

February 13, 2017

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

Re: **Notice of Exempt Modification – Facility Modification
1925-1931 East Main Street, Torrington, Connecticut**

Dear Ms. Bachman:

Cellco Partnership d/b/a Verizon Wireless (“Cellco”) currently maintains fifteen (15) wireless telecommunications antennas at the 123-foot level of the existing 153-foot tower at 1925-1931 East Main Street in Torrington, Connecticut (the “Property”). The tower is owned by SBA Communications Corporation (“SBA”). The Council approved Cellco’s use of the existing tower in 2003. Cellco now intends to modify its facility by replacing nine (9) of its existing antennas with three (3) model SBNHH-1D65B, 700 MHz antennas; three (3) model SBNHH-1D65B, 1900 MHz antennas; and three (3) model SBNHH-1D65B, 2100 MHz antennas, all at the same 123-foot level on the tower. Cellco also intends to install nine (9) remote radio heads (“RRHs”) behind its antennas 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 Elinor Carbone, Mayor of the City of Torrington, Martin Connor, City Planner, TEP Incorporated, the owner of the Property 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).

16122174-v1

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1. The proposed modifications will not result in an increase in the height of the existing tower. Cellco's replacement antennas and RRHs will be installed at the 123-foot level on the 153-foot tower.
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 behind 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*¹ included in Attachment 3).

A copy of the Torrington Assessor's 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).

¹ The attached Structural Analysis Report includes tower modifications previously approved by the Council in EM-VER-143-151116, but not yet completed. These modifications are shown as existing conditions. The structural analysis confirms that with the new facility modifications described above, together with the "existing conditions" information the tower is capable of supporting Cellco's proposed modifications.

Robinson+Cole

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Sincerely,



Kenneth C. Baldwin

Enclosures

Copy to:

Elinor Carbone, Torrington Mayor
Martin Connor, Torrington City Planner
TEP Incorporated
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*

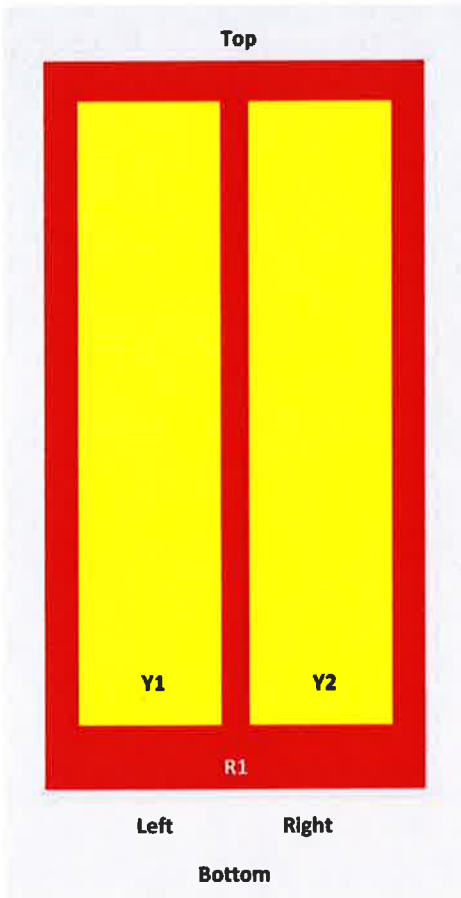
Frequency Band, MHz	698–806	806–896	1695–1880	1850–1990	1920–2200	2300–2360
Gain by all Beam Tilts, average, dBi	14.5	14.3	17.4	17.9	18.2	18.3
Gain by all Beam Tilts Tolerance, dB	±0.5	±0.8	±0.4	±0.3	±0.5	±0.3
Gain by Beam Tilt, average, dBi	0° 14.6	0° 14.5	0° 17.4	0° 17.8	0° 18.1	0° 18.2
	7° 14.6	7° 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-1D65B

SBNHH 65



Array	Freq (MHz)	Conas	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.

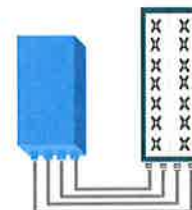
Its compactness and slim design makes the Alcatel-Lucent B13 RRH4x30-4R easy to install close to the antenna: operators can therefore locate this Remote Radio Head where RF design conditions are deemed ideal, minimizing trade-offs between available sites and RF optimum sites, together with reducing the 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) IP65
Wind load (@150km/h or 93mph)	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 B25 RRH4X30

Alcatel-Lucent Band 25 Remote Radio Head 4x30W is the new 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 B25 RRH4x30 allows operators to have a compact radio solution to deploy LTE in the PCS band (1.9 GHz, 3GPP band 25), providing them with the means to achieve high capacity, high quality and high coverage with minimum site requirements.

The Alcatel-Lucent B25 RRH4x30 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, LTE carriers from 3 MHz up to 20 MHz and up to 65 MHz instantaneous bandwidth.

The Alcatel-Lucent B25 RRH4x30 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 B25 RRH4x30 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.

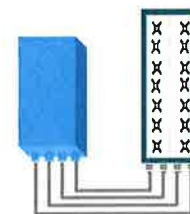


FEATURES

- Supporting LTE in 1.9 GHz band (PCS, 3GPP band 2 & 25)
- LTE 2Tx or 4Tx MIMO (SW switchable)
- Output power: Up to 2x60W or 4x30W
- Ready for 3, 5, 10, 15 or 20MHz LTE carrier operation with 4Rx Diversity
- Ready to support up to 4 carriers anywhere in 65MHz instantaneous bandwidth
- Convection-cooled (fan-less)
- Supports AISG 2.0 devices (RET, TMA) through RS485 or RF ports

BENEFITS

- Compact to reduce additional footprint when adding LTE in PCS band
- MIMO scheme operation selection (2Tx or 4Tx) by software only
- Full flexibility for multiple carriers operation over entire PCS spectrum
- Improves downlink spectral efficiency and cell edge throughput through MIMO4
- Increases LTE coverage thanks to 4-way Rx 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	3GPP bands 2 & 25 (PCS-G) DL: 1930 - 1995 MHz UL: 1850 - 1915 MHz
Instantaneous bandwidth - #carriers	65MHz – Up to 4 LTE carriers (in 40MHz occupied bandwidth)
LTE carrier bandwidth	3, 5, 10, 15 or 20 MHz
RF output power	2x60W or 4x30W (by SW)
Noise figure (3GPP band 2)	2.0 dB typ. (<2.5 dB max)
RX Diversity scheme	2 or 4 way Rx diversity
Sizes (HxWxD)(w/ solar shield) in mm (in.)	538 x 304 x 182 (21.2" x 12.0" x 7.2")
Volume (w/ solar shield) in L	30
Weight (w/ solar shield) in kg (lb)	24 (53)
DC voltage range	-40.5 to -57V at full performance, -38 to -57V with relaxation on power consumption
DC power consumption	580W typical @100% RF load
Environmental conditions	-40°C (-40°F) / +55°C (+131°F) IP65
Wind load (@150km/h or 93mph)	Frontal: <200N / Lateral : <150N
Antenna ports	4 ports 7/16 DIN female (50 ohms) VSWR < 1.5 (> 14dB)
CPRI ports	2 CPRI ports (HW ready for Rate7 / 9.8 Gbps)
AISG interfaces	1 AISG2.0 output (RS485), +24V/2A DC power Integrated Smart Bias Tees (x2)
Misc. Interfaces	1 external alarms connector (4 alarms) 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.

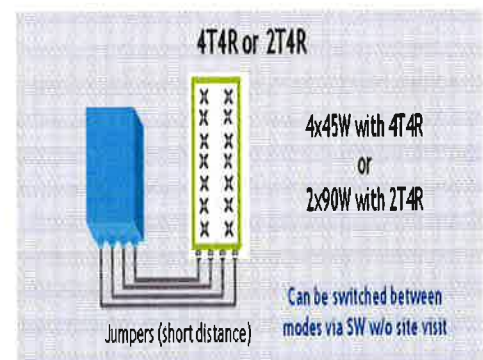
Its compactness and slim design makes the Alcatel-Lucent B66a RRH4x45 easy to install close to the antenna: operators can therefore locate this Remote Radio Head where RF design conditions are deemed ideal, minimizing trade-offs between available sites and RF optimum sites, together with reducing the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

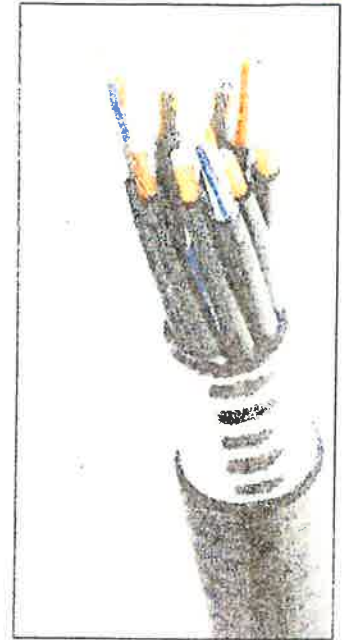


Figure 1: HYBRIFLEX Series

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

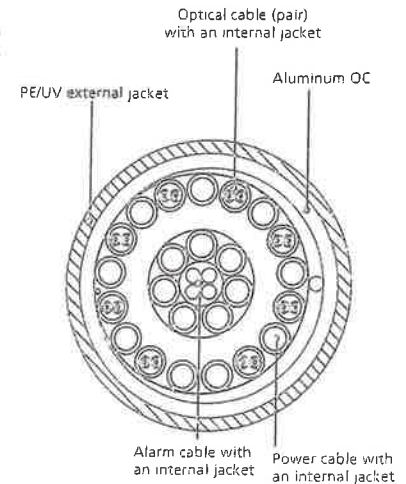


Figure 2: Construction Detail

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

ATTACHMENT 2

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 153 ft Nudd Corporation Monopole

Customer Name: SBA Communications Corp

Customer Site Number: CT01499-S

Customer Site Name: Torrington

Carrier Name: Verizon

Carrier Site ID / Name: N/A / Torrington East

Site Location: 1925-1931 East Main Street

Torrington, Connecticut

Litchfield County

Latitude: 41.822991

Longitude: -73.077199

Analysis Result:

Max Structural Usage: 68.5% [Pass]

Max Foundation Usage: 41% [Pass]

Report Prepared By : Jie Chen



Introduction

The purpose of this report is to summarize the analysis results on the 153 ft Nudd Corporation 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	Fred A. Nudd Corporation (Project No. 7783) original design drawings dated August 18, 2000
Foundation Drawing	Fred A. Nudd Corporation (Project No. 7783) foundation design drawings dated August 18, 2000
Geotechnical Report	Jaworski Geotech, Inc., Project # 99335G, Dated 11/3/1999
Modification Drawings	Vertical Structures, Inc., Site: Torrington, CT, Dated 9/9/2003 FDH Engineering, Inc. (Project No. 15BFJD1400) Modification Drawings for a 153' Monopole dated March 10, 2015

Analysis Criteria

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

Wind Speed Used in the Analysis:	Ultimate Design Wind Speed $V_{ult} = 120.0$ mph (3-Sec. Gust)/ Nominal Design Wind Speed $V_{asd} = 93.0$ mph (3-Sec. Gust)
Wind Speed with Ice:	40 mph (3-Sec. Gust) with 1" radial ice concurrent
Operational Wind Speed:	60 mph + 0" Radial ice
Standard/Codes:	ANSI/TIA/EIA 222-G / 2012 IBC / 2016 Connecticut State Building Code
Exposure Category:	C
Structure Class:	II
Topographic Category:	1
Crest Height:	0 ft
Seismic Parameters:	$S_S = 0.184$, $S_1 = 0.065$

Existing Antennas, Mounts and Transmission Lines

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

Items	Elevation (ft)	Qty.	Antenna Descriptions	Mount Type & Qty.	Transmission Lines	Owner
1	153.0	3	ALU 1900 MHz RRUs	Low Profile Platform	(4) 1 1/4"	Sprint
2		3	ALU 800 MHz Filters			
3		3	ALU 800 MHz RRUs			
4		4	RFS ACU-A20-N RETs			
5		3	RFS APXVSP18-C-A20 - Panel			
6		3	RFS APXVTM14-C-I20 - Panel			
7		3	TD-RRH8x20-25 RRHs			
8	133.0	6	EMS - RR90-17-02DP - Panel	Low Profile Platform	(12) 1 5/8"	T-Mobile
-	126.0	3	Alcatel Lucent RRH2x60-700	Low Profile Platform	(16) 1 5/8" (2) 1 5/8" Fiber	Verizon
-	123.0	9	Commscope SBNHH-1D65B - Panel			
-		6	Antel LPA-80063/6CF - Panel			
-		3	Alcatel Lucent RRH2x60-AWS			
-		3	Alcatel Lucent RRH2X60-PCS			
-		2	Rfs DB-T1-6Z-8AB-0Z Distribution Box			
15	110.0	1	10' Omni	(1) Standoff	(1) 1/2"	Torrington PD
16	95.0	3	Polyphaser 1000860	(3) Sector Frame	(12) 1 5/8" (2) 1/2" Fiber (4) 3/4" DC	AT&T
17		3	Powerwave 7770 - Panel			
18		4	CCI/HPA-65R-BUU H6 - Panel			
19		6	Powerwave LGP21401			
20		6	Powerwave LGP21903			
21		3	CCI OPA-65R-LCUU-H6 - Panel			
22		2	Raycap/Squid			
23		6	Ericsson RRUS-11			
24		3	Ericsson RRUS-12			
25		3	Ericsson RRUS-32			
26		3	Ericsson RRUS-A2			
27		3	Ericsson RRUS-E2			
28	2	Andrew SBNH-1D65A - Panel				
29	70.0	1	GPS	(1) Standoff	(1) 1/2"	Unknown

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
9	123.0	9	Commscope SBNHH-1D65B - Panel	Low Profile Platform	(16) 1 5/8" (2) 1 5/8" Fiber	Verizon
10		6	Antel LPA-80063/6CF - Panel			
11		3	Alcatel Lucent B66 4X45 AWS			
12		3	Alcatel Lucent RRH2x60-700			
13		3	Alcatel Lucent RRH2X60-PCS			
14		2	RFS DB-T1-6Z-8AB-0Z			

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

Analysis Results

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

	Pole shafts	Anchor Bolts	Base Plate
Max. Usage:	68.5%	61.1%	58.4%
Pass/Fail	Pass	Pass	Pass

Foundations

	Moment (Kip-Ft)	Shear (Kips)
Original Design Reactions	3692.0	31.2
Analysis Reactions	3609.8	35.1
Factored Reactions*	4984.2	42.1
% of Design Reactions	72.4%	83.3%

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

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

Operational Condition (Rigidity):

Operational characteristics of the tower are found to be within the limits prescribed by ANSI/TIA/EIA 222-G for the installed antennas. The maximum twist/sway at the elevation of the proposed equipment is 0.9657 degrees under the operational wind speed as specified in the Analysis Criteria.

Conclusions

Based on the analysis results, the existing structure and its foundation were found to be adequate to safely support the existing and proposed equipment and meet the minimum requirements per the ANSI/TIA-222-G standards and the 2012 IBC under the design basic wind speed 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 68.49% at 45.0ft

Structure: CT01499-S-SBA
Site Name: Torrington
Height: 153.00 (ft)
Base Elev: 0.000 (ft)

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

2/2/2017

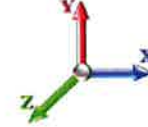
Page: 1



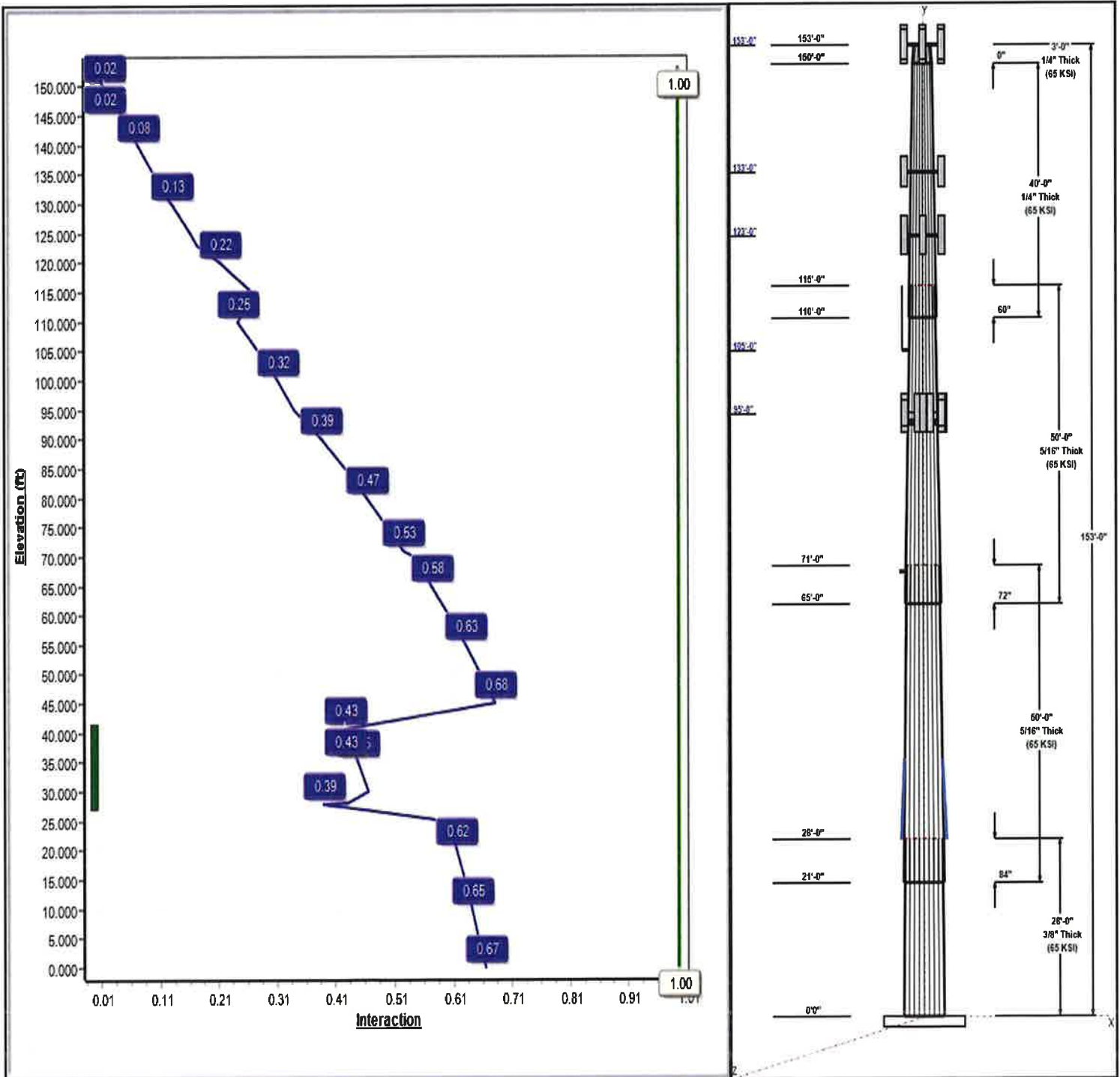
Dead Load Factor: 1.20
Wind Load Factor: 1.60

Iterations: 22

Load Case : 1.2D + 1.6W 93 mph Wind



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Structure: CT01499-S-SBA

Type: Tapered
Site Name: Torrington
Height: 153.00 (ft)
Base Elev: 0.00 (ft)

Base Shape: 18 Sided
Taper: 0.24673

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Shaft Properties

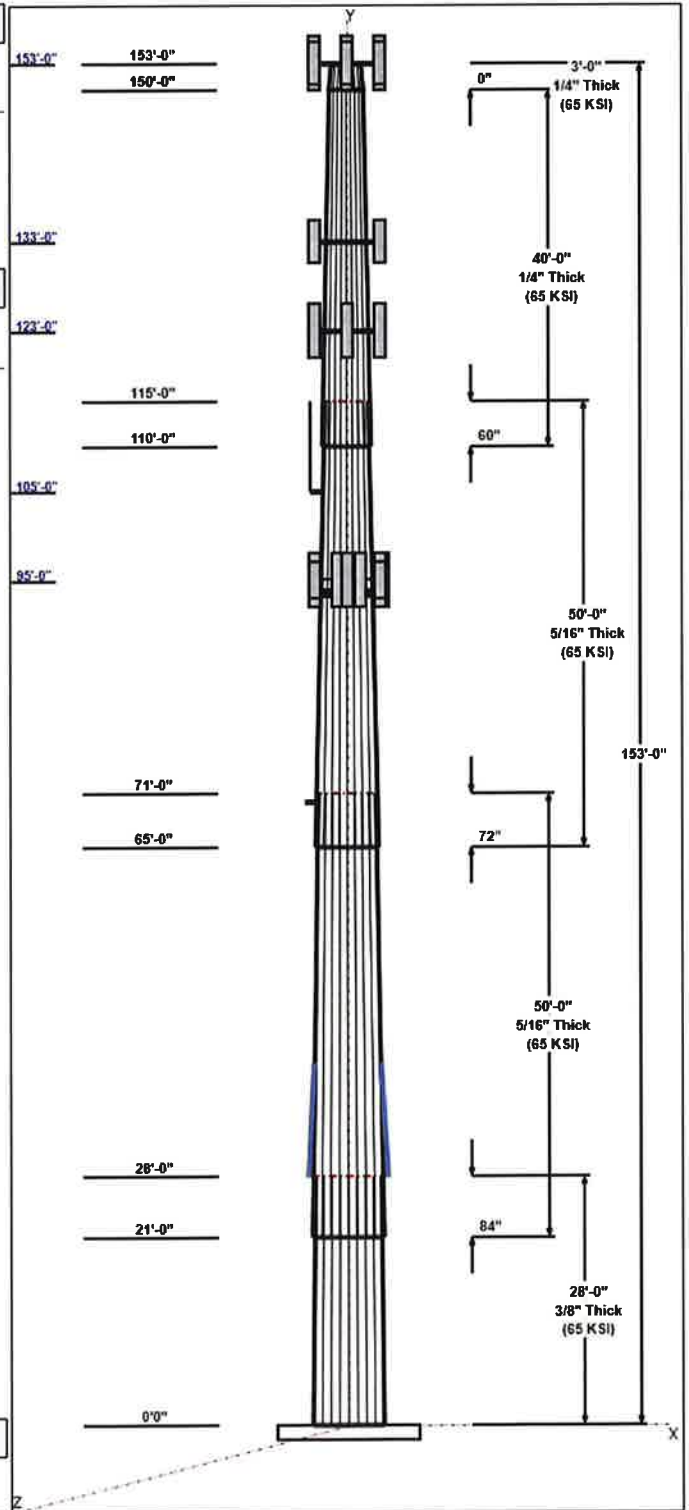
Seq	Length (ft)	Top (in)	Bottom (in)	Thick (in)	Joint Type	Taper	Grade (ksi)
1	28.00	53.09	60.00	0.375		0.24673	65
2	50.00	43.11	55.44	0.313	Slip	0.24673	65
3	50.00	32.88	45.21	0.313	Slip	0.24673	65
4	40.00	24.74	34.61	0.250	Slip	0.24673	65
5	3.00	24.00	24.74	0.250	Butt	0.24673	65

Discrete Appurtenances

Attach Elev (ft)	Force Elev (ft)	Qty	Description	Carrier
153.00	153.00	3	APXVTM14-C-I20	Sprint
153.00	153.00	3	APXVSPP18-C-A20	Sprint
153.00	153.00	3	1900 MHz RRUs	Sprint
153.00	153.00	3	800 MHz RRUs	Sprint
153.00	153.00	3	800 MHz Filters	Sprint
153.00	153.00	4	ACU-A20-N	Sprint
153.00	153.00	3	TD-RRH8x20-25	Sprint
153.00	153.00	1	Low Profile Platform	Sprint
153.00	153.00	1	Lightning Rod	
133.00	133.00	6	RR90-17-02DP	T-Mobile
133.00	133.00	1	Low Profile Platform	T-Mobile
123.00	123.00	3	B66 4X45 AWS	Verizon
123.00	123.00	9	SBNHH-1D65B	Verizon
123.00	123.00	6	LPA-80063/6CF	Verizon
123.00	123.00	3	RRH2X60-PCS	Verizon
123.00	126.00	3	RRH2x60-700	Verizon
123.00	123.00	2	DB-T1-6Z-8AB-0Z	Verizon
123.00	123.00	1	Low Profile Platform	Verizon
105.00	110.00	1	10' Omni	Torrington PD
105.00	105.00	1	Standoff	Torrington PD
95.00	95.00	4	HPA-65R-BUU-H6	AT&T
95.00	95.00	3	7770	AT&T
95.00	95.00	2	SBNH-1D65A	AT&T
95.00	95.00	3	OPA-65R-LCUU-H6	AT&T
95.00	95.00	6	LGP21401	AT&T
95.00	95.00	6	LGP21903	AT&T
95.00	95.00	6	RRUS-11	AT&T
95.00	95.00	3	RRUS-12	AT&T
95.00	95.00	3	RRUS-A2	AT&T
95.00	95.00	3	RRUS-32	AT&T
95.00	95.00	3	RRUS-E2	AT&T
95.00	95.00	3	1000860	AT&T
95.00	95.00	2	Raycap/Squid	AT&T
95.00	95.00	3	Sector Frame	AT&T
70.00	70.00	1	GPS	Unknown
70.00	70.00	1	Standoff	Unknown

Linear Appurtenances

Elev From (ft)	Elev To (ft)	Placement	Description	Carrier
0.00	153.00	Inside	1 1/4" Coax	Sprint
0.00	153.00	Outside	Safety Cable	
0.00	133.00	Inside	1 5/8" Coax	T-Mobile
0.00	123.00	Inside	1 5/8" Coax	Verizon
0.00	123.00	Inside	1 5/8" Coax	Verizon



Structure: CT01499-S-SBA

Type: Tapered
Site Name: Torrington
Height: 153.00 (ft)
Base Elev: 0.00 (ft)

Base Shape: 18 Sided
Taper: 0.24673

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0.00	123.00	Inside	1 5/8" Fiber	Verizon
0.00	105.00	Inside	1/2" Coax	Torrington PD
0.00	95.00	Outside	1 5/8" Coax	AT&T
0.00	95.00	Outside	1/2" Fiber	AT&T
0.00	95.00	Outside	3/4" DC	AT&T
24.25	44.25	Outside	1.25" Reinforcing plate	

Anchor Bolts

Qty	Specifications	Grade (ksi)	Arrangement
18	2.00" F1554 105	105.0	Radial

Base Plate

Thickness (in)	Specifications (in)	Grade (ksi)	Geometry
1.5000	73.0	50.0	Round

Reactions

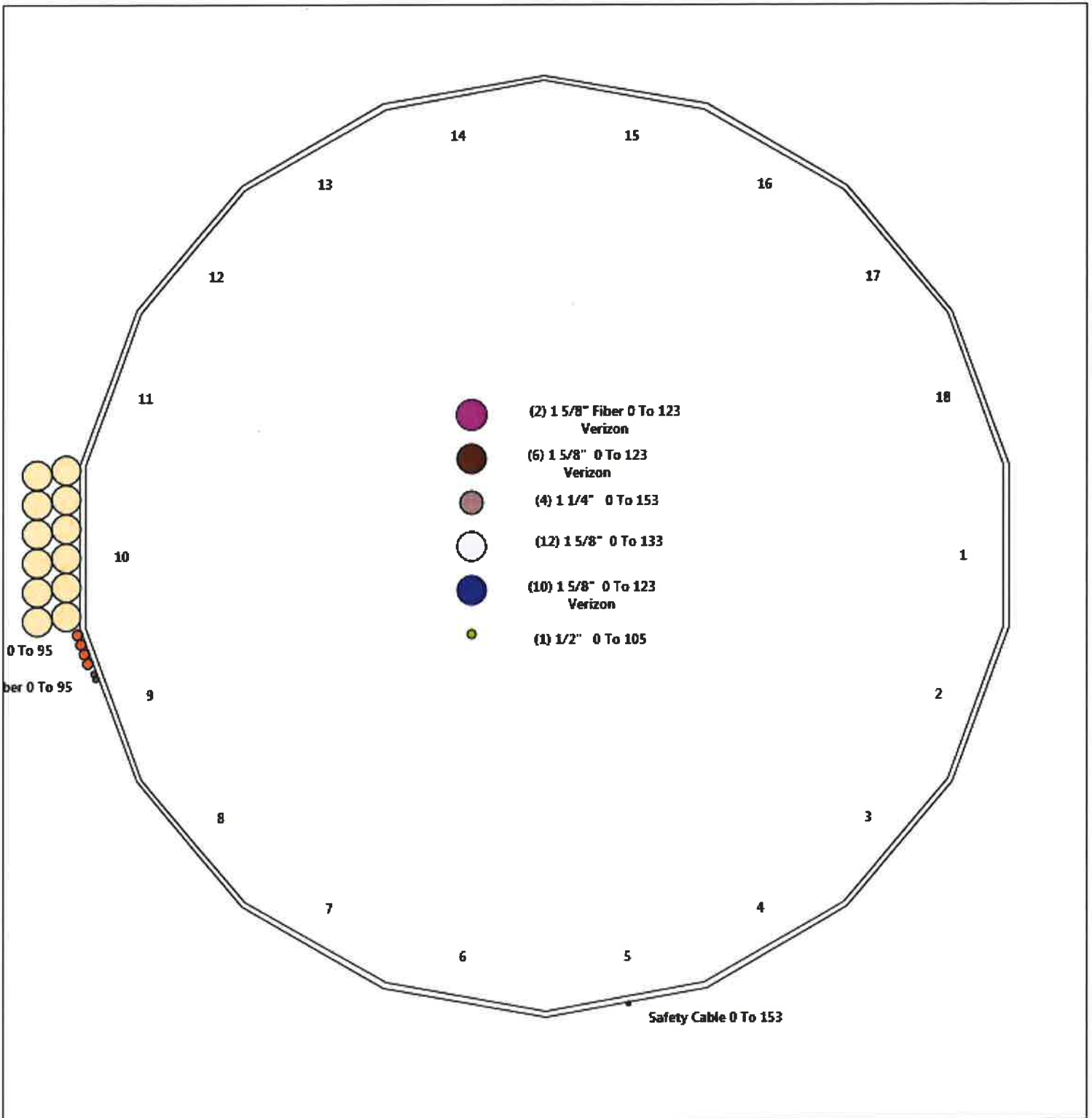
Load Case	Moment	Shear	Axial
1.2D + 1.6W 93 mph Wind	3609.8	35.1	47.2
0.9D + 1.6W 93 mph Wind	3584.2	35.1	35.4
1.2D + 1.0Di + 1.0Wi 40 mph Wind	747.4	7.2	92.2
1.2D + 1.0E	98.7	0.9	47.3
0.9D + 1.0E	97.9	0.9	35.5
1.0D + 1.0W 60 mph Wind	935.2	9.1	39.4

Structure: CT01499-S-SBA - Coax Line Placement

Type: Monopole
Site Name: Torrington
Height: 153.00 (ft)

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Shaft Properties

Structure: CT01499-S-SBA	Code: EIA/TIA-222-G	2/2/2017
Site Name: Torrington	Exposure: C	
Height: 153.00 (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	18	28.000	0.3750	65		0.00	6,370
2	18	50.000	0.3125	65	Slip	84.00	8,262
3	18	50.000	0.3125	65	Slip	72.00	6,536
4	18	40.000	0.2500	65	Slip	60.00	3,178
5	18	3.000	0.2500	65	Flange	0.00	195
Total Shaft Weight:							24,542

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	70.97	31875.78	26.80	160.00	53.09	28.00	62.74	22030.0	23.55	141.5	0.246732
2	55.44	21.00	54.68	20998.34	29.87	177.42	43.11	71.00	42.45	9821.08	22.91	137.9	0.246732
3	45.21	65.00	44.53	11343.08	24.10	144.68	32.88	115.00	32.30	4326.93	17.14	105.2	0.246732
4	34.61	110.0	27.26	4066.53	23.00	138.44	24.74	150.00	19.43	1472.52	16.04	98.96	0.246732
5	24.74	150.0	19.43	1472.52	16.04	98.96	24.00	153.00	18.84	1343.00	15.52	96.00	0.246732

Additional Steel

Elev From (ft)	Elev To (ft)	Qty	Description	Fy (ksi)	Fu (ksi)	Offset (in)	Intermediate Connectors		Termination Connectors			
							Spacing (in)	Description	Spacing (in)	Lower Qty	Upper Qty	
27.75	40.75	3	PLT 8"x1.25"(1.25Hole)	65	80	0.00	AJM20&sleeve	18.00	AJM20&sleeve	3.00	14	14

Load Summary

Structure: CT01499-S-SBA	Code: EIA/TIA-222-G	2/2/2017
Site Name: Torrington	Exposure: C	
Height: 153.00 (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	153.00	APXVTM14-C-I20	3	56.00	6.34	0.79	285.08	7.859	0.79	0.00	0.00
2	153.00	APXVSP18-C-A20	3	57.00	8.02	0.83	287.93	11.752	0.83	0.00	0.00
3	153.00	1900 MHz RRUs	3	44.00	3.80	0.88	189.84	5.657	0.88	0.00	0.00
4	153.00	800 MHz RRUs	3	53.00	2.49	0.92	151.81	4.018	0.92	0.00	0.00
5	153.00	800 MHz Filters	3	8.80	0.78	0.69	32.37	1.644	0.69	0.00	0.00
6	153.00	ACU-A20-N	4	1.00	0.14	0.90	6.74	0.536	0.90	0.00	0.00
7	153.00	TD-RRH8x20-25	3	70.00	4.05	0.69	228.13	5.165	0.69	0.00	0.00
8	153.00	Low Profile Platform	1	1200.00	25.00	1.00	2598.94	52.979	1.00	0.00	0.00
9	153.00	Lightning Rod	1	5.00	0.50	1.00	32.98	2.832	1.00	0.00	0.00
10	133.00	RR90-17-02DP	6	13.50	4.36	0.68	155.89	5.699	0.68	0.00	0.00
11	133.00	Low Profile Platform	1	1200.00	25.00	1.00	2579.48	52.590	1.00	0.00	0.00
12	123.00	B66 4X45 AWS	3	64.00	2.60	0.80	181.64	3.544	0.80	0.00	0.00
13	123.00	SBNHH-1D65B	9	40.60	8.08	0.83	319.83	9.805	0.83	0.00	0.00
14	123.00	LPA-80063/6CF	6	27.00	9.60	0.94	420.49	11.401	0.94	0.00	0.00
15	123.00	RRH2X60-PCS	3	55.00	2.20	0.89	173.64	3.055	0.89	0.00	0.00
16	123.00	RRH2x60-700	3	60.00	3.50	0.76	174.10	4.532	0.76	0.00	3.00
17	123.00	DB-T1-6Z-8AB-0Z	2	18.90	4.80	0.90	217.24	5.966	0.90	0.00	0.00
18	123.00	Low Profile Platform	1	1200.00	25.00	1.00	2568.74	52.375	1.00	0.00	0.00
19	105.00	10' Omni	1	25.00	3.00	1.00	122.86	7.640	1.00	0.00	5.00
20	105.00	Standoff	1	40.00	2.63	1.00	143.29	10.309	1.00	0.00	0.00
21	95.00	HPA-65R-BUU-H6	4	51.00	9.66	0.90	381.32	11.428	0.90	0.00	0.00
22	95.00	7770	3	35.00	5.50	0.73	218.05	6.881	0.73	0.00	0.00
23	95.00	SBNH-1D65A	2	38.40	5.38	0.90	199.91	7.906	0.90	0.00	0.00
24	95.00	OPA-65R-LCUU-H6	3	80.00	9.66	0.79	389.28	11.428	0.79	0.00	0.00
25	95.00	LGP21401	6	14.10	1.29	0.67	45.95	2.354	0.67	0.00	0.00
26	95.00	LGP21903	6	5.50	0.27	0.84	16.24	0.777	0.84	0.00	0.00
27	95.00	RRUS-11	6	55.00	4.42	0.68	169.59	6.330	0.68	0.00	0.00
28	95.00	RRUS-12	3	60.00	3.15	0.67	154.65	4.749	0.67	0.00	0.00
29	95.00	RRUS-A2	3	21.20	1.86	0.62	67.20	3.100	0.62	0.00	0.00
30	95.00	RRUS-32	3	77.00	3.87	0.87	230.04	4.344	0.87	0.00	0.00
31	95.00	RRUS-E2	3	57.30	2.81	0.70	175.45	3.695	0.70	0.00	0.00
32	95.00	1000860	3	2.00	0.06	1.00	5.46	0.327	1.00	0.00	0.00
33	95.00	Raycap/Squid	2	31.80	1.47	0.90	110.55	2.361	0.90	0.00	0.00
34	95.00	Sector Frame	3	500.00	17.50	0.75	1389.22	35.240	0.75	0.00	0.00
35	70.00	GPS	1	10.00	1.00	1.00	46.22	1.880	1.00	0.00	0.00
36	70.00	Standoff	1	40.00	2.63	1.00	139.19	10.004	1.00	0.00	0.00
Totals:			112	9,063.10			31,568.37				

Linear Appurtenances

Bottom Elev. (ft)	Top Elev. (ft)	Description	Exposed Width	Exposed
0.00	153.00	(4) 1 1/4" Coax	0.00	Inside
0.00	153.00	(1) Safety Cable	0.00	Outside
0.00	133.00	(12) 1 5/8" Coax	0.00	Inside
0.00	123.00	(6) 1 5/8" Coax	0.00	Inside
0.00	123.00	(10) 1 5/8" Coax	0.00	Inside

Discrete Appurtenances

No.	Elev (ft)	Description	Qty	No Ice			Ice			Hor. Ecc. (ft)	Vert Ecc (ft)
				Weight (lb)	CaAa (sf)	CaAa Factor	Weight (lb)	CaAa (sf)	CaAa Factor		
0.00	123.00	(2) 1 5/8" Fiber		0.00		Inside					
0.00	105.00	(1) 1/2" Coax		0.00		Inside					
0.00	95.00	(12) 1 5/8" Coax		4.00		Outside					
0.00	95.00	(2) 1/2" Fiber		0.00		Outside					
0.00	95.00	(4) 3/4" DC		1.00		Outside					
24.25	44.25	(3) 1.25" Reinforcing plate		1.00		Outside					

Shaft Section Properties

Structure: CT01499-S-SBA
Site Name: Torrington
Height: 153.00 (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

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Increment Length: 5 (ft)

Elev (ft)	Description	Thick (in)	Flat Dia (in)	Area (in^2)	Ix (in^4)	W/t Ratio	D/t Ratio	Fy (ksi)	Fb (ksi)	Weight (lb)	Additional Reinforcing			
											Area (in^2)	Ixp (in^4)	Iyp (in^4)	Weight (lb)
0.00		0.3750	60.000	70.966	31875.8	26.80	160.00	65	70	0.0				
5.00		0.3750	58.766	69.498	29937.9	26.22	156.71	65	71	1194.9				
10.00		0.3750	57.533	68.029	28080.1	25.64	153.42	65	71	1169.9				
15.00		0.3750	56.299	66.561	26300.9	25.06	150.13	65	72	1145.0				
20.00		0.3750	55.065	65.093	24598.5	24.48	146.84	65	73	1120.0				
21.00	Bot - Section 2	0.3750	54.819	64.799	24267.0	24.37	146.18	65	73	221.0				
25.00		0.3750	53.832	63.625	22971.1	23.90	143.55	65	73	1611.6				
27.75	RB1	0.3750	53.153	62.817	22107.5	23.58	141.74	65	74	1091.0	30.00	11437.3	11437.3	280.7
28.00	Top - Section 1	0.3125	53.717	52.968	19086.0	28.90	171.89	65	67	98.5	30.00	11411.9	11411.9	25.5
30.00		0.3125	53.223	52.479	18561.8	28.62	170.31	65	68	358.8	30.00	11209.4	11209.4	204.2
35.00		0.3125	51.989	51.255	17293.5	27.92	166.37	65	69	882.5	30.00	10711.1	10711.1	510.5
40.00		0.3125	50.756	50.032	16084.3	27.23	162.42	65	69	861.6	30.00	10224.2	10224.2	510.5
40.75	RT1	0.3125	50.571	49.848	15908.0	27.12	161.83	65	69	127.5	30.00	10152.1	10152.1	76.6
45.00		0.3125	49.522	48.808	14932.9	26.53	158.47	65	70	713.4				
50.00		0.3125	48.288	47.584	13837.7	25.84	154.52	65	71	820.0				
55.00		0.3125	47.055	46.361	12797.4	25.14	150.58	65	72	799.2				
60.00		0.3125	45.821	45.137	11810.7	24.44	146.63	65	73	778.4				
65.00	Bot - Section 3	0.3125	44.587	43.914	10876.0	23.75	142.68	65	73	757.6				
70.00		0.3125	43.354	42.690	9991.9	23.05	138.73	65	74	1484.0				
71.00	Top - Section 2	0.3125	43.732	43.065	10257.7	23.27	139.94	65	74	291.8				
75.00		0.3125	42.745	42.086	9574.0	22.71	136.78	65	75	579.5				
80.00		0.3125	41.511	40.863	8763.0	22.01	132.84	65	76	705.6				
85.00		0.3125	40.278	39.639	7999.1	21.32	128.89	65	76	684.8				
90.00		0.3125	39.044	38.416	7281.0	20.62	124.94	65	77	664.0				
95.00		0.3125	37.810	37.192	6607.2	19.92	120.99	65	78	643.2				
100.00		0.3125	36.577	35.968	5976.3	19.23	117.05	65	79	622.4				
105.00		0.3125	35.343	34.745	5386.9	18.53	113.10	65	80	601.6				
110.00	Bot - Section 4	0.3125	34.109	33.521	4837.6	17.84	109.15	65	80	580.7				
115.00	Top - Section 3	0.2500	33.376	26.284	3644.0	22.13	133.50	65	75	1015.4				
120.00		0.2500	32.142	25.306	3251.9	21.26	128.57	65	76	438.9				
123.00		0.2500	31.402	24.718	3030.7	20.74	125.61	65	77	255.3				
125.00		0.2500	30.908	24.327	2888.9	20.39	123.63	65	77	166.9				
130.00		0.2500	29.675	23.348	2554.0	19.52	118.70	65	78	405.6				
133.00		0.2500	28.935	22.760	2366.1	19.00	115.74	65	79	235.3				
135.00		0.2500	28.441	22.369	2246.1	18.65	113.76	65	79	153.6				
140.00		0.2500	27.208	21.390	1963.9	17.78	108.83	65	80	372.3				
145.00		0.2500	25.974	20.411	1706.4	16.91	103.90	65	82	355.6				
150.00	Top - Section 4	0.2500	24.740	19.432	1472.5	16.04	98.96	65	83	338.9				
150.00	Bot - Section 5	0.2500	24.740	19.432	1472.5	16.04	98.96	65	83					
153.00		0.2500	24.000	18.845	1343.0	15.52	96.00	65	83	195.4				
Total Weight										24541.5				
											1607.9			

Wind Loading - Shaft

Structure: CT01499-S-SBA
Site Name: Torrington
Height: 153.00 (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

2/2/2017

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Load Case: 1.2D + 1.6W 93 mph Wind

Iterations 22

Dead Load Factor 1.20

Wind Load Factor 1.60



Elev (ft)	Description	Kzt	Kz	qz (psf)	qzGh (psf)	C (mph-ft)	Cf	Ice Thick (in)	Tributary (ft)	Aa (sf)	CfAa (sf)	Wind Force X (lb)	Dead Load Ice (lb)	Tot Dead Load (lb)
0.00		1.00	0.85	17.879	19.67	435.32	0.650	0.000	0.00	0.000	0.00	0.0	0.0	0.0
5.00		1.00	0.85	17.879	19.67	426.37	0.650	0.000	5.00	25.125	16.33	513.9	0.0	1433.9
10.00		1.00	0.85	17.879	19.67	417.42	0.650	0.000	5.00	24.603	15.99	503.2	0.0	1403.9
15.00		1.00	0.85	17.879	19.67	408.47	0.650	0.000	5.00	24.081	15.65	492.5	0.0	1373.9
20.00		1.00	0.90	18.971	20.87	411.53	0.650	0.000	5.00	23.559	15.31	511.3	0.0	1344.0
21.00	Bot - Section 2	1.00	0.91	19.166	21.08	411.80	0.650	0.000	1.00	4.649	3.02	101.9	0.0	265.2
25.00		1.00	0.95	19.883	21.87	411.87	0.657 *	0.000	4.00	18.599	12.21	427.4	0.0	1933.9
27.75	RB1	1.00	0.97	20.325	22.36	411.18	0.696 *	0.000	2.75	12.593	8.77	313.6	0.0	1309.2
28.00	Top - Section 1	1.00	0.97	20.363	22.40	411.09	0.698 *	0.000	0.25	1.137	0.79	28.4	0.0	118.2
30.00		1.00	0.98	20.661	22.73	415.11	0.696 *	0.000	2.00	9.049	6.30	229.1	0.0	430.6
35.00		1.00	1.01	21.343	23.48	412.12	0.700 *	0.000	5.00	22.257	15.59	585.5	0.0	1059.0
40.00		1.00	1.04	21.951	24.15	408.04	0.706 *	0.000	5.00	21.735	15.35	593.0	0.0	1034.0
40.75	RT1	1.00	1.05	22.037	24.24	407.34	0.710 *	0.000	0.75	3.215	2.28	88.5	0.0	152.9
45.00		1.00	1.07	22.502	24.75	403.08	0.704 *	0.000	4.25	17.998	12.68	502.1	0.0	856.0
50.00		1.00	1.09	23.007	25.31	397.43	0.670 *	0.000	5.00	20.692	13.86	561.2	0.0	984.0
55.00		1.00	1.12	23.473	25.82	391.18	0.675 *	0.000	5.00	20.170	13.62	562.7	0.0	959.0
60.00		1.00	1.14	23.907	26.30	384.43	0.681 *	0.000	5.00	19.648	13.38	563.2	0.0	934.0
65.00	Bot - Section 3	1.00	1.16	24.313	26.74	377.24	0.687 *	0.000	5.00	19.126	13.15	562.6	0.0	909.1
70.00	Appurtenance(s)	1.00	1.17	24.696	27.17	369.68	0.694 *	0.000	5.00	18.868	13.09	569.1	0.0	1780.8
71.00	Top - Section 2	1.00	1.18	24.770	27.25	368.12	0.698 *	0.000	1.00	3.711	2.59	112.9	0.0	350.2
75.00		1.00	1.19	25.057	27.56	367.14	0.698 *	0.000	4.00	14.635	10.21	450.5	0.0	695.4
80.00		1.00	1.21	25.400	27.94	358.98	0.704 *	0.000	5.00	17.824	12.55	561.2	0.0	846.8
85.00		1.00	1.22	25.726	28.30	350.54	0.712 *	0.000	5.00	17.302	12.32	557.7	0.0	821.8
90.00		1.00	1.24	26.037	28.64	341.85	0.720 *	0.000	5.00	16.780	12.08	553.6	0.0	796.8
95.00	Appurtenance(s)	1.00	1.25	26.336	28.97	332.94	0.728 *	0.000	5.00	16.258	11.84	548.9	0.0	771.8
100.00		1.00	1.27	26.621	29.28	323.82	0.650	0.000	5.00	15.736	10.23	479.3	0.0	746.8
105.00	Appurtenance(s)	1.00	1.28	26.896	29.59	314.51	0.650	0.000	5.00	15.214	9.89	468.1	0.0	721.9
110.00	Bot - Section 4	1.00	1.29	27.161	29.88	305.02	0.650	0.000	5.00	14.693	9.55	456.5	0.0	696.9
115.00	Top - Section 3	1.00	1.30	27.416	30.16	295.37	0.650	0.000	5.00	14.382	9.35	451.1	0.0	1218.5
120.00		1.00	1.32	27.663	30.43	290.08	0.650	0.000	5.00	13.860	9.01	438.6	0.0	526.6
123.00	Appurtenance(s)	1.00	1.32	27.807	30.59	284.13	0.650	0.000	3.00	8.066	5.24	256.6	0.0	306.4
125.00		1.00	1.33	27.902	30.69	280.14	0.650	0.000	2.00	5.273	3.43	168.3	0.0	200.3
130.00		1.00	1.34	28.133	30.95	270.07	0.650	0.000	5.00	12.816	8.33	412.5	0.0	486.7
133.00	Appurtenance(s)	1.00	1.34	28.269	31.10	263.97	0.650	0.000	3.00	7.439	4.84	240.6	0.0	282.4
135.00		1.00	1.35	28.358	31.19	259.88	0.650	0.000	2.00	4.855	3.16	157.5	0.0	184.3
140.00		1.00	1.36	28.576	31.43	249.56	0.650	0.000	5.00	11.772	7.65	384.8	0.0	446.7
145.00		1.00	1.37	28.788	31.67	239.12	0.650	0.000	5.00	11.250	7.31	370.5	0.0	426.7
150.00	Top - Section 4	1.00	1.38	28.994	31.89	228.58	0.650	0.000	5.00	10.728	6.97	355.8	0.0	406.7
153.00	Appurtenance(s)	1.00	1.38	29.115	32.03	222.21	0.650	0.000	3.00	6.187	4.02	206.1	0.0	234.4
Totals:									153.00			15,340.4		29,449.8

* Cf Adjusted by Linear Load Ra Effect

Discrete Appurtenance Forces

Structure: CT01499-S-SBA
Site Name: Torrington
Height: 153.00 (ft)
Base Elev: 0.000 (ft)
Gh: 1.1

Topography: 1

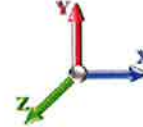
Code: EIA/TIA-222-G
Exposure: C
Crest Height: 0.00
Site Class: B - Competent Rock
Struct Class: II

2/2/2017
 Page: 10



Load Case: 1.2D + 1.6W 93 mph Wind

Dead Load Factor 1.20
Wind Load Factor 1.60



Iterations 22

No.	Elev (ft)	Description	Qty	qz (psf)	qzGh (psf)	CaAa x Ka	Ka	Total CaAa (sf)	Dead Load (lb)	Horiz Ecc (ft)	Vert Ecc (ft)	Wind FX (lb)	Mom Y (lb-ft)	Mom Z (lb-ft)
1	153.00	800 MHz RRU's	3	29.115	32.026	0.83	0.90	6.19	190.80	0.000	0.000	316.94	0.00	0.00
2	153.00	APXVTM14-C-I20	3	29.115	32.026	0.71	0.90	13.52	201.60	0.000	0.000	692.96	0.00	0.00
3	153.00	APXVSP18-C-A20	3	29.115	32.026	0.75	0.90	17.97	205.20	0.000	0.000	920.97	0.00	0.00
4	153.00	1900 MHz RRU's	3	29.115	32.026	0.79	0.90	9.03	158.40	0.000	0.000	462.66	0.00	0.00
5	153.00	Lightning Rod	1	29.115	32.026	1.00	1.00	0.50	6.00	0.000	0.000	25.62	0.00	0.00
6	153.00	ACU-A20-N	4	29.115	32.026	0.81	0.90	0.45	4.80	0.000	0.000	23.24	0.00	0.00
7	153.00	TD-RRH8x20-25	3	29.115	32.026	0.62	0.90	7.55	252.00	0.000	0.000	386.63	0.00	0.00
8	153.00	Low Profile Platform	1	29.115	32.026	1.00	1.00	25.00	1440.00	0.000	0.000	1281.05	0.00	0.00
9	153.00	800 MHz Filters	3	29.115	32.026	0.62	0.90	1.45	31.68	0.000	0.000	74.46	0.00	0.00
10	133.00	Low Profile Platform	1	28.269	31.096	1.00	1.00	25.00	1440.00	0.000	0.000	1243.82	0.00	0.00
11	133.00	RR90-17-02DP	6	28.269	31.096	0.54	0.80	14.23	97.20	0.000	0.000	708.04	0.00	0.00
12	123.00	LPA-80063/6CF	6	27.807	30.588	0.75	0.80	43.32	194.40	0.000	0.000	2119.89	0.00	0.00
13	123.00	B66 4X45 AWS	3	27.807	30.588	0.64	0.80	4.99	230.40	0.000	0.000	244.31	0.00	0.00
14	123.00	SBNHH-1D65B	9	27.807	30.588	0.66	0.80	48.29	438.48	0.000	0.000	2363.17	0.00	0.00
15	123.00	Low Profile Platform	1	27.807	30.588	1.00	1.00	25.00	1440.00	0.000	0.000	1223.52	0.00	0.00
16	123.00	RRH2X60-PCS	3	27.807	30.588	0.71	0.80	4.70	198.00	0.000	0.000	229.98	0.00	0.00
17	123.00	RRH2x60-700	3	27.949	30.744	0.61	0.80	6.38	216.00	0.000	3.000	314.03	0.00	942.08
18	123.00	DB-T1-6Z-8AB-0Z	2	27.807	30.588	0.72	0.80	6.91	45.36	0.000	0.000	338.28	0.00	0.00
19	105.00	Standoff	1	26.896	29.586	1.00	1.00	2.63	48.00	0.000	0.000	124.50	0.00	0.00
20	105.00	10' Omni	1	27.161	29.877	1.00	1.00	3.00	30.00	0.000	5.000	143.41	0.00	717.05
21	95.00	HPA-65R-BUU-H6	4	26.336	28.969	0.72	0.80	27.82	244.80	0.000	0.000	1289.51	0.00	0.00
22	95.00	7770	3	26.336	28.969	0.58	0.80	9.64	126.00	0.000	0.000	446.63	0.00	0.00
23	95.00	SBNH-1D65A	2	26.336	28.969	0.72	0.80	7.75	92.16	0.000	0.000	359.09	0.00	0.00
24	95.00	OPA-65R-LCUU-H6	3	26.336	28.969	0.63	0.80	18.32	288.00	0.000	0.000	848.93	0.00	0.00
25	95.00	LGP21401	6	26.336	28.969	0.54	0.80	4.15	101.52	0.000	0.000	192.29	0.00	0.00
26	95.00	LGP21903	6	26.336	28.969	0.67	0.80	1.09	39.60	0.000	0.000	50.46	0.00	0.00
27	95.00	RRUS-11	6	26.336	28.969	0.54	0.80	14.43	396.00	0.000	0.000	668.69	0.00	0.00
28	95.00	RRUS-12	3	26.336	28.969	0.54	0.80	5.07	216.00	0.000	0.000	234.78	0.00	0.00
29	95.00	RRUS-A2	3	26.336	28.969	0.50	0.80	2.77	76.32	0.000	0.000	128.28	0.00	0.00
30	95.00	RRUS-32	3	26.336	28.969	0.70	0.80	8.08	277.20	0.000	0.000	374.54	0.00	0.00
31	95.00	RRUS-E2	3	26.336	28.969	0.56	0.80	4.72	206.28	0.000	0.000	218.81	0.00	0.00
32	95.00	1000860	3	26.336	28.969	1.00	1.00	0.18	7.20	0.000	0.000	8.34	0.00	0.00
33	95.00	Raycap/Squid	2	26.336	28.969	0.72	0.80	2.12	76.32	0.000	0.000	98.11	0.00	0.00
34	95.00	Sector Frame	3	26.336	28.969	0.56	0.75	29.53	1800.00	0.000	0.000	1368.79	0.00	0.00
35	70.00	Standoff	1	24.696	27.165	1.00	1.00	2.63	48.00	0.000	0.000	114.31	0.00	0.00
36	70.00	GPS	1	24.696	27.165	1.00	1.00	1.00	12.00	0.000	0.000	43.46	0.00	0.00
Totals:								10,875.72				19,682.52		

Total Applied Force Summary

Structure: CT01499-S-SBA

Code: EIA/TIA-222-G

2/2/2017

Site Name: Torrington

Exposure: C

Height: 153.00 (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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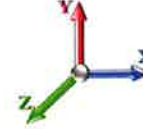


Load Case: 1.2D + 1.6W 93 mph Wind

Iterations 22

Dead Load Factor 1.20

Wind Load Factor 1.60



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		513.90	1725.46	0.00	0.00
10.00		503.22	1695.48	0.00	0.00
15.00		492.54	1665.50	0.00	0.00
20.00		511.28	1635.53	0.00	0.00
21.00		101.94	323.51	0.00	0.00
25.00		427.39	2167.17	0.00	0.00
27.75		313.64	1469.53	0.00	0.00
28.00		28.44	132.77	0.00	0.00
30.00		229.14	547.20	0.00	0.00
35.00		585.50	1350.51	0.00	0.00
40.00		593.02	1325.53	0.00	0.00
40.75		88.51	196.67	0.00	0.00
45.00		502.09	1103.87	0.00	0.00
50.00		561.18	1275.56	0.00	0.00
55.00		562.74	1250.58	0.00	0.00
60.00		563.15	1225.60	0.00	0.00
65.00		562.56	1200.62	0.00	0.00
70.00	(2) attachments	726.84	2132.37	0.00	0.00
71.00		112.92	408.48	0.00	0.00
75.00		450.46	928.65	0.00	0.00
80.00		561.23	1138.33	0.00	0.00
85.00		557.68	1113.35	0.00	0.00
90.00		553.55	1088.37	0.00	0.00
95.00	(50) attachments	6836.14	5010.78	0.00	0.00
100.00		479.25	953.20	0.00	0.00
105.00	(2) attachments	736.05	1006.22	0.00	717.05
110.00		456.53	902.28	0.00	0.00
115.00		451.09	1423.93	0.00	0.00
120.00		438.63	732.04	0.00	0.00
123.00	(27) attachments	7089.76	3192.27	0.00	942.08
125.00		168.30	237.21	0.00	0.00
130.00		412.48	579.03	0.00	0.00
133.00	(7) attachments	2192.44	1875.03	0.00	0.00
135.00		157.50	191.27	0.00	0.00
140.00		384.84	464.18	0.00	0.00
145.00		370.51	444.20	0.00	0.00
150.00		355.85	424.21	0.00	0.00
153.00	(24) attachments	4390.59	2735.41	0.00	0.00
	Totals:	35,022.89	47,271.92	0.00	1,659.14

Linear Appurtenance Segment Forces (Factored)

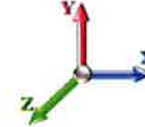
Structure: CT01499-S-SBA	Code: EIA/TIA-222-G	2/2/2017
Site Name: Torrington	Exposure: C	
Height: 153.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: B - Competent Rock	
Gh: 1.1	Topography: 1	Struct Class: II



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Load Case: 1.2D + 1.6W 93 mph Wind

Dead Load Factor 1.20
Wind Load Factor 1.60



Iterations 22

Top Elev (ft)	Description	Wind Exposed	Length (ft)	Ca	Exposed Width (in)	Area (sqft)	CaAa (sqft)	Ra	Cf Adjust Factor	qz (psf)	F X (lb)	Dead Load (lb)
5.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.091	0.000	17.879	0.00	1.64
5.00	1 5/8" Coax	Yes	5.00	0.000	3.96	1.65	0.00	0.091	0.000	17.879	0.00	74.88
5.00	1/2" Fiber	Yes	5.00	0.000	0.38	0.16	0.00	0.091	0.000	17.879	0.00	0.72
5.00	3/4" DC	Yes	5.00	0.000	0.75	0.31	0.00	0.091	0.000	17.879	0.00	9.60
10.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.093	0.000	17.879	0.00	1.64
10.00	1 5/8" Coax	Yes	5.00	0.000	3.96	1.65	0.00	0.093	0.000	17.879	0.00	74.88
10.00	1/2" Fiber	Yes	5.00	0.000	0.38	0.16	0.00	0.093	0.000	17.879	0.00	0.72
10.00	3/4" DC	Yes	5.00	0.000	0.75	0.31	0.00	0.093	0.000	17.879	0.00	9.60
15.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.095	0.000	17.879	0.00	1.64
15.00	1 5/8" Coax	Yes	5.00	0.000	3.96	1.65	0.00	0.095	0.000	17.879	0.00	74.88
15.00	1/2" Fiber	Yes	5.00	0.000	0.38	0.16	0.00	0.095	0.000	17.879	0.00	0.72
15.00	3/4" DC	Yes	5.00	0.000	0.75	0.31	0.00	0.095	0.000	17.879	0.00	9.60
20.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.097	0.000	18.971	0.00	1.64
20.00	1 5/8" Coax	Yes	5.00	0.000	3.96	1.65	0.00	0.097	0.000	18.971	0.00	74.88
20.00	1/2" Fiber	Yes	5.00	0.000	0.38	0.16	0.00	0.097	0.000	18.971	0.00	0.72
20.00	3/4" DC	Yes	5.00	0.000	0.75	0.31	0.00	0.097	0.000	18.971	0.00	9.60
21.00	Safety Cable	Yes	1.00	0.000	0.38	0.03	0.00	0.098	0.000	19.166	0.00	0.33
21.00	1 5/8" Coax	Yes	1.00	0.000	3.96	0.33	0.00	0.098	0.000	19.166	0.00	14.98
21.00	1/2" Fiber	Yes	1.00	0.000	0.38	0.03	0.00	0.098	0.000	19.166	0.00	0.14
21.00	3/4" DC	Yes	1.00	0.000	0.75	0.06	0.00	0.098	0.000	19.166	0.00	1.92
25.00	Safety Cable	Yes	4.00	0.000	0.38	0.13	0.00	0.103	1.010	19.883	0.00	1.31
25.00	1 5/8" Coax	Yes	4.00	0.000	3.96	1.32	0.00	0.103	1.010	19.883	0.00	59.90
25.00	1/2" Fiber	Yes	4.00	0.000	0.38	0.13	0.00	0.103	1.010	19.883	0.00	0.58
25.00	3/4" DC	Yes	4.00	0.000	0.75	0.25	0.00	0.103	1.010	19.883	0.00	7.68
25.00	1.25" Reinforcing	Yes	0.75	0.000	1.25	0.08	0.00	0.103	1.010	19.883	0.00	0.00
27.75	Safety Cable	Yes	2.75	0.000	0.38	0.09	0.00	0.124	1.071	20.325	0.00	0.90
27.75	1 5/8" Coax	Yes	2.75	0.000	3.96	0.91	0.00	0.124	1.071	20.325	0.00	41.18
27.75	1/2" Fiber	Yes	2.75	0.000	0.38	0.09	0.00	0.124	1.071	20.325	0.00	0.40
27.75	3/4" DC	Yes	2.75	0.000	0.75	0.17	0.00	0.124	1.071	20.325	0.00	5.28
27.75	1.25" Reinforcing	Yes	2.75	0.000	1.25	0.29	0.00	0.124	1.071	20.325	0.00	0.00
28.00	Safety Cable	Yes	0.25	0.000	0.38	0.01	0.00	0.125	1.074	20.363	0.00	0.08
28.00	1 5/8" Coax	Yes	0.25	0.000	3.96	0.08	0.00	0.125	1.074	20.363	0.00	3.74
28.00	1/2" Fiber	Yes	0.25	0.000	0.38	0.01	0.00	0.125	1.074	20.363	0.00	0.04
28.00	3/4" DC	Yes	0.25	0.000	0.75	0.02	0.00	0.125	1.074	20.363	0.00	0.48
28.00	1.25" Reinforcing	Yes	0.25	0.000	1.25	0.03	0.00	0.125	1.074	20.363	0.00	0.00
30.00	Safety Cable	Yes	2.00	0.000	0.38	0.06	0.00	0.124	1.071	20.661	0.00	0.66
30.00	1 5/8" Coax	Yes	2.00	0.000	3.96	0.66	0.00	0.124	1.071	20.661	0.00	29.95
30.00	1/2" Fiber	Yes	2.00	0.000	0.38	0.06	0.00	0.124	1.071	20.661	0.00	0.29
30.00	3/4" DC	Yes	2.00	0.000	0.75	0.13	0.00	0.124	1.071	20.661	0.00	3.84
30.00	1.25" Reinforcing	Yes	2.00	0.000	1.25	0.21	0.00	0.124	1.071	20.661	0.00	0.00
35.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.126	1.077	21.343	0.00	1.64
35.00	1 5/8" Coax	Yes	5.00	0.000	3.96	1.65	0.00	0.126	1.077	21.343	0.00	74.88
35.00	1/2" Fiber	Yes	5.00	0.000	0.38	0.16	0.00	0.126	1.077	21.343	0.00	0.72
35.00	3/4" DC	Yes	5.00	0.000	0.75	0.31	0.00	0.126	1.077	21.343	0.00	9.60
35.00	1.25" Reinforcing	Yes	5.00	0.000	1.25	0.52	0.00	0.126	1.077	21.343	0.00	0.00
40.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.129	1.086	21.951	0.00	1.64
40.00	1 5/8" Coax	Yes	5.00	0.000	3.96	1.65	0.00	0.129	1.086	21.951	0.00	74.88

Linear Appurtenance Segment Forces (Factored)

Structure: CT01499-S-SBA
Site Name: Torrington
Height: 153.00 (ft)
Base Elev: 0.000 (ft)
Gh: 1.1

Topography: 1

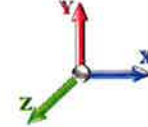
Code: EIA/TIA-222-G
Exposure: C
Crest Height: 0.00
Site Class: B - Competent Rock
Struct Class: II

2/2/2017
 Page: 13



Load Case: 1.2D + 1.6W 93 mph Wind

Dead Load Factor 1.20
Wind Load Factor 1.60



Iterations 22

Top Elev (ft)	Description	Wind Exposed	Length (ft)	Ca	Exposed Width (in)	Area (sqft)	CaAa (sqft)	Ra	Cf Adjust Factor	qz (psf)	F X (lb)	Dead Load (lb)
40.00	1/2" Fiber	Yes	5.00	0.000	0.38	0.16	0.00	0.129	1.086	21.951	0.00	0.72
40.00	3/4" DC	Yes	5.00	0.000	0.75	0.31	0.00	0.129	1.086	21.951	0.00	9.60
40.00	1.25" Reinforcing	Yes	5.00	0.000	1.25	0.52	0.00	0.129	1.086	21.951	0.00	0.00
40.75	Safety Cable	Yes	0.75	0.000	0.38	0.02	0.00	0.131	1.092	22.037	0.00	0.25
40.75	1 5/8" Coax	Yes	0.75	0.000	3.96	0.25	0.00	0.131	1.092	22.037	0.00	11.23
40.75	1/2" Fiber	Yes	0.75	0.000	0.38	0.02	0.00	0.131	1.092	22.037	0.00	0.11
40.75	3/4" DC	Yes	0.75	0.000	0.75	0.05	0.00	0.131	1.092	22.037	0.00	1.44
40.75	1.25" Reinforcing	Yes	0.75	0.000	1.25	0.08	0.00	0.131	1.092	22.037	0.00	0.00
45.00	Safety Cable	Yes	4.25	0.000	0.38	0.13	0.00	0.128	1.084	22.502	0.00	1.39
45.00	1 5/8" Coax	Yes	4.25	0.000	3.96	1.40	0.00	0.128	1.084	22.502	0.00	63.65
45.00	1/2" Fiber	Yes	4.25	0.000	0.38	0.13	0.00	0.128	1.084	22.502	0.00	0.61
45.00	3/4" DC	Yes	4.25	0.000	0.75	0.27	0.00	0.128	1.084	22.502	0.00	8.16
45.00	1.25" Reinforcing	Yes	3.50	0.000	1.25	0.36	0.00	0.128	1.084	22.502	0.00	0.00
50.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.110	1.030	23.007	0.00	1.64
50.00	1 5/8" Coax	Yes	5.00	0.000	3.96	1.65	0.00	0.110	1.030	23.007	0.00	74.88
50.00	1/2" Fiber	Yes	5.00	0.000	0.38	0.16	0.00	0.110	1.030	23.007	0.00	0.72
50.00	3/4" DC	Yes	5.00	0.000	0.75	0.31	0.00	0.110	1.030	23.007	0.00	9.60
55.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.113	1.039	23.473	0.00	1.64
55.00	1 5/8" Coax	Yes	5.00	0.000	3.96	1.65	0.00	0.113	1.039	23.473	0.00	74.88
55.00	1/2" Fiber	Yes	5.00	0.000	0.38	0.16	0.00	0.113	1.039	23.473	0.00	0.72
55.00	3/4" DC	Yes	5.00	0.000	0.75	0.31	0.00	0.113	1.039	23.473	0.00	9.60
60.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.116	1.048	23.907	0.00	1.64
60.00	1 5/8" Coax	Yes	5.00	0.000	3.96	1.65	0.00	0.116	1.048	23.907	0.00	74.88
60.00	1/2" Fiber	Yes	5.00	0.000	0.38	0.16	0.00	0.116	1.048	23.907	0.00	0.72
60.00	3/4" DC	Yes	5.00	0.000	0.75	0.31	0.00	0.116	1.048	23.907	0.00	9.60
65.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.119	1.058	24.313	0.00	1.64
65.00	1 5/8" Coax	Yes	5.00	0.000	3.96	1.65	0.00	0.119	1.058	24.313	0.00	74.88
65.00	1/2" Fiber	Yes	5.00	0.000	0.38	0.16	0.00	0.119	1.058	24.313	0.00	0.72
65.00	3/4" DC	Yes	5.00	0.000	0.75	0.31	0.00	0.119	1.058	24.313	0.00	9.60
70.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.123	1.068	24.696	0.00	1.64
70.00	1 5/8" Coax	Yes	5.00	0.000	3.96	1.65	0.00	0.123	1.068	24.696	0.00	74.88
70.00	1/2" Fiber	Yes	5.00	0.000	0.38	0.16	0.00	0.123	1.068	24.696	0.00	0.72
70.00	3/4" DC	Yes	5.00	0.000	0.75	0.31	0.00	0.123	1.068	24.696	0.00	9.60
71.00	Safety Cable	Yes	1.00	0.000	0.38	0.03	0.00	0.125	1.074	24.770	0.00	0.33
71.00	1 5/8" Coax	Yes	1.00	0.000	3.96	0.33	0.00	0.125	1.074	24.770	0.00	14.98
71.00	1/2" Fiber	Yes	1.00	0.000	0.38	0.03	0.00	0.125	1.074	24.770	0.00	0.14
71.00	3/4" DC	Yes	1.00	0.000	0.75	0.06	0.00	0.125	1.074	24.770	0.00	1.92
75.00	Safety Cable	Yes	4.00	0.000	0.38	0.13	0.00	0.125	1.074	25.057	0.00	1.31
75.00	1 5/8" Coax	Yes	4.00	0.000	3.96	1.32	0.00	0.125	1.074	25.057	0.00	59.90
75.00	1/2" Fiber	Yes	4.00	0.000	0.38	0.13	0.00	0.125	1.074	25.057	0.00	0.58
75.00	3/4" DC	Yes	4.00	0.000	0.75	0.25	0.00	0.125	1.074	25.057	0.00	7.68
80.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.128	1.084	25.400	0.00	1.64
80.00	1 5/8" Coax	Yes	5.00	0.000	3.96	1.65	0.00	0.128	1.084	25.400	0.00	74.88
80.00	1/2" Fiber	Yes	5.00	0.000	0.38	0.16	0.00	0.128	1.084	25.400	0.00	0.72
80.00	3/4" DC	Yes	5.00	0.000	0.75	0.31	0.00	0.128	1.084	25.400	0.00	9.60
85.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.132	1.095	25.726	0.00	1.64
85.00	1 5/8" Coax	Yes	5.00	0.000	3.96	1.65	0.00	0.132	1.095	25.726	0.00	74.88

Linear Appurtenance Segment Forces (Factored)

Structure: CT01499-S-SBA	Code: EIA/TIA-222-G	2/2/2017
Site Name: Torrington	Exposure: C	
Height: 153.00 (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 93 mph Wind

Dead Load Factor 1.20
Wind Load Factor 1.60



Iterations 22

Top Elev (ft)	Description	Wind Exposed	Length (ft)	Ca	Exposed Width (in)	Area (sqft)	CaAa (sqft)	Ra	Cf Adjust Factor	qz (psf)	F X (lb)	Dead Load (lb)
85.00	1/2" Fiber	Yes	5.00	0.000	0.38	0.16	0.00	0.132	1.095	25.726	0.00	0.72
85.00	3/4" DC	Yes	5.00	0.000	0.75	0.31	0.00	0.132	1.095	25.726	0.00	9.60
90.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.136	1.107	26.037	0.00	1.64
90.00	1 5/8" Coax	Yes	5.00	0.000	3.96	1.65	0.00	0.136	1.107	26.037	0.00	74.88
90.00	1/2" Fiber	Yes	5.00	0.000	0.38	0.16	0.00	0.136	1.107	26.037	0.00	0.72
90.00	3/4" DC	Yes	5.00	0.000	0.75	0.31	0.00	0.136	1.107	26.037	0.00	9.60
95.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.140	1.121	26.336	0.00	1.64
95.00	1 5/8" Coax	Yes	5.00	0.000	3.96	1.65	0.00	0.140	1.121	26.336	0.00	74.88
95.00	1/2" Fiber	Yes	5.00	0.000	0.38	0.16	0.00	0.140	1.121	26.336	0.00	0.72
95.00	3/4" DC	Yes	5.00	0.000	0.75	0.31	0.00	0.140	1.121	26.336	0.00	9.60
100.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.010	0.000	26.621	0.00	1.64
105.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.010	0.000	26.896	0.00	1.64
110.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.011	0.000	27.161	0.00	1.64
115.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.011	0.000	27.416	0.00	1.64
120.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.011	0.000	27.663	0.00	1.64
123.00	Safety Cable	Yes	3.00	0.000	0.38	0.10	0.00	0.012	0.000	27.807	0.00	0.98
125.00	Safety Cable	Yes	2.00	0.000	0.38	0.06	0.00	0.012	0.000	27.902	0.00	0.66
130.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.012	0.000	28.133	0.00	1.64
133.00	Safety Cable	Yes	3.00	0.000	0.38	0.10	0.00	0.013	0.000	28.269	0.00	0.98
135.00	Safety Cable	Yes	2.00	0.000	0.38	0.06	0.00	0.013	0.000	28.358	0.00	0.66
140.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.013	0.000	28.576	0.00	1.64
145.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.014	0.000	28.788	0.00	1.64
150.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.015	0.000	28.994	0.00	1.64
153.00	Safety Cable	Yes	3.00	0.000	0.38	0.10	0.00	0.015	0.000	29.115	0.00	0.98
Totals:											0.0	1,668.9

Calculated Forces

Structure: CT01499-S-SBA
Site Name: Torrington
Height: 153.00 (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

2/2/2017

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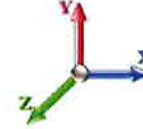


Load Case: 1.2D + 1.6W 93 mph Wind

Iterations 22

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	-47.22	-35.09	0.00	-3609.8	0.00	3609.80	4463.02	2231.51	10951.4	5483.88	0.00	0.000	0.000	0.669
5.00	-45.40	-34.70	0.00	-3434.3	0.00	3434.36	4413.36	2206.68	10604.1	5309.95	0.09	-0.157	0.000	0.657
10.00	-43.61	-34.31	0.00	-3260.8	0.00	3260.87	4361.89	2180.94	10257.6	5136.44	0.34	-0.316	0.000	0.645
15.00	-41.86	-33.92	0.00	-3089.3	0.00	3089.32	4308.61	2154.31	9912.23	4963.48	0.75	-0.477	0.000	0.632
20.00	-40.17	-33.46	0.00	-2919.7	0.00	2919.71	4253.53	2126.77	9568.22	4791.22	1.34	-0.640	0.000	0.619
21.00	-39.80	-33.42	0.00	-2886.2	0.00	2886.24	4242.30	2121.15	9499.61	4756.87	1.48	-0.673	0.000	0.616
25.00	-37.57	-33.04	0.00	-2752.5	0.00	2752.58	4196.65	2098.33	9225.87	4619.79	2.10	-0.805	0.000	0.605
27.75	-36.08	-32.73	0.00	-2661.7	0.00	2661.73	4164.60	2082.30	9038.39	4525.91	2.59	-0.898	0.000	0.394
28.00	-35.93	-32.72	0.00	-2653.5	0.00	2653.55	3213.57	1606.78	7065.87	3538.19	2.64	-0.903	0.000	0.435
30.00	-35.34	-32.53	0.00	-2588.1	0.00	2588.12	3199.34	1599.67	6969.21	3489.78	3.03	-0.948	0.000	0.470
35.00	-33.94	-31.99	0.00	-2425.4	0.00	2425.48	3162.51	1581.26	6727.41	3368.71	4.09	-1.068	0.000	0.452
40.00	-32.58	-31.41	0.00	-2265.5	0.00	2265.53	3123.88	1561.94	6485.64	3247.64	5.27	-1.187	0.000	0.433
40.75	-32.36	-31.35	0.00	-2241.9	0.00	2241.97	3117.93	1558.96	6449.39	3229.49	5.46	-1.205	0.000	0.431
40.75	-32.36	-31.35	0.00	-2241.9	0.00	2241.97	3117.93	1558.96	6449.39	3229.49	5.46	-1.205	0.000	0.431
45.00	-31.18	-30.91	0.00	-2108.7	0.00	2108.73	3083.44	1541.72	6244.17	3126.72	6.58	-1.306	0.000	0.685
50.00	-29.82	-30.41	0.00	-1954.2	0.00	1954.21	3041.20	1520.60	6003.26	3006.09	8.05	-1.499	0.000	0.660
55.00	-28.49	-29.91	0.00	-1802.1	0.00	1802.14	2997.16	1498.58	5763.21	2885.89	9.72	-1.693	0.000	0.634
60.00	-27.18	-29.40	0.00	-1652.5	0.00	1652.57	2951.32	1475.66	5524.28	2766.24	11.60	-1.885	0.000	0.607
65.00	-25.90	-28.88	0.00	-1505.5	0.00	1505.56	2903.67	1451.83	5286.75	2647.30	13.68	-2.075	0.000	0.578
70.00	-23.75	-28.12	0.00	-1361.1	0.00	1361.14	2854.22	1427.11	5050.90	2529.20	15.95	-2.262	0.000	0.547
71.00	-23.30	-28.03	0.00	-1333.0	0.00	1333.02	2869.57	1434.79	5123.02	2565.32	16.43	-2.301	0.000	0.528
75.00	-22.31	-27.61	0.00	-1220.8	0.00	1220.89	2829.16	1414.58	4935.24	2471.29	18.42	-2.449	0.000	0.502
80.00	-21.12	-27.06	0.00	-1082.8	0.00	1082.85	2777.01	1388.51	4702.41	2354.70	21.08	-2.620	0.000	0.468
85.00	-19.96	-26.50	0.00	-947.57	0.00	947.57	2723.06	1361.53	4471.94	2239.29	23.91	-2.784	0.000	0.431
90.00	-18.83	-25.95	0.00	-815.05	0.00	815.05	2667.31	1333.66	4244.12	2125.22	26.91	-2.941	0.000	0.391
95.00	-14.14	-18.89	0.00	-685.31	0.00	685.31	2609.76	1304.88	4019.22	2012.60	30.07	-3.088	0.000	0.346
100.00	-13.17	-18.39	0.00	-590.86	0.00	590.86	2550.40	1275.20	3797.52	1901.58	33.38	-3.225	0.000	0.316
105.00	-12.17	-17.63	0.00	-498.19	0.00	498.19	2489.24	1244.62	3579.29	1792.30	36.83	-3.355	0.000	0.283
110.00	-11.26	-17.14	0.00	-410.06	0.00	410.06	2426.28	1213.14	3364.80	1684.90	40.41	-3.475	0.000	0.248
115.00	-9.84	-16.62	0.00	-324.37	0.00	324.37	1783.00	891.50	2427.68	1215.65	44.10	-3.583	0.000	0.273
120.00	-9.12	-16.15	0.00	-241.28	0.00	241.28	1739.91	869.95	2280.12	1141.75	47.91	-3.676	0.000	0.217
123.00	-6.38	-8.87	0.00	-191.91	0.00	191.91	1713.19	856.59	2192.59	1097.92	50.23	-3.733	0.000	0.179
125.00	-6.15	-8.69	0.00	-174.17	0.00	174.17	1695.01	847.51	2134.69	1068.93	51.80	-3.767	0.000	0.167
130.00	-5.59	-8.25	0.00	-130.71	0.00	130.71	1648.31	824.16	1991.67	997.31	55.79	-3.842	0.000	0.135
133.00	-3.87	-5.94	0.00	-105.97	0.00	105.97	1619.42	809.71	1907.13	954.98	58.22	-3.882	0.000	0.113
135.00	-3.68	-5.77	0.00	-94.10	0.00	94.10	1599.81	799.90	1851.33	927.04	59.85	-3.906	0.000	0.104
140.00	-3.24	-5.35	0.00	-65.26	0.00	65.26	1549.50	774.75	1713.96	858.25	63.96	-3.956	0.000	0.078
145.00	-2.82	-4.96	0.00	-38.49	0.00	38.49	1497.39	748.69	1579.82	791.09	68.12	-3.994	0.000	0.051
150.00	-2.42	-4.57	0.00	-13.71	0.00	13.71	1443.48	721.74	1449.20	725.68	72.32	-4.016	0.000	0.021
150.00	-2.42	-4.57	0.00	-13.71	0.00	13.71	1443.48	721.74	1449.20	725.68	72.32	-4.016	0.000	0.021
153.00	0.00	-4.39	0.00	0.00	0.00	0.00	1400.09	700.04	1362.73	682.38	74.84	-4.020	0.000	0.000

Wind Loading - Shaft

Structure: CT01499-S-SBA
Site Name: Torrington
Height: 153.00 (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

2/2/2017

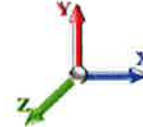
Page: 16



Load Case: 0.9D + 1.6W 93 mph Wind

Iterations 22

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	17.879	19.67	435.32	0.650	0.000	0.00	0.000	0.00	0.0	0.0	0.0
5.00		1.00	0.85	17.879	19.67	426.37	0.650	0.000	5.00	25.125	16.33	513.9	0.0	1075.4
10.00		1.00	0.85	17.879	19.67	417.42	0.650	0.000	5.00	24.603	15.99	503.2	0.0	1052.9
15.00		1.00	0.85	17.879	19.67	408.47	0.650	0.000	5.00	24.081	15.65	492.5	0.0	1030.5
20.00		1.00	0.90	18.971	20.87	411.53	0.650	0.000	5.00	23.559	15.31	511.3	0.0	1008.0
21.00	Bot - Section 2	1.00	0.91	19.166	21.08	411.80	0.650	0.000	1.00	4.649	3.02	101.9	0.0	198.9
25.00		1.00	0.95	19.883	21.87	411.87	0.657 *	0.000	4.00	18.599	12.21	427.4	0.0	1450.4
27.75	RB1	1.00	0.97	20.325	22.36	411.18	0.696 *	0.000	2.75	12.593	8.77	313.6	0.0	981.9
28.00	Top - Section 1	1.00	0.97	20.363	22.40	411.09	0.698 *	0.000	0.25	1.137	0.79	28.4	0.0	88.6
30.00		1.00	0.98	20.661	22.73	415.11	0.696 *	0.000	2.00	9.049	6.30	229.1	0.0	322.9
35.00		1.00	1.01	21.343	23.48	412.12	0.700 *	0.000	5.00	22.257	15.59	585.5	0.0	794.2
40.00		1.00	1.04	21.951	24.15	408.04	0.706 *	0.000	5.00	21.735	15.35	593.0	0.0	775.5
40.75	RT1	1.00	1.05	22.037	24.24	407.34	0.710 *	0.000	0.75	3.215	2.28	88.5	0.0	114.7
45.00		1.00	1.07	22.502	24.75	403.08	0.704 *	0.000	4.25	17.998	12.68	502.1	0.0	642.0
50.00		1.00	1.09	23.007	25.31	397.43	0.670 *	0.000	5.00	20.692	13.86	561.2	0.0	738.0
55.00		1.00	1.12	23.473	25.82	391.18	0.675 *	0.000	5.00	20.170	13.62	562.7	0.0	719.3
60.00		1.00	1.14	23.907	26.30	384.43	0.681 *	0.000	5.00	19.648	13.38	563.2	0.0	700.5
65.00	Bot - Section 3	1.00	1.16	24.313	26.74	377.24	0.687 *	0.000	5.00	19.126	13.15	562.6	0.0	681.8
70.00	Appurtenance(s)	1.00	1.17	24.696	27.17	369.68	0.694 *	0.000	5.00	18.868	13.09	569.1	0.0	1335.6
71.00	Top - Section 2	1.00	1.18	24.770	27.25	368.12	0.698 *	0.000	1.00	3.711	2.59	112.9	0.0	262.6
75.00		1.00	1.19	25.057	27.56	367.14	0.698 *	0.000	4.00	14.635	10.21	450.5	0.0	521.6
80.00		1.00	1.21	25.400	27.94	358.98	0.704 *	0.000	5.00	17.824	12.55	561.2	0.0	635.1
85.00		1.00	1.22	25.726	28.30	350.54	0.712 *	0.000	5.00	17.302	12.32	557.7	0.0	616.3
90.00		1.00	1.24	26.037	28.64	341.85	0.720 *	0.000	5.00	16.780	12.08	553.6	0.0	597.6
95.00	Appurtenance(s)	1.00	1.25	26.336	28.97	332.94	0.728 *	0.000	5.00	16.258	11.84	548.9	0.0	578.9
100.00		1.00	1.27	26.621	29.28	323.82	0.650	0.000	5.00	15.736	10.23	479.3	0.0	560.1
105.00	Appurtenance(s)	1.00	1.28	26.896	29.59	314.51	0.650	0.000	5.00	15.214	9.89	468.1	0.0	541.4
110.00	Bot - Section 4	1.00	1.29	27.161	29.88	305.02	0.650	0.000	5.00	14.693	9.55	456.5	0.0	522.7
115.00	Top - Section 3	1.00	1.30	27.416	30.16	295.37	0.650	0.000	5.00	14.382	9.35	451.1	0.0	913.9
120.00		1.00	1.32	27.663	30.43	290.08	0.650	0.000	5.00	13.860	9.01	438.6	0.0	395.0
123.00	Appurtenance(s)	1.00	1.32	27.807	30.59	284.13	0.650	0.000	3.00	8.066	5.24	256.6	0.0	229.8
125.00		1.00	1.33	27.902	30.69	280.14	0.650	0.000	2.00	5.273	3.43	168.3	0.0	150.2
130.00		1.00	1.34	28.133	30.95	270.07	0.650	0.000	5.00	12.816	8.33	412.5	0.0	365.0
133.00	Appurtenance(s)	1.00	1.34	28.269	31.10	263.97	0.650	0.000	3.00	7.439	4.84	240.6	0.0	211.8
135.00		1.00	1.35	28.358	31.19	259.88	0.650	0.000	2.00	4.855	3.16	157.5	0.0	138.2
140.00		1.00	1.36	28.576	31.43	249.56	0.650	0.000	5.00	11.772	7.65	384.8	0.0	335.0
145.00		1.00	1.37	28.788	31.67	239.12	0.650	0.000	5.00	11.250	7.31	370.5	0.0	320.0
150.00	Top - Section 4	1.00	1.38	28.994	31.89	228.58	0.650	0.000	5.00	10.728	6.97	355.8	0.0	305.1
153.00	Appurtenance(s)	1.00	1.38	29.115	32.03	222.21	0.650	0.000	3.00	6.187	4.02	206.1	0.0	175.8
Totals:									153.00			15,340.4		22,087.4

* Cf Adjusted by Linear Load Ra Effect

Discrete Appurtenance Forces

Structure: CT01499-S-SBA
Site Name: Torrington
Height: 153.00 (ft)
Base Elev: 0.000 (ft)
Gh: 1.1

Topography: 1

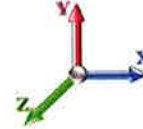
Code: EIA/TIA-222-G
Exposure: C
Crest Height: 0.00
Site Class: B - Competent Rock
Struct Class: II

2/2/2017
 Page: 17



Load Case: 0.9D + 1.6W 93 mph Wind

Dead Load Factor 0.90
Wind Load Factor 1.60



Iterations 22

No.	Elev (ft)	Description	Qty	qz (psf)	qzGh (psf)	CaAa x Ka	Ka	Total CaAa (sf)	Dead Load (lb)	Horiz Ecc (ft)	Vert Ecc (ft)	Wind FX (lb)	Mom Y (lb-ft)	Mom Z (lb-ft)
1	153.00	800 MHz RRUs	3	29.115	32.026	0.83	0.90	6.19	143.10	0.000	0.000	316.94	0.00	0.00
2	153.00	APXVTM14-C-I20	3	29.115	32.026	0.71	0.90	13.52	151.20	0.000	0.000	692.96	0.00	0.00
3	153.00	APXVSP18-C-A20	3	29.115	32.026	0.75	0.90	17.97	153.90	0.000	0.000	920.97	0.00	0.00
4	153.00	1900 MHz RRUs	3	29.115	32.026	0.79	0.90	9.03	118.80	0.000	0.000	462.66	0.00	0.00
5	153.00	Lightning Rod	1	29.115	32.026	1.00	1.00	0.50	4.50	0.000	0.000	25.62	0.00	0.00
6	153.00	ACU-A20-N	4	29.115	32.026	0.81	0.90	0.45	3.60	0.000	0.000	23.24	0.00	0.00
7	153.00	TD-RRH8x20-25	3	29.115	32.026	0.62	0.90	7.55	189.00	0.000	0.000	386.63	0.00	0.00
8	153.00	Low Profile Platform	1	29.115	32.026	1.00	1.00	25.00	1080.00	0.000	0.000	1281.05	0.00	0.00
9	153.00	800 MHz Filters	3	29.115	32.026	0.62	0.90	1.45	23.76	0.000	0.000	74.46	0.00	0.00
10	133.00	Low Profile Platform	1	28.269	31.096	1.00	1.00	25.00	1080.00	0.000	0.000	1243.82	0.00	0.00
11	133.00	RR90-17-02DP	6	28.269	31.096	0.54	0.80	14.23	72.90	0.000	0.000	708.04	0.00	0.00
12	123.00	LPA-80063/6CF	6	27.807	30.588	0.75	0.80	43.32	145.80	0.000	0.000	2119.89	0.00	0.00
13	123.00	B66 4X45 AWS	3	27.807	30.588	0.64	0.80	4.99	172.80	0.000	0.000	244.31	0.00	0.00
14	123.00	SBNHH-1D65B	9	27.807	30.588	0.66	0.80	48.29	328.86	0.000	0.000	2363.17	0.00	0.00
15	123.00	Low Profile Platform	1	27.807	30.588	1.00	1.00	25.00	1080.00	0.000	0.000	1223.52	0.00	0.00
16	123.00	RRH2X60-PCS	3	27.807	30.588	0.71	0.80	4.70	148.50	0.000	0.000	229.98	0.00	0.00
17	123.00	RRH2x60-700	3	27.949	30.744	0.61	0.80	6.38	162.00	0.000	3.000	314.03	0.00	942.08
18	123.00	DB-T1-6Z-8AB-0Z	2	27.807	30.588	0.72	0.80	6.91	34.02	0.000	0.000	338.28	0.00	0.00
19	105.00	Standoff	1	26.896	29.586	1.00	1.00	2.63	36.00	0.000	0.000	124.50	0.00	0.00
20	105.00	10' Omni	1	27.161	29.877	1.00	1.00	3.00	22.50	0.000	5.000	143.41	0.00	717.05
21	95.00	HPA-65R-BUU-H6	4	26.336	28.969	0.72	0.80	27.82	183.60	0.000	0.000	1289.51	0.00	0.00
22	95.00	7770	3	26.336	28.969	0.58	0.80	9.64	94.50	0.000	0.000	446.63	0.00	0.00
23	95.00	SBNH-1D65A	2	26.336	28.969	0.72	0.80	7.75	69.12	0.000	0.000	359.09	0.00	0.00
24	95.00	OPA-65R-LCUU-H6	3	26.336	28.969	0.63	0.80	18.32	216.00	0.000	0.000	848.93	0.00	0.00
25	95.00	LGP21401	6	26.336	28.969	0.54	0.80	4.15	76.14	0.000	0.000	192.29	0.00	0.00
26	95.00	LGP21903	6	26.336	28.969	0.67	0.80	1.09	29.70	0.000	0.000	50.46	0.00	0.00
27	95.00	RRUS-11	6	26.336	28.969	0.54	0.80	14.43	297.00	0.000	0.000	668.69	0.00	0.00
28	95.00	RRUS-12	3	26.336	28.969	0.54	0.80	5.07	162.00	0.000	0.000	234.78	0.00	0.00
29	95.00	RRUS-A2	3	26.336	28.969	0.50	0.80	2.77	57.24	0.000	0.000	128.28	0.00	0.00
30	95.00	RRUS-32	3	26.336	28.969	0.70	0.80	8.08	207.90	0.000	0.000	374.54	0.00	0.00
31	95.00	RRUS-E2	3	26.336	28.969	0.56	0.80	4.72	154.71	0.000	0.000	218.81	0.00	0.00
32	95.00	1000860	3	26.336	28.969	1.00	1.00	0.18	5.40	0.000	0.000	8.34	0.00	0.00
33	95.00	Raycap/Squid	2	26.336	28.969	0.72	0.80	2.12	57.24	0.000	0.000	98.11	0.00	0.00
34	95.00	Sector Frame	3	26.336	28.969	0.56	0.75	29.53	1350.00	0.000	0.000	1368.79	0.00	0.00
35	70.00	Standoff	1	24.696	27.165	1.00	1.00	2.63	36.00	0.000	0.000	114.31	0.00	0.00
36	70.00	GPS	1	24.696	27.165	1.00	1.00	1.00	9.00	0.000	0.000	43.46	0.00	0.00
Totals:								8,156.79				19,682.52		

Total Applied Force Summary

Structure: CT01499-S-SBA
Site Name: Torrington
Height: 153.00 (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

2/2/2017
 Page: 18



Load Case: 0.9D + 1.6W 93 mph Wind

Iterations 22

Dead Load Factor 0.90
Wind Load Factor 1.60



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		513.90	1294.10	0.00	0.00
10.00		503.22	1271.61	0.00	0.00
15.00		492.54	1249.13	0.00	0.00
20.00		511.28	1226.64	0.00	0.00
21.00		101.94	242.63	0.00	0.00
25.00		427.39	1625.38	0.00	0.00
27.75		313.64	1102.15	0.00	0.00
28.00		28.44	99.58	0.00	0.00
30.00		229.14	410.40	0.00	0.00
35.00		585.50	1012.88	0.00	0.00
40.00		593.02	994.14	0.00	0.00
40.75		88.51	147.51	0.00	0.00
45.00		502.09	827.90	0.00	0.00
50.00		561.18	956.67	0.00	0.00
55.00		562.74	937.94	0.00	0.00
60.00		563.15	919.20	0.00	0.00
65.00		562.56	900.46	0.00	0.00
70.00	(2) attachments	726.84	1599.28	0.00	0.00
71.00		112.92	306.36	0.00	0.00
75.00		450.46	696.49	0.00	0.00
80.00		561.23	853.75	0.00	0.00
85.00		557.68	835.01	0.00	0.00
90.00		553.55	816.27	0.00	0.00
95.00	(50) attachments	6836.14	3758.09	0.00	0.00
100.00		479.25	714.90	0.00	0.00
105.00	(2) attachments	736.05	754.67	0.00	717.05
110.00		456.53	676.71	0.00	0.00
115.00		451.09	1067.95	0.00	0.00
120.00		438.63	549.03	0.00	0.00
123.00	(27) attachments	7089.76	2394.21	0.00	942.08
125.00		168.30	177.91	0.00	0.00
130.00		412.48	434.28	0.00	0.00
133.00	(7) attachments	2192.44	1406.27	0.00	0.00
135.00		157.50	143.45	0.00	0.00
140.00		384.84	348.14	0.00	0.00
145.00		370.51	333.15	0.00	0.00
150.00		355.85	318.16	0.00	0.00
153.00	(24) attachments	4390.59	2051.56	0.00	0.00
Totals:		35,022.89	35,453.94	0.00	1,659.14

Linear Appurtenance Segment Forces (Factored)

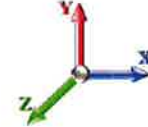
Structure: CT01499-S-SBA	Code: EIA/TIA-222-G	2/2/2017
Site Name: Torrington	Exposure: C	
Height: 153.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: B - Competent Rock	
Gh: 1.1	Topography: 1	Struct Class: II



Page: 19

Load Case: 0.9D + 1.6W 93 mph Wind

Dead Load Factor 0.90
Wind Load Factor 1.60



Iterations 22

Top Elev (ft)	Description	Wind Exposed	Length (ft)	Ca	Exposed Width (in)	Area (sqft)	CaAa (sqft)	Ra	Cf Adjust Factor	qz (psf)	F X (lb)	Dead Load (lb)
5.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.091	0.000	17.879	0.00	1.23
5.00	1 5/8" Coax	Yes	5.00	0.000	3.96	1.65	0.00	0.091	0.000	17.879	0.00	56.16
5.00	1/2" Fiber	Yes	5.00	0.000	0.38	0.16	0.00	0.091	0.000	17.879	0.00	0.54
5.00	3/4" DC	Yes	5.00	0.000	0.75	0.31	0.00	0.091	0.000	17.879	0.00	7.20
10.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.093	0.000	17.879	0.00	1.23
10.00	1 5/8" Coax	Yes	5.00	0.000	3.96	1.65	0.00	0.093	0.000	17.879	0.00	56.16
10.00	1/2" Fiber	Yes	5.00	0.000	0.38	0.16	0.00	0.093	0.000	17.879	0.00	0.54
10.00	3/4" DC	Yes	5.00	0.000	0.75	0.31	0.00	0.093	0.000	17.879	0.00	7.20
15.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.095	0.000	17.879	0.00	1.23
15.00	1 5/8" Coax	Yes	5.00	0.000	3.96	1.65	0.00	0.095	0.000	17.879	0.00	56.16
15.00	1/2" Fiber	Yes	5.00	0.000	0.38	0.16	0.00	0.095	0.000	17.879	0.00	0.54
15.00	3/4" DC	Yes	5.00	0.000	0.75	0.31	0.00	0.095	0.000	17.879	0.00	7.20
20.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.097	0.000	18.971	0.00	1.23
20.00	1 5/8" Coax	Yes	5.00	0.000	3.96	1.65	0.00	0.097	0.000	18.971	0.00	56.16
20.00	1/2" Fiber	Yes	5.00	0.000	0.38	0.16	0.00	0.097	0.000	18.971	0.00	0.54
20.00	3/4" DC	Yes	5.00	0.000	0.75	0.31	0.00	0.097	0.000	18.971	0.00	7.20
21.00	Safety Cable	Yes	1.00	0.000	0.38	0.03	0.00	0.098	0.000	19.166	0.00	0.25
21.00	1 5/8" Coax	Yes	1.00	0.000	3.96	0.33	0.00	0.098	0.000	19.166	0.00	11.23
21.00	1/2" Fiber	Yes	1.00	0.000	0.38	0.03	0.00	0.098	0.000	19.166	0.00	0.11
21.00	3/4" DC	Yes	1.00	0.000	0.75	0.06	0.00	0.098	0.000	19.166	0.00	1.44
25.00	Safety Cable	Yes	4.00	0.000	0.38	0.13	0.00	0.103	1.010	19.883	0.00	0.98
25.00	1 5/8" Coax	Yes	4.00	0.000	3.96	1.32	0.00	0.103	1.010	19.883	0.00	44.93
25.00	1/2" Fiber	Yes	4.00	0.000	0.38	0.13	0.00	0.103	1.010	19.883	0.00	0.43
25.00	3/4" DC	Yes	4.00	0.000	0.75	0.25	0.00	0.103	1.010	19.883	0.00	5.76
25.00	1.25" Reinforcing	Yes	0.75	0.000	1.25	0.08	0.00	0.103	1.010	19.883	0.00	0.00
27.75	Safety Cable	Yes	2.75	0.000	0.38	0.09	0.00	0.124	1.071	20.325	0.00	0.68
27.75	1 5/8" Coax	Yes	2.75	0.000	3.96	0.91	0.00	0.124	1.071	20.325	0.00	30.89
27.75	1/2" Fiber	Yes	2.75	0.000	0.38	0.09	0.00	0.124	1.071	20.325	0.00	0.30
27.75	3/4" DC	Yes	2.75	0.000	0.75	0.17	0.00	0.124	1.071	20.325	0.00	3.96
27.75	1.25" Reinforcing	Yes	2.75	0.000	1.25	0.29	0.00	0.124	1.071	20.325	0.00	0.00
28.00	Safety Cable	Yes	0.25	0.000	0.38	0.01	0.00	0.125	1.074	20.363	0.00	0.06
28.00	1 5/8" Coax	Yes	0.25	0.000	3.96	0.08	0.00	0.125	1.074	20.363	0.00	2.81
28.00	1/2" Fiber	Yes	0.25	0.000	0.38	0.01	0.00	0.125	1.074	20.363	0.00	0.03
28.00	3/4" DC	Yes	0.25	0.000	0.75	0.02	0.00	0.125	1.074	20.363	0.00	0.36
28.00	1.25" Reinforcing	Yes	0.25	0.000	1.25	0.03	0.00	0.125	1.074	20.363	0.00	0.00
30.00	Safety Cable	Yes	2.00	0.000	0.38	0.06	0.00	0.124	1.071	20.661	0.00	0.49
30.00	1 5/8" Coax	Yes	2.00	0.000	3.96	0.66	0.00	0.124	1.071	20.661	0.00	22.46
30.00	1/2" Fiber	Yes	2.00	0.000	0.38	0.06	0.00	0.124	1.071	20.661	0.00	0.22
30.00	3/4" DC	Yes	2.00	0.000	0.75	0.13	0.00	0.124	1.071	20.661	0.00	2.88
30.00	1.25" Reinforcing	Yes	2.00	0.000	1.25	0.21	0.00	0.124	1.071	20.661	0.00	0.00
35.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.126	1.077	21.343	0.00	1.23
35.00	1 5/8" Coax	Yes	5.00	0.000	3.96	1.65	0.00	0.126	1.077	21.343	0.00	56.16
35.00	1/2" Fiber	Yes	5.00	0.000	0.38	0.16	0.00	0.126	1.077	21.343	0.00	0.54
35.00	3/4" DC	Yes	5.00	0.000	0.75	0.31	0.00	0.126	1.077	21.343	0.00	7.20
35.00	1.25" Reinforcing	Yes	5.00	0.000	1.25	0.52	0.00	0.126	1.077	21.343	0.00	0.00
40.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.129	1.086	21.951	0.00	1.23
40.00	1 5/8" Coax	Yes	5.00	0.000	3.96	1.65	0.00	0.129	1.086	21.951	0.00	56.16

Linear Appurtenance Segment Forces (Factored)

Structure: CT01499-S-SBA
Site Name: Torrington
Height: 153.00 (ft)
Base Elev: 0.000 (ft)
Gh: 1.1

Topography: 1

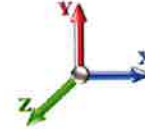
Code: EIA/TIA-222-G
Exposure: C
Crest Height: 0.00
Site Class: B - Competent Rock
Struct Class: II

2/2/2017
 Page: 20



Load Case: 0.9D + 1.6W 93 mph Wind

Dead Load Factor 0.90
Wind Load Factor 1.60



Iterations 22

Top Elev (ft)	Description	Wind Exposed	Length (ft)	Ca	Exposed Width (in)	Area (sqft)	CaAa (sqft)	Ra	Cf Adjust Factor	qz (psf)	F X (lb)	Dead Load (lb)
40.00	1/2" Fiber	Yes	5.00	0.000	0.38	0.16	0.00	0.129	1.086	21.951	0.00	0.54
40.00	3/4" DC	Yes	5.00	0.000	0.75	0.31	0.00	0.129	1.086	21.951	0.00	7.20
40.00	1.25" Reinforcing	Yes	5.00	0.000	1.25	0.52	0.00	0.129	1.086	21.951	0.00	0.00
40.75	Safety Cable	Yes	0.75	0.000	0.38	0.02	0.00	0.131	1.092	22.037	0.00	0.18
40.75	1 5/8" Coax	Yes	0.75	0.000	3.96	0.25	0.00	0.131	1.092	22.037	0.00	8.42
40.75	1/2" Fiber	Yes	0.75	0.000	0.38	0.02	0.00	0.131	1.092	22.037	0.00	0.08
40.75	3/4" DC	Yes	0.75	0.000	0.75	0.05	0.00	0.131	1.092	22.037	0.00	1.08
40.75	1.25" Reinforcing	Yes	0.75	0.000	1.25	0.08	0.00	0.131	1.092	22.037	0.00	0.00
45.00	Safety Cable	Yes	4.25	0.000	0.38	0.13	0.00	0.128	1.084	22.502	0.00	1.04
45.00	1 5/8" Coax	Yes	4.25	0.000	3.96	1.40	0.00	0.128	1.084	22.502	0.00	47.74
45.00	1/2" Fiber	Yes	4.25	0.000	0.38	0.13	0.00	0.128	1.084	22.502	0.00	0.46
45.00	3/4" DC	Yes	4.25	0.000	0.75	0.27	0.00	0.128	1.084	22.502	0.00	6.12
45.00	1.25" Reinforcing	Yes	3.50	0.000	1.25	0.36	0.00	0.128	1.084	22.502	0.00	0.00
50.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.110	1.030	23.007	0.00	1.23
50.00	1 5/8" Coax	Yes	5.00	0.000	3.96	1.65	0.00	0.110	1.030	23.007	0.00	56.16
50.00	1/2" Fiber	Yes	5.00	0.000	0.38	0.16	0.00	0.110	1.030	23.007	0.00	0.54
50.00	3/4" DC	Yes	5.00	0.000	0.75	0.31	0.00	0.110	1.030	23.007	0.00	7.20
55.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.113	1.039	23.473	0.00	1.23
55.00	1 5/8" Coax	Yes	5.00	0.000	3.96	1.65	0.00	0.113	1.039	23.473	0.00	56.16
55.00	1/2" Fiber	Yes	5.00	0.000	0.38	0.16	0.00	0.113	1.039	23.473	0.00	0.54
55.00	3/4" DC	Yes	5.00	0.000	0.75	0.31	0.00	0.113	1.039	23.473	0.00	7.20
60.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.116	1.048	23.907	0.00	1.23
60.00	1 5/8" Coax	Yes	5.00	0.000	3.96	1.65	0.00	0.116	1.048	23.907	0.00	56.16
60.00	1/2" Fiber	Yes	5.00	0.000	0.38	0.16	0.00	0.116	1.048	23.907	0.00	0.54
60.00	3/4" DC	Yes	5.00	0.000	0.75	0.31	0.00	0.116	1.048	23.907	0.00	7.20
65.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.119	1.058	24.313	0.00	1.23
65.00	1 5/8" Coax	Yes	5.00	0.000	3.96	1.65	0.00	0.119	1.058	24.313	0.00	56.16
65.00	1/2" Fiber	Yes	5.00	0.000	0.38	0.16	0.00	0.119	1.058	24.313	0.00	0.54
65.00	3/4" DC	Yes	5.00	0.000	0.75	0.31	0.00	0.119	1.058	24.313	0.00	7.20
70.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.123	1.068	24.696	0.00	1.23
70.00	1 5/8" Coax	Yes	5.00	0.000	3.96	1.65	0.00	0.123	1.068	24.696	0.00	56.16
70.00	1/2" Fiber	Yes	5.00	0.000	0.38	0.16	0.00	0.123	1.068	24.696	0.00	0.54
70.00	3/4" DC	Yes	5.00	0.000	0.75	0.31	0.00	0.123	1.068	24.696	0.00	7.20
71.00	Safety Cable	Yes	1.00	0.000	0.38	0.03	0.00	0.125	1.074	24.770	0.00	0.25
71.00	1 5/8" Coax	Yes	1.00	0.000	3.96	0.33	0.00	0.125	1.074	24.770	0.00	11.23
71.00	1/2" Fiber	Yes	1.00	0.000	0.38	0.03	0.00	0.125	1.074	24.770	0.00	0.11
71.00	3/4" DC	Yes	1.00	0.000	0.75	0.06	0.00	0.125	1.074	24.770	0.00	1.44
75.00	Safety Cable	Yes	4.00	0.000	0.38	0.13	0.00	0.125	1.074	25.057	0.00	0.98
75.00	1 5/8" Coax	Yes	4.00	0.000	3.96	1.32	0.00	0.125	1.074	25.057	0.00	44.93
75.00	1/2" Fiber	Yes	4.00	0.000	0.38	0.13	0.00	0.125	1.074	25.057	0.00	0.43
75.00	3/4" DC	Yes	4.00	0.000	0.75	0.25	0.00	0.125	1.074	25.057	0.00	5.76
80.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.128	1.084	25.400	0.00	1.23
80.00	1 5/8" Coax	Yes	5.00	0.000	3.96	1.65	0.00	0.128	1.084	25.400	0.00	56.16
80.00	1/2" Fiber	Yes	5.00	0.000	0.38	0.16	0.00	0.128	1.084	25.400	0.00	0.54
80.00	3/4" DC	Yes	5.00	0.000	0.75	0.31	0.00	0.128	1.084	25.400	0.00	7.20
85.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.132	1.095	25.726	0.00	1.23
85.00	1 5/8" Coax	Yes	5.00	0.000	3.96	1.65	0.00	0.132	1.095	25.726	0.00	56.16

Linear Appurtenance Segment Forces (Factored)

Structure: CT01499-S-SBA
Site Name: Torrington
Height: 153.00 (ft)
Base Elev: 0.000 (ft)
Gh: 1.1

Topography: 1

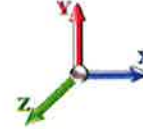
Code: EIA/TIA-222-G
Exposure: C
Crest Height: 0.00
Site Class: B - Competent Rock
Struct Class: II

2/2/2017
 Page: 21



Load Case: 0.9D + 1.6W 93 mph Wind

Dead Load Factor 0.90
Wind Load Factor 1.60



Iterations 22

Top Elev (ft)	Description	Wind Exposed	Length (ft)	Ca	Exposed Width (in)	Area (sqft)	CaAa (sqft)	Ra	Cf Adjust Factor	qz (psf)	F X (lb)	Dead Load (lb)
85.00	1/2" Fiber	Yes	5.00	0.000	0.38	0.16	0.00	0.132	1.095	25.726	0.00	0.54
85.00	3/4" DC	Yes	5.00	0.000	0.75	0.31	0.00	0.132	1.095	25.726	0.00	7.20
90.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.136	1.107	26.037	0.00	1.23
90.00	1 5/8" Coax	Yes	5.00	0.000	3.96	1.65	0.00	0.136	1.107	26.037	0.00	56.16
90.00	1/2" Fiber	Yes	5.00	0.000	0.38	0.16	0.00	0.136	1.107	26.037	0.00	0.54
90.00	3/4" DC	Yes	5.00	0.000	0.75	0.31	0.00	0.136	1.107	26.037	0.00	7.20
95.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.140	1.121	26.336	0.00	1.23
95.00	1 5/8" Coax	Yes	5.00	0.000	3.96	1.65	0.00	0.140	1.121	26.336	0.00	56.16
95.00	1/2" Fiber	Yes	5.00	0.000	0.38	0.16	0.00	0.140	1.121	26.336	0.00	0.54
95.00	3/4" DC	Yes	5.00	0.000	0.75	0.31	0.00	0.140	1.121	26.336	0.00	7.20
100.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.010	0.000	26.621	0.00	1.23
105.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.010	0.000	26.896	0.00	1.23
110.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.011	0.000	27.161	0.00	1.23
115.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.011	0.000	27.416	0.00	1.23
120.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.011	0.000	27.663	0.00	1.23
123.00	Safety Cable	Yes	3.00	0.000	0.38	0.10	0.00	0.012	0.000	27.807	0.00	0.74
125.00	Safety Cable	Yes	2.00	0.000	0.38	0.06	0.00	0.012	0.000	27.902	0.00	0.49
130.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.012	0.000	28.133	0.00	1.23
133.00	Safety Cable	Yes	3.00	0.000	0.38	0.10	0.00	0.013	0.000	28.269	0.00	0.74
135.00	Safety Cable	Yes	2.00	0.000	0.38	0.06	0.00	0.013	0.000	28.358	0.00	0.49
140.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.013	0.000	28.576	0.00	1.23
145.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.014	0.000	28.788	0.00	1.23
150.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.015	0.000	28.994	0.00	1.23
153.00	Safety Cable	Yes	3.00	0.000	0.38	0.10	0.00	0.015	0.000	29.115	0.00	0.74
Totals:											0.0	1,251.7

Calculated Forces

Structure: CT01499-S-SBA
Site Name: Torrington
Height: 153.00 (ft)
Base Elev: 0.000 (ft)
Gh: 1.1

Topography: 1

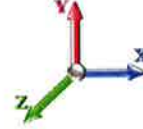
Code: EIA/TIA-222-G
Exposure: C
Crest Height: 0.00
Site Class: B - Competent Rock
Struct Class: II

2/2/2017
 Page: 22



Load Case: 0.9D + 1.6W 93 mph Wind

Dead Load Factor 0.90
Wind Load Factor 1.60



Iterations 22

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	-35.40	-35.07	0.00	-3584.1	0.00	3584.15	4463.02	2231.51	10951.4	5483.88	0.00	0.000	0.000	0.662
5.00	-34.02	-34.65	0.00	-3408.7	0.00	3408.79	4413.36	2206.68	10604.1	5309.95	0.08	-0.156	0.000	0.650
10.00	-32.65	-34.23	0.00	-3235.5	0.00	3235.55	4361.89	2180.94	10257.6	5136.44	0.33	-0.314	0.000	0.638
15.00	-31.31	-33.82	0.00	-3064.3	0.00	3064.39	4308.61	2154.31	9912.23	4963.48	0.75	-0.473	0.000	0.625
20.00	-30.03	-33.35	0.00	-2895.3	0.00	2895.30	4253.53	2126.77	9568.22	4791.22	1.33	-0.635	0.000	0.612
21.00	-29.74	-33.28	0.00	-2861.9	0.00	2861.96	4242.30	2121.15	9499.61	4756.87	1.47	-0.668	0.000	0.609
25.00	-28.06	-32.89	0.00	-2728.8	0.00	2728.82	4196.65	2098.33	9225.87	4619.79	2.08	-0.799	0.000	0.598
27.75	-26.94	-32.58	0.00	-2638.3	0.00	2638.38	4164.60	2082.30	9038.39	4525.91	2.57	-0.890	0.000	0.389
28.00	-26.82	-32.56	0.00	-2630.2	0.00	2630.23	3213.57	1606.78	7065.87	3538.19	2.62	-0.896	0.000	0.429
30.00	-26.37	-32.37	0.00	-2565.1	0.00	2565.10	3199.34	1599.67	6969.21	3489.78	3.00	-0.940	0.000	0.464
35.00	-25.30	-31.82	0.00	-2403.2	0.00	2403.27	3162.51	1581.26	6727.41	3368.71	4.05	-1.059	0.000	0.446
40.00	-24.28	-31.23	0.00	-2244.2	0.00	2244.20	3123.88	1561.94	6485.64	3247.64	5.23	-1.177	0.000	0.428
40.75	-24.11	-31.17	0.00	-2220.7	0.00	2220.77	3117.93	1558.96	6449.39	3229.49	5.41	-1.195	0.000	0.425
40.75	-24.11	-31.17	0.00	-2220.7	0.00	2220.77	3117.93	1558.96	6449.39	3229.49	5.41	-1.195	0.000	0.425
45.00	-23.21	-30.71	0.00	-2088.3	0.00	2088.32	3083.44	1541.72	6244.17	3126.72	6.52	-1.295	0.000	0.676
50.00	-22.17	-30.20	0.00	-1934.7	0.00	1934.79	3041.20	1520.60	6003.26	3006.09	7.98	-1.487	0.000	0.651
55.00	-21.15	-29.68	0.00	-1783.8	0.00	1783.82	2997.16	1498.58	5763.21	2885.89	9.64	-1.678	0.000	0.626
60.00	-20.15	-29.15	0.00	-1635.4	0.00	1635.43	2951.32	1475.66	5524.28	2766.24	11.50	-1.868	0.000	0.598
65.00	-19.17	-28.62	0.00	-1489.6	0.00	1489.67	2903.67	1451.83	5286.75	2647.30	13.56	-2.056	0.000	0.570
70.00	-17.55	-27.87	0.00	-1346.5	0.00	1346.56	2854.22	1427.11	5050.90	2529.20	15.82	-2.241	0.000	0.539
71.00	-17.20	-27.77	0.00	-1318.6	0.00	1318.69	2869.57	1434.79	5123.02	2565.32	16.29	-2.279	0.000	0.520
75.00	-16.45	-27.34	0.00	-1207.6	0.00	1207.60	2829.16	1414.58	4935.24	2471.29	18.26	-2.426	0.000	0.495
80.00	-15.54	-26.79	0.00	-1070.9	0.00	1070.90	2777.01	1388.51	4702.41	2354.70	20.90	-2.595	0.000	0.461
85.00	-14.66	-26.23	0.00	-936.97	0.00	936.97	2723.06	1361.53	4471.94	2239.29	23.70	-2.758	0.000	0.424
90.00	-13.81	-25.67	0.00	-805.82	0.00	805.82	2667.31	1333.66	4244.12	2125.22	26.68	-2.913	0.000	0.385
95.00	-10.37	-18.68	0.00	-677.44	0.00	677.44	2609.76	1304.88	4019.22	2012.60	29.81	-3.058	0.000	0.341
100.00	-9.64	-18.18	0.00	-584.06	0.00	584.06	2550.40	1275.20	3797.52	1901.58	33.08	-3.194	0.000	0.311
105.00	-8.89	-17.42	0.00	-492.43	0.00	492.43	2489.24	1244.62	3579.29	1792.30	36.49	-3.322	0.000	0.279
110.00	-8.21	-16.94	0.00	-405.32	0.00	405.32	2426.28	1213.14	3364.80	1684.90	40.04	-3.440	0.000	0.244
115.00	-7.14	-16.44	0.00	-320.60	0.00	320.60	1783.00	891.50	2427.68	1215.65	43.70	-3.547	0.000	0.268
120.00	-6.60	-15.98	0.00	-238.40	0.00	238.40	1739.91	869.95	2280.12	1141.75	47.46	-3.639	0.000	0.213
123.00	-4.66	-8.75	0.00	-189.53	0.00	189.53	1713.19	856.59	2192.59	1097.92	49.77	-3.695	0.000	0.175
125.00	-4.48	-8.58	0.00	-172.02	0.00	172.02	1695.01	847.51	2134.69	1068.93	51.32	-3.729	0.000	0.164
130.00	-4.07	-8.14	0.00	-129.14	0.00	129.14	1648.31	824.16	1991.67	997.31	55.27	-3.803	0.000	0.132
133.00	-2.81	-5.86	0.00	-104.71	0.00	104.71	1619.42	809.71	1907.13	954.98	57.67	-3.843	0.000	0.111
135.00	-2.67	-5.70	0.00	-92.99	0.00	92.99	1599.81	799.90	1851.33	927.04	59.28	-3.866	0.000	0.102
140.00	-2.35	-5.29	0.00	-64.51	0.00	64.51	1549.50	774.75	1713.96	858.25	63.36	-3.916	0.000	0.077
145.00	-2.04	-4.90	0.00	-38.06	0.00	38.06	1497.39	748.69	1579.82	791.09	67.48	-3.953	0.000	0.050
150.00	-1.74	-4.52	0.00	-13.57	0.00	13.57	1443.48	721.74	1449.20	725.68	71.63	-3.975	0.000	0.020
150.00	-1.74	-4.52	0.00	-13.57	0.00	13.57	1443.48	721.74	1449.20	725.68	71.63	-3.975	0.000	0.020
153.00	0.00	-4.39	0.00	0.00	0.00	0.00	1400.09	700.04	1362.73	682.38	74.12	-3.979	0.000	0.000

Wind Loading - Shaft

Structure: CT01499-S-SBA
Site Name: Torrington
Height: 153.00 (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

2/2/2017

Page: 23

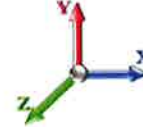


Load Case: 1.2D + 1.0Di + 1.0Wi 40 mph Wind

Iterations 21

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	3.308	3.64	0.00	1.200	0.000	0.00	0.000	0.00	0.0	0.0	0.0
5.00		1.00	0.85	3.308	3.64	0.00	1.200	1.656	5.00	26.505	31.81	115.7	626.8	2060.7
10.00		1.00	0.85	3.308	3.64	0.00	1.200	1.775	5.00	26.082	31.30	113.9	659.4	2063.3
15.00		1.00	0.85	3.308	3.64	0.00	1.200	1.848	5.00	25.621	30.75	111.9	673.2	2047.1
20.00		1.00	0.90	3.509	3.86	0.00	1.200	1.902	5.00	25.144	30.17	116.5	678.8	2022.7
21.00	Bot - Section 2	1.00	0.91	3.546	3.90	0.00	1.200	1.912	1.00	4.968	5.96	23.3	135.8	401.0
25.00		1.00	0.95	3.678	4.05	0.00	1.212 *	1.945	4.00	19.896	24.12	97.6	549.7	2483.7
27.75	RB1	1.00	0.97	3.760	4.14	0.00	1.285 *	1.966	2.75	13.494	17.35	71.7	377.5	1686.6
28.00	Top - Section 1	1.00	0.97	3.767	4.14	0.00	1.288 *	1.967	0.25	1.219	1.57	6.5	34.3	152.5
30.00		1.00	0.98	3.822	4.20	0.00	1.286 *	1.981	2.00	9.709	12.48	52.5	274.0	704.6
35.00		1.00	1.01	3.948	4.34	0.00	1.293 *	2.012	5.00	23.934	30.94	134.4	680.4	1739.4
40.00		1.00	1.04	4.061	4.47	0.00	1.304 *	2.039	5.00	23.434	30.55	136.5	674.1	1708.1
40.75	RT1	1.00	1.05	4.077	4.48	0.00	1.310 *	2.043	0.75	3.471	4.55	20.4	101.0	253.9
45.00		1.00	1.07	4.163	4.58	0.00	1.300 *	2.063	4.25	19.459	25.31	115.9	566.5	1422.6
50.00		1.00	1.09	4.256	4.68	0.00	1.237 *	2.085	5.00	22.429	27.73	129.8	657.7	1641.7
55.00		1.00	1.12	4.342	4.78	0.00	1.247 *	2.105	5.00	21.924	27.33	130.6	648.0	1607.0
60.00		1.00	1.14	4.423	4.86	0.00	1.258 *	2.123	5.00	21.417	26.93	131.0	637.5	1571.5
65.00	Bot - Section 3	1.00	1.16	4.498	4.95	0.00	1.269 *	2.140	5.00	20.909	26.53	131.3	626.3	1535.4
70.00	Appurtenance(s)	1.00	1.17	4.569	5.03	0.00	1.281 *	2.156	5.00	20.665	26.47	133.0	622.9	2403.8
71.00	Top - Section 2	1.00	1.18	4.582	5.04	0.00	1.289 *	2.159	1.00	4.071	5.25	26.4	124.1	474.3
75.00		1.00	1.19	4.635	5.10	0.00	1.289 *	2.171	4.00	16.083	20.72	105.7	488.5	1183.9
80.00		1.00	1.21	4.699	5.17	0.00	1.300 *	2.185	5.00	19.645	25.55	132.0	597.9	1444.7
85.00		1.00	1.22	4.759	5.24	0.00	1.314 *	2.198	5.00	19.134	25.15	131.6	584.7	1406.5
90.00		1.00	1.24	4.817	5.30	0.00	1.329 *	2.211	5.00	18.623	24.75	131.1	571.2	1368.0
95.00	Appurtenance(s)	1.00	1.25	4.872	5.36	0.00	1.345 *	2.223	5.00	18.111	24.35	130.5	557.2	1329.1
100.00		1.00	1.27	4.925	5.42	0.00	1.200	2.234	5.00	17.598	21.12	114.4	543.0	1289.8
105.00	Appurtenance(s)	1.00	1.28	4.976	5.47	0.00	1.200	2.245	5.00	17.086	20.50	112.2	528.4	1250.3
110.00	Bot - Section 4	1.00	1.29	5.025	5.53	0.00	1.200	2.256	5.00	16.572	19.89	109.9	513.6	1210.5
115.00	Top - Section 3	1.00	1.30	5.072	5.58	0.00	1.200	2.266	5.00	16.270	19.52	108.9	505.6	1724.2
120.00		1.00	1.32	5.117	5.63	0.00	1.200	2.276	5.00	15.756	18.91	106.4	490.3	1017.0
123.00	Appurtenance(s)	1.00	1.32	5.144	5.66	0.00	1.200	2.281	3.00	9.206	11.05	62.5	288.6	595.0
125.00		1.00	1.33	5.162	5.68	0.00	1.200	2.285	2.00	6.034	7.24	41.1	189.9	390.2
130.00		1.00	1.34	5.204	5.72	0.00	1.200	2.294	5.00	14.728	17.67	101.2	459.0	945.7
133.00	Appurtenance(s)	1.00	1.34	5.230	5.75	0.00	1.200	2.299	3.00	8.589	10.31	59.3	269.7	552.1
135.00		1.00	1.35	5.246	5.77	0.00	1.200	2.303	2.00	5.623	6.75	38.9	177.2	361.5
140.00		1.00	1.36	5.286	5.81	0.00	1.200	2.311	5.00	13.698	16.44	95.6	427.0	873.7
145.00		1.00	1.37	5.325	5.86	0.00	1.200	2.319	5.00	13.183	15.82	92.7	410.7	837.4
150.00	Top - Section 4	1.00	1.38	5.364	5.90	0.00	1.200	2.327	5.00	12.668	15.20	89.7	394.2	800.9
153.00	Appurtenance(s)	1.00	1.38	5.386	5.92	0.00	1.200	2.332	3.00	7.352	8.82	52.3	230.5	465.0
Totals:									153.00			3,614.9		47,025.3

* Cf Adjusted by Linear Load Ra Effect

Discrete Appurtenance Forces

Structure: CT01499-S-SBA
Site Name: Torrington
Height: 153.00 (ft)
Base Elev: 0.000 (ft)
Gh: 1.1

Topography: 1

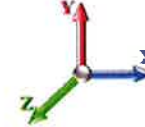
Code: EIA/TIA-222-G
Exposure: C
Crest Height: 0.00
Site Class: B - Competent Rock
Struct Class: II

2/2/2017
 Page: 24



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

Dead Load Factor 1.20
Wind Load Factor 1.00



Iterations 21

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	153.00	800 MHz RRU's	3	5.386	5.925	0.83	0.90	9.98	423.93	0.000	0.000	59.13	0.00	0.00
2	153.00	APXVTM14-C-I20	3	5.386	5.925	0.71	0.90	16.76	888.83	0.000	0.000	99.32	0.00	0.00
3	153.00	APXVSPP18-C-A20	3	5.386	5.925	0.75	0.90	26.34	749.48	0.000	0.000	156.04	0.00	0.00
4	153.00	1900 MHz RRU's	3	5.386	5.925	0.79	0.90	13.44	502.32	0.000	0.000	79.63	0.00	0.00
5	153.00	Lightning Rod	1	5.386	5.925	1.00	1.00	2.83	27.98	0.000	0.000	16.78	0.00	0.00
6	153.00	ACU-A20-N	4	5.386	5.925	0.81	0.90	1.74	22.56	0.000	0.000	10.30	0.00	0.00
7	153.00	TD-RRH8x20-25	3	5.386	5.925	0.62	0.90	9.62	726.39	0.000	0.000	57.00	0.00	0.00
8	153.00	Low Profile Platform	1	5.386	5.925	1.00	1.00	52.98	2538.94	0.000	0.000	313.88	0.00	0.00
9	153.00	800 MHz Filters	3	5.386	5.925	0.62	0.90	3.06	87.39	0.000	0.000	18.15	0.00	0.00
10	133.00	Low Profile Platform	1	5.230	5.752	1.00	1.00	52.59	2519.48	0.000	0.000	302.52	0.00	0.00
11	133.00	RR90-17-02DP	6	5.230	5.752	0.54	0.80	18.60	951.53	0.000	0.000	107.00	0.00	0.00
12	123.00	LPA-80063/6CF	6	5.144	5.659	0.75	0.80	51.44	2555.35	0.000	0.000	291.08	0.00	0.00
13	123.00	B66 4X45 AWS	3	5.144	5.659	0.64	0.80	6.80	583.31	0.000	0.000	38.50	0.00	0.00
14	123.00	SBNHH-1D65B	9	5.144	5.659	0.66	0.80	58.59	2951.53	0.000	0.000	331.55	0.00	0.00
15	123.00	Low Profile Platform	1	5.144	5.659	1.00	1.00	52.37	2508.74	0.000	0.000	296.37	0.00	0.00
16	123.00	RRH2X60-PCS	3	5.144	5.659	0.71	0.80	6.53	553.93	0.000	0.000	36.93	0.00	0.00
17	123.00	RRH2x60-700	3	5.170	5.687	0.61	0.80	8.27	497.99	0.000	3.000	47.01	0.00	141.03
18	123.00	DB-T1-6Z-8AB-0Z	2	5.144	5.659	0.72	0.80	8.59	442.04	0.000	0.000	48.61	0.00	0.00
19	105.00	Standoff	1	4.976	5.473	1.00	1.00	10.31	128.29	0.000	0.000	56.42	0.00	0.00
20	105.00	10' Omni	1	5.025	5.527	1.00	1.00	7.64	106.16	0.000	5.000	42.23	0.00	211.13
21	95.00	HPA-65R-BUU-H6	4	4.872	5.359	0.72	0.80	32.91	1566.08	0.000	0.000	176.39	0.00	0.00
22	95.00	7770	3	4.872	5.359	0.58	0.80	12.06	675.16	0.000	0.000	64.61	0.00	0.00
23	95.00	SBNH-1D65A	2	4.872	5.359	0.72	0.80	11.38	342.58	0.000	0.000	61.01	0.00	0.00
24	95.00	OPA-65R-LCUU-H6	3	4.872	5.359	0.63	0.80	21.67	1215.85	0.000	0.000	116.12	0.00	0.00
25	95.00	LGP21401	6	4.872	5.359	0.54	0.80	7.57	250.00	0.000	0.000	40.58	0.00	0.00
26	95.00	LGP21903	6	4.872	5.359	0.67	0.80	3.13	89.61	0.000	0.000	16.78	0.00	0.00
27	95.00	RRUS-11	6	4.872	5.359	0.54	0.80	20.66	929.34	0.000	0.000	110.73	0.00	0.00
28	95.00	RRUS-12	3	4.872	5.359	0.54	0.80	7.64	436.35	0.000	0.000	40.93	0.00	0.00
29	95.00	RRUS-A2	3	4.872	5.359	0.50	0.80	4.61	183.71	0.000	0.000	24.72	0.00	0.00
30	95.00	RRUS-32	3	4.872	5.359	0.70	0.80	9.07	736.33	0.000	0.000	48.60	0.00	0.00
31	95.00	RRUS-E2	3	4.872	5.359	0.56	0.80	6.21	560.74	0.000	0.000	33.27	0.00	0.00
32	95.00	1000860	3	4.872	5.359	1.00	1.00	0.98	15.17	0.000	0.000	5.25	0.00	0.00
33	95.00	Raycap/Squid	2	4.872	5.359	0.72	0.80	3.40	198.42	0.000	0.000	18.22	0.00	0.00
34	95.00	Sector Frame	3	4.872	5.359	0.56	0.75	59.47	3867.67	0.000	0.000	318.69	0.00	0.00
35	70.00	Standoff	1	4.569	5.025	1.00	1.00	10.00	124.19	0.000	0.000	50.27	0.00	0.00
36	70.00	GPS	1	4.569	5.025	1.00	1.00	1.88	40.22	0.000	0.000	9.45	0.00	0.00

Totals: 30,997.59

3,544.07

Total Applied Force Summary

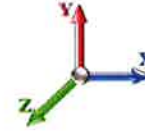
Structure: CT01499-S-SBA	Code: EIA/TIA-222-G	2/2/2017
Site Name: Torrington	Exposure: C	
Height: 153.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: B - Competent Rock	
Gh: 1.1	Topography: 1	Struct Class: II



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

Dead Load Factor 1.20
Wind Load Factor 1.00



Iterations 21

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		115.72	2619.67	0.00	0.00
10.00		113.87	2645.12	0.00	0.00
15.00		111.86	2643.44	0.00	0.00
20.00		116.48	2629.84	0.00	0.00
21.00		23.25	522.84	0.00	0.00
25.00		97.59	2984.32	0.00	0.00
27.75		71.74	2057.42	0.00	0.00
28.00		6.51	186.23	0.00	0.00
30.00		52.48	975.72	0.00	0.00
35.00		134.39	2424.83	0.00	0.00
40.00		136.48	2400.25	0.00	0.00
40.75		20.39	357.86	0.00	0.00
45.00		115.87	2007.27	0.00	0.00
50.00		129.84	2286.40	0.00	0.00
55.00		130.57	2255.92	0.00	0.00
60.00		131.03	2224.32	0.00	0.00
65.00		131.28	2191.77	0.00	0.00
70.00	(2) attachments	192.76	3227.97	0.00	0.00
71.00		26.44	606.37	0.00	0.00
75.00		105.66	1714.35	0.00	0.00
80.00		132.03	2110.72	0.00	0.00
85.00		131.64	2075.42	0.00	0.00
90.00		131.13	2039.60	0.00	0.00
95.00	(50) attachments	1206.42	13070.31	0.00	0.00
100.00		114.40	1530.01	0.00	0.00
105.00	(2) attachments	210.87	1725.24	0.00	211.13
110.00		109.92	1450.32	0.00	0.00
115.00		108.93	1964.28	0.00	0.00
120.00		106.44	1257.37	0.00	0.00
123.00	(27) attachments	1152.56	10832.26	0.00	141.03
125.00		41.11	441.24	0.00	0.00
130.00		101.18	1073.63	0.00	0.00
133.00	(7) attachments	468.80	4099.96	0.00	0.00
135.00		38.93	382.83	0.00	0.00
140.00		95.58	927.21	0.00	0.00
145.00		92.67	891.16	0.00	0.00
150.00		89.69	854.92	0.00	0.00
153.00	(24) attachments	862.50	6465.28	0.00	0.00
	Totals:	7,159.01	92,153.69	0.00	352.16

Linear Appurtenance Segment Forces (Factored)

Structure: CT01499-S-SBA
Site Name: Torrington
Height: 153.00 (ft)
Base Elev: 0.000 (ft)
Gh: 1.1

Topography: 1

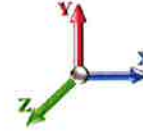
Code: EIA/TIA-222-G
Exposure: C
Crest Height: 0.00
Site Class: B - Competent Rock
Struct Class: II

2/2/2017
 Page: 26



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

Dead Load Factor 1.20
Wind Load Factor 1.00



Iterations 21

Top Elev (ft)	Description	Wind Exposed	Length (ft)	Ca	Exposed Width (in)	Area (sqft)	CaAa (sqft)	Ra	Cf Adjust Factor	qz (psf)	F X (lb)	Dead Load (lb)
5.00	Safety Cable	Yes	5.00	0.000	0.38	1.54	0.00	0.091	0.000	3.308	0.00	20.86
5.00	1 5/8" Coax	Yes	5.00	0.000	3.96	3.03	0.00	0.091	0.000	3.308	0.00	264.28
5.00	1/2" Fiber	Yes	5.00	0.000	0.38	1.54	0.00	0.091	0.000	3.308	0.00	22.49
5.00	3/4" DC	Yes	5.00	0.000	0.75	1.69	0.00	0.091	0.000	3.308	0.00	46.61
10.00	Safety Cable	Yes	5.00	0.000	0.38	1.64	0.00	0.093	0.000	3.308	0.00	23.53
10.00	1 5/8" Coax	Yes	5.00	0.000	3.96	3.13	0.00	0.093	0.000	3.308	0.00	277.76
10.00	1/2" Fiber	Yes	5.00	0.000	0.38	1.64	0.00	0.093	0.000	3.308	0.00	25.33
10.00	3/4" DC	Yes	5.00	0.000	0.75	1.79	0.00	0.093	0.000	3.308	0.00	50.49
15.00	Safety Cable	Yes	5.00	0.000	0.38	1.70	0.00	0.095	0.000	3.308	0.00	25.26
15.00	1 5/8" Coax	Yes	5.00	0.000	3.96	3.19	0.00	0.095	0.000	3.308	0.00	286.17
15.00	1/2" Fiber	Yes	5.00	0.000	0.38	1.70	0.00	0.095	0.000	3.308	0.00	27.17
15.00	3/4" DC	Yes	5.00	0.000	0.75	1.85	0.00	0.095	0.000	3.308	0.00	52.97
20.00	Safety Cable	Yes	5.00	0.000	0.38	1.74	0.00	0.097	0.000	3.509	0.00	26.58
20.00	1 5/8" Coax	Yes	5.00	0.000	3.96	3.24	0.00	0.097	0.000	3.509	0.00	292.39
20.00	1/2" Fiber	Yes	5.00	0.000	0.38	1.74	0.00	0.097	0.000	3.509	0.00	28.57
20.00	3/4" DC	Yes	5.00	0.000	0.75	1.90	0.00	0.097	0.000	3.509	0.00	54.84
21.00	Safety Cable	Yes	1.00	0.000	0.38	0.35	0.00	0.098	0.000	3.546	0.00	5.36
21.00	1 5/8" Coax	Yes	1.00	0.000	3.96	0.65	0.00	0.098	0.000	3.546	0.00	58.69
21.00	1/2" Fiber	Yes	1.00	0.000	0.38	0.35	0.00	0.098	0.000	3.546	0.00	5.76
21.00	3/4" DC	Yes	1.00	0.000	0.75	0.38	0.00	0.098	0.000	3.546	0.00	11.03
25.00	Safety Cable	Yes	4.00	0.000	0.38	1.42	0.00	0.103	1.010	3.678	0.00	22.12
25.00	1 5/8" Coax	Yes	4.00	0.000	3.96	2.62	0.00	0.103	1.010	3.678	0.00	237.89
25.00	1/2" Fiber	Yes	4.00	0.000	0.38	1.42	0.00	0.103	1.010	3.678	0.00	23.76
25.00	3/4" DC	Yes	4.00	0.000	0.75	1.55	0.00	0.103	1.010	3.678	0.00	45.08
25.00	1.25" Reinforcing	Yes	0.75	0.000	1.25	0.32	0.00	0.103	1.010	3.678	0.00	8.02
27.75	Safety Cable	Yes	2.75	0.000	0.38	0.99	0.00	0.124	1.071	3.760	0.00	15.49
27.75	1 5/8" Coax	Yes	2.75	0.000	3.96	1.81	0.00	0.124	1.071	3.760	0.00	164.86
27.75	1/2" Fiber	Yes	2.75	0.000	0.38	0.99	0.00	0.124	1.071	3.760	0.00	16.64
27.75	3/4" DC	Yes	2.75	0.000	0.75	1.07	0.00	0.124	1.071	3.760	0.00	31.39
27.75	1.25" Reinforcing	Yes	2.75	0.000	1.25	1.19	0.00	0.124	1.071	3.760	0.00	29.82
28.00	Safety Cable	Yes	0.25	0.000	0.38	0.09	0.00	0.125	1.074	3.767	0.00	1.41
28.00	1 5/8" Coax	Yes	0.25	0.000	3.96	0.16	0.00	0.125	1.074	3.767	0.00	15.00
28.00	1/2" Fiber	Yes	0.25	0.000	0.38	0.09	0.00	0.125	1.074	3.767	0.00	1.52
28.00	3/4" DC	Yes	0.25	0.000	0.75	0.10	0.00	0.125	1.074	3.767	0.00	2.86
28.00	1.25" Reinforcing	Yes	0.25	0.000	1.25	0.11	0.00	0.125	1.074	3.767	0.00	2.71
30.00	Safety Cable	Yes	2.00	0.000	0.38	0.72	0.00	0.124	1.071	3.822	0.00	11.42
30.00	1 5/8" Coax	Yes	2.00	0.000	3.96	1.32	0.00	0.124	1.071	3.822	0.00	120.61
30.00	1/2" Fiber	Yes	2.00	0.000	0.38	0.72	0.00	0.124	1.071	3.822	0.00	12.27
30.00	3/4" DC	Yes	2.00	0.000	0.75	0.79	0.00	0.124	1.071	3.822	0.00	23.05
30.00	1.25" Reinforcing	Yes	2.00	0.000	1.25	0.87	0.00	0.124	1.071	3.822	0.00	21.93
35.00	Safety Cable	Yes	5.00	0.000	0.38	1.83	0.00	0.126	1.077	3.948	0.00	29.35
35.00	1 5/8" Coax	Yes	5.00	0.000	3.96	3.33	0.00	0.126	1.077	3.948	0.00	305.13
35.00	1/2" Fiber	Yes	5.00	0.000	0.38	1.83	0.00	0.126	1.077	3.948	0.00	31.51
35.00	3/4" DC	Yes	5.00	0.000	0.75	1.99	0.00	0.126	1.077	3.948	0.00	58.73
35.00	1.25" Reinforcing	Yes	5.00	0.000	1.25	2.20	0.00	0.126	1.077	3.948	0.00	56.02
40.00	Safety Cable	Yes	5.00	0.000	0.38	1.86	0.00	0.129	1.086	4.061	0.00	30.06
40.00	1 5/8" Coax	Yes	5.00	0.000	3.96	3.35	0.00	0.129	1.086	4.061	0.00	308.29

Linear Appurtenance Segment Forces (Factored)

Structure: CT01499-S-SBA
Site Name: Torrington
Height: 153.00 (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

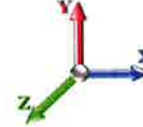
2/2/2017
 Page: 27



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

Iterations 21

Dead Load Factor 1.20
Wind Load Factor 1.00



Top Elev (ft)	Description	Wind Exposed	Length (ft)	Ca	Exposed Width (in)	Area (sqft)	CaAa (sqft)	Ra	Cf Adjust Factor	qz (psf)	F X (lb)	Dead Load (lb)
40.00	1/2" Fiber	Yes	5.00	0.000	0.38	1.86	0.00	0.129	1.086	4.061	0.00	32.26
40.00	3/4" DC	Yes	5.00	0.000	0.75	2.01	0.00	0.129	1.086	4.061	0.00	59.72
40.00	1.25" Reinforcing	Yes	5.00	0.000	1.25	2.22	0.00	0.129	1.086	4.061	0.00	57.08
40.75	Safety Cable	Yes	0.75	0.000	0.38	0.28	0.00	0.131	1.092	4.077	0.00	4.52
40.75	1 5/8" Coax	Yes	0.75	0.000	3.96	0.50	0.00	0.131	1.092	4.077	0.00	46.31
40.75	1/2" Fiber	Yes	0.75	0.000	0.38	0.28	0.00	0.131	1.092	4.077	0.00	4.85
40.75	3/4" DC	Yes	0.75	0.000	0.75	0.30	0.00	0.131	1.092	4.077	0.00	8.98
40.75	1.25" Reinforcing	Yes	0.75	0.000	1.25	0.33	0.00	0.131	1.092	4.077	0.00	8.58
45.00	Safety Cable	Yes	4.25	0.000	0.38	1.60	0.00	0.128	1.084	4.163	0.00	26.10
45.00	1 5/8" Coax	Yes	4.25	0.000	3.96	2.86	0.00	0.128	1.084	4.163	0.00	264.46
45.00	1/2" Fiber	Yes	4.25	0.000	0.38	1.60	0.00	0.128	1.084	4.163	0.00	28.00
45.00	3/4" DC	Yes	4.25	0.000	0.75	1.73	0.00	0.128	1.084	4.163	0.00	51.51
45.00	1.25" Reinforcing	Yes	3.50	0.000	1.25	1.57	0.00	0.128	1.084	4.163	0.00	40.63
50.00	Safety Cable	Yes	5.00	0.000	0.38	1.90	0.00	0.110	1.030	4.256	0.00	31.29
50.00	1 5/8" Coax	Yes	5.00	0.000	3.96	3.39	0.00	0.110	1.030	4.256	0.00	313.70
50.00	1/2" Fiber	Yes	5.00	0.000	0.38	1.90	0.00	0.110	1.030	4.256	0.00	33.55
50.00	3/4" DC	Yes	5.00	0.000	0.75	2.05	0.00	0.110	1.030	4.256	0.00	61.41
55.00	Safety Cable	Yes	5.00	0.000	0.38	1.91	0.00	0.113	1.039	4.342	0.00	31.83
55.00	1 5/8" Coax	Yes	5.00	0.000	3.96	3.40	0.00	0.113	1.039	4.342	0.00	316.06
55.00	1/2" Fiber	Yes	5.00	0.000	0.38	1.91	0.00	0.113	1.039	4.342	0.00	34.12
55.00	3/4" DC	Yes	5.00	0.000	0.75	2.07	0.00	0.113	1.039	4.342	0.00	62.16
60.00	Safety Cable	Yes	5.00	0.000	0.38	1.93	0.00	0.116	1.048	4.423	0.00	32.33
60.00	1 5/8" Coax	Yes	5.00	0.000	3.96	3.42	0.00	0.116	1.048	4.423	0.00	318.23
60.00	1/2" Fiber	Yes	5.00	0.000	0.38	1.93	0.00	0.116	1.048	4.423	0.00	34.65
60.00	3/4" DC	Yes	5.00	0.000	0.75	2.08	0.00	0.116	1.048	4.423	0.00	62.85
65.00	Safety Cable	Yes	5.00	0.000	0.38	1.94	0.00	0.119	1.058	4.498	0.00	32.80
65.00	1 5/8" Coax	Yes	5.00	0.000	3.96	3.43	0.00	0.119	1.058	4.498	0.00	320.25
65.00	1/2" Fiber	Yes	5.00	0.000	0.38	1.94	0.00	0.119	1.058	4.498	0.00	35.15
65.00	3/4" DC	Yes	5.00	0.000	0.75	2.10	0.00	0.119	1.058	4.498	0.00	63.49
70.00	Safety Cable	Yes	5.00	0.000	0.38	1.96	0.00	0.123	1.068	4.569	0.00	33.24
70.00	1 5/8" Coax	Yes	5.00	0.000	3.96	3.45	0.00	0.123	1.068	4.569	0.00	322.14
70.00	1/2" Fiber	Yes	5.00	0.000	0.38	1.96	0.00	0.123	1.068	4.569	0.00	35.61
70.00	3/4" DC	Yes	5.00	0.000	0.75	2.11	0.00	0.123	1.068	4.569	0.00	64.09
71.00	Safety Cable	Yes	1.00	0.000	0.38	0.39	0.00	0.125	1.074	4.582	0.00	6.67
71.00	1 5/8" Coax	Yes	1.00	0.000	3.96	0.69	0.00	0.125	1.074	4.582	0.00	64.50
71.00	1/2" Fiber	Yes	1.00	0.000	0.38	0.39	0.00	0.125	1.074	4.582	0.00	7.14
71.00	3/4" DC	Yes	1.00	0.000	0.75	0.42	0.00	0.125	1.074	4.582	0.00	12.84
75.00	Safety Cable	Yes	4.00	0.000	0.38	1.57	0.00	0.125	1.074	4.635	0.00	26.93
75.00	1 5/8" Coax	Yes	4.00	0.000	3.96	2.77	0.00	0.125	1.074	4.635	0.00	259.13
75.00	1/2" Fiber	Yes	4.00	0.000	0.38	1.57	0.00	0.125	1.074	4.635	0.00	28.84
75.00	3/4" DC	Yes	4.00	0.000	0.75	1.70	0.00	0.125	1.074	4.635	0.00	51.73
80.00	Safety Cable	Yes	5.00	0.000	0.38	1.98	0.00	0.128	1.084	4.699	0.00	34.05
80.00	1 5/8" Coax	Yes	5.00	0.000	3.96	3.47	0.00	0.128	1.084	4.699	0.00	325.59
80.00	1/2" Fiber	Yes	5.00	0.000	0.38	1.98	0.00	0.128	1.084	4.699	0.00	36.47
80.00	3/4" DC	Yes	5.00	0.000	0.75	2.13	0.00	0.128	1.084	4.699	0.00	65.20
85.00	Safety Cable	Yes	5.00	0.000	0.38	1.99	0.00	0.132	1.095	4.759	0.00	34.43
85.00	1 5/8" Coax	Yes	5.00	0.000	3.96	3.48	0.00	0.132	1.095	4.759	0.00	327.17

Linear Appurtenance Segment Forces (Factored)

Structure: CT01499-S-SBA
Site Name: Torrington
Height: 153.00 (ft)
Base Elev: 0.000 (ft)
Gh: 1.1

Topography: 1

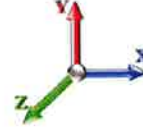
Code: EIA/TIA-222-G
Exposure: C
Crest Height: 0.00
Site Class: B - Competent Rock
Struct Class: II

2/2/2017
 Page: 28



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

Dead Load Factor 1.20
Wind Load Factor 1.00



Iterations 21

Top Elev (ft)	Description	Wind Exposed	Length (ft)	Ca	Exposed Width (in)	Area (sqft)	CaAa (sqft)	Ra	Cf Adjust Factor	qz (psf)	F X (lb)	Dead Load (lb)
85.00	1/2" Fiber	Yes	5.00	0.000	0.38	1.99	0.00	0.132	1.095	4.759	0.00	36.86
85.00	3/4" DC	Yes	5.00	0.000	0.75	2.14	0.00	0.132	1.095	4.759	0.00	65.71
90.00	Safety Cable	Yes	5.00	0.000	0.38	2.00	0.00	0.136	1.107	4.817	0.00	34.79
90.00	1 5/8" Coax	Yes	5.00	0.000	3.96	3.49	0.00	0.136	1.107	4.817	0.00	328.68
90.00	1/2" Fiber	Yes	5.00	0.000	0.38	2.00	0.00	0.136	1.107	4.817	0.00	37.24
90.00	3/4" DC	Yes	5.00	0.000	0.75	2.16	0.00	0.136	1.107	4.817	0.00	66.20
95.00	Safety Cable	Yes	5.00	0.000	0.38	2.01	0.00	0.140	1.121	4.872	0.00	35.13
95.00	1 5/8" Coax	Yes	5.00	0.000	3.96	3.50	0.00	0.140	1.121	4.872	0.00	330.11
95.00	1/2" Fiber	Yes	5.00	0.000	0.38	2.01	0.00	0.140	1.121	4.872	0.00	37.60
95.00	3/4" DC	Yes	5.00	0.000	0.75	2.17	0.00	0.140	1.121	4.872	0.00	66.66
100.00	Safety Cable	Yes	5.00	0.000	0.38	2.02	0.00	0.010	0.000	4.925	0.00	35.46
105.00	Safety Cable	Yes	5.00	0.000	0.38	2.03	0.00	0.010	0.000	4.976	0.00	35.77
110.00	Safety Cable	Yes	5.00	0.000	0.38	2.04	0.00	0.011	0.000	5.025	0.00	36.07
115.00	Safety Cable	Yes	5.00	0.000	0.38	2.05	0.00	0.011	0.000	5.072	0.00	36.37
120.00	Safety Cable	Yes	5.00	0.000	0.38	2.05	0.00	0.011	0.000	5.117	0.00	36.65
123.00	Safety Cable	Yes	3.00	0.000	0.38	1.24	0.00	0.012	0.000	5.144	0.00	22.09
125.00	Safety Cable	Yes	2.00	0.000	0.38	0.82	0.00	0.012	0.000	5.162	0.00	14.77
130.00	Safety Cable	Yes	5.00	0.000	0.38	2.07	0.00	0.012	0.000	5.204	0.00	37.19
133.00	Safety Cable	Yes	3.00	0.000	0.38	1.24	0.00	0.013	0.000	5.230	0.00	22.40
135.00	Safety Cable	Yes	2.00	0.000	0.38	0.83	0.00	0.013	0.000	5.246	0.00	14.98
140.00	Safety Cable	Yes	5.00	0.000	0.38	2.08	0.00	0.013	0.000	5.286	0.00	37.69
145.00	Safety Cable	Yes	5.00	0.000	0.38	2.09	0.00	0.014	0.000	5.325	0.00	37.93
150.00	Safety Cable	Yes	5.00	0.000	0.38	2.10	0.00	0.015	0.000	5.364	0.00	38.17
153.00	Safety Cable	Yes	3.00	0.000	0.38	1.26	0.00	0.015	0.000	5.386	0.00	22.98
Totals:											0.0	8,853.3

Calculated Forces

Structure: CT01499-S-SBA
Site Name: Torrington
Height: 153.00 (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

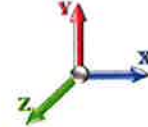
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 Page: 29



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

Iterations 21

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	-92.15	-7.19	0.00	-747.43	0.00	747.43	4463.02	2231.51	10951.4	5483.88	0.00	0.000	0.000	0.157
5.00	-89.53	-7.12	0.00	-711.50	0.00	711.50	4413.36	2206.68	10604.1	5309.95	0.02	-0.033	0.000	0.154
10.00	-86.88	-7.05	0.00	-675.90	0.00	675.90	4361.89	2180.94	10257.6	5136.44	0.07	-0.066	0.000	0.152
15.00	-84.23	-6.99	0.00	-640.63	0.00	640.63	4308.61	2154.31	9912.23	4963.48	0.16	-0.099	0.000	0.149
20.00	-81.60	-6.89	0.00	-605.70	0.00	605.70	4253.53	2126.77	9568.22	4791.22	0.28	-0.133	0.000	0.146
21.00	-81.07	-6.89	0.00	-598.80	0.00	598.80	4242.30	2121.15	9499.61	4756.87	0.31	-0.140	0.000	0.145
25.00	-78.09	-6.82	0.00	-571.23	0.00	571.23	4196.65	2098.33	9225.87	4619.79	0.44	-0.167	0.000	0.142
27.75	-76.03	-6.76	0.00	-552.47	0.00	552.47	4164.60	2082.30	9038.39	4525.91	0.54	-0.186	0.000	0.093
28.00	-75.84	-6.76	0.00	-550.78	0.00	550.78	3213.57	1606.78	7065.87	3538.19	0.55	-0.187	0.000	0.102
30.00	-74.86	-6.72	0.00	-537.27	0.00	537.27	3199.34	1599.67	6969.21	3489.78	0.63	-0.197	0.000	0.111
35.00	-72.44	-6.61	0.00	-503.66	0.00	503.66	3162.51	1581.26	6727.41	3368.71	0.85	-0.221	0.000	0.107
40.00	-70.04	-6.48	0.00	-470.61	0.00	470.61	3123.88	1561.94	6485.64	3247.64	1.09	-0.246	0.000	0.103
40.75	-69.68	-6.47	0.00	-465.75	0.00	465.75	3117.93	1558.96	6449.39	3229.49	1.13	-0.250	0.000	0.102
40.75	-69.68	-6.47	0.00	-465.75	0.00	465.75	3117.93	1558.96	6449.39	3229.49	1.13	-0.250	0.000	0.102
45.00	-67.67	-6.39	0.00	-438.23	0.00	438.23	3083.44	1541.72	6244.17	3126.72	1.36	-0.271	0.000	0.162
50.00	-65.38	-6.29	0.00	-406.30	0.00	406.30	3041.20	1520.60	6003.26	3006.09	1.67	-0.311	0.000	0.157
55.00	-63.12	-6.19	0.00	-374.85	0.00	374.85	2997.16	1498.58	5763.21	2885.89	2.02	-0.351	0.000	0.151
60.00	-60.89	-6.09	0.00	-343.89	0.00	343.89	2951.32	1475.66	5524.28	2766.24	2.41	-0.391	0.000	0.145
65.00	-58.70	-5.98	0.00	-313.45	0.00	313.45	2903.67	1451.83	5286.75	2647.30	2.84	-0.431	0.000	0.139
70.00	-55.47	-5.79	0.00	-283.55	0.00	283.55	2854.22	1427.11	5050.90	2529.20	3.31	-0.470	0.000	0.132
71.00	-54.86	-5.77	0.00	-277.76	0.00	277.76	2869.57	1434.79	5123.02	2565.32	3.41	-0.478	0.000	0.127
75.00	-53.14	-5.68	0.00	-254.67	0.00	254.67	2829.16	1414.58	4935.24	2471.29	3.82	-0.509	0.000	0.122
80.00	-51.03	-5.56	0.00	-226.26	0.00	226.26	2777.01	1388.51	4702.41	2354.70	4.38	-0.544	0.000	0.114
85.00	-48.95	-5.44	0.00	-198.44	0.00	198.44	2723.06	1361.53	4471.94	2239.29	4.96	-0.579	0.000	0.107
90.00	-46.91	-5.31	0.00	-171.24	0.00	171.24	2667.31	1333.66	4244.12	2125.22	5.59	-0.612	0.000	0.098
95.00	-33.85	-3.98	0.00	-144.67	0.00	144.67	2609.76	1304.88	4019.22	2012.60	6.25	-0.643	0.000	0.085
100.00	-32.32	-3.87	0.00	-124.76	0.00	124.76	2550.40	1275.20	3797.52	1901.58	6.94	-0.672	0.000	0.078
105.00	-30.60	-3.65	0.00	-105.22	0.00	105.22	2489.24	1244.62	3579.29	1792.30	7.65	-0.699	0.000	0.071
110.00	-29.15	-3.53	0.00	-86.98	0.00	86.98	2426.28	1213.14	3364.80	1684.90	8.40	-0.724	0.000	0.064
115.00	-27.18	-3.41	0.00	-69.32	0.00	69.32	1783.00	891.50	2427.68	1215.65	9.17	-0.747	0.000	0.072
120.00	-25.93	-3.29	0.00	-52.27	0.00	52.27	1739.91	869.95	2280.12	1141.75	9.97	-0.767	0.000	0.061
123.00	-15.11	-2.00	0.00	-42.25	0.00	42.25	1713.19	856.59	2192.59	1097.92	10.45	-0.780	0.000	0.047
125.00	-14.67	-1.95	0.00	-38.26	0.00	38.26	1695.01	847.51	2134.69	1068.93	10.78	-0.787	0.000	0.044
130.00	-13.60	-1.84	0.00	-28.49	0.00	28.49	1648.31	824.16	1991.67	997.31	11.61	-0.804	0.000	0.037
133.00	-9.50	-1.31	0.00	-22.97	0.00	22.97	1619.42	809.71	1907.13	954.98	12.12	-0.812	0.000	0.030
135.00	-9.12	-1.27	0.00	-20.34	0.00	20.34	1599.81	799.90	1851.33	927.04	12.46	-0.818	0.000	0.028
140.00	-8.20	-1.16	0.00	-13.99	0.00	13.99	1549.50	774.75	1713.96	858.25	13.33	-0.828	0.000	0.022
145.00	-7.31	-1.06	0.00	-8.17	0.00	8.17	1497.39	748.69	1579.82	791.09	14.20	-0.836	0.000	0.015
150.00	-6.45	-0.96	0.00	-2.87	0.00	2.87	1443.48	721.74	1449.20	725.68	15.08	-0.841	0.000	0.008
150.00	-6.45	-0.96	0.00	-2.87	0.00	2.87	1443.48	721.74	1449.20	725.68	15.08	-0.841	0.000	0.008
153.00	0.00	-0.86	0.00	0.00	0.00	0.00	1400.09	700.04	1362.73	682.38	15.61	-0.842	0.000	0.000

Seismic Segment Forces (Factored)

Structure: CT01499-S-SBA
Site Name: Torrington
Height: 153.00 (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

2/2/2017

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Load Case: 1.2D + 1.0E

Gust Response Factor 1.10

Dead Load Factor 1.20

Wind Load Factor 0.00

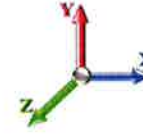
Seismic Load Factor 1.00

Structure Frequency 0.43

Sds 0.12

Sd1 0.04

SA 0.02



Iterations 19

Ss 0.18

S1 0.07

Seismic Importance Factor 1.00

Top Elev (ft)	Description	Wz (lb)	a	b	c	Lateral Fs (lb)	R: 1.50
0.00		0.00	0.00	0.00	0.00	0.00	
5.00		1194.9	0.00	0.03	0.02	15.55	
10.00		1169.9	0.01	0.05	0.03	21.63	
15.00		1144.9	0.02	0.06	0.04	24.19	
20.00		1119.9	0.03	0.07	0.04	25.16	
21.00	Bot - Section 2	221.00	0.04	0.07	0.04	5.01	
25.00		1611.6	0.05	0.07	0.04	37.46	
27.75	RB1	1090.9	0.06	0.07	0.04	25.72	
28.00	Top - Section 1	98.49	0.06	0.07	0.04	2.32	
30.00		358.81	0.07	0.07	0.04	8.55	
35.00		882.46	0.10	0.07	0.04	21.53	
40.00		861.64	0.13	0.07	0.03	21.52	
40.75	RT1	127.45	0.13	0.07	0.03	3.19	
45.00		713.37	0.16	0.07	0.03	18.17	
50.00		820.00	0.20	0.06	0.02	21.01	
55.00		799.19	0.24	0.06	0.02	20.03	
60.00		778.37	0.29	0.05	0.01	18.11	
65.00	Bot - Section 3	757.55	0.34	0.04	0.01	14.85	
70.00	Appurtenance(s)	1534.0	0.40	0.02	0.01	20.80	
71.00	Top - Section 2	291.81	0.41	0.02	0.01	3.52	
75.00		579.50	0.45	0.00	0.01	2.96	
80.00		705.64	0.52	-0.02	0.01	-3.40	
85.00		684.82	0.58	-0.05	0.01	-9.89	
90.00		664.01	0.65	-0.07	0.02	-14.60	
95.00	Appurtenance(s)	3932.6	0.73	-0.10	0.04	-104.03	
100.00		622.37	0.81	-0.11	0.06	-17.14	
105.00	Appurtenance(s)	666.55	0.89	-0.12	0.08	-16.88	
110.00	Bot - Section 4	580.73	0.98	-0.11	0.12	-11.59	
115.00	Top - Section 3	1015.4	1.07	-0.09	0.17	-11.73	
120.00		438.87	1.16	-0.03	0.23	-0.06	
123.00	Appurtenance(s)	2557.5	1.22	0.03	0.27	20.84	
125.00		166.89	1.26	0.07	0.30	2.38	
130.00		405.56	1.36	0.22	0.40	12.88	
133.00	Appurtenance(s)	1516.3	1.43	0.34	0.46	66.31	
135.00		153.57	1.47	0.43	0.51	8.04	
140.00		372.25	1.58	0.73	0.65	28.34	
145.00		355.60	1.70	1.11	0.81	36.69	
150.00	Top - Section 4	338.95	1.82	1.62	1.01	45.27	
153.00	Appurtenance(s)	2270.7	1.89	1.98	1.14	348.44	
Totals:		33,604.6				711.1	Total Wind: 35,022.9

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

Calculated Forces

Structure: CT01499-S-SBA
Site Name: Torrington
Height: 153.00 (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

2/2/2017
 Page: 31



Load Case: 1.2D + 1.0E

Gust Response Factor 1.10

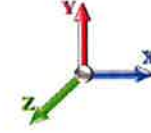
Sds 0.12

Iterations 19

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

Ss 0.18

Wind Load Factor 0.00 **Structure Frequency** 0.43 **SA** 0.02 **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	-47.27	-0.90	0.00	-98.70	0.00	98.70	4463.02	2231.51	10951.4	5483.88	0.00	0.00	0.00	0.029
5.00	-45.55	-0.89	0.00	-94.19	0.00	94.19	4413.36	2206.68	10604.1	5309.95	0.00	0.00	0.00	0.028
10.00	-43.85	-0.87	0.00	-89.75	0.00	89.75	4361.89	2180.94	10257.6	5136.44	0.01	-0.01	0.00	0.028
15.00	-42.19	-0.85	0.00	-85.40	0.00	85.40	4308.61	2154.31	9912.23	4963.48	0.02	-0.01	0.00	0.027
20.00	-40.55	-0.83	0.00	-81.15	0.00	81.15	4253.53	2126.77	9568.22	4791.22	0.04	-0.02	0.00	0.026
21.00	-40.23	-0.82	0.00	-80.32	0.00	80.32	4242.30	2121.15	9499.61	4756.87	0.04	-0.02	0.00	0.026
25.00	-38.06	-0.79	0.00	-77.04	0.00	77.04	4196.65	2098.33	9225.87	4619.79	0.06	-0.02	0.00	0.026
27.75	-36.59	-0.76	0.00	-74.87	0.00	74.87	4164.60	2082.30	9038.39	4525.91	0.07	-0.02	0.00	0.017
28.00	-36.46	-0.76	0.00	-74.68	0.00	74.68	3213.57	1606.78	7065.87	3538.19	0.07	-0.02	0.00	0.019
30.00	-35.91	-0.75	0.00	-73.17	0.00	73.17	3199.34	1599.67	6969.21	3489.78	0.08	-0.03	0.00	0.020
35.00	-34.56	-0.73	0.00	-69.41	0.00	69.41	3162.51	1581.26	6727.41	3368.71	0.11	-0.03	0.00	0.020
40.00	-33.23	-0.71	0.00	-65.75	0.00	65.75	3123.88	1561.94	6485.64	3247.64	0.15	-0.03	0.00	0.019
40.75	-33.04	-0.71	0.00	-65.22	0.00	65.22	3117.93	1558.96	6449.39	3229.49	0.15	-0.03	0.00	0.019
40.75	-33.04	-0.71	0.00	-65.22	0.00	65.22	3117.93	1558.96	6449.39	3229.49	0.15	-0.03	0.00	0.019
45.00	-31.93	-0.69	0.00	-62.21	0.00	62.21	3083.44	1541.72	6244.17	3126.72	0.18	-0.04	0.00	0.030
50.00	-30.66	-0.67	0.00	-58.76	0.00	58.76	3041.20	1520.60	6003.26	3006.09	0.22	-0.04	0.00	0.030
55.00	-29.41	-0.65	0.00	-55.39	0.00	55.39	2997.16	1498.58	5763.21	2885.89	0.27	-0.05	0.00	0.029
60.00	-28.18	-0.64	0.00	-52.12	0.00	52.12	2951.32	1475.66	5524.28	2766.24	0.32	-0.05	0.00	0.028
65.00	-26.98	-0.63	0.00	-48.93	0.00	48.93	2903.67	1451.83	5286.75	2647.30	0.38	-0.06	0.00	0.028
70.00	-24.85	-0.60	0.00	-45.80	0.00	45.80	2854.22	1427.11	5050.90	2529.20	0.45	-0.07	0.00	0.027
71.00	-24.44	-0.60	0.00	-45.20	0.00	45.20	2869.57	1434.79	5123.02	2565.32	0.47	-0.07	0.00	0.026
75.00	-23.51	-0.60	0.00	-42.79	0.00	42.79	2829.16	1414.58	4935.24	2471.29	0.52	-0.07	0.00	0.026
80.00	-22.37	-0.60	0.00	-39.80	0.00	39.80	2777.01	1388.51	4702.41	2354.70	0.60	-0.08	0.00	0.025
85.00	-21.26	-0.60	0.00	-36.80	0.00	36.80	2723.06	1361.53	4471.94	2239.29	0.69	-0.09	0.00	0.024
90.00	-20.17	-0.60	0.00	-33.79	0.00	33.79	2667.31	1333.66	4244.12	2125.22	0.78	-0.09	0.00	0.023
95.00	-15.16	-0.60	0.00	-30.78	0.00	30.78	2609.76	1304.88	4019.22	2012.60	0.88	-0.10	0.00	0.021
100.00	-14.21	-0.59	0.00	-27.81	0.00	27.81	2550.40	1275.20	3797.52	1901.58	0.99	-0.10	0.00	0.020
105.00	-13.20	-0.59	0.00	-24.83	0.00	24.83	2489.24	1244.62	3579.29	1792.30	1.10	-0.11	0.00	0.019
110.00	-12.30	-0.59	0.00	-21.86	0.00	21.86	2426.28	1213.14	3364.80	1684.90	1.22	-0.12	0.00	0.018
115.00	-10.87	-0.59	0.00	-18.89	0.00	18.89	1783.00	891.50	2427.68	1215.65	1.34	-0.12	0.00	0.022
120.00	-10.14	-0.59	0.00	-15.93	0.00	15.93	1739.91	869.95	2280.12	1141.75	1.48	-0.13	0.00	0.020
123.00	-6.95	-0.56	0.00	-14.15	0.00	14.15	1713.19	856.59	2192.59	1097.92	1.56	-0.13	0.00	0.017
125.00	-6.71	-0.56	0.00	-13.03	0.00	13.03	1695.01	847.51	2134.69	1068.93	1.61	-0.13	0.00	0.016
130.00	-6.13	-0.55	0.00	-10.22	0.00	10.22	1648.31	824.16	1991.67	997.31	1.76	-0.14	0.00	0.014
133.00	-4.26	-0.48	0.00	-8.57	0.00	8.57	1619.42	809.71	1907.13	954.98	1.85	-0.14	0.00	0.012
135.00	-4.07	-0.47	0.00	-7.62	0.00	7.62	1599.81	799.90	1851.33	927.04	1.91	-0.15	0.00	0.011
140.00	-3.60	-0.44	0.00	-5.28	0.00	5.28	1549.50	774.75	1713.96	858.25	2.06	-0.15	0.00	0.008
145.00	-3.16	-0.40	0.00	-3.08	0.00	3.08	1497.39	748.69	1579.82	791.09	2.22	-0.15	0.00	0.006
150.00	-2.73	-0.36	0.00	-1.07	0.00	1.07	1443.48	721.74	1449.20	725.68	2.38	-0.15	0.00	0.003
150.00	-2.73	-0.36	0.00	-1.07	0.00	1.07	1443.48	721.74	1449.20	725.68	2.38	-0.15	0.00	0.003
153.00	0.00	-0.35	0.00	0.00	0.00	0.00	1400.09	700.04	1362.73	682.38	2.48	-0.15	0.00	0.000

Seismic Segment Forces (Factored)

Structure: CT01499-S-SBA
Site Name: Torrington
Height: 153.00 (ft)
Base Elev: 0.000 (ft)
Gh: 1.1

Topography: 1

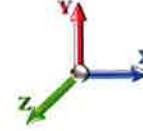
Code: EIA/TIA-222-G
Exposure: C
Crest Height: 0.00
Site Class: B - Competent Rock
Struct Class: II

2/2/2017

Page: 32



Load Case: 0.9D + 1.0E				Iterations 19
Gust Response Factor	1.10	Sds	0.12	Ss 0.18
Dead Load Factor	0.90	Seismic Load Factor	1.00	S1 0.07
Wind Load Factor	0.00	Structure Frequency	0.43	SA 0.02
				Seismic Importance Factor 1.00



Top Elev (ft)	Description	Wz (lb)	a	b	c	Lateral Fs (lb)	R: 1.50
0.00		0.00	0.00	0.00	0.00	0.00	
5.00		1194.9	0.00	0.03	0.02	15.55	
10.00		1169.9	0.01	0.05	0.03	21.63	
15.00		1144.9	0.02	0.06	0.04	24.19	
20.00		1119.9	0.03	0.07	0.04	25.16	
21.00	Bot - Section 2	221.00	0.04	0.07	0.04	5.01	
25.00		1611.6	0.05	0.07	0.04	37.46	
27.75	RB1	1090.9	0.06	0.07	0.04	25.72	
28.00	Top - Section 1	98.49	0.06	0.07	0.04	2.32	
30.00		358.81	0.07	0.07	0.04	8.55	
35.00		882.46	0.10	0.07	0.04	21.53	
40.00		861.64	0.13	0.07	0.03	21.52	
40.75	RT1	127.45	0.13	0.07	0.03	3.19	
45.00		713.37	0.16	0.07	0.03	18.17	
50.00		820.00	0.20	0.06	0.02	21.01	
55.00		799.19	0.24	0.06	0.02	20.03	
60.00		778.37	0.29	0.05	0.01	18.11	
65.00	Bot - Section 3	757.55	0.34	0.04	0.01	14.85	
70.00	Appurtenance(s)	1534.0	0.40	0.02	0.01	20.80	
71.00	Top - Section 2	291.81	0.41	0.02	0.01	3.52	
75.00		579.50	0.45	0.00	0.01	2.96	
80.00		705.64	0.52	-0.02	0.01	-3.40	
85.00		684.82	0.58	-0.05	0.01	-9.89	
90.00		664.01	0.65	-0.07	0.02	-14.60	
95.00	Appurtenance(s)	3932.6	0.73	-0.10	0.04	-104.03	
100.00		622.37	0.81	-0.11	0.06	-17.14	
105.00	Appurtenance(s)	666.55	0.89	-0.12	0.08	-16.88	
110.00	Bot - Section 4	580.73	0.98	-0.11	0.12	-11.59	
115.00	Top - Section 3	1015.4	1.07	-0.09	0.17	-11.73	
120.00		438.87	1.16	-0.03	0.23	-0.06	
123.00	Appurtenance(s)	2557.5	1.22	0.03	0.27	20.84	
125.00		166.89	1.26	0.07	0.30	2.38	
130.00		405.56	1.36	0.22	0.40	12.88	
133.00	Appurtenance(s)	1516.3	1.43	0.34	0.46	66.31	
135.00		153.57	1.47	0.43	0.51	8.04	
140.00		372.25	1.58	0.73	0.65	28.34	
145.00		355.60	1.70	1.11	0.81	36.69	
150.00	Top - Section 4	338.95	1.82	1.62	1.01	45.27	
153.00	Appurtenance(s)	2270.7	1.89	1.98	1.14	348.44	
Totals:		33,604.6				711.1	Total Wind: 35,022.9

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

Calculated Forces

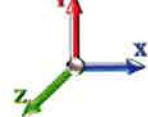
Structure: CT01499-S-SBA
Site Name: Torrington
Height: 153.00 (ft)
Base Elev: 0.000 (ft)
Gh: 1.1

Topography: 1

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

2/2/2017
 Page: 33



Load Case: 0.9D + 1.0E							Iterations 19
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	0.07
Wind Load Factor	0.00	Structure Frequency	0.43	SA	0.02	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	-35.45	-0.90	0.00	-97.91	0.00	97.91	4463.02	2231.51	10951.4	5483.88	0.00	0.00	0.00	0.026
5.00	-34.16	-0.89	0.00	-93.41	0.00	93.41	4413.36	2206.68	10604.1	5309.95	0.00	0.00	0.00	0.025
10.00	-32.89	-0.87	0.00	-88.97	0.00	88.97	4361.89	2180.94	10257.6	5136.44	0.01	-0.01	0.00	0.025
15.00	-31.64	-0.85	0.00	-84.63	0.00	84.63	4308.61	2154.31	9912.23	4963.48	0.02	-0.01	0.00	0.024
20.00	-30.41	-0.82	0.00	-80.40	0.00	80.40	4253.53	2126.77	9568.22	4791.22	0.04	-0.02	0.00	0.024
21.00	-30.17	-0.82	0.00	-79.58	0.00	79.58	4242.30	2121.15	9499.61	4756.87	0.04	-0.02	0.00	0.024
25.00	-28.54	-0.78	0.00	-76.30	0.00	76.30	4196.65	2098.33	9225.87	4619.79	0.06	-0.02	0.00	0.023
27.75	-27.44	-0.76	0.00	-74.15	0.00	74.15	4164.60	2082.30	9038.39	4525.91	0.07	-0.02	0.00	0.015
28.00	-27.34	-0.75	0.00	-73.96	0.00	73.96	3213.57	1606.78	7065.87	3538.19	0.07	-0.02	0.00	0.017
30.00	-26.93	-0.75	0.00	-72.45	0.00	72.45	3199.34	1599.67	6969.21	3489.78	0.08	-0.03	0.00	0.018
35.00	-25.92	-0.73	0.00	-68.72	0.00	68.72	3162.51	1581.26	6727.41	3368.71	0.11	-0.03	0.00	0.018
40.00	-24.92	-0.71	0.00	-65.09	0.00	65.09	3123.88	1561.94	6485.64	3247.64	0.14	-0.03	0.00	0.017
40.75	-24.78	-0.70	0.00	-64.56	0.00	64.56	3117.93	1558.96	6449.39	3229.49	0.15	-0.03	0.00	0.017
40.75	-24.78	-0.70	0.00	-64.56	0.00	64.56	3117.93	1558.96	6449.39	3229.49	0.15	-0.03	0.00	0.017
45.00	-23.95	-0.69	0.00	-61.57	0.00	61.57	3083.44	1541.72	6244.17	3126.72	0.18	-0.04	0.00	0.027
50.00	-22.99	-0.67	0.00	-58.14	0.00	58.14	3041.20	1520.60	6003.26	3006.09	0.22	-0.04	0.00	0.027
55.00	-22.05	-0.65	0.00	-54.81	0.00	54.81	2997.16	1498.58	5763.21	2885.89	0.27	-0.05	0.00	0.026
60.00	-21.14	-0.63	0.00	-51.57	0.00	51.57	2951.32	1475.66	5524.28	2766.24	0.32	-0.05	0.00	0.026
65.00	-20.23	-0.62	0.00	-48.42	0.00	48.42	2903.67	1451.83	5286.75	2647.30	0.38	-0.06	0.00	0.025
70.00	-18.64	-0.60	0.00	-45.33	0.00	45.33	2854.22	1427.11	5050.90	2529.20	0.45	-0.07	0.00	0.024
71.00	-18.33	-0.59	0.00	-44.73	0.00	44.73	2869.57	1434.79	5123.02	2565.32	0.46	-0.07	0.00	0.024
75.00	-17.63	-0.59	0.00	-42.36	0.00	42.36	2829.16	1414.58	4935.24	2471.29	0.52	-0.07	0.00	0.023
80.00	-16.78	-0.59	0.00	-39.40	0.00	39.40	2777.01	1388.51	4702.41	2354.70	0.60	-0.08	0.00	0.023
85.00	-15.94	-0.59	0.00	-36.44	0.00	36.44	2723.06	1361.53	4471.94	2239.29	0.68	-0.08	0.00	0.022
90.00	-15.13	-0.59	0.00	-33.48	0.00	33.48	2667.31	1333.66	4244.12	2125.22	0.77	-0.09	0.00	0.021
95.00	-11.37	-0.59	0.00	-30.51	0.00	30.51	2609.76	1304.88	4019.22	2012.60	0.87	-0.10	0.00	0.020
100.00	-10.65	-0.59	0.00	-27.57	0.00	27.57	2550.40	1275.20	3797.52	1901.58	0.98	-0.10	0.00	0.019
105.00	-9.90	-0.59	0.00	-24.63	0.00	24.63	2489.24	1244.62	3579.29	1792.30	1.09	-0.11	0.00	0.018
110.00	-9.22	-0.59	0.00	-21.69	0.00	21.69	2426.28	1213.14	3364.80	1684.90	1.21	-0.12	0.00	0.017
115.00	-8.15	-0.59	0.00	-18.75	0.00	18.75	1783.00	891.50	2427.68	1215.65	1.33	-0.12	0.00	0.020
120.00	-7.61	-0.59	0.00	-15.82	0.00	15.82	1739.91	869.95	2280.12	1141.75	1.46	-0.13	0.00	0.018
123.00	-5.21	-0.56	0.00	-14.07	0.00	14.07	1713.19	856.59	2192.59	1097.92	1.54	-0.13	0.00	0.016
125.00	-5.03	-0.56	0.00	-12.95	0.00	12.95	1695.01	847.51	2134.69	1068.93	1.60	-0.13	0.00	0.015
130.00	-4.60	-0.54	0.00	-10.16	0.00	10.16	1648.31	824.16	1991.67	997.31	1.74	-0.14	0.00	0.013
133.00	-3.19	-0.47	0.00	-8.53	0.00	8.53	1619.42	809.71	1907.13	954.98	1.83	-0.14	0.00	0.011
135.00	-3.05	-0.47	0.00	-7.58	0.00	7.58	1599.81	799.90	1851.33	927.04	1.89	-0.14	0.00	0.010
140.00	-2.70	-0.44	0.00	-5.25	0.00	5.25	1549.50	774.75	1713.96	858.25	2.04	-0.15	0.00	0.008
145.00	-2.37	-0.40	0.00	-3.06	0.00	3.06	1497.39	748.69	1579.82	791.09	2.20	-0.15	0.00	0.005
150.00	-2.05	-0.35	0.00	-1.06	0.00	1.06	1443.48	721.74	1449.20	725.68	2.36	-0.15	0.00	0.003
150.00	-2.05	-0.35	0.00	-1.06	0.00	1.06	1443.48	721.74	1449.20	725.68	2.36	-0.15	0.00	0.003
153.00	0.00	-0.35	0.00	0.00	0.00	0.00	1400.09	700.04	1362.73	682.38	2.46	-0.15	0.00	0.000

Wind Loading - Shaft

Structure: CT01499-S-SBA
Site Name: Torrington
Height: 153.00 (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

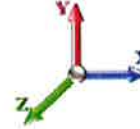
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Load Case: 1.0D + 1.0W 60 mph Wind

Iterations 21

Dead Load Factor 1.00
Wind Load Factor 1.00



Elev (ft)	Description	Kzt	Kz	qz (psf)	qzGh (psf)	C (mph-ft)	Cf	Ice Thick (in)	Tributary (ft)	Aa (sf)	CfAa (sf)	Wind Force X (lb)	Dead Load Ice (lb)	Tot Dead Load (lb)
0.00		1.00	0.85	7.442	8.19	280.85	0.650	0.000	0.00	0.000	0.00	0.0	0.0	0.0
5.00		1.00	0.85	7.442	8.19	275.08	0.650	0.000	5.00	25.125	16.33	133.7	0.0	1194.9
10.00		1.00	0.85	7.442	8.19	269.30	0.650	0.000	5.00	24.603	15.99	130.9	0.0	1169.9
15.00		1.00	0.85	7.442	8.19	263.53	0.650	0.000	5.00	24.081	15.65	128.1	0.0	1145.0
20.00		1.00	0.90	7.896	8.69	265.50	0.650	0.000	5.00	23.559	15.31	133.0	0.0	1120.0
21.00	Bot - Section 2	1.00	0.91	7.978	8.78	265.68	0.650	0.000	1.00	4.649	3.02	26.5	0.0	221.0
25.00		1.00	0.95	8.276	9.10	265.73	0.657 *	0.000	4.00	18.599	12.21	111.2	0.0	1611.6
27.75	RB1	1.00	0.97	8.460	9.31	265.27	0.696 *	0.000	2.75	12.593	8.77	81.6	0.0	1091.0
28.00	Top - Section 1	1.00	0.97	8.476	9.32	265.22	0.698 *	0.000	0.25	1.137	0.79	7.4	0.0	98.5
30.00		1.00	0.98	8.600	9.46	267.81	0.696 *	0.000	2.00	9.049	6.30	59.6	0.0	358.8
35.00		1.00	1.01	8.883	9.77	265.88	0.700 *	0.000	5.00	22.257	15.59	152.3	0.0	882.5
40.00		1.00	1.04	9.137	10.05	263.25	0.706 *	0.000	5.00	21.735	15.35	154.3	0.0	861.6
40.75	RT1	1.00	1.05	9.173	10.09	262.80	0.710 *	0.000	0.75	3.215	2.28	23.0	0.0	127.5
45.00		1.00	1.07	9.366	10.30	260.05	0.704 *	0.000	4.25	17.998	12.68	130.6	0.0	713.4
50.00		1.00	1.09	9.576	10.53	256.40	0.670 *	0.000	5.00	20.692	13.86	146.0	0.0	820.0
55.00		1.00	1.12	9.770	10.75	252.37	0.675 *	0.000	5.00	20.170	13.62	146.4	0.0	799.2
60.00		1.00	1.14	9.951	10.95	248.02	0.681 *	0.000	5.00	19.648	13.38	146.5	0.0	778.4
65.00	Bot - Section 3	1.00	1.16	10.120	11.13	243.38	0.687 *	0.000	5.00	19.126	13.15	146.3	0.0	757.6
70.00	Appurtenance(s)	1.00	1.17	10.279	11.31	238.50	0.694 *	0.000	5.00	18.868	13.09	148.0	0.0	1484.0
71.00	Top - Section 2	1.00	1.18	10.310	11.34	237.50	0.698 *	0.000	1.00	3.711	2.59	29.4	0.0	291.8
75.00		1.00	1.19	10.430	11.47	236.87	0.698 *	0.000	4.00	14.635	10.21	117.2	0.0	579.5
80.00		1.00	1.21	10.572	11.63	231.60	0.704 *	0.000	5.00	17.824	12.55	146.0	0.0	705.6
85.00		1.00	1.22	10.708	11.78	226.15	0.712 *	0.000	5.00	17.302	12.32	145.1	0.0	684.8
90.00		1.00	1.24	10.838	11.92	220.55	0.720 *	0.000	5.00	16.780	12.08	144.0	0.0	664.0
95.00	Appurtenance(s)	1.00	1.25	10.962	12.06	214.80	0.728 *	0.000	5.00	16.258	11.84	142.8	0.0	643.2
100.00		1.00	1.27	11.081	12.19	208.92	0.650	0.000	5.00	15.736	10.23	124.7	0.0	622.4
105.00	Appurtenance(s)	1.00	1.28	11.195	12.31	202.91	0.650	0.000	5.00	15.214	9.89	121.8	0.0	601.6
110.00	Bot - Section 4	1.00	1.29	11.305	12.44	196.79	0.650	0.000	5.00	14.693	9.55	118.8	0.0	580.7
115.00	Top - Section 3	1.00	1.30	11.412	12.55	190.56	0.650	0.000	5.00	14.382	9.35	117.3	0.0	1015.4
120.00		1.00	1.32	11.514	12.67	187.15	0.650	0.000	5.00	13.860	9.01	114.1	0.0	438.9
123.00	Appurtenance(s)	1.00	1.32	11.574	12.73	183.31	0.650	0.000	3.00	8.066	5.24	66.7	0.0	255.3
125.00		1.00	1.33	11.614	12.78	180.74	0.650	0.000	2.00	5.273	3.43	43.8	0.0	166.9
130.00		1.00	1.34	11.710	12.88	174.24	0.650	0.000	5.00	12.816	8.33	107.3	0.0	405.6
133.00	Appurtenance(s)	1.00	1.34	11.766	12.94	170.30	0.650	0.000	3.00	7.439	4.84	62.6	0.0	235.3
135.00		1.00	1.35	11.803	12.98	167.66	0.650	0.000	2.00	4.855	3.16	41.0	0.0	153.6
140.00		1.00	1.36	11.894	13.08	161.01	0.650	0.000	5.00	11.772	7.65	100.1	0.0	372.3
145.00		1.00	1.37	11.982	13.18	154.27	0.650	0.000	5.00	11.250	7.31	96.4	0.0	355.6
150.00	Top - Section 4	1.00	1.38	12.068	13.27	147.47	0.650	0.000	5.00	10.728	6.97	92.6	0.0	338.9
153.00	Appurtenance(s)	1.00	1.38	12.119	13.33	143.36	0.650	0.000	3.00	6.187	4.02	53.6	0.0	195.4
Totals:									153.00			3,990.7		24,541.5

* Cf Adjusted by Linear Load Ra Effect

Discrete Appurtenance Forces

Structure: CT01499-S-SBA
Site Name: Torrington
Height: 153.00 (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

2/2/2017
 Page: 35

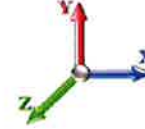


Load Case: 1.0D + 1.0W 60 mph Wind

Iterations 21

Dead Load Factor 1.00

Wind Load Factor 1.00



No.	Elev (ft)	Description	Qty	qz (psf)	qzGh (psf)	CaAa x Ka	Ka	Total CaAa (sf)	Dead Load (lb)	Horiz Ecc (ft)	Vert Ecc (ft)	Wind FX (lb)	Mom Y (lb-ft)	Mom Z (lb-ft)
1	153.00	800 MHz RRUs	3	12.119	13.330	0.83	0.90	6.19	159.00	0.000	0.000	82.45	0.00	0.00
2	153.00	APXVTM14-C-I20	3	12.119	13.330	0.71	0.90	13.52	168.00	0.000	0.000	180.27	0.00	0.00
3	153.00	APXVSP18-C-A20	3	12.119	13.330	0.75	0.90	17.97	171.00	0.000	0.000	239.59	0.00	0.00
4	153.00	1900 MHz RRUs	3	12.119	13.330	0.79	0.90	9.03	132.00	0.000	0.000	120.36	0.00	0.00
5	153.00	Lightning Rod	1	12.119	13.330	1.00	1.00	0.50	5.00	0.000	0.000	6.67	0.00	0.00
6	153.00	ACU-A20-N	4	12.119	13.330	0.81	0.90	0.45	4.00	0.000	0.000	6.05	0.00	0.00
7	153.00	TD-RRH8x20-25	3	12.119	13.330	0.62	0.90	7.55	210.00	0.000	0.000	100.58	0.00	0.00
8	153.00	Low Profile Platform	1	12.119	13.330	1.00	1.00	25.00	1200.00	0.000	0.000	333.26	0.00	0.00
9	153.00	800 MHz Filters	3	12.119	13.330	0.62	0.90	1.45	26.40	0.000	0.000	19.37	0.00	0.00
10	133.00	Low Profile Platform	1	11.766	12.943	1.00	1.00	25.00	1200.00	0.000	0.000	323.58	0.00	0.00
11	133.00	RR90-17-02DP	6	11.766	12.943	0.54	0.80	14.23	81.00	0.000	0.000	184.19	0.00	0.00
12	123.00	LPA-80063/6CF	6	11.574	12.732	0.75	0.80	43.32	162.00	0.000	0.000	551.48	0.00	0.00
13	123.00	B66 4X45 AWS	3	11.574	12.732	0.64	0.80	4.99	192.00	0.000	0.000	63.56	0.00	0.00
14	123.00	SBNHH-1D65B	9	11.574	12.732	0.66	0.80	48.29	365.40	0.000	0.000	614.77	0.00	0.00
15	123.00	Low Profile Platform	1	11.574	12.732	1.00	1.00	25.00	1200.00	0.000	0.000	318.29	0.00	0.00
16	123.00	RRH2X60-PCS	3	11.574	12.732	0.71	0.80	4.70	165.00	0.000	0.000	59.83	0.00	0.00
17	123.00	RRH2x60-700	3	11.633	12.797	0.61	0.80	6.38	180.00	0.000	3.000	81.69	0.00	245.08
18	123.00	DB-T1-6Z-8AB-0Z	2	11.574	12.732	0.72	0.80	6.91	37.80	0.000	0.000	88.00	0.00	0.00
19	105.00	Standoff	1	11.195	12.315	1.00	1.00	2.63	40.00	0.000	0.000	32.39	0.00	0.00
20	105.00	10' Omni	1	11.305	12.436	1.00	1.00	3.00	25.00	0.000	5.000	37.31	0.00	186.54
21	95.00	HPA-65R-BUU-H6	4	10.962	12.058	0.72	0.80	27.82	204.00	0.000	0.000	335.46	0.00	0.00
22	95.00	7770	3	10.962	12.058	0.58	0.80	9.64	105.00	0.000	0.000	116.19	0.00	0.00
23	95.00	SBNH-1D65A	2	10.962	12.058	0.72	0.80	7.75	76.80	0.000	0.000	93.42	0.00	0.00
24	95.00	OPA-65R-LCUU-H6	3	10.962	12.058	0.63	0.80	18.32	240.00	0.000	0.000	220.84	0.00	0.00
25	95.00	LGP21401	6	10.962	12.058	0.54	0.80	4.15	84.60	0.000	0.000	50.02	0.00	0.00
26	95.00	LGP21903	6	10.962	12.058	0.67	0.80	1.09	33.00	0.000	0.000	13.13	0.00	0.00
27	95.00	RRUS-11	6	10.962	12.058	0.54	0.80	14.43	330.00	0.000	0.000	173.96	0.00	0.00
28	95.00	RRUS-12	3	10.962	12.058	0.54	0.80	5.07	180.00	0.000	0.000	61.08	0.00	0.00
29	95.00	RRUS-A2	3	10.962	12.058	0.50	0.80	2.77	63.60	0.000	0.000	33.37	0.00	0.00
30	95.00	RRUS-32	3	10.962	12.058	0.70	0.80	8.08	231.00	0.000	0.000	97.43	0.00	0.00
31	95.00	RRUS-E2	3	10.962	12.058	0.56	0.80	4.72	171.90	0.000	0.000	56.92	0.00	0.00
32	95.00	1000860	3	10.962	12.058	1.00	1.00	0.18	6.00	0.000	0.000	2.17	0.00	0.00
33	95.00	Raycap/Squid	2	10.962	12.058	0.72	0.80	2.12	63.60	0.000	0.000	25.52	0.00	0.00
34	95.00	Sector Frame	3	10.962	12.058	0.56	0.75	29.53	1500.00	0.000	0.000	356.09	0.00	0.00
35	70.00	Standoff	1	10.279	11.307	1.00	1.00	2.63	40.00	0.000	0.000	29.74	0.00	0.00
36	70.00	GPS	1	10.279	11.307	1.00	1.00	1.00	10.00	0.000	0.000	11.31	0.00	0.00
Totals:									9,063.10			5,120.32		

Total Applied Force Summary

Structure: CT01499-S-SBA
Site Name: Torrington
Height: 153.00 (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

2/2/2017

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Load Case: 1.0D + 1.0W 60 mph Wind

Iterations 21

Dead Load Factor 1.00
Wind Load Factor 1.00



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		133.69	1437.88	0.00	0.00
10.00		130.91	1412.90	0.00	0.00
15.00		128.13	1387.92	0.00	0.00
20.00		133.01	1362.94	0.00	0.00
21.00		26.52	269.59	0.00	0.00
25.00		111.18	1805.98	0.00	0.00
27.75		81.59	1224.61	0.00	0.00
28.00		7.40	110.64	0.00	0.00
30.00		59.61	456.00	0.00	0.00
35.00		152.31	1125.42	0.00	0.00
40.00		154.27	1104.61	0.00	0.00
40.75		23.02	163.90	0.00	0.00
45.00		130.62	919.89	0.00	0.00
50.00		145.99	1062.97	0.00	0.00
55.00		146.40	1042.15	0.00	0.00
60.00		146.50	1021.33	0.00	0.00
65.00		146.35	1000.52	0.00	0.00
70.00	(2) attachments	189.08	1776.98	0.00	0.00
71.00		29.38	340.40	0.00	0.00
75.00		117.19	773.88	0.00	0.00
80.00		146.00	948.61	0.00	0.00
85.00		145.08	927.79	0.00	0.00
90.00		144.00	906.97	0.00	0.00
95.00	(50) attachments	1778.39	4175.65	0.00	0.00
100.00		124.68	794.34	0.00	0.00
105.00	(2) attachments	191.48	838.52	0.00	186.54
110.00		118.76	751.90	0.00	0.00
115.00		117.35	1186.61	0.00	0.00
120.00		114.11	610.04	0.00	0.00
123.00	(27) attachments	1844.37	2660.23	0.00	245.08
125.00		43.78	197.67	0.00	0.00
130.00		107.31	482.53	0.00	0.00
133.00	(7) attachments	570.35	1562.52	0.00	0.00
135.00		40.97	159.39	0.00	0.00
140.00		100.12	386.82	0.00	0.00
145.00		96.39	370.17	0.00	0.00
150.00		92.57	353.51	0.00	0.00
153.00	(24) attachments	1142.19	2279.51	0.00	0.00
	Totals:	9,111.05	39,393.27	0.00	431.62

Linear Appurtenance Segment Forces (Factored)

Structure: CT01499-S-SBA
Site Name: Torrington
Height: 153.00 (ft)
Base Elev: 0.000 (ft)
Gh: 1.1

Topography: 1

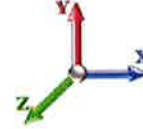
Code: EIA/TIA-222-G
Exposure: C
Crest Height: 0.00
Site Class: B - Competent Rock
Struct Class: II

2/2/2017
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Load Case: 1.0D + 1.0W 60 mph Wind

Dead Load Factor 1.00
Wind Load Factor 1.00



Iterations 21

Top Elev (ft)	Description	Wind Exposed	Length (ft)	Ca	Exposed Width (in)	Area (sqft)	CaAa (sqft)	Ra	Cf Adjust Factor	qz (psf)	F X (lb)	Dead Load (lb)
5.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.091	0.000	7.442	0.00	1.37
5.00	1 5/8" Coax	Yes	5.00	0.000	3.96	1.65	0.00	0.091	0.000	7.442	0.00	62.40
5.00	1/2" Fiber	Yes	5.00	0.000	0.38	0.16	0.00	0.091	0.000	7.442	0.00	0.60
5.00	3/4" DC	Yes	5.00	0.000	0.75	0.31	0.00	0.091	0.000	7.442	0.00	8.00
10.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.093	0.000	7.442	0.00	1.37
10.00	1 5/8" Coax	Yes	5.00	0.000	3.96	1.65	0.00	0.093	0.000	7.442	0.00	62.40
10.00	1/2" Fiber	Yes	5.00	0.000	0.38	0.16	0.00	0.093	0.000	7.442	0.00	0.60
10.00	3/4" DC	Yes	5.00	0.000	0.75	0.31	0.00	0.093	0.000	7.442	0.00	8.00
15.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.095	0.000	7.442	0.00	1.37
15.00	1 5/8" Coax	Yes	5.00	0.000	3.96	1.65	0.00	0.095	0.000	7.442	0.00	62.40
15.00	1/2" Fiber	Yes	5.00	0.000	0.38	0.16	0.00	0.095	0.000	7.442	0.00	0.60
15.00	3/4" DC	Yes	5.00	0.000	0.75	0.31	0.00	0.095	0.000	7.442	0.00	8.00
20.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.097	0.000	7.896	0.00	1.37
20.00	1 5/8" Coax	Yes	5.00	0.000	3.96	1.65	0.00	0.097	0.000	7.896	0.00	62.40
20.00	1/2" Fiber	Yes	5.00	0.000	0.38	0.16	0.00	0.097	0.000	7.896	0.00	0.60
20.00	3/4" DC	Yes	5.00	0.000	0.75	0.31	0.00	0.097	0.000	7.896	0.00	8.00
21.00	Safety Cable	Yes	1.00	0.000	0.38	0.03	0.00	0.098	0.000	7.978	0.00	0.27
21.00	1 5/8" Coax	Yes	1.00	0.000	3.96	0.33	0.00	0.098	0.000	7.978	0.00	12.48
21.00	1/2" Fiber	Yes	1.00	0.000	0.38	0.03	0.00	0.098	0.000	7.978	0.00	0.12
21.00	3/4" DC	Yes	1.00	0.000	0.75	0.06	0.00	0.098	0.000	7.978	0.00	1.60
25.00	Safety Cable	Yes	4.00	0.000	0.38	0.13	0.00	0.103	1.010	8.276	0.00	1.09
25.00	1 5/8" Coax	Yes	4.00	0.000	3.96	1.32	0.00	0.103	1.010	8.276	0.00	49.92
25.00	1/2" Fiber	Yes	4.00	0.000	0.38	0.13	0.00	0.103	1.010	8.276	0.00	0.48
25.00	3/4" DC	Yes	4.00	0.000	0.75	0.25	0.00	0.103	1.010	8.276	0.00	6.40
25.00	1.25" Reinforcing	Yes	0.75	0.000	1.25	0.08	0.00	0.103	1.010	8.276	0.00	0.00
27.75	Safety Cable	Yes	2.75	0.000	0.38	0.09	0.00	0.124	1.071	8.460	0.00	0.75
27.75	1 5/8" Coax	Yes	2.75	0.000	3.96	0.91	0.00	0.124	1.071	8.460	0.00	34.32
27.75	1/2" Fiber	Yes	2.75	0.000	0.38	0.09	0.00	0.124	1.071	8.460	0.00	0.33
27.75	3/4" DC	Yes	2.75	0.000	0.75	0.17	0.00	0.124	1.071	8.460	0.00	4.40
27.75	1.25" Reinforcing	Yes	2.75	0.000	1.25	0.29	0.00	0.124	1.071	8.460	0.00	0.00
28.00	Safety Cable	Yes	0.25	0.000	0.38	0.01	0.00	0.125	1.074	8.476	0.00	0.07
28.00	1 5/8" Coax	Yes	0.25	0.000	3.96	0.08	0.00	0.125	1.074	8.476	0.00	3.12
28.00	1/2" Fiber	Yes	0.25	0.000	0.38	0.01	0.00	0.125	1.074	8.476	0.00	0.03
28.00	3/4" DC	Yes	0.25	0.000	0.75	0.02	0.00	0.125	1.074	8.476	0.00	0.40
28.00	1.25" Reinforcing	Yes	0.25	0.000	1.25	0.03	0.00	0.125	1.074	8.476	0.00	0.00
30.00	Safety Cable	Yes	2.00	0.000	0.38	0.06	0.00	0.124	1.071	8.600	0.00	0.55
30.00	1 5/8" Coax	Yes	2.00	0.000	3.96	0.66	0.00	0.124	1.071	8.600	0.00	24.96
30.00	1/2" Fiber	Yes	2.00	0.000	0.38	0.06	0.00	0.124	1.071	8.600	0.00	0.24
30.00	3/4" DC	Yes	2.00	0.000	0.75	0.13	0.00	0.124	1.071	8.600	0.00	3.20
30.00	1.25" Reinforcing	Yes	2.00	0.000	1.25	0.21	0.00	0.124	1.071	8.600	0.00	0.00
35.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.126	1.077	8.883	0.00	1.37
35.00	1 5/8" Coax	Yes	5.00	0.000	3.96	1.65	0.00	0.126	1.077	8.883	0.00	62.40
35.00	1/2" Fiber	Yes	5.00	0.000	0.38	0.16	0.00	0.126	1.077	8.883	0.00	0.60
35.00	3/4" DC	Yes	5.00	0.000	0.75	0.31	0.00	0.126	1.077	8.883	0.00	8.00
35.00	1.25" Reinforcing	Yes	5.00	0.000	1.25	0.52	0.00	0.126	1.077	8.883	0.00	0.00
40.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.129	1.086	9.137	0.00	1.37
40.00	1 5/8" Coax	Yes	5.00	0.000	3.96	1.65	0.00	0.129	1.086	9.137	0.00	62.40

Linear Appurtenance Segment Forces (Factored)

Structure: CT01499-S-SBA
Site Name: Torrington
Height: 153.00 (ft)
Base Elev: 0.000 (ft)
Gh: 1.1

Topography: 1

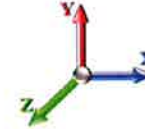
Code: EIA/TIA-222-G
Exposure: C
Crest Height: 0.00
Site Class: B - Competent Rock
Struct Class: II

2/2/2017
 Page: 38



Load Case: 1.0D + 1.0W 60 mph Wind

Dead Load Factor 1.00
Wind Load Factor 1.00



Iterations 21

Top Elev (ft)	Description	Wind Exposed	Length (ft)	Ca	Exposed Width (in)	Area (sqft)	CaAa (sqft)	Ra	Cf Adjust Factor	qz (psf)	F X (lb)	Dead Load (lb)
40.00	1/2" Fiber	Yes	5.00	0.000	0.38	0.16	0.00	0.129	1.086	9.137	0.00	0.60
40.00	3/4" DC	Yes	5.00	0.000	0.75	0.31	0.00	0.129	1.086	9.137	0.00	8.00
40.00	1.25" Reinforcing	Yes	5.00	0.000	1.25	0.52	0.00	0.129	1.086	9.137	0.00	0.00
40.75	Safety Cable	Yes	0.75	0.000	0.38	0.02	0.00	0.131	1.092	9.173	0.00	0.20
40.75	1 5/8" Coax	Yes	0.75	0.000	3.96	0.25	0.00	0.131	1.092	9.173	0.00	9.36
40.75	1/2" Fiber	Yes	0.75	0.000	0.38	0.02	0.00	0.131	1.092	9.173	0.00	0.09
40.75	3/4" DC	Yes	0.75	0.000	0.75	0.05	0.00	0.131	1.092	9.173	0.00	1.20
40.75	1.25" Reinforcing	Yes	0.75	0.000	1.25	0.08	0.00	0.131	1.092	9.173	0.00	0.00
45.00	Safety Cable	Yes	4.25	0.000	0.38	0.13	0.00	0.128	1.084	9.366	0.00	1.16
45.00	1 5/8" Coax	Yes	4.25	0.000	3.96	1.40	0.00	0.128	1.084	9.366	0.00	53.04
45.00	1/2" Fiber	Yes	4.25	0.000	0.38	0.13	0.00	0.128	1.084	9.366	0.00	0.51
45.00	3/4" DC	Yes	4.25	0.000	0.75	0.27	0.00	0.128	1.084	9.366	0.00	6.80
45.00	1.25" Reinforcing	Yes	3.50	0.000	1.25	0.36	0.00	0.128	1.084	9.366	0.00	0.00
50.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.110	1.030	9.576	0.00	1.37
50.00	1 5/8" Coax	Yes	5.00	0.000	3.96	1.65	0.00	0.110	1.030	9.576	0.00	62.40
50.00	1/2" Fiber	Yes	5.00	0.000	0.38	0.16	0.00	0.110	1.030	9.576	0.00	0.60
50.00	3/4" DC	Yes	5.00	0.000	0.75	0.31	0.00	0.110	1.030	9.576	0.00	8.00
55.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.113	1.039	9.770	0.00	1.37
55.00	1 5/8" Coax	Yes	5.00	0.000	3.96	1.65	0.00	0.113	1.039	9.770	0.00	62.40
55.00	1/2" Fiber	Yes	5.00	0.000	0.38	0.16	0.00	0.113	1.039	9.770	0.00	0.60
55.00	3/4" DC	Yes	5.00	0.000	0.75	0.31	0.00	0.113	1.039	9.770	0.00	8.00
60.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.116	1.048	9.951	0.00	1.37
60.00	1 5/8" Coax	Yes	5.00	0.000	3.96	1.65	0.00	0.116	1.048	9.951	0.00	62.40
60.00	1/2" Fiber	Yes	5.00	0.000	0.38	0.16	0.00	0.116	1.048	9.951	0.00	0.60
60.00	3/4" DC	Yes	5.00	0.000	0.75	0.31	0.00	0.116	1.048	9.951	0.00	8.00
65.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.119	1.058	10.120	0.00	1.37
65.00	1 5/8" Coax	Yes	5.00	0.000	3.96	1.65	0.00	0.119	1.058	10.120	0.00	62.40
65.00	1/2" Fiber	Yes	5.00	0.000	0.38	0.16	0.00	0.119	1.058	10.120	0.00	0.60
65.00	3/4" DC	Yes	5.00	0.000	0.75	0.31	0.00	0.119	1.058	10.120	0.00	8.00
70.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.123	1.068	10.279	0.00	1.37
70.00	1 5/8" Coax	Yes	5.00	0.000	3.96	1.65	0.00	0.123	1.068	10.279	0.00	62.40
70.00	1/2" Fiber	Yes	5.00	0.000	0.38	0.16	0.00	0.123	1.068	10.279	0.00	0.60
70.00	3/4" DC	Yes	5.00	0.000	0.75	0.31	0.00	0.123	1.068	10.279	0.00	8.00
71.00	Safety Cable	Yes	1.00	0.000	0.38	0.03	0.00	0.125	1.074	10.310	0.00	0.27
71.00	1 5/8" Coax	Yes	1.00	0.000	3.96	0.33	0.00	0.125	1.074	10.310	0.00	12.48
71.00	1/2" Fiber	Yes	1.00	0.000	0.38	0.03	0.00	0.125	1.074	10.310	0.00	0.12
71.00	3/4" DC	Yes	1.00	0.000	0.75	0.06	0.00	0.125	1.074	10.310	0.00	1.60
75.00	Safety Cable	Yes	4.00	0.000	0.38	0.13	0.00	0.125	1.074	10.430	0.00	1.09
75.00	1 5/8" Coax	Yes	4.00	0.000	3.96	1.32	0.00	0.125	1.074	10.430	0.00	49.92
75.00	1/2" Fiber	Yes	4.00	0.000	0.38	0.13	0.00	0.125	1.074	10.430	0.00	0.48
75.00	3/4" DC	Yes	4.00	0.000	0.75	0.25	0.00	0.125	1.074	10.430	0.00	6.40
80.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.128	1.084	10.572	0.00	1.37
80.00	1 5/8" Coax	Yes	5.00	0.000	3.96	1.65	0.00	0.128	1.084	10.572	0.00	62.40
80.00	1/2" Fiber	Yes	5.00	0.000	0.38	0.16	0.00	0.128	1.084	10.572	0.00	0.60
80.00	3/4" DC	Yes	5.00	0.000	0.75	0.31	0.00	0.128	1.084	10.572	0.00	8.00
85.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.132	1.095	10.708	0.00	1.37
85.00	1 5/8" Coax	Yes	5.00	0.000	3.96	1.65	0.00	0.132	1.095	10.708	0.00	62.40

Linear Appurtenance Segment Forces (Factored)

Structure: CT01499-S-SBA
Site Name: Torrington
Height: 153.00 (ft)
Base Elev: 0.000 (ft)
Gh: 1.1

Topography: 1

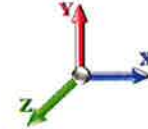
Code: EIA/TIA-222-G
Exposure: C
Crest Height: 0.00
Site Class: B - Competent Rock
Struct Class: II

2/2/2017
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Load Case: 1.0D + 1.0W 60 mph Wind

Dead Load Factor 1.00
Wind Load Factor 1.00



Iterations 21

Top Elev (ft)	Description	Wind Exposed	Length (ft)	Ca	Exposed Width (in)	Area (sqft)	CaAa (sqft)	Ra	Cf Adjust Factor	qz (psf)	F X (lb)	Dead Load (lb)
85.00	1/2" Fiber	Yes	5.00	0.000	0.38	0.16	0.00	0.132	1.095	10.708	0.00	0.60
85.00	3/4" DC	Yes	5.00	0.000	0.75	0.31	0.00	0.132	1.095	10.708	0.00	8.00
90.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.136	1.107	10.838	0.00	1.37
90.00	1 5/8" Coax	Yes	5.00	0.000	3.96	1.65	0.00	0.136	1.107	10.838	0.00	62.40
90.00	1/2" Fiber	Yes	5.00	0.000	0.38	0.16	0.00	0.136	1.107	10.838	0.00	0.60
90.00	3/4" DC	Yes	5.00	0.000	0.75	0.31	0.00	0.136	1.107	10.838	0.00	8.00
95.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.140	1.121	10.962	0.00	1.37
95.00	1 5/8" Coax	Yes	5.00	0.000	3.96	1.65	0.00	0.140	1.121	10.962	0.00	62.40
95.00	1/2" Fiber	Yes	5.00	0.000	0.38	0.16	0.00	0.140	1.121	10.962	0.00	0.60
95.00	3/4" DC	Yes	5.00	0.000	0.75	0.31	0.00	0.140	1.121	10.962	0.00	8.00
100.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.010	0.000	11.081	0.00	1.37
105.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.010	0.000	11.195	0.00	1.37
110.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.011	0.000	11.305	0.00	1.37
115.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.011	0.000	11.412	0.00	1.37
120.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.011	0.000	11.514	0.00	1.37
123.00	Safety Cable	Yes	3.00	0.000	0.38	0.10	0.00	0.012	0.000	11.574	0.00	0.82
125.00	Safety Cable	Yes	2.00	0.000	0.38	0.06	0.00	0.012	0.000	11.614	0.00	0.55
130.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.012	0.000	11.710	0.00	1.37
133.00	Safety Cable	Yes	3.00	0.000	0.38	0.10	0.00	0.013	0.000	11.766	0.00	0.82
135.00	Safety Cable	Yes	2.00	0.000	0.38	0.06	0.00	0.013	0.000	11.803	0.00	0.55
140.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.013	0.000	11.894	0.00	1.37
145.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.014	0.000	11.982	0.00	1.37
150.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.015	0.000	12.068	0.00	1.37
153.00	Safety Cable	Yes	3.00	0.000	0.38	0.10	0.00	0.015	0.000	12.119	0.00	0.82
Totals:											0.0	1,390.8

Calculated Forces

Structure: CT01499-S-SBA
Site Name: Torrington
Height: 153.00 (ft)
Base Elev: 0.000 (ft)
Gh: 1.1

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

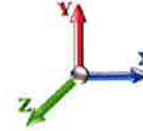
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Load Case: 1.0D + 1.0W 60 mph Wind

Iterations 21

Dead Load Factor 1.00
Wind Load Factor 1.00



Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-39.39	-9.12	0.00	-935.17	0.00	935.17	4463.02	2231.51	10951.4	5483.88	0.00	0.000	0.000	0.179
5.00	-37.95	-9.02	0.00	-889.55	0.00	889.55	4413.36	2206.68	10604.1	5309.95	0.02	-0.041	0.000	0.176
10.00	-36.53	-8.91	0.00	-844.46	0.00	844.46	4361.89	2180.94	10257.6	5136.44	0.09	-0.082	0.000	0.173
15.00	-35.13	-8.81	0.00	-799.90	0.00	799.90	4308.61	2154.31	9912.23	4963.48	0.20	-0.124	0.000	0.169
20.00	-33.77	-8.69	0.00	-755.87	0.00	755.87	4253.53	2126.77	9568.22	4791.22	0.35	-0.166	0.000	0.166
21.00	-33.49	-8.67	0.00	-747.18	0.00	747.18	4242.30	2121.15	9499.61	4756.87	0.38	-0.174	0.000	0.165
25.00	-31.68	-8.57	0.00	-712.50	0.00	712.50	4196.65	2098.33	9225.87	4619.79	0.54	-0.209	0.000	0.162
27.75	-30.46	-8.49	0.00	-688.94	0.00	688.94	4164.60	2082.30	9038.39	4525.91	0.67	-0.232	0.000	0.105
28.00	-30.35	-8.49	0.00	-686.82	0.00	686.82	3213.57	1606.78	7065.87	3538.19	0.68	-0.234	0.000	0.116
30.00	-29.89	-8.43	0.00	-669.85	0.00	669.85	3199.34	1599.67	6969.21	3489.78	0.78	-0.245	0.000	0.126
35.00	-28.76	-8.29	0.00	-627.67	0.00	627.67	3162.51	1581.26	6727.41	3368.71	1.06	-0.276	0.000	0.121
40.00	-27.65	-8.14	0.00	-586.21	0.00	586.21	3123.88	1561.94	6485.64	3247.64	1.36	-0.307	0.000	0.116
40.75	-27.49	-8.12	0.00	-580.10	0.00	580.10	3117.93	1558.96	6449.39	3229.49	1.41	-0.312	0.000	0.115
40.75	-27.49	-8.12	0.00	-580.10	0.00	580.10	3117.93	1558.96	6449.39	3229.49	1.41	-0.312	0.000	0.115
45.00	-26.56	-8.01	0.00	-545.57	0.00	545.57	3083.44	1541.72	6244.17	3126.72	1.70	-0.338	0.000	0.183
50.00	-25.49	-7.88	0.00	-505.54	0.00	505.54	3041.20	1520.60	6003.26	3006.09	2.08	-0.388	0.000	0.177
55.00	-24.44	-7.74	0.00	-466.16	0.00	466.16	2997.16	1498.58	5763.21	2885.89	2.52	-0.438	0.000	0.170
60.00	-23.42	-7.61	0.00	-427.44	0.00	427.44	2951.32	1475.66	5524.28	2766.24	3.00	-0.488	0.000	0.162
65.00	-22.41	-7.47	0.00	-389.39	0.00	389.39	2903.67	1451.83	5286.75	2647.30	3.54	-0.537	0.000	0.155
70.00	-20.63	-7.28	0.00	-352.03	0.00	352.03	2854.22	1427.11	5050.90	2529.20	4.13	-0.585	0.000	0.146
71.00	-20.29	-7.25	0.00	-344.75	0.00	344.75	2869.57	1434.79	5123.02	2565.32	4.25	-0.595	0.000	0.141
75.00	-19.51	-7.14	0.00	-315.74	0.00	315.74	2829.16	1414.58	4935.24	2471.29	4.77	-0.634	0.000	0.135
80.00	-18.56	-7.00	0.00	-280.03	0.00	280.03	2777.01	1388.51	4702.41	2354.70	5.46	-0.678	0.000	0.126
85.00	-17.63	-6.86	0.00	-245.04	0.00	245.04	2723.06	1361.53	4471.94	2239.29	6.19	-0.721	0.000	0.116
90.00	-16.72	-6.71	0.00	-210.77	0.00	210.77	2667.31	1333.66	4244.12	2125.22	6.97	-0.761	0.000	0.105
95.00	-12.57	-4.88	0.00	-177.21	0.00	177.21	2609.76	1304.88	4019.22	2012.60	7.79	-0.799	0.000	0.093
100.00	-11.77	-4.75	0.00	-152.79	0.00	152.79	2550.40	1275.20	3797.52	1901.58	8.64	-0.834	0.000	0.085
105.00	-10.93	-4.56	0.00	-128.83	0.00	128.83	2489.24	1244.62	3579.29	1792.30	9.53	-0.868	0.000	0.076
110.00	-10.18	-4.43	0.00	-106.05	0.00	106.05	2426.28	1213.14	3364.80	1684.90	10.46	-0.899	0.000	0.067
115.00	-8.99	-4.30	0.00	-83.89	0.00	83.89	1783.00	891.50	2427.68	1215.65	11.42	-0.927	0.000	0.074
120.00	-8.38	-4.18	0.00	-62.39	0.00	62.39	1739.91	869.95	2280.12	1141.75	12.40	-0.951	0.000	0.059
123.00	-5.75	-2.29	0.00	-49.61	0.00	49.61	1713.19	856.59	2192.59	1097.92	13.00	-0.966	0.000	0.049
125.00	-5.56	-2.25	0.00	-45.03	0.00	45.03	1695.01	847.51	2134.69	1068.93	13.41	-0.975	0.000	0.045
130.00	-5.08	-2.13	0.00	-33.80	0.00	33.80	1648.31	824.16	1991.67	997.31	14.44	-0.994	0.000	0.037
133.00	-3.52	-1.53	0.00	-27.41	0.00	27.41	1619.42	809.71	1907.13	954.98	15.07	-1.004	0.000	0.031
135.00	-3.36	-1.49	0.00	-24.34	0.00	24.34	1599.81	799.90	1851.33	927.04	15.49	-1.010	0.000	0.028
140.00	-2.98	-1.38	0.00	-16.88	0.00	16.88	1549.50	774.75	1713.96	858.25	16.56	-1.024	0.000	0.022
145.00	-2.61	-1.28	0.00	-9.96	0.00	9.96	1497.39	748.69	1579.82	791.09	17.64	-1.033	0.000	0.014
150.00	-2.26	-1.18	0.00	-3.55	0.00	3.55	1443.48	721.74	1449.20	725.68	18.72	-1.039	0.000	0.006
150.00	-2.26	-1.18	0.00	-3.55	0.00	3.55	1443.48	721.74	1449.20	725.68	18.72	-1.039	0.000	0.006
153.00	0.00	-1.14	0.00	0.00	0.00	0.00	1400.09	700.04	1362.73	682.38	19.37	-1.040	0.000	0.000

Final Analysis Summary

Structure: CT01499-S-SBA
Site Name: Torrington
Height: 153.00 (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

2/2/2017
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Reactions

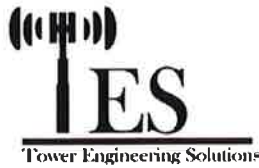
Load Case	Shear FX (kips)	Shear FZ (kips)	Axial FY (kips)	Moment MX (ft-kips)	Moment MY (ft-kips)	Moment MZ (ft-kips)
1.2D + 1.6W 93 mph Wind	35.1	0.00	47.22	0.00	0.00	3609.80
0.9D + 1.6W 93 mph Wind	35.1	0.00	35.40	0.00	0.00	3584.15
1.2D + 1.0Di + 1.0Wi 40 mph Wind	7.2	0.00	92.15	0.00	0.00	747.43
1.2D + 1.0E	0.9	0.00	47.27	0.00	0.00	98.70
0.9D + 1.0E	0.9	0.00	35.45	0.00	0.00	97.91
1.0D + 1.0W 60 mph Wind	9.1	0.00	39.39	0.00	0.00	935.17

Max Stresses

Load Case	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Elev (ft)	Stress Ratio
1.2D + 1.6W 93 mph Wind	-31.18	-30.91	0.00	-2108.7	0.00	-2108.7	3083.44	1541.7	6244.17	3126.72	45.00	0.685
0.9D + 1.6W 93 mph Wind	-23.21	-30.71	0.00	-2088.3	0.00	-2088.3	3083.44	1541.7	6244.17	3126.72	45.00	0.676
1.2D + 1.0Di + 1.0Wi 40 mph Wind	-67.67	-6.39	0.00	-438.23	0.00	-438.23	3083.44	1541.7	6244.17	3126.72	45.00	0.162
1.2D + 1.0E	-31.93	-0.69	0.00	-62.21	0.00	-62.21	3083.44	1541.7	6244.17	3126.72	45.00	0.030
0.9D + 1.0E	-23.95	-0.69	0.00	-61.57	0.00	-61.57	3083.44	1541.7	6244.17	3126.72	45.00	0.027
1.0D + 1.0W 60 mph Wind	-26.56	-8.01	0.00	-545.57	0.00	-545.57	3083.44	1541.7	6244.17	3126.72	45.00	0.183

Additional Steel Summary

Elev From (ft)	Elev To (ft)	Member	Intermediate Connectors			Lower Termination				Upper Termination				Max Member			
			VQ/I (lb/in)	Vu (kips)	phi Vn (kips)	MQ/I (kips)	phi Vn (kips)	Num Reqd	Num Actual	MQ/I (kips)	phi Vn (kips)	Num Reqd	Num Actual	Pu (kips)	phi Pn (kips)	phi Tn (kips)	Ratio
27.8	40.8	(3) PLT-8"x1.25"(1.25Hole)	311.7	5.61	37.1	262.0	37.1	7	14	267.5	37.1	7	14	284.13	551.4	506.25	0.561



Monopole Mat Foundation Design

Date
2/2/2017

Customer Name:	Verizon	EIA/TIA Standard:	EIA-222-G
Site Name:		Structure Height (Ft.):	153
Site Number:	CT01499-S-SBA	Engineer Name:	J. Chen
Engr. Number:	30114	Engineer Login ID:	

Foundation Info Obtained from:

Structure Type:

Analysis or Design?

Base Reactions (Factored):

Axial Load (Kips):	92.2	Shear Force (Kips):	35.1
Uplift Force (Kips):	0.0	Moment (Kips-ft):	3609.8

Foundation Geometries:

		Mods required -Yes/No ?:	No
Diameter of Pier (ft.):	7.0	Depth of Base BG (ft.):	8.0
Pier Height A. G. (ft.):	0.25	Thickness of Pad (ft):	4.00
Length of Pad (ft.):	29	Width of Pad (ft.):	29
Final Length of pad (ft)	29.0	Final width of pad (ft):	29.0
Control Value for Cell D18:	0	Control Value for Cell F18:	0

Material Properties and Rebar Info:

Concrete Strength (psi):	3000	Steel Elastic Modulus:	29000	ksi
Vertical bar yield (ksi)	60	Tie steel yield (ksi):	60	
Vertical Rebar Size #:	10	Tie / Stirrup Size #:	5	
Qty. of Vertical Rebars:	47	Tie Spacing (in):	8.0	
Pad Rebar Yield (Ksi):	60	Pad Steel Rebar Size (#):	9	
Concrete Cover (in.):	3	Unit Weight of Concrete:	150.0	pcf
Rebar at the bottom of the concrete pad:				
Qty. of Rebar in Pad (L):	26	Qty. of Rebar in Pad (W):	26	
Rebar at the top of the concrete pad:				
Qty. of Rebar in Pad (L):	26	Qty. of Rebar in Pad (W):	26	

Soil Design Parameters:

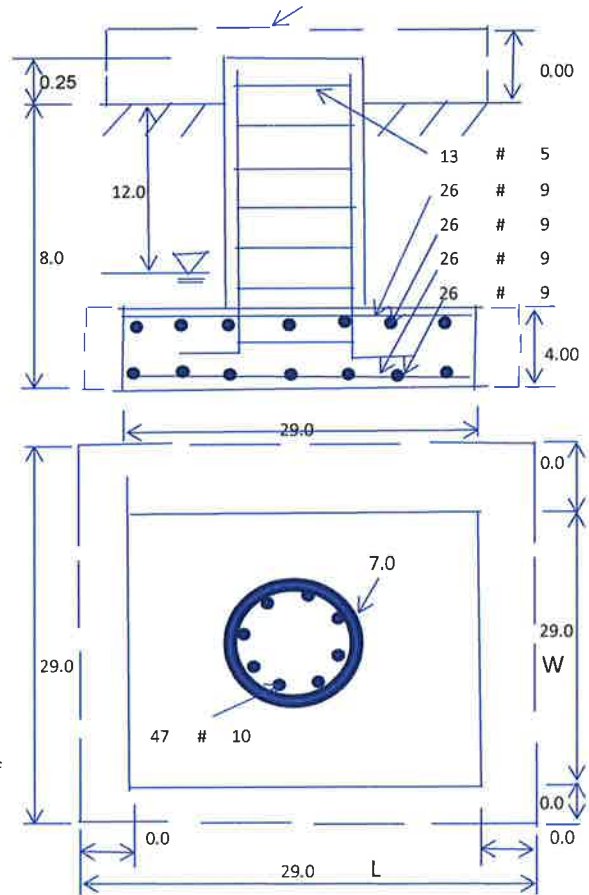
Soil Unit Weight (pcf):	110.0	Soil Buoyant Weight:	50.0	Pcf	
Water Table B.G.S. (ft):	12.0	Unit Weight of Water:	62.4	pcf	Angle from Top of Pad: 30
Ultimate Bearing Pressure (psf):	8000	Ultimate Skin Friction:	0	Psf	Angle from Bottm of Pad: 25
Consider Friction for O.T.M. (Y/N):	No	Consider Friction for bearing (Y/N):	No		Angle from Bottm of Pad: 25
Consider soil hori. force for O.T.M.:	No	Reduction factor on the maximum soil bearing pressure:	1.00		

Foundation Analysis and Design:

Uplift Strength Reduction Factor:	0.75	Compression Strength Reduction Factor:	0.75
Total Dry Soil Volume (cu. Ft.):	3210.06	Total Dry Soil Weight (Kips):	353.11
Total Buoyant Soil Volume (cu. Ft.):	0.00	Total Buoyant Soil Weight (Kips):	0.00
Total Effective Soil Weight (Kips):	353.11	Weight from the Concrete Block at Top (K):	0.00
Total Dry Concrete Volume (cu. Ft.):	3527.56	Total Dry Concrete Weight (Kips):	529.13
Total Buoyant Concrete Volume (cu. Ft.):	0.00	Total Buoyant Concrete Weight (Kips):	0.00
Total Effective Concrete Weight (Kips):	529.13	Total Vertical Load on Base (Kips):	974.44

Check Soil Capacities:

Calculated Maxium Net Soil Pressure under the base (psf):	1998	<	Allowable Factored Soil Bearing (psf):	6000	0.33	OK!
Allowable Foundation Overturning Resistance (kips-ft.):	12850.1	>	Design Factored Momont (kips-ft):	3899	0.30	OK!
Factor of Safety Against Overturning (O. R. Moment/Design Moment):	3.30					OK!



Check the capacities of Reinforcing Concrete:

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

(1) Concrete Pier:

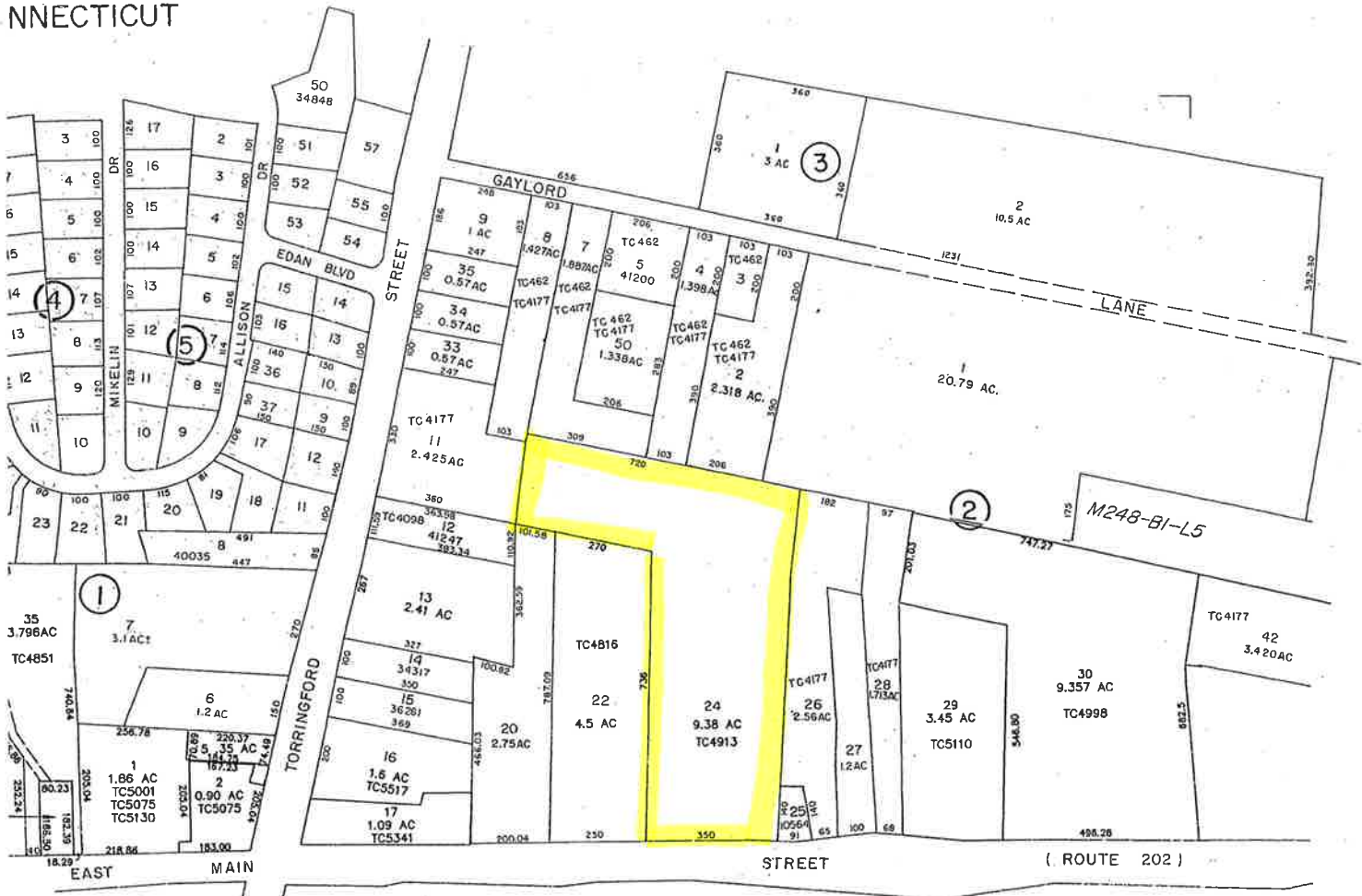
				Load/ Capacity Ratio	
Vertical Steel Rebar Area (sq. in./each):	1.27	Tie / Stirrup Area (sq. in./each):	0.31		
Calculated Moment Capacity (Mn,Kips-Ft):	9234.8	> Design Factored Moment (Mu, Kips-Ft)	3759.0	0.41	OK!
Calculated Shear Capacity (Kips):	767.8	> Design Factored Shear (Kips):	35.1	0.05	OK!
Calculated Tension Capacity (Tn, Kips):	3223.3	> Design Factored Tension (Tu Kips):	0.0	0.00	OK!
Calculated Compression Capacity (Pn, Kips):	7269.2	> Design Factored Axial Load (Pu Kips):	92.2	0.01	OK!
Moment & Axial Strength Combination:	0.41	OK! Check Tie Spacing (Design/Required):		0.6667	OK!
Pier Reinforcement Ratio:	0.011	Reinforcement Ratio is satisfied per ACI			

(2).Concrete Pad:

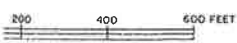
One-Way Design Shear Capacity (L-Direction, Kips):	1270.5	> One-Way Factored Shear (L-D. Kips):	271.4	0.21	OK!
One-Way Design Shear Capacity (W-Direction, Kips):	1270.5	> One-Way Factored Shear (W-D., Kips)	271.4	0.21	OK!
One-Way Design Shear Capacity (Corner-Corner. Kips):	1490.1	> One-Way Factored Shear (C-C, Kips):	438.2	0.29	OK!
Lower Steel Pad Reinforcement Ratio (L-Direct.):	0.0017	OK! Lower Steel Pad Reinf. Ratio (W-Direct	0.0017		
Lower Steel Pad Moment Capacity (L-Direction. Kips-ft):	5096.3	> Moment at Bottom (L-Direct. K-Ft):	990.3	0.19	OK!
Lower Steel Pad Moment Capacity (W-Direction. Kips-ft):	5096.3	> Moment at Bottom (W-Direct. K-Ft):	990.3	0.19	OK!
Lower Steel Pad Moment Capacity (Corner-Corner,K-ft):	7177.4	> Moment at Bottom (C-C Dir. K-Ft):	1400.5	0.20	OK!
Upper Steel Pad Reinforcement Ratio (L-Direct.):	0.0017	OK! Upper Steel Reinf. Ratio (W-Direct.):	0.0017		
Upper Steel Pad Moment Capacity (L-Direction. Kips-ft):	5096.3	> Moment at the top (L-Dir Kips-Ft):	607.7	0.12	OK!
Upper Steel Pad Moment Capacity (W-Direction. Kips-ft):	5096.3	> Moment at the top (W-Dir Kips-Ft):	607.7	0.12	OK!
Upper Steel Pad Moment Capacity (Corner-Corner. K-ft):	7177.4	> Moment at the top (C-C Direc. K-Ft):	517.4	0.07	OK!

ATTACHMENT 4

CONNECTICUT



DS	NOV 2015	Update AC 247/2/16
DS	FEB 2011	Merge: 247/2/17, 18 & 19 Merge: 247/1/56 & 57
IM	APR 2007	Lot Line Rev. 247/1/1 & 2
IM	APR 2007	Rev 247/2/29
IM	FEB 2007	Rev 247/1/1, 2, & 5
IM	MAY 2006	Lot Line Revision 247/2/30 247/1/1, 2, & 5
MZ	SEPT 2005	Modify Lot Size 247/2/24
MZ	JAN 2005	Merge 247/2/51 into 13
		Delete 136/5/33
	DIC 2002	UPDATED MAP
	NOV 2001	UPDATED MAP
	F 1999	UPDATE & REVISE
	JULY 1999	UPDATED MAP
	DEC 1998	VARIOUS CHANGES & ADD. INFO IN BL 2
	JULY 1998	REVISIONS IN BLOCK 2
	JAN 1990	Correct Measurements & Increase on 101/1 R. 1
	3/96	1000 NEW HARTFORD BUSINESS PARK
	NOV 80	UPDATED MAP 247
REV	DATE	REVISION



AVIS PROJ. No. 7454

236	246	249
	247	248

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



Information on the Property Records for the Municipality of Torrington was last updated on 2/3/2017.

Parcel Information

Location:	1927 E MAIN ST	Property Use:	Retail	Primary Use:	Neighborhood Shopping Center
Unique ID:	5571	Map Block Lot:	247/002/024	Acres:	9.39
490 Acres:	0.00	Zone:	LB	Volume / Page:	0697/0859
Developers Map / Lot:	5047/4913	Census:	H		

Value Information

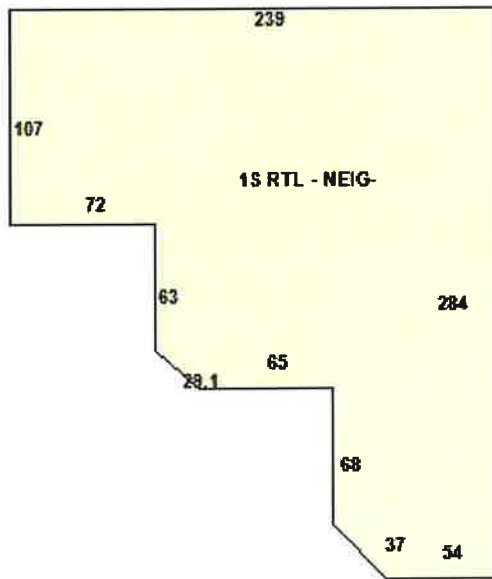
	Appraised Value	70% Assessed Value
Land	1,257,418	880,190
Buildings	3,073,910	2,151,740
Detached Outbuildings	227,816	159,470
Total	4,559,144	3,191,400

Owner's Information

Owner's Data

TEP INCORPORATED
PO BOX 876
TORRINGTON CT 06790

Building 1



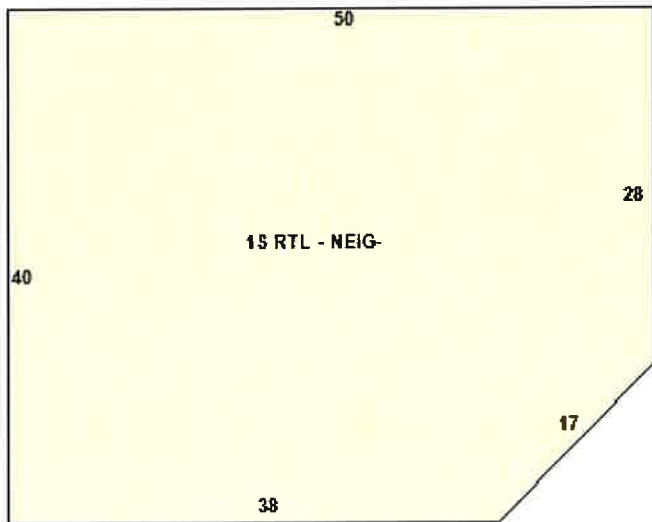
Category:	Retail	Use:	Neighborhood Shopping Center	GLA:	46,307
Stories:	1.00	Construction:	Masonry and Wood Frame	Year Built:	1994
Heating:	FHA Non Duct	Fuel:	Gas	Cooling Percent:	100
Siding:	Concrete Block	Roof Material:	Asphalt	Beds/Units:	0

Special Features

Mezzanine Finished Area	950
Mezzanine Unfinished Area	950
Wet Sprinklers	46200

Attached Components

Building 2



Category:	Retail	Use:	Neighborhood Shopping Center	GLA:	1,926
Stories:	1.00	Construction:	Reinforced Concrete	Year Built:	2006
Heating:	FHA	Fuel:	Gas	Cooling Percent:	100
Siding:	Concrete Block	Roof Material:	Asphalt	Beds/Units:	0

Special Features

Attached Components

Detached Outbuildings

Type:	Year Built:	Length:	Width:	Area:
Canopy	1994	0.00	0.00	1,834
Canopy	2006	0.00	0.00	404
Fencing	1994	0.00	0.00	240
Loading Dock Cov	1994	0.00	0.00	480
Loading Dock Un	1994	0.00	0.00	80
Concrete Patio	1994	0.00	0.00	220
Paving	1994	0.00	0.00	122,022
Poles	1994	0.00	0.00	7
Frame Shed	1994	0.00	0.00	600
Frame Shed	1994	0.00	0.00	200

Owner History - Sales

Owner Name	Volume	Page	Sale Date	Deed Type	Valid Sale	Sale Price
TEP INCORPORATED	0697	0859	04/20/1999		No	\$0
PERGOLA HEATHER A	0697	0857	04/20/1999		No	\$0
TEP INCORPORATED	0599	0410	05/27/1994		Yes	\$699,000

Building Permits