

December 2, 2015

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

Re: **Notice of Exempt Modification – Facility Modification
171 Short Beach, Branford, Connecticut**

Dear Ms. Bachman:

Cellco Partnership d/b/a Verizon Wireless (“Cellco”) currently maintains twelve (12) wireless telecommunications antennas at the 100-foot level of the existing 119-foot tower at 171 Short Beach Road in Branford (the “Property”). The tower is owned American Tower Corporation (“ATC”). Cellco’s use of the tower was approved by the Council in 2012 (Docket No. 427). Cellco now intends to modify its facility by replacing six (6) of its existing antennas with three (3) model SBNHH-1D65B, 1900 MHz antennas and three (3) model SBNHH-1D65B, 2100 MHz antennas, at the same 100-foot level on the tower. Cellco also intends to install three (3) remote radio heads (“RRHs”) behind its 700 MHz 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 James B. Cosgrove, First Selectman for the Town of Branford. A copy of this letter is also being sent to 171 Short Beach Road Realty LLC, the owner of the Property 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 its existing antenna platform at the 100-foot level of the tower.

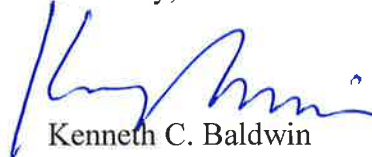
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2. The proposed modifications will not involve any change to ground-mounted equipment and, therefore, will not require the extension of the site boundary.
3. The proposed modifications will not increase noise levels at the facility by six decibels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

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 B. Cosgrove, Branford First Selectman
171 Short Beach Road Realty LLC
American Tower Corporation
Tim Parks

ATTACHMENT 1



SBNHH-1D65B

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

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

Electrical Specifications

Frequency Band, MHz	698–806	806–896	1695–1880	1850–1990	1920–2200	2300–2360
Gain, dBi	14.9	14.7	17.7	18.2	18.6	18.6
Beamwidth, Horizontal, degrees	68	66	69	66	63	58
Beamwidth, Vertical, degrees	12.1	10.7	5.6	5.2	5.0	4.5
Beam Tilt, degrees	0–14	0–14	0–7	0–7	0–7	0–7
USLS (First Lobe), dB	14	13	15	15	15	13
Front-to-Back Ratio at 180°, dB	27	29	28	28	28	27
CPR at Boresight, dB	20	23	20	20	17	21
CPR at Sector, dB	14	10	12	10	9	1
Isolation, dB	25	25	25	25	25	25
Isolation, Intersystem, dB	30	30	30	30	30	30
VSWR Return Loss, dB	1.5 14.0	1.5 14.0	1.5 14.0	1.5 14.0	1.5 14.0	1.5 14.0
PIM, 3rd Order, 2 x 20 W, dBc	-153	-153	-153	-153	-153	-153
Input Power per Port, maximum, watts	350	350	350	350	350	300
Polarization	±45°	±45°	±45°	±45°	±45°	±45°
Impedance	50 ohm	50 ohm	50 ohm	50 ohm	50 ohm	50 ohm

Electrical Specifications, BASTA*

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

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

General Specifications

Antenna Brand	Andrew®
Antenna Type	DualPol® multiband with internal RET
Band	Multiband
Brand	DualPol® Teletilt®
Operating Frequency Band	1695 – 2360 MHz 698 – 896 MHz
Performance Note	Outdoor usage

SBNHH-1D65B

POWERED BY



Mechanical Specifications

Color	Light gray
Lightning Protection	dc Ground
Radiator Material	Aluminum Low loss circuit board
Radome Material	Fiberglass, UV resistant
Reflector Material	Aluminum
RF Connector Interface	7-16 DIN Female
RF Connector Location	Bottom
RF Connector Quantity, total	6
Wind Loading, maximum	617.7 N @ 150 km/h 138.9 lbf @ 150 km/h
Wind Speed, maximum	241 km/h 150 mph

Dimensions

Depth	180.0 mm 7.1 in
Length	1851.0 mm 72.9 in
Width	301.0 mm 11.9 in
Net Weight	18.4 kg 40.6 lb

Remote Electrical Tilt (RET) Information

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

Packed Dimensions

Depth	299.0 mm 11.8 in
Length	1970.0 mm 77.6 in
Width	409.0 mm 16.1 in
Shipping Weight	31.0 kg 68.3 lb

Regulatory Compliance/Certifications

Agency

RoHS 2011/65/EU
China RoHS SJ/T 11364-2006
ISO 9001:2008

Classification

Compliant by Exemption
Above Maximum Concentration Value (MCV)
Designed, manufactured and/or distributed under this quality management system



Included Products

Product Specifications

COMMSCOPE®

SBNHH-1D65B

POWERED BY



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

* Footnotes

Performance Note Severe environmental conditions may degrade optimum performance

ALCATEL-LUCENT B13 RRH4X30-4R

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

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



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

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

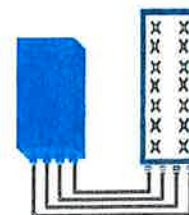
Its compactness and slim design makes the Alcatel-Lucent B13 RRH4x30-4R easy to install close to the antenna: operators can therefore locate this Remote Radio Head where RF design conditions are deemed ideal, minimizing trade-offs between available sites and RF optimum sites, together with reducing the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

FEATURES

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

BENEFITS

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



4x30W with 4T4R
or
2x60W with 2T4R

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

TECHNICAL SPECIFICATIONS

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

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ATTACHMENT 2

		General		Power		Density							
Site Name: Branford Short Beach Tower Height: 119Ft.													
CARRIER	# OF CHAN.	WATTS ERP	HEIGHT	CALC. POWER DENS	FREQ.	MAX. PERMISS. EXP.	FRACTION MPE	Total					
*AT&T UMTS	1	500	120	0.0138	880	0.5867	0.24%						
*AT&T UMTS	1	500	120	0.0138	1900	1.0000	0.14%						
*AT&T GSM	3	296	120	0.0246	880	0.5867	0.42%						
*AT&T GSM	1	427	120	0.0118	1900	1.0000	0.12%						
*AT&T LTE	1	500	120	0.0138	734	0.4893	0.28%						
Verizon PCS	1	2349	100	0.0845	1970	1.0000	8.45%						
Verizon Cellular	9	416	100	0.1346	869	0.5793	23.24%						
Verizon AWS	1	2306	100	0.0829	2145	1.0000	8.29%						
Verizon 700	1	1328	100	0.0478	746	0.4973	9.60%						
								50.77%					
* Source: Siting Council													

ATTACHMENT 3



AMERICAN TOWER®
CORPORATION

This report was prepared for American Tower Corporation by



Structural Analysis Report

Structure : 119 ft Monopole
ATC Site Name : Short Beach Branford CT, CT
ATC Site Number : 283422
Engineering Number : 64190921
Proposed Carrier : Verizon Wireless
Carrier Site Name : N/A
Carrier Site Number : N/A
Site Location : 171 Short Beach Road
Branford, CT 06405-4930
41.26279, -72.83443
County : New Haven
Date : November 9, 2015
Max Usage : 94%
Result : Pass

Courtney Fuhrer
SES Structural Engineer



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Introduction

The purpose of this report is to summarize results of a structural analysis performed on the 119 ft monopole to reflect the change in loading by Verizon Wireless.

Supporting Documents

Tower Drawings	Sabre Job #73523, dated January 25, 2013
Foundation Drawing	Sabre Job #73523, dated January 31, 2013
Geotechnical Report	Terracon Project #J2135101, dated January 17, 2013

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:	110 mph (3-Second Gust)
Basic Wind Speed w/ Ice:	50 mph (3-Second Gust) w/ 3/4" radial ice concurrent
Code:	ANSI/TIA-222-G / 2003 IBC w/ 2005 CT Supplement & 2009 CT Amendment
Structure Class:	II
Exposure Category:	C
Topographic Category:	1
Crest Height:	0 ft

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					
119.0	120.0	3	Raycap DC6-48-60-18-8F	T-Arms	(6) 0.63" Cable (3) 0.40" Fiber (3) 3" Conduit (3) 3/8" Coax	AT&T Mobility
		15	Ericsson RRUS 11(w/o S.S)			
	118.0	12	Andrew SBNH-1D6565C			
100.0	102.0	2	RFS DB-T1-6Z-8AB-0Z	Low Profile Platform	(12) 1 5/8" Coax (2) 1 5/8" Hybriflex	Verizon Wireless
		3	Antel BXA-70063-6CF-EDIN-X			
		3	Andrew LNX-6514DS-A1M			
	100.0	3	Alcatel-Lucent RRH2x60-AWS			
		3	Alcatel-Lucent PCS B25 RRH2x60/4x30			

Equipment to be Removed

Elevation ¹ (ft)		Qty	Antenna	Mount Type	Lines	Carrier
Mount	RAD					
100.0	100.0	6	Commscope HBXX-6516DS-A2M	-	-	Verizon Wireless
		3	Alcatel-Lucent 9442 RRH 2x40 700U			

Proposed Equipment

Elevation ¹ (ft)		Qty	Antenna	Mount Type	Lines	Carrier
Mount	RAD					
100.0	102.0	6	Commscope SBNHH-1D65B	Existing Low Profile Platform	-	Verizon Wireless
	100.0	3	Alcatel-Lucent RRH2x60 700			

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	76%	Pass
Shaft	94%	Pass
Base Plate	77%	Pass

Foundations

Reaction Component	Original Design Reactions	Factored Design Reactions*	Analysis Reactions	% of Design
Moment (Kips-Ft)	2,678.3	2,678.3	2,449.0	91%
Shear (Kips)	30.2	30.2	26.8	89%

* The design reactions are factored by 1.35 per ANSI/TIA-222-G, Sec. 15.5.1

The structure base reactions resulting from this analysis are acceptable when compared to those shown on the original structure drawings, therefore no modification or reinforcement of the foundation will be required.

Deflection and Sway*

Antenna Elevation (ft)	Antenna	Carrier	Deflection (ft)	Sway (Rotation) (°)
100.0	Commscope SBNHH-1D65B	Verizon Wireless	1.097	1.313
	Alcatel-Lucent RRH2x60 700			

*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 are performed on the basis that the information used is current and correct. This information may consist of, but is not necessary limited, to:

- Information supplied by the client regarding the structure itself, antenna, mounts and feed line loading on the structure and its components, or other relevant information.
- Information from drawings in the possession of Semaan Engineering Solutions, or generated by field inspections or measurements of the structure.

It is the responsibility of the client to ensure that the information provided to Semaan Engineering Solutions Holdings and used in the performance of our engineering services is correct and complete. In the absence of information to the contrary, we assume that all structures were constructed in accordance with the drawings and specifications and that their capacity has not significantly changed from the "as new" condition.

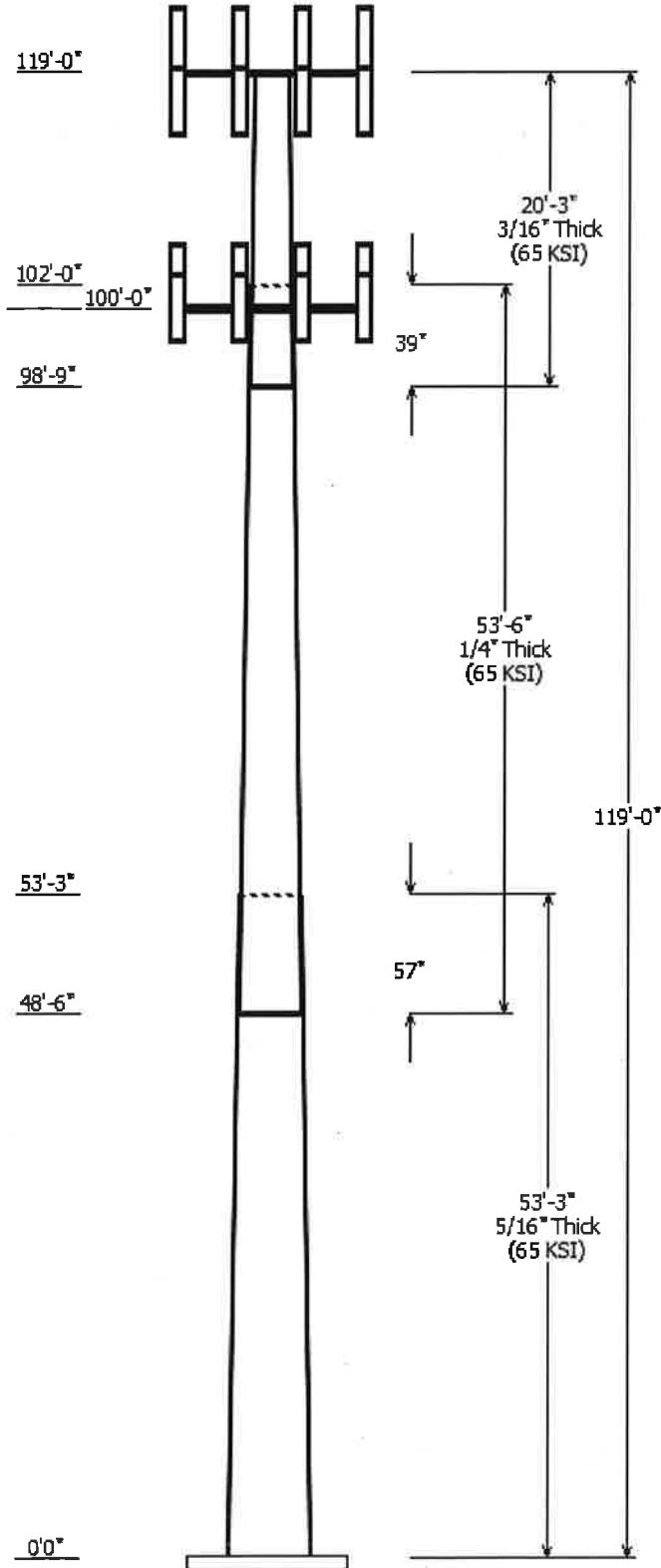
Unless explicitly agreed by both the client and Semaan Engineering Solutions, all services will be performed in accordance with the current revision of ANSI/TIA -222. The design basic wind speed will be determined based on the minimum basic wind speed as prescribed in ANSI/TIA-222. Although every effort is taken to ensure that the loading considered is adequate to meet the requirements of all applicable regulatory entities, we can provide no assurance to meet any other local and state codes or requirements. If wind and ice loads or other relevant parameters are to be different from the minimum values recommended by the codes, the client shall specify the exact requirement.

All services are performed, results obtained, and recommendations made in accordance with generally accepted engineering principles and practices. Semaan Engineering Solutions Holdings is not responsible for the conclusions, opinions and recommendations made by others based on the information we supply.

SEMAAN ENGINEERING SOLUTIONS, LLC

1079 N.205th Street
 Elkhorn, NE 68022
 Phone: 402-289-1888
 Fax: 402-289-1861

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Job Information	
Pole :	283422
Code :	ANSI/TIA-222-G
Description :	41.26278, -72.83442
Client :	Verizon Wireless
Struct Class :	II
Location :	Short Beach Branford CT, CT
Shape :	18 Sides
Exposure :	C
Height :	119.00 (ft)
Topo :	1
Base Elev (ft):	0.00
Taper:	0.24222'(in/ft)

Sections Properties							
Shaft Section	Length (ft)	Diameter (in)		Thick Joint (in)	Overlap Length (in)	Taper (in/ft)	Steel Grade (ksi)
		Top	Bottom				
1	53.250	32.80	45.70	0.313	0.000	0.242227	65
2	53.500	21.49	34.45	0.250	57.000	0.242227	65
3	20.250	17.75	22.65	0.188	39.000	0.242227	65

Discrete Appurtenance			
Attach Elev (ft)	Force Elev (ft)	Qty	Description
119.000	118.000	12	Andrew SBNH-1D6565C
119.000	120.000	15	Ericsson RRUS 11(w/o S.S)
119.000	120.000	3	Raycap DC6-48-60-18-8F
119.000	119.000	3	Round T-Arm
100.000	100.000	3	Alcatel-Lucent RRH2x60 700
100.000	102.000	6	Commscope SBNHH-1D65B
100.000	102.000	3	Andrew LNX-6514DS-A1M
100.000	102.000	3	Antel BXA-70063-6CF-EDIN-X
100.000	102.000	2	RFS DB-T1-6Z-8AB-0Z
100.000	100.000	3	Alcatel-Lucent PCS B25
100.000	100.000	3	Alcatel-Lucent RRH2x60-AWS
100.000	100.000	1	Round Low Profile Platform

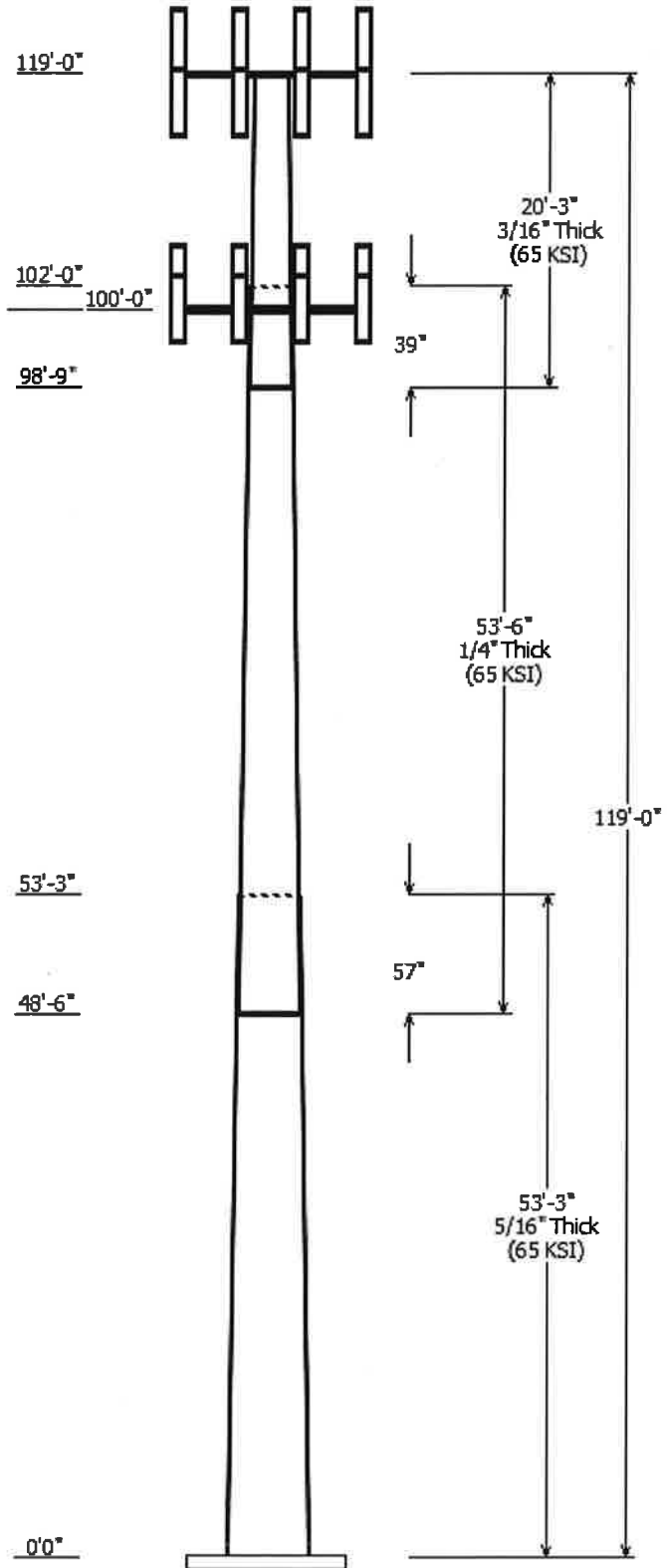
Linear Appurtenance			
Elev (ft)		Description	Exposed To Wind
From	To		
0.000	100.0	1 5/8" Coax	No
0.000	100.0	1 5/8" Hybriflex	No
0.000	118.0	3/8" Coax	No
0.000	119.0	0.40" Fiber Cable	No
0.000	119.0	0.63" Cable	No
0.000	119.0	3" Conduit	No

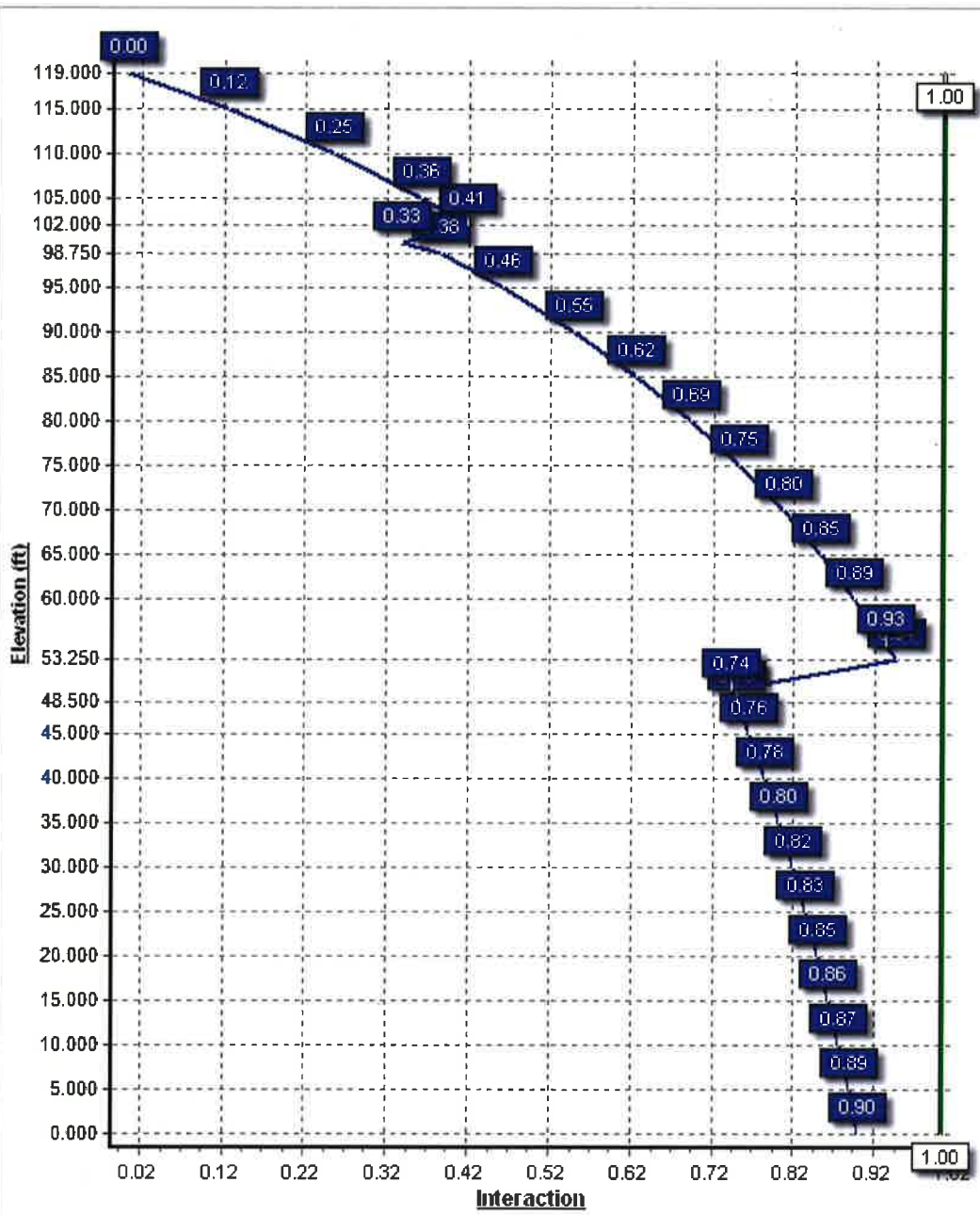
Load Cases	
1.2D + 1.6W	110 mph with No Ice
0.9D + 1.6W	110 mph with No Ice (Reduced DL)
1.2D + 1.0Di + 1.0Wi	50 mph with 0.75 in Radial Ice
1.0D + 1.0W	Serviceability 60 mph

Reactions			
Load Case	Moment (kip-ft)	Shear (kip)	Axial (kip)
1.2D + 1.6W	2448.98	26.83	24.96
0.9D + 1.6W	2427.93	26.82	18.71
1.2D + 1.0Di + 1.0Wi	487.71	5.54	40.51
1.0D + 1.0W	453.86	4.99	20.86

Dish Deflections

Load Case	Attach Elev (ft)	Deflection (in)	Rotation (deg)
	0.00	0.000	0.000





Site Number: 283422

Code: ANSI/TIA-222-G

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Site Name: Short Beach Branford CT, CT

Engineering Number: 64190921

11/9/2015 3:58:31 PM

Customer: Verizon Wireless

Analysis Parameters

Location:	New Haven County, CT	Height (ft):	119
Code:	ANSI/TIA-222-G	Base Diameter (in):	45.70
Shape:	18 Sides	Top Diameter (in):	17.75
Pole Type:	Taper	Taper (in/ft) :	0.242
Pole Manufacturer:	Sabre		

Ice & Wind Parameters

Structure Class:	II	Design Wind Speed Without Ice:	110 mph
Exposure Category:	C	Design Wind Speed With Ice:	50 mph
Topographic Category:	1	Operational Wind Speed:	60 mph
Crest Height:	0.0 ft	Design Ice Thickness:	0.50 in

Load Cases

1.2D + 1.6W	110 mph with No Ice
0.9D + 1.6W	110 mph with No Ice (Reduced DL)
1.2D + 1.0Di + 1.0Wi	50 mph with 0.75 in Radial Ice
1.0D + 1.0W	Serviceability 60 mph

Site Number: 283422

Code: ANSI/TIA-222-G

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Site Name: Short Beach Branford CT, CT

Engineering Number: 64190921

11/9/2015 3:58:31 PM

Customer: Verizon Wireless

Shaft Section Properties

Sect Info	Length (ft)	Thick (in)	Fy (ksi)	Slip		Weight (lb)	Bottom						Top						
				Joint Type	Len (in)		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	53.250	0.3125	65		0.00	6,998	45.70	0.00	45.02	11716.6	24.38	146.24	32.80	53.25	32.22	4297.3	17.10	104.96	0.242227
2-18	53.500	0.2500	65	Slip	57.00	4,005	34.45	48.50	27.14	4010.9	22.89	137.81	21.49	102.00	16.86	961.0	13.75	85.97	0.242227
3-18	20.250	0.1875	65	Slip	39.00	821	22.65	98.75	13.37	852.7	19.89	120.83	17.75	119.00	10.45	407.3	15.28	94.67	0.242227
Shaft Weight						11,823													

Discrete Appurtenance Properties

Attach Elev (ft)	Description	Qty	No Ice			Ice			Distance From Face (ft)	Vert Ecc (ft)
			Weight (lb)	EPAA (sf)	Orientation Factor	Weight (lb)	EPAA (sf)	Orientation Factor		
119.00	Andrew SBNH-1D6565C	12	66.10	11.450	0.84	322.05	13.062	0.84	0.000	-1.000
119.00	Ericsson RRUS 11(w/o S.S)	15	45.00	2.190	0.67	110.32	2.779	0.67	0.000	1.000
119.00	Raycap DC6-48-60-18-8F	3	20.00	1.900	1.00	98.07	2.505	1.00	0.000	1.000
119.00	Round T-Arm	3	250.00	9.700	0.75	454.29	17.758	0.75	0.000	0.000
100.00	Alcatel-Lucent PCS B25	3	55.00	2.200	0.67	135.65	2.803	0.67	0.000	0.000
100.00	Alcatel-Lucent RRH2x60 700	3	56.70	2.150	0.67	128.61	3.017	0.67	0.000	0.000
100.00	Alcatel-Lucent RRH2x60-AWS	3	44.00	1.880	0.67	99.80	2.638	0.67	0.000	0.000
100.00	Andrew LNX-6514DS-A1M	3	38.80	8.170	0.83	232.48	9.419	0.83	0.000	2.000
100.00	Antel BXA-70063-6CF-EDIN-X	3	17.00	7.570	0.77	182.80	8.781	0.77	0.000	2.000
100.00	Commscope SBNHH-1D65B	6	50.70	8.170	0.83	244.43	9.422	0.83	0.000	2.000
100.00	RFS DB-T1-6Z-8AB-0Z	2	44.00	4.800	1.00	180.94	5.636	1.00	0.000	2.000
100.00	Round Low Profile Platform	1	1500.00	21.700	1.00	2,123.03	40.162	1.00	0.000	0.000
Totals		57	4804.90			13,465.92			Number of Loadings : 12	

Linear Appurtenance Properties

Elev From (ft)	Elev To (ft)	Qty	Description	Coax Diameter (in)	Coax Weight (lb/ft)	Protected Flat	Protected Width (in)	Exposed To Wind	Carrier
0.00	119.00	3	0.40" Fiber Cable	0.40	0.09	N	0.00	N	AT&T Mobility
0.00	119.00	6	0.63" Cable	0.63	0.31	N	0.00	N	AT&T Mobility
0.00	119.00	3	3" Conduit	3.50	7.58	N	0.00	N	AT&T Mobility
0.00	118.00	3	3/8" Coax	0.44	0.08	N	0.00	N	AT&T Mobility
0.00	100.00	12	1 5/8" Coax	1.98	0.82	N	0.00	N	Verizon Wireless
0.00	100.00	2	1 5/8" Hybriflex	1.98	1.30	N	0.00	N	Verizon Wireless

Site Number: 283422

Code: ANSI/TIA-222-G

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Site Name: Short Beach Branford CT, CT

Engineering Number: 64190921

11/9/2015 3:58:31 PM

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	Fy (ksi)	S (in ³)	Z (in ³)	Weight (lb)
0.00		0.3125	45.700	45.017	11,716.6	24.38	146.24	72.7	505.0	0.0	0.0
5.00		0.3125	44.489	43.816	10,803.5	23.69	142.36	73.5	478.3	0.0	755.7
10.00		0.3125	43.278	42.615	9,939.1	23.01	138.49	74.3	452.3	0.0	735.3
15.00		0.3125	42.067	41.413	9,122.0	22.33	134.61	75.1	427.1	0.0	714.8
20.00		0.3125	40.855	40.212	8,351.0	21.64	130.74	75.9	402.6	0.0	694.4
25.00		0.3125	39.644	39.011	7,624.8	20.96	126.86	76.7	378.8	0.0	673.9
30.00		0.3125	38.433	37.810	6,941.9	20.28	122.99	77.6	355.8	0.0	653.5
35.00		0.3125	37.222	36.608	6,301.0	19.59	119.11	78.4	333.4	0.0	633.1
40.00		0.3125	36.011	35.407	5,700.9	18.91	115.23	79.2	311.8	0.0	612.6
45.00		0.3125	34.800	34.206	5,140.1	18.23	111.36	80.0	290.9	0.0	592.2
48.50	Bot - Section 2	0.3125	33.952	33.365	4,770.3	17.75	108.65	80.5	276.7	0.0	402.4
50.00		0.3125	33.589	33.005	4,617.4	17.54	107.48	80.8	270.8	0.0	307.2
53.25	Top - Section 1	0.2500	33.301	26.225	3,619.6	22.08	133.21	75.4	214.1	0.0	654.2
55.00		0.2500	32.878	25.889	3,482.1	21.78	131.51	75.8	208.6	0.0	155.2
60.00		0.2500	31.666	24.928	3,108.5	20.92	126.67	76.8	193.3	0.0	432.3
65.00		0.2500	30.455	23.967	2,762.7	20.07	121.82	77.8	178.7	0.0	415.9
70.00		0.2500	29.244	23.006	2,443.5	19.22	116.98	78.8	164.6	0.0	399.6
75.00		0.2500	28.033	22.045	2,149.9	18.36	112.13	79.8	151.1	0.0	383.2
80.00		0.2500	26.822	21.084	1,880.8	17.51	107.29	80.8	138.1	0.0	366.9
85.00		0.2500	25.611	20.123	1,635.2	16.65	102.44	81.8	125.8	0.0	350.5
90.00		0.2500	24.400	19.162	1,411.9	15.80	97.60	82.6	114.0	0.0	334.2
95.00		0.2500	23.188	18.201	1,210.0	14.94	92.75	82.6	102.8	0.0	317.8
98.75	Bot - Section 3	0.2500	22.280	17.480	1,071.8	14.30	89.12	82.6	94.8	0.0	227.7
100.0		0.2500	21.977	17.240	1,028.3	14.09	87.91	82.6	92.2	0.0	130.3
102.0	Top - Section 2	0.1875	21.868	12.902	766.2	19.15	116.63	78.9	69.0	0.0	204.8
105.0		0.1875	21.141	12.470	691.7	18.47	112.75	79.7	64.4	0.0	129.5
110.0		0.1875	19.930	11.749	578.6	17.33	106.29	81.0	57.2	0.0	206.0
115.0		0.1875	18.719	11.028	478.5	16.19	99.83	82.4	50.3	0.0	193.8
119.0		0.1875	17.750	10.452	407.3	15.28	94.67	82.6	45.2	0.0	146.2
11,823.2											

Site Number: 283422

Code: ANSI/TIA-222-G

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Site Name: Short Beach Branford CT, CT

Engineering Number: 64190921

11/9/2015 3:58:31 PM

Customer: Verizon Wireless

Load Case: 1.2D + 1.6W

110 mph with No Ice

23 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 Moment MY (lb-ft)	Moment MZ (lb-ft)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Torsion Moment MY (lb-ft)	Moment MZ (lb)
0.00		273.0	0.0					0.0	0.0	273.0	0.0	0.0	0.0
5.00		538.6	906.8					0.0	225.3	538.6	1,132.1	0.0	0.0
10.00		524.0	882.3					0.0	225.3	524.0	1,107.6	0.0	0.0
15.00		517.2	857.8					0.0	225.3	517.2	1,083.1	0.0	0.0
20.00		523.9	833.3					0.0	225.3	523.9	1,058.6	0.0	0.0
25.00		533.1	808.7					0.0	225.3	533.1	1,034.0	0.0	0.0
30.00		537.2	784.2					0.0	225.3	537.2	1,009.5	0.0	0.0
35.00		537.6	759.7					0.0	225.3	537.6	985.0	0.0	0.0
40.00		535.0	735.2					0.0	225.3	535.0	960.5	0.0	0.0
45.00		451.3	710.6					0.0	225.3	451.3	935.9	0.0	0.0
48.50	Bot - Section 2	264.6	482.8					0.0	157.7	264.6	640.6	0.0	0.0
50.00		251.6	368.6					0.0	67.6	251.6	436.2	0.0	0.0
53.25	Top - Section 1	263.5	785.0					0.0	146.4	263.5	931.4	0.0	0.0
55.00		350.6	186.2					0.0	78.9	350.6	265.1	0.0	0.0
60.00		512.5	518.8					0.0	225.3	512.5	744.1	0.0	0.0
65.00		501.3	499.1					0.0	225.3	501.3	724.4	0.0	0.0
70.00		488.9	479.5					0.0	225.3	488.9	704.8	0.0	0.0
75.00		475.5	459.9					0.0	225.3	475.5	685.2	0.0	0.0
80.00		461.2	440.3					0.0	225.3	461.2	665.6	0.0	0.0
85.00		446.0	420.7					0.0	225.3	446.0	646.0	0.0	0.0
90.00		430.1	401.0					0.0	225.3	430.1	626.3	0.0	0.0
95.00		363.6	381.4					0.0	225.3	363.6	606.7	0.0	0.0
98.75	Bot - Section 3	203.3	273.2					0.0	169.0	203.3	442.2	0.0	0.0
100.00	Appertunance(s)	130.5	156.4	6,719.1	0.0	9,280.1	3,032.0	0.0	56.3	6,849.6	3,244.8	0.0	0.0
102.00	Top - Section 2	197.0	245.8					0.0	60.3	197.0	306.0	0.0	0.0
105.00		305.1	155.4					0.0	90.4	305.1	245.8	0.0	0.0
110.00		366.5	247.2					0.0	150.7	366.5	397.9	0.0	0.0
115.00		314.5	232.5					0.0	150.7	314.5	383.2	0.0	0.0
119.00	Appertunance(s)	135.9	175.4	8,889.8	0.0	-4,757.0	2,733.8	0.0	120.2	9,025.7	3,029.5	0.0	0.0
Totals:										27,042.1	25,031.9	0.00	0.00

Site Number: 283422

Code: ANSI/TIA-222-G

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Site Name: Short Beach Branford CT, CT

Engineering Number: 64190921

11/9/2015 3:58:32 PM

Customer: Verizon Wireless

Load Case: 1.2D + 1.6W

110 mph with No Ice

23 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	-24.96	-26.83	0.00	-2,448.98	0.00	2,448.98	2,946.72	1,473.36	5,500.90	2,754.54	0.00	0.00	0.898
5.00	-23.70	-26.41	0.00	-2,314.81	0.00	2,314.81	2,899.78	1,449.89	5,267.84	2,637.84	0.16	-0.29	0.886
10.00	-22.46	-26.00	0.00	-2,182.75	0.00	2,182.75	2,851.11	1,425.56	5,036.42	2,521.95	0.62	-0.59	0.874
15.00	-21.24	-25.58	0.00	-2,052.76	0.00	2,052.76	2,800.70	1,400.35	4,806.90	2,407.03	1.39	-0.89	0.861
20.00	-20.06	-25.15	0.00	-1,924.85	0.00	1,924.85	2,748.55	1,374.28	4,579.55	2,293.18	2.49	-1.20	0.847
25.00	-18.90	-24.70	0.00	-1,799.11	0.00	1,799.11	2,694.66	1,347.33	4,354.62	2,180.54	3.92	-1.52	0.832
30.00	-17.77	-24.23	0.00	-1,675.62	0.00	1,675.62	2,639.04	1,319.52	4,132.37	2,069.25	5.68	-1.84	0.817
35.00	-16.66	-23.76	0.00	-1,554.46	0.00	1,554.46	2,581.67	1,290.84	3,913.06	1,959.44	7.78	-2.17	0.800
40.00	-15.59	-23.28	0.00	-1,435.67	0.00	1,435.67	2,522.57	1,261.29	3,696.97	1,851.23	10.24	-2.51	0.782
45.00	-14.56	-22.86	0.00	-1,319.28	0.00	1,319.28	2,461.73	1,230.87	3,484.34	1,744.76	13.05	-2.85	0.762
48.50	-13.86	-22.60	0.00	-1,239.28	0.00	1,239.28	2,418.11	1,209.06	3,337.71	1,671.33	15.23	-3.10	0.748
50.00	-13.37	-22.37	0.00	-1,205.37	0.00	1,205.37	2,399.16	1,199.58	3,275.45	1,640.16	16.22	-3.21	0.741
53.25	-12.39	-22.09	0.00	-1,132.67	0.00	1,132.67	1,780.46	890.23	2,418.73	1,211.16	18.49	-3.44	0.943
55.00	-12.04	-21.78	0.00	-1,094.02	0.00	1,094.02	1,765.81	882.91	2,367.84	1,185.68	19.77	-3.57	0.930
60.00	-11.17	-21.31	0.00	-985.10	0.00	985.10	1,722.81	861.40	2,223.77	1,113.54	23.74	-4.00	0.892
65.00	-10.33	-20.83	0.00	-878.56	0.00	878.56	1,678.06	839.03	2,081.85	1,042.47	28.15	-4.42	0.850
70.00	-9.52	-20.36	0.00	-774.40	0.00	774.40	1,631.58	815.79	1,942.35	972.62	33.01	-4.85	0.803
75.00	-8.73	-19.89	0.00	-672.61	0.00	672.61	1,583.36	791.68	1,805.54	904.11	38.31	-5.27	0.750
80.00	-7.98	-19.42	0.00	-573.17	0.00	573.17	1,533.40	766.70	1,671.66	837.07	44.05	-5.68	0.691
85.00	-7.25	-18.96	0.00	-476.06	0.00	476.06	1,481.71	740.85	1,541.00	771.64	50.20	-6.08	0.622
90.00	-6.56	-18.51	0.00	-381.26	0.00	381.26	1,423.64	711.82	1,409.21	705.65	56.76	-6.45	0.546
95.00	-5.91	-18.10	0.00	-288.72	0.00	288.72	1,352.24	676.12	1,270.72	636.30	63.69	-6.79	0.459
98.75	-5.45	-17.86	0.00	-220.83	0.00	220.83	1,298.70	649.35	1,171.55	586.65	69.11	-7.01	0.381
100.00	-3.06	-10.67	0.00	-189.22	0.00	189.22	1,280.85	640.42	1,139.39	570.54	70.95	-7.08	0.334
102.00	-2.76	-10.44	0.00	-167.88	0.00	167.88	915.85	457.92	815.25	408.23	73.93	-7.18	0.415
105.00	-2.52	-10.12	0.00	-136.55	0.00	136.55	894.17	447.09	769.04	385.09	78.48	-7.32	0.358
110.00	-2.14	-9.71	0.00	-85.96	0.00	85.96	856.65	428.33	693.81	347.42	86.25	-7.55	0.250
115.00	-1.79	-9.35	0.00	-37.40	0.00	37.40	817.40	408.70	621.02	310.97	94.22	-7.70	0.123
119.00	0.00	-9.03	0.00	0.00	0.00	0.00	776.49	388.25	558.79	279.81	100.68	-7.74	0.001

Site Number: 283422

Code: ANSI/TIA-222-G

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Site Name: Short Beach Branford CT, CT

Engineering Number: 64190921

11/9/2015 3:58:32 PM

Customer: Verizon Wireless

Load Case: 0.9D + 1.6W

110 mph with No Ice (Reduced DL)

23 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		273.0	0.0					0.0	0.0	273.0	0.0	0.0	0.0
5.00		538.6	680.1					0.0	169.0	538.6	849.1	0.0	0.0
10.00		524.0	661.7					0.0	169.0	524.0	830.7	0.0	0.0
15.00		517.2	643.3					0.0	169.0	517.2	812.3	0.0	0.0
20.00		523.9	624.9					0.0	169.0	523.9	793.9	0.0	0.0
25.00		533.1	606.6					0.0	169.0	533.1	775.5	0.0	0.0
30.00		537.2	588.2					0.0	169.0	537.2	757.1	0.0	0.0
35.00		537.6	569.8					0.0	169.0	537.6	738.7	0.0	0.0
40.00		535.0	551.4					0.0	169.0	535.0	720.3	0.0	0.0
45.00		451.3	533.0					0.0	169.0	451.3	701.9	0.0	0.0
48.50	Bot - Section 2	264.6	362.1					0.0	118.3	264.6	480.4	0.0	0.0
50.00		251.6	276.4					0.0	50.7	251.6	327.1	0.0	0.0
53.25	Top - Section 1	263.5	588.7					0.0	109.8	263.5	698.6	0.0	0.0
55.00		350.6	139.7					0.0	59.1	350.6	198.8	0.0	0.0
60.00		512.5	389.1					0.0	169.0	512.5	558.0	0.0	0.0
65.00		501.3	374.4					0.0	169.0	501.3	543.3	0.0	0.0
70.00		488.9	359.6					0.0	169.0	488.9	528.6	0.0	0.0
75.00		475.5	344.9					0.0	169.0	475.5	513.9	0.0	0.0
80.00		461.2	330.2					0.0	169.0	461.2	499.2	0.0	0.0
85.00		446.0	315.5					0.0	169.0	446.0	484.5	0.0	0.0
90.00		430.1	300.8					0.0	169.0	430.1	469.8	0.0	0.0
95.00		363.6	286.1					0.0	169.0	363.6	455.0	0.0	0.0
98.75	Bot - Section 3	203.3	204.9					0.0	126.7	203.3	331.6	0.0	0.0
100.00	Appertunance(s)	130.5	117.3	6,719.1	0.0	9,280.1	2,274.0	0.0	42.2	6,849.6	2,433.6	0.0	0.0
102.00	Top - Section 2	197.0	184.3					0.0	45.2	197.0	229.5	0.0	0.0
105.00		305.1	116.6					0.0	67.8	305.1	184.3	0.0	0.0
110.00		366.5	185.4					0.0	113.0	366.5	298.4	0.0	0.0
115.00		314.5	174.4					0.0	113.0	314.5	287.4	0.0	0.0
119.00	Appertunance(s)	135.9	131.6	8,889.8	0.0	-4,757.0	2,050.4	0.0	90.2	9,025.7	2,272.1	0.0	0.0
Totals:										27,042.1	18,773.9	0.00	0.00

Site Number: 283422

Code: ANSI/TIA-222-G

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Site Name: Short Beach Branford CT, CT

Engineering Number: 64190921

11/9/2015 3:58:33 PM

Customer: Verizon Wireless

Load Case: 0.9D + 1.6W

110 mph with No Ice (Reduced DL)

23 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	-18.71	-26.82	0.00	-2,427.93	0.00	2,427.93	2,946.72	1,473.36	5,500.90	2,754.54	0.00	0.00	0.888
5.00	-17.72	-26.37	0.00	-2,293.84	0.00	2,293.84	2,899.78	1,449.89	5,267.84	2,637.84	0.15	-0.29	0.876
10.00	-16.76	-25.92	0.00	-2,162.01	0.00	2,162.01	2,851.11	1,425.56	5,036.42	2,521.95	0.61	-0.58	0.863
15.00	-15.82	-25.48	0.00	-2,032.40	0.00	2,032.40	2,800.70	1,400.35	4,806.90	2,407.03	1.38	-0.88	0.850
20.00	-14.90	-25.02	0.00	-1,905.00	0.00	1,905.00	2,748.55	1,374.28	4,579.55	2,293.18	2.47	-1.19	0.836
25.00	-14.00	-24.55	0.00	-1,779.89	0.00	1,779.89	2,694.66	1,347.33	4,354.62	2,180.54	3.88	-1.50	0.822
30.00	-13.13	-24.07	0.00	-1,657.15	0.00	1,657.15	2,639.04	1,319.52	4,132.37	2,069.25	5.62	-1.82	0.806
35.00	-12.27	-23.57	0.00	-1,536.82	0.00	1,536.82	2,581.67	1,290.84	3,913.06	1,959.44	7.71	-2.15	0.789
40.00	-11.44	-23.08	0.00	-1,418.96	0.00	1,418.96	2,522.57	1,261.29	3,696.97	1,851.23	10.14	-2.48	0.771
45.00	-10.64	-22.65	0.00	-1,303.57	0.00	1,303.57	2,461.73	1,230.87	3,484.34	1,744.76	12.92	-2.82	0.752
48.50	-10.11	-22.39	0.00	-1,224.30	0.00	1,224.30	2,418.11	1,209.06	3,337.71	1,671.33	15.08	-3.07	0.737
50.00	-9.73	-22.15	0.00	-1,190.72	0.00	1,190.72	2,399.16	1,199.58	3,275.45	1,640.16	16.06	-3.18	0.730
53.25	-8.98	-21.88	0.00	-1,118.73	0.00	1,118.73	1,780.46	890.23	2,418.73	1,211.16	18.30	-3.41	0.929
55.00	-8.70	-21.56	0.00	-1,080.45	0.00	1,080.45	1,765.81	882.91	2,367.84	1,185.68	19.57	-3.53	0.917
60.00	-8.02	-21.07	0.00	-972.67	0.00	972.67	1,722.81	861.40	2,223.77	1,113.54	23.50	-3.95	0.879
65.00	-7.36	-20.58	0.00	-867.34	0.00	867.34	1,678.06	839.03	2,081.85	1,042.47	27.86	-4.37	0.837
70.00	-6.73	-20.10	0.00	-764.43	0.00	764.43	1,631.58	815.79	1,942.35	972.62	32.66	-4.79	0.791
75.00	-6.12	-19.63	0.00	-663.91	0.00	663.91	1,583.36	791.68	1,805.54	904.11	37.90	-5.21	0.739
80.00	-5.53	-19.16	0.00	-565.77	0.00	565.77	1,533.40	766.70	1,671.66	837.07	43.57	-5.62	0.680
85.00	-4.97	-18.70	0.00	-469.97	0.00	469.97	1,481.71	740.85	1,541.00	771.64	49.66	-6.01	0.613
90.00	-4.44	-18.25	0.00	-376.46	0.00	376.46	1,423.64	711.82	1,409.21	705.65	56.14	-6.38	0.537
95.00	-3.94	-17.86	0.00	-285.21	0.00	285.21	1,352.24	676.12	1,270.72	636.30	62.99	-6.71	0.452
98.75	-3.59	-17.62	0.00	-218.24	0.00	218.24	1,298.70	649.35	1,171.55	586.65	68.34	-6.93	0.376
100.00	-1.99	-10.53	0.00	-186.93	0.00	186.93	1,280.85	640.42	1,139.39	570.54	70.16	-7.00	0.329
102.00	-1.77	-10.31	0.00	-165.87	0.00	165.87	915.85	457.92	815.25	408.23	73.11	-7.10	0.409
105.00	-1.59	-9.99	0.00	-134.93	0.00	134.93	894.17	447.09	769.04	385.09	77.60	-7.23	0.353
110.00	-1.31	-9.60	0.00	-84.97	0.00	84.97	856.65	428.33	693.81	347.42	85.29	-7.46	0.247
115.00	-1.05	-9.25	0.00	-36.99	0.00	36.99	817.40	408.70	621.02	310.97	93.17	-7.61	0.121
119.00	0.00	-9.03	0.00	0.00	0.00	0.00	776.49	388.25	558.79	279.81	99.55	-7.65	0.001

Site Number: 283422

Code: ANSI/TIA-222-G

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Site Name: Short Beach Branford CT, CT

Engineering Number: 64190921

11/9/2015 3:58:33 PM

Customer: Verizon Wireless

Load Case: 1.2D + 1.0Di + 1.0Wi

50 mph with 0.75 in Radial Ice

22 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		68.4	0.0					0.0	0.0	68.4	0.0	0.0	0.0
5.00		135.4	1,238.2					0.0	225.3	135.4	1,463.5	0.0	0.0
10.00		132.5	1,243.4					0.0	225.3	132.5	1,468.7	0.0	0.0
15.00		131.3	1,228.1					0.0	225.3	131.3	1,453.4	0.0	0.0
20.00		133.5	1,205.9					0.0	225.3	133.5	1,431.2	0.0	0.0
25.00		136.3	1,180.2					0.0	225.3	136.3	1,405.5	0.0	0.0
30.00		137.8	1,152.3					0.0	225.3	137.8	1,377.6	0.0	0.0
35.00		138.4	1,122.9					0.0	225.3	138.4	1,348.2	0.0	0.0
40.00		138.2	1,092.3					0.0	225.3	138.2	1,317.6	0.0	0.0
45.00		117.0	1,060.7					0.0	225.3	117.0	1,286.0	0.0	0.0
48.50	Bot - Section 2	68.7	724.6					0.0	157.7	68.7	882.3	0.0	0.0
50.00		65.4	473.2					0.0	67.6	65.4	540.8	0.0	0.0
53.25	Top - Section 1	68.6	1,007.6					0.0	146.4	68.6	1,154.1	0.0	0.0
55.00		91.6	305.2					0.0	78.9	91.6	384.1	0.0	0.0
60.00		134.3	848.9					0.0	225.3	134.3	1,074.2	0.0	0.0
65.00		131.9	820.1					0.0	225.3	131.9	1,045.4	0.0	0.0
70.00		129.3	790.8					0.0	225.3	129.3	1,016.1	0.0	0.0
75.00		126.3	761.2					0.0	225.3	126.3	986.5	0.0	0.0
80.00		123.2	731.3					0.0	225.3	123.2	956.6	0.0	0.0
85.00		119.8	701.2					0.0	225.3	119.8	926.5	0.0	0.0
90.00		116.3	670.8					0.0	225.3	116.3	896.1	0.0	0.0
95.00		98.9	640.1					0.0	225.3	98.9	865.4	0.0	0.0
98.75	Bot - Section 3	55.5	461.0					0.0	169.0	55.5	630.0	0.0	0.0
100.00	Appertunance(s)	35.7	219.4	1,148.2	0.0	1,386.2	6,400.7	0.0	56.3	1,183.9	6,676.4	0.0	0.0
102.00	Top - Section 2	54.1	344.7					0.0	60.3	54.1	404.9	0.0	0.0
105.00		84.3	299.5					0.0	90.4	84.3	389.9	0.0	0.0
110.00		102.0	475.6					0.0	150.7	102.0	626.3	0.0	0.0
115.00		88.3	449.2					0.0	150.7	88.3	599.8	0.0	0.0
119.00	Appertunance(s)	38.4	341.2	1,435.7	0.0	-673.8	7,440.1	0.0	120.2	1,474.1	7,901.5	0.0	0.0
Totals:										5,585.14	40,508.8	0.00	0.00

Site Number: 283422

Code: ANSI/TIA-222-G

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Site Name: Short Beach Branford CT, CT

Engineering Number: 64190921

11/9/2015 3:58:34 PM

Customer: Verizon Wireless

Load Case: 1.2D + 1.0Di + 1.0Wi

50 mph with 0.75 in Radial Ice

22 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	-40.51	-5.54	0.00	-487.71	0.00	487.71	2,946.72	1,473.36	5,500.90	2,754.54	0.00	0.00	0.191
5.00	-39.04	-5.44	0.00	-460.03	0.00	460.03	2,899.78	1,449.89	5,267.84	2,637.84	0.03	-0.06	0.188
10.00	-37.56	-5.35	0.00	-432.83	0.00	432.83	2,851.11	1,425.56	5,036.42	2,521.95	0.12	-0.12	0.185
15.00	-36.10	-5.25	0.00	-406.10	0.00	406.10	2,800.70	1,400.35	4,806.90	2,407.03	0.28	-0.18	0.182
20.00	-34.67	-5.15	0.00	-379.86	0.00	379.86	2,748.55	1,374.28	4,579.55	2,293.18	0.49	-0.24	0.178
25.00	-33.26	-5.04	0.00	-354.13	0.00	354.13	2,694.66	1,347.33	4,354.62	2,180.54	0.78	-0.30	0.175
30.00	-31.88	-4.93	0.00	-328.92	0.00	328.92	2,639.04	1,319.52	4,132.37	2,069.25	1.13	-0.36	0.171
35.00	-30.52	-4.82	0.00	-304.27	0.00	304.27	2,581.67	1,290.84	3,913.06	1,959.44	1.54	-0.43	0.167
40.00	-29.20	-4.70	0.00	-280.18	0.00	280.18	2,522.57	1,261.29	3,696.97	1,851.23	2.03	-0.49	0.163
45.00	-27.91	-4.60	0.00	-256.67	0.00	256.67	2,461.73	1,230.87	3,484.34	1,744.76	2.58	-0.56	0.158
48.50	-27.03	-4.54	0.00	-240.56	0.00	240.56	2,418.11	1,209.06	3,337.71	1,671.33	3.01	-0.61	0.155
50.00	-26.48	-4.48	0.00	-233.75	0.00	233.75	2,399.16	1,199.58	3,275.45	1,640.16	3.21	-0.63	0.154
53.25	-25.33	-4.42	0.00	-219.17	0.00	219.17	1,780.46	890.23	2,418.73	1,211.16	3.65	-0.68	0.195
55.00	-24.94	-4.35	0.00	-211.44	0.00	211.44	1,765.81	882.91	2,367.84	1,185.68	3.90	-0.70	0.192
60.00	-23.86	-4.23	0.00	-189.71	0.00	189.71	1,722.81	861.40	2,223.77	1,113.54	4.68	-0.78	0.184
65.00	-22.81	-4.12	0.00	-168.55	0.00	168.55	1,678.06	839.03	2,081.85	1,042.47	5.55	-0.87	0.175
70.00	-21.79	-4.00	0.00	-147.97	0.00	147.97	1,631.58	815.79	1,942.35	972.62	6.50	-0.95	0.166
75.00	-20.80	-3.89	0.00	-127.95	0.00	127.95	1,583.36	791.68	1,805.54	904.11	7.53	-1.03	0.155
80.00	-19.85	-3.77	0.00	-108.51	0.00	108.51	1,533.40	766.70	1,671.66	837.07	8.65	-1.11	0.143
85.00	-18.92	-3.66	0.00	-89.64	0.00	89.64	1,481.71	740.85	1,541.00	771.64	9.85	-1.18	0.129
90.00	-18.02	-3.55	0.00	-71.34	0.00	71.34	1,423.64	711.82	1,409.21	705.65	11.12	-1.25	0.114
95.00	-17.15	-3.44	0.00	-53.62	0.00	53.62	1,352.24	676.12	1,270.72	636.30	12.47	-1.31	0.097
98.75	-16.52	-3.38	0.00	-40.71	0.00	40.71	1,298.70	649.35	1,171.55	586.65	13.52	-1.35	0.082
100.00	-9.88	-2.04	0.00	-35.09	0.00	35.09	1,280.85	640.42	1,139.39	570.54	13.87	-1.37	0.069
102.00	-9.47	-1.98	0.00	-31.01	0.00	31.01	915.85	457.92	815.25	408.23	14.45	-1.39	0.086
105.00	-9.08	-1.89	0.00	-25.07	0.00	25.07	894.17	447.09	769.04	385.09	15.33	-1.41	0.075
110.00	-8.46	-1.78	0.00	-15.61	0.00	15.61	856.65	428.33	693.81	347.42	16.83	-1.45	0.055
115.00	-7.86	-1.68	0.00	-6.71	0.00	6.71	817.40	408.70	621.02	310.97	18.37	-1.48	0.031
119.00	0.00	-1.47	0.00	0.00	0.00	0.00	776.49	388.25	558.79	279.81	19.61	-1.49	0.000

Site Number: 283422

Code: ANSI/TIA-222-G

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Site Name: Short Beach Branford CT, CT

Engineering Number: 64190921

11/9/2015 3:58:34 PM

Customer: Verizon Wireless

Load Case: 1.0D + 1.0W

Serviceability 60 mph

21 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		50.8	0.0					0.0	0.0	50.8	0.0	0.0	0.0
5.00		100.2	755.7					0.0	187.7	100.2	943.4	0.0	0.0
10.00		97.4	735.3					0.0	187.7	97.4	923.0	0.0	0.0
15.00		96.2	714.8					0.0	187.7	96.2	902.6	0.0	0.0
20.00		97.4	694.4					0.0	187.7	97.4	882.1	0.0	0.0
25.00		99.1	673.9					0.0	187.7	99.1	861.7	0.0	0.0
30.00		99.9	653.5					0.0	187.7	99.9	841.3	0.0	0.0
35.00		100.0	633.1					0.0	187.7	100.0	820.8	0.0	0.0
40.00		99.5	612.6					0.0	187.7	99.5	800.4	0.0	0.0
45.00		83.9	592.2					0.0	187.7	83.9	779.9	0.0	0.0
48.50	Bot - Section 2	49.2	402.4					0.0	131.4	49.2	533.8	0.0	0.0
50.00		46.8	307.2					0.0	56.3	46.8	363.5	0.0	0.0
53.25	Top - Section 1	49.0	654.2					0.0	122.0	49.0	776.2	0.0	0.0
55.00		65.2	155.2					0.0	65.7	65.2	220.9	0.0	0.0
60.00		95.3	432.3					0.0	187.7	95.3	620.0	0.0	0.0
65.00		93.2	415.9					0.0	187.7	93.2	603.7	0.0	0.0
70.00		90.9	399.6					0.0	187.7	90.9	587.3	0.0	0.0
75.00		88.4	383.2					0.0	187.7	88.4	571.0	0.0	0.0
80.00		85.8	366.9					0.0	187.7	85.8	554.6	0.0	0.0
85.00		82.9	350.5					0.0	187.7	82.9	538.3	0.0	0.0
90.00		80.0	334.2					0.0	187.7	80.0	521.9	0.0	0.0
95.00		67.6	317.8					0.0	187.7	67.6	505.6	0.0	0.0
98.75	Bot - Section 3	37.8	227.7					0.0	140.8	37.8	368.5	0.0	0.0
100.00	Appertunance(s)	24.3	130.3	1,249.4	0.0	1,725.6	2,526.7	0.0	46.9	1,273.7	2,704.0	0.0	0.0
102.00	Top - Section 2	36.6	204.8					0.0	50.2	36.6	255.0	0.0	0.0
105.00		56.7	129.5					0.0	75.3	56.7	204.8	0.0	0.0
110.00		68.1	206.0					0.0	125.5	68.1	331.6	0.0	0.0
115.00		58.5	193.8					0.0	125.5	58.5	319.3	0.0	0.0
119.00	Appertunance(s)	25.3	146.2	1,653.1	0.0	-884.6	2,278.2	0.0	100.2	1,678.3	2,524.6	0.0	0.0
Totals:										5,028.50	20,859.9	0.00	0.00

Site Number: 283422

Code: ANSI/TIA-222-G

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Site Name: Short Beach Branford CT, CT

Engineering Number: 64190921

11/9/2015 3:58:34 PM

Customer: Verizon Wireless

Load Case: 1.0D + 1.0W

Serviceability 60 mph

21 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	-20.86	-4.99	0.00	-453.86	0.00	453.86	2,946.72	1,473.36	5,500.90	2,754.54	0.00	0.00	0.172
5.00	-19.91	-4.91	0.00	-428.92	0.00	428.92	2,899.78	1,449.89	5,267.84	2,637.84	0.03	-0.05	0.169
10.00	-18.98	-4.82	0.00	-404.40	0.00	404.40	2,851.11	1,425.56	5,036.42	2,521.95	0.11	-0.11	0.167
15.00	-18.07	-4.74	0.00	-380.27	0.00	380.27	2,800.70	1,400.35	4,806.90	2,407.03	0.26	-0.16	0.164
20.00	-17.19	-4.66	0.00	-356.55	0.00	356.55	2,748.55	1,374.28	4,579.55	2,293.18	0.46	-0.22	0.162
25.00	-16.32	-4.58	0.00	-333.25	0.00	333.25	2,694.66	1,347.33	4,354.62	2,180.54	0.73	-0.28	0.159
30.00	-15.48	-4.49	0.00	-310.37	0.00	310.37	2,639.04	1,319.52	4,132.37	2,069.25	1.05	-0.34	0.156
35.00	-14.65	-4.40	0.00	-287.93	0.00	287.93	2,581.67	1,290.84	3,913.06	1,959.44	1.44	-0.40	0.153
40.00	-13.85	-4.31	0.00	-265.94	0.00	265.94	2,522.57	1,261.29	3,696.97	1,851.23	1.90	-0.46	0.149
45.00	-13.06	-4.23	0.00	-244.41	0.00	244.41	2,461.73	1,230.87	3,484.34	1,744.76	2.42	-0.53	0.145
48.50	-12.53	-4.18	0.00	-229.60	0.00	229.60	2,418.11	1,209.06	3,337.71	1,671.33	2.82	-0.57	0.143
50.00	-12.16	-4.14	0.00	-223.33	0.00	223.33	2,399.16	1,199.58	3,275.45	1,640.16	3.01	-0.59	0.141
53.25	-11.39	-4.09	0.00	-209.88	0.00	209.88	1,780.46	890.23	2,418.73	1,211.16	3.43	-0.64	0.180
55.00	-11.16	-4.03	0.00	-202.73	0.00	202.73	1,765.81	882.91	2,367.84	1,185.68	3.66	-0.66	0.177
60.00	-10.54	-3.94	0.00	-182.57	0.00	182.57	1,722.81	861.40	2,223.77	1,113.54	4.40	-0.74	0.170
65.00	-9.93	-3.85	0.00	-162.86	0.00	162.86	1,678.06	839.03	2,081.85	1,042.47	5.22	-0.82	0.162
70.00	-9.34	-3.77	0.00	-143.59	0.00	143.59	1,631.58	815.79	1,942.35	972.62	6.12	-0.90	0.153
75.00	-8.76	-3.68	0.00	-124.76	0.00	124.76	1,583.36	791.68	1,805.54	904.11	7.10	-0.98	0.144
80.00	-8.21	-3.60	0.00	-106.35	0.00	106.35	1,533.40	766.70	1,671.66	837.07	8.17	-1.05	0.132
85.00	-7.67	-3.51	0.00	-88.37	0.00	88.37	1,481.71	740.85	1,541.00	771.64	9.31	-1.13	0.120
90.00	-7.14	-3.43	0.00	-70.80	0.00	70.80	1,423.64	711.82	1,409.21	705.65	10.53	-1.20	0.105
95.00	-6.63	-3.36	0.00	-53.65	0.00	53.65	1,352.24	676.12	1,270.72	636.30	11.81	-1.26	0.089
98.75	-6.27	-3.32	0.00	-41.05	0.00	41.05	1,298.70	649.35	1,171.55	586.65	12.82	-1.30	0.075
100.00	-3.59	-1.98	0.00	-35.18	0.00	35.18	1,280.85	640.42	1,139.39	570.54	13.16	-1.31	0.064
102.00	-3.34	-1.94	0.00	-31.22	0.00	31.22	915.85	457.92	815.25	408.23	13.72	-1.33	0.080
105.00	-3.13	-1.88	0.00	-25.40	0.00	25.40	894.17	447.09	769.04	385.09	14.56	-1.36	0.069
110.00	-2.80	-1.81	0.00	-16.00	0.00	16.00	856.65	428.33	693.81	347.42	16.01	-1.40	0.049
115.00	-2.48	-1.74	0.00	-6.96	0.00	6.96	817.40	408.70	621.02	310.97	17.49	-1.43	0.025
119.00	0.00	-1.68	0.00	0.00	0.00	0.00	776.49	388.25	558.79	279.81	18.69	-1.44	0.000

Site Number: 283422

Code: ANSI/TIA-222-G

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Site Name: Short Beach Branford CT, CT

Engineering Number: 64190921

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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	26.83	0.00	24.96	0.00	0.00	2448.98	53.25	0.94
0.9D + 1.6W	26.82	0.00	18.71	0.00	0.00	2427.93	53.25	0.93
1.2D + 1.0Di + 1.0Wi	5.54	0.00	40.51	0.00	0.00	487.71	53.25	0.20
1.0D + 1.0W	4.99	0.00	20.86	0.00	0.00	453.86	53.25	0.18

Site Number: 283422

Code: ANSI/TIA-222-G

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Site Name: Short Beach Branford CT, CT

Engineering Number: 64190921

11/9/2015 3:58:34 PM

Customer: Verizon Wireless

Base Summary

Reactions

Original Design			Analysis			
Moment (kip-ft)	Axial (kip)	Shear (kip)	Moment (kip-ft)	Axial (kip)	Shear (kip)	Moment Design %
2,678.30	28.60	30.21	2,448.98	40.51	26.83	91.44

Base Plate

Yield (ksi)	Thick (in)	Width (in)	Style	Poly Sides	Clip Len (in)	Effective Len (in)	Mu (kip-in)	Phi Mn (kip-in)	Ratio
50.0	2.500	50.250	Clipped	0	9.00	8.453	582.82	594.32	0.98

Anchor Bolts

Bolt Circle	Num Bolts	Bolt Type	Bolt Dia (in)	Yield (ksi)	Ultimate (ksi)	Cluster Arrange	Cluster Dist (in)	Start Angle (deg)	Compression			Tension		
									Force (kip)	Allow (kip)	Ratio	Force (kip)	Allow (kip)	Ratio
51.75	12	2.25" 18J	2.25	75.00	100.00	Clustered	6.00	45.0	192.67	260.00	0.76	185.92	260.00	0.73

Site Number: **283422**
 Site Name: **Short Beach Branford CT, CT**
 Job Number: **64190921**
 Engineer: **CRF**
 Date: **11/9/2015**

Base Plate and Bolt Analysis

Moment: 2449.0 k-ft
 Shear/Leg: 26.8 k
 Compression/Leg: 40.5 k

TIA-222 Code Revision (F/G):

Anchor Bolt Arrangement: G
 Monopole Shaft Diameter (Across Flats): 45.7 in
 Lower Monopole Thickness: 0.313 in
 # of Sides of Pole: 18
 Monopole Shaft Yield Strength: 65 ksi
 Baseplate Diameter / Length: 50.25
 Base Plate Thickness: 2.50 in
 Base Plate Yield Strength: 50 ksi
 Baseplate Detail Type: D
 Include Plate Thickness Beyond Bolt Circle: Y
 Stress Increase: 1.00
 Fillet Weld Size: 0.375 in
 Weld Type (CJP or F/F): CJP
 Weld Strength: 70 ksi

Anchor Bolts

Anchor Bolt Yield Strength: 75 ksi
 Anchor Bolt Ultimate Strength: 100 ksi
 Anchor Bolt Diameter: 2.25 in
 Anchor Bolt Circle: 51.75 in
 # of Anchor Bolts: 12
 Minimum Anchor Bolt Separation: 6.00 in
 Additional Anchor Bolts Installed: N

Baseplate Flexural Capacity

Baseplate Shear Capacity

Failure Mode:	Effective Width (in)	Moment (k-in)	S/Z (in ³)	Capacity (k-in)	Usage	Shear (k)	Area (in ²)	Capacity (k)	Usage
AA	27.90	1256.9	43.6	1962.1	0.64	567.4	69.8	1883.6	0.30
AB	30.36	1624.9	47.4	2134.9	0.76	567.4	75.9	2049.5	0.28
BA	29.28	1456.9	45.8	2058.8	0.71	567.4	73.2	1976.5	0.29
BB	30.59	1650.0	47.8	2151.1	0.77	567.4	76.5	2065.1	0.27

Anchor Bolt Capacity

Area of Bolt: 3.25 in²
 Inertia of Bolt: 0.84 in⁴
 Total Bolt Inertia: 13056.3 in⁴
 Maximum Bolt Tension: 185.8 k
 Maximum Bolt Compression: 192.5 k
 Bolt Shear: 2.2 k
 Tensile Bolt Capacity: 259.8 k
 Compressive Bolt Capacity: 259.8 k
 Shear Bolt Capacity: 140.3 k
 Interaction Equation: 0.76 Result: OK

Base Weld Capacity

Force / Weld: 14.3 k/in
 Weld Capacity: 24.2 k/in
 Interaction Equation: 0.59 Result: OK

SES Base Plate Design Moment: 582.4 k-in
 Design Stress: 31.2 ksi
 SES Base Plate Allowable Stress / Moment Capacity: 841.2 ksi / k-in
 Usage: 0.69

Moment Factor: 2.83
 Length Factor: 2.56

