Count	1	Channel Count	1
Total TX Power(W):	30	Total TX Power(W):	30	Total TX Power(W):	30
ERP (W):	741.52	ERP (W):	741.52	ERP (W):	741.52
Antenna A3 MPE%	0.26	Antenna B3 MPE%	0.26	Antenna C3 MPE%	0.26

Site Composite MPE%	
Carrier	MPE%
T-Mobile (Per Sector Max)	2.05 %
Sprint	0.18 %
MetroPCS	0.37 %
Verizon Wireless	1.10 %
AT&T	1.13 %
Nextel	0.31 %
Site Total MPE %:	5.14 %

T-Mobile Sector A Total:	2.05 %
T-Mobile Sector B Total:	2.05 %
T-Mobile Sector C Total:	2.05 %
Site Total:	5.14 %

T-Mobile_per sector	# Channels	Watts ERP (Per Channel)	Height (feet)	Total Power Density ($\mu\text{W}/\text{cm}^2$)	Frequency (MHz)	Allowable MPE ($\mu\text{W}/\text{cm}^2$)	Calculated % MPE
T-Mobile AWS - 2100 MHz LTE	2	2,334.27	155	7.56	AWS - 2100 MHz	1000	0.76%
T-Mobile AWS - 2100 MHz UMTS	2	871.21	155	2.82	AWS - 2100 MHz	1000	0.28%
T-Mobile PCS - 1950 MHz UMTS	2	1,167.14	155	3.78	PCS - 1950 MHz	1000	0.38%
T-Mobile PCS - 1950 MHz GSM	2	1,167.14	155	3.78	PCS - 1950 MHz	1000	0.38%
T-Mobile 700 MHz LTE	1	741.52	155	1.20	700 MHz	467	0.26%
Total:							2.05%

The Assessor's office is responsible for the maintenance of records on the ownership of properties. Assessments are computed at 70% of the estimated market value of real property at the time of the last revaluation which was 2014.



Information on the Property Records for the Municipality of Torrington was last updated on 1/20/2017.

Property Summary Information

Parcel Data And Values

Sales

Permits

Google Map

Parcel Information

Location:	BURR MTN RD	Property Use:	Residential	Primary Use:	Residential
Unique ID:	920	Map Block Lot:	242/001/015	Acres:	4.30
490 Acres:	0.00	Zone:	R60	Volume / Page:	0869/0389
Developers Map / Lot:		Census:	3107-0N		

Value Information

	Appraised Value	70% Assessed Value
Land	61,800	43,260
Buildings	0	0
Detached Outbuildings	0	0
Total	61,800	43,260

Owner's Information

Owner's Data

O & G INDUSTRIES INC
112 WALL ST
TORRINGTON CT 06790

[Back To Search \(JavaScript:window.history.back\(1\);\)](#)

[Print View \(PrintPage.aspx?towncode=143&uniqueid=920\)](#)

Information Published With Permission From The Assessor



Tower Engineering Solutions

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

Structural Analysis Report

Existing 196 ft. Valmont Monopole
Customer Name: SBA Communications Corp
Customer Site Number: CT46138-A-04
Customer Site Name: Torrington/Oandg Ind Inc
Carrier Name: T-Mobile
Carrier Site ID / Name: CTNH402A / Litchfield SSUSA
Site Location: LOT 5 Burr Mountain Road
Torrington, Connecticut
Litchfield County
Latitude: 41.873255
Longitude: -73.088405

Analysis Result:

Max Structural Usage: 70.0% [Pass]
Max Foundation Usage: 68.0% [Pass]
Report Prepared By : Delu Zhou



Introduction

The purpose of this report is to summarize the analysis results on the 196 ft. Valmont 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	Valmont, Order # 17566-64 Dated 08/03/2004
Foundation Drawing	Valmont, Eng File # A-402723 Dated 07/16/2004
Geotechnical Report	Geotechnical Report by Dr. Clarence Welti, P.E, P.C, Tower- CT33XC079 Dated 06/18/2004
Modification Drawings	Vertical Solutions, Project # 130499 Dated 06/28/2013

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 $V_{ult} = 120.0$ mph (3-Sec. Gust)/ Nominal Design Wind Speed $V_{asd} = 93.0$ mph (3-Sec. Gust)
Wind Speed with Ice:	40 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:	$S_S = 0.182$, $S_1 = 0.065$

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	198.0	1	RFI - BA80-41-DIN - Omni	(1) Pipe mount	(1) 7/8"	Torrington P.D.
2	191.5	3	RFS - APXVTM14-C-120 - Panel	Low Profile Platform	(6) 1 5/8" (4) 1-1/4" Fiber	Sprint
3		3	RFS - APXVSP18-C-A20 - Panel			
4		3	ALU - 800MHz - RRU			
5		3	ALU - 1900MHz - RRU			
6		3	ALU - RRH8x20-25 - RRU			
7		3	ALU - 800MHz Filter - RRU Filter			
8		4	RFS - ACU-A20-N - RET			
9	185.0	3	Antel - BXA-171063-8BF_2 - Panel	Low Profile Platform	(12) 1 5/8"	Verizon
10		6	Antel - LPA-80063/4CF - Panel			
11		3	Antel - BXA-70063 6CF_2 - Panel			
12		6	RFS - FD9R6004/2C-3L - Diplexer			
13	175.0	3	KMW AM-X-CD-16-65-00T-RET - Panel	Low Profile Platform	(12) 1 5/8" (2) 3/4" DC (1) 7/16" Fiber (1) 3" Conduit	AT&T
14		6	Powerwave - 7770 - Panel			
15		12	Powerwave 21401 - TMA			
16		3	Ericsson RRUS-11 - RRU			
17		3	Ericsson RRUS-12 - RRU			
18		1	Raycap DC6-48-60-18-8F - SP			
-	155.0	3	Ericsson - AIR 21 B4A/B2P - Panel	(3) T-Arms	(13) 1 5/8"	T-Mobile
-		3	Ericsson - AIR 21 B2A/B4P - Panel			
-		3	Ericsson - KRY 112 114-1 - Double TMA			
23	145.0	3	RFS - APXV18-206517S-C - Panel	(3) T-Arms	(6) 1 5/8"	Metro PCS
24	132.5	1	Telewave - ANT150F2 - Omni	(1) Standoff	(1) 7/8"	Torrington P.D.
25	116.5	5	14' Omni	(6) Standoff	(6) 1/2"	
26	111.5	1	4' Omni			
27	100.0	1	Maxrad - MPRD - Dish	(1) Standoff	(2) CAT5e	

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
19	155.0	3	Ericsson - AIR 21 B2A/B4P - Panel	(3) T-Arms w/ Handrail kit & v-brace kit	(12) 1 5/8" (1) 1 5/8" Hybrid	T-Mobile
20		3	Ericsson - AIR 21 B4A/B2P - Panel			
21		3	Commscope - LNX-6515DS-A1M - Panel			
22		3	Ericsson - KRY 112 114 TMA			

See the attached coax layout for the line placement considered in the analysis

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	Reinforce Plate
Max. Usage:	60.8%	58.8%	53.1%	70.0%
Pass/Fail	Pass	Pass	Pass	Pass

Foundations

	Moment (Kip-Ft)	Shear (Kips)
Original Design Reactions	5499.0	40.8
Analysis Reactions	5735.1	42.6
Factored Reactions*	7423.7	55.0
% of Design Reactions	77.3%	77.4%

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

The foundation has been 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 1.4218 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.

Note:

The structure capacity usage percentage (70.0%) on the cover sheet reflects the proposed antennas plus the new mount. The capacity usage considering the existing mount plus the proposed antennas is (68.2%). The new mount causes an additional 1.8% of overstress.

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 60.79% at 140.0ft

Structure: CT46138-A-SBA
Site Name: Torrington/Oandg Ind Inc
Height: 196.00 (ft)
Base Elev: 0.000 (ft)

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

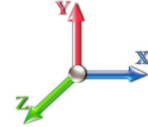
1/31/2017



Page: 1

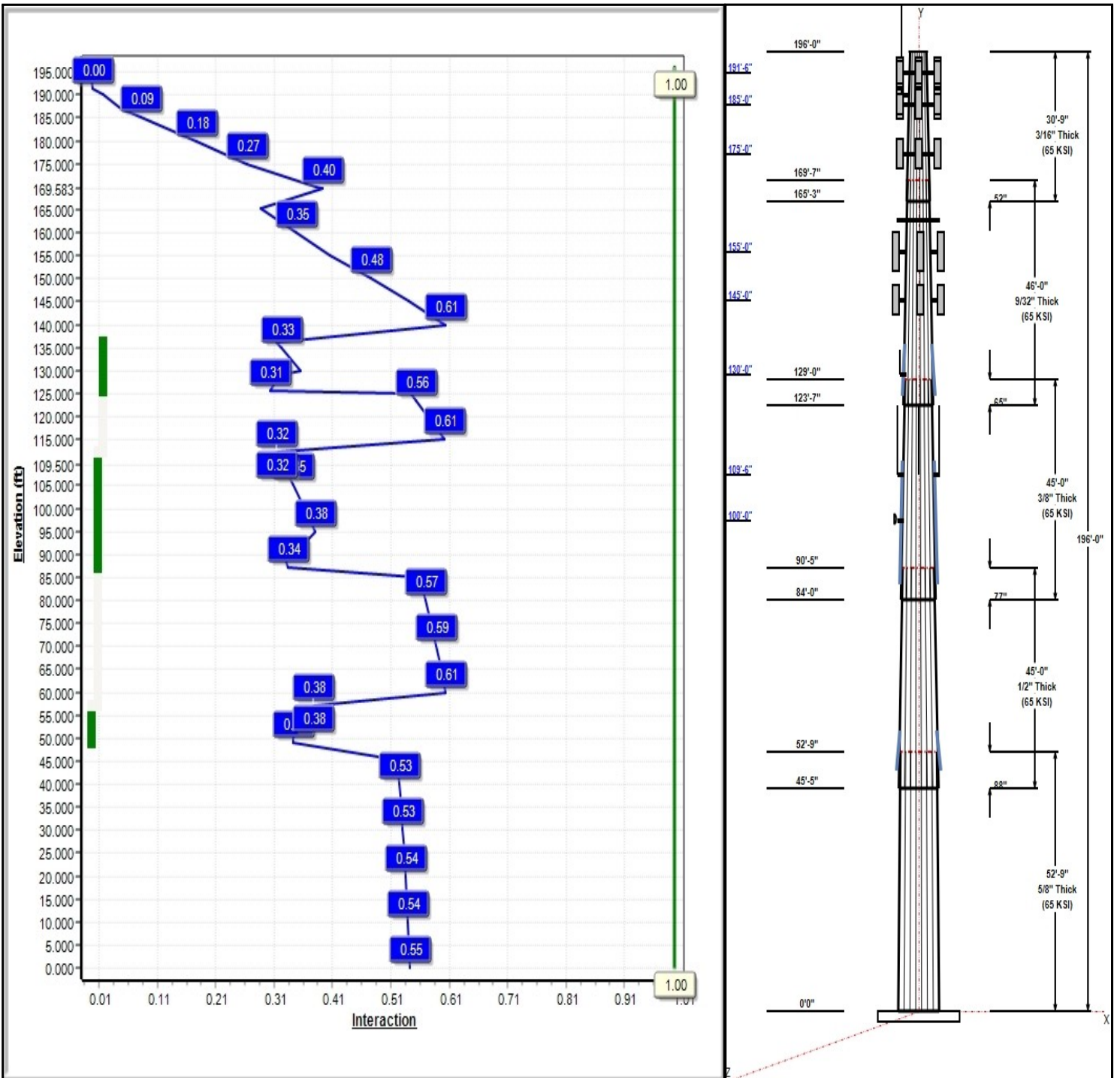
Dead Load Factor: 1.20
 Wind Load Factor: 1.60

Load Case : 1.2D + 1.6W 93 mph Wind



Iterations: 27

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Structure: CT46138-A-SBA

Type: Tapered
Site Name: Torrington/Oandg Ind Inc
Height: 196.00 (ft)
Base Elev: 0.00 (ft)

Base Shape: 16 Sided
Taper: 0.21000

1/31/2017



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Shaft Properties

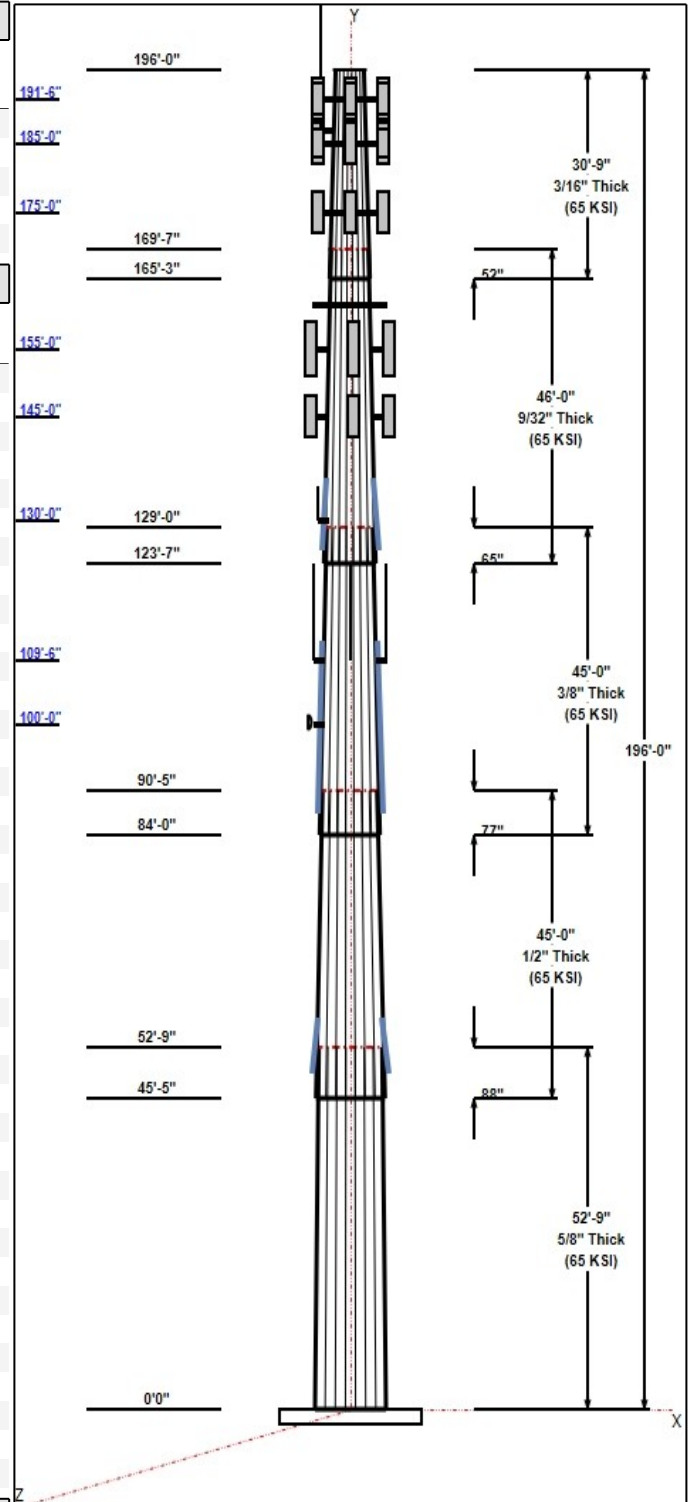
Seq	Length (ft)	Top (in)	Bottom (in)	Thick (in)	Joint Type	Taper	Grade (ksi)
1	52.75	48.92	60.00	0.625		0.21000	65
2	45.00	42.01	51.46	0.500	Slip	0.21000	65
3	45.00	34.66	44.11	0.375	Slip	0.21000	65
4	46.00	26.70	36.36	0.281	Slip	0.21000	65
5	30.75	21.53	27.98	0.188	Slip	0.21000	65

Discrete Appurtenances

Attach Elev (ft)	Force Elev (ft)	Qty	Description	Carrier
196.00	196.00	1	6' Lightning rod	Torrington P.D.
191.50	191.50	3	APXVTM14-C-120	Sprint
191.50	191.50	3	APXVSP18-C-A20	Sprint
191.50	191.50	3	800MHz - RRU	Sprint
191.50	191.50	3	1900MHz - RRU	Sprint
191.50	191.50	3	RRH8x20-25 - RRU	Sprint
191.50	191.50	3	800MHz Filter	Sprint
191.50	191.50	4	ACU-A20-N - RET	Sprint
191.50	191.50	1	Low Profile Platform	Sprint
187.00	197.33	1	BA80-41-DIN	Torrington P.D.
187.00	187.00	1	Pipe mount	Torrington P.D.
185.00	185.00	3	BXA-171063-8BF_2	Verizon
185.00	185.00	6	LPA-80063/4CF	Verizon
185.00	185.00	3	BXA-70063 6CF_2	Verizon
185.00	185.00	6	FD9R6004/2C-3L -	Verizon
185.00	185.00	1	Low Profile Platform	Verizon
175.00	175.00	6	7770	AT&T
175.00	175.00	3	RRUS-11	AT&T
175.00	175.00	3	RRUS-12	AT&T
175.00	175.00	1	DC6-48-60-18-8F	AT&T
175.00	175.00	1	Low Profile Platform	AT&T
175.00	175.00	3	AM-X-CD-16-65-00T-RET	AT&T
175.00	175.00	12	21401 TMA	AT&T
161.50	161.50	1	Low Profile Platform	Vacant
155.00	155.00	3	LNx-6515DS-A1M	T-Mobile
155.00	155.00	3	T-Arms w/ Handrail kit &	T-Mobile
155.00	155.00	3	AIR 21 B4A/B2P	T-Mobile
155.00	155.00	3	AIR 21 B2A/B4P	T-Mobile
155.00	155.00	3	KRY 112 114 TMA	T-Mobile
145.00	145.00	3	APXV18-206517S-C	Metro PCS
145.00	145.00	3	T-Arms	Metro PCS
130.00	130.00	1	Standoff	Torrington P.D.
130.00	132.50	1	ANT150F2	Torrington P.D.
109.50	116.50	5	14' Omni	Torrington P.D.
109.50	111.50	1	4' Omni	Torrington P.D.
109.50	109.50	5	Standoff	Torrington P.D.
109.50	109.50	1	Standoff	Torrington P.D.
100.00	100.00	1	MPRD	Torrington P.D.
100.00	100.00	1	Standoff	Torrington P.D.

Linear Appurtenances

Elev From (ft)	Elev To (ft)	Placement	Description	Carrier
0.00	191.50	Inside	1 5/8" Coax	Sprint
0.00	191.50	Inside	1-1/4" Fiber	Sprint



Structure: CT46138-A-SBA

Type: Tapered **Base Shape:** 16 Sided 1/31/2017
Site Name: Torrington/Oandg Ind Inc **Taper:** 0.21000
Height: 196.00 (ft)
Base Elev: 0.00 (ft)

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0.00	187.00	Inside	7/8" Coax	Torrington P.D.
0.00	185.00	Inside	1 5/8" Coax	Verizon
0.00	175.00	Inside	1 5/8" Coax	AT&T
0.00	175.00	Outside	3" Flex Conduit	AT&T
0.00	175.00	Inside	3/4" DC	AT&T
0.00	175.00	Inside	7/16" Fiber	AT&T
0.00	155.00	Inside	1 5/8" Coax	T-Mobile
0.00	155.00	Inside	1 5/8" Hybrid	T-Mobile
0.00	145.00	Inside	1 5/8" Coax	Metro PCS
0.00	130.00	Outside	7/8" Coax	Torrington P.D.
0.00	109.50	Inside	1/2" Coax	Torrington P.D.
0.00	100.00	Inside	CAT5e	Torrington P.D.

Anchor Bolts

Qty	Specifications	Grade (ksi)	Arrangement
28	2.25" 18J	75.0	Radial

Base Plate

Thickness (in)	Specifications (in)	Grade (ksi)	Geometry
3.0000	73.7	45.0	Polygon

Reactions

Load Case	Moment	Shear	Axial
1.2D + 1.6W 93 mph Wind	5735.1	42.6	78.8
0.9D + 1.6W 93 mph Wind	5665.9	42.6	59.1
1.2D + 1.0Di + 1.0Wi 40 mph Wind	1279.8	9.0	125.2
1.2D + 1.0E	308.9	2.4	78.8
0.9D + 1.0E	305.0	2.4	59.1
1.0D + 1.0W 60 mph Wind	1481.8	11.1	65.7

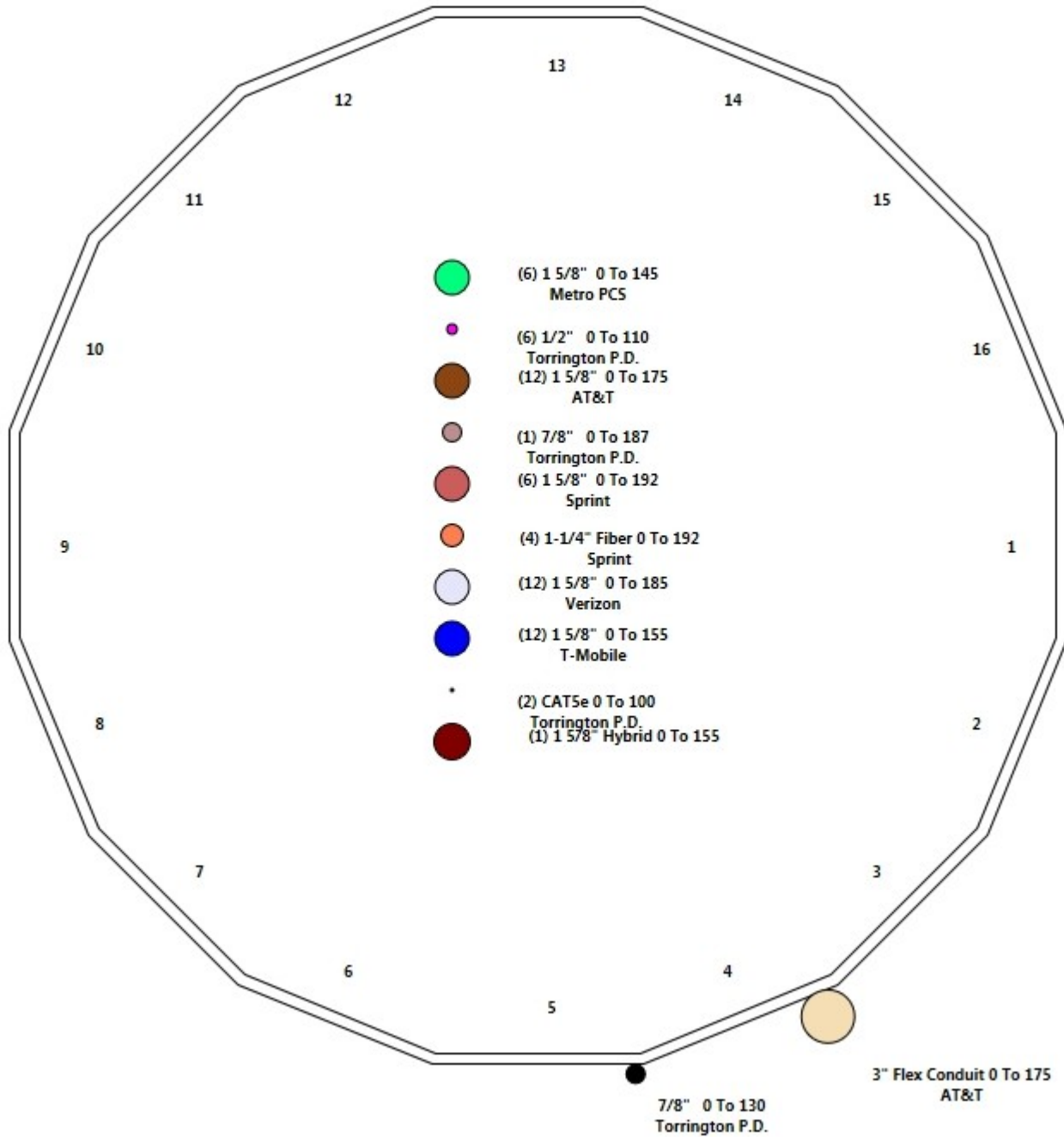
Structure: CT46138-A-SBA - Coax Line Placement

Type: Monopole
Site Name: Torrington/Oandg Ind Inc
Height: 196.00 (ft)

1/31/2017



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Shaft Properties

Structure: CT46138-A-SBA	Code: EIA/TIA-222-G	1/31/2017
Site Name: Torrington/Oandg Ind Inc	Exposure: C	
Height: 196.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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Sec. No.	Shape	Length (ft)	Thick (in)	Fy (ksi)	Joint Type	Overlap (in)	Weight (lb)
1	16	52.750	0.6250	65		0.00	19,266
2	16	45.000	0.5000	65	Slip	88.00	11,293
3	16	45.000	0.3750	65	Slip	77.00	7,146
4	16	46.000	0.2813	65	Slip	65.00	4,388
5	16	30.750	0.1875	65	Slip	52.00	1,538
Total Shaft Weight:							43,631

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	60.00	0.00	118.3	52722.49	17.50	96.00	48.92	52.75	96.29	28376.2	13.98	78.28	0.210003
2	51.46	45.42	81.29	26670.08	18.88	102.92	42.01	90.42	66.21	14414.6	15.12	84.02	0.210003
3	44.11	84.00	52.32	12642.04	21.81	117.63	34.66	129.00	41.01	6090.27	16.79	92.43	0.210003
4	36.36	123.5	32.37	5322.81	24.12	129.28	26.70	169.58	23.70	2089.84	17.29	94.93	0.210003
5	27.98	165.2	16.63	1622.94	28.10	149.25	21.53	196.00	12.76	734.28	21.25	114.8	0.210003

Additional Steel

Elev From (ft)	Elev To (ft)	Qty	Description	Fy (ksi)	Fu (ksi)	Offset (in)	Intermediate Connectors		Termination Connectors			
							Description	Spacing (in)	Description	Spacing (in)	Lower Qty	Upper Qty
48.90	57.15	4	PLT 7.25x1.5(31mm Hole)	50	65	0.00	AJM20&sleeve	0.00	AJM20&sleeve	3.00	14	13
87.00	112.2	4	PLT 6.5x1.5(31mm Hole)	50	65	0.00	AJM20&sleeve	0.00	AJM20&sleeve	3.00	12	11
125.6	136.2	4	PLT 4.75x1.5(31mm Hole)	50	65	0.00	AJM20&sleeve	24.00	AJM20&sleeve	3.00	8	7

Load Summary

Structure: CT46138-A-SBA	Code: EIA/TIA-222-G	1/31/2017
Site Name: Torrington/Oandg Ind Inc	Exposure: C	
Height: 196.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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Discrete Appurtenances

No.	Elev (ft)	Description	Qty	No Ice			Ice			Hor. Ecc. (ft)	Vert Ecc (ft)
				Weight (lb)	CaAa (sf)	CaAa Factor	Weight (lb)	CaAa (sf)	CaAa Factor		
1	196.00	6' Lightning rod	1	6.50	0.38	1.00	56.21	1.869	1.00	0.00	0.00
2	191.50	APXVTM14-C-120	3	56.00	6.34	0.85	291.66	7.897	0.88	0.00	0.00
3	191.50	APXVSP18-C-A20	3	57.00	8.02	0.83	293.17	11.837	0.85	0.00	0.00
4	191.50	800MHz - RRU	3	53.00	2.49	0.67	154.05	4.053	0.70	0.00	0.00
5	191.50	1900MHz - RRU	3	44.00	3.80	0.67	193.15	5.699	0.70	0.00	0.00
6	191.50	RRH8x20-25 - RRU	3	70.00	4.05	0.67	232.71	5.192	0.70	0.00	0.00
7	191.50	800MHz Filter	3	8.80	0.78	0.67	32.91	1.664	0.70	0.00	0.00
8	191.50	ACU-A20-N - RET	4	1.00	0.14	0.75	6.87	0.545	0.78	0.00	0.00
9	191.50	Low Profile Platform	1	1500.00	22.00	1.00	3288.37	46.131	1.00	0.00	0.00
10	187.00	BA80-41-DIN	1	68.00	9.40	1.00	423.55	34.963	1.00	0.00	10.33
11	187.00	Pipe mount	1	40.00	2.63	0.75	149.43	10.766	0.75	0.00	0.00
12	185.00	BXA-171063-8BF_2	3	10.50	2.94	0.87	99.74	5.198	0.90	0.00	0.00
13	185.00	LPA-80063/4CF	6	20.00	6.15	0.85	317.20	7.591	0.88	0.00	0.00
14	185.00	BXA-70063 6CF_2	3	17.00	7.57	0.82	218.92	11.333	0.85	0.00	0.00
15	185.00	FD9R6004/2C-3L - Diplexer	6	3.10	0.36	0.70	14.03	0.964	0.75	0.00	0.00
16	185.00	Low Profile Platform	1	1500.00	22.00	1.00	3282.20	46.048	1.00	0.00	0.00
17	175.00	7770	6	35.00	5.50	0.85	233.03	6.976	0.88	0.00	0.00
18	175.00	RRUS-11	3	50.00	2.52	0.67	145.94	3.377	0.70	0.00	0.00
19	175.00	RRUS-12	3	50.00	2.70	0.67	133.84	4.157	0.70	0.00	0.00
20	175.00	DC6-48-60-18-8F	1	32.80	0.92	1.00	119.15	1.513	1.00	0.00	0.00
21	175.00	Low Profile Platform	1	1500.00	22.00	1.00	3272.33	45.915	1.00	0.00	0.00
22	175.00	AM-X-CD-16-65-00T-RET	3	48.50	8.02	0.75	268.23	11.803	0.76	0.00	0.00
23	175.00	21401 TMA	12	14.10	1.29	0.57	47.95	2.422	0.58	0.00	0.00
24	161.50	Low Profile Platform	1	1500.00	22.00	1.00	3258.15	45.723	1.00	0.00	0.00
25	155.00	LNX-6515DS-A1M	3	50.30	11.47	0.80	360.46	15.840	0.81	0.00	0.00
26	155.00	T-Arms w/ Handrail kit & v-brace kit	3	500.00	17.50	0.75	1433.84	36.130	0.75	0.00	0.00
27	155.00	AIR 21 B4A/B2P	3	90.30	6.09	0.83	329.82	7.531	0.85	0.00	0.00
28	155.00	AIR 21 B2A/B4P	3	91.50	6.09	0.83	329.93	7.531	0.85	0.00	0.00
29	155.00	KRY 112 114 TMA	3	11.00	0.41	0.75	25.42	1.046	0.78	0.00	0.00
30	145.00	APXV18-206517S-C	3	26.40	5.17	0.83	149.78	8.326	0.88	0.00	0.00
31	145.00	T-Arms	3	350.00	8.00	0.75	674.67	17.276	0.75	0.00	0.00
32	130.00	Standoff	1	40.00	2.63	0.75	145.52	10.475	0.75	0.00	0.00
33	130.00	ANT150F2	1	13.00	1.23	1.00	56.47	2.623	1.00	0.00	2.50
34	109.50	14' Omni	5	40.00	4.20	1.00	176.81	10.663	1.00	0.00	7.00
35	109.50	4' Omni	1	10.00	1.00	1.00	50.41	2.117	1.00	0.00	2.00
36	109.50	Standoff	5	40.00	2.63	0.75	143.72	10.342	0.75	0.00	0.00
37	109.50	Standoff	1	40.00	2.63	0.75	143.72	10.342	0.75	0.00	0.00
38	100.00	MPRD	1	36.00	6.10	1.00	359.41	7.638	1.00	0.00	0.00
39	100.00	Standoff	1	40.00	2.63	0.75	142.79	10.272	0.75	0.00	0.00
Totals:			112	12,001.00			36,443.50				

Linear Appurtenances

Bottom Elev. (ft)	Top Elev. (ft)	Description	Exposed Width	Exposed
0.00	191.50	(6) 1 5/8" Coax	0.00	Inside
0.00	191.50	(4) 1-1/4" Fiber	0.00	Inside

Discrete Appurtenances

No.	Elev (ft)	Description	Qty	No Ice			Ice			Hor. Ecc. (ft)	Vert Ecc (ft)
				Weight (lb)	CaAa (sf)	CaAa Factor	Weight (lb)	CaAa (sf)	CaAa Factor		
0.00	187.00	(1) 7/8" Coax		0.00		Inside					
0.00	185.00	(12) 1 5/8" Coax		0.00		Inside					
0.00	175.00	(12) 1 5/8" Coax		0.00		Inside					
0.00	175.00	(1) 3" Flex Conduit		3.00		Outside					
0.00	175.00	(2) 3/4" DC		0.00		Inside					
0.00	175.00	(1) 7/16" Fiber		0.00		Inside					
0.00	155.00	(12) 1 5/8" Coax		0.00		Inside					
0.00	155.00	(1) 1 5/8" Hybrid		0.00		Inside					
0.00	145.00	(6) 1 5/8" Coax		0.00		Inside					
0.00	130.00	(1) 7/8" Coax		1.00		Outside					
0.00	109.50	(6) 1/2" Coax		0.00		Inside					
0.00	100.00	(2) CAT5e		0.00		Inside					

Shaft Section Properties

Structure: CT46138-A-SBA	Code: EIA/TIA-222-G	1/31/2017
Site Name: Torrington/Oandg Ind Inc	Exposure: C	
Height: 196.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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Increment Length: 5 (ft)

Elev (ft)	Description	Thick (in)	Flat Dia (in)	Area (in^2)	Ix (in^4)	W/t Ratio	D/t Ratio	Fy (ksi)	Fb (ksi)	Weight (lb)	Additional Reinforcing			
											Area (in^2)	Ixp (in^4)	Iyp (in^4)	Weight (lb)
0.00		0.6250	60.000	118.379	52722.5	17.50	96.00	65	83	0.0				
5.00		0.6250	58.950	116.285	49974.6	17.17	94.32	65	83	1996.3				
10.00		0.6250	57.900	114.192	47323.8	16.84	92.64	65	83	1960.7				
15.00		0.6250	56.850	112.099	44768.5	16.50	90.96	65	83	1925.0				
20.00		0.6250	55.800	110.005	42306.9	16.17	89.28	65	83	1889.4				
25.00		0.6250	54.750	107.912	39937.2	15.83	87.60	65	83	1853.8				
30.00		0.6250	53.700	105.818	37657.6	15.50	85.92	65	83	1818.2				
35.00		0.6250	52.650	103.725	35466.6	15.17	84.24	65	83	1782.6				
40.00		0.6250	51.600	101.631	33362.2	14.83	82.56	65	83	1747.0				
45.00		0.6250	50.550	99.538	31342.7	14.50	80.88	65	83	1711.3				
45.42	Bot - Section 2	0.6250	50.462	99.363	31178.2	14.47	80.74	65	83	141.0				
48.90	RB1	0.6250	49.731	97.905	29825.3	14.24	79.57	65	83	2125.7	43.50	14933.2	14933.2	487.8
50.00		0.6250	49.500	97.444	29406.4	14.16	79.20	65	83	664.8	43.50	14802.3	14802.3	154.0
52.75	Top - Section 1	0.5000	49.922	78.829	24324.6	18.27	99.84	65	82	1648.4	43.50	14477.5	14477.5	385.1
55.00		0.5000	49.450	78.075	23633.6	18.08	98.90	65	82	600.6	43.50	14214.5	14214.5	315.1
57.15	RT1	0.5000	48.998	77.355	22985.6	17.90	98.00	65	82	568.6	43.50	13965.4	13965.4	301.1
60.00		0.5000	48.400	76.400	22145.1	17.66	96.80	65	83	745.6				
65.00		0.5000	47.350	74.725	20720.5	17.25	94.70	65	83	1285.6				
70.00		0.5000	46.300	73.051	19358.3	16.83	92.60	65	83	1257.1				
75.00		0.5000	45.250	71.376	18057.1	16.41	90.50	65	83	1228.6				
80.00		0.5000	44.200	69.701	16815.6	15.99	88.40	65	83	1200.1				
84.00	Bot - Section 3	0.5000	43.360	68.361	15864.5	15.66	86.72	65	83	939.6				
85.00		0.5000	43.150	68.026	15632.4	15.57	86.30	65	83	409.6				
87.00	RB2	0.5000	42.730	67.356	15175.1	15.41	85.46	65	83	813.3	39.00	9935.3	9935.3	265.4
90.00		0.5000	42.100	66.352	14506.0	15.16	84.20	65	83	1205.0	39.00	9661.0	9661.0	398.2
90.42	Top - Section 2	0.3750	42.762	50.706	11509.1	21.09	114.03	65	79	165.9	39.00	9623.2	9623.2	55.3
95.00		0.3750	41.800	49.554	10742.8	20.58	111.47	65	79	781.8	39.00	9212.3	9212.3	608.3
100.00		0.3750	40.750	48.298	9946.4	20.02	108.67	65	80	832.4	39.00	8774.4	8774.4	663.6
105.00		0.3750	39.700	47.042	9190.4	19.47	105.87	65	81	811.1	39.00	8347.2	8347.2	663.6
109.50		0.3750	38.755	45.912	8543.6	18.97	103.35	65	81	711.7	39.00	7972.0	7972.0	597.2
110.00		0.3750	38.650	45.786	8473.7	18.91	103.07	65	81	78.0	39.00	7930.8	7930.8	66.4
112.25	RT2	0.3750	38.177	45.221	8163.7	18.66	101.81	65	81	348.4	39.00	7746.9	7746.9	298.6
115.00		0.3750	37.600	44.530	7795.3	18.35	100.27	65	82	419.9				
120.00		0.3750	36.550	43.274	7154.0	17.80	97.47	65	82	746.9				
123.58	Bot - Section 4	0.3750	35.797	42.374	6716.8	17.40	95.46	65	83	522.2				
125.00		0.3750	35.500	42.018	6549.0	17.24	94.67	65	83	358.8				
125.60	RB3	0.3750	35.374	41.867	6478.8	17.17	94.33	65	83	151.1	28.50	5022.2	5022.2	58.2
129.00	Top - Section 3	0.2813	35.222	31.349	4835.0	23.32	125.23	65	76	845.8	28.50	4833.6	4833.6	329.7
130.00		0.2813	35.012	31.160	4748.4	23.17	124.49	65	76	106.4	28.50	4778.8	4778.8	97.0
135.00		0.2813	33.962	30.218	4330.6	22.43	120.75	65	77	522.1	28.50	4509.5	4509.5	484.9
136.26	RT3	0.2813	33.698	29.981	4229.3	22.24	119.81	65	77	129.1	28.50	4442.9	4442.9	122.2
140.00		0.2813	32.912	29.276	3938.1	21.69	117.02	65	78	377.1				
145.00		0.2813	31.862	28.334	3570.0	20.94	113.29	65	79	490.1				
150.00		0.2813	30.812	27.392	3225.6	20.20	109.55	65	80	474.1				
155.00		0.2813	29.762	26.450	2904.1	19.46	105.82	65	81	458.0				
160.00		0.2813	28.712	25.508	2604.8	18.72	102.09	65	81	442.0				
161.50		0.2813	28.397	25.225	2519.1	18.49	100.97	65	82	129.5				
165.00		0.2813	27.662	24.566	2326.7	17.97	98.35	65	82	296.5				
165.25	Bot - Section 5	0.2813	27.610	24.519	2313.3	17.94	98.17	65	82	20.9				
169.58	Top - Section 4	0.1875	27.075	16.082	1468.7	27.13	144.40	65	72	596.7				

Increment Length: 5 (ft)

Elev (ft)	Description	Thick (in)	Flat Dia (in)	Area (in^2)	Ix (in^4)	W/t Ratio	D/t Ratio	Fy (ksi)	Fb (ksi)	Weight (lb)	Additional Reinforcing			
											Area (in^2)	Ixp (in^4)	Iyp (in^4)	Weight (lb)
170.00		0.1875	26.987	16.029	1454.4	27.04	143.93	65	72	22.8				
175.00		0.1875	25.937	15.401	1290.1	25.92	138.33	65	73	267.4				
180.00		0.1875	24.887	14.773	1138.6	24.81	132.73	65	74	256.7				
185.00		0.1875	23.837	14.145	999.5	23.70	127.13	65	76	246.0				
187.00		0.1875	23.417	13.894	947.2	23.25	124.89	65	76	95.4				
190.00		0.1875	22.787	13.517	872.2	22.58	121.53	65	77	139.9				
191.50		0.1875	22.472	13.329	836.2	22.25	119.85	65	77	68.5				
195.00		0.1875	21.737	12.889	756.2	21.47	115.93	65	78	156.1				
196.00		0.1875	21.527	12.764	734.3	21.25	114.81	65	79	43.6				
Total Weight										43630.8	6351.7			

Wind Loading - Shaft

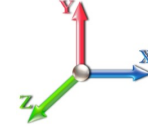
Structure: CT46138-A-SBA	Code: EIA/TIA-222-G	1/31/2017
Site Name: Torrington/Oandg Ind Inc	Exposure: C	
Height: 196.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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Load Case: 1.2D + 1.6W 93 mph Wind

Dead Load Factor 1.20
Wind Load Factor 1.60



Iterations 27

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	17.879	19.67	437.11	0.750	0.000	0.00	0.000	0.00	0.0	0.0	0.0
5.00		1.00	0.85	17.879	19.67	429.46	0.750	0.000	5.00	25.267	18.95	596.3	0.0	2395.5
10.00		1.00	0.85	17.879	19.67	421.81	0.750	0.000	5.00	24.821	18.62	585.8	0.0	2352.8
15.00		1.00	0.85	17.879	19.67	414.16	0.750	0.000	5.00	24.375	18.28	575.3	0.0	2310.0
20.00		1.00	0.90	18.971	20.87	418.73	0.750	0.000	5.00	23.929	17.95	599.2	0.0	2267.3
25.00		1.00	0.95	19.883	21.87	420.62	0.750	0.000	5.00	23.482	17.61	616.3	0.0	2224.6
30.00		1.00	0.98	20.661	22.73	420.55	0.750	0.000	5.00	23.036	17.28	628.3	0.0	2181.8
35.00		1.00	1.01	21.343	23.48	419.07	0.750	0.000	5.00	22.590	16.94	636.4	0.0	2139.1
40.00		1.00	1.04	21.951	24.15	416.52	0.750	0.000	5.00	22.144	16.61	641.6	0.0	2096.3
45.00		1.00	1.07	22.502	24.75	413.14	0.750	0.000	5.00	21.698	16.27	644.5	0.0	2053.6
45.42	Bot - Section 2	1.00	1.07	22.546	24.80	412.82	0.750	0.000	0.42	1.788	1.34	53.2	0.0	169.2
48.90	RB1	1.00	1.09	22.899	25.19	410.02	0.750	0.000	3.48	15.123	11.34	457.1	0.0	2550.8
50.00		1.00	1.09	23.007	25.31	409.07	0.750	0.000	1.10	4.731	3.55	143.7	0.0	797.8
52.75	Top - Section 1	1.00	1.11	23.268	25.59	406.58	0.750	0.000	2.75	11.732	8.80	360.3	0.0	1978.1
55.00		1.00	1.12	23.473	25.82	412.78	0.750	0.000	2.25	9.499	7.12	294.3	0.0	720.8
57.15	RT1	1.00	1.12	23.663	26.03	410.66	0.750	0.000	2.15	8.992	6.74	280.9	0.0	682.3
60.00		1.00	1.14	23.907	26.30	407.73	0.750	0.000	2.85	11.793	8.84	372.1	0.0	894.7
65.00		1.00	1.16	24.313	26.74	402.26	0.750	0.000	5.00	20.339	15.25	652.7	0.0	1542.7
70.00		1.00	1.17	24.696	27.17	396.42	0.750	0.000	5.00	19.893	14.92	648.5	0.0	1508.5
75.00		1.00	1.19	25.057	27.56	390.25	0.750	0.000	5.00	19.446	14.58	643.2	0.0	1474.4
80.00		1.00	1.21	25.400	27.94	383.79	0.750	0.000	5.00	19.000	14.25	637.0	0.0	1440.2
84.00	Bot - Section 3	1.00	1.22	25.662	28.23	378.44	0.750	0.000	4.00	14.879	11.16	504.0	0.0	1127.5
85.00		1.00	1.22	25.726	28.30	377.08	0.750	0.000	1.00	3.739	2.80	127.0	0.0	491.6
87.00	RB2	1.00	1.23	25.852	28.44	374.32	0.750	0.000	2.00	7.424	5.57	253.4	0.0	976.0
90.00		1.00	1.24	26.037	28.64	370.12	0.750	0.000	3.00	11.003	8.25	378.2	0.0	1446.0
90.42	Top - Section 2	1.00	1.24	26.063	28.67	369.53	0.750	0.000	0.42	1.515	1.14	52.1	0.0	199.1
95.00		1.00	1.25	26.336	28.97	369.58	0.750	0.000	4.58	16.465	12.35	572.4	0.0	938.2
100.00	Appurtenance(s)	1.00	1.27	26.621	29.28	362.25	0.750	0.000	5.00	17.535	13.15	616.2	0.0	998.9
105.00		1.00	1.28	26.896	29.59	354.73	0.750	0.000	5.00	17.089	12.82	606.7	0.0	973.3
109.50	Appurtenance(s)	1.00	1.29	27.135	29.85	347.82	0.750	0.000	4.50	14.998	11.25	537.2	0.0	854.0
110.00		1.00	1.29	27.161	29.88	347.04	0.750	0.000	0.50	1.644	1.23	58.9	0.0	93.6
112.25	RT2	1.00	1.30	27.277	30.00	343.53	0.750	0.000	2.25	7.344	5.51	264.4	0.0	418.1
115.00		1.00	1.30	27.416	30.16	339.20	0.750	0.000	2.75	8.853	6.64	320.4	0.0	503.9
120.00		1.00	1.32	27.663	30.43	331.21	0.750	0.000	5.00	15.750	11.81	575.1	0.0	896.3
123.58	Bot - Section 4	1.00	1.32	27.835	30.62	325.39	0.750	0.000	3.58	11.013	8.26	404.7	0.0	626.6
125.00		1.00	1.33	27.902	30.69	323.08	0.750	0.000	1.42	4.359	3.27	160.5	0.0	430.6
125.60	RB3	1.00	1.33	27.930	30.72	322.09	0.750	0.000	0.60	1.835	1.38	67.7	0.0	181.3
129.00	Top - Section 3	1.00	1.34	28.088	30.90	316.48	0.750	0.000	3.40	10.278	7.71	381.1	0.0	1015.0
130.00	Appurtenance(s)	1.00	1.34	28.133	30.95	319.96	0.750	0.000	1.00	2.984	2.24	110.8	0.0	127.6
135.00		1.00	1.35	28.358	31.19	311.60	0.750	0.000	5.00	14.651	10.99	548.4	0.0	626.6
136.26	RT3	1.00	1.35	28.413	31.25	309.47	0.750	0.000	1.26	3.622	2.72	135.8	0.0	154.9
140.00		1.00	1.36	28.576	31.43	303.12	0.750	0.000	3.74	10.583	7.94	399.2	0.0	452.5
145.00	Appurtenance(s)	1.00	1.37	28.788	31.67	294.54	0.750	0.000	5.00	13.759	10.32	522.8	0.0	588.1
150.00		1.00	1.38	28.994	31.89	285.85	0.750	0.000	5.00	13.313	9.98	509.5	0.0	568.9
155.00	Appurtenance(s)	1.00	1.39	29.195	32.11	277.06	0.750	0.000	5.00	12.867	9.65	495.8	0.0	549.6
160.00		1.00	1.40	29.390	32.33	268.18	0.751 *	0.000	5.00	12.421	9.33	482.8	0.0	530.4
161.50	Appurtenance(s)	1.00	1.40	29.448	32.39	265.50	0.757 *	0.000	1.50	3.639	2.75	142.8	0.0	155.4

Wind Loading - Shaft

Structure: CT46138-A-SBA	Code: EIA/TIA-222-G	1/31/2017	
Site Name: Torrington/Oandg Ind Inc	Exposure: C		
Height: 196.00 (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



165.00	1.00	1.41	29.581	32.54	259.21	0.761 *	0.000	3.50	8.335	6.34	330.3	0.0	355.8
165.25 Bot - Section 5	1.00	1.41	29.591	32.55	258.76	0.765 *	0.000	0.25	0.587	0.45	23.4	0.0	25.1
169.58 Top - Section 4	1.00	1.41	29.753	32.73	250.92	0.769 *	0.000	4.33	10.136	7.79	408.1	0.0	716.0
170.00	1.00	1.42	29.768	32.74	253.68	0.770 *	0.000	0.42	0.957	0.74	38.6	0.0	27.3
175.00 Appurtenance(s)	1.00	1.42	29.950	32.95	244.56	0.775 *	0.000	5.00	11.242	8.71	459.4	0.0	320.9
180.00	1.00	1.43	30.128	33.14	235.35	0.750	0.000	5.00	10.796	8.10	429.3	0.0	308.0
185.00 Appurtenance(s)	1.00	1.44	30.303	33.33	226.08	0.750	0.000	5.00	10.350	7.76	414.0	0.0	295.2
187.00 Appurtenance(s)	1.00	1.44	30.371	33.41	222.34	0.750	0.000	2.00	4.015	3.01	161.0	0.0	114.5
190.00	1.00	1.45	30.473	33.52	216.73	0.750	0.000	3.00	5.889	4.42	236.9	0.0	167.9
191.50 Appurtenance(s)	1.00	1.45	30.524	33.58	213.91	0.750	0.000	1.50	2.884	2.16	116.2	0.0	82.2
195.00	1.00	1.46	30.640	33.70	207.30	0.750	0.000	3.50	6.573	4.93	265.9	0.0	187.4
196.00 Appurtenance(s)	1.00	1.46	30.673	33.74	205.41	0.750	0.000	1.00	1.838	1.38	74.4	0.0	52.4
							Totals:	196.00			22,252.0		52,356.9

* Cf Adjusted by Linear Load Ra Effect

Discrete Appurtenance Forces

Structure: CT46138-A-SBA	Code: EIA/TIA-222-G	1/31/2017
Site Name: Torrington/Oandg Ind Inc	Exposure: C	
Height: 196.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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Load Case: 1.2D + 1.6W 93 mph Wind

Dead Load Factor 1.20
Wind Load Factor 1.60



Iterations 27

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	196.00	6' Lightning rod	1	30.673	33.741	1.00	1.00	0.38	7.80	0.000	0.000	20.51	0.00	0.00
2	191.50	Low Profile Platform	1	30.524	33.576	1.00	1.00	22.00	1800.00	0.000	0.000	1181.88	0.00	0.00
3	191.50	ACU-A20-N - RET	4	30.524	33.576	0.60	0.80	0.34	4.80	0.000	0.000	18.05	0.00	0.00
4	191.50	800MHz Filter	3	30.524	33.576	0.54	0.80	1.25	31.68	0.000	0.000	67.38	0.00	0.00
5	191.50	RRH8x20-25 - RRU	3	30.524	33.576	0.54	0.80	6.51	252.00	0.000	0.000	349.86	0.00	0.00
6	191.50	1900MHz - RRU	3	30.524	33.576	0.54	0.80	6.11	158.40	0.000	0.000	328.26	0.00	0.00
7	191.50	800MHz - RRU	3	30.524	33.576	0.54	0.80	4.00	190.80	0.000	0.000	215.10	0.00	0.00
8	191.50	APXVSP18-C-A20	3	30.524	33.576	0.66	0.80	15.98	205.20	0.000	0.000	858.25	0.00	0.00
9	191.50	APXVTM14-C-120	3	30.524	33.576	0.68	0.80	12.93	201.60	0.000	0.000	694.81	0.00	0.00
10	187.00	BA80-41-DIN	1	30.717	33.789	1.00	1.00	9.40	81.60	0.000	10.333	508.18	0.00	5251.23
11	187.00	Pipe mount	1	30.371	33.408	0.56	0.75	1.48	48.00	0.000	0.000	79.08	0.00	0.00
12	185.00	Low Profile Platform	1	30.303	33.333	1.00	1.00	22.00	1800.00	0.000	0.000	1173.31	0.00	0.00
13	185.00	FD9R6004/2C-3L -	6	30.303	33.333	0.56	0.80	1.21	22.32	0.000	0.000	64.51	0.00	0.00
14	185.00	BXA-70063 6CF_2	3	30.303	33.333	0.66	0.80	14.90	61.20	0.000	0.000	794.53	0.00	0.00
15	185.00	LPA-80063/4CF	6	30.303	33.333	0.68	0.80	25.09	144.00	0.000	0.000	1338.22	0.00	0.00
16	185.00	BXA-171063-8BF_2	3	30.303	33.333	0.70	0.80	6.14	37.80	0.000	0.000	327.39	0.00	0.00
17	175.00	21401 TMA	12	29.950	32.945	0.46	0.80	7.06	203.04	0.000	0.000	372.09	0.00	0.00
18	175.00	AM-X-CD-16-65-00T-RET	3	29.950	32.945	0.60	0.80	14.44	174.60	0.000	0.000	760.95	0.00	0.00
19	175.00	Low Profile Platform	1	29.950	32.945	1.00	1.00	22.00	1800.00	0.000	0.000	1159.67	0.00	0.00
20	175.00	DC6-48-60-18-8F	1	29.950	32.945	0.80	0.80	0.74	39.36	0.000	0.000	38.80	0.00	0.00
21	175.00	RRUS-11	3	29.950	32.945	0.54	0.80	4.05	180.00	0.000	0.000	213.60	0.00	0.00
22	175.00	7770	6	29.950	32.945	0.68	0.80	22.44	252.00	0.000	0.000	1182.86	0.00	0.00
23	175.00	RRUS-12	3	29.950	32.945	0.54	0.80	4.34	180.00	0.000	0.000	228.86	0.00	0.00
24	161.50	Low Profile Platform	1	29.448	32.393	1.00	1.00	22.00	1800.00	0.000	0.000	1140.23	0.00	0.00
25	155.00	KRY 112 114 TMA	3	29.195	32.114	0.60	0.80	0.74	39.60	0.000	0.000	37.92	0.00	0.00
26	155.00	AIR 21 B2A/B4P	3	29.195	32.114	0.66	0.80	12.13	329.40	0.000	0.000	623.33	0.00	0.00
27	155.00	AIR 21 B4A/B2P	3	29.195	32.114	0.66	0.80	12.13	325.08	0.000	0.000	623.33	0.00	0.00
28	155.00	T-Arms w/ Handrail kit &	3	29.195	32.114	0.56	0.75	29.53	1800.00	0.000	0.000	1517.39	0.00	0.00
29	155.00	LNx-6515DS-A1M	3	29.195	32.114	0.64	0.80	22.02	181.08	0.000	0.000	1131.57	0.00	0.00
30	145.00	APXV18-206517S-C	3	28.788	31.666	0.66	0.80	10.30	95.04	0.000	0.000	521.79	0.00	0.00
31	145.00	T-Arms	3	28.788	31.666	0.56	0.75	13.50	1260.00	0.000	0.000	683.99	0.00	0.00
32	130.00	ANT150F2	1	28.246	31.071	1.00	1.00	1.23	15.60	0.000	2.500	61.15	0.00	152.87
33	130.00	Standoff	1	28.133	30.947	0.56	0.75	1.48	48.00	0.000	0.000	73.25	0.00	0.00
34	109.50	Standoff	1	27.135	29.849	0.56	0.75	1.48	48.00	0.000	0.000	70.65	0.00	0.00
35	109.50	Standoff	5	27.135	29.849	0.56	0.75	7.40	240.00	0.000	0.000	353.26	0.00	0.00
36	109.50	4' Omni	1	27.239	29.962	1.00	1.00	1.00	12.00	0.000	2.000	47.94	0.00	95.88
37	109.50	14' Omni	5	27.491	30.240	1.00	1.00	21.00	240.00	0.000	7.000	1016.08	0.00	7112.56
38	100.00	Standoff	1	26.621	29.284	0.56	0.75	1.48	48.00	0.000	0.000	69.31	0.00	0.00
39	100.00	MPRD	1	26.621	29.284	1.00	1.00	6.10	43.20	0.000	0.000	285.81	0.00	0.00

Totals: 14,401.20

20,233.16

Total Applied Force Summary

Structure: CT46138-A-SBA	Code: EIA/TIA-222-G	1/31/2017
Site Name: Torrington/Oandg Ind Inc	Exposure: C	
Height: 196.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II

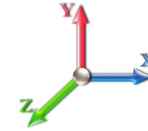


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Load Case: 1.2D + 1.6W 93 mph Wind

Dead Load Factor 1.20

Wind Load Factor 1.60



Iterations 27

Elev (ft)	Description	Lateral FX (-) (lb)	Axial FY (-) (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)
0.00		0.00	0.00	0.00	0.00
5.00		596.31	2749.21	0.00	0.00
10.00		585.78	2706.47	0.00	0.00
15.00		575.25	2663.72	0.00	0.00
20.00		599.20	2620.98	0.00	0.00
25.00		616.31	2578.24	0.00	0.00
30.00		628.26	2535.50	0.00	0.00
35.00		636.42	2492.76	0.00	0.00
40.00		641.64	2450.02	0.00	0.00
45.00		644.50	2407.28	0.00	0.00
45.42		53.21	198.68	0.00	0.00
48.90		457.12	2797.20	0.00	0.00
50.00		143.67	875.57	0.00	0.00
52.75		360.33	2172.63	0.00	0.00
55.00		294.31	879.93	0.00	0.00
57.15		280.87	834.35	0.00	0.00
60.00		372.14	1096.26	0.00	0.00
65.00		652.74	1896.42	0.00	0.00
70.00		648.46	1862.22	0.00	0.00
75.00		643.20	1828.03	0.00	0.00
80.00		637.04	1793.84	0.00	0.00
84.00		504.02	1410.45	0.00	0.00
85.00		126.97	562.31	0.00	0.00
87.00		253.35	1117.44	0.00	0.00
90.00		378.15	1658.21	0.00	0.00
90.42		52.14	228.60	0.00	0.00
95.00		572.38	1262.40	0.00	0.00
100.00	(2) attachments	971.30	1443.79	0.00	0.00
105.00		606.70	1326.70	0.00	0.00
109.50	(12) attachments	2025.14	1712.11	0.00	7208.44
110.00		58.95	128.38	0.00	0.00
112.25		264.41	574.52	0.00	0.00
115.00		320.38	695.14	0.00	0.00
120.00		575.13	1244.01	0.00	0.00
123.58		404.66	875.76	0.00	0.00
125.00		160.53	529.07	0.00	0.00
125.60		67.66	222.99	0.00	0.00
129.00		381.07	1251.42	0.00	0.00
130.00	(2) attachments	245.20	260.76	0.00	152.87
135.00		548.43	971.13	0.00	0.00
136.26		135.83	241.69	0.00	0.00
140.00		399.20	710.20	0.00	0.00
145.00	(6) attachments	1728.62	2287.70	0.00	0.00
150.00		509.51	875.98	0.00	0.00
155.00	(15) attachments	4429.39	3531.91	0.00	0.00
160.00		482.79	756.04	0.00	0.00
161.50	(1) attachments	1282.99	2023.06	0.00	0.00

Total Applied Force Summary

Structure: CT46138-A-SBA	Code: EIA/TIA-222-G	1/31/2017
Site Name: Torrington/Oandg Ind Inc	Exposure: C	
Height: 196.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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165.00	330.33	513.74	0.00	0.00
165.25	23.37	36.34	0.00	0.00
169.58	408.05	911.55	0.00	0.00
170.00	38.60	46.12	0.00	0.00
175.00	(29) attachments 4416.18	3375.49	0.00	0.00
180.00	429.34	446.37	0.00	0.00
185.00	(19) attachments 4111.95	2498.87	0.00	0.00
187.00	(2) attachments 748.22	269.48	0.00	5251.23
190.00	236.87	204.10	0.00	0.00
191.50	(23) attachments 3829.79	2944.80	0.00	0.00
195.00	265.86	187.35	0.00	0.00
196.00	(1) attachments 94.93	60.17	0.00	0.00
Totals:		42,485.20	78,835.44	0.00
				12,612.53

Linear Appurtenance Segment Forces (Factored)

Structure: CT46138-A-SBA	Code: EIA/TIA-222-G	1/31/2017
Site Name: Torrington/Oandg Ind Inc	Exposure: C	
Height: 196.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II

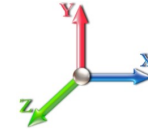


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Load Case: 1.2D + 1.6W 93 mph Wind

Dead Load Factor 1.20

Wind Load Factor 1.60



Iterations 27

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	3" Flex Conduit	Yes	5.00	0.000	3.00	1.25	0.00	0.058	0.000	17.879	0.00	6.78
5.00	7/8" Coax	Yes	5.00	0.000	0.52	0.22	0.00	0.058	0.000	17.879	0.00	3.12
10.00	3" Flex Conduit	Yes	5.00	0.000	3.00	1.25	0.00	0.059	0.000	17.879	0.00	6.78
10.00	7/8" Coax	Yes	5.00	0.000	0.52	0.22	0.00	0.059	0.000	17.879	0.00	3.12
15.00	3" Flex Conduit	Yes	5.00	0.000	3.00	1.25	0.00	0.060	0.000	17.879	0.00	6.78
15.00	7/8" Coax	Yes	5.00	0.000	0.52	0.22	0.00	0.060	0.000	17.879	0.00	3.12
20.00	3" Flex Conduit	Yes	5.00	0.000	3.00	1.25	0.00	0.061	0.000	18.971	0.00	6.78
20.00	7/8" Coax	Yes	5.00	0.000	0.52	0.22	0.00	0.061	0.000	18.971	0.00	3.12
25.00	3" Flex Conduit	Yes	5.00	0.000	3.00	1.25	0.00	0.062	0.000	19.883	0.00	6.78
25.00	7/8" Coax	Yes	5.00	0.000	0.52	0.22	0.00	0.062	0.000	19.883	0.00	3.12
30.00	3" Flex Conduit	Yes	5.00	0.000	3.00	1.25	0.00	0.064	0.000	20.661	0.00	6.78
30.00	7/8" Coax	Yes	5.00	0.000	0.52	0.22	0.00	0.064	0.000	20.661	0.00	3.12
35.00	3" Flex Conduit	Yes	5.00	0.000	3.00	1.25	0.00	0.065	0.000	21.343	0.00	6.78
35.00	7/8" Coax	Yes	5.00	0.000	0.52	0.22	0.00	0.065	0.000	21.343	0.00	3.12
40.00	3" Flex Conduit	Yes	5.00	0.000	3.00	1.25	0.00	0.066	0.000	21.951	0.00	6.78
40.00	7/8" Coax	Yes	5.00	0.000	0.52	0.22	0.00	0.066	0.000	21.951	0.00	3.12
45.00	3" Flex Conduit	Yes	5.00	0.000	3.00	1.25	0.00	0.068	0.000	22.502	0.00	6.78
45.00	7/8" Coax	Yes	5.00	0.000	0.52	0.22	0.00	0.068	0.000	22.502	0.00	3.12
45.42	3" Flex Conduit	Yes	0.42	0.000	3.00	0.10	0.00	0.068	0.000	22.546	0.00	0.57
45.42	7/8" Coax	Yes	0.42	0.000	0.52	0.02	0.00	0.068	0.000	22.546	0.00	0.26
48.90	3" Flex Conduit	Yes	3.48	0.000	3.00	0.87	0.00	0.069	0.000	22.899	0.00	4.72
48.90	7/8" Coax	Yes	3.48	0.000	0.52	0.15	0.00	0.069	0.000	22.899	0.00	2.17
50.00	3" Flex Conduit	Yes	1.10	0.000	3.00	0.28	0.00	0.070	0.000	23.007	0.00	1.49
50.00	7/8" Coax	Yes	1.10	0.000	0.52	0.05	0.00	0.070	0.000	23.007	0.00	0.69
52.75	3" Flex Conduit	Yes	2.75	0.000	3.00	0.69	0.00	0.070	0.000	23.268	0.00	3.73
52.75	7/8" Coax	Yes	2.75	0.000	0.52	0.12	0.00	0.070	0.000	23.268	0.00	1.72
55.00	3" Flex Conduit	Yes	2.25	0.000	3.00	0.56	0.00	0.069	0.000	23.473	0.00	3.05
55.00	7/8" Coax	Yes	2.25	0.000	0.52	0.10	0.00	0.069	0.000	23.473	0.00	1.40
57.15	3" Flex Conduit	Yes	2.15	0.000	3.00	0.54	0.00	0.070	0.000	23.663	0.00	2.92
57.15	7/8" Coax	Yes	2.15	0.000	0.52	0.09	0.00	0.070	0.000	23.663	0.00	1.34
60.00	3" Flex Conduit	Yes	2.85	0.000	3.00	0.71	0.00	0.071	0.000	23.907	0.00	3.86
60.00	7/8" Coax	Yes	2.85	0.000	0.52	0.12	0.00	0.071	0.000	23.907	0.00	1.78
65.00	3" Flex Conduit	Yes	5.00	0.000	3.00	1.25	0.00	0.072	0.000	24.313	0.00	6.78
65.00	7/8" Coax	Yes	5.00	0.000	0.52	0.22	0.00	0.072	0.000	24.313	0.00	3.12
70.00	3" Flex Conduit	Yes	5.00	0.000	3.00	1.25	0.00	0.074	0.000	24.696	0.00	6.78
70.00	7/8" Coax	Yes	5.00	0.000	0.52	0.22	0.00	0.074	0.000	24.696	0.00	3.12
75.00	3" Flex Conduit	Yes	5.00	0.000	3.00	1.25	0.00	0.075	0.000	25.057	0.00	6.78
75.00	7/8" Coax	Yes	5.00	0.000	0.52	0.22	0.00	0.075	0.000	25.057	0.00	3.12
80.00	3" Flex Conduit	Yes	5.00	0.000	3.00	1.25	0.00	0.077	0.000	25.400	0.00	6.78
80.00	7/8" Coax	Yes	5.00	0.000	0.52	0.22	0.00	0.077	0.000	25.400	0.00	3.12
84.00	3" Flex Conduit	Yes	4.00	0.000	3.00	1.00	0.00	0.079	0.000	25.662	0.00	5.42
84.00	7/8" Coax	Yes	4.00	0.000	0.52	0.17	0.00	0.079	0.000	25.662	0.00	2.50
85.00	3" Flex Conduit	Yes	1.00	0.000	3.00	0.25	0.00	0.080	0.000	25.726	0.00	1.36
85.00	7/8" Coax	Yes	1.00	0.000	0.52	0.04	0.00	0.080	0.000	25.726	0.00	0.62
87.00	3" Flex Conduit	Yes	2.00	0.000	3.00	0.50	0.00	0.080	0.000	25.852	0.00	2.71
87.00	7/8" Coax	Yes	2.00	0.000	0.52	0.09	0.00	0.080	0.000	25.852	0.00	1.25
90.00	3" Flex Conduit	Yes	3.00	0.000	3.00	0.75	0.00	0.081	0.000	26.037	0.00	4.07

Linear Appurtenance Segment Forces (Factored)

Structure: CT46138-A-SBA	Code: EIA/TIA-222-G	1/31/2017
Site Name: Torrington/Oandg Ind Inc	Exposure: C	
Height: 196.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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Load Case: 1.2D + 1.6W 93 mph Wind

Dead Load Factor 1.20
Wind Load Factor 1.60



Iterations 27

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)
90.00	7/8" Coax	Yes	3.00	0.000	0.52	0.13	0.00	0.081	0.000	26.037	0.00	1.87
90.42	3" Flex Conduit	Yes	0.42	0.000	3.00	0.10	0.00	0.082	0.000	26.063	0.00	0.57
90.42	7/8" Coax	Yes	0.42	0.000	0.52	0.02	0.00	0.082	0.000	26.063	0.00	0.26
95.00	3" Flex Conduit	Yes	4.58	0.000	3.00	1.15	0.00	0.082	0.000	26.336	0.00	6.21
95.00	7/8" Coax	Yes	4.58	0.000	0.52	0.20	0.00	0.082	0.000	26.336	0.00	2.86
100.00	3" Flex Conduit	Yes	5.00	0.000	3.00	1.25	0.00	0.084	0.000	26.621	0.00	6.78
100.00	7/8" Coax	Yes	5.00	0.000	0.52	0.22	0.00	0.084	0.000	26.621	0.00	3.12
105.00	3" Flex Conduit	Yes	5.00	0.000	3.00	1.25	0.00	0.086	0.000	26.896	0.00	6.78
105.00	7/8" Coax	Yes	5.00	0.000	0.52	0.22	0.00	0.086	0.000	26.896	0.00	3.12
109.50	3" Flex Conduit	Yes	4.50	0.000	3.00	1.13	0.00	0.088	0.000	27.135	0.00	6.10
109.50	7/8" Coax	Yes	4.50	0.000	0.52	0.20	0.00	0.088	0.000	27.135	0.00	2.81
110.00	3" Flex Conduit	Yes	0.50	0.000	3.00	0.13	0.00	0.089	0.000	27.161	0.00	0.68
110.00	7/8" Coax	Yes	0.50	0.000	0.52	0.02	0.00	0.089	0.000	27.161	0.00	0.31
112.25	3" Flex Conduit	Yes	2.25	0.000	3.00	0.56	0.00	0.090	0.000	27.277	0.00	3.05
112.25	7/8" Coax	Yes	2.25	0.000	0.52	0.10	0.00	0.090	0.000	27.277	0.00	1.40
115.00	3" Flex Conduit	Yes	2.75	0.000	3.00	0.69	0.00	0.091	0.000	27.416	0.00	3.73
115.00	7/8" Coax	Yes	2.75	0.000	0.52	0.12	0.00	0.091	0.000	27.416	0.00	1.72
120.00	3" Flex Conduit	Yes	5.00	0.000	3.00	1.25	0.00	0.093	0.000	27.663	0.00	6.78
120.00	7/8" Coax	Yes	5.00	0.000	0.52	0.22	0.00	0.093	0.000	27.663	0.00	3.12
123.58	3" Flex Conduit	Yes	3.58	0.000	3.00	0.90	0.00	0.095	0.000	27.835	0.00	4.86
123.58	7/8" Coax	Yes	3.58	0.000	0.52	0.16	0.00	0.095	0.000	27.835	0.00	2.24
125.00	3" Flex Conduit	Yes	1.42	0.000	3.00	0.35	0.00	0.097	0.000	27.902	0.00	1.92
125.00	7/8" Coax	Yes	1.42	0.000	0.52	0.06	0.00	0.097	0.000	27.902	0.00	0.88
125.60	3" Flex Conduit	Yes	0.60	0.000	3.00	0.15	0.00	0.097	0.000	27.930	0.00	0.81
125.60	7/8" Coax	Yes	0.60	0.000	0.52	0.03	0.00	0.097	0.000	27.930	0.00	0.37
129.00	3" Flex Conduit	Yes	3.40	0.000	3.00	0.85	0.00	0.099	0.000	28.088	0.00	4.61
129.00	7/8" Coax	Yes	3.40	0.000	0.52	0.15	0.00	0.099	0.000	28.088	0.00	2.12
130.00	3" Flex Conduit	Yes	1.00	0.000	3.00	0.25	0.00	0.098	0.000	28.133	0.00	1.36
130.00	7/8" Coax	Yes	1.00	0.000	0.52	0.04	0.00	0.098	0.000	28.133	0.00	0.62
135.00	3" Flex Conduit	Yes	5.00	0.000	3.00	1.25	0.00	0.085	0.000	28.358	0.00	6.78
136.26	3" Flex Conduit	Yes	1.26	0.000	3.00	0.31	0.00	0.087	0.000	28.413	0.00	1.71
140.00	3" Flex Conduit	Yes	3.74	0.000	3.00	0.94	0.00	0.088	0.000	28.576	0.00	5.07
145.00	3" Flex Conduit	Yes	5.00	0.000	3.00	1.25	0.00	0.091	0.000	28.788	0.00	6.78
150.00	3" Flex Conduit	Yes	5.00	0.000	3.00	1.25	0.00	0.094	0.000	28.994	0.00	6.78
155.00	3" Flex Conduit	Yes	5.00	0.000	3.00	1.25	0.00	0.097	0.000	29.195	0.00	6.78
160.00	3" Flex Conduit	Yes	5.00	0.000	3.00	1.25	0.00	0.101	1.002	29.390	0.00	6.78
161.50	3" Flex Conduit	Yes	1.50	0.000	3.00	0.38	0.00	0.103	1.009	29.448	0.00	2.03
165.00	3" Flex Conduit	Yes	3.50	0.000	3.00	0.88	0.00	0.105	1.015	29.581	0.00	4.75
165.25	3" Flex Conduit	Yes	0.25	0.000	3.00	0.06	0.00	0.106	1.019	29.591	0.00	0.34
169.58	3" Flex Conduit	Yes	4.33	0.000	3.00	1.08	0.00	0.108	1.025	29.753	0.00	5.88
170.00	3" Flex Conduit	Yes	0.42	0.000	3.00	0.10	0.00	0.109	1.027	29.768	0.00	0.57
175.00	3" Flex Conduit	Yes	5.00	0.000	3.00	1.25	0.00	0.111	1.034	29.950	0.00	6.78
Totals:											0.0	318.4

Calculated Forces

Structure: CT46138-A-SBA	Code: EIA/TIA-222-G	1/31/2017
Site Name: Torrington/Oandg Ind Inc	Exposure: C	
Height: 196.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II

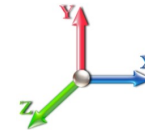


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Load Case: 1.2D + 1.6W 93 mph Wind

Iterations 27

Dead Load Factor 1.20
Wind Load Factor 1.60



Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-78.78	-42.59	0.00	-5735.0	0.00	5735.05	8794.96	4397.48	21496.0	10671.5	0.00	0.000	0.000	0.546
5.00	-75.92	-42.19	0.00	-5522.1	0.00	5522.10	8639.43	4319.71	20738.5	10295.5	0.08	-0.152	0.000	0.545
10.00	-73.10	-41.80	0.00	-5311.1	0.00	5311.13	8483.89	4241.95	19994.7	9926.22	0.32	-0.306	0.000	0.544
15.00	-70.33	-41.40	0.00	-5102.1	0.00	5102.16	8328.36	4164.18	19264.4	9563.67	0.73	-0.463	0.000	0.542
20.00	-67.60	-40.96	0.00	-4895.1	0.00	4895.18	8172.83	4086.41	18547.7	9207.87	1.30	-0.621	0.000	0.540
25.00	-64.91	-40.50	0.00	-4690.3	0.00	4690.37	8017.29	4008.65	17844.6	8858.82	2.03	-0.783	0.000	0.538
30.00	-62.27	-40.01	0.00	-4487.8	0.00	4487.89	7861.76	3930.88	17155.1	8516.51	2.94	-0.946	0.000	0.535
35.00	-59.68	-39.50	0.00	-4287.8	0.00	4287.84	7706.22	3853.11	16479.1	8180.95	4.02	-1.112	0.000	0.532
40.00	-57.12	-38.98	0.00	-4090.3	0.00	4090.33	7550.69	3775.35	15816.8	7852.13	5.28	-1.280	0.000	0.529
45.00	-54.67	-38.37	0.00	-3895.4	0.00	3895.44	7395.16	3697.58	15168.0	7530.06	6.71	-1.450	0.000	0.525
45.42	-54.43	-38.37	0.00	-3879.4	0.00	3879.45	7382.20	3691.10	15114.6	7503.52	6.83	-1.465	0.000	0.524
48.90	-51.60	-37.91	0.00	-3745.7	0.00	3745.79	7273.84	3636.92	14671.4	7283.52	7.95	-1.586	0.000	0.348
50.00	-50.70	-37.78	0.00	-3704.0	0.00	3704.09	7239.62	3619.81	14532.8	7214.73	8.32	-1.612	0.000	0.346
52.75	-48.50	-37.41	0.00	-3600.2	0.00	3600.21	5810.43	2905.21	11825.7	5870.80	9.26	-1.677	0.000	0.353
55.00	-47.59	-37.13	0.00	-3516.0	0.00	3516.04	5769.82	2884.91	11629.7	5773.48	10.07	-1.730	0.000	0.386
57.15	-46.72	-36.88	0.00	-3436.2	0.00	3436.21	5730.75	2865.38	11443.3	5680.95	10.86	-1.786	0.000	0.382
57.15	-46.72	-36.88	0.00	-3436.2	0.00	3436.21	5730.75	2865.38	11443.3	5680.95	10.86	-1.786	0.000	0.382
60.00	-45.55	-36.58	0.00	-3331.1	0.00	3331.11	5678.55	2839.28	11197.7	5559.03	11.95	-1.860	0.000	0.607
65.00	-43.54	-36.03	0.00	-3148.2	0.00	3148.20	5551.73	2775.86	10705.1	5314.51	14.01	-2.068	0.000	0.600
70.00	-41.58	-35.46	0.00	-2968.0	0.00	2968.07	5427.30	2713.65	10228.2	5077.73	16.29	-2.278	0.000	0.592
75.00	-39.65	-34.89	0.00	-2790.7	0.00	2790.77	5302.88	2651.44	9762.15	4846.34	18.79	-2.490	0.000	0.584
80.00	-37.77	-34.30	0.00	-2616.3	0.00	2616.33	5178.45	2589.22	9306.93	4620.35	21.51	-2.703	0.000	0.574
84.00	-36.32	-33.79	0.00	-2479.1	0.00	2479.14	5078.91	2539.45	8950.59	4443.45	23.84	-2.875	0.000	0.565
85.00	-35.73	-33.68	0.00	-2445.3	0.00	2445.35	5054.02	2527.01	8862.59	4399.76	24.45	-2.919	0.000	0.563
87.00	-34.58	-33.42	0.00	-2377.9	0.00	2377.99	5004.25	2502.13	8687.89	4313.04	25.69	-3.007	0.000	0.338
90.00	-32.92	-32.98	0.00	-2277.7	0.00	2277.73	4929.59	2464.80	8429.11	4184.57	27.61	-3.086	0.000	0.331
90.42	-32.65	-32.95	0.00	-2263.9	0.00	2263.99	3591.78	1795.89	6277.53	3116.43	27.88	-3.097	0.000	0.353
95.00	-31.35	-32.38	0.00	-2112.9	0.00	2112.96	3535.98	1767.99	6038.44	2997.74	30.91	-3.216	0.000	0.385
100.00	-29.89	-31.41	0.00	-1951.0	0.00	1951.04	3473.75	1736.87	5780.45	2869.66	34.35	-3.361	0.000	0.366
105.00	-28.53	-30.79	0.00	-1794.0	0.00	1794.01	3410.09	1705.04	5525.58	2743.13	37.95	-3.503	0.000	0.348
109.50	-26.91	-28.69	0.00	-1648.2	0.00	1648.26	3351.58	1675.79	5299.03	2630.66	41.31	-3.629	0.000	0.329
110.00	-26.76	-28.64	0.00	-1633.9	0.00	1633.91	3345.00	1672.50	5274.03	2618.25	41.69	-3.643	0.000	0.327
112.25	-26.17	-28.37	0.00	-1569.4	0.00	1569.46	3315.25	1657.63	5161.96	2562.62	43.42	-3.706	0.000	0.319
112.25	-26.17	-28.37	0.00	-1569.4	0.00	1569.46	3315.25	1657.63	5161.96	2562.62	43.42	-3.706	0.000	0.319
115.00	-25.42	-28.09	0.00	-1491.4	0.00	1491.43	3278.49	1639.25	5025.98	2495.11	45.57	-3.781	0.000	0.606
120.00	-24.11	-27.52	0.00	-1351.0	0.00	1351.01	3210.56	1605.28	4781.62	2373.80	49.67	-4.040	0.000	0.577
123.58	-23.20	-27.11	0.00	-1252.4	0.00	1252.40	3148.16	1574.08	4590.15	2278.75	52.77	-4.226	0.000	0.557
125.00	-22.66	-26.93	0.00	-1214.0	0.00	1214.00	3121.72	1560.86	4512.97	2240.43	54.04	-4.300	0.000	0.549
125.60	-22.42	-26.87	0.00	-1197.8	0.00	1197.85	3110.52	1555.26	4480.48	2224.30	54.58	-4.331	0.000	0.308
129.00	-21.17	-26.41	0.00	-1106.5	0.00	1106.50	2149.47	1074.74	3099.22	1538.58	57.70	-4.428	0.000	0.323
130.00	-20.89	-26.18	0.00	-1079.9	0.00	1079.93	2141.27	1070.63	3068.69	1523.43	58.63	-4.457	0.000	0.359
135.00	-19.92	-25.59	0.00	-949.01	0.00	949.01	2099.38	1049.69	2916.97	1448.11	63.37	-4.608	0.000	0.327
136.26	-19.66	-25.46	0.00	-916.77	0.00	916.77	2088.60	1044.30	2879.00	1429.26	64.59	-4.646	0.000	0.318
136.26	-19.66	-25.46	0.00	-916.77	0.00	916.77	2088.60	1044.30	2879.00	1429.26	64.59	-4.646	0.000	0.318
140.00	-18.90	-25.07	0.00	-821.54	0.00	821.54	2056.07	1028.04	2766.99	1373.65	68.27	-4.753	0.000	0.608
145.00	-16.66	-23.23	0.00	-696.19	0.00	696.19	2011.34	1005.67	2618.95	1300.16	73.39	-5.027	0.000	0.544
150.00	-15.74	-22.71	0.00	-580.04	0.00	580.04	1965.18	982.59	2473.01	1227.71	78.79	-5.281	0.000	0.481
155.00	-12.57	-18.02	0.00	-466.48	0.00	466.48	1917.59	958.80	2329.38	1156.40	84.44	-5.512	0.000	0.410

Calculated Forces

Structure: CT46138-A-SBA	Code: EIA/TIA-222-G	1/31/2017
Site Name: Torrington/Oandg Ind Inc	Exposure: C	
Height: 196.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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160.00	-11.82	-17.49	0.00	-376.40	0.00	376.40	1868.58	934.29	2188.24	1086.34	90.32	-5.718	0.000	0.353
161.50	-9.91	-16.03	0.00	-350.17	0.00	350.17	1853.60	926.80	2146.41	1065.57	92.12	-5.778	0.000	0.334
165.00	-9.42	-15.66	0.00	-294.08	0.00	294.08	1818.15	909.07	2049.77	1017.59	96.40	-5.905	0.000	0.294
165.25	-9.36	-15.64	0.00	-290.16	0.00	290.16	1815.59	907.79	2042.92	1014.19	96.71	-5.914	0.000	0.292
169.58	-8.48	-15.15	0.00	-222.38	0.00	222.38	1040.26	520.13	1155.41	573.59	102.13	-6.051	0.000	0.397
170.00	-8.41	-15.12	0.00	-216.07	0.00	216.07	1038.39	519.19	1149.55	570.68	102.66	-6.063	0.000	0.388
175.00	-5.50	-10.38	0.00	-140.45	0.00	140.45	1015.17	507.59	1079.51	535.91	109.10	-6.237	0.000	0.268
180.00	-5.09	-9.92	0.00	-88.53	0.00	88.53	990.53	495.27	1010.05	501.43	115.69	-6.364	0.000	0.182
185.00	-3.06	-5.55	0.00	-38.95	0.00	38.95	964.47	482.24	941.35	467.32	122.39	-6.443	0.000	0.087
187.00	-2.88	-4.78	0.00	-22.58	0.00	22.58	953.65	476.82	914.12	453.81	125.09	-6.462	0.000	0.053
190.00	-2.70	-4.52	0.00	-8.24	0.00	8.24	936.98	468.49	873.60	433.69	129.15	-6.476	0.000	0.022
191.50	-0.21	-0.39	0.00	-1.45	0.00	1.45	928.46	464.23	853.48	423.70	131.18	-6.479	0.000	0.004
195.00	-0.05	-0.10	0.00	-0.10	0.00	0.10	908.07	454.03	806.98	400.62	135.92	-6.479	0.000	0.000
196.00	0.00	-0.09	0.00	0.00	0.00	0.00	902.11	451.06	793.81	394.08	137.27	-6.479	0.000	0.000

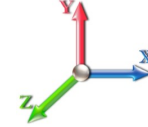
Wind Loading - Shaft

Structure: CT46138-A-SBA	Code: EIA/TIA-222-G	1/31/2017
Site Name: Torrington/Oandg Ind Inc	Exposure: C	
Height: 196.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



Load Case: 0.9D + 1.6W 93 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	17.879	19.67	437.11	0.750	0.000	0.00	0.000	0.00	0.0	0.0	0.0
5.00		1.00	0.85	17.879	19.67	429.46	0.750	0.000	5.00	25.267	18.95	596.3	0.0	1796.6
10.00		1.00	0.85	17.879	19.67	421.81	0.750	0.000	5.00	24.821	18.62	585.8	0.0	1764.6
15.00		1.00	0.85	17.879	19.67	414.16	0.750	0.000	5.00	24.375	18.28	575.3	0.0	1732.5
20.00		1.00	0.90	18.971	20.87	418.73	0.750	0.000	5.00	23.929	17.95	599.2	0.0	1700.5
25.00		1.00	0.95	19.883	21.87	420.62	0.750	0.000	5.00	23.482	17.61	616.3	0.0	1668.4
30.00		1.00	0.98	20.661	22.73	420.55	0.750	0.000	5.00	23.036	17.28	628.3	0.0	1636.4
35.00		1.00	1.01	21.343	23.48	419.07	0.750	0.000	5.00	22.590	16.94	636.4	0.0	1604.3
40.00		1.00	1.04	21.951	24.15	416.52	0.750	0.000	5.00	22.144	16.61	641.6	0.0	1572.3
45.00		1.00	1.07	22.502	24.75	413.14	0.750	0.000	5.00	21.698	16.27	644.5	0.0	1540.2
45.42	Bot - Section 2	1.00	1.07	22.546	24.80	412.82	0.750	0.000	0.42	1.788	1.34	53.2	0.0	126.9
48.90	RB1	1.00	1.09	22.899	25.19	410.02	0.750	0.000	3.48	15.123	11.34	457.1	0.0	1913.1
50.00		1.00	1.09	23.007	25.31	409.07	0.750	0.000	1.10	4.731	3.55	143.7	0.0	598.3
52.75	Top - Section 1	1.00	1.11	23.268	25.59	406.58	0.750	0.000	2.75	11.732	8.80	360.3	0.0	1483.6
55.00		1.00	1.12	23.473	25.82	412.78	0.750	0.000	2.25	9.499	7.12	294.3	0.0	540.6
57.15	RT1	1.00	1.12	23.663	26.03	410.66	0.750	0.000	2.15	8.992	6.74	280.9	0.0	511.7
60.00		1.00	1.14	23.907	26.30	407.73	0.750	0.000	2.85	11.793	8.84	372.1	0.0	671.0
65.00		1.00	1.16	24.313	26.74	402.26	0.750	0.000	5.00	20.339	15.25	652.7	0.0	1157.1
70.00		1.00	1.17	24.696	27.17	396.42	0.750	0.000	5.00	19.893	14.92	648.5	0.0	1131.4
75.00		1.00	1.19	25.057	27.56	390.25	0.750	0.000	5.00	19.446	14.58	643.2	0.0	1105.8
80.00		1.00	1.21	25.400	27.94	383.79	0.750	0.000	5.00	19.000	14.25	637.0	0.0	1080.1
84.00	Bot - Section 3	1.00	1.22	25.662	28.23	378.44	0.750	0.000	4.00	14.879	11.16	504.0	0.0	845.6
85.00		1.00	1.22	25.726	28.30	377.08	0.750	0.000	1.00	3.739	2.80	127.0	0.0	368.7
87.00	RB2	1.00	1.23	25.852	28.44	374.32	0.750	0.000	2.00	7.424	5.57	253.4	0.0	732.0
90.00		1.00	1.24	26.037	28.64	370.12	0.750	0.000	3.00	11.003	8.25	378.2	0.0	1084.5
90.42	Top - Section 2	1.00	1.24	26.063	28.67	369.53	0.750	0.000	0.42	1.515	1.14	52.1	0.0	149.3
95.00		1.00	1.25	26.336	28.97	369.58	0.750	0.000	4.58	16.465	12.35	572.4	0.0	703.6
100.00	Appurtenance(s)	1.00	1.27	26.621	29.28	362.25	0.750	0.000	5.00	17.535	13.15	616.2	0.0	749.2
105.00		1.00	1.28	26.896	29.59	354.73	0.750	0.000	5.00	17.089	12.82	606.7	0.0	730.0
109.50	Appurtenance(s)	1.00	1.29	27.135	29.85	347.82	0.750	0.000	4.50	14.998	11.25	537.2	0.0	640.5
110.00		1.00	1.29	27.161	29.88	347.04	0.750	0.000	0.50	1.644	1.23	58.9	0.0	70.2
112.25	RT2	1.00	1.30	27.277	30.00	343.53	0.750	0.000	2.25	7.344	5.51	264.4	0.0	313.5
115.00		1.00	1.30	27.416	30.16	339.20	0.750	0.000	2.75	8.853	6.64	320.4	0.0	377.9
120.00		1.00	1.32	27.663	30.43	331.21	0.750	0.000	5.00	15.750	11.81	575.1	0.0	672.2
123.58	Bot - Section 4	1.00	1.32	27.835	30.62	325.39	0.750	0.000	3.58	11.013	8.26	404.7	0.0	469.9
125.00		1.00	1.33	27.902	30.69	323.08	0.750	0.000	1.42	4.359	3.27	160.5	0.0	322.9
125.60	RB3	1.00	1.33	27.930	30.72	322.09	0.750	0.000	0.60	1.835	1.38	67.7	0.0	136.0
129.00	Top - Section 3	1.00	1.34	28.088	30.90	316.48	0.750	0.000	3.40	10.278	7.71	381.1	0.0	761.2
130.00	Appurtenance(s)	1.00	1.34	28.133	30.95	319.96	0.750	0.000	1.00	2.984	2.24	110.8	0.0	95.7
135.00		1.00	1.35	28.358	31.19	311.60	0.750	0.000	5.00	14.651	10.99	548.4	0.0	469.9
136.26	RT3	1.00	1.35	28.413	31.25	309.47	0.750	0.000	1.26	3.622	2.72	135.8	0.0	116.1
140.00		1.00	1.36	28.576	31.43	303.12	0.750	0.000	3.74	10.583	7.94	399.2	0.0	339.4
145.00	Appurtenance(s)	1.00	1.37	28.788	31.67	294.54	0.750	0.000	5.00	13.759	10.32	522.8	0.0	441.1
150.00		1.00	1.38	28.994	31.89	285.85	0.750	0.000	5.00	13.313	9.98	509.5	0.0	426.7
155.00	Appurtenance(s)	1.00	1.39	29.195	32.11	277.06	0.750	0.000	5.00	12.867	9.65	495.8	0.0	412.2
160.00		1.00	1.40	29.390	32.33	268.18	0.751 *	0.000	5.00	12.421	9.33	482.8	0.0	397.8
161.50	Appurtenance(s)	1.00	1.40	29.448	32.39	265.50	0.757 *	0.000	1.50	3.639	2.75	142.8	0.0	116.5

Wind Loading - Shaft

Structure: CT46138-A-SBA	Code: EIA/TIA-222-G	1/31/2017	
Site Name: Torrington/Oandg Ind Inc	Exposure: C		
Height: 196.00 (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



165.00	1.00	1.41	29.581	32.54	259.21	0.761 *	0.000	3.50	8.335	6.34	330.3	0.0	266.8
165.25 Bot - Section 5	1.00	1.41	29.591	32.55	258.76	0.765 *	0.000	0.25	0.587	0.45	23.4	0.0	18.8
169.58 Top - Section 4	1.00	1.41	29.753	32.73	250.92	0.769 *	0.000	4.33	10.136	7.79	408.1	0.0	537.0
170.00	1.00	1.42	29.768	32.74	253.68	0.770 *	0.000	0.42	0.957	0.74	38.6	0.0	20.5
175.00 Appurtenance(s)	1.00	1.42	29.950	32.95	244.56	0.775 *	0.000	5.00	11.242	8.71	459.4	0.0	240.6
180.00	1.00	1.43	30.128	33.14	235.35	0.750	0.000	5.00	10.796	8.10	429.3	0.0	231.0
185.00 Appurtenance(s)	1.00	1.44	30.303	33.33	226.08	0.750	0.000	5.00	10.350	7.76	414.0	0.0	221.4
187.00 Appurtenance(s)	1.00	1.44	30.371	33.41	222.34	0.750	0.000	2.00	4.015	3.01	161.0	0.0	85.9
190.00	1.00	1.45	30.473	33.52	216.73	0.750	0.000	3.00	5.889	4.42	236.9	0.0	125.9
191.50 Appurtenance(s)	1.00	1.45	30.524	33.58	213.91	0.750	0.000	1.50	2.884	2.16	116.2	0.0	61.7
195.00	1.00	1.46	30.640	33.70	207.30	0.750	0.000	3.50	6.573	4.93	265.9	0.0	140.5
196.00 Appurtenance(s)	1.00	1.46	30.673	33.74	205.41	0.750	0.000	1.00	1.838	1.38	74.4	0.0	39.3
							Totals:	196.00			22,252.0		39,267.7

* Cf Adjusted by Linear Load Ra Effect

Discrete Appurtenance Forces

Structure: CT46138-A-SBA	Code: EIA/TIA-222-G	1/31/2017
Site Name: Torrington/Oandg Ind Inc	Exposure: C	
Height: 196.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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Load Case: 0.9D + 1.6W 93 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	196.00	6' Lightning rod	1	30.673	33.741	1.00	1.00	0.38	5.85	0.000	0.000	20.51	0.00	0.00
2	191.50	Low Profile Platform	1	30.524	33.576	1.00	1.00	22.00	1350.00	0.000	0.000	1181.88	0.00	0.00
3	191.50	ACU-A20-N - RET	4	30.524	33.576	0.60	0.80	0.34	3.60	0.000	0.000	18.05	0.00	0.00
4	191.50	800MHz Filter	3	30.524	33.576	0.54	0.80	1.25	23.76	0.000	0.000	67.38	0.00	0.00
5	191.50	RRH8x20-25 - RRU	3	30.524	33.576	0.54	0.80	6.51	189.00	0.000	0.000	349.86	0.00	0.00
6	191.50	1900MHz - RRU	3	30.524	33.576	0.54	0.80	6.11	118.80	0.000	0.000	328.26	0.00	0.00
7	191.50	800MHz - RRU	3	30.524	33.576	0.54	0.80	4.00	143.10	0.000	0.000	215.10	0.00	0.00
8	191.50	APXVSP18-C-A20	3	30.524	33.576	0.66	0.80	15.98	153.90	0.000	0.000	858.25	0.00	0.00
9	191.50	APXVTM14-C-120	3	30.524	33.576	0.68	0.80	12.93	151.20	0.000	0.000	694.81	0.00	0.00
10	187.00	BA80-41-DIN	1	30.717	33.789	1.00	1.00	9.40	61.20	0.000	10.333	508.18	0.00	5251.23
11	187.00	Pipe mount	1	30.371	33.408	0.56	0.75	1.48	36.00	0.000	0.000	79.08	0.00	0.00
12	185.00	Low Profile Platform	1	30.303	33.333	1.00	1.00	22.00	1350.00	0.000	0.000	1173.31	0.00	0.00
13	185.00	FD9R6004/2C-3L -	6	30.303	33.333	0.56	0.80	1.21	16.74	0.000	0.000	64.51	0.00	0.00
14	185.00	BXA-70063 6CF_2	3	30.303	33.333	0.66	0.80	14.90	45.90	0.000	0.000	794.53	0.00	0.00
15	185.00	LPA-80063/4CF	6	30.303	33.333	0.68	0.80	25.09	108.00	0.000	0.000	1338.22	0.00	0.00
16	185.00	BXA-171063-8BF_2	3	30.303	33.333	0.70	0.80	6.14	28.35	0.000	0.000	327.39	0.00	0.00
17	175.00	21401 TMA	12	29.950	32.945	0.46	0.80	7.06	152.28	0.000	0.000	372.09	0.00	0.00
18	175.00	AM-X-CD-16-65-00T-RET	3	29.950	32.945	0.60	0.80	14.44	130.95	0.000	0.000	760.95	0.00	0.00
19	175.00	Low Profile Platform	1	29.950	32.945	1.00	1.00	22.00	1350.00	0.000	0.000	1159.67	0.00	0.00
20	175.00	DC6-48-60-18-8F	1	29.950	32.945	0.80	0.80	0.74	29.52	0.000	0.000	38.80	0.00	0.00
21	175.00	RRUS-11	3	29.950	32.945	0.54	0.80	4.05	135.00	0.000	0.000	213.60	0.00	0.00
22	175.00	7770	6	29.950	32.945	0.68	0.80	22.44	189.00	0.000	0.000	1182.86	0.00	0.00
23	175.00	RRUS-12	3	29.950	32.945	0.54	0.80	4.34	135.00	0.000	0.000	228.86	0.00	0.00
24	161.50	Low Profile Platform	1	29.448	32.393	1.00	1.00	22.00	1350.00	0.000	0.000	1140.23	0.00	0.00
25	155.00	KRY 112 114 TMA	3	29.195	32.114	0.60	0.80	0.74	29.70	0.000	0.000	37.92	0.00	0.00
26	155.00	AIR 21 B2A/B4P	3	29.195	32.114	0.66	0.80	12.13	247.05	0.000	0.000	623.33	0.00	0.00
27	155.00	AIR 21 B4A/B2P	3	29.195	32.114	0.66	0.80	12.13	243.81	0.000	0.000	623.33	0.00	0.00
28	155.00	T-Arms w/ Handrail kit &	3	29.195	32.114	0.56	0.75	29.53	1350.00	0.000	0.000	1517.39	0.00	0.00
29	155.00	LNx-6515DS-A1M	3	29.195	32.114	0.64	0.80	22.02	135.81	0.000	0.000	1131.57	0.00	0.00
30	145.00	APXV18-206517S-C	3	28.788	31.666	0.66	0.80	10.30	71.28	0.000	0.000	521.79	0.00	0.00
31	145.00	T-Arms	3	28.788	31.666	0.56	0.75	13.50	945.00	0.000	0.000	683.99	0.00	0.00
32	130.00	ANT150F2	1	28.246	31.071	1.00	1.00	1.23	11.70	0.000	2.500	61.15	0.00	152.87
33	130.00	Standoff	1	28.133	30.947	0.56	0.75	1.48	36.00	0.000	0.000	73.25	0.00	0.00
34	109.50	Standoff	1	27.135	29.849	0.56	0.75	1.48	36.00	0.000	0.000	70.65	0.00	0.00
35	109.50	Standoff	5	27.135	29.849	0.56	0.75	7.40	180.00	0.000	0.000	353.26	0.00	0.00
36	109.50	4' Omni	1	27.239	29.962	1.00	1.00	1.00	9.00	0.000	2.000	47.94	0.00	95.88
37	109.50	14' Omni	5	27.491	30.240	1.00	1.00	21.00	180.00	0.000	7.000	1016.08	0.00	7112.56
38	100.00	Standoff	1	26.621	29.284	0.56	0.75	1.48	36.00	0.000	0.000	69.31	0.00	0.00
39	100.00	MPRD	1	26.621	29.284	1.00	1.00	6.10	32.40	0.000	0.000	285.81	0.00	0.00

Totals: 10,800.90

20,233.16

Total Applied Force Summary

Structure: CT46138-A-SBA	Code: EIA/TIA-222-G	1/31/2017
Site Name: Torrington/Oandg Ind Inc	Exposure: C	
Height: 196.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II

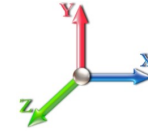


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Load Case: 0.9D + 1.6W 93 mph Wind

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		596.31	2061.91	0.00	0.00
10.00		585.78	2029.85	0.00	0.00
15.00		575.25	1997.79	0.00	0.00
20.00		599.20	1965.74	0.00	0.00
25.00		616.31	1933.68	0.00	0.00
30.00		628.26	1901.63	0.00	0.00
35.00		636.42	1869.57	0.00	0.00
40.00		641.64	1837.51	0.00	0.00
45.00		644.50	1805.46	0.00	0.00
45.42		53.21	149.01	0.00	0.00
48.90		457.12	2097.90	0.00	0.00
50.00		143.67	656.68	0.00	0.00
52.75		360.33	1629.47	0.00	0.00
55.00		294.31	659.95	0.00	0.00
57.15		280.87	625.76	0.00	0.00
60.00		372.14	822.19	0.00	0.00
65.00		652.74	1422.31	0.00	0.00
70.00		648.46	1396.67	0.00	0.00
75.00		643.20	1371.02	0.00	0.00
80.00		637.04	1345.38	0.00	0.00
84.00		504.02	1057.84	0.00	0.00
85.00		126.97	421.73	0.00	0.00
87.00		253.35	838.08	0.00	0.00
90.00		378.15	1243.66	0.00	0.00
90.42		52.14	171.45	0.00	0.00
95.00		572.38	946.80	0.00	0.00
100.00	(2) attachments	971.30	1082.84	0.00	0.00
105.00		606.70	995.03	0.00	0.00
109.50	(12) attachments	2025.14	1284.08	0.00	7208.44
110.00		58.95	96.28	0.00	0.00
112.25		264.41	430.89	0.00	0.00
115.00		320.38	521.35	0.00	0.00
120.00		575.13	933.01	0.00	0.00
123.58		404.66	656.82	0.00	0.00
125.00		160.53	396.81	0.00	0.00
125.60		67.66	167.24	0.00	0.00
129.00		381.07	938.56	0.00	0.00
130.00	(2) attachments	245.20	195.57	0.00	152.87
135.00		548.43	728.34	0.00	0.00
136.26		135.83	181.27	0.00	0.00
140.00		399.20	532.65	0.00	0.00
145.00	(6) attachments	1728.62	1715.77	0.00	0.00
150.00		509.51	656.99	0.00	0.00
155.00	(15) attachments	4429.39	2648.93	0.00	0.00
160.00		482.79	567.03	0.00	0.00
161.50	(1) attachments	1282.99	1517.30	0.00	0.00

Total Applied Force Summary

Structure: CT46138-A-SBA	Code: EIA/TIA-222-G	1/31/2017
Site Name: Torrington/Oandg Ind Inc	Exposure: C	
Height: 196.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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165.00		330.33	385.31	0.00	0.00
165.25		23.37	27.25	0.00	0.00
169.58		408.05	683.66	0.00	0.00
170.00		38.60	34.59	0.00	0.00
175.00	(29) attachments	4416.18	2531.62	0.00	0.00
180.00		429.34	334.78	0.00	0.00
185.00	(19) attachments	4111.95	1874.15	0.00	0.00
187.00	(2) attachments	748.22	202.11	0.00	5251.23
190.00		236.87	153.07	0.00	0.00
191.50	(23) attachments	3829.79	2208.60	0.00	0.00
195.00		265.86	140.51	0.00	0.00
196.00	(1) attachments	94.93	45.13	0.00	0.00
Totals:		42,485.20	59,126.58	0.00	12,612.53

Linear Appurtenance Segment Forces (Factored)

Structure: CT46138-A-SBA	Code: EIA/TIA-222-G	1/31/2017
Site Name: Torrington/Oandg Ind Inc	Exposure: C	
Height: 196.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II

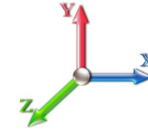


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Load Case: 0.9D + 1.6W 93 mph Wind

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	3" Flex Conduit	Yes	5.00	0.000	3.00	1.25	0.00	0.058	0.000	17.879	0.00	5.08
5.00	7/8" Coax	Yes	5.00	0.000	0.52	0.22	0.00	0.058	0.000	17.879	0.00	2.34
10.00	3" Flex Conduit	Yes	5.00	0.000	3.00	1.25	0.00	0.059	0.000	17.879	0.00	5.08
10.00	7/8" Coax	Yes	5.00	0.000	0.52	0.22	0.00	0.059	0.000	17.879	0.00	2.34
15.00	3" Flex Conduit	Yes	5.00	0.000	3.00	1.25	0.00	0.060	0.000	17.879	0.00	5.08
15.00	7/8" Coax	Yes	5.00	0.000	0.52	0.22	0.00	0.060	0.000	17.879	0.00	2.34
20.00	3" Flex Conduit	Yes	5.00	0.000	3.00	1.25	0.00	0.061	0.000	18.971	0.00	5.08
20.00	7/8" Coax	Yes	5.00	0.000	0.52	0.22	0.00	0.061	0.000	18.971	0.00	2.34
25.00	3" Flex Conduit	Yes	5.00	0.000	3.00	1.25	0.00	0.062	0.000	19.883	0.00	5.08
25.00	7/8" Coax	Yes	5.00	0.000	0.52	0.22	0.00	0.062	0.000	19.883	0.00	2.34
30.00	3" Flex Conduit	Yes	5.00	0.000	3.00	1.25	0.00	0.064	0.000	20.661	0.00	5.08
30.00	7/8" Coax	Yes	5.00	0.000	0.52	0.22	0.00	0.064	0.000	20.661	0.00	2.34
35.00	3" Flex Conduit	Yes	5.00	0.000	3.00	1.25	0.00	0.065	0.000	21.343	0.00	5.08
35.00	7/8" Coax	Yes	5.00	0.000	0.52	0.22	0.00	0.065	0.000	21.343	0.00	2.34
40.00	3" Flex Conduit	Yes	5.00	0.000	3.00	1.25	0.00	0.066	0.000	21.951	0.00	5.08
40.00	7/8" Coax	Yes	5.00	0.000	0.52	0.22	0.00	0.066	0.000	21.951	0.00	2.34
45.00	3" Flex Conduit	Yes	5.00	0.000	3.00	1.25	0.00	0.068	0.000	22.502	0.00	5.08
45.00	7/8" Coax	Yes	5.00	0.000	0.52	0.22	0.00	0.068	0.000	22.502	0.00	2.34
45.42	3" Flex Conduit	Yes	0.42	0.000	3.00	0.10	0.00	0.068	0.000	22.546	0.00	0.42
45.42	7/8" Coax	Yes	0.42	0.000	0.52	0.02	0.00	0.068	0.000	22.546	0.00	0.20
48.90	3" Flex Conduit	Yes	3.48	0.000	3.00	0.87	0.00	0.069	0.000	22.899	0.00	3.54
48.90	7/8" Coax	Yes	3.48	0.000	0.52	0.15	0.00	0.069	0.000	22.899	0.00	1.63
50.00	3" Flex Conduit	Yes	1.10	0.000	3.00	0.28	0.00	0.070	0.000	23.007	0.00	1.12
50.00	7/8" Coax	Yes	1.10	0.000	0.52	0.05	0.00	0.070	0.000	23.007	0.00	0.51
52.75	3" Flex Conduit	Yes	2.75	0.000	3.00	0.69	0.00	0.070	0.000	23.268	0.00	2.80
52.75	7/8" Coax	Yes	2.75	0.000	0.52	0.12	0.00	0.070	0.000	23.268	0.00	1.29
55.00	3" Flex Conduit	Yes	2.25	0.000	3.00	0.56	0.00	0.069	0.000	23.473	0.00	2.29
55.00	7/8" Coax	Yes	2.25	0.000	0.52	0.10	0.00	0.069	0.000	23.473	0.00	1.05
57.15	3" Flex Conduit	Yes	2.15	0.000	3.00	0.54	0.00	0.070	0.000	23.663	0.00	2.19
57.15	7/8" Coax	Yes	2.15	0.000	0.52	0.09	0.00	0.070	0.000	23.663	0.00	1.01
60.00	3" Flex Conduit	Yes	2.85	0.000	3.00	0.71	0.00	0.071	0.000	23.907	0.00	2.90
60.00	7/8" Coax	Yes	2.85	0.000	0.52	0.12	0.00	0.071	0.000	23.907	0.00	1.33
65.00	3" Flex Conduit	Yes	5.00	0.000	3.00	1.25	0.00	0.072	0.000	24.313	0.00	5.08
65.00	7/8" Coax	Yes	5.00	0.000	0.52	0.22	0.00	0.072	0.000	24.313	0.00	2.34
70.00	3" Flex Conduit	Yes	5.00	0.000	3.00	1.25	0.00	0.074	0.000	24.696	0.00	5.08
70.00	7/8" Coax	Yes	5.00	0.000	0.52	0.22	0.00	0.074	0.000	24.696	0.00	2.34
75.00	3" Flex Conduit	Yes	5.00	0.000	3.00	1.25	0.00	0.075	0.000	25.057	0.00	5.08
75.00	7/8" Coax	Yes	5.00	0.000	0.52	0.22	0.00	0.075	0.000	25.057	0.00	2.34
80.00	3" Flex Conduit	Yes	5.00	0.000	3.00	1.25	0.00	0.077	0.000	25.400	0.00	5.08
80.00	7/8" Coax	Yes	5.00	0.000	0.52	0.22	0.00	0.077	0.000	25.400	0.00	2.34
84.00	3" Flex Conduit	Yes	4.00	0.000	3.00	1.00	0.00	0.079	0.000	25.662	0.00	4.07
84.00	7/8" Coax	Yes	4.00	0.000	0.52	0.17	0.00	0.079	0.000	25.662	0.00	1.87
85.00	3" Flex Conduit	Yes	1.00	0.000	3.00	0.25	0.00	0.080	0.000	25.726	0.00	1.02
85.00	7/8" Coax	Yes	1.00	0.000	0.52	0.04	0.00	0.080	0.000	25.726	0.00	0.47
87.00	3" Flex Conduit	Yes	2.00	0.000	3.00	0.50	0.00	0.080	0.000	25.852	0.00	2.03
87.00	7/8" Coax	Yes	2.00	0.000	0.52	0.09	0.00	0.080	0.000	25.852	0.00	0.94
90.00	3" Flex Conduit	Yes	3.00	0.000	3.00	0.75	0.00	0.081	0.000	26.037	0.00	3.05

Linear Appurtenance Segment Forces (Factored)

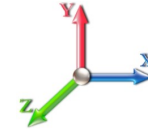
Structure: CT46138-A-SBA	Code: EIA/TIA-222-G	1/31/2017
Site Name: Torrington/Oandg Ind Inc	Exposure: C	
Height: 196.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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Load Case: 0.9D + 1.6W 93 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)
90.00	7/8" Coax	Yes	3.00	0.000	0.52	0.13	0.00	0.081	0.000	26.037	0.00	1.40
90.42	3" Flex Conduit	Yes	0.42	0.000	3.00	0.10	0.00	0.082	0.000	26.063	0.00	0.42
90.42	7/8" Coax	Yes	0.42	0.000	0.52	0.02	0.00	0.082	0.000	26.063	0.00	0.20
95.00	3" Flex Conduit	Yes	4.58	0.000	3.00	1.15	0.00	0.082	0.000	26.336	0.00	4.66
95.00	7/8" Coax	Yes	4.58	0.000	0.52	0.20	0.00	0.082	0.000	26.336	0.00	2.14
100.00	3" Flex Conduit	Yes	5.00	0.000	3.00	1.25	0.00	0.084	0.000	26.621	0.00	5.08
100.00	7/8" Coax	Yes	5.00	0.000	0.52	0.22	0.00	0.084	0.000	26.621	0.00	2.34
105.00	3" Flex Conduit	Yes	5.00	0.000	3.00	1.25	0.00	0.086	0.000	26.896	0.00	5.08
105.00	7/8" Coax	Yes	5.00	0.000	0.52	0.22	0.00	0.086	0.000	26.896	0.00	2.34
109.50	3" Flex Conduit	Yes	4.50	0.000	3.00	1.13	0.00	0.088	0.000	27.135	0.00	4.58
109.50	7/8" Coax	Yes	4.50	0.000	0.52	0.20	0.00	0.088	0.000	27.135	0.00	2.11
110.00	3" Flex Conduit	Yes	0.50	0.000	3.00	0.13	0.00	0.089	0.000	27.161	0.00	0.51
110.00	7/8" Coax	Yes	0.50	0.000	0.52	0.02	0.00	0.089	0.000	27.161	0.00	0.23
112.25	3" Flex Conduit	Yes	2.25	0.000	3.00	0.56	0.00	0.090	0.000	27.277	0.00	2.29
112.25	7/8" Coax	Yes	2.25	0.000	0.52	0.10	0.00	0.090	0.000	27.277	0.00	1.05
115.00	3" Flex Conduit	Yes	2.75	0.000	3.00	0.69	0.00	0.091	0.000	27.416	0.00	2.80
115.00	7/8" Coax	Yes	2.75	0.000	0.52	0.12	0.00	0.091	0.000	27.416	0.00	1.29
120.00	3" Flex Conduit	Yes	5.00	0.000	3.00	1.25	0.00	0.093	0.000	27.663	0.00	5.08
120.00	7/8" Coax	Yes	5.00	0.000	0.52	0.22	0.00	0.093	0.000	27.663	0.00	2.34
123.58	3" Flex Conduit	Yes	3.58	0.000	3.00	0.90	0.00	0.095	0.000	27.835	0.00	3.64
123.58	7/8" Coax	Yes	3.58	0.000	0.52	0.16	0.00	0.095	0.000	27.835	0.00	1.68
125.00	3" Flex Conduit	Yes	1.42	0.000	3.00	0.35	0.00	0.097	0.000	27.902	0.00	1.44
125.00	7/8" Coax	Yes	1.42	0.000	0.52	0.06	0.00	0.097	0.000	27.902	0.00	0.66
125.60	3" Flex Conduit	Yes	0.60	0.000	3.00	0.15	0.00	0.097	0.000	27.930	0.00	0.61
125.60	7/8" Coax	Yes	0.60	0.000	0.52	0.03	0.00	0.097	0.000	27.930	0.00	0.28
129.00	3" Flex Conduit	Yes	3.40	0.000	3.00	0.85	0.00	0.099	0.000	28.088	0.00	3.46
129.00	7/8" Coax	Yes	3.40	0.000	0.52	0.15	0.00	0.099	0.000	28.088	0.00	1.59
130.00	3" Flex Conduit	Yes	1.00	0.000	3.00	0.25	0.00	0.098	0.000	28.133	0.00	1.02
130.00	7/8" Coax	Yes	1.00	0.000	0.52	0.04	0.00	0.098	0.000	28.133	0.00	0.47
135.00	3" Flex Conduit	Yes	5.00	0.000	3.00	1.25	0.00	0.085	0.000	28.358	0.00	5.08
136.26	3" Flex Conduit	Yes	1.26	0.000	3.00	0.31	0.00	0.087	0.000	28.413	0.00	1.28
140.00	3" Flex Conduit	Yes	3.74	0.000	3.00	0.94	0.00	0.088	0.000	28.576	0.00	3.80
145.00	3" Flex Conduit	Yes	5.00	0.000	3.00	1.25	0.00	0.091	0.000	28.788	0.00	5.08
150.00	3" Flex Conduit	Yes	5.00	0.000	3.00	1.25	0.00	0.094	0.000	28.994	0.00	5.08
155.00	3" Flex Conduit	Yes	5.00	0.000	3.00	1.25	0.00	0.097	0.000	29.195	0.00	5.08
160.00	3" Flex Conduit	Yes	5.00	0.000	3.00	1.25	0.00	0.101	1.002	29.390	0.00	5.08
161.50	3" Flex Conduit	Yes	1.50	0.000	3.00	0.38	0.00	0.103	1.009	29.448	0.00	1.53
165.00	3" Flex Conduit	Yes	3.50	0.000	3.00	0.88	0.00	0.105	1.015	29.581	0.00	3.56
165.25	3" Flex Conduit	Yes	0.25	0.000	3.00	0.06	0.00	0.106	1.019	29.591	0.00	0.25
169.58	3" Flex Conduit	Yes	4.33	0.000	3.00	1.08	0.00	0.108	1.025	29.753	0.00	4.41
170.00	3" Flex Conduit	Yes	0.42	0.000	3.00	0.10	0.00	0.109	1.027	29.768	0.00	0.42
175.00	3" Flex Conduit	Yes	5.00	0.000	3.00	1.25	0.00	0.111	1.034	29.950	0.00	5.08
Totals:											0.0	238.8

Calculated Forces

Structure: CT46138-A-SBA	Code: EIA/TIA-222-G	1/31/2017
Site Name: Torrington/Oandg Ind Inc	Exposure: C	
Height: 196.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II

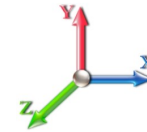


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Load Case: 0.9D + 1.6W 93 mph Wind

Iterations 26

Dead Load Factor 0.90
Wind Load Factor 1.60



Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-59.07	-42.56	0.00	-5665.9	0.00	5665.90	8794.96	4397.48	21496.0	10671.5	0.00	0.000	0.000	0.538
5.00	-56.90	-42.11	0.00	-5453.0	0.00	5453.09	8639.43	4319.71	20738.5	10295.5	0.08	-0.150	0.000	0.536
10.00	-54.76	-41.67	0.00	-5242.5	0.00	5242.52	8483.89	4241.95	19994.7	9926.22	0.32	-0.302	0.000	0.535
15.00	-52.65	-41.22	0.00	-5034.1	0.00	5034.19	8328.36	4164.18	19264.4	9563.67	0.72	-0.457	0.000	0.533
20.00	-50.58	-40.74	0.00	-4828.0	0.00	4828.09	8172.83	4086.41	18547.7	9207.87	1.28	-0.613	0.000	0.531
25.00	-48.54	-40.24	0.00	-4624.3	0.00	4624.37	8017.29	4008.65	17844.6	8858.82	2.01	-0.772	0.000	0.528
30.00	-46.54	-39.71	0.00	-4423.1	0.00	4423.18	7861.76	3930.88	17155.1	8516.51	2.90	-0.933	0.000	0.525
35.00	-44.57	-39.17	0.00	-4224.6	0.00	4224.61	7706.22	3853.11	16479.1	8180.95	3.97	-1.097	0.000	0.522
40.00	-42.63	-38.62	0.00	-4028.7	0.00	4028.75	7550.69	3775.35	15816.8	7852.13	5.21	-1.262	0.000	0.519
45.00	-40.78	-38.00	0.00	-3835.6	0.00	3835.66	7395.16	3697.58	15168.0	7530.06	6.62	-1.430	0.000	0.515
45.42	-40.59	-37.99	0.00	-3819.8	0.00	3819.83	7382.20	3691.10	15114.6	7503.52	6.74	-1.444	0.000	0.515
48.90	-38.46	-37.52	0.00	-3687.5	0.00	3687.51	7273.84	3636.92	14671.4	7283.52	7.84	-1.564	0.000	0.341
50.00	-37.78	-37.39	0.00	-3646.2	0.00	3646.24	7239.62	3619.81	14532.8	7214.73	8.21	-1.589	0.000	0.340
52.75	-36.12	-37.02	0.00	-3543.4	0.00	3543.42	5810.43	2905.21	11825.7	5870.80	9.14	-1.653	0.000	0.346
55.00	-35.43	-36.74	0.00	-3460.1	0.00	3460.12	5769.82	2884.91	11629.7	5773.48	9.93	-1.705	0.000	0.378
57.15	-34.78	-36.48	0.00	-3381.1	0.00	3381.13	5730.75	2865.38	11443.3	5680.95	10.71	-1.761	0.000	0.374
57.15	-34.78	-36.48	0.00	-3381.1	0.00	3381.13	5730.75	2865.38	11443.3	5680.95	10.71	-1.761	0.000	0.374
60.00	-33.88	-36.16	0.00	-3277.1	0.00	3277.16	5678.55	2839.28	11197.7	5559.03	11.79	-1.834	0.000	0.596
65.00	-32.35	-35.58	0.00	-3096.3	0.00	3096.34	5551.73	2775.86	10705.1	5314.51	13.82	-2.038	0.000	0.589
70.00	-30.85	-34.99	0.00	-2918.4	0.00	2918.44	5427.30	2713.65	10228.2	5077.73	16.06	-2.245	0.000	0.581
75.00	-29.39	-34.40	0.00	-2743.4	0.00	2743.48	5302.88	2651.44	9762.15	4846.34	18.52	-2.453	0.000	0.572
80.00	-27.96	-33.80	0.00	-2571.4	0.00	2571.48	5178.45	2589.22	9306.93	4620.35	21.20	-2.662	0.000	0.562
84.00	-26.86	-33.29	0.00	-2436.3	0.00	2436.30	5078.91	2539.45	8950.59	4443.45	23.51	-2.832	0.000	0.554
85.00	-26.41	-33.17	0.00	-2403.0	0.00	2403.00	5054.02	2527.01	8862.59	4399.76	24.10	-2.875	0.000	0.552
87.00	-25.54	-32.92	0.00	-2336.6	0.00	2336.66	5004.25	2502.13	8687.89	4313.04	25.33	-2.961	0.000	0.331
90.00	-24.29	-32.49	0.00	-2237.9	0.00	2237.91	4929.59	2464.80	8429.11	4184.57	27.21	-3.039	0.000	0.324
90.42	-24.09	-32.46	0.00	-2224.3	0.00	2224.37	3591.78	1795.89	6277.53	3116.43	27.48	-3.050	0.000	0.345
95.00	-23.10	-31.89	0.00	-2075.6	0.00	2075.61	3535.98	1767.99	6038.44	2997.74	30.46	-3.167	0.000	0.377
100.00	-22.00	-30.91	0.00	-1916.1	0.00	1916.18	3473.75	1736.87	5780.45	2869.66	33.85	-3.309	0.000	0.359
105.00	-20.97	-30.29	0.00	-1761.6	0.00	1761.64	3410.09	1705.04	5525.58	2743.13	37.39	-3.449	0.000	0.340
109.50	-19.78	-28.22	0.00	-1618.1	0.00	1618.11	3351.58	1675.79	5299.03	2630.66	40.70	-3.572	0.000	0.322
110.00	-19.67	-28.17	0.00	-1604.0	0.00	1604.00	3345.00	1672.50	5274.03	2618.25	41.07	-3.586	0.000	0.320
112.25	-19.22	-27.90	0.00	-1540.6	0.00	1540.63	3315.25	1657.63	5161.96	2562.62	42.78	-3.647	0.000	0.312
112.25	-19.22	-27.90	0.00	-1540.6	0.00	1540.63	3315.25	1657.63	5161.96	2562.62	42.78	-3.647	0.000	0.312
115.00	-18.64	-27.60	0.00	-1463.9	0.00	1463.91	3278.49	1639.25	5025.98	2495.11	44.90	-3.721	0.000	0.593
120.00	-17.65	-27.03	0.00	-1325.9	0.00	1325.92	3210.56	1605.28	4781.62	2373.80	48.93	-3.976	0.000	0.564
123.58	-16.96	-26.62	0.00	-1229.0	0.00	1229.07	3148.16	1574.08	4590.15	2278.75	51.98	-4.158	0.000	0.545
125.00	-16.56	-26.44	0.00	-1191.3	0.00	1191.36	3121.72	1560.86	4512.97	2240.43	53.23	-4.231	0.000	0.537
125.60	-16.37	-26.38	0.00	-1175.5	0.00	1175.50	3110.52	1555.26	4480.48	2224.30	53.76	-4.261	0.000	0.301
129.00	-15.43	-25.95	0.00	-1085.8	0.00	1085.81	2149.47	1074.74	3099.22	1538.58	56.83	-4.356	0.000	0.316
130.00	-15.21	-25.71	0.00	-1059.7	0.00	1059.71	2141.27	1070.63	3068.69	1523.43	57.74	-4.384	0.000	0.351
135.00	-14.49	-25.13	0.00	-931.16	0.00	931.16	2099.38	1049.69	2916.97	1448.11	62.41	-4.533	0.000	0.319
136.26	-14.29	-25.00	0.00	-899.49	0.00	899.49	2088.60	1044.30	2879.00	1429.26	63.61	-4.570	0.000	0.311
136.26	-14.29	-25.00	0.00	-899.49	0.00	899.49	2088.60	1044.30	2879.00	1429.26	63.61	-4.570	0.000	0.311
140.00	-13.71	-24.60	0.00	-806.00	0.00	806.00	2056.07	1028.04	2766.99	1373.65	67.23	-4.675	0.000	0.594
145.00	-12.04	-22.79	0.00	-682.98	0.00	682.98	2011.34	1005.67	2618.95	1300.16	72.27	-4.944	0.000	0.532
150.00	-11.34	-22.27	0.00	-569.03	0.00	569.03	1965.18	982.59	2473.01	1227.71	77.58	-5.193	0.000	0.470
155.00	-9.05	-17.65	0.00	-457.66	0.00	457.66	1917.59	958.80	2329.38	1156.40	83.13	-5.420	0.000	0.401

Calculated Forces

Structure: CT46138-A-SBA	Code: EIA/TIA-222-G	1/31/2017
Site Name: Torrington/Oandg Ind Inc	Exposure: C	
Height: 196.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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160.00	-8.49	-17.14	0.00	-369.40	0.00	369.40	1868.58	934.29	2188.24	1086.34	88.91	-5.622	0.000	0.345
161.50	-7.08	-15.72	0.00	-343.70	0.00	343.70	1853.60	926.80	2146.41	1065.57	90.68	-5.681	0.000	0.327
165.00	-6.71	-15.36	0.00	-288.68	0.00	288.68	1818.15	909.07	2049.77	1017.59	94.89	-5.806	0.000	0.288
165.25	-6.67	-15.34	0.00	-284.84	0.00	284.84	1815.59	907.79	2042.92	1014.19	95.19	-5.814	0.000	0.285
169.58	-6.01	-14.88	0.00	-218.35	0.00	218.35	1040.26	520.13	1155.41	573.59	100.53	-5.948	0.000	0.387
170.00	-5.96	-14.84	0.00	-212.15	0.00	212.15	1038.39	519.19	1149.55	570.68	101.05	-5.961	0.000	0.378
175.00	-3.88	-10.20	0.00	-137.93	0.00	137.93	1015.17	507.59	1079.51	535.91	107.38	-6.132	0.000	0.262
180.00	-3.58	-9.74	0.00	-86.96	0.00	86.96	990.53	495.27	1010.05	501.43	113.86	-6.256	0.000	0.177
185.00	-2.16	-5.45	0.00	-38.26	0.00	38.26	964.47	482.24	941.35	467.32	120.44	-6.334	0.000	0.084
187.00	-2.04	-4.68	0.00	-22.12	0.00	22.12	953.65	476.82	914.12	453.81	123.10	-6.353	0.000	0.051
190.00	-1.91	-4.43	0.00	-8.07	0.00	8.07	936.98	468.49	873.60	433.69	127.09	-6.366	0.000	0.021
191.50	-0.14	-0.38	0.00	-1.43	0.00	1.43	928.46	464.23	853.48	423.70	129.08	-6.369	0.000	0.004
195.00	-0.03	-0.10	0.00	-0.10	0.00	0.10	908.07	454.03	806.98	400.62	133.74	-6.369	0.000	0.000
196.00	0.00	-0.09	0.00	0.00	0.00	0.00	902.11	451.06	793.81	394.08	135.07	-6.370	0.000	0.000

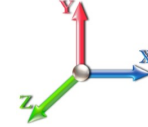
Wind Loading - Shaft

Structure: CT46138-A-SBA	Code: EIA/TIA-222-G	1/31/2017
Site Name: Torrington/Oandg Ind Inc	Exposure: C	
Height: 196.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



Load Case: 1.2D + 1.0Di + 1.0Wi 40 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	3.308	3.64	0.00	1.200	0.000	0.00	0.000	0.00	0.0	0.0	0.0
5.00		1.00	0.85	3.308	3.64	0.00	1.200	1.656	5.00	26.647	31.98	116.3	634.4	3030.0
10.00		1.00	0.85	3.308	3.64	0.00	1.200	1.775	5.00	26.300	31.56	114.8	669.5	3022.3
15.00		1.00	0.85	3.308	3.64	0.00	1.200	1.848	5.00	25.915	31.10	113.1	685.7	2995.8
20.00		1.00	0.90	3.509	3.86	0.00	1.200	1.902	5.00	25.514	30.62	118.2	693.8	2961.1
25.00		1.00	0.95	3.678	4.05	0.00	1.200	1.945	5.00	25.103	30.12	121.9	697.0	2921.6
30.00		1.00	0.98	3.822	4.20	0.00	1.200	1.981	5.00	24.687	29.62	124.6	697.1	2879.0
35.00		1.00	1.01	3.948	4.34	0.00	1.200	2.012	5.00	24.267	29.12	126.5	695.0	2834.1
40.00		1.00	1.04	4.061	4.47	0.00	1.200	2.039	5.00	23.843	28.61	127.8	691.1	2787.5
45.00		1.00	1.07	4.163	4.58	0.00	1.200	2.063	5.00	23.417	28.10	128.7	685.9	2739.5
45.42	Bot - Section 2	1.00	1.07	4.171	4.59	0.00	1.200	2.065	0.42	1.931	2.32	10.6	57.1	226.3
48.90	RB1	1.00	1.09	4.236	4.66	0.00	1.200	2.080	3.48	16.330	19.60	91.3	483.7	3034.5
50.00		1.00	1.09	4.256	4.68	0.00	1.200	2.085	1.10	5.113	6.14	28.7	152.4	950.2
52.75	Top - Section 1	1.00	1.11	4.304	4.73	0.00	1.200	2.096	2.75	12.693	15.23	72.1	379.0	2357.1
55.00		1.00	1.12	4.342	4.78	0.00	1.200	2.105	2.25	10.288	12.35	59.0	308.6	1029.4
57.15	RT1	1.00	1.12	4.378	4.82	0.00	1.200	2.113	2.15	9.749	11.70	56.3	293.4	975.7
60.00		1.00	1.14	4.423	4.86	0.00	1.200	2.123	2.85	12.801	15.36	74.7	386.4	1281.0
65.00		1.00	1.16	4.498	4.95	0.00	1.200	2.140	5.00	22.122	26.55	131.3	669.3	2212.1
70.00		1.00	1.17	4.569	5.03	0.00	1.200	2.156	5.00	21.689	26.03	130.8	660.2	2168.8
75.00		1.00	1.19	4.635	5.10	0.00	1.200	2.171	5.00	21.256	25.51	130.1	650.6	2124.9
80.00		1.00	1.21	4.699	5.17	0.00	1.200	2.185	5.00	20.821	24.99	129.1	640.4	2080.6
84.00	Bot - Section 3	1.00	1.22	4.747	5.22	0.00	1.200	2.196	4.00	16.343	19.61	102.4	505.6	1633.2
85.00		1.00	1.22	4.759	5.24	0.00	1.200	2.198	1.00	4.105	4.93	25.8	128.1	619.6
87.00	RB2	1.00	1.23	4.782	5.26	0.00	1.200	2.204	2.00	8.159	9.79	51.5	254.4	1230.4
90.00		1.00	1.24	4.817	5.30	0.00	1.200	2.211	3.00	12.108	14.53	77.0	377.7	1823.7
90.42	Top - Section 2	1.00	1.24	4.821	5.30	0.00	1.200	2.212	0.42	1.669	2.00	10.6	52.4	251.5
95.00		1.00	1.25	4.872	5.36	0.00	1.200	2.223	4.58	18.164	21.80	116.8	566.8	1505.0
100.00	Appurtenance(s)	1.00	1.27	4.925	5.42	0.00	1.200	2.234	5.00	19.397	23.28	126.1	606.8	1605.7
105.00		1.00	1.28	4.976	5.47	0.00	1.200	2.245	5.00	18.960	22.75	124.5	595.0	1568.3
109.50	Appurtenance(s)	1.00	1.29	5.020	5.52	0.00	1.200	2.255	4.50	16.690	20.03	110.6	525.8	1379.8
110.00		1.00	1.29	5.025	5.53	0.00	1.200	2.256	0.50	1.832	2.20	12.2	58.3	151.9
112.25	RT2	1.00	1.30	5.046	5.55	0.00	1.200	2.260	2.25	8.191	9.83	54.6	259.9	677.9
115.00		1.00	1.30	5.072	5.58	0.00	1.200	2.266	2.75	9.891	11.87	66.2	313.9	817.8
120.00		1.00	1.32	5.117	5.63	0.00	1.200	2.276	5.00	17.647	21.18	119.2	558.1	1454.5
123.58	Bot - Section 4	1.00	1.32	5.149	5.66	0.00	1.200	2.282	3.58	12.376	14.85	84.1	393.5	1020.1
125.00		1.00	1.33	5.162	5.68	0.00	1.200	2.285	1.42	4.898	5.88	33.4	156.8	587.4
125.60	RB3	1.00	1.33	5.167	5.68	0.00	1.200	2.286	0.60	2.064	2.48	14.1	66.2	247.5
129.00	Top - Section 3	1.00	1.34	5.196	5.72	0.00	1.200	2.292	3.40	11.577	13.89	79.4	369.4	1384.4
130.00	Appurtenance(s)	1.00	1.34	5.204	5.72	0.00	1.200	2.294	1.00	3.366	4.04	23.1	108.1	235.7
135.00		1.00	1.35	5.246	5.77	0.00	1.200	2.303	5.00	16.570	19.88	114.7	527.4	1154.0
136.26	RT3	1.00	1.35	5.256	5.78	0.00	1.200	2.305	1.26	4.106	4.93	28.5	132.1	286.9
140.00		1.00	1.36	5.286	5.81	0.00	1.200	2.311	3.74	12.024	14.43	83.9	384.6	837.1
145.00	Appurtenance(s)	1.00	1.37	5.325	5.86	0.00	1.200	2.319	5.00	15.692	18.83	110.3	500.7	1088.8
150.00		1.00	1.38	5.364	5.90	0.00	1.200	2.327	5.00	15.252	18.30	108.0	487.0	1055.9
155.00	Appurtenance(s)	1.00	1.39	5.401	5.94	0.00	1.200	2.335	5.00	14.812	17.77	105.6	473.2	1022.9
160.00		1.00	1.40	5.437	5.98	0.00	1.202 *	2.342	5.00	14.372	17.28	103.3	459.3	989.7
161.50	Appurtenance(s)	1.00	1.40	5.448	5.99	0.00	1.211 *	2.344	1.50	4.225	5.12	30.7	136.5	291.9

Wind Loading - Shaft

Structure: CT46138-A-SBA	Code: EIA/TIA-222-G	1/31/2017
Site Name: Torrington/Oandg Ind Inc	Exposure: C	
Height: 196.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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165.00	1.00	1.41	5.472	6.02	0.00	1.218 *	2.349	3.50	9.706	11.82	71.2	311.7	667.4
165.25 Bot - Section 5	1.00	1.41	5.474	6.02	0.00	1.223 *	2.350	0.25	0.685	0.84	5.0	22.2	47.3
169.58 Top - Section 4	1.00	1.41	5.504	6.05	0.00	1.230 *	2.356	4.33	11.837	14.56	88.2	379.4	1095.4
170.00	1.00	1.42	5.507	6.06	0.00	1.232 *	2.356	0.42	1.121	1.38	8.4	36.4	63.7
175.00 Appurtenance(s)	1.00	1.42	5.541	6.09	0.00	1.240 *	2.363	5.00	13.211	16.39	99.9	422.3	743.1
180.00	1.00	1.43	5.574	6.13	0.00	1.200	2.370	5.00	12.771	15.32	94.0	407.8	715.9
185.00 Appurtenance(s)	1.00	1.44	5.606	6.17	0.00	1.200	2.376	5.00	12.330	14.80	91.2	393.3	688.5
187.00 Appurtenance(s)	1.00	1.44	5.618	6.18	0.00	1.200	2.379	2.00	4.808	5.77	35.7	155.0	269.5
190.00	1.00	1.45	5.637	6.20	0.00	1.200	2.383	3.00	7.080	8.50	52.7	227.1	395.0
191.50 Appurtenance(s)	1.00	1.45	5.647	6.21	0.00	1.200	2.384	1.50	3.480	4.18	25.9	112.2	194.5
195.00	1.00	1.46	5.668	6.24	0.00	1.200	2.389	3.50	7.967	9.56	59.6	254.7	442.0
196.00 Appurtenance(s)	1.00	1.46	5.674	6.24	0.00	1.200	2.390	1.00	2.236	2.68	16.8	72.2	124.5
							Totals:	196.00			4,571.1	74,979.5	

* Cf Adjusted by Linear Load Ra Effect

Discrete Appurtenance Forces

Structure: CT46138-A-SBA	Code: EIA/TIA-222-G	1/31/2017
Site Name: Torrington/Oandg Ind Inc	Exposure: C	
Height: 196.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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Load Case: 1.2D + 1.0Di + 1.0Wi 40 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	196.00	6' Lightning rod	1	5.674	6.242	1.00	1.00	1.87	52.21	0.000	0.000	11.67	0.00	0.00
2	191.50	Low Profile Platform	1	5.647	6.211	1.00	1.00	46.13	3288.37	0.000	0.000	286.53	0.00	0.00
3	191.50	ACU-A20-N - RET	4	5.647	6.211	0.62	0.80	1.36	23.08	0.000	0.000	8.46	0.00	0.00
4	191.50	800MHz Filter	3	5.647	6.211	0.56	0.80	2.80	89.00	0.000	0.000	17.36	0.00	0.00
5	191.50	RRH8x20-25 - RRU	3	5.647	6.211	0.56	0.80	8.72	740.14	0.000	0.000	54.18	0.00	0.00
6	191.50	1900MHz - RRU	3	5.647	6.211	0.56	0.80	9.57	512.25	0.000	0.000	59.47	0.00	0.00
7	191.50	800MHz - RRU	3	5.647	6.211	0.56	0.80	6.81	430.66	0.000	0.000	42.29	0.00	0.00
8	191.50	APXVSP18-C-A20	3	5.647	6.211	0.68	0.80	24.15	765.20	0.000	0.000	149.99	0.00	0.00
9	191.50	APXVTM14-C-120	3	5.647	6.211	0.70	0.80	16.68	908.58	0.000	0.000	103.59	0.00	0.00
10	187.00	BA80-41-DIN	1	5.682	6.251	1.00	1.00	34.96	362.45	0.000	10.333	218.54	0.00	2258.27
11	187.00	Pipe mount	1	5.618	6.180	0.56	0.75	6.06	134.43	0.000	0.000	37.43	0.00	0.00
12	185.00	Low Profile Platform	1	5.606	6.166	1.00	1.00	46.05	3282.20	0.000	0.000	283.95	0.00	0.00
13	185.00	FD9R6004/2C-3L -	6	5.606	6.166	0.60	0.80	3.47	74.09	0.000	0.000	21.39	0.00	0.00
14	185.00	BXA-70063 6CF_2	3	5.606	6.166	0.68	0.80	23.12	539.45	0.000	0.000	142.56	0.00	0.00
15	185.00	LPA-80063/4CF	6	5.606	6.166	0.70	0.80	32.06	1927.18	0.000	0.000	197.72	0.00	0.00
16	185.00	BXA-171063-8BF_2	3	5.606	6.166	0.72	0.80	11.23	249.13	0.000	0.000	69.23	0.00	0.00
17	175.00	21401 TMA	12	5.541	6.095	0.46	0.80	13.48	524.07	0.000	0.000	82.18	0.00	0.00
18	175.00	AM-X-CD-16-65-00T-RET	3	5.541	6.095	0.61	0.80	21.53	694.29	0.000	0.000	131.21	0.00	0.00
19	175.00	Low Profile Platform	1	5.541	6.095	1.00	1.00	45.91	3272.33	0.000	0.000	279.83	0.00	0.00
20	175.00	DC6-48-60-18-8F	1	5.541	6.095	0.80	0.80	1.21	109.01	0.000	0.000	7.38	0.00	0.00
21	175.00	RRUS-11	3	5.541	6.095	0.56	0.80	5.67	416.83	0.000	0.000	34.58	0.00	0.00
22	175.00	7770	6	5.541	6.095	0.70	0.80	29.47	1440.15	0.000	0.000	179.58	0.00	0.00
23	175.00	RRUS-12	3	5.541	6.095	0.56	0.80	6.98	337.93	0.000	0.000	42.57	0.00	0.00
24	161.50	Low Profile Platform	1	5.448	5.992	1.00	1.00	45.72	3258.15	0.000	0.000	274.00	0.00	0.00
25	155.00	KRY 112 114 TMA	3	5.401	5.941	0.62	0.80	1.96	73.57	0.000	0.000	11.63	0.00	0.00
26	155.00	AIR 21 B2A/B4P	3	5.401	5.941	0.68	0.80	15.36	1044.68	0.000	0.000	91.27	0.00	0.00
27	155.00	AIR 21 B4A/B2P	3	5.401	5.941	0.68	0.80	15.36	1043.65	0.000	0.000	91.27	0.00	0.00
28	155.00	T-Arms w/ Handrail kit &	3	5.401	5.941	0.56	0.75	60.97	4001.52	0.000	0.000	362.21	0.00	0.00
29	155.00	LNx-6515DS-A1M	3	5.401	5.941	0.65	0.80	30.79	915.65	0.000	0.000	182.94	0.00	0.00
30	145.00	APXV18-206517S-C	3	5.325	5.858	0.70	0.80	17.58	385.37	0.000	0.000	103.01	0.00	0.00
31	145.00	T-Arms	3	5.325	5.858	0.56	0.75	29.15	2024.01	0.000	0.000	170.78	0.00	0.00
32	130.00	ANT150F2	1	5.225	5.748	1.00	1.00	2.62	49.57	0.000	2.500	15.07	0.00	37.69
33	130.00	Standoff	1	5.204	5.725	0.56	0.75	5.89	130.52	0.000	0.000	33.73	0.00	0.00
34	109.50	Standoff	1	5.020	5.522	0.56	0.75	5.82	128.72	0.000	0.000	32.12	0.00	0.00
35	109.50	Standoff	5	5.020	5.522	0.56	0.75	29.09	643.62	0.000	0.000	160.60	0.00	0.00
36	109.50	4' Omni	1	5.039	5.543	1.00	1.00	2.12	43.51	0.000	2.000	11.73	0.00	23.46
37	109.50	14' Omni	5	5.086	5.594	1.00	1.00	53.31	772.54	0.000	7.000	298.25	0.00	2087.73
38	100.00	Standoff	1	4.925	5.417	0.56	0.75	5.78	127.79	0.000	0.000	31.30	0.00	0.00
39	100.00	MPRD	1	4.925	5.417	1.00	1.00	7.64	324.41	0.000	0.000	41.37	0.00	0.00

Totals: 35,140.30

4,372.98

Total Applied Force Summary

Structure: CT46138-A-SBA	Code: EIA/TIA-222-G	1/31/2017
Site Name: Torrington/Oandg Ind Inc	Exposure: C	
Height: 196.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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Load Case: 1.2D + 1.0Di + 1.0Wi 40 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		116.34	3447.87	0.00	0.00
10.00		114.82	3447.07	0.00	0.00
15.00		113.14	3425.02	0.00	0.00
20.00		118.19	3393.63	0.00	0.00
25.00		121.88	3356.85	0.00	0.00
30.00		124.55	3316.51	0.00	0.00
35.00		126.47	3273.61	0.00	0.00
40.00		127.81	3228.79	0.00	0.00
45.00		128.67	3182.44	0.00	0.00
45.42		10.63	263.24	0.00	0.00
48.90		91.32	3343.83	0.00	0.00
50.00		28.72	1047.94	0.00	0.00
52.75		72.12	2601.89	0.00	0.00
55.00		58.97	1229.93	0.00	0.00
57.15		56.33	1167.61	0.00	0.00
60.00		74.73	1535.81	0.00	0.00
65.00		131.34	2660.19	0.00	0.00
70.00		130.80	2617.96	0.00	0.00
75.00		130.06	2575.15	0.00	0.00
80.00		129.14	2531.82	0.00	0.00
84.00		102.41	1994.72	0.00	0.00
85.00		25.79	710.07	0.00	0.00
87.00		51.51	1411.39	0.00	0.00
90.00		76.98	2095.52	0.00	0.00
90.42		10.62	289.27	0.00	0.00
95.00		116.81	1921.03	0.00	0.00
100.00	(2) attachments	198.77	2512.60	0.00	0.00
105.00		124.52	2023.50	0.00	0.00
109.50	(12) attachments	613.29	3378.45	0.00	2111.19
110.00		12.15	196.92	0.00	0.00
112.25		54.56	880.65	0.00	0.00
115.00		66.22	1065.77	0.00	0.00
120.00		119.21	1906.04	0.00	0.00
123.58		84.12	1344.03	0.00	0.00
125.00		33.37	715.53	0.00	0.00
125.60		14.08	301.79	0.00	0.00
129.00		79.40	1692.24	0.00	0.00
130.00	(2) attachments	71.93	506.40	0.00	37.69
135.00		114.74	1561.58	0.00	0.00
136.26		28.49	389.66	0.00	0.00
140.00		83.90	1142.16	0.00	0.00
145.00	(6) attachments	384.10	3906.38	0.00	0.00
150.00		107.98	1426.99	0.00	0.00
155.00	(15) attachments	844.92	8473.34	0.00	0.00
160.00		103.35	1279.92	0.00	0.00
161.50	(1) attachments	304.66	3637.14	0.00	0.00

Total Applied Force Summary

Structure: CT46138-A-SBA	Code: EIA/TIA-222-G	1/31/2017
Site Name: Torrington/Oandg Ind Inc	Exposure: C	
Height: 196.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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165.00	71.16	870.81	0.00	0.00
165.25	5.05	61.81	0.00	0.00
169.58	88.16	1347.41	0.00	0.00
170.00	8.36	87.93	0.00	0.00
175.00	(29) attachments	857.19	7828.80	0.00
180.00		93.95	854.19	0.00
185.00	(19) attachments	806.09	6898.86	0.00
187.00	(2) attachments	291.63	791.71	0.00
190.00		52.68	431.24	0.00
191.50	(23) attachments	747.82	6969.84	0.00
195.00		59.61	442.00	0.00
196.00	(1) attachments	28.42	176.75	0.00
Totals:		8,944.03	125,171.63	0.00
				4,407.15

Linear Appurtenance Segment Forces (Factored)

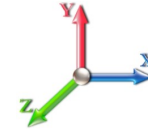
Structure: CT46138-A-SBA	Code: EIA/TIA-222-G	1/31/2017
Site Name: Torrington/Oandg Ind Inc	Exposure: C	
Height: 196.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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Load Case: 1.2D + 1.0Di + 1.0Wi 40 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	3" Flex Conduit	Yes	5.00	0.000	3.00	2.63	0.00	0.058	0.000	3.308	0.00	46.61
5.00	7/8" Coax	Yes	5.00	0.000	0.52	1.60	0.00	0.058	0.000	3.308	0.00	27.54
10.00	3" Flex Conduit	Yes	5.00	0.000	3.00	2.73	0.00	0.059	0.000	3.308	0.00	50.49
10.00	7/8" Coax	Yes	5.00	0.000	0.52	1.70	0.00	0.059	0.000	3.308	0.00	30.54
15.00	3" Flex Conduit	Yes	5.00	0.000	3.00	2.79	0.00	0.060	0.000	3.308	0.00	52.97
15.00	7/8" Coax	Yes	5.00	0.000	0.52	1.76	0.00	0.060	0.000	3.308	0.00	32.48
20.00	3" Flex Conduit	Yes	5.00	0.000	3.00	2.84	0.00	0.061	0.000	3.509	0.00	54.84
20.00	7/8" Coax	Yes	5.00	0.000	0.52	1.80	0.00	0.061	0.000	3.509	0.00	33.95
25.00	3" Flex Conduit	Yes	5.00	0.000	3.00	2.87	0.00	0.062	0.000	3.678	0.00	56.34
25.00	7/8" Coax	Yes	5.00	0.000	0.52	1.84	0.00	0.062	0.000	3.678	0.00	35.15
30.00	3" Flex Conduit	Yes	5.00	0.000	3.00	2.90	0.00	0.064	0.000	3.822	0.00	57.62
30.00	7/8" Coax	Yes	5.00	0.000	0.52	1.87	0.00	0.064	0.000	3.822	0.00	36.16
35.00	3" Flex Conduit	Yes	5.00	0.000	3.00	2.93	0.00	0.065	0.000	3.948	0.00	58.73
35.00	7/8" Coax	Yes	5.00	0.000	0.52	1.89	0.00	0.065	0.000	3.948	0.00	37.04
40.00	3" Flex Conduit	Yes	5.00	0.000	3.00	2.95	0.00	0.066	0.000	4.061	0.00	59.72
40.00	7/8" Coax	Yes	5.00	0.000	0.52	1.92	0.00	0.066	0.000	4.061	0.00	37.83
45.00	3" Flex Conduit	Yes	5.00	0.000	3.00	2.97	0.00	0.068	0.000	4.163	0.00	60.60
45.00	7/8" Coax	Yes	5.00	0.000	0.52	1.94	0.00	0.068	0.000	4.163	0.00	38.54
45.42	3" Flex Conduit	Yes	0.42	0.000	3.00	0.25	0.00	0.068	0.000	4.171	0.00	5.06
45.42	7/8" Coax	Yes	0.42	0.000	0.52	0.16	0.00	0.068	0.000	4.171	0.00	3.22
48.90	3" Flex Conduit	Yes	3.48	0.000	3.00	2.08	0.00	0.069	0.000	4.236	0.00	42.66
48.90	7/8" Coax	Yes	3.48	0.000	0.52	1.36	0.00	0.069	0.000	4.236	0.00	27.20
50.00	3" Flex Conduit	Yes	1.10	0.000	3.00	0.66	0.00	0.070	0.000	4.256	0.00	13.51
50.00	7/8" Coax	Yes	1.10	0.000	0.52	0.43	0.00	0.070	0.000	4.256	0.00	8.62
52.75	3" Flex Conduit	Yes	2.75	0.000	3.00	1.65	0.00	0.070	0.000	4.304	0.00	34.00
52.75	7/8" Coax	Yes	2.75	0.000	0.52	1.08	0.00	0.070	0.000	4.304	0.00	21.74
55.00	3" Flex Conduit	Yes	2.25	0.000	3.00	1.35	0.00	0.069	0.000	4.342	0.00	27.97
55.00	7/8" Coax	Yes	2.25	0.000	0.52	0.89	0.00	0.069	0.000	4.342	0.00	17.90
57.15	3" Flex Conduit	Yes	2.15	0.000	3.00	1.29	0.00	0.070	0.000	4.378	0.00	26.86
57.15	7/8" Coax	Yes	2.15	0.000	0.52	0.85	0.00	0.070	0.000	4.378	0.00	17.21
60.00	3" Flex Conduit	Yes	2.85	0.000	3.00	1.72	0.00	0.071	0.000	4.423	0.00	35.82
60.00	7/8" Coax	Yes	2.85	0.000	0.52	1.13	0.00	0.071	0.000	4.423	0.00	22.99
65.00	3" Flex Conduit	Yes	5.00	0.000	3.00	3.03	0.00	0.072	0.000	4.498	0.00	63.49
65.00	7/8" Coax	Yes	5.00	0.000	0.52	2.00	0.00	0.072	0.000	4.498	0.00	40.86
70.00	3" Flex Conduit	Yes	5.00	0.000	3.00	3.05	0.00	0.074	0.000	4.569	0.00	64.09
70.00	7/8" Coax	Yes	5.00	0.000	0.52	2.01	0.00	0.074	0.000	4.569	0.00	41.34
75.00	3" Flex Conduit	Yes	5.00	0.000	3.00	3.06	0.00	0.075	0.000	4.635	0.00	64.66
75.00	7/8" Coax	Yes	5.00	0.000	0.52	2.03	0.00	0.075	0.000	4.635	0.00	41.80
80.00	3" Flex Conduit	Yes	5.00	0.000	3.00	3.07	0.00	0.077	0.000	4.699	0.00	65.20
80.00	7/8" Coax	Yes	5.00	0.000	0.52	2.04	0.00	0.077	0.000	4.699	0.00	42.24
84.00	3" Flex Conduit	Yes	4.00	0.000	3.00	2.46	0.00	0.079	0.000	4.747	0.00	52.49
84.00	7/8" Coax	Yes	4.00	0.000	0.52	1.64	0.00	0.079	0.000	4.747	0.00	34.05
85.00	3" Flex Conduit	Yes	1.00	0.000	3.00	0.62	0.00	0.080	0.000	4.759	0.00	13.14
85.00	7/8" Coax	Yes	1.00	0.000	0.52	0.41	0.00	0.080	0.000	4.759	0.00	8.53
87.00	3" Flex Conduit	Yes	2.00	0.000	3.00	1.23	0.00	0.080	0.000	4.782	0.00	26.36
87.00	7/8" Coax	Yes	2.00	0.000	0.52	0.82	0.00	0.080	0.000	4.782	0.00	17.12
90.00	3" Flex Conduit	Yes	3.00	0.000	3.00	1.86	0.00	0.081	0.000	4.817	0.00	39.72

Linear Appurtenance Segment Forces (Factored)

Structure: CT46138-A-SBA	Code: EIA/TIA-222-G	1/31/2017
Site Name: Torrington/Oandg Ind Inc	Exposure: C	
Height: 196.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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Load Case: 1.2D + 1.0Di + 1.0Wi 40 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)
90.00	7/8" Coax	Yes	3.00	0.000	0.52	1.24	0.00	0.081	0.000	4.817	0.00	25.83
90.42	3" Flex Conduit	Yes	0.42	0.000	3.00	0.26	0.00	0.082	0.000	4.821	0.00	5.52
90.42	7/8" Coax	Yes	0.42	0.000	0.52	0.17	0.00	0.082	0.000	4.821	0.00	3.59
95.00	3" Flex Conduit	Yes	4.58	0.000	3.00	2.84	0.00	0.082	0.000	4.872	0.00	61.11
95.00	7/8" Coax	Yes	4.58	0.000	0.52	1.90	0.00	0.082	0.000	4.872	0.00	39.80
100.00	3" Flex Conduit	Yes	5.00	0.000	3.00	3.11	0.00	0.084	0.000	4.925	0.00	67.10
100.00	7/8" Coax	Yes	5.00	0.000	0.52	2.08	0.00	0.084	0.000	4.925	0.00	43.78
105.00	3" Flex Conduit	Yes	5.00	0.000	3.00	3.12	0.00	0.086	0.000	4.976	0.00	67.53
105.00	7/8" Coax	Yes	5.00	0.000	0.52	2.09	0.00	0.086	0.000	4.976	0.00	44.13
109.50	3" Flex Conduit	Yes	4.50	0.000	3.00	2.82	0.00	0.088	0.000	5.020	0.00	61.11
109.50	7/8" Coax	Yes	4.50	0.000	0.52	1.89	0.00	0.088	0.000	5.020	0.00	39.98
110.00	3" Flex Conduit	Yes	0.50	0.000	3.00	0.31	0.00	0.089	0.000	5.025	0.00	6.79
110.00	7/8" Coax	Yes	0.50	0.000	0.52	0.21	0.00	0.089	0.000	5.025	0.00	4.45
112.25	3" Flex Conduit	Yes	2.25	0.000	3.00	1.41	0.00	0.090	0.000	5.046	0.00	30.65
112.25	7/8" Coax	Yes	2.25	0.000	0.52	0.95	0.00	0.090	0.000	5.046	0.00	20.07
115.00	3" Flex Conduit	Yes	2.75	0.000	3.00	1.73	0.00	0.091	0.000	5.072	0.00	37.58
115.00	7/8" Coax	Yes	2.75	0.000	0.52	1.16	0.00	0.091	0.000	5.072	0.00	24.63
120.00	3" Flex Conduit	Yes	5.00	0.000	3.00	3.15	0.00	0.093	0.000	5.117	0.00	68.72
120.00	7/8" Coax	Yes	5.00	0.000	0.52	2.11	0.00	0.093	0.000	5.117	0.00	45.09
123.58	3" Flex Conduit	Yes	3.58	0.000	3.00	2.26	0.00	0.095	0.000	5.149	0.00	49.44
123.58	7/8" Coax	Yes	3.58	0.000	0.52	1.52	0.00	0.095	0.000	5.149	0.00	32.47
125.00	3" Flex Conduit	Yes	1.42	0.000	3.00	0.89	0.00	0.097	0.000	5.162	0.00	19.57
125.00	7/8" Coax	Yes	1.42	0.000	0.52	0.60	0.00	0.097	0.000	5.162	0.00	12.86
125.60	3" Flex Conduit	Yes	0.60	0.000	3.00	0.38	0.00	0.097	0.000	5.167	0.00	8.30
125.60	7/8" Coax	Yes	0.60	0.000	0.52	0.25	0.00	0.097	0.000	5.167	0.00	5.45
129.00	3" Flex Conduit	Yes	3.40	0.000	3.00	2.15	0.00	0.099	0.000	5.196	0.00	47.17
129.00	7/8" Coax	Yes	3.40	0.000	0.52	1.45	0.00	0.099	0.000	5.196	0.00	31.02
130.00	3" Flex Conduit	Yes	1.00	0.000	3.00	0.63	0.00	0.098	0.000	5.204	0.00	13.89
130.00	7/8" Coax	Yes	1.00	0.000	0.52	0.43	0.00	0.098	0.000	5.204	0.00	9.14
135.00	3" Flex Conduit	Yes	5.00	0.000	3.00	3.17	0.00	0.085	0.000	5.246	0.00	69.79
136.26	3" Flex Conduit	Yes	1.26	0.000	3.00	0.80	0.00	0.087	0.000	5.256	0.00	17.61
140.00	3" Flex Conduit	Yes	3.74	0.000	3.00	2.38	0.00	0.088	0.000	5.286	0.00	52.45
145.00	3" Flex Conduit	Yes	5.00	0.000	3.00	3.18	0.00	0.091	0.000	5.325	0.00	70.44
150.00	3" Flex Conduit	Yes	5.00	0.000	3.00	3.19	0.00	0.094	0.000	5.364	0.00	70.76
155.00	3" Flex Conduit	Yes	5.00	0.000	3.00	3.20	0.00	0.097	0.000	5.401	0.00	71.07
160.00	3" Flex Conduit	Yes	5.00	0.000	3.00	3.20	0.00	0.101	1.002	5.437	0.00	71.37
161.50	3" Flex Conduit	Yes	1.50	0.000	3.00	0.96	0.00	0.103	1.009	5.448	0.00	21.44
165.00	3" Flex Conduit	Yes	3.50	0.000	3.00	2.25	0.00	0.105	1.015	5.472	0.00	50.16
165.25	3" Flex Conduit	Yes	0.25	0.000	3.00	0.16	0.00	0.106	1.019	5.474	0.00	3.58
169.58	3" Flex Conduit	Yes	4.33	0.000	3.00	2.78	0.00	0.108	1.025	5.504	0.00	62.33
170.00	3" Flex Conduit	Yes	0.42	0.000	3.00	0.27	0.00	0.109	1.027	5.507	0.00	6.00
175.00	3" Flex Conduit	Yes	5.00	0.000	3.00	3.22	0.00	0.111	1.034	5.541	0.00	72.22
Totals:											0.0	3,293.0

Calculated Forces

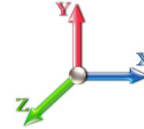
Structure: CT46138-A-SBA	Code: EIA/TIA-222-G	1/31/2017
Site Name: Torrington/Oandg Ind Inc	Exposure: C	
Height: 196.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



Load Case: 1.2D + 1.0Di + 1.0Wi 40 mph Wind

Iterations 26

Dead Load Factor 1.20
Wind Load Factor 1.00



Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-125.1	-8.98	0.00	-1279.8	0.00	1279.81	8794.96	4397.48	21496.0	10671.5	0.00	0.000	0.000	0.134
5.00	-121.7	-8.94	0.00	-1234.9	0.00	1234.90	8639.43	4319.71	20738.5	10295.5	0.02	-0.034	0.000	0.134
10.00	-118.2	-8.89	0.00	-1190.2	0.00	1190.22	8483.89	4241.95	19994.7	9926.22	0.07	-0.068	0.000	0.134
15.00	-114.8	-8.84	0.00	-1145.7	0.00	1145.77	8328.36	4164.18	19264.4	9563.67	0.16	-0.104	0.000	0.134
20.00	-111.4	-8.79	0.00	-1101.5	0.00	1101.55	8172.83	4086.41	18547.7	9207.87	0.29	-0.139	0.000	0.133
25.00	-108.0	-8.73	0.00	-1057.6	0.00	1057.62	8017.29	4008.65	17844.6	8858.82	0.46	-0.176	0.000	0.133
30.00	-104.7	-8.66	0.00	-1013.9	0.00	1013.99	7861.76	3930.88	17155.1	8516.51	0.66	-0.212	0.000	0.132
35.00	-101.4	-8.59	0.00	-970.70	0.00	970.70	7706.22	3853.11	16479.1	8180.95	0.90	-0.250	0.000	0.132
40.00	-98.24	-8.51	0.00	-927.77	0.00	927.77	7550.69	3775.35	15816.8	7852.13	1.18	-0.288	0.000	0.131
45.00	-95.05	-8.40	0.00	-885.24	0.00	885.24	7395.16	3697.58	15168.0	7530.06	1.51	-0.327	0.000	0.130
45.42	-94.79	-8.41	0.00	-881.74	0.00	881.74	7382.20	3691.10	15114.6	7503.52	1.53	-0.330	0.000	0.130
48.90	-91.44	-8.33	0.00	-852.44	0.00	852.44	7273.84	3636.92	14671.4	7283.52	1.79	-0.358	0.000	0.087
50.00	-90.39	-8.31	0.00	-843.28	0.00	843.28	7239.62	3619.81	14532.8	7214.73	1.87	-0.363	0.000	0.086
52.75	-87.79	-8.24	0.00	-820.44	0.00	820.44	5810.43	2905.21	11825.7	5870.80	2.08	-0.378	0.000	0.088
55.00	-86.56	-8.19	0.00	-801.91	0.00	801.91	5769.82	2884.91	11629.7	5773.48	2.26	-0.390	0.000	0.096
57.15	-85.39	-8.15	0.00	-784.30	0.00	784.30	5730.75	2865.38	11443.3	5680.95	2.44	-0.403	0.000	0.095
57.15	-85.39	-8.15	0.00	-784.30	0.00	784.30	5730.75	2865.38	11443.3	5680.95	2.44	-0.403	0.000	0.095
60.00	-83.85	-8.11	0.00	-761.08	0.00	761.08	5678.55	2839.28	11197.7	5559.03	2.69	-0.420	0.000	0.152
65.00	-81.18	-8.03	0.00	-720.53	0.00	720.53	5551.73	2775.86	10705.1	5314.51	3.15	-0.468	0.000	0.150
70.00	-78.56	-7.94	0.00	-680.41	0.00	680.41	5427.30	2713.65	10228.2	5077.73	3.67	-0.516	0.000	0.148
75.00	-75.98	-7.85	0.00	-640.72	0.00	640.72	5302.88	2651.44	9762.15	4846.34	4.24	-0.564	0.000	0.147
80.00	-73.44	-7.75	0.00	-601.48	0.00	601.48	5178.45	2589.22	9306.93	4620.35	4.85	-0.613	0.000	0.144
84.00	-71.45	-7.66	0.00	-570.48	0.00	570.48	5078.91	2539.45	8950.59	4443.45	5.38	-0.653	0.000	0.142
85.00	-70.73	-7.64	0.00	-562.82	0.00	562.82	5054.02	2527.01	8862.59	4399.76	5.52	-0.663	0.000	0.142
87.00	-69.32	-7.60	0.00	-547.54	0.00	547.54	5004.25	2502.13	8687.89	4313.04	5.80	-0.683	0.000	0.086
90.00	-67.23	-7.51	0.00	-524.75	0.00	524.75	4929.59	2464.80	8429.11	4184.57	6.24	-0.701	0.000	0.084
90.42	-66.93	-7.51	0.00	-521.62	0.00	521.62	3591.78	1795.89	6277.53	3116.43	6.30	-0.704	0.000	0.089
95.00	-65.01	-7.40	0.00	-487.20	0.00	487.20	3535.98	1767.99	6038.44	2997.74	6.99	-0.731	0.000	0.098
100.00	-62.50	-7.21	0.00	-450.19	0.00	450.19	3473.75	1736.87	5780.45	2869.66	7.77	-0.765	0.000	0.093
105.00	-60.47	-7.09	0.00	-414.15	0.00	414.15	3410.09	1705.04	5525.58	2743.13	8.59	-0.798	0.000	0.089
109.50	-57.10	-6.44	0.00	-380.14	0.00	380.14	3351.58	1675.79	5299.03	2630.66	9.36	-0.827	0.000	0.084
110.00	-56.90	-6.44	0.00	-376.92	0.00	376.92	3345.00	1672.50	5274.03	2618.25	9.45	-0.830	0.000	0.084
112.25	-56.02	-6.39	0.00	-362.44	0.00	362.44	3315.25	1657.63	5161.96	2562.62	9.84	-0.844	0.000	0.082
112.25	-56.02	-6.39	0.00	-362.44	0.00	362.44	3315.25	1657.63	5161.96	2562.62	9.84	-0.844	0.000	0.082
115.00	-54.95	-6.34	0.00	-344.88	0.00	344.88	3278.49	1639.25	5025.98	2495.11	10.33	-0.862	0.000	0.155
120.00	-53.04	-6.24	0.00	-313.17	0.00	313.17	3210.56	1605.28	4781.62	2373.80	11.27	-0.922	0.000	0.148
123.58	-51.70	-6.16	0.00	-290.82	0.00	290.82	3148.16	1574.08	4590.15	2278.75	11.98	-0.965	0.000	0.144
125.00	-50.98	-6.13	0.00	-282.09	0.00	282.09	3121.72	1560.86	4512.97	2240.43	12.26	-0.982	0.000	0.142
125.60	-50.68	-6.12	0.00	-278.41	0.00	278.41	3110.52	1555.26	4480.48	2224.30	12.39	-0.989	0.000	0.080
129.00	-48.99	-6.02	0.00	-257.61	0.00	257.61	2149.47	1074.74	3099.22	1538.58	13.10	-1.012	0.000	0.084
130.00	-48.48	-5.96	0.00	-251.55	0.00	251.55	2141.27	1070.63	3068.69	1523.43	13.31	-1.019	0.000	0.094
135.00	-46.92	-5.84	0.00	-221.75	0.00	221.75	2099.38	1049.69	2916.97	1448.11	14.40	-1.054	0.000	0.087
136.26	-46.53	-5.81	0.00	-214.40	0.00	214.40	2088.60	1044.30	2879.00	1429.26	14.68	-1.063	0.000	0.085
136.26	-46.53	-5.81	0.00	-214.40	0.00	214.40	2088.60	1044.30	2879.00	1429.26	14.68	-1.063	0.000	0.085
140.00	-45.38	-5.74	0.00	-192.66	0.00	192.66	2056.07	1028.04	2766.99	1373.65	15.52	-1.088	0.000	0.162
145.00	-41.48	-5.33	0.00	-163.94	0.00	163.94	2011.34	1005.67	2618.95	1300.16	16.70	-1.152	0.000	0.147
150.00	-40.05	-5.23	0.00	-137.29	0.00	137.29	1965.18	982.59	2473.01	1227.71	17.94	-1.212	0.000	0.132
155.00	-31.59	-4.23	0.00	-111.14	0.00	111.14	1917.59	958.80	2329.38	1156.40	19.24	-1.267	0.000	0.113

Calculated Forces

Structure: CT46138-A-SBA	Code: EIA/TIA-222-G	1/31/2017
Site Name: Torrington/Oandg Ind Inc	Exposure: C	
Height: 196.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Page: 36
	Struct Class: II	



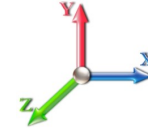
160.00	-30.31	-4.12	0.00	-89.98	0.00	89.98	1868.58	934.29	2188.24	1086.34	20.59	-1.316	0.000	0.099
161.50	-26.68	-3.74	0.00	-83.81	0.00	83.81	1853.60	926.80	2146.41	1065.57	21.00	-1.330	0.000	0.093
165.00	-25.81	-3.65	0.00	-70.73	0.00	70.73	1818.15	909.07	2049.77	1017.59	21.99	-1.361	0.000	0.084
165.25	-25.75	-3.66	0.00	-69.81	0.00	69.81	1815.59	907.79	2042.92	1014.19	22.06	-1.363	0.000	0.083
169.58	-24.40	-3.54	0.00	-53.97	0.00	53.97	1040.26	520.13	1155.41	573.59	23.32	-1.396	0.000	0.118
170.00	-24.31	-3.54	0.00	-52.50	0.00	52.50	1038.39	519.19	1149.55	570.68	23.44	-1.399	0.000	0.115
175.00	-16.51	-2.50	0.00	-34.79	0.00	34.79	1015.17	507.59	1079.51	535.91	24.93	-1.442	0.000	0.081
180.00	-15.65	-2.39	0.00	-22.28	0.00	22.28	990.53	495.27	1010.05	501.43	26.46	-1.473	0.000	0.060
185.00	-8.78	-1.41	0.00	-10.32	0.00	10.32	964.47	482.24	941.35	467.32	28.01	-1.494	0.000	0.031
187.00	-7.99	-1.10	0.00	-5.24	0.00	5.24	953.65	476.82	914.12	453.81	28.64	-1.499	0.000	0.020
190.00	-7.56	-1.03	0.00	-1.95	0.00	1.95	936.98	468.49	873.60	433.69	29.58	-1.502	0.000	0.013
191.50	-0.62	-0.10	0.00	-0.40	0.00	0.40	928.46	464.23	853.48	423.70	30.05	-1.503	0.000	0.002
195.00	-0.18	-0.03	0.00	-0.03	0.00	0.03	908.07	454.03	806.98	400.62	31.15	-1.503	0.000	0.000
196.00	0.00	-0.03	0.00	0.00	0.00	0.00	902.11	451.06	793.81	394.08	31.47	-1.503	0.000	0.000

Seismic Segment Forces (Factored)

Structure: CT46138-A-SBA	Code: EIA/TIA-222-G	1/31/2017
Site Name: Torrington/Oandg Ind Inc	Exposure: C	
Height: 196.00 (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

Load Case: 1.2D + 1.0E						Iterations 24
Gust Response Factor	1.10			Sds	0.19	Ss 0.18
Dead Load Factor	1.20	Seismic Load Factor	1.00	Sd1	0.10	S1 0.07
Wind Load Factor	0.00	Structure Frequency	0.28	SA	0.03	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		1996.2	0.00	0.03	0.01	35.23	
10.00		1960.6	0.00	0.04	0.03	51.56	
15.00		1925.0	0.01	0.06	0.03	59.83	
20.00		1889.4	0.02	0.06	0.04	63.92	
25.00		1853.8	0.03	0.07	0.04	65.74	
30.00		1818.1	0.04	0.07	0.04	66.37	
35.00		1782.5	0.06	0.07	0.04	66.45	
40.00		1746.9	0.08	0.07	0.04	66.35	
45.00		1711.3	0.10	0.07	0.04	66.21	
45.42	Bot - Section 2	141.00	0.10	0.07	0.04	5.46	
48.90	RB1	2125.6	0.12	0.07	0.03	83.45	
50.00		664.80	0.12	0.07	0.03	26.20	
52.75	Top - Section 1	1648.4	0.14	0.07	0.03	65.61	
55.00		600.65	0.15	0.07	0.03	24.08	
57.15	RT1	568.56	0.16	0.07	0.03	22.93	
60.00		745.55	0.18	0.07	0.03	30.23	
65.00		1285.6	0.21	0.06	0.02	52.17	
70.00		1257.1	0.24	0.06	0.02	50.11	
75.00		1228.6	0.28	0.05	0.01	46.66	
80.00		1200.1	0.31	0.04	0.01	41.37	
84.00	Bot - Section 3	939.59	0.35	0.03	0.01	28.36	
85.00		409.65	0.36	0.03	0.01	11.83	
87.00	RB2	813.31	0.37	0.03	0.01	21.13	
90.00		1205.0	0.40	0.02	0.01	25.16	
90.42	Top - Section 2	165.94	0.40	0.02	0.01	3.34	
95.00		781.83	0.44	0.00	0.01	8.23	
100.00	Appurtenance(s)	908.43	0.49	-0.01	0.01	-1.36	
105.00		811.06	0.54	-0.03	0.01	-11.33	
109.50	Appurtenance(s)	1161.6	0.59	-0.05	0.01	-28.26	
110.00		78.01	0.60	-0.05	0.01	-1.98	
112.25	RT2	348.39	0.62	-0.06	0.02	-10.39	
115.00		419.93	0.65	-0.07	0.02	-14.50	
120.00		746.94	0.71	-0.09	0.03	-30.38	
123.58	Bot - Section 4	522.16	0.75	-0.10	0.04	-22.49	
125.00		358.80	0.77	-0.11	0.05	-15.63	
125.60	RB3	151.06	0.78	-0.11	0.05	-6.60	
129.00	Top - Section 3	845.83	0.82	-0.12	0.06	-36.82	
130.00	Appurtenance(s)	159.35	0.83	-0.12	0.06	-6.89	
135.00		522.14	0.90	-0.12	0.09	-20.74	
136.26	RT3	129.05	0.91	-0.12	0.09	-4.95	
140.00		377.06	0.96	-0.12	0.11	-12.52	
145.00	Appurtenance(s)	1619.2	1.03	-0.10	0.15	-38.44	
150.00		474.06	1.11	-0.07	0.19	-5.39	
155.00	Appurtenance(s)	2687.3	1.18	-0.01	0.24	10.42	
160.00		442.00	1.26	0.07	0.30	9.74	

Seismic Segment Forces (Factored)

Structure: CT46138-A-SBA	Code: EIA/TIA-222-G	1/31/2017	
Site Name: Torrington/Oandg Ind Inc	Exposure: C		
Height: 196.00 (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



161.50	Appurtenance(s)	1629.4	1.28	0.10	0.32	45.72	
165.00		296.50	1.34	0.18	0.37	12.79	
165.25	Bot - Section 5	20.88	1.34	0.19	0.38	0.92	
169.58	Top - Section 4	596.66	1.41	0.31	0.45	38.84	
170.00		22.76	1.42	0.33	0.45	1.53	
175.00	Appurtenance(s)	2624.8	1.51	0.52	0.55	247.65	
180.00		256.70	1.59	0.76	0.66	31.98	
185.00	Appurtenance(s)	1967.1	1.68	1.06	0.79	310.71	
187.00	Appurtenance(s)	203.41	1.72	1.20	0.85	35.03	
190.00		139.91	1.78	1.43	0.94	27.22	
191.50	Appurtenance(s)	2438.9	1.80	1.56	0.98	502.84	
195.00		156.13	1.87	1.88	1.10	36.60	
196.00	Appurtenance(s)	50.15	1.89	1.98	1.14	12.18	
Totals:		55,631.8				2,143.5	Total Wind: 42,485.2

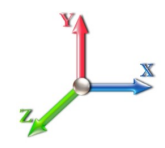
Seismic Base Shear is Less Than 50% of Wind Force - An Analysis is NOT Required

Calculated Forces

Structure: CT46138-A-SBA **Code:** EIA/TIA-222-G 1/31/2017
Site Name: Torrington/Oandg Ind Inc **Exposure:** C
Height: 196.00 (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



Load Case: 1.2D + 1.0E										Iterations 24	
Gust Response Factor	1.10							Sds	0.19	Ss	0.18
Dead Load Factor	1.20	Seismic Load Factor	1.00	Sd1	0.10					S1	0.07
Wind Load Factor	0.00	Structure Frequency	0.28	SA	0.03	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	-78.84	-2.42	0.00	-308.92	0.00	308.92	8794.96	4397.48	21496.0	10671.5	0.00	0.00	0.00	0.038
5.00	-76.09	-2.39	0.00	-296.83	0.00	296.83	8639.43	4319.71	20738.5	10295.5	0.00	-0.01	0.038	
10.00	-73.38	-2.35	0.00	-284.87	0.00	284.87	8483.89	4241.95	19994.7	9926.22	0.02	-0.02	0.037	
15.00	-70.71	-2.30	0.00	-273.12	0.00	273.12	8328.36	4164.18	19264.4	9563.67	0.04	-0.02	0.037	
20.00	-68.09	-2.25	0.00	-261.61	0.00	261.61	8172.83	4086.41	18547.7	9207.87	0.07	-0.03	0.037	
25.00	-65.52	-2.19	0.00	-250.39	0.00	250.39	8017.29	4008.65	17844.6	8858.82	0.11	-0.04	0.036	
30.00	-62.98	-2.13	0.00	-239.45	0.00	239.45	7861.76	3930.88	17155.1	8516.51	0.16	-0.05	0.036	
35.00	-60.49	-2.07	0.00	-228.80	0.00	228.80	7706.22	3853.11	16479.1	8180.95	0.22	-0.06	0.036	
40.00	-58.04	-2.01	0.00	-218.45	0.00	218.45	7550.69	3775.35	15816.8	7852.13	0.28	-0.07	0.036	
45.00	-55.63	-1.95	0.00	-208.40	0.00	208.40	7395.16	3697.58	15168.0	7530.06	0.36	-0.08	0.035	
45.42	-55.43	-1.94	0.00	-207.59	0.00	207.59	7382.20	3691.10	15114.6	7503.52	0.37	-0.08	0.035	
48.90	-52.63	-1.86	0.00	-200.83	0.00	200.83	7273.84	3636.92	14671.4	7283.52	0.43	-0.08	0.023	
50.00	-51.76	-1.83	0.00	-198.78	0.00	198.78	7239.62	3619.81	14532.8	7214.73	0.45	-0.09	0.023	
52.75	-49.58	-1.77	0.00	-193.74	0.00	193.74	5810.43	2905.21	11825.7	5870.80	0.50	-0.09	0.024	
55.00	-48.70	-1.74	0.00	-189.76	0.00	189.76	5769.82	2884.91	11629.7	5773.48	0.54	-0.09	0.026	
57.15	-47.87	-1.72	0.00	-186.01	0.00	186.01	5730.75	2865.38	11443.3	5680.95	0.58	-0.10	0.026	
57.15	-47.87	-1.72	0.00	-186.01	0.00	186.01	5730.75	2865.38	11443.3	5680.95	0.58	-0.10	0.026	
60.00	-46.77	-1.70	0.00	-181.10	0.00	181.10	5678.55	2839.28	11197.7	5559.03	0.64	-0.10	0.041	
65.00	-44.88	-1.65	0.00	-172.61	0.00	172.61	5551.73	2775.86	10705.1	5314.51	0.75	-0.11	0.041	
70.00	-43.01	-1.61	0.00	-164.35	0.00	164.35	5427.30	2713.65	10228.2	5077.73	0.87	-0.12	0.040	
75.00	-41.19	-1.56	0.00	-156.33	0.00	156.33	5302.88	2651.44	9762.15	4846.34	1.01	-0.13	0.040	
80.00	-39.39	-1.53	0.00	-148.51	0.00	148.51	5178.45	2589.22	9306.93	4620.35	1.15	-0.15	0.040	
84.00	-37.98	-1.50	0.00	-142.41	0.00	142.41	5078.91	2539.45	8950.59	4443.45	1.28	-0.16	0.040	
85.00	-37.42	-1.49	0.00	-140.91	0.00	140.91	5054.02	2527.01	8862.59	4399.76	1.31	-0.16	0.039	
87.00	-36.30	-1.47	0.00	-137.94	0.00	137.94	5004.25	2502.13	8687.89	4313.04	1.38	-0.16	0.024	
90.00	-34.64	-1.44	0.00	-133.54	0.00	133.54	4929.59	2464.80	8429.11	4184.57	1.49	-0.17	0.024	
90.42	-34.41	-1.44	0.00	-132.94	0.00	132.94	3591.78	1795.89	6277.53	3116.43	1.50	-0.17	0.025	
95.00	-33.15	-1.43	0.00	-126.36	0.00	126.36	3535.98	1767.99	6038.44	2997.74	1.67	-0.18	0.028	
100.00	-31.71	-1.43	0.00	-119.22	0.00	119.22	3473.75	1736.87	5780.45	2869.66	1.86	-0.18	0.027	
105.00	-30.38	-1.43	0.00	-112.08	0.00	112.08	3410.09	1705.04	5525.58	2743.13	2.05	-0.19	0.026	
109.50	-28.67	-1.42	0.00	-105.66	0.00	105.66	3351.58	1675.79	5299.03	2630.66	2.24	-0.20	0.025	
110.00	-28.54	-1.43	0.00	-104.95	0.00	104.95	3345.00	1672.50	5274.03	2618.25	2.26	-0.20	0.025	
112.25	-27.97	-1.43	0.00	-101.74	0.00	101.74	3315.25	1657.63	5161.96	2562.62	2.36	-0.21	0.025	
112.25	-27.97	-1.43	0.00	-101.74	0.00	101.74	3315.25	1657.63	5161.96	2562.62	2.36	-0.21	0.025	
115.00	-27.27	-1.43	0.00	-97.82	0.00	97.82	3278.49	1639.25	5025.98	2495.11	2.48	-0.21	0.048	
120.00	-26.03	-1.43	0.00	-90.68	0.00	90.68	3210.56	1605.28	4781.62	2373.80	2.71	-0.23	0.046	
123.58	-25.15	-1.43	0.00	-85.55	0.00	85.55	3148.16	1574.08	4590.15	2278.75	2.89	-0.24	0.046	
125.00	-24.62	-1.43	0.00	-83.53	0.00	83.53	3121.72	1560.86	4512.97	2240.43	2.96	-0.25	0.045	
125.60	-24.40	-1.43	0.00	-82.67	0.00	82.67	3110.52	1555.26	4480.48	2224.30	2.99	-0.25	0.026	
129.00	-23.15	-1.43	0.00	-77.80	0.00	77.80	2149.47	1074.74	3099.22	1538.58	3.17	-0.26	0.027	
130.00	-22.89	-1.43	0.00	-76.38	0.00	76.38	2141.27	1070.63	3068.69	1523.43	3.22	-0.26	0.031	
135.00	-21.91	-1.43	0.00	-69.24	0.00	69.24	2099.38	1049.69	2916.97	1448.11	3.50	-0.27	0.029	
136.26	-21.67	-1.43	0.00	-67.44	0.00	67.44	2088.60	1044.30	2879.00	1429.26	3.57	-0.27	0.028	
136.26	-21.67	-1.43	0.00	-67.44	0.00	67.44	2088.60	1044.30	2879.00	1429.26	3.57	-0.27	0.028	
140.00	-20.96	-1.43	0.00	-62.10	0.00	62.10	2056.07	1028.04	2766.99	1373.65	3.78	-0.28	0.055	
145.00	-18.67	-1.42	0.00	-54.95	0.00	54.95	2011.34	1005.67	2618.95	1300.16	4.09	-0.30	0.052	
150.00	-17.80	-1.43	0.00	-47.83	0.00	47.83	1965.18	982.59	2473.01	1227.71	4.41	-0.32	0.048	

Calculated Forces

Structure: CT46138-A-SBA	Code: EIA/TIA-222-G	1/31/2017
Site Name: Torrington/Oandg Ind Inc	Exposure: C	
Height: 196.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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155.00	-14.27	-1.40	0.00	-40.70	0.00	40.70	1917.59	958.80	2329.38	1156.40	4.76	-0.34	0.043
160.00	-13.51	-1.39	0.00	-33.70	0.00	33.70	1868.58	934.29	2188.24	1086.34	5.13	-0.36	0.038
161.50	-11.49	-1.33	0.00	-31.61	0.00	31.61	1853.60	926.80	2146.41	1065.57	5.24	-0.36	0.036
165.00	-10.97	-1.32	0.00	-26.95	0.00	26.95	1818.15	909.07	2049.77	1017.59	5.51	-0.38	0.033
165.25	-10.94	-1.32	0.00	-26.62	0.00	26.62	1815.59	907.79	2042.92	1014.19	5.53	-0.38	0.032
169.58	-10.02	-1.27	0.00	-20.91	0.00	20.91	1040.26	520.13	1155.41	573.59	5.88	-0.39	0.046
170.00	-9.98	-1.27	0.00	-20.38	0.00	20.38	1038.39	519.19	1149.55	570.68	5.91	-0.39	0.045
175.00	-6.60	-1.00	0.00	-14.02	0.00	14.02	1015.17	507.59	1079.51	535.91	6.33	-0.41	0.033
180.00	-6.16	-0.97	0.00	-9.00	0.00	9.00	990.53	495.27	1010.05	501.43	6.76	-0.42	0.024
185.00	-3.66	-0.64	0.00	-4.15	0.00	4.15	964.47	482.24	941.35	467.32	7.21	-0.43	0.013
187.00	-3.39	-0.60	0.00	-2.87	0.00	2.87	953.65	476.82	914.12	453.81	7.39	-0.43	0.010
190.00	-3.19	-0.58	0.00	-1.05	0.00	1.05	936.98	468.49	873.60	433.69	7.66	-0.43	0.006
191.50	-0.25	-0.05	0.00	-0.19	0.00	0.19	928.46	464.23	853.48	423.70	7.79	-0.43	0.001
195.00	-0.06	-0.01	0.00	-0.01	0.00	0.01	908.07	454.03	806.98	400.62	8.11	-0.43	0.000
196.00	0.00	-0.01	0.00	0.00	0.00	0.00	902.11	451.06	793.81	394.08	8.20	-0.43	0.000

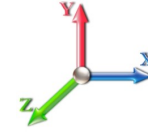
Seismic Segment Forces (Factored)

Structure: CT46138-A-SBA	Code: EIA/TIA-222-G	1/31/2017
Site Name: Torrington/Oandg Ind Inc	Exposure: C	
Height: 196.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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Load Case: 0.9D + 1.0E					Iterations 24
Gust Response Factor	1.10			Sds	0.19
Dead Load Factor	0.90	Seismic Load Factor	1.00	Sd1	0.10
Wind Load Factor	0.00	Structure Frequency	0.28	SA	0.03
				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		1996.2	0.00	0.03	0.01	35.23	
10.00		1960.6	0.00	0.04	0.03	51.56	
15.00		1925.0	0.01	0.06	0.03	59.83	
20.00		1889.4	0.02	0.06	0.04	63.92	
25.00		1853.8	0.03	0.07	0.04	65.74	
30.00		1818.1	0.04	0.07	0.04	66.37	
35.00		1782.5	0.06	0.07	0.04	66.45	
40.00		1746.9	0.08	0.07	0.04	66.35	
45.00		1711.3	0.10	0.07	0.04	66.21	
45.42	Bot - Section 2	141.00	0.10	0.07	0.04	5.46	
48.90	RB1	2125.6	0.12	0.07	0.03	83.45	
50.00		664.80	0.12	0.07	0.03	26.20	
52.75	Top - Section 1	1648.4	0.14	0.07	0.03	65.61	
55.00		600.65	0.15	0.07	0.03	24.08	
57.15	RT1	568.56	0.16	0.07	0.03	22.93	
60.00		745.55	0.18	0.07	0.03	30.23	
65.00		1285.6	0.21	0.06	0.02	52.17	
70.00		1257.1	0.24	0.06	0.02	50.11	
75.00		1228.6	0.28	0.05	0.01	46.66	
80.00		1200.1	0.31	0.04	0.01	41.37	
84.00	Bot - Section 3	939.59	0.35	0.03	0.01	28.36	
85.00		409.65	0.36	0.03	0.01	11.83	
87.00	RB2	813.31	0.37	0.03	0.01	21.13	
90.00		1205.0	0.40	0.02	0.01	25.16	
90.42	Top - Section 2	165.94	0.40	0.02	0.01	3.34	
95.00		781.83	0.44	0.00	0.01	8.23	
100.00	Appurtenance(s)	908.43	0.49	-0.01	0.01	-1.36	
105.00		811.06	0.54	-0.03	0.01	-11.33	
109.50	Appurtenance(s)	1161.6	0.59	-0.05	0.01	-28.26	
110.00		78.01	0.60	-0.05	0.01	-1.98	
112.25	RT2	348.39	0.62	-0.06	0.02	-10.39	
115.00		419.93	0.65	-0.07	0.02	-14.50	
120.00		746.94	0.71	-0.09	0.03	-30.38	
123.58	Bot - Section 4	522.16	0.75	-0.10	0.04	-22.49	
125.00		358.80	0.77	-0.11	0.05	-15.63	
125.60	RB3	151.06	0.78	-0.11	0.05	-6.60	
129.00	Top - Section 3	845.83	0.82	-0.12	0.06	-36.82	
130.00	Appurtenance(s)	159.35	0.83	-0.12	0.06	-6.89	
135.00		522.14	0.90	-0.12	0.09	-20.74	
136.26	RT3	129.05	0.91	-0.12	0.09	-4.95	
140.00		377.06	0.96	-0.12	0.11	-12.52	
145.00	Appurtenance(s)	1619.2	1.03	-0.10	0.15	-38.44	
150.00		474.06	1.11	-0.07	0.19	-5.39	
155.00	Appurtenance(s)	2687.3	1.18	-0.01	0.24	10.42	
160.00		442.00	1.26	0.07	0.30	9.74	

Seismic Segment Forces (Factored)

Structure: CT46138-A-SBA	Code: EIA/TIA-222-G	1/31/2017	
Site Name: Torrington/Oandg Ind Inc	Exposure: C		
Height: 196.00 (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



161.50	Appurtenance(s)	1629.4	1.28	0.10	0.32	45.72	
165.00		296.50	1.34	0.18	0.37	12.79	
165.25	Bot - Section 5	20.88	1.34	0.19	0.38	0.92	
169.58	Top - Section 4	596.66	1.41	0.31	0.45	38.84	
170.00		22.76	1.42	0.33	0.45	1.53	
175.00	Appurtenance(s)	2624.8	1.51	0.52	0.55	247.65	
180.00		256.70	1.59	0.76	0.66	31.98	
185.00	Appurtenance(s)	1967.1	1.68	1.06	0.79	310.71	
187.00	Appurtenance(s)	203.41	1.72	1.20	0.85	35.03	
190.00		139.91	1.78	1.43	0.94	27.22	
191.50	Appurtenance(s)	2438.9	1.80	1.56	0.98	502.84	
195.00		156.13	1.87	1.88	1.10	36.60	
196.00	Appurtenance(s)	50.15	1.89	1.98	1.14	12.18	
Totals:		55,631.8				2,143.5	Total Wind: 42,485.2

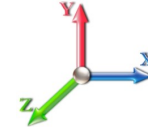
Seismic Base Shear is Less Than 50% of Wind Force - An Analysis is NOT Required

Calculated Forces

Structure: CT46138-A-SBA	Code: EIA/TIA-222-G	1/31/2017
Site Name: Torrington/Oandg Ind Inc	Exposure: C	
Height: 196.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



Load Case: 0.9D + 1.0E										Iterations 24
Gust Response Factor	1.10							Sds	0.19	Ss 0.18
Dead Load Factor	0.90	Seismic Load Factor	1.00	Sd1	0.10					S1 0.07
Wind Load Factor	0.00	Structure Frequency	0.28	SA	0.03	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	-59.13	-2.42	0.00	-305.00	0.00	305.00	8794.96	4397.48	21496.0	10671.5	0.00	0.00	0.00	0.035
5.00	-57.06	-2.39	0.00	-292.93	0.00	292.93	8639.43	4319.71	20738.5	10295.5	0.00	-0.01	0.035	
10.00	-55.03	-2.34	0.00	-280.98	0.00	280.98	8483.89	4241.95	19994.7	9926.22	0.02	-0.02	0.035	
15.00	-53.04	-2.29	0.00	-269.26	0.00	269.26	8328.36	4164.18	19264.4	9563.67	0.04	-0.02	0.035	
20.00	-51.07	-2.23	0.00	-257.81	0.00	257.81	8172.83	4086.41	18547.7	9207.87	0.07	-0.03	0.034	
25.00	-49.14	-2.17	0.00	-246.64	0.00	246.64	8017.29	4008.65	17844.6	8858.82	0.11	-0.04	0.034	
30.00	-47.23	-2.11	0.00	-235.77	0.00	235.77	7861.76	3930.88	17155.1	8516.51	0.16	-0.05	0.034	
35.00	-45.36	-2.05	0.00	-225.20	0.00	225.20	7706.22	3853.11	16479.1	8180.95	0.21	-0.06	0.033	
40.00	-43.53	-1.99	0.00	-214.94	0.00	214.94	7550.69	3775.35	15816.8	7852.13	0.28	-0.07	0.033	
45.00	-41.72	-1.93	0.00	-204.99	0.00	204.99	7395.16	3697.58	15168.0	7530.06	0.35	-0.08	0.033	
45.42	-41.57	-1.92	0.00	-204.19	0.00	204.19	7382.20	3691.10	15114.6	7503.52	0.36	-0.08	0.033	
48.90	-39.47	-1.84	0.00	-197.49	0.00	197.49	7273.84	3636.92	14671.4	7283.52	0.42	-0.08	0.022	
50.00	-38.82	-1.81	0.00	-195.47	0.00	195.47	7239.62	3619.81	14532.8	7214.73	0.44	-0.08	0.022	
52.75	-37.19	-1.75	0.00	-190.48	0.00	190.48	5810.43	2905.21	11825.7	5870.80	0.49	-0.09	0.022	
55.00	-36.53	-1.72	0.00	-186.55	0.00	186.55	5769.82	2884.91	11629.7	5773.48	0.53	-0.09	0.024	
57.15	-35.90	-1.70	0.00	-182.84	0.00	182.84	5730.75	2865.38	11443.3	5680.95	0.57	-0.09	0.024	
57.15	-35.90	-1.70	0.00	-182.84	0.00	182.84	5730.75	2865.38	11443.3	5680.95	0.57	-0.09	0.024	
60.00	-35.08	-1.68	0.00	-177.99	0.00	177.99	5678.55	2839.28	11197.7	5559.03	0.63	-0.10	0.038	
65.00	-33.66	-1.63	0.00	-169.62	0.00	169.62	5551.73	2775.86	10705.1	5314.51	0.74	-0.11	0.038	
70.00	-32.26	-1.58	0.00	-161.48	0.00	161.48	5427.30	2713.65	10228.2	5077.73	0.86	-0.12	0.038	
75.00	-30.89	-1.54	0.00	-153.58	0.00	153.58	5302.88	2651.44	9762.15	4846.34	0.99	-0.13	0.038	
80.00	-29.54	-1.50	0.00	-145.89	0.00	145.89	5178.45	2589.22	9306.93	4620.35	1.14	-0.14	0.037	
84.00	-28.49	-1.47	0.00	-139.90	0.00	139.90	5078.91	2539.45	8950.59	4443.45	1.26	-0.15	0.037	
85.00	-28.06	-1.46	0.00	-138.43	0.00	138.43	5054.02	2527.01	8862.59	4399.76	1.29	-0.16	0.037	
87.00	-27.23	-1.44	0.00	-135.51	0.00	135.51	5004.25	2502.13	8687.89	4313.04	1.36	-0.16	0.022	
90.00	-25.98	-1.41	0.00	-131.20	0.00	131.20	4929.59	2464.80	8429.11	4184.57	1.46	-0.17	0.022	
90.42	-25.81	-1.41	0.00	-130.61	0.00	130.61	3591.78	1795.89	6277.53	3116.43	1.48	-0.17	0.024	
95.00	-24.86	-1.40	0.00	-124.16	0.00	124.16	3535.98	1767.99	6038.44	2997.74	1.64	-0.17	0.026	
100.00	-23.78	-1.40	0.00	-117.15	0.00	117.15	3473.75	1736.87	5780.45	2869.66	1.83	-0.18	0.025	
105.00	-22.79	-1.40	0.00	-110.15	0.00	110.15	3410.09	1705.04	5525.58	2743.13	2.02	-0.19	0.025	
109.50	-21.50	-1.40	0.00	-103.85	0.00	103.85	3351.58	1675.79	5299.03	2630.66	2.21	-0.20	0.024	
110.00	-21.40	-1.40	0.00	-103.15	0.00	103.15	3345.00	1672.50	5274.03	2618.25	2.23	-0.20	0.024	
112.25	-20.97	-1.40	0.00	-100.00	0.00	100.00	3315.25	1657.63	5161.96	2562.62	2.32	-0.20	0.023	
112.25	-20.97	-1.40	0.00	-100.00	0.00	100.00	3315.25	1657.63	5161.96	2562.62	2.32	-0.20	0.023	
115.00	-20.45	-1.40	0.00	-96.16	0.00	96.16	3278.49	1639.25	5025.98	2495.11	2.44	-0.21	0.045	
120.00	-19.52	-1.40	0.00	-89.15	0.00	89.15	3210.56	1605.28	4781.62	2373.80	2.67	-0.22	0.044	
123.58	-18.86	-1.40	0.00	-84.13	0.00	84.13	3148.16	1574.08	4590.15	2278.75	2.84	-0.24	0.043	
125.00	-18.46	-1.40	0.00	-82.14	0.00	82.14	3121.72	1560.86	4512.97	2240.43	2.91	-0.24	0.043	
125.60	-18.30	-1.40	0.00	-81.30	0.00	81.30	3110.52	1555.26	4480.48	2224.30	2.94	-0.24	0.024	
129.00	-17.36	-1.40	0.00	-76.53	0.00	76.53	2149.47	1074.74	3099.22	1538.58	3.12	-0.25	0.026	
130.00	-17.16	-1.40	0.00	-75.13	0.00	75.13	2141.27	1070.63	3068.69	1523.43	3.17	-0.25	0.029	
135.00	-16.43	-1.40	0.00	-68.13	0.00	68.13	2099.38	1049.69	2916.97	1448.11	3.44	-0.26	0.027	
136.26	-16.25	-1.40	0.00	-66.36	0.00	66.36	2088.60	1044.30	2879.00	1429.26	3.51	-0.27	0.027	
136.26	-16.25	-1.40	0.00	-66.36	0.00	66.36	2088.60	1044.30	2879.00	1429.26	3.51	-0.27	0.027	
140.00	-15.72	-1.40	0.00	-61.13	0.00	61.13	2056.07	1028.04	2766.99	1373.65	3.72	-0.27	0.052	
145.00	-14.00	-1.40	0.00	-54.12	0.00	54.12	2011.34	1005.67	2618.95	1300.16	4.02	-0.30	0.049	
150.00	-13.35	-1.40	0.00	-47.13	0.00	47.13	1965.18	982.59	2473.01	1227.71	4.34	-0.32	0.045	

Calculated Forces

Structure: CT46138-A-SBA	Code: EIA/TIA-222-G	1/31/2017
Site Name: Torrington/Oandg Ind Inc	Exposure: C	
Height: 196.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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155.00	-10.70	-1.38	0.00	-40.13	0.00	40.13	1917.59	958.80	2329.38	1156.40	4.68	-0.33	0.040
160.00	-10.13	-1.37	0.00	-33.24	0.00	33.24	1868.58	934.29	2188.24	1086.34	5.04	-0.35	0.036
161.50	-8.61	-1.31	0.00	-31.19	0.00	31.19	1853.60	926.80	2146.41	1065.57	5.16	-0.36	0.034
165.00	-8.23	-1.30	0.00	-26.60	0.00	26.60	1818.15	909.07	2049.77	1017.59	5.42	-0.37	0.031
165.25	-8.20	-1.30	0.00	-26.27	0.00	26.27	1815.59	907.79	2042.92	1014.19	5.44	-0.37	0.030
169.58	-7.52	-1.26	0.00	-20.65	0.00	20.65	1040.26	520.13	1155.41	573.59	5.78	-0.38	0.043
170.00	-7.48	-1.26	0.00	-20.12	0.00	20.12	1038.39	519.19	1149.55	570.68	5.82	-0.38	0.042
175.00	-4.95	-0.99	0.00	-13.85	0.00	13.85	1015.17	507.59	1079.51	535.91	6.23	-0.40	0.031
180.00	-4.62	-0.96	0.00	-8.89	0.00	8.89	990.53	495.27	1010.05	501.43	6.65	-0.41	0.022
185.00	-2.74	-0.63	0.00	-4.10	0.00	4.10	964.47	482.24	941.35	467.32	7.09	-0.42	0.012
187.00	-2.54	-0.60	0.00	-2.83	0.00	2.83	953.65	476.82	914.12	453.81	7.27	-0.42	0.009
190.00	-2.39	-0.57	0.00	-1.04	0.00	1.04	936.98	468.49	873.60	433.69	7.53	-0.42	0.005
191.50	-0.19	-0.05	0.00	-0.19	0.00	0.19	928.46	464.23	853.48	423.70	7.67	-0.42	0.001
195.00	-0.05	-0.01	0.00	-0.01	0.00	0.01	908.07	454.03	806.98	400.62	7.98	-0.43	0.000
196.00	0.00	-0.01	0.00	0.00	0.00	0.00	902.11	451.06	793.81	394.08	8.07	-0.43	0.000

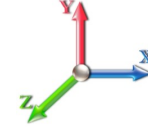
Wind Loading - Shaft

Structure: CT46138-A-SBA	Code: EIA/TIA-222-G	1/31/2017
Site Name: Torrington/Oandg Ind Inc	Exposure: C	
Height: 196.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



Load Case: 1.0D + 1.0W 60 mph Wind

Dead Load Factor 1.00
Wind Load Factor 1.00



Iterations 25

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	282.00	0.750	0.000	0.00	0.000	0.00	0.0	0.0	0.0
5.00		1.00	0.85	7.442	8.19	277.07	0.750	0.000	5.00	25.267	18.95	155.1	0.0	1996.3
10.00		1.00	0.85	7.442	8.19	272.13	0.750	0.000	5.00	24.821	18.62	152.4	0.0	1960.7
15.00		1.00	0.85	7.442	8.19	267.20	0.750	0.000	5.00	24.375	18.28	149.6	0.0	1925.0
20.00		1.00	0.90	7.896	8.69	270.15	0.750	0.000	5.00	23.929	17.95	155.9	0.0	1889.4
25.00		1.00	0.95	8.276	9.10	271.37	0.750	0.000	5.00	23.482	17.61	160.3	0.0	1853.8
30.00		1.00	0.98	8.600	9.46	271.32	0.750	0.000	5.00	23.036	17.28	163.4	0.0	1818.2
35.00		1.00	1.01	8.883	9.77	270.37	0.750	0.000	5.00	22.590	16.94	165.6	0.0	1782.6
40.00		1.00	1.04	9.137	10.05	268.72	0.750	0.000	5.00	22.144	16.61	166.9	0.0	1747.0
45.00		1.00	1.07	9.366	10.30	266.54	0.750	0.000	5.00	21.698	16.27	167.7	0.0	1711.3
45.42	Bot - Section 2	1.00	1.07	9.384	10.32	266.34	0.750	0.000	0.42	1.788	1.34	13.8	0.0	141.0
48.90	RB1	1.00	1.09	9.531	10.48	264.53	0.750	0.000	3.48	15.123	11.34	118.9	0.0	2125.7
50.00		1.00	1.09	9.576	10.53	263.92	0.750	0.000	1.10	4.731	3.55	37.4	0.0	664.8
52.75	Top - Section 1	1.00	1.11	9.685	10.65	262.31	0.750	0.000	2.75	11.732	8.80	93.7	0.0	1648.4
55.00		1.00	1.12	9.770	10.75	266.31	0.750	0.000	2.25	9.499	7.12	76.6	0.0	600.6
57.15	RT1	1.00	1.12	9.850	10.83	264.94	0.750	0.000	2.15	8.992	6.74	73.1	0.0	568.6
60.00		1.00	1.14	9.951	10.95	263.05	0.750	0.000	2.85	11.793	8.84	96.8	0.0	745.6
65.00		1.00	1.16	10.120	11.13	259.52	0.750	0.000	5.00	20.339	15.25	169.8	0.0	1285.6
70.00		1.00	1.17	10.279	11.31	255.75	0.750	0.000	5.00	19.893	14.92	168.7	0.0	1257.1
75.00		1.00	1.19	10.430	11.47	251.78	0.750	0.000	5.00	19.446	14.58	167.3	0.0	1228.6
80.00		1.00	1.21	10.572	11.63	247.61	0.750	0.000	5.00	19.000	14.25	165.7	0.0	1200.1
84.00	Bot - Section 3	1.00	1.22	10.681	11.75	244.15	0.750	0.000	4.00	14.879	11.16	131.1	0.0	939.6
85.00		1.00	1.22	10.708	11.78	243.27	0.750	0.000	1.00	3.739	2.80	33.0	0.0	409.6
87.00	RB2	1.00	1.23	10.761	11.84	241.50	0.750	0.000	2.00	7.424	5.57	65.9	0.0	813.3
90.00		1.00	1.24	10.838	11.92	238.79	0.750	0.000	3.00	11.003	8.25	98.4	0.0	1205.0
90.42	Top - Section 2	1.00	1.24	10.848	11.93	238.41	0.750	0.000	0.42	1.515	1.14	13.6	0.0	165.9
95.00		1.00	1.25	10.962	12.06	238.44	0.750	0.000	4.58	16.465	12.35	148.9	0.0	781.8
100.00	Appurtenance(s)	1.00	1.27	11.081	12.19	233.71	0.750	0.000	5.00	17.535	13.15	160.3	0.0	832.4
105.00		1.00	1.28	11.195	12.31	228.86	0.750	0.000	5.00	17.089	12.82	157.8	0.0	811.1
109.50	Appurtenance(s)	1.00	1.29	11.294	12.42	224.40	0.750	0.000	4.50	14.998	11.25	139.8	0.0	711.7
110.00		1.00	1.29	11.305	12.44	223.90	0.750	0.000	0.50	1.644	1.23	15.3	0.0	78.0
112.25	RT2	1.00	1.30	11.354	12.49	221.63	0.750	0.000	2.25	7.344	5.51	68.8	0.0	348.4
115.00		1.00	1.30	11.412	12.55	218.84	0.750	0.000	2.75	8.853	6.64	83.3	0.0	419.9
120.00		1.00	1.32	11.514	12.67	213.68	0.750	0.000	5.00	15.750	11.81	149.6	0.0	746.9
123.58	Bot - Section 4	1.00	1.32	11.586	12.74	209.93	0.750	0.000	3.58	11.013	8.26	105.3	0.0	522.2
125.00		1.00	1.33	11.614	12.78	208.44	0.750	0.000	1.42	4.359	3.27	41.8	0.0	358.8
125.60	RB3	1.00	1.33	11.625	12.79	207.80	0.750	0.000	0.60	1.835	1.38	17.6	0.0	151.1
129.00	Top - Section 3	1.00	1.34	11.691	12.86	204.18	0.750	0.000	3.40	10.278	7.71	99.1	0.0	845.8
130.00	Appurtenance(s)	1.00	1.34	11.710	12.88	206.42	0.750	0.000	1.00	2.984	2.24	28.8	0.0	106.4
135.00		1.00	1.35	11.803	12.98	201.03	0.750	0.000	5.00	14.651	10.99	142.7	0.0	522.1
136.26	RT3	1.00	1.35	11.827	13.01	199.66	0.750	0.000	1.26	3.622	2.72	35.3	0.0	129.1
140.00		1.00	1.36	11.894	13.08	195.56	0.750	0.000	3.74	10.583	7.94	103.9	0.0	377.1
145.00	Appurtenance(s)	1.00	1.37	11.982	13.18	190.02	0.750	0.000	5.00	13.759	10.32	136.0	0.0	490.1
150.00		1.00	1.38	12.068	13.27	184.42	0.750	0.000	5.00	13.313	9.98	132.5	0.0	474.1
155.00	Appurtenance(s)	1.00	1.39	12.152	13.37	178.75	0.750	0.000	5.00	12.867	9.65	129.0	0.0	458.0
160.00		1.00	1.40	12.233	13.46	173.02	0.751 *	0.000	5.00	12.421	9.33	125.6	0.0	442.0
161.50	Appurtenance(s)	1.00	1.40	12.257	13.48	171.29	0.757 *	0.000	1.50	3.639	2.75	37.1	0.0	129.5

Wind Loading - Shaft

Structure: CT46138-A-SBA	Code: EIA/TIA-222-G	1/31/2017
Site Name: Torrington/Oandg Ind Inc	Exposure: C	
Height: 196.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II
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165.00	1.00	1.41	12.313	13.54	167.23	0.761 *	0.000	3.50	8.335	6.34	85.9	0.0	296.5
165.25 Bot - Section 5	1.00	1.41	12.317	13.55	166.94	0.765 *	0.000	0.25	0.587	0.45	6.1	0.0	20.9
169.58 Top - Section 4	1.00	1.41	12.384	13.62	161.88	0.769 *	0.000	4.33	10.136	7.79	106.2	0.0	596.7
170.00	1.00	1.42	12.390	13.63	163.67	0.770 *	0.000	0.42	0.957	0.74	10.0	0.0	22.8
175.00 Appurtenance(s)	1.00	1.42	12.466	13.71	157.78	0.775 *	0.000	5.00	11.242	8.71	119.5	0.0	267.4
180.00	1.00	1.43	12.540	13.79	151.84	0.750	0.000	5.00	10.796	8.10	111.7	0.0	256.7
185.00 Appurtenance(s)	1.00	1.44	12.613	13.87	145.86	0.750	0.000	5.00	10.350	7.76	107.7	0.0	246.0
187.00 Appurtenance(s)	1.00	1.44	12.642	13.91	143.45	0.750	0.000	2.00	4.015	3.01	41.9	0.0	95.4
190.00	1.00	1.45	12.684	13.95	139.82	0.750	0.000	3.00	5.889	4.42	61.6	0.0	139.9
191.50 Appurtenance(s)	1.00	1.45	12.705	13.98	138.00	0.750	0.000	1.50	2.884	2.16	30.2	0.0	68.5
195.00	1.00	1.46	12.753	14.03	133.74	0.750	0.000	3.50	6.573	4.93	69.2	0.0	156.1
196.00 Appurtenance(s)	1.00	1.46	12.767	14.04	132.52	0.750	0.000	1.00	1.838	1.38	19.4	0.0	43.6
							Totals:	196.00			5,788.8		43,630.8

* Cf Adjusted by Linear Load Ra Effect

Discrete Appurtenance Forces

Structure: CT46138-A-SBA	Code: EIA/TIA-222-G	1/31/2017
Site Name: Torrington/Oandg Ind Inc	Exposure: C	
Height: 196.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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Load Case: 1.0D + 1.0W 60 mph Wind

Dead Load Factor 1.00
Wind Load Factor 1.00



Iterations 25

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	196.00	6' Lightning rod	1	12.767	14.044	1.00	1.00	0.38	6.50	0.000	0.000	5.34	0.00	0.00
2	191.50	Low Profile Platform	1	12.705	13.975	1.00	1.00	22.00	1500.00	0.000	0.000	307.46	0.00	0.00
3	191.50	ACU-A20-N - RET	4	12.705	13.975	0.60	0.80	0.34	4.00	0.000	0.000	4.70	0.00	0.00
4	191.50	800MHz Filter	3	12.705	13.975	0.54	0.80	1.25	26.40	0.000	0.000	17.53	0.00	0.00
5	191.50	RRH8x20-25 - RRU	3	12.705	13.975	0.54	0.80	6.51	210.00	0.000	0.000	91.01	0.00	0.00
6	191.50	1900MHz - RRU	3	12.705	13.975	0.54	0.80	6.11	132.00	0.000	0.000	85.40	0.00	0.00
7	191.50	800MHz - RRU	3	12.705	13.975	0.54	0.80	4.00	159.00	0.000	0.000	55.96	0.00	0.00
8	191.50	APXVSP18-C-A20	3	12.705	13.975	0.66	0.80	15.98	171.00	0.000	0.000	223.27	0.00	0.00
9	191.50	APXVTM14-C-120	3	12.705	13.975	0.68	0.80	12.93	168.00	0.000	0.000	180.75	0.00	0.00
10	187.00	BA80-41-DIN	1	12.785	14.064	1.00	1.00	9.40	68.00	0.000	10.333	132.20	0.00	1366.08
11	187.00	Pipe mount	1	12.642	13.906	0.56	0.75	1.48	40.00	0.000	0.000	20.57	0.00	0.00
12	185.00	Low Profile Platform	1	12.613	13.874	1.00	1.00	22.00	1500.00	0.000	0.000	305.23	0.00	0.00
13	185.00	FD9R6004/2C-3L -	6	12.613	13.874	0.56	0.80	1.21	18.60	0.000	0.000	16.78	0.00	0.00
14	185.00	BXA-70063 6CF_2	3	12.613	13.874	0.66	0.80	14.90	51.00	0.000	0.000	206.69	0.00	0.00
15	185.00	LPA-80063/4CF	6	12.613	13.874	0.68	0.80	25.09	120.00	0.000	0.000	348.13	0.00	0.00
16	185.00	BXA-171063-8BF_2	3	12.613	13.874	0.70	0.80	6.14	31.50	0.000	0.000	85.17	0.00	0.00
17	175.00	21401 TMA	12	12.466	13.713	0.46	0.80	7.06	169.20	0.000	0.000	96.80	0.00	0.00
18	175.00	AM-X-CD-16-65-00T-RET	3	12.466	13.713	0.60	0.80	14.44	145.50	0.000	0.000	197.96	0.00	0.00
19	175.00	Low Profile Platform	1	12.466	13.713	1.00	1.00	22.00	1500.00	0.000	0.000	301.68	0.00	0.00
20	175.00	DC6-48-60-18-8F	1	12.466	13.713	0.80	0.80	0.74	32.80	0.000	0.000	10.09	0.00	0.00
21	175.00	RRUS-11	3	12.466	13.713	0.54	0.80	4.05	150.00	0.000	0.000	55.57	0.00	0.00
22	175.00	7770	6	12.466	13.713	0.68	0.80	22.44	210.00	0.000	0.000	307.72	0.00	0.00
23	175.00	RRUS-12	3	12.466	13.713	0.54	0.80	4.34	150.00	0.000	0.000	59.54	0.00	0.00
24	161.50	Low Profile Platform	1	12.257	13.483	1.00	1.00	22.00	1500.00	0.000	0.000	296.63	0.00	0.00
25	155.00	KRY 112 114 TMA	3	12.152	13.367	0.60	0.80	0.74	33.00	0.000	0.000	9.86	0.00	0.00
26	155.00	AIR 21 B2A/B4P	3	12.152	13.367	0.66	0.80	12.13	274.50	0.000	0.000	162.16	0.00	0.00
27	155.00	AIR 21 B4A/B2P	3	12.152	13.367	0.66	0.80	12.13	270.90	0.000	0.000	162.16	0.00	0.00
28	155.00	T-Arms w/ Handrail kit &	3	12.152	13.367	0.56	0.75	29.53	1500.00	0.000	0.000	394.74	0.00	0.00
29	155.00	LNx-6515DS-A1M	3	12.152	13.367	0.64	0.80	22.02	150.90	0.000	0.000	294.37	0.00	0.00
30	145.00	APXV18-206517S-C	3	11.982	13.181	0.66	0.80	10.30	79.20	0.000	0.000	135.74	0.00	0.00
31	145.00	T-Arms	3	11.982	13.181	0.56	0.75	13.50	1050.00	0.000	0.000	177.94	0.00	0.00
32	130.00	ANT150F2	1	11.757	12.933	1.00	1.00	1.23	13.00	0.000	2.500	15.91	0.00	39.77
33	130.00	Standoff	1	11.710	12.881	0.56	0.75	1.48	40.00	0.000	0.000	19.06	0.00	0.00
34	109.50	Standoff	1	11.294	12.424	0.56	0.75	1.48	40.00	0.000	0.000	18.38	0.00	0.00
35	109.50	Standoff	5	11.294	12.424	0.56	0.75	7.40	200.00	0.000	0.000	91.90	0.00	0.00
36	109.50	4' Omni	1	11.338	12.471	1.00	1.00	1.00	10.00	0.000	2.000	12.47	0.00	24.94
37	109.50	14' Omni	5	11.443	12.587	1.00	1.00	21.00	200.00	0.000	7.000	264.33	0.00	1850.30
38	100.00	Standoff	1	11.081	12.189	0.56	0.75	1.48	40.00	0.000	0.000	18.03	0.00	0.00
39	100.00	MPRD	1	11.081	12.189	1.00	1.00	6.10	36.00	0.000	0.000	74.35	0.00	0.00

Totals: 12,001.00

5,263.57

Total Applied Force Summary

Structure: CT46138-A-SBA	Code: EIA/TIA-222-G	1/31/2017
Site Name: Torrington/Oandg Ind Inc	Exposure: C	
Height: 196.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II

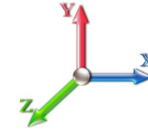


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Load Case: 1.0D + 1.0W 60 mph Wind

Dead Load Factor 1.00

Wind Load Factor 1.00



Iterations 25

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		155.13	2291.01	0.00	0.00
10.00		152.39	2255.39	0.00	0.00
15.00		149.65	2219.77	0.00	0.00
20.00		155.88	2184.15	0.00	0.00
25.00		160.33	2148.53	0.00	0.00
30.00		163.44	2112.92	0.00	0.00
35.00		165.56	2077.30	0.00	0.00
40.00		166.92	2041.68	0.00	0.00
45.00		167.66	2006.06	0.00	0.00
45.42		13.84	165.56	0.00	0.00
48.90		118.92	2331.00	0.00	0.00
50.00		37.37	729.64	0.00	0.00
52.75		93.74	1810.52	0.00	0.00
55.00		76.56	733.28	0.00	0.00
57.15		73.07	695.29	0.00	0.00
60.00		96.81	913.55	0.00	0.00
65.00		169.81	1580.35	0.00	0.00
70.00		168.70	1551.85	0.00	0.00
75.00		167.33	1523.36	0.00	0.00
80.00		165.72	1494.87	0.00	0.00
84.00		131.12	1175.38	0.00	0.00
85.00		33.03	468.59	0.00	0.00
87.00		65.91	931.20	0.00	0.00
90.00		98.38	1381.84	0.00	0.00
90.42		13.56	190.50	0.00	0.00
95.00		148.90	1052.00	0.00	0.00
100.00	(2) attachments	252.68	1203.16	0.00	0.00
105.00		157.83	1105.59	0.00	0.00
109.50	(12) attachments	526.83	1426.76	0.00	1875.24
110.00		15.34	106.98	0.00	0.00
112.25		68.79	478.76	0.00	0.00
115.00		83.35	579.28	0.00	0.00
120.00		149.62	1036.67	0.00	0.00
123.58		105.27	729.80	0.00	0.00
125.00		41.76	440.89	0.00	0.00
125.60		17.60	185.83	0.00	0.00
129.00		99.13	1042.85	0.00	0.00
130.00	(2) attachments	63.79	217.30	0.00	39.77
135.00		142.67	809.27	0.00	0.00
136.26		35.34	201.41	0.00	0.00
140.00		103.85	591.84	0.00	0.00
145.00	(6) attachments	449.69	1906.42	0.00	0.00
150.00		132.55	729.99	0.00	0.00
155.00	(15) attachments	1152.29	2943.26	0.00	0.00
160.00		125.60	630.03	0.00	0.00
161.50	(1) attachments	333.76	1685.88	0.00	0.00

Total Applied Force Summary

Structure: CT46138-A-SBA	Code: EIA/TIA-222-G	1/31/2017
Site Name: Torrington/Oandg Ind Inc	Exposure: C	
Height: 196.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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165.00	85.94	428.12	0.00	0.00
165.25	6.08	30.28	0.00	0.00
169.58	106.15	759.62	0.00	0.00
170.00	10.04	38.43	0.00	0.00
175.00	(29) attachments 1148.85	2812.91	0.00	0.00
180.00	111.69	371.98	0.00	0.00
185.00	(19) attachments 1069.71	2082.39	0.00	0.00
187.00	(2) attachments 194.65	224.56	0.00	1366.08
190.00	61.62	170.08	0.00	0.00
191.50	(23) attachments 996.30	2454.00	0.00	0.00
195.00	69.16	156.13	0.00	0.00
196.00	(1) attachments 24.70	50.15	0.00	0.00
Totals:		11,052.34	65,696.20	0.00
				3,281.10

Linear Appurtenance Segment Forces (Factored)

Structure: CT46138-A-SBA	Code: EIA/TIA-222-G	1/31/2017
Site Name: Torrington/Oandg Ind Inc	Exposure: C	
Height: 196.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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Load Case: 1.0D + 1.0W 60 mph Wind

Dead Load Factor 1.00
Wind Load Factor 1.00



Iterations 25

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	3" Flex Conduit	Yes	5.00	0.000	3.00	1.25	0.00	0.058	0.000	7.442	0.00	5.65
5.00	7/8" Coax	Yes	5.00	0.000	0.52	0.22	0.00	0.058	0.000	7.442	0.00	2.60
10.00	3" Flex Conduit	Yes	5.00	0.000	3.00	1.25	0.00	0.059	0.000	7.442	0.00	5.65
10.00	7/8" Coax	Yes	5.00	0.000	0.52	0.22	0.00	0.059	0.000	7.442	0.00	2.60
15.00	3" Flex Conduit	Yes	5.00	0.000	3.00	1.25	0.00	0.060	0.000	7.442	0.00	5.65
15.00	7/8" Coax	Yes	5.00	0.000	0.52	0.22	0.00	0.060	0.000	7.442	0.00	2.60
20.00	3" Flex Conduit	Yes	5.00	0.000	3.00	1.25	0.00	0.061	0.000	7.896	0.00	5.65
20.00	7/8" Coax	Yes	5.00	0.000	0.52	0.22	0.00	0.061	0.000	7.896	0.00	2.60
25.00	3" Flex Conduit	Yes	5.00	0.000	3.00	1.25	0.00	0.062	0.000	8.276	0.00	5.65
25.00	7/8" Coax	Yes	5.00	0.000	0.52	0.22	0.00	0.062	0.000	8.276	0.00	2.60
30.00	3" Flex Conduit	Yes	5.00	0.000	3.00	1.25	0.00	0.064	0.000	8.600	0.00	5.65
30.00	7/8" Coax	Yes	5.00	0.000	0.52	0.22	0.00	0.064	0.000	8.600	0.00	2.60
35.00	3" Flex Conduit	Yes	5.00	0.000	3.00	1.25	0.00	0.065	0.000	8.883	0.00	5.65
35.00	7/8" Coax	Yes	5.00	0.000	0.52	0.22	0.00	0.065	0.000	8.883	0.00	2.60
40.00	3" Flex Conduit	Yes	5.00	0.000	3.00	1.25	0.00	0.066	0.000	9.137	0.00	5.65
40.00	7/8" Coax	Yes	5.00	0.000	0.52	0.22	0.00	0.066	0.000	9.137	0.00	2.60
45.00	3" Flex Conduit	Yes	5.00	0.000	3.00	1.25	0.00	0.068	0.000	9.366	0.00	5.65
45.00	7/8" Coax	Yes	5.00	0.000	0.52	0.22	0.00	0.068	0.000	9.366	0.00	2.60
45.42	3" Flex Conduit	Yes	0.42	0.000	3.00	0.10	0.00	0.068	0.000	9.384	0.00	0.47
45.42	7/8" Coax	Yes	0.42	0.000	0.52	0.02	0.00	0.068	0.000	9.384	0.00	0.22
48.90	3" Flex Conduit	Yes	3.48	0.000	3.00	0.87	0.00	0.069	0.000	9.531	0.00	3.94
48.90	7/8" Coax	Yes	3.48	0.000	0.52	0.15	0.00	0.069	0.000	9.531	0.00	1.81
50.00	3" Flex Conduit	Yes	1.10	0.000	3.00	0.28	0.00	0.070	0.000	9.576	0.00	1.24
50.00	7/8" Coax	Yes	1.10	0.000	0.52	0.05	0.00	0.070	0.000	9.576	0.00	0.57
52.75	3" Flex Conduit	Yes	2.75	0.000	3.00	0.69	0.00	0.070	0.000	9.685	0.00	3.11
52.75	7/8" Coax	Yes	2.75	0.000	0.52	0.12	0.00	0.070	0.000	9.685	0.00	1.43
55.00	3" Flex Conduit	Yes	2.25	0.000	3.00	0.56	0.00	0.069	0.000	9.770	0.00	2.54
55.00	7/8" Coax	Yes	2.25	0.000	0.52	0.10	0.00	0.069	0.000	9.770	0.00	1.17
57.15	3" Flex Conduit	Yes	2.15	0.000	3.00	0.54	0.00	0.070	0.000	9.850	0.00	2.43
57.15	7/8" Coax	Yes	2.15	0.000	0.52	0.09	0.00	0.070	0.000	9.850	0.00	1.12
60.00	3" Flex Conduit	Yes	2.85	0.000	3.00	0.71	0.00	0.071	0.000	9.951	0.00	3.22
60.00	7/8" Coax	Yes	2.85	0.000	0.52	0.12	0.00	0.071	0.000	9.951	0.00	1.48
65.00	3" Flex Conduit	Yes	5.00	0.000	3.00	1.25	0.00	0.072	0.000	10.120	0.00	5.65
65.00	7/8" Coax	Yes	5.00	0.000	0.52	0.22	0.00	0.072	0.000	10.120	0.00	2.60
70.00	3" Flex Conduit	Yes	5.00	0.000	3.00	1.25	0.00	0.074	0.000	10.279	0.00	5.65
70.00	7/8" Coax	Yes	5.00	0.000	0.52	0.22	0.00	0.074	0.000	10.279	0.00	2.60
75.00	3" Flex Conduit	Yes	5.00	0.000	3.00	1.25	0.00	0.075	0.000	10.430	0.00	5.65
75.00	7/8" Coax	Yes	5.00	0.000	0.52	0.22	0.00	0.075	0.000	10.430	0.00	2.60
80.00	3" Flex Conduit	Yes	5.00	0.000	3.00	1.25	0.00	0.077	0.000	10.572	0.00	5.65
80.00	7/8" Coax	Yes	5.00	0.000	0.52	0.22	0.00	0.077	0.000	10.572	0.00	2.60
84.00	3" Flex Conduit	Yes	4.00	0.000	3.00	1.00	0.00	0.079	0.000	10.681	0.00	4.52
84.00	7/8" Coax	Yes	4.00	0.000	0.52	0.17	0.00	0.079	0.000	10.681	0.00	2.08
85.00	3" Flex Conduit	Yes	1.00	0.000	3.00	0.25	0.00	0.080	0.000	10.708	0.00	1.13
85.00	7/8" Coax	Yes	1.00	0.000	0.52	0.04	0.00	0.080	0.000	10.708	0.00	0.52
87.00	3" Flex Conduit	Yes	2.00	0.000	3.00	0.50	0.00	0.080	0.000	10.761	0.00	2.26
87.00	7/8" Coax	Yes	2.00	0.000	0.52	0.09	0.00	0.080	0.000	10.761	0.00	1.04
90.00	3" Flex Conduit	Yes	3.00	0.000	3.00	0.75	0.00	0.081	0.000	10.838	0.00	3.39

Linear Appurtenance Segment Forces (Factored)

Structure: CT46138-A-SBA	Code: EIA/TIA-222-G	1/31/2017
Site Name: Torrington/Oandg Ind Inc	Exposure: C	
Height: 196.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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Load Case: 1.0D + 1.0W 60 mph Wind

Dead Load Factor 1.00
Wind Load Factor 1.00



Iterations 25

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)
90.00	7/8" Coax	Yes	3.00	0.000	0.52	0.13	0.00	0.081	0.000	10.838	0.00	1.56
90.42	3" Flex Conduit	Yes	0.42	0.000	3.00	0.10	0.00	0.082	0.000	10.848	0.00	0.47
90.42	7/8" Coax	Yes	0.42	0.000	0.52	0.02	0.00	0.082	0.000	10.848	0.00	0.22
95.00	3" Flex Conduit	Yes	4.58	0.000	3.00	1.15	0.00	0.082	0.000	10.962	0.00	5.18
95.00	7/8" Coax	Yes	4.58	0.000	0.52	0.20	0.00	0.082	0.000	10.962	0.00	2.38
100.00	3" Flex Conduit	Yes	5.00	0.000	3.00	1.25	0.00	0.084	0.000	11.081	0.00	5.65
100.00	7/8" Coax	Yes	5.00	0.000	0.52	0.22	0.00	0.084	0.000	11.081	0.00	2.60
105.00	3" Flex Conduit	Yes	5.00	0.000	3.00	1.25	0.00	0.086	0.000	11.195	0.00	5.65
105.00	7/8" Coax	Yes	5.00	0.000	0.52	0.22	0.00	0.086	0.000	11.195	0.00	2.60
109.50	3" Flex Conduit	Yes	4.50	0.000	3.00	1.13	0.00	0.088	0.000	11.294	0.00	5.08
109.50	7/8" Coax	Yes	4.50	0.000	0.52	0.20	0.00	0.088	0.000	11.294	0.00	2.34
110.00	3" Flex Conduit	Yes	0.50	0.000	3.00	0.13	0.00	0.089	0.000	11.305	0.00	0.56
110.00	7/8" Coax	Yes	0.50	0.000	0.52	0.02	0.00	0.089	0.000	11.305	0.00	0.26
112.25	3" Flex Conduit	Yes	2.25	0.000	3.00	0.56	0.00	0.090	0.000	11.354	0.00	2.54
112.25	7/8" Coax	Yes	2.25	0.000	0.52	0.10	0.00	0.090	0.000	11.354	0.00	1.17
115.00	3" Flex Conduit	Yes	2.75	0.000	3.00	0.69	0.00	0.091	0.000	11.412	0.00	3.11
115.00	7/8" Coax	Yes	2.75	0.000	0.52	0.12	0.00	0.091	0.000	11.412	0.00	1.43
120.00	3" Flex Conduit	Yes	5.00	0.000	3.00	1.25	0.00	0.093	0.000	11.514	0.00	5.65
120.00	7/8" Coax	Yes	5.00	0.000	0.52	0.22	0.00	0.093	0.000	11.514	0.00	2.60
123.58	3" Flex Conduit	Yes	3.58	0.000	3.00	0.90	0.00	0.095	0.000	11.586	0.00	4.05
123.58	7/8" Coax	Yes	3.58	0.000	0.52	0.16	0.00	0.095	0.000	11.586	0.00	1.86
125.00	3" Flex Conduit	Yes	1.42	0.000	3.00	0.35	0.00	0.097	0.000	11.614	0.00	1.60
125.00	7/8" Coax	Yes	1.42	0.000	0.52	0.06	0.00	0.097	0.000	11.614	0.00	0.74
125.60	3" Flex Conduit	Yes	0.60	0.000	3.00	0.15	0.00	0.097	0.000	11.625	0.00	0.68
125.60	7/8" Coax	Yes	0.60	0.000	0.52	0.03	0.00	0.097	0.000	11.625	0.00	0.31
129.00	3" Flex Conduit	Yes	3.40	0.000	3.00	0.85	0.00	0.099	0.000	11.691	0.00	3.84
129.00	7/8" Coax	Yes	3.40	0.000	0.52	0.15	0.00	0.099	0.000	11.691	0.00	1.77
130.00	3" Flex Conduit	Yes	1.00	0.000	3.00	0.25	0.00	0.098	0.000	11.710	0.00	1.13
130.00	7/8" Coax	Yes	1.00	0.000	0.52	0.04	0.00	0.098	0.000	11.710	0.00	0.52
135.00	3" Flex Conduit	Yes	5.00	0.000	3.00	1.25	0.00	0.085	0.000	11.803	0.00	5.65
136.26	3" Flex Conduit	Yes	1.26	0.000	3.00	0.31	0.00	0.087	0.000	11.827	0.00	1.42
140.00	3" Flex Conduit	Yes	3.74	0.000	3.00	0.94	0.00	0.088	0.000	11.894	0.00	4.23
145.00	3" Flex Conduit	Yes	5.00	0.000	3.00	1.25	0.00	0.091	0.000	11.982	0.00	5.65
150.00	3" Flex Conduit	Yes	5.00	0.000	3.00	1.25	0.00	0.094	0.000	12.068	0.00	5.65
155.00	3" Flex Conduit	Yes	5.00	0.000	3.00	1.25	0.00	0.097	0.000	12.152	0.00	5.65
160.00	3" Flex Conduit	Yes	5.00	0.000	3.00	1.25	0.00	0.101	1.002	12.233	0.00	5.65
161.50	3" Flex Conduit	Yes	1.50	0.000	3.00	0.38	0.00	0.103	1.009	12.257	0.00	1.69
165.00	3" Flex Conduit	Yes	3.50	0.000	3.00	0.88	0.00	0.105	1.015	12.313	0.00	3.95
165.25	3" Flex Conduit	Yes	0.25	0.000	3.00	0.06	0.00	0.106	1.019	12.317	0.00	0.28
169.58	3" Flex Conduit	Yes	4.33	0.000	3.00	1.08	0.00	0.108	1.025	12.384	0.00	4.90
170.00	3" Flex Conduit	Yes	0.42	0.000	3.00	0.10	0.00	0.109	1.027	12.390	0.00	0.47
175.00	3" Flex Conduit	Yes	5.00	0.000	3.00	1.25	0.00	0.111	1.034	12.466	0.00	5.65
Totals:											0.0	265.4

Calculated Forces

Structure: CT46138-A-SBA	Code: EIA/TIA-222-G	1/31/2017
Site Name: Torrington/Oandg Ind Inc	Exposure: C	
Height: 196.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II

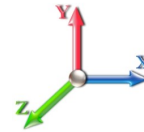


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Load Case: 1.0D + 1.0W 60 mph Wind

Iterations 25

Dead Load Factor 1.00
Wind Load Factor 1.00



Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-65.69	-11.07	0.00	-1481.8	0.00	1481.83	8794.96	4397.48	21496.0	10671.5	0.00	0.000	0.000	0.146
5.00	-63.39	-10.96	0.00	-1426.4	0.00	1426.46	8639.43	4319.71	20738.5	10295.5	0.02	-0.039	0.000	0.146
10.00	-61.13	-10.85	0.00	-1371.6	0.00	1371.66	8483.89	4241.95	19994.7	9926.22	0.08	-0.079	0.000	0.145
15.00	-58.90	-10.74	0.00	-1317.4	0.00	1317.41	8328.36	4164.18	19264.4	9563.67	0.19	-0.119	0.000	0.145
20.00	-56.71	-10.62	0.00	-1263.7	0.00	1263.72	8172.83	4086.41	18547.7	9207.87	0.34	-0.160	0.000	0.144
25.00	-54.56	-10.49	0.00	-1210.6	0.00	1210.63	8017.29	4008.65	17844.6	8858.82	0.53	-0.202	0.000	0.143
30.00	-52.44	-10.36	0.00	-1158.1	0.00	1158.18	7861.76	3930.88	17155.1	8516.51	0.76	-0.244	0.000	0.143
35.00	-50.35	-10.22	0.00	-1106.3	0.00	1106.39	7706.22	3853.11	16479.1	8180.95	1.04	-0.287	0.000	0.142
40.00	-48.30	-10.08	0.00	-1055.2	0.00	1055.29	7550.69	3775.35	15816.8	7852.13	1.36	-0.330	0.000	0.141
45.00	-46.30	-9.92	0.00	-1004.8	0.00	1004.89	7395.16	3697.58	15168.0	7530.06	1.73	-0.374	0.000	0.140
45.42	-46.13	-9.92	0.00	-1000.7	0.00	1000.76	7382.20	3691.10	15114.6	7503.52	1.76	-0.378	0.000	0.140
48.90	-43.79	-9.80	0.00	-966.21	0.00	966.21	7273.84	3636.92	14671.4	7283.52	2.05	-0.409	0.000	0.093
50.00	-43.06	-9.76	0.00	-955.44	0.00	955.44	7239.62	3619.81	14532.8	7214.73	2.15	-0.416	0.000	0.092
52.75	-41.25	-9.67	0.00	-928.59	0.00	928.59	5810.43	2905.21	11825.7	5870.80	2.39	-0.433	0.000	0.094
55.00	-40.51	-9.59	0.00	-906.84	0.00	906.84	5769.82	2884.91	11629.7	5773.48	2.60	-0.446	0.000	0.103
57.15	-39.82	-9.53	0.00	-886.21	0.00	886.21	5730.75	2865.38	11443.3	5680.95	2.80	-0.461	0.000	0.101
57.15	-39.82	-9.53	0.00	-886.21	0.00	886.21	5730.75	2865.38	11443.3	5680.95	2.80	-0.461	0.000	0.101
60.00	-38.90	-9.45	0.00	-859.05	0.00	859.05	5678.55	2839.28	11197.7	5559.03	3.09	-0.480	0.000	0.161
65.00	-37.31	-9.30	0.00	-811.81	0.00	811.81	5551.73	2775.86	10705.1	5314.51	3.62	-0.534	0.000	0.159
70.00	-35.75	-9.15	0.00	-765.31	0.00	765.31	5427.30	2713.65	10228.2	5077.73	4.20	-0.588	0.000	0.157
75.00	-34.22	-9.00	0.00	-719.56	0.00	719.56	5302.88	2651.44	9762.15	4846.34	4.85	-0.642	0.000	0.155
80.00	-32.72	-8.84	0.00	-674.57	0.00	674.57	5178.45	2589.22	9306.93	4620.35	5.55	-0.697	0.000	0.152
84.00	-31.54	-8.71	0.00	-639.19	0.00	639.19	5078.91	2539.45	8950.59	4443.45	6.16	-0.742	0.000	0.150
85.00	-31.07	-8.68	0.00	-630.48	0.00	630.48	5054.02	2527.01	8862.59	4399.76	6.31	-0.753	0.000	0.149
87.00	-30.14	-8.62	0.00	-613.11	0.00	613.11	5004.25	2502.13	8687.89	4313.04	6.63	-0.776	0.000	0.090
90.00	-28.76	-8.51	0.00	-587.26	0.00	587.26	4929.59	2464.80	8429.11	4184.57	7.13	-0.796	0.000	0.088
90.42	-28.56	-8.50	0.00	-583.72	0.00	583.72	3591.78	1795.89	6277.53	3116.43	7.20	-0.799	0.000	0.094
95.00	-27.51	-8.35	0.00	-544.77	0.00	544.77	3535.98	1767.99	6038.44	2997.74	7.98	-0.830	0.000	0.102
100.00	-26.31	-8.10	0.00	-503.02	0.00	503.02	3473.75	1736.87	5780.45	2869.66	8.87	-0.867	0.000	0.097
105.00	-25.20	-7.94	0.00	-462.54	0.00	462.54	3410.09	1705.04	5525.58	2743.13	9.80	-0.904	0.000	0.092
109.50	-23.78	-7.39	0.00	-424.95	0.00	424.95	3351.58	1675.79	5299.03	2630.66	10.66	-0.936	0.000	0.087
110.00	-23.67	-7.38	0.00	-421.26	0.00	421.26	3345.00	1672.50	5274.03	2618.25	10.76	-0.940	0.000	0.087
112.25	-23.19	-7.31	0.00	-404.65	0.00	404.65	3315.25	1657.63	5161.96	2562.62	11.21	-0.956	0.000	0.085
112.25	-23.19	-7.31	0.00	-404.65	0.00	404.65	3315.25	1657.63	5161.96	2562.62	11.21	-0.956	0.000	0.085
115.00	-22.61	-7.24	0.00	-384.54	0.00	384.54	3278.49	1639.25	5025.98	2495.11	11.76	-0.975	0.000	0.161
120.00	-21.57	-7.09	0.00	-348.36	0.00	348.36	3210.56	1605.28	4781.62	2373.80	12.82	-1.042	0.000	0.153
123.58	-20.83	-6.98	0.00	-322.95	0.00	322.95	3148.16	1574.08	4590.15	2278.75	13.62	-1.090	0.000	0.148
125.00	-20.39	-6.94	0.00	-313.06	0.00	313.06	3121.72	1560.86	4512.97	2240.43	13.95	-1.109	0.000	0.146
125.60	-20.20	-6.92	0.00	-308.90	0.00	308.90	3110.52	1555.26	4480.48	2224.30	14.09	-1.117	0.000	0.082
129.00	-19.16	-6.81	0.00	-285.36	0.00	285.36	2149.47	1074.74	3099.22	1538.58	14.89	-1.142	0.000	0.086
130.00	-18.94	-6.75	0.00	-278.52	0.00	278.52	2141.27	1070.63	3068.69	1523.43	15.13	-1.150	0.000	0.096
135.00	-18.13	-6.60	0.00	-244.78	0.00	244.78	2099.38	1049.69	2916.97	1448.11	16.36	-1.189	0.000	0.087
136.26	-17.93	-6.56	0.00	-236.47	0.00	236.47	2088.60	1044.30	2879.00	1429.26	16.67	-1.198	0.000	0.085
136.26	-17.93	-6.56	0.00	-236.47	0.00	236.47	2088.60	1044.30	2879.00	1429.26	16.67	-1.198	0.000	0.085
140.00	-17.34	-6.46	0.00	-211.92	0.00	211.92	2056.07	1028.04	2766.99	1373.65	17.62	-1.226	0.000	0.163
145.00	-15.43	-5.99	0.00	-179.61	0.00	179.61	2011.34	1005.67	2618.95	1300.16	18.95	-1.297	0.000	0.146
150.00	-14.70	-5.86	0.00	-149.67	0.00	149.67	1965.18	982.59	2473.01	1227.71	20.34	-1.362	0.000	0.129
155.00	-11.78	-4.64	0.00	-120.40	0.00	120.40	1917.59	958.80	2329.38	1156.40	21.80	-1.422	0.000	0.110

Calculated Forces

Structure: CT46138-A-SBA	Code: EIA/TIA-222-G	1/31/2017
Site Name: Torrington/Oandg Ind Inc	Exposure: C	
Height: 196.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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160.00	-11.15	-4.51	0.00	-97.18	0.00	97.18	1868.58	934.29	2188.24	1086.34	23.32	-1.475	0.000	0.095
161.50	-9.47	-4.13	0.00	-90.42	0.00	90.42	1853.60	926.80	2146.41	1065.57	23.79	-1.490	0.000	0.090
165.00	-9.05	-4.04	0.00	-75.95	0.00	75.95	1818.15	909.07	2049.77	1017.59	24.89	-1.523	0.000	0.080
165.25	-9.01	-4.04	0.00	-74.94	0.00	74.94	1815.59	907.79	2042.92	1014.19	24.97	-1.526	0.000	0.079
169.58	-8.26	-3.91	0.00	-57.45	0.00	57.45	1040.26	520.13	1155.41	573.59	26.37	-1.561	0.000	0.108
170.00	-8.22	-3.91	0.00	-55.82	0.00	55.82	1038.39	519.19	1149.55	570.68	26.51	-1.564	0.000	0.106
175.00	-5.44	-2.68	0.00	-36.29	0.00	36.29	1015.17	507.59	1079.51	535.91	28.17	-1.609	0.000	0.073
180.00	-5.07	-2.56	0.00	-22.88	0.00	22.88	990.53	495.27	1010.05	501.43	29.88	-1.642	0.000	0.051
185.00	-3.01	-1.43	0.00	-10.06	0.00	10.06	964.47	482.24	941.35	467.32	31.61	-1.662	0.000	0.025
187.00	-2.80	-1.23	0.00	-5.83	0.00	5.83	953.65	476.82	914.12	453.81	32.31	-1.667	0.000	0.016
190.00	-2.63	-1.17	0.00	-2.13	0.00	2.13	936.98	468.49	873.60	433.69	33.35	-1.671	0.000	0.008
191.50	-0.20	-0.10	0.00	-0.38	0.00	0.38	928.46	464.23	853.48	423.70	33.88	-1.671	0.000	0.001
195.00	-0.05	-0.03	0.00	-0.03	0.00	0.03	908.07	454.03	806.98	400.62	35.10	-1.672	0.000	0.000
196.00	0.00	-0.02	0.00	0.00	0.00	0.00	902.11	451.06	793.81	394.08	35.46	-1.672	0.000	0.000

Final Analysis Summary

Structure: CT46138-A-SBA	Code: EIA/TIA-222-G	1/31/2017
Site Name: Torrington/Oandg Ind Inc	Exposure: C	
Height: 196.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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Reactions

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 93 mph Wind	42.6	0.00	78.78	0.00	0.00	5735.05
0.9D + 1.6W 93 mph Wind	42.6	0.00	59.07	0.00	0.00	5665.90
1.2D + 1.0Di + 1.0Wi 40 mph Wind	9.0	0.00	125.17	0.00	0.00	1279.81
1.2D + 1.0E	2.4	0.00	78.84	0.00	0.00	308.92
0.9D + 1.0E	2.4	0.00	59.13	0.00	0.00	305.00
1.0D + 1.0W 60 mph Wind	11.1	0.00	65.69	0.00	0.00	1481.83

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 93 mph Wind	-18.90	-25.07	0.00	-821.54	0.00	-821.54	2056.07	1028.0	2766.99	1373.65	140.00	0.608
0.9D + 1.6W 93 mph Wind	-33.88	-36.16	0.00	-3277.1	0.00	-3277.1	5678.55	2839.2	11197.7	5559.03	60.00	0.596
1.2D + 1.0Di + 1.0Wi 40 mph Wind	-45.38	-5.74	0.00	-192.66	0.00	-192.66	2056.07	1028.0	2766.99	1373.65	140.00	0.162
1.2D + 1.0E	-20.96	-1.43	0.00	-62.10	0.00	-62.10	2056.07	1028.0	2766.99	1373.65	140.00	0.055
0.9D + 1.0E	-15.72	-1.40	0.00	-61.13	0.00	-61.13	2056.07	1028.0	2766.99	1373.65	140.00	0.052
1.0D + 1.0W 60 mph Wind	-17.34	-6.46	0.00	-211.92	0.00	-211.92	2056.07	1028.0	2766.99	1373.65	140.00	0.163

Additional Steel Summary

Elev From (ft)	Elev To (ft)	Member	Intermediate Connectors			Lower Termination				Upper Termination				Max Member			
			VQ/I (lb/in)	Vu (kips)	phi Vn (kips)	MQ/I (kips)	phi Vn (kips)	Num Reqd	Num Actual	MQ/I (kips)	phi Vn (kips)	Num Reqd	Num Actual	Pu (kips)	phi Pn (kips)	phi Tn (kips)	Ratio
48.9	57.1	(4) PLT-7.25x1.5(31mm Hole)	274.0	0.00	37.1	285.2	37.1	8	14	306.4	37.1	9	13	308.84	489.4	440.94	0.700
87.0	112.3	(4) PLT-6.5x1.5(31mm Hole)	352.6	0.00	37.1	249.2	37.1	7	12	229.0	37.1	7	11	268.21	438.8	386.10	0.695
125.6	136.3	(4) PLT-4.75x1.5(31mm Hole)	368.2	8.84	37.1	166.7	37.1	5	8	159.1	37.1	5	7	176.93	303.1	258.13	0.685

Base Plate Summary

Structure: CT46138-A-SB	Code: EIA/TIA-222-G	1/31/2017
Site Name: Torrington/Oandg Ind Inc	Exposure: C	
Height: 196.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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Reactions	Base Plate	Anchor Bolts
Original Design	Yield (ksi): 45.00	Bolt Circle: 67.68
Moment (kip-ft): 5499.00	Width (in): 73.67	Number Bolts: 28.00
Axial (kip): 55.74	Style: Polygon	Bolt Type: 2.25" 18J
Shear (kip): 40.77	Polygon Sides: 16.00	Bolt Diameter (in): 2.25
Analysis	Clip Length (in): 0.00	Yield (ksi): 75.00
Moment (kip-ft): 5735.05	Effective Len (in): 11.88	Ultimate (ksi): 100.00
Axial (kip): 125.17	Moment (kip-in): 574.98	Arrangement: Radial
Shear (kip): 42.59	Allow Stress (ksi): 60.75	Cluster Dist (in): 0.00
	Applied Stress (ksi): 0.00	Start Angle (deg): 0.00
Moment Design %: 104.29	Stress Ratio: 0.53	Compression
		Force (kip): 149.74
		Allowable (kip): 260.00
		Ratio: 0.59
		Tension
		Force (kip): 140.79
		Allowable (kip): 260.00
		Ratio: 0.55



Monopole Mat Foundation Design

Date	1/31/2017
Customer Name:	SBA
EIA/TIA Standard:	EIA-222-G
Site Name:	Torrington/Oandg Ind Inc
Structure Height (Ft.):	196
Site Number:	CT46138
Engineer Name:	D. Zhou
Engr. Number:	29992
Engineer Login ID:	

Foundation Info Obtained from:

Drawings/Calculations
Monopole
Analysis

Structure Type:

Analysis or Design?

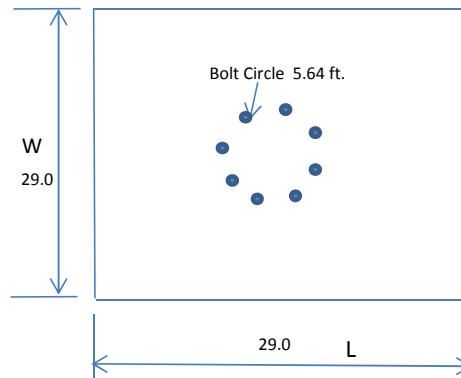
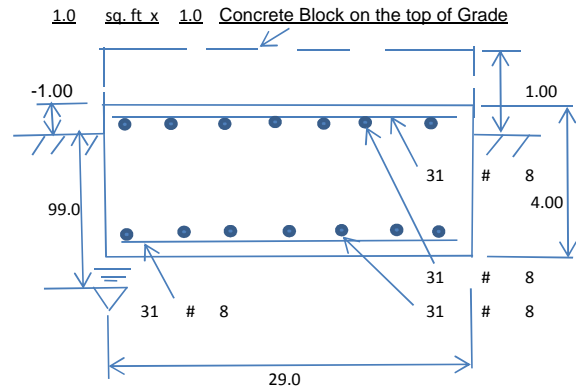
Base Reactions (Factored):

Axial Load (Kips):	78.8	Shear Force (Kips):	42.6
Uplift Force (Kips):	0.0	Moment (Kips-ft):	5735.1

Allowable overstress %: 5.0%

Foundation Geometries:

Anchor Bolt Circle (ft.):	5.64	Depth of Base BG (ft.):	5.00	Mods required -Yes/No ?:	Yes
Thickness of Pad (ft):	4.00	Width of Pad (ft.):	29		
Length of Pad (ft.):	29	Add Concrete Thick. (ft)	1		
Add Concrete Width & Length (ft.)	1	Final width of pad (ft):	29.0		
Final Length of pad (ft)	29.0				



Material Properties and Rebar Info:

Concrete Strength (psi):	3000	Steel Elastic Modulus:	29000	ksi
Pad Rebar Yield (Ksi):	60	Tie Spacing (in):	6.0	
Pad Steel Rebar Size (#):	8	Unit Weight of Concrete:	150.0	pcf
Concrete Cover (in.):	3			
Rebar at the bottom of the concrete pad:				
Qty. of Rebar in Pad (L):	31	Qty. of Rebar in Pad (W):	31	
Rebar at the top of the concrete pad:				
Qty. of Rebar in Pad (L):	31	Qty. of Rebar in Pad (W):	31	

Apply 1.35 factor for e/w Per G: 1.35

Soil Design Parameters:

Water Table B.G.S. (ft):	99.0	Unit Weight of Water:	62.4	pcf	Angle from Top of Pad:	30
Ultimate Bearing Pressure (psf):	12000	Ultimate Skin Friction:	0	Psf	Angle from Bottom of Pad:	25
Consider Friction for O.T.M. (Y/N):	No	Consider Friction for bearing (Y/N):	No		Angle from Bottom of Pad:	25
Consider soil hor. resist. for OTM.:	No	Reduction factor on the maximum soil bearing pressure:	1.00			

Foundation Analysis and Design:

Uplift Strength Reduction Factor:	0.75	Compression Strength Reduction Factor:	0.75
Total Dry Soil Volume (cu. Ft.):	811.39	Total Dry Soil Weight (Kips):	81.14
Total Buoyant Soil Volume (cu. Ft.):	0.00	Total Buoyant Soil Weight (Kips):	0.00
Total Effective Soil Weight (Kips):	81.14	Weight from the Concrete Block at Top (K):	0.00
Total Dry Concrete Volume (cu. Ft.):	3340.02	Total Dry Concrete Weight (Kips):	501.00
Total Buoyant Concrete Volume (cu. Ft.):	0.00	Total Buoyant Concrete Weight (Kips):	0.00
Total Effective Concrete Weight (Kips):	501.00	Total Vertical Load on Base (Kips):	660.94

Check Soil Capacities:

Calculated Maxium Net Soil Pressure under the base (psf):	2853	<	Allowable Factored Soil Bearing (psf):	9000	0.32	OK!
Allowable Foundation Overturning Resistance (kips-ft.):	8786.5	>	Design Factored Momont (kips-ft):	5950	0.68	OK!
Factor of Safety Against Overturning (O. R. Moment/Design Moment):	1.48					OK!

Load/
Capacity
Ratio

Check the capacities of Reinforcing Concrete:

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

Concrete Pad:

One-Way Design Shear Capacity (L-Direction, Kips):	1272.3	>	One-Way Factored Shear (L-D. Kips):	338.5	0.27	OK!
One-Way Design Shear Capacity (W-Direction, Kips):	1272.3	>	One-Way Factored Shear (W-D., Kips):	338.5	0.27	OK!
One-Way Design Shear Capacity (Corner-Corner, Kips):	1529.9	>	One-Way Factored Shear (C-C, Kips):	611.3	0.40	OK!
Lower Steel Pad Reinforcement Ratio (L-Direct.):	0.0016	OK!	Lower Steel Pad Reinf. Ratio (W-Direct	0.0016		
Lower Steel Pad Moment Capacity (L-Direction, Kips-ft):	4812.9	>	Moment at Bottom (L-Direct. K-Ft):	1306.8	0.27	OK!
Lower Steel Pad Moment Capacity (W-Direction, Kips-ft):	4812.9	>	Moment at Bottom (W-Direct. K-Ft):	1306.8	0.27	OK!
Lower Steel Pad Moment Capacity (Corner-Corner, K-ft):	6783.7	>	Moment at Bottom (C-C Dir. K-Ft):	1848.1	0.27	OK!
Upper Steel Pad Reinforcement Ratio (L-Direct.):	0.0016	OK!	Upper Steel Reinf. Ratio (W-Direct.):	0.0016		
Upper Steel Pad Moment Capacity (L-Direction, Kips-ft):	4812.9	>	Moment at the top (L-Dir Kips-Ft):	420.3	0.09	OK!
Upper Steel Pad Moment Capacity (W-Direction, Kips-ft):	4812.9	>	Moment at the top (W-Dir Kips-Ft):	420.3	0.09	OK!
Upper Steel Pad Moment Capacity (Corner-Corner, K-ft):	6783.7	>	Moment at the top (C-C Direc. K-Ft):	837.6	0.12	OK!

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

T-Mobile Existing Facility

Site ID: CTNH402A

**Litchfield SSUSA
350 Burr Mountain Road
Torrington, CT 06790**

February 27, 2017

EBI Project Number: 6217000726

Site Compliance Summary	
Compliance Status:	COMPLIANT
Site total MPE% of FCC general public allowable limit:	5.14 %

February 27, 2017

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

Emissions Analysis for Site: **CTNH402A – Litchfield SSUSA**

EBI Consulting was directed to analyze the proposed T-Mobile facility located at **350 Burr Mountain Road, Torrington, CT**, for the purpose of determining whether the emissions from the Proposed T-Mobile Antenna Installation located on this property are within specified federal limits.

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

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

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

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

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

Additional details can be found in FCC OET 65.

CALCULATIONS

Calculations were done for the proposed T-Mobile Wireless antenna facility located at **350 Burr Mountain Road, Torrington, CT**, using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65. Since T-Mobile is proposing highly focused directional panel antennas, which project most of the emitted energy out toward the horizon, all calculations were performed assuming a lobe representing the maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB, was focused at the base of the tower. For this report the sample point is the top of a 6-foot person standing at the base of the tower.

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

- 1) 2 GSM channels (PCS Band - 1900 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.
- 2) 2 UMTS channels (PCS Band - 1900 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.
- 3) 2 UMTS channels (AWS Band – 2100 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.
- 4) 2 LTE channels (AWS Band – 2100 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 60 Watts per Channel
- 5) 1 LTE channel (700 MHz Band) was considered for each sector of the proposed installation. This channel has a transmit power of 30 Watts.

- 6) Since the 2100 MHz UMTS and 700 MHz LTE radios are ground mounted there are additional cabling losses accounted for. For each ground mounted RF path the following losses were calculated. 0.67 dB of additional cable loss for all ground mounted 700 MHz LTE Channels and 1.27 dB of additional cable loss for all ground mounted 2100 MHz UMTS channels were factored into the calculations used for this analysis. This is based on manufacturers Specifications for 120 feet of 1-5/8" coax cable on each path.
- 7) All radios at the proposed installation were considered to be running at full power and were uncombined in their RF transmissions paths per carrier prescribed configuration. Per FCC OET Bulletin No. 65 - Edition 97-01 recommendations to achieve the maximum anticipated value at each sample point, all power levels emitting from the proposed antenna installation are increased by a factor of 2.56 to account for possible in-phase reflections from the surrounding environment. This is rarely the case, and if so, is never continuous.
- 8) For the following calculations the sample point was the top of a 6-foot person standing at the base of the tower. The maximum gain of the antenna per the antenna manufactures supplied specifications minus 10 dB was used in this direction. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.
- 9) The antennas used in this modeling are the **Ericsson AIR21 B2P/B4A** & **Ericsson AIR21 B2A/B4P** for 1900 MHz (PCS) and 2100 MHz (AWS) channels and the **Commscope LNX-6515DS-A1M** for 700 MHz channels. This is based on feedback from the carrier with regards to anticipated antenna selection. The **Ericsson AIR21 B2P/B4A** has a maximum gain of **15.9 dBd** at its main lobe at 1900 MHz and 2100 MHz. The **Ericsson AIR21 B2A/B4P** has a maximum gain of **15.9 dBd** at its main lobe at 1900 MHz and 2100 MHz. The **Commscope LNX-6515DS-A1M** has a maximum gain of **14.6 dBd** at its main lobe at 700 MHz. The maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB, was used for all calculations. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.
- 10) The antenna mounting height centerline of the proposed antennas is **155 feet** above ground level (AGL).
- 11) Emissions values for additional carriers were taken from the Connecticut Siting Council active database. Values in this database are provided by the individual carriers themselves.
- 12) All calculations were done with respect to uncontrolled / general public threshold limits.

T-Mobile Site Inventory and Power Data

Sector:	A	Sector:	B	Sector:	C
Antenna #:	1	Antenna #:	1	Antenna #:	1
Make / Model:	Ericsson AIR21 B2P/B4A	Make / Model:	Ericsson AIR21 B2P/B4A	Make / Model:	Ericsson AIR21 B2P/B4A
Gain:	15.9 dBd	Gain:	15.9 dBd	Gain:	15.9 dBd
Height (AGL):	155	Height (AGL):	155	Height (AGL):	155
Frequency Bands	1900 MHz (PCS) / 2100 MHz (AWS)	Frequency Bands	1900 MHz (PCS) / 2100 MHz (AWS)	Frequency Bands	1900 MHz (PCS) / 2100 MHz (AWS)
Channel Count	2	Channel Count	2	Channel Count	2
Total TX Power(W):	120	Total TX Power(W):	120	Total TX Power(W):	120
ERP (W):	4,668.54	ERP (W):	4,668.54	ERP (W):	4,668.54
Antenna A1 MPE%	0.76	Antenna B1 MPE%	0.76	Antenna C1 MPE%	0.76
Antenna #:	2	Antenna #:	2	Antenna #:	2
Make / Model:	Ericsson AIR21 B2A/B4P	Make / Model:	Ericsson AIR21 B2A/B4P	Make / Model:	Ericsson AIR21 B2A/B4P
Gain:	15.9 dBd	Gain:	15.9 dBd	Gain:	15.9 dBd
Height (AGL):	155	Height (AGL):	155	Height (AGL):	155
Frequency Bands	1900 MHz (PCS) / 2100 MHz (AWS)	Frequency Bands	1900 MHz (PCS) / 2100 MHz (AWS)	Frequency Bands	1900 MHz (PCS) / 2100 MHz (AWS)
Channel Count	6	Channel Count	6	Channel Count	6
Total TX Power(W):	180	Total TX Power(W):	180	Total TX Power(W):	180
ERP (W):	6,410.96	ERP (W):	6,410.96	ERP (W):	6,410.96
Antenna A2 MPE%	1.04	Antenna B2 MPE%	1.04	Antenna C2 MPE%	1.04
Antenna #:	3	Antenna #:	3	Antenna #:	3
Make / Model:	Commscope LNX-6515DS-A1M	Make / Model:	Commscope LNX-6515DS-A1M	Make / Model:	Commscope LNX-6515DS-A1M
Gain:	14.6 dBd	Gain:	14.6 dBd	Gain:	14.6 dBd
Height (AGL):	155	Height (AGL):	155	Height (AGL):	155
Frequency Bands	700 MHz	Frequency Bands	700 MHz	Frequency Bands	700 MHz
Channel Count	1	Channel Count	1	Channel Count	1
Total TX Power(W):	30	Total TX Power(W):	30	Total TX Power(W):	30
ERP (W):	741.52	ERP (W):	741.52	ERP (W):	741.52
Antenna A3 MPE%	0.26	Antenna B3 MPE%	0.26	Antenna C3 MPE%	0.26

Site Composite MPE%	
Carrier	MPE%
T-Mobile (Per Sector Max)	2.05 %
Sprint	0.18 %
MetroPCS	0.37 %
Verizon Wireless	1.10 %
AT&T	1.13 %
Nextel	0.31 %
Site Total MPE %:	5.14 %

T-Mobile Sector A Total:	2.05 %
T-Mobile Sector B Total:	2.05 %
T-Mobile Sector C Total:	2.05 %
Site Total:	5.14 %

T-Mobile _per sector	# Channels	Watts ERP (Per Channel)	Height (feet)	Total Power Density ($\mu\text{W}/\text{cm}^2$)	Frequency (MHz)	Allowable MPE ($\mu\text{W}/\text{cm}^2$)	Calculated % MPE
T-Mobile AWS - 2100 MHz LTE	2	2,334.27	155	7.56	AWS - 2100 MHz	1000	0.76%
T-Mobile AWS - 2100 MHz UMTS	2	871.21	155	2.82	AWS - 2100 MHz	1000	0.28%
T-Mobile PCS - 1950 MHz UMTS	2	1,167.14	155	3.78	PCS - 1950 MHz	1000	0.38%
T-Mobile PCS - 1950 MHz GSM	2	1,167.14	155	3.78	PCS - 1950 MHz	1000	0.38%
T-Mobile 700 MHz LTE	1	741.52	155	1.20	700 MHz	467	0.26%
						Total:	2.05%

Summary

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

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

T-Mobile Sector	Power Density Value (%)
Sector A:	2.05 %
Sector B:	2.05 %
Sector C:	2.05 %
T-Mobile Per Sector Maximum:	2.05 %
Site Total:	5.14 %
Site Compliance Status:	COMPLIANT

The anticipated composite MPE value for this site assuming all carriers present is **5.14%** of the allowable FCC established general public limit sampled at the ground level. This is based upon values listed in the Connecticut Siting Council database for existing carrier emissions.

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

SITE NAME: LITCHFIELD SSUSA

T-MOBILE E911 ADDRESS:
350 BURR MOUNTAIN ROAD
TORRINGTON, CT 06790

SBA BUSINESS ADDRESS:
LOT 5 BURR MOUNTAIN ROAD
TORRINGTON, CT 06790

SITE NUMBER: CTNH402A

PROJECT: T-MOBILE L700

CONFIGURATION: 702Cu

T-MOBILE TECHNICIAN SITE SAFETY NOTES	
LOCATION	SPECIAL RESTRICTIONS
ANTENNA/TMA	
SECTOR A:	ACCESS NOT PERMITTED
SECTOR B:	ACCESS NOT PERMITTED
SECTOR C:	ACCESS NOT PERMITTED
GPS/LMU:	UNRESTRICTED*
	(*CAUTION: OSHA-APPROVED PORTABLE 8' STEP-LADDER REQUIRED)
RRUs:	UNRESTRICTED
RADIO CABINETS:	UNRESTRICTED
PPC DISCONNECT:	UNRESTRICTED
MAIN CIRCUIT D/C:	UNRESTRICTED
NIU/T DEMARC:	UNRESTRICTED
OTHER/SPECIAL:	NONE



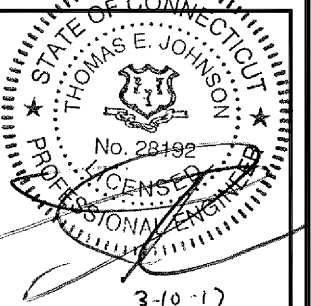
T-MOBILE NORTHEAST LLC
35 GRIFFIN ROAD SOUTH
BLOOMFIELD, CT 06002
OFFICE: (860) 648-1116



SBA COMMUNICATIONS CORP.
134 FLANDERS ROAD, SUITE 125
WESTBOROUGH, MA 01581 TEL: (508) 251-0720



4 Bay Road, Building A
Suite 200
Hadley, MA 01035 TEL: (413) 320-4918



CHECKED BY: JMM/TEJ

APPROVED BY: JMM/TEJ

SUBMITTALS			
REV.	DATE	DESCRIPTION	BY
1	03/10/17	FOR CONSTRUCTION	JEB
0	02/01/17	ISSUED FOR REVIEW	JEB

SITE NUMBER:
CTNH402A
SITE NAME:
LITCHFIELD SSUSA
SITE ADDRESS:
350 BURR MOUNTAIN ROAD
TORRINGTON, CT 06790

SHEET TITLE
TITLE SHEET

SHEET NUMBER
T-1

GENERAL NOTES

- THIS DOCUMENT IS THE CREATION, DESIGN, PROPERTY AND COPYRIGHTED WORK OF T-MOBILE NORTHEAST, LLC. ANY DUPLICATION OR USE WITHOUT EXPRESS WRITTEN CONSENT IS STRICTLY PROHIBITED. DUPLICATION AND USE BY GOVERNMENT AGENCIES FOR THE PURPOSES OF CONDUCTING THEIR LAWFULLY AUTHORIZED REGULATORY AND ADMINISTRATIVE FUNCTIONS IS SPECIFICALLY ALLOWED.
- THE FACILITY IS AN UNMANNED PRIVATE AND SECURED EQUIPMENT INSTALLATION. IT IS ONLY ACCESSED BY TRAINED TECHNICIANS FOR PERIODIC ROUTINE MAINTENANCE AND THEREFORE DOES NOT REQUIRE ANY WATER OR SANITARY SEWER SERVICE. THE FACILITY IS NOT GOVERNED BY REGULATIONS REQUIRING PUBLIC ACCESS PER ADA REQUIREMENTS.
- CONTRACTOR SHALL VERIFY ALL PLANS AND EXISTING DIMENSIONS AND CONDITIONS ON THE JOB SITE AND SHALL IMMEDIATELY NOTIFY THE T-MOBILE NORTHEAST, LLC REPRESENTATIVE IN WRITING OF DISCREPANCIES BEFORE PROCEEDING WITH THE WORK OR BE RESPONSIBLE FOR SAME.

SPECIAL CONSTRUCTION NOTES

- TOWER OWNER SHALL PROVIDE GLOBAL STRUCTURAL STABILITY ANALYSIS OF EXISTING ANTENNA SUPPORT STRUCTURE. GENERAL CONTRACTOR SCOPE OF WORK SHALL INCLUDE ALL REQUIRED STRUCTURAL MODIFICATIONS, RE-BUNDLING OF COAXIAL CABLES OR OTHER SPECIAL MODIFICATIONS AS OUTLINED THEREIN.
- ENGINEER-OF-RECORD HAS MADE A VISUAL ASSESSMENT ONLY OF EXISTING ANTENNA MOUNT ASSEMBLIES, WITHOUT THE BENEFIT OF A RIGOROUS ANTENNA MOUNT STRUCTURAL ANALYSIS, AND RECOMMENDS THAT EXISTING AND PROPOSED TOWER TOP EQUIPMENT BE INSTALLED AS DEPICTED HEREIN. STRUCTURAL DETAILS AS DEPICTED HEREIN FOR MODIFICATION OF EXISTING ANTENNA MOUNT ASSEMBLIES ARE PRELIMINARY ONLY AND THAT FINAL CONSTRUCTION DETAILS MAY BE SUBJECT TO CHANGE PENDING THE COMPLETION OF A SEPARATE SUPPLEMENTAL ANTENNA MOUNT STRUCTURAL ASSESSMENT, SUPPLEMENTAL STRUCTURAL MAPPING/CONDITIONS ASSESSMENT REPORT AND/OR SUPPLEMENTAL RIGOROUS ANTENNA MOUNT STRUCTURAL ANALYSIS.
- PROTERRA DESIGN GROUP ASSUMES THAT THE TOWER IS PROPERLY CONSTRUCTED AND MAINTAINED. ALL STRUCTURAL MEMBERS AND THEIR CONNECTIONS ARE ASSUMED TO BE IN GOOD CONDITION AND ARE FREE FROM DEFECTS WITH NO DETERIORATION TO ITS MEMBER CAPACITIES



PROJECT INFORMATION

SCOPE OF WORK: UNMANNED TELECOMMUNICATIONS FACILITY T-MOBILE EQUIPMENT MODERNIZATION

ZONING JURISDICTION: SPECIAL ZONING NOTE (ELIGIBLE FACILITY REQUEST): BASED ON INFORMATION PROVIDED BY T-MOBILE 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).

T-MOBILE E911 ADDRESS: 350 BURR MOUNTAIN ROAD TORRINGTON, CT 06790

SBA BUSINESS ADDRESS: LOT 5 BURR MOUNTAIN ROAD TORRINGTON, CT 06790

LATITUDE: 41.87325 (FROM T-MOBILE RFDS)

LONGITUDE: -73.08841 (FROM T-MOBILE RFDS)

JURISDICTION: CITY OF TORRINGTON

CURRENT USE: TELECOMMUNICATIONS FACILITY

PROPOSED USE: TELECOMMUNICATIONS FACILITY

TOWER OWNER: SBA 2012 TC ASSETS, LLC

SBA SITE ID: CT46138-A

SBA SITE NAME: TORRINGTON/OANDG IND INC

SBA REGIONAL SITE MANAGER: STEPHEN ROTH (860) 539-4920

APPROVALS

APPROVALS	DATE
PROJECT MANAGER	DATE
CONSTRUCTION	DATE
RF ENGINEERING	DATE
ZONING / SITE ACQ.	DATE
OPERATIONS	DATE
TOWER OWNER	DATE



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(CT): 1-800-922-4455

UNDERGROUND SERVICE ALERT

DRAWING INDEX

SHEET NO.	DESCRIPTION	REV.
T-1	TITLE SHEET	1
GN-1	GENERAL NOTES	1
A-1	COMPOUND & ELEVATION PLAN	1
A-2	EXISTING & PROPOSED ANTENNA PLAN	1
A-3	DETAILS	1
A-4	DETAILS	1
S-1	STRUCTURAL DETAILS	1
E-1	ONE-LINE DIAGRAM & GROUNDING DETAILS	1

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) LIGHTNING PROTECTION CODE, AND GENERAL COMPLIANCE WITH TELCORDIA AND TIA GROUNDING STANDARDS. THE SUBCONTRACTOR SHALL REPORT ANY VIOLATIONS OR ADVERSE FINDINGS TO THE CONTRACTOR FOR RESOLUTION.
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.
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 SURCIRTS 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 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 SHALL BE 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. ALL NEW STRUCTURES WITH A FOUNDATION AND/OR FOOTING HAVING 20 FT. OR MORE OF 1/2 IN. OR GREATER ELECTRICALLY CONDUCTIVE REINFORCING STEEL MUST HAVE IT BONDED TO THE GROUND RING USING AN EXOTHERMIC WELD CONNECTION USING #2 AWG SOLID BARE TINNED COPPER GROUND WIRE, PER NEC 250.50

GENERAL NOTES

1. FOR THE PURPOSE OF CONSTRUCTION DRAWING, THE FOLLOWING DEFINITIONS SHALL APPLY:

CONTRACTOR – SBA COMMUNICATIONS CORP.
SUBCONTRACTOR – GENERAL CONTRACTOR (CONSTRUCTION)
OWNER – T-MOBILE
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. "KITTING LIST" SUPPLIED WITH THE BID PACKAGE IDENTIFIES ITEMS THAT WILL BE SUPPLIED BY CONTRACTOR. ITEMS NOT INCLUDED IN THE BILL OF MATERIALS AND KITTING LIST SHALL BE SUPPLIED BY THE SUBCONTRACTOR.
7. THE SUBCONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.
8. 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.
9. 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.
10. 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 THE OWNER.
11. SUBCONTRACTOR SHALL LEGALLY AND PROPERLY DISPOSE OF ALL SCRAP MATERIALS SUCH AS COAXIAL CABLES AND OTHER ITEMS REMOVED FROM THE EXISTING FACILITY. ANTENNAS REMOVED SHALL BE RETURNED TO THE OWNER'S DESIGNATED LOCATION.
12. SUBCONTRACTOR SHALL LEAVE PREMISES IN CLEAN CONDITION.
13. ALL CONCRETE REPAIR WORK SHALL BE DONE IN ACCORDANCE WITH AMERICAN CONCRETE INSTITUTE (ACI) 301.
14. ANY NEW CONCRETE NEEDED FOR CONSTRUCTION SHALL BE AIR-ENTRAINED AND SHALL HAVE 4000 PSI STRENGTH AT 28 DAYS. ALL CONCRETE WORK SHALL BE DONE IN ACCORDANCE WITH ACI 318 CODE REQUIREMENTS.
15. 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) UNLESS OTHERWISE NOTED. PIPES SHALL BE ASTM A53 TYPE E (FY = 35 KSI). ALL STEEL EXPOSED TO WEATHER SHALL BE HOT DIPPED GALVANIZED. TOUCHUP ALL SCRATCHES AND OTHER MARKS IN THE FIELD AFTER STEEL IS ERECTED USING A COMPATIBLE ZINC RICH PAINT.
16. CONSTRUCTION SHALL COMPLY WITH UMS SPECIFICATIONS AND "GENERAL CONSTRUCTION SERVICES FOR CONSTRUCTION OF T-MOBILE SITES."
17. 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.
18. 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 SHOULD BE SCHEDULED FOR AN APPROPRIATE MAINTENANCE WINDOW USUALLY IN LOW TRAFFIC PERIODS AFTER MIDNIGHT.
19. SINCE THE CELL SITE IS 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 ADVISED TO BE WORN TO ALERT OF ANY DANGEROUS EXPOSURE LEVELS.
20. APPLICABLE BUILDING CODES:
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.

BUILDING CODE: 2016 CONNECTICUT STATE BUILDING CODE WITH AMENDMENTS

ELECTRICAL CODE: 2014 NATIONAL ELECTRICAL CODE AND AMENDMENTS

SUBCONTRACTOR'S WORK SHALL COMPLY WITH THE LATEST EDITION OF THE FOLLOWING STANDARDS:

AMERICAN CONCRETE INSTITUTE (ACI) 318; BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE;

AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC)

MANUAL OF STEEL CONSTRUCTION, ASD, NINTH EDITION;

TELECOMMUNICATIONS INDUSTRY ASSOCIATION (TIA) 222-G, STRUCTURAL STANDARDS FOR STEEL

ANTENNA TOWER AND ANTENNA SUPPORTING STRUCTURES; REFER TO ELECTRICAL DRAWINGS FOR SPECIFIC ELECTRICAL STANDARDS.

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.

ABBREVIATIONS

AGL	ABOVE GRADE LEVEL	EQ	EQUAL	REQ	REQUIRED
AWG	AMERICAN WIRE GAUGE	G.C.	GENERAL CONTRACTOR	RF	RADIO FREQUENCY
BTCW	BARE TINNED SOLID COPPER WIRE	GRC	GALVANIZED RIGID CONDUIT	TBD	TO BE DETERMINED
BGR	BURIED GROUND RING	MGB	MASTER GROUND BAR	TBR	TO BE REMOVED
BTS	BASE TRANSCEIVER STATION	MIN	MINIMUM	TBRR	TO BE REMOVED AND REPLACED
EXISTING	EXISTING OR (E)	PROPOSED	NEW OR (P)	TYP	TYPICAL
EGB	EQUIPMENT GROUND BAR	N.T.S.	NOT TO SCALE	VIF	VERIFY IN FIELD
EGR	EQUIPMENT GROUND RING	RAD	RADIATION CENTERLINE (ANTENNA)		
		REF	REFERENCE		

T-Mobile

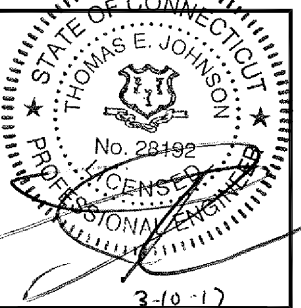
T-MOBILE NORTHEAST LLC
35 GRIFFIN ROAD SOUTH
BLOOMFIELD, CT 06002
OFFICE: (860) 648-1116



SBA COMMUNICATIONS CORP.
134 FLANDERS ROAD, SUITE 125
WESTBOROUGH, MA 01581 TEL: (508) 251-0720

ProTerra
DESIGN GROUP, LLC

4 Bay Road, Building A
Suite 200
Hadley, MA 01035
TEL: (417) 320-4918



CHECKED BY: JMM/TEJ

APPROVED BY: JMM/TEJ

SUBMITTALS

REV.	DATE	DESCRIPTION	BY
1	03/10/17	FOR CONSTRUCTION	JEB
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SITE NUMBER:

CTNH402A

SITE NAME:

LITCHFIELD SSUSA

SITE ADDRESS:

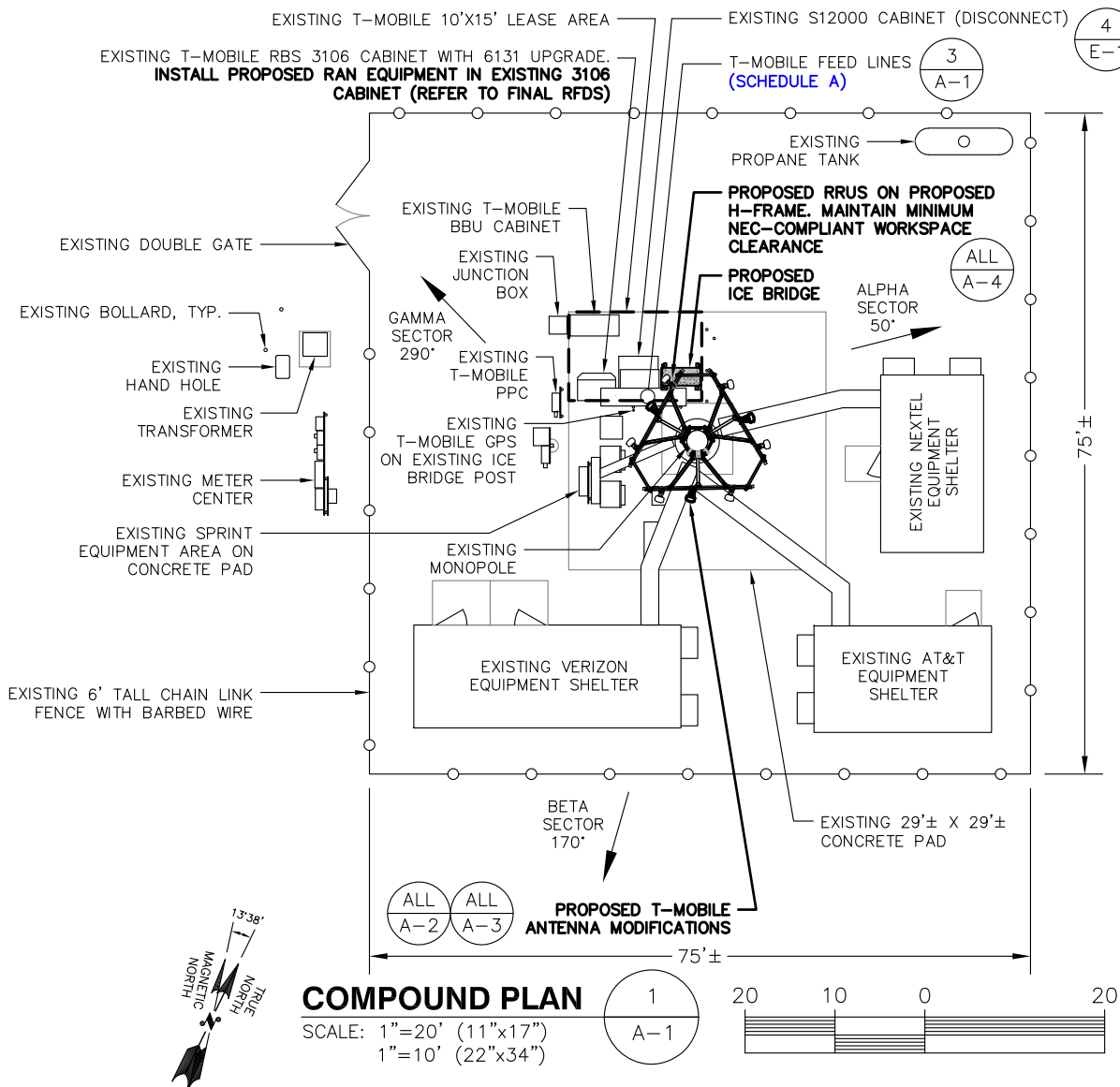
350 BURR MOUNTAIN ROAD
TORRINGTON, CT 06790

SHEET TITLE

GENERAL NOTES

SHEET NUMBER

GN-1

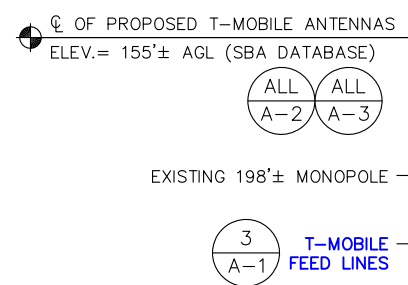


COMPOUND PLAN

SCALE: 1"=20' (11"x17")
1"=10' (22"x34")

ANTENNA MOUNT STRUCTURAL DESIGN NOTE:
ENGINEER-OF-RECORD HAS MADE A VISUAL ASSESSMENT ONLY OF EXISTING ANTENNA MOUNT ASSEMBLIES, WITHOUT THE BENEFIT OF A RIGOROUS ANTENNA MOUNT STRUCTURAL ANALYSIS, AND RECOMMENDS THAT EXISTING AND PROPOSED TOWER TOP EQUIPMENT BE INSTALLED AS DEPICTED HEREIN. STRUCTURAL DETAILS AS DEPICTED HEREIN FOR MODIFICATION OF EXISTING ANTENNA MOUNT ASSEMBLIES ARE PRELIMINARY ONLY AND THAT FINAL CONSTRUCTION DETAILS MAY BE SUBJECT TO CHANGE PENDING THE COMPLETION OF A SEPARATE SUPPLEMENTAL ANTENNA MOUNT STRUCTURAL ASSESSMENT, SUPPLEMENTAL STRUCTURAL MAPPING/CONDITIONS ASSESSMENT REPORT AND/OR SUPPLEMENTAL RIGOROUS ANTENNA MOUNT STRUCTURAL ANALYSIS.

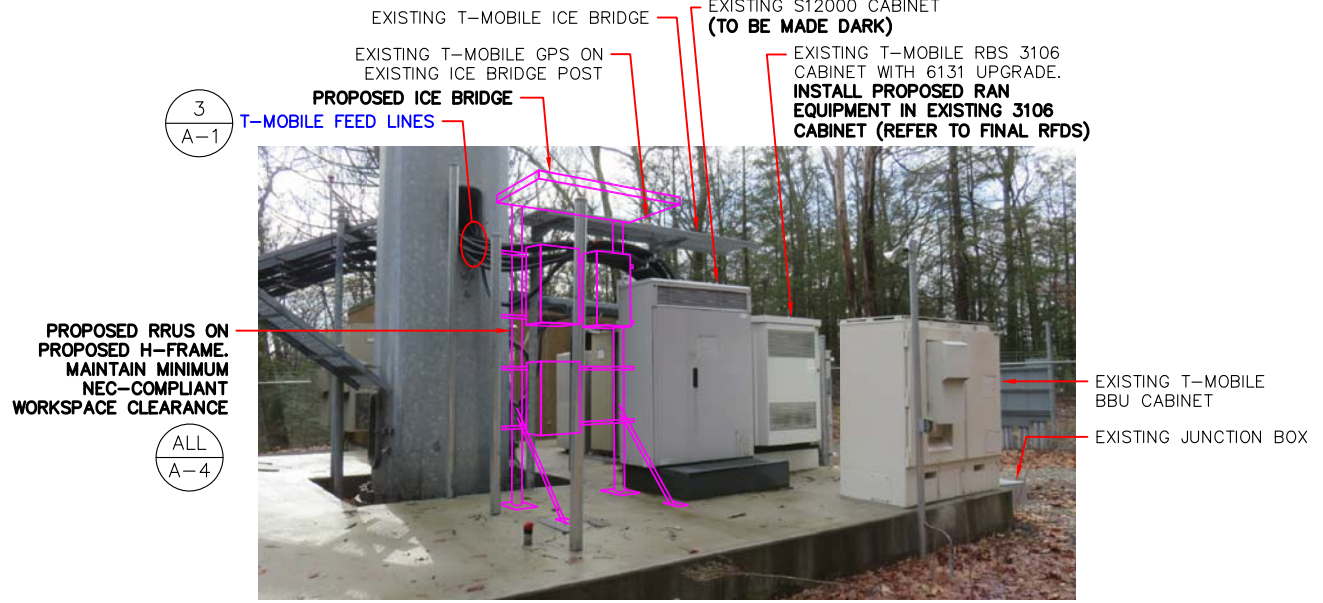
SPECIAL PRE-CONSTRUCTION WORK NOTE (SBA-PROVIDED TOWER STRUCTURAL ANALYSIS SPECIAL EQUIPMENT INSTALLATION REQUIREMENTS):
GENERAL CONTRACTOR SHALL FURNISH AND INSTALL ALL SPECIAL OR SUPPLEMENTAL ADDITIONAL TOWER-MOUNTED EQUIPMENT PER RECOMMENDATIONS FROM SBA-PROVIDED TOWER STRUCTURAL ANALYSIS FOR ANY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



FEEDLINE SCHEDULE	FEEDLINE DESCRIPTION	LOCATION
A	EXISTING: (12) 1/8" COAX TO 155' RAD; TO REMAIN: (1) HYBRID TO 155' RAD	UP INSIDE MONOPOLE TO RAD

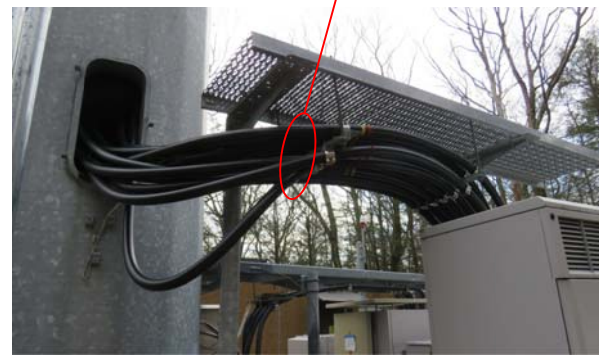
NOTE: EXISTING T-MOBILE EQUIPMENT FEEDLINE INVENTORY BASED ON OBSERVED FIELD CONDITIONS. RFDS AND FEEDLINE LEASING ENTITLEMENTS MAY DIFFER

T-MOBILE FEED LINES (REFER TO SBA-PROVIDED STRUCTURAL ANALYSIS FOR SPECIAL FEEDLINE INSTALLATION REQUIREMENTS, STACKING, BUNDLING, SHIELDING, MOUNTING AND RELOCATION OF EXISTING OR PROPOSED FEEDLINES)



EQUIPMENT PHOTO DETAIL

SCALE: N.T.S.



FEEDLINE PHOTO DETAIL AT TOWER BASE

SCALE: N.T.S.



PARTIAL ELEVATION PHOTO DETAIL

SCALE: N.T.S.

T-Mobile
T-MOBILE NORTHEAST LLC
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SBA COMMUNICATIONS CORP.
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TEL: (508) 251-0720

ProTerra
DESIGN GROUP, LLC
4 Bay Road, Building A
Suite 200
Hadley, MA 01038
TEL: (413) 320-4918

STATE OF CONNECTICUT
THOMAS E. JOHNSON
No. 28192
PROFESSIONAL ENGINEER
3-10-17

CHECKED BY: JMM/TEJ

APPROVED BY: JMM/TEJ

SUBMITTALS

REV.	DATE	DESCRIPTION	BY
1	03/10/17	FOR CONSTRUCTION	JEB
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SITE NUMBER:
CTNH402A
SITE NAME:
LITCHFIELD SSUSA
SITE ADDRESS:
350 BURR MOUNTAIN ROAD
TORRINGTON, CT 06790

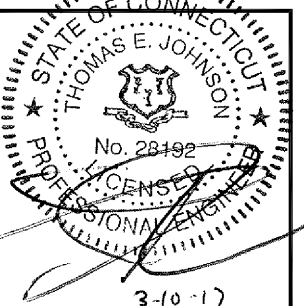
SHEET TITLE
COMPOUND & ELEVATION PLAN

SHEET NUMBER
A-1



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LITCHFIELD SSUSA

SITE ADDRESS:

350 BURR MOUNTAIN ROAD
 TORRINGTON, CT 06790

SHEET TITLE

**EXISTING & PROPOSED
 ANTENNA PLAN**

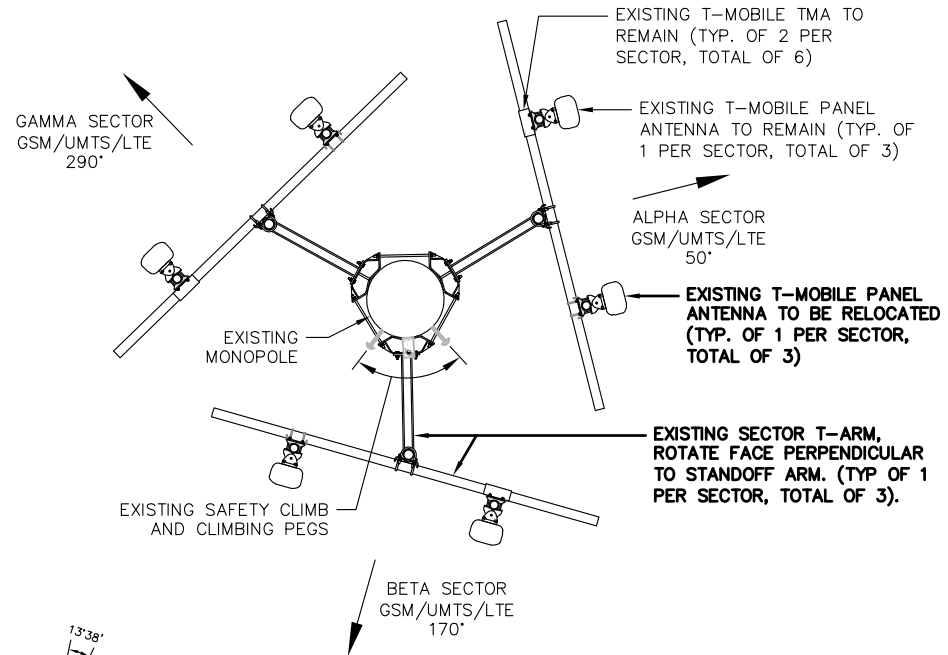
SHEET NUMBER

A-2

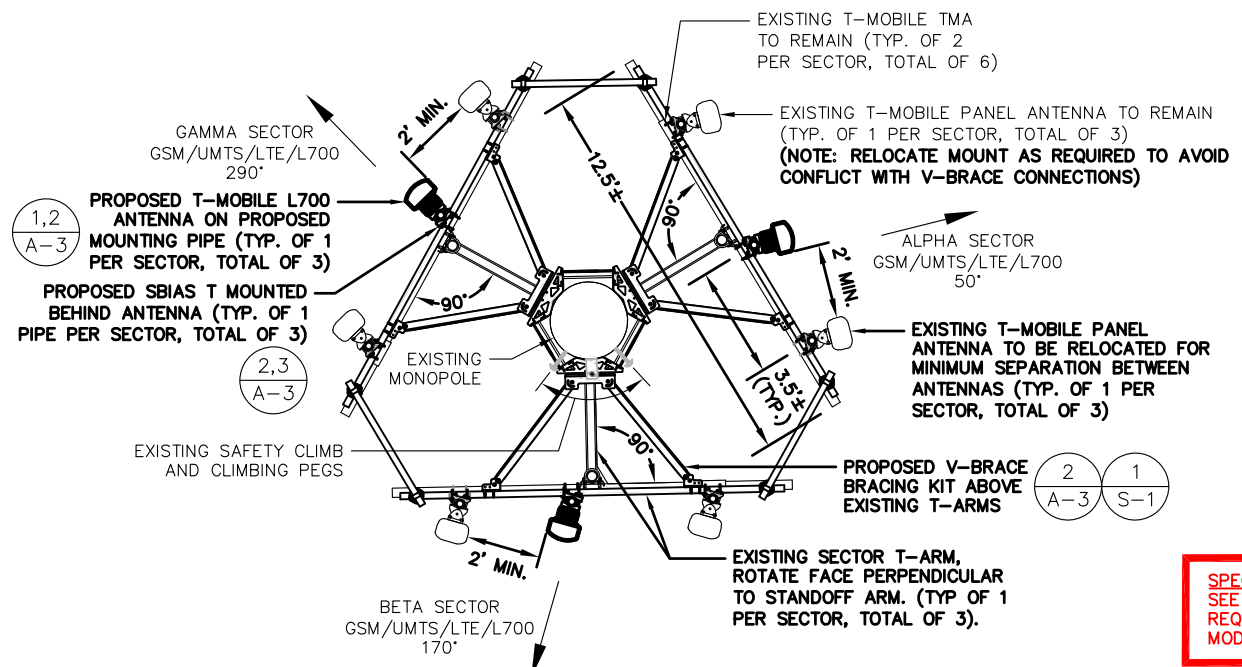
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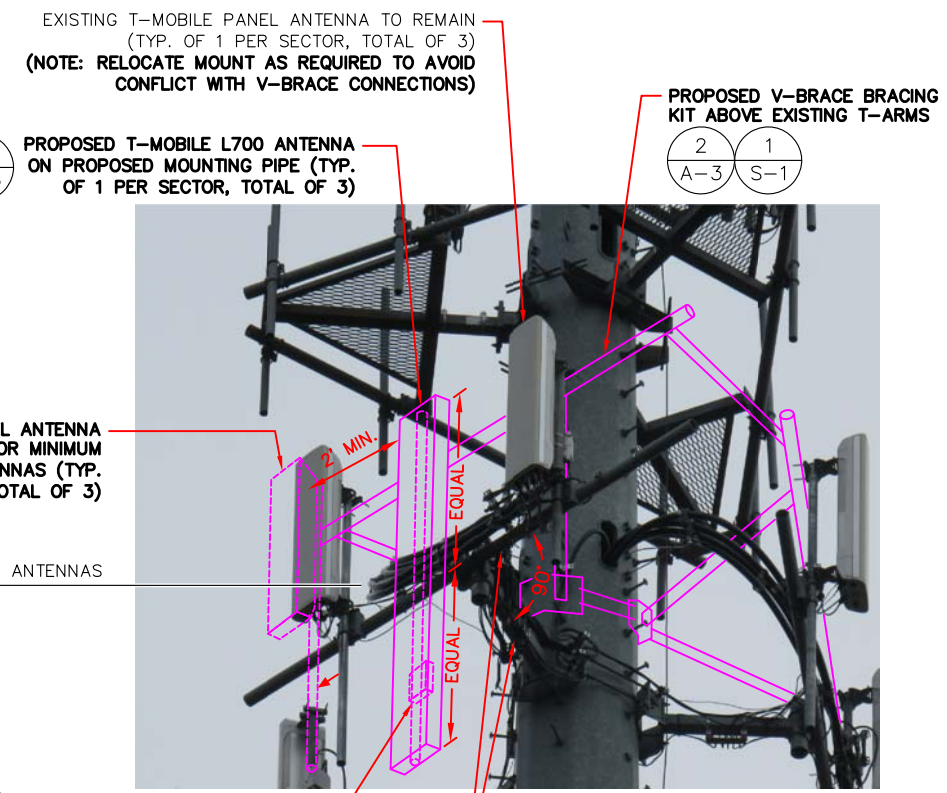
NOTE:
 REFER TO THE FINAL RF DATA SHEET FOR FINAL ANTENNA SETTINGS.



EXISTING ANTENNA PLAN
 SCALE: N.T.S. 1
A-2



PROPOSED ANTENNA PLAN
 SCALE: N.T.S. 2
A-2



ANTENNA PHOTO DETAIL
 SCALE: N.T.S. 3
A-2

SPECIAL WORK NOTE:
 SEE SHEET S-1 FOR REQUIRED MOUNT MODIFICATIONS

SPECIAL WORK NOTE:
 ROTATE EACH T-ARM FACE TO PERPENDICULAR WITH STAND-OFF ARM. RE-ALIGN EACH ANTENNA AZIMUTH IN ACCORDANCE WITH FINAL RFDS.

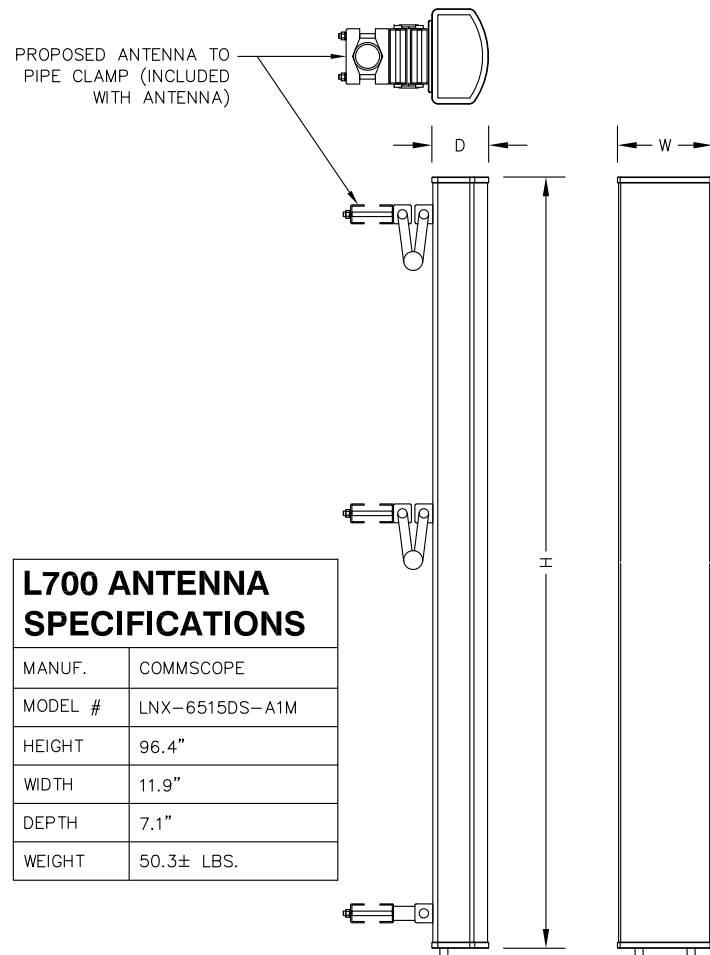
1,2
A-3

2
A-3 1
S-1

2
A-3 1
S-1

1,2
A-3

2,3
A-3



L700 ANTENNA SPECIFICATIONS

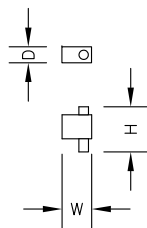
MANUF.	COMMSCOPE
MODEL #	LNx-6515DS-A1M
HEIGHT	96.4"
WIDTH	11.9"
DEPTH	7.1"
WEIGHT	50.3± LBS.

L700 ANTENNA DETAIL
SCALE: N.T.S.

1
A-3

SBT SPECIFICATIONS

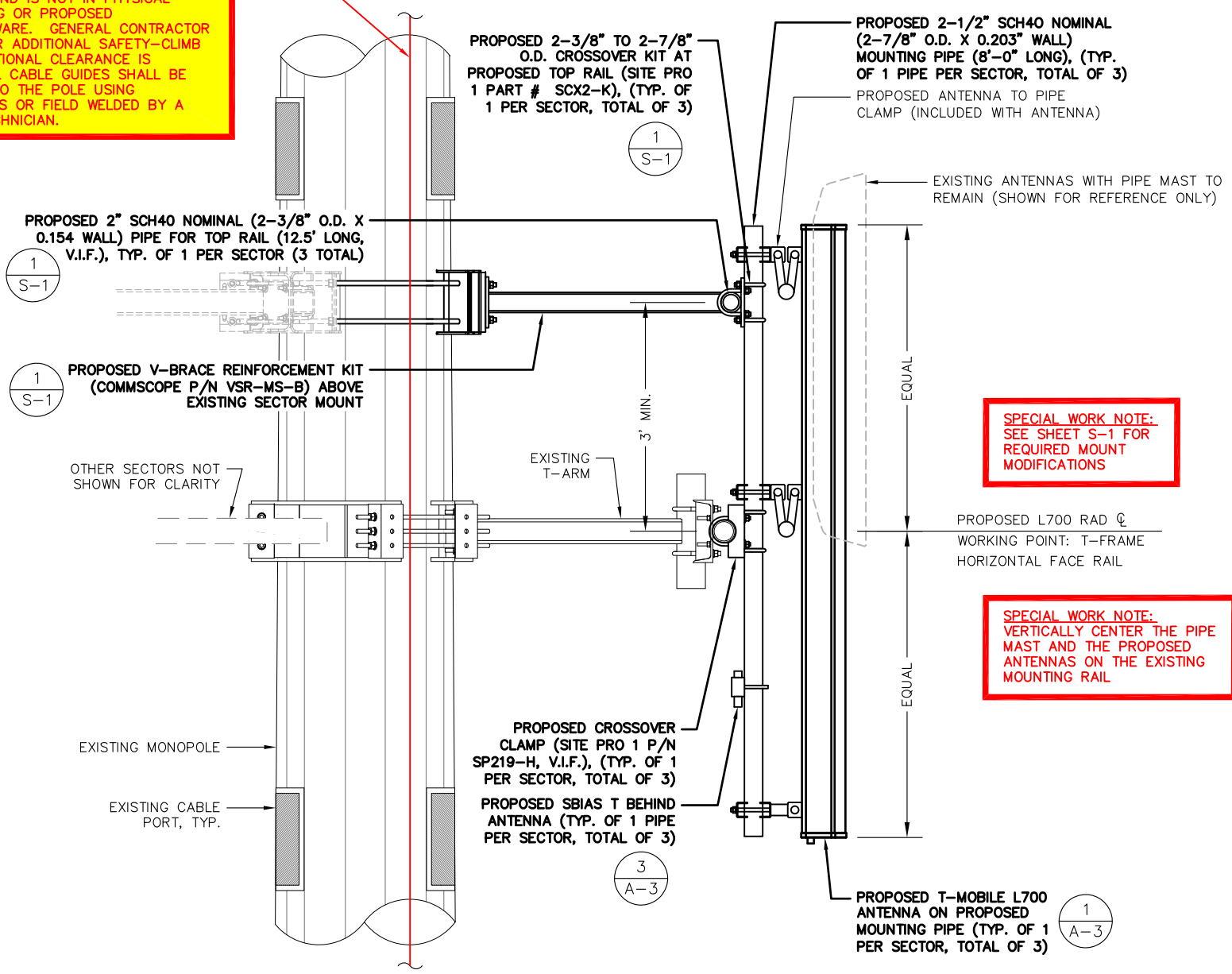
MANUF.	COMMSCOPE
MODEL #	ATSBT-TOP-FM-4G
HEIGHT	5.63"
WIDTH	3.7"
DEPTH	2.0"
WEIGHT	1.8 LBS.



SMART BIAS TEE (SBT)
SCALE: N.T.S.

3
A-3

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



PROPOSED ANTENNA MOUNTING DETAIL
SCALE: N.T.S.

2
A-3

ANTENNA MOUNT STRUCTURAL DESIGN NOTE:
ENGINEER-OF-RECORD HAS MADE A VISUAL ASSESSMENT ONLY OF EXISTING ANTENNA MOUNT ASSEMBLIES, WITHOUT THE BENEFIT OF A RIGOROUS ANTENNA MOUNT STRUCTURAL ANALYSIS, AND RECOMMENDS THAT EXISTING AND PROPOSED TOWER TOP EQUIPMENT BE INSTALLED AS DEPICTED HEREIN. STRUCTURAL DETAILS AS DEPICTED HEREIN FOR MODIFICATION OF EXISTING ANTENNA MOUNT ASSEMBLIES ARE PRELIMINARY ONLY AND THAT FINAL CONSTRUCTION DETAILS MAY BE SUBJECT TO CHANGE PENDING THE COMPLETION OF A SEPARATE SUPPLEMENTAL ANTENNA MOUNT STRUCTURAL ASSESSMENT, SUPPLEMENTAL STRUCTURAL MAPPING/CONDITIONS ASSESSMENT REPORT AND/OR SUPPLEMENTAL RIGOROUS ANTENNA MOUNT STRUCTURAL ANALYSIS.

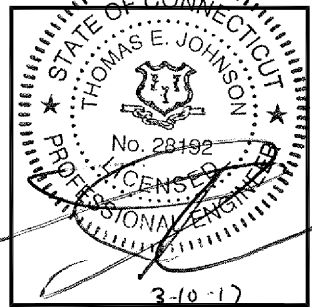
SPECIAL WORK NOTE:
SEE SHEET S-1 FOR REQUIRED MOUNT MODIFICATIONS

SPECIAL WORK NOTE:
VERTICALLY CENTER THE PIPE MAST AND THE PROPOSED ANTENNAS ON THE EXISTING MOUNTING RAIL

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T-MOBILE NORTHEAST LLC
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4 Bay Road, Building A
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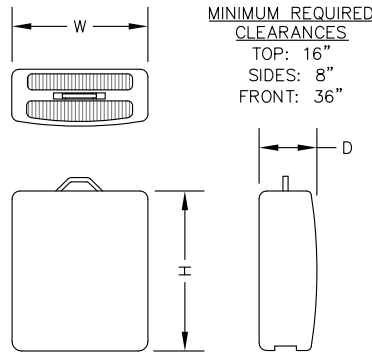
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350 BURR MOUNTAIN ROAD
TORRINGTON, CT 06790

SHEET TITLE
DETAILS

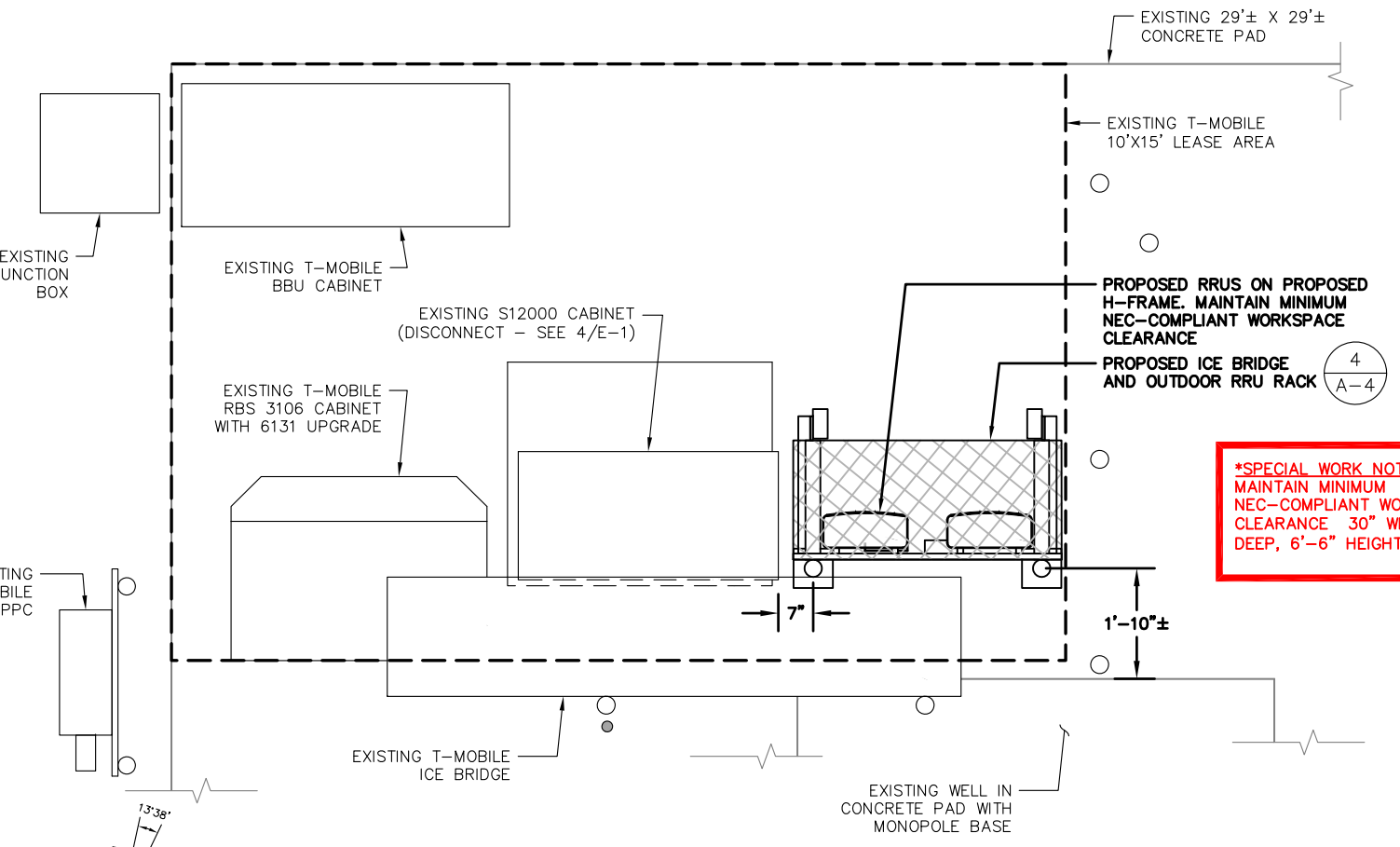
SHEET NUMBER
A-3



RRU SPECIFICATIONS	
MANUF.	ERICSSON
MODEL #	RRUS11 B12
HEIGHT	20"
WIDTH	17"
DEPTH	7"
WEIGHT	50.7 LBS.

REMOTE RADIO UNIT (RRU)

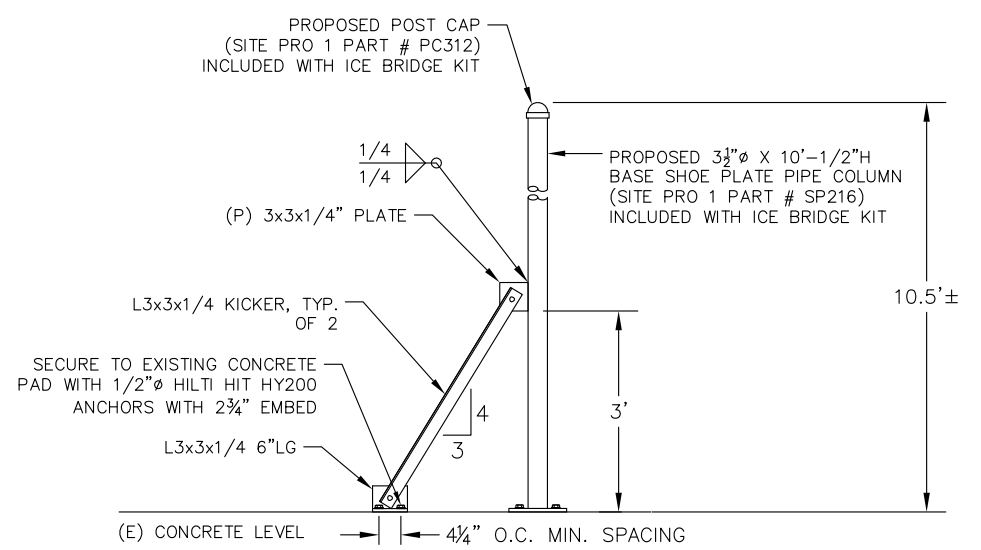
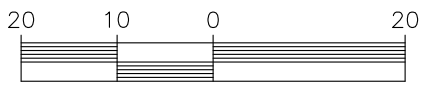
SCALE: N.T.S.



***SPECIAL WORK NOTE:**
 MAINTAIN MINIMUM
 NEC-COMPLIANT WORKSPACE
 CLEARANCE 30" WIDE, 36"
 DEEP, 6'-6" HEIGHT

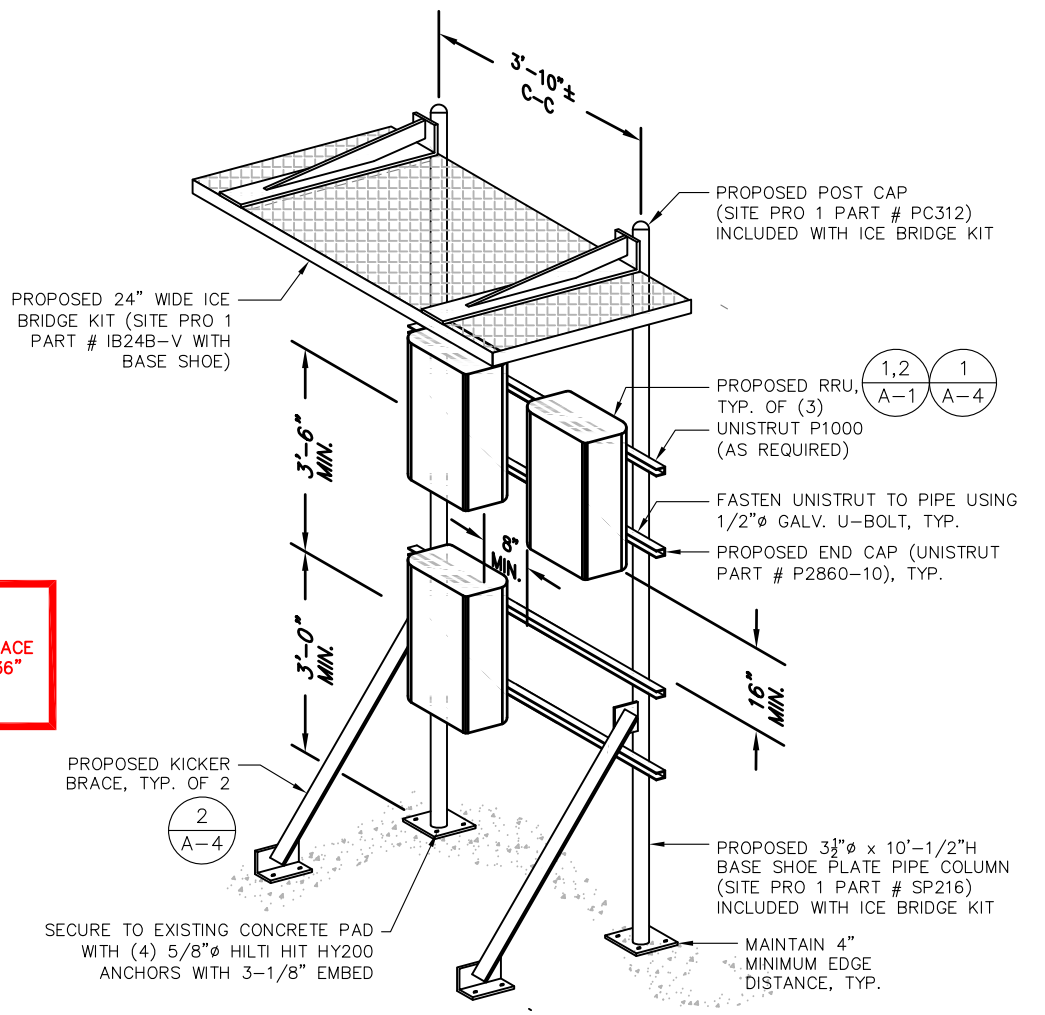
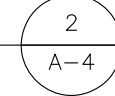
OUTDOOR RRU RACK PLACEMENT PLAN

SCALE: 1"=3' (11"x17")
 1"=1.5' (22"x34")



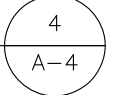
KICKER DETAIL

SCALE: N.T.S.



OUTDOOR RRU RACK

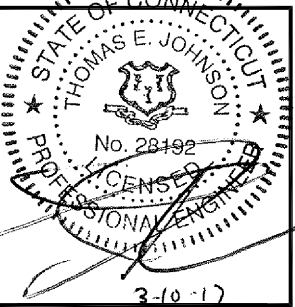
SCALE: N.T.S.



T-Mobile
T-MOBILE NORTHEAST LLC
 35 GRIFFIN ROAD SOUTH
 BLOOMFIELD, CT 06002
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LITCHFIELD SSUSA
 SITE ADDRESS:
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 TORRINGTON, CT 06790

SHEET TITLE
DETAILS

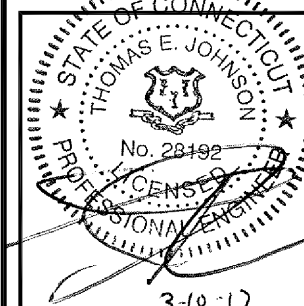
SHEET NUMBER
A-4



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 134 FLANDERS ROAD, SUITE 125
 WESTBOROUGH, MA 01581 TEL: (508) 251-0720

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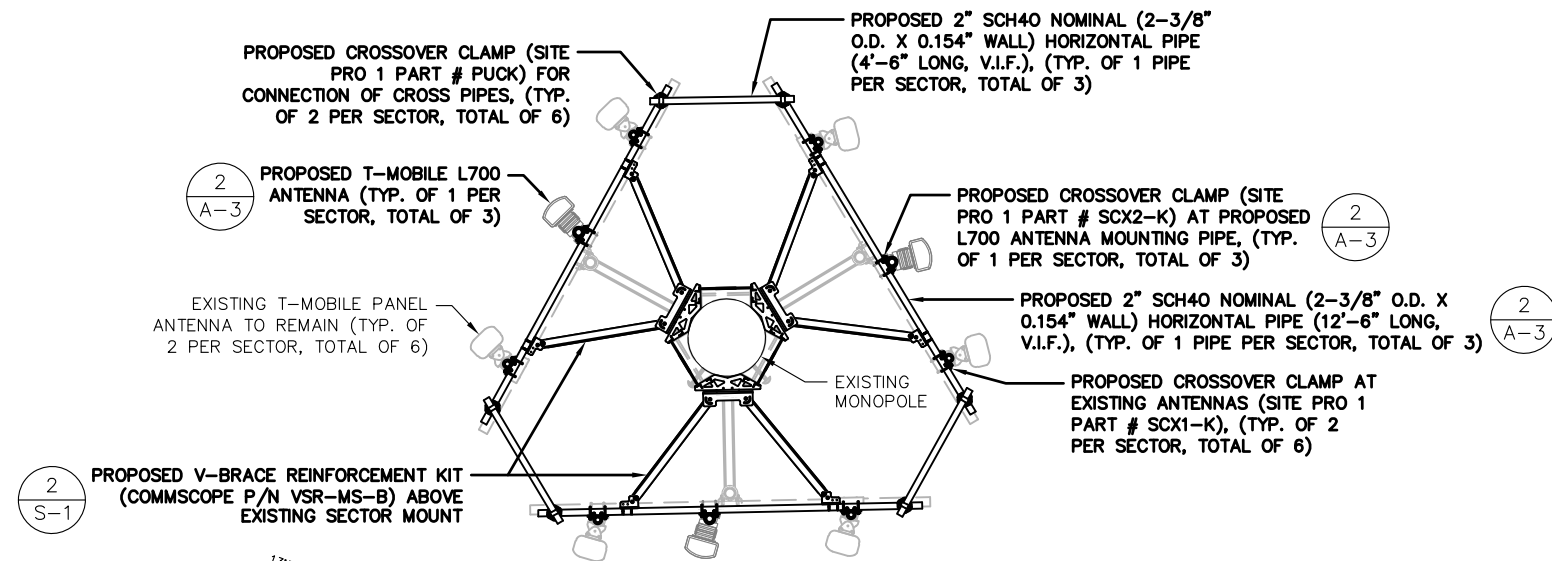
350 BURR MOUNTAIN ROAD
 TORRINGTON, CT 06790

SHEET TITLE

STRUCTURAL DETAILS

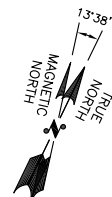
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S-1

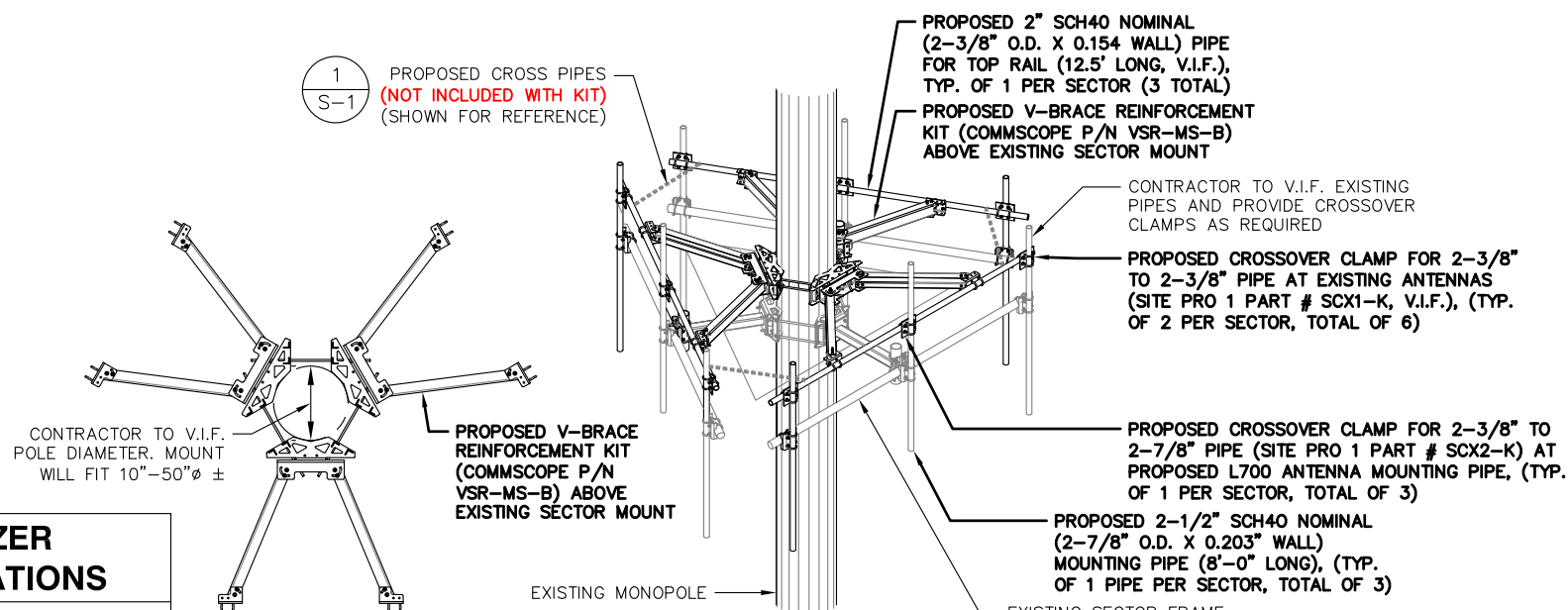


BRACING REINFORCEMENT DETAIL

SCALE: N.T.S.



1 S-1

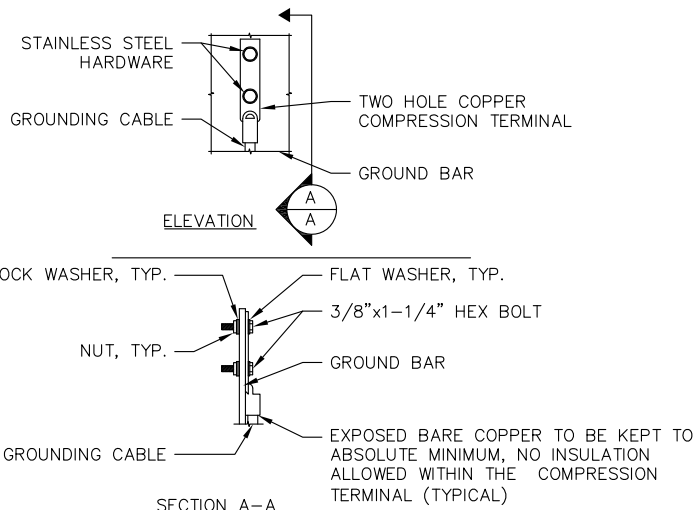


V-BRACE REINFORCEMENT KIT

SCALE: N.T.S.

V-STABILIZER SPECIFICATIONS	
MANUF.	COMMSCOPE
MODEL #	VSR-MS-B
WEIGHT	421.1± LBS.

2 S-1

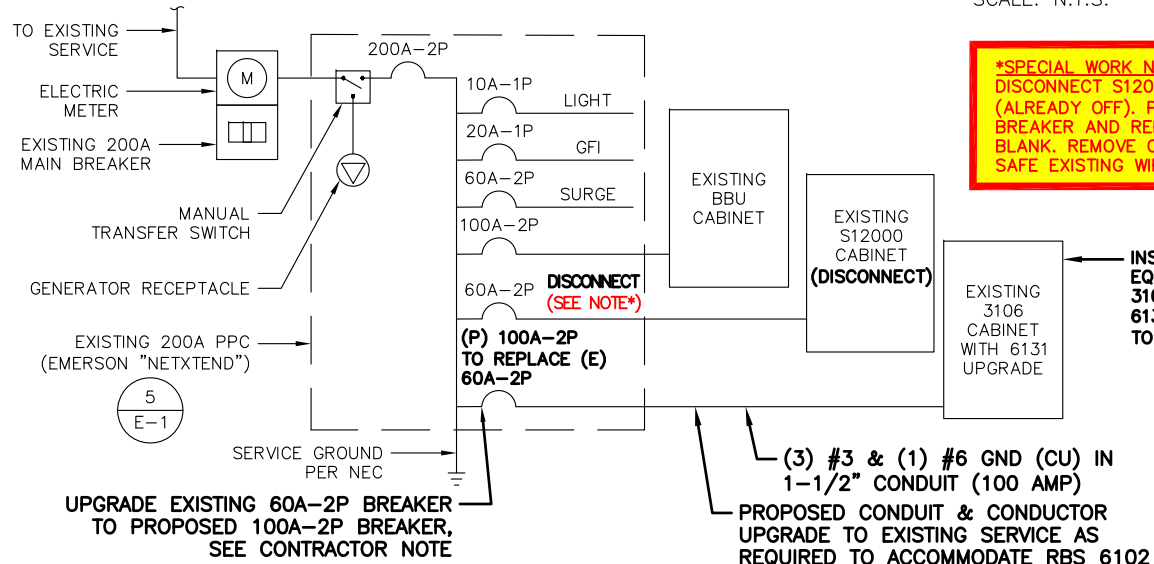


- NOTES:**
- "DOUBLING UP" OR "STACKING" OF CONNECTION IS NOT PERMITTED.
 - OXIDE INHIBITING COMPOUND TO BE USED AT ALL LOCATIONS.
 - CADWELD DOWNLEADS FROM UPPER EGB, LOWER EGB, AND MGB.

TYPICAL GROUND BAR CONNECTION DETAIL

SCALE: N.T.S.

1
E-1



ONE LINE POWER SCHEMATIC

SCALE: N.T.S.

4
E-1

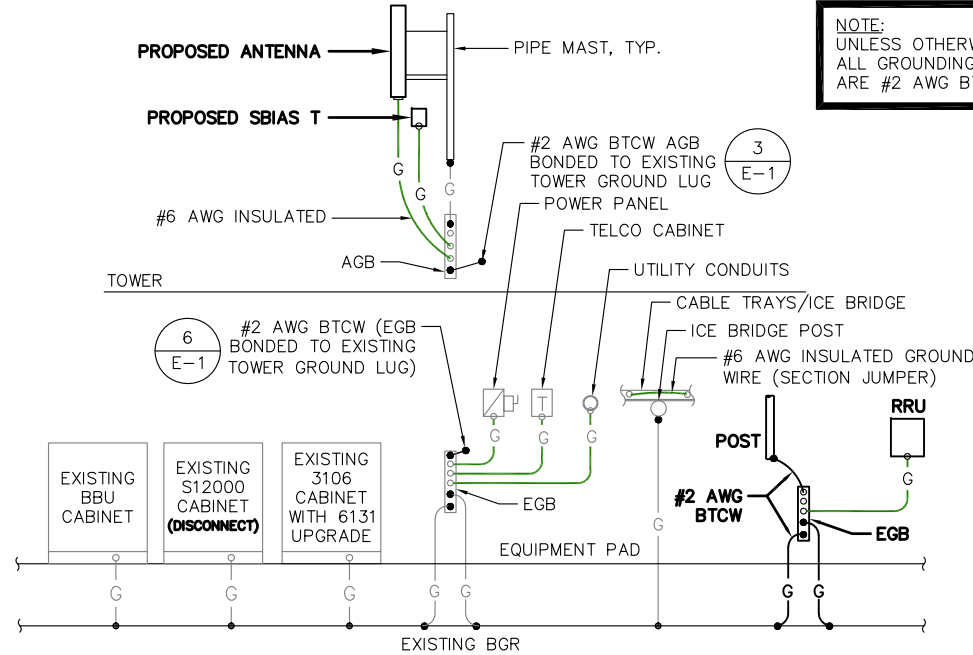
ELECTRICAL LEGEND	
A	AMPERE
V	VOLT
KWH	KILOWATT - HOUR
C	CONDUIT
GRC	GALVANIZED RIGID CONDUIT
BTCW	BARE TINNED (SOLID) COPPER WIRE (#2 AWG, UNLESS NOTES OTHERWISE)
G	GROUND
⊕	GROUND
⊙	MECHANICAL CONNECTION
⊙	CADWELDED CONNECTION
⊙	EQUIPMENT GROUND BAR/ANTENNA GROUND BAR
⊙	GROUND COPPER WIRE, SIZE AS NOTED
—	EXPOSED WIRING
—	INSULATED GROUNDING CONDUCTOR (#6 AWG STRANDED, UNLESS NOTED OTHERWISE)
⊙	5/8"x10" COPPER CLAD STAINLESS STEEL GROUND ROD
⊙	EXOTHERMIC (CAD WELD) OR MECHANICAL (COMPRESSION TYPE) CONNECTION
⊙	POWER PROTECTION CABINET
⊙	OMNI-DIRECTIONAL ELECTRONIC MARKER SYSTEM (EMS) BALL

CONTRACTOR NOTE:
G.C. TO VERIFY THAT THE EXISTING CONDUITS AND WIRE SIZES ARE ADEQUATE FOR THE PROPOSED LOADING IN ACCORDANCE WITH NEC AND INCLUDE ELECTRICAL UPGRADES IN THE SCOPE OF WORK AS REQUIRED.

ELECTRICAL & GROUNDING NOTES:

- ALL ELECTRICAL WORK SHALL CONFORM TO THE REQUIREMENTS OF THE NATIONAL ELECTRICAL CODE (NEC) 2014 AS WELL AS APPLICABLE STATE AND LOCAL CODES.
- ALL ELECTRICAL ITEMS SHALL BE U.L. APPROVED OR LISTED AND PROCURED PER SPECIFICATION REQUIREMENTS.
- THE ELECTRICAL WORK INCLUDES ALL LABOR AND MATERIAL DESCRIBED BY DRAWINGS AND SPECIFICATIONS INCLUDING INCIDENTAL WORK TO PROVIDE COMPLETE OPERATING AND APPROVED ELECTRICAL SYSTEM.
- GENERAL CONTRACTOR SHALL PAY FEES FOR PERMITS, AND IS RESPONSIBLE FOR OBTAINING SAID PERMITS AND COORDINATION OF INSPECTIONS.
- ELECTRICAL AND TELCO WIRING OUTSIDE A BUILDING AND EXPOSED TO WEATHER SHALL BE IN WATER TIGHT GALVANIZED RIGID STEEL CONDUITS OR SCHEDULE 80 PVC (AS PERMITTED BY CODE) AND WHERE REQUIRED IN LIQUID TIGHT FLEXIBLE METAL OR NONMETALLIC CONDUITS.
- RIGID STEEL CONDUITS SHALL BE GROUNDED AT BOTH ENDS.
- ELECTRICAL WIRING SHALL BE COPPER WITH TYPE XHHW, THWN, OR THHN INSULATION AS REQUIRED BY NEC.
- RUN ELECTRICAL CONDUIT OR CABLE BETWEEN ELECTRICAL ROOM AND PROPOSED CELL SITE POWER PEDESTAL AS INDICATED ON THIS DRAWING. PROVIDE FULL LENGTH PULL ROPE. COORDINATE INSTALLATION WITH UTILITY COMPANY.
- RUN TELCO CONDUIT OR CABLE BETWEEN TELEPHONE UTILITY DEMARCATION POINT AND PROPOSED CELL SITE TELCO CABINET AND BTS CABINET AS INDICATED ON DRAWING A-1. PROVIDE FULL LENGTH PULL ROPE IN INSTALLED TELCO CONDUIT. PROVIDE GREENLEE CONDUIT MEASURING TAPE AT EACH END.
- ALL EQUIPMENT LOCATED OUTSIDE SHALL HAVE NEMA 3R ENCLOSURE.
- GROUNDING SHALL COMPLY WITH NEC ART. 250.

NOTE:
UNLESS OTHERWISE NOTED, ALL GROUNDING CONDUCTORS ARE #2 AWG BTCW



TYPICAL GROUNDING RISER DIAGRAM

SCALE: N.T.S.

2
E-1

***SPECIAL WORK NOTE:**
DISCONNECT S12000 CABINET (ALREADY OFF). PULL BREAKER AND REPLACE WITH BLANK. REMOVE OR MAKE SAFE EXISTING WIRES



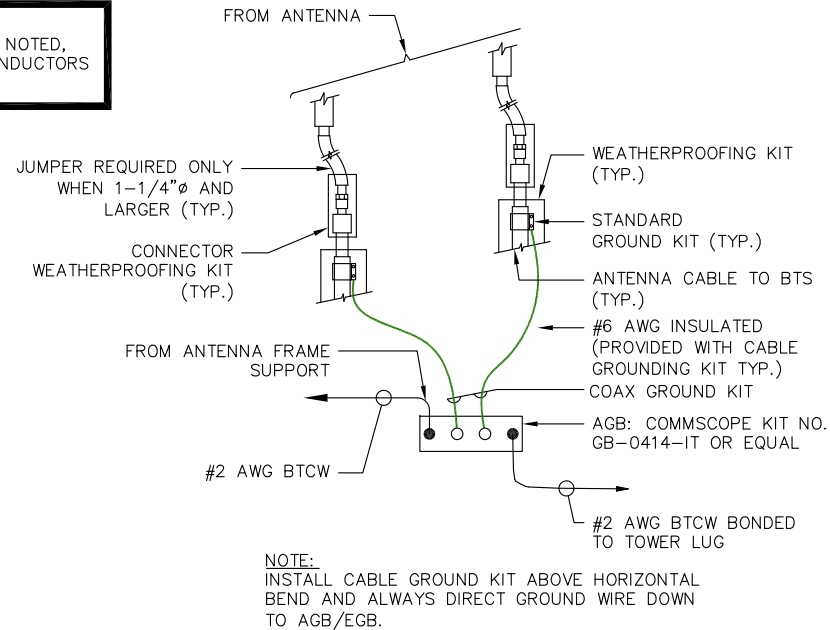
IMAGE SOURCE: PROTERRA 01/23/17



PHOTO DETAIL: PPC PANEL

SCALE: N.T.S.

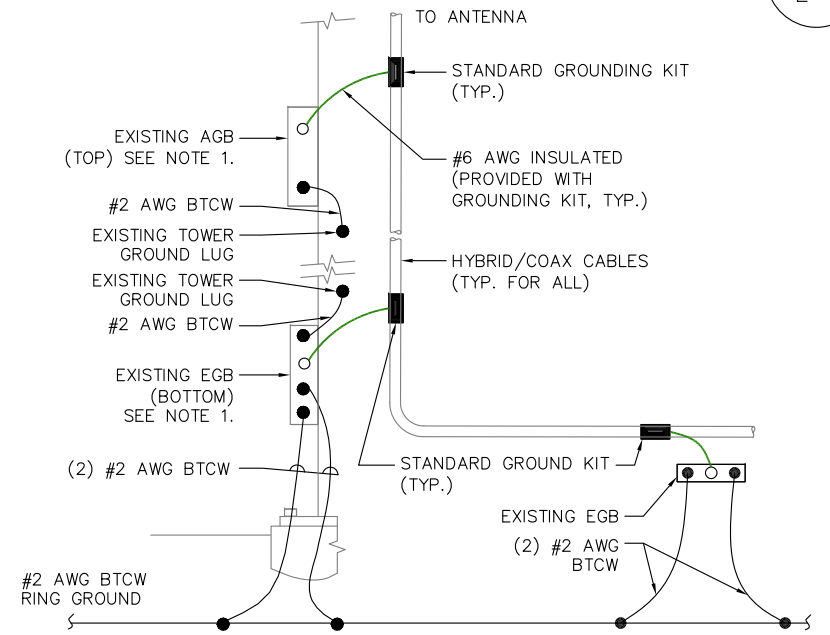
5
E-1



TOWER TOP CABLE GROUNDING DETAIL

SCALE: N.T.S.

3
E-1



- NOTE:**
- NUMBER OF GROUND BARS MAY VARY DEPENDING ON THE TYPE OF TOWER, ANTENNA LOCATION, AND CONNECTION ORIENTATION. PROVIDE ADDITIONAL AGB/EGB AS REQUIRED.
 - A SEPARATE GROUND BAR TO BE USED FOR GPS ANTENNA IF REQUIRED

TOWER BOTTOM CABLE GROUNDING DETAIL

SCALE: N.T.S.

6
E-1

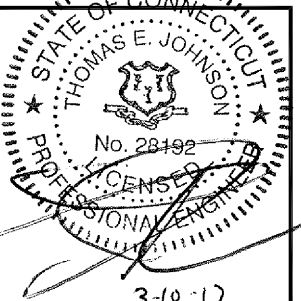
T-Mobile
T-MOBILE NORTHEAST LLC
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SBA

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ProTerra
DESIGN GROUP, LLC

4 Bay Road, Building A
Suite 200
Hadley, MA 01035
TEL: (413) 320-4918



CHECKED BY: JMM/TEJ

APPROVED BY: JMM/TEJ

SUBMITTALS			
REV.	DATE	DESCRIPTION	BY
1	03/10/17	FOR CONSTRUCTION	JEB
0	02/01/17	ISSUED FOR REVIEW	JEB

SITE NUMBER:
CTNH402A
SITE NAME:
LITCHFIELD SSUSA
SITE ADDRESS:
350 BURR MOUNTAIN ROAD
TORRINGTON, CT 06790

SHEET TITLE
ONE-LINE DIAGRAM & GROUNDING DETAILS

SHEET NUMBER
E-1