

December 18, 2018

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

Re: **Notice of Exempt Modification – Facility Modification
2 Allen Raymond Lane, Westport, Connecticut**

Dear Ms. Bachman:

Cellco Partnership d/b/a Verizon Wireless (“Cellco”) currently maintains twelve (12) antennas at the top of the existing 130-foot tower (134-foot antenna centerline) at 2 Allen Raymond Lane (formerly 2 Sunny Lane) in Westport, Connecticut (the “Property”). The Property is owned by Cellco. The tower is owned by American Tower Corporation (“ATC”). Cellco’s use of this tower was approved by the Council in 1998 (Docket No. 188). Cellco now intends to modify its facility by replacing six (6) of its existing antennas with three (3) model QS6656-5D, 700/1900 MHz antennas and three (3) model QS6656-5D, 850/2100 MHz antennas. All antennas will maintain a centerline height of 134 feet above ground level. Cellco also intends to install six (6) remote radio heads (“RRHs”) behind its antennas. Included in Attachment 1 are specifications for Cellco’s replacement antennas and RRHs.

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 Westport First Selectman, James Marpe; Mary Young, Westport Planning and Zoning Director; and ATC, the tower owner.

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

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

18777654-v1

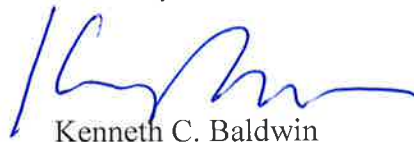
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2. The proposed modifications will not involve any change to ground-mounted equipment and, therefore, will not require the extension of the site boundary.
3. The proposed modifications will not increase noise levels at the facility by six decibels or more, or to levels that exceed state and local criteria.
4. The operation of the replacement antennas and RRHs will not increase radio frequency (RF) emissions at the facility to a level at or above the Federal Communications Commission (FCC) safety standard. A cumulative General Power Density table for Cellco's modified facility is included in Attachment 2.
5. The proposed modifications will not cause a change or alteration in the physical or environmental characteristics of the site.
6. The tower and its foundation can support Cellco's proposed modifications. (*See* Structural Analysis Report included in Attachment 3).

A copy of the parcel map and property owner information is included in Attachment 4. A Certificate of Mailing verifying that this filing was sent to municipal officials is included in Attachment 5.

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

Sincerely,



Kenneth C. Baldwin

Enclosures

Copy to:

James Marpe, Westport First Selectman
Mary Young, Westport Planning and Zoning Director
ATC
Tim Parks

ATTACHMENT 1

QS6656-5D

6ft 65° XXX MultiServ™ 6-Port Antenna

2x698-806MHz & 824-894MHz / 4x1695-2400MHz

- Provides 6 antenna Ports in a slim-line form factor
- Independent 700 & 850 Tilt for use with dual band radios
- Optimized Azimuth patterns for Min Inter-Sector Interference
- 700, 850, PCS, AWS & WCS bands in one antenna
- AISG & 3GPP compliant internal (RET) with Smart Bias T
- Industry leading Minimal Wind-Load design

The Quintel **MultiServ™** Multiband 6 Port Antenna with patented QTilt™ technology uniquely delivers three independent services in a single slim-line antenna. This antenna allows for the use of dual band radios with 700 and 850 on a single pair of lowband ports while offering independent tilt between the 700 and 850 bands. This enables existing antenna network sites to be upgraded constraint free to add new services such as LTE for 700, 850, PCS, AWS and WCS bands with the replacement of one antenna. The QS6656-5D also provides 4x1695-2400MHz ports as two side-by-side (CLA-2X) arrays for connection to 2T4R/4T4R services.

Electrical Characteristics	2x Ports 1&2		4x Ports 3-6			
Operating Frequency (MHz)	698-806	824-894	1695-2400			
	698-806	824-894	1695-1780	1850-1990	2110-2180	2300-2400
Azimuth beamwidth ¹	67°	64°	67°	63°	60°	59°
Elevation beamwidth ¹	12.1°	10.6°	6.2°	5.9°	5.2°	4.8°
Gain ¹ (dBi)	12.5	13.4	17	17.1	17.8	18.0
Polarization	±45°		2x ±45°			
Electrical down-tilt range	2°-10°	2°-10°	0° – 8°			
Upper SLL (20° > mainbeam) ¹	-17dB	-17dB	-16dB	-18dB	-17dB	-16dB
Front to Back Ratio(180°±10°) ¹	≥25dB	≥25dB	≥25dB	≥25dB	≥28dB	≥30dB
Port to Port isolation ¹	≥25dB	≥25dB	≥30dB	≥30dB	≥30dB	≥30dB
Return loss (VSWR)	14dB(1.5)	14dB(1.5)	14dB(1.5)	14dB(1.5)	14dB(1.5)	14dB(1.5)
X Polar Discrimination (at 0°) ¹	>16dB	>16dB	>19dB	>19dB	>19dB	>19dB
Max Power handling (per any port)	250 watts		250 watts			
PIM (3 rd Order) (2x43dBm)	>153dBc		>153dBc			
X Band PIM (3 rd Order) (2x43dBm)	>159dBc					

¹ Typical Performance across frequency and Downtilt.

Mechanical Characteristics	
Dimensions	L 72"(1828mm) x W 12"(304mm) x D 9.6"(245mm)
Weight (excl mounting brackets)	88lbs (36kg)
No. of Connectors	6x 7/16 DIN Female Long Neck
Max Wind Speed	150mph (67m/s)
Equivalent Flat Plate Area ²	Front: 2.6ft ² (0.24m ²) Side: 5ft ² (0.48m ²)
Wind Load @160km/h (45m/s) ²	Front: 284.7N (64 lbs), Side: 535.5N (120.4 lbs)
Operating Temperature	-40°C to +65°C

² Derived from wind tunnel measurements

Fully Integrated RET Characteristics	
AISG Standards	V1.1,V 2.0 and 3GPP
Factory Default	AISG 2.0
Surge immunity	IEC 61000-4-5:2005 4KV(AISG PIN)
Device Type	SRET Type 1
AISG Data rate	9.6 kbps
No of connectors	2in/2out.
Connector type	IEC 60130-9 (Ed 3.0)
MTBF	36,000 Operational moves

QS6656-5D

6ft 65° XXX MultiServ™ 6-Port Antenna

2x698-806MHz & 824-894MHz / 4x1695-2400MHz

RET Configuration

The Quintel MultiServ™ Multiband 6 Port Antenna has the following Array, RF Port and AISG I/O Configurations.

The 6-Port array topology consists of 3 radiating arrays:

R1 – 698-806 & 824-894MHz
 Y1 – 1695-2400MHz
 Y2 – 1695-2400MHz

RF Connector Port
Configuration

	Ports	Freq (MHz)
R1	1-2	698-806 & 824-894
Y1	3-4	1695-2400
Y2	5-6	1695-2400

The RET Devices can be communicated with either via the designated external AISG connector or RF Port as shown below.

AISG I/O Configuration

RET Device	Band	RF Ports
3	1695-2400	3-6

AISG I/O Configuration

RET Device	Band	RF Ports
1	698-806	1-2
2	824-894	1-2

Multiband Optimization

The Quintel MultiServ™ Multiband QSx656-5D series of 6 Port Antennas are the only antenna solutions for independently optimizing 700MHz and 850MHz services when dual-band, lowband radios are used at site. Independent tilting ensures that traffic in each band can be optimized for coverage, capacity, interference, contouring at 850MHz band, spectrum border area transitions, and for optimal carrier aggregation tuning in the future.

The tilt of each service is controlled independently via internal RET actuators compliant to AISG1.1, AISG2.0 and 3GPP protocols. The QS6656-5D provides a total of 3 independent tilts:

- 1x(698-806MHz)
- 1x(824-894MHz)
- 1x Left & Right Array (1695-2400MHz)

Design Optimization

All Quintel antennas use the same mechanical mounting brackets thus making maintenance swaps easy and future proof. All Quintel Antennas also have Azimuth patterns optimized with network design and deployment in mind. The 3dB Azimuth beamwidth is ~65° as with most Antennas, but we have optimized how the pattern rolls-off and where the sidelobes emerge such that there is minimal Inter-Sector Interference when 3x sectors are deployed. For interference limited networks, we can deliver 25% more capacity.

QS6656-5D
6ft 65° XXX MultiServ™ 6-Port Antenna
2x698-806MHz & 824-894MHz / 4x1695-2400MHz

753MHz Azimuth (Left) and Elevation (Right) Patterns

869MHz Azimuth (Left) and Elevation (Right) Patterns

1960MHz Azimuth (Left) and Elevation (Right) Patterns

QS6656-5D

6ft 65° XXX MultiServ™ 6-Port Antenna

2x698-806MHz & 824-894MHz / 4x1695-2400MHz

2155MHz Azimuth (Left) and Elevation (Right) Patterns

2350MHz Azimuth (Left) and Elevation (Right) Patterns

About Quintel

Quintel is a leading innovator in the design, development, and delivery of network-efficient antenna solutions for wireless operators worldwide. The company's products enable global wireless operators to independently deploy and optimize multiple air interfaces or services on a single standard antenna platform. Quintel is the only antenna maker whose products can increase a wireless network's capacity and provide additional services, without increasing the number or size of antennas. Quintel is headquartered in Rochester, New York with additional offices throughout North America, Asia and Europe. More information about Quintel is available at www.quintelsolutions.com.

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SAMSUNG

Dual-Band Radio Unit 700/850MHz (B13/B5) RFV01U-D2A

Samsung's RFV01U-D2A is a compact remote Radio Unit (RU) designed for deployments that require flexibility in installation and rapid onlining, without compromising on coverage, capacity or operational expenses.



The RFV01U-D2A RU targets dual-band support across Band 13 (700MHz) and Band 5 (850MHz), making it an ideal product for broad coverage footprints across multiple common low-end, long-range frequencies.

The RU handles all Radio Frequency (RF) processing in a single, compact unit, and is designed to interface via CPRI with Samsung's CDU baseband offerings, in both distributed- and central-RAN configurations.

In addition to its minimal footprint and ease of installation, the RU is also designed to reduce cost of ownership through its integrated spectrum analyzer, which allows for remote RF monitoring, greatly reducing the need for on-site maintenance visits.

Features and Benefits

- Dual-band support for broad frequency coverage
- Minimal footprint reduces site costs
- Rapid, easy installation
- Flexibly deployable in any location
- Remote RF monitoring capability
- Convection cooled, silent operation

Key Technical Specifications

Duplex Type: FDD
Operating Frequencies:
 B13: DL(746-756MHz)/UL(777-787MHz)
 B5: DL(869-894MHz)/UL(824-849MHz)
Instantaneous Bandwidth: 10MHz(B13) + 25MHz(B5)
RF Chain: 4T4R/2T4R/2T2R
Output Power: Total 320W
DU-RU Interface: CPRI (10Gbps)
Dimensions: 380 x 380 x 207mm (29.9L)
Weight: 31.9kg
Input Power: -48V DC
Operating Temp.: -40 - 55°(w/o solar load)
Cooling: Natural convection

SAMSUNG

Dual-Band Radio Unit

AWS/PCS (B66/B2)

RFV01U-D1A

Samsung's RFV01U-D1A is a compact remote Radio Unit (RU) designed for deployments that require flexibility in installation and rapid onlining, without compromising on coverage, capacity or operational expenses.



The RFV01U-D1A RU targets dual-band support across Band 66 (AWS) and Band 2 (PCS), making it an ideal product for broad coverage footprints across multiple common mid-range frequencies.

The RU handles all Radio Frequency (RF) processing in a single, compact unit, and is designed to interface via CPRI with Samsung's CDU baseband offerings, in both distributed- and central-RAN configurations.

In addition to its minimal footprint and ease of installation, the RU is also designed to reduce cost of ownership through its integrated spectrum analyzer, which allows for remote RF monitoring, greatly reducing the need for on-site maintenance visits.

Features and Benefits

- Dual-band support for broad frequency coverage
- Minimal footprint reduces site costs
- Rapid, easy installation
- Flexibly deployable in any location
- Remote RF monitoring capability
- Convection cooled, silent operation
- Built-in Broadcast Auxiliary Services (BAS) filter ensures compliant AWS operation without impacting footprint

Key Technical Specifications

Duplex Type: FDD
Operating Frequencies:
B66: DL(2,110-2,180MHz)/UL(1,710-1,780MHz)
B2: DL(1,930-1,990MHz)/UL(1,850-1,910MHz)
Instantaneous Bandwidth:
70MHz(B66) + 60MHz(B2)
RF Chain: 4T4R/2T4R/2T2R
Output Power: Total 320W
DU-RU Interface: CPRI (10Gbps)
Dimensions: 380 x 380 x 255mm (36.8L)
Weight: 38.3kg
Input Power: -48V DC
Operating Temp.: -40 - 55°(w/o solar load)
Cooling: Natural convection

ATTACHMENT 2

Site Name: Westport (Cranbury) Tower Height: 130'		General		Power		Density							
CARRIER	# OF CHAN.	WATTS ERP	HEIGHT	CALC. POWER DENS	FREQ.	MAX. PERMISS. EXP.	FRACTION MPE	Total					
*T-Mobile	1	584	110	1900	0.0194	1.0000	0.19%						
*T-Mobile	1	1556	110	2100	0.0517	1.0000	0.52%						
*T-Mobile	2	1556	110	1900	0.1035	1.0000	1.03%						
*T-Mobile	2	2334	110	2100	0.1552	1.0000	1.55%						
*T-Mobile	2	789	110	600	0.0525	0.4000	1.31%						
*T-Mobile	2	433	110	700	0.0288	0.4667	0.62%						
*Clearwire	2	153	120	2496	0.0085	1.0000	0.08%						
*Clearwire	1	211	120	11 GHZ	0.0058	1.0000	0.06%						
*Nextel	12	100	144	851	0.0227	0.5673	0.40%						
*Sprint	1	377	120	850	0.0104	0.5667	0.18%						
*Sprint	2	942	120	850	0.0521	0.5667	0.92%						
*Sprint	5	512	120	1900	0.0708	1.0000	0.71%						
*Sprint	2	1280	120	1900	0.0708	1.0000	0.71%						
*Sprint	8	640	120	2500	0.1417	1.0000	1.42%						
*Sprint	1	3350	120	11000	0.0927	1.0000	0.93%						
*AT&T	1	308	100	1900	0.0125	1.0000	0.13%						
*AT&T	2	489	100	850	0.0398	0.5667	0.70%						
*AT&T	1	90	100	850	0.0037	0.5667	0.06%						
*AT&T	1	2153	99	1900	0.0895	1.0000	0.90%						
*AT&T	1	828	99	737	0.0344	0.4913	0.70%						
Verizon	1	5003	134	0.1002	1970	1.0000	10.02%						
Verizon	3	403	134	0.0242	869	0.5793	4.18%						
Verizon	1	2134	134	0.0427	880	0.5867	7.28%						
Verizon	1	6155	134	0.1233	2145	1.0000	12.33%						
Verizon	1	1734	134	0.0347	746	0.4973	6.98%						53.9%
* Source: Siting Council													

ATTACHMENT 3



AMERICAN TOWER®
CORPORATION

Structural Analysis Report

Structure : 130 ft Monopole
ATC Site Name : Cranburysu CT, CT
ATC Site Number : 411189
Engineering Number : OAA739669_C3_02
Proposed Carrier : Verizon
Carrier Site Name : Cranbury
Carrier Site Number : N/A
Site Location : 2 Sunny Lane
Westport, CT 06880-1906
41.162900,-73.373100
County : Fairfield
Date : November 20, 2018
Max Usage : 41%
Result : Pass

Prepared By:
Parvin NikpoorParizi
Structural Engineer I

Reviewed By:



Authorized by "EOR"
Nov 21 2018 12:28 PM

cosign

COA: PEC.0001553



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Introduction

The purpose of this report is to summarize results of a structural analysis performed on the 130 ft monopole to reflect the change in loading by Verizon.

Supporting Documents

Tower Drawings	EI Job #10847, dated June 7, 2002
Foundation Drawing	EI Project #10847, dated June 10, 2002
Geotechnical Report	Clarence Welti Association Project Name 2 Sunny Lane, dated January 29, 1999

Analysis

The tower was analyzed using American Tower Corporation's tower analysis software. This program considers an elastic three-dimensional model and second-order effects per ANSI/TIA-222.

Basic Wind Speed:	94 mph (3-Second Gust, V_{ASD}) / 121 mph (3-Second Gust, V_{ULT})
Basic Wind Speed w/ Ice:	50 mph (3-Second Gust) w/ 3/4" radial ice concurrent
Code:	ANSI/TIA-222-G / 2012 IBC / 2016 Connecticut State Building Code
Structure Class:	II
Exposure Category:	B
Topographic Category:	1
Crest Height:	0 ft
Spectral Response:	$S_s = 0.23$, $S_1 = 0.07$
Site Class:	D - Stiff Soil

Conclusion

Based on the analysis results, the structure meets the requirements per the applicable codes listed above. The tower and foundation can support the equipment as described in this report.

If you have any questions or require additional information, please contact American Tower via email at Engineering@americantower.com. Please include the American Tower site name, site number, and engineering number in the subject line for any questions.



Existing and Reserved Equipment

Elevation ¹ (ft)		Qty	Antenna	Mount Type	Lines	Carrier
Mount	RAD					
130.0	134.0	4	Decibel DB846F65ZAXY	Low Profile Platform	(6) 1 5/8" Coax (2) 1 5/8" Fiber	Verizon
		2	Antel LPA-80080/6CF			
	129.0	1	VZW Unused Reserve: 3,195 sq in			
120.0	120.0	3	Alcatel-Lucent RRH2x50-08	Low Profile Platform	(6) 1 5/8" Coax (3) 1 1/4" Hybriflex (3) 0.78" 8 AWG 6 (2) 2" Conduit (1) 1/2" Coax (1) 1.7" Hybrid	Sprint Nextel
		3	Alcatel-Lucent 800MHz RRH			
		3	Alcatel-Lucent 1900MHz RRH			
		3	Nokia 2.5G MAA - AAHC(64T64R)			
		1	24" x 24" Junction Box			
		1	Andrew VHLP800-11 (49 lbs)			
		3	Commscope NNVV-65B-R4			
110.0	110.0	3	Ericsson KRY 112 71	Low Profile Platform	(12) 1 5/8" Coax (6) 7/8" Coax (1) 7/8" Fiber	T-Mobile
		3	Ericsson RRUS 11 B12			
		3	EMS RR90-17-02DP			
		6	Ericsson AIR 21, 1.3 M, B2A B4P			
		3	Commscope LNX-6515DS-VTM			
104.0	107.0	1	GPS	Low Profile Platform	(12) 1 5/8" Coax (2) 0.78" 8 AWG 6 (1) 0.39" Fiber Trunk (1) 3" conduit (1) 7/8" Coax	AT&T Mobility
	104.0	12	Powerwave LGP21901			
		6	Powerwave 7020			
		12	Powerwave LGP21401			
		1	Raycap DC6-48-60-18-8F			
		3	Ericsson RRUS-11 (50 lbs.)			
		3	Ericsson RRUS			
		3	Ericsson RRUS 12 w/ RRUS A2			
		6	Powerwave 7770.00			
		3	Powerwave P65-16-XLH-RR			
3	CCI HPA-65R-BUU-H6					
80.0	80.0	1	GPS	Flush	(1) 1/2" Coax	T-Mobile
76.0	76.0	1	2" x 8" GPS	Stand-Off	(2) 0.63" LDF4-50A	Verizon
75.0	75.0	1	GPS	Flush	(2) 0.63" LDF4-50A (1) 1/2" Coax	Sprint Nextel
		1	2" x 8" GPS			Verizon
68.0	68.0	1	GPS	Side Arm	(1) 1/2" Coax	AT&T Mobility

Equipment to be Removed

Elevation ¹ (ft)		Qty	Antenna	Mount Type	Lines	Carrier
Mount	RAD					
130.0	134.0	3	Antel BXA-171085-8BF-EDIN-X		(6) 1 5/8" Coax	Verizon
		6	Commscope SBNHH-1D85C			
		2	RFS DB-T1-6Z-8AB-0Z			
		3	Alcatel-Lucent RRH2X60-1900			
		3	Alcatel-Lucent RRH2x60 700			
		3	Alcatel-Lucent RRH2X60-AWS			



Proposed Equipment

Elevation ¹ (ft)		Qty	Antenna	Mount Type	Lines	Carrier
Mount	RAD					
130.0	134.0	3	Samsung 700/850MHz Dual Band RRH	Low Profile Platform		Verizon
		3	Samsung PCS/AWS Dual Band RRH			
		1	RFS DB-C1-12C-24AB-OZ			
		6	Quintel QS6656-5			

¹Mount elevation is defined as height above bottom of steel structure to the bottom of mount, RAD elevation is defined as center of antenna above ground level (AGL).

Structure Usages

Structural Component	Controlling Usage	Pass/Fail
Anchor Bolts	33%	Pass
Shaft	33%	Pass
Base Plate	41%	Pass

Foundations

Reaction Component	Analysis Reactions	% of Usage
Moment (Kips-Ft)	2,451.4	33%
Axial (Kips)	56.7	26%
Shear (Kips)	25.4	16%

The structure base reactions resulting from this analysis were found to be acceptable through analysis based on geotechnical and foundation information, therefore no modification or reinforcement of the foundation will be required.

Deflection and Sway*

Antenna Elevation (ft)	Antenna	Carrier	Deflection (ft)	Sway (Rotation) (°)
130.0	Samsung PCS/AWS Dual Band RRH	Verizon	0.588	0.466
	Samsung 700/850MHz Dual Band RRH			
	RFS DB-C1-12C-24AB-OZ			
	Quintel QS6656-5			
120.0	Andrew Microwaves VHLP800-11 (49 lbs)	Sprint Nextel	0.507	0.459

*Deflection and Sway was evaluated considering a design wind speed of 60 mph (3-Second Gust) per ANSI/TIA-222-G



Standard Conditions

All engineering services performed by A.T. Engineering Service, PLLC are prepared on the basis that the information used is current and correct. This information may consist of, but is not limited to the following:

- Information supplied by the client regarding antenna, mounts and feed line loading
- Information from drawings, design and analysis documents, and field notes in the possession of A.T. Engineering Service, PLLC

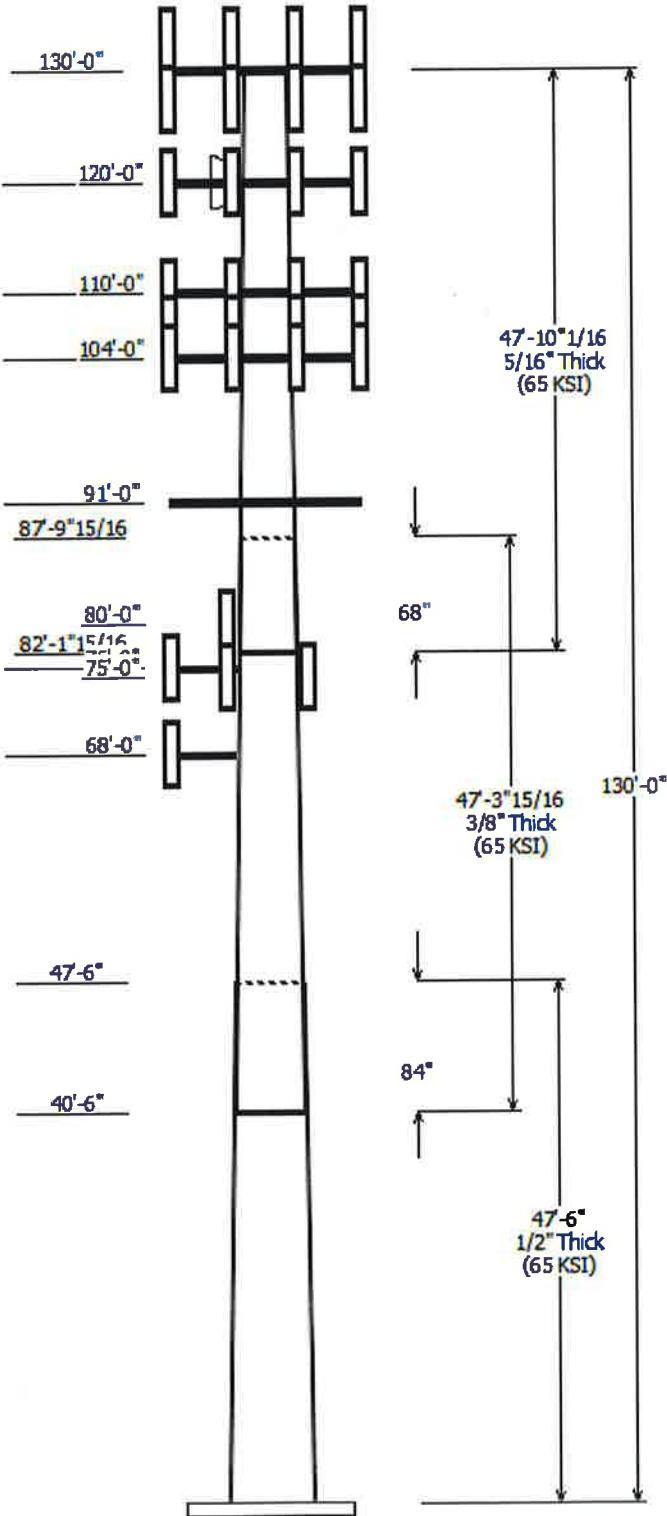
It is the responsibility of the client to ensure that the information provided to A.T. Engineering Service, PLLC and used in the performance of our engineering services is correct and complete.

All assets of American Tower Corporation, its affiliates and subsidiaries (collectively "American Tower") are inspected at regular intervals. Based upon these inspections and in the absence of information to the contrary, American Tower assumes that all structures were constructed in accordance with the drawings and specifications.

Unless explicitly agreed by both the client and A.T. Engineering Service, PLLC, all services will be performed in accordance with the current revision of ANSI/TIA-222.

All services are performed, results obtained, and recommendations made in accordance with generally accepted engineering principles and practices. A.T. Engineering Service, PLLC is not responsible for the conclusions, opinions and recommendations made by others based on the information supplied herein.

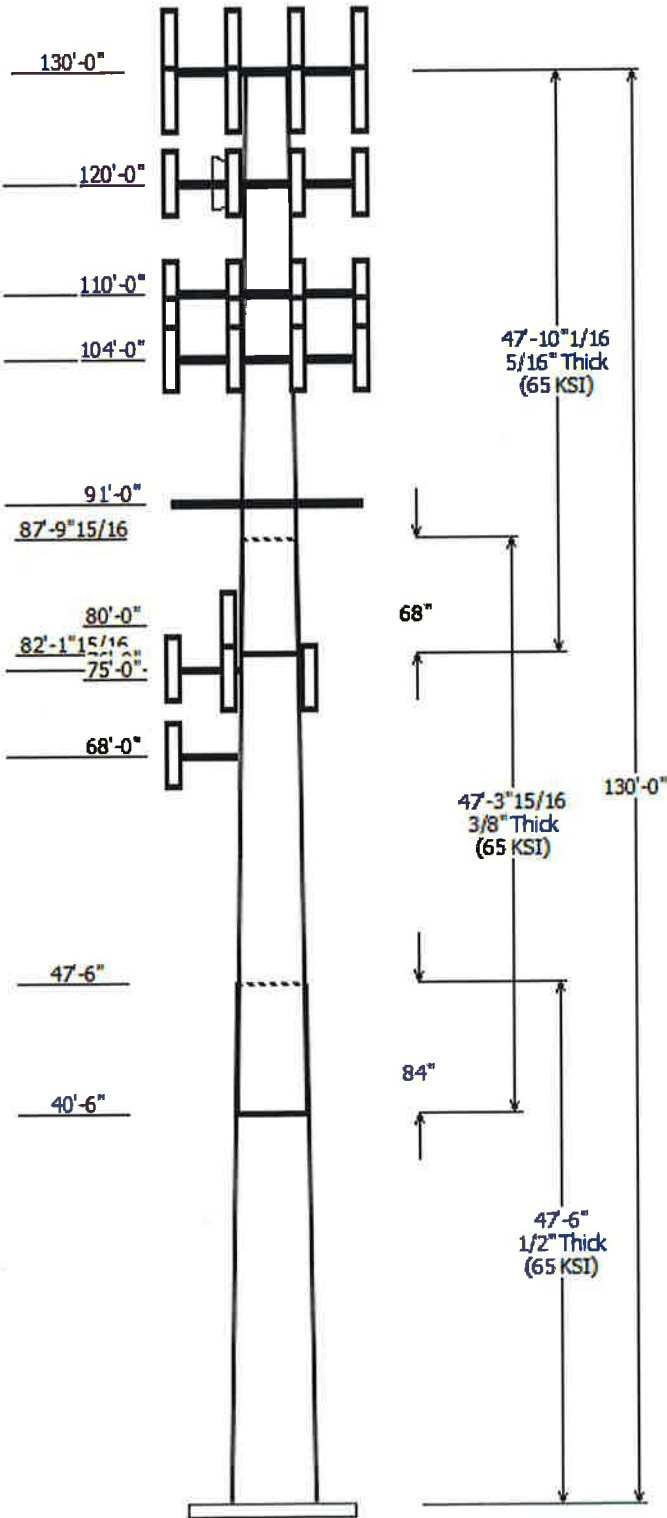
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Job Information	
Pole : 411189	Code: ANSI/TIA-222-G
Location : CRANBURYSU CT, CT	
Description : 130 ft EEI Monopole	
Client : VERIZON WIRELESS	Struct Class : II
Shape : 18 Sides	Exposure : B
Height : 130.00 (ft)	Topo : 1
Base Elev (ft): 0.00	
Taper: 0.27074\$/in/ft)	

Sections Properties								
Shaft Section	Length (ft)	Diameter (in)		Thick Joint (in)	Type	Overlap Length (in)	Shape	Steel Grade (ksi)
		Across Top	Flats Bottom					
1	47.500	49.14	62.00	0.500		0.000	18 Sides	65
2	47.330	38.97	51.78	0.375	Slip Joint	84.000	18 Sides	65
3	47.837	28.17	41.13	0.313	Slip Joint	68.000	18 Sides	65

Discrete Appurtenance			
Attach Elev (ft)	Force Elev (ft)	Qty	Description
130.000	129.000	1	VZW Unused Reserve: 3,195
130.000	130.000	1	Flat Low Profile Platform
130.000	134.000	2	Antel LPA-80080/6CF
130.000	134.000	4	Decibel DB846F65ZAXY
130.000	134.000	6	Quintel QS6656-5
130.000	134.000	1	RFS DB-C1-12C-24AB-0Z
130.000	134.000	3	Samsung 700/850MHz Dual
130.000	134.000	3	Samsung PCS/AWS Dual Band
120.000	120.000	1	Flat Low Profile Platform
120.000	120.000	3	Commscope NNVV-65B-R4
120.000	120.000	1	Andrew Microwaves VHLP800-
120.000	120.000	1	24" x 24" Junction Box
120.000	120.000	3	Nokia 2.5G MAA -
120.000	120.000	3	Alcatel-Lucent 1900MHz RRH
120.000	120.000	3	Alcatel-Lucent 800MHz RRH
120.000	120.000	3	Alcatel-Lucent RRH2x50-08
110.000	110.000	1	Flat Low Profile Platform
110.000	110.000	3	Commscope LNX-6515DS-VTM
110.000	110.000	6	Ericsson AIR 21, 1.3 M, B2A B4
110.000	110.000	3	EMS RR90-17-02DP
110.000	110.000	3	Ericsson RRUS 11 B12
110.000	110.000	3	Ericsson KRY 112 71
104.000	107.000	1	GPS
104.000	104.000	1	Flat Low Profile Platform
104.000	104.000	3	CCI HPA-65R-BUU-H6
104.000	104.000	3	Powerwave Allgon P65-16-
104.000	104.000	6	Powerwave Allgon 7770.00
104.000	104.000	3	Ericsson RRUS 12 w/ RRUS A2
104.000	104.000	3	Ericsson RRUS
104.000	104.000	3	Ericsson RRUS-11 (50 lbs.)
104.000	104.000	1	Raycap DC6-48-60-18-8F
104.000	104.000	12	Powerwave Allgon LGP21401
104.000	104.000	6	Powerwave Allgon 7020
104.000	104.000	12	Powerwave Allgon LGP21901
91.000	91.000	1	Empty Flat Low Profile Platfor
80.000	80.000	1	GPS
76.000	76.000	1	Stand-Off
76.000	76.000	1	2" x 8" GPS
75.000	75.000	1	2" x 8" GPS
75.000	75.000	1	GPS
68.000	68.000	1	Side Arm
68.000	68.000	1	GPS



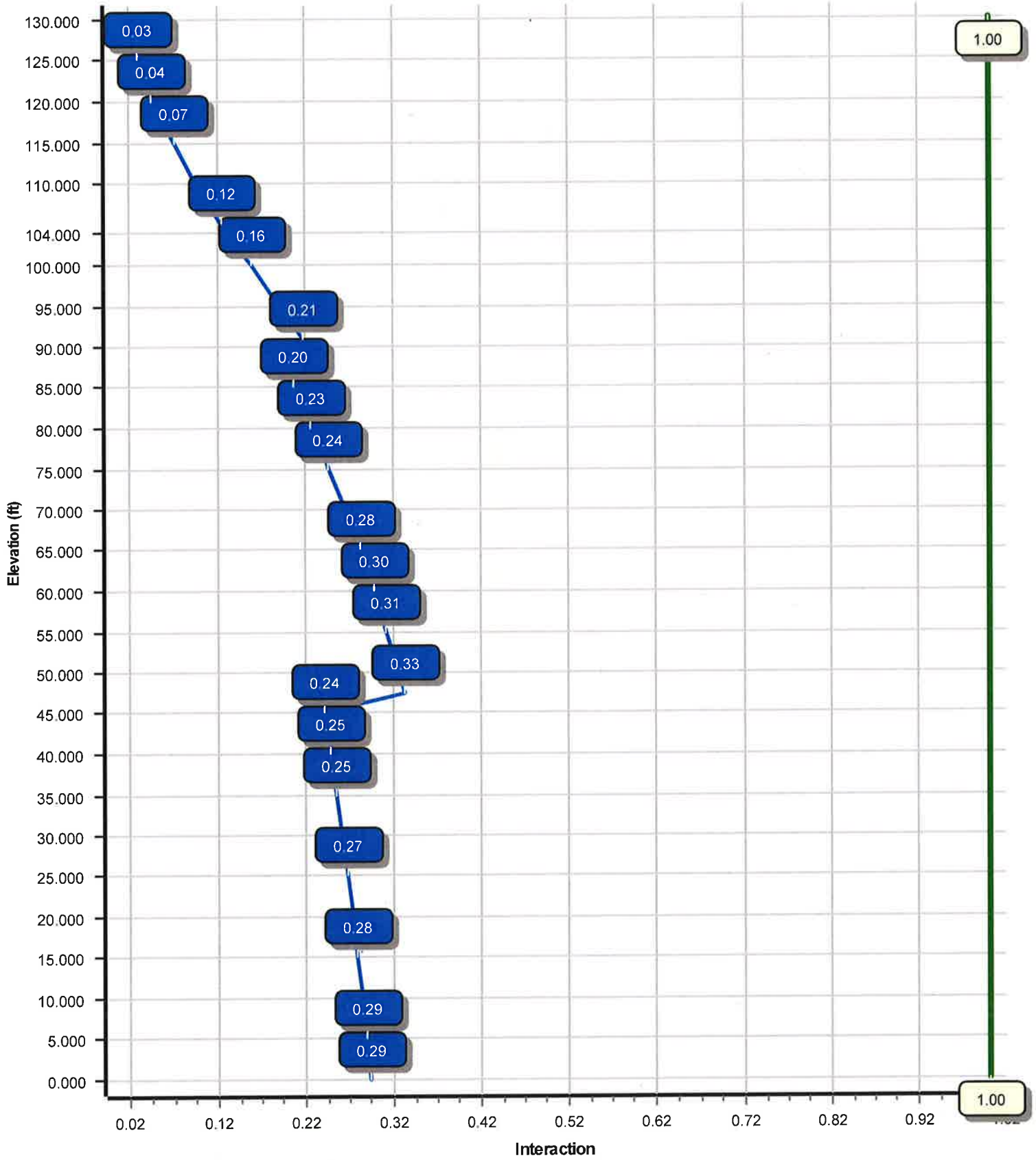
Linear Appurtenance			
Elev (ft)	From To		Exposed To Wind
	From	To	
0.000	68.000	1/2" Coax	No
0.000	75.000	0.63" (16mm)	No
0.000	75.000	0.63" LDF4-50A	No
0.000	75.000	1/2" Coax	No
0.000	76.000	0.63" (16mm)	No
0.000	76.000	0.63" LDF4-50A	No
0.000	80.000	1/2" Coax	No
0.000	104.0	0.39" Fiber Trunk	No
0.000	104.0	0.78" 8 AWG 6	No
0.000	104.0	1 5/8" Coax	No
0.000	104.0	3" conduit	No
0.000	104.0	7/8" Coax	No
0.000	110.0	1 5/8" Coax	No
0.000	110.0	7/8" Coax	No
0.000	110.0	7/8" Fiber	No
0.000	120.0	0.78" 8 AWG 6	No
0.000	120.0	1 1/4" Hybriflex	No
0.000	120.0	1 5/8" Coax	No
0.000	120.0	1.7" (43.2mm)	No
0.000	120.0	1/2" Coax	No
0.000	120.0	2" Conduit	No
0.000	130.0	1 5/8" Coax	Yes
0.000	130.0	1 5/8" Fiber	No

Load Cases	
1.2D + 1.6W	94 mph with No Ice
0.9D + 1.6W	94 mph with No Ice (Reduced DL)
1.2D + 1.0Di + 1.0Wi	50 mph with 0.75 in Radial Ice
(1.2 + 0.2Sds) * DL + E	Seismic Equivalent Lateral Forces Method
(1.2 + 0.2Sds) * DL + E	Seismic Equivalent Modal Analysis Method
(0.9 - 0.2Sds) * DL + E	Seismic (Reduced DL) Equivalent Lateral
(0.9 - 0.2Sds) * DL + E	Seismic (Reduced DL) Equivalent Modal
1.0D + 1.0W	Serviceability 60 mph

Reactions			
Load Case	Moment (kip-ft)	Shear (kip)	Axial (kip)
1.2D + 1.6W	2451.44	25.41	56.74
0.9D + 1.6W	2422.17	25.27	42.55
1.2D + 1.0Di + 1.0Wi	683.08	7.34	81.63
(1.2 + 0.2Sds) * DL + E ELFM	228.02	2.32	56.63
(1.2 + 0.2Sds) * DL + E EMAM	274.39	2.71	56.63
(0.9 - 0.2Sds) * DL + E ELFM	226.56	2.32	38.63
(0.9 - 0.2Sds) * DL + E EMAM	272.39	2.70	38.63
1.0D + 1.0W	617.90	6.43	47.30

Dish Deflections			
Load Case	Attach Elev (ft)	Deflection (in)	Rotation (deg)
1.0D + 1.0W	120.00	6.087	0.459

Load Case : 1.2D + 1.6W
Max Ratio 33.00% at 47.5 ft



Site Number: 411189
Site Name: CRANBURYSU CT, CT
Customer: VERIZON WIRELESS

Code: ANSI/TIA-222-G
Engineering Number: OAA739669_C3_02

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Analysis Parameters

Location :	FAIRFIELD County, CT	Height (ft) :	130
Code :	ANSI/TIA-222-G	Base Diameter (in) :	62.00
Shape :	18 Sides	Top Diameter (in) :	28.18
Pole Type :	Taper	Taper (in/ft) :	0.271
Pole Manufacturer :	EEl	Rotation (deg) :	0.00

Ice & Wind Parameters

Structure Class:	II	Design Wind Speed Without Ice:	94 mph
Exposure Category:	B	Design Wind Speed With Ice:	50 mph
Topographic Category:	1	Operational Wind Speed:	60 mph
Crest Height:	0 ft	Design Ice Thickness:	0.75 in

Seismic Parameters

Analysis Method:	Equivalent Modal Analysis & Equivalent Lateral Force Methods		
Site Class:	D - Stiff Soil		
Period Based on Rayleigh Method (sec):	1.46		
T_L (sec):	6	p :	1
S_s :	0.227	S_1 :	0.067
F_a :	1.600	F_v :	2.400
S_{ds} :	0.242	S_{d1} :	0.107
		C_s :	0.049
		C_s Max:	0.049
		C_s Min:	0.030

Load Cases

1.2D + 1.6W	94 mph with No Ice
0.9D + 1.6W	94 mph with No Ice (Reduced DL)
1.2D + 1.0Di + 1.0Wi	50 mph with 0.75 in Radial Ice
(1.2 + 0.2S _{ds}) * DL + E ELFM	Seismic Equivalent Lateral Forces Method
(1.2 + 0.2S _{ds}) * DL + E EMAM	Seismic Equivalent Modal Analysis Method
(0.9 - 0.2S _{ds}) * DL + E ELFM	Seismic (Reduced DL) Equivalent Lateral Forces Method
(0.9 - 0.2S _{ds}) * DL + E EMAM	Seismic (Reduced DL) Equivalent Modal Analysis Method
1.0D + 1.0W	Serviceability 60 mph

Site Number: 411189

Code: ANSI/TIA-222-G

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Site Name: CRANBURYSU CT, CT

Engineering Number: OAA739669_C3_02

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Customer: VERIZON WIRELESS

Shaft Section Properties

Sect Info	Length (ft)	Thick (in)	Fy (ksi)	Joint Type	Joint Len (in)	Weight (lb)	Bottom						Top						
							Dia (in)	Elev (ft)	Area (in ²)	Ix (in ⁴)	W/t Ratio	D/t Ratio	Dia (in)	Elev (ft)	Area (in ²)	Ix (in ⁴)	W/t Ratio	D/t Ratio	Taper (in/ft)
1-18	47.500	0.5000	65		0.00	14,125	62.00	0.00	97.60	46638.0	20.10	124.00	49.14	47.50	77.19	23072.0	15.57	98.28	0.270745
2-18	47.330	0.3750	65	Slip	84.00	8,626	51.78	40.50	61.19	20432.2	22.59	138.09	38.97	87.83	45.94	8645.4	16.56	103.92	0.270745
3-18	47.837	0.3125	65	Slip	68.00	5,544	41.13	82.16	40.48	8521.7	21.44	131.62	28.17	130.00	27.64	2711.5	14.14	90.17	0.270745
Shaft Weight						28,296													

Discrete Appurtenance Properties

Attach Elev (ft)	Description	Qty	Distance From Face (ft)	Vert Ecc (ft)	Weight (lb)	No Ice EPAa (sf)	Orientation Factor
130.00	Antel LPA-80080/6CF	2	0.000	4.000	21.00	8.630	0.65
130.00	Decibel DB846F65ZAXY	4	0.000	4.000	21.00	7.030	0.75
130.00	Flat Low Profile Platform	1	0.000	0.000	1500.00	26.100	1.00
130.00	Quintel QS6656-5	6	0.000	4.000	65.00	8.130	0.74
130.00	RFS DB-C1-12C-24AB-0Z	1	0.000	4.000	32.00	4.060	0.67
130.00	Samsung 700/850MHz Dual Band	3	0.000	4.000	70.30	1.880	0.50
130.00	Samsung PCS/AWS Dual Band	3	0.000	4.000	84.40	1.880	0.50
130.00	VZW Unused Reserve: 3,195 sq i	1	0.000	-1.000	217.90	22.210	1.00
120.00	24" x 24" Junction Box	1	0.000	0.000	20.00	4.800	0.67
120.00	Alcatel-Lucent 1900MHz RRH	3	0.000	0.000	44.00	3.260	0.67
120.00	Alcatel-Lucent 800MHz RRH	3	0.000	0.000	53.00	2.130	0.67
120.00	Alcatel-Lucent RRH2x50-08	3	0.000	0.000	52.90	1.700	0.50
120.00	Andrew Microwaves VHLP800-	1	0.000	0.000	49.00	7.760	1.00
120.00	Commscope NNVV-65B-R4	3	0.000	0.000	77.40	12.270	0.64
120.00	Flat Low Profile Platform	1	0.000	0.000	1500.00	26.100	1.00
120.00	Nokia 2.5G MAA - AAHC(64T64R)	3	0.000	0.000	103.60	4.200	0.64
110.00	Commscope LNX-6515DS-VTM	3	0.000	0.000	50.30	11.450	0.70
110.00	EMS RR90-17-02DP	3	0.000	0.000	13.50	4.360	0.64
110.00	Ericsson AIR 21, 1.3 M, B2A B4	6	0.000	0.000	83.00	6.050	0.71
110.00	Ericsson KRY 112 71	3	0.000	0.000	13.20	0.680	0.50
110.00	Ericsson RRUS 11 B12	3	0.000	0.000	50.70	2.790	0.67
110.00	Flat Low Profile Platform	1	0.000	0.000	1500.00	26.100	1.00
104.00	CCI HPA-65R-BUU-H6	3	0.000	0.000	51.00	9.660	0.69
104.00	Ericsson RRUS	3	0.000	0.000	44.10	3.130	0.67
104.00	Ericsson RRUS 12 w/ RRUS A2	3	0.000	0.000	71.40	3.150	0.67
104.00	Ericsson RRUS-11 (50 lbs.)	3	0.000	0.000	50.00	2.570	0.67
104.00	Flat Low Profile Platform	1	0.000	0.000	1500.00	26.100	1.00
104.00	GPS	1	0.000	3.000	10.00	1.000	1.00
104.00	Powerwave Allgon 7020	6	0.000	0.000	2.20	0.400	0.50
104.00	Powerwave Allgon 7770.00	6	0.000	0.000	35.00	5.510	0.65
104.00	Powerwave Allgon LGP21401	12	0.000	0.000	14.10	1.100	0.50
104.00	Powerwave Allgon LGP21901	12	0.000	0.000	5.50	0.230	0.50
104.00	Powerwave Allgon P65-16-XLH-	3	0.000	0.000	53.00	8.130	0.67
104.00	Raycap DC6-48-60-18-8F	1	0.000	0.000	20.00	1.110	1.00
91.00	Empty Flat Low Profile Platfor	1	0.000	0.000	1500.00	26.100	1.00
80.00	GPS	1	0.000	0.000	10.00	1.000	1.00
76.00	2" x 8" GPS	1	0.000	0.000	10.00	0.160	1.00
76.00	Stand-Off	1	0.000	0.000	100.00	3.000	1.00
75.00	2" x 8" GPS	1	0.000	0.000	10.00	0.160	1.00
75.00	GPS	1	0.000	0.000	10.00	1.000	1.00
68.00	GPS	1	0.000	0.000	10.00	1.000	1.00
68.00	Side Arm	1	0.000	0.000	126.00	5.000	1.00
Totals	Num Loadings:42	120			12245.70		

Site Number: 411189

Code: ANSI/TIA-222-G

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Site Name: CRANBURYSU CT, CT

Engineering Number: OAA739669_C3_02

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Customer: VERIZON WIRELESS

Linear Appurtenance Properties

Elev From (ft)	Elev To (ft)	Qty	Description	Coax Diameter (in)	Coax Weight (lb/ft)	Flat	Projected Width (in)	Exposed To Wind	Carrier
0.00	130.00	6	1 5/8" Coax	1.98	0.82	N	3.96	Y	Verizon
0.00	130.00	2	1 5/8" Fiber	1.63	1.61	N	0.00	N	Verizon
0.00	120.00	3	0.78" 8 AWG 6	0.78	0.59	N	0.00	N	Sprint Nextel
0.00	120.00	3	1 1/4" Hybriflex Cable	1.54	1.00	N	0.00	N	Sprint Nextel
0.00	120.00	6	1 5/8" Coax	1.98	0.82	N	0.00	N	Sprint Nextel
0.00	120.00	1	1.7" (43.2mm) Hybrid	1.70	1.78	N	0.00	N	Sprint Nextel
0.00	120.00	1	1/2" Coax	0.63	0.15	N	0.00	N	Sprint Nextel
0.00	120.00	2	2" Conduit	2.38	3.65	N	0.00	N	Sprint Nextel
0.00	110.00	12	1 5/8" Coax	1.98	0.82	N	0.00	N	T-Mobile
0.00	110.00	6	7/8" Coax	1.09	0.33	N	0.00	N	T-Mobile
0.00	110.00	1	7/8" Fiber	0.88	0.70	N	0.00	N	T-Mobile
0.00	104.00	1	0.39" Fiber Trunk	0.39	0.06	N	0.00	N	AT&T Mobility
0.00	104.00	2	0.78" 8 AWG 6	0.78	0.59	N	0.00	N	AT&T Mobility
0.00	104.00	12	1 5/8" Coax	1.98	0.82	N	0.00	N	AT&T Mobility
0.00	104.00	1	3" conduit	3.50	7.58	N	0.00	N	AT&T Mobility
0.00	104.00	1	7/8" Coax	1.09	0.33	N	0.00	N	AT&T Mobility
0.00	80.00	1	1/2" Coax	0.63	0.15	N	0.00	N	T-Mobile
0.00	76.00	1	0.63" (16mm) LDF4-	0.63	0.15	N	0.00	N	Verizon
0.00	76.00	1	0.63" LDF4-50A	0.63	0.15	N	0.00	N	Verizon
0.00	75.00	1	0.63" (16mm) LDF4-	0.63	0.15	N	0.00	N	Verizon
0.00	75.00	1	0.63" LDF4-50A	0.63	0.15	N	0.00	N	Verizon
0.00	75.00	1	1/2" Coax	0.63	0.15	N	0.00	N	Sprint Nextel
0.00	68.00	1	1/2" Coax	0.63	0.15	N	0.00	N	AT&T Mobility

Site Number: 411189

Code: ANSI/TIA-222-G

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Site Name: CRANBURYSU CT, CT

Engineering Number: OAA739669_C3_02

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Customer: VERIZON WIRELESS

Segment Properties (Max Len : 5. ft)

Seg Top Elev (ft)	Description	Thick (in)	Flat Dia (in)	Area (in ²)	Ix (in ⁴)	W/t Ratio	D/t Ratio	F'y (ksi)	S (in ³)	Z (in ³)	Weight (lb)
0.00		0.5000	62.000	97.597	46,638.0	20.10	124.00	77.8	1481.	0.0	0.0
5.00		0.5000	60.646	95.449	43,625.5	19.62	121.29	78.3	1416.	0.0	1,642.2
10.00		0.5000	59.293	93.300	40,745.7	19.15	118.59	78.9	1353.	0.0	1,605.7
15.00		0.5000	57.939	91.152	37,995.4	18.67	115.88	79.4	1291.	0.0	1,569.1
20.00		0.5000	56.585	89.004	35,371.8	18.19	113.17	80.0	1231.	0.0	1,532.6
25.00		0.5000	55.231	86.856	32,871.8	17.71	110.46	80.6	1172.	0.0	1,496.0
30.00		0.5000	53.878	84.707	30,492.5	17.24	107.76	81.1	1114.	0.0	1,459.5
35.00		0.5000	52.524	82.559	28,230.9	16.76	105.05	81.7	1058.	0.0	1,422.9
40.00		0.5000	51.170	80.411	26,083.9	16.28	102.34	82.2	1004.	0.0	1,386.4
40.50	Bot - Section 2	0.5000	51.035	80.196	25,875.4	16.23	102.07	82.3	998.6	0.0	136.6
45.00		0.5000	49.816	78.262	24,048.7	15.80	99.63	82.6	950.8	0.0	2,139.0
47.50	Top - Section 1	0.3750	49.890	58.933	18,254.8	21.70	133.04	75.9	720.7	0.0	1,166.0
50.00		0.3750	49.213	58.127	17,516.3	21.38	131.23	76.3	701.0	0.0	497.9
55.00		0.3750	47.859	56.516	16,099.7	20.74	127.62	77.0	662.6	0.0	975.3
60.00		0.3750	46.505	54.905	14,761.7	20.10	124.01	77.8	625.2	0.0	947.8
65.00		0.3750	45.152	53.293	13,499.9	19.47	120.40	78.5	588.9	0.0	920.4
68.00		0.3750	44.339	52.327	12,778.4	19.09	118.24	79.0	567.6	0.0	539.1
70.00		0.3750	43.798	51.682	12,312.1	18.83	116.79	79.3	553.7	0.0	353.9
75.00		0.3750	42.444	50.071	11,196.1	18.19	113.18	80.0	519.6	0.0	865.6
76.00		0.3750	42.173	49.749	10,981.3	18.07	112.46	80.2	512.9	0.0	169.8
80.00		0.3750	41.090	48.460	10,149.7	17.56	109.57	80.7	486.5	0.0	668.4
82.16	Bot - Section 3	0.3750	40.505	47.763	9,717.9	17.28	108.01	81.1	472.6	0.0	354.2
85.00		0.3750	39.737	46.849	9,170.6	16.92	105.96	81.5	454.6	0.0	843.7
87.83	Top - Section 2	0.3125	39.595	38.962	7,596.4	20.58	126.71	77.2	377.9	0.0	825.6
90.00		0.3125	39.008	38.380	7,260.6	20.25	124.83	77.6	366.6	0.0	285.5
91.00		0.3125	38.737	38.111	7,109.3	20.09	123.96	77.8	361.5	0.0	130.1
95.00		0.3125	37.654	37.037	6,525.0	19.48	120.49	78.5	341.3	0.0	511.4
100.0		0.3125	36.301	35.694	5,840.8	18.72	116.16	79.4	316.9	0.0	618.7
104.0		0.3125	35.218	34.620	5,329.2	18.11	112.70	80.1	298.0	0.0	478.5
105.0		0.3125	34.947	34.352	5,206.1	17.96	111.83	80.3	293.4	0.0	117.3
110.0		0.3125	33.593	33.009	4,619.2	17.19	107.50	81.2	270.8	0.0	573.0
115.0		0.3125	32.239	31.666	4,078.1	16.43	103.17	82.1	249.1	0.0	550.2
120.0		0.3125	30.886	30.324	3,581.1	15.66	98.83	82.6	228.4	0.0	527.3
125.0		0.3125	29.532	28.981	3,126.1	14.90	94.50	82.6	208.5	0.0	504.5
130.0		0.3125	28.178	27.638	2,711.5	14.14	90.17	82.6	189.5	0.0	481.7
28,296.3											

Site Number: 411189

Code: ANSI/TIA-222-G

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Site Name: CRANBURYSU CT, CT

Engineering Number: OAA739669_C3_02

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Customer: VERIZON WIRELESS

Load Case: 1.2D + 1.6W	94 mph with No Ice	18 Iterations
Gust Response Factor :1.10		Wind Importance Factor 1.00
Dead Load Factor :1.20		
Wind Load Factor :1.60		

Applied Segment Forces Summary

Seg Elev (ft)	Description	Shaft Forces		Discrete Forces			Linear Forces		Sum of Forces				
		Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Torsion MY (lb-ft)	Moment MZ (lb)
0.00		223.2	0.0					0.0	0.0	223.2	0.0	0.0	0.0
5.00		441.6	1,970.7					0.0	357.7	441.6	2,328.4	0.0	0.0
10.00		431.7	1,926.8					0.0	357.7	431.7	2,284.5	0.0	0.0
15.00		421.8	1,883.0					0.0	357.7	421.8	2,240.7	0.0	0.0
20.00		412.0	1,839.1					0.0	357.7	412.0	2,196.8	0.0	0.0
25.00		402.1	1,795.2					0.0	357.7	402.1	2,153.0	0.0	0.0
30.00		396.9	1,751.4					0.0	357.7	396.9	2,109.1	0.0	0.0
35.00		399.7	1,707.5					0.0	357.7	399.7	2,065.2	0.0	0.0
40.00		221.6	1,663.6					0.0	357.7	221.6	2,021.4	0.0	0.0
40.50	Bot - Section 2	205.9	164.0					0.0	35.8	205.9	199.7	0.0	0.0
45.00		289.2	2,566.8					0.0	321.9	289.2	2,888.8	0.0	0.0
47.50	Top - Section 1	207.3	1,399.2					0.0	178.9	207.3	1,578.0	0.0	0.0
50.00		311.2	597.5					0.0	178.9	311.2	776.4	0.0	0.0
55.00		414.5	1,170.3					0.0	357.7	414.5	1,528.0	0.0	0.0
60.00		413.0	1,137.4					0.0	357.7	413.0	1,495.1	0.0	0.0
65.00		328.7	1,104.5					0.0	357.7	328.7	1,462.2	0.0	0.0
68.00	Appurtenance(s)	204.3	646.9	200.9	0.0	0.0	163.2	0.0	214.6	405.1	1,024.8	0.0	0.0
70.00		283.6	424.7					0.0	142.7	283.6	567.4	0.0	0.0
75.00	Appurtenance(s)	242.3	1,038.7	39.9	0.0	0.0	24.0	0.0	356.8	282.2	1,419.6	0.0	0.0
76.00	Appurtenance(s)	199.6	203.8	109.2	0.0	0.0	132.0	0.0	70.8	308.8	406.6	0.0	0.0
80.00	Appurtenance(s)	244.9	802.0	35.1	0.0	0.0	12.0	0.0	281.9	280.0	1,095.9	0.0	0.0
82.16	Bot - Section 3	198.3	425.0					0.0	152.0	198.3	577.0	0.0	0.0
85.00		224.4	1,012.5					0.0	199.4	224.4	1,211.8	0.0	0.0
87.83	Top - Section 2	196.3	990.7					0.0	198.9	196.3	1,189.6	0.0	0.0
90.00		123.6	342.7					0.0	152.5	123.6	495.2	0.0	0.0
91.00	Appurtenance(s)	193.7	156.2	949.6	0.0	0.0	1,800.0	0.0	70.3	1,143.2	2,026.5	0.0	0.0
95.00		346.6	613.7					0.0	281.1	346.6	894.8	0.0	0.0
100.00		343.6	742.5					0.0	351.4	343.6	1,093.9	0.0	0.0
104.00	Appurtenance(s)	189.6	574.2	3,614.5	0.0	91.5	3,356.3	0.0	281.1	3,804.2	4,211.7	0.0	0.0
105.00		225.0	140.8					0.0	47.5	225.0	188.3	0.0	0.0
110.00	Appurtenance(s)	371.9	687.6	2,994.0	0.0	0.0	2,857.3	0.0	237.5	3,365.9	3,782.4	0.0	0.0
115.00		366.5	660.2					0.0	162.4	366.5	822.6	0.0	0.0
120.00	Appurtenance(s)	360.8	632.8	2,852.2	0.0	0.0	3,074.0	0.0	162.4	3,212.9	3,869.2	0.0	0.0
125.00		354.6	605.4					0.0	48.8	354.6	654.2	0.0	0.0
130.00	Appurtenance(s)	175.7	578.0	4,439.8	0.0	9,089.5	3,276.0	0.0	48.8	4,615.5	3,902.8	0.0	0.0
Totals:										25,600.9	56,761.7	0.00	0.00

Site Number: 411189

Code: ANSI/TIA-222-G

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Site Name: CRANBURYSU CT, CT

Engineering Number: OAA739669_C3_02

11/20/2018 4:41:50 PM

Customer: VERIZON WIRELESS

Load Case: 1.2D + 1.6W	94 mph with No Ice	18 Iterations
Gust Response Factor :1.10		Wind Importance Factor 1.00
Dead Load Factor :1.20		
Wind Load Factor :1.60		

Calculated Forces

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 (deg)	Ratio
0.00	-56.74	-25.41	0.00	-2,451.44	0.00	2,451.44	6,830.05	3,415.02	17,255.2	8,640.43	0.00	0.00	0.292
5.00	-54.38	-25.04	0.00	-2,324.37	0.00	2,324.37	6,727.94	3,363.97	16,620.1	8,322.40	0.04	-0.07	0.287
10.00	-52.07	-24.67	0.00	-2,199.17	0.00	2,199.17	6,623.66	3,311.83	15,991.1	8,007.48	0.16	-0.15	0.283
15.00	-49.80	-24.31	0.00	-2,075.81	0.00	2,075.81	6,517.21	3,258.61	15,368.8	7,695.85	0.35	-0.22	0.277
20.00	-47.57	-23.95	0.00	-1,954.27	0.00	1,954.27	6,408.59	3,204.29	14,753.4	7,387.69	0.62	-0.30	0.272
25.00	-45.39	-23.60	0.00	-1,834.52	0.00	1,834.52	6,297.80	3,148.90	14,145.3	7,083.19	0.97	-0.37	0.266
30.00	-43.25	-23.24	0.00	-1,716.55	0.00	1,716.55	6,184.83	3,092.42	13,544.9	6,782.53	1.41	-0.45	0.260
35.00	-41.16	-22.88	0.00	-1,600.34	0.00	1,600.34	6,069.70	3,034.85	12,952.5	6,485.89	1.92	-0.53	0.254
40.00	-39.12	-22.67	0.00	-1,485.94	0.00	1,485.94	5,952.39	2,976.20	12,368.5	6,193.46	2.51	-0.60	0.247
40.50	-38.91	-22.49	0.00	-1,474.61	0.00	1,474.61	5,940.54	2,970.27	12,310.6	6,164.45	2.58	-0.61	0.246
45.00	-36.00	-22.20	0.00	-1,373.42	0.00	1,373.42	5,814.51	2,907.25	11,756.0	5,886.78	3.19	-0.68	0.240
47.50	-34.41	-22.00	0.00	-1,317.92	0.00	1,317.92	4,024.81	2,012.40	8,191.06	4,101.62	3.56	-0.72	0.330
50.00	-33.61	-21.72	0.00	-1,262.93	0.00	1,262.93	3,989.37	1,994.69	8,007.13	4,009.51	3.95	-0.76	0.324
55.00	-32.06	-21.33	0.00	-1,154.36	0.00	1,154.36	3,916.87	1,958.44	7,642.03	3,826.70	4.80	-0.86	0.310
60.00	-30.53	-20.95	0.00	-1,047.68	0.00	1,047.68	3,842.20	1,921.10	7,280.96	3,645.89	5.76	-0.96	0.295
65.00	-29.05	-20.63	0.00	-942.94	0.00	942.94	3,765.36	1,882.68	6,924.26	3,467.28	6.81	-1.05	0.280
68.00	-28.02	-20.23	0.00	-881.04	0.00	881.04	3,718.21	1,859.10	6,712.50	3,361.24	7.49	-1.11	0.270
70.00	-27.43	-19.97	0.00	-840.57	0.00	840.57	3,686.34	1,843.17	6,572.31	3,291.04	7.97	-1.15	0.263
75.00	-26.00	-19.68	0.00	-740.73	0.00	740.73	3,605.16	1,802.58	6,225.47	3,117.36	9.22	-1.24	0.245
76.00	-25.58	-19.38	0.00	-721.05	0.00	721.05	3,588.66	1,794.33	6,156.74	3,082.95	9.49	-1.26	0.241
80.00	-24.48	-19.10	0.00	-643.51	0.00	643.51	3,521.80	1,760.90	5,884.10	2,946.42	10.57	-1.33	0.225
82.16	-23.89	-18.91	0.00	-602.18	0.00	602.18	3,485.06	1,742.53	5,738.19	2,873.36	11.19	-1.37	0.217
85.00	-22.67	-18.67	0.00	-548.55	0.00	548.55	3,436.27	1,718.13	5,548.57	2,778.41	12.01	-1.42	0.204
87.83	-21.47	-18.46	0.00	-495.70	0.00	495.70	2,707.00	1,353.50	4,369.08	2,187.78	12.87	-1.46	0.235
90.00	-20.97	-18.34	0.00	-455.64	0.00	455.64	2,679.98	1,339.99	4,260.27	2,133.30	13.54	-1.50	0.222
91.00	-18.96	-17.15	0.00	-437.30	0.00	437.30	2,667.39	1,333.70	4,210.35	2,108.30	13.86	-1.51	0.215
95.00	-18.06	-16.80	0.00	-368.69	0.00	368.69	2,616.17	1,308.08	4,012.17	2,009.07	15.15	-1.58	0.191
100.00	-16.96	-16.45	0.00	-284.67	0.00	284.67	2,550.19	1,275.09	3,768.02	1,886.81	16.85	-1.65	0.158
104.00	-12.85	-12.53	0.00	-218.79	0.00	218.79	2,495.84	1,247.92	3,575.79	1,790.55	18.25	-1.70	0.127
105.00	-12.66	-12.30	0.00	-206.26	0.00	206.26	2,482.03	1,241.02	3,528.19	1,766.72	18.61	-1.71	0.122
110.00	-8.98	-8.83	0.00	-144.74	0.00	144.74	2,411.71	1,205.86	3,293.03	1,648.96	20.43	-1.76	0.092
115.00	-8.16	-8.45	0.00	-100.58	0.00	100.58	2,339.22	1,169.61	3,062.91	1,533.73	22.29	-1.80	0.069
120.00	-4.40	-5.11	0.00	-58.35	0.00	58.35	2,252.89	1,126.45	2,823.60	1,413.90	24.19	-1.82	0.043
125.00	-3.75	-4.74	0.00	-32.78	0.00	32.78	2,153.14	1,076.57	2,577.88	1,290.85	26.11	-1.84	0.027
130.00	0.00	-4.62	0.00	-9.09	0.00	9.09	2,053.39	1,026.69	2,343.34	1,173.41	28.04	-1.85	0.008

Site Number: 411189

Code: ANSI/TIA-222-G

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Site Name: CRANBURY SU CT, CT

Engineering Number: OAA739669_C3_02

11/20/2018 4:41:50 PM

Customer: VERIZON WIRELESS

Load Case: 0.9D + 1.6W	94 mph with No Ice (Reduced DL)	18 Iterations
Gust Response Factor : 1.10		Wind Importance Factor 1.00
Dead Load Factor : 0.90		
Wind Load Factor : 1.60		

Applied Segment Forces Summary

Seg Elev (ft)	Description	Shaft Forces		Discrete Forces			Linear Forces			Sum of Forces			
		Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Torsion MY (lb-ft)	Moment MZ (lb)
0.00		223.2	0.0					0.0	0.0	223.2	0.0	0.0	0.0
5.00		441.6	1,478.0					0.0	268.3	441.6	1,746.3	0.0	0.0
10.00		431.7	1,445.1					0.0	268.3	431.7	1,713.4	0.0	0.0
15.00		421.8	1,412.2					0.0	268.3	421.8	1,680.5	0.0	0.0
20.00		412.0	1,379.3					0.0	268.3	412.0	1,647.6	0.0	0.0
25.00		402.1	1,346.4					0.0	268.3	402.1	1,614.7	0.0	0.0
30.00		396.9	1,313.5					0.0	268.3	396.9	1,581.8	0.0	0.0
35.00		399.7	1,280.6					0.0	268.3	399.7	1,548.9	0.0	0.0
40.00		221.6	1,247.7					0.0	268.3	221.6	1,516.0	0.0	0.0
40.50	Bot - Section 2	205.9	123.0					0.0	26.8	205.9	149.8	0.0	0.0
45.00		289.2	1,925.1					0.0	241.5	289.2	2,166.6	0.0	0.0
47.50	Top - Section 1	207.3	1,049.4					0.0	134.1	207.3	1,183.5	0.0	0.0
50.00		311.2	448.1					0.0	134.1	311.2	582.3	0.0	0.0
55.00		414.5	877.7					0.0	268.3	414.5	1,146.0	0.0	0.0
60.00		413.0	853.1					0.0	268.3	413.0	1,121.4	0.0	0.0
65.00		328.7	828.4					0.0	268.3	328.7	1,096.7	0.0	0.0
68.00	Appurtenance(s)	204.3	485.2	200.9	0.0	0.0	122.4	0.0	161.0	405.1	768.6	0.0	0.0
70.00		283.6	318.5					0.0	107.0	283.6	425.6	0.0	0.0
75.00	Appurtenance(s)	242.3	779.0	39.9	0.0	0.0	18.0	0.0	267.6	282.2	1,064.7	0.0	0.0
76.00	Appurtenance(s)	199.6	152.8	109.2	0.0	0.0	99.0	0.0	53.1	308.8	305.0	0.0	0.0
80.00	Appurtenance(s)	244.9	601.5	35.1	0.0	0.0	9.0	0.0	211.4	280.0	821.9	0.0	0.0
82.16	Bot - Section 3	198.3	318.7					0.0	114.0	198.3	432.8	0.0	0.0
85.00		224.4	759.3					0.0	149.5	224.4	908.9	0.0	0.0
87.83	Top - Section 2	196.3	743.1					0.0	149.2	196.3	892.2	0.0	0.0
90.00		123.6	257.0					0.0	114.4	123.6	371.4	0.0	0.0
91.00	Appurtenance(s)	192.7	117.1	949.6	0.0	0.0	1,350.0	0.0	52.7	1,142.2	1,519.8	0.0	0.0
95.00		342.5	460.3					0.0	210.9	342.5	671.1	0.0	0.0
100.00		336.5	556.8					0.0	263.6	336.5	820.4	0.0	0.0
104.00	Appurtenance(s)	184.4	430.7	3,614.5	0.0	91.5	2,517.2	0.0	210.9	3,798.9	3,158.7	0.0	0.0
105.00		216.3	105.6					0.0	35.6	216.3	141.2	0.0	0.0
110.00	Appurtenance(s)	354.8	515.7	2,994.0	0.0	0.0	2,143.0	0.0	178.1	3,348.8	2,836.8	0.0	0.0
115.00		344.8	495.2					0.0	121.8	344.8	616.9	0.0	0.0
120.00	Appurtenance(s)	334.4	474.6	2,852.2	0.0	0.0	2,305.5	0.0	121.8	3,186.6	2,901.9	0.0	0.0
125.00		323.5	454.1					0.0	36.6	323.5	490.7	0.0	0.0
130.00	Appurtenance(s)	159.0	433.5	4,439.8	0.0	9,089.5	2,457.0	0.0	36.6	4,598.7	2,927.1	0.0	0.0
Totals:										25,461.6	42,571.3	0.00	0.00

Site Number: 411189

Code: ANSI/TIA-222-G

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Site Name: CRANBURYSU CT, CT

Engineering Number: OAA739669_C3_02

11/20/2018 4:41:56 PM

Customer: VERIZON WIRELESS

Load Case: 0.9D + 1.6W

94 mph with No Ice (Reduced DL)

18 Iterations

Gust Response Factor :1.10

Wind Importance Factor 1.00

Dead Load Factor :0.90

Wind Load Factor :1.60

Calculated Forces

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 (deg)	Ratio
0.00	-42.55	-25.27	0.00	-2,422.17	0.00	2,422.17	6,830.05	3,415.02	17,255.2	8,640.43	0.00	0.00	0.287
5.00	-40.78	-24.87	0.00	-2,295.84	0.00	2,295.84	6,727.94	3,363.97	16,620.1	8,322.40	0.04	-0.07	0.282
10.00	-39.03	-24.49	0.00	-2,171.47	0.00	2,171.47	6,623.66	3,311.83	15,991.1	8,007.48	0.15	-0.14	0.277
15.00	-37.32	-24.11	0.00	-2,049.03	0.00	2,049.03	6,517.21	3,258.61	15,368.8	7,695.85	0.35	-0.22	0.272
20.00	-35.65	-23.74	0.00	-1,928.47	0.00	1,928.47	6,408.59	3,204.29	14,753.4	7,387.69	0.61	-0.29	0.267
25.00	-34.00	-23.37	0.00	-1,809.79	0.00	1,809.79	6,297.80	3,148.90	14,145.3	7,083.19	0.96	-0.37	0.261
30.00	-32.39	-23.01	0.00	-1,692.93	0.00	1,692.93	6,184.83	3,092.42	13,544.9	6,782.53	1.39	-0.44	0.255
35.00	-30.82	-22.63	0.00	-1,577.90	0.00	1,577.90	6,069.70	3,034.85	12,952.5	6,485.89	1.90	-0.52	0.248
40.00	-29.29	-22.22	0.00	-1,464.73	0.00	1,464.73	5,952.39	2,976.20	12,368.5	6,193.46	2.48	-0.60	0.241
40.50	-29.13	-22.23	0.00	-1,453.52	0.00	1,453.52	5,940.54	2,970.27	12,310.6	6,164.45	2.55	-0.60	0.241
45.00	-26.94	-21.94	0.00	-1,353.48	0.00	1,353.48	5,814.51	2,907.25	11,756.0	5,886.78	3.15	-0.67	0.235
47.50	-25.75	-21.74	0.00	-1,298.62	0.00	1,298.62	4,024.81	2,012.40	8,191.06	4,101.62	3.51	-0.71	0.323
50.00	-25.14	-21.45	0.00	-1,244.27	0.00	1,244.27	3,989.37	1,994.69	8,007.13	4,009.51	3.90	-0.75	0.317
55.00	-23.97	-21.06	0.00	-1,137.01	0.00	1,137.01	3,916.87	1,958.44	7,642.03	3,826.70	4.74	-0.85	0.303
60.00	-22.82	-20.67	0.00	-1,031.71	0.00	1,031.71	3,842.20	1,921.10	7,280.96	3,645.89	5.68	-0.95	0.289
65.00	-21.70	-20.35	0.00	-928.37	0.00	928.37	3,765.36	1,882.68	6,924.26	3,467.28	6.72	-1.04	0.274
68.00	-20.92	-19.95	0.00	-867.32	0.00	867.32	3,718.21	1,859.10	6,712.50	3,361.24	7.39	-1.10	0.264
70.00	-20.48	-19.68	0.00	-827.42	0.00	827.42	3,686.34	1,843.17	6,572.31	3,291.04	7.86	-1.13	0.257
75.00	-19.40	-19.39	0.00	-729.03	0.00	729.03	3,605.16	1,802.58	6,225.47	3,117.36	9.10	-1.22	0.239
76.00	-19.09	-19.09	0.00	-709.64	0.00	709.64	3,588.66	1,794.33	6,156.74	3,082.95	9.36	-1.24	0.236
80.00	-18.26	-18.81	0.00	-633.27	0.00	633.27	3,521.80	1,760.90	5,884.10	2,946.42	10.43	-1.31	0.220
82.16	-17.82	-18.62	0.00	-592.58	0.00	592.58	3,485.06	1,742.53	5,738.19	2,873.36	11.03	-1.35	0.211
85.00	-16.90	-18.38	0.00	-539.77	0.00	539.77	3,436.27	1,718.13	5,548.57	2,778.41	11.85	-1.40	0.199
87.83	-16.00	-18.18	0.00	-487.75	0.00	487.75	2,707.00	1,353.50	4,369.08	2,187.78	12.69	-1.44	0.229
90.00	-15.62	-18.05	0.00	-448.31	0.00	448.31	2,679.98	1,339.99	4,260.27	2,133.30	13.35	-1.47	0.216
91.00	-14.12	-16.88	0.00	-430.26	0.00	430.26	2,667.39	1,333.70	4,210.35	2,108.30	13.67	-1.49	0.210
95.00	-13.44	-16.53	0.00	-362.75	0.00	362.75	2,616.17	1,308.08	4,012.17	2,009.07	14.94	-1.56	0.186
100.00	-12.61	-16.19	0.00	-280.08	0.00	280.08	2,550.19	1,275.09	3,768.02	1,886.81	16.61	-1.63	0.154
104.00	-9.56	-12.30	0.00	-215.24	0.00	215.24	2,495.84	1,247.92	3,575.79	1,790.55	18.00	-1.67	0.124
105.00	-9.42	-12.09	0.00	-202.93	0.00	202.93	2,482.03	1,241.02	3,528.19	1,766.72	18.35	-1.68	0.119
110.00	-6.67	-8.66	0.00	-142.49	0.00	142.49	2,411.71	1,205.86	3,293.03	1,648.96	20.14	-1.73	0.089
115.00	-6.06	-8.30	0.00	-99.18	0.00	99.18	2,339.22	1,169.61	3,062.91	1,533.73	21.98	-1.77	0.067
120.00	-3.26	-5.03	0.00	-57.67	0.00	57.67	2,252.89	1,126.45	2,823.60	1,413.90	23.84	-1.80	0.042
125.00	-2.78	-4.69	0.00	-32.54	0.00	32.54	2,153.14	1,076.57	2,577.88	1,290.85	25.74	-1.81	0.027
130.00	0.00	-4.60	0.00	-9.09	0.00	9.09	2,053.39	1,026.69	2,343.34	1,173.41	27.64	-1.82	0.008

Site Number: 411189

Code: ANSI/TIA-222-G

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Site Name: CRANBURYSU CT, CT

Engineering Number: OAA739669_C3_02

11/20/2018 4:41:56 PM

Customer: VERIZON WIRELESS

Load Case: 1.2D + 1.0Di + 1.0Wi	50 mph with 0.75 in Radial Ice	17 Iterations
Gust Response Factor : 1.10	Ice Dead Load Factor : 1.00	Wind Importance Factor : 1.00
Dead Load Factor : 1.20		Ice Importance Factor : 1.00
Wind Load Factor : 1.00		

Applied Segment Forces Summary

Seg Elev (ft)	Description	Shaft Forces		Discrete Forces			Linear Forces			Sum of Forces			
		Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Torsion MY (lb-ft)	Moment MZ (lb)
0.00		75.6	0.0					0.0	0.0	75.6	0.0	0.0	0.0
5.00		149.9	2,419.4					0.0	429.3	149.9	2,848.7	0.0	0.0
10.00		147.1	2,417.7					0.0	437.5	147.1	2,855.2	0.0	0.0
15.00		144.2	2,388.6					0.0	441.7	144.2	2,830.4	0.0	0.0
20.00		141.2	2,350.5					0.0	444.7	141.2	2,795.2	0.0	0.0
25.00		138.1	2,307.8					0.0	447.0	138.1	2,754.7	0.0	0.0
30.00		136.6	2,262.1					0.0	448.8	136.6	2,710.9	0.0	0.0
35.00		137.9	2,214.3					0.0	450.4	137.9	2,664.8	0.0	0.0
40.00		76.5	2,165.1					0.0	451.8	76.5	2,616.9	0.0	0.0
40.50	Bot - Section 2	71.2	214.3					0.0	45.3	71.2	259.6	0.0	0.0
45.00		100.1	3,019.0					0.0	407.8	100.1	3,426.8	0.0	0.0
47.50	Top - Section 1	71.8	1,649.1					0.0	227.0	71.8	1,876.1	0.0	0.0
50.00		108.0	845.5					0.0	227.2	108.0	1,072.7	0.0	0.0
55.00		144.1	1,656.8					0.0	455.2	144.1	2,112.0	0.0	0.0
60.00		143.9	1,615.0					0.0	456.2	143.9	2,071.2	0.0	0.0
65.00		114.8	1,572.7					0.0	457.0	114.8	2,029.7	0.0	0.0
68.00	Appurtenance(s)	71.4	924.7	58.5	0.0	0.0	209.3	0.0	274.6	129.9	1,408.7	0.0	0.0
70.00		99.4	608.4					0.0	182.9	99.4	791.3	0.0	0.0
75.00	Appurtenance(s)	85.0	1,486.6	26.5	0.0	0.0	48.2	0.0	457.7	111.5	1,992.6	0.0	0.0
76.00	Appurtenance(s)	70.2	293.2	30.5	0.0	0.0	131.3	0.0	91.1	100.6	515.6	0.0	0.0
80.00	Appurtenance(s)	86.2	1,152.0	8.0	0.0	0.0	47.3	0.0	363.2	94.2	1,562.5	0.0	0.0
82.16	Bot - Section 3	69.9	612.4					0.0	196.2	69.9	808.6	0.0	0.0
85.00		79.2	1,258.2					0.0	257.5	79.2	1,515.6	0.0	0.0
87.83	Top - Section 2	69.3	1,232.2					0.0	257.1	69.3	1,489.3	0.0	0.0
90.00		43.7	525.7					0.0	197.3	43.7	723.0	0.0	0.0
91.00	Appurtenance(s)	68.3	240.1	284.9	0.0	0.0	2,217.2	0.0	90.9	353.2	2,548.3	0.0	0.0
95.00		121.6	941.4					0.0	364.0	121.6	1,305.5	0.0	0.0
100.00		119.8	1,140.0					0.0	455.5	119.8	1,595.5	0.0	0.0
104.00	Appurtenance(s)	65.8	884.6	900.6	0.0	27.3	6,675.1	0.0	364.8	966.4	7,924.5	0.0	0.0
105.00		77.4	218.0					0.0	68.5	77.4	286.5	0.0	0.0
110.00	Appurtenance(s)	127.3	1,060.6	763.0	0.0	0.0	4,856.8	0.0	342.7	890.3	6,260.1	0.0	0.0
115.00		124.3	1,020.6					0.0	268.1	124.3	1,288.6	0.0	0.0
120.00	Appurtenance(s)	121.0	980.4	686.0	0.0	0.0	5,682.2	0.0	268.6	807.1	6,931.2	0.0	0.0
125.00		117.7	940.0					0.0	155.5	117.7	1,095.5	0.0	0.0
130.00	Appurtenance(s)	58.0	899.4	1,070.7	0.0	1,671.0	5,610.5	0.0	156.0	1,128.6	6,665.8	0.0	0.0
Totals:										7,405.15	81,633.6	0.00	0.00

Site Number: 411189

Code: ANSI/TIA-222-G

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Site Name: CRANBURYSU CT, CT

Engineering Number: OAA739669_C3_02

11/20/2018 4:42:03 PM

Customer: VERIZON WIRELESS

Load Case: 1.2D + 1.0Di + 1.0Wi	50 mph with 0.75 in Radial Ice	17 Iterations
Gust Response Factor :1.10	Ice Dead Load Factor :1.00	Wind Importance Factor 1.00
Dead Load Factor :1.20		Ice Importance Factor 1.00
Wind Load Factor :1.00		

Calculated Forces

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 (deg)	Ratio
0.00	-81.63	-7.34	0.00	-683.08	0.00	683.08	6,830.05	3,415.02	17,255.2	8,640.43	0.00	0.00	0.091
5.00	-78.78	-7.22	0.00	-646.37	0.00	646.37	6,727.94	3,363.97	16,620.1	8,322.40	0.01	-0.02	0.089
10.00	-75.92	-7.10	0.00	-610.26	0.00	610.26	6,623.66	3,311.83	15,991.1	8,007.48	0.04	-0.04	0.088
15.00	-73.09	-6.98	0.00	-574.76	0.00	574.76	6,517.21	3,258.61	15,368.8	7,695.85	0.10	-0.06	0.086
20.00	-70.29	-6.86	0.00	-539.86	0.00	539.86	6,408.59	3,204.29	14,753.4	7,387.69	0.17	-0.08	0.084
25.00	-67.54	-6.74	0.00	-505.56	0.00	505.56	6,297.80	3,148.90	14,145.3	7,083.19	0.27	-0.10	0.082
30.00	-64.82	-6.63	0.00	-471.84	0.00	471.84	6,184.83	3,092.42	13,544.9	6,782.53	0.39	-0.12	0.080
35.00	-62.16	-6.50	0.00	-438.72	0.00	438.72	6,069.70	3,034.85	12,952.5	6,485.89	0.53	-0.15	0.078
40.00	-59.54	-6.43	0.00	-406.20	0.00	406.20	5,952.39	2,976.20	12,368.5	6,193.46	0.70	-0.17	0.076
40.50	-59.28	-6.37	0.00	-402.98	0.00	402.98	5,940.54	2,970.27	12,310.6	6,164.45	0.71	-0.17	0.075
45.00	-55.85	-6.28	0.00	-374.31	0.00	374.31	5,814.51	2,907.25	11,756.0	5,886.78	0.88	-0.19	0.073
47.50	-53.97	-6.21	0.00	-358.62	0.00	358.62	4,024.81	2,012.40	8,191.06	4,101.62	0.98	-0.20	0.101
50.00	-52.90	-6.11	0.00	-343.11	0.00	343.11	3,989.37	1,994.69	8,007.13	4,009.51	1.09	-0.21	0.099
55.00	-50.78	-5.98	0.00	-312.54	0.00	312.54	3,916.87	1,958.44	7,642.03	3,826.70	1.33	-0.24	0.095
60.00	-48.71	-5.85	0.00	-282.62	0.00	282.62	3,842.20	1,921.10	7,280.96	3,645.89	1.59	-0.26	0.090
65.00	-46.68	-5.75	0.00	-253.35	0.00	253.35	3,765.36	1,882.68	6,924.26	3,467.28	1.88	-0.29	0.085
68.00	-45.27	-5.62	0.00	-236.12	0.00	236.12	3,718.21	1,859.10	6,712.50	3,361.24	2.07	-0.30	0.082
70.00	-44.48	-5.53	0.00	-224.88	0.00	224.88	3,686.34	1,843.17	6,572.31	3,291.04	2.20	-0.31	0.080
75.00	-42.48	-5.42	0.00	-197.24	0.00	197.24	3,605.16	1,802.58	6,225.47	3,117.36	2.54	-0.34	0.075
76.00	-41.97	-5.32	0.00	-191.82	0.00	191.82	3,588.66	1,794.33	6,156.74	3,082.95	2.61	-0.34	0.074
80.00	-40.41	-5.23	0.00	-170.54	0.00	170.54	3,521.80	1,760.90	5,884.10	2,946.42	2.91	-0.36	0.069
82.16	-39.60	-5.16	0.00	-159.23	0.00	159.23	3,485.06	1,742.53	5,738.19	2,873.36	3.07	-0.37	0.067
85.00	-38.08	-5.08	0.00	-144.59	0.00	144.59	3,436.27	1,718.13	5,548.57	2,778.41	3.30	-0.39	0.063
87.83	-36.59	-5.01	0.00	-130.22	0.00	130.22	2,707.00	1,353.50	4,369.08	2,187.78	3.53	-0.40	0.073
90.00	-35.87	-4.96	0.00	-119.35	0.00	119.35	2,679.98	1,339.99	4,260.27	2,133.30	3.71	-0.41	0.069
91.00	-33.32	-4.60	0.00	-114.39	0.00	114.39	2,667.39	1,333.70	4,210.35	2,108.30	3.80	-0.41	0.067
95.00	-32.01	-4.48	0.00	-96.00	0.00	96.00	2,616.17	1,308.08	4,012.17	2,009.07	4.15	-0.43	0.060
100.00	-30.42	-4.35	0.00	-73.62	0.00	73.62	2,550.19	1,275.09	3,768.02	1,886.81	4.61	-0.45	0.051
104.00	-22.50	-3.33	0.00	-56.19	0.00	56.19	2,495.84	1,247.92	3,575.79	1,790.55	4.99	-0.46	0.040
105.00	-22.22	-3.25	0.00	-52.86	0.00	52.86	2,482.03	1,241.02	3,528.19	1,766.72	5.09	-0.46	0.039
110.00	-15.96	-2.31	0.00	-36.61	0.00	36.61	2,411.71	1,205.86	3,293.03	1,648.96	5.58	-0.47	0.029
115.00	-14.67	-2.18	0.00	-25.06	0.00	25.06	2,339.22	1,169.61	3,062.91	1,533.73	6.08	-0.48	0.023
120.00	-7.75	-1.31	0.00	-14.17	0.00	14.17	2,252.89	1,126.45	2,823.60	1,413.90	6.59	-0.49	0.013
125.00	-6.66	-1.19	0.00	-7.60	0.00	7.60	2,153.14	1,076.57	2,577.88	1,290.85	7.10	-0.49	0.009
130.00	0.00	-1.13	0.00	-1.67	0.00	1.67	2,053.39	1,026.69	2,343.34	1,173.41	7.62	-0.50	0.001

Site Number: 411189

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Site Name: CRANBURY SU CT, CT

Engineering Number: OAA739669_C3_02

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Customer: VERIZON WIRELESS

Load Case: 1.0D + 1.0W	Serviceability 60 mph	17 Iterations
Gust Response Factor :1.10		Wind Importance Factor 1.00
Dead Load Factor :1.00		
Wind Load Factor :1.00		

Applied Segment Forces Summary

Seg Elev (ft)	Description	Shaft Forces		Discrete Forces			Linear Forces			Sum of Forces			
		Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Torsion MY (lb-ft)	Moment MZ (lb)
0.00		56.8	0.0					0.0	0.0	56.8	0.0	0.0	0.0
5.00		112.4	1,642.2					0.0	298.1	112.4	1,940.3	0.0	0.0
10.00		109.9	1,605.7					0.0	298.1	109.9	1,903.8	0.0	0.0
15.00		107.4	1,569.1					0.0	298.1	107.4	1,867.2	0.0	0.0
20.00		104.9	1,532.6					0.0	298.1	104.9	1,830.7	0.0	0.0
25.00		102.4	1,496.0					0.0	298.1	102.4	1,794.1	0.0	0.0
30.00		101.1	1,459.5					0.0	298.1	101.1	1,757.6	0.0	0.0
35.00		101.8	1,422.9					0.0	298.1	101.8	1,721.0	0.0	0.0
40.00		56.4	1,386.4					0.0	298.1	56.4	1,684.5	0.0	0.0
40.50	Bot - Section 2	52.4	136.6					0.0	29.8	52.4	166.4	0.0	0.0
45.00		73.6	2,139.0					0.0	268.3	73.6	2,407.3	0.0	0.0
47.50	Top - Section 1	52.8	1,166.0					0.0	149.1	52.8	1,315.0	0.0	0.0
50.00		79.2	497.9					0.0	149.1	79.2	647.0	0.0	0.0
55.00		105.6	975.3					0.0	298.1	105.6	1,273.4	0.0	0.0
60.00		105.2	947.8					0.0	298.1	105.2	1,245.9	0.0	0.0
65.00		83.7	920.4					0.0	298.1	83.7	1,218.5	0.0	0.0
68.00	Appurtenance(s)	52.0	539.1	51.1	0.0	0.0	136.0	0.0	178.9	103.2	854.0	0.0	0.0
70.00		72.2	353.9					0.0	118.9	72.2	472.9	0.0	0.0
75.00	Appurtenance(s)	61.7	865.6	10.2	0.0	0.0	20.0	0.0	297.4	71.9	1,183.0	0.0	0.0
76.00	Appurtenance(s)	50.8	169.8	27.8	0.0	0.0	110.0	0.0	59.0	78.6	338.9	0.0	0.0
80.00	Appurtenance(s)	62.4	668.4	8.9	0.0	0.0	10.0	0.0	234.9	71.3	913.2	0.0	0.0
82.16	Bot - Section 3	50.5	354.2					0.0	126.7	50.5	480.9	0.0	0.0
85.00		57.1	843.7					0.0	166.1	57.1	1,009.9	0.0	0.0
87.83	Top - Section 2	50.0	825.6					0.0	165.8	50.0	991.4	0.0	0.0
90.00		31.5	285.5					0.0	127.1	31.5	412.6	0.0	0.0
91.00	Appurtenance(s)	49.1	130.1	241.8	0.0	0.0	1,500.0	0.0	58.6	290.9	1,688.7	0.0	0.0
95.00		87.2	511.4					0.0	234.3	87.2	745.7	0.0	0.0
100.00		85.7	618.7					0.0	292.9	85.7	911.6	0.0	0.0
104.00	Appurtenance(s)	46.9	478.5	920.4	0.0	23.3	2,796.9	0.0	234.3	967.4	3,509.7	0.0	0.0
105.00		55.1	117.3					0.0	39.6	55.1	156.9	0.0	0.0
110.00	Appurtenance(s)	90.3	573.0	762.4	0.0	0.0	2,381.1	0.0	197.9	852.7	3,152.0	0.0	0.0
115.00		87.8	550.2					0.0	135.3	87.8	685.5	0.0	0.0
120.00	Appurtenance(s)	85.1	527.3	726.3	0.0	0.0	2,561.7	0.0	135.3	811.4	3,224.3	0.0	0.0
125.00		82.4	504.5					0.0	40.7	82.4	545.2	0.0	0.0
130.00	Appurtenance(s)	40.5	481.7	1,130.5	0.0	2,314.5	2,730.0	0.0	40.7	1,171.0	3,252.4	0.0	0.0
Totals:										6,483.57	47,301.4	0.00	0.00

Site Number: 411189

Code: ANSI/TIA-222-G

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Site Name: CRANBURYSU CT, CT

Engineering Number: OAA739669_C3_02

11/20/2018 4:42:09 PM

Customer: VERIZON WIRELESS

Load Case: 1.0D + 1.0W	Serviceability 60 mph	17 Iterations
Gust Response Factor :1.10		Wind Importance Factor 1.00
Dead Load Factor :1.00		
Wind Load Factor :1.00		

Calculated Forces

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 (deg)	Ratio
0.00	-47.30	-6.43	0.00	-617.90	0.00	617.90	6,830.05	3,415.02	17,255.2	8,640.43	0.00	0.00	0.078
5.00	-45.36	-6.34	0.00	-585.73	0.00	585.73	6,727.94	3,363.97	16,620.1	8,322.40	0.01	-0.02	0.077
10.00	-43.45	-6.24	0.00	-554.05	0.00	554.05	6,623.66	3,311.83	15,991.1	8,007.48	0.04	-0.04	0.076
15.00	-41.58	-6.14	0.00	-522.85	0.00	522.85	6,517.21	3,258.61	15,368.8	7,695.85	0.09	-0.06	0.074
20.00	-39.75	-6.05	0.00	-492.13	0.00	492.13	6,408.59	3,204.29	14,753.4	7,387.69	0.16	-0.07	0.073
25.00	-37.95	-5.96	0.00	-461.88	0.00	461.88	6,297.80	3,148.90	14,145.3	7,083.19	0.25	-0.09	0.071
30.00	-36.20	-5.87	0.00	-432.09	0.00	432.09	6,184.83	3,092.42	13,544.9	6,782.53	0.35	-0.11	0.070
35.00	-34.47	-5.77	0.00	-402.76	0.00	402.76	6,069.70	3,034.85	12,952.5	6,485.89	0.48	-0.13	0.068
40.00	-32.79	-5.72	0.00	-373.90	0.00	373.90	5,952.39	2,976.20	12,368.5	6,193.46	0.63	-0.15	0.066
40.50	-32.62	-5.67	0.00	-371.04	0.00	371.04	5,940.54	2,970.27	12,310.6	6,164.45	0.65	-0.15	0.066
45.00	-30.21	-5.60	0.00	-345.53	0.00	345.53	5,814.51	2,907.25	11,756.0	5,886.78	0.80	-0.17	0.064
47.50	-28.90	-5.55	0.00	-331.53	0.00	331.53	4,024.81	2,012.40	8,191.06	4,101.62	0.90	-0.18	0.088
50.00	-28.25	-5.47	0.00	-317.67	0.00	317.67	3,989.37	1,994.69	8,007.13	4,009.51	0.99	-0.19	0.086
55.00	-26.97	-5.37	0.00	-290.31	0.00	290.31	3,916.87	1,958.44	7,642.03	3,826.70	1.21	-0.22	0.083
60.00	-25.72	-5.28	0.00	-263.44	0.00	263.44	3,842.20	1,921.10	7,280.96	3,645.89	1.45	-0.24	0.079
65.00	-24.50	-5.19	0.00	-237.06	0.00	237.06	3,765.36	1,882.68	6,924.26	3,467.28	1.72	-0.27	0.075
68.00	-23.65	-5.09	0.00	-221.48	0.00	221.48	3,718.21	1,859.10	6,712.50	3,361.24	1.89	-0.28	0.072
70.00	-23.18	-5.02	0.00	-211.29	0.00	211.29	3,686.34	1,843.17	6,572.31	3,291.04	2.01	-0.29	0.070
75.00	-21.99	-4.95	0.00	-186.18	0.00	186.18	3,605.16	1,802.58	6,225.47	3,117.36	2.32	-0.31	0.066
76.00	-21.65	-4.87	0.00	-181.22	0.00	181.22	3,588.66	1,794.33	6,156.74	3,082.95	2.39	-0.32	0.065
80.00	-20.74	-4.80	0.00	-161.72	0.00	161.72	3,521.80	1,760.90	5,884.10	2,946.42	2.66	-0.33	0.061
82.16	-20.26	-4.75	0.00	-151.33	0.00	151.33	3,485.06	1,742.53	5,738.19	2,873.36	2.82	-0.34	0.058
85.00	-19.25	-4.69	0.00	-137.85	0.00	137.85	3,436.27	1,718.13	5,548.57	2,778.41	3.02	-0.36	0.055
87.83	-18.25	-4.64	0.00	-124.56	0.00	124.56	2,707.00	1,353.50	4,369.08	2,187.78	3.24	-0.37	0.064
90.00	-17.84	-4.61	0.00	-114.49	0.00	114.49	2,679.98	1,339.99	4,260.27	2,133.30	3.41	-0.38	0.060
91.00	-16.15	-4.31	0.00	-109.88	0.00	109.88	2,667.39	1,333.70	4,210.35	2,108.30	3.49	-0.38	0.058
95.00	-15.41	-4.22	0.00	-92.64	0.00	92.64	2,616.17	1,308.08	4,012.17	2,009.07	3.81	-0.40	0.052
100.00	-14.50	-4.13	0.00	-71.53	0.00	71.53	2,550.19	1,275.09	3,768.02	1,886.81	4.24	-0.41	0.044
104.00	-10.99	-3.14	0.00	-54.97	0.00	54.97	2,495.84	1,247.92	3,575.79	1,790.55	4.59	-0.43	0.035
105.00	-10.84	-3.09	0.00	-51.82	0.00	51.82	2,482.03	1,241.02	3,528.19	1,766.72	4.68	-0.43	0.034
110.00	-7.69	-2.21	0.00	-36.39	0.00	36.39	2,411.71	1,205.86	3,293.03	1,648.96	5.14	-0.44	0.025
115.00	-7.01	-2.12	0.00	-25.32	0.00	25.32	2,339.22	1,169.61	3,062.91	1,533.73	5.61	-0.45	0.020
120.00	-3.79	-1.28	0.00	-14.72	0.00	14.72	2,252.89	1,126.45	2,823.60	1,413.90	6.09	-0.46	0.012
125.00	-3.24	-1.20	0.00	-8.30	0.00	8.30	2,153.14	1,076.57	2,577.88	1,290.85	6.57	-0.46	0.008
130.00	0.00	-1.17	0.00	-2.31	0.00	2.31	2,053.39	1,026.69	2,343.34	1,173.41	7.06	-0.47	0.002

Site Number: 411189
 Site Name: CRANBURYSU CT, CT
 Customer: VERIZON WIRELESS

Code: ANSI/TIA-222-G
 Engineering Number: OAA739669_C3_02

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Equivalent Lateral Forces Method Analysis

(Based on ASCE7-10 Chapters 11, 12, 15)

Spectral Response Acceleration for Short Period (S_g):	0.23
Spectral Response Acceleration at 1.0 Second Period (S_{d1}):	0.07
Long-Period Transition Period (T_L):	6
Importance Factor (I_E):	1.00
Site Coefficient F_a :	1.60
Site Coefficient F_v :	2.40
Response Modification Coefficient (R):	1.50
Design Spectral Response Acceleration at Short Period (S_{ds}):	0.24
Design Spectral Response Acceleration at 1.0 Second Period (S_{d1}):	0.11
Seismic Response Coefficient (C_s):	0.05
Upper Limit C_s	0.05
Lower Limit C_s	0.03
Period based on Rayleigh Method (sec):	1.46
Redundancy Factor (ρ):	1.00
Seismic Force Distribution Exponent (k):	1.48
Total Unfactored Dead Load:	47.30 k
Seismic Base Shear (E):	2.31 k

Load Case (1.2 + 0.2Sds) * DL + E ELFM

Seismic Equivalent Lateral Forces Method

Segment	Height Above Base (ft)	Weight (lb)	W_z (lb-ft)	C_{vx}	Horizontal Force (lb)	Vertical Force (lb)
34	127.50	522	684	0.025	58	652
33	122.50	545	672	0.024	57	681
32	117.50	663	768	0.028	65	827
31	112.50	685	745	0.027	63	856
30	107.50	771	784	0.029	66	962
29	104.50	157	153	0.006	13	196
28	102.00	713	670	0.024	56	890
27	97.50	912	802	0.029	68	1,138
26	93.00	746	612	0.022	52	931
25	90.50	189	149	0.005	13	236
24	88.92	413	317	0.012	27	515
23	86.42	991	729	0.027	61	1,238
22	83.58	1,010	707	0.026	60	1,261
21	81.08	481	322	0.012	27	600
20	78.00	903	571	0.021	48	1,128
19	75.50	229	138	0.005	12	286
18	72.50	1,163	660	0.024	56	1,452
17	69.00	473	249	0.009	21	590
16	66.50	718	358	0.013	30	896
15	62.50	1,219	555	0.020	47	1,521
14	57.50	1,246	502	0.018	42	1,555
13	52.50	1,273	448	0.016	38	1,590
12	48.75	647	204	0.007	17	808

Site Number: 411189

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Site Name: CRANBURYSU CT, CT

Engineering Number: OAA739669_C3_02

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Customer: VERIZON WIRELESS

11	46.25	1,315	384	0.014	32	1,642
10	42.75	2,407	625	0.023	53	3,005
9	40.25	166	40	0.001	3	208
8	37.50	1,684	360	0.013	30	2,103
7	32.50	1,721	298	0.011	25	2,149
6	27.50	1,758	237	0.009	20	2,194
5	22.50	1,794	180	0.007	15	2,240
4	17.50	1,831	127	0.005	11	2,285
3	12.50	1,867	79	0.003	7	2,331
2	7.50	1,904	38	0.001	3	2,377
1	2.50	1,940	8	0.000	1	2,422
Samsung PCS/AWS Dual	130.00	253	341	0.012	29	316
Samsung 700/850MHz D	130.00	211	284	0.010	24	263
RFS DB-C1-12C-24AB-0	130.00	32	43	0.002	4	40
Decibel DB846F65ZAXY	130.00	84	113	0.004	10	105
Quintel QS6656-5	130.00	390	525	0.019	44	487
Antel LPA-80080/6CF	130.00	42	57	0.002	5	52
VZW Unused Reserve:	130.00	218	293	0.011	25	272
Flat Low Profile Pla	130.00	1,500	2,020	0.074	170	1,873
Alcatel-Lucent RRH2x	120.00	159	190	0.007	16	198
Alcatel-Lucent 800MH	120.00	159	190	0.007	16	198
Alcatel-Lucent 1900M	120.00	132	158	0.006	13	165
Nokia 2.5G MAA - AAH	120.00	311	372	0.014	31	388
24" x 24" Junction B	120.00	20	24	0.001	2	25
Andrew Microwaves VH	120.00	49	59	0.002	5	61
Commscope NNVV-65B-R	120.00	232	278	0.010	23	290
Flat Low Profile Pla	120.00	1,500	1,794	0.065	151	1,873
Ericsson KRY 112 71	110.00	40	42	0.002	4	49
Ericsson RRUS 11 B12	110.00	152	160	0.006	13	190
EMS RR90-17-02DP	110.00	41	43	0.002	4	51
Ericsson AIR 21, 1.3	110.00	498	524	0.019	44	622
Commscope LNX-6515DS	110.00	151	159	0.006	13	188
Flat Low Profile Pla	110.00	1,500	1,577	0.057	133	1,873
Powerwave Allgon LGP	104.00	66	64	0.002	5	82
Powerwave Allgon 702	104.00	13	13	0.000	1	16
GPS	104.00	10	10	0.000	1	12
Powerwave Allgon LGP	104.00	169	164	0.006	14	211
Raycap DC6-48-60-18-	104.00	20	19	0.001	2	25
Ericsson RRUS-11 (50	104.00	150	145	0.005	12	187
Ericsson RRUS	104.00	132	128	0.005	11	165
Ericsson RRUS 12 w/	104.00	214	207	0.008	17	267
Powerwave Allgon 777	104.00	210	203	0.007	17	262
Powerwave Allgon P65	104.00	159	154	0.006	13	198
CCI HPA-65R-BUU-H6	104.00	153	148	0.005	12	191
Flat Low Profile Pla	104.00	1,500	1,452	0.053	122	1,873
Empty Flat Low Profi	91.00	1,500	1,191	0.043	100	1,873
GPS	80.00	10	7	0.000	1	12
2" x 8" GPS	76.00	10	6	0.000	1	12
Stand-Off	76.00	100	61	0.002	5	125
2" x 8" GPS	75.00	10	6	0.000	1	12
GPS	75.00	10	6	0.000	1	12
GPS	68.00	10	5	0.000	0	12
Side Arm	68.00	126	65	0.002	5	157
		47,301	27,472	1.000	2,314	59,052

Load Case (0.9 - 0.2Sds) * DL + E ELFM

Seismic (Reduced DL) Equivalent Lateral Forces Method

Segment	Height Above Base (ft)	Weight (lb)	W _z (lb-ft)	C _{vx}	Horizontal Force (lb)	Vertical Force (lb)
34	127.50	522	684	0.025	58	445

Site Number: 411189

Code: ANSI/TIA-222-G

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Site Name: CRANBURYSU CT, CT

Engineering Number: OAA739669_C3_02

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Customer: VERIZON WIRELESS

33	122.50	545	672	0.024	57	464
32	117.50	663	768	0.028	65	564
31	112.50	685	745	0.027	63	584
30	107.50	771	784	0.029	66	657
29	104.50	157	153	0.006	13	134
28	102.00	713	670	0.024	56	607
27	97.50	912	802	0.029	68	776
26	93.00	746	612	0.022	52	635
25	90.50	189	149	0.005	13	161
24	88.92	413	317	0.012	27	351
23	86.42	991	729	0.027	61	844
22	83.58	1,010	707	0.026	60	860
21	81.08	481	322	0.012	27	409
20	78.00	903	571	0.021	48	769
19	75.50	229	138	0.005	12	195
18	72.50	1,163	660	0.024	56	990
17	69.00	473	249	0.009	21	403
16	66.50	718	358	0.013	30	611
15	62.50	1,219	555	0.020	47	1,038
14	57.50	1,246	502	0.018	42	1,061
13	52.50	1,273	448	0.016	38	1,084
12	48.75	647	204	0.007	17	551
11	46.25	1,315	384	0.014	32	1,120
10	42.75	2,407	625	0.023	53	2,050
9	40.25	166	40	0.001	3	142
8	37.50	1,684	360	0.013	30	1,434
7	32.50	1,721	298	0.011	25	1,466
6	27.50	1,758	237	0.009	20	1,497
5	22.50	1,794	180	0.007	15	1,528
4	17.50	1,831	127	0.005	11	1,559
3	12.50	1,867	79	0.003	7	1,590
2	7.50	1,904	38	0.001	3	1,621
1	2.50	1,940	8	0.000	1	1,652
Samsung PCS/AWS Dual	130.00	253	341	0.012	29	216
Samsung 700/850MHz D	130.00	211	284	0.010	24	180
RFS DB-C1-12C-24AB-0	130.00	32	43	0.002	4	27
Decibel DB846F65ZAXY	130.00	84	113	0.004	10	72
Quintel QS6656-5	130.00	390	525	0.019	44	332
Antel LPA-80080/6CF	130.00	42	57	0.002	5	36
VZW Unused Reserve:	130.00	218	293	0.011	25	186
Flat Low Profile Pla	130.00	1,500	2,020	0.074	170	1,277
Alcatel-Lucent RRH2x	120.00	159	190	0.007	16	135
Alcatel-Lucent 800MH	120.00	159	190	0.007	16	135
Alcatel-Lucent 1900M	120.00	132	158	0.006	13	112
Nokia 2.5G MAA - AAH	120.00	311	372	0.014	31	265
24" x 24" Junction B	120.00	20	24	0.001	2	17
Andrew Microwaves VH	120.00	49	59	0.002	5	42
Commscope NNVV-65B-R	120.00	232	278	0.010	23	198
Flat Low Profile Pla	120.00	1,500	1,794	0.065	151	1,277
Ericsson KRY 112 71	110.00	40	42	0.002	4	34
Ericsson RRUS 11 B12	110.00	152	160	0.006	13	130
EMS RR90-17-02DP	110.00	41	43	0.002	4	34
Ericsson AIR 21, 1.3	110.00	498	524	0.019	44	424
Commscope LNX-6515DS	110.00	151	159	0.006	13	129
Flat Low Profile Pla	110.00	1,500	1,577	0.057	133	1,277
Powerwave Allgon LGP	104.00	66	64	0.002	5	56
Powerwave Allgon 702	104.00	13	13	0.000	1	11
GPS	104.00	10	10	0.000	1	9
Powerwave Allgon LGP	104.00	169	164	0.006	14	144
Raycap DC6-48-60-18-	104.00	20	19	0.001	2	17
Ericsson RRUS-11 (50	104.00	150	145	0.005	12	128
Ericsson RRUS	104.00	132	128	0.005	11	113
Ericsson RRUS 12 w/	104.00	214	207	0.008	17	182
Powerwave Allgon 777	104.00	210	203	0.007	17	179

Site Number: 411189

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Site Name: CRANBURYSU CT, CT

Engineering Number: OAA739669_C3_02

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Customer: VERIZON WIRELESS

Powerwave Allgon P65	104.00	159	154	0.006	13	135
CCI HPA-65R-BUU-H6	104.00	153	148	0.005	12	130
Flat Low Profile Pla	104.00	1,500	1,452	0.053	122	1,277
Empty Flat Low Profi	91.00	1,500	1,191	0.043	100	1,277
GPS	80.00	10	7	0.000	1	9
2" x 8" GPS	76.00	10	6	0.000	1	9
Stand-Off	76.00	100	61	0.002	5	85
2" x 8" GPS	75.00	10	6	0.000	1	9
GPS	75.00	10	6	0.000	1	9
GPS	68.00	10	5	0.000	0	9
Side Arm	68.00	126	65	0.002	5	107
		47,301	27,472	1.000	2,314	40,281

Site Number: 411189

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Site Name: CRANBURYSU CT, CT

Engineering Number: OAA739669_C3_02

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Customer: VERIZON WIRELESS

Load Case (1.2 + 0.2Sds) * DL + E ELFM

Seismic Equivalent Lateral Forces Method

Calculated Forces

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 (deg)	Ratio
0.00	-56.63	-2.32	0.00	-228.02	0.00	228.02	6,830.05	3,415.02	17,255.2	8,640.43	0.00	0.00	0.035
5.00	-54.25	-2.32	0.00	-216.44	0.00	216.44	6,727.94	3,363.97	16,620.1	8,322.40	0.00	-0.01	0.034
10.00	-51.92	-2.32	0.00	-204.84	0.00	204.84	6,623.66	3,311.83	15,991.1	8,007.48	0.01	-0.01	0.033
15.00	-49.64	-2.31	0.00	-193.25	0.00	193.25	6,517.21	3,258.61	15,368.8	7,695.85	0.03	-0.02	0.033
20.00	-47.40	-2.30	0.00	-181.68	0.00	181.68	6,408.59	3,204.29	14,753.4	7,387.69	0.06	-0.03	0.032
25.00	-45.20	-2.29	0.00	-170.16	0.00	170.16	6,297.80	3,148.90	14,145.3	7,083.19	0.09	-0.03	0.031
30.00	-43.05	-2.27	0.00	-158.73	0.00	158.73	6,184.83	3,092.42	13,544.9	6,782.53	0.13	-0.04	0.030
35.00	-40.95	-2.24	0.00	-147.40	0.00	147.40	6,069.70	3,034.85	12,952.5	6,485.89	0.18	-0.05	0.029
40.00	-40.74	-2.24	0.00	-136.20	0.00	136.20	5,952.39	2,976.20	12,368.5	6,193.46	0.23	-0.06	0.029
40.50	-37.74	-2.19	0.00	-135.08	0.00	135.08	5,940.54	2,970.27	12,310.6	6,164.45	0.24	-0.06	0.028
45.00	-36.09	-2.15	0.00	-125.24	0.00	125.24	5,814.51	2,907.25	11,756.0	5,886.78	0.30	-0.06	0.027
47.50	-35.29	-2.14	0.00	-119.86	0.00	119.86	4,024.81	2,012.40	8,191.06	4,101.62	0.33	-0.07	0.038
50.00	-33.70	-2.10	0.00	-114.51	0.00	114.51	3,989.37	1,994.69	8,007.13	4,009.51	0.37	-0.07	0.037
55.00	-32.14	-2.06	0.00	-104.00	0.00	104.00	3,916.87	1,958.44	7,642.03	3,826.70	0.45	-0.08	0.035
60.00	-30.62	-2.02	0.00	-93.68	0.00	93.68	3,842.20	1,921.10	7,280.96	3,645.89	0.53	-0.09	0.034
65.00	-29.72	-1.99	0.00	-83.58	0.00	83.58	3,765.36	1,882.68	6,924.26	3,467.28	0.63	-0.10	0.032
68.00	-28.96	-1.96	0.00	-77.61	0.00	77.61	3,718.21	1,859.10	6,712.50	3,361.24	0.69	-0.10	0.031
70.00	-27.51	-1.91	0.00	-73.68	0.00	73.68	3,686.34	1,843.17	6,572.31	3,291.04	0.74	-0.11	0.030
75.00	-27.20	-1.90	0.00	-64.13	0.00	64.13	3,605.16	1,802.58	6,225.47	3,117.36	0.85	-0.11	0.028
76.00	-25.93	-1.84	0.00	-62.24	0.00	62.24	3,588.66	1,794.33	6,156.74	3,082.95	0.87	-0.11	0.027
80.00	-25.32	-1.82	0.00	-54.86	0.00	54.86	3,521.80	1,760.90	5,884.10	2,946.42	0.97	-0.12	0.026
82.16	-24.06	-1.76	0.00	-50.93	0.00	50.93	3,485.06	1,742.53	5,738.19	2,873.36	1.03	-0.12	0.025
85.00	-22.82	-1.69	0.00	-45.95	0.00	45.95	3,436.27	1,718.13	5,548.57	2,778.41	1.10	-0.13	0.023
87.83	-22.31	-1.67	0.00	-41.15	0.00	41.15	2,707.00	1,353.50	4,369.08	2,187.78	1.18	-0.13	0.027
90.00	-22.07	-1.66	0.00	-37.53	0.00	37.53	2,679.98	1,339.99	4,260.27	2,133.30	1.24	-0.13	0.026
91.00	-19.27	-1.50	0.00	-35.88	0.00	35.88	2,667.39	1,333.70	4,210.35	2,108.30	1.27	-0.14	0.024
95.00	-18.13	-1.43	0.00	-29.89	0.00	29.89	2,616.17	1,308.08	4,012.17	2,009.07	1.39	-0.14	0.022
100.00	-17.24	-1.37	0.00	-22.74	0.00	22.74	2,550.19	1,275.09	3,768.02	1,886.81	1.54	-0.15	0.019
104.00	-13.55	-1.12	0.00	-17.25	0.00	17.25	2,495.84	1,247.92	3,575.79	1,790.55	1.66	-0.15	0.015
105.00	-12.59	-1.05	0.00	-16.13	0.00	16.13	2,482.03	1,241.02	3,528.19	1,766.72	1.69	-0.15	0.014
110.00	-8.76	-0.77	0.00	-10.86	0.00	10.86	2,411.71	1,205.86	3,293.03	1,648.96	1.86	-0.16	0.010
115.00	-7.94	-0.70	0.00	-7.01	0.00	7.01	2,339.22	1,169.61	3,062.91	1,533.73	2.02	-0.16	0.008
120.00	-4.06	-0.38	0.00	-3.49	0.00	3.49	2,252.89	1,126.45	2,823.60	1,413.90	2.19	-0.16	0.004
125.00	-3.41	-0.32	0.00	-1.60	0.00	1.60	2,153.14	1,076.57	2,577.88	1,290.85	2.36	-0.16	0.003
130.00	0.00	-0.31	0.00	0.00	0.00	0.00	2,053.39	1,026.69	2,343.34	1,173.41	2.52	-0.16	0.000

Site Number: 411189

Code: ANSI/TIA-222-G

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Site Name: CRANBURYSU CT, CT

Engineering Number: OAA739669_C3_02

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Customer: VERIZON WIRELESS

Load Case (0.9 - 0.2Sds) * DL + E ELFM

Seismic (Reduced DL) Equivalent Lateral Forces Method

Calculated Forces

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 (deg)	Ratio
0.00	-38.63	-2.32	0.00	-226.56	0.00	226.56	6,830.05	3,415.02	17,255.2	8,640.43	0.00	0.00	0.032
5.00	-37.01	-2.32	0.00	-214.99	0.00	214.99	6,727.94	3,363.97	16,620.1	8,322.40	0.00	-0.01	0.031
10.00	-35.42	-2.31	0.00	-203.41	0.00	203.41	6,623.66	3,311.83	15,991.1	8,007.48	0.01	-0.01	0.031
15.00	-33.86	-2.31	0.00	-191.84	0.00	191.84	6,517.21	3,258.61	15,368.8	7,695.85	0.03	-0.02	0.030
20.00	-32.33	-2.29	0.00	-180.31	0.00	180.31	6,408.59	3,204.29	14,753.4	7,387.69	0.06	-0.03	0.029
25.00	-30.83	-2.28	0.00	-168.83	0.00	168.83	6,297.80	3,148.90	14,145.3	7,083.19	0.09	-0.03	0.029
30.00	-29.37	-2.26	0.00	-157.44	0.00	157.44	6,184.83	3,092.42	13,544.9	6,782.53	0.13	-0.04	0.028
35.00	-27.93	-2.23	0.00	-146.17	0.00	146.17	6,069.70	3,034.85	12,952.5	6,485.89	0.18	-0.05	0.027
40.00	-27.79	-2.23	0.00	-135.03	0.00	135.03	5,952.39	2,976.20	12,368.5	6,193.46	0.23	-0.06	0.026
40.50	-25.74	-2.17	0.00	-133.92	0.00	133.92	5,940.54	2,970.27	12,310.6	6,164.45	0.24	-0.06	0.026
45.00	-24.62	-2.14	0.00	-124.14	0.00	124.14	5,814.51	2,907.25	11,756.0	5,886.78	0.29	-0.06	0.025
47.50	-24.07	-2.13	0.00	-118.79	0.00	118.79	4,024.81	2,012.40	8,191.06	4,101.62	0.33	-0.07	0.035
50.00	-22.98	-2.09	0.00	-113.48	0.00	113.48	3,989.37	1,994.69	8,007.13	4,009.51	0.36	-0.07	0.034
55.00	-21.92	-2.05	0.00	-103.03	0.00	103.03	3,916.87	1,958.44	7,642.03	3,826.70	0.44	-0.08	0.033
60.00	-20.88	-2.00	0.00	-92.79	0.00	92.79	3,842.20	1,921.10	7,280.96	3,645.89	0.53	-0.09	0.031
65.00	-20.27	-1.97	0.00	-82.78	0.00	82.78	3,765.36	1,882.68	6,924.26	3,467.28	0.63	-0.10	0.029
68.00	-19.75	-1.95	0.00	-76.85	0.00	76.85	3,718.21	1,859.10	6,712.50	3,361.24	0.69	-0.10	0.028
70.00	-18.76	-1.89	0.00	-72.96	0.00	72.96	3,686.34	1,843.17	6,572.31	3,291.04	0.73	-0.10	0.027
75.00	-18.55	-1.88	0.00	-63.49	0.00	63.49	3,605.16	1,802.58	6,225.47	3,117.36	0.84	-0.11	0.026
76.00	-17.69	-1.83	0.00	-61.61	0.00	61.61	3,588.66	1,794.33	6,156.74	3,082.95	0.87	-0.11	0.025
80.00	-17.27	-1.80	0.00	-54.31	0.00	54.31	3,521.80	1,760.90	5,884.10	2,946.42	0.97	-0.12	0.023
82.16	-16.41	-1.74	0.00	-50.41	0.00	50.41	3,485.06	1,742.53	5,738.19	2,873.36	1.02	-0.12	0.022
85.00	-15.57	-1.68	0.00	-45.48	0.00	45.48	3,436.27	1,718.13	5,548.57	2,778.41	1.09	-0.13	0.021
87.83	-15.22	-1.65	0.00	-40.73	0.00	40.73	2,707.00	1,353.50	4,369.08	2,187.78	1.17	-0.13	0.024
90.00	-15.05	-1.64	0.00	-37.15	0.00	37.15	2,679.98	1,339.99	4,260.27	2,133.30	1.23	-0.13	0.023
91.00	-13.14	-1.48	0.00	-35.51	0.00	35.51	2,667.39	1,333.70	4,210.35	2,108.30	1.26	-0.13	0.022
95.00	-12.37	-1.41	0.00	-29.58	0.00	29.58	2,616.17	1,308.08	4,012.17	2,009.07	1.37	-0.14	0.019
100.00	-11.76	-1.36	0.00	-22.51	0.00	22.51	2,550.19	1,275.09	3,768.02	1,886.81	1.52	-0.15	0.017
104.00	-9.24	-1.11	0.00	-17.08	0.00	17.08	2,495.84	1,247.92	3,575.79	1,790.55	1.65	-0.15	0.013
105.00	-8.59	-1.04	0.00	-15.97	0.00	15.97	2,482.03	1,241.02	3,528.19	1,766.72	1.68	-0.15	0.012
110.00	-5.98	-0.76	0.00	-10.75	0.00	10.75	2,411.71	1,205.86	3,293.03	1,648.96	1.84	-0.15	0.009
115.00	-5.41	-0.70	0.00	-6.94	0.00	6.94	2,339.22	1,169.61	3,062.91	1,533.73	2.00	-0.16	0.007
120.00	-2.77	-0.37	0.00	-3.46	0.00	3.46	2,252.89	1,126.45	2,823.60	1,413.90	2.17	-0.16	0.004
125.00	-2.32	-0.32	0.00	-1.58	0.00	1.58	2,153.14	1,076.57	2,577.88	1,290.85	2.34	-0.16	0.002
130.00	0.00	-0.31	0.00	0.00	0.00	0.00	2,053.39	1,026.69	2,343.34	1,173.41	2.50	-0.16	0.000

Site Number: 411189

Code: ANSI/TIA-222-G

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Site Name: CRANBURYSU CT, CT

Engineering Number: OAA739669_C3_02

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Customer: VERIZON WIRELESS

Equivalent Modal Forces Analysis

(Based on ASCE7-10 Chapters 11, 12 & 15 and ANSI/TIA-G, section 2.7)

Spectral Response Acceleration for Short Period (S_s):	0.23
Spectral Response Acceleration at 1.0 Second Period (S_1):	0.07
Importance Factor (I_E):	1.00
Site Coefficient F_a :	1.60
Site Coefficient F_v :	2.40
Response Modification Coefficient (R):	1.50
Design Spectral Response Acceleration at Short Period (S_{de}):	0.24
Design Spectral Response Acceleration at 1.0 Second Period (S_{d1}):	0.11
Period Based on Rayleigh Method (sec):	1.46
Redundancy Factor (p):	1.00

Load Case (1.2 + 0.2Sds) * DL + E EMAM Seismic Equivalent Modal Analysis Method

Segment	Height Above Base (ft)	Weight (lb)	a	b	c	Saz	Horizontal Force (lb)	Vertical Force (lb)
34	127.50	522	1.818	1.622	1.009	0.413	144	652
33	122.50	545	1.678	1.041	0.782	0.310	113	681
32	117.50	663	1.544	0.615	0.597	0.221	98	827
31	112.50	685	1.415	0.314	0.448	0.146	67	856
30	107.50	771	1.292	0.110	0.329	0.085	44	962
29	104.50	157	1.221	0.026	0.271	0.055	6	196
28	102.00	713	1.164	-0.027	0.229	0.034	16	890
27	97.50	912	1.063	-0.088	0.165	0.004	3	1,138
26	93.00	746	0.967	-0.117	0.116	-0.015	-7	931
25	90.50	189	0.916	-0.121	0.094	-0.021	-3	236
24	88.92	413	0.884	-0.121	0.081	-0.023	-6	515
23	86.42	991	0.835	-0.117	0.064	-0.025	-16	1,238
22	83.58	1,010	0.781	-0.108	0.049	-0.024	-16	1,261
21	81.08	481	0.735	-0.097	0.037	-0.020	-6	600
20	78.00	903	0.680	-0.081	0.026	-0.013	-8	1,128
19	75.50	229	0.637	-0.066	0.019	-0.006	-1	286
18	72.50	1,163	0.588	-0.049	0.013	0.004	3	1,452
17	69.00	473	0.532	-0.028	0.009	0.016	5	590
16	66.50	718	0.495	-0.014	0.007	0.024	12	896
15	62.50	1,219	0.437	0.006	0.006	0.036	29	1,521
14	57.50	1,246	0.370	0.027	0.008	0.047	39	1,555
13	52.50	1,273	0.308	0.043	0.012	0.054	46	1,590
12	48.75	647	0.266	0.052	0.015	0.057	24	808
11	46.25	1,315	0.239	0.057	0.018	0.058	51	1,642
10	42.75	2,407	0.204	0.062	0.023	0.058	93	3,005
9	40.25	166	0.181	0.065	0.026	0.058	6	208
8	37.50	1,684	0.157	0.067	0.029	0.057	64	2,103
7	32.50	1,721	0.118	0.070	0.035	0.055	63	2,149
6	27.50	1,758	0.085	0.071	0.039	0.053	62	2,194
5	22.50	1,794	0.057	0.071	0.042	0.051	61	2,240
4	17.50	1,831	0.034	0.069	0.041	0.048	59	2,285
3	12.50	1,867	0.017	0.062	0.037	0.043	54	2,331
2	7.50	1,904	0.006	0.048	0.027	0.034	43	2,377
1	2.50	1,940	0.001	0.021	0.011	0.016	20	2,422

Site Number: 411189

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Site Name: CRANBURYSU CT, CT

Engineering Number: OAA739669_C3_02

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Customer: VERIZON WIRELESS

Samsung PCS/AWS	130.00	253	1.890	1.980	1.140	0.470	79	316
Samsung 700/850MHz D	130.00	211	1.890	1.980	1.140	0.470	66	263
RFS DB-C1-12C-24AB-0	130.00	32	1.890	1.980	1.140	0.470	10	40
Decibel DB846F65ZAXY	130.00	84	1.890	1.980	1.140	0.470	26	105
Quintel QS6656-5	130.00	390	1.890	1.980	1.140	0.470	122	487
Antel LPA-80080/6CF	130.00	42	1.890	1.980	1.140	0.470	13	52
VZW Unused Reserve:	130.00	218	1.890	1.980	1.140	0.470	68	272
Flat Low Profile Pla	130.00	1,500	1.890	1.980	1.140	0.470	470	1,873
Alcatel-Lucent RRH2x	120.00	159	1.610	0.811	0.684	0.264	28	198
Alcatel-Lucent 800MH	120.00	159	1.610	0.811	0.684	0.264	28	198
Alcatel-Lucent 1900M	120.00	132	1.610	0.811	0.684	0.264	23	165
Nokia 2.5G MAA - AAH	120.00	311	1.610	0.811	0.684	0.264	55	388
24" x 24" Junction B	120.00	20	1.610	0.811	0.684	0.264	4	25
Andrew Microwaves	120.00	49	1.610	0.811	0.684	0.264	9	61
Commscope NNVV-	120.00	232	1.610	0.811	0.684	0.264	41	290
Flat Low Profile Pla	120.00	1,500	1.610	0.811	0.684	0.264	264	1,873
Ericsson KRY 112 71	110.00	40	1.353	0.201	0.385	0.114	3	49
Ericsson RRUS 11 B12	110.00	152	1.353	0.201	0.385	0.114	12	190
EMS RR90-17-02DP	110.00	41	1.353	0.201	0.385	0.114	3	51
Ericsson AIR 21, 1.3	110.00	498	1.353	0.201	0.385	0.114	38	622
Commscope LNX-	110.00	151	1.353	0.201	0.385	0.114	11	188
Flat Low Profile Pla	110.00	1,500	1.353	0.201	0.385	0.114	114	1,873
Powerwave Allgon LGP	104.00	66	1.210	0.014	0.262	0.051	2	82
Powerwave Allgon 702	104.00	13	1.210	0.014	0.262	0.051	0	16
GPS	104.00	10	1.210	0.014	0.262	0.051	0	12
Powerwave Allgon LGP	104.00	169	1.210	0.014	0.262	0.051	6	211
Raycap DC6-48-60-18-	104.00	20	1.210	0.014	0.262	0.051	1	25
Ericsson RRUS-11 (50	104.00	150	1.210	0.014	0.262	0.051	5	187
Ericsson RRUS	104.00	132	1.210	0.014	0.262	0.051	4	165
Ericsson RRUS 12 w/	104.00	214	1.210	0.014	0.262	0.051	7	267
Powerwave Allgon 777	104.00	210	1.210	0.014	0.262	0.051	7	262
Powerwave Allgon P65	104.00	159	1.210	0.014	0.262	0.051	5	198
CCI HPA-65R-BUU-H6	104.00	153	1.210	0.014	0.262	0.051	5	191
Flat Low Profile Pla	104.00	1,500	1.210	0.014	0.262	0.051	51	1,873
Empty Flat Low Profi	91.00	1,500	0.926	-0.121	0.098	-0.020	-20	1,873
GPS	80.00	10	0.716	-0.092	0.033	-0.018	0	12
2" x 8" GPS	76.00	10	0.646	-0.069	0.021	-0.007	0	12
Stand-Off	76.00	100	0.646	-0.069	0.021	-0.007	0	125
2" x 8" GPS	75.00	10	0.629	-0.063	0.018	-0.004	0	12
GPS	75.00	10	0.629	-0.063	0.018	-0.004	0	12
GPS	68.00	10	0.517	-0.022	0.008	0.019	0	12
Side Arm	68.00	126	0.517	-0.022	0.008	0.019	2	157
		47,301	77.592	26.667	24.985	9.032	2,722	59,052

Load Case (0.9 - 0.2Sds) * DL + E EMAM

Seismic (Reduced DL) Equivalent Modal Analysis Method

Segment	Height Above Base (ft)	Weight (lb)	Seismic (Reduced DL) Equivalent Modal Analysis Method				Horizontal Force (lb)	Vertical Force (lb)
			a	b	c	Saz		
34	127.50	522	1.818	1.622	1.009	0.413	144	445
33	122.50	545	1.678	1.041	0.782	0.310	113	464
32	117.50	663	1.544	0.615	0.597	0.221	98	564
31	112.50	685	1.415	0.314	0.448	0.146	67	584
30	107.50	771	1.292	0.110	0.329	0.085	44	657
29	104.50	157	1.221	0.026	0.271	0.055	6	134
28	102.00	713	1.164	-0.027	0.229	0.034	16	607
27	97.50	912	1.063	-0.088	0.165	0.004	3	776
26	93.00	746	0.967	-0.117	0.116	-0.015	-7	635
25	90.50	189	0.916	-0.121	0.094	-0.021	-3	161
24	88.92	413	0.884	-0.121	0.081	-0.023	-6	351

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Site Name: CRANBURYSU CT, CT

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Customer: VERIZON WIRELESS

23	86.42	991	0.835	-0.117	0.064	-0.025	-16	844
22	83.58	1,010	0.781	-0.108	0.049	-0.024	-16	860
21	81.08	481	0.735	-0.097	0.037	-0.020	-6	409
20	78.00	903	0.680	-0.081	0.026	-0.013	-8	769
19	75.50	229	0.637	-0.066	0.019	-0.006	-1	195
18	72.50	1,163	0.588	-0.049	0.013	0.004	3	990
17	69.00	473	0.532	-0.028	0.009	0.016	5	403
16	66.50	718	0.495	-0.014	0.007	0.024	12	611
15	62.50	1,219	0.437	0.006	0.006	0.036	29	1,038
14	57.50	1,246	0.370	0.027	0.008	0.047	39	1,061
13	52.50	1,273	0.308	0.043	0.012	0.054	46	1,084
12	48.75	647	0.266	0.052	0.015	0.057	24	551
11	46.25	1,315	0.239	0.057	0.018	0.058	51	1,120
10	42.75	2,407	0.204	0.062	0.023	0.058	93	2,050
9	40.25	166	0.181	0.065	0.026	0.058	6	142
8	37.50	1,684	0.157	0.067	0.029	0.057	64	1,434
7	32.50	1,721	0.118	0.070	0.035	0.055	63	1,466
6	27.50	1,758	0.085	0.071	0.039	0.053	62	1,497
5	22.50	1,794	0.057	0.071	0.042	0.051	61	1,528
4	17.50	1,831	0.034	0.069	0.041	0.048	59	1,559
3	12.50	1,867	0.017	0.062	0.037	0.043	54	1,590
2	7.50	1,904	0.006	0.048	0.027	0.034	43	1,621
1	2.50	1,940	0.001	0.021	0.011	0.016	20	1,652
Samsung PCS/AWS	130.00	253	1.890	1.980	1.140	0.470	79	216
Samsung 700/850MHz D	130.00	211	1.890	1.980	1.140	0.470	66	180
RFS DB-C1-12C-24AB-0	130.00	32	1.890	1.980	1.140	0.470	10	27
Decibel DB846F65ZAXY	130.00	84	1.890	1.980	1.140	0.470	26	72
Quintel QS6656-5	130.00	390	1.890	1.980	1.140	0.470	122	332
Antel LPA-80080/6CF	130.00	42	1.890	1.980	1.140	0.470	13	36
VZW Unused Reserve:	130.00	218	1.890	1.980	1.140	0.470	68	186
Flat Low Profile Pla	130.00	1,500	1.890	1.980	1.140	0.470	470	1,277
Alcatel-Lucent RRH2x	120.00	159	1.610	0.811	0.684	0.264	28	135
Alcatel-Lucent 800MH	120.00	159	1.610	0.811	0.684	0.264	28	135
Alcatel-Lucent 1900M	120.00	132	1.610	0.811	0.684	0.264	23	112
Nokia 2.5G MAA - AAH	120.00	311	1.610	0.811	0.684	0.264	55	265
24" x 24" Junction B	120.00	20	1.610	0.811	0.684	0.264	4	17
Andrew Microwaves	120.00	49	1.610	0.811	0.684	0.264	9	42
Commscope NNVV-	120.00	232	1.610	0.811	0.684	0.264	41	198
Flat Low Profile Pla	120.00	1,500	1.610	0.811	0.684	0.264	264	1,277
Ericsson KRY 112 71	110.00	40	1.353	0.201	0.385	0.114	3	34
Ericsson RRUS 11 B12	110.00	152	1.353	0.201	0.385	0.114	12	130
EMS RR90-17-02DP	110.00	41	1.353	0.201	0.385	0.114	3	34
Ericsson AIR 21, 1.3	110.00	498	1.353	0.201	0.385	0.114	38	424
Commscope LNX-	110.00	151	1.353	0.201	0.385	0.114	11	129
Flat Low Profile Pla	110.00	1,500	1.353	0.201	0.385	0.114	114	1,277
Powerwave Allgon LGP	104.00	66	1.210	0.014	0.262	0.051	2	56
Powerwave Allgon 702	104.00	13	1.210	0.014	0.262	0.051	0	11
GPS	104.00	10	1.210	0.014	0.262	0.051	0	9
Powerwave Allgon LGP	104.00	169	1.210	0.014	0.262	0.051	6	144
Raycap DC6-48-60-18-	104.00	20	1.210	0.014	0.262	0.051	1	17
Ericsson RRUS-11 (50	104.00	150	1.210	0.014	0.262	0.051	5	128
Ericsson RRUS	104.00	132	1.210	0.014	0.262	0.051	4	113
Ericsson RRUS 12 w/	104.00	214	1.210	0.014	0.262	0.051	7	182
Powerwave Allgon 777	104.00	210	1.210	0.014	0.262	0.051	7	179
Powerwave Allgon P65	104.00	159	1.210	0.014	0.262	0.051	5	135
CCI HPA-65R-BUU-H6	104.00	153	1.210	0.014	0.262	0.051	5	130
Flat Low Profile Pla	104.00	1,500	1.210	0.014	0.262	0.051	51	1,277
Empty Flat Low Profi	91.00	1,500	0.926	-0.121	0.098	-0.020	-20	1,277
GPS	80.00	10	0.716	-0.092	0.033	-0.018	0	9
2" x 8" GPS	76.00	10	0.646	-0.069	0.021	-0.007	0	9
Stand-Off	76.00	100	0.646	-0.069	0.021	-0.007	0	85
2" x 8" GPS	75.00	10	0.629	-0.063	0.018	-0.004	0	9
GPS	75.00	10	0.629	-0.063	0.018	-0.004	0	9
GPS	68.00	10	0.517	-0.022	0.008	0.019	0	9

Site Number: 411189 Code: ANSI/TIA-222-G © 2007 - 2018 by ATC IP LLC. All rights reserved.
Site Name: CRANBURYSU CT, CT Engineering Number: OAA739669_C3_02 11/20/2018 4:42:10 PM
Customer: VERIZON WIRELESS

Side Arm	68.00	126	0.517	-0.022	0.008	0.019	2	107
		47,301	77.592	26.667	24.985	9.032	2,722	40,281

Site Number: 411189

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Site Name: CRANBURYSU CT, CT

Engineering Number: OAA739669_C3_02

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Customer: VERIZON WIRELESS

Load Case (1.2 + 0.2Sds) * DL + E EMAM Seismic Equivalent Modal Analysis Method

Calculated Forces

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 (deg)	Ratio
0.00	-56.63	-2.71	0.00	-274.39	0.00	274.39	6,830.05	3,415.02	17,255.2	8,640.43	0.00	0.00	0.040
5.00	-54.25	-2.67	0.00	-260.86	0.00	260.86	6,727.94	3,363.97	16,620.1	8,322.40	0.00	-0.01	0.039
10.00	-51.92	-2.62	0.00	-247.51	0.00	247.51	6,623.66	3,311.83	15,991.1	8,007.48	0.02	-0.02	0.039
15.00	-49.64	-2.57	0.00	-234.39	0.00	234.39	6,517.21	3,258.61	15,368.8	7,695.85	0.04	-0.02	0.038
20.00	-47.40	-2.52	0.00	-221.53	0.00	221.53	6,408.59	3,204.29	14,753.4	7,387.69	0.07	-0.03	0.037
25.00	-45.20	-2.46	0.00	-208.95	0.00	208.95	6,297.80	3,148.90	14,145.3	7,083.19	0.11	-0.04	0.037
30.00	-43.05	-2.40	0.00	-196.65	0.00	196.65	6,184.83	3,092.42	13,544.9	6,782.53	0.16	-0.05	0.036
35.00	-40.95	-2.34	0.00	-184.64	0.00	184.64	6,069.70	3,034.85	12,952.5	6,485.89	0.22	-0.06	0.035
40.00	-40.74	-2.34	0.00	-172.93	0.00	172.93	5,952.39	2,976.20	12,368.5	6,193.46	0.28	-0.07	0.035
40.50	-37.74	-2.25	0.00	-171.76	0.00	171.76	5,940.54	2,970.27	12,310.6	6,164.45	0.29	-0.07	0.034
45.00	-36.09	-2.20	0.00	-161.66	0.00	161.66	5,814.51	2,907.25	11,756.0	5,886.78	0.36	-0.08	0.034
47.50	-35.29	-2.17	0.00	-156.17	0.00	156.17	4,024.81	2,012.40	8,191.06	4,101.62	0.40	-0.08	0.047
50.00	-33.70	-2.13	0.00	-150.73	0.00	150.73	3,989.37	1,994.69	8,007.13	4,009.51	0.45	-0.09	0.046
55.00	-32.14	-2.10	0.00	-140.08	0.00	140.08	3,916.87	1,958.44	7,642.03	3,826.70	0.55	-0.10	0.045
60.00	-30.62	-2.07	0.00	-129.60	0.00	129.60	3,842.20	1,921.10	7,280.96	3,645.89	0.66	-0.11	0.044
65.00	-29.72	-2.06	0.00	-119.25	0.00	119.25	3,765.36	1,882.68	6,924.26	3,467.28	0.78	-0.12	0.042
68.00	-28.96	-2.06	0.00	-113.06	0.00	113.06	3,718.21	1,859.10	6,712.50	3,361.24	0.86	-0.13	0.041
70.00	-27.51	-2.05	0.00	-108.95	0.00	108.95	3,686.34	1,843.17	6,572.31	3,291.04	0.91	-0.14	0.041
75.00	-27.20	-2.06	0.00	-98.68	0.00	98.68	3,605.16	1,802.58	6,225.47	3,117.36	1.06	-0.15	0.039
76.00	-25.93	-2.07	0.00	-96.62	0.00	96.62	3,588.66	1,794.33	6,156.74	3,082.95	1.09	-0.15	0.039
80.00	-25.32	-2.07	0.00	-88.36	0.00	88.36	3,521.80	1,760.90	5,884.10	2,946.42	1.22	-0.16	0.037
82.16	-24.06	-2.09	0.00	-83.88	0.00	83.88	3,485.06	1,742.53	5,738.19	2,873.36	1.30	-0.16	0.036
85.00	-22.82	-2.10	0.00	-77.95	0.00	77.95	3,436.27	1,718.13	5,548.57	2,778.41	1.40	-0.17	0.035
87.83	-22.31	-2.11	0.00	-72.00	0.00	72.00	2,707.00	1,353.50	4,369.08	2,187.78	1.50	-0.18	0.041
90.00	-22.07	-2.11	0.00	-67.42	0.00	67.42	2,679.98	1,339.99	4,260.27	2,133.30	1.58	-0.18	0.040
91.00	-19.27	-2.13	0.00	-65.30	0.00	65.30	2,667.39	1,333.70	4,210.35	2,108.30	1.62	-0.19	0.038
95.00	-18.13	-2.13	0.00	-56.76	0.00	56.76	2,616.17	1,308.08	4,012.17	2,009.07	1.78	-0.20	0.035
100.00	-17.24	-2.12	0.00	-46.11	0.00	46.11	2,550.19	1,275.09	3,768.02	1,886.81	1.99	-0.21	0.031
104.00	-13.55	-2.00	0.00	-37.65	0.00	37.65	2,495.84	1,247.92	3,575.79	1,790.55	2.17	-0.21	0.026
105.00	-12.59	-1.96	0.00	-35.64	0.00	35.64	2,482.03	1,241.02	3,528.19	1,766.72	2.21	-0.22	0.025
110.00	-8.76	-1.69	0.00	-25.87	0.00	25.87	2,411.71	1,205.86	3,293.03	1,648.96	2.45	-0.23	0.019
115.00	-7.93	-1.59	0.00	-17.40	0.00	17.40	2,339.22	1,169.61	3,062.91	1,533.73	2.68	-0.23	0.015
120.00	-4.06	-1.02	0.00	-9.43	0.00	9.43	2,252.89	1,126.45	2,823.60	1,413.90	2.93	-0.24	0.008
125.00	-3.40	-0.87	0.00	-4.35	0.00	4.35	2,153.14	1,076.57	2,577.88	1,290.85	3.18	-0.24	0.005
130.00	0.00	-0.86	0.00	0.00	0.00	0.00	2,053.39	1,026.69	2,343.34	1,173.41	3.43	-0.24	0.000

Site Number: 411189

Code: ANSI/TIA-222-G

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Site Name: CRANBURYSU CT, CT

Engineering Number: OAA739669_C3_02

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Customer: VERIZON WIRELESS

Load Case (0.9 - 0.2Sds) * DL + E EMAM Seismic (Reduced DL) Equivalent Modal Analysis Method

Calculated Forces

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 (deg)	Ratio
0.00	-38.63	-2.70	0.00	-272.39	0.00	272.39	6,830.05	3,415.02	17,255.2	8,640.43	0.00	0.00	0.037
5.00	-37.01	-2.67	0.00	-258.87	0.00	258.87	6,727.94	3,363.97	16,620.1	8,322.40	0.00	-0.01	0.037
10.00	-35.42	-2.62	0.00	-245.55	0.00	245.55	6,623.66	3,311.83	15,991.1	8,007.48	0.02	-0.02	0.036
15.00	-33.86	-2.56	0.00	-232.46	0.00	232.46	6,517.21	3,258.61	15,368.8	7,695.85	0.04	-0.02	0.035
20.00	-32.33	-2.51	0.00	-219.65	0.00	219.65	6,408.59	3,204.29	14,753.4	7,387.69	0.07	-0.03	0.035
25.00	-30.83	-2.45	0.00	-207.13	0.00	207.13	6,297.80	3,148.90	14,145.3	7,083.19	0.11	-0.04	0.034
30.00	-29.37	-2.39	0.00	-194.89	0.00	194.89	6,184.83	3,092.42	13,544.9	6,782.53	0.16	-0.05	0.033
35.00	-27.93	-2.33	0.00	-182.95	0.00	182.95	6,069.70	3,034.85	12,952.5	6,485.89	0.21	-0.06	0.033
40.00	-27.79	-2.32	0.00	-171.32	0.00	171.32	5,952.39	2,976.20	12,368.5	6,193.46	0.28	-0.07	0.032
40.50	-25.74	-2.23	0.00	-170.16	0.00	170.16	5,940.54	2,970.27	12,310.6	6,164.45	0.29	-0.07	0.032
45.00	-24.62	-2.18	0.00	-160.13	0.00	160.13	5,814.51	2,907.25	11,756.0	5,886.78	0.36	-0.08	0.031
47.50	-24.07	-2.16	0.00	-154.69	0.00	154.69	4,024.81	2,012.40	8,191.06	4,101.62	0.40	-0.08	0.044
50.00	-22.98	-2.11	0.00	-149.30	0.00	149.30	3,989.37	1,994.69	8,007.13	4,009.51	0.44	-0.09	0.043
55.00	-21.92	-2.08	0.00	-138.74	0.00	138.74	3,916.87	1,958.44	7,642.03	3,826.70	0.54	-0.10	0.042
60.00	-20.88	-2.05	0.00	-128.36	0.00	128.36	3,842.20	1,921.10	7,280.96	3,645.89	0.65	-0.11	0.041
65.00	-20.27	-2.04	0.00	-118.11	0.00	118.11	3,765.36	1,882.68	6,924.26	3,467.28	0.77	-0.12	0.039
68.00	-19.75	-2.03	0.00	-111.99	0.00	111.99	3,718.21	1,859.10	6,712.50	3,361.24	0.85	-0.13	0.039
70.00	-18.76	-2.03	0.00	-107.92	0.00	107.92	3,686.34	1,843.17	6,572.31	3,291.04	0.91	-0.13	0.038
75.00	-18.55	-2.03	0.00	-97.77	0.00	97.77	3,605.16	1,802.58	6,225.47	3,117.36	1.05	-0.15	0.037
76.00	-17.69	-2.04	0.00	-95.73	0.00	95.73	3,588.66	1,794.33	6,156.74	3,082.95	1.08	-0.15	0.036
80.00	-17.27	-2.05	0.00	-87.57	0.00	87.57	3,521.80	1,760.90	5,884.10	2,946.42	1.21	-0.16	0.035
82.16	-16.41	-2.06	0.00	-83.13	0.00	83.13	3,485.06	1,742.53	5,738.19	2,873.36	1.29	-0.16	0.034
85.00	-15.56	-2.08	0.00	-77.28	0.00	77.28	3,436.27	1,718.13	5,548.57	2,778.41	1.38	-0.17	0.032
87.83	-15.21	-2.09	0.00	-71.39	0.00	71.39	2,707.00	1,353.50	4,369.08	2,187.78	1.49	-0.18	0.038
90.00	-15.05	-2.09	0.00	-66.86	0.00	66.86	2,679.98	1,339.99	4,260.27	2,133.30	1.57	-0.18	0.037
91.00	-13.14	-2.11	0.00	-64.77	0.00	64.77	2,667.39	1,333.70	4,210.35	2,108.30	1.61	-0.18	0.036
95.00	-12.36	-2.11	0.00	-56.31	0.00	56.31	2,616.17	1,308.08	4,012.17	2,009.07	1.77	-0.19	0.033
100.00	-11.76	-2.09	0.00	-45.76	0.00	45.76	2,550.19	1,275.09	3,768.02	1,886.81	1.97	-0.20	0.029
104.00	-9.24	-1.99	0.00	-37.39	0.00	37.39	2,495.84	1,247.92	3,575.79	1,790.55	2.15	-0.21	0.025
105.00	-8.58	-1.94	0.00	-35.40	0.00	35.40	2,482.03	1,241.02	3,528.19	1,766.72	2.19	-0.21	0.023
110.00	-5.97	-1.68	0.00	-25.70	0.00	25.70	2,411.71	1,205.86	3,293.03	1,648.96	2.42	-0.22	0.018
115.00	-5.41	-1.58	0.00	-17.29	0.00	17.29	2,339.22	1,169.61	3,062.91	1,533.73	2.66	-0.23	0.014
120.00	-2.77	-1.01	0.00	-9.37	0.00	9.37	2,252.89	1,126.45	2,823.60	1,413.90	2.90	-0.23	0.008
125.00	-2.32	-0.86	0.00	-4.32	0.00	4.32	2,153.14	1,076.57	2,577.88	1,290.85	3.15	-0.24	0.004
130.00	0.00	-0.85	0.00	0.00	0.00	0.00	2,053.39	1,026.69	2,343.34	1,173.41	3.40	-0.24	0.000

Site Number: 411189

Code: ANSI/TIA-222-G

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Site Name: CRANBURYSU CT, CT

Engineering Number: OAA739669_C3_02

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Customer: VERIZON WIRELESS

Analysis Summary

Load Case	Reactions						Max Usage	
	Shear FX (kips)	Shear FZ (kips)	Axial FY (kips)	Moment MX (ft-kips)	Moment MY (ft-kips)	Moment MZ (ft-kips)	Elev (ft)	Interaction Ratio
1.2D + 1.6W	25.41	0.00	56.74	0.00	0.00	2451.44	47.50	0.33
0.9D + 1.6W	25.27	0.00	42.55	0.00	0.00	2422.17	47.50	0.32
1.2D + 1.0Di + 1.0Wi	7.34	0.00	81.63	0.00	0.00	683.08	47.50	0.10
(1.2 + 0.2Sds) * DL + E ELFM	2.32	0.00	56.63	0.00	0.00	228.02	47.50	0.04
(1.2 + 0.2Sds) * DL + E EMAM	2.71	0.00	56.63	0.00	0.00	274.39	47.50	0.05
(0.9 - 0.2Sds) * DL + E ELFM	2.32	0.00	38.63	0.00	0.00	226.56	47.50	0.03
(0.9 - 0.2Sds) * DL + E EMAM	2.70	0.00	38.63	0.00	0.00	272.39	47.50	0.04
1.0D + 1.0W	6.43	0.00	47.30	0.00	0.00	617.90	47.50	0.09



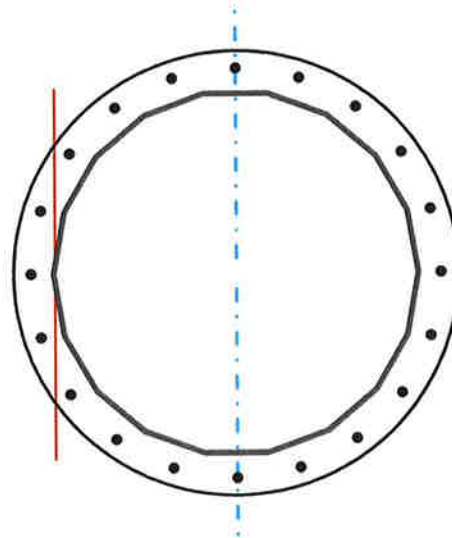
Base Plate & Anchor Rod Analysis

Pole Dimensions		
Number of Sides	18	-
Diameter	62	in
Thickness	0.5	in
Orientation Offset		*

Base Reactions		
Moment, Mu	2451.3	k-ft
Axial, Pu	56.7	k
Shear, Vu	25.4	k
Neutral Axis	90	*

Report Capacities		
Component	Capacity	Result
Base Plate	41%	Pass
Anchor Rods	33%	Pass
Dwyldag	-	-

Base Plate		
Shape	Round	-
Diameter, ϕ	77	in
Thickness	2	in
Grade	A572-60	-
Yield Strength, Fy	60	ksi
Tensile Strength, Fu	75	ksi
Clip	N/A	in
Orientation Offset		*
Anchor Rod Detail	d	$\eta=0.5$
Clear Distance	3	in
Applied Moment, Mu	805.3	k
Bending Stress, ϕMn	1981.0	k



Original Anchor Rods		
Arrangement	Radial	-
Quantity	20	-
Diameter, ϕ	2 1/4	in
Bolt Circle	71	in
Grade	A615-75	
Yield Strength, Fy	75	ksi
Tensile Strength, Fu	100	ksi
Spacing	11.2	in
Orientation Offset		*
Applied Force, Pu	85.7	k
Anchor Rods, ϕPn	259.8	k

Calculations for Monopole Base Plate & Anchor Rod Analysis

Reaction Distribution

Reaction	Shear Vu	Moment Mu	Factor
	k	k-ft	-
Base Forces	25.4	2451.3	1.00
Anchor Rod Forces	25.4	2451.3	1.00
Additional Bolt (Grp1) Forces			
Additional Bolt (Grp2) Forces			
Dywidag Forces			
Stiffener Forces			

Geometric Properties

Section	Gross Area	Net Area	Individual Inertia	Threads per Inch	Moment of Inertia
	in ²	in ²	in ⁴	#	in ⁴
Pole	96.1143	5.3397	0.4468		45449.07
Bolt	3.9761	3.2477	0.8393	4.5	40945.79
Bolt1					
Bolt2					
Dywidag					
Stiffener					

Base Plate		
Shape	Round	-
Diameter, D	77	in
Thickness, t	2	in
Yield Strength, Fy	60	ksi
Tensile Strength, Fu	75	ksi
Base Plate Chord	45.662	in
Detail Type	d	-
Detail Factor	0.50	-
Clear Distance	3	-

Anchor Rods		
Anchor Rod Quantity, N	20	-
Rod Diameter, d	2.25	in
Bolt Circle, BC	71	in
Yield Strength, Fy	75	ksi
Tensile Strength, Fu	100	ksi
Applied Axial, Pu	85.7	k
Applied Shear, Vu	0.0	k
Compressive Capacity, φPn	259.8	k
Tensile Capacity, φRnt	0.330	OK
Interaction Capacity	0.330	OK

Base Plate Stiffeners		
Applied Axial Force, Pu	0.0	k
Applied Horizontal Force, Vu	0.00	k

External Base Plate		
Chord Length AA	39.079	in
Additional AA	4.000	in
Section Modulus, Z	43.079	in ³
Applied Moment, Mu	805.3	k-ft
Bending Capacity, φMn	2326.3	k-ft
Capacity, Mu/φMn	0.346	OK

Additional Bolt Group 1		
Bolt Quantity, N	0	-
Bolt Diameter, d	0	in
Bolt Circle, BC	0	in
Yield Strength, Fy	0	ksi
Tensile Strength, Fu	0	ksi
Applied Axial, Pu	0.0	k
Applied Shear, Vu	0.0	k
Compressive Capacity, φPn	0.0	k
Compressive Capacity, φPn		
Interaction Capacity		

Vertical Weld		
Vert.-to-Stiffener a=e _x /l	#DIV/0!	-
Spacing Ratio, k	#DIV/0!	-
Weld Coefficient, C	#DIV/0!	-
Compressive Capacity, φPn	#DIV/0!	k
Vert.-to-Plate a=e _x /l	#DIV/0!	-
Spacing Ratio, k	#DIV/0!	-
Weld Coefficient, C	#DIV/0!	-
Shear Capacity, φVn	#DIV/0!	k
P _u /φ _p P _n + V _u /φ _v V _n		

Chord Length AB	37.506	in
Additional AB	4.000	in
Section Modulus, Z	41.506	in ³
Applied Moment, Mu	685.8	k-ft
Bending Capacity, φMn	2241.3	k-ft
Capacity, Mu/φMn	0.306	OK

Additional Bolt Group 2		
Bolt Quantity, N	0	-
Bolt Diameter, d	0	in
Bolt Circle, BC	0	in
Yield Strength, Fy	0	ksi
Tensile Strength, Fu	0	ksi
Applied Axial, Pu	0.0	k
Applied Shear, Vu	0.0	k
Compressive Capacity, φPn	0.0	k
Compressive Capacity, φPn		
Interaction Capacity		

Horizontal Weld		
Horz.-to-Stiffener a=e _x /l	0.000	-
Spacing Ratio, k	#DIV/0!	-
Weld Coefficient, C	#DIV/0!	-
Effective Fillet	0.000	in
Compressive Capacity, φPn	#DIV/0!	k
Horz.-to-Pole a=e _x /l	#DIV/0!	-
Spacing Ratio, k	#DIV/0!	-
Weld Coefficient, C	#DIV/0!	-
Shear Capacity, φVn	#DIV/0!	k
P _u /φ _p P _n + V _u /φ _v V _n		

Internal Base Plate		
Arc Length	0.000	in
Section Modulus, Z	0.000	in ³
Moment Arm	0.000	in
Applied Moment, Mu	0.0	k-ft
Bending Capacity, φMn	0.0	k-ft
Capacity, Mu/φMn		

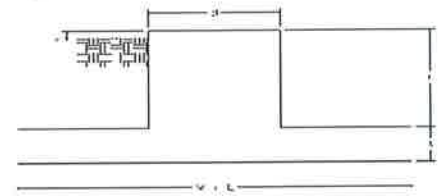
Dywidag Reinforcement		
Dywidag Quantity, N	0	-
Dywidag Diameter, d	2.5	in
Bolt Circle, BC	68.88	in
Yield Strength, Fy	80	ksi
Tensile Strength, Fu	100	ksi
Applied Axial, Pu	0.0	k
Compressive Capacity, φPn	0.0	k
Capacity, Pu/φPn		

Plate Tension		
Gross Cross Section	0.000	in ²
Net Cross Section	0.000	in ²
Tensile Capacity, φTn	0.0	k
Capacity, Tu/φTn		

Plate Compression		
Radius of Gyration	#DIV/0!	in ³
kl/r	#DIV/0!	-
4.71 √(E/Fy)	0.00	-
Buckling Stress(F _e)	0.0	-
Crit. Buckling Stress(F _{cr})	0.0	ksi
Compressive Capacity, φPn	0.0	k
Capacity, Pu/φPn		

Site Name: CRANBURYSU CT, CT
 Site Number: 411189
 Engineering Number: OAA739669
 Engineer: parvin.nikpoorparizi
 Date: 11/20/18
 Tower Type: MP

Program Last Updated: 5/13/2014



Design Loads (Factored) - Analysis per TIA-222-G Standards

Design / Analysis / Mapping:

Compression/Leg: 56.7 k
 Uplift/Leg: 0.0 k
 Total Shear: 25.4 k
 Moment: 2451.3 k-ft
 Tower + Appurtenance Weight: 56.7 k
 Depth to Base of Foundation (l + t - h): 4.50 ft
 Diameter of Pier (d): 9.02 ft
 Height of Pier above Ground (h): 1.00
 Width of Pad (W): 29.50 ft
 Length of Pad (L): 29.50 ft
 Thickness of Pad (t): 3.00 ft
 Tower Leg Center to Center: 0.00 ft
 Number of Tower Legs: 1.0 (1 if MP or GT)
 Tower Center from Mat Center: 0.00 ft
 Depth Below Ground Surface to Water Table: 6.00 ft
 Unit Weight of Concrete: 150.0 pcf
 Unit Weight of Soil Above Water Table: 100.0 pcf
 Unit Weight of Water: 62.4 pcf
 Unit Weight of Soil Below Water Table: 37.6 pcf
 Friction Angle of Uplift: 15.0 Degrees
 Ultimate Coefficient of Shear Friction: 0.60
 Ultimate Compressive Bearing Pressure: 6000.0 psf
 Ultimate Passive Pressure on Pad Face: 0.0 psf
 $\phi_{\text{Soil and Concrete Weight}}$: 0.9
 ϕ_{Soil} : 0.75

Analysis
 56.7 k
 0.0 k
 25.4 k
 2451.3 k-ft
 56.7 k
 4.50 ft
 9.02 ft
 1.00
 29.50 ft
 29.50 ft
 3.00 ft
 0.00 ft
 1.0 (1 if MP or GT)
 0.00 ft
 6.00 ft
 150.0 pcf
 100.0 pcf
 62.4 pcf
 37.6 pcf
 15.0 Degrees
 0.60
 6000.0 psf
 0.0 psf
 0.9
 0.75

Concrete Strength (f'_c): 4000 psi
 Pad Tension Steel Depth: 32.00 in
 ϕ_{Shear} : 0.75
 $\phi_{\text{Flexure / Tension}}$: 0.90
 $\phi_{\text{Compression}}$: 0.65
 β : 0.85
 Bottom Pad Rebar Size #: 8
 # of Bottom Pad Rebar: 44
 Pad Bottom Steel Area: 34.76 in²
 Pad Steel F_y : 60000 psi
 Top Pad Rebar Size #: 8
 # of Top Pad Rebar: 28
 Pad Top Steel Area: 22.12 in²
 Pier Rebar Size #: 8
 Pier Steel Area (Single Bar): 0.79 in²
 # of Pier Rebar: 44
 Pier Steel F_y : 60000 psi
 Pier Cage Diameter: 100.2 in
 Rebar Strain Limit: 0.008
 Steel Elastic Modulus: 29000 ksi
 Tie Rebar Size #: 4
 Tie Steel Area (Single Bar): 0.20 in²
 Tie Spacing: 8 in
 Tie Steel F_y : 60000 psi

Overturning Moment Usage

Design OTM: 2591.0 k-ft
 OTM Resistance: 7965.0 k-ft
 Design OTM / OTM Resistance: 0.33 Result: OK

Soil Bearing Pressure Usage

Net Bearing Pressure: 1190 psf
 Factored Nominal Bearing Pressure: 4500 psf
 Net Bearing Pressure/Factored Nominal Bearing Pressure: 0.26 Result: OK
 Load Direction Controlling Design Bearing Pressure: Diagonal to Pad Edge

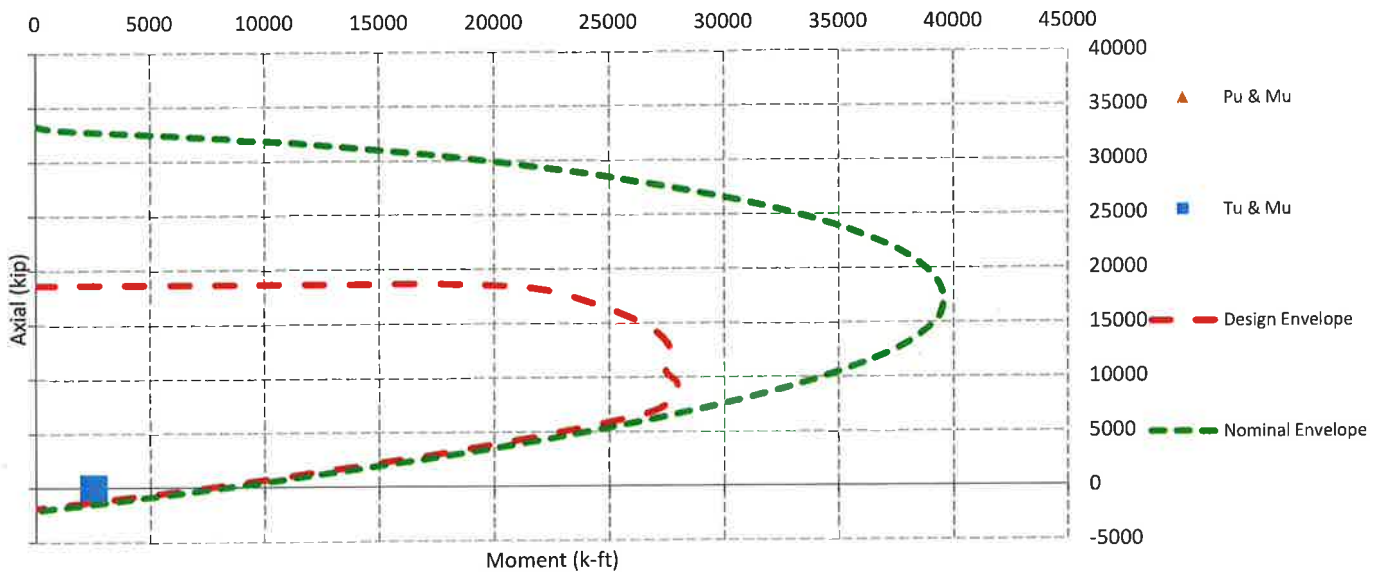
Sliding Factor of Safety

Total Factored Sliding Resistance: 262.7 k
 Sliding Design / Sliding Resistance: 0.10 Result: OK

One Way Shear, Flexural Capacity, and Punching Shear

Factored One Way Shear (V_u):	175.2 k
One Way Shear Capacity (ϕV_c):	1074.7 k - ACI11.3.1.1
$V_u / \phi V_c$:	0.16 Result: OK
Load Direction Controlling Shear Capacity:	Parallel to Pad Edge
Lower Steel Pad Factored Moment (M_u):	1235.4 k-ft
Lower Steel Pad Moment Capacity (ϕM_n):	4890.2 k-ft - ACI10.3
$M_u / \phi M_n$:	0.25 Result: OK
Load Direction Controlling Flexural Capacity:	Parallel to Pad Edge
Upper Steel Pad Factored Moment (M_u):	513.7 k-ft
Upper Steel Pad Moment Capacity (ϕM_n):	3138.6 k-ft
$M_u / \phi M_n$:	0.16 Result: OK
Lower Pad Flexural Reinforcement Ratio:	0.0031 OK - Minimum Reinforcement Ratio Met - ACI10.5.1
Upper Pad Flexural Reinforcement Ratio:	0.0020 OK - Minimum Reinforcement Ratio Met - ACI10.5.1
Lower Pad Reinforcement Spacing:	8 in - Pad Reinforcing Spacing OK - ACI7.12.2.2 & 10.5.4
Upper Pad Reinforcement Spacing:	13 in - Pad Reinforcing Spacing OK - ACI7.12.2.2 & 10.5.4
Factored Punching Shear (V_u):	0.0 k
Nominal Punching Shear Capacity ($\phi_c V_n$):	2675.0 k - ACI11.12.2.1
$V_u / \phi_c V_n$:	0.00 Result: OK
Factored Moment in Pier (M_u):	2514.8 k-ft
Pier Moment Capacity (ϕM_n):	7667.0 k-ft
$M_u / \phi M_n$:	0.33 Result: OK
Factored Shear in Pier (V_u):	25.4 k
Pier Shear Capacity (ϕV_n):	875.6 k
$V_u / \phi V_n$:	0.03 Result: OK
Pier Shear Reinforcement Ratio:	0.0002 No Ties Necessary for Shear - ACI11.5.6.1
Factored Tension in Pier (T_u):	0.0 k
Pier Tension Capacity (ϕT_n):	1877.0 k
$T_u / \phi T_n$:	0.00 Result: OK
Factored Compression in Pier (P_u):	56.7 k
Pier Compression Capacity (ϕP_n):	16207.1 k - ACI10.3.6.2
$P_u / \phi P_n$:	0.00 Result: OK
$M_u / \phi_B M_n + T_u / \phi_T T_n$:	0.33 Result: OK

Nominal and Design Moment Capacity and Factored Design Loads



ATTACHMENT 4

2 ALLEN RAYMOND LN

Location 2 ALLEN RAYMOND LN

Mblu B13 / / 026/000 /

Acct# 5298022

Owner CELLCO PARTNERSHIP

Assessment \$1,378,920

Appraisal \$1,969,900

PID 4500

Building Count 1

Current Value

Appraisal			
Valuation Year	Improvements	Land	Total
2015	\$1,444,300	\$525,600	\$1,969,900
Assessment			
Valuation Year	Improvements	Land	Total
2015	\$1,011,020	\$367,900	\$1,378,920

Owner of Record

Owner CELLCO PARTNERSHIP
Co-Owner BELL ATLANTIC NYNEX MOBILE DBA
Address PO BOX 2549
 ADDISON , TX 75001

Sale Price \$415,000
Certificate 1
Book & Page 1488/ 99
Sale Date 12/10/1996
Instrument 00

Ownership History

Ownership History					
Owner	Sale Price	Certificate	Book & Page	Instrument	Sale Date
CELLCO PARTNERSHIP	\$415,000	1	1488/ 99	00	12/10/1996

Building Information

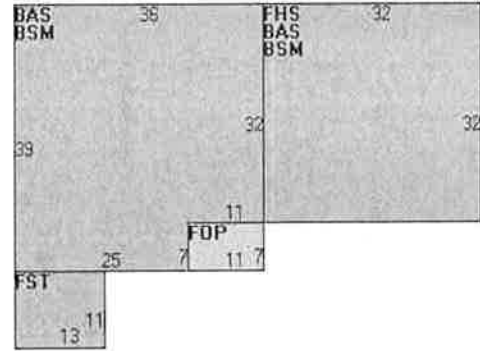
Building 1 : Section 1

Year Built: 1968
Living Area: 3,006
Replacement Cost: \$508,423
Building Percent 80
Good:
Replacement Cost
Less Depreciation: \$406,700

Building Attributes	
Field	Description

STYLE	Res Typ Comm
MODEL	Commercial
Grade	Average +20
Stories:	1
Occupancy	1
Exterior Wall 1	Board & Batten
Exterior Wall 2	
Roof Structure	Gable
Roof Cover	Asphalt/F Glas
Interior Wall 1	Drywall
Interior Wall 2	
Interior Floor 1	Vinyl/Asphalt
Interior Floor 2	
Heating Fuel	Oil
Heating Type	Forced Air
AC Type	Central
Bldg Use	Cell Site
Income Adj	
1st Floor Use:	
Heat/AC	Heat/AC Pkgs
Frame Type	Wood Frame
Baths/Plumbing	Average
Ceiling/Walls	Ceil & Walls
Rooms/Prtns	Average
Wall Height	8
% Comn Wall	

Building Layout



(<http://images.vgsi.com/photos2/WestportCTPhotos//Sketches/>)

Building Sub-Areas (sq ft)			Legend
Code	Description	Gross Area	Living Area
BAS	First Floor	2,351	2,351
FHS	Half Story, Finished	1,024	512
FST	Utility Storage, Fin	143	143
BSM	Basement Area	2,351	0
FOP	Porch, Open	77	0
		5,946	3,006

Extra Features

Extra Features	Legend
No Data for Extra Features	

Land

Land Use

Use Code	434
Description	Cell Site
Zone	AAA
Neighborhood	C
Alt Land Appr Category	No

Land Line Valuation

Size (Acres)	1.63
Frontage	0
Depth	0
Assessed Value	\$367,900
Appraised Value	\$525,600

Outbuildings

Outbuildings						Legend
Code	Description	Sub Code	Sub Description	Size	Value	Bldg #
CELL	Cell on TWR	TW		6 Sites	\$1,037,600	1

Valuation History

Appraisal			
Valuation Year	Improvements	Land	Total
2017	\$1,444,300	\$525,600	\$1,969,900
2016	\$1,444,300	\$525,600	\$1,969,900
2014	\$1,333,500	\$519,600	\$1,853,100

Assessment			
Valuation Year	Improvements	Land	Total
2017	\$1,011,020	\$367,900	\$1,378,920
2016	\$1,011,020	\$367,900	\$1,378,920
2014	\$933,400	\$363,700	\$1,297,100

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ATTACHMENT 5



Certificate of Mailing — Firm

Name and Address of Sender
**Kenneth C. Baldwin, Esq.
Robinson & Cole LLP
280 Trumbull Street
Hartford, CT 06103**

TOTAL NO.
of Pieces Listed by Sender

2

TOTAL NO.
of Pieces Received at Post Office™

2

Postmaster, per (name of receiving employee)

[Handwritten Signature]

Affix Stamp Here
Postmark with Date of Receipt.

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12/18/2018
US POSTAGE \$002.38
ZIP 06103
041L12203380

USPS® Tracking Number
Firm-specific Identifier

Address
(Name, Street, City, State, and ZIP Code™)

	Postage	Fee	Special Handling	Parcel Airlift
1. James Mame, First Selectman Town of Westport 110 Myrtle Avenue Westport, CT 06880				
2. Mary Young, Director Town of Westport Planning and Zoning 110 Myrtle Avenue Westport, CT 06880				
3.				
4.				
5.				
6.				

