

March 15, 2017

Melanie A. Bachman, Esq.
Executive Director/Staff Attorney
Connecticut Siting Council
10 Franklin Square
New Britain, CT 06051

Re: **Notice of Exempt Modification – Facility Modification
48 Westchester Road, Colchester, Connecticut**

Dear Ms. Bachman:

Cellco Partnership d/b/a Verizon Wireless (“Cellco”) currently maintains twelve (12) antennas at the 167-foot level on an existing 180-foot tower at 48 Westchester Road in Colchester, Connecticut (the “Property”). The tower is owned by SBA Communications Corporation (“SBA”). The Council approved Cellco’s use of this tower in 2000. Cellco now intends to replace six (6) of its existing antennas three (3) model SBNHH-1D65B, 700 MHz antennas and three (3) model SBNHH-1D65B, 2100 MHz antennas, all at the same level on the tower. Cellco also intends to install six (6) remote radio heads (“RRHs”) and two (2) HYBRIFLEX™ fiber optic antenna cables. Included in Attachment 1 are specifications for Cellco’s replacement antennas, RRHs and HYBRIFLEX™ cables.

Please accept this letter as notification pursuant to R.C.S.A. § 16-50j-73, for construction that constitutes an exempt modification pursuant to R.C.S.A. § 16-50j-72(b)(2). In accordance with R.C.S.A. § 16-50j-73, a copy of this letter is being sent to Art Shilosky, First Selectman of the Town of Colchester; Russell Benson, Colchester Town Planner; Margus Properties LLC, the Property owner; and SBA, the tower owner.

The planned modifications to the facility fall squarely within those activities explicitly provided for in R.C.S.A. § 16-50j-72(b)(2).

1. The proposed modifications will not result in an increase in the height of the existing structure. Cellco’s replacement antennas and RRHs will be installed on its existing platform at the 167-foot level on the tower.

16246709-v1

Robinson+Cole

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2. The proposed modifications will not involve any change to ground-mounted equipment and, therefore, will not require the extension of the site boundary.

3. The proposed modifications will not increase noise levels at the facility by six decibels or more, or to levels that exceed state and local criteria.

4. The operation of the replacement antennas will not increase radio frequency (RF) emissions at the facility to a level at or above the Federal Communications Commission (FCC) safety standard. A cumulative General Power Density table for Cellco's modified facility is included in Attachment 2.

5. The proposed modifications will not cause a change or alteration in the physical or environmental characteristics of the site.

6. The tower and its foundation can support Cellco's proposed modifications. (*See* Structural Analysis Report included in Attachment 3).

A copy of the Colchester parcel map and property owner information is included in Attachment 4.

For the foregoing reasons, Cellco respectfully submits that the proposed modifications to the above-referenced telecommunications facility constitutes an exempt modification under R.C.S.A. § 16-50j-72(b)(2).

Sincerely,



Kenneth C. Baldwin

Enclosures

Copy to:

Art Shilosky, Colchester First Selectman
Russell Benson, Town Planner
Margus Properties LLC
SBA
Tim Parks

ATTACHMENT 1



SBNHH-1D65B

Multiband Antenna, 698–896 and 2x 1695–2360 MHz, 65° horizontal beamwidth, internal RET. Both high bands share the same electrical tilt.

- Interleaved dipole technology providing for attractive, low wind load mechanical package

Electrical Specifications

Frequency Band, MHz	698–806	806–896	1695–1880	1850–1990	1920–2200	2300–2360
Gain, dBi	14.9	14.7	17.7	18.2	18.6	18.6
Beamwidth, Horizontal, degrees	68	66	69	66	63	58
Beamwidth, Vertical, degrees	12.1	10.7	5.6	5.2	5.0	4.5
Beam Tilt, degrees	0–14	0–14	0–7	0–7	0–7	0–7
USLS (First Lobe), dB	14	13	15	15	15	13
Front-to-Back Ratio at 180°, dB	27	29	28	28	28	27
Isolation, dB	25	25	25	25	25	25
Isolation, Intersystem, dB	30	30	30	30	30	30
VSWR Return Loss, dB	1.5 14.0	1.5 14.0	1.5 14.0	1.5 14.0	1.5 14.0	1.5 14.0
PIM, 3rd Order, 2 x 20 W, dBc	-153	-153	-153	-153	-153	-153
Input Power per Port, maximum, watts	350	350	350	350	350	300
Polarization	±45°	±45°	±45°	±45°	±45°	±45°
Impedance	50 ohm	50 ohm	50 ohm	50 ohm	50 ohm	50 ohm

Electrical Specifications, BASTA*

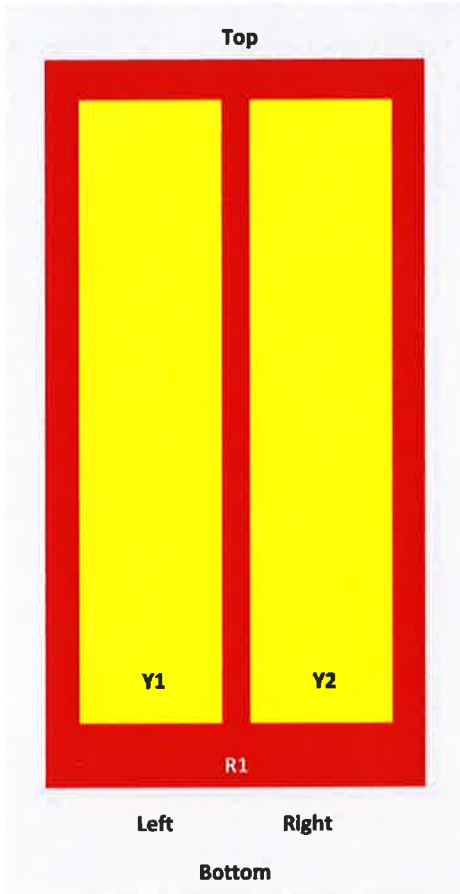
Frequency Band, MHz	698–806	806–896	1695–1880	1850–1990	1920–2200	2300–2360
Gain by all Beam Tilts, average, dBi	14.5	14.3	17.4	17.9	18.2	18.3
Gain by all Beam Tilts Tolerance, dB	±0.5	±0.8	±0.4	±0.3	±0.5	±0.3
Gain by Beam Tilt, average, dBi	0° 14.6	0° 14.5	0° 17.4	0° 17.8	0° 18.1	0° 18.2
	7° 14.6	7° 14.4	3° 17.5	3° 17.9	3° 18.3	3° 18.4
	14° 14.2	14° 13.6	7° 17.4	7° 17.9	7° 18.2	7° 18.4
Beamwidth, Horizontal Tolerance, degrees	±2.2	±3.4	±2	±4.6	±5.7	±4.3
Beamwidth, Vertical Tolerance, degrees	±0.8	±1	±0.3	±0.2	±0.3	±0.2
USLS, beampeak to 20° above beampeak, dB	16	14	16	16	16	15
Front-to-Back Total Power at 180° ± 30°, dB	25	26	27	26	26	26
CPR at Boresight, dB	22	23	21	20	20	22
CPR at Sector, dB	13	11	16	12	11	4

* CommScope® supports NGMN recommendations on Base Station Antenna Standards (BASTA). To learn more about the benefits of BASTA, [download the whitepaper Time to Raise the Bar on BSAs.](#)

Array Layout

SBNHH-1 D65B

SBNHH 65



Array	Freq (MHz)	Conns	RET (MRET)	AISG RET UID
R1	698-896	1-2	1	ANXXXXXXXXXXXXXXXXX.1
Y1	1695-2360	3-4	2	ANXXXXXXXXXXXXXXXXX.2
Y2	1695-2360	5-6		

View from the front of the antenna
 (Sizes of colored boxes are not true depictions of array sizes)

General Specifications

Operating Frequency Band	1695 – 2360 MHz 698 – 896 MHz
Antenna Type	Sector
Band	Multiband
Performance Note	Outdoor usage

Mechanical Specifications

RF Connector Quantity, total	6
RF Connector Quantity, low band	2
RF Connector Quantity, high band	4
RF Connector Interface	7-16 DIN Female

SBNHH-1D65B

Color	Light gray
Grounding Type	RF connector inner conductor and body grounded to reflector and mounting bracket
Radiator Material	Aluminum Low loss circuit board
Radome Material	Fiberglass, UV resistant
Reflector Material	Aluminum
RF Connector Location	Bottom
Wind Loading, frontal	618.0 N @ 150 km/h 138.9 lbf @ 150 km/h
Wind Loading, lateral	197.0 N @ 150 km/h 44.3 lbf @ 150 km/h
Wind Loading, rear	728.0 N @ 150 km/h 163.7 lbf @ 150 km/h
Wind Speed, maximum	241 km/h 150 mph

Dimensions

Length	1851.0 mm 72.9 in
Width	301.0 mm 11.9 in
Depth	180.0 mm 7.1 in
Net Weight, without mounting kit	18.4 kg 40.6 lb

Remote Electrical Tilt (RET) Information

Input Voltage	10–30 Vdc
Internal RET	High band (1) Low band (1)
Power Consumption, idle state, maximum	2.0 W
Power Consumption, normal conditions, maximum	13.0 W
Protocol	3GPP/AISG 2.0 (Multi-RET)
RET Interface	8-pin DIN Female 8-pin DIN Male
RET Interface, quantity	1 female 1 male

Packed Dimensions

Length	2025.0 mm 79.7 in
Width	390.0 mm 15.4 in
Depth	296.0 mm 11.7 in
Shipping Weight	31.0 kg 68.3 lb

Regulatory Compliance/Certifications

Agency	Classification
RoHS 2011/65/EU	Compliant by Exemption
China RoHS SJ/T 11364-2006	Above Maximum Concentration Value (MCV)
ISO 9001:2008	Designed, manufactured and/or distributed under this quality management system



SBNHH-1D65B

Included Products

BSAMNT-1 — Wide Profile Antenna Downtilt Mounting Kit for 2.4 - 4.5 in (60 - 115 mm) OD round members. Kit contains one scissor top bracket set and one bottom bracket set.

* Footnotes

Performance Note Severe environmental conditions may degrade optimum performance

ALCATEL-LUCENT B13 RRH4X30-4R

Alcatel-Lucent B13 Remote Radio Head 4x30-4R is the newest addition of Remote Radio Head to the extended product line of Alcatel-Lucent's distributed Base Station solutions, aimed at facilitating smooth RF site acquisition and related civil engineering.

Supporting 2Tx/4Tx MIMO and 4-way Rx diversity, Alcatel-Lucent B13 RRH4x30-4R allows operators to have a compact radio solution to deploy LTE in the 700U band (700 MHz, 3GPP band 13), providing them with the means to achieve high capacity, high quality and high coverage with minimum site requirements.

The Alcatel-Lucent B13 RRH4x30-4R product has four transmit RF paths, offering the possibility to **select, via software only, 2Tx or 4Tx MIMO configurations** with either 2x60 W or 4x30 W RF output power. It supports also 4-way Rx diversity and up to 10MHz instantaneous bandwidth.

The Alcatel-Lucent B13 RRH4x30-4R is a near zero-footprint solution and operates noise free, simplifying negotiations with site property owners and minimizing environmental impacts.

Its compactness and slim design makes the Alcatel-Lucent B13 RRH4x30-4R easy to install close to the antenna: operators can therefore locate this Remote Radio Head where RF design conditions are deemed ideal, minimizing trade-offs between available sites and RF optimum sites, together with reducing the RF feeder needs and installation costs.

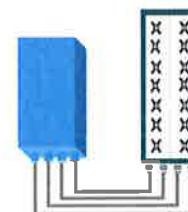


FEATURES

- Supporting LTE in 700 MHz band (700U, 3GPP band 13)
- LTE 2Tx or 4Tx MIMO (SW switchable)
- Output power: Up to 2x60W or 4x30W
- 10MHz LTE carrier with 4Rx Diversity
- Convection-cooled (fan-less)
- Supports AISG 2.0 ALD devices (RET, TMA) through RS485 or RF ports

BENEFITS

- Compact to reduce additional footprint when adding LTE in 700U band
- MIMO scheme operation selection (2Tx or 4Tx) by software only
- Improves downlink spectral efficiency through MIMO4
- Increases LTE coverage thanks to 4Rx diversity capability and best in class Rx sensitivity
- Flexible mounting options: Pole or Wall



4x30W with 4T4R
or
2x60W with 2T4R

Can be switched between modes via SW w/o site visit

TECHNICAL SPECIFICATIONS

Features & performance	
Number of TX/RX paths	4 duplexed (either 4T4R or 2T4R by SW)
Frequency band	U700 (C) (3GPP bands 13): DL: 746 - 756 MHz / UL: 777 - 787 MHz
Instantaneous bandwidth - #carriers	10MHz – 1 LTE carrier (in 10MHz occupied bandwidth)
LTE carrier bandwidth	10 MHz
RF output power	2x60W or 4x30W (by SW)
Noise figure – RX Diversity scheme	2 dB typ. (<2.5 dB max) – 2 or 4 way Rx diversity
Sizes (HxWxD) in mm (in.)	550 x 305 x 230 (21.6" x 12.0" x 9") (with solar shield)
Volume in L	38 (with solar shield)
Weight in kg (lb) (w/o mounting HW)	26 (57.2) (with solar shield)
DC voltage range	-40.5 to -57V at full performance, -38 to -57V with relaxation on power consumption
DC power consumption	550W typical @100% RF load (in 2Tx or 4TX mode)
Environmental conditions	-40°C (-40°F) /+55°C (+131°F)
Wind load (@150km/h or 93mph)	IP65 Frontal:<200N / Lateral :<150N
Antenna ports	4 ports 7/16 DIN female (50 ohms) VSWR < 1.5
CPRI ports	2 CPRI ports (HW ready for Rate7, 9.8 Gbps) SFP single mode dual fiber
AISG interfaces	1 AISG2.0 output (RS485) Integrated Smart Bias Tees (x2)
Misc. Interfaces	4 external alarms (1 connector) – 4 RF Tx & 4 RF Rx monitor ports - 1 DC connector (2 pins)
Installation conditions	Pole and wall mounting
Regulatory compliance	3GPP 36.141 / 3GPP 36.113 / GR-1089-CORE / GR-3108-CORE / UL 60950-1 / FCC Part 27

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ALCATEL-LUCENT B66A RRH4X45

The Alcatel-Lucent B66a Remote Radio Head 4x45 is the newest addition of Remote Radio Head to the extended product line of Alcatel-Lucent's distributed Base Station solutions, aimed at facilitating smooth RF site acquisition and related civil engineering. Its operational range covers beyond that of B4 (AWS) and B10 (AWS+).

Supporting 2Tx/4Tx MIMO and 2-way/4-way Rx diversity, the Alcatel-Lucent B66a RRH4x45 allows operators to have a compact radio solution to deploy LTE in the 2100 band (3GPP band 4, 10, and 66), providing them with the means to achieve high capacity, high quality, high reliability, large instantaneous bandwidth, and high coverage with minimum site requirements.

The Alcatel-Lucent B66a RRH4x45 product has four transmit RF paths, offering the possibility to **select, via software only, 2Tx or 4Tx MIMO configurations** with either 2x90W or 4x45W RF output power. It also supports 4-way Rx diversity at the 70 MHz instantaneous bandwidth.



The Alcatel-Lucent B66a RRH4x45 is a compact (near zero-footprint) solution and operates noise free, simplifying negotiations with site property owners and minimizing environmental impacts.

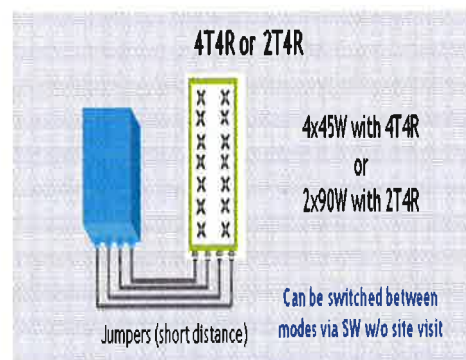
Its compactness and slim design makes the Alcatel-Lucent B66a RRH4x45 easy to install close to the antenna: operators can therefore locate this Remote Radio Head where RF design conditions are deemed ideal, minimizing trade-offs between available sites and RF optimum sites, together with reducing the RF feeder needs and installation costs.

FEATURES

- Supporting LTE in 2110 - 2180 MHz band/DL, 1710-1780MHz/UL (3GPP band 4, 10, and 66a)
- LTE 2Tx or 4Tx MIMO (SW selectable)
- Configuration: 2T2R/2T4R/4T4R
- Output power: Up to 2x90W or 4x45W (SW configurable)
- 70MHz LTE carrier with 4Rx Diversity
- Convection-cooled (fan-less)
- Supports AISG 2.0 ALD devices (RET, TMA) through RS485 or RF ports

BENEFITS

- Compact to reduce additional footprint when adding LTE in AWS 1-3 band
- Selection of MIMO configuration (2Tx or 4Tx) by software only
- Improves downlink spectral efficiency through 4Tx MIMO
- Increases LTE coverage thanks to 4Rx diversity capability and best in class Rx sensitivity
- Flexible mounting options: Pole or Wall



TECHNICAL SPECIFICATIONS

Features & Performance	
Number of TX/RX paths	4 duplexed (either 4T4R or 2T4R selectable by SW)
Frequency band	AWS 1-3, B4/B66a DL: 2110-2180 MHz / UL: 1710-1780 MHz
Instantaneous bandwidth - #carriers	70 MHz – 4 LTE MIMO carriers (in 70 MHz occupied bandwidth)
LTE carrier bandwidth	5, 10, 15, 20 MHz
RF output power	2x90W or 4x45W (selectable by SW)
Noise figure – RX Diversity scheme Receiver Sensivity (FRC A1-3)	2 dB typical (<2.5 dB max) – 2 or 4 way Rx diversity -104.5 dBm maximum
Sizes (HxWxD) in mm (in.)	655x299x182 (25.8x11.8x7.2) (with solar shield) 640x290x160 (25.2x11.4x6.3) (without solar shield)
Volume in Liters	35.5 (with solar shield) 29.7 (without solar shield)
Weight in kg (lb) (w/o mounting HW)	25.8kg (56.8lb) (with solar shield)
DC voltage range	Nominal: -48V, -40.5 to -57V at full performance, -38 to -57V with relaxation on power consumption
DC power consumption	750W typical @100% RF load (in 2Tx or 4Tx mode); Add 58W for 2A*29V for AISG
Environmental conditions	-40°C (-40°F) / +55°C (+131°F) UL50E Type 4 Enclosure
Wind load (@150km/h or 93mph)	250N (56lb) Frontal/150N (34lb) Lateral
Antenna ports	4 ports 4.3-10 female (50 ohms) VSWR < 1.5
CPRI ports	2 CPRI ports (HW ready for Rate 7, 9.8 Gbps) SFP: SMDF (HW supports also SMSF and MMDF)
AISG interfaces	1 AISG 2.0 output (RS485) Integrated Smart Bias Tees (x2)
Misc. Interfaces	4 external alarms (1 connector) 1 DC connector (2 pins)
Installation conditions	Pole and wall mounting
Regulatory compliance	3GPP 36.141 / 3GPP 36.113 / GR-487 / GR-1089-CORE / GR-3108-CORE / UL 60950-1 / FCC Part 27 / FCC Part 15 / GR-3178-CORE

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HYBRIFLEX™ RRH Hybrid Feeder Cabling Solution, 1-5/8", Single-Mode Fiber

Product Description

RFS' HYBRIFLEX Remote Radio Head (RRH) hybrid feeder cabling solution combines optical fiber and DC power for RRHs in a single lightweight aluminum corrugated cable, making it the world's most innovative solution for RRH deployments.

It was developed to reduce installation complexity and costs at Cellular sites. HYBRIFLEX allows mobile operators deploying an RRH architecture to standardize the RRH installation process and eliminate the need for and cost of cable grounding. HYBRIFLEX combines optical fiber (multi-mode or single-mode) and power in a single corrugated cable. It eliminates the need for junction boxes and can connect multiple RRHs with a single feeder. Standard RFS CELLFLEX® accessories can be used with HYBRIFLEX cable. Both pre-connectorized and on-site options are available.

Features/Benefits

- Aluminum corrugated armor with outstanding bending characteristics - minimizes installation time and enables mechanical protection and shielding
- Same accessories as 1 5/8" coaxial cable
- Outer conductor grounding - Eliminates typical grounding requirements and saves on installation costs
- Lightweight solution and compact design - Decreases tower loading
- Robust cabling - Eliminates need for expensive cable trays and ducts
- Installation of tight bundled fiber optic cable pairs directly to the RRH - Reduces CAPEX and wind load by eliminating need for interconnection
- Optical fiber and power cables housed in single corrugated cable - Saves CAPEX by standardizing RRH cable installation and reducing installation requirements
- Outdoor polyethylene jacket - Ensures long-lasting cable protection



Figure 1: HYBRIFLEX Series

Technical Specifications

Outer Conductor Armor	Corrugated Aluminum	[mm (in)]	46.5 (1.83)
Jacket	Polyethylene, PE	[mm (in)]	50.3 (1.98)
UV-Protection	Individual and External Jacket		Yes
Weight, Approximate		[kg/m (lb/ft)]	1.9 (1.30)
Minimum Bending Radius, Single Bending		[mm (in)]	200 (8)
Minimum Bending Radius, Repeated Bending		[mm (in)]	500 (20)
Recommended/Maximum Clamp Spacing		[m (ft)]	1.0 / 1.2 (3.25 / 4.0)

DC-Resistance Outer Conductor Armor		[Ω/km (Ω/1000ft)]	068 (0.205)
DC-Resistance Power Cable, 8.4mm ² (8AWG)		[Ω/km (Ω/1000ft)]	2.1 (0.307)

Version	Single-mode OM3
Quantity, Fiber Count	16 (8 pairs)
Core/Clad	[μm] 50/125
Primary Coating (Acrylate)	[μm] 245
Buffer Diameter, Nominal	[μm] 900
Secondary Protection, Jacket, Nominal	[mm (in)] 2.0 (0.08)
Minimum Bending Radius	[mm (in)] 104 (4.1)
Insertion Loss @ wavelength 850nm	dB/km 3.0
Insertion Loss @ wavelength 1310nm	dB/km 1.0
Standards (Meets or exceeds)	UL94-V0, UL1666 RoHS Compliant

Size (Power)	[mm (AWG)]	8.4 (8)
Quantity, Wire Count (Power)		16 (8 pairs)
Size (Alarm)	[mm (AWG)]	0.8 (18)
Quantity, Wire Count (Alarm)		4 (2 pairs)
Type		UV protected
Strands		19
Primary Jacket Diameter, Nominal	[mm (in)]	6.8 (0.27)
Standards (Meets or exceeds)		NFPA 130, ICEA S-95-658 UL Type XHHW-2, UL 44 UL-LS Limited Smoke, UL VW-1 IEEE-383 (1974), IEEE1202/FT4 RoHS Compliant

Installation Temperature	[°C (°F)]	-40 to +65 (-40 to 149)
Operation Temperature	[°C (°F)]	-40 to +65 (-40 to 149)

* This data is provisional and subject to change

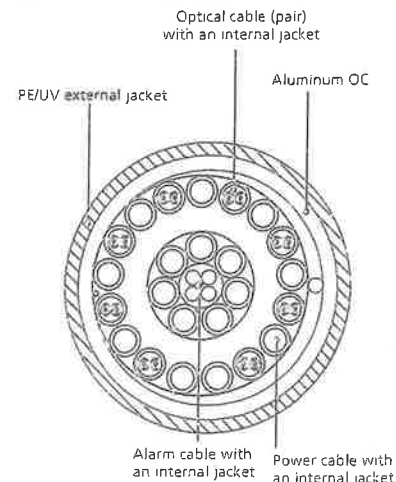


Figure 2: Construction Detail

All information contained in the present datasheet is subject to confirmation at time of ordering.

ATTACHMENT 2

		General		Power		Density							
Site Name: Colchester 2 Tower Height: 180ft		# OF CHAN.	WATTS ERP	HEIGHT	CALC. POWER DENS	FREQ.	MAX. PERMISS. EXP.	FRACTION MPE	Total				
*AT&T		2	565	157	880	0.0178	0.5867	0.30%					
*AT&T		2	875	157	1900	0.0276	1.0000	0.28%					
*AT&T		1	283	157	880	0.0045	0.5867	0.08%					
*AT&T		4	525	157	1900	0.0331	1.0000	0.33%					
*AT&T		1	1615	157	734	0.0255	0.4893	0.52%					
*T-Mobile		2	1593	175	2100	0.0401	1.0000	0.40%					
*T-Mobile		2	796	175	1900	0.0201	1.0000	0.20%					
*T-Mobile		2	796	175	2100	0.0201	1.0000	0.20%					
*T-Mobile		1	669	175	700	0.0084	0.4667	0.18%					
Verizon PCS		0	0	167	0.0000	1970	1.0000	0.00%					
Verizon Cellular		9	252	167	0.0292	869	0.5793	5.05%					
Verizon AWS		1	6907	167	0.0891	2145	1.0000	8.91%					
Verizon 700		1	1614	167	0.0208	746	0.4973	4.18%					
									20.63%				
* Source: Siting Council													

ATTACHMENT 3



Tower Engineering Solutions

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

Structural Analysis Report

Existing 180 ft Valmont Monopole

Customer Name: SBA Communications Corp

Customer Site Number: CT02218-S

Customer Site Name: Colchester

Carrier Name: Verizon

Carrier Site ID / Name: 117748

**Site Location: 48 Westchester Road
Colchester, CT**

New London County

Latitude: 41.590161

Longitude: -72.401467

Analysis Result:

Max Structural Usage: 80.6% [Pass]

Max Foundation Usage: 78.6% [Pass]

Report Prepared by: Tawfeeq Alajaj



Introduction

The purpose of this report is to summarize the analysis results on the 180 ft Valmont Monopole to support the proposed antennas and transmission lines in addition to those currently installed. Any modification listed under Sources of Information was assumed completed and was included in this analysis.

Sources of Information

Tower Drawings	Tower Drawings prepared by Valmont Microflex, Order # 19487-99 Dated 11/03/1999
Foundation Drawing	Foundation Drawing prepared by Towerkraft, Project# 2985 Dated 11/04/1999
Geotechnical Report	N/A
Modification Drawings	N/A

Analysis Criteria

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

Wind Speed Used in the Analysis:	Ultimate Design Wind Speed $V_{ult} = 135$ mph (3-Sec. Gust)/ Nominal Design Wind Speed $V_{asd} = 105.0$ mph (3-Sec. Gust)
Wind Speed with Ice:	50 mph (3-Sec. Gust) with 3/4" radial ice concurrent
Operational Wind Speed:	60 mph + 0" Radial ice
Standard/Codes:	ANSI/TIA/EIA 222-G / 2012 IBC / 2016 Connecticut State Building
Exposure Category:	C
Structure Class:	II
Topographic Category:	1
Crest Height:	0 ft
Seismic Parameters:	$S_S = 0.176$, $S_1 = 0.062$

Existing Antennas, Mounts and Transmission Lines

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

Items	Elevation (ft)	Qty.	Antenna Descriptions	Mount Type & Qty.	Transmission Lines	Owner
1	177.0	3	RFS - APXV18-206516S-C-A20 - Panel	(1) Platform w/ Hand Rails & w/ SitePro1 PRK-1245	(12) 1 5/8"	T-Mobile
2		3	Commscope - LNX-6515DS-VTM - Panel			
3		3	Ericsson - KRY 112 144/1 - TMA			
4		3	Kathrein - 782 11056 - Bias T's			
-	167.0	3	Antel - BXA-70063/6CF w/ Mount Pipe - Panel	(1) Platform w/ Hand Rails	(18) 1 5/8"	Verizon
-		6	Antel - LPA-80080/4CF w/ Mount Pipe - Panel			
-		6	Antel - LPA-171080/8CF w/ Mount Pipe - Panel			
10	157.0	6	Powerwave - 7770 w/ Mount Pipe - Panel	(1) Low Profile Platform	(12) 1 5/8" (2) DC (1) Fiber	Cingular
11		2	Powerwave - P65-17-XLH-RR - Panel			
12		1	KMW - AM-X-CD-16-65-00T - Panel			
13		6	Powerwave - LGP21401 - TMA			
14		6	Ericsson - RRUS 11 - RRU			
15		6	Powerwave - LGP21903 - Diplexer			
16		1	Raycap - DC6-48-60-18-8F - SP			

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

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

Items	Elevation (ft)	Qty.	Antenna Descriptions	Mount Type & Qty.	Transmission Lines	Owner
5	167.0	6	Antel - LPA-80080-4CF-EDIN-0 - Panel	(1) Platform w/ Hand Rails	(1) 1 1/4" Fiber (2) 1 5/8" (1) 1 5/8" Fiber	Verizon
6		6	Commscope - SBNHH-1D65B - Panel			
7		3	Alcatel-Lucent B13 RRH4x30-4R RRH			
8		3	Alcatel-Lucent B4 RRH 4x45-4R RRH			
9		2	Raycap RC2DC-3315-PF-48 ODU			

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

Analysis Results

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

	Pole shafts	Anchor Bolts	Base Plate
Max. Usage:	80.6%	75.2%	58.3%
Pass/Fail	Pass	Pass	Pass

Foundations

	Moment (Kip-Ft)
Original Design Reactions	5045.0
Analysis Reactions	5350.8
Factored Reactions*	6810.8
% of Design Reactions	78.6%

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

No geotechnical report is available for the analysis of the existing foundation. Since the reactions calculated from the current analysis are less than those indicated on the original structural design drawing, the foundations are assumed to be adequate to resist the reactions from the current analysis.

Operational Condition (Rigidity):

Operational characteristics of the tower are found to be within the limits prescribed by ANSI/TIA/EIA 222-G for the installed antennas. The maximum twist/sway at the elevation of the proposed equipment is 1.4832 degrees under the operational wind speed as specified in the Analysis Criteria.

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

Standard Conditions

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

Usage Diagram - Max Ratio 80.60% at 0.0ft

Structure: CT02218-S-SBA
Site Name: Colchester
Height: 180.00 (ft)
Base Elev: 0.000 (ft)

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

10/10/2016

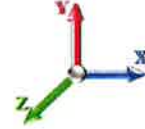


Page: 1

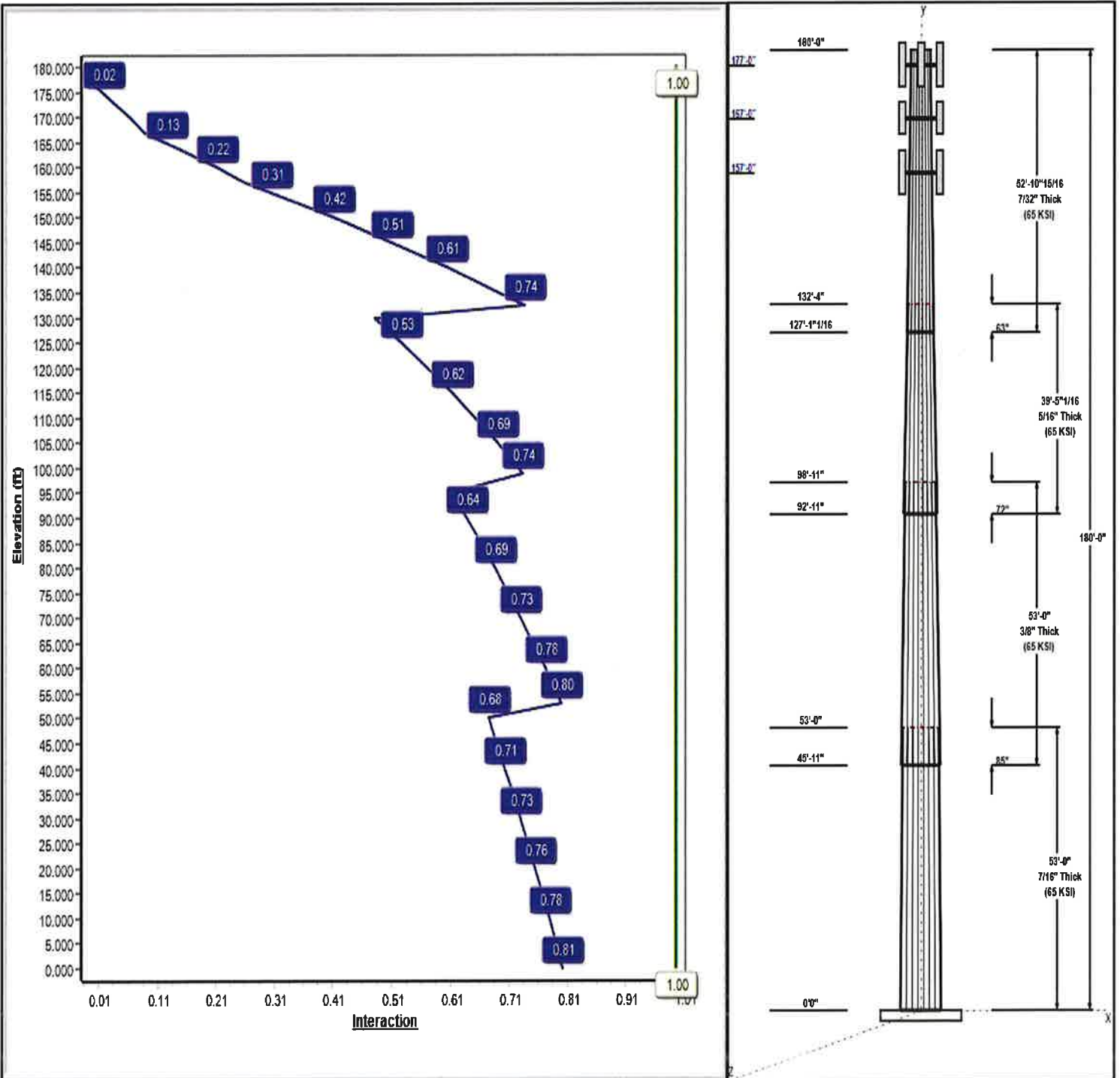
Dead Load Factor: 1.20
Wind Load Factor: 1.60

Iterations: 26

Load Case : 1.2D + 1.6W 105 mph Wind



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Structure: CT02218-S-SBA

Type: Tapered
Site Name: Colchester
Height: 180.00 (ft)
Base Elev: 0.00 (ft)

Base Shape: 16 Sided
Taper: 0.20502

10/10/2016

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Shaft Properties

Seq	Length (ft)	Top (in)	Bottom (in)	Thick (in)	Joint Type	Taper	Grade (ksi)
1	53.00	49.13	60.00	0.438		0.20502	65
2	53.00	40.47	51.34	0.375	Slip	0.20502	65
3	39.42	34.24	42.33	0.313	Slip	0.20502	65
4	52.91	24.91	35.76	0.219	Slip	0.20502	65

Discrete Appurtenances

Attach Elev (ft)	Force Elev (ft)	Qty	Description	Carrier
180.00	180.00	1	6' Lightning rod	T-Mobile
177.00	177.00	3	KRY 112 144/1	T-Mobile
177.00	177.00	3	APXV18-206516S-C-A20	T-Mobile
177.00	177.00	3	LNK-6515DS-VTM	T-Mobile
177.00	177.00	3	782 11056	T-Mobile
177.00	177.00	1	Platform w/ Hand Rails	T-Mobile
167.00	167.00	6	LPA-80080-4CF-EDIN-0	Verizon
167.00	167.00	1	Platform w/ Hand Rails	Verizon
167.00	167.00	6	SBNHH-1D65B	Verizon
167.00	167.00	3	Alcatel-Lucent B13	Verizon
167.00	167.00	3	Alcatel-Lucent B4 RRH	Verizon
167.00	167.00	2	Raycap	Verizon
157.00	157.00	6	7770 w/ Mount Pipe	Cingular
157.00	157.00	2	P65-17-XLH-RR	Cingular
157.00	157.00	1	AM-X-CD-16-65-00T	Cingular
157.00	157.00	6	LGP21401	Cingular
157.00	157.00	6	RRUS 11	Cingular
157.00	157.00	6	LGP21903	Cingular
157.00	157.00	1	DC6-48-60-18-8F	Cingular
157.00	157.00	1	Low Profile Platform-flat	Cingular

Linear Appurtenances

Elev From (ft)	Elev To (ft)	Placement	Description	Carrier
0.00	177.00	Inside	1 5/8" Coax	T-Mobile
0.00	177.00	Inside	1 5/8" Coax	T-Mobile
0.00	167.00	Inside	1 1/4" Fiber	Verizon
0.00	167.00	Inside	1 5/8" Coax	Verizon
0.00	167.00	Inside	1 5/8" Fiber	Verizon
0.00	157.00	Inside	1 5/8" Coax	Cingular
0.00	157.00	Inside	DC	Cingular
0.00	157.00	Inside	Fiber	Cingular

Anchor Bolts

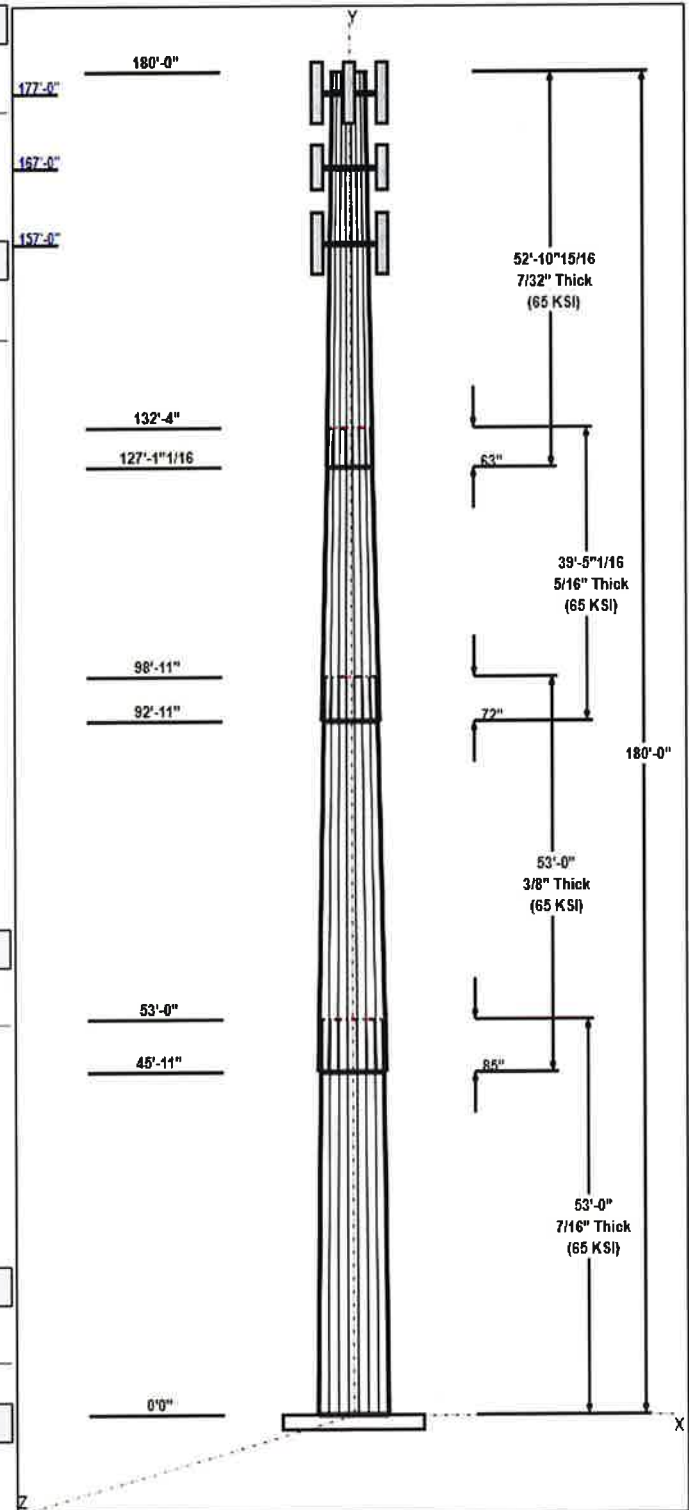
Qty	Specifications	Grade (ksi)	Arrangement
20	2.25" 18J	75.0	Radial

Base Plate

Thickness (in)	Specifications (in)	Grade (ksi)	Geometry
2.7500	74.6	60.0	Polygon

Reactions

Load Case Moment Shear Axial



Structure: CT02218-S-SBA

Type: Tapered
Site Name: Colchester
Height: 180.00 (ft)
Base Elev: 0.00 (ft)

Base Shape: 16 Sided
Taper: 0.20502

10/10/2016

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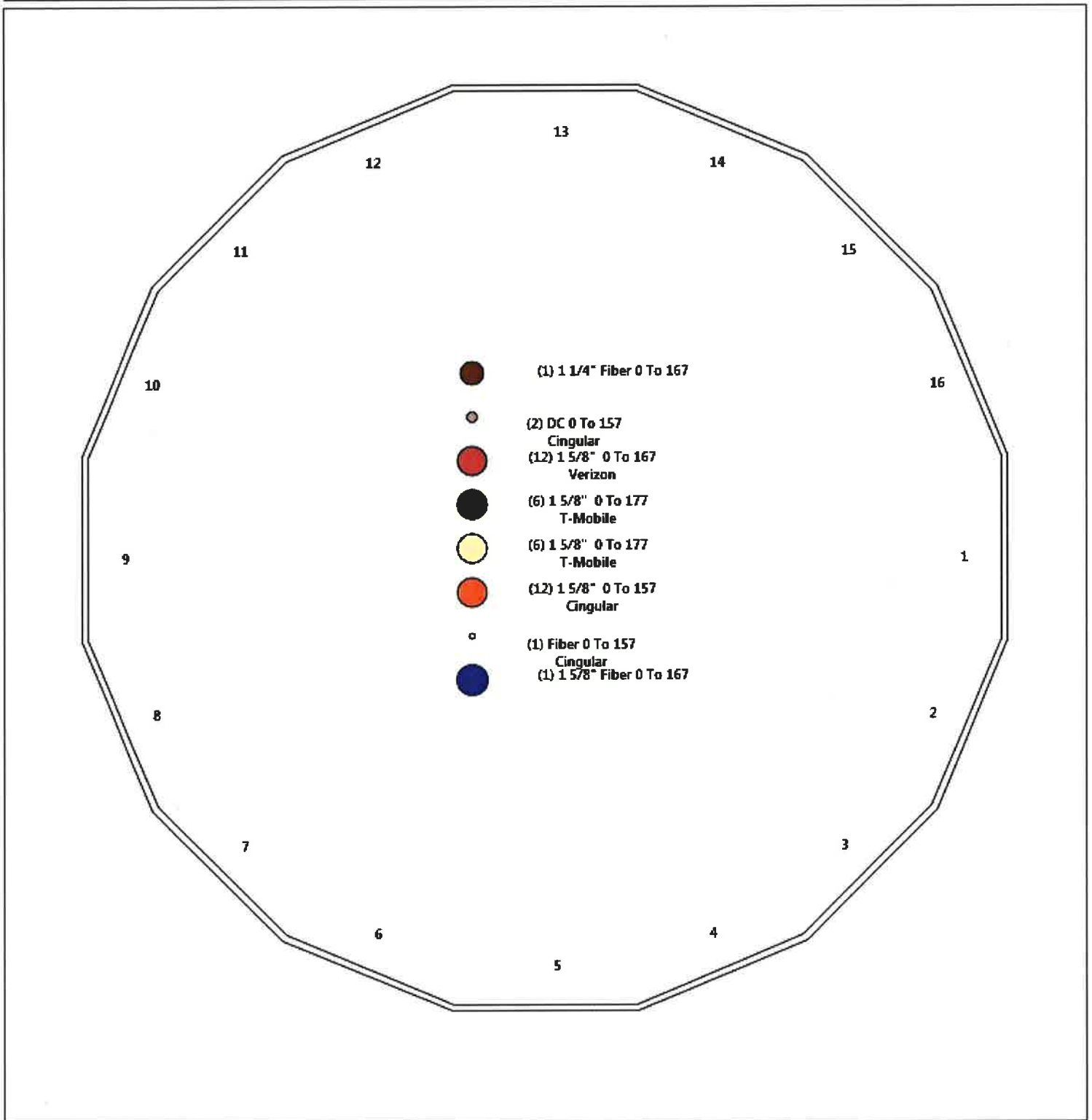
1.2D + 1.6W 105 mph Wind	5350.8	43.6	55.9
0.9D + 1.6W 105 mph Wind	5290.2	43.5	41.9
1.2D + 1.0Di + 1.0Wi 50 mph Wind	1236.1	10.0	81.6
1.2D + 1.0E	173.9	1.3	56.0
0.9D + 1.0E	171.7	1.3	42.0
1.0D + 1.0W 60 mph Wind	1086.0	8.9	46.6

Structure: CT02218-S-SBA - Coax Line Placement

Type: Monopole
Site Name: Colchester
Height: 180.00 (ft)

10/10/2016

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Shaft Properties

Structure: CT02218-S-SBA	Code: EIA/TIA-222-G	10/10/2016
Site Name: Colchester	Exposure: C	
Height: 180.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: B - Competent Rock	
Gh: 1.1	Topography: 1	Struct Class: II



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Sec. No.	Shape	Length (ft)	Thick (in)	Fy (ksi)	Joint Type	Overlap (in)	Weight (lb)
1	16	53.000	0.4380	65		0.00	13,640
2	16	53.000	0.3750	65	Slip	85.00	9,822
3	16	39.420	0.3130	65	Slip	72.00	5,086
4	16	52.913	0.2190	65	Slip	63.00	3,788
Total Shaft Weight:							32,336

Bottom

Top

Sec. No.	Dia (in)	Elev (ft)	Area (sqin)	Ix (in ⁴)	W/t Ratio	D/t Ratio	Dia (in)	Elev (ft)	Area (sqin)	Ix (in ⁴)	W/t Ratio	D/t Ratio	Taper
1	60.00	0.00	83.22	37298.12	25.66	136.99	49.13	53.00	68.04	20382.3	20.72	112.1	0.205022
2	51.34	45.92	60.96	20001.00	25.64	136.90	40.47	98.92	47.96	9740.99	19.88	107.9	0.205022
3	42.33	92.92	41.95	9354.08	25.31	135.23	34.24	132.34	33.88	4927.66	20.17	109.4	0.205022
4	35.76	127.0	24.83	3961.68	30.89	163.28	24.91	180.00	17.25	1328.51	21.03	113.7	0.205022

Load Summary

Structure: CT02218-S-SBA	Code: EIA/TIA-222-G	10/10/2016
Site Name: Colchester	Exposure: C	
Height: 180.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: B - Competent Rock	
Gh: 1.1	Topography: 1	Struct Class: II



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Discrete Appurtenances

No.	Elev (ft)	Description	Qty	No Ice			Ice			Hor. Ecc. (ft)	Vert Ecc (ft)
				Weight (lb)	CaAa (sf)	CaAa Factor	Weight (lb)	CaAa (sf)	CaAa Factor		
1	180.00	6' Lightning rod	1	6.50	0.38	0.00	43.47	1.488	0.00	0.00	
2	177.00	KRY 112 144/1	3	11.00	0.41	0.72	21.96	0.893	0.75	0.00	
3	177.00	APXV18-206516S-C-A20	3	18.70	3.61	0.78	89.94	5.498	0.79	0.00	
4	177.00	LNX-6515DS-VTM	3	50.30	11.47	0.84	286.38	14.775	0.84	0.00	
5	177.00	782 11056	3	1.80	0.28	0.78	6.40	0.688	0.82	0.00	
6	177.00	Platform w/ Hand Rails w/PRK	1	2600.00	40.00	1.00	5367.97	61.292	1.00	0.00	
7	167.00	LPA-80080-4CF-EDIN-0	6	12.00	2.61	1.00	149.23	3.473	1.00	0.00	
8	167.00	Platform w/ Hand Rails (flat)	1	2000.00	40.00	1.00	4116.86	61.169	1.00	0.00	
9	167.00	SBNHH-1D65B	6	40.00	8.16	0.83	245.75	9.475	0.83	0.00	
10	167.00	Alcatel-Lucent B13 RRH4x30-4R	3	57.20	2.16	0.88	120.16	2.777	0.88	0.00	
11	167.00	Alcatel-Lucent B4 RRH 4x45-4R	3	64.00	2.60	0.80	148.71	3.312	0.80	0.00	
12	167.00	Raycap RC2DC-3315-PF-48 ODU	2	32.00	3.79	0.84	147.95	4.755	0.84	0.00	
13	157.00	7770 w/ Mount Pipe	6	35.00	5.50	0.75	170.93	6.570	0.75	0.00	
14	157.00	P65-17-XLH-RR	2	59.00	11.44	0.80	276.59	14.689	0.80	0.00	
15	157.00	AM-X-CD-16-65-00T	1	48.50	8.02	0.78	211.52	10.826	0.78	0.00	
16	157.00	LGP21401	6	14.10	1.29	0.64	39.22	2.130	0.66	0.00	
17	157.00	RRUS 11	6	50.70	2.52	0.76	140.39	3.175	0.77	0.00	
18	157.00	LGP21903	6	5.50	0.27	0.74	13.97	0.669	0.76	0.00	
19	157.00	DC6-48-60-18-8F	1	31.80	1.47	1.00	93.91	2.173	1.00	0.00	
20	157.00	Low Profile Platform-flat	1	1200.00	25.00	1.00	2251.92	46.038	1.00	0.00	
Totals:			64	7,621.60			19,512.33				

Linear Appurtenances

Bottom Elev. (ft)	Top Elev. (ft)	Description	Exposed Width	Exposed
0.00	177.00	(6) 1 5/8" Coax	0.00	Inside
0.00	177.00	(6) 1 5/8" Coax	0.00	Inside
0.00	167.00	(1) 1 1/4" Fiber	0.00	Inside
0.00	167.00	(12) 1 5/8" Coax	0.00	Inside
0.00	167.00	(1) 1 5/8" Fiber	0.00	Inside
0.00	157.00	(12) 1 5/8" Coax	0.00	Inside
0.00	157.00	(2) DC	0.00	Inside
0.00	157.00	(1) Fiber	0.00	Inside

Shaft Section Properties

Structure: CT02218-S-SBA	Code: EIA/TIA-222-G	10/10/2016
Site Name: Colchester	Exposure: C	
Height: 180.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: B - Competent Rock	
Gh: 1.1	Topography: 1	Struct Class: II



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Increment Length: 5 (ft)

Elev (ft)	Description	Thick (in)	Dia (in)	Area (in ²)	Ix (in ⁴)	W/t Ratio	D/t Ratio	Fpy (ksi)	S (in ³)	Weight (lb)
0.00		0.4380	60.000	83.221	37298.1	25.66	136.99	73.5	1219.	0.0
5.00		0.4380	58.975	81.789	35405.3	25.19	134.65	74.1	1177.	1403.7
10.00		0.4380	57.950	80.357	33577.6	24.73	132.31	74.6	1136.	1379.4
15.00		0.4380	56.925	78.924	31813.9	24.26	129.96	75.1	1096.	1355.0
20.00		0.4380	55.900	77.492	30113.1	23.79	127.62	75.6	1056.	1330.6
25.00		0.4380	54.874	76.060	28474.0	23.33	125.28	76.2	1017.	1306.3
30.00		0.4380	53.849	74.627	26895.5	22.86	122.94	76.7	979.7	1281.9
35.00		0.4380	52.824	73.195	25376.4	22.40	120.60	77.2	942.3	1257.5
40.00		0.4380	51.799	71.763	23915.7	21.93	118.26	77.8	905.7	1233.1
45.00		0.4380	50.774	70.330	22512.1	21.47	115.92	78.3	869.7	1208.8
45.92	Bot - Section 2	0.4380	50.586	70.068	22260.8	21.38	115.49	78.4	863.2	219.0
50.00		0.4380	49.749	68.898	21164.5	21.00	113.58	78.8	834.5	1805.5
53.00	Top - Section 1	0.3750	49.884	59.225	18339.4	24.87	133.02	0.0	0.0	1307.3
55.00		0.3750	49.474	58.734	17887.4	24.65	131.93	74.7	709.2	401.4
60.00		0.3750	48.449	57.508	16790.3	24.11	129.20	75.3	679.8	988.9
65.00		0.3750	47.424	56.282	15738.9	23.56	126.46	75.9	651.0	968.0
70.00		0.3750	46.398	55.056	14732.4	23.02	123.73	76.5	622.8	947.1
75.00		0.3750	45.373	53.829	13769.7	22.48	121.00	77.1	595.3	926.3
80.00		0.3750	44.348	52.603	12849.9	21.93	118.26	77.8	568.4	905.4
85.00		0.3750	43.323	51.377	11972.0	21.39	115.53	78.4	542.1	884.5
90.00		0.3750	42.298	50.150	11135.1	20.84	112.79	79.0	516.4	863.7
92.92	Bot - Section 3	0.3750	41.700	49.435	10665.4	20.53	111.20	79.3	501.7	494.2
95.00		0.3750	41.273	48.924	10338.1	20.30	110.06	79.6	491.3	644.5
98.92	Top - Section 2	0.3130	41.096	40.720	8556.2	24.53	131.30	0.0	0.0	1193.7
100.00		0.3130	40.874	40.499	8417.2	24.38	130.59	75.0	403.9	149.7
105.00		0.3130	39.849	39.475	7795.0	23.73	127.31	75.7	383.7	680.3
110.00		0.3130	38.824	38.452	7204.2	23.08	124.04	76.5	364.0	662.9
115.00		0.3130	37.798	37.428	6644.1	22.43	120.76	77.2	344.8	645.5
120.00		0.3130	36.773	36.405	6113.8	21.78	117.49	77.9	326.1	628.1
125.00		0.3130	35.748	35.381	5612.5	21.13	114.21	78.7	308.0	610.7
127.09	Bot - Section 4	0.3130	35.320	34.954	5411.6	20.85	112.84	79.0	300.5	249.7
130.00		0.3130	34.723	34.357	5139.3	20.48	110.94	79.4	290.3	587.6
132.34	Top - Section 3	0.2190	34.682	24.076	3612.5	29.91	158.37	0.0	0.0	464.0
135.00		0.2190	34.136	23.695	3443.5	29.41	155.87	69.3	197.9	216.5
140.00		0.2190	33.111	22.979	3140.6	28.48	151.19	70.3	186.1	397.0
145.00		0.2190	32.086	22.262	2856.0	27.55	146.51	71.4	174.6	384.9
150.00		0.2190	31.061	21.546	2589.2	26.62	141.83	72.5	163.5	372.7
155.00		0.2190	30.036	20.830	2339.5	25.69	137.15	73.5	152.8	360.5
157.00		0.2190	29.626	20.544	2244.3	25.32	135.28	73.9	148.6	140.8
160.00		0.2190	29.010	20.114	2106.4	24.76	132.47	74.6	142.4	207.5
165.00		0.2190	27.985	19.398	1889.3	23.83	127.79	75.6	132.4	336.1
167.00		0.2190	27.575	19.111	1806.8	23.45	125.91	76.0	128.5	131.0
170.00		0.2190	26.960	18.682	1687.7	22.90	123.11	76.7	122.8	192.9
175.00		0.2190	25.935	17.966	1500.9	21.96	118.43	77.7	113.5	311.8
177.00		0.2190	25.525	17.679	1430.3	21.59	116.55	78.1	109.9	121.3
180.00		0.2190	24.910	17.249	1328.5	21.03	113.74	78.8	104.6	178.3

32335.6

Wind Loading - Shaft

Structure: CT02218-S-SBA
Site Name: Colchester
Height: 180.00 (ft)
Base Elev: 0.000 (ft)
Gh: 1.1

Topography: 1

Code: EIA/TIA-222-G
Exposure: C
Crest Height: 0.00
Site Class: B - Competent Rock
Struct Class: II

10/10/2016

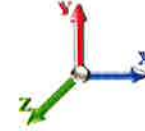
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Load Case: 1.2D + 1.6W 105 mph Wind

Dead Load Factor 1.20

Wind Load Factor 1.60



Iterations 26

Elev (ft)	Description	Kzt	Kz	qz (psf)	qzGh (psf)	C (mph-ft)	Cf	Ice Thick (in)	Tributary (ft)	Aa (sf)	CfAa (sf)	Wind Force X (lb)	Dead Load Ice (lb)	Tot Dead Load (lb)
0.00		1.00	0.85	22.791	25.07	493.51	0.750	0.000	0.00	0.000	0.00	0.0	0.0	0.0
5.00		1.00	0.85	22.791	25.07	485.08	0.750	0.000	5.00	25.272	18.95	760.3	0.0	1684.5
10.00		1.00	0.85	22.791	25.07	476.65	0.750	0.000	5.00	24.837	18.63	747.2	0.0	1655.2
15.00		1.00	0.85	22.791	25.07	468.21	0.750	0.000	5.00	24.401	18.30	734.1	0.0	1626.0
20.00		1.00	0.90	24.182	26.60	473.61	0.750	0.000	5.00	23.966	17.97	765.0	0.0	1596.7
25.00		1.00	0.95	25.345	27.88	475.97	0.750	0.000	5.00	23.530	17.65	787.2	0.0	1567.5
30.00		1.00	0.98	26.337	28.97	476.13	0.750	0.000	5.00	23.095	17.32	802.9	0.0	1538.3
35.00		1.00	1.01	27.206	29.93	474.71	0.750	0.000	5.00	22.659	16.99	813.7	0.0	1509.0
40.00		1.00	1.04	27.981	30.78	472.08	0.750	0.000	5.00	22.224	16.67	820.8	0.0	1479.8
45.00		1.00	1.07	28.684	31.55	468.51	0.750	0.000	5.00	21.788	16.34	825.0	0.0	1450.5
45.92 Bot - Section 2		1.00	1.07	28.806	31.69	467.77	0.750	0.000	0.92	3.947	2.96	150.1	0.0	262.8
50.00		1.00	1.09	29.327	32.26	464.17	0.750	0.000	4.08	17.666	13.25	683.9	0.0	2166.6
53.00 Top - Section 1		1.00	1.11	29.689	32.66	461.26	0.750	0.000	3.00	12.794	9.60	501.4	0.0	1568.8
55.00		1.00	1.12	29.922	32.91	466.26	0.750	0.000	2.00	8.442	6.33	333.4	0.0	481.7
60.00		1.00	1.14	30.475	33.52	460.80	0.750	0.000	5.00	20.800	15.60	836.7	0.0	1186.6
65.00		1.00	1.16	30.993	34.09	454.87	0.750	0.000	5.00	20.365	15.27	833.1	0.0	1161.6
70.00		1.00	1.17	31.480	34.63	448.52	0.750	0.000	5.00	19.929	14.95	828.1	0.0	1136.6
75.00		1.00	1.19	31.941	35.13	441.81	0.750	0.000	5.00	19.494	14.62	821.9	0.0	1111.5
80.00		1.00	1.21	32.377	35.62	434.77	0.750	0.000	5.00	19.058	14.29	814.5	0.0	1086.5
85.00		1.00	1.22	32.793	36.07	427.44	0.750	0.000	5.00	18.623	13.97	806.1	0.0	1061.5
90.00		1.00	1.24	33.190	36.51	419.84	0.750	0.000	5.00	18.187	13.64	796.8	0.0	1036.4
92.92 Bot - Section 3		1.00	1.25	33.414	36.76	415.30	0.750	0.000	2.92	10.408	7.81	459.1	0.0	593.0
95.00		1.00	1.25	33.570	36.93	412.01	0.750	0.000	2.08	7.454	5.59	330.3	0.0	773.4
98.92 Top - Section 2		1.00	1.26	33.857	37.24	405.71	0.750	0.000	3.92	13.810	10.36	617.2	0.0	1432.4
100.00		1.00	1.27	33.935	37.33	410.23	0.750	0.000	1.08	3.773	2.83	169.0	0.0	179.6
105.00		1.00	1.28	34.285	37.71	402.00	0.750	0.000	5.00	17.147	12.86	776.0	0.0	816.4
110.00		1.00	1.29	34.623	38.08	393.58	0.750	0.000	5.00	16.711	12.53	763.7	0.0	795.5
115.00		1.00	1.30	34.948	38.44	384.99	0.750	0.000	5.00	16.276	12.21	750.8	0.0	774.6
120.00		1.00	1.32	35.263	38.79	376.23	0.750	0.000	5.00	15.840	11.88	737.3	0.0	753.7
125.00		1.00	1.33	35.567	39.12	367.32	0.750	0.000	5.00	15.405	11.55	723.2	0.0	732.8
127.09 Bot - Section 4		1.00	1.33	35.691	39.26	363.55	0.750	0.000	2.09	6.300	4.73	296.8	0.0	299.6
130.00		1.00	1.34	35.862	39.45	358.26	0.750	0.000	2.91	8.777	6.58	415.5	0.0	705.1
132.34 Top - Section 3		1.00	1.34	35.997	39.60	353.98	0.750	0.000	2.34	6.933	5.20	329.4	0.0	556.9
135.00		1.00	1.35	36.148	39.76	353.60	0.750	0.000	2.66	7.787	5.84	371.5	0.0	259.8
140.00		1.00	1.36	36.426	40.07	344.30	0.750	0.000	5.00	14.284	10.71	686.8	0.0	476.5
145.00		1.00	1.37	36.696	40.37	334.88	0.750	0.000	5.00	13.849	10.39	670.8	0.0	461.8
150.00		1.00	1.38	36.959	40.65	325.34	0.750	0.000	5.00	13.413	10.06	654.4	0.0	447.2
155.00		1.00	1.39	37.215	40.94	315.69	0.750	0.000	5.00	12.978	9.73	637.5	0.0	432.6
157.00 Appurtenance(s)		1.00	1.39	37.315	41.05	311.80	0.750	0.000	2.00	5.069	3.80	249.7	0.0	168.9
160.00		1.00	1.40	37.464	41.21	305.93	0.750	0.000	3.00	7.473	5.60	369.6	0.0	249.0
165.00		1.00	1.41	37.708	41.48	296.08	0.750	0.000	5.00	12.107	9.08	602.6	0.0	403.3
167.00 Appurtenance(s)		1.00	1.41	37.804	41.58	292.11	0.750	0.000	2.00	4.721	3.54	235.6	0.0	157.2
170.00		1.00	1.42	37.946	41.74	286.13	0.750	0.000	3.00	6.950	5.21	348.1	0.0	231.5
175.00		1.00	1.42	38.178	42.00	276.09	0.750	0.000	5.00	11.236	8.43	566.2	0.0	374.1
177.00 Appurtenance(s)		1.00	1.43	38.269	42.10	272.05	0.750	0.000	2.00	4.372	3.28	220.9	0.0	145.5
180.00 Appurtenance(s)		1.00	1.43	38.405	42.25	265.97	0.750	0.000	3.00	6.428	4.82	325.9	0.0	213.9

Wind Loading - Shaft

Structure: CT02218-S-SBA	Code: EIA/TIA-222-G	10/10/2016
Site Name: Colchester	Exposure: C	
Height: 180.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: B - Competent Rock	
Gh: 1.1	Topography: 1	Struct Class: II

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Totals: 180.00

26,770.1

38,802.8

Discrete Appurtenance Forces

Structure: CT02218-S-SBA	Code: EIA/TIA-222-G	10/10/2016
Site Name: Colchester	Exposure: C	
Height: 180.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: B - Competent Rock	
Gh: 1.1	Topography: 1	Struct Class: II



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Load Case: 1.2D + 1.6W 105 mph Wind

Dead Load Factor 1.20
Wind Load Factor 1.60



Iterations 26

No.	Elev (ft)	Description	Qty	qz (psf)	qzGh (psf)	CaAa x Ka	Ka	Total CaAa (sf)	Dead Load (lb)	Horiz Ecc (ft)	Vert Ecc (ft)	Wind FX (lb)	Mom Y (lb-ft)	Mom Z (lb-ft)
1	180.00	6' Lightning rod	1	38.405	42.245	0.00	1.00	0.38	7.80	0.000	0.000	25.69	0.00	0.00
2	177.00	Platform w/ Hand Rails	1	38.269	42.096	1.00	1.00	40.00	3120.00	0.000	0.000	2694.16	0.00	0.00
3	177.00	782 11056	3	38.269	42.096	0.62	0.80	0.52	6.48	0.000	0.000	35.30	0.00	0.00
4	177.00	LNx-6515DS-VTM	3	38.269	42.096	0.67	0.80	23.12	181.08	0.000	0.000	1557.46	0.00	0.00
5	177.00	APXV18-206516S-C-A20	3	38.269	42.096	0.62	0.80	6.76	67.32	0.000	0.000	455.17	0.00	0.00
6	177.00	KRY 112 144/1	3	38.269	42.096	0.58	0.80	0.71	39.60	0.000	0.000	47.72	0.00	0.00
7	167.00	SBNHH-1D65B	6	37.804	41.584	0.66	0.80	32.51	288.00	0.000	0.000	2162.99	0.00	0.00
8	167.00	Raycap	2	37.804	41.584	0.67	0.80	5.09	76.80	0.000	0.000	338.91	0.00	0.00
9	167.00	Alcatel-Lucent B4 RRH	3	37.804	41.584	0.64	0.80	4.99	230.40	0.000	0.000	332.14	0.00	0.00
10	167.00	Alcatel-Lucent B13	3	37.804	41.584	0.70	0.80	4.56	205.92	0.000	0.000	303.52	0.00	0.00
11	167.00	Platform w/ Hand Rails	1	37.804	41.584	1.00	1.00	40.00	2400.00	0.000	0.000	2661.37	0.00	0.00
12	167.00	LPA-80080-4CF-EDIN-0	6	37.804	41.584	0.80	0.80	12.53	86.40	0.000	0.000	833.54	0.00	0.00
13	157.00	Low Profile Platform-flat	1	37.315	41.047	1.00	1.00	25.00	1440.00	0.000	0.000	1641.87	0.00	0.00
14	157.00	DC6-48-60-18-8F	1	37.315	41.047	0.80	0.80	1.18	38.16	0.000	0.000	77.23	0.00	0.00
15	157.00	LGP21903	6	37.315	41.047	0.59	0.80	0.96	39.60	0.000	0.000	62.98	0.00	0.00
16	157.00	RRUS 11	6	37.315	41.047	0.61	0.80	9.19	365.04	0.000	0.000	603.75	0.00	0.00
17	157.00	LGP21401	6	37.315	41.047	0.51	0.80	3.96	101.52	0.000	0.000	260.26	0.00	0.00
18	157.00	AM-X-CD-16-65-00T	1	37.315	41.047	0.62	0.80	5.00	58.20	0.000	0.000	328.67	0.00	0.00
19	157.00	P65-17-XLH-RR	2	37.315	41.047	0.64	0.80	14.64	141.60	0.000	0.000	961.69	0.00	0.00
20	157.00	7770 w/ Mount Pipe	6	37.315	41.047	0.60	0.80	19.80	252.00	0.000	0.000	1300.36	0.00	0.00
Totals:								9,145.92				16,684.80		

Total Applied Force Summary

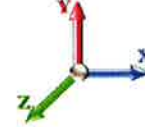
Structure: CT02218-S-SBA	Code: EIA/TIA-222-G	10/10/2016
Site Name: Colchester	Exposure: C	
Height: 180.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: B - Competent Rock	
Gh: 1.1	Topography: 1	Page: 11
	Struct Class: II	



Load Case: 1.2D + 1.6W 105 mph Wind

Dead Load Factor 1.20

Wind Load Factor 1.60



Iterations 26

Elev (ft)	Description	Lateral FX (-) (lb)	Axial FY (-) (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)
0.00		0.00	0.00	0.00	0.00
5.00		760.28	1924.84	0.00	0.00
10.00		747.18	1895.60	0.00	0.00
15.00		734.08	1866.35	0.00	0.00
20.00		764.99	1837.11	0.00	0.00
25.00		787.21	1807.87	0.00	0.00
30.00		802.88	1778.62	0.00	0.00
35.00		813.72	1749.38	0.00	0.00
40.00		820.83	1720.14	0.00	0.00
45.00		824.95	1690.90	0.00	0.00
45.92		150.09	306.83	0.00	0.00
50.00		683.87	2362.94	0.00	0.00
53.00		501.38	1712.97	0.00	0.00
55.00		333.43	577.81	0.00	0.00
60.00		836.72	1427.00	0.00	0.00
65.00		833.12	1401.97	0.00	0.00
70.00		828.13	1376.93	0.00	0.00
75.00		821.88	1351.89	0.00	0.00
80.00		814.51	1326.86	0.00	0.00
85.00		806.12	1301.82	0.00	0.00
90.00		796.80	1276.78	0.00	0.00
92.92		459.06	733.23	0.00	0.00
95.00		330.33	873.56	0.00	0.00
98.92		617.17	1620.70	0.00	0.00
100.00		168.99	231.72	0.00	0.00
105.00		776.00	1056.76	0.00	0.00
110.00		763.73	1035.86	0.00	0.00
115.00		750.82	1014.97	0.00	0.00
120.00		737.31	994.07	0.00	0.00
125.00		723.22	973.17	0.00	0.00
127.09		296.81	399.96	0.00	0.00
130.00		415.51	845.19	0.00	0.00
132.34		329.44	669.18	0.00	0.00
135.00		371.54	387.79	0.00	0.00
140.00		686.82	716.82	0.00	0.00
145.00		670.81	702.20	0.00	0.00
150.00		654.37	687.57	0.00	0.00
155.00		637.51	672.95	0.00	0.00
157.00	(29) attachments	5486.51	2701.21	0.00	0.00
160.00		369.57	345.22	0.00	0.00
165.00		602.60	563.67	0.00	0.00
167.00	(21) attachments	6868.05	3508.89	0.00	0.00
170.00		348.14	276.41	0.00	0.00
175.00		566.22	448.99	0.00	0.00
177.00	(13) attachments	5010.68	3589.98	0.00	0.00
180.00	(1) attachments	351.54	221.74	0.00	0.00

Total Applied Force Summary

Structure: CT02218-S-SBA	Code: EIA/TIA-222-G	10/10/2016
Site Name: Colchester	Exposure: C	
Height: 180.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: B - Competent Rock	
Gh: 1.1	Struct Class: II	Page: 12



Totals:	43,454.93	55,966.40	0.00	0.00
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Calculated Forces

Structure: CT02218-S-SBA
Site Name: Colchester
Height: 180.00 (ft)
Base Elev: 0.000 (ft)
Gh: 1.1

Topography: 1

Code: EIA/TIA-222-G
Exposure: C
Crest Height: 0.00
Site Class: B - Competent Rock
Struct Class: II

10/10/2016
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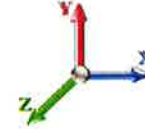


Load Case: 1.2D + 1.6W 105 mph Wind

Iterations 26

Dead Load Factor 1.20

Wind Load Factor 1.60



Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-55.89	-43.55	0.00	-5350.7	0.00	5350.76	5508.12	2754.06	13547.4	6725.55	0.00	0.000	0.000	0.806
5.00	-53.81	-42.98	0.00	-5132.9	0.00	5132.99	5452.09	2726.05	13177.2	6541.73	0.11	-0.200	0.000	0.795
10.00	-51.77	-42.41	0.00	-4918.1	0.00	4918.10	5394.71	2697.35	12808.5	6358.68	0.43	-0.402	0.000	0.783
15.00	-49.76	-41.83	0.00	-4706.0	0.00	4706.07	5335.97	2667.98	12441.5	6176.49	0.96	-0.606	0.000	0.772
20.00	-47.79	-41.22	0.00	-4496.9	0.00	4496.91	5275.87	2637.93	12076.4	5995.24	1.70	-0.811	0.000	0.759
25.00	-45.85	-40.57	0.00	-4290.8	0.00	4290.82	5214.41	2607.20	11713.3	5815.02	2.66	-1.019	0.000	0.747
30.00	-43.94	-39.89	0.00	-4087.9	0.00	4087.97	5151.59	2575.80	11352.6	5635.92	3.84	-1.228	0.000	0.734
35.00	-42.06	-39.19	0.00	-3888.5	0.00	3888.51	5087.42	2543.71	10994.2	5458.02	5.24	-1.439	0.000	0.721
40.00	-40.22	-38.48	0.00	-3692.5	0.00	3692.54	5021.88	2510.94	10638.5	5281.41	6.86	-1.652	0.000	0.707
45.00	-38.47	-37.69	0.00	-3500.1	0.00	3500.15	4954.99	2477.50	10285.5	5106.18	8.71	-1.866	0.000	0.693
45.92	-38.10	-37.60	0.00	-3465.6	0.00	3465.61	4942.58	2471.29	10221.1	5074.21	9.07	-1.906	0.000	0.691
50.00	-35.66	-36.93	0.00	-3312.0	0.00	3312.08	4886.75	2443.37	9935.52	4932.41	10.78	-2.083	0.000	0.679
53.00	-33.90	-36.43	0.00	-3201.3	0.00	3201.30	3967.43	1983.71	8109.29	4025.79	12.13	-2.214	0.000	0.804
55.00	-33.23	-36.17	0.00	-3128.4	0.00	3128.44	3947.58	1973.79	8001.39	3972.23	13.08	-2.303	0.000	0.796
60.00	-31.69	-35.41	0.00	-2947.6	0.00	2947.60	3897.00	1948.50	7732.70	3838.84	15.62	-2.544	0.000	0.776
65.00	-30.19	-34.64	0.00	-2770.5	0.00	2770.57	3845.06	1922.53	7465.70	3706.29	18.41	-2.786	0.000	0.756
70.00	-28.71	-33.86	0.00	-2597.3	0.00	2597.39	3791.77	1895.89	7200.54	3574.65	21.46	-3.029	0.000	0.735
75.00	-27.27	-33.08	0.00	-2428.0	0.00	2428.08	3737.12	1868.56	6937.41	3444.02	24.76	-3.272	0.000	0.713
80.00	-25.85	-32.30	0.00	-2262.6	0.00	2262.66	3681.11	1840.56	6676.48	3314.49	28.31	-3.514	0.000	0.690
85.00	-24.47	-31.52	0.00	-2101.1	0.00	2101.16	3623.74	1811.87	6417.92	3186.13	32.12	-3.755	0.000	0.667
90.00	-23.15	-30.71	0.00	-1943.5	0.00	1943.58	3565.02	1782.51	6161.91	3059.03	36.18	-3.996	0.000	0.642
92.92	-22.39	-30.25	0.00	-1854.0	0.00	1854.00	3530.13	1765.07	6013.81	2985.51	38.66	-4.137	0.000	0.628
95.00	-21.47	-29.91	0.00	-1790.9	0.00	1790.98	3504.93	1752.47	5908.61	2933.28	40.49	-4.238	0.000	0.617
98.92	-19.84	-29.21	0.00	-1673.8	0.00	1673.83	2742.07	1371.04	4616.42	2291.78	44.04	-4.425	0.000	0.738
100.00	-19.54	-29.08	0.00	-1642.1	0.00	1642.19	2732.96	1366.48	4575.83	2271.63	45.05	-4.478	0.000	0.731
105.00	-18.42	-28.31	0.00	-1496.7	0.00	1496.77	2690.08	1345.04	4389.32	2179.04	49.88	-4.743	0.000	0.694
110.00	-17.32	-27.54	0.00	-1355.2	0.00	1355.23	2645.83	1322.92	4204.31	2087.20	54.98	-5.003	0.000	0.656
115.00	-16.26	-26.77	0.00	-1217.5	0.00	1217.54	2600.23	1300.12	4020.98	1996.19	60.35	-5.257	0.000	0.617
120.00	-15.23	-26.01	0.00	-1083.6	0.00	1083.69	2553.28	1276.64	3839.50	1906.09	65.99	-5.504	0.000	0.575
125.00	-14.26	-25.23	0.00	-953.65	0.00	953.65	2504.96	1252.48	3660.03	1816.99	71.87	-5.741	0.000	0.531
127.09	-13.85	-24.93	0.00	-901.00	0.00	901.00	2484.39	1242.20	3585.78	1780.13	74.40	-5.839	0.000	0.512
130.00	-13.00	-24.45	0.00	-828.38	0.00	828.38	2455.29	1227.64	3482.76	1728.99	77.99	-5.971	0.000	0.485
132.34	-12.32	-24.08	0.00	-771.24	0.00	771.24	1489.26	744.63	2121.49	1053.20	80.94	-6.075	0.000	0.742
135.00	-11.89	-23.71	0.00	-707.11	0.00	707.11	1477.63	738.82	2071.36	1028.31	84.35	-6.188	0.000	0.697
140.00	-11.16	-23.00	0.00	-588.57	0.00	588.57	1454.76	727.38	1977.27	981.60	90.97	-6.456	0.000	0.608
145.00	-10.45	-22.29	0.00	-473.59	0.00	473.59	1430.53	715.26	1883.34	934.97	97.85	-6.696	0.000	0.515
150.00	-9.77	-21.59	0.00	-362.14	0.00	362.14	1404.94	702.47	1789.74	888.50	104.96	-6.904	0.000	0.415
155.00	-9.14	-20.89	0.00	-254.18	0.00	254.18	1377.99	688.99	1696.65	842.29	112.27	-7.074	0.000	0.309
157.00	-7.12	-15.12	0.00	-212.39	0.00	212.39	1366.83	683.41	1659.60	823.90	115.24	-7.131	0.000	0.263
160.00	-6.81	-14.72	0.00	-167.02	0.00	167.02	1349.68	674.84	1604.25	796.42	119.74	-7.203	0.000	0.215
165.00	-6.31	-14.06	0.00	-93.40	0.00	93.40	1320.02	660.01	1512.71	750.97	127.31	-7.291	0.000	0.130
167.00	-3.70	-6.80	0.00	-65.28	0.00	65.28	1307.77	653.89	1476.37	732.93	130.36	-7.314	0.000	0.092
170.00	-3.47	-6.43	0.00	-44.87	0.00	44.87	1289.00	644.50	1422.20	706.04	134.96	-7.341	0.000	0.066
175.00	-3.09	-5.81	0.00	-12.74	0.00	12.74	1256.62	628.31	1332.89	661.70	142.64	-7.365	0.000	0.022
177.00	-0.17	-0.38	0.00	-1.13	0.00	1.13	1243.29	621.64	1297.54	644.16	145.72	-7.367	0.000	0.002
180.00	0.00	-0.35	0.00	0.00	0.00	0.00	1222.88	611.44	1244.96	618.05	150.33	-7.368	0.000	0.000

Wind Loading - Shaft

Structure: CT02218-S-SBA
Site Name: Colchester
Height: 180.00 (ft)
Base Elev: 0.000 (ft)
Gh: 1.1

Topography: 1

Code: EIA/TIA-222-G 10/10/2016
Exposure: C
Crest Height: 0.00
Site Class: B - Competent Rock
Struct Class: II

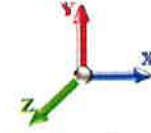
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Load Case: 0.9D + 1.6W 105 mph Wind

Iterations 26

Dead Load Factor 0.90
Wind Load Factor 1.60



Elev (ft)	Description	Kzt	Kz	qz (psf)	qzGh (psf)	C (mph-ft)	Cf	Ice Thick (in)	Tributary (ft)	Aa (sf)	CfAa (sf)	Wind Force X (lb)	Dead Load Ice (lb)	Tot Dead Load (lb)
0.00		1.00	0.85	22.791	25.07	493.51	0.750	0.000	0.00	0.000	0.00	0.0	0.0	0.0
5.00		1.00	0.85	22.791	25.07	485.08	0.750	0.000	5.00	25.272	18.95	760.3	0.0	1263.4
10.00		1.00	0.85	22.791	25.07	476.65	0.750	0.000	5.00	24.837	18.63	747.2	0.0	1241.4
15.00		1.00	0.85	22.791	25.07	468.21	0.750	0.000	5.00	24.401	18.30	734.1	0.0	1219.5
20.00		1.00	0.90	24.182	26.60	473.61	0.750	0.000	5.00	23.966	17.97	765.0	0.0	1197.6
25.00		1.00	0.95	25.345	27.88	475.97	0.750	0.000	5.00	23.530	17.65	787.2	0.0	1175.6
30.00		1.00	0.98	26.337	28.97	476.13	0.750	0.000	5.00	23.095	17.32	802.9	0.0	1153.7
35.00		1.00	1.01	27.206	29.93	474.71	0.750	0.000	5.00	22.659	16.99	813.7	0.0	1131.8
40.00		1.00	1.04	27.981	30.78	472.08	0.750	0.000	5.00	22.224	16.67	820.8	0.0	1109.8
45.00		1.00	1.07	28.684	31.55	468.51	0.750	0.000	5.00	21.788	16.34	825.0	0.0	1087.9
45.92 Bot - Section 2		1.00	1.07	28.806	31.69	467.77	0.750	0.000	0.92	3.947	2.96	150.1	0.0	197.1
50.00		1.00	1.09	29.327	32.26	464.17	0.750	0.000	4.08	17.666	13.25	683.9	0.0	1625.0
53.00 Top - Section 1		1.00	1.11	29.689	32.66	461.26	0.750	0.000	3.00	12.794	9.60	501.4	0.0	1176.6
55.00		1.00	1.12	29.922	32.91	466.26	0.750	0.000	2.00	8.442	6.33	333.4	0.0	361.3
60.00		1.00	1.14	30.475	33.52	460.80	0.750	0.000	5.00	20.800	15.60	836.7	0.0	890.0
65.00		1.00	1.16	30.993	34.09	454.87	0.750	0.000	5.00	20.365	15.27	833.1	0.0	871.2
70.00		1.00	1.17	31.480	34.63	448.52	0.750	0.000	5.00	19.929	14.95	828.1	0.0	852.4
75.00		1.00	1.19	31.941	35.13	441.81	0.750	0.000	5.00	19.494	14.62	821.9	0.0	833.6
80.00		1.00	1.21	32.377	35.62	434.77	0.750	0.000	5.00	19.058	14.29	814.5	0.0	814.9
85.00		1.00	1.22	32.793	36.07	427.44	0.750	0.000	5.00	18.623	13.97	806.1	0.0	796.1
90.00		1.00	1.24	33.190	36.51	419.84	0.750	0.000	5.00	18.187	13.64	796.8	0.0	777.3
92.92 Bot - Section 3		1.00	1.25	33.414	36.76	415.30	0.750	0.000	2.92	10.408	7.81	459.1	0.0	444.8
95.00		1.00	1.25	33.570	36.93	412.01	0.750	0.000	2.08	7.454	5.59	330.3	0.0	580.1
98.92 Top - Section 2		1.00	1.26	33.857	37.24	405.71	0.750	0.000	3.92	13.810	10.36	617.2	0.0	1074.3
100.00		1.00	1.27	33.935	37.33	410.23	0.750	0.000	1.08	3.773	2.83	169.0	0.0	134.7
105.00		1.00	1.28	34.285	37.71	402.00	0.750	0.000	5.00	17.147	12.86	776.0	0.0	612.3
110.00		1.00	1.29	34.623	38.08	393.58	0.750	0.000	5.00	16.711	12.53	763.7	0.0	596.6
115.00		1.00	1.30	34.948	38.44	384.99	0.750	0.000	5.00	16.276	12.21	750.8	0.0	581.0
120.00		1.00	1.32	35.263	38.79	376.23	0.750	0.000	5.00	15.840	11.88	737.3	0.0	565.3
125.00		1.00	1.33	35.567	39.12	367.32	0.750	0.000	5.00	15.405	11.55	723.2	0.0	549.6
127.09 Bot - Section 4		1.00	1.33	35.691	39.26	363.55	0.750	0.000	2.09	6.300	4.73	296.8	0.0	224.7
130.00		1.00	1.34	35.862	39.45	358.26	0.750	0.000	2.91	8.777	6.58	415.5	0.0	528.9
132.34 Top - Section 3		1.00	1.34	35.997	39.60	353.98	0.750	0.000	2.34	6.933	5.20	329.4	0.0	417.6
135.00		1.00	1.35	36.148	39.76	353.60	0.750	0.000	2.66	7.787	5.84	371.5	0.0	194.8
140.00		1.00	1.36	36.426	40.07	344.30	0.750	0.000	5.00	14.284	10.71	686.8	0.0	357.3
145.00		1.00	1.37	36.696	40.37	334.88	0.750	0.000	5.00	13.849	10.39	670.8	0.0	346.4
150.00		1.00	1.38	36.959	40.65	325.34	0.750	0.000	5.00	13.413	10.06	654.4	0.0	335.4
155.00		1.00	1.39	37.215	40.94	315.69	0.750	0.000	5.00	12.978	9.73	637.5	0.0	324.4
157.00 Appurtenance(s)		1.00	1.39	37.315	41.05	311.80	0.750	0.000	2.00	5.069	3.80	249.7	0.0	126.7
160.00		1.00	1.40	37.464	41.21	305.93	0.750	0.000	3.00	7.473	5.60	369.6	0.0	186.8
165.00		1.00	1.41	37.708	41.48	296.08	0.750	0.000	5.00	12.107	9.08	602.6	0.0	302.5
167.00 Appurtenance(s)		1.00	1.41	37.804	41.58	292.11	0.750	0.000	2.00	4.721	3.54	235.6	0.0	117.9
170.00		1.00	1.42	37.946	41.74	286.13	0.750	0.000	3.00	6.950	5.21	348.1	0.0	173.6
175.00		1.00	1.42	38.178	42.00	276.09	0.750	0.000	5.00	11.236	8.43	566.2	0.0	280.6
177.00 Appurtenance(s)		1.00	1.43	38.269	42.10	272.05	0.750	0.000	2.00	4.372	3.28	220.9	0.0	109.2
180.00 Appurtenance(s)		1.00	1.43	38.405	42.25	265.97	0.750	0.000	3.00	6.428	4.82	325.9	0.0	160.5

Wind Loading - Shaft

Structure: CT02218-S-SBA	Code: EIA/TIA-222-G	10/10/2016
Site Name: Colchester	Exposure: C	
Height: 180.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: B - Competent Rock	
Gh: 1.1	Topography: 1	Struct Class: II



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Totals: 180.00

26,770.1

29,102.1

Discrete Appurtenance Forces

Structure: CT02218-S-SBA	Code: EIA/TIA-222-G	10/10/2016
Site Name: Colchester	Exposure: C	
Height: 180.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: B - Competent Rock	
Gh: 1.1	Topography: 1	Struct Class: II

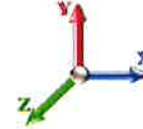


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Load Case: 0.9D + 1.6W 105 mph Wind

Dead Load Factor 0.90

Wind Load Factor 1.60



Iterations 26

No.	Elev (ft)	Description	Qty	qz (psf)	qzGh (psf)	CaAa x Ka	Ka	Total CaAa (sf)	Dead Load (lb)	Horiz Ecc (ft)	Vert Ecc (ft)	Wind FX (lb)	Mom Y (lb-ft)	Mom Z (lb-ft)
1	180.00	6' Lightning rod	1	38.405	42.245	0.00	1.00	0.38	5.85	0.000	0.000	25.69	0.00	0.00
2	177.00	Platform w/ Hand Rails	1	38.269	42.096	1.00	1.00	40.00	2340.00	0.000	0.000	2694.16	0.00	0.00
3	177.00	782 11056	3	38.269	42.096	0.62	0.80	0.52	4.86	0.000	0.000	35.30	0.00	0.00
4	177.00	LNx-6515DS-VTM	3	38.269	42.096	0.67	0.80	23.12	135.81	0.000	0.000	1557.46	0.00	0.00
5	177.00	APXV18-206516S-C-A20	3	38.269	42.096	0.62	0.80	6.76	50.49	0.000	0.000	455.17	0.00	0.00
6	177.00	KRY 112 144/1	3	38.269	42.096	0.58	0.80	0.71	29.70	0.000	0.000	47.72	0.00	0.00
7	167.00	SBNHH-1D65B	6	37.804	41.584	0.66	0.80	32.51	216.00	0.000	0.000	2162.99	0.00	0.00
8	167.00	Raycap	2	37.804	41.584	0.67	0.80	5.09	57.60	0.000	0.000	338.91	0.00	0.00
9	167.00	Alcatel-Lucent B4 RRH	3	37.804	41.584	0.64	0.80	4.99	172.80	0.000	0.000	332.14	0.00	0.00
10	167.00	Alcatel-Lucent B13	3	37.804	41.584	0.70	0.80	4.56	154.44	0.000	0.000	303.52	0.00	0.00
11	167.00	Platform w/ Hand Rails	1	37.804	41.584	1.00	1.00	40.00	1800.00	0.000	0.000	2661.37	0.00	0.00
12	167.00	LPA-80080-4CF-EDIN-0	6	37.804	41.584	0.80	0.80	12.53	64.80	0.000	0.000	833.54	0.00	0.00
13	157.00	Low Profile Platform-flat	1	37.315	41.047	1.00	1.00	25.00	1080.00	0.000	0.000	1641.87	0.00	0.00
14	157.00	DC6-48-60-18-8F	1	37.315	41.047	0.80	0.80	1.18	28.62	0.000	0.000	77.23	0.00	0.00
15	157.00	LGP21903	6	37.315	41.047	0.59	0.80	0.96	29.70	0.000	0.000	62.98	0.00	0.00
16	157.00	RRUS 11	6	37.315	41.047	0.61	0.80	9.19	273.78	0.000	0.000	603.75	0.00	0.00
17	157.00	LGP21401	6	37.315	41.047	0.51	0.80	3.96	76.14	0.000	0.000	260.26	0.00	0.00
18	157.00	AM-X-CD-16-65-00T	1	37.315	41.047	0.62	0.80	5.00	43.65	0.000	0.000	328.67	0.00	0.00
19	157.00	P65-17-XLH-RR	2	37.315	41.047	0.64	0.80	14.64	106.20	0.000	0.000	961.69	0.00	0.00
20	157.00	7770 w/ Mount Pipe	6	37.315	41.047	0.60	0.80	19.80	189.00	0.000	0.000	1300.36	0.00	0.00
Totals:								6,859.44				16,684.80		

Total Applied Force Summary

Structure: CT02218-S-SBA	Code: EIA/TIA-222-G	10/10/2016
Site Name: Colchester	Exposure: C	
Height: 180.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: B - Competent Rock	
Gh: 1.1	Topography: 1	Page: 17
	Struct Class: II	



Load Case: 0.9D + 1.6W 105 mph Wind

Dead Load Factor 0.90
Wind Load Factor 1.60



Iterations 26

Elev (ft)	Description	Lateral FX (-) (lb)	Axial FY (-) (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)
0.00		0.00	0.00	0.00	0.00
5.00		760.28	1443.63	0.00	0.00
10.00		747.18	1421.70	0.00	0.00
15.00		734.08	1399.76	0.00	0.00
20.00		764.99	1377.83	0.00	0.00
25.00		787.21	1355.90	0.00	0.00
30.00		802.88	1333.97	0.00	0.00
35.00		813.72	1312.04	0.00	0.00
40.00		820.83	1290.10	0.00	0.00
45.00		824.95	1268.17	0.00	0.00
45.92		150.09	230.12	0.00	0.00
50.00		683.87	1772.20	0.00	0.00
53.00		501.38	1284.73	0.00	0.00
55.00		333.43	433.36	0.00	0.00
60.00		836.72	1070.25	0.00	0.00
65.00		833.12	1051.47	0.00	0.00
70.00		828.13	1032.70	0.00	0.00
75.00		821.88	1013.92	0.00	0.00
80.00		814.51	995.14	0.00	0.00
85.00		806.12	976.36	0.00	0.00
90.00		796.80	957.59	0.00	0.00
92.92		459.06	549.92	0.00	0.00
95.00		330.33	655.17	0.00	0.00
98.92		617.17	1215.53	0.00	0.00
100.00		168.99	173.79	0.00	0.00
105.00		776.00	792.57	0.00	0.00
110.00		763.73	776.90	0.00	0.00
115.00		750.82	761.22	0.00	0.00
120.00		737.31	745.55	0.00	0.00
125.00		723.22	729.88	0.00	0.00
127.09		296.81	299.97	0.00	0.00
130.00		415.51	633.90	0.00	0.00
132.34		329.44	501.89	0.00	0.00
135.00		371.54	290.84	0.00	0.00
140.00		686.82	537.61	0.00	0.00
145.00		670.81	526.65	0.00	0.00
150.00		654.37	515.68	0.00	0.00
155.00		637.51	504.71	0.00	0.00
157.00	(29) attachments	5486.51	2025.91	0.00	0.00
160.00		369.57	258.92	0.00	0.00
165.00		602.60	422.75	0.00	0.00
167.00	(21) attachments	6868.05	2631.67	0.00	0.00
170.00		348.14	207.31	0.00	0.00
175.00		566.22	336.74	0.00	0.00
177.00	(13) attachments	5010.68	2692.49	0.00	0.00
180.00	(1) attachments	351.54	166.30	0.00	0.00

Total Applied Force Summary

Structure: CT02218-S-SBA	Code: EIA/TIA-222-G	10/10/2016
Site Name: Colchester	Exposure: C	
Height: 180.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: B - Competent Rock	
Gh: 1.1	Struct Class: II	Page: 18



Totals:	<u>43,454.93</u>	<u>41,974.80</u>	<u>0.00</u>	<u>0.00</u>
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Calculated Forces

Structure: CT02218-S-SBA	Code: EIA/TIA-222-G	10/10/2016
Site Name: Colchester	Exposure: C	
Height: 180.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: B - Competent Rock	
Gh: 1.1	Topography: 1	Struct Class: II

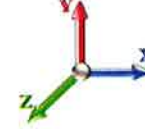


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Load Case: 0.9D + 1.6W 105 mph Wind

Dead Load Factor 0.90

Wind Load Factor 1.60



Iterations 26

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-41.90	-43.53	0.00	-5290.2	0.00	5290.20	5508.12	2754.06	13547.4	6725.55	0.00	0.000	0.000	0.794
5.00	-40.31	-42.91	0.00	-5072.5	0.00	5072.56	5452.09	2726.05	13177.2	6541.73	0.11	-0.198	0.000	0.783
10.00	-38.74	-42.29	0.00	-4858.0	0.00	4858.03	5394.71	2697.35	12808.5	6358.68	0.42	-0.397	0.000	0.771
15.00	-37.20	-41.67	0.00	-4646.6	0.00	4646.60	5335.97	2667.98	12441.5	6176.49	0.94	-0.598	0.000	0.760
20.00	-35.69	-41.02	0.00	-4438.2	0.00	4438.24	5275.87	2637.93	12076.4	5995.24	1.68	-0.802	0.000	0.747
25.00	-34.20	-40.33	0.00	-4233.1	0.00	4233.16	5214.41	2607.20	11713.3	5815.02	2.63	-1.006	0.000	0.735
30.00	-32.74	-39.62	0.00	-4031.5	0.00	4031.50	5151.59	2575.80	11352.6	5635.92	3.80	-1.213	0.000	0.722
35.00	-31.30	-38.89	0.00	-3833.3	0.00	3833.39	5087.42	2543.71	10994.2	5458.02	5.18	-1.421	0.000	0.709
40.00	-29.90	-38.15	0.00	-3638.9	0.00	3638.93	5021.88	2510.94	10638.5	5281.41	6.78	-1.630	0.000	0.695
45.00	-28.57	-37.35	0.00	-3448.1	0.00	3448.19	4954.99	2477.50	10285.5	5106.18	8.60	-1.841	0.000	0.681
45.92	-28.28	-37.24	0.00	-3413.9	0.00	3413.96	4942.58	2471.29	10221.1	5074.21	8.96	-1.881	0.000	0.679
50.00	-26.43	-36.57	0.00	-3261.8	0.00	3261.89	4886.75	2443.37	9935.52	4932.41	10.64	-2.055	0.000	0.667
53.00	-25.10	-36.07	0.00	-3152.1	0.00	3152.19	3967.43	1983.71	8109.29	4025.79	11.97	-2.184	0.000	0.790
55.00	-24.58	-35.79	0.00	-3080.0	0.00	3080.05	3947.58	1973.79	8001.39	3972.23	12.91	-2.271	0.000	0.782
60.00	-23.40	-35.00	0.00	-2901.1	0.00	2901.12	3897.00	1948.50	7732.70	3838.84	15.41	-2.509	0.000	0.762
65.00	-22.24	-34.22	0.00	-2726.1	0.00	2726.10	3845.06	1922.53	7465.70	3706.29	18.17	-2.747	0.000	0.742
70.00	-21.11	-33.43	0.00	-2555.0	0.00	2555.02	3791.77	1895.89	7200.54	3574.65	21.17	-2.986	0.000	0.721
75.00	-20.01	-32.63	0.00	-2387.8	0.00	2387.89	3737.12	1868.56	6937.41	3444.02	24.43	-3.225	0.000	0.699
80.00	-18.93	-31.84	0.00	-2224.7	0.00	2224.72	3681.11	1840.56	6676.48	3314.49	27.93	-3.463	0.000	0.677
85.00	-17.88	-31.05	0.00	-2065.5	0.00	2065.52	3623.74	1811.87	6417.92	3186.13	31.68	-3.701	0.000	0.654
90.00	-16.88	-30.25	0.00	-1910.2	0.00	1910.27	3565.02	1782.51	6161.91	3059.03	35.68	-3.937	0.000	0.629
92.92	-16.30	-29.78	0.00	-1822.0	0.00	1822.05	3530.13	1765.07	6013.81	2985.51	38.13	-4.076	0.000	0.615
95.00	-15.60	-29.45	0.00	-1760.0	0.00	1760.00	3504.93	1752.47	5908.61	2933.28	39.93	-4.175	0.000	0.605
98.92	-14.37	-28.77	0.00	-1644.6	0.00	1644.67	2742.07	1371.04	4616.42	2291.78	43.43	-4.359	0.000	0.723
100.00	-14.14	-28.63	0.00	-1613.5	0.00	1613.51	2732.96	1366.48	4575.83	2271.63	44.42	-4.410	0.000	0.716
105.00	-13.28	-27.85	0.00	-1470.3	0.00	1470.37	2690.08	1345.04	4389.32	2179.04	49.18	-4.671	0.000	0.680
110.00	-12.45	-27.08	0.00	-1331.1	0.00	1331.12	2645.83	1322.92	4204.31	2087.20	54.20	-4.927	0.000	0.643
115.00	-11.65	-26.32	0.00	-1195.7	0.00	1195.72	2600.23	1300.12	4020.98	1996.19	59.49	-5.176	0.000	0.604
120.00	-10.87	-25.56	0.00	-1064.1	0.00	1064.15	2553.28	1276.64	3839.50	1906.09	65.04	-5.418	0.000	0.563
125.00	-10.14	-24.80	0.00	-936.36	0.00	936.36	2504.96	1252.48	3660.03	1816.99	70.83	-5.651	0.000	0.520
127.09	-9.82	-24.49	0.00	-884.62	0.00	884.62	2484.39	1242.20	3585.78	1780.13	73.32	-5.747	0.000	0.501
130.00	-9.19	-24.03	0.00	-813.28	0.00	813.28	2455.29	1227.64	3482.76	1728.99	76.86	-5.877	0.000	0.475
132.34	-8.68	-23.67	0.00	-757.12	0.00	757.12	1489.26	744.63	2121.49	1053.20	79.76	-5.979	0.000	0.726
135.00	-8.35	-23.30	0.00	-694.09	0.00	694.09	1477.63	738.82	2071.36	1028.31	83.12	-6.090	0.000	0.682
140.00	-7.79	-22.59	0.00	-577.61	0.00	577.61	1454.76	727.38	1977.27	981.60	89.63	-6.353	0.000	0.595
145.00	-7.26	-21.89	0.00	-464.67	0.00	464.67	1430.53	715.26	1883.34	934.97	96.40	-6.589	0.000	0.503
150.00	-6.75	-21.20	0.00	-355.21	0.00	355.21	1404.94	702.47	1789.74	888.50	103.40	-6.793	0.000	0.406
155.00	-6.29	-20.52	0.00	-249.20	0.00	249.20	1377.99	688.99	1696.65	842.29	110.59	-6.959	0.000	0.301
157.00	-4.93	-14.83	0.00	-208.16	0.00	208.16	1366.83	683.41	1659.60	823.90	113.51	-7.015	0.000	0.257
160.00	-4.70	-14.44	0.00	-163.65	0.00	163.65	1349.68	674.84	1604.25	796.42	117.93	-7.085	0.000	0.209
165.00	-4.34	-13.80	0.00	-91.44	0.00	91.44	1320.02	660.01	1512.71	750.97	125.39	-7.172	0.000	0.125
167.00	-2.59	-6.65	0.00	-63.85	0.00	63.85	1307.77	653.89	1476.37	732.93	128.39	-7.195	0.000	0.089
170.00	-2.42	-6.28	0.00	-43.89	0.00	43.89	1289.00	644.50	1422.20	706.04	132.91	-7.220	0.000	0.064
175.00	-2.16	-5.68	0.00	-12.47	0.00	12.47	1256.62	628.31	1332.89	661.70	140.46	-7.244	0.000	0.021
177.00	-0.12	-0.37	0.00	-1.11	0.00	1.11	1243.29	621.64	1297.54	644.16	143.49	-7.247	0.000	0.002
180.00	0.00	-0.35	0.00	0.00	0.00	0.00	1222.88	611.44	1244.96	618.05	148.03	-7.247	0.000	0.000

Wind Loading - Shaft

Structure: CT02218-S-SBA	Code: EIA/TIA-222-G	10/10/2016
Site Name: Colchester	Exposure: C	
Height: 180.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: B - Competent Rock	
Gh: 1.1	Topography: 1	Struct Class: II



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

Iterations 25

Dead Load Factor 1.20

Wind Load Factor 1.00



Elev (ft)	Description	Kzt	Kz	qz (psf)	qzGh (psf)	C (mph-ft)	Cf	Ice Thick (in)	Tributary (ft)	Aa (sf)	CfAa (sf)	Wind Force X (lb)	Dead Load Ice (lb)	Tot Dead Load (lb)
0.00		1.00	0.85	5.168	5.68	0.00	1.200	0.000	0.00	0.000	0.00	0.0	0.0	0.0
5.00		1.00	0.85	5.168	5.68	0.00	1.200	1.242	5.00	26.307	31.57	179.5	472.8	2157.3
10.00		1.00	0.85	5.168	5.68	0.00	1.200	1.331	5.00	25.946	31.14	177.0	498.9	2154.1
15.00		1.00	0.85	5.168	5.68	0.00	1.200	1.386	5.00	25.556	30.67	174.3	511.0	2137.0
20.00		1.00	0.90	5.483	6.03	0.00	1.200	1.427	5.00	25.154	30.19	182.1	517.0	2113.8
25.00		1.00	0.95	5.747	6.32	0.00	1.200	1.459	5.00	24.746	29.69	187.7	519.5	2087.0
30.00		1.00	0.98	5.972	6.57	0.00	1.200	1.486	5.00	24.333	29.20	191.8	519.7	2057.9
35.00		1.00	1.01	6.169	6.79	0.00	1.200	1.509	5.00	23.916	28.70	194.8	518.2	2027.2
40.00		1.00	1.04	6.345	6.98	0.00	1.200	1.529	5.00	23.498	28.20	196.8	515.4	1995.2
45.00		1.00	1.07	6.504	7.15	0.00	1.200	1.547	5.00	23.077	27.69	198.1	511.7	1962.2
45.92 Bot - Section 2		1.00	1.07	6.532	7.19	0.00	1.200	1.550	0.92	4.184	5.02	36.1	93.7	356.4
50.00		1.00	1.09	6.650	7.32	0.00	1.200	1.564	4.08	18.730	22.48	164.4	420.2	2586.9
53.00 Top - Section 1		1.00	1.11	6.732	7.41	0.00	1.200	1.573	3.00	13.580	16.30	120.7	306.9	1875.7
55.00		1.00	1.12	6.785	7.46	0.00	1.200	1.579	2.00	8.968	10.76	80.3	203.8	685.4
60.00		1.00	1.14	6.910	7.60	0.00	1.200	1.592	5.00	22.127	26.55	201.8	503.6	1690.3
65.00		1.00	1.16	7.028	7.73	0.00	1.200	1.605	5.00	21.702	26.04	201.3	497.4	1659.0
70.00		1.00	1.17	7.138	7.85	0.00	1.200	1.617	5.00	21.277	25.53	200.5	490.8	1627.3
75.00		1.00	1.19	7.243	7.97	0.00	1.200	1.628	5.00	20.851	25.02	199.3	483.7	1595.2
80.00		1.00	1.21	7.342	8.08	0.00	1.200	1.639	5.00	20.424	24.51	197.9	476.3	1562.8
85.00		1.00	1.22	7.436	8.18	0.00	1.200	1.649	5.00	19.997	24.00	196.3	468.6	1530.1
90.00		1.00	1.24	7.526	8.28	0.00	1.200	1.658	5.00	19.569	23.48	194.4	460.7	1497.1
92.92 Bot - Section 3		1.00	1.25	7.577	8.33	0.00	1.200	1.664	2.92	11.217	13.46	112.2	265.9	859.0
95.00		1.00	1.25	7.612	8.37	0.00	1.200	1.667	2.08	8.033	9.64	80.7	191.3	964.7
98.92 Top - Section 2		1.00	1.26	7.677	8.45	0.00	1.200	1.674	3.92	14.902	17.88	151.0	354.4	1786.9
100.00		1.00	1.27	7.695	8.46	0.00	1.200	1.676	1.08	4.075	4.89	41.4	97.6	277.3
105.00		1.00	1.28	7.774	8.55	0.00	1.200	1.684	5.00	18.550	22.26	190.4	442.0	1258.4
110.00		1.00	1.29	7.851	8.64	0.00	1.200	1.692	5.00	18.121	21.75	187.8	433.2	1228.7
115.00		1.00	1.30	7.925	8.72	0.00	1.200	1.699	5.00	17.692	21.23	185.1	424.2	1198.8
120.00		1.00	1.32	7.996	8.80	0.00	1.200	1.707	5.00	17.262	20.71	182.2	415.0	1168.7
125.00		1.00	1.33	8.065	8.87	0.00	1.200	1.714	5.00	16.833	20.20	179.2	405.6	1138.5
127.09 Bot - Section 4		1.00	1.33	8.093	8.90	0.00	1.200	1.717	2.09	6.897	8.28	73.7	167.6	467.3
130.00		1.00	1.34	8.132	8.95	0.00	1.200	1.720	2.91	9.613	11.54	103.2	233.6	938.8
132.34 Top - Section 3		1.00	1.34	8.163	8.98	0.00	1.200	1.723	2.34	7.604	9.13	81.9	185.3	742.1
135.00		1.00	1.35	8.197	9.02	0.00	1.200	1.727	2.66	8.553	10.26	92.5	208.4	468.2
140.00		1.00	1.36	8.260	9.09	0.00	1.200	1.733	5.00	15.729	18.87	171.5	381.6	858.0
145.00		1.00	1.37	8.321	9.15	0.00	1.200	1.739	5.00	15.298	18.36	168.0	371.7	833.5
150.00		1.00	1.38	8.381	9.22	0.00	1.200	1.745	5.00	14.868	17.84	164.5	361.7	808.9
155.00		1.00	1.39	8.439	9.28	0.00	1.200	1.751	5.00	14.437	17.32	160.8	351.6	784.2
157.00 Appurtenance(s)		1.00	1.39	8.462	9.31	0.00	1.200	1.753	2.00	5.654	6.78	63.1	139.0	308.0
160.00		1.00	1.40	8.495	9.34	0.00	1.200	1.757	3.00	8.351	10.02	93.7	204.8	453.9
165.00		1.00	1.41	8.551	9.41	0.00	1.200	1.762	5.00	13.575	16.29	153.2	331.1	734.4
167.00 Appurtenance(s)		1.00	1.41	8.572	9.43	0.00	1.200	1.764	2.00	5.309	6.37	60.1	130.8	288.0
170.00		1.00	1.42	8.604	9.46	0.00	1.200	1.767	3.00	7.834	9.40	89.0	192.4	423.9
175.00		1.00	1.42	8.657	9.52	0.00	1.200	1.772	5.00	12.713	15.26	145.3	310.2	684.3
177.00 Appurtenance(s)		1.00	1.43	8.678	9.55	0.00	1.200	1.774	2.00	4.964	5.96	56.9	122.4	267.9
180.00 Appurtenance(s)		1.00	1.43	8.709	9.58	0.00	1.200	1.777	3.00	7.317	8.78	84.1	179.8	393.7

Wind Loading - Shaft

Structure: CT02218-S-SBA	Code: EIA/TIA-222-G	10/10/2016
Site Name: Colchester	Exposure: C	
Height: 180.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: B - Competent Rock	
Gh: 1.1	Struct Class: II	Page: 21



Totals:	180.00	6,546.6	54,694.0
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Discrete Appurtenance Forces

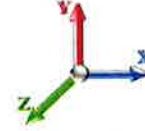
Structure: CT02218-S-SBA	Code: EIA/TIA-222-G	10/10/2016
Site Name: Colchester	Exposure: C	
Height: 180.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: B - Competent Rock	
Gh: 1.1	Topography: 1	Struct Class: II



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

Dead Load Factor 1.20
Wind Load Factor 1.00



Iterations 25

No.	Elev (ft)	Description	Qty	qz (psf)	qzGh (psf)	CaAa x Ka	Ka	Total CaAa (sf)	Dead Load (lb)	Horiz Ecc (ft)	Vert Ecc (ft)	Wind FX (lb)	Mom Y (lb-ft)	Mom Z (lb-ft)
1	180.00	6' Lightning rod	1	8.709	9.579	0.00	1.00	1.49	39.47	0.000	0.000	14.25	0.00	0.00
2	177.00	Platform w/ Hand Rails	1	8.678	9.546	1.00	1.00	61.29	5287.97	0.000	0.000	585.07	0.00	0.00
3	177.00	782 11056	3	8.678	9.546	0.66	0.80	1.35	12.17	0.000	0.000	12.92	0.00	0.00
4	177.00	LNX-6515DS-VTM	3	8.678	9.546	0.67	0.80	29.79	693.13	0.000	0.000	284.33	0.00	0.00
5	177.00	APXV18-206516S-C-A20	3	8.678	9.546	0.63	0.80	10.42	221.05	0.000	0.000	99.51	0.00	0.00
6	177.00	KRY 112 144/1	3	8.678	9.546	0.60	0.80	1.61	63.18	0.000	0.000	15.34	0.00	0.00
7	167.00	SBNHH-1D65B	6	8.572	9.429	0.66	0.80	37.75	1522.50	0.000	0.000	355.95	0.00	0.00
8	167.00	Raycap	2	8.572	9.429	0.67	0.80	6.39	258.70	0.000	0.000	60.27	0.00	0.00
9	167.00	Alcatel-Lucent B4 RRH	3	8.572	9.429	0.64	0.80	6.36	484.54	0.000	0.000	59.97	0.00	0.00
10	167.00	Alcatel-Lucent B13	3	8.572	9.429	0.70	0.80	5.87	348.91	0.000	0.000	55.31	0.00	0.00
11	167.00	Platform w/ Hand Rails	1	8.572	9.429	1.00	1.00	61.17	3916.86	0.000	0.000	576.79	0.00	0.00
12	167.00	LPA-80080-4CF-EDIN-0	6	8.572	9.429	0.80	0.80	16.67	909.75	0.000	0.000	157.20	0.00	0.00
13	157.00	Low Profile Platform-flat	1	8.462	9.308	1.00	1.00	46.04	2191.92	0.000	0.000	428.51	0.00	0.00
14	157.00	DC6-48-60-18-8F	1	8.462	9.308	0.80	0.80	1.74	82.57	0.000	0.000	16.18	0.00	0.00
15	157.00	LGP21903	6	8.462	9.308	0.61	0.80	2.44	76.00	0.000	0.000	22.73	0.00	0.00
16	157.00	RRUS 11	6	8.462	9.308	0.62	0.80	11.73	903.21	0.000	0.000	109.21	0.00	0.00
17	157.00	LGP21401	6	8.462	9.308	0.53	0.80	6.75	209.61	0.000	0.000	62.79	0.00	0.00
18	157.00	AM-X-CD-16-65-00T	1	8.462	9.308	0.62	0.80	6.76	174.72	0.000	0.000	62.88	0.00	0.00
19	157.00	P65-17-XLH-RR	2	8.462	9.308	0.64	0.80	18.80	452.79	0.000	0.000	175.00	0.00	0.00
20	157.00	7770 w/ Mount Pipe	6	8.462	9.308	0.60	0.80	23.65	1067.60	0.000	0.000	220.16	0.00	0.00
Totals:								18,916.65				3,374.37		

Total Applied Force Summary

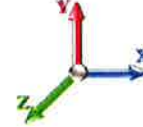
Structure: CT02218-S-SBA	Code: EIA/TIA-222-G	10/10/2016
Site Name: Colchester	Exposure: C	
Height: 180.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: B - Competent Rock	
Gh: 1.1	Topography: 1	Struct Class: II



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

Dead Load Factor 1.20
Wind Load Factor 1.00



Iterations 25

Elev (ft)	Description	Lateral FX (-) (lb)	Axial FY (-) (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)
0.00		0.00	0.00	0.00	0.00
5.00		179.46	2397.66	0.00	0.00
10.00		177.00	2394.46	0.00	0.00
15.00		174.34	2377.34	0.00	0.00
20.00		182.07	2354.12	0.00	0.00
25.00		187.73	2327.38	0.00	0.00
30.00		191.82	2298.31	0.00	0.00
35.00		194.76	2267.57	0.00	0.00
40.00		196.80	2235.58	0.00	0.00
45.00		198.13	2202.58	0.00	0.00
45.92		36.08	400.49	0.00	0.00
50.00		164.41	2783.15	0.00	0.00
53.00		120.68	2019.88	0.00	0.00
55.00		80.32	781.57	0.00	0.00
60.00		201.84	1930.65	0.00	0.00
65.00		201.33	1899.38	0.00	0.00
70.00		200.48	1867.68	0.00	0.00
75.00		199.34	1835.60	0.00	0.00
80.00		197.93	1803.18	0.00	0.00
85.00		196.28	1770.45	0.00	0.00
90.00		194.41	1737.44	0.00	0.00
92.92		112.18	999.17	0.00	0.00
95.00		80.72	1064.83	0.00	0.00
98.92		151.02	1975.14	0.00	0.00
100.00		41.39	329.36	0.00	0.00
105.00		190.36	1498.76	0.00	0.00
110.00		187.79	1469.04	0.00	0.00
115.00		185.07	1439.13	0.00	0.00
120.00		182.20	1409.06	0.00	0.00
125.00		179.20	1378.82	0.00	0.00
127.09		73.68	567.60	0.00	0.00
130.00		103.19	1078.80	0.00	0.00
132.34		81.93	854.46	0.00	0.00
135.00		92.54	596.23	0.00	0.00
140.00		171.49	1098.39	0.00	0.00
145.00		168.03	1073.90	0.00	0.00
150.00		164.47	1049.29	0.00	0.00
155.00		160.81	1024.57	0.00	0.00
157.00	(29) attachments	1160.61	5562.51	0.00	0.00
160.00		93.65	550.06	0.00	0.00
165.00		153.22	894.77	0.00	0.00
167.00	(21) attachments	1325.54	7793.42	0.00	0.00
170.00		88.98	468.82	0.00	0.00
175.00		145.27	759.17	0.00	0.00
177.00	(13) attachments	1054.04	6575.39	0.00	0.00
180.00	(1) attachments	98.36	433.16	0.00	0.00

Total Applied Force Summary

Structure: CT02218-S-SBA	Code: EIA/TIA-222-G	10/10/2016
Site Name: Colchester	Exposure: C	
Height: 180.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: B - Competent Rock	
Gh: 1.1	Struct Class: II	Page: 24



Totals:	<u>9,920.98</u>	<u>81,628.32</u>	<u>0.00</u>	<u>0.00</u>
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Calculated Forces

Structure: CT02218-S-SBA

Code: EIA/TIA-222-G

10/10/2016

Site Name: Colchester

Exposure: C

Height: 180.00 (ft)

Crest Height: 0.00

Base Elev: 0.000 (ft)

Site Class: B - Competent Rock

Gh: 1.1

Topography: 1

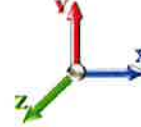
Struct Class: II

Page: 25


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

Iterations 25

Dead Load Factor 1.20

Wind Load Factor 1.00


Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-81.62	-9.95	0.00	-1236.0	0.00	1236.09	5508.12	2754.06	13547.4	6725.55	0.00	0.000	0.000	0.199
5.00	-79.22	-9.84	0.00	-1186.3	0.00	1186.32	5452.09	2726.05	13177.2	6541.73	0.02	-0.046	0.000	0.196
10.00	-76.82	-9.72	0.00	-1137.1	0.00	1137.13	5394.71	2697.35	12808.5	6358.68	0.10	-0.093	0.000	0.193
15.00	-74.43	-9.60	0.00	-1088.5	0.00	1088.53	5335.97	2667.98	12441.5	6176.49	0.22	-0.140	0.000	0.190
20.00	-72.07	-9.47	0.00	-1040.5	0.00	1040.52	5275.87	2637.93	12076.4	5995.24	0.39	-0.188	0.000	0.187
25.00	-69.74	-9.34	0.00	-993.15	0.00	993.15	5214.41	2607.20	11713.3	5815.02	0.62	-0.236	0.000	0.184
30.00	-67.43	-9.19	0.00	-946.46	0.00	946.46	5151.59	2575.80	11352.6	5635.92	0.89	-0.284	0.000	0.181
35.00	-65.16	-9.04	0.00	-900.50	0.00	900.50	5087.42	2543.71	10994.2	5458.02	1.21	-0.333	0.000	0.178
40.00	-62.91	-8.88	0.00	-855.30	0.00	855.30	5021.88	2510.94	10638.5	5281.41	1.59	-0.382	0.000	0.174
45.00	-60.71	-8.70	0.00	-810.88	0.00	810.88	4954.99	2477.50	10285.5	5106.18	2.01	-0.432	0.000	0.171
45.92	-60.30	-8.69	0.00	-802.91	0.00	802.91	4942.58	2471.29	10221.1	5074.21	2.10	-0.441	0.000	0.170
50.00	-57.52	-8.54	0.00	-767.43	0.00	767.43	4886.75	2443.37	9935.52	4932.41	2.49	-0.482	0.000	0.167
53.00	-55.50	-8.42	0.00	-741.82	0.00	741.82	3967.43	1983.71	8109.29	4025.79	2.81	-0.512	0.000	0.198
55.00	-54.71	-8.37	0.00	-724.97	0.00	724.97	3947.58	1973.79	8001.39	3972.23	3.03	-0.533	0.000	0.196
60.00	-52.77	-8.20	0.00	-683.10	0.00	683.10	3897.00	1948.50	7732.70	3838.84	3.61	-0.589	0.000	0.192
65.00	-50.87	-8.03	0.00	-642.08	0.00	642.08	3845.06	1922.53	7465.70	3706.29	4.26	-0.645	0.000	0.186
70.00	-48.99	-7.86	0.00	-601.92	0.00	601.92	3791.77	1895.89	7200.54	3574.65	4.97	-0.701	0.000	0.181
75.00	-47.15	-7.68	0.00	-562.63	0.00	562.63	3737.12	1868.56	6937.41	3444.02	5.73	-0.758	0.000	0.176
80.00	-45.35	-7.50	0.00	-524.22	0.00	524.22	3681.11	1840.56	6676.48	3314.49	6.55	-0.814	0.000	0.170
85.00	-43.57	-7.32	0.00	-486.71	0.00	486.71	3623.74	1811.87	6417.92	3186.13	7.44	-0.870	0.000	0.165
90.00	-41.83	-7.13	0.00	-450.09	0.00	450.09	3565.02	1782.51	6161.91	3059.03	8.38	-0.925	0.000	0.159
92.92	-40.83	-7.03	0.00	-429.28	0.00	429.28	3530.13	1765.07	6013.81	2985.51	8.95	-0.958	0.000	0.155
95.00	-39.76	-6.95	0.00	-414.65	0.00	414.65	3504.93	1752.47	5908.61	2933.28	9.38	-0.981	0.000	0.153
98.92	-37.79	-6.78	0.00	-387.43	0.00	387.43	2742.07	1371.04	4616.42	2291.78	10.20	-1.025	0.000	0.183
100.00	-37.46	-6.76	0.00	-380.08	0.00	380.08	2732.96	1366.48	4575.83	2271.63	10.43	-1.037	0.000	0.181
105.00	-35.95	-6.58	0.00	-346.28	0.00	346.28	2690.08	1345.04	4389.32	2179.04	11.55	-1.098	0.000	0.172
110.00	-34.48	-6.40	0.00	-313.38	0.00	313.38	2645.83	1322.92	4204.31	2087.20	12.74	-1.158	0.000	0.163
115.00	-33.04	-6.22	0.00	-281.39	0.00	281.39	2600.23	1300.12	4020.98	1996.19	13.98	-1.217	0.000	0.154
120.00	-31.63	-6.04	0.00	-250.31	0.00	250.31	2553.28	1276.64	3839.50	1906.09	15.29	-1.274	0.000	0.144
125.00	-30.25	-5.84	0.00	-220.13	0.00	220.13	2504.96	1252.48	3660.03	1816.99	16.65	-1.329	0.000	0.133
127.09	-29.68	-5.77	0.00	-207.94	0.00	207.94	2484.39	1242.20	3585.78	1780.13	17.24	-1.351	0.000	0.129
130.00	-28.60	-5.66	0.00	-191.12	0.00	191.12	2455.29	1227.64	3482.76	1728.99	18.07	-1.382	0.000	0.122
132.34	-27.75	-5.57	0.00	-177.90	0.00	177.90	1489.26	744.63	2121.49	1053.20	18.75	-1.406	0.000	0.188
135.00	-27.15	-5.48	0.00	-163.08	0.00	163.08	1477.63	738.82	2071.36	1028.31	19.54	-1.432	0.000	0.177
140.00	-26.05	-5.31	0.00	-135.68	0.00	135.68	1454.76	727.38	1977.27	981.60	21.08	-1.494	0.000	0.156
145.00	-24.98	-5.13	0.00	-109.15	0.00	109.15	1430.53	715.26	1883.34	934.97	22.67	-1.549	0.000	0.134
150.00	-23.93	-4.96	0.00	-83.48	0.00	83.48	1404.94	702.47	1789.74	888.50	24.32	-1.597	0.000	0.111
155.00	-22.91	-4.78	0.00	-58.69	0.00	58.69	1377.99	688.99	1696.65	842.29	26.02	-1.636	0.000	0.086
157.00	-17.38	-3.46	0.00	-49.14	0.00	49.14	1366.83	683.41	1659.60	823.90	26.71	-1.649	0.000	0.072
160.00	-16.83	-3.36	0.00	-38.75	0.00	38.75	1349.68	674.84	1604.25	796.42	27.75	-1.666	0.000	0.061
165.00	-15.94	-3.18	0.00	-21.95	0.00	21.95	1320.02	660.01	1512.71	750.97	29.50	-1.687	0.000	0.041
167.00	-8.19	-1.63	0.00	-15.58	0.00	15.58	1307.77	653.89	1476.37	732.93	30.21	-1.692	0.000	0.028
170.00	-7.73	-1.53	0.00	-10.69	0.00	10.69	1289.00	644.50	1422.20	706.04	31.28	-1.698	0.000	0.021
175.00	-6.97	-1.36	0.00	-3.05	0.00	3.05	1256.62	628.31	1332.89	661.70	33.06	-1.704	0.000	0.010
177.00	-0.43	-0.11	0.00	-0.33	0.00	0.33	1243.29	621.64	1297.54	644.16	33.77	-1.705	0.000	0.001
180.00	0.00	-0.10	0.00	0.00	0.00	0.00	1222.88	611.44	1244.96	618.05	34.85	-1.705	0.000	0.000

Seismic Segment Forces (Factored)

Structure: CT02218-S-SBA	Code: EIA/TIA-222-G	10/10/2016
Site Name: Colchester	Exposure: C	
Height: 180.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: B - Competent Rock	
Gh: 1.1	Topography: 1	Struct Class: II



Load Case: 1.2D + 1.0E

Gust Response Factor	1.10	Sds	0.12
Dead Load Factor	1.20	Seismic Load Factor	1.00
Wind Load Factor	0.00	Structure Frequency	0.33
		Sd1	0.04
		SA	0.01
		Seismic Importance Factor	1.00



Iterations 23

Ss 0.18

S1 0.06

Top Elev (ft)	Description	Wz (lb)	a	b	c	Lateral Fs (lb)	
0.00		0.00	0.00	0.00	0.00	0.00	
5.00		1403.7	0.00	0.03	0.02	18.29	
10.00		1379.3	0.01	0.05	0.03	25.39	
15.00		1354.9	0.01	0.06	0.03	28.65	
20.00		1330.6	0.02	0.07	0.04	30.10	
25.00		1306.2	0.04	0.07	0.04	30.65	
30.00		1281.8	0.05	0.07	0.04	30.81	
35.00		1257.5	0.07	0.07	0.04	30.84	
40.00		1233.1	0.09	0.07	0.04	30.88	
45.00		1208.7	0.12	0.07	0.03	30.95	
45.92	Bot - Section 2	218.97	0.12	0.07	0.03	5.63	
50.00		1805.5	0.15	0.07	0.03	47.28	
53.00	Top - Section 1	1307.2	0.16	0.07	0.03	34.63	
55.00		401.39	0.18	0.07	0.03	10.70	
60.00		988.87	0.21	0.06	0.02	26.53	
65.00		968.00	0.25	0.06	0.02	25.56	
70.00		947.14	0.29	0.05	0.01	23.66	
75.00		926.28	0.33	0.04	0.01	20.38	
80.00		905.41	0.37	0.03	0.01	15.32	
85.00		884.55	0.42	0.01	0.01	8.36	
90.00		863.69	0.47	-0.01	0.01	-0.01	
92.92	Bot - Section 3	494.18	0.50	-0.02	0.01	-2.93	
95.00		644.51	0.53	-0.03	0.01	-6.49	
98.92	Top - Section 2	1193.6	0.57	-0.04	0.01	-20.58	
100.00		149.70	0.58	-0.05	0.01	-2.85	
105.00		680.33	0.64	-0.07	0.02	-17.43	
110.00		662.92	0.71	-0.09	0.03	-19.57	
115.00		645.50	0.77	-0.11	0.05	-19.89	
120.00		628.09	0.84	-0.12	0.07	-18.67	
125.00		610.68	0.91	-0.12	0.09	-16.15	
127.09	Bot - Section 4	249.71	0.94	-0.12	0.10	-6.11	
130.00		587.62	0.99	-0.11	0.12	-12.41	
132.34	Top - Section 3	464.04	1.02	-0.10	0.14	-8.32	
135.00		216.47	1.06	-0.09	0.17	-2.98	
140.00		397.05	1.14	-0.04	0.21	-1.76	
145.00		384.86	1.23	0.03	0.27	2.65	
150.00		372.68	1.31	0.14	0.35	7.55	
155.00		360.49	1.40	0.29	0.43	12.88	
157.00	Appurtenance(s)	2170.8	1.44	0.36	0.47	92.25	
160.00		207.52	1.49	0.48	0.53	11.06	
165.00		336.12	1.59	0.74	0.65	24.56	
167.00	Appurtenance(s)	2870.6	1.63	0.86	0.71	234.28	
170.00		192.90	1.69	1.07	0.79	18.34	
175.00		311.76	1.79	1.48	0.95	37.22	
177.00	Appurtenance(s)	2966.6	1.83	1.67	1.03	384.99	
180.00	Appurtenance(s)	184.78	1.89	1.98	1.14	26.99	

R: 1.50

Seismic Segment Forces (Factored)

Structure: CT02218-S-SBA	Code: EIA/TIA-222-G	10/10/2016
Site Name: Colchester	Exposure: C	
Height: 180.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: B - Competent Rock	
Gh: 1.1	Struct Class: II	Page: 27



Totals: 39,957.2

1,171.3

Total Wind: 43,454.9

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

Calculated Forces

Structure: CT02218-S-SBA **Code:** EIA/TIA-222-G 10/10/2016
Site Name: Colchester **Exposure:** C
Height: 180.00 (ft) **Crest Height:** 0.00
Base Elev: 0.000 (ft) **Site Class:** B - Competent Rock
Gh: 1.1 **Topography:** 1 **Struct Class:** II **Page:** 28



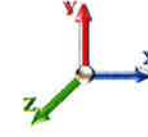
Load Case: 1.2D + 1.0E

Iterations 23

Gust Response Factor 1.10 **Sds** 0.12 **Ss** 0.18

Dead Load Factor 1.20 **Seismic Load Factor** 1.00 **Sd1** 0.04 **S1** 0.06

Wind Load Factor 0.00 **Structure Frequency** 0.33 **SA** 0.01 **Seismic Importance Factor** 1.00



Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-55.97	-1.33	0.00	-173.86	0.00	173.86	5508.12	2754.06	13547.4	6725.55	0.00	0.00	0.00	0.036
5.00	-54.04	-1.32	0.00	-167.21	0.00	167.21	5452.09	2726.05	13177.2	6541.73	0.00	-0.01	-0.01	0.035
10.00	-52.15	-1.30	0.00	-160.62	0.00	160.62	5394.71	2697.35	12808.5	6358.68	0.01	-0.01	-0.01	0.035
15.00	-50.28	-1.27	0.00	-154.13	0.00	154.13	5335.97	2667.98	12441.5	6176.49	0.03	-0.02	-0.02	0.034
20.00	-48.44	-1.25	0.00	-147.76	0.00	147.76	5275.87	2637.93	12076.4	5995.24	0.06	-0.03	-0.03	0.034
25.00	-46.63	-1.22	0.00	-141.51	0.00	141.51	5214.41	2607.20	11713.3	5815.02	0.09	-0.03	-0.03	0.033
30.00	-44.86	-1.20	0.00	-135.39	0.00	135.39	5151.59	2575.80	11352.6	5635.92	0.13	-0.04	-0.04	0.033
35.00	-43.11	-1.17	0.00	-129.41	0.00	129.41	5087.42	2543.71	10994.2	5458.02	0.17	-0.05	-0.05	0.032
40.00	-41.39	-1.14	0.00	-123.56	0.00	123.56	5021.88	2510.94	10638.5	5281.41	0.22	-0.05	-0.05	0.032
45.00	-39.69	-1.11	0.00	-117.84	0.00	117.84	4954.99	2477.50	10285.5	5106.18	0.29	-0.06	-0.06	0.031
45.92	-39.39	-1.11	0.00	-116.82	0.00	116.82	4942.58	2471.29	10221.1	5074.21	0.30	-0.06	-0.06	0.031
50.00	-37.02	-1.06	0.00	-112.29	0.00	112.29	4886.75	2443.37	9935.52	4932.41	0.35	-0.07	-0.07	0.030
53.00	-35.31	-1.03	0.00	-109.10	0.00	109.10	3967.43	1983.71	8109.29	4025.79	0.40	-0.07	-0.07	0.036
55.00	-34.73	-1.02	0.00	-107.04	0.00	107.04	3947.58	1973.79	8001.39	3972.23	0.43	-0.08	-0.08	0.036
60.00	-33.31	-1.00	0.00	-101.94	0.00	101.94	3897.00	1948.50	7732.70	3838.84	0.51	-0.08	-0.08	0.035
65.00	-31.90	-0.97	0.00	-96.95	0.00	96.95	3845.06	1922.53	7465.70	3706.29	0.61	-0.09	-0.09	0.034
70.00	-30.53	-0.95	0.00	-92.08	0.00	92.08	3791.77	1895.89	7200.54	3574.65	0.71	-0.10	-0.10	0.034
75.00	-29.18	-0.93	0.00	-87.32	0.00	87.32	3737.12	1868.56	6937.41	3444.02	0.82	-0.11	-0.11	0.033
80.00	-27.85	-0.92	0.00	-82.65	0.00	82.65	3681.11	1840.56	6676.48	3314.49	0.94	-0.12	-0.12	0.033
85.00	-26.55	-0.91	0.00	-78.05	0.00	78.05	3623.74	1811.87	6417.92	3186.13	1.07	-0.13	-0.13	0.032
90.00	-25.27	-0.91	0.00	-73.48	0.00	73.48	3565.02	1782.51	6161.91	3059.03	1.21	-0.14	-0.14	0.031
92.92	-24.54	-0.91	0.00	-70.81	0.00	70.81	3530.13	1765.07	6013.81	2985.51	1.29	-0.14	-0.14	0.031
95.00	-23.66	-0.91	0.00	-68.91	0.00	68.91	3504.93	1752.47	5908.61	2933.28	1.36	-0.15	-0.15	0.030
98.92	-22.04	-0.91	0.00	-65.33	0.00	65.33	2742.07	1371.04	4616.42	2291.78	1.48	-0.15	-0.15	0.037
100.00	-21.81	-0.91	0.00	-64.34	0.00	64.34	2732.96	1366.48	4575.83	2271.63	1.52	-0.16	-0.16	0.036
105.00	-20.75	-0.91	0.00	-59.77	0.00	59.77	2690.08	1345.04	4389.32	2179.04	1.68	-0.17	-0.17	0.035
110.00	-19.72	-0.91	0.00	-55.20	0.00	55.20	2645.83	1322.92	4204.31	2087.20	1.86	-0.18	-0.18	0.034
115.00	-18.70	-0.92	0.00	-50.63	0.00	50.63	2600.23	1300.12	4020.98	1996.19	2.05	-0.19	-0.19	0.033
120.00	-17.71	-0.91	0.00	-46.05	0.00	46.05	2553.28	1276.64	3839.50	1906.09	2.26	-0.20	-0.20	0.031
125.00	-16.73	-0.91	0.00	-41.48	0.00	41.48	2504.96	1252.48	3660.03	1816.99	2.47	-0.21	-0.21	0.030
127.09	-16.33	-0.91	0.00	-39.57	0.00	39.57	2484.39	1242.20	3585.78	1780.13	2.56	-0.21	-0.21	0.029
130.00	-15.49	-0.91	0.00	-36.91	0.00	36.91	2455.29	1227.64	3482.76	1728.99	2.69	-0.22	-0.22	0.028
132.34	-14.82	-0.91	0.00	-34.78	0.00	34.78	1489.26	744.63	2121.49	1053.20	2.80	-0.22	-0.22	0.043
135.00	-14.43	-0.91	0.00	-32.36	0.00	32.36	1477.63	738.82	2071.36	1028.31	2.92	-0.23	-0.23	0.041
140.00	-13.72	-0.91	0.00	-27.80	0.00	27.80	1454.76	727.38	1977.27	981.60	3.17	-0.24	-0.24	0.038
145.00	-13.01	-0.91	0.00	-23.24	0.00	23.24	1430.53	715.26	1883.34	934.97	3.43	-0.25	-0.25	0.034
150.00	-12.32	-0.90	0.00	-18.70	0.00	18.70	1404.94	702.47	1789.74	888.50	3.69	-0.26	-0.26	0.030
155.00	-11.65	-0.88	0.00	-14.21	0.00	14.21	1377.99	688.99	1696.65	842.29	3.97	-0.27	-0.27	0.025
157.00	-8.95	-0.78	0.00	-12.44	0.00	12.44	1366.83	683.41	1659.60	823.90	4.09	-0.27	-0.27	0.022
160.00	-8.61	-0.77	0.00	-10.09	0.00	10.09	1349.68	674.84	1604.25	796.42	4.26	-0.28	-0.28	0.019
165.00	-8.04	-0.74	0.00	-6.25	0.00	6.25	1320.02	660.01	1512.71	750.97	4.56	-0.28	-0.28	0.014
167.00	-4.53	-0.49	0.00	-4.77	0.00	4.77	1307.77	653.89	1476.37	732.93	4.68	-0.29	-0.29	0.010
170.00	-4.26	-0.47	0.00	-3.30	0.00	3.30	1289.00	644.50	1422.20	706.04	4.86	-0.29	-0.29	0.008
175.00	-3.81	-0.43	0.00	-0.95	0.00	0.95	1256.62	628.31	1332.89	661.70	5.16	-0.29	-0.29	0.004
177.00	-0.22	-0.03	0.00	-0.08	0.00	0.08	1243.29	621.64	1297.54	644.16	5.28	-0.29	-0.29	0.000
180.00	0.00	-0.03	0.00	0.00	0.00	0.00	1222.88	611.44	1244.96	618.05	5.46	-0.29	-0.29	0.000

Calculated Forces

Structure: CT02218-S-SBA	Code: EIA/TIA-222-G	10/10/2016
Site Name: Colchester	Exposure: C	
Height: 180.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: B - Competent Rock	
Gh: 1.1	Struct Class: II	Page: 29
Topography: 1		



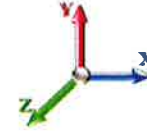
Seismic Segment Forces (Factored)

Structure: CT02218-S-SBA	Code: EIA/TIA-222-G	10/10/2016
Site Name: Colchester	Exposure: C	
Height: 180.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: B - Competent Rock	
Gh: 1.1	Topography: 1	Struct Class: II



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Load Case: 0.9D + 1.0E				Iterations 23
Gust Response Factor	1.10	Sds	0.12	Ss 0.18
Dead Load Factor	0.90	Seismic Load Factor	1.00	S1 0.06
Wind Load Factor	0.00	Structure Frequency	0.33	SA 0.01
				Seismic Importance Factor 1.00



Top Elev (ft)	Description	Wz (lb)	a	b	c	Lateral Fs (lb)	
0.00		0.00	0.00	0.00	0.00	0.00	R: 1.50
5.00		1403.7	0.00	0.03	0.02	18.29	
10.00		1379.3	0.01	0.05	0.03	25.39	
15.00		1354.9	0.01	0.06	0.03	28.65	
20.00		1330.6	0.02	0.07	0.04	30.10	
25.00		1306.2	0.04	0.07	0.04	30.65	
30.00		1281.8	0.05	0.07	0.04	30.81	
35.00		1257.5	0.07	0.07	0.04	30.84	
40.00		1233.1	0.09	0.07	0.04	30.88	
45.00		1208.7	0.12	0.07	0.03	30.95	
45.92	Bot - Section 2	218.97	0.12	0.07	0.03	5.63	
50.00		1805.5	0.15	0.07	0.03	47.28	
53.00	Top - Section 1	1307.2	0.16	0.07	0.03	34.63	
55.00		401.39	0.18	0.07	0.03	10.70	
60.00		988.87	0.21	0.06	0.02	26.53	
65.00		968.00	0.25	0.06	0.02	25.56	
70.00		947.14	0.29	0.05	0.01	23.66	
75.00		926.28	0.33	0.04	0.01	20.38	
80.00		905.41	0.37	0.03	0.01	15.32	
85.00		884.55	0.42	0.01	0.01	8.36	
90.00		863.69	0.47	-0.01	0.01	-0.01	
92.92	Bot - Section 3	494.18	0.50	-0.02	0.01	-2.93	
95.00		644.51	0.53	-0.03	0.01	-6.49	
98.92	Top - Section 2	1193.6	0.57	-0.04	0.01	-20.58	
100.00		149.70	0.58	-0.05	0.01	-2.85	
105.00		680.33	0.64	-0.07	0.02	-17.43	
110.00		662.92	0.71	-0.09	0.03	-19.57	
115.00		645.50	0.77	-0.11	0.05	-19.89	
120.00		628.09	0.84	-0.12	0.07	-18.67	
125.00		610.68	0.91	-0.12	0.09	-16.15	
127.09	Bot - Section 4	249.71	0.94	-0.12	0.10	-6.11	
130.00		587.62	0.99	-0.11	0.12	-12.41	
132.34	Top - Section 3	464.04	1.02	-0.10	0.14	-8.32	
135.00		216.47	1.06	-0.09	0.17	-2.98	
140.00		397.05	1.14	-0.04	0.21	-1.76	
145.00		384.86	1.23	0.03	0.27	2.65	
150.00		372.68	1.31	0.14	0.35	7.55	
155.00		360.49	1.40	0.29	0.43	12.88	
157.00	Appurtenance(s)	2170.8	1.44	0.36	0.47	92.25	
160.00		207.52	1.49	0.48	0.53	11.06	
165.00		336.12	1.59	0.74	0.65	24.56	
167.00	Appurtenance(s)	2870.6	1.63	0.86	0.71	234.28	
170.00		192.90	1.69	1.07	0.79	18.34	
175.00		311.76	1.79	1.48	0.95	37.22	
177.00	Appurtenance(s)	2966.6	1.83	1.67	1.03	384.99	
180.00	Appurtenance(s)	184.78	1.89	1.98	1.14	26.99	

Seismic Segment Forces (Factored)

Structure: CT02218-S-SBA	Code: EIA/TIA-222-G	10/10/2016
Site Name: Colchester	Exposure: C	
Height: 180.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: B - Competent Rock	
Gh: 1.1	Topography: 1	Struct Class: II



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Totals: 39,957.2

1,171.3

Total Wind: 43,454.9

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

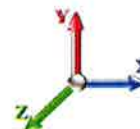
Calculated Forces

Structure: CT02218-S-SBA	Code: EIA/TIA-222-G	10/10/2016
Site Name: Colchester	Exposure: C	
Height: 180.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: B - Competent Rock	
Gh: 1.1	Topography: 1	Struct Class: II



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Load Case: 0.9D + 1.0E						Iterations 23
Gust Response Factor	1.10	Sds	0.12	Ss	0.18	
Dead Load Factor	0.90	Seismic Load Factor	1.00	Sd1	0.04	S1 0.06
Wind Load Factor	0.00	Structure Frequency	0.33	SA	0.01	Seismic Importance Factor 1.00



Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-41.97	-1.33	0.00	-171.73	0.00	171.73	5508.12	2754.06	13547.4	6725.55	0.00	0.00	0.00	0.033
5.00	-40.53	-1.32	0.00	-165.08	0.00	165.08	5452.09	2726.05	13177.2	6541.73	0.00	-0.01	-0.01	0.033
10.00	-39.11	-1.29	0.00	-158.50	0.00	158.50	5394.71	2697.35	12808.5	6358.68	0.01	-0.01	-0.01	0.032
15.00	-37.71	-1.27	0.00	-152.03	0.00	152.03	5335.97	2667.98	12441.5	6176.49	0.03	-0.02	-0.02	0.032
20.00	-36.33	-1.24	0.00	-145.69	0.00	145.69	5275.87	2637.93	12076.4	5995.24	0.05	-0.03	-0.03	0.031
25.00	-34.98	-1.22	0.00	-139.47	0.00	139.47	5214.41	2607.20	11713.3	5815.02	0.09	-0.03	-0.03	0.031
30.00	-33.64	-1.19	0.00	-133.39	0.00	133.39	5151.59	2575.80	11352.6	5635.92	0.12	-0.04	-0.04	0.030
35.00	-32.33	-1.16	0.00	-127.45	0.00	127.45	5087.42	2543.71	10994.2	5458.02	0.17	-0.05	-0.05	0.030
40.00	-31.04	-1.13	0.00	-121.65	0.00	121.65	5021.88	2510.94	10638.5	5281.41	0.22	-0.05	-0.05	0.029
45.00	-29.77	-1.10	0.00	-115.99	0.00	115.99	4954.99	2477.50	10285.5	5106.18	0.28	-0.06	-0.06	0.029
45.92	-29.54	-1.10	0.00	-114.98	0.00	114.98	4942.58	2471.29	10221.1	5074.21	0.29	-0.06	-0.06	0.029
50.00	-27.77	-1.05	0.00	-110.50	0.00	110.50	4886.75	2443.37	9935.52	4932.41	0.35	-0.07	-0.07	0.028
53.00	-26.48	-1.02	0.00	-107.34	0.00	107.34	3967.43	1983.71	8109.29	4025.79	0.39	-0.07	-0.07	0.033
55.00	-26.05	-1.01	0.00	-105.31	0.00	105.31	3947.58	1973.79	8001.39	3972.23	0.42	-0.08	-0.08	0.033
60.00	-24.98	-0.98	0.00	-100.27	0.00	100.27	3897.00	1948.50	7732.70	3838.84	0.51	-0.08	-0.08	0.033
65.00	-23.93	-0.96	0.00	-95.35	0.00	95.35	3845.06	1922.53	7465.70	3706.29	0.60	-0.09	-0.09	0.032
70.00	-22.90	-0.94	0.00	-90.55	0.00	90.55	3791.77	1895.89	7200.54	3574.65	0.70	-0.10	-0.10	0.031
75.00	-21.88	-0.92	0.00	-85.86	0.00	85.86	3737.12	1868.56	6937.41	3444.02	0.81	-0.11	-0.11	0.031
80.00	-20.89	-0.90	0.00	-81.27	0.00	81.27	3681.11	1840.56	6676.48	3314.49	0.93	-0.12	-0.12	0.030
85.00	-19.91	-0.90	0.00	-76.74	0.00	76.74	3623.74	1811.87	6417.92	3186.13	1.05	-0.13	-0.13	0.030
90.00	-18.95	-0.90	0.00	-72.25	0.00	72.25	3565.02	1782.51	6161.91	3059.03	1.19	-0.13	-0.13	0.029
92.92	-18.40	-0.90	0.00	-69.64	0.00	69.64	3530.13	1765.07	6013.81	2985.51	1.28	-0.14	-0.14	0.029
95.00	-17.75	-0.90	0.00	-67.76	0.00	67.76	3504.93	1752.47	5908.61	2933.28	1.34	-0.14	-0.14	0.028
98.92	-16.53	-0.90	0.00	-64.25	0.00	64.25	2742.07	1371.04	4616.42	2291.78	1.46	-0.15	-0.15	0.034
100.00	-16.36	-0.90	0.00	-63.28	0.00	63.28	2732.96	1366.48	4575.83	2271.63	1.49	-0.15	-0.15	0.034
105.00	-15.56	-0.90	0.00	-58.79	0.00	58.79	2690.08	1345.04	4389.32	2179.04	1.66	-0.16	-0.16	0.033
110.00	-14.79	-0.90	0.00	-54.30	0.00	54.30	2645.83	1322.92	4204.31	2087.20	1.84	-0.17	-0.17	0.032
115.00	-14.03	-0.90	0.00	-49.81	0.00	49.81	2600.23	1300.12	4020.98	1996.19	2.02	-0.18	-0.18	0.030
120.00	-13.28	-0.90	0.00	-45.31	0.00	45.31	2553.28	1276.64	3839.50	1906.09	2.22	-0.19	-0.19	0.029
125.00	-12.55	-0.90	0.00	-40.82	0.00	40.82	2504.96	1252.48	3660.03	1816.99	2.43	-0.20	-0.20	0.027
127.09	-12.25	-0.90	0.00	-38.95	0.00	38.95	2484.39	1242.20	3585.78	1780.13	2.52	-0.21	-0.21	0.027
130.00	-11.62	-0.90	0.00	-36.33	0.00	36.33	2455.29	1227.64	3482.76	1728.99	2.65	-0.21	-0.21	0.026
132.34	-11.11	-0.90	0.00	-34.24	0.00	34.24	1489.26	744.63	2121.49	1053.20	2.76	-0.22	-0.22	0.040
135.00	-10.82	-0.90	0.00	-31.86	0.00	31.86	1477.63	738.82	2071.36	1028.31	2.88	-0.22	-0.22	0.038
140.00	-10.29	-0.90	0.00	-27.38	0.00	27.38	1454.76	727.38	1977.27	981.60	3.12	-0.24	-0.24	0.035
145.00	-9.76	-0.89	0.00	-22.90	0.00	22.90	1430.53	715.26	1883.34	934.97	3.37	-0.25	-0.25	0.031
150.00	-9.24	-0.88	0.00	-18.43	0.00	18.43	1404.94	702.47	1789.74	888.50	3.64	-0.26	-0.26	0.027
155.00	-8.74	-0.87	0.00	-14.01	0.00	14.01	1377.99	688.99	1696.65	842.29	3.91	-0.27	-0.27	0.023
157.00	-6.71	-0.77	0.00	-12.27	0.00	12.27	1366.83	683.41	1659.60	823.90	4.03	-0.27	-0.27	0.020
160.00	-6.45	-0.76	0.00	-9.96	0.00	9.96	1349.68	674.84	1604.25	796.42	4.20	-0.27	-0.27	0.017
165.00	-6.03	-0.73	0.00	-6.17	0.00	6.17	1320.02	660.01	1512.71	750.97	4.49	-0.28	-0.28	0.013
167.00	-3.40	-0.48	0.00	-4.71	0.00	4.71	1307.77	653.89	1476.37	732.93	4.60	-0.28	-0.28	0.009
170.00	-3.19	-0.46	0.00	-3.26	0.00	3.26	1289.00	644.50	1422.20	706.04	4.78	-0.28	-0.28	0.007
175.00	-2.86	-0.43	0.00	-0.94	0.00	0.94	1256.62	628.31	1332.89	661.70	5.08	-0.28	-0.28	0.004
177.00	-0.17	-0.03	0.00	-0.08	0.00	0.08	1243.29	621.64	1297.54	644.16	5.20	-0.29	-0.29	0.000
180.00	0.00	-0.03	0.00	0.00	0.00	0.00	1222.88	611.44	1244.96	618.05	5.38	-0.29	-0.29	0.000

Calculated Forces

Structure: CT02218-S-SBA	Code: EIA/TIA-222-G	10/10/2016
Site Name: Colchester	Exposure: C	
Height: 180.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: B - Competent Rock	
Gh: 1.1	Topography: 1	Struct Class: II

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Wind Loading - Shaft

Structure: CT02218-S-SBA
Site Name: Colchester
Height: 180.00 (ft)
Base Elev: 0.000 (ft)
Gh: 1.1

Topography: 1

Code: EIA/TIA-222-G
Exposure: C
Crest Height: 0.00
Site Class: B - Competent Rock
Struct Class: II

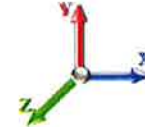
10/10/2016

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Load Case: 1.0D + 1.0W 60 mph Wind

Dead Load Factor 1.00
Wind Load Factor 1.00



Iterations 24

Elev (ft)	Description	Kzt	Kz	qz (psf)	qzGh (psf)	C (mph-ft)	Cf	Ice Thick (in)	Tributary (ft)	Aa (sf)	CfAa (sf)	Wind Force X (lb)	Dead Load Ice (lb)	Tot Dead Load (lb)
0.00		1.00	0.85	7.442	8.19	282.00	0.750	0.000	0.00	0.000	0.00	0.0	0.0	0.0
5.00		1.00	0.85	7.442	8.19	277.19	0.750	0.000	5.00	25.272	18.95	155.2	0.0	1403.7
10.00		1.00	0.85	7.442	8.19	272.37	0.750	0.000	5.00	24.837	18.63	152.5	0.0	1379.4
15.00		1.00	0.85	7.442	8.19	267.55	0.750	0.000	5.00	24.401	18.30	149.8	0.0	1355.0
20.00		1.00	0.90	7.896	8.69	270.63	0.750	0.000	5.00	23.966	17.97	156.1	0.0	1330.6
25.00		1.00	0.95	8.276	9.10	271.98	0.750	0.000	5.00	23.530	17.65	160.7	0.0	1306.3
30.00		1.00	0.98	8.600	9.46	272.07	0.750	0.000	5.00	23.095	17.32	163.9	0.0	1281.9
35.00		1.00	1.01	8.883	9.77	271.26	0.750	0.000	5.00	22.659	16.99	166.1	0.0	1257.5
40.00		1.00	1.04	9.137	10.05	269.76	0.750	0.000	5.00	22.224	16.67	167.5	0.0	1233.1
45.00		1.00	1.07	9.366	10.30	267.72	0.750	0.000	5.00	21.788	16.34	168.4	0.0	1208.8
45.92	Bot - Section 2	1.00	1.07	9.406	10.35	267.30	0.750	0.000	0.92	3.947	2.96	30.6	0.0	219.0
50.00		1.00	1.09	9.576	10.53	265.24	0.750	0.000	4.08	17.666	13.25	139.6	0.0	1805.5
53.00	Top - Section 1	1.00	1.11	9.694	10.66	263.58	0.750	0.000	3.00	12.794	9.60	102.3	0.0	1307.3
55.00		1.00	1.12	9.770	10.75	266.44	0.750	0.000	2.00	8.442	6.33	68.0	0.0	401.4
60.00		1.00	1.14	9.951	10.95	263.32	0.750	0.000	5.00	20.800	15.60	170.8	0.0	988.9
65.00		1.00	1.16	10.120	11.13	259.93	0.750	0.000	5.00	20.365	15.27	170.0	0.0	968.0
70.00		1.00	1.17	10.279	11.31	256.30	0.750	0.000	5.00	19.929	14.95	169.0	0.0	947.1
75.00		1.00	1.19	10.430	11.47	252.46	0.750	0.000	5.00	19.494	14.62	167.7	0.0	926.3
80.00		1.00	1.21	10.572	11.63	248.44	0.750	0.000	5.00	19.058	14.29	166.2	0.0	905.4
85.00		1.00	1.22	10.708	11.78	244.25	0.750	0.000	5.00	18.623	13.97	164.5	0.0	884.5
90.00		1.00	1.24	10.838	11.92	239.91	0.750	0.000	5.00	18.187	13.64	162.6	0.0	863.7
92.92	Bot - Section 3	1.00	1.25	10.911	12.00	237.32	0.750	0.000	2.92	10.408	7.81	93.7	0.0	494.2
95.00		1.00	1.25	10.962	12.06	235.43	0.750	0.000	2.08	7.454	5.59	67.4	0.0	644.5
98.92	Top - Section 2	1.00	1.26	11.055	12.16	231.84	0.750	0.000	3.92	13.810	10.36	126.0	0.0	1193.7
100.00		1.00	1.27	11.081	12.19	234.42	0.750	0.000	1.08	3.773	2.83	34.5	0.0	149.7
105.00		1.00	1.28	11.195	12.31	229.72	0.750	0.000	5.00	17.147	12.86	158.4	0.0	680.3
110.00		1.00	1.29	11.305	12.44	224.91	0.750	0.000	5.00	16.711	12.53	155.9	0.0	662.9
115.00		1.00	1.30	11.412	12.55	219.99	0.750	0.000	5.00	16.276	12.21	153.2	0.0	645.5
120.00		1.00	1.32	11.514	12.67	214.99	0.750	0.000	5.00	15.840	11.88	150.5	0.0	628.1
125.00		1.00	1.33	11.614	12.78	209.90	0.750	0.000	5.00	15.405	11.55	147.6	0.0	610.7
127.09	Bot - Section 4	1.00	1.33	11.654	12.82	207.75	0.750	0.000	2.09	6.300	4.73	60.6	0.0	249.7
130.00		1.00	1.34	11.710	12.88	204.72	0.750	0.000	2.91	8.777	6.58	84.8	0.0	587.6
132.34	Top - Section 3	1.00	1.34	11.754	12.93	202.27	0.750	0.000	2.34	6.933	5.20	67.2	0.0	464.0
135.00		1.00	1.35	11.803	12.98	202.06	0.750	0.000	2.66	7.787	5.84	75.8	0.0	216.5
140.00		1.00	1.36	11.894	13.08	196.74	0.750	0.000	5.00	14.284	10.71	140.2	0.0	397.0
145.00		1.00	1.37	11.982	13.18	191.36	0.750	0.000	5.00	13.849	10.39	136.9	0.0	384.9
150.00		1.00	1.38	12.068	13.27	185.91	0.750	0.000	5.00	13.413	10.06	133.5	0.0	372.7
155.00		1.00	1.39	12.152	13.37	180.39	0.750	0.000	5.00	12.978	9.73	130.1	0.0	360.5
157.00	Appurtenance(s)	1.00	1.39	12.185	13.40	178.17	0.750	0.000	2.00	5.069	3.80	51.0	0.0	140.8
160.00		1.00	1.40	12.233	13.46	174.82	0.750	0.000	3.00	7.473	5.60	75.4	0.0	207.5
165.00		1.00	1.41	12.313	13.54	169.19	0.750	0.000	5.00	12.107	9.08	123.0	0.0	336.1
167.00	Appurtenance(s)	1.00	1.41	12.344	13.58	166.92	0.750	0.000	2.00	4.721	3.54	48.1	0.0	131.0
170.00		1.00	1.42	12.390	13.63	163.50	0.750	0.000	3.00	6.950	5.21	71.0	0.0	192.9
175.00		1.00	1.42	12.466	13.71	157.77	0.750	0.000	5.00	11.236	8.43	115.6	0.0	311.8
177.00	Appurtenance(s)	1.00	1.43	12.496	13.75	155.46	0.750	0.000	2.00	4.372	3.28	45.1	0.0	121.3
180.00	Appurtenance(s)	1.00	1.43	12.540	13.79	151.98	0.750	0.000	3.00	6.428	4.82	66.5	0.0	178.3

Wind Loading - Shaft

Structure: CT02218-S-SBA	Code: EIA/TIA-222-G	10/10/2016
Site Name: Colchester	Exposure: C	
Height: 180.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: B - Competent Rock	
Gh: 1.1	Topography: 1	Struct Class: II



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Totals:	180.00	5,463.3	32,335.6
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Discrete Appurtenance Forces

Structure: CT02218-S-SBA	Code: EIA/TIA-222-G	10/10/2016
Site Name: Colchester	Exposure: C	
Height: 180.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: B - Competent Rock	
Gh: 1.1	Topography: 1	Struct Class: II



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Load Case: 1.0D + 1.0W 60 mph Wind

Dead Load Factor 1.00
Wind Load Factor 1.00



Iterations 24

No.	Elev (ft)	Description	Qty	qz (psf)	qzGh (psf)	CaAa x Ka	Ka	Total CaAa (sf)	Dead Load (lb)	Horiz Ecc (ft)	Vert Ecc (ft)	Wind FX (lb)	Mom Y (lb-ft)	Mom Z (lb-ft)
1	180.00	6' Lightning rod	1	12.540	13.794	0.00	1.00	0.38	6.50	0.000	0.000	5.24	0.00	0.00
2	177.00	Platform w/ Hand Rails	1	12.496	13.746	1.00	1.00	40.00	2600.00	0.000	0.000	549.83	0.00	0.00
3	177.00	782 11056	3	12.496	13.746	0.62	0.80	0.52	5.40	0.000	0.000	7.20	0.00	0.00
4	177.00	LNx-6515DS-VTM	3	12.496	13.746	0.67	0.80	23.12	150.90	0.000	0.000	317.85	0.00	0.00
5	177.00	APXV18-206516S-C-A20	3	12.496	13.746	0.62	0.80	6.76	56.10	0.000	0.000	92.89	0.00	0.00
6	177.00	KRY 112 144/1	3	12.496	13.746	0.58	0.80	0.71	33.00	0.000	0.000	9.74	0.00	0.00
7	167.00	SBNHH-1D65B	6	12.344	13.578	0.66	0.80	32.51	240.00	0.000	0.000	441.43	0.00	0.00
8	167.00	Raycap	2	12.344	13.578	0.67	0.80	5.09	64.00	0.000	0.000	69.17	0.00	0.00
9	167.00	Alcatel-Lucent B4 RRH	3	12.344	13.578	0.64	0.80	4.99	192.00	0.000	0.000	67.78	0.00	0.00
10	167.00	Alcatel-Lucent B13	3	12.344	13.578	0.70	0.80	4.56	171.60	0.000	0.000	61.94	0.00	0.00
11	167.00	Platform w/ Hand Rails	1	12.344	13.578	1.00	1.00	40.00	2000.00	0.000	0.000	543.14	0.00	0.00
12	167.00	LPA-80080-4CF-EDIN-0	6	12.344	13.578	0.80	0.80	12.53	72.00	0.000	0.000	170.11	0.00	0.00
13	157.00	Low Profile Platform-flat	1	12.185	13.403	1.00	1.00	25.00	1200.00	0.000	0.000	335.08	0.00	0.00
14	157.00	DC6-48-60-18-8F	1	12.185	13.403	0.80	0.80	1.18	31.80	0.000	0.000	15.76	0.00	0.00
15	157.00	LGP21903	6	12.185	13.403	0.59	0.80	0.96	33.00	0.000	0.000	12.85	0.00	0.00
16	157.00	RRUS 11	6	12.185	13.403	0.61	0.80	9.19	304.20	0.000	0.000	123.21	0.00	0.00
17	157.00	LGP21401	6	12.185	13.403	0.51	0.80	3.96	84.60	0.000	0.000	53.11	0.00	0.00
18	157.00	AM-X-CD-16-65-00T	1	12.185	13.403	0.62	0.80	5.00	48.50	0.000	0.000	67.08	0.00	0.00
19	157.00	P65-17-XLH-RR	2	12.185	13.403	0.64	0.80	14.64	118.00	0.000	0.000	196.26	0.00	0.00
20	157.00	7770 w/ Mount Pipe	6	12.185	13.403	0.60	0.80	19.80	210.00	0.000	0.000	265.38	0.00	0.00
Totals:									7,621.60			3,405.06		

Total Applied Force Summary

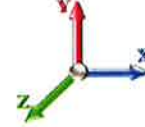
Structure: CT02218-S-SBA	Code: EIA/TIA-222-G	10/10/2016
Site Name: Colchester	Exposure: C	
Height: 180.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: B - Competent Rock	
Gh: 1.1	Topography: 1	Struct Class: II



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Load Case: 1.0D + 1.0W 60 mph Wind

Dead Load Factor 1.00
Wind Load Factor 1.00



Iterations 24

Elev (ft)	Description	Lateral FX (-) (lb)	Axial FY (-) (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)
0.00		0.00	0.00	0.00	0.00
5.00		155.16	1604.03	0.00	0.00
10.00		152.49	1579.66	0.00	0.00
15.00		149.81	1555.29	0.00	0.00
20.00		156.12	1530.92	0.00	0.00
25.00		160.66	1506.56	0.00	0.00
30.00		163.85	1482.19	0.00	0.00
35.00		166.07	1457.82	0.00	0.00
40.00		167.52	1433.45	0.00	0.00
45.00		168.36	1409.08	0.00	0.00
45.92		30.63	255.69	0.00	0.00
50.00		139.56	1969.11	0.00	0.00
53.00		102.32	1427.47	0.00	0.00
55.00		68.05	481.51	0.00	0.00
60.00		170.76	1189.17	0.00	0.00
65.00		170.03	1168.30	0.00	0.00
70.00		169.01	1147.44	0.00	0.00
75.00		167.73	1126.58	0.00	0.00
80.00		166.23	1105.71	0.00	0.00
85.00		164.52	1084.85	0.00	0.00
90.00		162.61	1063.99	0.00	0.00
92.92		93.69	611.02	0.00	0.00
95.00		67.41	727.97	0.00	0.00
98.92		125.95	1350.59	0.00	0.00
100.00		34.49	193.10	0.00	0.00
105.00		158.37	880.63	0.00	0.00
110.00		155.86	863.22	0.00	0.00
115.00		153.23	845.80	0.00	0.00
120.00		150.47	828.39	0.00	0.00
125.00		147.60	810.98	0.00	0.00
127.09		60.57	333.30	0.00	0.00
130.00		84.80	704.33	0.00	0.00
132.34		67.23	557.65	0.00	0.00
135.00		75.82	323.16	0.00	0.00
140.00		140.17	597.35	0.00	0.00
145.00		136.90	585.16	0.00	0.00
150.00		133.55	572.98	0.00	0.00
155.00		130.10	560.79	0.00	0.00
157.00	(29) attachments	1119.70	2251.01	0.00	0.00
160.00		75.42	287.68	0.00	0.00
165.00		122.98	469.72	0.00	0.00
167.00	(21) attachments	1401.64	2924.08	0.00	0.00
170.00		71.05	230.34	0.00	0.00
175.00		115.56	374.16	0.00	0.00
177.00	(13) attachments	1022.59	2991.65	0.00	0.00
180.00	(1) attachments	71.74	184.78	0.00	0.00

Total Applied Force Summary

Structure: CT02218-S-SBA	Code: EIA/TIA-222-G	10/10/2016
Site Name: Colchester	Exposure: C	
Height: 180.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: B - Competent Rock	
Gh: 1.1	Struct Class: II	Page: 38



Totals:	8,868.35	46,638.66	0.00	0.00
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Calculated Forces

Structure: CT02218-S-SBA
Site Name: Colchester
Height: 180.00 (ft)
Base Elev: 0.000 (ft)
Gh: 1.1

Topography: 1

Code: EIA/TIA-222-G
Exposure: C
Crest Height: 0.00
Site Class: B - Competent Rock
Struct Class: II

10/10/2016

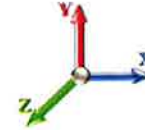
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Load Case: 1.0D + 1.0W 60 mph Wind

Dead Load Factor 1.00

Wind Load Factor 1.00



Iterations 24

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-46.64	-8.88	0.00	-1085.9	0.00	1085.96	5508.12	2754.06	13547.4	6725.55	0.00	0.000	0.000	0.170
5.00	-45.03	-8.76	0.00	-1041.5	0.00	1041.54	5452.09	2726.05	13177.2	6541.73	0.02	-0.041	0.000	0.167
10.00	-43.44	-8.64	0.00	-997.74	0.00	997.74	5394.71	2697.35	12808.5	6358.68	0.09	-0.082	0.000	0.165
15.00	-41.88	-8.52	0.00	-954.55	0.00	954.55	5335.97	2667.98	12441.5	6176.49	0.19	-0.123	0.000	0.162
20.00	-40.34	-8.38	0.00	-911.98	0.00	911.98	5275.87	2637.93	12076.4	5995.24	0.35	-0.165	0.000	0.160
25.00	-38.83	-8.25	0.00	-870.05	0.00	870.05	5214.41	2607.20	11713.3	5815.02	0.54	-0.207	0.000	0.157
30.00	-37.34	-8.11	0.00	-828.81	0.00	828.81	5151.59	2575.80	11352.6	5635.92	0.78	-0.249	0.000	0.154
35.00	-35.88	-7.96	0.00	-788.29	0.00	788.29	5087.42	2543.71	10994.2	5458.02	1.06	-0.292	0.000	0.151
40.00	-34.44	-7.81	0.00	-748.49	0.00	748.49	5021.88	2510.94	10638.5	5281.41	1.39	-0.335	0.000	0.149
45.00	-33.03	-7.65	0.00	-709.44	0.00	709.44	4954.99	2477.50	10285.5	5106.18	1.77	-0.378	0.000	0.146
45.92	-32.77	-7.63	0.00	-702.43	0.00	702.43	4942.58	2471.29	10221.1	5074.21	1.84	-0.387	0.000	0.145
50.00	-30.80	-7.49	0.00	-671.28	0.00	671.28	4886.75	2443.37	9935.52	4932.41	2.19	-0.422	0.000	0.142
53.00	-29.37	-7.39	0.00	-648.80	0.00	648.80	3967.43	1983.71	8109.29	4025.79	2.46	-0.449	0.000	0.169
55.00	-28.88	-7.33	0.00	-634.02	0.00	634.02	3947.58	1973.79	8001.39	3972.23	2.65	-0.467	0.000	0.167
60.00	-27.69	-7.18	0.00	-597.35	0.00	597.35	3897.00	1948.50	7732.70	3838.84	3.17	-0.516	0.000	0.163
65.00	-26.52	-7.02	0.00	-561.46	0.00	561.46	3845.06	1922.53	7465.70	3706.29	3.73	-0.565	0.000	0.158
70.00	-25.37	-6.86	0.00	-526.37	0.00	526.37	3791.77	1895.89	7200.54	3574.65	4.35	-0.614	0.000	0.154
75.00	-24.24	-6.70	0.00	-492.07	0.00	492.07	3737.12	1868.56	6937.41	3444.02	5.02	-0.663	0.000	0.149
80.00	-23.13	-6.54	0.00	-458.56	0.00	458.56	3681.11	1840.56	6676.48	3314.49	5.74	-0.712	0.000	0.145
85.00	-22.04	-6.38	0.00	-425.86	0.00	425.86	3623.74	1811.87	6417.92	3186.13	6.52	-0.761	0.000	0.140
90.00	-20.97	-6.22	0.00	-393.95	0.00	393.95	3565.02	1782.51	6161.91	3059.03	7.34	-0.810	0.000	0.135
92.92	-20.36	-6.12	0.00	-375.82	0.00	375.82	3530.13	1765.07	6013.81	2985.51	7.84	-0.839	0.000	0.132
95.00	-19.63	-6.06	0.00	-363.06	0.00	363.06	3504.93	1752.47	5908.61	2933.28	8.21	-0.859	0.000	0.129
98.92	-18.28	-5.92	0.00	-339.33	0.00	339.33	2742.07	1371.04	4616.42	2291.78	8.93	-0.897	0.000	0.155
100.00	-18.08	-5.89	0.00	-332.92	0.00	332.92	2732.96	1366.48	4575.83	2271.63	9.14	-0.908	0.000	0.153
105.00	-17.20	-5.73	0.00	-303.47	0.00	303.47	2690.08	1345.04	4389.32	2179.04	10.12	-0.962	0.000	0.146
110.00	-16.33	-5.58	0.00	-274.81	0.00	274.81	2645.83	1322.92	4204.31	2087.20	11.15	-1.014	0.000	0.138
115.00	-15.49	-5.42	0.00	-246.92	0.00	246.92	2600.23	1300.12	4020.98	1996.19	12.24	-1.066	0.000	0.130
120.00	-14.66	-5.27	0.00	-219.80	0.00	219.80	2553.28	1276.64	3839.50	1906.09	13.39	-1.116	0.000	0.121
125.00	-13.85	-5.11	0.00	-193.46	0.00	193.46	2504.96	1252.48	3660.03	1816.99	14.58	-1.164	0.000	0.112
127.09	-13.51	-5.05	0.00	-182.79	0.00	182.79	2484.39	1242.20	3585.78	1780.13	15.10	-1.184	0.000	0.108
130.00	-12.81	-4.96	0.00	-168.07	0.00	168.07	2455.29	1227.64	3482.76	1728.99	15.83	-1.211	0.000	0.102
132.34	-12.25	-4.88	0.00	-156.48	0.00	156.48	1489.26	744.63	2121.49	1053.20	16.42	-1.232	0.000	0.157
135.00	-11.92	-4.81	0.00	-143.48	0.00	143.48	1477.63	738.82	2071.36	1028.31	17.12	-1.255	0.000	0.148
140.00	-11.33	-4.67	0.00	-119.43	0.00	119.43	1454.76	727.38	1977.27	981.60	18.46	-1.309	0.000	0.129
145.00	-10.74	-4.52	0.00	-96.10	0.00	96.10	1430.53	715.26	1883.34	934.97	19.86	-1.358	0.000	0.110
150.00	-10.17	-4.38	0.00	-73.49	0.00	73.49	1404.94	702.47	1789.74	888.50	21.31	-1.400	0.000	0.090
155.00	-9.61	-4.24	0.00	-51.57	0.00	51.57	1377.99	688.99	1696.65	842.29	22.79	-1.434	0.000	0.068
157.00	-7.39	-3.07	0.00	-43.08	0.00	43.08	1366.83	683.41	1659.60	823.90	23.40	-1.446	0.000	0.058
160.00	-7.10	-2.99	0.00	-33.88	0.00	33.88	1349.68	674.84	1604.25	796.42	24.31	-1.460	0.000	0.048
165.00	-6.63	-2.85	0.00	-18.94	0.00	18.94	1320.02	660.01	1512.71	750.97	25.85	-1.478	0.000	0.030
167.00	-3.75	-1.38	0.00	-13.23	0.00	13.23	1307.77	653.89	1476.37	732.93	26.47	-1.483	0.000	0.021
170.00	-3.52	-1.30	0.00	-9.09	0.00	9.09	1289.00	644.50	1422.20	706.04	27.40	-1.488	0.000	0.016
175.00	-3.15	-1.18	0.00	-2.58	0.00	2.58	1256.62	628.31	1332.89	661.70	28.96	-1.493	0.000	0.006
177.00	-0.18	-0.08	0.00	-0.23	0.00	0.23	1243.29	621.64	1297.54	644.16	29.59	-1.494	0.000	0.001
180.00	0.00	-0.07	0.00	0.00	0.00	0.00	1222.88	611.44	1244.96	618.05	30.53	-1.494	0.000	0.000

Final Analysis Summary

Structure: CT02218-S-SBA	Code: EIA/TIA-222-G	10/10/2016
Site Name: Colchester	Exposure: C	
Height: 180.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: B - Competent Rock	
Gh: 1.1	Topography: 1	Struct Class: II
		Page: 40



Reactions

Load Case	Shear FX (kips)	Shear FZ (kips)	Axial FY (kips)	Moment MX (ft-kips)	Moment MY (ft-kips)	Moment MZ (ft-kips)
1.2D + 1.6W 105 mph Wind	43.6	0.00	55.89	0.00	0.00	5350.76
0.9D + 1.6W 105 mph Wind	43.5	0.00	41.90	0.00	0.00	5290.20
1.2D + 1.0Di + 1.0Wi 50 mph Wind	10.0	0.00	81.62	0.00	0.00	1236.09
1.2D + 1.0E	1.3	0.00	55.97	0.00	0.00	173.86
0.9D + 1.0E	1.3	0.00	41.97	0.00	0.00	171.73
1.0D + 1.0W 60 mph Wind	8.9	0.00	46.64	0.00	0.00	1085.96

Max Stresses

Load Case	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Elev (ft)	Stress Ratio
1.2D + 1.6W 105 mph Wind	-55.89	-43.55	0.00	-5350.7	0.00	-5350.7	5508.12	2754.0	13547.4	6725.55	0.00	0.806
0.9D + 1.6W 105 mph Wind	-41.90	-43.53	0.00	-5290.2	0.00	-5290.2	5508.12	2754.0	13547.4	6725.55	0.00	0.794
1.2D + 1.0Di + 1.0Wi 50 mph Wind	-81.62	-9.95	0.00	-1236.0	0.00	-1236.0	5508.12	2754.0	13547.4	6725.55	0.00	0.199
1.2D + 1.0E	-14.82	-0.91	0.00	-34.78	0.00	-34.78	1489.26	744.63	2121.49	1053.20	132.34	0.043
0.9D + 1.0E	-11.11	-0.90	0.00	-34.24	0.00	-34.24	1489.26	744.63	2121.49	1053.20	132.34	0.040
1.0D + 1.0W 60 mph Wind	-46.64	-8.88	0.00	-1085.9	0.00	-1085.9	5508.12	2754.0	13547.4	6725.55	0.00	0.170

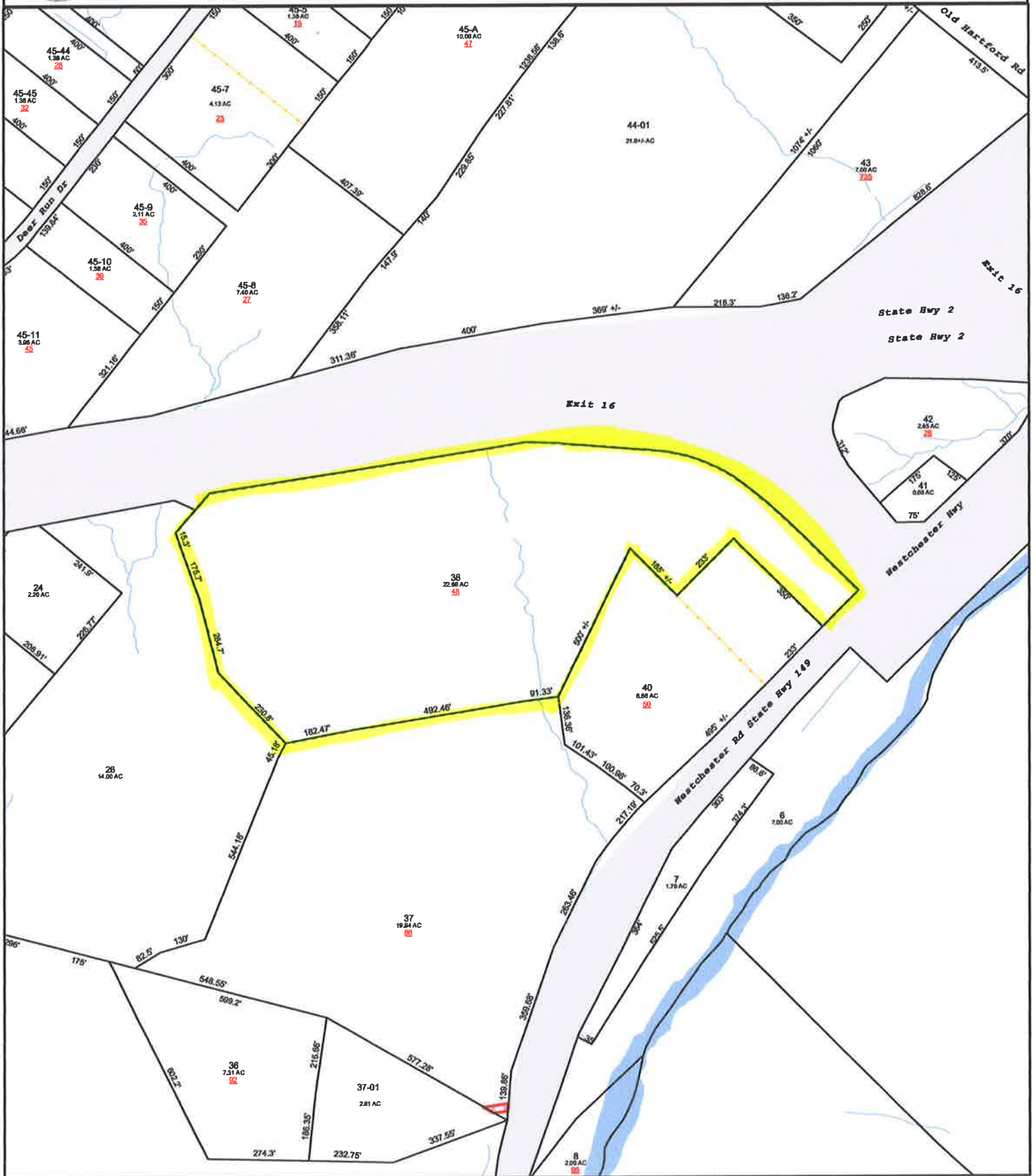
ATTACHMENT 4



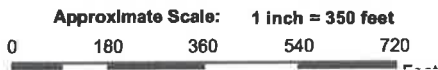
Town of Colchester, Connecticut - Assessment Parcel Map

Parcel: 06-12-038-000

Address: 48 WESTCHESTER RD



Map Produced: July 2016 / Grand List: 2015



Disclaimer: This map is for informational purposes only. All information is subject to verification by any user. The Town of Colchester and its mapping.



Town of Colchester, CT

Property Listing Report

Map Block Lot

06-12/040-000

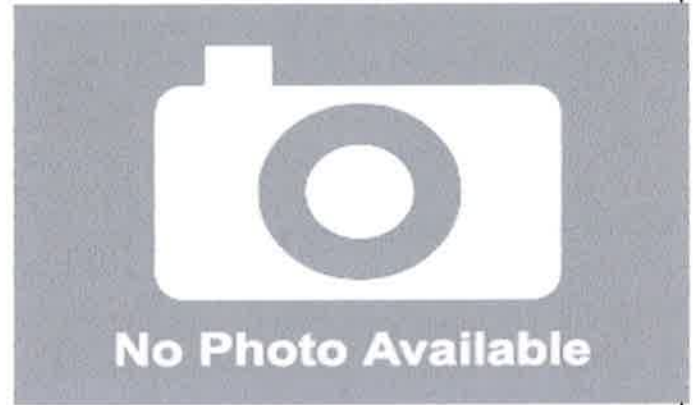
Account

C0064100

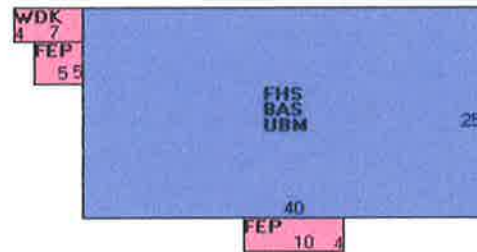
Property Information

Property Location	50 WESTCHESTER RD
Owner	MARGUS PROPERTIES LLC
Co-Owner	
Mailing Address	48 WESTCHESTER RD COLCHESTER CT 06415
Land Use	1010 Single Fam
Land Class	R
Zoning Code	I
Census Tract	42
Sub Lot	
Neighborhood	0040
Acreage	6.85
Utilities	
Lot Setting/Desc	Rural Below
Survey Map	
Additional Info	

Photo



Sketch



Primary Construction Details

Year Built	1950
Stories	1.5
Building Style	Cape Cod
Building Use	Residential
Building Condition	C
Floors	Hardwood
Total Rooms	6

Bedrooms	4 Bedrooms
Full Bathrooms	2
Half Bathrooms	0
Bath Style	Average
Kitchen Style	Average
Roof Style	Gable
Roof Cover	Asphalt

Exterior Walls	Vinyl Siding
Interior Walls	Drywall
Heating Type	Hot Water
Heating Fuel	Oil
AC Type	None
Gross Bldg Area	3093
Total Living Area	1700



Town of Colchester, CT

Property Listing Report

Map Block Lot

06-12/040-000

Account

C0064100

Valuation Summary (Assessed value = 70% of Appraised Value)

Item	Appraised	Assessed
Buildings	107600	75300
Extras	2000	1400
Outbuildings	6800	4800
Land	185700	130000
Total	302100	211500

Outbuilding and Extra Items

Type	Description
Fpl 1.5ST Chlm	1.00 UNITS
Garage	440.00 S.F.
Shed Frame	128.00 S.F.

Sub Areas

Subarea Type	Gross Area (sq ft)	Living Area (sq ft)
Half Story, Finished	1000	700
First Floor	1000	1000
Basement, Unfinished	1000	0
Enclosed Porch	65	0
Wood Deck	28	0
Total Area	3093	1700

Sales History

Owner of Record	Book/ Page	Sale Date	Sale Price
MARGUS PROPERTIES LLC	1201/ 219	6/17/2013	0
MARGUS PROPERTIES LLC	1197/ 248	5/9/2013	90000
MARGUS PROPERTIES LLC	847/ 099	6/2/2005	365000
EVERETT MONICA A + LISA D	0213/0073	7/28/1988	0
CONORS ROBERT J + CAROLYN P	121/ 346	1/1/1987	0