



Filed by:

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

October 7, 2016

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

**Notice of Exempt Modification**

**67 Fairchild Road, Middletown, CT 06457**

**41 32 42.04**

**-72 37 14.76**

**AT&T #: 10141343\_LTE - CT2547**

Dear Ms. Bachman:

AT&T currently maintains nine (9) antennas at the 130-foot level of the existing 130-foot Monopole Tower at 67 Fairchild Rd in Middletown, CT. The tower is owned by SBA Infrastructure, LLC. The property is owned by Stephen and Barbara Borrelli. AT&T does not propose any antenna modifications at the site at this time, but does intend to install RRUs at the 130-foot level of the tower. AT&T's full scope of proposed work is as follows:

Remove: None

Remove and Replace: None

Install:

- (3) RRUS-12/A2 and new RRUL Bracket
- (3) RRUS-32 B2
- (3) RRUS-32
- (1) Raycap DC/Fiber Squid
- (4) .645" DC inside 3" Conduits
- (2) 1.496" Fiber inside 3" Conduits

Existing Equipment to Remain (including entitlements):

- (6) CCI-OPA-65R-LCUU-H6 Panel Antennas
- (3) Powerwave-P65-16-XLH-RR Panel Antennas
- (3) RRUS-11
- (3) RRUS-E2
- (1) Raycap DC/Fiber Squid
- (3) CCI DTMABP7819VG12A TMA
- (1) Commscope P/N MTC3607R platform with Hand Rail
- (12) 1-5/8" fiber
- (2) Fiber
- (4) DC



This facility was originally approved by the Council in Docket 316 on November 14, 2006. The original approval included the condition that all antennas be flush-mounted. Docket 316 was reopened, and the Decision rescinded, on August 25, 2011 with the Council reissuing a Certificate of Environmental Compatibility and Public Need eliminating the requirement that all antennas be flush-mounted. (Docket 316A). This modification complies with the conditions of the aforementioned Docket 316A.

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 Daniel T. Drew, Mayor of the City of Middletown, as well as the property owner. (Separate notice is not being sent to tower owner, as it belongs to SBA.)

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

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

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

Sincerely,

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

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

#### Attachments

cc: The Honorable Daniel T. Drew -- as elected official  
*The City of Middletown, City Hall, 245 deKoven Drive, Middletown, CT 06457*  
Stephen G. & Barbara L. Borrelli – as property owners  
*67 Fairchild Road, Middletown, CT 06457*

## POWER DENSITY

### AT&T Site Inventory and Power Data by Antenna

Sector:	A	Sector:	B	Sector:	C
Antenna #:	1	Antenna #:	1	Antenna #:	1
Make / Model:	Powerwave P65-16-XLH-RR	Make / Model:	Powerwave P65-16-XLH-RR	Make / Model:	Powerwave P65-16-XLH-RR
Gain:	13.4 / 15.1 dBd	Gain:	13.4 / 15.1 dBd	Gain:	13.4 / 15.1 dBd
Height (AGL):	130 feet	Height (AGL):	130 feet	Height (AGL):	130 feet
Frequency Bands	850 MHz / 1900 MHz (PCS)	Frequency Bands	850 MHz / 1900 MHz (PCS)	Frequency Bands	850 MHz / 1900 MHz (PCS)
Channel Count	4	Channel Count	4	Channel Count	4
Total TX Power(W):	120 Watts	Total TX Power(W):	120 Watts	Total TX Power(W):	120 Watts
ERP (W):	3,254.22	ERP (W):	3,254.22	ERP (W):	3,254.22
Antenna A1 MPE%	1.00 %	Antenna B1 MPE%	1.00 %	Antenna C1 MPE%	1.00 %
Antenna #:	2	Antenna #:	2	Antenna #:	2
Make / Model:	Quintel QS66512-2	Make / Model:	Quintel QS66512-2	Make / Model:	Quintel QS66512-2
Gain:	14.85 / 13.85 dBd	Gain:	14.85 / 13.85 dBd	Gain:	14.85 / 13.85 dBd
Height (AGL):	130 feet	Height (AGL):	130 feet	Height (AGL):	130 feet
Frequency Bands	2300 MHz (WCS) / 1900 MHz (PCS)	Frequency Bands	2300 MHz (WCS) / 1900 MHz (PCS)	Frequency Bands	2300 MHz (WCS) / 1900 MHz (PCS)
Channel Count	4	Channel Count	4	Channel Count	4
Total TX Power(W):	240 Watts	Total TX Power(W):	240 Watts	Total TX Power(W):	240 Watts
ERP (W):	6,577.84	ERP (W):	6,577.84	ERP (W):	6,577.84
Antenna A2 MPE%	1.54 %	Antenna B2 MPE%	1.54 %	Antenna C2 MPE%	1.54 %
Antenna #:	3	Antenna #:	3	Antenna #:	3
Make / Model:	CCI OPA-65R-LCUU-H6	Make / Model:	CCI OPA-65R-LCUU-H6	Make / Model:	CCI OPA-65R-LCUU-H6
Gain:	11.65 dBd	Gain:	11.65 dBd	Gain:	11.65 dBd
Height (AGL):	130 feet	Height (AGL):	130 feet	Height (AGL):	130 feet
Frequency Bands	700 MHz	Frequency Bands	700 MHz	Frequency Bands	700 MHz
Channel Count	2	Channel Count	2	Channel Count	2
Total TX Power(W):	120 Watts	Total TX Power(W):	120 Watts	Total TX Power(W):	120 Watts
ERP (W):	1,754.61	ERP (W):	1,754.61	ERP (W):	1,754.61
Antenna A3 MPE%	0.88 %	Antenna B3 MPE%	0.88 %	Antenna C3 MPE%	0.88 %

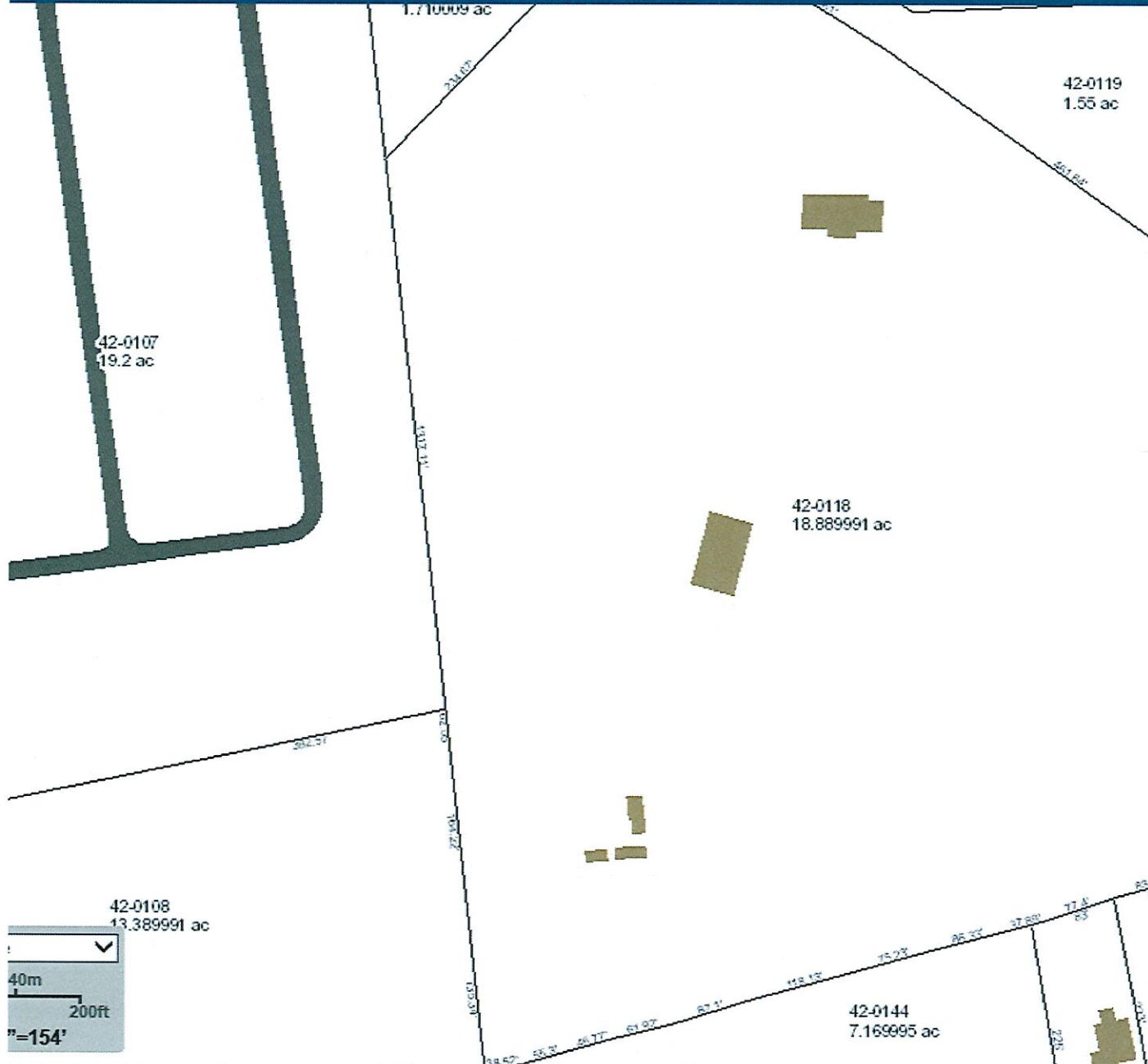
Site Composite MPE%	
Carrier	MPE%
AT&T – Max per sector	3.41 %
Nextel	0.49 %
Clearwire	0.26 %
T-Mobile	4.55 %
Verizon Wireless	4.24 %
Site Total MPE %:	12.95 %

AT&T Sector A Total:	3.41 %
AT&T Sector B Total:	3.41 %
AT&T Sector C Total:	3.41 %
Site Total :	12.95 %

AT&T _ Frequency Band / Technology Per Sector	# Channels	Watts ERP (Per Channel)	Height (feet)	Total Power Density (μW/cm <sup>2</sup> )	Frequency (MHz)	Allowable MPE (μW/cm <sup>2</sup> )	Calculated % MPE
AT&T 850 MHz UMTS	2	656.33	130	3.07	850 MHz	567	0.54%
AT&T 1900 MHz (PCS) UMTS	2	970.78	130	4.54	1900 MHz (PCS)	1000	0.45%
AT&T 2300 MHz (WCS) LTE	2	1,832.95	130	8.57	2300 MHz (WCS)	1000	0.86%
AT&T 1900 MHz (PCS) LTE	2	1,455.97	130	6.81	1900 MHz (PCS)	1000	0.68%
AT&T 700 MHz LTE	2	877.31	130	4.10	700 MHz	467	0.88%
					Total*		3.41%

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

# Middletown Tax Assessor GIS Application



## City Of Middletown

About Us

Property Search

Basic **Advanced** Graphics

Enter terms and press "Search". Select a row to zoom to a parcel. For more about the parcel, click the parcel on the map. Queries are limited to 1000 f disable your pop-up blocker to download reports.

67 Fairchild Rd

[Excel](#) [Labels-5160 \(PDF\)](#) [Labels-5193 \(PDF\)](#)

Owner Name	Location
BORRELLI STEPHEN G & BARBARA L	67 FAIRCHILD RD

Buffer

Base Maps

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Legend

### Annotation Tools



PRIME<sup>®</sup> Developed by PRIME TECH

40m  
200ft  
"=154'



**Tower Engineering Solutions**

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

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## Structural Analysis Report

**Existing 130 ft. Rohn Monopole**

**Customer Name: SBA Communications Corp**

**Customer Site Number: CT13064-A**

**Customer Site Name: Middletown 2, CT**

**Carrier Name: AT&T**

**Carrier Site ID / Name: 10141343 - CT2547**

**Site Location: 67 Fairchild Road**

**Middletown, Connecticut**

**Middlesex County**

**Latitude: 41.545011**

**Longitude: -72.620766**

### Analysis Result:

**Max Structural Usage: 99.2% [Pass]**

**Max Foundation Usage: 91% [Pass]**

**Report Prepared By : Stacey Hesselbein**



## Introduction

The purpose of this report is to summarize the analysis results on the 130 ft. Rohn 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

<b>Tower Drawings</b>	Radian Communication Services, File # 060-3494,57886EH Dated 12/15/2006
<b>Foundation Drawing</b>	Radian Communication Services, File # 060-3494,57886EH Dated 12/15/2006
<b>Geotechnical Report</b>	Gemini Geotechnical Associates Inc., Sire # 999-0049 Dated 11/30/2006
<b>Modification Drawings</b>	Modification & 10' Extension Drawings by FDH, Project # 11-01248E S1 dated 09/21/2001 FDH Engineering, Inc., Job # 12-08192E S2 dated 11/14/2012 FDH Velocitel, Project # 15BVXK1400 dated 08/06/2015

## 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.

<b>Wind Speed Used in the Analysis:</b>	Ultimate Design Wind Speed $V_{ult} = 130$ mph (3-Sec. Gust)/ Nominal Design Wind Speed $V_{asd} = 101.0$ mph (3-Sec. Gust)
<b>Wind Speed with Ice:</b>	50 mph (3-Sec. Gust) with 3/4" radial ice concurrent
<b>Operational Wind Speed:</b>	60 mph + 0" Radial ice
<b>Standard/Codes:</b>	ANSI/TIA/EIA 222-G / 2012 IBC / 2016 Connecticut State Building Code
<b>Exposure Category:</b>	C
<b>Structure Class:</b>	II
<b>Topographic Category:</b>	1
<b>Crest Height:</b>	0 ft.
<b>Seismic Parameters:</b>	$S_5 = 0.18$ , $S_1 = 0.063$

## Existing Antennas, Mounts and Transmission Lines

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

Items	Elevation (ft.)	Qty.	Antenna Descriptions	Mount Type & Qty.	Transmission Lines	Owner
-	130.0	6	CCI - OPA-65R-LCUU-H6 - Panel	(1)Platform w/ Hand Rail (Commscope P/N MTC3607R)	(12) 1 5/8" *(2) Fiber *(4) DC	AT&T
-		3	Powerwave - P65-16-XLH-RR - Panel			
-		3	Ericsson - RRUS 11 - RRU			
-		3	Ericsson - RRUS-32 - RRU			
-		3	Ericsson - RRUS-E2 - RRU			
-		3	CCI - DTMAPB7819VG12A - TMA			
-		2	Raycap - DC6-48-60-18-8F - SP			
10	111.0	3	Andrew - CBC721-DF - Panel	(3) T-Arms	(12) 1 5/8" (2) 1 5/8" Hybrid	Verizon
11	110.0	6	Andrew - SBNHH-1D65B - Panel			
12		3	Alcatel - RRH2X60-1900A-4R			
13		3	Alcatel - B13 RRH4X30-4R			
14		3	Alcatel - B4 RRH2X60-4R			
15		2	RFS - DB-T1-6Z-8AB-OZ			
16	109.0	3	Andrew - CBC721-DF - Panel			
17	100.0	3	Ericsson - AIR 21 B2A/B4P - Panel	(3) T-Arms (Site Pro P/N RMV12-3xx)	(6) 1 5/8" (1) 1 5/8" Hybrid	T-Mobile
18		3	Ericsson - AIR 21 B4A/B2P - Panel			
19		3	Commscope - LNX-6515DS-A1M - Panel			
20		3	Kathrein - 782 11056 - TMA			
21	94.0	1	1'4"x6.5"x6" Surge Protector	Direct Mount	(3) 5/16" (2) 1/2" (3) 5/8" (3) 1/4"	Clearwire
22	91.0	3	Kathrein - 840 10054 - Panel	(3) T-Arms		
23		3	Samsung - RASSPI-2213-RRH			
24	90.8	1	Andrew - VHLP2-18-1WH - Dish			
25	90.7	1	Andrew - VHLP800-11 - Dish			

\* Considered running inside (3) 3" Conduit outside the pole shaft

**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
1	130.0	3	CCI - OPA-65R-LCUU-H6 - Panel	(1)Platform w/ Hand Rail (Commscope P/N MTC3607R)	(12) 1 5/8" (4) 0.645" DC and (2) 1.496" Fiber Inside (3) 3" Conduits	AT&T
2		3	Quintel - QS66512-2 - Panel			
3		3	Powerwave - P65-16-XLH-RR - Panel			
4		3	CCI - DTMABP7819VG12A - TMA			
5		3	Ericsson - RRUS 11 - RRU			
6		3	Ericsson - RRUS-32 - RRU			
7		3	Ericsson - RRUS 32 B2 - RRU			
8		3	Ericsson - RRUS 32 B2 - RRU			
9		2	Raycap - DC6-48-60-18-8F - SP			

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
Max. Usage:	<b>99.2%</b>	<b>54.9%</b>	<b>57.0%</b>
Pass/Fail	<b>Pass</b>	<b>Pass</b>	<b>Pass</b>

## **Foundations**

	Moment (Kip-Ft)	Shear (Kips)	Axial (Kips)
Analysis Reactions	2776.4	28.4	31.7

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):**

The maximum twist and sway of the microwave dishes under the operational wind speed as specified in the Analysis Criteria are listed in the table below:

Elevation (ft.)	Antenna / Dish	Carrier	Twist (deg)	Sway (deg)
90.8	Andrew - VHLP2-18-1WH - Dish	Clearwire	0.002	0.994
90.7	Andrew - VHLP800-11 - Dish	Clearwire	0.002	0.994

It is recommended that the carriers review the twist and sway values of the microwave dishes.

### **Conclusions**

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

## Standard Conditions

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

# Usage Diagram - Max Ratio 77.67% at 8.5ft

**Structure:** CT13064-A-SBA  
**Site Name:** Middletown 2, CT  
**Height:** 130.00 (ft)  
**Base Elev:** 0.000 (ft)

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

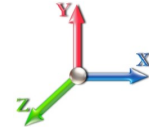
9/14/2016



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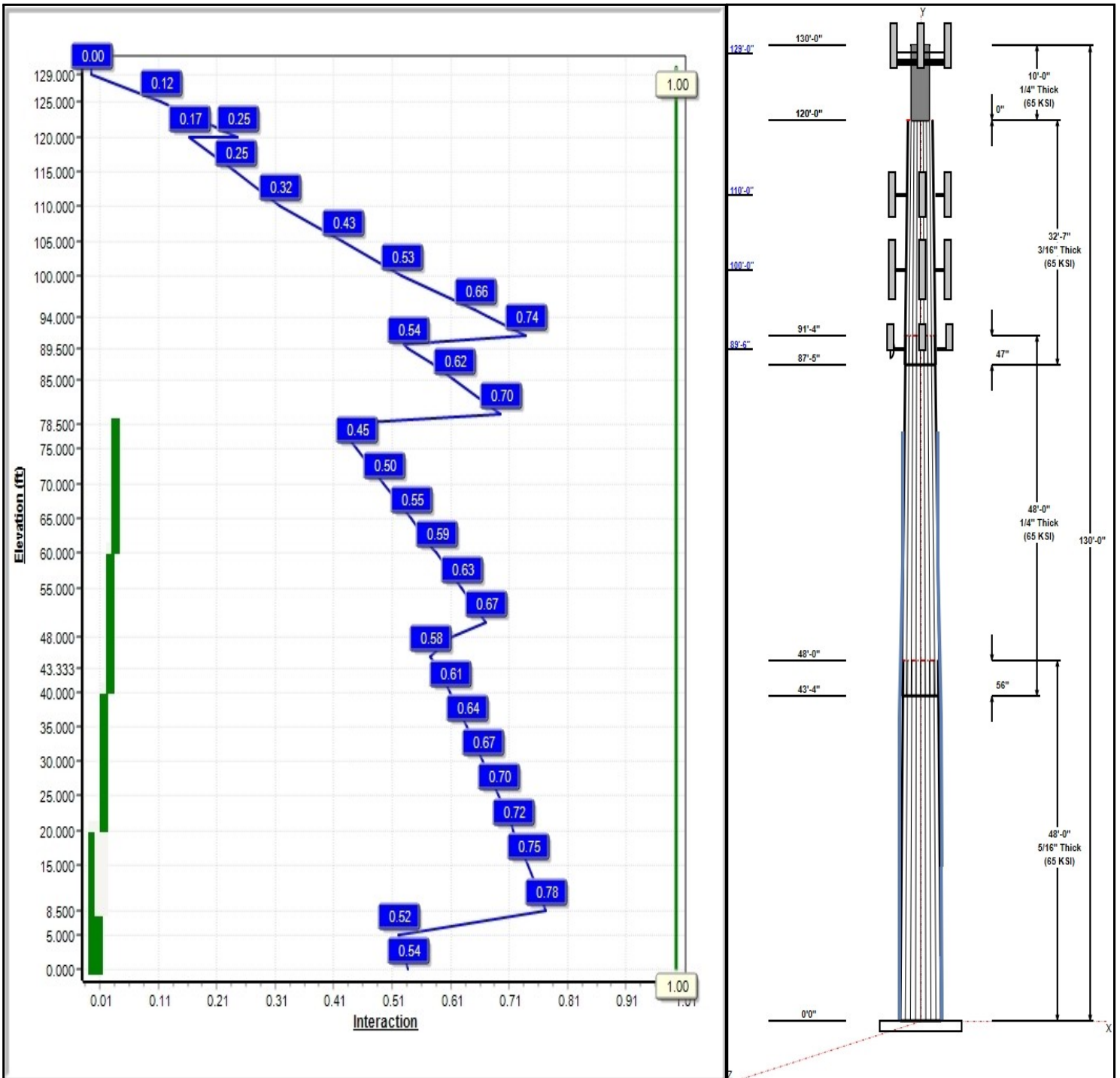
**Dead Load Factor:** 1.20  
**Wind Load Factor:** 1.60

**Load Case : 1.2D + 1.6W 10 101 mph Wind**



**Iterations:** 24

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## Structure: CT13064-A-SBA

**Type:** Custom  
**Site Name:** Middletown 2, CT  
**Height:** 130.00 (ft)  
**Base Elev:** 0.00 (ft)

**Base Shape:** 18 Sided  
**Taper:** 0.00000

9/14/2016

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### Shaft Properties

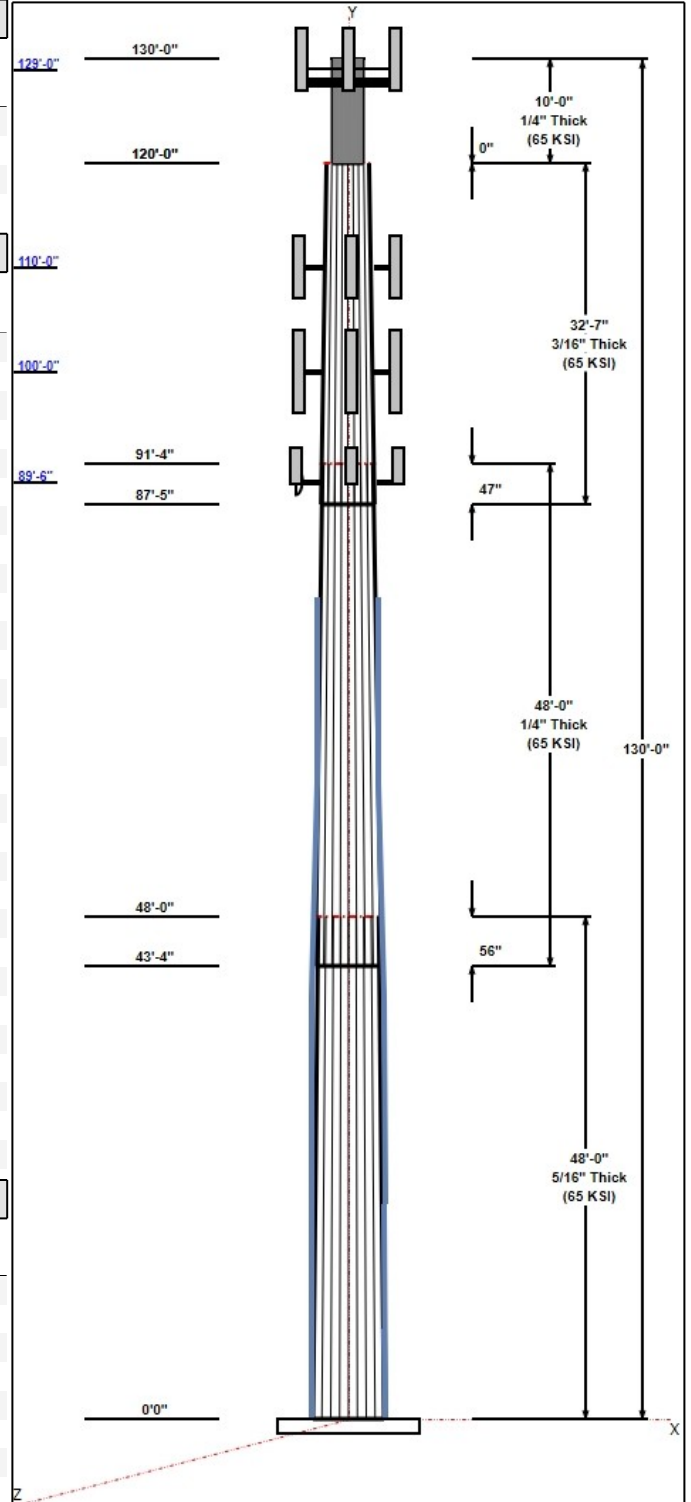
Seq	Length (ft)	Top (in)	Bottom (in)	Thick (in)	Joint Type	Taper	Grade (ksi)
1	48.00	35.05	42.50	0.313		0.15529	65
2	48.00	28.82	36.27	0.250	Slip	0.15529	65
3	32.58	24.74	29.80	0.188	Slip	0.15529	65
4	10.00	18.00	18.00	0.250	Butt	0.00000	65

### Discrete Appurtenances

Attach Elev (ft)	Force Elev (ft)	Qty	Description	Carrier
130.00	130.00	1	6' Lightning rod	T-Mobile
129.00	130.00	3	RRUS-32	AT&T
129.00	130.00	3	RRUS 11	AT&T
129.00	130.00	2	DC6-48-60-18-8F	AT&T
129.00	130.00	3	P65-16-XLH-RR	AT&T
129.00	130.00	3	DTMABP7819VG12A	AT&T
129.00	129.00	1	MTC3607 Platform + HR &	AT&T
129.00	130.00	3	OPA-65R-LCUU-H6	AT&T
129.00	130.00	3	RRUS 32 B2	AT&T
129.00	130.00	3	QS66512-2	AT&T
110.00	111.00	3	CBC721-DF	Verizon
110.00	109.00	3	CBC721-DF	Verizon
110.00	110.00	6	SBNHH-1D65B	Verizon
110.00	110.00	3	RRH2X60-1900A-4R	Verizon
110.00	110.00	3	B13 RRH4X30-4R	Verizon
110.00	110.00	3	B4 RRH2X60-4R	Verizon
110.00	110.00	2	DB-T1-6Z-8AB-0Z	Verizon
110.00	110.00	3	T-Arm (Round)	Verizon
100.00	100.00	3	AIR 21, 1.3M, B2A B4P	T-Mobile
100.00	100.00	3	AIR 21, 1.3M, B4A B2P	T-Mobile
100.00	100.00	3	LNx-6515DS-A1M	T-Mobile
100.00	100.00	3	782 11056	T-Mobile
100.00	100.00	3	T-Arm (Round)	T-Mobile
94.00	94.00	1	1'4"x6.5"x6" Surge	Clearwire
89.50	91.00	3	840 10054	Clearwire
89.50	91.00	3	SPI-2213 RRH	Clearwire
89.50	90.80	1	VHLP2-18-1WH	Clearwire
89.50	90.70	1	VHLP800-11	Clearwire
89.50	89.50	3	T-Arm (Round)	Clearwire

### Linear Appurtenances

Elev From (ft)	Elev To (ft)	Placement	Description	Carrier
0.00	129.00	Outside	0.645" DC	AT&T
0.00	129.00	Inside	1 5/8" Coax	AT&T
0.00	129.00	Outside	1.496" Fiber	AT&T
0.00	129.00	Outside	3" Conduit	AT&T
0.00	110.00	Inside	1 5/8" Coax	Verizon
0.00	110.00	Inside	1 5/8" Hybrid	Verizon
0.00	100.00	Inside	1 5/8" Coax	T-Mobile
0.00	100.00	Inside	1 5/8" Hybrid	T-Mobile
0.00	89.50	Inside	1/2" Coax	Clearwire
0.00	89.50	Inside	1/4" Coax	Clearwire
0.00	89.50	Inside	5/16" Coax	Clearwire
0.00	89.50	Inside	5/8" Coax	Clearwire
0.00	81.00	Outside	1" Reinforcing plate	



**Structure: CT13064-A-SBA**

**Type:** Custom  
**Site Name:** Middletown 2, CT  
**Height:** 130.00 (ft)  
**Base Elev:** 0.00 (ft)

**Base Shape:** 18 Sided  
**Taper:** 0.00000

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**Anchor Bolts**

Qty	Specifications	Grade (ksi)	Arrangement
14	1.5" F1554 105	105.0	Radial

**Base Plate**

Thickness (in)	Specifications (in)	Grade (ksi)	Geometry
1.5000	51.8	50.0	Round

**Reactions**

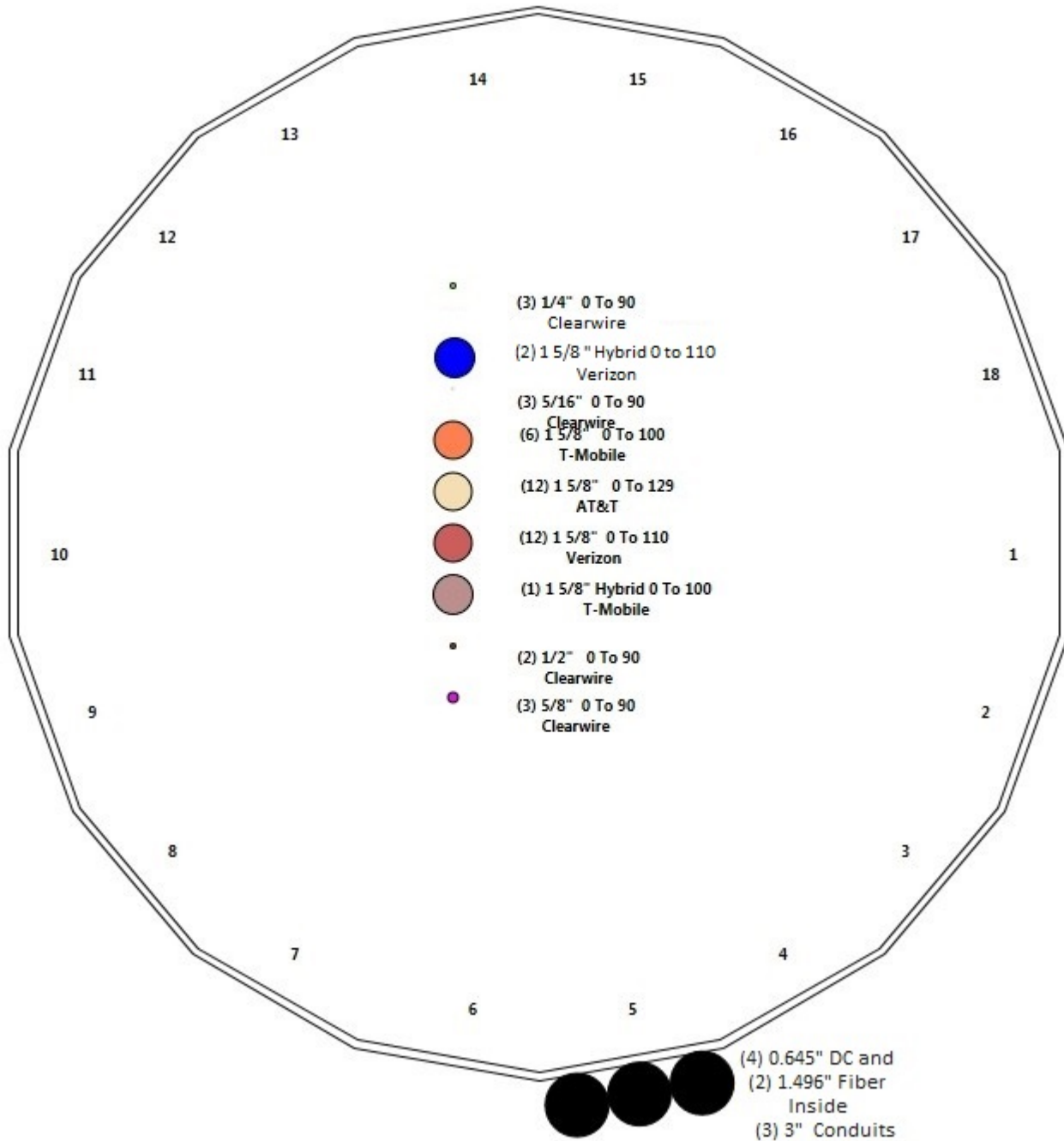
Load Case	Moment	Shear	Axial
1.2D + 1.6W 10 101 mph Wind	2776.4	28.4	31.7
0.9D + 1.6W 101 mph Wind	2749.4	28.3	23.7
1.2D + 1.0Di + 1.0Wi 50 mph Wind	708.1	7.3	54.6
1.2D + 1.0E	152.9	1.4	31.7
0.9D + 1.0E	151.2	1.4	23.8
1.0D + 1.0W 60 mph Wind	609.4	6.3	26.4

# Structure: CT13064-A-SBA - Coax Line Placement

**Type:** Monopole  
**Site Name:** Middletown 2, CT  
**Height:** 130.00 (ft)

9/14/2016

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## Shaft Properties

<b>Structure:</b> CT13064-A-SBA	<b>Code:</b> EIA/TIA-222-G	9/14/2016
<b>Site Name:</b> Middletown 2, CT	<b>Exposure:</b> C	
<b>Height:</b> 130.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II



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Sec. No.	Shape	Length (ft)	Thick (in)	Fy (ksi)	Joint Type	Overlap (in)	Weight (lb)
1	18	48.000	0.3125	65		0.00	6,231
2	18	48.000	0.2500	65	Slip	56.00	4,185
3	18	32.583	0.1875	65	Slip	47.00	1,787
4	R	10.000	0.2500	65	Flange	0.00	474
<b>Total Shaft Weight:</b>							<b>12,677</b>

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	42.50	0.00	41.84	9409.05	22.57	136.00	35.05	48.00	34.45	5250.98	18.36	112.1	0.155292
2	36.27	43.33	28.58	4685.33	24.17	145.08	28.82	91.33	22.67	2337.03	18.91	115.2	0.155292
3	29.80	87.42	17.62	1952.39	26.61	158.93	24.74	120.00	14.61	1112.84	21.86	131.9	0.155292
4	18.00	120.0	13.94	549.45	0.00	72.00	18.00	130.00	13.94	549.45	0.00	72.00	0.000000

### Additional Steel

Elev From (ft)	Elev To (ft)	Qty	Description	Fy (ksi)	Fu (ksi)	Offset (in)	Intermediate Connectors			Termination Connectors		
							Description	Spacing (in)	Spacing (in)	Description	Spacing (in)	Lower Qty
0.00	20.50	4	PLT 6"x1" (1.25" Hole)	65	80	0.00	AJM20&sleeve	16.00	AJM20&sleeve	3.00	8	8
0.00	8.50	4	PLT 5.5"x1 1/4"(1.25"hol	65	80	0.00	AJM20&sleeve	18.00	AJM20&sleeve	3.00		9
20.50	40.50	4	PLT 6"x1" (1.25" Hole)	65	80	0.00	AJM20&sleeve	16.00	AJM20&sleeve	3.00	8	8
40.50	60.75	4	PLT 6"x1" (1.25" Hole)	65	80	0.00	AJM20&sleeve	16.00	AJM20&sleeve	3.00	8	8
60.75	78.50	4	PLT 6"x1" (1.25" Hole)	65	80	0.00	AJM20&sleeve	16.00	AJM20&sleeve	3.00	8	8



## Load Summary

<b>Structure:</b> CT13064-A-SBA	<b>Code:</b> EIA/TIA-222-G	9/14/2016
<b>Site Name:</b> Middletown 2, CT	<b>Exposure:</b> C	
<b>Height:</b> 130.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> 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	130.00	6' Lightning rod	1	6.50	0.38	1.00	42.28	1.452	1.00	0.00	0.00
2	129.00	RRUS-32	3	77.00	3.87	0.70	188.54	4.093	0.71	0.00	1.00
3	129.00	RRUS 11	3	50.70	2.52	0.76	138.26	3.161	0.77	0.00	1.00
4	129.00	DC6-48-60-18-8F	2	2.77	1.47	1.00	8.07	2.159	1.00	0.00	1.00
5	129.00	P65-16-XLH-RR	3	53.00	8.16	0.78	215.58	10.921	0.78	0.00	1.00
6	129.00	DTMABP7819VG12A	3	19.20	1.14	0.60	44.34	1.898	0.62	0.00	1.00
7	129.00	MTC3607 Platform + HR & Kicker	1	2246.00	51.70	1.00	5334.86	89.384	1.00	0.00	0.00
8	129.00	OPA-65R-LCUU-H6	3	80.00	9.66	0.77	307.71	11.005	0.77	0.00	1.00
9	129.00	RRUS 32 B2	3	77.00	1.35	0.67	124.53	2.220	0.67	0.00	1.00
10	129.00	QS66512-2	3	111.00	7.13	0.80	334.29	9.409	0.80	0.00	1.00
11	110.00	CBC721-DF	3	4.40	0.45	0.63	13.66	0.934	0.67	0.00	1.00
12	110.00	CBC721-DF	3	4.40	0.45	0.63	13.66	0.934	0.67	0.00	-1.00
13	110.00	SBNHH-1D65B	6	40.00	8.16	0.82	235.78	9.418	0.82	0.00	0.00
14	110.00	RRH2X60-1900A-4R	3	46.00	1.88	0.67	112.46	2.446	0.68	0.00	0.00
15	110.00	B13 RRH4X30-4R	3	57.20	2.16	0.67	117.59	2.752	0.68	0.00	0.00
16	110.00	B4 RRH2X60-4R	3	55.00	3.36	0.67	138.75	4.115	0.68	0.00	0.00
17	110.00	DB-T1-6Z-8AB-0Z	2	18.90	4.80	1.00	157.48	5.645	1.00	0.00	0.00
18	110.00	T-Arm (Round)	3	350.00	8.00	0.75	586.87	14.768	0.75	0.00	0.00
19	100.00	AIR 21, 1.3M, B2A B4P	3	91.50	6.09	0.83	252.43	7.141	0.83	0.00	0.00
20	100.00	AIR 21, 1.3M, B4A B2P	3	90.40	6.09	0.83	251.33	7.141	0.83	0.00	0.00
21	100.00	LNx-6515DS-A1M	3	50.30	11.47	0.84	272.94	14.607	0.84	0.00	0.00
22	100.00	782 11056	3	1.80	0.13	0.78	4.18	0.410	0.82	0.00	0.00
23	100.00	T-Arm (Round)	3	350.00	8.00	0.75	584.62	14.704	0.75	0.00	0.00
24	94.00	1'4"x6.5"x6" Surge Protector	1	53.00	2.14	1.00	146.00	3.112	1.00	0.00	0.00
25	89.50	840 10054	3	35.00	4.59	0.63	115.03	6.178	0.64	0.00	1.50
26	89.50	SPI-2213 RRH	3	33.10	1.82	0.76	74.81	2.747	0.77	0.00	1.50
27	89.50	VHLP2-18-1WH	1	31.00	4.69	1.00	123.93	5.903	1.00	1.00	1.30
28	89.50	VHLP800-11	1	48.00	8.43	1.00	212.01	10.051	1.00	1.00	1.20
29	89.50	T-Arm (Round)	3	350.00	8.00	0.75	582.03	14.630	0.75	0.00	0.00
<b>Totals:</b>			<b>78</b>	<b>8,628.84</b>			<b>21,025.73</b>				

### Linear Appurtenances

Bottom Elev. (ft)	Top Elev. (ft)	Description	Exposed Width	Exposed
0.00	129.00	(4) 0.645" DC	0.00	Outside
0.00	129.00	(12) 1 5/8" Coax	0.00	Inside
0.00	129.00	(2) 1.496" Fiber	0.00	Outside
0.00	129.00	(3) 3" Conduit	3.00	Outside
0.00	110.00	(12) 1 5/8" Coax	0.00	Inside
0.00	110.00	(2) 1 5/8" Hybrid	0.00	Inside
0.00	100.00	(6) 1 5/8" Coax	0.00	Inside
0.00	100.00	(1) 1 5/8" Hybrid	0.00	Inside
0.00	89.50	(2) 1/2" Coax	0.00	Inside
0.00	89.50	(3) 1/4" Coax	0.00	Inside
0.00	89.50	(3) 5/16" Coax	0.00	Inside
0.00	89.50	(3) 5/8" Coax	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	81.00	(4) 1" Reinforcing plate		1.00		Outside					

## Shaft Section Properties

**Structure:** CT13064-A-SBA      **Code:** EIA/TIA-222-G      9/14/2016  
**Site Name:** Middletown 2, CT      **Exposure:** C  
**Height:** 130.00 (ft)      **Crest Height:** 0.00  
**Base Elev:** 0.000 (ft)      **Site Class:** D - Stiff Soil  
**Gh:** 1.1      **Topography:** 1      **Struct Class:** II      **Page:** 8



**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	RB1 RB2	0.3125	42.500	41.843	9409.0	22.57	136.00	65	75	0.0	51.50	14174.7	10484.2	
5.00		0.3125	41.724	41.073	8899.0	22.13	133.52	65	75	705.4	51.50	13677.0	10117.3	876.2
8.50	RT2	0.3125	41.180	40.534	8553.2	21.83	131.78	65	76	486.0	24.00	7131.5	3568.7	285.8
10.00		0.3125	40.947	40.303	8407.8	21.69	131.03	65	76	206.3	24.00	7053.3	3529.7	122.5
15.00		0.3125	40.171	39.533	7935.0	21.26	128.55	65	76	679.2	24.00	6795.7	3401.4	408.3
20.00		0.3125	39.394	38.763	7480.2	20.82	126.06	65	77	666.1	24.00	6543.0	3275.5	408.3
20.50	RT1 RB3	0.3125	39.317	38.686	7435.7	20.77	125.81	65	77	65.9	24.00	6518.0	3263.1	40.8
25.00		0.3125	38.618	37.993	7043.2	20.38	123.58	65	77	587.1	24.00	6295.0	3152.0	367.5
30.00		0.3125	37.841	37.222	6623.5	19.94	121.09	65	78	639.9	24.00	6051.9	3030.9	408.3
35.00		0.3125	37.065	36.452	6220.8	19.50	118.61	65	78	626.7	24.00	5813.6	2912.3	408.3
40.00		0.3125	36.288	35.682	5834.8	19.06	116.12	65	79	613.6	24.00	5580.1	2796.0	408.3
40.50	RT3 RB4	0.3125	36.211	35.605	5797.1	19.02	115.87	65	79	60.6	24.00	5557.0	2784.5	40.8
43.33	Bot - Section 2	0.3125	35.771	35.169	5586.6	18.77	114.47	65	79	341.2	24.00	5427.1	2719.8	231.4
45.00		0.3125	35.512	34.912	5465.1	18.63	113.64	65	79	360.2	24.00	5498.1	2755.0	136.1
48.00	Top - Section 1	0.2500	35.546	28.006	4408.2	23.66	142.18	65	74	641.8	24.00	5361.3	2686.9	245.0
50.00		0.2500	35.235	27.760	4292.8	23.44	140.94	65	74	189.8	24.00	5269.9	2639.8	163.3
55.00		0.2500	34.459	27.144	4013.3	22.89	137.84	65	74	467.1	24.00	5047.8	2529.4	408.3
60.00		0.2500	33.682	26.528	3746.2	22.35	134.73	65	75	456.6	24.00	4830.6	2421.3	408.3
60.75	RT4 RB5	0.2500	33.566	26.435	3707.2	22.26	134.26	65	75	67.6	24.00	4798.4	2405.3	61.3
65.00		0.2500	32.906	25.912	3491.2	21.80	131.62	65	76	378.5	24.00	4618.1	2315.6	347.1
70.00		0.2500	32.130	25.296	3248.0	21.25	128.52	65	76	435.6	24.00	4410.5	2212.3	408.3
75.00		0.2500	31.353	24.679	3016.5	20.70	125.41	65	77	425.1	24.00	4207.7	2111.4	408.3
78.50	RT5	0.2500	30.810	24.248	2861.1	20.32	123.24	65	78	291.4	24.00	4068.6	2042.3	285.8
80.00		0.2500	30.577	24.063	2796.1	20.16	122.31	65	78	123.3				
85.00		0.2500	29.800	23.447	2586.8	19.61	119.20	65	78	404.2				
87.42	Bot - Section 3	0.2500	29.425	23.149	2489.5	19.34	117.70	65	79	191.6				
89.50		0.2500	29.101	22.893	2407.6	19.11	116.41	65	79	287.4				
90.00		0.2500	29.024	22.831	2388.2	19.06	116.09	65	79	68.5				
91.33	Top - Section 2	0.1875	29.192	17.260	1834.5	26.04	155.69	65	71	181.8				
94.00		0.1875	28.778	17.014	1757.1	25.65	153.48	65	71	155.5				
95.00		0.1875	28.622	16.922	1728.6	25.51	152.65	65	71	57.7				
100.00		0.1875	27.846	16.460	1590.8	24.78	148.51	65	72	284.0				
105.00		0.1875	27.069	15.997	1460.6	24.05	144.37	65	73	276.1				
110.00		0.1875	26.293	15.535	1337.6	23.32	140.23	65	74	268.2				
115.00		0.1875	25.516	15.073	1221.8	22.59	136.09	65	75	260.4				
120.00	Top - Section 3	0.1875	24.740	14.611	1112.8	21.86	131.95	65	76	252.5				
120.00	Bot - Section 4	0.2500	18.000	13.941	549.4	16.39	98.96	65	59					
125.00		0.2500	18.000	13.941	549.4	0.00	72.00	65	59	237.2				
129.00		0.2500	18.000	13.941	549.4	0.00	72.00	65	59	189.8				
130.00		0.2500	18.000	13.941	549.4	0.00	72.00	65	59	47.4				
<b>Total Weight</b>										<b>12677.2</b>	<b>6878.7</b>			

## Wind Loading - Shaft

<b>Structure:</b> CT13064-A-SBA	<b>Code:</b> EIA/TIA-222-G	9/14/2016
<b>Site Name:</b> Middletown 2, CT	<b>Exposure:</b> C	
<b>Height:</b> 130.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II



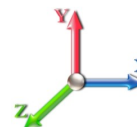
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**Load Case:** 1.2D + 1.6W 10 101 mph Wind

**Iterations** 24

**Dead Load Factor** 1.20

**Wind Load Factor** 1.60



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	RB1 RB2	1.00	0.85	21.088	23.20	334.88	0.650	0.000	0.00	0.000	0.00	0.0	0.0	0.0	
5.00		1.00	0.85	21.088	23.20	328.76	0.650	0.000	5.00	17.817	11.58	429.8	0.0	846.4	
8.50	RT2	1.00	0.85	21.088	23.20	324.48	0.650	0.000	3.50	12.277	7.98	296.2	0.0	583.2	
10.00		1.00	0.85	21.088	23.20	322.64	0.650	0.000	1.50	5.212	3.39	125.7	0.0	247.6	
15.00		1.00	0.85	21.088	23.20	316.52	0.650	0.000	5.00	17.160	11.15	414.0	0.0	815.0	
20.00		1.00	0.90	22.375	24.61	319.74	0.650	0.000	5.00	16.832	10.94	430.8	0.0	799.3	
20.50	RT1 RB3	1.00	0.91	22.491	24.74	319.94	0.650	0.000	0.50	1.665	1.08	42.8	0.0	79.1	
25.00		1.00	0.95	23.451	25.80	320.89	0.652 *	0.000	4.50	14.838	9.68	399.4	0.0	704.5	
30.00		1.00	0.98	24.369	26.81	320.53	0.656 *	0.000	5.00	16.175	10.61	455.0	0.0	767.8	
35.00		1.00	1.01	25.172	27.69	319.09	0.660 *	0.000	5.00	15.846	10.46	463.4	0.0	752.1	
40.00		1.00	1.04	25.890	28.48	316.82	0.664 *	0.000	5.00	15.518	10.31	469.8	0.0	736.4	
40.50	RT3 RB4	1.00	1.05	25.958	28.55	316.56	0.667 *	0.000	0.50	1.534	1.02	46.7	0.0	72.8	
43.33	Bot - Section 2	1.00	1.06	26.330	28.96	314.95	0.668 *	0.000	2.83	8.629	5.77	267.3	0.0	409.4	
45.00		1.00	1.07	26.540	29.19	313.91	0.671 *	0.000	1.67	5.097	3.42	159.6	0.0	432.3	
48.00	Top - Section 1	1.00	1.08	26.903	29.59	311.91	0.673 *	0.000	3.00	9.083	6.11	289.3	0.0	770.2	
50.00		1.00	1.09	27.135	29.85	314.94	0.672 *	0.000	2.00	5.989	4.03	192.2	0.0	227.7	
55.00		1.00	1.12	27.685	30.45	311.11	0.675 *	0.000	5.00	14.744	9.96	485.2	0.0	560.5	
60.00		1.00	1.14	28.197	31.02	306.90	0.680 *	0.000	5.00	14.415	9.81	486.8	0.0	547.9	
60.75	RT4 RB5	1.00	1.14	28.271	31.10	306.24	0.683 *	0.000	0.75	2.134	1.46	72.6	0.0	81.1	
65.00		1.00	1.16	28.676	31.54	302.36	0.686 *	0.000	4.25	11.953	8.20	413.9	0.0	454.2	
70.00		1.00	1.17	29.127	32.04	297.54	0.691 *	0.000	5.00	13.758	9.51	487.5	0.0	522.7	
75.00		1.00	1.19	29.553	32.51	292.46	0.697 *	0.000	5.00	13.430	9.36	486.9	0.0	510.2	
78.50	RT5	1.00	1.20	29.838	32.82	288.78	0.702 *	0.000	3.50	9.205	6.46	339.4	0.0	349.6	
80.00		1.00	1.21	29.958	32.95	287.16	0.705 *	0.000	1.50	3.896	2.75	144.9	0.0	148.0	
85.00		1.00	1.22	30.342	33.38	281.66	0.659 *	0.000	5.00	12.773	8.41	449.2	0.0	485.0	
87.42	Bot - Section 3	1.00	1.23	30.522	33.57	278.94	0.650	0.000	2.42	6.056	3.94	211.4	0.0	229.9	
89.50	Appurtenance(s)	1.00	1.24	30.674	33.74	276.56	0.652 *	0.000	2.08	5.225	3.41	183.9	0.0	344.9	
90.00		1.00	1.24	30.710	33.78	275.98	0.653 *	0.000	0.50	1.245	0.81	44.0	0.0	82.2	
91.33	Top - Section 2	1.00	1.24	30.805	33.89	274.44	0.654 *	0.000	1.33	3.305	2.16	117.2	0.0	218.2	
94.00	Appurtenance(s)	1.00	1.25	30.992	34.09	274.89	0.654 *	0.000	2.67	6.540	4.28	233.2	0.0	186.6	
95.00		1.00	1.25	31.061	34.17	273.72	0.656 *	0.000	1.00	2.429	1.59	87.1	0.0	69.3	
100.00	Appurtenance(s)	1.00	1.27	31.399	34.54	267.73	0.659 *	0.000	5.00	11.946	7.87	435.1	0.0	340.8	
105.00		1.00	1.28	31.723	34.89	261.61	0.665 *	0.000	5.00	11.617	7.72	431.2	0.0	331.3	
110.00	Appurtenance(s)	1.00	1.29	32.035	35.24	255.35	0.671 *	0.000	5.00	11.289	7.57	427.0	0.0	321.9	
115.00		1.00	1.30	32.336	35.57	248.97	0.677 *	0.000	5.00	10.960	7.42	422.5	0.0	312.5	
120.00	Top - Section 3	1.00	1.32	32.627	35.89	242.48	0.684 *	0.000	5.00	10.632	7.27	417.8	0.0	303.0	
125.00		1.00	1.33	32.909	36.20	174.49	0.720 *	0.000	5.00	7.500	5.40	312.8	0.0	284.6	
129.00	Appurtenance(s)	1.00	1.34	33.128	36.44	175.07	0.720 *	0.000	4.00	6.000	4.32	251.9	0.0	227.7	
130.00	Appurtenance(s)	1.00	1.34	33.182	36.50	175.21	0.600	0.000	1.00	1.500	0.90	52.6	0.0	56.9	
								<b>Totals:</b>	<b>130.00</b>			<b>11,476.2</b>			<b>15,212.6</b>

\* Cf Adjusted by Linear Load Ra Effect

## Discrete Appurtenance Forces

<b>Structure:</b> CT13064-A-SBA	<b>Code:</b> EIA/TIA-222-G	9/14/2016
<b>Site Name:</b> Middletown 2, CT	<b>Exposure:</b> C	
<b>Height:</b> 130.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II



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**Load Case:** 1.2D + 1.6W 10 101 mph Wind

**Dead Load Factor** 1.20  
**Wind Load Factor** 1.60



**Iterations** 24

No.	Elev (ft)	Description	Qty	qz (psf)	qzGh (psf)	CaAa x Ka	Ka	Total CaAa (sf)	Dead Load (lb)	Horiz Ecc (ft)	Vert Ecc (ft)	Wind FX (lb)	Mom Y (lb-ft)	Mom Z (lb-ft)
1	130.00	6' Lightning rod	1	33.182	36.500	1.00	1.00	0.38	7.80	0.000	0.000	22.19	0.00	0.00
2	129.00	DTMABP7819VG12A	3	33.182	36.500	0.54	0.90	1.85	69.12	0.000	1.000	107.85	0.00	107.85
3	129.00	RRUS-32	3	33.182	36.500	0.63	0.90	7.31	277.20	0.000	1.000	427.15	0.00	427.15
4	129.00	RRUS 11	3	33.182	36.500	0.68	0.90	5.17	182.52	0.000	1.000	301.99	0.00	301.99
5	129.00	DC6-48-60-18-8F	2	33.182	36.500	1.00	1.00	2.94	6.65	0.000	1.000	171.69	0.00	171.69
6	129.00	P65-16-XLH-RR	3	33.182	36.500	0.78	1.00	19.09	190.80	0.000	1.000	1115.11	0.00	1115.11
7	129.00	MTC3607 Platform + HR	1	33.128	36.440	1.00	1.00	51.70	2695.20	0.000	0.000	3014.36	0.00	0.00
8	129.00	OPA-65R-LCUU-H6	3	33.182	36.500	0.77	1.00	22.31	288.00	0.000	1.000	1303.16	0.00	1303.16
9	129.00	RRUS 32 B2	3	33.182	36.500	0.60	0.90	2.44	277.20	0.000	1.000	142.62	0.00	142.62
10	129.00	QS66512-2	3	33.182	36.500	0.80	1.00	17.11	399.60	0.000	1.000	999.33	0.00	999.33
11	110.00	T-Arm (Round)	3	32.035	35.238	0.56	0.75	13.50	1260.00	0.000	0.000	761.15	0.00	0.00
12	110.00	DB-T1-6Z-8AB-0Z	2	32.035	35.238	0.80	0.80	7.68	45.36	0.000	0.000	433.01	0.00	0.00
13	110.00	B4 RRH2X60-4R	3	32.035	35.238	0.54	0.80	5.40	198.00	0.000	0.000	304.62	0.00	0.00
14	110.00	B13 RRH4X30-4R	3	32.035	35.238	0.54	0.80	3.47	205.92	0.000	0.000	195.83	0.00	0.00
15	110.00	RRH2X60-1900A-4R	3	32.035	35.238	0.54	0.80	3.02	165.60	0.000	0.000	170.44	0.00	0.00
16	110.00	CBC721-DF	3	31.973	35.171	0.50	0.80	0.68	15.84	0.000	-1.000	38.29	0.00	-38.29
17	110.00	CBC721-DF	3	32.096	35.306	0.50	0.80	0.68	15.84	0.000	1.000	38.44	0.00	38.44
18	110.00	SBNHH-1D65B	6	32.035	35.238	0.66	0.80	32.12	288.00	0.000	0.000	1810.85	0.00	0.00
19	100.00	LNx-6515DS-A1M	3	31.399	34.538	0.67	0.80	23.12	181.08	0.000	0.000	1277.84	0.00	0.00
20	100.00	AIR 21, 1.3M, B2A B4P	3	31.399	34.538	0.66	0.80	12.13	329.40	0.000	0.000	670.39	0.00	0.00
21	100.00	AIR 21, 1.3M, B4A B2P	3	31.399	34.538	0.66	0.80	12.13	325.44	0.000	0.000	670.39	0.00	0.00
22	100.00	782 11056	3	31.399	34.538	0.62	0.80	0.24	6.48	0.000	0.000	13.45	0.00	0.00
23	100.00	T-Arm (Round)	3	31.399	34.538	0.56	0.75	13.50	1260.00	0.000	0.000	746.03	0.00	0.00
24	94.00	1'4"x6.5"x6" Surge	1	30.992	34.091	0.80	0.80	1.71	63.60	0.000	0.000	93.38	0.00	0.00
25	89.50	T-Arm (Round)	3	30.674	33.741	0.56	0.75	13.50	1260.00	0.000	0.000	728.81	0.00	0.00
26	89.50	VHLP800-11	1	30.760	33.836	1.00	1.00	8.43	57.60	2.231	1.200	456.38	636.44	547.65
27	89.50	VHLP2-18-1WH	1	30.767	33.844	1.00	1.00	4.69	37.20	2.231	1.300	253.96	354.16	330.15
28	89.50	SPI-2213 RRH	3	30.781	33.859	0.61	0.80	3.32	119.16	0.000	1.500	179.84	0.00	269.77
29	89.50	840 10054	3	30.781	33.859	0.50	0.80	6.94	126.00	0.000	1.500	375.98	0.00	563.97

**Totals:** 10,354.61

16,824.53

## Total Applied Force Summary

<b>Structure:</b> CT13064-A-SBA	<b>Code:</b> EIA/TIA-222-G	9/14/2016
<b>Site Name:</b> Middletown 2, CT	<b>Exposure:</b> C	
<b>Height:</b> 130.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II



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**Load Case:** 1.2D + 1.6W 10 101 mph Wind

**Dead Load Factor** 1.20  
**Wind Load Factor** 1.60



**Iterations** 24

Elev (ft)	Description	Lateral FX (-) (lb)	Axial FY (-) (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)
0.00		0.00	0.00	0.00	0.00
5.00		429.83	1109.15	0.00	0.00
8.50		296.16	767.05	0.00	0.00
10.00		125.74	326.38	0.00	0.00
15.00		413.98	1077.70	0.00	0.00
20.00		430.84	1061.98	0.00	0.00
20.50		42.84	105.33	0.00	0.00
25.00		399.38	940.92	0.00	0.00
30.00		455.03	1030.53	0.00	0.00
35.00		463.41	1014.81	0.00	0.00
40.00		469.81	999.08	0.00	0.00
40.50		46.73	99.04	0.00	0.00
43.33		267.29	558.28	0.00	0.00
45.00		159.64	519.85	0.00	0.00
48.00		289.32	927.81	0.00	0.00
50.00		192.24	332.80	0.00	0.00
55.00		485.23	823.19	0.00	0.00
60.00		486.78	810.61	0.00	0.00
60.75		72.57	120.51	0.00	0.00
65.00		413.90	677.52	0.00	0.00
70.00		487.52	785.45	0.00	0.00
75.00		486.87	772.87	0.00	0.00
78.50		339.43	533.53	0.00	0.00
80.00		144.87	226.77	0.00	0.00
85.00		449.20	747.71	0.00	0.00
87.42		211.45	356.89	0.00	0.00
89.50	(11) attachments	2178.85	2054.36	990.60	1711.54
90.00		43.97	107.80	0.00	0.00
91.33		117.23	286.39	0.00	0.00
94.00	(1) attachments	326.62	386.65	0.00	0.00
95.00		87.06	120.45	0.00	0.00
100.00	(15) attachments	3813.16	2699.01	0.00	0.00
105.00		431.21	543.13	0.00	0.00
110.00	(26) attachments	4179.65	2728.26	0.00	0.15
115.00		422.53	436.18	0.00	0.00
120.00		417.75	426.75	0.00	0.00
125.00		312.76	408.35	0.00	0.00
129.00	(24) attachments	7835.14	4712.96	0.00	4568.91
130.00	(1) attachments	74.75	64.73	0.00	0.00
	<b>Totals:</b>	<b>28,300.72</b>	<b>31,700.76</b>	<b>990.60</b>	<b>6,280.60</b>

## Linear Appurtenance Segment Forces (Factored)

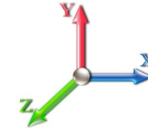
<b>Structure:</b> CT13064-A-SBA	<b>Code:</b> EIA/TIA-222-G	9/14/2016
<b>Site Name:</b> Middletown 2, CT	<b>Exposure:</b> C	
<b>Height:</b> 130.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II



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**Load Case:** 1.2D + 1.6W 10 101 mph Wind

**Dead Load Factor** 1.20  
**Wind Load Factor** 1.60



**Iterations** 24

Top Elev (ft)	Description	Wind Exposed	Length (ft)	Ca	Exposed Width (in)	Area (sqft)	CaAa (sqft)	Ra	Cf Adjust Factor	qz (psf)	F X (lb)	Dead Load (lb)
5.00	0.645" DC	Yes	5.00	0.000	0.00	0.00	0.00	0.094	0.000	21.088	0.00	9.60
5.00	1.496" Fiber	Yes	5.00	0.000	0.00	0.00	0.00	0.094	0.000	21.088	0.00	7.20
5.00	3" Conduit	Yes	5.00	0.000	3.00	1.25	0.00	0.094	0.000	21.088	0.00	32.04
5.00	1" Reinforcing plate	Yes	5.00	0.000	1.00	0.42	0.00	0.094	0.000	21.088	0.00	0.00
8.50	0.645" DC	Yes	3.50	0.000	0.00	0.00	0.00	0.095	0.000	21.088	0.00	6.72
8.50	1.496" Fiber	Yes	3.50	0.000	0.00	0.00	0.00	0.095	0.000	21.088	0.00	5.04
8.50	3" Conduit	Yes	3.50	0.000	3.00	0.88	0.00	0.095	0.000	21.088	0.00	22.43
8.50	1" Reinforcing plate	Yes	3.50	0.000	1.00	0.29	0.00	0.095	0.000	21.088	0.00	0.00
10.00	0.645" DC	Yes	1.50	0.000	0.00	0.00	0.00	0.096	0.000	21.088	0.00	2.88
10.00	1.496" Fiber	Yes	1.50	0.000	0.00	0.00	0.00	0.096	0.000	21.088	0.00	2.16
10.00	3" Conduit	Yes	1.50	0.000	3.00	0.38	0.00	0.096	0.000	21.088	0.00	9.61
10.00	1" Reinforcing plate	Yes	1.50	0.000	1.00	0.13	0.00	0.096	0.000	21.088	0.00	0.00
15.00	0.645" DC	Yes	5.00	0.000	0.00	0.00	0.00	0.097	0.000	21.088	0.00	9.60
15.00	1.496" Fiber	Yes	5.00	0.000	0.00	0.00	0.00	0.097	0.000	21.088	0.00	7.20
15.00	3" Conduit	Yes	5.00	0.000	3.00	1.25	0.00	0.097	0.000	21.088	0.00	32.04
15.00	1" Reinforcing plate	Yes	5.00	0.000	1.00	0.42	0.00	0.097	0.000	21.088	0.00	0.00
20.00	0.645" DC	Yes	5.00	0.000	0.00	0.00	0.00	0.099	0.000	22.375	0.00	9.60
20.00	1.496" Fiber	Yes	5.00	0.000	0.00	0.00	0.00	0.099	0.000	22.375	0.00	7.20
20.00	3" Conduit	Yes	5.00	0.000	3.00	1.25	0.00	0.099	0.000	22.375	0.00	32.04
20.00	1" Reinforcing plate	Yes	5.00	0.000	1.00	0.42	0.00	0.099	0.000	22.375	0.00	0.00
20.50	0.645" DC	Yes	0.50	0.000	0.00	0.00	0.00	0.100	0.000	22.491	0.00	0.96
20.50	1.496" Fiber	Yes	0.50	0.000	0.00	0.00	0.00	0.100	0.000	22.491	0.00	0.72
20.50	3" Conduit	Yes	0.50	0.000	3.00	0.13	0.00	0.100	0.000	22.491	0.00	3.20
20.50	1" Reinforcing plate	Yes	0.50	0.000	1.00	0.04	0.00	0.100	0.000	22.491	0.00	0.00
25.00	0.645" DC	Yes	4.50	0.000	0.00	0.00	0.00	0.101	1.003	23.451	0.00	8.64
25.00	1.496" Fiber	Yes	4.50	0.000	0.00	0.00	0.00	0.101	1.003	23.451	0.00	6.48
25.00	3" Conduit	Yes	4.50	0.000	3.00	1.13	0.00	0.101	1.003	23.451	0.00	28.84
25.00	1" Reinforcing plate	Yes	4.50	0.000	1.00	0.38	0.00	0.101	1.003	23.451	0.00	0.00
30.00	0.645" DC	Yes	5.00	0.000	0.00	0.00	0.00	0.103	1.009	24.369	0.00	9.60
30.00	1.496" Fiber	Yes	5.00	0.000	0.00	0.00	0.00	0.103	1.009	24.369	0.00	7.20
30.00	3" Conduit	Yes	5.00	0.000	3.00	1.25	0.00	0.103	1.009	24.369	0.00	32.04
30.00	1" Reinforcing plate	Yes	5.00	0.000	1.00	0.42	0.00	0.103	1.009	24.369	0.00	0.00
35.00	0.645" DC	Yes	5.00	0.000	0.00	0.00	0.00	0.105	1.016	25.172	0.00	9.60
35.00	1.496" Fiber	Yes	5.00	0.000	0.00	0.00	0.00	0.105	1.016	25.172	0.00	7.20
35.00	3" Conduit	Yes	5.00	0.000	3.00	1.25	0.00	0.105	1.016	25.172	0.00	32.04
35.00	1" Reinforcing plate	Yes	5.00	0.000	1.00	0.42	0.00	0.105	1.016	25.172	0.00	0.00
40.00	0.645" DC	Yes	5.00	0.000	0.00	0.00	0.00	0.107	1.022	25.890	0.00	9.60
40.00	1.496" Fiber	Yes	5.00	0.000	0.00	0.00	0.00	0.107	1.022	25.890	0.00	7.20
40.00	3" Conduit	Yes	5.00	0.000	3.00	1.25	0.00	0.107	1.022	25.890	0.00	32.04
40.00	1" Reinforcing plate	Yes	5.00	0.000	1.00	0.42	0.00	0.107	1.022	25.890	0.00	0.00
40.50	0.645" DC	Yes	0.50	0.000	0.00	0.00	0.00	0.109	1.026	25.958	0.00	0.96
40.50	1.496" Fiber	Yes	0.50	0.000	0.00	0.00	0.00	0.109	1.026	25.958	0.00	0.72
40.50	3" Conduit	Yes	0.50	0.000	3.00	0.13	0.00	0.109	1.026	25.958	0.00	3.20
40.50	1" Reinforcing plate	Yes	0.50	0.000	1.00	0.04	0.00	0.109	1.026	25.958	0.00	0.00
43.33	0.645" DC	Yes	2.83	0.000	0.00	0.00	0.00	0.109	1.028	26.330	0.00	5.44
43.33	1.496" Fiber	Yes	2.83	0.000	0.00	0.00	0.00	0.109	1.028	26.330	0.00	4.08
43.33	3" Conduit	Yes	2.83	0.000	3.00	0.71	0.00	0.109	1.028	26.330	0.00	18.16

## Linear Appurtenance Segment Forces (Factored)

<b>Structure:</b> CT13064-A-SBA	<b>Code:</b> EIA/TIA-222-G	9/14/2016
<b>Site Name:</b> Middletown 2, CT	<b>Exposure:</b> C	
<b>Height:</b> 130.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II



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**Load Case:** 1.2D + 1.6W 10 101 mph Wind

**Dead Load Factor** 1.20  
**Wind Load Factor** 1.60



**Iterations** 24

Top Elev (ft)	Description	Wind Exposed	Length (ft)	Ca	Exposed Width (in)	Area (sqft)	CaAa (sqft)	Ra	Cf Adjust Factor	qz (psf)	F X (lb)	Dead Load (lb)
43.33	1" Reinforcing plate	Yes	2.83	0.000	1.00	0.24	0.00	0.109	1.028	26.330	0.00	0.00
45.00	0.645" DC	Yes	1.67	0.000	0.00	0.00	0.00	0.111	1.032	26.540	0.00	3.20
45.00	1.496" Fiber	Yes	1.67	0.000	0.00	0.00	0.00	0.111	1.032	26.540	0.00	2.40
45.00	3" Conduit	Yes	1.67	0.000	3.00	0.42	0.00	0.111	1.032	26.540	0.00	10.68
45.00	1" Reinforcing plate	Yes	1.67	0.000	1.00	0.14	0.00	0.111	1.032	26.540	0.00	0.00
48.00	0.645" DC	Yes	3.00	0.000	0.00	0.00	0.00	0.112	1.035	26.903	0.00	5.76
48.00	1.496" Fiber	Yes	3.00	0.000	0.00	0.00	0.00	0.112	1.035	26.903	0.00	4.32
48.00	3" Conduit	Yes	3.00	0.000	3.00	0.75	0.00	0.112	1.035	26.903	0.00	19.22
48.00	1" Reinforcing plate	Yes	3.00	0.000	1.00	0.25	0.00	0.112	1.035	26.903	0.00	0.00
50.00	0.645" DC	Yes	2.00	0.000	0.00	0.00	0.00	0.111	1.034	27.135	0.00	3.84
50.00	1.496" Fiber	Yes	2.00	0.000	0.00	0.00	0.00	0.111	1.034	27.135	0.00	2.88
50.00	3" Conduit	Yes	2.00	0.000	3.00	0.50	0.00	0.111	1.034	27.135	0.00	12.82
50.00	1" Reinforcing plate	Yes	2.00	0.000	1.00	0.17	0.00	0.111	1.034	27.135	0.00	0.00
55.00	0.645" DC	Yes	5.00	0.000	0.00	0.00	0.00	0.113	1.039	27.685	0.00	9.60
55.00	1.496" Fiber	Yes	5.00	0.000	0.00	0.00	0.00	0.113	1.039	27.685	0.00	7.20
55.00	3" Conduit	Yes	5.00	0.000	3.00	1.25	0.00	0.113	1.039	27.685	0.00	32.04
55.00	1" Reinforcing plate	Yes	5.00	0.000	1.00	0.42	0.00	0.113	1.039	27.685	0.00	0.00
60.00	0.645" DC	Yes	5.00	0.000	0.00	0.00	0.00	0.116	1.047	28.197	0.00	9.60
60.00	1.496" Fiber	Yes	5.00	0.000	0.00	0.00	0.00	0.116	1.047	28.197	0.00	7.20
60.00	3" Conduit	Yes	5.00	0.000	3.00	1.25	0.00	0.116	1.047	28.197	0.00	32.04
60.00	1" Reinforcing plate	Yes	5.00	0.000	1.00	0.42	0.00	0.116	1.047	28.197	0.00	0.00
60.75	0.645" DC	Yes	0.75	0.000	0.00	0.00	0.00	0.117	1.051	28.271	0.00	1.44
60.75	1.496" Fiber	Yes	0.75	0.000	0.00	0.00	0.00	0.117	1.051	28.271	0.00	1.08
60.75	3" Conduit	Yes	0.75	0.000	3.00	0.19	0.00	0.117	1.051	28.271	0.00	4.81
60.75	1" Reinforcing plate	Yes	0.75	0.000	1.00	0.06	0.00	0.117	1.051	28.271	0.00	0.00
65.00	0.645" DC	Yes	4.25	0.000	0.00	0.00	0.00	0.119	1.056	28.676	0.00	8.16
65.00	1.496" Fiber	Yes	4.25	0.000	0.00	0.00	0.00	0.119	1.056	28.676	0.00	6.12
65.00	3" Conduit	Yes	4.25	0.000	3.00	1.06	0.00	0.119	1.056	28.676	0.00	27.23
65.00	1" Reinforcing plate	Yes	4.25	0.000	1.00	0.35	0.00	0.119	1.056	28.676	0.00	0.00
70.00	0.645" DC	Yes	5.00	0.000	0.00	0.00	0.00	0.121	1.063	29.127	0.00	9.60
70.00	1.496" Fiber	Yes	5.00	0.000	0.00	0.00	0.00	0.121	1.063	29.127	0.00	7.20
70.00	3" Conduit	Yes	5.00	0.000	3.00	1.25	0.00	0.121	1.063	29.127	0.00	32.04
70.00	1" Reinforcing plate	Yes	5.00	0.000	1.00	0.42	0.00	0.121	1.063	29.127	0.00	0.00
75.00	0.645" DC	Yes	5.00	0.000	0.00	0.00	0.00	0.124	1.072	29.553	0.00	9.60
75.00	1.496" Fiber	Yes	5.00	0.000	0.00	0.00	0.00	0.124	1.072	29.553	0.00	7.20
75.00	3" Conduit	Yes	5.00	0.000	3.00	1.25	0.00	0.124	1.072	29.553	0.00	32.04
75.00	1" Reinforcing plate	Yes	5.00	0.000	1.00	0.42	0.00	0.124	1.072	29.553	0.00	0.00
78.50	0.645" DC	Yes	3.50	0.000	0.00	0.00	0.00	0.127	1.080	29.838	0.00	6.72
78.50	1.496" Fiber	Yes	3.50	0.000	0.00	0.00	0.00	0.127	1.080	29.838	0.00	5.04
78.50	3" Conduit	Yes	3.50	0.000	3.00	0.88	0.00	0.127	1.080	29.838	0.00	22.43
78.50	1" Reinforcing plate	Yes	3.50	0.000	1.00	0.29	0.00	0.127	1.080	29.838	0.00	0.00
80.00	0.645" DC	Yes	1.50	0.000	0.00	0.00	0.00	0.128	1.085	29.958	0.00	2.88
80.00	1.496" Fiber	Yes	1.50	0.000	0.00	0.00	0.00	0.128	1.085	29.958	0.00	2.16
80.00	3" Conduit	Yes	1.50	0.000	3.00	0.38	0.00	0.128	1.085	29.958	0.00	9.61
80.00	1" Reinforcing plate	Yes	1.50	0.000	1.00	0.13	0.00	0.128	1.085	29.958	0.00	0.00
85.00	0.645" DC	Yes	5.00	0.000	0.00	0.00	0.00	0.104	1.013	30.342	0.00	9.60
85.00	1.496" Fiber	Yes	5.00	0.000	0.00	0.00	0.00	0.104	1.013	30.342	0.00	7.20



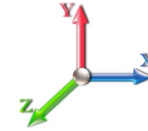
## Linear Appurtenance Segment Forces (Factored)

<b>Structure:</b> CT13064-A-SBA	<b>Code:</b> EIA/TIA-222-G	9/14/2016
<b>Site Name:</b> Middletown 2, CT	<b>Exposure:</b> C	
<b>Height:</b> 130.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Page:</b> 14
	<b>Struct Class:</b> II	



**Load Case:** 1.2D + 1.6W 10 101 mph Wind

**Dead Load Factor** 1.20  
**Wind Load Factor** 1.60



**Iterations** 24

Top Elev (ft)	Description	Wind Exposed	Length (ft)	Ca	Exposed Width (in)	Area (sqft)	CaAa (sqft)	Ra	Cf Adjust Factor	qz (psf)	F X (lb)	Dead Load (lb)
85.00	3" Conduit	Yes	5.00	0.000	3.00	1.25	0.00	0.104	1.013	30.342	0.00	32.04
85.00	1" Reinforcing plate	Yes	1.00	0.000	1.00	0.08	0.00	0.104	1.013	30.342	0.00	0.00
87.42	0.645" DC	Yes	2.42	0.000	0.00	0.00	0.00	0.100	0.000	30.522	0.00	4.64
87.42	1.496" Fiber	Yes	2.42	0.000	0.00	0.00	0.00	0.100	0.000	30.522	0.00	3.48
87.42	3" Conduit	Yes	2.42	0.000	3.00	0.60	0.00	0.100	0.000	30.522	0.00	15.49
89.50	0.645" DC	Yes	2.08	0.000	0.00	0.00	0.00	0.101	1.003	30.674	0.00	4.00
89.50	1.496" Fiber	Yes	2.08	0.000	0.00	0.00	0.00	0.101	1.003	30.674	0.00	3.00
89.50	3" Conduit	Yes	2.08	0.000	3.00	0.52	0.00	0.101	1.003	30.674	0.00	13.35
90.00	0.645" DC	Yes	0.50	0.000	0.00	0.00	0.00	0.102	1.005	30.710	0.00	0.96
90.00	1.496" Fiber	Yes	0.50	0.000	0.00	0.00	0.00	0.102	1.005	30.710	0.00	0.72
90.00	3" Conduit	Yes	0.50	0.000	3.00	0.13	0.00	0.102	1.005	30.710	0.00	3.20
91.33	0.645" DC	Yes	1.33	0.000	0.00	0.00	0.00	0.102	1.006	30.805	0.00	2.56
91.33	1.496" Fiber	Yes	1.33	0.000	0.00	0.00	0.00	0.102	1.006	30.805	0.00	1.92
91.33	3" Conduit	Yes	1.33	0.000	3.00	0.33	0.00	0.102	1.006	30.805	0.00	8.54
94.00	0.645" DC	Yes	2.67	0.000	0.00	0.00	0.00	0.102	1.006	30.992	0.00	5.12
94.00	1.496" Fiber	Yes	2.67	0.000	0.00	0.00	0.00	0.102	1.006	30.992	0.00	3.84
94.00	3" Conduit	Yes	2.67	0.000	3.00	0.67	0.00	0.102	1.006	30.992	0.00	17.09
95.00	0.645" DC	Yes	1.00	0.000	0.00	0.00	0.00	0.103	1.009	31.061	0.00	1.92
95.00	1.496" Fiber	Yes	1.00	0.000	0.00	0.00	0.00	0.103	1.009	31.061	0.00	1.44
95.00	3" Conduit	Yes	1.00	0.000	3.00	0.25	0.00	0.103	1.009	31.061	0.00	6.41
100.00	0.645" DC	Yes	5.00	0.000	0.00	0.00	0.00	0.105	1.014	31.399	0.00	9.60
100.00	1.496" Fiber	Yes	5.00	0.000	0.00	0.00	0.00	0.105	1.014	31.399	0.00	7.20
100.00	3" Conduit	Yes	5.00	0.000	3.00	1.25	0.00	0.105	1.014	31.399	0.00	32.04
105.00	0.645" DC	Yes	5.00	0.000	0.00	0.00	0.00	0.108	1.023	31.723	0.00	9.60
105.00	1.496" Fiber	Yes	5.00	0.000	0.00	0.00	0.00	0.108	1.023	31.723	0.00	7.20
105.00	3" Conduit	Yes	5.00	0.000	3.00	1.25	0.00	0.108	1.023	31.723	0.00	32.04
110.00	0.645" DC	Yes	5.00	0.000	0.00	0.00	0.00	0.111	1.032	32.035	0.00	9.60
110.00	1.496" Fiber	Yes	5.00	0.000	0.00	0.00	0.00	0.111	1.032	32.035	0.00	7.20
110.00	3" Conduit	Yes	5.00	0.000	3.00	1.25	0.00	0.111	1.032	32.035	0.00	32.04
115.00	0.645" DC	Yes	5.00	0.000	0.00	0.00	0.00	0.114	1.042	32.336	0.00	9.60
115.00	1.496" Fiber	Yes	5.00	0.000	0.00	0.00	0.00	0.114	1.042	32.336	0.00	7.20
115.00	3" Conduit	Yes	5.00	0.000	3.00	1.25	0.00	0.114	1.042	32.336	0.00	32.04
120.00	0.645" DC	Yes	5.00	0.000	0.00	0.00	0.00	0.118	1.053	32.627	0.00	9.60
120.00	1.496" Fiber	Yes	5.00	0.000	0.00	0.00	0.00	0.118	1.053	32.627	0.00	7.20
120.00	3" Conduit	Yes	5.00	0.000	3.00	1.25	0.00	0.118	1.053	32.627	0.00	32.04
125.00	0.645" DC	Yes	5.00	0.000	0.00	0.00	0.00	0.167	1.200	32.909	0.00	9.60
125.00	1.496" Fiber	Yes	5.00	0.000	0.00	0.00	0.00	0.167	1.200	32.909	0.00	7.20
125.00	3" Conduit	Yes	5.00	0.000	3.00	1.25	0.00	0.167	1.200	32.909	0.00	32.04
129.00	0.645" DC	Yes	4.00	0.000	0.00	0.00	0.00	0.167	1.200	33.128	0.00	7.68
129.00	1.496" Fiber	Yes	4.00	0.000	0.00	0.00	0.00	0.167	1.200	33.128	0.00	5.76
129.00	3" Conduit	Yes	4.00	0.000	3.00	1.00	0.00	0.167	1.200	33.128	0.00	25.63
<b>Totals:</b>											<b>0.0</b>	<b>1,260.1</b>

## Calculated Forces

<b>Structure:</b> CT13064-A-SBA	<b>Code:</b> EIA/TIA-222-G	<b>9/14/2016</b>
<b>Site Name:</b> Middletown 2, CT	<b>Exposure:</b> C	
<b>Height:</b> 130.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II

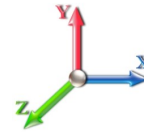


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**Load Case:** 1.2D + 1.6W 10 101 mph Wind

**Iterations** 24

**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	-31.65	-28.36	-0.97	-2776.3	-0.01	2776.36	2818.94	1409.47	4888.80	2448.04	0.00	0.000	0.000	0.542
5.00	-30.46	-28.01	-0.97	-2634.5	-0.01	2634.59	2786.10	1393.05	4742.28	2374.66	0.10	-0.193	0.000	0.524
8.50	-29.64	-27.77	-0.97	-2536.5	-0.01	2536.55	2762.70	1381.35	4640.25	2323.57	0.30	-0.329	0.000	0.777
10.00	-29.23	-27.74	-0.97	-2494.9	-0.01	2494.90	2752.56	1376.28	4596.67	2301.75	0.41	-0.417	0.000	0.770
15.00	-28.02	-27.45	-0.98	-2356.2	-0.01	2356.21	2718.29	1359.15	4452.05	2229.33	1.01	-0.706	0.000	0.746
20.00	-26.89	-27.08	-0.98	-2218.9	0.00	2218.94	2683.32	1341.66	4308.48	2157.44	1.90	-0.993	-0.001	0.721
20.50	-26.71	-27.10	-0.98	-2205.4	-0.01	2205.40	2679.78	1339.89	4294.19	2150.28	2.00	-1.022	-0.001	0.719
25.00	-25.65	-26.81	-0.98	-2083.4	-0.01	2083.43	2647.62	1323.81	4166.04	2086.12	3.09	-1.278	-0.001	0.696
30.00	-24.51	-26.45	-0.98	-1949.4	-0.01	1949.40	2611.22	1305.61	4024.80	2015.39	4.58	-1.559	-0.001	0.669
35.00	-23.38	-26.07	-0.98	-1817.1	-0.01	1817.17	2574.10	1287.05	3884.82	1945.30	6.36	-1.837	-0.001	0.641
40.00	-22.33	-25.62	-0.98	-1686.8	0.00	1686.84	2536.26	1268.13	3746.17	1875.87	8.43	-2.109	-0.001	0.613
40.50	-22.20	-25.60	-0.98	-1674.0	-0.01	1674.03	2532.44	1266.22	3732.38	1868.96	8.65	-2.137	-0.001	0.610
43.33	-21.59	-25.36	-0.98	-1601.4	-0.01	1601.49	2510.64	1255.32	3654.51	1829.97	9.97	-2.291	-0.002	0.593
45.00	-21.03	-25.23	-0.98	-1559.2	-0.01	1559.22	2497.71	1248.86	3608.92	1807.14	10.78	-2.381	-0.002	0.578
48.00	-20.06	-24.94	-0.98	-1483.5	-0.01	1483.54	1854.44	927.22	2691.60	1347.80	12.33	-2.538	-0.002	0.616
50.00	-19.65	-24.80	-0.98	-1433.6	-0.01	1433.66	1844.56	922.28	2653.53	1328.74	13.42	-2.643	-0.002	0.674
55.00	-18.73	-24.37	-0.98	-1309.6	-0.01	1309.64	1819.35	909.68	2558.78	1281.29	16.33	-2.924	-0.002	0.632
60.00	-17.88	-23.89	-0.98	-1187.8	-0.01	1187.80	1793.44	896.72	2464.66	1234.16	19.54	-3.195	-0.003	0.590
60.75	-17.71	-23.85	-0.98	-1169.8	-0.01	1169.88	1789.49	894.74	2450.61	1227.12	20.04	-3.236	-0.003	0.583
65.00	-16.96	-23.47	-0.98	-1068.5	-0.01	1068.52	1766.81	883.40	2371.26	1187.39	23.02	-3.457	-0.003	0.546
70.00	-16.11	-23.00	-0.99	-951.19	-0.02	951.19	1739.46	869.73	2278.63	1141.01	26.78	-3.704	-0.003	0.501
75.00	-15.30	-22.51	-0.99	-836.20	-0.02	836.20	1711.40	855.70	2186.84	1095.05	30.78	-3.936	-0.004	0.454
78.50	-14.75	-22.16	-0.99	-757.41	-0.02	757.41	1691.33	845.67	2123.13	1063.14	33.72	-4.091	-0.004	0.420
78.50	-14.75	-22.16	-0.99	-757.41	-0.02	757.41	1691.33	845.67	2123.13	1063.14	33.72	-4.091	-0.004	0.420
80.00	-14.45	-22.06	-0.99	-724.16	-0.03	724.16	1682.63	841.31	2095.97	1049.54	35.01	-4.155	-0.004	0.699
85.00	-13.65	-21.61	-0.99	-613.88	-0.03	613.88	1653.14	826.57	2006.08	1004.53	39.55	-4.496	-0.005	0.620
87.42	-13.26	-21.40	-0.99	-561.66	-0.04	561.66	1638.63	819.32	1963.01	982.97	41.86	-4.652	-0.005	0.580
89.50	-11.36	-19.08	0.00	-515.36	0.04	515.36	1625.99	812.99	1926.09	964.47	43.92	-4.780	-0.005	0.542
90.00	-11.24	-19.04	0.00	-505.82	0.04	505.82	1622.94	811.47	1917.25	960.05	44.42	-4.810	-0.005	0.534
91.33	-10.93	-18.92	0.00	-480.43	0.04	480.43	1099.39	549.70	1312.06	657.00	45.78	-4.889	-0.005	0.742
94.00	-10.54	-18.58	0.00	-429.99	0.04	429.99	1090.71	545.35	1282.99	642.45	48.55	-5.037	-0.005	0.680
95.00	-10.36	-18.52	0.00	-411.41	0.04	411.41	1087.40	543.70	1272.11	637.00	49.61	-5.105	-0.005	0.657
100.00	-7.96	-14.51	0.00	-318.83	0.03	318.83	1070.43	535.22	1217.83	609.82	55.12	-5.405	-0.005	0.531
105.00	-7.40	-14.06	0.00	-246.28	0.02	246.28	1052.74	526.37	1163.86	582.80	60.91	-5.658	-0.005	0.430
110.00	-5.08	-9.64	0.00	-175.99	0.02	175.99	1034.34	517.17	1110.26	555.96	66.94	-5.863	-0.005	0.322
115.00	-4.66	-9.19	0.00	-127.79	0.01	127.79	1015.23	507.62	1057.10	529.34	73.16	-6.025	-0.005	0.246
120.00	-4.27	-8.73	0.00	-81.85	0.01	81.85	995.40	497.70	1004.45	502.97	79.53	-6.147	-0.005	0.167
120.00	-4.27	-8.73	0.00	-81.85	0.01	81.85	735.22	367.61	535.89	335.79	79.53	-6.147	-0.005	0.250
125.00	-3.89	-8.38	0.00	-38.18	0.00	38.18	735.22	367.61	535.89	335.79	86.00	-6.224	-0.005	0.120
129.00	-0.06	-0.08	0.00	-0.08	0.00	0.08	735.22	367.61	535.89	335.79	91.23	-6.268	-0.005	0.000
130.00	0.00	-0.07	0.00	0.00	0.00	0.00	735.22	367.61	535.89	335.79	92.54	-6.268	-0.005	0.000

## Wind Loading - Shaft

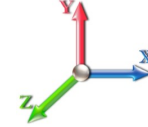
<b>Structure:</b> CT13064-A-SBA	<b>Code:</b> EIA/TIA-222-G	9/14/2016
<b>Site Name:</b> Middletown 2, CT	<b>Exposure:</b> C	
<b>Height:</b> 130.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II



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**Load Case:** 0.9D + 1.6W 101 mph Wind

**Dead Load Factor** 0.90  
**Wind Load Factor** 1.60



**Iterations** 24

Elev (ft)	Description	Kzt	Kz	qz (psf)	qzGh (psf)	C (mph-ft)	Cf	Ice Thick (in)	Tributary (ft)	Aa (sf)	CfAa (sf)	Wind Force X (lb)	Dead Load Ice (lb)	Tot Dead Load (lb)
0.00	RB1 RB2	1.00	0.85	21.088	23.20	334.88	0.650	0.000	0.00	0.000	0.00	0.0	0.0	0.0
5.00		1.00	0.85	21.088	23.20	328.76	0.650	0.000	5.00	17.817	11.58	429.8	0.0	634.8
8.50	RT2	1.00	0.85	21.088	23.20	324.48	0.650	0.000	3.50	12.277	7.98	296.2	0.0	437.4
10.00		1.00	0.85	21.088	23.20	322.64	0.650	0.000	1.50	5.212	3.39	125.7	0.0	185.7
15.00		1.00	0.85	21.088	23.20	316.52	0.650	0.000	5.00	17.160	11.15	414.0	0.0	611.2
20.00		1.00	0.90	22.375	24.61	319.74	0.650	0.000	5.00	16.832	10.94	430.8	0.0	599.5
20.50	RT1 RB3	1.00	0.91	22.491	24.74	319.94	0.650	0.000	0.50	1.665	1.08	42.8	0.0	59.3
25.00		1.00	0.95	23.451	25.80	320.89	0.652 *	0.000	4.50	14.838	9.68	399.4	0.0	528.4
30.00		1.00	0.98	24.369	26.81	320.53	0.656 *	0.000	5.00	16.175	10.61	455.0	0.0	575.9
35.00		1.00	1.01	25.172	27.69	319.09	0.660 *	0.000	5.00	15.846	10.46	463.4	0.0	564.1
40.00		1.00	1.04	25.890	28.48	316.82	0.664 *	0.000	5.00	15.518	10.31	469.8	0.0	552.3
40.50	RT3 RB4	1.00	1.05	25.958	28.55	316.56	0.667 *	0.000	0.50	1.534	1.02	46.7	0.0	54.6
43.33	Bot - Section 2	1.00	1.06	26.330	28.96	314.95	0.668 *	0.000	2.83	8.629	5.77	267.3	0.0	307.1
45.00		1.00	1.07	26.540	29.19	313.91	0.671 *	0.000	1.67	5.097	3.42	159.6	0.0	324.2
48.00	Top - Section 1	1.00	1.08	26.903	29.59	311.91	0.673 *	0.000	3.00	9.083	6.11	289.3	0.0	577.6
50.00		1.00	1.09	27.135	29.85	314.94	0.672 *	0.000	2.00	5.989	4.03	192.2	0.0	170.8
55.00		1.00	1.12	27.685	30.45	311.11	0.675 *	0.000	5.00	14.744	9.96	485.2	0.0	420.4
60.00		1.00	1.14	28.197	31.02	306.90	0.680 *	0.000	5.00	14.415	9.81	486.8	0.0	410.9
60.75	RT4 RB5	1.00	1.14	28.271	31.10	306.24	0.683 *	0.000	0.75	2.134	1.46	72.6	0.0	60.8
65.00		1.00	1.16	28.676	31.54	302.36	0.686 *	0.000	4.25	11.953	8.20	413.9	0.0	340.7
70.00		1.00	1.17	29.127	32.04	297.54	0.691 *	0.000	5.00	13.758	9.51	487.5	0.0	392.1
75.00		1.00	1.19	29.553	32.51	292.46	0.697 *	0.000	5.00	13.430	9.36	486.9	0.0	382.6
78.50	RT5	1.00	1.20	29.838	32.82	288.78	0.702 *	0.000	3.50	9.205	6.46	339.4	0.0	262.2
80.00		1.00	1.21	29.958	32.95	287.16	0.705 *	0.000	1.50	3.896	2.75	144.9	0.0	111.0
85.00		1.00	1.22	30.342	33.38	281.66	0.659 *	0.000	5.00	12.773	8.41	449.2	0.0	363.8
87.42	Bot - Section 3	1.00	1.23	30.522	33.57	278.94	0.650	0.000	2.42	6.056	3.94	211.4	0.0	172.4
89.50	Appurtenance(s)	1.00	1.24	30.674	33.74	276.56	0.652 *	0.000	2.08	5.225	3.41	183.9	0.0	258.7
90.00		1.00	1.24	30.710	33.78	275.98	0.653 *	0.000	0.50	1.245	0.81	44.0	0.0	61.7
91.33	Top - Section 2	1.00	1.24	30.805	33.89	274.44	0.654 *	0.000	1.33	3.305	2.16	117.2	0.0	163.6
94.00	Appurtenance(s)	1.00	1.25	30.992	34.09	274.89	0.654 *	0.000	2.67	6.540	4.28	233.2	0.0	140.0
95.00		1.00	1.25	31.061	34.17	273.72	0.656 *	0.000	1.00	2.429	1.59	87.1	0.0	52.0
100.00	Appurtenance(s)	1.00	1.27	31.399	34.54	267.73	0.659 *	0.000	5.00	11.946	7.87	435.1	0.0	255.6
105.00		1.00	1.28	31.723	34.89	261.61	0.665 *	0.000	5.00	11.617	7.72	431.2	0.0	248.5
110.00	Appurtenance(s)	1.00	1.29	32.035	35.24	255.35	0.671 *	0.000	5.00	11.289	7.57	427.0	0.0	241.4
115.00		1.00	1.30	32.336	35.57	248.97	0.677 *	0.000	5.00	10.960	7.42	422.5	0.0	234.3
120.00	Top - Section 3	1.00	1.32	32.627	35.89	242.48	0.684 *	0.000	5.00	10.632	7.27	417.8	0.0	227.3
125.00		1.00	1.33	32.909	36.20	174.49	0.720 *	0.000	5.00	7.500	5.40	312.8	0.0	213.5
129.00	Appurtenance(s)	1.00	1.34	33.128	36.44	175.07	0.720 *	0.000	4.00	6.000	4.32	251.9	0.0	170.8
130.00	Appurtenance(s)	1.00	1.34	33.182	36.50	175.21	0.600	0.000	1.00	1.500	0.90	52.6	0.0	42.7
								<b>Totals:</b>	<b>130.00</b>			<b>11,476.2</b>		<b>11,409.5</b>

\* Cf Adjusted by Linear Load Ra Effect

## Discrete Appurtenance Forces

<b>Structure:</b> CT13064-A-SBA	<b>Code:</b> EIA/TIA-222-G	9/14/2016
<b>Site Name:</b> Middletown 2, CT	<b>Exposure:</b> C	
<b>Height:</b> 130.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II



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**Load Case:** 0.9D + 1.6W 101 mph Wind

**Dead Load Factor** 0.90  
**Wind Load Factor** 1.60



**Iterations** 24

No.	Elev (ft)	Description	Qty	qz (psf)	qzGh (psf)	CaAa x Ka	Ka	Total CaAa (sf)	Dead Load (lb)	Horiz Ecc (ft)	Vert Ecc (ft)	Wind FX (lb)	Mom Y (lb-ft)	Mom Z (lb-ft)	
1	130.00	6' Lightning rod	1	33.182	36.500	1.00	1.00	0.38	5.85	0.000	0.000	22.19	0.00	0.00	
2	129.00	DTMABP7819VG12A	3	33.182	36.500	0.54	0.90	1.85	51.84	0.000	1.000	107.85	0.00	107.85	
3	129.00	RRUS-32	3	33.182	36.500	0.63	0.90	7.31	207.90	0.000	1.000	427.15	0.00	427.15	
4	129.00	RRUS 11	3	33.182	36.500	0.68	0.90	5.17	136.89	0.000	1.000	301.99	0.00	301.99	
5	129.00	DC6-48-60-18-8F	2	33.182	36.500	1.00	1.00	2.94	4.99	0.000	1.000	171.69	0.00	171.69	
6	129.00	P65-16-XLH-RR	3	33.182	36.500	0.78	1.00	19.09	143.10	0.000	1.000	1115.11	0.00	1115.11	
7	129.00	MTC3607 Platform + HR	1	33.128	36.440	1.00	1.00	51.70	2021.40	0.000	0.000	3014.36	0.00	0.00	
8	129.00	OPA-65R-LCUU-H6	3	33.182	36.500	0.77	1.00	22.31	216.00	0.000	1.000	1303.16	0.00	1303.16	
9	129.00	RRUS 32 B2	3	33.182	36.500	0.60	0.90	2.44	207.90	0.000	1.000	142.62	0.00	142.62	
10	129.00	QS66512-2	3	33.182	36.500	0.80	1.00	17.11	299.70	0.000	1.000	999.33	0.00	999.33	
11	110.00	T-Arm (Round)	3	32.035	35.238	0.56	0.75	13.50	945.00	0.000	0.000	761.15	0.00	0.00	
12	110.00	DB-T1-6Z-8AB-0Z	2	32.035	35.238	0.80	0.80	7.68	34.02	0.000	0.000	433.01	0.00	0.00	
13	110.00	B4 RRH2X60-4R	3	32.035	35.238	0.54	0.80	5.40	148.50	0.000	0.000	304.62	0.00	0.00	
14	110.00	B13 RRH4X30-4R	3	32.035	35.238	0.54	0.80	3.47	154.44	0.000	0.000	195.83	0.00	0.00	
15	110.00	RRH2X60-1900A-4R	3	32.035	35.238	0.54	0.80	3.02	124.20	0.000	0.000	170.44	0.00	0.00	
16	110.00	CBC721-DF	3	31.973	35.171	0.50	0.80	0.68	11.88	0.000	-1.000	38.29	0.00	-38.29	
17	110.00	CBC721-DF	3	32.096	35.306	0.50	0.80	0.68	11.88	0.000	1.000	38.44	0.00	38.44	
18	110.00	SBNHH-1D65B	6	32.035	35.238	0.66	0.80	32.12	216.00	0.000	0.000	1810.85	0.00	0.00	
19	100.00	LNx-6515DS-A1M	3	31.399	34.538	0.67	0.80	23.12	135.81	0.000	0.000	1277.84	0.00	0.00	
20	100.00	AIR 21, 1.3M, B2A B4P	3	31.399	34.538	0.66	0.80	12.13	247.05	0.000	0.000	670.39	0.00	0.00	
21	100.00	AIR 21, 1.3M, B4A B2P	3	31.399	34.538	0.66	0.80	12.13	244.08	0.000	0.000	670.39	0.00	0.00	
22	100.00	782 11056	3	31.399	34.538	0.62	0.80	0.24	4.86	0.000	0.000	13.45	0.00	0.00	
23	100.00	T-Arm (Round)	3	31.399	34.538	0.56	0.75	13.50	945.00	0.000	0.000	746.03	0.00	0.00	
24	94.00	1'4"x6.5"x6" Surge	1	30.992	34.091	0.80	0.80	1.71	47.70	0.000	0.000	93.38	0.00	0.00	
25	89.50	T-Arm (Round)	3	30.674	33.741	0.56	0.75	13.50	945.00	0.000	0.000	728.81	0.00	0.00	
26	89.50	VHLP800-11	1	30.760	33.836	1.00	1.00	8.43	43.20	2.231	1.200	456.38	636.44	547.65	
27	89.50	VHLP2-18-1WH	1	30.767	33.844	1.00	1.00	4.69	27.90	2.231	1.300	253.96	354.16	330.15	
28	89.50	SPI-2213 RRH	3	30.781	33.859	0.61	0.80	3.32	89.37	0.000	1.500	179.84	0.00	269.77	
29	89.50	840 10054	3	30.781	33.859	0.50	0.80	6.94	94.50	0.000	1.500	375.98	0.00	563.97	
<b>Totals:</b>									<b>7,765.96</b>						<b>16,824.53</b>

## Total Applied Force Summary

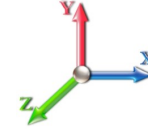
<b>Structure:</b> CT13064-A-SBA	<b>Code:</b> EIA/TIA-222-G	9/14/2016
<b>Site Name:</b> Middletown 2, CT	<b>Exposure:</b> C	
<b>Height:</b> 130.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II



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**Load Case:** 0.9D + 1.6W 101 mph Wind

**Dead Load Factor** 0.90  
**Wind Load Factor** 1.60



**Iterations** 24

Elev (ft)	Description	Lateral FX (-) (lb)	Axial FY (-) (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)
0.00		0.00	0.00	0.00	0.00
5.00		429.83	831.86	0.00	0.00
8.50		296.16	575.29	0.00	0.00
10.00		125.74	244.78	0.00	0.00
15.00		413.98	808.28	0.00	0.00
20.00		430.84	796.48	0.00	0.00
20.50		42.84	79.00	0.00	0.00
25.00		399.38	705.69	0.00	0.00
30.00		455.03	772.90	0.00	0.00
35.00		463.41	761.11	0.00	0.00
40.00		469.81	749.31	0.00	0.00
40.50		46.73	74.28	0.00	0.00
43.33		267.29	418.71	0.00	0.00
45.00		159.64	389.89	0.00	0.00
48.00		289.32	695.86	0.00	0.00
50.00		192.24	249.60	0.00	0.00
55.00		485.23	617.39	0.00	0.00
60.00		486.78	607.96	0.00	0.00
60.75		72.57	90.38	0.00	0.00
65.00		413.90	508.14	0.00	0.00
70.00		487.52	589.09	0.00	0.00
75.00		486.87	579.65	0.00	0.00
78.50		339.43	400.14	0.00	0.00
80.00		144.87	170.08	0.00	0.00
85.00		449.20	560.79	0.00	0.00
87.42		211.45	267.66	0.00	0.00
89.50	(11) attachments	2178.85	1540.77	990.60	1711.54
90.00		43.97	80.85	0.00	0.00
91.33		117.23	214.79	0.00	0.00
94.00	(1) attachments	326.62	289.99	0.00	0.00
95.00		87.06	90.34	0.00	0.00
100.00	(15) attachments	3813.16	2024.25	0.00	0.00
105.00		431.21	407.35	0.00	0.00
110.00	(26) attachments	4179.65	2046.19	0.00	0.15
115.00		422.53	327.14	0.00	0.00
120.00		417.75	320.06	0.00	0.00
125.00		312.76	306.26	0.00	0.00
129.00	(24) attachments	7835.14	3534.72	0.00	4568.91
130.00	(1) attachments	74.75	48.54	0.00	0.00
<b>Totals:</b>		<b>28,300.72</b>	<b>23,775.57</b>	<b>990.60</b>	<b>6,280.60</b>

## Linear Appurtenance Segment Forces (Factored)

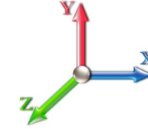
<b>Structure:</b> CT13064-A-SBA	<b>Code:</b> EIA/TIA-222-G	9/14/2016
<b>Site Name:</b> Middletown 2, CT	<b>Exposure:</b> C	
<b>Height:</b> 130.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II



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**Load Case:** 0.9D + 1.6W 101 mph Wind

**Dead Load Factor** 0.90  
**Wind Load Factor** 1.60



**Iterations** 24

Top Elev (ft)	Description	Wind Exposed	Length (ft)	Ca	Exposed Width (in)	Area (sqft)	CaAa (sqft)	Ra	Cf Adjust Factor	qz (psf)	F X (lb)	Dead Load (lb)
5.00	0.645" DC	Yes	5.00	0.000	0.00	0.00	0.00	0.094	0.000	21.088	0.00	7.20
5.00	1.496" Fiber	Yes	5.00	0.000	0.00	0.00	0.00	0.094	0.000	21.088	0.00	5.40
5.00	3" Conduit	Yes	5.00	0.000	3.00	1.25	0.00	0.094	0.000	21.088	0.00	24.03
5.00	1" Reinforcing plate	Yes	5.00	0.000	1.00	0.42	0.00	0.094	0.000	21.088	0.00	0.00
8.50	0.645" DC	Yes	3.50	0.000	0.00	0.00	0.00	0.095	0.000	21.088	0.00	5.04
8.50	1.496" Fiber	Yes	3.50	0.000	0.00	0.00	0.00	0.095	0.000	21.088	0.00	3.78
8.50	3" Conduit	Yes	3.50	0.000	3.00	0.88	0.00	0.095	0.000	21.088	0.00	16.82
8.50	1" Reinforcing plate	Yes	3.50	0.000	1.00	0.29	0.00	0.095	0.000	21.088	0.00	0.00
10.00	0.645" DC	Yes	1.50	0.000	0.00	0.00	0.00	0.096	0.000	21.088	0.00	2.16
10.00	1.496" Fiber	Yes	1.50	0.000	0.00	0.00	0.00	0.096	0.000	21.088	0.00	1.62
10.00	3" Conduit	Yes	1.50	0.000	3.00	0.38	0.00	0.096	0.000	21.088	0.00	7.21
10.00	1" Reinforcing plate	Yes	1.50	0.000	1.00	0.13	0.00	0.096	0.000	21.088	0.00	0.00
15.00	0.645" DC	Yes	5.00	0.000	0.00	0.00	0.00	0.097	0.000	21.088	0.00	7.20
15.00	1.496" Fiber	Yes	5.00	0.000	0.00	0.00	0.00	0.097	0.000	21.088	0.00	5.40
15.00	3" Conduit	Yes	5.00	0.000	3.00	1.25	0.00	0.097	0.000	21.088	0.00	24.03
15.00	1" Reinforcing plate	Yes	5.00	0.000	1.00	0.42	0.00	0.097	0.000	21.088	0.00	0.00
20.00	0.645" DC	Yes	5.00	0.000	0.00	0.00	0.00	0.099	0.000	22.375	0.00	7.20
20.00	1.496" Fiber	Yes	5.00	0.000	0.00	0.00	0.00	0.099	0.000	22.375	0.00	5.40
20.00	3" Conduit	Yes	5.00	0.000	3.00	1.25	0.00	0.099	0.000	22.375	0.00	24.03
20.00	1" Reinforcing plate	Yes	5.00	0.000	1.00	0.42	0.00	0.099	0.000	22.375	0.00	0.00
20.50	0.645" DC	Yes	0.50	0.000	0.00	0.00	0.00	0.100	0.000	22.491	0.00	0.72
20.50	1.496" Fiber	Yes	0.50	0.000	0.00	0.00	0.00	0.100	0.000	22.491	0.00	0.54
20.50	3" Conduit	Yes	0.50	0.000	3.00	0.13	0.00	0.100	0.000	22.491	0.00	2.40
20.50	1" Reinforcing plate	Yes	0.50	0.000	1.00	0.04	0.00	0.100	0.000	22.491	0.00	0.00
25.00	0.645" DC	Yes	4.50	0.000	0.00	0.00	0.00	0.101	1.003	23.451	0.00	6.48
25.00	1.496" Fiber	Yes	4.50	0.000	0.00	0.00	0.00	0.101	1.003	23.451	0.00	4.86
25.00	3" Conduit	Yes	4.50	0.000	3.00	1.13	0.00	0.101	1.003	23.451	0.00	21.63
25.00	1" Reinforcing plate	Yes	4.50	0.000	1.00	0.38	0.00	0.101	1.003	23.451	0.00	0.00
30.00	0.645" DC	Yes	5.00	0.000	0.00	0.00	0.00	0.103	1.009	24.369	0.00	7.20
30.00	1.496" Fiber	Yes	5.00	0.000	0.00	0.00	0.00	0.103	1.009	24.369	0.00	5.40
30.00	3" Conduit	Yes	5.00	0.000	3.00	1.25	0.00	0.103	1.009	24.369	0.00	24.03
30.00	1" Reinforcing plate	Yes	5.00	0.000	1.00	0.42	0.00	0.103	1.009	24.369	0.00	0.00
35.00	0.645" DC	Yes	5.00	0.000	0.00	0.00	0.00	0.105	1.016	25.172	0.00	7.20
35.00	1.496" Fiber	Yes	5.00	0.000	0.00	0.00	0.00	0.105	1.016	25.172	0.00	5.40
35.00	3" Conduit	Yes	5.00	0.000	3.00	1.25	0.00	0.105	1.016	25.172	0.00	24.03
35.00	1" Reinforcing plate	Yes	5.00	0.000	1.00	0.42	0.00	0.105	1.016	25.172	0.00	0.00
40.00	0.645" DC	Yes	5.00	0.000	0.00	0.00	0.00	0.107	1.022	25.890	0.00	7.20
40.00	1.496" Fiber	Yes	5.00	0.000	0.00	0.00	0.00	0.107	1.022	25.890	0.00	5.40
40.00	3" Conduit	Yes	5.00	0.000	3.00	1.25	0.00	0.107	1.022	25.890	0.00	24.03
40.00	1" Reinforcing plate	Yes	5.00	0.000	1.00	0.42	0.00	0.107	1.022	25.890	0.00	0.00
40.50	0.645" DC	Yes	0.50	0.000	0.00	0.00	0.00	0.109	1.026	25.958	0.00	0.72
40.50	1.496" Fiber	Yes	0.50	0.000	0.00	0.00	0.00	0.109	1.026	25.958	0.00	0.54
40.50	3" Conduit	Yes	0.50	0.000	3.00	0.13	0.00	0.109	1.026	25.958	0.00	2.40
40.50	1" Reinforcing plate	Yes	0.50	0.000	1.00	0.04	0.00	0.109	1.026	25.958	0.00	0.00
43.33	0.645" DC	Yes	2.83	0.000	0.00	0.00	0.00	0.109	1.028	26.330	0.00	4.08
43.33	1.496" Fiber	Yes	2.83	0.000	0.00	0.00	0.00	0.109	1.028	26.330	0.00	3.06
43.33	3" Conduit	Yes	2.83	0.000	3.00	0.71	0.00	0.109	1.028	26.330	0.00	13.62

## Linear Appurtenance Segment Forces (Factored)

<b>Structure:</b> CT13064-A-SBA	<b>Code:</b> EIA/TIA-222-G	9/14/2016
<b>Site Name:</b> Middletown 2, CT	<b>Exposure:</b> C	
<b>Height:</b> 130.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II



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**Load Case:** 0.9D + 1.6W 101 mph Wind

**Dead Load Factor** 0.90  
**Wind Load Factor** 1.60



**Iterations** 24

Top Elev (ft)	Description	Wind Exposed	Length (ft)	Ca	Exposed Width (in)	Area (sqft)	CaAa (sqft)	Ra	Cf Adjust Factor	qz (psf)	F X (lb)	Dead Load (lb)
43.33	1" Reinforcing plate	Yes	2.83	0.000	1.00	0.24	0.00	0.109	1.028	26.330	0.00	0.00
45.00	0.645" DC	Yes	1.67	0.000	0.00	0.00	0.00	0.111	1.032	26.540	0.00	2.40
45.00	1.496" Fiber	Yes	1.67	0.000	0.00	0.00	0.00	0.111	1.032	26.540	0.00	1.80
45.00	3" Conduit	Yes	1.67	0.000	3.00	0.42	0.00	0.111	1.032	26.540	0.00	8.01
45.00	1" Reinforcing plate	Yes	1.67	0.000	1.00	0.14	0.00	0.111	1.032	26.540	0.00	0.00
48.00	0.645" DC	Yes	3.00	0.000	0.00	0.00	0.00	0.112	1.035	26.903	0.00	4.32
48.00	1.496" Fiber	Yes	3.00	0.000	0.00	0.00	0.00	0.112	1.035	26.903	0.00	3.24
48.00	3" Conduit	Yes	3.00	0.000	3.00	0.75	0.00	0.112	1.035	26.903	0.00	14.42
48.00	1" Reinforcing plate	Yes	3.00	0.000	1.00	0.25	0.00	0.112	1.035	26.903	0.00	0.00
50.00	0.645" DC	Yes	2.00	0.000	0.00	0.00	0.00	0.111	1.034	27.135	0.00	2.88
50.00	1.496" Fiber	Yes	2.00	0.000	0.00	0.00	0.00	0.111	1.034	27.135	0.00	2.16
50.00	3" Conduit	Yes	2.00	0.000	3.00	0.50	0.00	0.111	1.034	27.135	0.00	9.61
50.00	1" Reinforcing plate	Yes	2.00	0.000	1.00	0.17	0.00	0.111	1.034	27.135	0.00	0.00
55.00	0.645" DC	Yes	5.00	0.000	0.00	0.00	0.00	0.113	1.039	27.685	0.00	7.20
55.00	1.496" Fiber	Yes	5.00	0.000	0.00	0.00	0.00	0.113	1.039	27.685	0.00	5.40
55.00	3" Conduit	Yes	5.00	0.000	3.00	1.25	0.00	0.113	1.039	27.685	0.00	24.03
55.00	1" Reinforcing plate	Yes	5.00	0.000	1.00	0.42	0.00	0.113	1.039	27.685	0.00	0.00
60.00	0.645" DC	Yes	5.00	0.000	0.00	0.00	0.00	0.116	1.047	28.197	0.00	7.20
60.00	1.496" Fiber	Yes	5.00	0.000	0.00	0.00	0.00	0.116	1.047	28.197	0.00	5.40
60.00	3" Conduit	Yes	5.00	0.000	3.00	1.25	0.00	0.116	1.047	28.197	0.00	24.03
60.00	1" Reinforcing plate	Yes	5.00	0.000	1.00	0.42	0.00	0.116	1.047	28.197	0.00	0.00
60.75	0.645" DC	Yes	0.75	0.000	0.00	0.00	0.00	0.117	1.051	28.271	0.00	1.08
60.75	1.496" Fiber	Yes	0.75	0.000	0.00	0.00	0.00	0.117	1.051	28.271	0.00	0.81
60.75	3" Conduit	Yes	0.75	0.000	3.00	0.19	0.00	0.117	1.051	28.271	0.00	3.60
60.75	1" Reinforcing plate	Yes	0.75	0.000	1.00	0.06	0.00	0.117	1.051	28.271	0.00	0.00
65.00	0.645" DC	Yes	4.25	0.000	0.00	0.00	0.00	0.119	1.056	28.676	0.00	6.12
65.00	1.496" Fiber	Yes	4.25	0.000	0.00	0.00	0.00	0.119	1.056	28.676	0.00	4.59
65.00	3" Conduit	Yes	4.25	0.000	3.00	1.06	0.00	0.119	1.056	28.676	0.00	20.43
65.00	1" Reinforcing plate	Yes	4.25	0.000	1.00	0.35	0.00	0.119	1.056	28.676	0.00	0.00
70.00	0.645" DC	Yes	5.00	0.000	0.00	0.00	0.00	0.121	1.063	29.127	0.00	7.20
70.00	1.496" Fiber	Yes	5.00	0.000	0.00	0.00	0.00	0.121	1.063	29.127	0.00	5.40
70.00	3" Conduit	Yes	5.00	0.000	3.00	1.25	0.00	0.121	1.063	29.127	0.00	24.03
70.00	1" Reinforcing plate	Yes	5.00	0.000	1.00	0.42	0.00	0.121	1.063	29.127	0.00	0.00
75.00	0.645" DC	Yes	5.00	0.000	0.00	0.00	0.00	0.124	1.072	29.553	0.00	7.20
75.00	1.496" Fiber	Yes	5.00	0.000	0.00	0.00	0.00	0.124	1.072	29.553	0.00	5.40
75.00	3" Conduit	Yes	5.00	0.000	3.00	1.25	0.00	0.124	1.072	29.553	0.00	24.03
75.00	1" Reinforcing plate	Yes	5.00	0.000	1.00	0.42	0.00	0.124	1.072	29.553	0.00	0.00
78.50	0.645" DC	Yes	3.50	0.000	0.00	0.00	0.00	0.127	1.080	29.838	0.00	5.04
78.50	1.496" Fiber	Yes	3.50	0.000	0.00	0.00	0.00	0.127	1.080	29.838	0.00	3.78
78.50	3" Conduit	Yes	3.50	0.000	3.00	0.88	0.00	0.127	1.080	29.838	0.00	16.82
78.50	1" Reinforcing plate	Yes	3.50	0.000	1.00	0.29	0.00	0.127	1.080	29.838	0.00	0.00
80.00	0.645" DC	Yes	1.50	0.000	0.00	0.00	0.00	0.128	1.085	29.958	0.00	2.16
80.00	1.496" Fiber	Yes	1.50	0.000	0.00	0.00	0.00	0.128	1.085	29.958	0.00	1.62
80.00	3" Conduit	Yes	1.50	0.000	3.00	0.38	0.00	0.128	1.085	29.958	0.00	7.21
80.00	1" Reinforcing plate	Yes	1.50	0.000	1.00	0.13	0.00	0.128	1.085	29.958	0.00	0.00
85.00	0.645" DC	Yes	5.00	0.000	0.00	0.00	0.00	0.104	1.013	30.342	0.00	7.20
85.00	1.496" Fiber	Yes	5.00	0.000	0.00	0.00	0.00	0.104	1.013	30.342	0.00	5.40

## Linear Appurtenance Segment Forces (Factored)

<b>Structure:</b> CT13064-A-SBA	<b>Code:</b> EIA/TIA-222-G	9/14/2016
<b>Site Name:</b> Middletown 2, CT	<b>Exposure:</b> C	
<b>Height:</b> 130.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II



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**Load Case:** 0.9D + 1.6W 101 mph Wind

**Dead Load Factor** 0.90  
**Wind Load Factor** 1.60



**Iterations** 24

Top Elev (ft)	Description	Wind Exposed	Length (ft)	Ca	Exposed Width (in)	Area (sqft)	CaAa (sqft)	Ra	Cf Adjust Factor	qz (psf)	F X (lb)	Dead Load (lb)
85.00	3" Conduit	Yes	5.00	0.000	3.00	1.25	0.00	0.104	1.013	30.342	0.00	24.03
85.00	1" Reinforcing plate	Yes	1.00	0.000	1.00	0.08	0.00	0.104	1.013	30.342	0.00	0.00
87.42	0.645" DC	Yes	2.42	0.000	0.00	0.00	0.00	0.100	0.000	30.522	0.00	3.48
87.42	1.496" Fiber	Yes	2.42	0.000	0.00	0.00	0.00	0.100	0.000	30.522	0.00	2.61
87.42	3" Conduit	Yes	2.42	0.000	3.00	0.60	0.00	0.100	0.000	30.522	0.00	11.61
89.50	0.645" DC	Yes	2.08	0.000	0.00	0.00	0.00	0.101	1.003	30.674	0.00	3.00
89.50	1.496" Fiber	Yes	2.08	0.000	0.00	0.00	0.00	0.101	1.003	30.674	0.00	2.25
89.50	3" Conduit	Yes	2.08	0.000	3.00	0.52	0.00	0.101	1.003	30.674	0.00	10.01
90.00	0.645" DC	Yes	0.50	0.000	0.00	0.00	0.00	0.102	1.005	30.710	0.00	0.72
90.00	1.496" Fiber	Yes	0.50	0.000	0.00	0.00	0.00	0.102	1.005	30.710	0.00	0.54
90.00	3" Conduit	Yes	0.50	0.000	3.00	0.13	0.00	0.102	1.005	30.710	0.00	2.40
91.33	0.645" DC	Yes	1.33	0.000	0.00	0.00	0.00	0.102	1.006	30.805	0.00	1.92
91.33	1.496" Fiber	Yes	1.33	0.000	0.00	0.00	0.00	0.102	1.006	30.805	0.00	1.44
91.33	3" Conduit	Yes	1.33	0.000	3.00	0.33	0.00	0.102	1.006	30.805	0.00	6.41
94.00	0.645" DC	Yes	2.67	0.000	0.00	0.00	0.00	0.102	1.006	30.992	0.00	3.84
94.00	1.496" Fiber	Yes	2.67	0.000	0.00	0.00	0.00	0.102	1.006	30.992	0.00	2.88
94.00	3" Conduit	Yes	2.67	0.000	3.00	0.67	0.00	0.102	1.006	30.992	0.00	12.82
95.00	0.645" DC	Yes	1.00	0.000	0.00	0.00	0.00	0.103	1.009	31.061	0.00	1.44
95.00	1.496" Fiber	Yes	1.00	0.000	0.00	0.00	0.00	0.103	1.009	31.061	0.00	1.08
95.00	3" Conduit	Yes	1.00	0.000	3.00	0.25	0.00	0.103	1.009	31.061	0.00	4.81
100.00	0.645" DC	Yes	5.00	0.000	0.00	0.00	0.00	0.105	1.014	31.399	0.00	7.20
100.00	1.496" Fiber	Yes	5.00	0.000	0.00	0.00	0.00	0.105	1.014	31.399	0.00	5.40
100.00	3" Conduit	Yes	5.00	0.000	3.00	1.25	0.00	0.105	1.014	31.399	0.00	24.03
105.00	0.645" DC	Yes	5.00	0.000	0.00	0.00	0.00	0.108	1.023	31.723	0.00	7.20
105.00	1.496" Fiber	Yes	5.00	0.000	0.00	0.00	0.00	0.108	1.023	31.723	0.00	5.40
105.00	3" Conduit	Yes	5.00	0.000	3.00	1.25	0.00	0.108	1.023	31.723	0.00	24.03
110.00	0.645" DC	Yes	5.00	0.000	0.00	0.00	0.00	0.111	1.032	32.035	0.00	7.20
110.00	1.496" Fiber	Yes	5.00	0.000	0.00	0.00	0.00	0.111	1.032	32.035	0.00	5.40
110.00	3" Conduit	Yes	5.00	0.000	3.00	1.25	0.00	0.111	1.032	32.035	0.00	24.03
115.00	0.645" DC	Yes	5.00	0.000	0.00	0.00	0.00	0.114	1.042	32.336	0.00	7.20
115.00	1.496" Fiber	Yes	5.00	0.000	0.00	0.00	0.00	0.114	1.042	32.336	0.00	5.40
115.00	3" Conduit	Yes	5.00	0.000	3.00	1.25	0.00	0.114	1.042	32.336	0.00	24.03
120.00	0.645" DC	Yes	5.00	0.000	0.00	0.00	0.00	0.118	1.053	32.627	0.00	7.20
120.00	1.496" Fiber	Yes	5.00	0.000	0.00	0.00	0.00	0.118	1.053	32.627	0.00	5.40
120.00	3" Conduit	Yes	5.00	0.000	3.00	1.25	0.00	0.118	1.053	32.627	0.00	24.03
125.00	0.645" DC	Yes	5.00	0.000	0.00	0.00	0.00	0.167	1.200	32.909	0.00	7.20
125.00	1.496" Fiber	Yes	5.00	0.000	0.00	0.00	0.00	0.167	1.200	32.909	0.00	5.40
125.00	3" Conduit	Yes	5.00	0.000	3.00	1.25	0.00	0.167	1.200	32.909	0.00	24.03
129.00	0.645" DC	Yes	4.00	0.000	0.00	0.00	0.00	0.167	1.200	33.128	0.00	5.76
129.00	1.496" Fiber	Yes	4.00	0.000	0.00	0.00	0.00	0.167	1.200	33.128	0.00	4.32
129.00	3" Conduit	Yes	4.00	0.000	3.00	1.00	0.00	0.167	1.200	33.128	0.00	19.22
<b>Totals:</b>											<b>0.0</b>	<b>945.1</b>



## Calculated Forces

<b>Structure:</b> CT13064-A-SBA	<b>Code:</b> EIA/TIA-222-G	<b>9/14/2016</b>
<b>Site Name:</b> Middletown 2, CT	<b>Exposure:</b> C	
<b>Height:</b> 130.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II

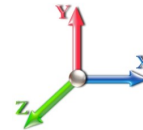


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**Load Case:** 0.9D + 1.6W 101 mph Wind

**Iterations** 24

**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	-23.73	-28.34	-0.98	-2749.4	-0.01	2749.45	2818.94	1409.47	4888.80	2448.04	0.00	0.000	0.000	0.535
5.00	-22.82	-27.97	-0.98	-2607.7	-0.01	2607.74	2786.10	1393.05	4742.28	2374.66	0.10	-0.192	0.000	0.518
8.50	-22.19	-27.72	-0.98	-2509.8	0.00	2509.83	2762.70	1381.35	4640.25	2323.57	0.29	-0.326	0.000	0.767
10.00	-21.85	-27.66	-0.98	-2468.2	-0.01	2468.25	2752.56	1376.28	4596.67	2301.75	0.41	-0.413	0.000	0.760
15.00	-20.92	-27.35	-0.98	-2329.9	0.00	2329.94	2718.29	1359.15	4452.05	2229.33	1.00	-0.699	0.000	0.736
20.00	-20.05	-26.96	-0.98	-2193.2	0.00	2193.21	2683.32	1341.66	4308.48	2157.44	1.88	-0.982	-0.001	0.711
20.50	-19.91	-26.96	-0.98	-2179.7	0.00	2179.73	2679.78	1339.89	4294.19	2150.28	1.98	-1.011	-0.001	0.709
25.00	-19.09	-26.64	-0.98	-2058.4	0.00	2058.40	2647.62	1323.81	4166.04	2086.12	3.06	-1.264	-0.001	0.686
30.00	-18.20	-26.25	-0.98	-1925.2	0.00	1925.21	2611.22	1305.61	4024.80	2015.39	4.53	-1.542	-0.001	0.659
35.00	-17.33	-25.85	-0.98	-1793.9	0.00	1793.95	2574.10	1287.05	3884.82	1945.30	6.29	-1.816	-0.001	0.632
40.00	-16.53	-25.40	-0.98	-1664.7	0.00	1664.71	2536.26	1268.13	3746.17	1875.87	8.34	-2.085	-0.001	0.604
40.50	-16.42	-25.37	-0.98	-1652.0	0.00	1652.01	2532.44	1266.22	3732.38	1868.96	8.56	-2.112	-0.001	0.601
43.33	-15.96	-25.12	-0.98	-1580.1	0.00	1580.12	2510.64	1255.32	3654.51	1829.97	9.86	-2.264	-0.002	0.584
45.00	-15.52	-24.98	-0.98	-1538.2	0.00	1538.25	2497.71	1248.86	3608.92	1807.14	10.66	-2.353	-0.002	0.569
48.00	-14.78	-24.70	-0.98	-1463.3	0.00	1463.30	1854.44	927.22	2691.60	1347.80	12.19	-2.508	-0.002	0.607
50.00	-14.46	-24.54	-0.98	-1413.9	-0.01	1413.91	1844.56	922.28	2653.53	1328.74	13.26	-2.611	-0.002	0.663
55.00	-13.75	-24.09	-0.98	-1291.2	-0.01	1291.21	1819.35	909.68	2558.78	1281.29	16.15	-2.888	-0.002	0.622
60.00	-13.11	-23.61	-0.98	-1170.7	-0.01	1170.74	1793.44	896.72	2464.66	1234.16	19.31	-3.156	-0.003	0.580
60.75	-12.97	-23.56	-0.98	-1153.0	-0.01	1153.04	1789.49	894.74	2450.61	1227.12	19.81	-3.196	-0.003	0.574
65.00	-12.39	-23.17	-0.98	-1052.9	-0.01	1052.90	1766.81	883.40	2371.26	1187.39	22.76	-3.414	-0.003	0.537
70.00	-11.74	-22.69	-0.99	-937.06	-0.01	937.06	1739.46	869.73	2278.63	1141.01	26.46	-3.657	-0.003	0.492
75.00	-11.12	-22.21	-0.99	-823.58	-0.02	823.58	1711.40	855.70	2186.84	1095.05	30.41	-3.886	-0.004	0.446
78.50	-10.70	-21.86	-0.99	-745.86	-0.02	745.86	1691.33	845.67	2123.13	1063.14	33.31	-4.038	-0.004	0.413
78.50	-10.70	-21.86	-0.99	-745.86	-0.02	745.86	1691.33	845.67	2123.13	1063.14	33.31	-4.038	-0.004	0.413
80.00	-10.47	-21.74	-0.99	-713.07	-0.02	713.07	1682.63	841.31	2095.97	1049.54	34.59	-4.102	-0.004	0.686
85.00	-9.85	-21.29	-0.99	-604.36	-0.03	604.36	1653.14	826.57	2006.08	1004.53	39.07	-4.437	-0.005	0.608
87.42	-9.55	-21.09	-0.99	-552.90	-0.03	552.90	1638.63	819.32	1963.01	982.97	41.35	-4.591	-0.005	0.569
89.50	-8.17	-18.80	0.00	-507.26	0.04	507.26	1625.99	812.99	1926.09	964.47	43.38	-4.717	-0.005	0.531
90.00	-8.07	-18.76	0.00	-497.86	0.04	497.86	1622.94	811.47	1917.25	960.05	43.88	-4.747	-0.005	0.524
91.33	-7.83	-18.64	0.00	-472.85	0.04	472.85	1099.39	549.70	1312.06	657.00	45.21	-4.824	-0.005	0.728
94.00	-7.54	-18.30	0.00	-423.15	0.04	423.15	1090.71	545.35	1282.99	642.45	47.95	-4.969	-0.005	0.667
95.00	-7.39	-18.23	0.00	-404.85	0.04	404.85	1087.40	543.70	1272.11	637.00	49.00	-5.036	-0.005	0.643
100.00	-5.66	-14.28	0.00	-313.69	0.03	313.69	1070.43	535.22	1217.83	609.82	54.43	-5.332	-0.005	0.520
105.00	-5.24	-13.83	0.00	-242.31	0.02	242.31	1052.74	526.37	1163.86	582.80	60.14	-5.580	-0.005	0.421
110.00	-3.59	-9.48	0.00	-173.16	0.02	173.16	1034.34	517.17	1110.26	555.96	66.09	-5.783	-0.005	0.315
115.00	-3.28	-9.03	0.00	-125.76	0.01	125.76	1015.23	507.62	1057.10	529.34	72.23	-5.942	-0.005	0.241
120.00	-2.99	-8.59	0.00	-80.59	0.01	80.59	995.40	497.70	1004.45	502.97	78.51	-6.062	-0.005	0.164
120.00	-2.99	-8.59	0.00	-80.59	0.01	80.59	735.22	367.61	535.89	335.79	78.51	-6.062	-0.005	0.245
125.00	-2.71	-8.25	0.00	-37.64	0.00	37.64	735.22	367.61	535.89	335.79	84.89	-6.137	-0.005	0.116
129.00	-0.04	-0.08	0.00	-0.08	0.00	0.08	735.22	367.61	535.89	335.79	90.05	-6.181	-0.005	0.000
130.00	0.00	-0.07	0.00	0.00	0.00	0.00	735.22	367.61	535.89	335.79	91.34	-6.181	-0.005	0.000

## Wind Loading - Shaft

<b>Structure:</b> CT13064-A-SBA	<b>Code:</b> EIA/TIA-222-G	9/14/2016
<b>Site Name:</b> Middletown 2, CT	<b>Exposure:</b> C	
<b>Height:</b> 130.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II

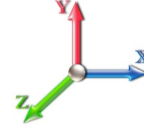


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**Load Case:** 1.2D + 1.0Di + 1.0Wi 50 mph Wind

**Iterations** 22

**Dead Load Factor** 1.20  
**Wind Load Factor** 1.00



Elev (ft)	Description	Kzt	Kz	qz (psf)	qzGh (psf)	C (mph-ft)	Cf	Ice Thick (in)	Tributary (ft)	Aa (sf)	CfAa (sf)	Wind Force X (lb)	Dead Load Ice (lb)	Tot Dead Load (lb)
0.00	RB1 RB2	1.00	0.85	5.168	5.68	0.00	1.200	0.000	0.00	0.000	0.00	0.0	0.0	0.0
5.00		1.00	0.85	5.168	5.68	0.00	1.200	1.242	5.00	18.852	22.62	128.6	330.9	1177.3
8.50	RT2	1.00	0.85	5.168	5.68	0.00	1.200	1.310	3.50	13.041	15.65	89.0	241.5	824.7
10.00		1.00	0.85	5.168	5.68	0.00	1.200	1.331	1.50	5.545	6.65	37.8	104.7	352.2
15.00		1.00	0.85	5.168	5.68	0.00	1.200	1.386	5.00	18.315	21.98	124.9	357.2	1172.2
20.00		1.00	0.90	5.483	6.03	0.00	1.200	1.427	5.00	18.021	21.62	130.4	361.1	1160.3
20.50	RT1 RB3	1.00	0.91	5.512	6.06	0.00	1.200	1.430	0.50	1.784	2.14	13.0	36.1	115.2
25.00		1.00	0.95	5.747	6.32	0.00	1.204 *	1.459	4.50	15.932	19.18	121.3	326.2	1030.7
30.00		1.00	0.98	5.972	6.57	0.00	1.211 *	1.486	5.00	17.413	21.09	138.5	362.2	1130.1
35.00		1.00	1.01	6.169	6.79	0.00	1.219 *	1.509	5.00	17.104	20.84	141.4	360.8	1112.9
40.00		1.00	1.04	6.345	6.98	0.00	1.227 *	1.529	5.00	16.792	20.60	143.8	358.5	1094.9
40.50	RT3 RB4	1.00	1.05	6.362	7.00	0.00	1.231 *	1.531	0.50	1.661	2.05	14.3	35.8	108.6
43.33	Bot - Section 2	1.00	1.06	6.453	7.10	0.00	1.234 *	1.541	2.83	9.357	11.55	82.0	202.0	611.4
45.00		1.00	1.07	6.504	7.15	0.00	1.238 *	1.547	1.67	5.527	6.84	48.9	120.1	552.4
48.00	Top - Section 1	1.00	1.08	6.593	7.25	0.00	1.242 *	1.557	3.00	9.861	12.25	88.8	214.9	985.1
50.00		1.00	1.09	6.650	7.32	0.00	1.241 *	1.564	2.00	6.511	8.08	59.1	142.7	370.4
55.00		1.00	1.12	6.785	7.46	0.00	1.247 *	1.579	5.00	16.059	20.03	149.5	352.6	913.1
60.00		1.00	1.14	6.910	7.60	0.00	1.256 *	1.592	5.00	15.742	19.78	150.3	348.2	896.1
60.75	RT4 RB5	1.00	1.14	6.928	7.62	0.00	1.262 *	1.594	0.75	2.333	2.94	22.4	52.1	133.2
65.00		1.00	1.16	7.028	7.73	0.00	1.267 *	1.605	4.25	13.090	16.58	128.2	291.9	746.1
70.00		1.00	1.17	7.138	7.85	0.00	1.276 *	1.617	5.00	15.106	19.28	151.4	338.3	861.0
75.00		1.00	1.19	7.243	7.97	0.00	1.287 *	1.628	5.00	14.787	19.03	151.6	332.9	843.0
78.50	RT5	1.00	1.20	7.313	8.04	0.00	1.296 *	1.636	3.50	10.159	13.17	105.9	230.3	579.9
80.00		1.00	1.21	7.342	8.08	0.00	1.302 *	1.639	1.50	4.306	5.61	45.3	98.2	246.1
85.00		1.00	1.22	7.436	8.18	0.00	1.216 *	1.649	5.00	14.147	17.20	140.7	321.4	806.4
87.42	Bot - Section 3	1.00	1.23	7.480	8.23	0.00	1.200	1.653	2.42	6.722	8.07	66.4	153.9	383.8
89.50	Appurtenance(s)	1.00	1.24	7.517	8.27	0.00	1.203 *	1.657	2.08	5.800	6.98	57.7	133.3	478.2
90.00		1.00	1.24	7.526	8.28	0.00	1.206 *	1.658	0.50	1.384	1.67	13.8	31.9	114.1
91.33	Top - Section 2	1.00	1.24	7.549	8.30	0.00	1.208 *	1.661	1.33	3.674	4.44	36.9	84.7	302.8
94.00	Appurtenance(s)	1.00	1.25	7.595	8.35	0.00	1.207 *	1.666	2.67	7.281	8.79	73.4	167.6	354.2
95.00		1.00	1.25	7.612	8.37	0.00	1.211 *	1.667	1.00	2.706	3.28	27.4	62.6	131.9
100.00	Appurtenance(s)	1.00	1.27	7.695	8.46	0.00	1.217 *	1.676	5.00	13.342	16.23	137.4	306.6	647.4
105.00		1.00	1.28	7.774	8.55	0.00	1.227 *	1.684	5.00	13.021	15.98	136.7	300.1	631.4
110.00	Appurtenance(s)	1.00	1.29	7.851	8.64	0.00	1.239 *	1.692	5.00	12.699	15.73	135.8	293.4	615.3
115.00		1.00	1.30	7.925	8.72	0.00	1.251 *	1.699	5.00	12.376	15.48	134.9	286.6	599.1
120.00	Top - Section 3	1.00	1.32	7.996	8.80	0.00	1.263 *	1.707	5.00	12.054	15.23	133.9	279.7	582.7
125.00		1.00	1.33	8.065	8.87	0.00	1.440 *	1.714	5.00	8.928	12.86	114.1	206.4	491.0
129.00	Appurtenance(s)	1.00	1.34	8.119	8.93	0.00	1.440 *	1.719	4.00	7.146	10.29	91.9	165.7	393.4
130.00	Appurtenance(s)	1.00	1.34	8.132	8.95	0.00	1.200	1.720	1.00	1.787	2.14	19.2	41.5	98.4
								<b>Totals:</b>	<b>130.00</b>			<b>3,586.6</b>		<b>23,647.1</b>

\* Cf Adjusted by Linear Load Ra Effect

## Discrete Appurtenance Forces

<b>Structure:</b> CT13064-A-SBA	<b>Code:</b> EIA/TIA-222-G	9/14/2016
<b>Site Name:</b> Middletown 2, CT	<b>Exposure:</b> C	
<b>Height:</b> 130.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II

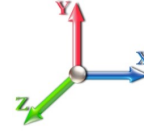


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**Load Case:** 1.2D + 1.0Di + 1.0Wi 50 mph Wind

**Iterations** 22

**Dead Load Factor** 1.20  
**Wind Load Factor** 1.00



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	130.00	6' Lightning rod	1	8.132	8.945	1.00	1.00	1.45	38.28	0.000	0.000	12.99	0.00	0.00
2	129.00	DTMABP7819VG12A	3	8.132	8.945	0.56	0.90	3.18	122.63	0.000	1.000	28.42	0.00	28.42
3	129.00	RRUS-32	3	8.132	8.945	0.64	0.90	7.85	611.83	0.000	1.000	70.19	0.00	70.19
4	129.00	RRUS 11	3	8.132	8.945	0.69	0.90	6.57	445.21	0.000	1.000	58.78	0.00	58.78
5	129.00	DC6-48-60-18-8F	2	8.132	8.945	1.00	1.00	4.32	-76.20	0.000	1.000	38.63	0.00	38.63
6	129.00	P65-16-XLH-RR	3	8.132	8.945	0.78	1.00	25.55	536.94	0.000	1.000	228.59	0.00	228.59
7	129.00	MTC3607 Platform + HR	1	8.119	8.931	1.00	1.00	89.38	4780.06	0.000	0.000	798.25	0.00	0.00
8	129.00	OPA-65R-LCUU-H6	3	8.132	8.945	0.77	1.00	25.42	971.12	0.000	1.000	227.39	0.00	227.39
9	129.00	RRUS 32 B2	3	8.132	8.945	0.60	0.90	4.02	419.78	0.000	1.000	35.93	0.00	35.93
10	129.00	QS66512-2	3	8.132	8.945	0.80	1.00	22.58	1069.48	0.000	1.000	201.98	0.00	201.98
11	110.00	T-Arm (Round)	3	7.851	8.636	0.56	0.75	24.92	1760.61	0.000	0.000	215.21	0.00	0.00
12	110.00	DB-T1-6Z-8AB-0Z	2	7.851	8.636	0.80	0.80	9.03	322.52	0.000	0.000	78.00	0.00	0.00
13	110.00	B4 RRH2X60-4R	3	7.851	8.636	0.54	0.80	6.72	388.05	0.000	0.000	58.00	0.00	0.00
14	110.00	B13 RRH4X30-4R	3	7.851	8.636	0.54	0.80	4.49	341.19	0.000	0.000	38.79	0.00	0.00
15	110.00	RRH2X60-1900A-4R	3	7.851	8.636	0.54	0.80	3.99	364.99	0.000	0.000	34.48	0.00	0.00
16	110.00	CBC721-DF	3	7.836	8.619	0.54	0.80	1.50	35.51	0.000	-1.000	12.95	0.00	-12.95
17	110.00	CBC721-DF	3	7.866	8.652	0.54	0.80	1.50	35.51	0.000	1.000	13.00	0.00	13.00
18	110.00	SBNHH-1D65B	6	7.851	8.636	0.66	0.80	37.07	1462.67	0.000	0.000	320.12	0.00	0.00
19	100.00	LNx-6515DS-A1M	3	7.695	8.464	0.67	0.80	29.45	653.11	0.000	0.000	249.26	0.00	0.00
20	100.00	AIR 21, 1.3M, B2A B4P	3	7.695	8.464	0.66	0.80	14.22	812.18	0.000	0.000	120.40	0.00	0.00
21	100.00	AIR 21, 1.3M, B4A B2P	3	7.695	8.464	0.66	0.80	14.22	808.22	0.000	0.000	120.40	0.00	0.00
22	100.00	782 11056	3	7.695	8.464	0.66	0.80	0.81	7.02	0.000	0.000	6.84	0.00	0.00
23	100.00	T-Arm (Round)	3	7.695	8.464	0.56	0.75	24.81	1753.86	0.000	0.000	210.02	0.00	0.00
24	94.00	1'4"x6.5"x6" Surge	1	7.595	8.355	0.80	0.80	2.49	143.60	0.000	0.000	20.80	0.00	0.00
25	89.50	T-Arm (Round)	3	7.517	8.269	0.56	0.75	24.69	1746.10	0.000	0.000	204.14	0.00	0.00
26	89.50	VHLP800-11	1	7.538	8.292	1.00	1.00	10.05	172.21	2.231	1.200	83.34	185.96	100.01
27	89.50	VHLP2-18-1WH	1	7.540	8.294	1.00	1.00	5.90	102.13	2.231	1.300	48.96	109.24	63.64
28	89.50	SPI-2213 RRH	3	7.544	8.298	0.62	0.80	5.08	206.81	0.000	1.500	42.12	0.00	63.18
29	89.50	840 10054	3	7.544	8.298	0.51	0.80	9.49	293.78	0.000	1.500	78.75	0.00	118.12
<b>Totals:</b>								<b>20,329.23</b>			<b>3,656.75</b>			

## Total Applied Force Summary

<b>Structure:</b> CT13064-A-SBA	<b>Code:</b> EIA/TIA-222-G	9/14/2016
<b>Site Name:</b> Middletown 2, CT	<b>Exposure:</b> C	
<b>Height:</b> 130.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II



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

**Dead Load Factor** 1.20  
**Wind Load Factor** 1.00



**Iterations** 22

Elev (ft)	Description	Lateral FX (-) (lb)	Axial FY (-) (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)
0.00		0.00	0.00	0.00	0.00
5.00		128.61	1582.95	0.00	0.00
8.50		88.96	1115.00	0.00	0.00
10.00		37.83	477.55	0.00	0.00
15.00		124.94	1597.48	0.00	0.00
20.00		130.44	1591.37	0.00	0.00
20.50		12.98	158.35	0.00	0.00
25.00		121.26	1422.78	0.00	0.00
30.00		138.52	1569.55	0.00	0.00
35.00		141.44	1555.76	0.00	0.00
40.00		143.76	1540.68	0.00	0.00
40.50		14.31	153.20	0.00	0.00
43.33		81.96	865.10	0.00	0.00
45.00		48.95	701.86	0.00	0.00
48.00		88.83	1255.08	0.00	0.00
50.00		59.09	550.76	0.00	0.00
55.00		149.46	1366.28	0.00	0.00
60.00		150.32	1351.31	0.00	0.00
60.75		22.44	201.55	0.00	0.00
65.00		128.18	1134.67	0.00	0.00
70.00		151.36	1319.96	0.00	0.00
75.00		151.59	1303.69	0.00	0.00
78.50		105.93	903.15	0.00	0.00
80.00		45.27	384.80	0.00	0.00
85.00		140.69	1235.03	0.00	0.00
87.42		66.37	587.04	0.00	0.00
89.50	(11) attachments	515.03	3174.57	295.20	344.96
90.00		13.81	155.54	0.00	0.00
91.33		36.85	413.35	0.00	0.00
94.00	(1) attachments	94.22	719.11	0.00	0.00
95.00		27.43	214.91	0.00	0.00
100.00	(15) attachments	844.33	5097.95	0.00	0.00
105.00		136.67	1004.51	0.00	0.00
110.00	(26) attachments	906.39	5700.39	0.00	0.05
115.00		134.92	885.92	0.00	0.00
120.00		133.93	870.43	0.00	0.00
125.00		114.06	779.52	0.00	0.00
129.00	(24) attachments	1780.07	9505.56	0.00	889.92
130.00	(1) attachments	32.17	136.66	0.00	0.00
<b>Totals:</b>		<b>7,243.37</b>	<b>54,583.37</b>	<b>295.20</b>	<b>1,234.93</b>

## Linear Appurtenance Segment Forces (Factored)

<b>Structure:</b> CT13064-A-SBA	<b>Code:</b> EIA/TIA-222-G	9/14/2016
<b>Site Name:</b> Middletown 2, CT	<b>Exposure:</b> C	
<b>Height:</b> 130.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II



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

**Dead Load Factor** 1.20  
**Wind Load Factor** 1.00



**Iterations** 22

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	0.645" DC	Yes	5.00	0.000	0.00	0.00	0.00	0.094	0.000	5.168	0.00	32.29
5.00	1.496" Fiber	Yes	5.00	0.000	0.00	0.00	0.00	0.094	0.000	5.168	0.00	32.87
5.00	3" Conduit	Yes	5.00	0.000	3.00	2.29	0.00	0.094	0.000	5.168	0.00	96.20
5.00	1" Reinforcing plate	Yes	5.00	0.000	1.00	1.45	0.00	0.094	0.000	5.168	0.00	30.41
8.50	0.645" DC	Yes	3.50	0.000	0.00	0.00	0.00	0.095	0.000	5.168	0.00	23.82
8.50	1.496" Fiber	Yes	3.50	0.000	0.00	0.00	0.00	0.095	0.000	5.168	0.00	24.30
8.50	3" Conduit	Yes	3.50	0.000	3.00	1.64	0.00	0.095	0.000	5.168	0.00	69.74
8.50	1" Reinforcing plate	Yes	3.50	0.000	1.00	1.06	0.00	0.095	0.000	5.168	0.00	22.77
10.00	0.645" DC	Yes	1.50	0.000	0.00	0.00	0.00	0.096	0.000	5.168	0.00	10.38
10.00	1.496" Fiber	Yes	1.50	0.000	0.00	0.00	0.00	0.096	0.000	5.168	0.00	10.59
10.00	3" Conduit	Yes	1.50	0.000	3.00	0.71	0.00	0.096	0.000	5.168	0.00	30.22
10.00	1" Reinforcing plate	Yes	1.50	0.000	1.00	0.46	0.00	0.096	0.000	5.168	0.00	9.96
15.00	0.645" DC	Yes	5.00	0.000	0.00	0.00	0.00	0.097	0.000	5.168	0.00	36.06
15.00	1.496" Fiber	Yes	5.00	0.000	0.00	0.00	0.00	0.097	0.000	5.168	0.00	36.86
15.00	3" Conduit	Yes	5.00	0.000	3.00	2.41	0.00	0.097	0.000	5.168	0.00	103.57
15.00	1" Reinforcing plate	Yes	5.00	0.000	1.00	1.57	0.00	0.097	0.000	5.168	0.00	34.97
20.00	0.645" DC	Yes	5.00	0.000	0.00	0.00	0.00	0.099	0.000	5.483	0.00	37.17
20.00	1.496" Fiber	Yes	5.00	0.000	0.00	0.00	0.00	0.099	0.000	5.483	0.00	38.02
20.00	3" Conduit	Yes	5.00	0.000	3.00	2.44	0.00	0.099	0.000	5.483	0.00	105.68
20.00	1" Reinforcing plate	Yes	5.00	0.000	1.00	1.61	0.00	0.099	0.000	5.483	0.00	36.30
20.50	0.645" DC	Yes	0.50	0.000	0.00	0.00	0.00	0.100	0.000	5.512	0.00	3.73
20.50	1.496" Fiber	Yes	0.50	0.000	0.00	0.00	0.00	0.100	0.000	5.512	0.00	3.81
20.50	3" Conduit	Yes	0.50	0.000	3.00	0.24	0.00	0.100	0.000	5.512	0.00	10.59
20.50	1" Reinforcing plate	Yes	0.50	0.000	1.00	0.16	0.00	0.100	0.000	5.512	0.00	3.64
25.00	0.645" DC	Yes	4.50	0.000	0.00	0.00	0.00	0.101	1.003	5.747	0.00	34.25
25.00	1.496" Fiber	Yes	4.50	0.000	0.00	0.00	0.00	0.101	1.003	5.747	0.00	35.07
25.00	3" Conduit	Yes	4.50	0.000	3.00	2.22	0.00	0.101	1.003	5.747	0.00	96.63
25.00	1" Reinforcing plate	Yes	4.50	0.000	1.00	1.47	0.00	0.101	1.003	5.747	0.00	33.63
30.00	0.645" DC	Yes	5.00	0.000	0.00	0.00	0.00	0.103	1.009	5.972	0.00	38.81
30.00	1.496" Fiber	Yes	5.00	0.000	0.00	0.00	0.00	0.103	1.009	5.972	0.00	39.76
30.00	3" Conduit	Yes	5.00	0.000	3.00	2.49	0.00	0.103	1.009	5.972	0.00	108.79
30.00	1" Reinforcing plate	Yes	5.00	0.000	1.00	1.65	0.00	0.103	1.009	5.972	0.00	38.27
35.00	0.645" DC	Yes	5.00	0.000	0.00	0.00	0.00	0.105	1.016	6.169	0.00	39.47
35.00	1.496" Fiber	Yes	5.00	0.000	0.00	0.00	0.00	0.105	1.016	6.169	0.00	40.45
35.00	3" Conduit	Yes	5.00	0.000	3.00	2.51	0.00	0.105	1.016	6.169	0.00	110.02
35.00	1" Reinforcing plate	Yes	5.00	0.000	1.00	1.67	0.00	0.105	1.016	6.169	0.00	39.05
40.00	0.645" DC	Yes	5.00	0.000	0.00	0.00	0.00	0.107	1.022	6.345	0.00	40.05
40.00	1.496" Fiber	Yes	5.00	0.000	0.00	0.00	0.00	0.107	1.022	6.345	0.00	41.06
40.00	3" Conduit	Yes	5.00	0.000	3.00	2.52	0.00	0.107	1.022	6.345	0.00	111.11
40.00	1" Reinforcing plate	Yes	5.00	0.000	1.00	1.69	0.00	0.107	1.022	6.345	0.00	39.74
40.50	0.645" DC	Yes	0.50	0.000	0.00	0.00	0.00	0.109	1.026	6.362	0.00	4.01
40.50	1.496" Fiber	Yes	0.50	0.000	0.00	0.00	0.00	0.109	1.026	6.362	0.00	4.11
40.50	3" Conduit	Yes	0.50	0.000	3.00	0.25	0.00	0.109	1.026	6.362	0.00	11.12
40.50	1" Reinforcing plate	Yes	0.50	0.000	1.00	0.17	0.00	0.109	1.026	6.362	0.00	3.98
43.33	0.645" DC	Yes	2.83	0.000	0.00	0.00	0.00	0.109	1.028	6.453	0.00	22.90
43.33	1.496" Fiber	Yes	2.83	0.000	0.00	0.00	0.00	0.109	1.028	6.453	0.00	23.48
43.33	3" Conduit	Yes	2.83	0.000	3.00	1.44	0.00	0.109	1.028	6.453	0.00	63.34

## Linear Appurtenance Segment Forces (Factored)

<b>Structure:</b> CT13064-A-SBA	<b>Code:</b> EIA/TIA-222-G	9/14/2016
<b>Site Name:</b> Middletown 2, CT	<b>Exposure:</b> C	
<b>Height:</b> 130.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II



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

**Dead Load Factor** 1.20  
**Wind Load Factor** 1.00



**Iterations** 22

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)
43.33	1" Reinforcing plate	Yes	2.83	0.000	1.00	0.96	0.00	0.109	1.028	6.453	0.00	22.76
45.00	0.645" DC	Yes	1.67	0.000	0.00	0.00	0.00	0.111	1.032	6.504	0.00	13.52
45.00	1.496" Fiber	Yes	1.67	0.000	0.00	0.00	0.00	0.111	1.032	6.504	0.00	13.87
45.00	3" Conduit	Yes	1.67	0.000	3.00	0.85	0.00	0.111	1.032	6.504	0.00	37.36
45.00	1" Reinforcing plate	Yes	1.67	0.000	1.00	0.57	0.00	0.111	1.032	6.504	0.00	13.45
48.00	0.645" DC	Yes	3.00	0.000	0.00	0.00	0.00	0.112	1.035	6.593	0.00	24.52
48.00	1.496" Fiber	Yes	3.00	0.000	0.00	0.00	0.00	0.112	1.035	6.593	0.00	25.15
48.00	3" Conduit	Yes	3.00	0.000	3.00	1.53	0.00	0.112	1.035	6.593	0.00	67.58
48.00	1" Reinforcing plate	Yes	3.00	0.000	1.00	1.03	0.00	0.112	1.035	6.593	0.00	24.42
50.00	0.645" DC	Yes	2.00	0.000	0.00	0.00	0.00	0.111	1.034	6.650	0.00	16.42
50.00	1.496" Fiber	Yes	2.00	0.000	0.00	0.00	0.00	0.111	1.034	6.650	0.00	16.84
50.00	3" Conduit	Yes	2.00	0.000	3.00	1.02	0.00	0.111	1.034	6.650	0.00	45.19
50.00	1" Reinforcing plate	Yes	2.00	0.000	1.00	0.69	0.00	0.111	1.034	6.650	0.00	16.37
55.00	0.645" DC	Yes	5.00	0.000	0.00	0.00	0.00	0.113	1.039	6.785	0.00	41.49
55.00	1.496" Fiber	Yes	5.00	0.000	0.00	0.00	0.00	0.113	1.039	6.785	0.00	42.57
55.00	3" Conduit	Yes	5.00	0.000	3.00	2.57	0.00	0.113	1.039	6.785	0.00	113.78
55.00	1" Reinforcing plate	Yes	5.00	0.000	1.00	1.73	0.00	0.113	1.039	6.785	0.00	41.45
60.00	0.645" DC	Yes	5.00	0.000	0.00	0.00	0.00	0.116	1.047	6.910	0.00	41.90
60.00	1.496" Fiber	Yes	5.00	0.000	0.00	0.00	0.00	0.116	1.047	6.910	0.00	43.00
60.00	3" Conduit	Yes	5.00	0.000	3.00	2.58	0.00	0.116	1.047	6.910	0.00	114.53
60.00	1" Reinforcing plate	Yes	5.00	0.000	1.00	1.74	0.00	0.116	1.047	6.910	0.00	41.93
60.75	0.645" DC	Yes	0.75	0.000	0.00	0.00	0.00	0.117	1.051	6.928	0.00	6.29
60.75	1.496" Fiber	Yes	0.75	0.000	0.00	0.00	0.00	0.117	1.051	6.928	0.00	6.46
60.75	3" Conduit	Yes	0.75	0.000	3.00	0.39	0.00	0.117	1.051	6.928	0.00	17.20
60.75	1" Reinforcing plate	Yes	0.75	0.000	1.00	0.26	0.00	0.117	1.051	6.928	0.00	6.30
65.00	0.645" DC	Yes	4.25	0.000	0.00	0.00	0.00	0.119	1.056	7.028	0.00	35.93
65.00	1.496" Fiber	Yes	4.25	0.000	0.00	0.00	0.00	0.119	1.056	7.028	0.00	36.89
65.00	3" Conduit	Yes	4.25	0.000	3.00	2.20	0.00	0.119	1.056	7.028	0.00	97.94
65.00	1" Reinforcing plate	Yes	4.25	0.000	1.00	1.49	0.00	0.119	1.056	7.028	0.00	36.02
70.00	0.645" DC	Yes	5.00	0.000	0.00	0.00	0.00	0.121	1.063	7.138	0.00	42.63
70.00	1.496" Fiber	Yes	5.00	0.000	0.00	0.00	0.00	0.121	1.063	7.138	0.00	43.77
70.00	3" Conduit	Yes	5.00	0.000	3.00	2.60	0.00	0.121	1.063	7.138	0.00	115.88
70.00	1" Reinforcing plate	Yes	5.00	0.000	1.00	1.76	0.00	0.121	1.063	7.138	0.00	42.80
75.00	0.645" DC	Yes	5.00	0.000	0.00	0.00	0.00	0.124	1.072	7.243	0.00	42.97
75.00	1.496" Fiber	Yes	5.00	0.000	0.00	0.00	0.00	0.124	1.072	7.243	0.00	44.12
75.00	3" Conduit	Yes	5.00	0.000	3.00	2.61	0.00	0.124	1.072	7.243	0.00	116.50
75.00	1" Reinforcing plate	Yes	5.00	0.000	1.00	1.77	0.00	0.124	1.072	7.243	0.00	43.20
78.50	0.645" DC	Yes	3.50	0.000	0.00	0.00	0.00	0.127	1.080	7.313	0.00	30.23
78.50	1.496" Fiber	Yes	3.50	0.000	0.00	0.00	0.00	0.127	1.080	7.313	0.00	31.05
78.50	3" Conduit	Yes	3.50	0.000	3.00	1.83	0.00	0.127	1.080	7.313	0.00	81.83
78.50	1" Reinforcing plate	Yes	3.50	0.000	1.00	1.25	0.00	0.127	1.080	7.313	0.00	30.42
80.00	0.645" DC	Yes	1.50	0.000	0.00	0.00	0.00	0.128	1.085	7.342	0.00	12.99
80.00	1.496" Fiber	Yes	1.50	0.000	0.00	0.00	0.00	0.128	1.085	7.342	0.00	13.34
80.00	3" Conduit	Yes	1.50	0.000	3.00	0.78	0.00	0.128	1.085	7.342	0.00	35.12
80.00	1" Reinforcing plate	Yes	1.50	0.000	1.00	0.53	0.00	0.128	1.085	7.342	0.00	13.07
85.00	0.645" DC	Yes	5.00	0.000	0.00	0.00	0.00	0.104	1.013	7.436	0.00	43.58
85.00	1.496" Fiber	Yes	5.00	0.000	0.00	0.00	0.00	0.104	1.013	7.436	0.00	44.77

## Linear Appurtenance Segment Forces (Factored)

<b>Structure:</b> CT13064-A-SBA	<b>Code:</b> EIA/TIA-222-G	9/14/2016
<b>Site Name:</b> Middletown 2, CT	<b>Exposure:</b> C	
<b>Height:</b> 130.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II



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

**Dead Load Factor** 1.20  
**Wind Load Factor** 1.00



**Iterations** 22

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)
85.00	3" Conduit	Yes	5.00	0.000	3.00	2.62	0.00	0.104	1.013	7.436	0.00	117.62
85.00	1" Reinforcing plate	Yes	1.00	0.000	1.00	0.36	0.00	0.104	1.013	7.436	0.00	8.79
87.42	0.645" DC	Yes	2.42	0.000	0.00	0.00	0.00	0.100	0.000	7.480	0.00	21.13
87.42	1.496" Fiber	Yes	2.42	0.000	0.00	0.00	0.00	0.100	0.000	7.480	0.00	21.71
87.42	3" Conduit	Yes	2.42	0.000	3.00	1.27	0.00	0.100	0.000	7.480	0.00	56.98
89.50	0.645" DC	Yes	2.08	0.000	0.00	0.00	0.00	0.101	1.003	7.517	0.00	18.27
89.50	1.496" Fiber	Yes	2.08	0.000	0.00	0.00	0.00	0.101	1.003	7.517	0.00	18.77
89.50	3" Conduit	Yes	2.08	0.000	3.00	1.10	0.00	0.101	1.003	7.517	0.00	49.21
90.00	0.645" DC	Yes	0.50	0.000	0.00	0.00	0.00	0.102	1.005	7.526	0.00	4.39
90.00	1.496" Fiber	Yes	0.50	0.000	0.00	0.00	0.00	0.102	1.005	7.526	0.00	4.51
90.00	3" Conduit	Yes	0.50	0.000	3.00	0.26	0.00	0.102	1.005	7.526	0.00	11.81
91.33	0.645" DC	Yes	1.33	0.000	0.00	0.00	0.00	0.102	1.006	7.549	0.00	11.72
91.33	1.496" Fiber	Yes	1.33	0.000	0.00	0.00	0.00	0.102	1.006	7.549	0.00	12.04
91.33	3" Conduit	Yes	1.33	0.000	3.00	0.70	0.00	0.102	1.006	7.549	0.00	31.54
94.00	0.645" DC	Yes	2.67	0.000	0.00	0.00	0.00	0.102	1.006	7.595	0.00	23.52
94.00	1.496" Fiber	Yes	2.67	0.000	0.00	0.00	0.00	0.102	1.006	7.595	0.00	24.16
94.00	3" Conduit	Yes	2.67	0.000	3.00	1.41	0.00	0.102	1.006	7.595	0.00	63.22
95.00	0.645" DC	Yes	1.00	0.000	0.00	0.00	0.00	0.103	1.009	7.612	0.00	8.83
95.00	1.496" Fiber	Yes	1.00	0.000	0.00	0.00	0.00	0.103	1.009	7.612	0.00	9.07
95.00	3" Conduit	Yes	1.00	0.000	3.00	0.53	0.00	0.103	1.009	7.612	0.00	23.73
100.00	0.645" DC	Yes	5.00	0.000	0.00	0.00	0.00	0.105	1.014	7.695	0.00	44.41
100.00	1.496" Fiber	Yes	5.00	0.000	0.00	0.00	0.00	0.105	1.014	7.695	0.00	45.63
100.00	3" Conduit	Yes	5.00	0.000	3.00	2.65	0.00	0.105	1.014	7.695	0.00	119.12
105.00	0.645" DC	Yes	5.00	0.000	0.00	0.00	0.00	0.108	1.023	7.774	0.00	44.66
105.00	1.496" Fiber	Yes	5.00	0.000	0.00	0.00	0.00	0.108	1.023	7.774	0.00	45.89
105.00	3" Conduit	Yes	5.00	0.000	3.00	2.65	0.00	0.108	1.023	7.774	0.00	119.57
110.00	0.645" DC	Yes	5.00	0.000	0.00	0.00	0.00	0.111	1.032	7.851	0.00	44.90
110.00	1.496" Fiber	Yes	5.00	0.000	0.00	0.00	0.00	0.111	1.032	7.851	0.00	46.15
110.00	3" Conduit	Yes	5.00	0.000	3.00	2.66	0.00	0.111	1.032	7.851	0.00	120.01
115.00	0.645" DC	Yes	5.00	0.000	0.00	0.00	0.00	0.114	1.042	7.925	0.00	45.13
115.00	1.496" Fiber	Yes	5.00	0.000	0.00	0.00	0.00	0.114	1.042	7.925	0.00	46.39
115.00	3" Conduit	Yes	5.00	0.000	3.00	2.67	0.00	0.114	1.042	7.925	0.00	120.43
120.00	0.645" DC	Yes	5.00	0.000	0.00	0.00	0.00	0.118	1.053	7.996	0.00	45.36
120.00	1.496" Fiber	Yes	5.00	0.000	0.00	0.00	0.00	0.118	1.053	7.996	0.00	46.63
120.00	3" Conduit	Yes	5.00	0.000	3.00	2.67	0.00	0.118	1.053	7.996	0.00	120.83
125.00	0.645" DC	Yes	5.00	0.000	0.00	0.00	0.00	0.167	1.200	8.065	0.00	45.57
125.00	1.496" Fiber	Yes	5.00	0.000	0.00	0.00	0.00	0.167	1.200	8.065	0.00	46.85
125.00	3" Conduit	Yes	5.00	0.000	3.00	2.68	0.00	0.167	1.200	8.065	0.00	121.22
129.00	0.645" DC	Yes	4.00	0.000	0.00	0.00	0.00	0.167	1.200	8.119	0.00	36.59
129.00	1.496" Fiber	Yes	4.00	0.000	0.00	0.00	0.00	0.167	1.200	8.119	0.00	37.62
129.00	3" Conduit	Yes	4.00	0.000	3.00	2.15	0.00	0.167	1.200	8.119	0.00	97.22
<b>Totals:</b>											<b>0.0</b>	<b>5,733.6</b>

## Calculated Forces

<b>Structure:</b> CT13064-A-SBA	<b>Code:</b> EIA/TIA-222-G	<b>9/14/2016</b>
<b>Site Name:</b> Middletown 2, CT	<b>Exposure:</b> C	
<b>Height:</b> 130.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II

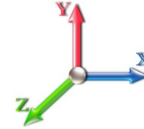


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**Load Case:** 1.2D + 1.0Di + 1.0Wi 50 mph Wind

**Iterations** 22

**Dead Load Factor** 1.20  
**Wind Load Factor** 1.00



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	-54.58	-7.27	-0.29	-708.10	0.00	708.10	2818.94	1409.47	4888.80	2448.04	0.00	0.000	0.000	0.146
5.00	-52.99	-7.18	-0.29	-671.76	0.00	671.76	2786.10	1393.05	4742.28	2374.66	0.03	-0.049	0.000	0.141
8.50	-51.87	-7.11	-0.29	-646.65	0.00	646.65	2762.70	1381.35	4640.25	2323.57	0.08	-0.084	0.000	0.208
10.00	-51.39	-7.12	-0.29	-635.98	0.00	635.98	2752.56	1376.28	4596.67	2301.75	0.11	-0.106	0.000	0.206
15.00	-49.78	-7.05	-0.29	-600.40	0.00	600.40	2718.29	1359.15	4452.05	2229.33	0.26	-0.180	0.000	0.200
20.00	-48.19	-6.95	-0.29	-565.15	0.00	565.15	2683.32	1341.66	4308.48	2157.44	0.48	-0.253	0.000	0.193
20.50	-48.03	-6.97	-0.29	-561.67	0.00	561.67	2679.78	1339.89	4294.19	2150.28	0.51	-0.260	0.000	0.192
25.00	-46.60	-6.89	-0.29	-530.33	0.00	530.33	2647.62	1323.81	4166.04	2086.12	0.79	-0.326	0.000	0.186
30.00	-45.02	-6.80	-0.29	-495.87	0.00	495.87	2611.22	1305.61	4024.80	2015.39	1.17	-0.397	0.000	0.179
35.00	-43.46	-6.70	-0.29	-461.87	0.00	461.87	2574.10	1287.05	3884.82	1945.30	1.62	-0.468	0.000	0.172
40.00	-41.91	-6.57	-0.29	-428.38	0.00	428.38	2536.26	1268.13	3746.17	1875.87	2.15	-0.537	0.000	0.164
40.50	-41.76	-6.57	-0.29	-425.09	0.00	425.09	2532.44	1266.22	3732.38	1868.96	2.20	-0.544	0.000	0.163
43.33	-40.89	-6.50	-0.29	-406.48	0.00	406.48	2510.64	1255.32	3654.51	1829.97	2.54	-0.583	0.000	0.159
45.00	-40.18	-6.47	-0.29	-395.64	0.00	395.64	2497.71	1248.86	3608.92	1807.14	2.75	-0.606	-0.001	0.155
48.00	-38.93	-6.39	-0.29	-376.23	0.00	376.23	1854.44	927.22	2691.60	1347.80	3.14	-0.646	-0.001	0.165
50.00	-38.37	-6.36	-0.30	-363.46	0.00	363.46	1844.56	922.28	2653.53	1328.74	3.42	-0.672	-0.001	0.180
55.00	-37.00	-6.23	-0.30	-331.68	0.00	331.68	1819.35	909.68	2558.78	1281.29	4.16	-0.744	-0.001	0.169
60.00	-35.64	-6.09	-0.30	-300.50	0.00	300.50	1793.44	896.72	2464.66	1234.16	4.98	-0.812	-0.001	0.158
60.75	-35.44	-6.09	-0.30	-295.94	0.00	295.94	1789.49	894.74	2450.61	1227.12	5.10	-0.823	-0.001	0.156
65.00	-34.30	-5.98	-0.30	-270.07	0.00	270.07	1766.81	883.40	2371.26	1187.39	5.86	-0.878	-0.001	0.147
70.00	-32.98	-5.84	-0.30	-240.19	0.00	240.19	1739.46	869.73	2278.63	1141.01	6.82	-0.941	-0.001	0.135
75.00	-31.67	-5.69	-0.30	-211.00	0.00	211.00	1711.40	855.70	2186.84	1095.05	7.83	-1.000	-0.001	0.123
78.50	-30.77	-5.58	-0.30	-191.08	0.00	191.08	1691.33	845.67	2123.13	1063.14	8.58	-1.039	-0.001	0.114
78.50	-30.77	-5.58	-0.30	-191.08	0.00	191.08	1691.33	845.67	2123.13	1063.14	8.58	-1.039	-0.001	0.114
80.00	-30.38	-5.56	-0.30	-182.70	0.00	182.70	1682.63	841.31	2095.97	1049.54	8.91	-1.055	-0.001	0.192
85.00	-29.14	-5.43	-0.30	-154.90	0.00	154.90	1653.14	826.57	2006.08	1004.53	10.06	-1.141	-0.001	0.172
87.42	-28.55	-5.37	-0.30	-141.78	0.00	141.78	1638.63	819.32	1963.01	982.97	10.65	-1.180	-0.002	0.162
89.50	-25.39	-4.79	0.00	-130.26	0.00	130.26	1625.99	812.99	1926.09	964.47	11.17	-1.213	-0.002	0.151
90.00	-25.23	-4.78	0.00	-127.86	0.00	127.86	1622.94	811.47	1917.25	960.05	11.30	-1.220	-0.002	0.149
91.33	-24.82	-4.75	0.00	-121.48	0.00	121.48	1099.39	549.70	1312.06	657.00	11.64	-1.240	-0.002	0.208
94.00	-24.10	-4.65	0.00	-108.81	0.00	108.81	1090.71	545.35	1282.99	642.45	12.35	-1.277	-0.002	0.192
95.00	-23.88	-4.64	0.00	-104.16	0.00	104.16	1087.40	543.70	1272.11	637.00	12.62	-1.295	-0.002	0.186
100.00	-18.80	-3.70	0.00	-80.97	0.00	80.97	1070.43	535.22	1217.83	609.82	14.01	-1.371	-0.002	0.150
105.00	-17.79	-3.56	0.00	-62.47	0.00	62.47	1052.74	526.37	1163.86	582.80	15.48	-1.435	-0.002	0.124
110.00	-12.12	-2.51	0.00	-44.68	0.00	44.68	1034.34	517.17	1110.26	555.96	17.02	-1.487	-0.002	0.092
115.00	-11.23	-2.36	0.00	-32.11	0.00	32.11	1015.23	507.62	1057.10	529.34	18.60	-1.528	-0.002	0.072
120.00	-10.37	-2.21	0.00	-20.29	0.00	20.29	995.40	497.70	1004.45	502.97	20.21	-1.558	-0.002	0.051
120.00	-10.37	-2.21	0.00	-20.29	0.00	20.29	735.22	367.61	535.89	335.79	20.21	-1.558	-0.002	0.075
125.00	-9.59	-2.08	0.00	-9.24	0.00	9.24	735.22	367.61	535.89	335.79	21.86	-1.577	-0.002	0.041
129.00	-0.14	-0.04	0.00	-0.04	0.00	0.04	735.22	367.61	535.89	335.79	23.19	-1.588	-0.002	0.000
130.00	0.00	-0.03	0.00	0.00	0.00	0.00	735.22	367.61	535.89	335.79	23.52	-1.588	-0.002	0.000

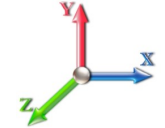


## Seismic Segment Forces (Factored)

<b>Structure:</b> CT13064-A-SBA	<b>Code:</b> EIA/TIA-222-G	9/14/2016
<b>Site Name:</b> Middletown 2, CT	<b>Exposure:</b> C	
<b>Height:</b> 130.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II



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<b>Load Case: 1.2D + 1.0E</b>						<b>Iterations</b> 21
<b>Gust Response Factor</b>	1.10			<b>Sds</b>	0.19	<b>Ss</b> 0.18
<b>Dead Load Factor</b>	1.20	<b>Seismic Load Factor</b>	1.00	<b>Sd1</b>	0.10	<b>S1</b> 0.06
<b>Wind Load Factor</b>	0.00	<b>Structure Frequency</b>	0.31	<b>SA</b>	0.03	<b>Seismic Importance Factor</b> 1.00

Top Elev (ft)	Description	Wz (lb)	a	b	c	Lateral Fs (lb)	R: 1.50
0.00	RB1 RB2	0.00	0.00	0.00	0.00	0.00	
5.00		705.36	0.00	0.04	0.02	15.24	
8.50	RT2	485.96	0.01	0.05	0.03	13.65	
10.00		206.30	0.01	0.06	0.03	6.17	
15.00		679.16	0.03	0.07	0.04	22.76	
20.00		666.06	0.04	0.07	0.04	23.49	
20.50	RT1 RB3	65.88	0.05	0.07	0.04	2.33	
25.00		587.07	0.07	0.07	0.04	21.36	
30.00		639.85	0.10	0.07	0.04	23.93	
35.00		626.75	0.14	0.07	0.03	24.08	
40.00		613.65	0.18	0.07	0.03	24.00	
40.50	RT3 RB4	60.64	0.18	0.06	0.03	2.37	
43.33	Bot - Section 2	341.17	0.21	0.06	0.02	13.33	
45.00		360.24	0.23	0.06	0.02	13.97	
48.00	Top - Section 1	641.82	0.26	0.05	0.02	24.16	
50.00		189.76	0.28	0.05	0.01	6.89	
55.00		467.06	0.34	0.04	0.01	14.19	
60.00		456.58	0.40	0.02	0.01	9.00	
60.75	RT4 RB5	67.58	0.41	0.01	0.01	1.19	
65.00		378.52	0.47	-0.01	0.01	1.66	
70.00		435.62	0.55	-0.03	0.01	-5.69	
75.00		425.13	0.63	-0.06	0.02	-12.08	
78.50	RT5	291.36	0.69	-0.08	0.03	-10.48	
80.00		123.30	0.72	-0.09	0.03	-4.71	
85.00		404.17	0.81	-0.11	0.06	-16.59	
87.42	Bot - Section 3	191.59	0.85	-0.12	0.07	-7.64	
89.50	Appurtenance(s)	1620.7	0.90	-0.12	0.09	-60.82	
90.00		68.51	0.91	-0.12	0.09	-2.52	
91.33	Top - Section 2	181.80	0.93	-0.12	0.10	-6.27	
94.00	Appurtenance(s)	208.50	0.99	-0.11	0.13	-5.93	
95.00		57.74	1.01	-0.11	0.14	-1.48	
100.00	Appurtenance(s)	2035.9	1.12	-0.06	0.20	-16.26	
105.00		276.11	1.23	0.04	0.28	4.50	
110.00	Appurtenance(s)	2097.0	1.35	0.20	0.39	99.05	
115.00		260.39	1.48	0.45	0.52	22.12	
120.00	Top - Section 3	252.53	1.61	0.81	0.68	32.73	
125.00		237.19	1.75	1.31	0.89	43.03	
129.00	Appurtenance(s)	3844.9	1.86	1.83	1.09	877.20	
130.00	Appurtenance(s)	53.94	1.89	1.98	1.14	12.98	
<b>Totals:</b>		<b>21,306.0</b>				<b>1,204.9</b>	<b>Total Wind: 28,300.7</b>

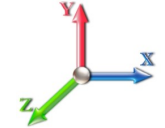
Seismic Base Shear is Less Than 50% of Wind Force - An Analysis is NOT Required

## Calculated Forces

<b>Structure:</b> CT13064-A-SBA	<b>Code:</b> EIA/TIA-222-G	9/14/2016
<b>Site Name:</b> Middletown 2, CT	<b>Exposure:</b> C	
<b>Height:</b> 130.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II



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<b>Load Case: 1.2D + 1.0E</b>							<b>Iterations</b> 21
<b>Gust Response Factor</b>	1.10			<b>Sds</b>	0.19	<b>Ss</b>	0.18
<b>Dead Load Factor</b>	1.20	<b>Seismic Load Factor</b>	1.00	<b>Sd1</b>	0.10	<b>S1</b>	0.06
<b>Wind Load Factor</b>	0.00	<b>Structure Frequency</b>	0.31	<b>SA</b>	0.03	<b>Seismic Importance Factor</b>	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	-31.70	-1.36	0.00	-152.88	0.00	152.88	2818.94	1409.47	4888.80	2448.04	0.00	0.00	0.00	0.035
5.00	-30.59	-1.35	0.00	-146.09	0.00	146.09	2786.10	1393.05	4742.28	2374.66	0.01	-0.01	0.034	
8.50	-29.82	-1.34	0.00	-141.37	0.00	141.37	2762.70	1381.35	4640.25	2323.57	0.02	-0.02	0.050	
10.00	-29.50	-1.34	0.00	-139.37	0.00	139.37	2752.56	1376.28	4596.67	2301.75	0.02	-0.02	0.049	
15.00	-28.42	-1.32	0.00	-132.69	0.00	132.69	2718.29	1359.15	4452.05	2229.33	0.06	-0.04	0.048	
20.00	-27.36	-1.30	0.00	-126.08	0.00	126.08	2683.32	1341.66	4308.48	2157.44	0.11	-0.06	0.047	
20.50	-27.25	-1.30	0.00	-125.43	0.00	125.43	2679.78	1339.89	4294.19	2150.28	0.11	-0.06	0.047	
25.00	-26.31	-1.29	0.00	-119.58	0.00	119.58	2647.62	1323.81	4166.04	2086.12	0.17	-0.07	0.046	
30.00	-25.28	-1.27	0.00	-113.14	0.00	113.14	2611.22	1305.61	4024.80	2015.39	0.26	-0.09	0.044	
35.00	-24.26	-1.25	0.00	-106.80	0.00	106.80	2574.10	1287.05	3884.82	1945.30	0.36	-0.10	0.043	
40.00	-23.27	-1.23	0.00	-100.55	0.00	100.55	2536.26	1268.13	3746.17	1875.87	0.48	-0.12	0.042	
40.50	-23.17	-1.23	0.00	-99.94	0.00	99.94	2532.44	1266.22	3732.38	1868.96	0.49	-0.12	0.042	
43.33	-22.61	-1.22	0.00	-96.46	0.00	96.46	2510.64	1255.32	3654.51	1829.97	0.56	-0.13	0.041	
45.00	-22.09	-1.20	0.00	-94.44	0.00	94.44	2497.71	1248.86	3608.92	1807.14	0.61	-0.14	0.040	
48.00	-21.16	-1.18	0.00	-90.83	0.00	90.83	1854.44	927.22	2691.60	1347.80	0.70	-0.15	0.043	
50.00	-20.83	-1.18	0.00	-88.47	0.00	88.47	1844.56	922.28	2653.53	1328.74	0.76	-0.15	0.047	
55.00	-20.00	-1.17	0.00	-82.59	0.00	82.59	1819.35	909.68	2558.78	1281.29	0.93	-0.17	0.045	
60.00	-19.19	-1.16	0.00	-76.77	0.00	76.77	1793.44	896.72	2464.66	1234.16	1.12	-0.19	0.043	
60.75	-19.07	-1.16	0.00	-75.90	0.00	75.90	1789.49	894.74	2450.61	1227.12	1.15	-0.19	0.043	
65.00	-18.39	-1.16	0.00	-70.98	0.00	70.98	1766.81	883.40	2371.26	1187.39	1.32	-0.20	0.041	
70.00	-17.61	-1.16	0.00	-65.18	0.00	65.18	1739.46	869.73	2278.63	1141.01	1.55	-0.22	0.039	
75.00	-16.84	-1.16	0.00	-59.37	0.00	59.37	1711.40	855.70	2186.84	1095.05	1.79	-0.24	0.037	
78.50	-16.30	-1.16	0.00	-55.30	0.00	55.30	1691.33	845.67	2123.13	1063.14	1.97	-0.25	0.035	
78.50	-16.30	-1.16	0.00	-55.30	0.00	55.30	1691.33	845.67	2123.13	1063.14	1.97	-0.25	0.035	
80.00	-16.07	-1.17	0.00	-53.56	0.00	53.56	1682.63	841.31	2095.97	1049.54	2.05	-0.25	0.061	
85.00	-15.33	-1.17	0.00	-47.73	0.00	47.73	1653.14	826.57	2006.08	1004.53	2.32	-0.28	0.057	
87.42	-14.97	-1.17	0.00	-44.90	0.00	44.90	1638.63	819.32	1963.01	982.97	2.47	-0.29	0.055	
89.50	-12.91	-1.16	0.00	-42.47	0.00	42.47	1625.99	812.99	1926.09	964.47	2.60	-0.30	0.052	
90.00	-12.81	-1.16	0.00	-41.89	0.00	41.89	1622.94	811.47	1917.25	960.05	2.63	-0.30	0.052	
91.33	-12.52	-1.16	0.00	-40.34	0.00	40.34	1099.39	549.70	1312.06	657.00	2.72	-0.31	0.073	
94.00	-12.13	-1.16	0.00	-37.25	0.00	37.25	1090.71	545.35	1282.99	642.45	2.89	-0.32	0.069	
95.00	-12.01	-1.16	0.00	-36.09	0.00	36.09	1087.40	543.70	1272.11	637.00	2.96	-0.33	0.068	
100.00	-9.31	-1.15	0.00	-30.27	0.00	30.27	1070.43	535.22	1217.83	609.82	3.32	-0.36	0.058	
105.00	-8.77	-1.15	0.00	-24.51	0.00	24.51	1052.74	526.37	1163.86	582.80	3.71	-0.38	0.050	
110.00	-6.04	-1.03	0.00	-18.78	0.00	18.78	1034.34	517.17	1110.26	555.96	4.12	-0.40	0.040	
115.00	-5.61	-1.01	0.00	-13.62	0.00	13.62	1015.23	507.62	1057.10	529.34	4.55	-0.42	0.031	
120.00	-5.18	-0.97	0.00	-8.58	0.00	8.58	995.40	497.70	1004.45	502.97	5.00	-0.43	0.022	
120.00	-5.18	-0.97	0.00	-8.58	0.00	8.58	735.22	367.61	535.89	335.79	5.00	-0.43	0.033	
125.00	-4.77	-0.93	0.00	-3.72	0.00	3.72	735.22	367.61	535.89	335.79	5.46	-0.44	0.018	
129.00	-0.06	-0.01	0.00	-0.01	0.00	0.01	735.22	367.61	535.89	335.79	5.83	-0.44	0.000	
130.00	0.00	-0.01	0.00	0.00	0.00	0.00	735.22	367.61	535.89	335.79	5.92	-0.44	0.000	

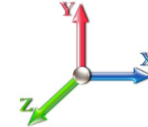
## Seismic Segment Forces (Factored)

<b>Structure:</b> CT13064-A-SBA	<b>Code:</b> EIA/TIA-222-G	9/14/2016
<b>Site Name:</b> Middletown 2, CT	<b>Exposure:</b> C	
<b>Height:</b> 130.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II



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<b>Load Case:</b> 0.9D + 1.0E					<b>Iterations</b> 21
<b>Gust Response Factor</b>	1.10			<b>Sds</b>	0.19
<b>Dead Load Factor</b>	0.90	<b>Seismic Load Factor</b>	1.00	<b>Sd1</b>	0.10
<b>Wind Load Factor</b>	0.00	<b>Structure Frequency</b>	0.31	<b>SA</b>	0.03
				<b>Seismic Importance Factor</b>	1.00



Top Elev (ft)	Description	Wz (lb)	a	b	c	Lateral Fs (lb)	R: 1.50
0.00	RB1 RB2	0.00	0.00	0.00	0.00	0.00	
5.00		705.36	0.00	0.04	0.02	15.24	
8.50	RT2	485.96	0.01	0.05	0.03	13.65	
10.00		206.30	0.01	0.06	0.03	6.17	
15.00		679.16	0.03	0.07	0.04	22.76	
20.00		666.06	0.04	0.07	0.04	23.49	
20.50	RT1 RB3	65.88	0.05	0.07	0.04	2.33	
25.00		587.07	0.07	0.07	0.04	21.36	
30.00		639.85	0.10	0.07	0.04	23.93	
35.00		626.75	0.14	0.07	0.03	24.08	
40.00		613.65	0.18	0.07	0.03	24.00	
40.50	RT3 RB4	60.64	0.18	0.06	0.03	2.37	
43.33	Bot - Section 2	341.17	0.21	0.06	0.02	13.33	
45.00		360.24	0.23	0.06	0.02	13.97	
48.00	Top - Section 1	641.82	0.26	0.05	0.02	24.16	
50.00		189.76	0.28	0.05	0.01	6.89	
55.00		467.06	0.34	0.04	0.01	14.19	
60.00		456.58	0.40	0.02	0.01	9.00	
60.75	RT4 RB5	67.58	0.41	0.01	0.01	1.19	
65.00		378.52	0.47	-0.01	0.01	1.66	
70.00		435.62	0.55	-0.03	0.01	-5.69	
75.00		425.13	0.63	-0.06	0.02	-12.08	
78.50	RT5	291.36	0.69	-0.08	0.03	-10.48	
80.00		123.30	0.72	-0.09	0.03	-4.71	
85.00		404.17	0.81	-0.11	0.06	-16.59	
87.42	Bot - Section 3	191.59	0.85	-0.12	0.07	-7.64	
89.50	Appurtenance(s)	1620.7	0.90	-0.12	0.09	-60.82	
90.00		68.51	0.91	-0.12	0.09	-2.52	
91.33	Top - Section 2	181.80	0.93	-0.12	0.10	-6.27	
94.00	Appurtenance(s)	208.50	0.99	-0.11	0.13	-5.93	
95.00		57.74	1.01	-0.11	0.14	-1.48	
100.00	Appurtenance(s)	2035.9	1.12	-0.06	0.20	-16.26	
105.00		276.11	1.23	0.04	0.28	4.50	
110.00	Appurtenance(s)	2097.0	1.35	0.20	0.39	99.05	
115.00		260.39	1.48	0.45	0.52	22.12	
120.00	Top - Section 3	252.53	1.61	0.81	0.68	32.73	
125.00		237.19	1.75	1.31	0.89	43.03	
129.00	Appurtenance(s)	3844.9	1.86	1.83	1.09	877.20	
130.00	Appurtenance(s)	53.94	1.89	1.98	1.14	12.98	
<b>Totals:</b>		<b>21,306.0</b>				<b>1,204.9</b>	<b>Total Wind: 28,300.7</b>

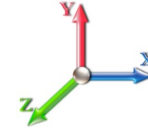
Seismic Base Shear is Less Than 50% of Wind Force - An Analysis is NOT Required

## Calculated Forces

<b>Structure:</b> CT13064-A-SBA	<b>Code:</b> EIA/TIA-222-G	9/14/2016
<b>Site Name:</b> Middletown 2, CT	<b>Exposure:</b> C	
<b>Height:</b> 130.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II



<b>Load Case: 0.9D + 1.0E</b>							<b>Iterations</b> 21
<b>Gust Response Factor</b>	1.10			<b>Sds</b>	0.19		<b>Ss</b> 0.18
<b>Dead Load Factor</b>	0.90	<b>Seismic Load Factor</b>	1.00	<b>Sd1</b>	0.10		<b>S1</b> 0.06
<b>Wind Load Factor</b>	0.00	<b>Structure Frequency</b>	0.31	<b>SA</b>	0.03	<b>Seismic Importance Factor</b>	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	-23.78	-1.36	0.00	-151.22	0.00	151.22	2818.94	1409.47	4888.80	2448.04	0.00	0.00	0.00	0.033
5.00	-22.94	-1.35	0.00	-144.43	0.00	144.43	2786.10	1393.05	4742.28	2374.66	0.01	-0.01	0.00	0.032
8.50	-22.37	-1.33	0.00	-139.72	0.00	139.72	2762.70	1381.35	4640.25	2323.57	0.02	-0.02	0.00	0.047
10.00	-22.12	-1.33	0.00	-137.72	0.00	137.72	2752.56	1376.28	4596.67	2301.75	0.02	-0.02	0.00	0.047
15.00	-21.31	-1.31	0.00	-131.07	0.00	131.07	2718.29	1359.15	4452.05	2229.33	0.06	-0.04	0.00	0.046
20.00	-20.52	-1.29	0.00	-124.49	0.00	124.49	2683.32	1341.66	4308.48	2157.44	0.10	-0.05	0.00	0.045
20.50	-20.44	-1.29	0.00	-123.85	0.00	123.85	2679.78	1339.89	4294.19	2150.28	0.11	-0.06	0.00	0.045
25.00	-19.73	-1.28	0.00	-118.02	0.00	118.02	2647.62	1323.81	4166.04	2086.12	0.17	-0.07	0.00	0.044
30.00	-18.96	-1.26	0.00	-111.64	0.00	111.64	2611.22	1305.61	4024.80	2015.39	0.25	-0.09	0.00	0.042
35.00	-18.20	-1.24	0.00	-105.35	0.00	105.35	2574.10	1287.05	3884.82	1945.30	0.35	-0.10	0.00	0.041
40.00	-17.45	-1.21	0.00	-99.17	0.00	99.17	2536.26	1268.13	3746.17	1875.87	0.47	-0.12	0.00	0.040
40.50	-17.37	-1.21	0.00	-98.56	0.00	98.56	2532.44	1266.22	3732.38	1868.96	0.48	-0.12	0.00	0.040
43.33	-16.96	-1.20	0.00	-95.12	0.00	95.12	2510.64	1255.32	3654.51	1829.97	0.56	-0.13	0.00	0.039
45.00	-16.57	-1.19	0.00	-93.12	0.00	93.12	2497.71	1248.86	3608.92	1807.14	0.60	-0.13	0.00	0.038
48.00	-15.87	-1.16	0.00	-89.55	0.00	89.55	1854.44	927.22	2691.60	1347.80	0.69	-0.14	0.00	0.041
50.00	-15.62	-1.16	0.00	-87.22	0.00	87.22	1844.56	922.28	2653.53	1328.74	0.75	-0.15	0.00	0.045
55.00	-15.00	-1.15	0.00	-81.42	0.00	81.42	1819.35	909.68	2558.78	1281.29	0.92	-0.17	0.00	0.043
60.00	-14.39	-1.14	0.00	-75.67	0.00	75.67	1793.44	896.72	2464.66	1234.16	1.10	-0.19	0.00	0.041
60.75	-14.30	-1.14	0.00	-74.82	0.00	74.82	1789.49	894.74	2450.61	1227.12	1.13	-0.19	0.00	0.041
65.00	-13.79	-1.14	0.00	-69.97	0.00	69.97	1766.81	883.40	2371.26	1187.39	1.31	-0.20	0.00	0.039
70.00	-13.21	-1.14	0.00	-64.26	0.00	64.26	1739.46	869.73	2278.63	1141.01	1.53	-0.22	0.00	0.037
75.00	-12.63	-1.14	0.00	-58.54	0.00	58.54	1711.40	855.70	2186.84	1095.05	1.76	-0.23	0.00	0.035
78.50	-12.22	-1.14	0.00	-54.54	0.00	54.54	1691.33	845.67	2123.13	1063.14	1.94	-0.25	0.00	0.034
78.50	-12.22	-1.14	0.00	-54.54	0.00	54.54	1691.33	845.67	2123.13	1063.14	1.94	-0.25	0.00	0.034
80.00	-12.05	-1.15	0.00	-52.82	0.00	52.82	1682.63	841.31	2095.97	1049.54	2.02	-0.25	0.00	0.057
85.00	-11.49	-1.15	0.00	-47.09	0.00	47.09	1653.14	826.57	2006.08	1004.53	2.29	-0.28	0.00	0.054
87.42	-11.23	-1.15	0.00	-44.31	0.00	44.31	1638.63	819.32	1963.01	982.97	2.44	-0.29	0.00	0.052
89.50	-9.68	-1.14	0.00	-41.92	0.00	41.92	1625.99	812.99	1926.09	964.47	2.56	-0.30	0.00	0.049
90.00	-9.60	-1.14	0.00	-41.35	0.00	41.35	1622.94	811.47	1917.25	960.05	2.60	-0.30	0.00	0.049
91.33	-9.39	-1.14	0.00	-39.83	0.00	39.83	1099.39	549.70	1312.06	657.00	2.68	-0.31	0.00	0.069
94.00	-9.10	-1.14	0.00	-36.78	0.00	36.78	1090.71	545.35	1282.99	642.45	2.86	-0.32	0.00	0.066
95.00	-9.01	-1.14	0.00	-35.64	0.00	35.64	1087.40	543.70	1272.11	637.00	2.92	-0.33	0.00	0.064
100.00	-6.98	-1.14	0.00	-29.91	0.00	29.91	1070.43	535.22	1217.83	609.82	3.28	-0.35	0.00	0.056
105.00	-6.58	-1.13	0.00	-24.24	0.00	24.24	1052.74	526.37	1163.86	582.80	3.66	-0.38	0.00	0.048
110.00	-4.53	-1.02	0.00	-18.58	0.00	18.58	1034.34	517.17	1110.26	555.96	4.07	-0.40	0.00	0.038
115.00	-4.20	-1.00	0.00	-13.48	0.00	13.48	1015.23	507.62	1057.10	529.34	4.49	-0.41	0.00	0.030
120.00	-3.88	-0.96	0.00	-8.49	0.00	8.49	995.40	497.70	1004.45	502.97	4.93	-0.43	0.00	0.021
120.00	-3.88	-0.96	0.00	-8.49	0.00	8.49	735.22	367.61	535.89	335.79	4.93	-0.43	0.00	0.031
125.00	-3.58	-0.92	0.00	-3.68	0.00	3.68	735.22	367.61	535.89	335.79	5.38	-0.43	0.00	0.016
129.00	-0.05	-0.01	0.00	-0.01	0.00	0.01	735.22	367.61	535.89	335.79	5.75	-0.44	0.00	0.000
130.00	0.00	-0.01	0.00	0.00	0.00	0.00	735.22	367.61	535.89	335.79	5.84	-0.44	0.00	0.000

## Wind Loading - Shaft

<b>Structure:</b> CT13064-A-SBA	<b>Code:</b> EIA/TIA-222-G	9/14/2016
<b>Site Name:</b> Middletown 2, CT	<b>Exposure:</b> C	
<b>Height:</b> 130.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II

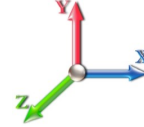


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**Load Case:** 1.0D + 1.0W 60 mph Wind

**Iterations** 22

**Dead Load Factor** 1.00  
**Wind Load Factor** 1.00



Elev (ft)	Description	Kzt	Kz	qz (psf)	qzGh (psf)	C (mph-ft)	Cf	Ice Thick (in)	Tributary (ft)	Aa (sf)	CfAa (sf)	Wind Force X (lb)	Dead Load Ice (lb)	Tot Dead Load (lb)
0.00	RB1 RB2	1.00	0.85	7.442	8.19	198.94	0.650	0.000	0.00	0.000	0.00	0.0	0.0	0.0
5.00		1.00	0.85	7.442	8.19	195.30	0.650	0.000	5.00	17.817	11.58	94.8	0.0	705.4
8.50	RT2	1.00	0.85	7.442	8.19	192.76	0.650	0.000	3.50	12.277	7.98	65.3	0.0	486.0
10.00		1.00	0.85	7.442	8.19	191.67	0.650	0.000	1.50	5.212	3.39	27.7	0.0	206.3
15.00		1.00	0.85	7.442	8.19	188.03	0.650	0.000	5.00	17.160	11.15	91.3	0.0	679.2
20.00		1.00	0.90	7.896	8.69	189.94	0.650	0.000	5.00	16.832	10.94	95.0	0.0	666.1
20.50	RT1 RB3	1.00	0.91	7.937	8.73	190.06	0.650	0.000	0.50	1.665	1.08	9.4	0.0	65.9
25.00		1.00	0.95	8.276	9.10	190.63	0.652 *	0.000	4.50	14.838	9.68	88.1	0.0	587.1
30.00		1.00	0.98	8.600	9.46	190.41	0.656 *	0.000	5.00	16.175	10.61	100.4	0.0	639.9
35.00		1.00	1.01	8.883	9.77	189.56	0.660 *	0.000	5.00	15.846	10.46	102.2	0.0	626.7
40.00		1.00	1.04	9.137	10.05	188.21	0.664 *	0.000	5.00	15.518	10.31	103.6	0.0	613.6
40.50	RT3 RB4	1.00	1.05	9.161	10.08	188.06	0.667 *	0.000	0.50	1.534	1.02	10.3	0.0	60.6
43.33	Bot - Section 2	1.00	1.06	9.292	10.22	187.10	0.668 *	0.000	2.83	8.629	5.77	59.0	0.0	341.2
45.00		1.00	1.07	9.366	10.30	186.48	0.671 *	0.000	1.67	5.097	3.42	35.2	0.0	360.2
48.00	Top - Section 1	1.00	1.08	9.494	10.44	185.29	0.673 *	0.000	3.00	9.083	6.11	63.8	0.0	641.8
50.00		1.00	1.09	9.576	10.53	187.09	0.672 *	0.000	2.00	5.989	4.03	42.4	0.0	189.8
55.00		1.00	1.12	9.770	10.75	184.82	0.675 *	0.000	5.00	14.744	9.96	107.0	0.0	467.1
60.00		1.00	1.14	9.951	10.95	182.31	0.680 *	0.000	5.00	14.415	9.81	107.4	0.0	456.6
60.75	RT4 RB5	1.00	1.14	9.977	10.97	181.92	0.683 *	0.000	0.75	2.134	1.46	16.0	0.0	67.6
65.00		1.00	1.16	10.120	11.13	179.62	0.686 *	0.000	4.25	11.953	8.20	91.3	0.0	378.5
70.00		1.00	1.17	10.279	11.31	176.75	0.691 *	0.000	5.00	13.758	9.51	107.5	0.0	435.6
75.00		1.00	1.19	10.430	11.47	173.74	0.697 *	0.000	5.00	13.430	9.36	107.4	0.0	425.1
78.50	RT5	1.00	1.20	10.530	11.58	171.55	0.702 *	0.000	3.50	9.205	6.46	74.9	0.0	291.4
80.00		1.00	1.21	10.572	11.63	170.59	0.705 *	0.000	1.50	3.896	2.75	32.0	0.0	123.3
85.00		1.00	1.22	10.708	11.78	167.32	0.659 *	0.000	5.00	12.773	8.41	99.1	0.0	404.2
87.42	Bot - Section 3	1.00	1.23	10.771	11.85	165.71	0.650	0.000	2.42	6.056	3.94	46.6	0.0	191.6
89.50	Appurtenance(s)	1.00	1.24	10.825	11.91	164.29	0.652 *	0.000	2.08	5.225	3.41	40.6	0.0	287.4
90.00		1.00	1.24	10.838	11.92	163.95	0.653 *	0.000	0.50	1.245	0.81	9.7	0.0	68.5
91.33	Top - Section 2	1.00	1.24	10.871	11.96	163.03	0.654 *	0.000	1.33	3.305	2.16	25.9	0.0	181.8
94.00	Appurtenance(s)	1.00	1.25	10.937	12.03	163.30	0.654 *	0.000	2.67	6.540	4.28	51.4	0.0	155.5
95.00		1.00	1.25	10.962	12.06	162.60	0.656 *	0.000	1.00	2.429	1.59	19.2	0.0	57.7
100.00	Appurtenance(s)	1.00	1.27	11.081	12.19	159.05	0.659 *	0.000	5.00	11.946	7.87	96.0	0.0	284.0
105.00		1.00	1.28	11.195	12.31	155.41	0.665 *	0.000	5.00	11.617	7.72	95.1	0.0	276.1
110.00	Appurtenance(s)	1.00	1.29	11.305	12.44	151.69	0.671 *	0.000	5.00	11.289	7.57	94.2	0.0	268.2
115.00		1.00	1.30	11.412	12.55	147.90	0.677 *	0.000	5.00	10.960	7.42	93.2	0.0	260.4
120.00	Top - Section 3	1.00	1.32	11.514	12.67	144.05	0.684 *	0.000	5.00	10.632	7.27	92.1	0.0	252.5
125.00		1.00	1.33	11.614	12.78	103.66	0.720 *	0.000	5.00	7.500	5.40	69.0	0.0	237.2
129.00	Appurtenance(s)	1.00	1.34	11.691	12.86	104.00	0.720 *	0.000	4.00	6.000	4.32	55.6	0.0	189.8
130.00	Appurtenance(s)	1.00	1.34	11.710	12.88	104.08	0.600	0.000	1.00	1.500	0.90	11.6	0.0	47.4
								<b>Totals:</b>	<b>130.00</b>			<b>2,531.3</b>		<b>12,677.2</b>

\* Cf Adjusted by Linear Load Ra Effect

## Discrete Appurtenance Forces

<b>Structure:</b> CT13064-A-SBA	<b>Code:</b> EIA/TIA-222-G	9/14/2016
<b>Site Name:</b> Middletown 2, CT	<b>Exposure:</b> C	
<b>Height:</b> 130.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> 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** 22

No.	Elev (ft)	Description	Qty	qz (psf)	qzGh (psf)	CaAa x Ka	Ka	Total CaAa (sf)	Dead Load (lb)	Horiz Ecc (ft)	Vert Ecc (ft)	Wind FX (lb)	Mom Y (lb-ft)	Mom Z (lb-ft)
1	130.00	6' Lightning rod	1	11.710	12.881	1.00	1.00	0.38	6.50	0.000	0.000	4.89	0.00	0.00
2	129.00	DTMABP7819VG12A	3	11.710	12.881	0.54	0.90	1.85	57.60	0.000	1.000	23.79	0.00	23.79
3	129.00	RRUS-32	3	11.710	12.881	0.63	0.90	7.31	231.00	0.000	1.000	94.22	0.00	94.22
4	129.00	RRUS 11	3	11.710	12.881	0.68	0.90	5.17	152.10	0.000	1.000	66.61	0.00	66.61
5	129.00	DC6-48-60-18-8F	2	11.710	12.881	1.00	1.00	2.94	5.54	0.000	1.000	37.87	0.00	37.87
6	129.00	P65-16-XLH-RR	3	11.710	12.881	0.78	1.00	19.09	159.00	0.000	1.000	245.96	0.00	245.96
7	129.00	MTC3607 Platform + HR	1	11.691	12.860	1.00	1.00	51.70	2246.00	0.000	0.000	664.87	0.00	0.00
8	129.00	OPA-65R-LCUU-H6	3	11.710	12.881	0.77	1.00	22.31	240.00	0.000	1.000	287.43	0.00	287.43
9	129.00	RRUS 32 B2	3	11.710	12.881	0.60	0.90	2.44	231.00	0.000	1.000	31.46	0.00	31.46
10	129.00	QS66512-2	3	11.710	12.881	0.80	1.00	17.11	333.00	0.000	1.000	220.42	0.00	220.42
11	110.00	T-Arm (Round)	3	11.305	12.436	0.56	0.75	13.50	1050.00	0.000	0.000	167.88	0.00	0.00
12	110.00	DB-T1-6Z-8AB-0Z	2	11.305	12.436	0.80	0.80	7.68	37.80	0.000	0.000	95.51	0.00	0.00
13	110.00	B4 RRH2X60-4R	3	11.305	12.436	0.54	0.80	5.40	165.00	0.000	0.000	67.19	0.00	0.00
14	110.00	B13 RRH4X30-4R	3	11.305	12.436	0.54	0.80	3.47	171.60	0.000	0.000	43.19	0.00	0.00
15	110.00	RRH2X60-1900A-4R	3	11.305	12.436	0.54	0.80	3.02	138.00	0.000	0.000	37.59	0.00	0.00
16	110.00	CBC721-DF	3	11.284	12.412	0.50	0.80	0.68	13.20	0.000	-1.000	8.45	0.00	-8.45
17	110.00	CBC721-DF	3	11.327	12.460	0.50	0.80	0.68	13.20	0.000	1.000	8.48	0.00	8.48
18	110.00	SBNHH-1D65B	6	11.305	12.436	0.66	0.80	32.12	240.00	0.000	0.000	399.41	0.00	0.00
19	100.00	LNx-6515DS-A1M	3	11.081	12.189	0.67	0.80	23.12	150.90	0.000	0.000	281.85	0.00	0.00
20	100.00	AIR 21, 1.3M, B2A B4P	3	11.081	12.189	0.66	0.80	12.13	274.50	0.000	0.000	147.87	0.00	0.00
21	100.00	AIR 21, 1.3M, B4A B2P	3	11.081	12.189	0.66	0.80	12.13	271.20	0.000	0.000	147.87	0.00	0.00
22	100.00	782 11056	3	11.081	12.189	0.62	0.80	0.24	5.40	0.000	0.000	2.97	0.00	0.00
23	100.00	T-Arm (Round)	3	11.081	12.189	0.56	0.75	13.50	1050.00	0.000	0.000	164.55	0.00	0.00
24	94.00	1'4"x6.5"x6" Surge	1	10.937	12.031	0.80	0.80	1.71	53.00	0.000	0.000	20.60	0.00	0.00
25	89.50	T-Arm (Round)	3	10.825	11.907	0.56	0.75	13.50	1050.00	0.000	0.000	160.75	0.00	0.00
26	89.50	VHLP800-11	1	10.855	11.941	1.00	1.00	8.43	48.00	2.231	1.200	100.66	224.60	120.79
27	89.50	VHLP2-18-1WH	1	10.858	11.944	1.00	1.00	4.69	31.00	2.231	1.300	56.02	124.99	72.82
28	89.50	SPI-2213 RRH	3	10.863	11.949	0.61	0.80	3.32	99.30	0.000	1.500	39.67	0.00	59.50
29	89.50	840 10054	3	10.863	11.949	0.50	0.80	6.94	105.00	0.000	1.500	82.93	0.00	124.39

**Totals: 8,628.84**

**3,710.93**

## Total Applied Force Summary

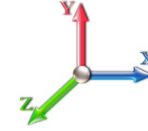
<b>Structure:</b> CT13064-A-SBA	<b>Code:</b> EIA/TIA-222-G	9/14/2016
<b>Site Name:</b> Middletown 2, CT	<b>Exposure:</b> C	
<b>Height:</b> 130.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II



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**Load Case:** 1.0D + 1.0W 60 mph Wind

**Dead Load Factor** 1.00  
**Wind Load Factor** 1.00



**Iterations** 22

Elev (ft)	Description	Lateral FX (-) (lb)	Axial FY (-) (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)
0.00		0.00	0.00	0.00	0.00
5.00		94.81	924.29	0.00	0.00
8.50		65.32	639.21	0.00	0.00
10.00		27.73	271.98	0.00	0.00
15.00		91.31	898.08	0.00	0.00
20.00		95.03	884.98	0.00	0.00
20.50		9.45	87.78	0.00	0.00
25.00		88.09	784.10	0.00	0.00
30.00		100.36	858.78	0.00	0.00
35.00		102.21	845.67	0.00	0.00
40.00		103.63	832.57	0.00	0.00
40.50		10.31	82.54	0.00	0.00
43.33		58.95	465.23	0.00	0.00
45.00		35.21	433.21	0.00	0.00
48.00		63.81	773.18	0.00	0.00
50.00		42.40	277.33	0.00	0.00
55.00		107.03	685.99	0.00	0.00
60.00		107.37	675.51	0.00	0.00
60.75		16.01	100.42	0.00	0.00
65.00		91.29	564.60	0.00	0.00
70.00		107.53	654.54	0.00	0.00
75.00		107.39	644.06	0.00	0.00
78.50		74.87	444.60	0.00	0.00
80.00		31.95	188.97	0.00	0.00
85.00		99.08	623.09	0.00	0.00
87.42		46.64	297.40	0.00	0.00
89.50	(11) attachments	480.58	1711.96	349.59	377.51
90.00		9.70	89.83	0.00	0.00
91.33		25.86	238.66	0.00	0.00
94.00	(1) attachments	72.04	322.21	0.00	0.00
95.00		19.20	100.38	0.00	0.00
100.00	(15) attachments	841.06	2249.17	0.00	0.00
105.00		95.11	452.61	0.00	0.00
110.00	(26) attachments	921.89	2273.55	0.00	0.03
115.00		93.20	363.49	0.00	0.00
120.00		92.14	355.63	0.00	0.00
125.00		68.99	340.29	0.00	0.00
129.00	(24) attachments	1728.17	3927.47	0.00	1007.75
130.00	(1) attachments	16.49	53.94	0.00	0.00
<b>Totals:</b>		<b>6,242.19</b>	<b>26,417.30</b>	<b>349.59</b>	<b>1,385.29</b>

## Linear Appurtenance Segment Forces (Factored)

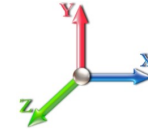
<b>Structure:</b> CT13064-A-SBA	<b>Code:</b> EIA/TIA-222-G	9/14/2016
<b>Site Name:</b> Middletown 2, CT	<b>Exposure:</b> C	
<b>Height:</b> 130.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II



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**Load Case:** 1.0D + 1.0W 60 mph Wind

**Dead Load Factor** 1.00  
**Wind Load Factor** 1.00



**Iterations** 22

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	0.645" DC	Yes	5.00	0.000	0.00	0.00	0.00	0.094	0.000	7.442	0.00	8.00
5.00	1.496" Fiber	Yes	5.00	0.000	0.00	0.00	0.00	0.094	0.000	7.442	0.00	6.00
5.00	3" Conduit	Yes	5.00	0.000	3.00	1.25	0.00	0.094	0.000	7.442	0.00	26.70
5.00	1" Reinforcing plate	Yes	5.00	0.000	1.00	0.42	0.00	0.094	0.000	7.442	0.00	0.00
8.50	0.645" DC	Yes	3.50	0.000	0.00	0.00	0.00	0.095	0.000	7.442	0.00	5.60
8.50	1.496" Fiber	Yes	3.50	0.000	0.00	0.00	0.00	0.095	0.000	7.442	0.00	4.20
8.50	3" Conduit	Yes	3.50	0.000	3.00	0.88	0.00	0.095	0.000	7.442	0.00	18.69
8.50	1" Reinforcing plate	Yes	3.50	0.000	1.00	0.29	0.00	0.095	0.000	7.442	0.00	0.00
10.00	0.645" DC	Yes	1.50	0.000	0.00	0.00	0.00	0.096	0.000	7.442	0.00	2.40
10.00	1.496" Fiber	Yes	1.50	0.000	0.00	0.00	0.00	0.096	0.000	7.442	0.00	1.80
10.00	3" Conduit	Yes	1.50	0.000	3.00	0.38	0.00	0.096	0.000	7.442	0.00	8.01
10.00	1" Reinforcing plate	Yes	1.50	0.000	1.00	0.13	0.00	0.096	0.000	7.442	0.00	0.00
15.00	0.645" DC	Yes	5.00	0.000	0.00	0.00	0.00	0.097	0.000	7.442	0.00	8.00
15.00	1.496" Fiber	Yes	5.00	0.000	0.00	0.00	0.00	0.097	0.000	7.442	0.00	6.00
15.00	3" Conduit	Yes	5.00	0.000	3.00	1.25	0.00	0.097	0.000	7.442	0.00	26.70
15.00	1" Reinforcing plate	Yes	5.00	0.000	1.00	0.42	0.00	0.097	0.000	7.442	0.00	0.00
20.00	0.645" DC	Yes	5.00	0.000	0.00	0.00	0.00	0.099	0.000	7.896	0.00	8.00
20.00	1.496" Fiber	Yes	5.00	0.000	0.00	0.00	0.00	0.099	0.000	7.896	0.00	6.00
20.00	3" Conduit	Yes	5.00	0.000	3.00	1.25	0.00	0.099	0.000	7.896	0.00	26.70
20.00	1" Reinforcing plate	Yes	5.00	0.000	1.00	0.42	0.00	0.099	0.000	7.896	0.00	0.00
20.50	0.645" DC	Yes	0.50	0.000	0.00	0.00	0.00	0.100	0.000	7.937	0.00	0.80
20.50	1.496" Fiber	Yes	0.50	0.000	0.00	0.00	0.00	0.100	0.000	7.937	0.00	0.60
20.50	3" Conduit	Yes	0.50	0.000	3.00	0.13	0.00	0.100	0.000	7.937	0.00	2.67
20.50	1" Reinforcing plate	Yes	0.50	0.000	1.00	0.04	0.00	0.100	0.000	7.937	0.00	0.00
25.00	0.645" DC	Yes	4.50	0.000	0.00	0.00	0.00	0.101	1.003	8.276	0.00	7.20
25.00	1.496" Fiber	Yes	4.50	0.000	0.00	0.00	0.00	0.101	1.003	8.276	0.00	5.40
25.00	3" Conduit	Yes	4.50	0.000	3.00	1.13	0.00	0.101	1.003	8.276	0.00	24.03
25.00	1" Reinforcing plate	Yes	4.50	0.000	1.00	0.38	0.00	0.101	1.003	8.276	0.00	0.00
30.00	0.645" DC	Yes	5.00	0.000	0.00	0.00	0.00	0.103	1.009	8.600	0.00	8.00
30.00	1.496" Fiber	Yes	5.00	0.000	0.00	0.00	0.00	0.103	1.009	8.600	0.00	6.00
30.00	3" Conduit	Yes	5.00	0.000	3.00	1.25	0.00	0.103	1.009	8.600	0.00	26.70
30.00	1" Reinforcing plate	Yes	5.00	0.000	1.00	0.42	0.00	0.103	1.009	8.600	0.00	0.00
35.00	0.645" DC	Yes	5.00	0.000	0.00	0.00	0.00	0.105	1.016	8.883	0.00	8.00
35.00	1.496" Fiber	Yes	5.00	0.000	0.00	0.00	0.00	0.105	1.016	8.883	0.00	6.00
35.00	3" Conduit	Yes	5.00	0.000	3.00	1.25	0.00	0.105	1.016	8.883	0.00	26.70
35.00	1" Reinforcing plate	Yes	5.00	0.000	1.00	0.42	0.00	0.105	1.016	8.883	0.00	0.00
40.00	0.645" DC	Yes	5.00	0.000	0.00	0.00	0.00	0.107	1.022	9.137	0.00	8.00
40.00	1.496" Fiber	Yes	5.00	0.000	0.00	0.00	0.00	0.107	1.022	9.137	0.00	6.00
40.00	3" Conduit	Yes	5.00	0.000	3.00	1.25	0.00	0.107	1.022	9.137	0.00	26.70
40.00	1" Reinforcing plate	Yes	5.00	0.000	1.00	0.42	0.00	0.107	1.022	9.137	0.00	0.00
40.50	0.645" DC	Yes	0.50	0.000	0.00	0.00	0.00	0.109	1.026	9.161	0.00	0.80
40.50	1.496" Fiber	Yes	0.50	0.000	0.00	0.00	0.00	0.109	1.026	9.161	0.00	0.60
40.50	3" Conduit	Yes	0.50	0.000	3.00	0.13	0.00	0.109	1.026	9.161	0.00	2.67
40.50	1" Reinforcing plate	Yes	0.50	0.000	1.00	0.04	0.00	0.109	1.026	9.161	0.00	0.00
43.33	0.645" DC	Yes	2.83	0.000	0.00	0.00	0.00	0.109	1.028	9.292	0.00	4.53
43.33	1.496" Fiber	Yes	2.83	0.000	0.00	0.00	0.00	0.109	1.028	9.292	0.00	3.40
43.33	3" Conduit	Yes	2.83	0.000	3.00	0.71	0.00	0.109	1.028	9.292	0.00	15.13



## Linear Appurtenance Segment Forces (Factored)

<b>Structure:</b> CT13064-A-SBA	<b>Code:</b> EIA/TIA-222-G	9/14/2016
<b>Site Name:</b> Middletown 2, CT	<b>Exposure:</b> C	
<b>Height:</b> 130.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> 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** 22

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)
43.33	1" Reinforcing plate	Yes	2.83	0.000	1.00	0.24	0.00	0.109	1.028	9.292	0.00	0.00
45.00	0.645" DC	Yes	1.67	0.000	0.00	0.00	0.00	0.111	1.032	9.366	0.00	2.67
45.00	1.496" Fiber	Yes	1.67	0.000	0.00	0.00	0.00	0.111	1.032	9.366	0.00	2.00
45.00	3" Conduit	Yes	1.67	0.000	3.00	0.42	0.00	0.111	1.032	9.366	0.00	8.90
45.00	1" Reinforcing plate	Yes	1.67	0.000	1.00	0.14	0.00	0.111	1.032	9.366	0.00	0.00
48.00	0.645" DC	Yes	3.00	0.000	0.00	0.00	0.00	0.112	1.035	9.494	0.00	4.80
48.00	1.496" Fiber	Yes	3.00	0.000	0.00	0.00	0.00	0.112	1.035	9.494	0.00	3.60
48.00	3" Conduit	Yes	3.00	0.000	3.00	0.75	0.00	0.112	1.035	9.494	0.00	16.02
48.00	1" Reinforcing plate	Yes	3.00	0.000	1.00	0.25	0.00	0.112	1.035	9.494	0.00	0.00
50.00	0.645" DC	Yes	2.00	0.000	0.00	0.00	0.00	0.111	1.034	9.576	0.00	3.20
50.00	1.496" Fiber	Yes	2.00	0.000	0.00	0.00	0.00	0.111	1.034	9.576	0.00	2.40
50.00	3" Conduit	Yes	2.00	0.000	3.00	0.50	0.00	0.111	1.034	9.576	0.00	10.68
50.00	1" Reinforcing plate	Yes	2.00	0.000	1.00	0.17	0.00	0.111	1.034	9.576	0.00	0.00
55.00	0.645" DC	Yes	5.00	0.000	0.00	0.00	0.00	0.113	1.039	9.770	0.00	8.00
55.00	1.496" Fiber	Yes	5.00	0.000	0.00	0.00	0.00	0.113	1.039	9.770	0.00	6.00
55.00	3" Conduit	Yes	5.00	0.000	3.00	1.25	0.00	0.113	1.039	9.770	0.00	26.70
55.00	1" Reinforcing plate	Yes	5.00	0.000	1.00	0.42	0.00	0.113	1.039	9.770	0.00	0.00
60.00	0.645" DC	Yes	5.00	0.000	0.00	0.00	0.00	0.116	1.047	9.951	0.00	8.00
60.00	1.496" Fiber	Yes	5.00	0.000	0.00	0.00	0.00	0.116	1.047	9.951	0.00	6.00
60.00	3" Conduit	Yes	5.00	0.000	3.00	1.25	0.00	0.116	1.047	9.951	0.00	26.70
60.00	1" Reinforcing plate	Yes	5.00	0.000	1.00	0.42	0.00	0.116	1.047	9.951	0.00	0.00
60.75	0.645" DC	Yes	0.75	0.000	0.00	0.00	0.00	0.117	1.051	9.977	0.00	1.20
60.75	1.496" Fiber	Yes	0.75	0.000	0.00	0.00	0.00	0.117	1.051	9.977	0.00	0.90
60.75	3" Conduit	Yes	0.75	0.000	3.00	0.19	0.00	0.117	1.051	9.977	0.00	4.00
60.75	1" Reinforcing plate	Yes	0.75	0.000	1.00	0.06	0.00	0.117	1.051	9.977	0.00	0.00
65.00	0.645" DC	Yes	4.25	0.000	0.00	0.00	0.00	0.119	1.056	10.120	0.00	6.80
65.00	1.496" Fiber	Yes	4.25	0.000	0.00	0.00	0.00	0.119	1.056	10.120	0.00	5.10
65.00	3" Conduit	Yes	4.25	0.000	3.00	1.06	0.00	0.119	1.056	10.120	0.00	22.70
65.00	1" Reinforcing plate	Yes	4.25	0.000	1.00	0.35	0.00	0.119	1.056	10.120	0.00	0.00
70.00	0.645" DC	Yes	5.00	0.000	0.00	0.00	0.00	0.121	1.063	10.279	0.00	8.00
70.00	1.496" Fiber	Yes	5.00	0.000	0.00	0.00	0.00	0.121	1.063	10.279	0.00	6.00
70.00	3" Conduit	Yes	5.00	0.000	3.00	1.25	0.00	0.121	1.063	10.279	0.00	26.70
70.00	1" Reinforcing plate	Yes	5.00	0.000	1.00	0.42	0.00	0.121	1.063	10.279	0.00	0.00
75.00	0.645" DC	Yes	5.00	0.000	0.00	0.00	0.00	0.124	1.072	10.430	0.00	8.00
75.00	1.496" Fiber	Yes	5.00	0.000	0.00	0.00	0.00	0.124	1.072	10.430	0.00	6.00
75.00	3" Conduit	Yes	5.00	0.000	3.00	1.25	0.00	0.124	1.072	10.430	0.00	26.70
75.00	1" Reinforcing plate	Yes	5.00	0.000	1.00	0.42	0.00	0.124	1.072	10.430	0.00	0.00
78.50	0.645" DC	Yes	3.50	0.000	0.00	0.00	0.00	0.127	1.080	10.530	0.00	5.60
78.50	1.496" Fiber	Yes	3.50	0.000	0.00	0.00	0.00	0.127	1.080	10.530	0.00	4.20
78.50	3" Conduit	Yes	3.50	0.000	3.00	0.88	0.00	0.127	1.080	10.530	0.00	18.69
78.50	1" Reinforcing plate	Yes	3.50	0.000	1.00	0.29	0.00	0.127	1.080	10.530	0.00	0.00
80.00	0.645" DC	Yes	1.50	0.000	0.00	0.00	0.00	0.128	1.085	10.572	0.00	2.40
80.00	1.496" Fiber	Yes	1.50	0.000	0.00	0.00	0.00	0.128	1.085	10.572	0.00	1.80
80.00	3" Conduit	Yes	1.50	0.000	3.00	0.38	0.00	0.128	1.085	10.572	0.00	8.01
80.00	1" Reinforcing plate	Yes	1.50	0.000	1.00	0.13	0.00	0.128	1.085	10.572	0.00	0.00
85.00	0.645" DC	Yes	5.00	0.000	0.00	0.00	0.00	0.104	1.013	10.708	0.00	8.00
85.00	1.496" Fiber	Yes	5.00	0.000	0.00	0.00	0.00	0.104	1.013	10.708	0.00	6.00

## Linear Appurtenance Segment Forces (Factored)

<b>Structure:</b> CT13064-A-SBA	<b>Code:</b> EIA/TIA-222-G	9/14/2016
<b>Site Name:</b> Middletown 2, CT	<b>Exposure:</b> C	
<b>Height:</b> 130.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> 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** 22

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)
85.00	3" Conduit	Yes	5.00	0.000	3.00	1.25	0.00	0.104	1.013	10.708	0.00	26.70
85.00	1" Reinforcing plate	Yes	1.00	0.000	1.00	0.08	0.00	0.104	1.013	10.708	0.00	0.00
87.42	0.645" DC	Yes	2.42	0.000	0.00	0.00	0.00	0.100	0.000	10.771	0.00	3.87
87.42	1.496" Fiber	Yes	2.42	0.000	0.00	0.00	0.00	0.100	0.000	10.771	0.00	2.90
87.42	3" Conduit	Yes	2.42	0.000	3.00	0.60	0.00	0.100	0.000	10.771	0.00	12.91
89.50	0.645" DC	Yes	2.08	0.000	0.00	0.00	0.00	0.101	1.003	10.825	0.00	3.33
89.50	1.496" Fiber	Yes	2.08	0.000	0.00	0.00	0.00	0.101	1.003	10.825	0.00	2.50
89.50	3" Conduit	Yes	2.08	0.000	3.00	0.52	0.00	0.101	1.003	10.825	0.00	11.12
90.00	0.645" DC	Yes	0.50	0.000	0.00	0.00	0.00	0.102	1.005	10.838	0.00	0.80
90.00	1.496" Fiber	Yes	0.50	0.000	0.00	0.00	0.00	0.102	1.005	10.838	0.00	0.60
90.00	3" Conduit	Yes	0.50	0.000	3.00	0.13	0.00	0.102	1.005	10.838	0.00	2.67
91.33	0.645" DC	Yes	1.33	0.000	0.00	0.00	0.00	0.102	1.006	10.871	0.00	2.13
91.33	1.496" Fiber	Yes	1.33	0.000	0.00	0.00	0.00	0.102	1.006	10.871	0.00	1.60
91.33	3" Conduit	Yes	1.33	0.000	3.00	0.33	0.00	0.102	1.006	10.871	0.00	7.12
94.00	0.645" DC	Yes	2.67	0.000	0.00	0.00	0.00	0.102	1.006	10.937	0.00	4.27
94.00	1.496" Fiber	Yes	2.67	0.000	0.00	0.00	0.00	0.102	1.006	10.937	0.00	3.20
94.00	3" Conduit	Yes	2.67	0.000	3.00	0.67	0.00	0.102	1.006	10.937	0.00	14.24
95.00	0.645" DC	Yes	1.00	0.000	0.00	0.00	0.00	0.103	1.009	10.962	0.00	1.60
95.00	1.496" Fiber	Yes	1.00	0.000	0.00	0.00	0.00	0.103	1.009	10.962	0.00	1.20
95.00	3" Conduit	Yes	1.00	0.000	3.00	0.25	0.00	0.103	1.009	10.962	0.00	5.34
100.00	0.645" DC	Yes	5.00	0.000	0.00	0.00	0.00	0.105	1.014	11.081	0.00	8.00
100.00	1.496" Fiber	Yes	5.00	0.000	0.00	0.00	0.00	0.105	1.014	11.081	0.00	6.00
100.00	3" Conduit	Yes	5.00	0.000	3.00	1.25	0.00	0.105	1.014	11.081	0.00	26.70
105.00	0.645" DC	Yes	5.00	0.000	0.00	0.00	0.00	0.108	1.023	11.195	0.00	8.00
105.00	1.496" Fiber	Yes	5.00	0.000	0.00	0.00	0.00	0.108	1.023	11.195	0.00	6.00
105.00	3" Conduit	Yes	5.00	0.000	3.00	1.25	0.00	0.108	1.023	11.195	0.00	26.70
110.00	0.645" DC	Yes	5.00	0.000	0.00	0.00	0.00	0.111	1.032	11.305	0.00	8.00
110.00	1.496" Fiber	Yes	5.00	0.000	0.00	0.00	0.00	0.111	1.032	11.305	0.00	6.00
110.00	3" Conduit	Yes	5.00	0.000	3.00	1.25	0.00	0.111	1.032	11.305	0.00	26.70
115.00	0.645" DC	Yes	5.00	0.000	0.00	0.00	0.00	0.114	1.042	11.412	0.00	8.00
115.00	1.496" Fiber	Yes	5.00	0.000	0.00	0.00	0.00	0.114	1.042	11.412	0.00	6.00
115.00	3" Conduit	Yes	5.00	0.000	3.00	1.25	0.00	0.114	1.042	11.412	0.00	26.70
120.00	0.645" DC	Yes	5.00	0.000	0.00	0.00	0.00	0.118	1.053	11.514	0.00	8.00
120.00	1.496" Fiber	Yes	5.00	0.000	0.00	0.00	0.00	0.118	1.053	11.514	0.00	6.00
120.00	3" Conduit	Yes	5.00	0.000	3.00	1.25	0.00	0.118	1.053	11.514	0.00	26.70
125.00	0.645" DC	Yes	5.00	0.000	0.00	0.00	0.00	0.167	1.200	11.614	0.00	8.00
125.00	1.496" Fiber	Yes	5.00	0.000	0.00	0.00	0.00	0.167	1.200	11.614	0.00	6.00
125.00	3" Conduit	Yes	5.00	0.000	3.00	1.25	0.00	0.167	1.200	11.614	0.00	26.70
129.00	0.645" DC	Yes	4.00	0.000	0.00	0.00	0.00	0.167	1.200	11.691	0.00	6.40
129.00	1.496" Fiber	Yes	4.00	0.000	0.00	0.00	0.00	0.167	1.200	11.691	0.00	4.80
129.00	3" Conduit	Yes	4.00	0.000	3.00	1.00	0.00	0.167	1.200	11.691	0.00	21.36
<b>Totals:</b>											<b>0.0</b>	<b>1,050.1</b>

## Calculated Forces

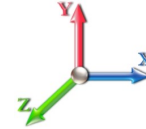
<b>Structure:</b> CT13064-A-SBA	<b>Code:</b> EIA/TIA-222-G	<b>9/14/2016</b>
<b>Site Name:</b> Middletown 2, CT	<b>Exposure:</b> C	
<b>Height:</b> 130.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II



**Load Case:** 1.0D + 1.0W 60 mph Wind

**Iterations** 22

**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	-26.41	-6.25	-0.35	-609.35	0.00	609.35	2818.94	1409.47	4888.80	2448.04	0.00	0.000	0.000	0.122
5.00	-25.49	-6.17	-0.35	-578.09	0.00	578.09	2786.10	1393.05	4742.28	2374.66	0.02	-0.042	0.000	0.118
8.50	-24.85	-6.12	-0.35	-556.49	0.00	556.49	2762.70	1381.35	4640.25	2323.57	0.06	-0.072	0.000	0.174
10.00	-24.57	-6.11	-0.35	-547.31	0.00	547.31	2752.56	1376.28	4596.67	2301.75	0.09	-0.092	0.000	0.173
15.00	-23.66	-6.04	-0.35	-516.78	0.00	516.78	2718.29	1359.15	4452.05	2229.33	0.22	-0.155	0.000	0.168
20.00	-22.78	-5.96	-0.35	-486.58	0.00	486.58	2683.32	1341.66	4308.48	2157.44	0.42	-0.218	0.000	0.162
20.50	-22.68	-5.96	-0.35	-483.60	0.00	483.60	2679.78	1339.89	4294.19	2150.28	0.44	-0.224	0.000	0.161
25.00	-21.90	-5.89	-0.35	-456.79	0.00	456.79	2647.62	1323.81	4166.04	2086.12	0.68	-0.280	0.000	0.156
30.00	-21.03	-5.81	-0.35	-427.35	0.00	427.35	2611.22	1305.61	4024.80	2015.39	1.00	-0.342	0.000	0.150
35.00	-20.18	-5.72	-0.35	-398.31	0.00	398.31	2574.10	1287.05	3884.82	1945.30	1.40	-0.403	0.000	0.144
40.00	-19.34	-5.62	-0.35	-369.71	0.00	369.71	2536.26	1268.13	3746.17	1875.87	1.85	-0.463	-0.001	0.138
40.50	-19.26	-5.62	-0.35	-366.90	0.00	366.90	2532.44	1266.22	3732.38	1868.96	1.90	-0.469	-0.001	0.137
43.33	-18.79	-5.56	-0.35	-350.99	0.00	350.99	2510.64	1255.32	3654.51	1829.97	2.19	-0.502	-0.001	0.133
45.00	-18.36	-5.53	-0.35	-341.72	0.00	341.72	2497.71	1248.86	3608.92	1807.14	2.37	-0.522	-0.001	0.130
48.00	-17.58	-5.47	-0.35	-325.12	0.00	325.12	1854.44	927.22	2691.60	1347.80	2.70	-0.557	-0.001	0.138
50.00	-17.30	-5.44	-0.35	-314.18	0.00	314.18	1844.56	922.28	2653.53	1328.74	2.94	-0.579	-0.001	0.151
55.00	-16.61	-5.34	-0.35	-286.99	0.00	286.99	1819.35	909.68	2558.78	1281.29	3.58	-0.641	-0.001	0.142
60.00	-15.93	-5.24	-0.35	-260.28	0.00	260.28	1793.44	896.72	2464.66	1234.16	4.29	-0.701	-0.001	0.133
60.75	-15.83	-5.23	-0.35	-256.36	0.00	256.36	1789.49	894.74	2450.61	1227.12	4.40	-0.709	-0.001	0.131
65.00	-15.26	-5.14	-0.35	-234.15	0.00	234.15	1766.81	883.40	2371.26	1187.39	5.05	-0.758	-0.001	0.123
70.00	-14.61	-5.04	-0.35	-208.44	0.00	208.44	1739.46	869.73	2278.63	1141.01	5.87	-0.812	-0.001	0.113
75.00	-13.96	-4.93	-0.35	-183.25	0.00	183.25	1711.40	855.70	2186.84	1095.05	6.75	-0.863	-0.001	0.102
78.50	-13.51	-4.86	-0.35	-165.99	0.00	165.99	1691.33	845.67	2123.13	1063.14	7.40	-0.897	-0.001	0.095
78.50	-13.51	-4.86	-0.35	-165.99	0.00	165.99	1691.33	845.67	2123.13	1063.14	7.40	-0.897	-0.001	0.095
80.00	-13.32	-4.83	-0.35	-158.71	0.00	158.71	1682.63	841.31	2095.97	1049.54	7.68	-0.911	-0.002	0.159
85.00	-12.70	-4.73	-0.35	-134.55	0.00	134.55	1653.14	826.57	2006.08	1004.53	8.68	-0.986	-0.002	0.142
87.42	-12.40	-4.69	-0.35	-123.11	0.00	123.11	1638.63	819.32	1963.01	982.97	9.18	-1.020	-0.002	0.133
89.50	-10.69	-4.18	0.00	-112.97	0.00	112.97	1625.99	812.99	1926.09	964.47	9.64	-1.048	-0.002	0.124
90.00	-10.60	-4.17	0.00	-110.88	0.00	110.88	1622.94	811.47	1917.25	960.05	9.75	-1.055	-0.002	0.122
91.33	-10.36	-4.15	0.00	-105.31	0.00	105.31	1099.39	549.70	1312.06	657.00	10.04	-1.072	-0.002	0.170
94.00	-10.04	-4.07	0.00	-94.26	0.00	94.26	1090.71	545.35	1282.99	642.45	10.65	-1.104	-0.002	0.156
95.00	-9.94	-4.06	0.00	-90.19	0.00	90.19	1087.40	543.70	1272.11	637.00	10.88	-1.119	-0.002	0.151
100.00	-7.70	-3.18	0.00	-69.90	0.00	69.90	1070.43	535.22	1217.83	609.82	12.09	-1.185	-0.002	0.122
105.00	-7.25	-3.08	0.00	-54.00	0.00	54.00	1052.74	526.37	1163.86	582.80	13.36	-1.240	-0.002	0.100
110.00	-4.99	-2.11	0.00	-38.60	0.00	38.60	1034.34	517.17	1110.26	555.96	14.69	-1.285	-0.002	0.074
115.00	-4.63	-2.01	0.00	-28.03	0.00	28.03	1015.23	507.62	1057.10	529.34	16.05	-1.321	-0.002	0.058
120.00	-4.28	-1.92	0.00	-17.96	0.00	17.96	995.40	497.70	1004.45	502.97	17.45	-1.348	-0.002	0.040
120.00	-4.28	-1.92	0.00	-17.96	0.00	17.96	995.40	497.70	1004.45	502.97	17.45	-1.348	-0.002	0.059
125.00	-3.94	-1.84	0.00	-8.38	0.00	8.38	735.22	367.61	535.89	335.79	18.87	-1.364	-0.002	0.030
129.00	-0.05	-0.02	0.00	-0.02	0.00	0.02	735.22	367.61	535.89	335.79	20.02	-1.374	-0.002	0.000
130.00	0.00	-0.02	0.00	0.00	0.00	0.00	735.22	367.61	535.89	335.79	20.31	-1.374	-0.002	0.000

## Final Analysis Summary

<b>Structure:</b> CT13064-A-SBA	<b>Code:</b> EIA/TIA-222-G	9/14/2016
<b>Site Name:</b> Middletown 2, CT	<b>Exposure:</b> C	
<b>Height:</b> 130.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> 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 10 101 mph Wind	28.4	0.00	31.65	0.01	0.97	2776.36
0.9D + 1.6W 101 mph Wind	28.3	0.00	23.73	0.01	0.98	2749.45
1.2D + 1.0Di + 1.0Wi 50 mph Wind	7.3	0.00	54.58	0.00	0.29	708.10
1.2D + 1.0E	1.4	0.00	31.70	0.00	0.00	152.88
0.9D + 1.0E	1.4	0.00	23.78	0.00	0.00	151.22
1.0D + 1.0W 60 mph Wind	6.3	0.00	26.41	0.00	0.35	609.35

### 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 10 101 mph Wind	-29.64	-27.77	-0.97	-2536.5	-0.01	-2536.5	2762.70	1381.3	4640.25	2323.57	8.50	0.777
0.9D + 1.6W 101 mph Wind	-22.19	-27.72	-0.98	-2509.8	0.00	-2509.8	2762.70	1381.3	4640.25	2323.57	8.50	0.767
1.2D + 1.0Di + 1.0Wi 50 mph Wind	-51.87	-7.11	-0.29	-646.65	0.00	-646.65	2762.70	1381.3	4640.25	2323.57	8.50	0.208
1.2D + 1.0E	-12.52	-1.16	0.00	-40.34	0.00	-40.34	1099.39	549.70	1312.06	657.00	91.33	0.073
0.9D + 1.0E	-9.39	-1.14	0.00	-39.83	0.00	-39.83	1099.39	549.70	1312.06	657.00	91.33	0.069
1.0D + 1.0W 60 mph Wind	-24.85	-6.12	-0.35	-556.49	0.00	-556.49	2762.70	1381.3	4640.25	2323.57	8.50	0.174

### 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		
0.0	20.5	(4) PLT-6"x1" (1.25" Hole)	-271.7	-4.35	37.1	205.5	0.0			8	265.2	37.1			8	282.66	326.3	285.00	0.992
0.0	8.5	(4) PLT-5.5"x1 1/4"(1.25"hol	206.7	3.72	37.1	237.0	0.0				226.6	37.1	7		9	236.95	379.1	318.75	0.743
20.5	40.5	(4) PLT-6"x1" (1.25" Hole)	-293.5	-4.70	37.1	265.2	37.1			8	230.3	37.1			8	265.25	326.3	285.00	0.931
40.5	60.8	(4) PLT-6"x1" (1.25" Hole)	-349.1	-5.59	37.1	230.3	37.1			8	205.5	37.1			8	233.59	326.3	285.00	0.820
60.8	78.5	(4) PLT-6"x1" (1.25" Hole)	-369.8	-5.92	37.1	205.5	37.1			8	151.6	37.1	5		8	205.48	326.3	285.00	0.721

## Base Plate Summary

<b>Structure:</b> CT13064-A-SB	<b>Code:</b> EIA/TIA-222-G	9/14/2016
<b>Site Name:</b> Middletown 2, CT	<b>Exposure:</b> C	
<b>Height:</b> 130.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II



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Reactions	Base Plate	Anchor Bolts
Original Design	<b>Yield (ksi):</b> 50.00	<b>Bolt Circle:</b> 47.25
<b>Moment (kip-ft):</b> 1864.44	<b>Width (in):</b> 51.75	<b>Number Bolts:</b> 14.00
<b>Axial (kip):</b> 38.20	<b>Style:</b> Round	<b>Bolt Type:</b> 1.5" F1554 105
<b>Shear (kip):</b> 20.10	<b>Polygon Sides:</b> 0.00	<b>Bolt Diameter (in):</b> 1.50
Analysis	<b>Clip Length (in):</b> 0.00	<b>Yield (ksi):</b> 105.00
<b>Moment (kip-ft):</b> 2776.36	<b>Effective Len (in):</b> 12.18	<b>Ultimate (ksi):</b> 125.00
<b>Axial (kip):</b> 54.58	<b>Moment (kip-in):</b> 175.58	<b>Arrangement:</b> Radial
<b>Shear (kip):</b> 28.36	<b>Allow Stress (ksi):</b> 67.50	<b>Cluster Dist (in):</b> 0.00
	<b>Applied Stress (ksi):</b> 0.00	<b>Start Angle (deg):</b> 0.00
<b>Moment Design %:</b> 148.91	<b>Stress Ratio:</b> 0.57	<b>Compression</b>
		<b>Force (kip):</b> 73.37
		<b>Allowable (kip):</b> 141.00
		<b>Ratio:</b> 0.55
		<b>Tension</b>
		<b>Force (kip):</b> 65.57
		<b>Allowable (kip):</b> 141.00
		<b>Ratio:</b> 0.49



# Monopole Mat Foundation Design

Date

9/14/2016

<b>Customer Name:</b>	T-Mobile	<b>EIA/TIA Standard:</b>	EIA-222-G
<b>Site Name:</b>	Middletown	<b>Structure Height (Ft.):</b>	130
<b>Site Number:</b>	CT13064-A-SBA	<b>Engineer Name:</b>	S. Hesselbein
<b>Engr. Number:</b>	26026	<b>Engineer Login ID:</b>	

**Foundation Info Obtained from:**

Drawings/Calculations

**Structure Type:**

Monopole

**Analysis or Design?**

Analysis

**Base Reactions (Factored):**

Axial Load (Kips):	31.7	Shear Force (Kips):	28.4
Uplift Force (Kips):	0.0	Moment (Kips-ft):	2776.4

Allowable overstress %: 0.0%

**Foundation Geometries:**

		Mods required -Yes/No ?:	Yes
Diameter of Pier (ft.):	6.0	Depth of Base BG (ft.):	6.0
Pier Height A. G. (ft.):	0.50	Thickness of Pad (ft.):	2.50
Length of Pad (ft.):	20	Width of Pad (ft.):	20
Add Concrete Width & Length (ft.)	14	Add Concrete Thick. (ft)	1
Final Length of pad (ft)	20.0	Final width of pad (ft):	20.0
Control Value for Cell D18:	14	Control Value for Cell F18:	1

**Material Properties and Rebar Info:**

Concrete Strength (psi):	4000	Steel Elastic Modulus:	29000	ksi
Vertical bar yield (ksi)	60	Tie steel yield (ksi):	60	
Vertical Rebar Size #:	9	Tie / Stirrup Size #:	5	
Qty. of Vertical Rebars:	22	Tie Spacing (in):	3.0	
Pad Rebar Yield (Ksi):	60	Pad Steel Rebar Size (#):	6	
Concrete Cover (in.):	3	Unit Weight of Concrete:	150.0	pcf
Rebar at the bottom of the concrete pad:				
Qty. of Rebar in Pad (L):	26	Qty. of Rebar in Pad (W):	26	
Rebar at the top of the concrete pad:				
Qty. of Rebar in Pad (L):	26	Qty. of Rebar in Pad (W):	26	

Apply 1.35 factor for e/w Per G: 1.35

**Soil Design Parameters:**

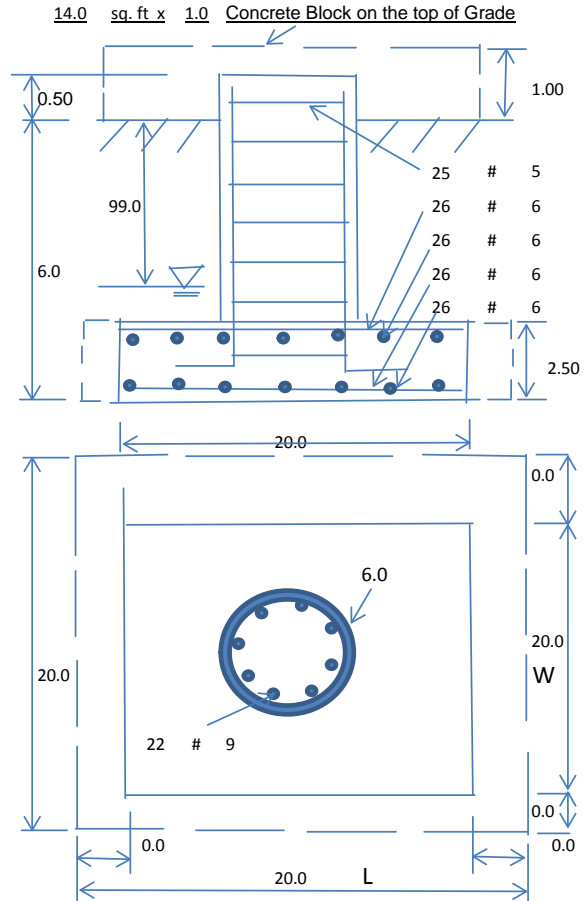
Soil Unit Weight (pcf):	130.0	Soil Buoyant Weight:	50.0	Pcf
Water Table B.G.S. (ft):	99.0	Unit Weight of Water:	62.4	pcf
Ultimate Bearing Pressure (psf):	8000	Ultimate Skin Friction:	0	Psf
Consider Friction for O.T.M. (Y/N):	No	Consider Friction for bearing (Y/N):	No	
Consider soil hori. force for O.T.M.:	Yes	Reduction factor on the maximum soil bearing pressure:	1.00	
		Angle from Top of Pad:		30
		Angle from Bottom of Pad:		25
		Angle from Bottom of Pad:		25

**Foundation Analysis and Design:**

Uplift Strength Reduction Factor:	0.75	Compression Strength Reduction Factor:	0.75
Total Dry Soil Volume (cu. Ft.):	1301.04	Total Dry Soil Weight (Kips):	169.14
Total Buoyant Soil Volume (cu. Ft.):	0.00	Total Buoyant Soil Weight (Kips):	0.00
Total Effective Soil Weight (Kips):	169.14	Weight from the Concrete Block at Top (K):	27.28
Total Dry Concrete Volume (cu. Ft.):	1294.96	Total Dry Concrete Weight (Kips):	194.24
Total Buoyant Concrete Volume (cu. Ft.):	0.00	Total Buoyant Concrete Weight (Kips):	0.00
Total Effective Concrete Weight (Kips):	194.24	Total Vertical Load on Base (Kips):	395.03

**Check Soil Capacities:**

Calculated Maximum Net Soil Pressure under the base (psf):	4353	<	Allowable Factored Soil Bearing (psf):	6000	0.73	OK!
Allowable Foundation Overturning Resistance (kips-ft.):	3586.9	>	Design Factored Moment (kips-ft):	2921	0.81	OK!
Factor of Safety Against Overturning (O. R. Moment/Design Moment):	1.23					OK!



**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		

(1) Concrete Pier:

				Load/ Capacity Ratio	
Vertical Steel Rebar Area (sq. in./each):	1.00	Tie / Stirrup Area (sq. in./each):	0.31		
Calculated Moment Capacity (Mn,Kips-Ft):	3190.2	> Design Factored Moment (Mu, Kips-Ft)	2890.0	0.91	OK!
Calculated Shear Capacity (Kips):	1100.5	> Design Factored Shear (Kips):	28.4	0.03	OK!
Calculated Tension Capacity (Tn, Kips):	1188.0	> Design Factored Tension (Tu Kips):	0.0	0.00	OK!
Calculated Compression Capacity (Pn, Kips):	7159.5	> Design Factored Axial Load (Pu Kips):	31.7	0.00	OK!
Moment & Axial Strength Combination:	0.91	OK! Check Tie Spacing (Design/Required):		0.25	OK!
Pier Reinforcement Ratio:	0.005	Reinforcement Ratio is satisfied per ACI			

(2).Concrete Pad:

One-Way Design Shear Capacity (L-Direction, Kips):	606.2	> One-Way Factored Shear (L-D. Kips):	208.8	0.34	OK!
One-Way Design Shear Capacity (W-Direction, Kips):	606.2	> One-Way Factored Shear (W-D., Kips):	208.8	0.34	OK!
One-Way Design Shear Capacity (Corner-Corner. Kips):	675.4	> One-Way Factored Shear (C-C, Kips):	378.7	0.56	OK!
Lower Steel Pad Reinforcement Ratio (L-Direct. ):	0.0018	OK! Lower Steel Pad Reinf. Ratio (W-Direct. ):	0.0018		
Lower Steel Pad Moment Capacity (L-Direction. Kips-ft):	1349.0	> Moment at Bottom ( L-Direct. K-Ft):	499.2	0.37	OK!
Lower Steel Pad Moment Capacity (W-Direction. Kips-ft):	1349.0	> Moment at Bottom ( W-Direct. K-Ft):	499.2	0.37	OK!
Lower Steel Pad Moment Capacity (Corner-Corner,K-ft):	1899.5	> Moment at Bottom ( C-C Dir. K-Ft):	706.0	0.37	OK!
Upper Steel Pad Reinforcement Ratio (L-Direct. ):	0.0018	OK! Upper Steel Reinf. Ratio (W-Direct. ):	0.0018		
Upper Steel Pad Moment Capacity (L-Direction. Kips-ft):	1349.0	> Moment at the top (L-Dir Kips-Ft):	348.4	0.26	OK!
Upper Steel Pad Moment Capacity (W-Direction. Kips-ft):	1349.0	> Moment at the top (W-Dir Kips-Ft):	348.4	0.26	OK!
Upper Steel Pad Moment Capacity (Corner-Corner. K-ft):	1899.5	> Moment at the top (C-C Direc. K-Ft):	368.0	0.19	OK!



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

AT&T Existing Facility

Site ID: CT2547

Middletown Fairchild Road  
50 Fairchild Road  
Middletown, CT 06457

**September 23, 2016**

**EBI Project Number: 6216004287**

Site Compliance Summary	
Compliance Status:	<b>COMPLIANT</b>
Site total MPE% of FCC general public allowable limit:	<b>12.95 %</b>





September 23, 2016

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

## Emissions Analysis for Site: **CT2547 – Middletown Fairchild Road**

EBI Consulting was directed to analyze the proposed AT&T facility located at **50 Fairchild Road, Middletown, CT**, for the purpose of determining whether the emissions from the Proposed AT&T Antenna Installation located on this property are within specified federal limits.

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

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

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

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



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

Additional details can be found in FCC OET 65.

## CALCULATIONS

Calculations were done for the proposed AT&T Wireless antenna facility located at **50 Fairchild Road, Middletown, CT**, using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65. Since AT&T is proposing highly focused directional panel antennas, which project most of the emitted energy out toward the horizon, all calculations were performed assuming a lobe representing the maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB, was focused at the base of the tower. For this report the sample point is the top of a 6-foot person standing at the base of the tower.

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

- 1) 2 UMTS channels (850 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.
- 2) 2 UMTS channels (1900 MHz (PCS)) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.
- 3) 2 LTE channels (2300 MHz (WCS)) were considered for each sector of the proposed installation. These Channels have a transmit power of 60 Watts per Channel.
- 4) 2 LTE channels (1900 MHz (PCS)) were considered for each sector of the proposed installation. These Channels have a transmit power of 60 Watts per Channel.
- 5) 2 LTE channels (700 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 60 Watts per Channel.



- 6) All radios at the proposed installation were considered to be running at full power and were uncombined in their RF transmissions paths per carrier prescribed configuration. Per FCC OET Bulletin No. 65 - Edition 97-01 recommendations to achieve the maximum anticipated value at each sample point, all power levels emitting from the proposed antenna installation are increased by a factor of 2.56 to account for possible in-phase reflections from the surrounding environment. This is rarely the case, and if so, is never continuous.
- 7) For the following calculations the sample point was the top of a 6-foot person standing at the base of the tower. The maximum gain of the antenna per the antenna manufactures supplied specifications minus 10 dB was used in this direction. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.
- 8) The antennas used in this modeling are the **Powerwave P65-16-XLH-RR, Quintel QS66512-2 and the CCI OPA-65R-LCUU-H6** for transmission in the 700 MHz, 850 MHz, 1900 MHz (PCS) and 2300 MHz (WCS) frequency bands. This is based on feedback from the carrier with regards to anticipated antenna selection. Maximum gain values for all antennas are listed in the Inventory and Power Data table below. The maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB, was used for all calculations. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.
- 9) The antenna mounting height centerlines of the proposed antennas are **130 feet** above ground level (AGL) for **Sector A**, **130 feet** above ground level (AGL) for **Sector B** and **130 feet** above ground level (AGL) for Sector C.
- 10) Emissions values for additional carriers were taken from the Connecticut Siting Council active database. Values in this database are provided by the individual carriers themselves.

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



## AT&T Site Inventory and Power Data by Antenna

Sector:	A	Sector:	B	Sector:	C
Antenna #:	<b>1</b>	Antenna #:	<b>1</b>	Antenna #:	<b>1</b>
Make / Model:	Powerwave P65-16-XLH-RR	Make / Model:	Powerwave P65-16-XLH-RR	Make / Model:	Powerwave P65-16-XLH-RR
Gain:	13.4 / 15.1 dBd	Gain:	13.4 / 15.1 dBd	Gain:	13.4 / 15.1 dBd
Height (AGL):	<b>130 feet</b>	Height (AGL):	<b>130 feet</b>	Height (AGL):	<b>130 feet</b>
Frequency Bands	850 MHz / 1900 MHz (PCS)	Frequency Bands	850 MHz / 1900 MHz (PCS)	Frequency Bands	850 MHz / 1900 MHz (PCS)
Channel Count	4	Channel Count	4	Channel Count	4
Total TX Power(W):	120 Watts	Total TX Power(W):	120 Watts	Total TX Power(W):	120 Watts
ERP (W):	3,254.22	ERP (W):	3,254.22	ERP (W):	3,254.22
Antenna A1 MPE%	<b>1.00 %</b>	Antenna B1 MPE%	<b>1.00 %</b>	Antenna C1 MPE%	<b>1.00 %</b>
Antenna #:	<b>2</b>	Antenna #:	<b>2</b>	Antenna #:	<b>2</b>
Make / Model:	Quintel QS66512-2	Make / Model:	Quintel QS66512-2	Make / Model:	Quintel QS66512-2
Gain:	14.85 / 13.85 dBd	Gain:	14.85 / 13.85 dBd	Gain:	14.85 / 13.85 dBd
Height (AGL):	<b>130 feet</b>	Height (AGL):	<b>130 feet</b>	Height (AGL):	<b>130 feet</b>
Frequency Bands	2300 MHz (WCS) / 1900 MHz (PCS)	Frequency Bands	2300 MHz (WCS) / 1900 MHz (PCS)	Frequency Bands	2300 MHz (WCS) / 1900 MHz (PCS)
Channel Count	4	Channel Count	4	Channel Count	4
Total TX Power(W):	240 Watts	Total TX Power(W):	240 Watts	Total TX Power(W):	240 Watts
ERP (W):	6,577.84	ERP (W):	6,577.84	ERP (W):	6,577.84
Antenna A2 MPE%	<b>1.54 %</b>	Antenna B2 MPE%	<b>1.54 %</b>	Antenna C2 MPE%	<b>1.54 %</b>
Antenna #:	<b>3</b>	Antenna #:	<b>3</b>	Antenna #:	<b>3</b>
Make / Model:	CCI OPA-65R-LCUU-H6	Make / Model:	CCI OPA-65R-LCUU-H6	Make / Model:	CCI OPA-65R-LCUU-H6
Gain:	11.65 dBd	Gain:	11.65 dBd	Gain:	11.65 dBd
Height (AGL):	<b>130 feet</b>	Height (AGL):	<b>130 feet</b>	Height (AGL):	<b>130 feet</b>
Frequency Bands	700 MHz	Frequency Bands	700 MHz	Frequency Bands	700 MHz
Channel Count	2	Channel Count	2	Channel Count	2
Total TX Power(W):	120 Watts	Total TX Power(W):	120 Watts	Total TX Power(W):	120 Watts
ERP (W):	1,754.61	ERP (W):	1,754.61	ERP (W):	1,754.61
Antenna A3 MPE%	<b>0.88 %</b>	Antenna B3 MPE%	<b>0.88 %</b>	Antenna C3 MPE%	<b>0.88 %</b>

Site Composite MPE%	
Carrier	MPE%
AT&T – Max per sector	<b>3.41 %</b>
Nextel	0.49 %
Clearwire	0.26 %
T-Mobile	4.55 %
Verizon Wireless	4.24 %
<b>Site Total MPE %:</b>	<b>12.95 %</b>

AT&T Sector A Total:	3.41 %
AT&T Sector B Total:	3.41 %
AT&T Sector C Total:	3.41 %
<b>Site Total, :</b>	<b>12.95 %</b>

AT&T _ Frequency Band / Technology Per Sector	# Channels	Watts ERP (Per Channel)	Height (feet)	Total Power Density ( $\mu\text{W}/\text{cm}^2$ )	Frequency (MHz)	Allowable MPE ( $\mu\text{W}/\text{cm}^2$ )	Calculated % MPE
AT&T 850 MHz UMTS	2	656.33	130	3.07	850 MHz	567	0.54%
AT&T 1900 MHz (PCS) UMTS	2	970.78	130	4.54	1900 MHz (PCS)	1000	0.45%
AT&T 2300 MHz (WCS) LTE	2	1,832.95	130	8.57	2300 MHz (WCS)	1000	0.86%
AT&T 1900 MHz (PCS) LTE	2	1,455.97	130	6.81	1900 MHz (PCS)	1000	0.68%
AT&T 700 MHz LTE	2	877.31	130	4.10	700 MHz	467	0.88%
						<b>Total*</b>	<b>3.41%</b>

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



## Summary

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

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

AT&T Sector	Power Density Value (%)
Sector A:	3.41 %
Sector B:	3.41 %
Sector C:	3.41 %
AT&T Maximum Total (per sector):	3.41 %
Site Total:	12.95 %
Site Compliance Status:	<b>COMPLIANT</b>

The anticipated composite MPE value for this site assuming all carriers present is **12.95 %** 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.

**PROJECT TEAM**

**SITE ACQUISITION & ZONING:**

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

**ENGINEERING:**

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

**RF ENGINEER:**

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

**CONSTRUCTION MANAGEMENT:**

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

**TOWER OWNER:**

SBA INFRASTRUCTURE LLC  
8051 CONGRESS AVENUE  
BOCA RATON, FL 33487

SBA SITE ID: CT13064  
SBA SITE NAME: MIDDLETOWN 2, CT

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

**GENERAL NOTES**

**DO NOT SCALE DRAWINGS**

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

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

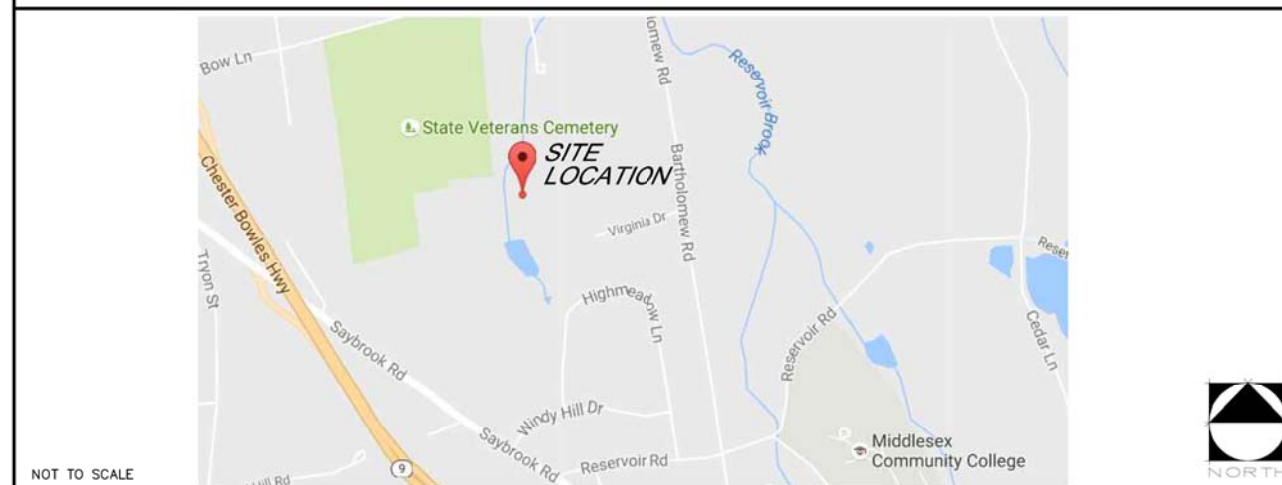
**SITE INFORMATION**

LATITUDE: 41° 32' 42.03" N  
LONGITUDE: 72° 37' 14.76" W  
LAT./LONG. TYPE:  
GROUND ELEVATION: N/A  
APN/UPC: N/A  
AREA OF CONSTRUCTION: EXISTING  
ZONING/JURISDICTION: MIDDLETOWN CITY  
CURRENT ZONING: UNKNOWN  
EXISTING USE: UNMANNED TELECOMMUNICATIONS FACILITY  
COUNTY: MIDDLESEX  
HANDICAP REQUIREMENTS: FACILITY IS UNMANNED AND NOT FOR HUMAN HABITATION. HANDICAPPED ACCESS NOT REQUIRED.



**LTE MULTI CARRIER RRU ADD  
CT2547  
MIDDLETOWN FAIRCHILD ROAD  
50 FAIRCHILD ROAD  
MIDDLETOWN CT 06457  
FA CODE: 10141343**

**VICINITY MAP**



**DRIVING DIRECTIONS**

FROM HARTFORD, TAKE I-91 SOUTH. TAKE ROUTE 9 SOUTH. TAKE EXIT 12. TURN LEFT ON SILVER STREET. TURN RIGHT ON EASTERN DRIVE. TURN LEFT ON BOW LANE. TURN RIGHT ON FAIRCHILD STREET. SITE AT END OF FAIRCHILD STREET. CONTINUE DOWN PRIVATE HOME DRIVEWAY AT THE END OF STREET TO ACCESS ROAD. FOLLOW ACCESS ROAD TO SITE.

**CODE COMPLIANCE**

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

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

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



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

**APPROVALS**

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

**JURISDICTIONAL APPROVAL**

BASED ON INFORMATION PROVIDED BY AT&T REGULATORY COMPLIANCE PROFESSIONALS AND LEGAL COUNSEL, THIS TELECOMMUNICATIONS EQUIPMENT DEPLOYMENT IS CONSIDERED AN ELIGIBLE FACILITY UNDER THE MIDDLE CLASS TAX RELIEF AND JOB CREATION ACT OF 2012, 47 USC 1455(A), SECTION 6409(A), AND IS SUBJECT TO AN ELIGIBLE FACILITY REQUEST, EXPEDITED REVIEW AND LIMITED/PARTIAL ZONING PRE-EMPTION FOR LOCAL DISCRETIONARY PERMITS (VARIANCE, SPECIAL PERMIT, SITE PLAN REVIEW OR ADMINISTRATIVE REVIEW).

**PROJECT DESCRIPTION**

- THIS PROJECT WILL BE COMPRISED OF:  
**CHANGES ON THE EXISTING MONOPOLE TOWER:**
- INSTALL (3) NEW RRUS-32, (1) PER SECTOR FOR (3) SECTORS.
  - INSTALL (3) NEW RRUS-32B2, (1) PER SECTOR FOR (3) SECTORS.
  - INSTALL (1) FIBER TRUNK.
  - INSTALL (2) DC TRUNK
  - INSTALL (1) DC/FIBER SQUID.
  - REUSE (3) EXISTING TMA.
  - REUSE (3) EXISTING RRUS-11, (1) PER SECTOR FOR (3) SECTORS.
  - REUSE EXISTING DC/FIBER SQUID.
  - REUSE (1) FIBER TRUNK.
  - REUSE (2) DC TRUNK.

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



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



550 COCHITUATE ROAD  
FRAMINGHAM, MA 01701



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



16 ESQUIRE ROAD  
BILLERICA, MA 01821

PLANS PREPARED BY:



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

NO.	DATE	DESCRIPTION	BY
A	09/07/16	FOR REVIEW	SE
B	09/16/16	REVISED AS PER MODIFIED SOW	GI

SITE INFORMATION:

**CT2547  
MIDDLETOWN FAIRCHILD  
ROAD  
FA CODE: 10141343  
50 FAIRCHILD ROAD  
CT 06457**

SEAL: Digitally signed by Michael Plahovinsak  
Date: 2016.09.19 18:11:24 -04'00'  
MFP PROJECT #23216-035

SHEET TITLE:  
**TITLE SHEET**

SHEET NUMBER:  
**T-1**

**GENERAL NOTES:**

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

**GROUNDING NOTES:**

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



550 COCHITUATE ROAD  
FRAMINGHAM, MA 01701



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125 WESTBOROUGH, MA 01581



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BILLERICA, MA 01821

PLANS PREPARED BY:



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

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CT2547  
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FA CODE: 10141343  
50 FAIRCHILD ROAD  
CT 06457

SEAL:

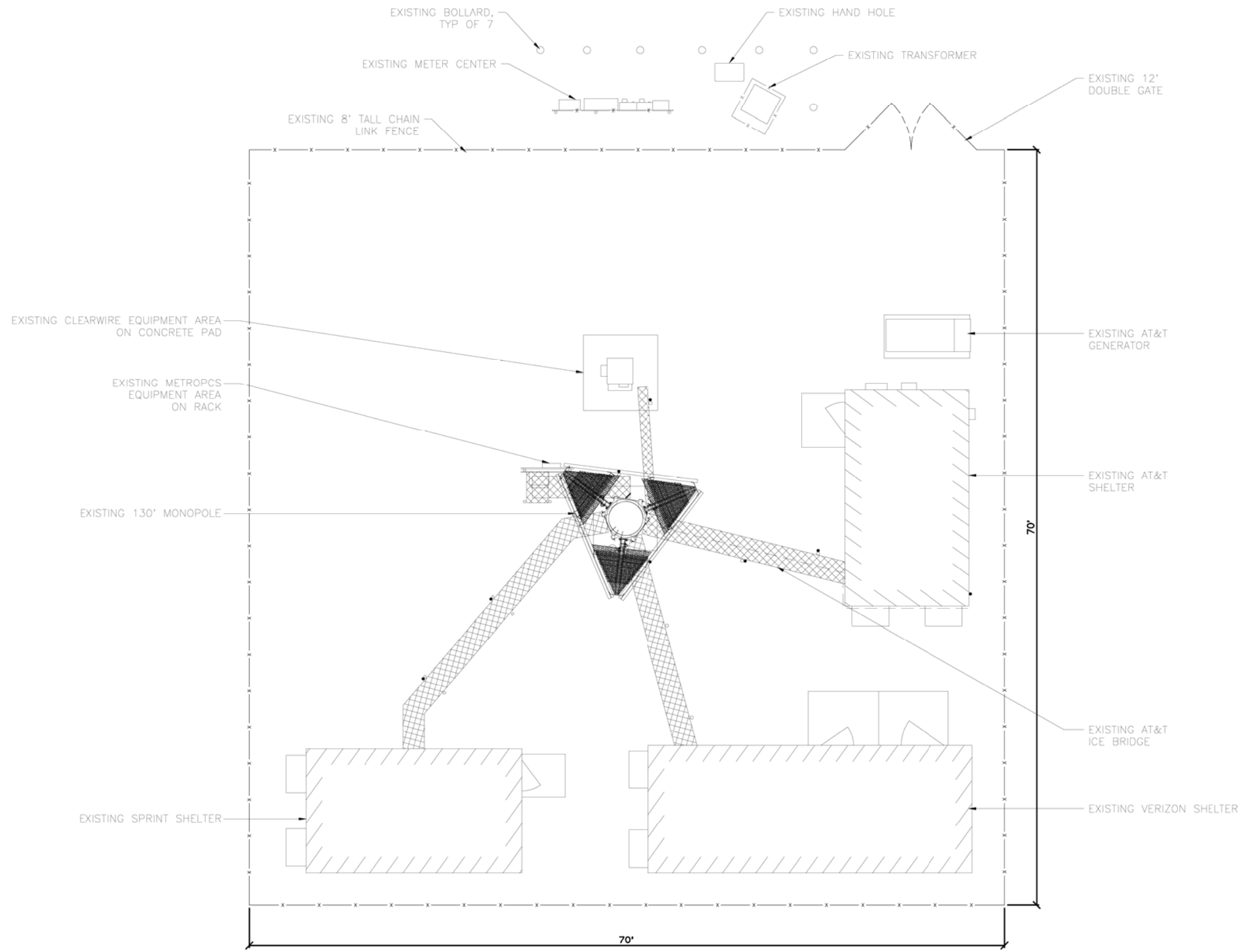


SHEET TITLE:

GENERAL NOTES &  
GROUNDING NOTES

SHEET NUMBER:

GN-1



MICHAEL F. PLAHOVINSAK, P.E. #25849  
 Sole Proprietor - Independent Engineer  
 18301 S.R. 341, Plain City, OH 43064  
 614-398-6250 / mike@mpeng.com



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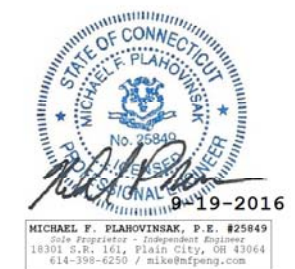
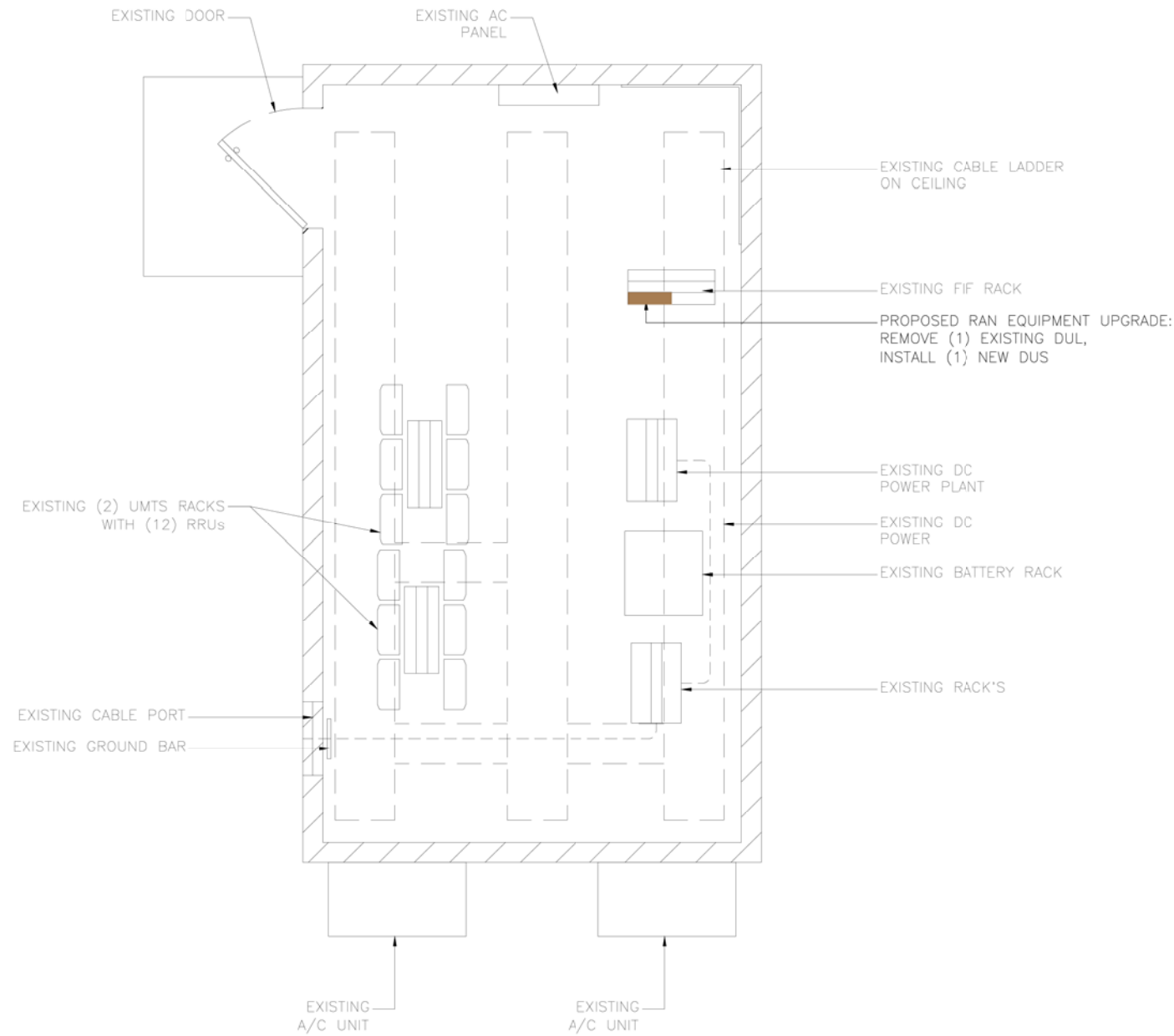
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**SITE PLAN**

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**A-1**







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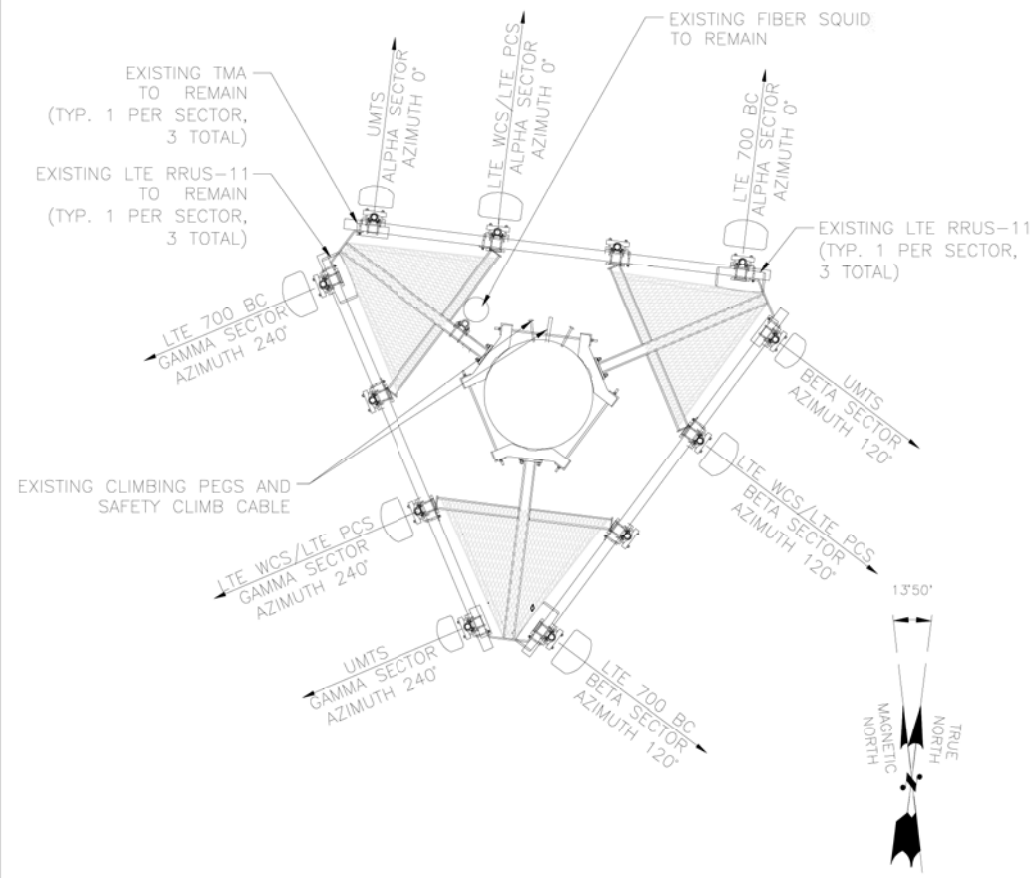
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EQUIPMENT LAYOUTS

SHEET NUMBER:

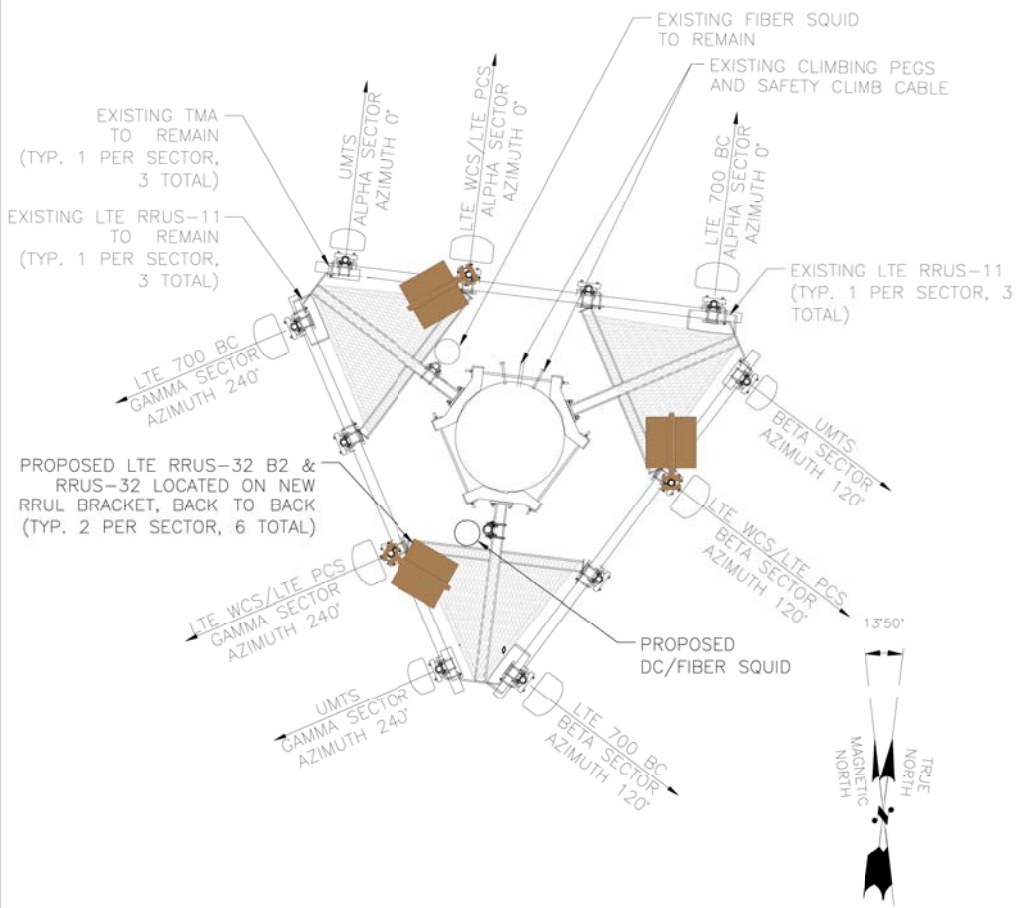
A-2



**EXISTING ANTENNA LAYOUT**

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

1



**PROPOSED ANTENNA LAYOUT**

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

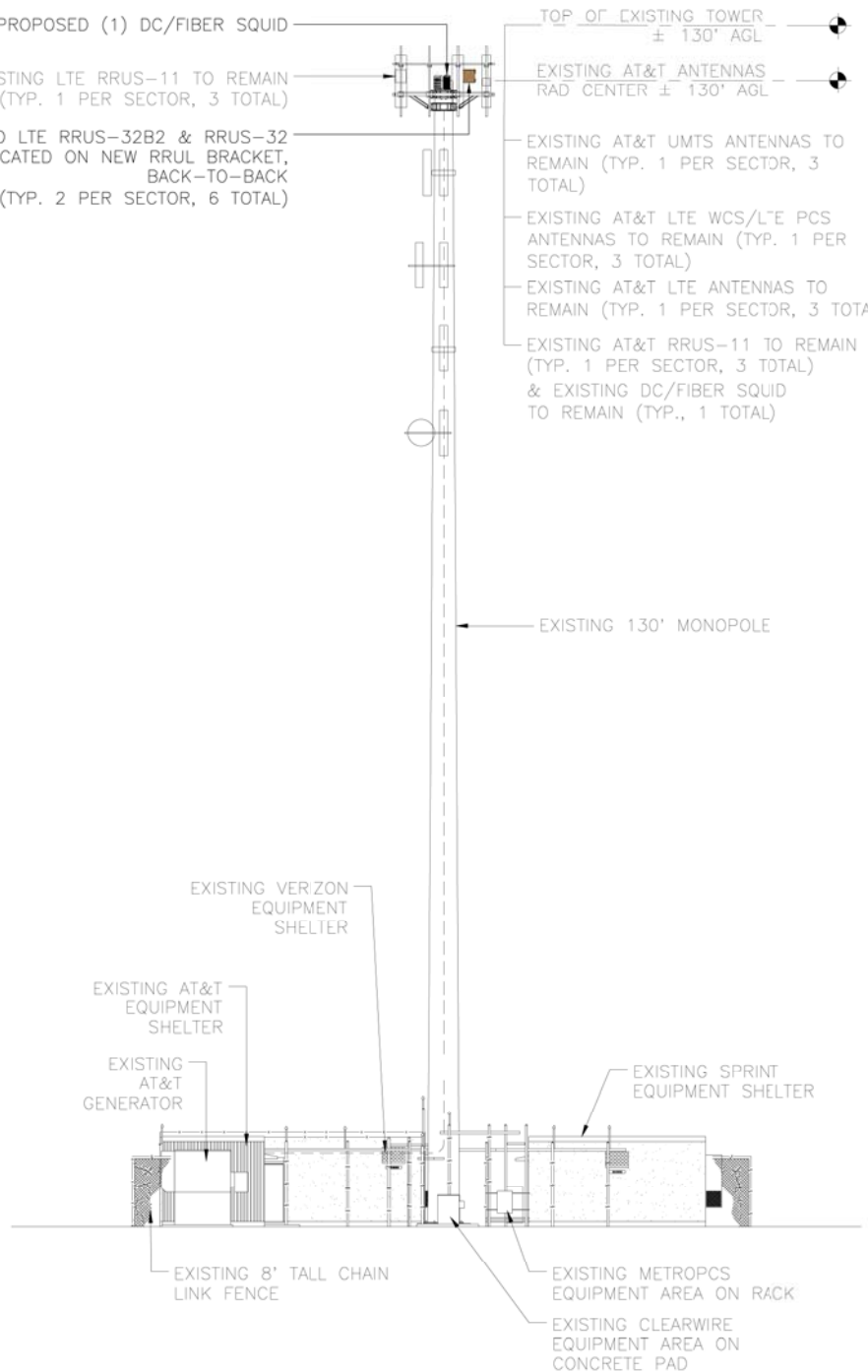
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**SPECIAL PRE-CONSTRUCTION WORK NOTE (SBA-PROVIDED TOWER STRUCTURAL ANALYSIS SPECIAL EQUIPMENT INSTALLATION REQUIREMENTS):**  
GENERAL CONTRACTOR SHALL FURNISH AND INSTALL ALL SPECIAL OR SUPPLEMENTAL ADDITIONAL TOWER-MOUNTED EQUIPMENT PER RECOMMENDATIONS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

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

**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.

- PROPOSED (1) DC/FIBER SQUID
- EXISTING LTE RRUS-11 TO REMAIN (TYP. 1 PER SECTOR, 3 TOTAL)
- PROPOSED LTE RRUS-32B2 & RRUS-32 LOCATED ON NEW RRUL BRACKET, BACK-TO-BACK (TYP. 2 PER SECTOR, 6 TOTAL)
- TOP OF EXISTING TOWER ± 130' AGL
- EXISTING AT&T ANTENNAS RAD CENTER ± 130' AGL
- EXISTING AT&T UMTS ANTENNAS TO REMAIN (TYP. 1 PER SECTOR, 3 TOTAL)
- EXISTING AT&T LTE WCS/LTE PCS ANTENNAS TO REMAIN (TYP. 1 PER SECTOR, 3 TOTAL)
- EXISTING AT&T LTE ANTENNAS TO REMAIN (TYP. 1 PER SECTOR, 3 TOTAL)
- EXISTING AT&T RRUS-11 TO REMAIN (TYP. 1 PER SECTOR, 3 TOTAL) & EXISTING DC/FIBER SQUID TO REMAIN (TYP., 1 TOTAL)



**TOWER ELEVATION**

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

3



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



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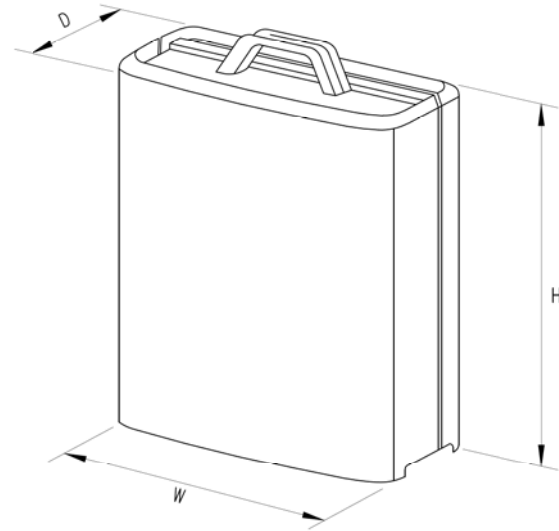
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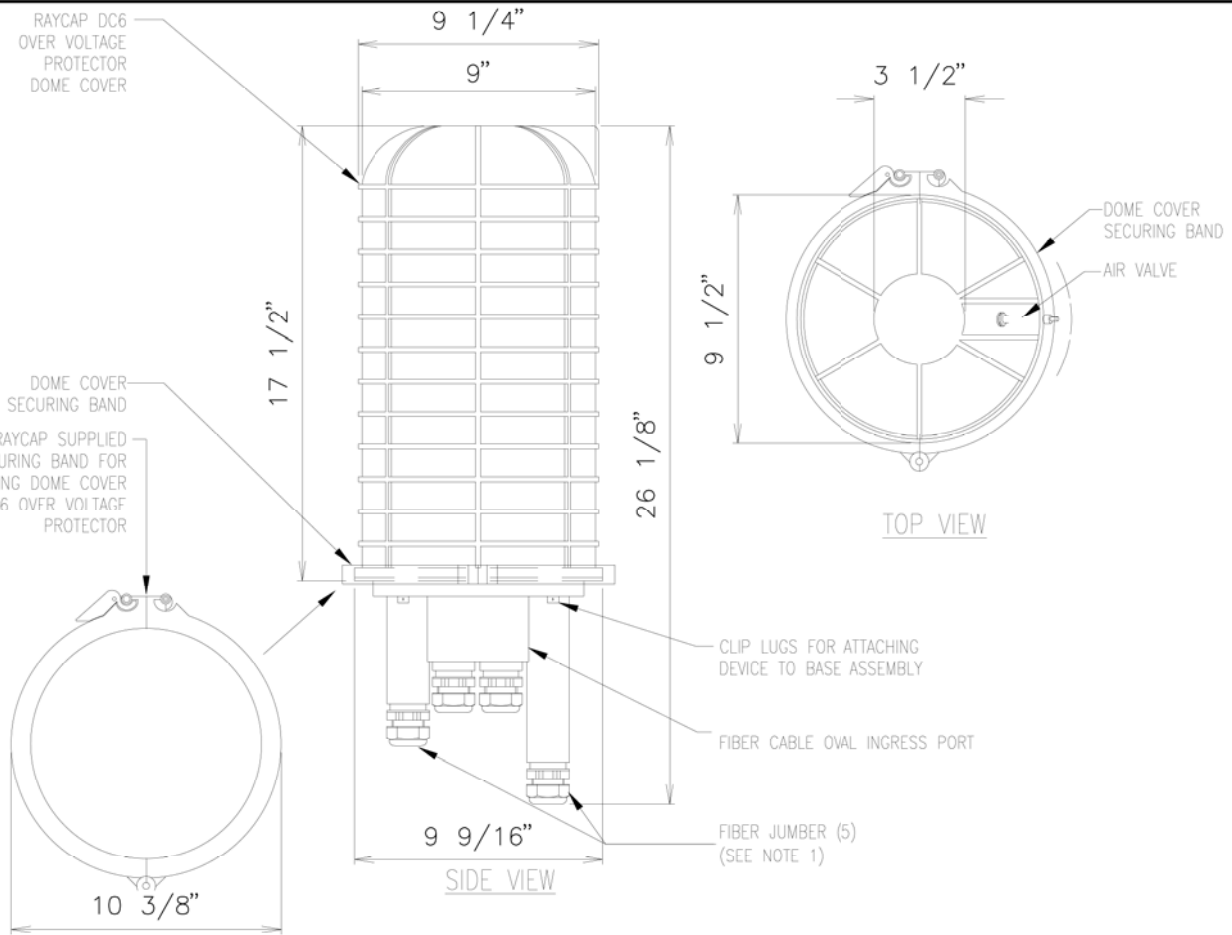
**ANTENNA LAYOUTS, TOWER ELEVATION & MOUNTING DETAILS**

SHEET NUMBER:  
**A-3**





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



RRUS DETAILS

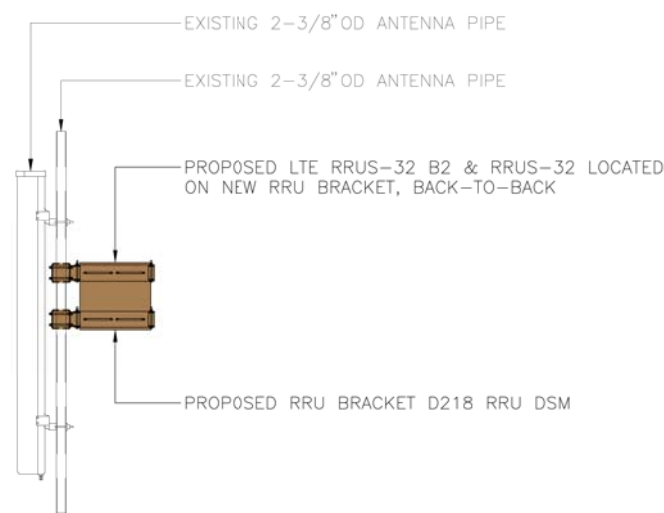
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SQUID DETAIL

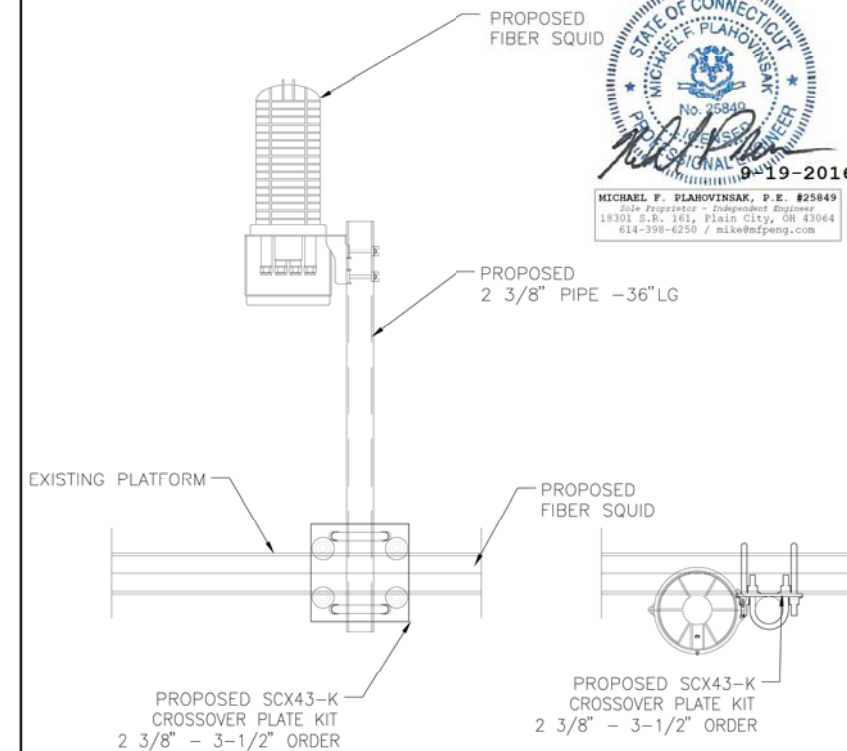
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SOURCE: TRYLON 9/1/16

PROPOSED LTE RRUS-32 B2 & RRUS-32 LOCATED ON NEW RRU BRACKET, BACK-TO-BACK (TYP. 2 PER SECTOR, 6 TOTAL)



MOUNTING DETAIL

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

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

N.T.S

3

MOUNTING DETAIL

N.T.S

4

MOUNTING DETAIL

N.T.S

5



550 COCHITUATE ROAD  
FRAMINGHAM, MA 01701



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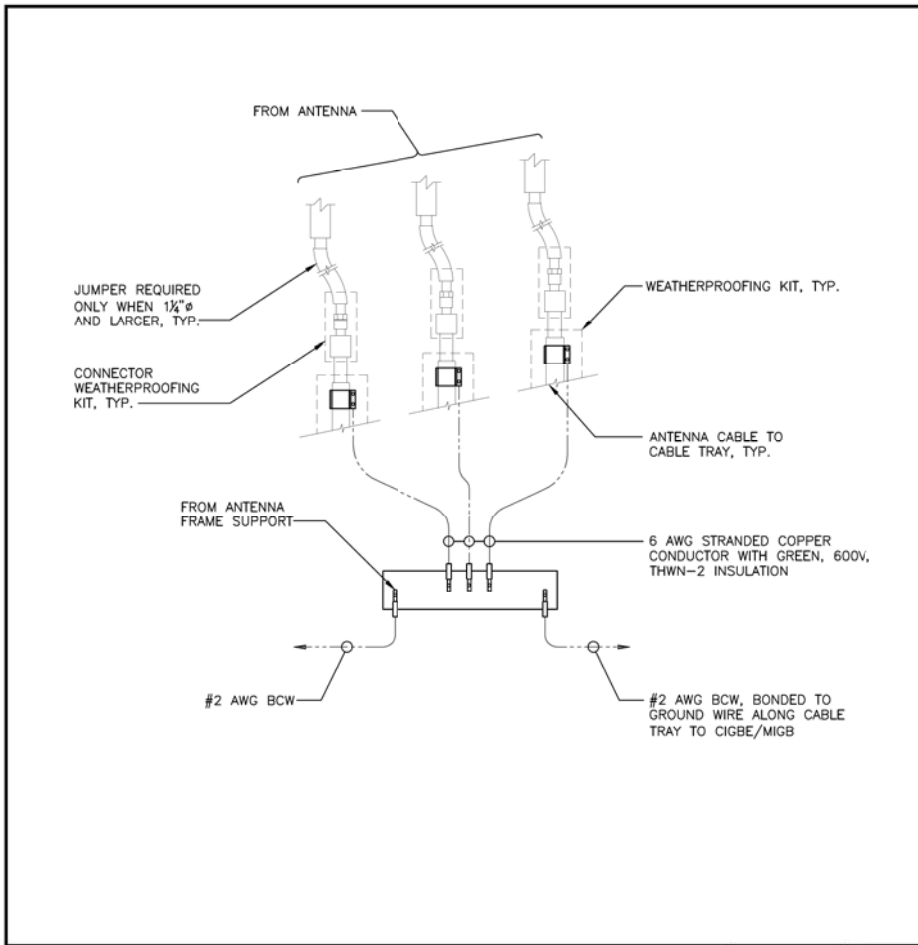
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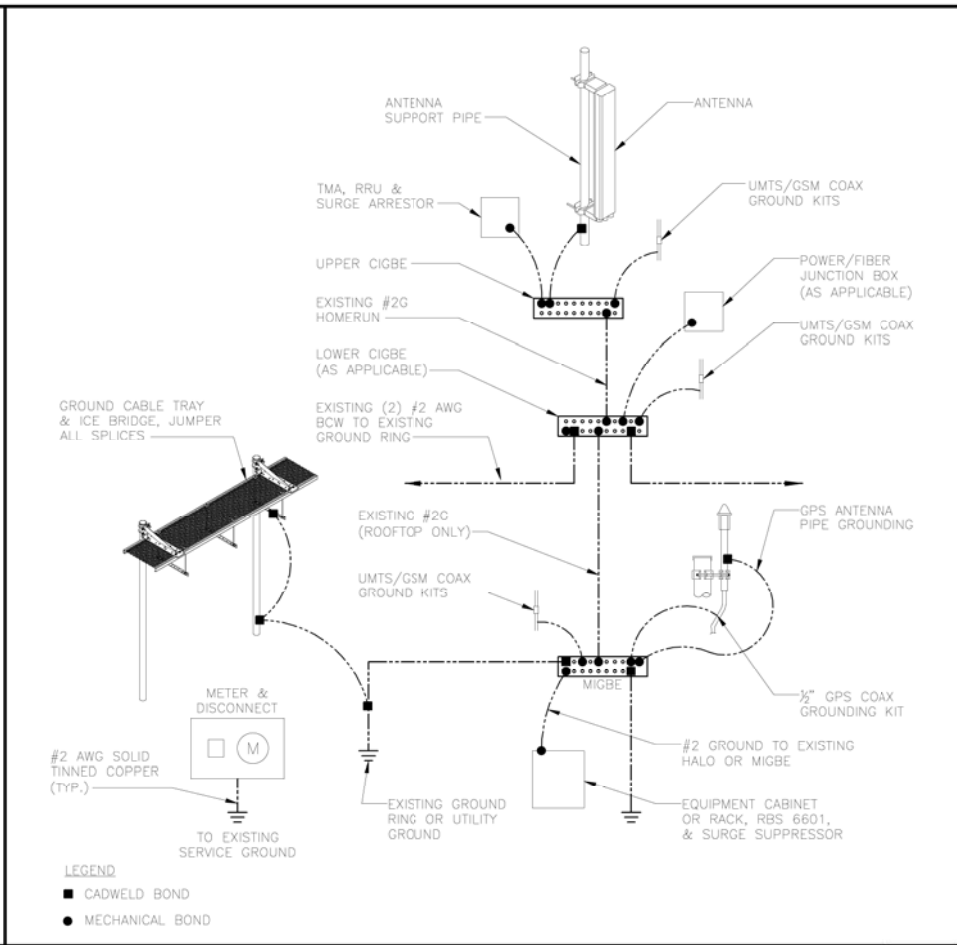
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A-4



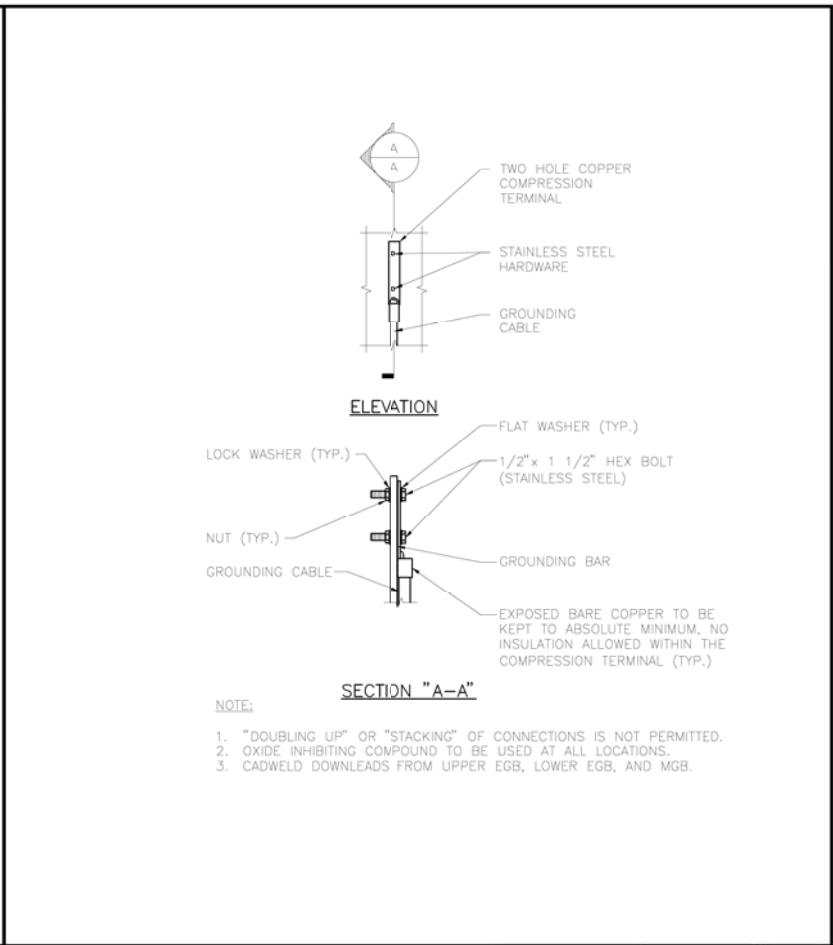
GROUND WIRE TO GROUND BAR CONNECTION DETAILS

N.T.S 1



GROUND RISER DIAGRAM

N.T.S 2



TYPICAL GROUND BAR CONNECTION DETAILS

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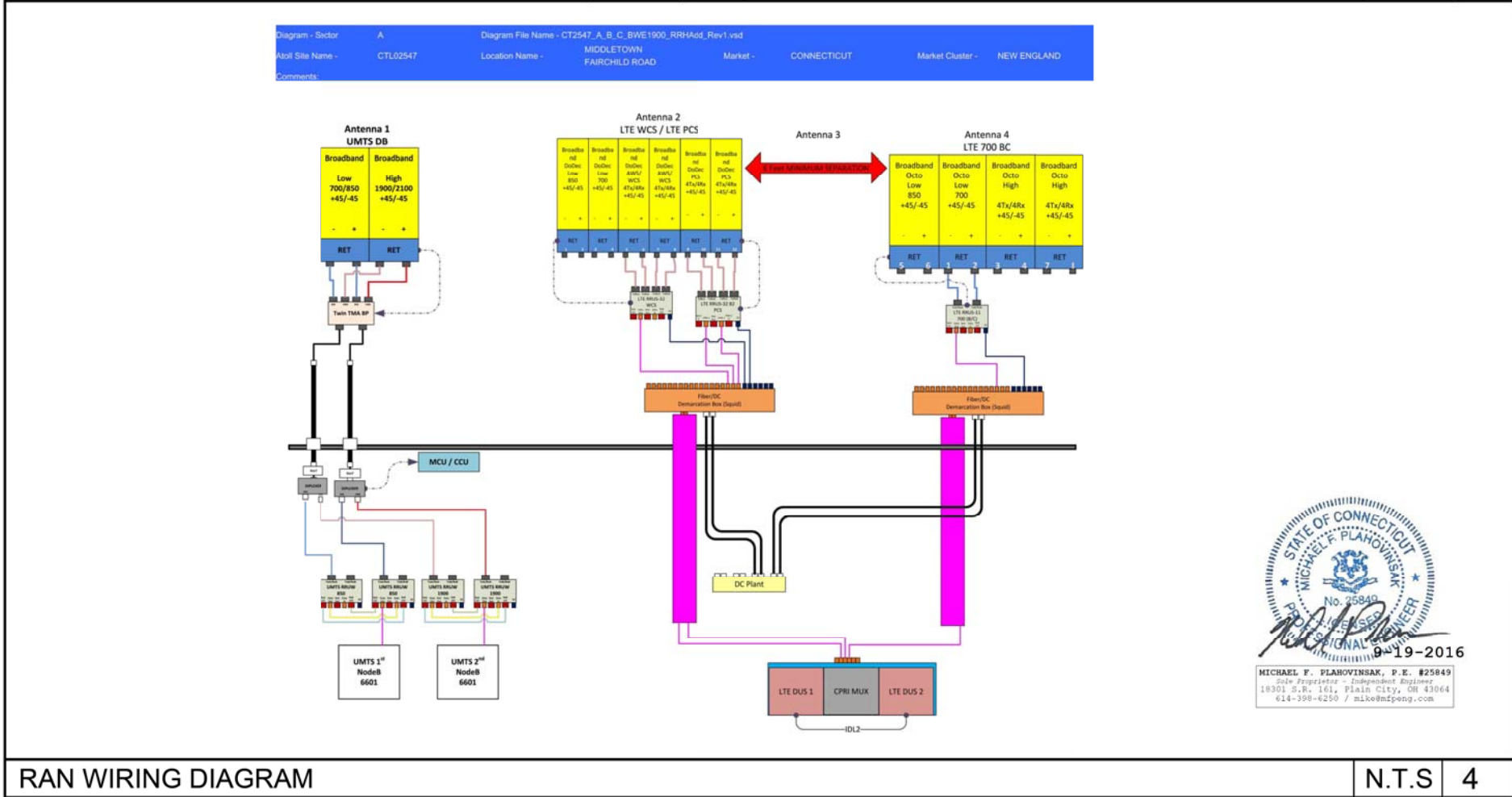
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SHEET TITLE:

GROUNDING, ONE-LINE DIAGRAM & DETAILS

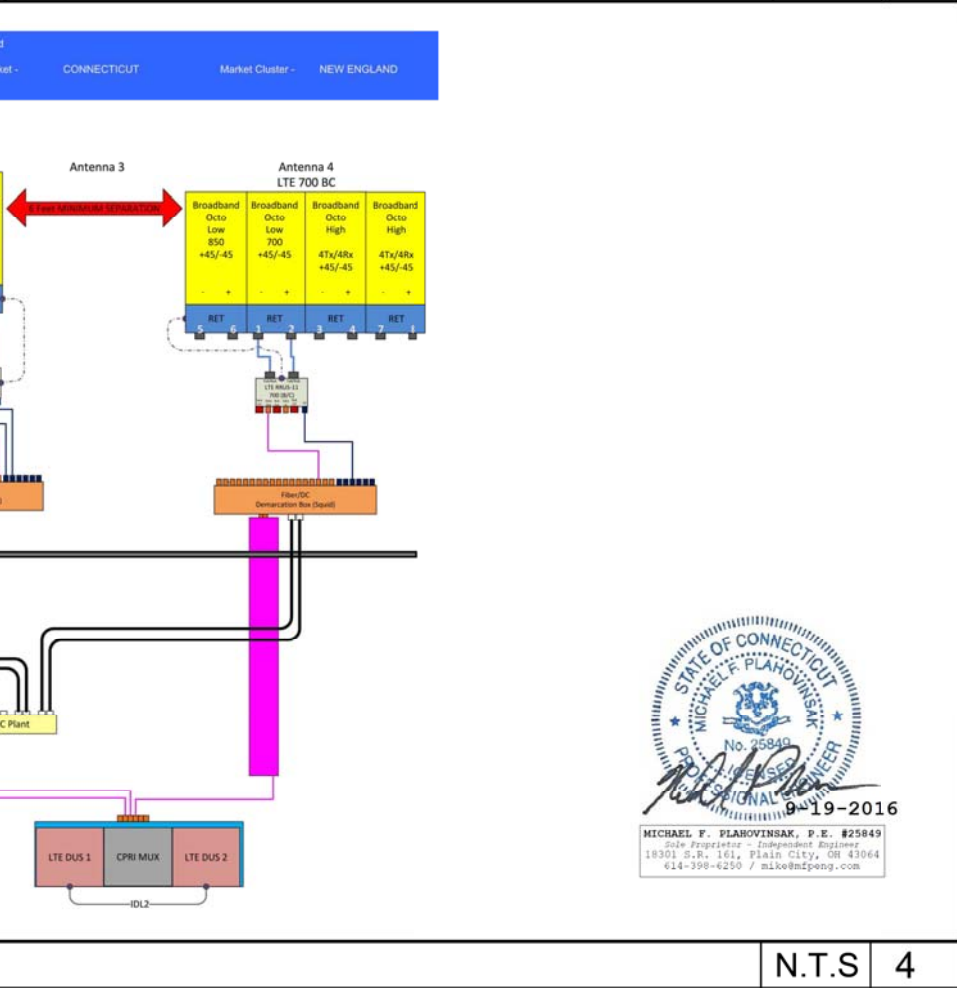
SHEET NUMBER:

G-1



RAN WIRING DIAGRAM

N.T.S 4



GROUND BAR DETAILS

N.T.S 5