



October 13, 2015

Members of the Siting Council  
Connecticut Siting Council  
Ten Franklin Square  
New Britain, CT 06051

RE: Notice of Exempt Modification  
86 Voluntown Road  
Stonington, CT 06379  
N 41.40557  
W -71.84520  
T-Mobile Site #: CT11343A\_L700

Members of the Siting Council:

On behalf of T-Mobile, SBA Communications is submitting an exempt modification application to the Connecticut Siting council for modification of existing equipment at a tower facility located at 86 Voluntown Rd., Stonington, CT.

The 86 Voluntown Road facility consists of a 196' Monopole Tower owned and operated by SBA Towers, LLC. In order to accommodate technological changes and enhance system performance in the State of Connecticut, T-Mobile plans to modify the equipment configurations at many of its existing cell sites. Please accept this letter and attachments as notification, pursuant to R.C.S.A. Section 16-50j-73, of construction which constitutes an exempt modification pursuant to R.C.S.A. Section 16-50j-72(b)(2). In compliance with R.C.S.A. Section 16-50j-73, a copy of this letter and attachments is being sent to the chief elected official of the municipality in which the affected cell site is located, First Selectman Edward Haberek, Jr., as well as the property owner, Blackrock Properties II, LLC.

As part of T-Mobile's L700 project, T-Mobile desires to upgrade their equipment to meet the new standards of 4G technology. The new equipment will allow customers to download files and browse the internet at a high rate of speed while also allowing their phones to be compatible with the latest 4G technology.

Attached is a summary of the planned modifications, including power density calculations reflecting the change in T-Mobile's operations at the site along with the required fee of \$625.

The changes to the facility do not constitute modifications as defined in Connecticut General Statutes (“C.G.S.”) Section 16-50i(d) because the general physical characteristics of the facility will not be significantly changed or altered. Rather, the planned changes to the facility fall squarely within those activities explicitly provided for in R.C.S.A. Section 16-50j-72(b)(2).

1. The overall height of the structure will be unaffected.
2. The proposed changes will not extend the site boundaries. There will be no effect on the site compound.
3. The proposed changes will not increase the noise level at the existing facility by six decibels or more.
4. The changes in radio frequency power density will not increase the calculated “worst case” power density for the combined operations at the site to a level at or above the applicable standard for uncontrolled environments as calculated for a mixed frequency site.

For the foregoing reasons, SBA Communications on behalf of T-Mobile, respectfully submits that the proposed changes at the referenced site constitute exempt modifications under R.C.S.A. Section 16-50j-72(b)(2).

Please feel free to call me at 508.251.0720 x 3804 with any questions you may have concerning this matter.

Thank you,



Kri Pelletier  
SBA Communications Corporation  
33 Boston Post Road West Suite 320  
Marlborough, MA 01752  
508-251-0720 x 3804 + T  
508-251-1755 + F  
203-446-7700 + C  
[kpelletier@sbsite.com](mailto:kpelletier@sbsite.com)



## T-Mobile

### Equipment Modification

86 Voluntown Road, Stonington, CT  
Site number CT11343A\_L700

**Tower Owner:** SBA Towers, LLC

**Equipment Configuration:** Monopole

#### Current and/or approved:

- (3) Ericsson - AIR 21 B2A B4P - Panel
- (3) Ericsson - AIR 21 B4A B2P - Panel
- (3) Ericsson - KRY 112 144/1 - TMA/TTA
- (12) 1-5/8" Lines
- (1) 1-5/8" Fiber

#### Final Configuration:

- (3) Ericsson - AIR 21 B2A B4P - Panel
- (3) Ericsson - AIR 21 B4A B2P - Panel
- (3) Commscope - LNX-6515DS-A1M - Panel
- (3) Ericsson - KRY 112 144/1 - TMA/TTA
- (3) Ericsson - S11B12 - RRU
- (12) 1-5/8" lines
- (1) 1-5/8" Fiber

#### Structural Information:

The attached structural analysis demonstrates that the tower and foundation will have adequate structural capacity to accommodate the proposed modifications.

#### Power Density:

The anticipated Maximum Composite contributions from the T-Mobile facility are 1.55% of the allowable FCC established general public limit. The anticipated composite MPE value for this site assuming all carriers present is 6.58% of the allowable FCC established general public limit sampled at the ground level.

Site Composite MPE%	
Carrier	MPE%
T-Mobile (Per Sector Max)	1.55 %
Nextel	0.18 %
Sprint	0.20 %
MetroPCS	0.46 %
AT&T	1.52 %
Verizon Wireless	2.67 %
<b>Site Total MPE %:</b>	<b>6.58 %</b>

October 13, 2015

Mr. Edward Haberek, Jr.  
First Selectman  
Town of Stonington  
152 Elm Street  
Stonington, CT 06378

RE: Telecommunications Facility @ 86 Voluntown Road, Stonington, CT

Dear Mr. Haberek,

In order to accommodate technological changes and enhance system performance in the State of Connecticut, T-Mobile will be changing its equipment configuration at certain cell sites.

As required by Regulations of Connecticut State Agencies (R.C.S.A.) Section 16-50j-73, the Connecticut Siting Council has been notified of the changes and will review T-Mobile's proposal. Please accept this letter as notification under Section 16-50j-73 of construction which constitutes an exempt modification pursuant to R.C.S.A. Section 16-50j-72(b)(2).

The accompanying letter to the Siting Council fully describes T-Mobile's proposal for the referenced cell site. However, if you have any questions or require any further information on our plans or the Siting Council's procedures, please call me at 508.251.0720 x 3804.

Thank you,



Kri Pelletier  
SBA Communications Company  
33 Boston Post Road West Suite 320  
Marlborough, MA 01752  
508-251-0720 x 3804 + T  
508-251-1755 + F  
203-446-7700 + C  
[kpelletier@sbsite.com](mailto:kpelletier@sbsite.com)

October 13, 2015

Blackrock Properties II LLC  
PO Box 1113  
Miamisburg OH 45343-1113  
Attn: President or Manager

RE: Telecommunications Facility @ 86 Voluntown Road, Stonington, CT

To Whom It May Concern:

In order to accommodate technological changes and enhance system performance in the State of Connecticut, T-Mobile will be changing its equipment configuration at certain cell sites.

As required by Regulations of Connecticut State Agencies (R.C.S.A.) Section 16-50j-73, the Connecticut Siting Council has been notified of the changes and will review T-Mobile's proposal. Please accept this letter as notification under Section 16-50j-73 of construction which constitutes an exempt modification pursuant to R.C.S.A. Section 16-50j-72(b)(2).

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**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 196 ft Valmont Monopole**

**Customer Name: SBA Communications Corp**

**Customer Site Number: CT00595-S**

**Customer Site Name: Stonington East**

**Carrier Name: T-Mobile**

**Carrier Site Number: CT11343A**

**Carrier Site Name: Stonington I-95**

**Site Location: 86 Voluntown Road**

**Stonington, Connecticut**

**New London County**

**Latitude: 41.405539**

**Longitude: -71.845247**

### Analysis Result:

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

**Max Foundation Usage: 89% [Pass]**

**Report Prepared By : Jarryd Tibbetts**



## **Introduction**

The purpose of this report is to summarize the analysis results on the 196 ft Valmont Monopole to support the proposed antennas and transmission lines in addition to those currently installed. Any modification listed under Sources of Information was assumed completed and was included in this analysis.

## **Sources of Information**

<b>Tower Drawings</b>	Tower Drawing prepared by Valmont, Order #17507-98 dated 6/23/96
<b>Foundation Drawing</b>	Foundation Drawing prepared by Valmont, Drawing #17507-S-01 dated 7/9/98
<b>Geotechnical Report</b>	Geotechnical Report prepared by SAGE, Project #G004 dated 6/10/98
<b>Modification Drawings</b>	N/A

## **Analysis Criteria**

The analysis was performed in accordance with the requirements and stipulations of the ANSI/TIA/EIA 222-F. 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>Basic Wind Speed Used in the Analysis:</b>	85.0 mph (Fastest mile)
<b>Basic Wind Speed with Ice:</b>	74 mph (Fastest mile) with 1/2" radial ice concurrent
<b>Operational Wind Speed:</b>	50 mph + 0" Radial ice
<b>Standard/Codes:</b>	ANSI/TIA/EIA 222-F / 2005 Connecticut State Building Code

## Existing Antennas, Mounts and Transmission Lines

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

Items	Elevation (ft)	Qty.	Antenna Descriptions	Mount Type & Qty.	Transmission Lines	Owner
1	195.0	3	RFS - APXVSP18-C-A20 - Panel	Low Profile Platform	(4) 1 1/4"	Sprint
2		3	RFS - APXVTM14-C-120 - Panel			
3		3	ALU - 1900MHz RRH - RRU			
4		3	ALU - TD-RRH8x20-25 - RRU			
5		3	ALU - 800MHz RRH - RRU			
6		3	ALU - 800MHz - Filter			
7		4	RFS - ACU-A20-N - RET			
8	167.0	3	Ericsson - AIR 21 B2A B4P - Panel	Low Profile Platform	(12) 1 5/8" (1) 1 5/8" Fiber	T-Mobile
9		3	Ericsson - AIR 21 B4A B2P - Panel			
11		3	Ericsson - KRY 112 144/1 - TMA/TTA			
13	150.0	6	Powerwave - 7700.00 - Panel	Low Profile Platform	(12) 1 5/8" (2) DC (1) Fiber	New Cingular
14		2	Powerwave - P65-17-XLH-RR - Panel			
15		1	KMW - AM-X-CD-14-65-00T - Panel			
16		6	Powerwave - LGP21401 - TMA/TTA			
17		6	Powerwave - LGP13519 - TMA/TTA			
18		6	Ericsson - RRUS 11 - RRU			
19		1	Raycap - DC6-48-60-18-8F - Surge Suppressor			
20	140.0	2	Commscope - LNX-8513DS-VTM - Panel	Low Profile Platform	*(12) 1 5/8" *(2) 1 5/8" Hybrid	Verizon
21		2	RFS - APL866513 - Panel			
22		6	Commscope - HBXX-6517DS-A2M - Panel			
23		3	Commscope - LNX-6414DS-A1M - Panel			
24		3	ALU - RRH2x40 700 - RRU			
25		3	ALU - RRH2x60-2100 - RRU			
26		1	RFS - DB-T1-6Z-8AB-OZ - Junction Box			
27	30.0	1	GPS	Standoff	-	Sprint

\*Considered to be outside of 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
8	167.0	3	Ericsson - AIR 21 B2A B4P - Panel	Platform w/ Hand Rails w/ Reinforcement	(12) 1 5/8" (1) 1 5/8" Fiber	T-Mobile
9		3	Ericsson - AIR 21 B4A B2P - Panel			
10		3	Commscope - LNX-6515DS-A1M - Panel			
11		3	Ericsson - KRY 112 144/1 - TMA/TTA			
12		3	Ericsson - S11B12 - RRU			

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

## **Analysis Results**

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

	Pole shafts	Anchor Bolts	Base Plate
Max. Usage:	<b>99.2%</b>	<b>84.3%</b>	<b>85.1%</b>
Pass/Fail	<b>Pass</b>	<b>Pass</b>	<b>Pass</b>

## **Foundations**

	Moment (Kip-Ft)	Shear (Kips)	Axial (Kips)
Original Design Reactions	5768.0	46.3	59.5
Analysis Reactions	5895.4	48.4	57.5

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

### **Operational Condition (Rigidity):**

Operational characteristics of the tower are found to be within the limits prescribed by ANSI/TIA/EIA 222-F for the installed antennas. Maximum twist/sway at the elevation of the proposed equipment is 2.4572 degrees under the operational wind speed as specified in the Analysis Criteria.

### **Conclusions**

Based on the analysis results, the existing structure and its foundation were found to be adequate to safely support the existing and proposed equipment and meet the minimum requirements per the ANSI/TIA/EIA 222-F 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 or/and 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 Stress 99.2% at 0.0ft

**Structure:** CT00595-S-SBA  
**Site Name:** Stonington East  
**Height:** 196.00 (ft)  
**Base Elev:** 0.000 (ft)

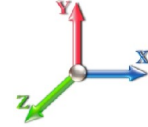
**Code:** EIA/TIA-222-F  
**Exposure:** C  
**Gh:** 1.69

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

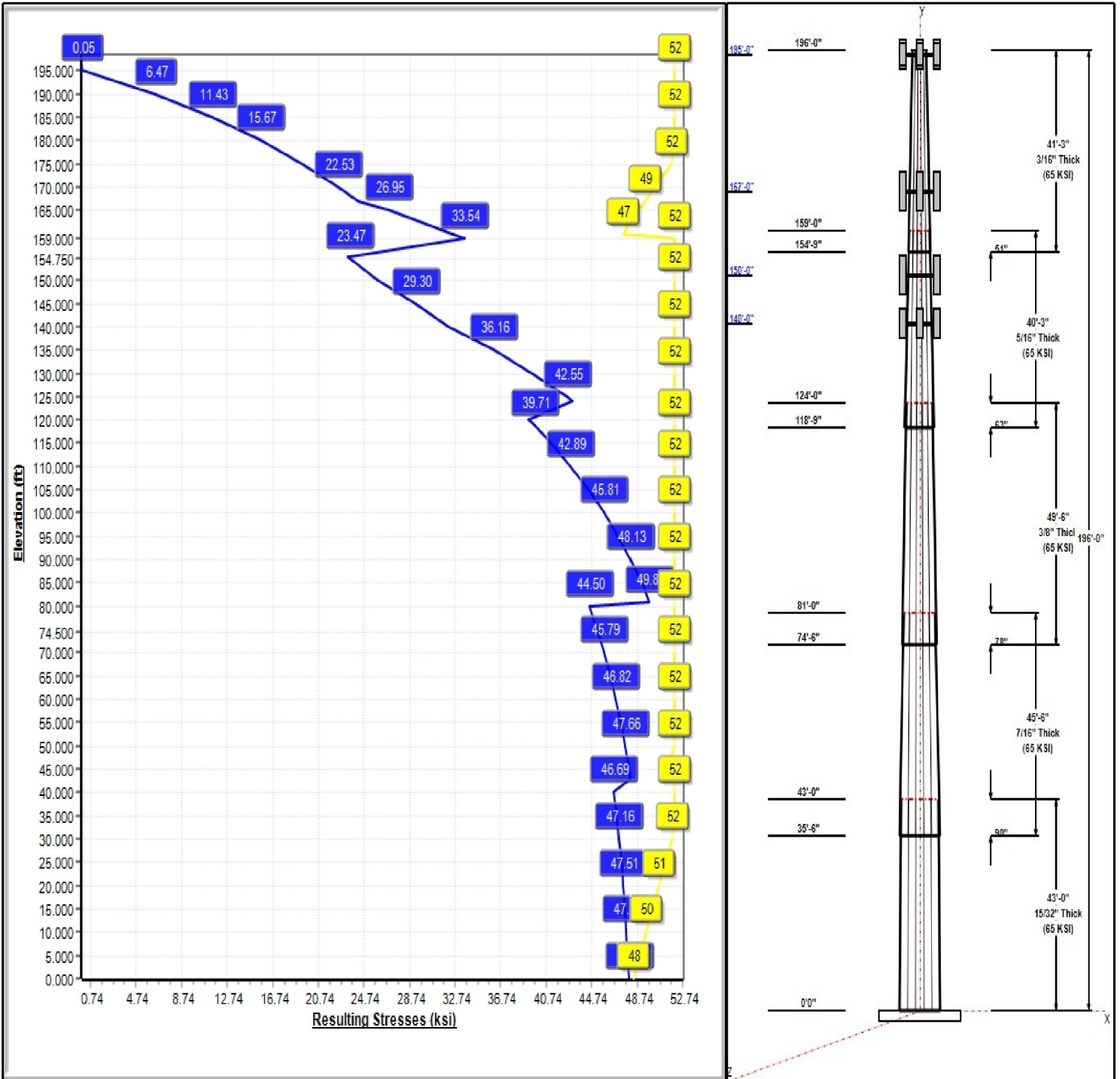
**Load Case : 85 mph Wind with 0 in Ice**



**Iterations:** 27

- 48 Allowable Stress
- 48 Resulting Stress

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## Structure: CT00595-S-SBA

**Type:** Tapered  
**Site Name:** Stonington East  
**Height:** 196.00 (ft)  
**Base Elev:** 0.00 (ft)

**Base Shape:** 12 Sided  
**Taper:** 0.25120

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### Shaft Properties

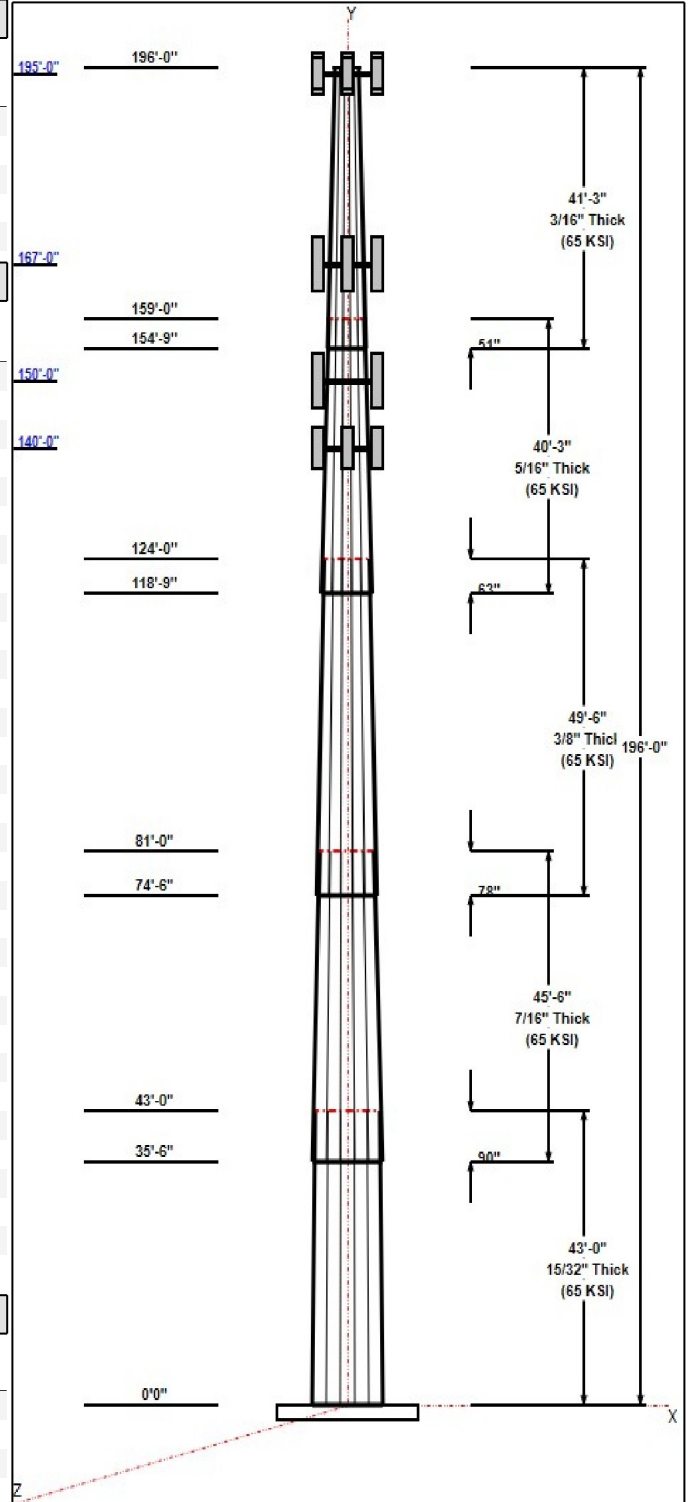
Seq	Length (ft)	Top (in)	Bottom (in)	Thick (in)	Joint Type	Taper	Grade (ksi)
1	43.00	53.20	64.00	0.469		0.25120	65
2	45.50	44.53	55.96	0.438	Slip	0.25120	65
3	49.50	34.48	46.91	0.375	Slip	0.25120	65
4	40.25	26.31	36.42	0.313	Slip	0.25120	65
5	41.25	17.39	27.75	0.188	Slip	0.25120	65

### Discrete Appurtenances

Attach Elev (ft)	Force Elev (ft)	Qty	Description	Carrier
196.00	196.00	1	6' Lightning rod	
195.00	195.00	3	1900MHz RRH	Sprint
195.00	195.00	3	800MHz Filter	Sprint
195.00	195.00	3	800MHz RRH	Sprint
195.00	195.00	4	ACU-A20-N	Sprint
195.00	195.00	3	APXVSP18-C-A20	Sprint
195.00	195.00	3	APXVTM14-C-120	Sprint
195.00	195.00	1	Low Profile Platform	Sprint
195.00	195.00	3	TD-RRH8x20-25	Sprint
167.00	167.00	3	AIR 21, 1.3M, B2A B4P	T-Mobile
167.00	167.00	3	AIR 21, 1.3M, B4A B2P	T-Mobile
167.00	167.00	3	KRY 112 144/1	T-Mobile
167.00	167.00	3	LNx-6515DS-A1M	T-Mobile
167.00	167.00	1	Platform w/ Hand Rails	T-Mobile
167.00	167.00	3	S11B12	T-Mobile
150.00	150.00	6	7700.00	New Cingular
150.00	150.00	1	AM-X-CD-14-65-00T-RET	New Cingular
150.00	150.00	1	DC6-48-60-18-8F	New Cingular
150.00	150.00	6	LGP13519	New Cingular
150.00	150.00	6	LGP21401	New Cingular
150.00	150.00	1	Low Profile Platform	New Cingular
150.00	150.00	2	P65-17-XLH-RR	New Cingular
150.00	150.00	6	RRUS 11	New Cingular
140.00	140.00	2	APL866513	Verizon
140.00	140.00	1	DB-T1-6Z-8AB-0Z	Verizon
140.00	140.00	6	HBXX-6517DS-A2M	Verizon
140.00	140.00	3	LNx-6414DS-A1M	Verizon
140.00	140.00	2	LNx-8513DS-VTM	Verizon
140.00	140.00	1	Low Profile Platform	Verizon
140.00	140.00	3	RRH2x40 700	Verizon
140.00	140.00	3	RRH2x60-2100	Verizon
30.00	30.00	1	GPS	Sprint

### Linear Appurtenances

Elev From (ft)	Elev To (ft)	Placement	Description	Carrier
0.00	195.00	Inside	1 1/4" Coax	Sprint
0.00	167.00	Inside	1 5/8" Coax	T-Mobile
0.00	167.00	Inside	1 5/8" Hybrid	T-Mobile
0.00	150.00	Inside	1 5/8" Coax	New Cingular
0.00	150.00	Inside	DC	New Cingular
0.00	150.00	Inside	Fiber	New Cingular
0.00	140.00	Outside	1 5/8" Coax	Verizon
0.00	140.00	Outside	1 5/8" Hybrid	Verizon



**Structure: CT00595-S-SBA**

**Type:** Tapered  
**Site Name:** Stonington East  
**Height:** 196.00 (ft)  
**Base Elev:** 0.00 (ft)

**Base Shape:** 12 Sided  
**Taper:** 0.25120

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**Anchor Bolts**

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

**Base Plate**

Thickness (in)	Specifications (in)	Grade (ksi)	Geometry
2.5000	78.8	60.0	Polygon

**Reactions**

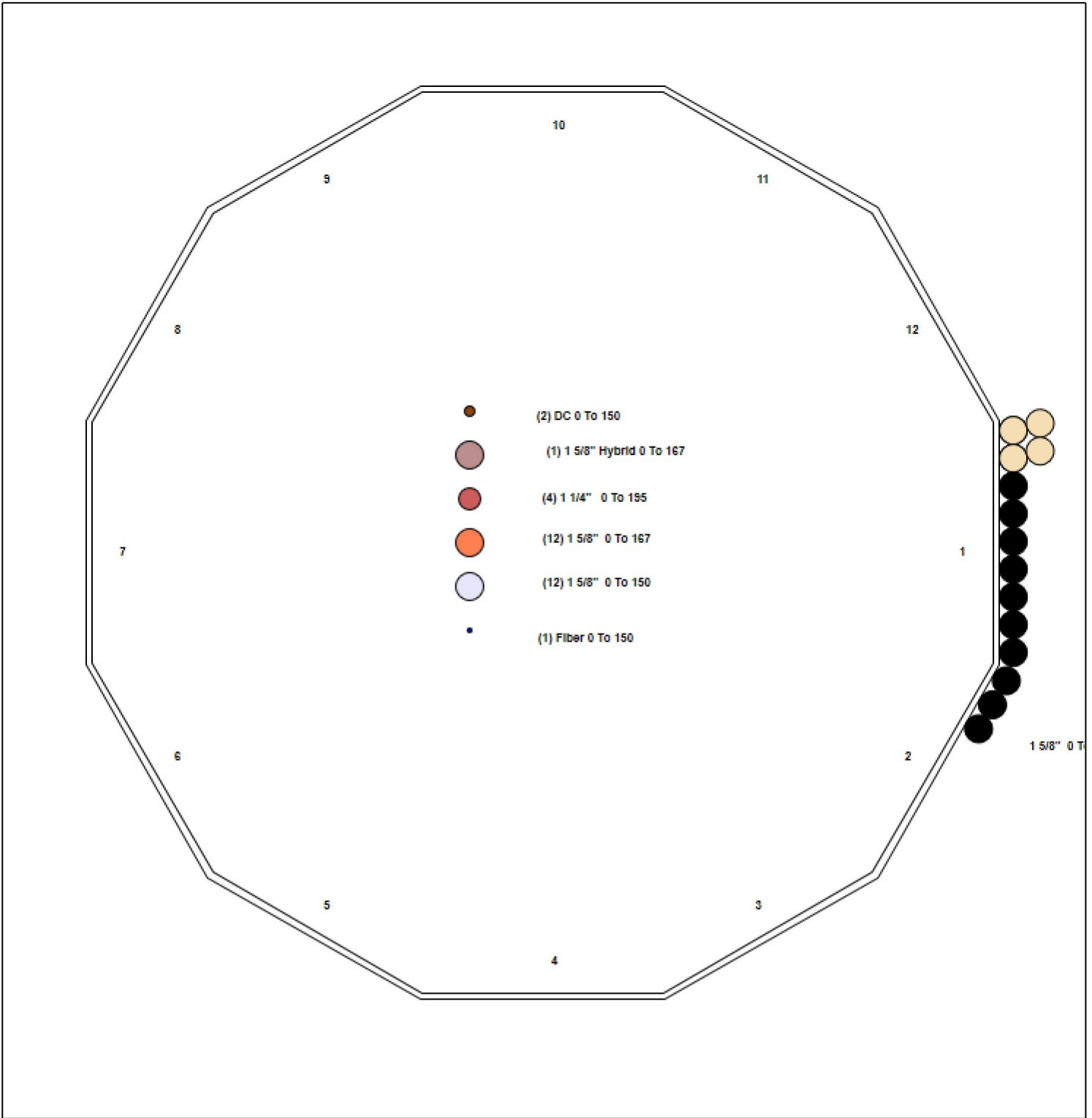
Load Case	Moment	Shear	Axial
85 mph Wind with 0" Ice	5895.4	48.4	49.5
73.61 mph Wind with 0.5" Ice	4932.9	39.5	57.5
50 mph Wind with 0" Ice	2043.5	16.8	49.6

# Structure: CT00595-S-SBA - Coax Line Placement

Type: Monopole  
Site Name: Stonington East  
Height: 196.00 (ft)

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## Shaft Properties

**Structure:** CT00595-S-SBA  
**Site Name:** Stonington East  
**Height:** 196.00 (ft)  
**Base Elev:** 0.000 (ft)

**Code:** EIA/TIA-222-F  
**Exposure:** C  
**Gh:** 1.69  
**Struct Class:** II

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Sec. No.	Shape	Length (ft)	Thick (in)	Fy (ksi)	Joint Type	Overlap (in)	Weight (lb)
1	12	43.000	0.4688	65		0.00	12,838
2	12	45.500	0.4375	65	Slip	90.00	10,863
3	12	49.500	0.3750	65	Slip	78.00	8,200
4	12	40.250	0.3125	65	Slip	63.00	4,280
5	12	41.250	0.1875	65	Slip	51.00	1,897
<b>Total Shaft Weight:</b>							<b>38,078</b>

Bottom

Top

Sec. No.	Dia (in)	Elev (ft)	Area (sqin)	Ix (in <sup>4</sup> )	W/t Ratio	D/t Ratio	Dia (in)	Elev (ft)	Area (sqin)	Ix (in <sup>4</sup> )	W/t Ratio	D/t Ratio	Taper
1	64.00	0.00	95.89	49402.09	34.44	136.5	53.20	43.00	79.59	28245.4	28.26	113.4	0.251199
2	55.96	35.50	78.21	30772.78	32.12	127.9	44.53	81.00	62.11	15411.7	25.12	101.7	0.251199
3	46.91	74.50	56.19	15532.14	31.37	125.0	34.48	124.0	41.18	6112.05	22.49	91.93	0.251199
4	36.42	118.7	36.33	6046.28	29.08	116.5	26.31	159.0	26.16	2256.60	20.41	84.18	0.251199
5	27.75	154.7	16.64	1613.96	37.51	148.0	17.39	196.0	10.39	392.30	22.70	92.74	0.251199

## Loading Summary

**Structure:** CT00595-S-SBA  
**Site Name:** Stonington East  
**Height:** 196.00 (ft)  
**Base Elev:** 0.000 (ft)

**Code:** EIA/TIA-222-F  
**Exposure:** C  
**Gh:** 1.69  
**Struct Class:** II

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### Discrete Appurtenances

No.	Elev (ft)	Description	Qty	No Ice			Ice			Hor. Ecc. (ft)	Vert Ecc (ft)
				Weight (lb)	CaAa (sf)	CaAa Factor	Weight (lb)	CaAa (sf)	CaAa Factor		
1	196.0	6' Lightning rod	1	6.50	0.38	1.00	11.80	0.980	1.00	0.00	0.00
2	195.0	1900MHz RRH	3	44.00	3.80	0.75	75.20	4.200	0.77	0.00	0.00
3	195.0	800MHz Filter	3	8.80	0.78	0.50	13.80	0.960	0.52	0.00	0.00
4	195.0	800MHz RRH	3	59.50	2.64	0.75	81.90	2.970	0.77	0.00	0.00
5	195.0	ACU-A20-N	4	1.00	0.14	0.75	2.30	0.220	0.77	0.00	0.00
6	195.0	APXVSP18-C-A20	3	57.00	8.26	0.83	106.50	9.080	0.85	0.00	0.00
7	195.0	APXVTM14-C-120	3	56.00	6.90	0.79	91.90	7.290	0.81	0.00	0.00
8	195.0	Low Profile Platform	1	1500.00	22.00	1.00	1800.00	27.00	1.00	0.00	0.00
9	195.0	TD-RRH8x20-25	3	70.00	4.72	0.69	92.00	4.970	0.71	0.00	0.00
10	167.0	AIR 21, 1.3M, B2A B4P	3	91.50	6.52	0.83	128.79	6.900	0.83	0.00	0.00
11	167.0	AIR 21, 1.3M, B4A B2P	3	90.30	6.52	0.83	127.59	6.900	0.83	0.00	0.00
12	167.0	KRY 112 144/1	3	11.00	0.41	0.70	13.14	0.490	0.72	0.00	0.00
13	167.0	LNx-6515DS-A1M	3	50.30	11.45	0.84	112.11	11.92	0.84	0.00	0.00
14	167.0	Platform w/ Hand Rails	1	2000.00	35.00	1.00	2600.00	48.00	1.00	0.00	0.00
15	167.0	S11B12	3	51.00	3.31	0.71	67.07	3.520	0.72	0.00	0.00
16	150.0	7700.00	6	16.00	1.91	0.79	0.00	2.260	0.81	0.00	0.00
17	150.0	AM-X-CD-14-65-00T-RET	1	36.40	5.50	0.75	68.30	6.100	0.77	0.00	0.00
18	150.0	DC6-48-60-18-8F	1	31.80	1.47	1.00	49.50	1.670	1.00	0.00	0.00
19	150.0	LGP13519	6	5.30	0.34	0.67	8.00	0.470	0.69	0.00	0.00
20	150.0	LGP21401	6	14.10	1.29	0.67	21.20	1.530	0.69	0.00	0.00
21	150.0	Low Profile Platform	1	1500.00	22.00	1.00	1800.00	27.00	1.00	0.00	0.00
22	150.0	P65-17-XLH-RR	2	59.00	11.46	0.75	121.00	12.39	0.77	0.00	0.00
23	150.0	RRUS 11	6	50.70	2.94	0.75	66.00	3.140	0.77	0.00	0.00
24	140.0	APL866513	2	15.70	4.29	0.93	0.00	4.860	0.94	0.00	0.00
25	140.0	DB-T1-6Z-8AB-OZ	1	18.90	5.60	1.00	46.00	5.870	1.00	0.00	0.00
26	140.0	HBXX-6517DS-A2M	6	40.80	8.73	0.83	91.20	9.590	0.85	0.00	0.00
27	140.0	LNx-6414DS-A1M	3	33.10	8.33	0.80	83.10	9.150	0.82	0.00	0.00
28	140.0	LNx-8513DS-VTM	2	26.30	8.41	0.83	76.80	9.240	0.85	0.00	0.00
29	140.0	Low Profile Platform	1	1500.00	22.00	1.00	1800.00	27.00	1.00	0.00	0.00
30	140.0	RRH2x40 700	3	50.00	2.48	0.75	71.10	2.810	0.77	0.00	0.00
31	140.0	RRH2x60-2100	3	19.50	1.76	0.75	48.40	1.930	0.77	0.00	0.00
32	30.00	GPS	1	10.00	1.00	1.00	18.00	1.250	1.00	0.00	0.00
<b>Totals:</b>			<b>91</b>	<b>9,647.00</b>			<b>13,054.60</b>				

### Linear Appurtenances

Bottom Elev. (ft)	Top Elev. (ft)	Description	No Ice		Ice		Exposed
			Weight (lb/ft)	CaAa (sf/ft)	Weight (lb/ft)	CaAa (sf/ft)	
0.00	195.0	(4) 1 1/4" Coax	1.98	0.00	0.00	0.00	Inside
0.00	167.0	(12) 1 5/8" Coax	1.04	0.00	0.00	0.00	Inside
0.00	167.0	(1) 1 5/8" Hybrid	3.30	0.00	0.00	0.00	Inside
0.00	150.0	(12) 1 5/8" Coax	1.04	0.00	0.00	0.00	Inside
0.00	150.0	(2) DC	0.80	0.00	0.00	0.00	Inside
0.00	150.0	(1) Fiber	0.06	0.00	0.00	0.00	Inside
0.00	140.0	(12) 1 5/8" Coax	1.04	0.20	0.00	0.25	Outside

## 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	140.0	(2) 1 5/8" Hybrid		2.20	0.20		0.00	0.25	Outside		
<b>Totals:</b>				<b>1,849.48</b>			<b>0.00</b>				

## Shaft Section Properties

**Structure:** CT00595-S-SBA  
**Site Name:** Stonington East  
**Height:** 196.00 (ft)  
**Base Elev:** 0.000 (ft)

**Code:** EIA/TIA-222-F  
**Exposure:** C  
**Gh:** 1.69  
**Struct Class:** II

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**Increment Length:** 5 (ft)

Elev (ft)	Description	Thick (in)	Dia (in)	Area (in^2)	Ix (in^4)	W/t Ratio	D/t Ratio	Fy (ksi)	Fb (ksi)	Weight (lb)
0.00		0.4688	64.000	95.892	49402.1	34.44	136.53	65	48	0.0
5.00		0.4688	62.744	93.997	46529.6	33.72	133.85	65	49	1615.4
10.00		0.4688	61.488	92.101	43770.7	33.00	131.17	65	50	1583.1
15.00		0.4688	60.232	90.205	41123.1	32.29	128.49	65	50	1550.9
20.00		0.4688	58.976	88.309	38584.5	31.57	125.82	65	51	1518.6
25.00		0.4688	57.720	86.414	36152.5	30.85	123.14	65	51	1486.4
30.00		0.4688	56.464	84.518	33825.0	30.13	120.46	65	52	1454.1
35.00		0.4688	55.208	82.622	31599.5	29.41	117.78	65	52	1421.9
35.50	Bot - Section 2	0.4688	55.082	82.433	31382.5	29.34	117.51	65	52	140.4
40.00		0.4688	53.952	80.726	29473.9	28.70	115.10	65	52	2434.6
43.00	Top - Section 1	0.4375	54.073	75.560	27745.2	30.97	123.60	65	52	1595.0
45.00		0.4375	53.571	74.852	26972.8	30.67	122.45	65	51	511.8
50.00		0.4375	52.315	73.082	25104.9	29.90	119.58	65	52	1258.5
55.00		0.4375	51.059	71.313	23325.3	29.13	116.71	65	52	1228.4
60.00		0.4375	49.803	69.544	21631.8	28.36	113.84	65	52	1198.3
65.00		0.4375	48.547	67.774	20022.3	27.59	110.96	65	52	1168.2
70.00		0.4375	47.291	66.005	18494.7	26.82	108.09	65	52	1138.1
74.50	Bot - Section 3	0.4375	46.161	64.413	17188.1	26.13	105.51	65	52	998.5
75.00		0.4375	46.035	64.236	17046.9	26.05	105.22	65	52	204.9
80.00		0.4375	44.779	62.466	15676.7	25.28	102.35	65	52	2018.4
81.00	Top - Section 2	0.3750	45.278	54.220	13953.9	30.21	120.74	65	52	397.0
85.00		0.3750	44.273	53.007	13038.0	29.49	118.06	65	52	729.7
90.00		0.3750	43.017	51.490	11950.6	28.59	114.71	65	52	889.0
95.00		0.3750	41.761	49.974	10925.4	27.70	111.36	65	52	863.1
100.00		0.3750	40.505	48.457	9960.6	26.80	108.01	65	52	837.3
105.00		0.3750	39.249	46.940	9054.3	25.90	104.66	65	52	811.5
110.00		0.3750	37.993	45.424	8204.7	25.00	101.31	65	52	785.7
115.00		0.3750	36.737	43.907	7410.0	24.11	97.97	65	52	759.9
118.75	Bot - Section 4	0.3750	35.795	42.770	6848.9	23.43	95.45	65	52	553.0
120.00		0.3750	35.481	42.391	6668.4	23.21	94.62	65	52	335.0
124.00	Top - Section 3	0.3125	35.101	35.006	5407.7	27.95	112.32	65	52	1052.1
125.00		0.3125	34.850	34.753	5291.4	27.74	111.52	65	52	118.7
130.00		0.3125	33.594	33.490	4734.8	26.66	107.50	65	52	580.5
135.00		0.3125	32.338	32.226	4218.8	25.58	103.48	65	52	559.0
140.00		0.3125	31.082	30.962	3741.6	24.51	99.46	65	52	537.5
145.00		0.3125	29.826	29.698	3301.9	23.43	95.44	65	52	516.0
150.00		0.3125	28.570	28.434	2898.0	22.35	91.42	65	52	494.5
154.75	Bot - Section 5	0.3125	27.377	27.234	2546.2	21.33	87.61	65	52	449.9
155.00		0.3125	27.314	27.170	2528.5	21.28	87.41	65	52	37.3
159.00	Top - Section 4	0.1875	26.684	15.997	1433.6	35.99	142.32	65	52	584.8
160.00		0.1875	26.433	15.846	1393.2	35.63	140.98	65	47	54.2
165.00		0.1875	25.177	15.088	1202.6	33.84	134.28	65	49	263.1
167.00		0.1875	24.675	14.784	1131.5	33.12	131.60	65	49	101.6
170.00		0.1875	23.921	14.329	1030.2	32.04	127.58	65	50	148.6
175.00		0.1875	22.665	13.571	875.2	30.25	120.88	65	52	237.3
180.00		0.1875	21.409	12.813	736.5	28.45	114.18	65	52	224.4
185.00		0.1875	20.153	12.054	613.3	26.66	107.48	65	52	211.5
190.00		0.1875	18.897	11.296	504.7	24.86	100.79	65	52	198.6
195.00		0.1875	17.641	10.538	409.7	23.07	94.09	65	52	185.7
196.00		0.1875	17.390	10.386	392.3	22.71	92.75	65	52	35.6

**38078.0**

## Wind Loading - Shaft

**Structure:** CT00595-S-SBA  
**Site Name:** Stonington East  
**Height:** 196.00 (ft)  
**Base Elev:** 0.000 (ft)

**Code:** EIA/TIA-222-F  
**Exposure:** C  
**Gh:** 1.69  
**Struct Class:** II

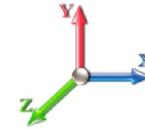
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**Load Case:** 85 mph Wind with 0" Ice

**Iterations:** 27

**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		0.00	1.00	18.496	31.26	453.33	1.030	0.000	0.00	0.000	0.00	0.0	0.0	0.0
5.00		0.00	1.00	18.496	31.26	444.44	1.030	0.000	5.00	26.405	27.20	850.1	0.0	1615.4
10.00		0.00	1.00	18.496	31.26	435.54	1.030	0.000	5.00	25.882	26.66	833.3	0.0	1583.1
15.00		0.00	1.00	18.496	31.26	426.64	1.030	0.000	5.00	25.358	26.12	816.4	0.0	1550.9
20.00		0.00	1.00	18.496	31.26	417.75	1.030	0.000	5.00	24.835	25.58	799.6	0.0	1518.6
25.00		0.00	1.00	18.496	31.26	408.85	1.030	0.000	5.00	24.312	25.04	782.7	0.0	1486.4
30.00	Appurtenance(s)	0.00	1.00	18.496	31.26	399.95	1.030	0.000	5.00	23.788	24.50	765.9	0.0	1454.1
35.00		0.00	1.02	18.810	31.79	394.36	1.030	0.000	5.00	23.265	23.96	761.7	0.0	1421.9
35.50	Bot - Section 2	0.00	1.02	18.886	31.92	394.26	1.030	0.000	0.50	2.298	2.37	75.5	0.0	140.4
40.00		0.00	1.06	19.541	33.02	392.81	1.030	0.000	4.50	20.772	21.40	706.6	0.0	2434.6
43.00	Top - Section 1	0.00	1.08	19.949	33.71	391.34	1.030	0.000	3.00	13.613	14.02	472.7	0.0	1595.0
45.00		0.00	1.09	20.210	34.15	396.65	1.030	0.000	2.00	8.970	9.24	315.6	0.0	511.8
50.00		0.00	1.13	20.827	35.20	393.23	1.030	0.000	5.00	22.060	22.72	799.8	0.0	1258.5
55.00		0.00	1.16	21.402	36.17	389.05	1.030	0.000	5.00	21.536	22.18	802.3	0.0	1228.4
60.00		0.00	1.19	21.941	37.08	384.22	1.030	0.000	5.00	21.013	21.64	802.5	0.0	1198.3
65.00		0.00	1.21	22.449	37.94	378.84	1.030	0.000	5.00	20.490	21.10	800.7	0.0	1168.2
70.00		0.00	1.24	22.929	38.75	372.97	1.030	0.000	5.00	19.966	20.57	796.9	0.0	1138.1
74.50	Bot - Section 3	0.00	1.26	23.341	39.45	367.31	1.030	0.000	4.50	17.522	18.05	711.9	0.0	998.5
75.00		0.00	1.26	23.386	39.52	366.66	1.030	0.000	0.50	1.952	2.01	79.5	0.0	204.9
80.00		0.00	1.29	23.821	40.26	359.96	1.030	0.000	5.00	19.232	19.81	797.5	0.0	2018.4
81.00	Top - Section 2	0.00	1.29	23.906	40.40	358.57	1.030	0.000	1.00	3.784	3.90	157.4	0.0	397.0
85.00		0.00	1.31	24.237	40.96	358.99	1.030	0.000	4.00	14.925	15.37	629.7	0.0	729.7
90.00		0.00	1.33	24.636	41.63	351.66	1.030	0.000	5.00	18.185	18.73	779.9	0.0	889.0
95.00		0.00	1.35	25.020	42.28	344.04	1.030	0.000	5.00	17.662	18.19	769.2	0.0	863.1
100.00		0.00	1.37	25.389	42.91	336.15	1.030	0.000	5.00	17.139	17.65	757.4	0.0	837.3
105.00		0.00	1.39	25.745	43.51	328.00	1.030	0.000	5.00	16.615	17.11	744.6	0.0	811.5
110.00		0.00	1.41	26.090	44.09	319.62	1.030	0.000	5.00	16.092	16.57	730.8	0.0	785.7
115.00		0.00	1.43	26.423	44.66	311.03	1.030	0.000	5.00	15.569	16.04	716.1	0.0	759.9
118.75	Bot - Section 4	0.00	1.44	26.667	45.07	304.44	1.030	0.000	3.75	11.333	11.67	526.1	0.0	553.0
120.00		0.00	1.45	26.747	45.20	302.22	1.030	0.000	1.25	3.777	3.89	175.9	0.0	335.0
124.00	Top - Section 3	0.00	1.46	26.998	45.63	295.05	1.030	0.000	4.00	11.868	12.22	557.7	0.0	1052.1
125.00		0.00	1.46	27.060	45.73	298.59	1.030	0.000	1.00	2.915	3.00	137.3	0.0	118.7
130.00		0.00	1.48	27.365	46.25	289.44	1.030	0.000	5.00	14.259	14.69	679.2	0.0	580.5
135.00		0.00	1.50	27.662	46.75	280.13	1.030	0.000	5.00	13.736	14.15	661.4	0.0	559.0
140.00	Appurtenance(s)	0.00	1.51	27.951	47.24	270.65	1.030	0.000	5.00	13.213	13.61	642.8	0.0	537.5
145.00		0.00	1.53	28.233	47.71	261.02	1.030	0.000	5.00	12.689	13.07	623.6	0.0	516.0
150.00	Appurtenance(s)	0.00	1.54	28.507	48.18	251.24	1.030	0.000	5.00	12.166	12.53	603.7	0.0	494.5
154.75	Bot - Section 5	0.00	1.56	28.762	48.61	241.82	1.030	0.000	4.75	11.073	11.41	554.4	0.0	449.9
155.00		0.00	1.56	28.776	48.63	241.32	1.030	0.000	0.25	0.578	0.59	28.9	0.0	37.3
159.00	Top - Section 4	0.00	1.57	28.986	48.99	233.29	1.030	0.000	4.00	9.062	9.33	457.2	0.0	584.8
160.00		0.00	1.57	29.038	49.07	234.60	1.030	0.000	1.00	2.213	2.28	111.9	0.0	54.2
165.00		0.00	1.58	29.294	49.51	224.44	1.030	0.000	5.00	10.752	11.07	548.3	0.0	263.1
167.00	Appurtenance(s)	0.00	1.59	29.395	49.68	220.34	1.030	0.000	2.00	4.154	4.28	212.6	0.0	101.6
170.00		0.00	1.60	29.545	49.93	214.15	1.030	0.000	3.00	6.074	6.26	312.4	0.0	148.6
175.00		0.00	1.61	29.791	50.35	203.75	1.030	0.000	5.00	9.705	10.00	503.3	0.0	237.3
180.00		0.00	1.62	30.032	50.75	193.24	1.030	0.000	5.00	9.182	9.46	480.0	0.0	224.4
185.00		0.00	1.64	30.268	51.15	182.61	1.030	0.000	5.00	8.659	8.92	456.2	0.0	211.5
190.00		0.00	1.65	30.499	51.54	171.89	1.030	0.000	5.00	8.135	8.38	431.9	0.0	198.6

## Wind Loading - Shaft

**Structure:** CT00595-S-SBA  
**Site Name:** Stonington East  
**Height:** 196.00 (ft)  
**Base Elev:** 0.000 (ft)

**Code:** EIA/TIA-222-F  
**Exposure:** C  
**Gh:** 1.69  
**Struct Class:** II

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195.00 Appurtenance(s)	0.00	1.66	30.726	51.93	161.06	1.030	0.000	5.00	7.612	7.84	407.1	0.0	185.7
196.00 Appurtenance(s)	0.00	1.66	30.771	52.00	158.88	1.030	0.000	1.00	1.460	1.50	78.2	0.0	35.6
<b>Totals:</b>								<b>196.00</b>			<b>27,246.6</b>		<b>38,078.0</b>

## Discrete Appurtenance Forces

**Structure:** CT00595-S-SB  
**Site Name:** Stonington East  
**Height:** 196.00 (ft)  
**Base Elev:** 0.000 (ft)

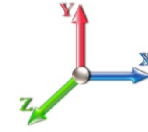
**Code:** EIA/TIA-222-F  
**Exposure:** C  
**Gh:** 1.69  
**Struct Class:** II

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**Load Case:** 85 mph Wind with 0" Ice

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



**Iterations:** 27

No.	Elev (ft)	Description	Qty	qz (psf)	qzGh (psf)	CaAa Factor	Total CaAa (sf)	Dead Load (lb)	Horiz Ecc (ft)	Vert Ecc (ft)	Wind FX (lb)	Mom Y (lb-ft)	Mom Z (lb-ft)
1	196.00	6' Lightning rod	1	30.771	52.004	1.00	0.38	6.50	0.000	0.000	19.76	0.00	0.00
2	195.00	ACU-A20-N	4	30.726	51.928	0.75	0.42	4.00	0.000	0.000	21.81	0.00	0.00
3	195.00	1900MHz RRH	3	30.726	51.928	0.75	8.55	132.00	0.000	0.000	443.98	0.00	0.00
4	195.00	800MHz RRH	3	30.726	51.928	0.75	5.94	178.50	0.000	0.000	308.45	0.00	0.00
5	195.00	800MHz Filter	3	30.726	51.928	0.50	1.17	26.40	0.000	0.000	60.76	0.00	0.00
6	195.00	APXVTM14-C-120	3	30.726	51.928	0.79	16.35	168.00	0.000	0.000	849.17	0.00	0.00
7	195.00	Low Profile Platform	1	30.726	51.928	1.00	22.00	1500.00	0.000	0.000	1142.41	0.00	0.00
8	195.00	TD-RRH8x20-25	3	30.726	51.928	0.69	9.77	210.00	0.000	0.000	507.35	0.00	0.00
9	195.00	APXVSPP18-C-A20	3	30.726	51.928	0.83	20.57	171.00	0.000	0.000	1068.02	0.00	0.00
10	167.00	KRY 112 144/1	3	29.395	49.678	0.70	0.86	33.00	0.000	0.000	42.77	0.00	0.00
11	167.00	AIR 21, 1.3M, B2A B4P	3	29.395	49.678	0.83	16.16	274.50	0.000	0.000	802.63	0.00	0.00
12	167.00	AIR 21, 1.3M, B4A B2P	3	29.395	49.678	0.83	16.16	270.90	0.000	0.000	802.63	0.00	0.00
13	167.00	Platform w/ Hand Rails	1	29.395	49.678	1.00	35.00	2000.00	0.000	0.000	1738.73	0.00	0.00
14	167.00	LNx-6515DS-A1M	3	29.395	49.678	0.84	28.72	150.90	0.000	0.000	1426.59	0.00	0.00
15	167.00	S11B12	3	29.395	49.678	0.71	7.01	153.00	0.000	0.000	348.27	0.00	0.00
16	150.00	RRUS 11	6	28.507	48.177	0.75	13.23	304.20	0.000	0.000	637.39	0.00	0.00
17	150.00	P65-17-XLH-RR	2	28.507	48.177	0.75	17.19	118.00	0.000	0.000	828.17	0.00	0.00
18	150.00	LGP21401	6	28.507	48.177	0.67	5.19	84.60	0.000	0.000	249.84	0.00	0.00
19	150.00	LGP13519	6	28.507	48.177	0.67	1.37	31.80	0.000	0.000	65.85	0.00	0.00
20	150.00	DC6-48-60-18-8F	1	28.507	48.177	1.00	1.47	31.80	0.000	0.000	70.82	0.00	0.00
21	150.00	AM-X-CD-14-65-00T-RET	1	28.507	48.177	0.75	4.13	36.40	0.000	0.000	198.73	0.00	0.00
22	150.00	7700.00	6	28.507	48.177	0.79	9.05	96.00	0.000	0.000	436.17	0.00	0.00
23	150.00	Low Profile Platform	1	28.507	48.177	1.00	22.00	1500.00	0.000	0.000	1059.90	0.00	0.00
24	140.00	LNx-6414DS-A1M	3	27.951	47.237	0.80	19.99	99.30	0.000	0.000	944.36	0.00	0.00
25	140.00	APL866513	2	27.951	47.237	0.93	7.98	31.40	0.000	0.000	376.92	0.00	0.00
26	140.00	DB-T1-6Z-8AB-0Z	1	27.951	47.237	1.00	5.60	18.90	0.000	0.000	264.53	0.00	0.00
27	140.00	HBXX-6517DS-A2M	6	27.951	47.237	0.83	43.48	244.80	0.000	0.000	2053.65	0.00	0.00
28	140.00	RRH2x40 700	3	27.951	47.237	0.75	5.58	150.00	0.000	0.000	263.58	0.00	0.00
29	140.00	LNx-8513DS-VTM	2	27.951	47.237	0.83	13.96	52.60	0.000	0.000	659.46	0.00	0.00
30	140.00	Low Profile Platform	1	27.951	47.237	1.00	22.00	1500.00	0.000	0.000	1039.22	0.00	0.00
31	140.00	RRH2x60-2100	3	27.951	47.237	0.75	3.96	58.50	0.000	0.000	187.06	0.00	0.00
32	30.00	GPS	1	18.496	31.258	1.00	1.00	10.00	0.000	0.000	31.26	0.00	0.00
<b>Totals:</b>								<b>9,647.00</b>			<b>18,950.24</b>		

## Total Applied Force Summary

**Structure:** CT00595-S-SB  
**Site Name:** Stonington East  
**Height:** 196.00 (ft)  
**Base Elev:** 0.000 (ft)

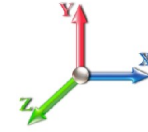
**Code:** EIA/TIA-222-F  
**Exposure:** C  
**Gh:** 1.69  
**Struct Class:** II

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**Load Case:** 85 mph Wind with 0" Ice

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



**Iterations:** 27

Elev (ft)	Description	Lateral FX (-) (lb)	Axial FY (-) (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)
0.00		0.00	0.00	0.00	0.00
5.00		912.65	1672.68	0.00	0.00
10.00		895.80	1640.42	0.00	0.00
15.00		878.95	1608.17	0.00	0.00
20.00		862.10	1575.91	0.00	0.00
25.00		845.25	1543.66	0.00	0.00
30.00	(1) appurtenances	859.66	1521.40	0.00	0.00
35.00		825.32	1479.15	0.00	0.00
35.50		81.92	146.14	0.00	0.00
40.00		766.01	2486.21	0.00	0.00
43.00		513.16	1629.41	0.00	0.00
45.00		342.90	534.74	0.00	0.00
50.00		870.15	1315.77	0.00	0.00
55.00		874.68	1285.67	0.00	0.00
60.00		876.71	1255.56	0.00	0.00
65.00		876.54	1225.46	0.00	0.00
70.00		874.41	1195.35	0.00	0.00
74.50		782.92	1050.08	0.00	0.00
75.00		87.36	210.65	0.00	0.00
80.00		877.97	2075.70	0.00	0.00
81.00		173.61	408.43	0.00	0.00
85.00		695.22	775.58	0.00	0.00
90.00		863.14	946.25	0.00	0.00
95.00		853.78	920.45	0.00	0.00
100.00		843.26	894.65	0.00	0.00
105.00		831.64	868.84	0.00	0.00
110.00		819.00	843.04	0.00	0.00
115.00		805.40	817.23	0.00	0.00
118.75		593.67	595.99	0.00	0.00
120.00		198.47	349.31	0.00	0.00
124.00		630.75	1097.92	0.00	0.00
125.00		155.58	130.15	0.00	0.00
130.00		771.73	637.84	0.00	0.00
135.00		754.90	616.34	0.00	0.00
140.00	(21) appurtenances	6526.10	2750.33	0.00	0.00
145.00		623.60	557.13	0.00	0.00
150.00	(29) appurtenances	4150.58	2738.43	0.00	0.00
154.75		554.38	479.91	0.00	0.00
155.00		28.93	38.86	0.00	0.00
159.00		457.24	610.09	0.00	0.00
160.00		111.87	60.50	0.00	0.00
165.00		548.28	294.75	0.00	0.00
167.00	(16) appurtenances	5374.19	2996.59	0.00	0.00
170.00		312.41	154.54	0.00	0.00
175.00		503.30	247.24	0.00	0.00
180.00		480.01	234.34	0.00	0.00
185.00		456.21	221.44	0.00	0.00
190.00		431.91	208.54	0.00	0.00
195.00	(23) appurtenances	4809.09	2585.54	0.00	0.00



## Total Applied Force Summary

<b>Structure:</b> CT00595-S-SB	<b>Code:</b> EIA/TIA-222-F	10/2/2015
<b>Site Name:</b> Stonington East	<b>Exposure:</b> C	
<b>Height:</b> 196.00 (ft)	<b>Gh:</b> 1.69	
<b>Base Elev:</b> 0.000 (ft)	<b>Struct Class:</b> II	Page: 13



196.00	(1) appurtenances	<u>97.94</u>	<u>42.10</u>	<u>0.00</u>	<u>0.00</u>
	<b>Totals:</b>	<b>48,360.67</b>	<b>49,574.49</b>	<b>0.00</b>	<b>0.00</b>

## Resulting Forces and Deflections

**Structure:** CT00595-S-SB  
**Site Name:** Stonington East  
**Height:** 196.00 (ft)  
**Base Elev:** 0.000 (ft)

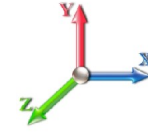
**Code:** EIA/TIA-222-F  
**Exposure:** C  
**Gh:** 1.69  
**Struct Class:** II

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**Load Case:** 85 mph Wind with 0" Ice

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



**Iterations:** 27

Elev (ft)	Lateral FX (-) (kips)	Axial FY (-) (kips)	Lateral FZ (kips)	Moment MX (ft-kips)	Torsion MY (ft-kips)	Moment MZ (ft-kips)	Deflect X (in)	Deflect Z (in)	Deflect Resultant (in)	Rotation Sway (deg)	Rotation Twist (deg)
0.00	-48.434	-49.502	0.000	0.000	0.000	-5895.4	0.000	0.000	0.000	0.000	0.000
5.00	-47.659	-47.691	0.000	0.000	0.000	-5653.2	-0.090	0.000	0.090	-0.166	0.000
10.00	-46.893	-45.915	0.000	0.000	0.000	-5414.9	-0.355	0.000	0.355	-0.335	0.000
15.00	-46.136	-44.174	0.000	0.000	0.000	-5180.5	-0.799	0.000	0.799	-0.508	0.000
20.00	-45.389	-42.467	0.000	0.000	0.000	-4949.8	-1.426	0.000	1.426	-0.683	0.000
25.00	-44.651	-40.795	0.000	0.000	0.000	-4722.8	-2.237	0.000	2.237	-0.861	0.000
30.00	-43.892	-39.148	0.000	0.000	0.000	-4499.6	-3.236	0.000	3.236	-1.043	0.000
35.00	-43.104	-37.610	0.000	0.000	0.000	-4280.1	-4.428	0.000	4.428	-1.227	0.000
35.50	-43.081	-37.394	0.000	0.000	0.000	-4258.6	-4.557	0.000	4.557	-1.246	0.000
40.00	-42.344	-34.821	0.000	0.000	0.000	-4064.7	-5.815	0.000	5.815	-1.416	0.000
43.00	-41.845	-33.135	0.000	0.000	0.000	-3937.7	-6.742	0.000	6.742	-1.532	0.000
45.00	-41.567	-32.509	0.000	0.000	0.000	-3854.0	-7.401	0.000	7.401	-1.611	0.000
50.00	-40.766	-31.078	0.000	0.000	0.000	-3646.2	-9.194	0.000	9.194	-1.808	0.000
55.00	-39.954	-29.681	0.000	0.000	0.000	-3442.3	-11.196	0.000	11.196	-2.009	0.000
60.00	-39.133	-28.319	0.000	0.000	0.000	-3242.6	-13.410	0.000	13.410	-2.213	0.000
65.00	-38.306	-26.991	0.000	0.000	0.000	-3046.9	-15.838	0.000	15.838	-2.420	0.000
70.00	-37.470	-25.704	0.000	0.000	0.000	-2855.4	-18.485	0.000	18.485	-2.629	0.000
74.50	-36.684	-24.625	0.000	0.000	0.000	-2686.8	-21.055	0.000	21.055	-2.821	0.000
75.00	-36.637	-24.342	0.000	0.000	0.000	-2668.4	-21.352	0.000	21.352	-2.843	0.000
80.00	-35.703	-22.234	0.000	0.000	0.000	-2485.2	-24.445	0.000	24.445	-3.059	0.000
81.00	-35.550	-21.767	0.000	0.000	0.000	-2449.5	-25.090	0.000	25.090	-3.103	0.000
85.00	-34.890	-20.904	0.000	0.000	0.000	-2307.3	-27.765	0.000	27.765	-3.279	0.000
90.00	-34.056	-19.866	0.000	0.000	0.000	-2132.9	-31.327	0.000	31.327	-3.521	0.000
95.00	-33.227	-18.860	0.000	0.000	0.000	-1962.6	-35.144	0.000	35.144	-3.765	0.000
100.00	-32.401	-17.886	0.000	0.000	0.000	-1796.5	-39.216	0.000	39.216	-4.010	0.000
105.00	-31.582	-16.945	0.000	0.000	0.000	-1634.5	-43.545	0.000	43.545	-4.255	0.000
110.00	-30.769	-16.036	0.000	0.000	0.000	-1476.6	-48.128	0.000	48.128	-4.499	0.000
115.00	-29.957	-15.176	0.000	0.000	0.000	-1322.7	-52.967	0.000	52.967	-4.742	0.000
118.75	-29.346	-14.570	0.000	0.000	0.000	-1210.4	-56.761	0.000	56.761	-4.924	0.000
120.00	-29.150	-14.175	0.000	0.000	0.000	-1173.7	-58.057	0.000	58.057	-4.986	0.000
124.00	-28.451	-13.078	0.000	0.000	0.000	-1057.1	-62.312	0.000	62.312	-5.176	0.000
125.00	-28.320	-12.885	0.000	0.000	0.000	-1028.7	-63.401	0.000	63.401	-5.225	0.000
130.00	-27.546	-12.201	0.000	0.000	0.000	-887.11	-69.005	0.000	69.005	-5.482	0.000
135.00	-26.783	-11.551	0.000	0.000	0.000	-749.39	-74.873	0.000	74.873	-5.728	0.000
140.00	-20.047	-9.402	0.000	0.000	0.000	-615.47	-80.988	0.000	80.988	-5.958	0.000
145.00	-19.400	-8.844	0.000	0.000	0.000	-515.24	-87.335	0.000	87.335	-6.173	0.000
150.00	-14.996	-6.527	0.000	0.000	0.000	-418.25	-93.898	0.000	93.898	-6.374	0.000
154.75	-14.401	-6.089	0.000	0.000	0.000	-347.01	-100.31	0.000	100.319	-6.553	0.000
155.00	-14.376	-6.034	0.000	0.000	0.000	-343.41	-100.66	0.000	100.662	-6.562	0.000
159.00	-13.860	-5.460	0.000	0.000	0.000	-285.91	-106.21	0.000	106.210	-6.704	0.000
160.00	-13.755	-5.378	0.000	0.000	0.000	-272.05	-107.61	0.000	107.615	-6.739	0.000
165.00	-13.190	-5.114	0.000	0.000	0.000	-203.28	-114.79	0.000	114.792	-6.982	0.000
167.00	-7.495	-2.784	0.000	0.000	0.000	-176.90	-117.73	0.000	117.730	-7.072	0.000
170.00	-7.173	-2.650	0.000	0.000	0.000	-154.41	-122.20	0.000	122.203	-7.197	0.000
175.00	-6.650	-2.448	0.000	0.000	0.000	-118.55	-129.82	0.000	129.824	-7.385	0.000
180.00	-6.150	-2.262	0.000	0.000	0.000	-85.303	-137.62	0.000	137.629	-7.551	0.000
185.00	-5.672	-2.091	0.000	0.000	0.000	-54.555	-145.59	0.000	145.590	-7.686	0.000
190.00	-5.218	-1.937	0.000	0.000	0.000	-26.194	-153.67	0.000	153.671	-7.780	0.000
195.00	-0.103	-0.028	0.000	0.000	0.000	-0.103	-161.82	0.000	161.821	-7.817	0.000

## Resulting Forces and Deflections

**Structure:** CT00595-S-SB  
**Site Name:** Stonington East  
**Height:** 196.00 (ft)  
**Base Elev:** 0.000 (ft)

**Code:** EIA/TIA-222-F  
**Exposure:** C  
**Gh:** 1.69  
**Struct Class:** II

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196.00	-0.098	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	163.453	-7.817	0.000
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## Resulting Stresses

**Structure:** CT00595-S-SBA  
**Site Name:** Stonington East  
**Height:** 196.00 (ft)  
**Base Elev:** 0.000 (ft)

**Code:** EIA/TIA-222-F  
**Exposure:** C  
**Gh:** 1.69  
**Struct Class:** II

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**Load Case:** 85 mph Wind with 0" Ice

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



**Iterations:** 27

### Applied Stresses

Elev (ft)	fa Axial (Y) (ksi)	fvx Shear (X) (ksi)	fvz Shear (Z) (ksi)	fvT Torsion (ksi)	fbx Bending (X) (ksi)	fbz Bending (Z) (ksi)	fb Combined (ksi)	Allow Stress (ksi)	f/Fb Stress Ratio
0.00	0.52	1.03	0.00	0.00	0.00	47.44	47.99	48.4	0.992
5.00	0.51	1.03	0.00	0.00	0.00	47.35	47.89	49.0	0.978
10.00	0.50	1.03	0.00	0.00	0.00	47.25	47.78	49.5	0.965
15.00	0.49	1.04	0.00	0.00	0.00	47.13	47.66	50.1	0.952
20.00	0.48	1.04	0.00	0.00	0.00	47.00	47.51	50.6	0.938
25.00	0.47	1.05	0.00	0.00	0.00	46.84	47.35	51.2	0.925
30.00	0.46	1.06	0.00	0.00	0.00	46.66	47.16	51.8	0.911
35.00	0.46	1.06	0.00	0.00	0.00	46.45	46.94	52.0	0.903
35.50	0.45	1.06	0.00	0.00	0.00	46.43	46.92	52.0	0.902
40.00	0.43	1.07	0.00	0.00	0.00	46.22	46.69	52.0	0.898
43.00	0.44	1.13	0.00	0.00	0.00	47.67	48.15	52.0	0.926
45.00	0.43	1.13	0.00	0.00	0.00	47.55	48.02	51.4	0.935
50.00	0.43	1.13	0.00	0.00	0.00	47.20	47.66	52.0	0.917
55.00	0.42	1.14	0.00	0.00	0.00	46.81	47.26	52.0	0.909
60.00	0.41	1.14	0.00	0.00	0.00	46.37	46.82	52.0	0.900
65.00	0.40	1.15	0.00	0.00	0.00	45.89	46.33	52.0	0.891
70.00	0.39	1.15	0.00	0.00	0.00	45.35	45.79	52.0	0.881
74.50	0.38	1.16	0.00	0.00	0.00	44.82	45.25	52.0	0.870
75.00	0.38	1.16	0.00	0.00	0.00	44.76	45.19	52.0	0.869
80.00	0.36	1.16	0.00	0.00	0.00	44.10	44.50	52.0	0.856
81.00	0.40	1.33	0.00	0.00	0.00	49.37	49.83	52.0	0.958
85.00	0.39	1.34	0.00	0.00	0.00	48.67	49.12	52.0	0.945
90.00	0.39	1.34	0.00	0.00	0.00	47.69	48.13	52.0	0.926
95.00	0.38	1.35	0.00	0.00	0.00	46.60	47.04	52.0	0.905
100.00	0.37	1.36	0.00	0.00	0.00	45.38	45.81	52.0	0.881
105.00	0.36	1.37	0.00	0.00	0.00	44.01	44.44	52.0	0.855
110.00	0.35	1.38	0.00	0.00	0.00	42.47	42.89	52.0	0.825
115.00	0.35	1.39	0.00	0.00	0.00	40.74	41.15	52.0	0.791
118.75	0.34	1.39	0.00	0.00	0.00	39.30	39.71	52.0	0.764
120.00	0.33	1.40	0.00	0.00	0.00	38.79	39.20	52.0	0.754
124.00	0.37	1.65	0.00	0.00	0.00	42.62	43.09	52.0	0.829
125.00	0.37	1.66	0.00	0.00	0.00	42.09	42.55	52.0	0.818
130.00	0.36	1.67	0.00	0.00	0.00	39.10	39.57	52.0	0.761
135.00	0.36	1.69	0.00	0.00	0.00	35.68	36.16	52.0	0.695
140.00	0.30	1.32	0.00	0.00	0.00	31.76	32.14	52.0	0.618
145.00	0.30	1.33	0.00	0.00	0.00	28.91	29.30	52.0	0.563
150.00	0.23	1.07	0.00	0.00	0.00	25.61	25.91	52.0	0.498
154.75	0.22	1.07	0.00	0.00	0.00	23.18	23.47	52.0	0.451
155.00	0.22	1.08	0.00	0.00	0.00	23.04	23.34	52.0	0.449
159.00	0.34	1.76	0.00	0.00	0.00	33.06	33.54	52.0	0.645
160.00	0.34	1.76	0.00	0.00	0.00	32.06	32.55	47.5	0.686
165.00	0.34	1.78	0.00	0.00	0.00	26.44	26.95	48.9	0.552
167.00	0.19	1.03	0.00	0.00	0.00	23.96	24.22	49.4	0.490
170.00	0.18	1.02	0.00	0.00	0.00	22.27	22.53	50.3	0.448
175.00	0.18	1.00	0.00	0.00	0.00	19.07	19.33	51.7	0.374
180.00	0.18	0.98	0.00	0.00	0.00	15.40	15.67	52.0	0.301
185.00	0.17	0.96	0.00	0.00	0.00	11.14	11.43	52.0	0.220

## Resulting Stresses

**Structure:** CT00595-S-SBA  
**Site Name:** Stonington East  
**Height:** 196.00 (ft)  
**Base Elev:** 0.000 (ft)

**Code:** EIA/TIA-222-F  
**Exposure:** C  
**Gh:** 1.69  
**Struct Class:** II

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190.00	0.17	0.94	0.00	0.00	0.00	6.09	6.47	52.0	0.124
195.00	0.00	0.02	0.00	0.00	0.00	0.03	0.05	52.0	0.001
196.00	0.00	0.02	0.00	0.00	0.00	0.00	0.03	52.0	0.001

## Wind Loading - Shaft

**Structure:** CT00595-S-SBA  
**Site Name:** Stonington East  
**Height:** 196.00 (ft)  
**Base Elev:** 0.000 (ft)

**Code:** EIA/TIA-222-F  
**Exposure:** C  
**Gh:** 1.69  
**Struct Class:** II

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**Load Case:** 73.61 mph Wind with 0.5" Ice

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



**Iterations:** 27

Elev (ft)	Description	Kzt	Kz	qz (psf)	qzGh (psf)	C (mph-ft)	Cf	Ice Thick (in)	Tributary (ft)	Aa (sf)	CfAa (sf)	Wind Force X (lb)	Dead Load Ice (lb)	Tot Dead Load (lb)
0.00		0.00	1.00	13.871	23.44	392.59	1.030	0.500	0.00	0.000	0.00	0.0	0.0	0.0
5.00		0.00	1.00	13.871	23.44	384.88	1.030	0.500	5.00	26.822	27.63	647.6	198.0	1813.4
10.00		0.00	1.00	13.871	23.44	377.18	1.030	0.500	5.00	26.298	27.09	635.0	194.1	1777.2
15.00		0.00	1.00	13.871	23.44	369.47	1.030	0.500	5.00	25.775	26.55	622.4	190.1	1741.0
20.00		0.00	1.00	13.871	23.44	361.77	1.030	0.500	5.00	25.252	26.01	609.7	186.2	1704.8
25.00		0.00	1.00	13.871	23.44	354.06	1.030	0.500	5.00	24.728	25.47	597.1	182.3	1668.6
30.00	Appurtenance(s)	0.00	1.00	13.871	23.44	346.36	1.030	0.500	5.00	24.205	24.93	584.4	178.3	1632.4
35.00		0.00	1.02	14.106	23.84	341.51	1.030	0.500	5.00	23.682	24.39	581.5	174.4	1596.2
35.50	Bot - Section 2	0.00	1.02	14.164	23.94	341.43	1.030	0.500	0.50	2.339	2.41	57.7	17.4	157.8
40.00		0.00	1.06	14.655	24.77	340.17	1.030	0.500	4.50	21.147	21.78	539.5	155.9	2590.5
43.00	Top - Section 1	0.00	1.08	14.961	25.28	338.90	1.030	0.500	3.00	13.863	14.28	361.0	102.5	1697.5
45.00		0.00	1.09	15.156	25.61	343.50	1.030	0.500	2.00	9.137	9.41	241.1	67.7	579.5
50.00		0.00	1.13	15.620	26.40	340.53	1.030	0.500	5.00	22.476	23.15	611.1	165.3	1423.8
55.00		0.00	1.16	16.051	27.13	336.92	1.030	0.500	5.00	21.953	22.61	613.4	161.4	1389.8
60.00		0.00	1.19	16.455	27.81	332.74	1.030	0.500	5.00	21.430	22.07	613.8	157.5	1355.7
65.00		0.00	1.21	16.836	28.45	328.08	1.030	0.500	5.00	20.906	21.53	612.7	153.5	1321.7
70.00		0.00	1.24	17.196	29.06	322.99	1.030	0.500	5.00	20.383	20.99	610.1	149.6	1287.7
74.50	Bot - Section 3	0.00	1.26	17.505	29.58	318.09	1.030	0.500	4.50	17.897	18.43	545.3	131.5	1130.0
75.00		0.00	1.26	17.538	29.64	317.53	1.030	0.500	0.50	1.994	2.05	60.9	14.8	219.7
80.00		0.00	1.29	17.865	30.19	311.72	1.030	0.500	5.00	19.649	20.24	611.0	144.1	2162.5
81.00	Top - Section 2	0.00	1.29	17.928	30.30	310.53	1.030	0.500	1.00	3.867	3.98	120.7	28.7	425.6
85.00		0.00	1.31	18.177	30.72	310.88	1.030	0.500	4.00	15.258	15.72	482.8	112.1	841.9
90.00		0.00	1.33	18.476	31.22	304.54	1.030	0.500	5.00	18.602	19.16	598.3	136.2	1025.2
95.00		0.00	1.35	18.764	31.71	297.94	1.030	0.500	5.00	18.079	18.62	590.5	132.3	995.4
100.00		0.00	1.37	19.041	32.18	291.10	1.030	0.500	5.00	17.555	18.08	581.9	128.4	965.7
105.00		0.00	1.39	19.308	32.63	284.05	1.030	0.500	5.00	17.032	17.54	572.4	124.4	936.0
110.00		0.00	1.41	19.566	33.07	276.79	1.030	0.500	5.00	16.509	17.00	562.3	120.5	906.2
115.00		0.00	1.43	19.816	33.49	269.35	1.030	0.500	5.00	15.985	16.47	551.4	116.6	876.5
118.75	Bot - Section 4	0.00	1.44	19.999	33.80	263.65	1.030	0.500	3.75	11.646	12.00	405.4	85.2	638.2
120.00		0.00	1.45	20.059	33.90	261.73	1.030	0.500	1.25	3.882	4.00	135.5	28.6	363.6
124.00	Top - Section 3	0.00	1.46	20.248	34.22	255.51	1.030	0.500	4.00	12.201	12.57	430.0	89.2	1141.2
125.00		0.00	1.46	20.294	34.30	258.58	1.030	0.500	1.00	2.998	3.09	105.9	22.1	140.8
130.00		0.00	1.48	20.523	34.68	250.66	1.030	0.500	5.00	14.676	15.12	524.3	106.7	687.3
135.00		0.00	1.50	20.745	35.06	242.59	1.030	0.500	5.00	14.153	14.58	511.1	102.8	661.8
140.00	Appurtenance(s)	0.00	1.51	20.962	35.43	234.38	1.030	0.500	5.00	13.629	14.04	497.3	98.9	636.4
145.00		0.00	1.53	21.173	35.78	226.04	1.030	0.500	5.00	13.106	13.50	483.0	94.9	611.0
150.00	Appurtenance(s)	0.00	1.54	21.379	36.13	217.57	1.030	0.500	5.00	12.583	12.96	468.3	91.0	585.5
154.75	Bot - Section 5	0.00	1.56	21.571	36.45	209.42	1.030	0.500	4.75	11.469	11.81	430.6	82.9	532.8
155.00		0.00	1.56	21.581	36.47	208.99	1.030	0.500	0.25	0.598	0.62	22.5	4.4	41.7
159.00	Top - Section 4	0.00	1.57	21.738	36.74	202.03	1.030	0.500	4.00	9.396	9.68	355.5	68.1	652.9
160.00		0.00	1.57	21.777	36.80	203.16	1.030	0.500	1.00	2.297	2.37	87.1	16.9	71.0
165.00		0.00	1.58	21.969	37.13	194.36	1.030	0.500	5.00	11.169	11.50	427.1	80.4	343.5
167.00	Appurtenance(s)	0.00	1.59	22.045	37.26	190.81	1.030	0.500	2.00	4.321	4.45	165.8	31.5	133.2
170.00		0.00	1.60	22.158	37.45	185.46	1.030	0.500	3.00	6.324	6.51	243.9	45.9	194.5
175.00		0.00	1.61	22.342	37.76	176.45	1.030	0.500	5.00	10.122	10.43	393.7	72.5	309.9
180.00		0.00	1.62	22.522	38.06	167.34	1.030	0.500	5.00	9.599	9.89	376.3	68.6	293.0
185.00		0.00	1.64	22.699	38.36	158.14	1.030	0.500	5.00	9.075	9.35	358.6	64.7	276.2
190.00		0.00	1.65	22.873	38.66	148.85	1.030	0.500	5.00	8.552	8.81	340.5	60.7	259.4

## Wind Loading - Shaft

**Structure:** CT00595-S-SBA  
**Site Name:** Stonington East  
**Height:** 196.00 (ft)  
**Base Elev:** 0.000 (ft)

**Code:** EIA/TIA-222-F  
**Exposure:** C  
**Gh:** 1.69  
**Struct Class:** II

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195.00 Appurtenance(s)	0.00	1.66	23.043	38.94	139.48	1.030	0.500	5.00	8.029	8.27	322.1	56.8	242.5
196.00 Appurtenance(s)	0.00	1.66	23.077	39.00	137.59	1.030	0.500	1.00	1.543	1.59	62.0	11.2	46.8
<b>Totals:</b>								<b>196.00</b>			<b>20,961.9</b>		<b>43,085.9</b>

## Discrete Appurtenance Forces

**Structure:** CT00595-S-SB  
**Site Name:** Stonington East  
**Height:** 196.00 (ft)  
**Base Elev:** 0.000 (ft)

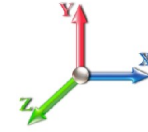
**Code:** EIA/TIA-222-F  
**Exposure:** C  
**Gh:** 1.69  
**Struct Class:** II

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**Load Case:** 73.61 mph Wind with 0.5" Ice

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



**Iterations:** 27

No.	Elev (ft)	Description	Qty	qz (psf)	qzGh (psf)	CaAa Factor	Total CaAa (sf)	Dead Load (lb)	Horiz Ecc (ft)	Vert Ecc (ft)	Wind FX (lb)	Mom Y (lb-ft)	Mom Z (lb-ft)
1	196.00	6' Lightning rod	1	23.077	39.000	1.00	0.98	11.80	0.000	0.000	38.22	0.00	0.00
2	195.00	ACU-A20-N	4	23.043	38.943	0.77	0.68	9.20	0.000	0.000	26.39	0.00	0.00
3	195.00	1900MHz RRH	3	23.043	38.943	0.77	9.70	225.60	0.000	0.000	377.83	0.00	0.00
4	195.00	800MHz RRH	3	23.043	38.943	0.77	6.86	245.70	0.000	0.000	267.18	0.00	0.00
5	195.00	800MHz Filter	3	23.043	38.943	0.52	1.50	41.40	0.000	0.000	58.32	0.00	0.00
6	195.00	APXVTM14-C-120	3	23.043	38.943	0.81	17.71	275.70	0.000	0.000	689.87	0.00	0.00
7	195.00	Low Profile Platform	1	23.043	38.943	1.00	27.00	1800.00	0.000	0.000	1051.47	0.00	0.00
8	195.00	TD-RRH8x20-25	3	23.043	38.943	0.71	10.59	276.00	0.000	0.000	412.26	0.00	0.00
9	195.00	APXVSPP18-C-A20	3	23.043	38.943	0.85	23.15	319.50	0.000	0.000	901.70	0.00	0.00
10	167.00	KRY 112 144/1	3	22.045	37.256	0.72	1.06	39.42	0.000	0.000	39.43	0.00	0.00
11	167.00	AIR 21, 1.3M, B2A B4P	3	22.045	37.256	0.83	17.24	386.37	0.000	0.000	642.42	0.00	0.00
12	167.00	AIR 21, 1.3M, B4A B2P	3	22.045	37.256	0.83	17.24	382.77	0.000	0.000	642.42	0.00	0.00
13	167.00	Platform w/ Hand Rails	1	22.045	37.256	1.00	48.00	2600.00	0.000	0.000	1788.31	0.00	0.00
14	167.00	LNx-6515DS-A1M	3	22.045	37.256	0.84	30.04	336.33	0.000	0.000	1119.12	0.00	0.00
15	167.00	S11B12	3	22.045	37.256	0.72	7.56	201.21	0.000	0.000	281.69	0.00	0.00
16	150.00	RRUS 11	6	21.379	36.131	0.77	14.51	396.00	0.000	0.000	524.14	0.00	0.00
17	150.00	P65-17-XLH-RR	2	21.379	36.131	0.77	19.08	242.00	0.000	0.000	689.40	0.00	0.00
18	150.00	LGP21401	6	21.379	36.131	0.69	6.33	127.20	0.000	0.000	228.86	0.00	0.00
19	150.00	LGP13519	6	21.379	36.131	0.69	1.95	48.00	0.000	0.000	70.30	0.00	0.00
20	150.00	DC6-48-60-18-8F	1	21.379	36.131	1.00	1.67	49.50	0.000	0.000	60.34	0.00	0.00
21	150.00	AM-X-CD-14-65-00T-RET	1	21.379	36.131	0.77	4.70	68.30	0.000	0.000	169.71	0.00	0.00
22	150.00	7700.00	6	21.379	36.131	0.81	10.98	0.00	0.000	0.000	396.85	0.00	0.00
23	150.00	Low Profile Platform	1	21.379	36.131	1.00	27.00	1800.00	0.000	0.000	975.54	0.00	0.00
24	140.00	LNx-6414DS-A1M	3	20.962	35.426	0.82	22.51	249.30	0.000	0.000	797.40	0.00	0.00
25	140.00	APL866513	2	20.962	35.426	0.94	9.14	0.00	0.000	0.000	323.68	0.00	0.00
26	140.00	DB-T1-6Z-8AB-0Z	1	20.962	35.426	1.00	5.87	46.00	0.000	0.000	207.95	0.00	0.00
27	140.00	HBXX-6517DS-A2M	6	20.962	35.426	0.85	48.91	547.20	0.000	0.000	1732.64	0.00	0.00
28	140.00	RRH2x40 700	3	20.962	35.426	0.77	6.49	213.30	0.000	0.000	229.95	0.00	0.00
29	140.00	LNx-8513DS-VTM	2	20.962	35.426	0.85	15.71	153.60	0.000	0.000	556.47	0.00	0.00
30	140.00	Low Profile Platform	1	20.962	35.426	1.00	27.00	1800.00	0.000	0.000	956.49	0.00	0.00
31	140.00	RRH2x60-2100	3	20.962	35.426	0.77	4.46	145.20	0.000	0.000	157.94	0.00	0.00
32	30.00	GPS	1	13.871	23.442	1.00	1.25	18.00	0.000	0.000	29.30	0.00	0.00
<b>Totals:</b>							<b>13,054.60</b>				<b>16,443.59</b>		



## Total Applied Force Summary

**Structure:** CT00595-S-SB  
**Site Name:** Stonington East  
**Height:** 196.00 (ft)  
**Base Elev:** 0.000 (ft)

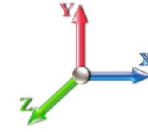
**Code:** EIA/TIA-222-F  
**Exposure:** C  
**Gh:** 1.69  
**Struct Class:** II

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**Load Case:** 73.61 mph Wind with 0.5" Ice

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



**Iterations:** 27

Elev (ft)	Description	Lateral FX (-) (lb)	Axial FY (-) (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)
0.00		0.00	0.00	0.00	0.00
5.00		706.23	1854.47	0.00	0.00
10.00		693.59	1818.28	0.00	0.00
15.00		680.96	1782.09	0.00	0.00
20.00		668.32	1745.91	0.00	0.00
25.00		655.69	1709.72	0.00	0.00
30.00	(1) appurtenances	672.35	1691.53	0.00	0.00
35.00		641.10	1637.35	0.00	0.00
35.50		63.66	161.92	0.00	0.00
40.00		595.18	2627.51	0.00	0.00
43.00		398.94	1722.20	0.00	0.00
45.00		266.68	595.97	0.00	0.00
50.00		677.10	1464.91	0.00	0.00
55.00		681.18	1430.87	0.00	0.00
60.00		683.33	1396.84	0.00	0.00
65.00		683.80	1362.80	0.00	0.00
70.00		682.77	1328.77	0.00	0.00
74.50		611.90	1166.97	0.00	0.00
75.00		68.27	223.83	0.00	0.00
80.00		686.49	2203.60	0.00	0.00
81.00		135.83	433.85	0.00	0.00
85.00		544.22	874.75	0.00	0.00
90.00		676.33	1066.29	0.00	0.00
95.00		669.76	1036.55	0.00	0.00
100.00		662.30	1006.81	0.00	0.00
105.00		654.01	977.08	0.00	0.00
110.00		644.94	947.34	0.00	0.00
115.00		635.13	917.61	0.00	0.00
118.75		468.78	669.06	0.00	0.00
120.00		156.72	373.91	0.00	0.00
124.00		498.47	1174.12	0.00	0.00
125.00		123.05	149.04	0.00	0.00
130.00		610.99	728.37	0.00	0.00
135.00		598.72	702.94	0.00	0.00
140.00	(21) appurtenances	5548.39	3832.10	0.00	0.00
145.00		483.03	652.07	0.00	0.00
150.00	(29) appurtenances	3583.40	3357.63	0.00	0.00
154.75		430.63	562.81	0.00	0.00
155.00		22.48	43.27	0.00	0.00
159.00		355.53	678.17	0.00	0.00
160.00		87.06	77.36	0.00	0.00
165.00		427.12	375.13	0.00	0.00
167.00	(16) appurtenances	4679.20	4091.91	0.00	0.00
170.00		243.93	200.41	0.00	0.00
175.00		393.66	319.76	0.00	0.00
180.00		376.32	302.93	0.00	0.00
185.00		358.60	286.10	0.00	0.00
190.00		340.51	269.26	0.00	0.00
195.00	(23) appurtenances	4107.07	3445.53	0.00	0.00

## Total Applied Force Summary

**Structure:** CT00595-S-SB  
**Site Name:** Stonington East  
**Height:** 196.00 (ft)  
**Base Elev:** 0.000 (ft)

**Code:** EIA/TIA-222-F  
**Exposure:** C  
**Gh:** 1.69  
**Struct Class:** II

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196.00	(1) appurtenances	<u>100.20</u>	<u>58.60</u>	<u>0.00</u>	<u>0.00</u>
	<b>Totals:</b>	<b>39,433.93</b>	<b>57,536.33</b>	<b>0.00</b>	<b>0.00</b>

## Resulting Forces and Deflections

**Structure:** CT00595-S-SB  
**Site Name:** Stonington East  
**Height:** 196.00 (ft)  
**Base Elev:** 0.000 (ft)

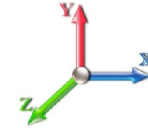
**Code:** EIA/TIA-222-F  
**Exposure:** C  
**Gh:** 1.69  
**Struct Class:** II

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**Load Case:** 73.61 mph Wind with 0.5" Ice

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



**Iterations:** 27

Elev (ft)	Lateral FX (-) (kips)	Axial FY (-) (kips)	Lateral FZ (kips)	Moment MX (ft-kips)	Torsion MY (ft-kips)	Moment MZ (ft-kips)	Deflect X (in)	Deflect Z (in)	Deflect Resultant (in)	Rotation Sway (deg)	Rotation Twist (deg)
0.00	-39.505	-57.487	0.000	0.000	0.000	-4932.9	0.000	0.000	0.000	0.000	0.000
5.00	-38.933	-55.538	0.000	0.000	0.000	-4735.3	-0.075	0.000	0.075	-0.139	0.000
10.00	-38.367	-53.627	0.000	0.000	0.000	-4540.7	-0.297	0.000	0.297	-0.281	0.000
15.00	-37.807	-51.753	0.000	0.000	0.000	-4348.8	-0.669	0.000	0.669	-0.425	0.000
20.00	-37.253	-49.916	0.000	0.000	0.000	-4159.8	-1.194	0.000	1.194	-0.573	0.000
25.00	-36.705	-48.117	0.000	0.000	0.000	-3973.6	-1.875	0.000	1.875	-0.723	0.000
30.00	-36.134	-46.338	0.000	0.000	0.000	-3790.0	-2.714	0.000	2.714	-0.875	0.000
35.00	-35.532	-44.659	0.000	0.000	0.000	-3609.4	-3.714	0.000	3.714	-1.031	0.000
35.50	-35.528	-44.448	0.000	0.000	0.000	-3591.6	-3.823	0.000	3.823	-1.047	0.000
40.00	-34.969	-41.760	0.000	0.000	0.000	-3431.7	-4.880	0.000	4.880	-1.190	0.000
43.00	-34.590	-39.997	0.000	0.000	0.000	-3326.8	-5.659	0.000	5.659	-1.288	0.000
45.00	-34.391	-39.337	0.000	0.000	0.000	-3257.6	-6.214	0.000	6.214	-1.355	0.000
50.00	-33.788	-37.790	0.000	0.000	0.000	-3085.7	-7.722	0.000	7.722	-1.522	0.000
55.00	-33.176	-36.280	0.000	0.000	0.000	-2916.8	-9.407	0.000	9.407	-1.692	0.000
60.00	-32.556	-34.806	0.000	0.000	0.000	-2750.9	-11.272	0.000	11.272	-1.865	0.000
65.00	-31.929	-33.369	0.000	0.000	0.000	-2588.1	-13.319	0.000	13.319	-2.040	0.000
70.00	-31.293	-31.974	0.000	0.000	0.000	-2428.5	-15.551	0.000	15.551	-2.218	0.000
74.50	-30.683	-30.784	0.000	0.000	0.000	-2287.6	-17.721	0.000	17.721	-2.382	0.000
75.00	-30.660	-30.509	0.000	0.000	0.000	-2272.3	-17.971	0.000	17.971	-2.401	0.000
80.00	-29.932	-28.280	0.000	0.000	0.000	-2119.0	-20.584	0.000	20.584	-2.584	0.000
81.00	-29.823	-27.803	0.000	0.000	0.000	-2089.1	-21.129	0.000	21.129	-2.622	0.000
85.00	-29.322	-26.863	0.000	0.000	0.000	-1969.8	-23.390	0.000	23.390	-2.772	0.000
90.00	-28.687	-25.729	0.000	0.000	0.000	-1823.2	-26.403	0.000	26.403	-2.979	0.000
95.00	-28.052	-24.627	0.000	0.000	0.000	-1679.8	-29.634	0.000	29.634	-3.187	0.000
100.00	-27.419	-23.560	0.000	0.000	0.000	-1539.5	-33.083	0.000	33.083	-3.397	0.000
105.00	-26.790	-22.527	0.000	0.000	0.000	-1402.4	-36.752	0.000	36.752	-3.607	0.000
110.00	-26.164	-21.528	0.000	0.000	0.000	-1268.5	-40.640	0.000	40.640	-3.817	0.000
115.00	-25.533	-20.575	0.000	0.000	0.000	-1137.6	-44.747	0.000	44.747	-4.025	0.000
118.75	-25.053	-19.895	0.000	0.000	0.000	-1041.9	-47.970	0.000	47.970	-4.182	0.000
120.00	-24.907	-19.486	0.000	0.000	0.000	-1010.6	-49.072	0.000	49.072	-4.236	0.000
124.00	-24.354	-18.310	0.000	0.000	0.000	-910.99	-52.689	0.000	52.689	-4.399	0.000
125.00	-24.263	-18.114	0.000	0.000	0.000	-886.64	-53.614	0.000	53.614	-4.441	0.000
130.00	-23.662	-17.346	0.000	0.000	0.000	-765.33	-58.382	0.000	58.382	-4.663	0.000
135.00	-23.066	-16.613	0.000	0.000	0.000	-647.02	-63.376	0.000	63.376	-4.876	0.000
140.00	-17.250	-13.220	0.000	0.000	0.000	-531.69	-68.586	0.000	68.586	-5.074	0.000
145.00	-16.750	-12.561	0.000	0.000	0.000	-445.44	-73.995	0.000	73.995	-5.260	0.000
150.00	-12.896	-9.516	0.000	0.000	0.000	-361.69	-79.591	0.000	79.591	-5.434	0.000
154.75	-12.426	-8.980	0.000	0.000	0.000	-300.44	-85.069	0.000	85.069	-5.588	0.000
155.00	-12.410	-8.924	0.000	0.000	0.000	-297.33	-85.362	0.000	85.362	-5.597	0.000
159.00	-12.000	-8.269	0.000	0.000	0.000	-247.69	-90.097	0.000	90.097	-5.719	0.000
160.00	-11.924	-8.174	0.000	0.000	0.000	-235.69	-91.297	0.000	91.297	-5.750	0.000
165.00	-11.480	-7.817	0.000	0.000	0.000	-176.07	-97.425	0.000	97.425	-5.960	0.000
167.00	-6.405	-4.226	0.000	0.000	0.000	-153.12	-99.935	0.000	99.935	-6.038	0.000
170.00	-6.151	-4.038	0.000	0.000	0.000	-133.90	-103.75	0.000	103.757	-6.146	0.000
175.00	-5.735	-3.748	0.000	0.000	0.000	-103.15	-110.27	0.000	110.272	-6.310	0.000
180.00	-5.335	-3.476	0.000	0.000	0.000	-74.475	-116.94	0.000	116.947	-6.454	0.000
185.00	-4.952	-3.224	0.000	0.000	0.000	-47.798	-123.75	0.000	123.759	-6.572	0.000
190.00	-4.586	-2.991	0.000	0.000	0.000	-23.037	-130.67	0.000	130.675	-6.654	0.000
195.00	-0.106	-0.047	0.000	0.000	0.000	-0.106	-137.65	0.000	137.652	-6.687	0.000

## Resulting Forces and Deflections

**Structure:** CT00595-S-SB  
**Site Name:** Stonington East  
**Height:** 196.00 (ft)  
**Base Elev:** 0.000 (ft)

**Code:** EIA/TIA-222-F  
**Exposure:** C  
**Gh:** 1.69  
**Struct Class:** II

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196.00	-0.100	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	139.050	-6.687	0.000
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## Resulting Stresses

**Structure:** CT00595-S-SBA  
**Site Name:** Stonington East  
**Height:** 196.00 (ft)  
**Base Elev:** 0.000 (ft)

**Code:** EIA/TIA-222-F  
**Exposure:** C  
**Gh:** 1.69  
**Struct Class:** II

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**Load Case:** 73.61 mph Wind with 0.5" Ice

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



**Iterations:** 27

### Applied Stresses

Elev (ft)	fa Axial (Y) (ksi)	fvx Shear (X) (ksi)	fvz Shear (Z) (ksi)	fvT Torsion (ksi)	fbx Bending (X) (ksi)	fbz Bending (Z) (ksi)	fb Combined (ksi)	Allow Stress (ksi)	f/Fb Stress Ratio
0.00	0.60	0.84	0.00	0.00	0.00	39.70	40.32	48.4	0.833
5.00	0.59	0.84	0.00	0.00	0.00	39.66	40.28	49.0	0.823
10.00	0.58	0.85	0.00	0.00	0.00	39.62	40.23	49.5	0.812
15.00	0.57	0.85	0.00	0.00	0.00	39.57	40.17	50.1	0.802
20.00	0.57	0.86	0.00	0.00	0.00	39.50	40.09	50.6	0.792
25.00	0.56	0.86	0.00	0.00	0.00	39.41	39.99	51.2	0.781
30.00	0.55	0.87	0.00	0.00	0.00	39.30	39.88	51.8	0.770
35.00	0.54	0.87	0.00	0.00	0.00	39.17	39.74	52.0	0.764
35.50	0.54	0.88	0.00	0.00	0.00	39.16	39.73	52.0	0.764
40.00	0.52	0.88	0.00	0.00	0.00	39.02	39.57	52.0	0.761
43.00	0.53	0.93	0.00	0.00	0.00	40.28	40.84	52.0	0.785
45.00	0.53	0.93	0.00	0.00	0.00	40.19	40.75	51.4	0.794
50.00	0.52	0.94	0.00	0.00	0.00	39.94	40.49	52.0	0.779
55.00	0.51	0.95	0.00	0.00	0.00	39.66	40.20	52.0	0.773
60.00	0.50	0.95	0.00	0.00	0.00	39.34	39.88	52.0	0.767
65.00	0.49	0.96	0.00	0.00	0.00	38.98	39.51	52.0	0.760
70.00	0.48	0.96	0.00	0.00	0.00	38.57	39.09	52.0	0.752
74.50	0.48	0.97	0.00	0.00	0.00	38.16	38.68	52.0	0.744
75.00	0.47	0.97	0.00	0.00	0.00	38.12	38.63	52.0	0.743
80.00	0.45	0.97	0.00	0.00	0.00	37.60	38.09	52.0	0.732
81.00	0.51	1.12	0.00	0.00	0.00	42.11	42.66	52.0	0.820
85.00	0.51	1.12	0.00	0.00	0.00	41.55	42.10	52.0	0.810
90.00	0.50	1.13	0.00	0.00	0.00	40.77	41.31	52.0	0.794
95.00	0.49	1.14	0.00	0.00	0.00	39.88	40.43	52.0	0.777
100.00	0.49	1.15	0.00	0.00	0.00	38.89	39.43	52.0	0.758
105.00	0.48	1.16	0.00	0.00	0.00	37.76	38.30	52.0	0.736
110.00	0.47	1.17	0.00	0.00	0.00	36.49	37.02	52.0	0.712
115.00	0.47	1.18	0.00	0.00	0.00	35.04	35.56	52.0	0.684
118.75	0.47	1.19	0.00	0.00	0.00	33.83	34.35	52.0	0.661
120.00	0.46	1.19	0.00	0.00	0.00	33.40	33.92	52.0	0.652
124.00	0.52	1.41	0.00	0.00	0.00	36.73	37.33	52.0	0.718
125.00	0.52	1.42	0.00	0.00	0.00	36.27	36.88	52.0	0.709
130.00	0.52	1.44	0.00	0.00	0.00	33.73	34.34	52.0	0.660
135.00	0.52	1.45	0.00	0.00	0.00	30.81	31.42	52.0	0.604
140.00	0.43	1.13	0.00	0.00	0.00	27.44	27.93	52.0	0.537
145.00	0.42	1.15	0.00	0.00	0.00	24.99	25.49	52.0	0.490
150.00	0.33	0.92	0.00	0.00	0.00	22.15	22.54	52.0	0.433
154.75	0.33	0.93	0.00	0.00	0.00	20.07	20.46	52.0	0.393
155.00	0.33	0.93	0.00	0.00	0.00	19.95	20.34	52.0	0.391
159.00	0.52	1.52	0.00	0.00	0.00	28.64	29.28	52.0	0.563
160.00	0.52	1.53	0.00	0.00	0.00	27.78	28.42	47.5	0.599
165.00	0.52	1.55	0.00	0.00	0.00	22.90	23.57	48.9	0.482
167.00	0.29	0.88	0.00	0.00	0.00	20.74	21.08	49.4	0.427
170.00	0.28	0.87	0.00	0.00	0.00	19.31	19.65	50.3	0.391
175.00	0.28	0.86	0.00	0.00	0.00	16.59	16.94	51.7	0.328
180.00	0.27	0.85	0.00	0.00	0.00	13.45	13.80	52.0	0.265
185.00	0.27	0.83	0.00	0.00	0.00	9.76	10.13	52.0	0.195

## Resulting Stresses

**Structure:** CT00595-S-SBA  
**Site Name:** Stonington East  
**Height:** 196.00 (ft)  
**Base Elev:** 0.000 (ft)

**Code:** EIA/TIA-222-F  
**Exposure:** C  
**Gh:** 1.69  
**Struct Class:** II

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190.00	0.26	0.82	0.00	0.00	0.00	5.36	5.80	52.0	0.112
195.00	0.00	0.02	0.00	0.00	0.00	0.03	0.05	52.0	0.001
196.00	0.00	0.02	0.00	0.00	0.00	0.00	0.03	52.0	0.001

## Wind Loading - Shaft

**Structure:** CT00595-S-SBA  
**Site Name:** Stonington East  
**Height:** 196.00 (ft)  
**Base Elev:** 0.000 (ft)

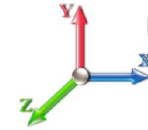
**Code:** EIA/TIA-222-F  
**Exposure:** C  
**Gh:** 1.69  
**Struct Class:** II

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**Load Case:** 50 mph Wind with 0" Ice

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



**Iterations:** 26

Elev (ft)	Description	Kzt	Kz	qz (psf)	qzGh (psf)	C (mph-ft)	Cf	Ice Thick (in)	Tributary (ft)	Aa (sf)	CfAa (sf)	Wind Force X (lb)	Dead Load Ice (lb)	Tot Dead Load (lb)
0.00		0.00	1.00	6.400	10.82	266.67	1.030	0.000	0.00	0.000	0.00	0.0	0.0	0.0
5.00		0.00	1.00	6.400	10.82	261.43	1.030	0.000	5.00	26.405	27.20	294.2	0.0	1615.4
10.00		0.00	1.00	6.400	10.82	256.20	1.030	0.000	5.00	25.882	26.66	288.3	0.0	1583.1
15.00		0.00	1.00	6.400	10.82	250.97	1.030	0.000	5.00	25.358	26.12	282.5	0.0	1550.9
20.00		0.00	1.00	6.400	10.82	245.73	1.030	0.000	5.00	24.835	25.58	276.7	0.0	1518.6
25.00		0.00	1.00	6.400	10.82	240.50	1.030	0.000	5.00	24.312	25.04	270.8	0.0	1486.4
30.00	Appurtenance(s)	0.00	1.00	6.400	10.82	235.27	1.030	0.000	5.00	23.788	24.50	265.0	0.0	1454.1
35.00		0.00	1.02	6.509	11.00	231.98	1.030	0.000	5.00	23.265	23.96	263.6	0.0	1421.9
35.50	Bot - Section 2	0.00	1.02	6.535	11.04	231.92	1.030	0.000	0.50	2.298	2.37	26.1	0.0	140.4
40.00		0.00	1.06	6.762	11.43	231.06	1.030	0.000	4.50	20.772	21.40	244.5	0.0	2434.6
43.00	Top - Section 1	0.00	1.08	6.903	11.67	230.20	1.030	0.000	3.00	13.613	14.02	163.6	0.0	1595.0
45.00		0.00	1.09	6.993	11.82	233.33	1.030	0.000	2.00	8.970	9.24	109.2	0.0	511.8
50.00		0.00	1.13	7.207	12.18	231.31	1.030	0.000	5.00	22.060	22.72	276.7	0.0	1258.5
55.00		0.00	1.16	7.406	12.52	228.85	1.030	0.000	5.00	21.536	22.18	277.6	0.0	1228.4
60.00		0.00	1.19	7.592	12.83	226.01	1.030	0.000	5.00	21.013	21.64	277.7	0.0	1198.3
65.00		0.00	1.21	7.768	13.13	222.85	1.030	0.000	5.00	20.490	21.10	277.0	0.0	1168.2
70.00		0.00	1.24	7.934	13.41	219.39	1.030	0.000	5.00	19.966	20.57	275.7	0.0	1138.1
74.50	Bot - Section 3	0.00	1.26	8.076	13.65	216.06	1.030	0.000	4.50	17.522	18.05	246.3	0.0	998.5
75.00		0.00	1.26	8.092	13.68	215.68	1.030	0.000	0.50	1.952	2.01	27.5	0.0	204.9
80.00		0.00	1.29	8.242	13.93	211.74	1.030	0.000	5.00	19.232	19.81	275.9	0.0	2018.4
81.00	Top - Section 2	0.00	1.29	8.272	13.98	210.93	1.030	0.000	1.00	3.784	3.90	54.5	0.0	397.0
85.00		0.00	1.31	8.387	14.17	211.17	1.030	0.000	4.00	14.925	15.37	217.9	0.0	729.7
90.00		0.00	1.33	8.525	14.41	206.86	1.030	0.000	5.00	18.185	18.73	269.8	0.0	889.0
95.00		0.00	1.35	8.657	14.63	202.38	1.030	0.000	5.00	17.662	18.19	266.2	0.0	863.1
100.00		0.00	1.37	8.785	14.85	197.73	1.030	0.000	5.00	17.139	17.65	262.1	0.0	837.3
105.00		0.00	1.39	8.908	15.06	192.94	1.030	0.000	5.00	16.615	17.11	257.7	0.0	811.5
110.00		0.00	1.41	9.028	15.26	188.01	1.030	0.000	5.00	16.092	16.57	252.9	0.0	785.7
115.00		0.00	1.43	9.143	15.45	182.96	1.030	0.000	5.00	15.569	16.04	247.8	0.0	759.9
118.75	Bot - Section 4	0.00	1.44	9.227	15.59	179.08	1.030	0.000	3.75	11.333	11.67	182.0	0.0	553.0
120.00		0.00	1.45	9.255	15.64	177.78	1.030	0.000	1.25	3.777	3.89	60.9	0.0	335.0
124.00	Top - Section 3	0.00	1.46	9.342	15.79	173.56	1.030	0.000	4.00	11.868	12.22	193.0	0.0	1052.1
125.00		0.00	1.46	9.363	15.82	175.64	1.030	0.000	1.00	2.915	3.00	47.5	0.0	118.7
130.00		0.00	1.48	9.469	16.00	170.26	1.030	0.000	5.00	14.259	14.69	235.0	0.0	580.5
135.00		0.00	1.50	9.572	16.18	164.78	1.030	0.000	5.00	13.736	14.15	228.9	0.0	559.0
140.00	Appurtenance(s)	0.00	1.51	9.672	16.35	159.21	1.030	0.000	5.00	13.213	13.61	222.4	0.0	537.5
145.00		0.00	1.53	9.769	16.51	153.54	1.030	0.000	5.00	12.689	13.07	215.8	0.0	516.0
150.00	Appurtenance(s)	0.00	1.54	9.864	16.67	147.79	1.030	0.000	5.00	12.166	12.53	208.9	0.0	494.5
154.75	Bot - Section 5	0.00	1.56	9.952	16.82	142.25	1.030	0.000	4.75	11.073	11.41	191.8	0.0	449.9
155.00		0.00	1.56	9.957	16.83	141.95	1.030	0.000	0.25	0.578	0.59	10.0	0.0	37.3
159.00	Top - Section 4	0.00	1.57	10.030	16.95	137.23	1.030	0.000	4.00	9.062	9.33	158.2	0.0	584.8
160.00		0.00	1.57	10.048	16.98	138.00	1.030	0.000	1.00	2.213	2.28	38.7	0.0	54.2
165.00		0.00	1.58	10.136	17.13	132.02	1.030	0.000	5.00	10.752	11.07	189.7	0.0	263.1
167.00	Appurtenance(s)	0.00	1.59	10.171	17.19	129.61	1.030	0.000	2.00	4.154	4.28	73.6	0.0	101.6
170.00		0.00	1.60	10.223	17.28	125.97	1.030	0.000	3.00	6.074	6.26	108.1	0.0	148.6
175.00		0.00	1.61	10.308	17.42	119.85	1.030	0.000	5.00	9.705	10.00	174.2	0.0	237.3
180.00		0.00	1.62	10.392	17.56	113.67	1.030	0.000	5.00	9.182	9.46	166.1	0.0	224.4
185.00		0.00	1.64	10.473	17.70	107.42	1.030	0.000	5.00	8.659	8.92	157.9	0.0	211.5
190.00		0.00	1.65	10.553	17.84	101.11	1.030	0.000	5.00	8.135	8.38	149.5	0.0	198.6

## Wind Loading - Shaft

**Structure:** CT00595-S-SBA  
**Site Name:** Stonington East  
**Height:** 196.00 (ft)  
**Base Elev:** 0.000 (ft)

**Code:** EIA/TIA-222-F  
**Exposure:** C  
**Gh:** 1.69  
**Struct Class:** II

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195.00 Appurtenance(s)	0.00	1.66	10.632	17.97	94.74	1.030	0.000	5.00	7.612	7.84	140.9	0.0	185.7
196.00 Appurtenance(s)	0.00	1.66	10.648	17.99	93.46	1.030	0.000	1.00	1.460	1.50	27.1	0.0	35.6
<b>Totals:</b>								<b>196.00</b>			<b>9,427.9</b>		<b>38,078.0</b>



## Discrete Appurtenance Forces

**Structure:** CT00595-S-SB  
**Site Name:** Stonington East  
**Height:** 196.00 (ft)  
**Base Elev:** 0.000 (ft)

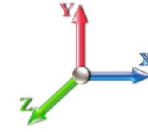
**Code:** EIA/TIA-222-F  
**Exposure:** C  
**Gh:** 1.69  
**Struct Class:** II

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**Load Case:** 50 mph Wind with 0" Ice

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



**Iterations:** 26

No.	Elev (ft)	Description	Qty	qz (psf)	qzGh (psf)	CaAa Factor	Total CaAa (sf)	Dead Load (lb)	Horiz Ecc (ft)	Vert Ecc (ft)	Wind FX (lb)	Mom Y (lb-ft)	Mom Z (lb-ft)
1	196.00	6' Lightning rod	1	10.648	17.994	1.00	0.38	6.50	0.000	0.000	6.84	0.00	0.00
2	195.00	ACU-A20-N	4	10.632	17.968	0.75	0.42	4.00	0.000	0.000	7.55	0.00	0.00
3	195.00	1900MHz RRH	3	10.632	17.968	0.75	8.55	132.00	0.000	0.000	153.63	0.00	0.00
4	195.00	800MHz RRH	3	10.632	17.968	0.75	5.94	178.50	0.000	0.000	106.73	0.00	0.00
5	195.00	800MHz Filter	3	10.632	17.968	0.50	1.17	26.40	0.000	0.000	21.02	0.00	0.00
6	195.00	APXVTM14-C-120	3	10.632	17.968	0.79	16.35	168.00	0.000	0.000	293.83	0.00	0.00
7	195.00	Low Profile Platform	1	10.632	17.968	1.00	22.00	1500.00	0.000	0.000	395.30	0.00	0.00
8	195.00	TD-RRH8x20-25	3	10.632	17.968	0.69	9.77	210.00	0.000	0.000	175.56	0.00	0.00
9	195.00	APXVSPP18-C-A20	3	10.632	17.968	0.83	20.57	171.00	0.000	0.000	369.56	0.00	0.00
10	167.00	KRY 112 144/1	3	10.171	17.190	0.70	0.86	33.00	0.000	0.000	14.80	0.00	0.00
11	167.00	AIR 21, 1.3M, B2A B4P	3	10.171	17.190	0.83	16.16	274.50	0.000	0.000	277.73	0.00	0.00
12	167.00	AIR 21, 1.3M, B4A B2P	3	10.171	17.190	0.83	16.16	270.90	0.000	0.000	277.73	0.00	0.00
13	167.00	Platform w/ Hand Rails	1	10.171	17.190	1.00	35.00	2000.00	0.000	0.000	601.64	0.00	0.00
14	167.00	LNx-6515DS-A1M	3	10.171	17.190	0.84	28.72	150.90	0.000	0.000	493.63	0.00	0.00
15	167.00	S11B12	3	10.171	17.190	0.71	7.01	153.00	0.000	0.000	120.51	0.00	0.00
16	150.00	RRUS 11	6	9.864	16.670	0.75	13.23	304.20	0.000	0.000	220.55	0.00	0.00
17	150.00	P65-17-XLH-RR	2	9.864	16.670	0.75	17.19	118.00	0.000	0.000	286.56	0.00	0.00
18	150.00	LGP21401	6	9.864	16.670	0.67	5.19	84.60	0.000	0.000	86.45	0.00	0.00
19	150.00	LGP13519	6	9.864	16.670	0.67	1.37	31.80	0.000	0.000	22.79	0.00	0.00
20	150.00	DC6-48-60-18-8F	1	9.864	16.670	1.00	1.47	31.80	0.000	0.000	24.51	0.00	0.00
21	150.00	AM-X-CD-14-65-00T-RET	1	9.864	16.670	0.75	4.13	36.40	0.000	0.000	68.77	0.00	0.00
22	150.00	7700.00	6	9.864	16.670	0.79	9.05	96.00	0.000	0.000	150.92	0.00	0.00
23	150.00	Low Profile Platform	1	9.864	16.670	1.00	22.00	1500.00	0.000	0.000	366.75	0.00	0.00
24	140.00	LNx-6414DS-A1M	3	9.672	16.345	0.80	19.99	99.30	0.000	0.000	326.77	0.00	0.00
25	140.00	APL866513	2	9.672	16.345	0.93	7.98	31.40	0.000	0.000	130.42	0.00	0.00
26	140.00	DB-T1-6Z-8AB-0Z	1	9.672	16.345	1.00	5.60	18.90	0.000	0.000	91.53	0.00	0.00
27	140.00	HBXX-6517DS-A2M	6	9.672	16.345	0.83	43.48	244.80	0.000	0.000	710.61	0.00	0.00
28	140.00	RRH2x40 700	3	9.672	16.345	0.75	5.58	150.00	0.000	0.000	91.21	0.00	0.00
29	140.00	LNx-8513DS-VTM	2	9.672	16.345	0.83	13.96	52.60	0.000	0.000	228.19	0.00	0.00
30	140.00	Low Profile Platform	1	9.672	16.345	1.00	22.00	1500.00	0.000	0.000	359.59	0.00	0.00
31	140.00	RRH2x60-2100	3	9.672	16.345	0.75	3.96	58.50	0.000	0.000	64.73	0.00	0.00
32	30.00	GPS	1	6.400	10.816	1.00	1.00	10.00	0.000	0.000	10.82	0.00	0.00
<b>Totals:</b>								<b>9,647.00</b>			<b>6,557.18</b>		

## Total Applied Force Summary

**Structure:** CT00595-S-SB  
**Site Name:** Stonington East  
**Height:** 196.00 (ft)  
**Base Elev:** 0.000 (ft)

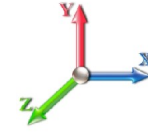
**Code:** EIA/TIA-222-F  
**Exposure:** C  
**Gh:** 1.69  
**Struct Class:** II

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 Page: 30



**Load Case:** 50 mph Wind with 0" Ice

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



**Iterations:** 26

Elev (ft)	Description	Lateral FX (-) (lb)	Axial FY (-) (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)
0.00		0.00	0.00	0.00	0.00
5.00		315.80	1672.68	0.00	0.00
10.00		309.97	1640.42	0.00	0.00
15.00		304.14	1608.17	0.00	0.00
20.00		298.31	1575.91	0.00	0.00
25.00		292.48	1543.66	0.00	0.00
30.00	(1) appurtenances	297.46	1521.40	0.00	0.00
35.00		285.58	1479.15	0.00	0.00
35.50		28.35	146.14	0.00	0.00
40.00		265.06	2486.21	0.00	0.00
43.00		177.56	1629.41	0.00	0.00
45.00		118.65	534.74	0.00	0.00
50.00		301.09	1315.77	0.00	0.00
55.00		302.66	1285.67	0.00	0.00
60.00		303.36	1255.56	0.00	0.00
65.00		303.30	1225.46	0.00	0.00
70.00		302.56	1195.35	0.00	0.00
74.50		270.91	1050.08	0.00	0.00
75.00		30.23	210.65	0.00	0.00
80.00		303.80	2075.70	0.00	0.00
81.00		60.07	408.43	0.00	0.00
85.00		240.56	775.58	0.00	0.00
90.00		298.66	946.25	0.00	0.00
95.00		295.43	920.45	0.00	0.00
100.00		291.78	894.65	0.00	0.00
105.00		287.77	868.84	0.00	0.00
110.00		283.39	843.04	0.00	0.00
115.00		278.68	817.23	0.00	0.00
118.75		205.42	595.99	0.00	0.00
120.00		68.67	349.31	0.00	0.00
124.00		218.25	1097.92	0.00	0.00
125.00		53.84	130.15	0.00	0.00
130.00		267.03	637.84	0.00	0.00
135.00		261.21	616.34	0.00	0.00
140.00	(21) appurtenances	2258.17	2750.33	0.00	0.00
145.00		215.78	557.13	0.00	0.00
150.00	(29) appurtenances	1436.19	2738.43	0.00	0.00
154.75		191.83	479.91	0.00	0.00
155.00		10.01	38.86	0.00	0.00
159.00		158.22	610.09	0.00	0.00
160.00		38.71	60.50	0.00	0.00
165.00		189.72	294.75	0.00	0.00
167.00	(16) appurtenances	1859.58	2996.59	0.00	0.00
170.00		108.10	154.54	0.00	0.00
175.00		174.15	247.24	0.00	0.00
180.00		166.09	234.34	0.00	0.00
185.00		157.86	221.44	0.00	0.00
190.00		149.45	208.54	0.00	0.00
195.00	(23) appurtenances	1664.05	2585.54	0.00	0.00

## Total Applied Force Summary

<b>Structure:</b> CT00595-S-SB	<b>Code:</b> EIA/TIA-222-F	10/2/2015
<b>Site Name:</b> Stonington East	<b>Exposure:</b> C	
<b>Height:</b> 196.00 (ft)	<b>Gh:</b> 1.69	
<b>Base Elev:</b> 0.000 (ft)	<b>Struct Class:</b> II	Page: 31



196.00	(1) appurtenances	<u>33.89</u>	<u>42.10</u>	<u>0.00</u>	<u>0.00</u>
	<b>Totals:</b>	<b>16,733.80</b>	<b>49,574.49</b>	<b>0.00</b>	<b>0.00</b>

## Resulting Forces and Deflections

**Structure:** CT00595-S-SB  
**Site Name:** Stonington East  
**Height:** 196.00 (ft)  
**Base Elev:** 0.000 (ft)

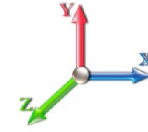
**Code:** EIA/TIA-222-F  
**Exposure:** C  
**Gh:** 1.69  
**Struct Class:** II

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**Load Case:** 50 mph Wind with 0" Ice

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



**Iterations:** 26

Elev (ft)	Lateral FX (-) (kips)	Axial FY (-) (kips)	Lateral FZ (kips)	Moment MX (ft-kips)	Torsion MY (ft-kips)	Moment MZ (ft-kips)	Deflect X (in)	Deflect Z (in)	Deflect Resultant (in)	Rotation Sway (deg)	Rotation Twist (deg)
0.00	-16.759	-49.566	0.000	0.000	0.000	-2043.4	0.000	0.000	0.000	0.000	0.000
5.00	-16.491	-47.877	0.000	0.000	0.000	-1959.6	-0.031	0.000	0.031	-0.058	0.000
10.00	-16.226	-46.220	0.000	0.000	0.000	-1877.2	-0.123	0.000	0.123	-0.116	0.000
15.00	-15.965	-44.596	0.000	0.000	0.000	-1796.0	-0.277	0.000	0.277	-0.176	0.000
20.00	-15.707	-43.004	0.000	0.000	0.000	-1716.2	-0.494	0.000	0.494	-0.237	0.000
25.00	-15.452	-41.445	0.000	0.000	0.000	-1637.7	-0.775	0.000	0.775	-0.299	0.000
30.00	-15.190	-39.909	0.000	0.000	0.000	-1560.4	-1.122	0.000	1.122	-0.361	0.000
35.00	-14.918	-38.422	0.000	0.000	0.000	-1484.5	-1.535	0.000	1.535	-0.426	0.000
35.50	-14.911	-38.268	0.000	0.000	0.000	-1477.0	-1.580	0.000	1.580	-0.432	0.000
40.00	-14.656	-35.771	0.000	0.000	0.000	-1409.9	-2.016	0.000	2.016	-0.491	0.000
43.00	-14.484	-34.135	0.000	0.000	0.000	-1366.0	-2.338	0.000	2.338	-0.531	0.000
45.00	-14.389	-33.589	0.000	0.000	0.000	-1337.0	-2.566	0.000	2.566	-0.558	0.000
50.00	-14.113	-32.260	0.000	0.000	0.000	-1265.0	-3.188	0.000	3.188	-0.627	0.000
55.00	-13.834	-30.961	0.000	0.000	0.000	-1194.5	-3.882	0.000	3.882	-0.697	0.000
60.00	-13.551	-29.692	0.000	0.000	0.000	-1125.3	-4.650	0.000	4.650	-0.768	0.000
65.00	-13.267	-28.454	0.000	0.000	0.000	-1057.6	-5.493	0.000	5.493	-0.839	0.000
70.00	-12.979	-27.248	0.000	0.000	0.000	-991.27	-6.411	0.000	6.411	-0.912	0.000
74.50	-12.707	-26.194	0.000	0.000	0.000	-932.87	-7.303	0.000	7.303	-0.979	0.000
75.00	-12.692	-25.975	0.000	0.000	0.000	-926.52	-7.406	0.000	7.406	-0.986	0.000
80.00	-12.370	-23.896	0.000	0.000	0.000	-863.05	-8.479	0.000	8.479	-1.061	0.000
81.00	-12.318	-23.480	0.000	0.000	0.000	-850.68	-8.703	0.000	8.703	-1.077	0.000
85.00	-12.092	-22.694	0.000	0.000	0.000	-801.41	-9.631	0.000	9.631	-1.138	0.000
90.00	-11.806	-21.737	0.000	0.000	0.000	-740.95	-10.868	0.000	10.868	-1.222	0.000
95.00	-11.521	-20.806	0.000	0.000	0.000	-681.93	-12.193	0.000	12.193	-1.306	0.000
100.00	-11.238	-19.902	0.000	0.000	0.000	-624.32	-13.607	0.000	13.607	-1.391	0.000
105.00	-10.957	-19.024	0.000	0.000	0.000	-568.13	-15.111	0.000	15.111	-1.477	0.000
110.00	-10.678	-18.173	0.000	0.000	0.000	-513.35	-16.703	0.000	16.703	-1.562	0.000
115.00	-10.399	-17.351	0.000	0.000	0.000	-459.96	-18.384	0.000	18.384	-1.646	0.000
118.75	-10.188	-16.753	0.000	0.000	0.000	-420.97	-19.702	0.000	19.702	-1.709	0.000
120.00	-10.122	-16.399	0.000	0.000	0.000	-408.24	-20.153	0.000	20.153	-1.731	0.000
124.00	-9.881	-15.301	0.000	0.000	0.000	-367.75	-21.632	0.000	21.632	-1.797	0.000
125.00	-9.837	-15.163	0.000	0.000	0.000	-357.87	-22.010	0.000	22.010	-1.814	0.000
130.00	-9.572	-14.520	0.000	0.000	0.000	-308.68	-23.958	0.000	23.958	-1.904	0.000
135.00	-9.310	-13.899	0.000	0.000	0.000	-260.82	-25.999	0.000	25.999	-1.989	0.000
140.00	-6.971	-11.221	0.000	0.000	0.000	-214.28	-28.126	0.000	28.126	-2.069	0.000
145.00	-6.748	-10.664	0.000	0.000	0.000	-179.42	-30.333	0.000	30.333	-2.144	0.000
150.00	-5.218	-7.976	0.000	0.000	0.000	-145.68	-32.617	0.000	32.617	-2.214	0.000
154.75	-5.012	-7.501	0.000	0.000	0.000	-120.90	-34.852	0.000	34.852	-2.276	0.000
155.00	-5.004	-7.460	0.000	0.000	0.000	-119.64	-34.971	0.000	34.971	-2.280	0.000
159.00	-4.825	-6.855	0.000	0.000	0.000	-99.633	-36.902	0.000	36.902	-2.329	0.000
160.00	-4.790	-6.792	0.000	0.000	0.000	-94.808	-37.391	0.000	37.391	-2.341	0.000
165.00	-4.594	-6.500	0.000	0.000	0.000	-70.860	-39.890	0.000	39.890	-2.426	0.000
167.00	-2.611	-3.584	0.000	0.000	0.000	-61.672	-40.913	0.000	40.913	-2.457	0.000
170.00	-2.500	-3.432	0.000	0.000	0.000	-53.839	-42.471	0.000	42.471	-2.501	0.000
175.00	-2.318	-3.190	0.000	0.000	0.000	-41.342	-45.125	0.000	45.125	-2.566	0.000
180.00	-2.144	-2.962	0.000	0.000	0.000	-29.751	-47.844	0.000	47.844	-2.624	0.000
185.00	-1.978	-2.746	0.000	0.000	0.000	-19.029	-50.619	0.000	50.619	-2.671	0.000
190.00	-1.820	-2.544	0.000	0.000	0.000	-9.137	-53.435	0.000	53.435	-2.704	0.000
195.00	-0.036	-0.040	0.000	0.000	0.000	-0.036	-56.275	0.000	56.275	-2.717	0.000

## Resulting Forces and Deflections

**Structure:** CT00595-S-SB  
**Site Name:** Stonington East  
**Height:** 196.00 (ft)  
**Base Elev:** 0.000 (ft)

**Code:** EIA/TIA-222-F  
**Exposure:** C  
**Gh:** 1.69  
**Struct Class:** II

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196.00	-0.034	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	56.844	-2.717	0.000
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## Resulting Stresses

**Structure:** CT00595-S-SBA  
**Site Name:** Stonington East  
**Height:** 196.00 (ft)  
**Base Elev:** 0.000 (ft)

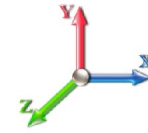
**Code:** EIA/TIA-222-F  
**Exposure:** C  
**Gh:** 1.69  
**Struct Class:** II

10/2/2015  
 Page: 34



**Load Case:** 50 mph Wind with 0" Ice

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



**Iterations:** 26

### Applied Stresses

Elev (ft)	fa Axial (Y) (ksi)	fvx Shear (X) (ksi)	fvz Shear (Z) (ksi)	fvT Torsion (ksi)	fbx Bending (X) (ksi)	fbz Bending (Z) (ksi)	fb Combined (ksi)	Allow Stress (ksi)	f/Fb Stress Ratio
0.00	0.52	0.36	0.00	0.00	0.00	16.44	16.97	48.4	0.351
5.00	0.51	0.36	0.00	0.00	0.00	16.41	16.94	49.0	0.346
10.00	0.50	0.36	0.00	0.00	0.00	16.38	16.89	49.5	0.341
15.00	0.49	0.36	0.00	0.00	0.00	16.34	16.85	50.1	0.336
20.00	0.49	0.36	0.00	0.00	0.00	16.30	16.79	50.6	0.332
25.00	0.48	0.36	0.00	0.00	0.00	16.24	16.73	51.2	0.327
30.00	0.47	0.37	0.00	0.00	0.00	16.18	16.66	51.8	0.322
35.00	0.47	0.37	0.00	0.00	0.00	16.11	16.59	52.0	0.319
35.50	0.46	0.37	0.00	0.00	0.00	16.10	16.58	52.0	0.319
40.00	0.44	0.37	0.00	0.00	0.00	16.03	16.49	52.0	0.317
43.00	0.45	0.39	0.00	0.00	0.00	16.54	17.00	52.0	0.327
45.00	0.45	0.39	0.00	0.00	0.00	16.50	16.96	51.4	0.330
50.00	0.44	0.39	0.00	0.00	0.00	16.38	16.83	52.0	0.324
55.00	0.43	0.39	0.00	0.00	0.00	16.24	16.69	52.0	0.321
60.00	0.43	0.40	0.00	0.00	0.00	16.09	16.54	52.0	0.318
65.00	0.42	0.40	0.00	0.00	0.00	15.93	16.36	52.0	0.315
70.00	0.41	0.40	0.00	0.00	0.00	15.74	16.17	52.0	0.311
74.50	0.41	0.40	0.00	0.00	0.00	15.56	15.98	52.0	0.307
75.00	0.40	0.40	0.00	0.00	0.00	15.54	15.96	52.0	0.307
80.00	0.38	0.40	0.00	0.00	0.00	15.31	15.71	52.0	0.302
81.00	0.43	0.46	0.00	0.00	0.00	17.15	17.60	52.0	0.338
85.00	0.43	0.46	0.00	0.00	0.00	16.90	17.35	52.0	0.334
90.00	0.42	0.47	0.00	0.00	0.00	16.57	17.01	52.0	0.327
95.00	0.42	0.47	0.00	0.00	0.00	16.19	16.63	52.0	0.320
100.00	0.41	0.47	0.00	0.00	0.00	15.77	16.20	52.0	0.312
105.00	0.41	0.47	0.00	0.00	0.00	15.30	15.72	52.0	0.302
110.00	0.40	0.48	0.00	0.00	0.00	14.77	15.19	52.0	0.292
115.00	0.40	0.48	0.00	0.00	0.00	14.17	14.58	52.0	0.280
118.75	0.39	0.48	0.00	0.00	0.00	13.67	14.08	52.0	0.271
120.00	0.39	0.49	0.00	0.00	0.00	13.49	13.90	52.0	0.267
124.00	0.44	0.57	0.00	0.00	0.00	14.83	15.30	52.0	0.294
125.00	0.44	0.58	0.00	0.00	0.00	14.64	15.11	52.0	0.291
130.00	0.43	0.58	0.00	0.00	0.00	13.60	14.07	52.0	0.271
135.00	0.43	0.59	0.00	0.00	0.00	12.42	12.89	52.0	0.248
140.00	0.36	0.46	0.00	0.00	0.00	11.06	11.45	52.0	0.220
145.00	0.36	0.46	0.00	0.00	0.00	10.07	10.46	52.0	0.201
150.00	0.28	0.37	0.00	0.00	0.00	8.92	9.22	52.0	0.177
154.75	0.28	0.37	0.00	0.00	0.00	8.07	8.38	52.0	0.161
155.00	0.27	0.37	0.00	0.00	0.00	8.03	8.33	52.0	0.160
159.00	0.43	0.61	0.00	0.00	0.00	11.52	12.00	52.0	0.231
160.00	0.43	0.61	0.00	0.00	0.00	11.17	11.65	47.5	0.245
165.00	0.43	0.62	0.00	0.00	0.00	9.21	9.71	48.9	0.199
167.00	0.24	0.36	0.00	0.00	0.00	8.35	8.62	49.4	0.174
170.00	0.24	0.35	0.00	0.00	0.00	7.77	8.03	50.3	0.160
175.00	0.24	0.35	0.00	0.00	0.00	6.65	6.91	51.7	0.134
180.00	0.23	0.34	0.00	0.00	0.00	5.37	5.63	52.0	0.108
185.00	0.23	0.33	0.00	0.00	0.00	3.88	4.15	52.0	0.080

## Resulting Stresses

**Structure:** CT00595-S-SBA  
**Site Name:** Stonington East  
**Height:** 196.00 (ft)  
**Base Elev:** 0.000 (ft)

**Code:** EIA/TIA-222-F  
**Exposure:** C  
**Gh:** 1.69  
**Struct Class:** II

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190.00	0.23	0.33	0.00	0.00	0.00	2.13	2.42	52.0	0.046
195.00	0.00	0.01	0.00	0.00	0.00	0.01	0.02	52.0	0.000
196.00	0.00	0.01	0.00	0.00	0.00	0.00	0.01	52.0	0.000

## Final Analysis Summary

**Structure:** CT00595-S-SBA  
**Site Name:** Stonington East  
**Height:** 196.00 (ft)  
**Base Elev:** 0.000 (ft)

**Code:** EIA/TIA-222-F  
**Exposure:** C  
**Gh:** 1.69  
**Struct Class:** II

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### Reactions

Load Case	Shear FX (kips)	Shear FZ (kips)	Axial FY (kips)	Moment MX (ft-kips)	Moment MY (ft-kips)	t MZ (ft-kips)
85 mph Wind with 0" Ice	48.4	0.00	49.50	0.00	0.00	5895.42
73.61 mph Wind with 0.5" Ice	39.5	0.00	57.49	0.00	0.00	4932.91
50 mph Wind with 0" Ice	16.8	0.00	49.57	0.00	0.00	2043.47

### Max Stresses

Load Case	fa Axial (Y) (ksi)	fvx Shear (X) (ksi)	fvz Shear (Z) (ksi)	fvT Torsion (ksi)	fbx Bending (X) (ksi)	fbz Bending (Z) (ksi)	Combined Stress (ksi)	Allowable Stress (ksi)	Elev (ft)	Stress Ratio
85 mph Wind with 0" Ice	0.52	1.03	0.00	0.00	0.00	47.44	47.99	48.4	0.00	0.992
73.61 mph Wind with 0.5" Ice	0.60	0.84	0.00	0.00	0.00	39.70	40.32	48.4	0.00	0.833
50 mph Wind with 0" Ice	0.52	0.36	0.00	0.00	0.00	16.44	16.97	48.4	0.00	0.351





# Monopole Mat Foundation Design

Date  
10/2/2015

<b>Customer Name:</b>	T-Mobile	<b>EIA/TIA Standard:</b>	EIA-222-F
<b>Site Name:</b>	Stonington East	<b>Structure Height (Ft.):</b>	196
<b>Site Number:</b>	CT00595-S-SBA	<b>Engineer Name:</b>	J. Tibbetts
<b>Engr. Number:</b>	17884	<b>Engineer Login ID:</b>	

## Foundation Info Obtained from:

Drawings/Calculations

## Structure Type:

Monopole

## Analysis or Design?

Analysis

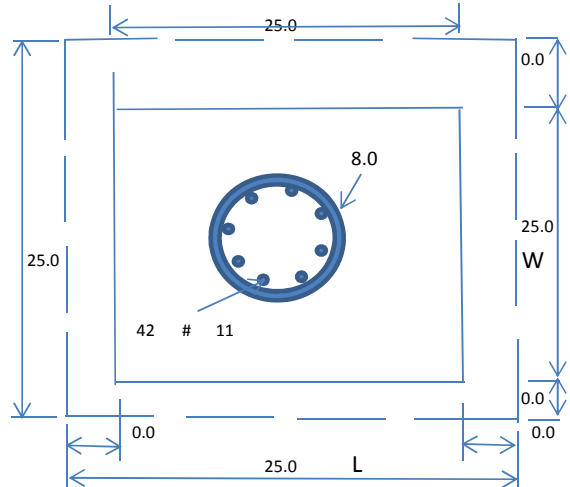
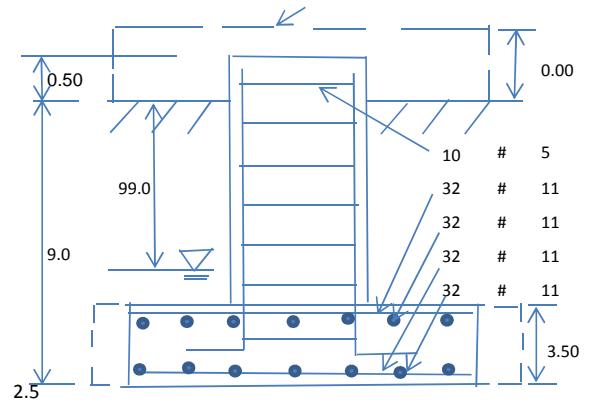
## Base Reactions (Unfactored)

Axial Load (Kips):	57.5	Shear Force (Kips):	48.4
Uplift Force (Kips):	0.0	Moment (Kips-ft):	5895.4

Allowable overstress %: 5.0%

## Foundation Geometries:

		Mods required -Yes/No ?:	No
Diameter of Pier (ft.):	8.0	Depth of Base BG (ft.):	9.0
Pier Height A. G. (ft.):	0.50	Thickness of Pad (ft):	3.50
Length of Pad (ft.):	25	Width of Pad (ft.):	25
Final Length of pad (ft)	25.0	Final width of pad (ft):	25.0
Control Value for Cell D18:	0	Control Value for Cell F18:	0



## 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 #:	11	Tie / Stirrup Size #:	5	
Qty. of Vertical Rebars:	42	Tie Spacing (in):	12.0	
Pad Rebar Yield (Ksi):	60	Pad Steel Rebar Size (#):	11	
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):	32	Qty. of Rebar in Pad (W):	32	
Rebar at the top of the concrete pad:				
Qty. of Rebar in Pad (L):	32	Qty. of Rebar in Pad (W):	32	

Apply 1.35 factor for e/w Per G: 1.35

## Soil Design Parameters:

Soil Unit Weight (pcf):	135.0	Soil Buoyant Weight:	50.0	Pcf	
Water Table B.G.S. (ft):	99.0	Unit Weight of Water:	62.4	pcf	Angle from Top of Pad: 30
Allowable Net Soil Bearing (psf):	16000	Allowable Skin Friction:	0	Psf	Angle from Bottm of Pad: 25
Consider Friction for O.T.M. (Y/N):	No	Consider Friction for bearing (Y/N):	No		Angle from Bottm of Pad: 25
Consider soil hori. force for O.T.M.:	No	Reduction factor on the maximum soil bearing pressure:	1.00		

## Foundation Analysis and Design:

Total Dry Soil Volume (cu. Ft.):	3161.04	Total Dry Soil Weight (Kips):	426.74
Total Buoyant Soil Volume (cu. Ft.):	0.00	Total Buoyant Soil Weight (Kips):	0.00
Total Effective Soil Weight (Kips):	426.74	Weight from the Concrete Block at Top (K):	0.00
Total Dry Concrete Volume (cu. Ft.):	2489.09	Total Dry Concrete Weight (Kips):	373.36
Total Buoyant Concrete Volume (cu. Ft.):	0.00	Total Buoyant Concrete Weight (Kips):	0.00
Total Effective Concrete Weight (Kips):	373.36	Total Vertical Load on Base (Kips):	857.60

## Check Soil Capacities:

Calculated Maxium Net Soil Pressure under the base (psf):	4672	<	Allowable Soil Bearing (psf):	16000	0.29	OK!
Allowable Foundation Overturning Resistance (SF=1.5, kips-ft.):	7146.7	>	Applied Momont (kips-ft):	6355	0.89	OK!
Factor of Safety Against Overturning (O. R. Moment/Design Moment):	1.69					OK!

Load/  
Capacity  
Ratio

**Check the capacities of Reinforcing Concrete:**

Strength reduction factor (Flexure and axial tension):	0.90	Strength reduction factor (Shear):	0.75		
Strength reduction factor (Axial compression):	0.65	Wind Load Factor on Concrete Design:	1.30		

**(1) Concrete Pier:**

				Load/ Capacity Ratio	
Vertical Steel Rebar Area (sq. in./each):	1.56	Tie / Stirrup Area (sq. in./each):	0.31		
Calculated Moment Capacity (Mn,Kips-Ft):	12376.5	> Design Factored Moment (Mu, Kips-Ft)	6185.8	0.50	OK!
Calculated Shear Capacity (Kips):	924.8	> Design Factored Shear (Kips):	62.9	0.07	OK!
Calculated Tension Capacity (Tn, Kips):	3538.1	> Design Factored Tension (Tu Kips):	0.0	0.00	OK!
Calculated Compression Capacity (Pn, Kips):	12681.4	> Design Factored Axial Load (Pu Kips):	74.8	0.01	OK!
Moment & Axial Strength Combination:	0.50	OK! Check Tie Spacing (Design/Required):		1	OK!
Pier Reinforcement Ratio:	0.009	Reinforcement Ratio is satisfied per ACI			

**(2).Concrete Pad:**

One-Way Design Shear Capacity (L-Direction, Kips):	1090.4	> One-Way Factored Shear (L-D. Kips):	428.3	0.39	OK!
One-Way Design Shear Capacity (W-Direction, Kips):	1090.4	> One-Way Factored Shear (W-D., Kips):	428.3	0.39	OK!
One-Way Design Shear Capacity (Corner-Corner. Kips):	1193.1	> One-Way Factored Shear (C-C, Kips):	794.5	0.67	OK!
Lower Steel Pad Reinforcement Ratio (L-Direct. ):	0.0043	OK! Lower Steel Pad Reinf. Ratio (W-Direc	0.0043		
Lower Steel Pad Moment Capacity (L-Direction. Kips-ft):	8276.7	> Moment at Bottom ( L-Direct. K-Ft):	874.3	0.11	OK!
Lower Steel Pad Moment Capacity (W-Direction. Kips-ft):	8276.7	> Moment at Bottom ( W-Direct. K-Ft):	874.3	0.11	OK!
Lower Steel Pad Moment Capacity (Corner-Corner,K-ft):	11568.6	> Moment at Bottom ( C-C Dir. K-Ft):	1236.5	0.11	OK!
Upper Steel Pad Reinforcement Ratio (L-Direct. ):	0.0043	OK! Upper Steel Reinf. Ratio (W-Direct. ):	0.0043		
Upper Steel Pad Moment Capacity (L-Direction. Kips-ft):	8276.7	> Moment at the top (L-Dir Kips-Ft):	434.5	0.05	OK!
Upper Steel Pad Moment Capacity (W-Direction. Kips-ft):	8276.7	> Moment at the top (W-Dir Kips-Ft):	434.5	0.05	OK!
Upper Steel Pad Moment Capacity (Corner-Corner. K-ft):	11568.6	> Moment at the top (C-C Direc. K-Ft):	1249.8	0.11	OK!

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

**T-Mobile Existing Facility**

**Site ID: CT11343A**

**Stonington/ I-95\_1  
86 Voluntown Road  
Stonington, CT 06379**

**October 7, 2015**

**EBI Project Number: 6215005049**

<b>Site Compliance Summary</b>	
Compliance Status:	<b>COMPLIANT</b>
Site total MPE% of FCC general public allowable limit:	<b>6.58 %</b>

October 7, 2015

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

Emissions Analysis for Site: **CT11343A – Stonington/ I-95\_1**

EBI Consulting was directed to analyze the proposed T-Mobile facility located at **86 Voluntown Road, Stonington, CT**, for the purpose of determining whether the emissions from the Proposed T-Mobile Antenna Installation located on this property are within specified federal limits.

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

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

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

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

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

Additional details can be found in FCC OET 65.

## **CALCULATIONS**

Calculations were done for the proposed T-Mobile Wireless antenna facility located at **86 Voluntown Road, Stonington, CT**, using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65. Since T-Mobile is proposing highly focused directional panel antennas, which project most of the emitted energy out toward the horizon, all calculations were performed assuming a lobe representing the maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB, was focused at the base of the tower. For this report the sample point is the top of a 6 foot person standing at the base of the tower.

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

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

- 6) For the following calculations the sample point was the top of a six 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.
- 7) The antennas used in this modeling are the **Ericsson AIR21 (B4A/B2P & B2A/B4P)** for 1900 MHz (PCS) and 2100 MHz (AWS) channels and the **Commscope LNX-6515DS-VTM** for 700 MHz channels. This is based on feedback from the carrier with regards to anticipated antenna selection. The **Ericsson AIR21 (B4A/B2P & B2A/B4P)** have a maximum gain of **15.9 dBd** at their main lobe. The **Commscope LNX-6515DS-VTM** has a maximum gain of **14.6 dBd** at its main lobe. 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.
- 8) The antenna mounting height centerline of the proposed antennas is **167 feet** above ground level (AGL).
- 9) 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.

### T-Mobile Site Inventory and Power Data

Sector:	A	Sector:	B	Sector:	C
Antenna #:	1	Antenna #:	1	Antenna #:	1
Make / Model:	Ericsson AIR21 B4A/B2P	Make / Model:	Ericsson AIR21 B4A/B2P	Make / Model:	Ericsson AIR21 B4A/B2P
Gain:	15.9 dBd	Gain:	15.9 dBd	Gain:	15.9 dBd
Height (AGL):	167	Height (AGL):	167	Height (AGL):	167
Frequency Bands	2100 MHz (AWS)	Frequency Bands	2100 MHz (AWS)	Frequency Bands	2100 MHz (AWS)
Channel Count	2	Channel Count	2	# PCS Channels:	2
Total TX Power:	120	Total TX Power:	120	# AWS Channels:	120
ERP (W):	4,668.54	ERP (W):	4,668.54	ERP (W):	4,668.54
Antenna A1 MPE%	0.65	Antenna B1 MPE%	0.65	Antenna C1 MPE%	0.65
Antenna #:	2	Antenna #:	2	Antenna #:	2
Make / Model:	Ericsson AIR21 B2A/B4P	Make / Model:	Ericsson AIR21 B2A/B4P	Make / Model:	Ericsson AIR21 B2A/B4P
Gain:	15.9 dBd	Gain:	15.9 dBd	Gain:	15.9 dBd
Height (AGL):	167	Height (AGL):	167	Height (AGL):	167
Frequency Bands	1900 MHz(PCS) / 2100 MHz (AWS)	Frequency Bands	1900 MHz(PCS) / 2100 MHz (AWS)	Frequency Bands	1900 MHz(PCS) / 2100 MHz (AWS)
Channel Count	4	Channel Count	4	Channel Count	4
Total TX Power:	120	Total TX Power:	120	Total TX Power:	120
ERP (W):	4,668.54	ERP (W):	4,668.54	ERP (W):	4,668.54
Antenna A2 MPE%	0.65	Antenna B2 MPE%	0.65	Antenna C2 MPE%	0.65
Antenna #:	3	Antenna #:	3	Antenna #:	3
Make / Model:	Commscope LNX-6515DS-VTM	Make / Model:	Commscope LNX-6515DS-VTM	Make / Model:	Commscope LNX-6515DS-VTM
Gain:	14.6 dBd	Gain:	14.6 dBd	Gain:	14.6 dBd
Height (AGL):	167	Height (AGL):	167	Height (AGL):	167
Frequency Bands	700 MHz	Frequency Bands	700 MHz	Frequency Bands	700 MHz
Channel Count	1	Channel Count	1	Channel Count	1
Total TX Power:	30	Total TX Power:	30	Total TX Power:	30
ERP (W):	865.21	ERP (W):	865.21	ERP (W):	865.21
Antenna A3 MPE%	0.26	Antenna B3 MPE%	0.26	Antenna C3 MPE%	0.26

Site Composite MPE%	
Carrier	MPE%
T-Mobile (Per Sector Max)	1.55 %
Nextel	0.18 %
Sprint	0.20 %
MetroPCS	0.46 %
AT&T	1.52 %
Verizon Wireless	2.67 %
<b>Site Total MPE %:</b>	<b>6.58 %</b>

T-Mobile Sector 1 Total:	1.55 %
T-Mobile Sector 2 Total:	1.55 %
T-Mobile Sector 3 Total:	1.55 %
<b>Site Total:</b>	<b>6.58 %</b>

T-Mobile _per sector	# Channels	Watts ERP (Per Channel)	Height (feet)	Total Power Density ( $\mu\text{W}/\text{cm}^2$ )	Frequency (MHz)	Allowable MPE ( $\mu\text{W}/\text{cm}^2$ )	Calculated % MPE
T-Mobile 2100 MHz (AWS) LTE	2	2334.27	167	6.47	2100	1000	0.65 %
T-Mobile 700 MHz LTE	1	865.21	167	1.20	700	467	0.26 %
T-Mobile 1900 MHz (PCS) GSM/UMTS	2	1167.14	167	3.24	1900	1000	0.32 %
T-Mobile 2100 MHz (AWS) UMTS	2	1167.14	167	3.24	2100	1000	0.32 %
						<b>Total:</b>	<b>1.55%</b>

## Summary

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

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

T-Mobile Sector	Power Density Value (%)
Sector 1:	1.55 %
Sector 2:	1.55 %
Sector 3 :	1.55 %
T-Mobile Per Sector Maximum:	1.55 %
Site Total:	6.58 %
Site Compliance Status:	<b>COMPLIANT</b>

The anticipated composite MPE value for this site assuming all carriers present is **6.58%** 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.

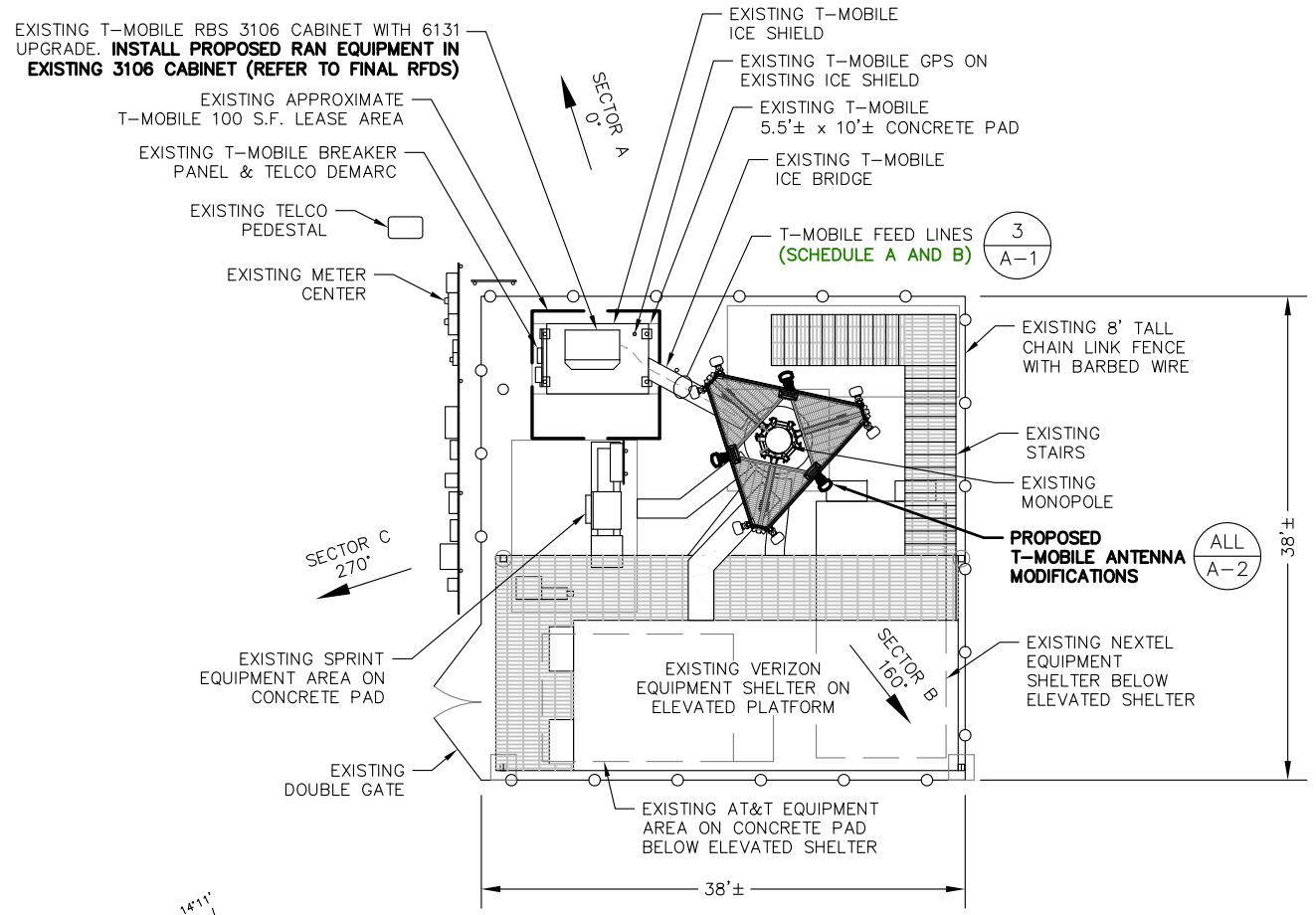
FCC guidelines state that if a site is found to be out of compliance (over allowable thresholds), that carriers over a 5% contribution to the composite value will require measures to bring the site into compliance. For this facility, the composite values calculated were well within the allowable 100%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



**Scott Heffernan**  
RF Engineering Director

**EBI Consulting**  
21 B Street  
Burlington, MA 01803





**COMPOUND PLAN**  
SCALE: 1"=15' (11"x17")  
1"=7.5' (22"x34")

**ANTENNA MOUNT STRUCTURAL ASSESSMENT REQUIREMENT:**  
ENGINEER OF RECORD HAS MADE A VISUAL ASSESSMENT ONLY AND DETERMINED THAT THE EXISTING ANTENNA MOUNT SHALL BE REPLACED OR MODIFIED TO ACCOMMODATE ANY ADDITIONAL EQUIPMENT LOADS. STRUCTURAL DESIGNS AND DETAILS AS SHOWN HEREIN FOR STRUCTURAL MODIFICATIONS OF THE EXISTING ANTENNA MOUNT ARE PRELIMINARY ONLY AND FINAL CONSTRUCTION DETAILS ARE SUBJECT TO CHANGE PENDING THE COMPLETION OF AN ANTENNA MOUNT STRUCTURAL ASSESSMENT.

**STRUCTURAL NOTES:**  
PRIOR TO COMMENCING CONSTRUCTION, GC SHALL REFER TO TOWER STRUCTURAL ANALYSIS PROVIDED BY SBA TO DETERMINE IF THERE ARE ANY SUPPLEMENTAL OR SPECIAL INSTALLATION REQUIREMENTS FOR TOWER TOP EQUIPMENT AND FOR CABLE BUNDLING, SHIELDING, MOUNTING, OR RELOCATION ARRANGEMENTS

☉ OF PROPOSED T-MOBILE ANTENNAS  
ELEV.= 167'± AGL (SBA DATABASE)

ALL 1-2  
A-2 A-3

FEEDLINE SCHEDULE	FEEDLINE DESCRIPTION	LOCATION
A	EXISTING: TO REMAIN (12) 1-5/8" COAX; TO REMAIN (1) HYBRID TO 167' RAD	UP INSIDE MONOPOLE TO RAD
B	PROPOSED: USE EXISTING	UP INSIDE MONOPOLE TO RAD

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

EXISTING (12) 1-5/8" COAX & (1) HYBRID CABLE ACROSS EXISTING ICE BRIDGE & UP INSIDE MONOPOLE, **ALL TO REMAIN (REFER TO SBA-PROVIDED STRUCTURAL ANALYSIS FOR SPECIAL FEEDLINE INSTALLATION REQUIREMENTS, STACKING, BUNDLING, SHIELDING, MOUNTING AND RELOCATION OF EXISTING OR PROPOSED FEEDLINES)**

EXISTING T-MOBILE RBS 3106 CABINET WITH 6131 UPGRADE. **INSTALL PROPOSED RAN EQUIPMENT IN EXISTING 3106 CABINET (REFER TO FINAL RFDS)**



IMAGE SOURCE: PROTERRA 09/02/15

**EQUIPMENT PHOTO DETAIL**  
SCALE: N.T.S.

2 A-1



IMAGE SOURCE: PROTERRA 09/02/15

**FEEDLINE PHOTO DETAIL AT TOWER BASE**  
SCALE: N.T.S.

3 A-1



IMAGE SOURCE: PROTERRA 09/02/15

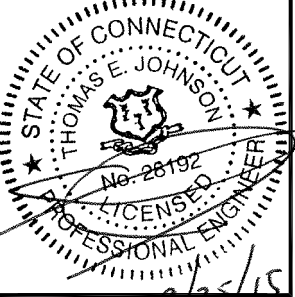
**PARTIAL ELEVATION PHOTO DETAIL**  
SCALE: N.T.S.

4 A-1

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

**SBA**  
SBA COMMUNICATIONS CORP.  
33 BOSTON POST ROAD WEST, SUITE 320  
MARLBOROUGH, MA 01752 TEL: (508) 251-0720

**ProTerra**  
DESIGN GROUP, LLC  
4 Bay Road, Building A  
Suite 200  
Hadley, MA 01035 Ph: (413)320-4918



CHECKED BY: JMM/TEJ

APPROVED BY: JMM/TEJ

SUBMITTALS

REV.	DATE	DESCRIPTION	BY
0	09/25/15	ISSUED FOR CONSTRUCTION	BLM

SITE NUMBER:  
CT11343A  
SITE NAME:  
STONINGTON / I-95\_1  
SITE ADDRESS:  
86 VOLUNTOWN ROAD  
STONINGTON, CT 06379  
NEW LONDON COUNTY

SHEET TITLE  
COMPOUND & ELEVATION PLAN

SHEET NUMBER  
A-1



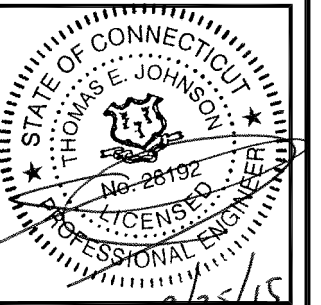
**T-MOBILE NORTHEAST LLC**  
 35 GRIFFIN ROAD SOUTH  
 BLOOMFIELD, CT 06002  
 TEL: (860) 648-1116



SBA COMMUNICATIONS CORP.  
 33 BOSTON POST ROAD WEST, SUITE 320  
 MARLBOROUGH, MA 01752 TEL: (508) 251-0720

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 NEW LONDON COUNTY

SHEET TITLE

EXISTING & PROPOSED  
 ANTENNA PLAN

SHEET NUMBER

A-2

**ANTENNA MOUNT STRUCTURAL ASSESSMENT REQUIREMENT:**

ENGINEER OF RECORD HAS MADE A VISUAL ASSESSMENT ONLY AND DETERMINED THAT THE EXISTING ANTENNA MOUNT SHALL BE REPLACED OR MODIFIED TO ACCOMMODATE ANY ADDITIONAL EQUIPMENT LOADS. STRUCTURAL DESIGNS AND DETAILS AS SHOWN HEREIN FOR STRUCTURAL MODIFICATIONS OF THE EXISTING ANTENNA MOUNT ARE PRELIMINARY ONLY AND FINAL CONSTRUCTION DETAILS ARE SUBJECT TO CHANGE PENDING THE COMPLETION OF AN ANTENNA MOUNT STRUCTURAL ASSESSMENT.

**STRUCTURAL NOTES:**

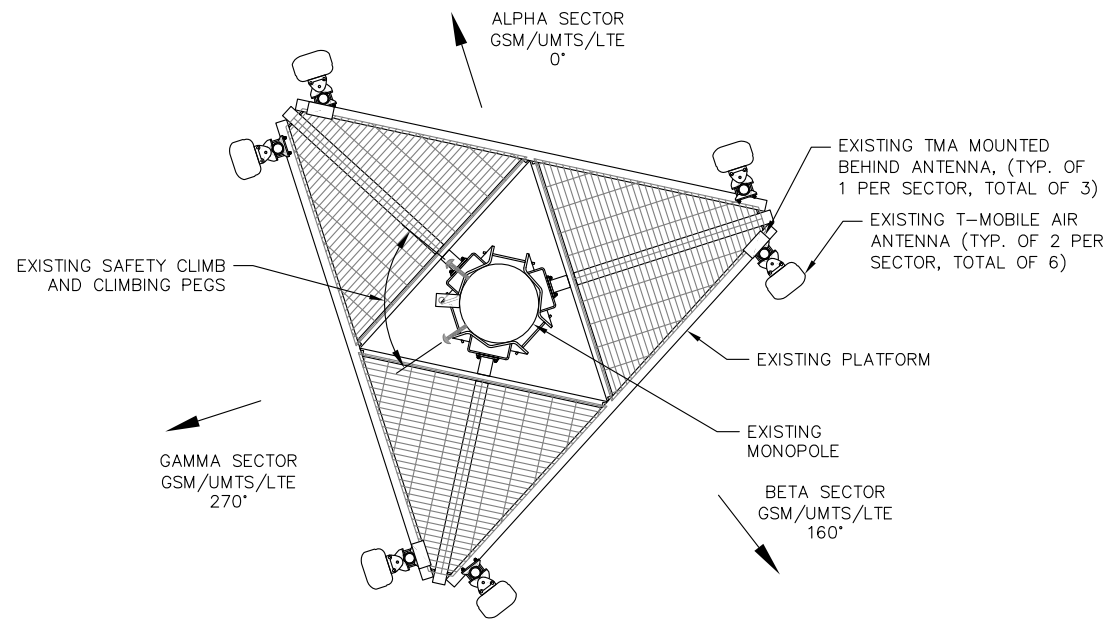
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**SPECIAL WORK NOTE:**

VERTICALLY CENTER THE PIPE MAST AND THE PROPOSED ANTENNAS ON THE EXISTING MOUNTING RAIL

**NOTE:**

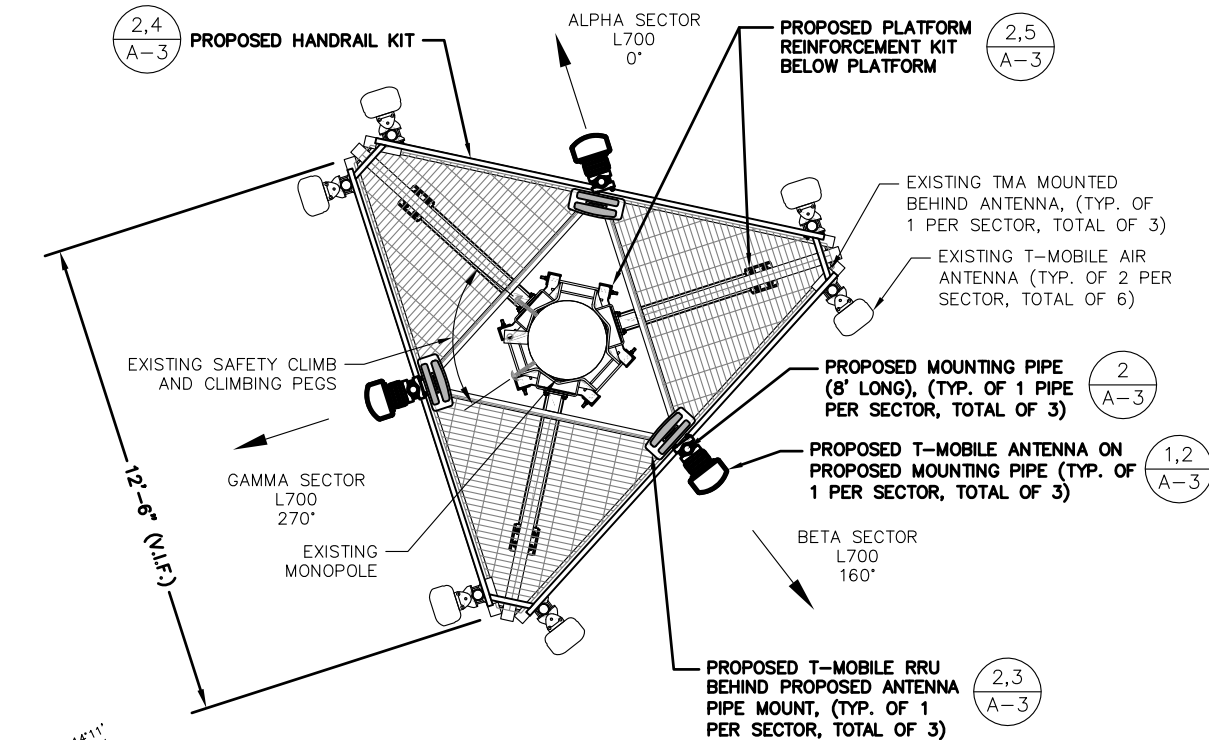
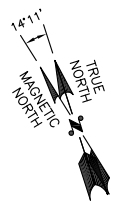
REFER TO THE FINAL RF DATA SHEET FOR FINAL ANTENNA SETTINGS.



**EXISTING ANTENNA PLAN**

SCALE: N.T.S.

1  
A-2

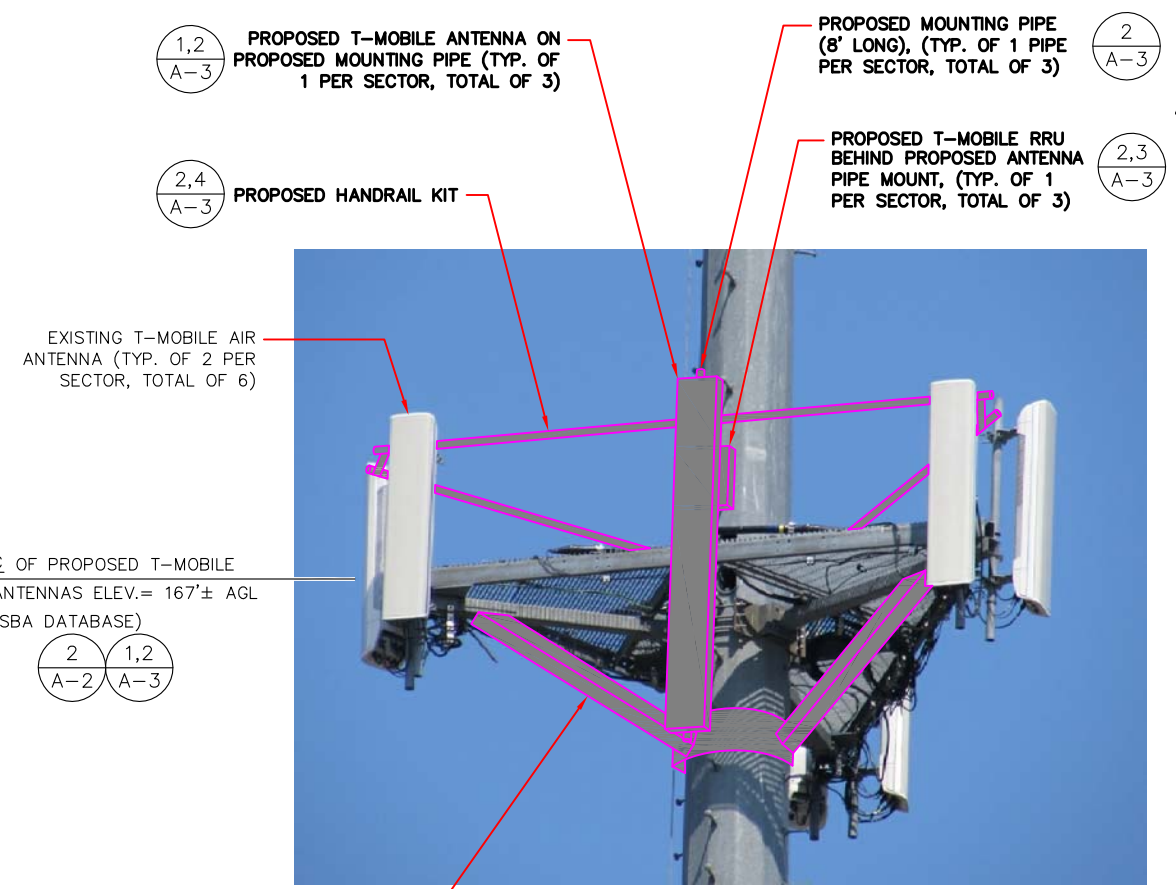


**PROPOSED ANTENNA PLAN**

SCALE: N.T.S.

2  
A-2

**NOTE:**  
 ALL PIPE TO BE SCH40 GALVANIZED  
 ASTM A53 GRADE B (35 KSI)

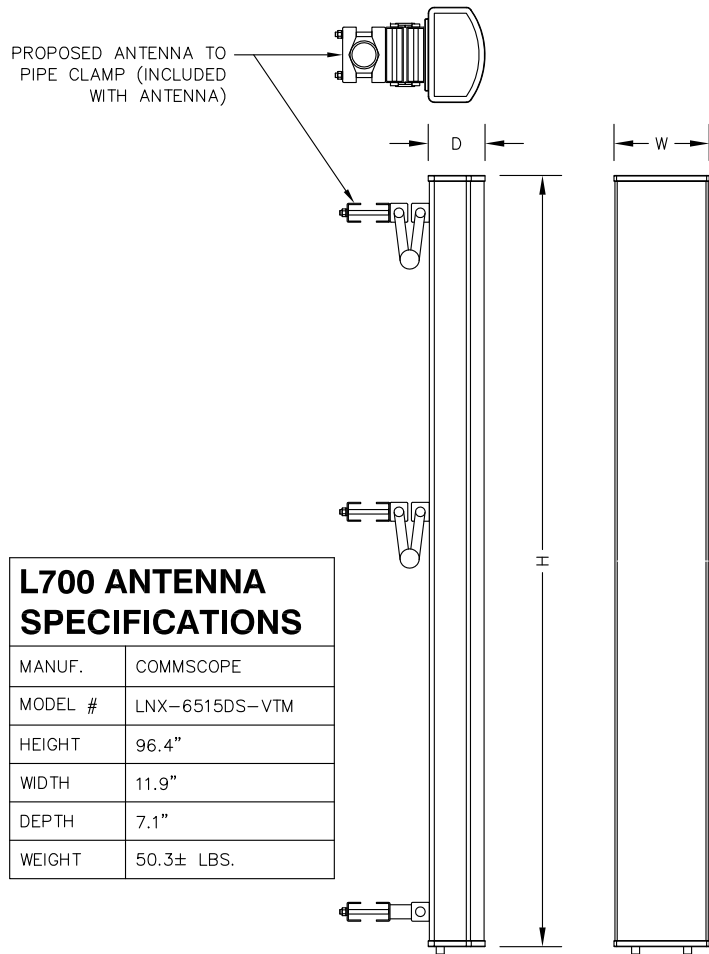


**ANTENNA PHOTO DETAIL**

SCALE: N.T.S.

3  
A-2

IMAGE SOURCE: PROTERRA 09/02/15  
 NOTE: ONE SECTOR SHOWN FOR CLARITY

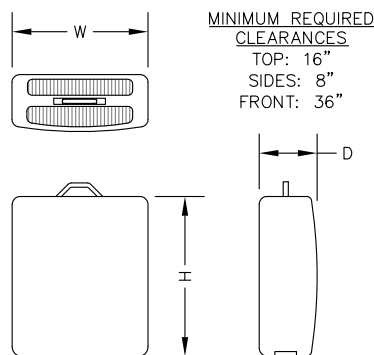


### L700 ANTENNA SPECIFICATIONS

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

### L700 ANTENNA DETAIL

SCALE: N.T.S.

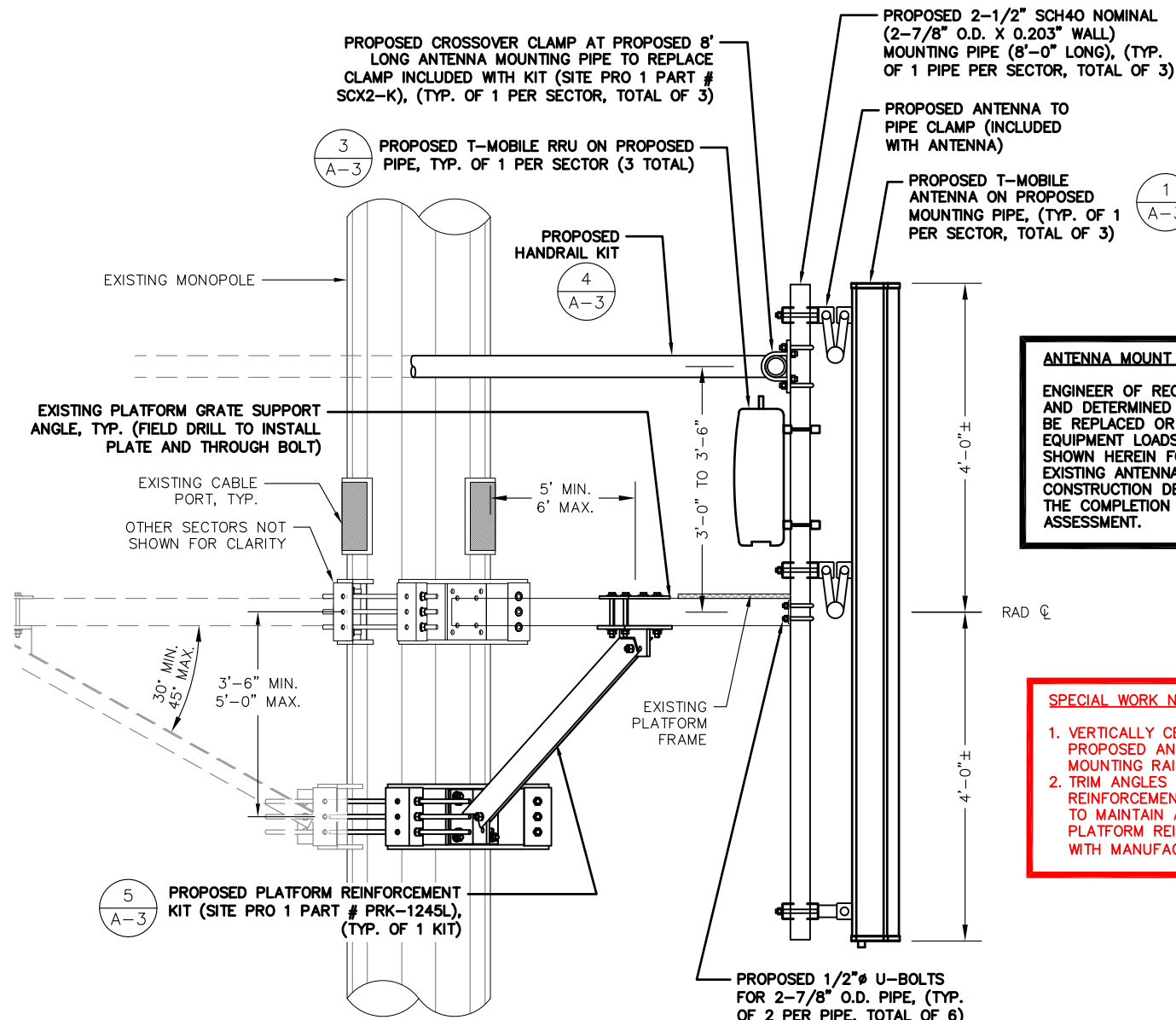


### RRU SPECIFICATIONS

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

### REMOTE RADIO UNIT (RRU)

SCALE: N.T.S.

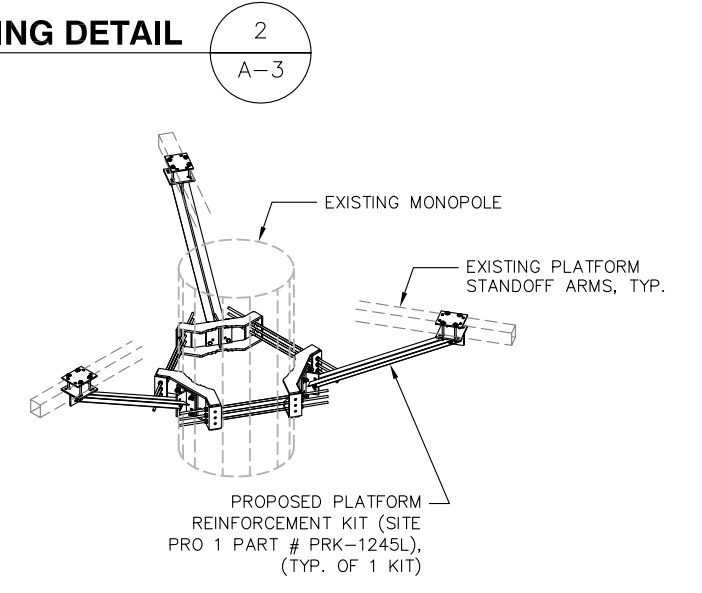
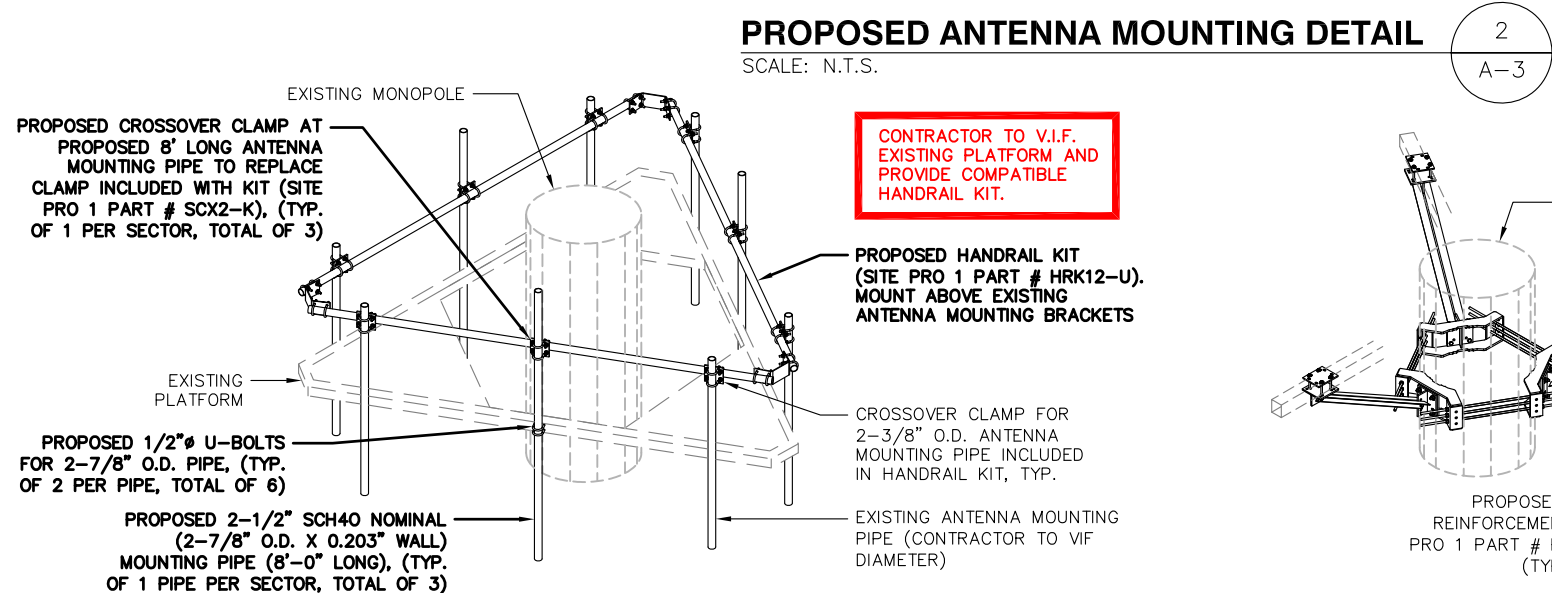


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**SPECIAL WORK NOTE:**

- VERTICALLY CENTER THE PIPE MAST AND THE PROPOSED ANTENNAS ON THE EXISTING MOUNTING RAIL.
- TRIM ANGLES AS REQUIRED ON PLATFORM REINFORCEMENT KIT AND REDRILL AS REQUIRED TO MAINTAIN ANGLE AND DISTANCE LIMITS FOR PLATFORM REINFORCEMENT IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.



**T-Mobile**

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STATE OF CONNECTICUT  
 THOMAS E. JOHNSON  
 No. 28192  
 LICENSED PROFESSIONAL ENGINEER  
 9/25/15

CHECKED BY: JMM/TEJ  
 APPROVED BY: JMM/TEJ

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