Mathews, Lisa A

From: Holzschuh, Cymon
Sent: Monday, September 28, 2015 3:55 PM
To: 'Craig Cody'
Cc: Walsh, Christina; Mathews, Lisa A
Subject: RE: Exempt modification filing for 1069 Connecticut Ave received Sept. 23, 2015

Thanks!

Cymon Holzschuh
Siting Analyst
Connecticut Siting Council
10 Franklin Square
New Britain, CT 06051
P: 860.827.2941 | F: 860.827.2950

Connecticut Department of
ENERGY &
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Conserving, improving and protecting our natural resources and environment;
Ensuring a clean, affordable, reliable, and sustainable energy supply.

From: Craig Cody [mailto:ccody@trmcom.com]
Sent: Monday, September 28, 2015 3:54 PM
To: Holzschuh, Cymon
Cc: Walsh, Christina; Mathews, Lisa A
Subject: RE: Exempt modification filing for 1069 Connecticut Ave received Sept. 23, 2015

Hi Cymon,

Sure no problem, please see attached.

If you have any questions or need additional information please let me know.

Thanks,
-Craig
781.831.1281

From: Holzschuh, Cymon [mailto:Cymon.Holzschuh@ct.gov]
Sent: Monday, September 28, 2015 3:47 PM
To: Craig Cody <ccody@trmcom.com>

Cc: Walsh, Christina <Christina.Walsh@ct.gov>; Mathews, Lisa A <Lisa.A.Mathews@ct.gov>
Subject: Exempt modification filing for 1069 Connecticut Ave received Sept. 23, 2015

Hello,

Can you send the full structural analysis for this filing electronically, please?

Thanks,

Cymon Holzschuh
Siting Analyst
Connecticut Siting Council
10 Franklin Square
New Britain, CT 06051
P: 860.827.2941 | F: 860.827.2950

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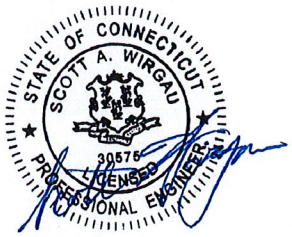
Structural Analysis Report

Structure	:	**126 ft Monopole**
ATC Site Name	:	**Bridgeport CT 2, CT**
ATC Site Number	:	**302469**
Engineering Number	:	**63532322**
Proposed Carrier	:	**T-Mobile**
Carrier Site Name	:	**Bridgeport/Connecticut Av**
Carrier Site Number	:	**CT11452A**
Site Location	:	**1069 Connecticut Avenue** **Bridgeport, CT 06607-1226** **41.183617,-73.158383**
County	:	**Fairfield**
Date	:	**September 3, 2015**
Max Usage	:	**93%**
Result	:	**Pass**

Reviewed by:
Scott Wirgau, PE
Structural Team Leader



Prepared By:
Vivian Chung

Sep 4 2015 5:05 PM

COA: PEC.0001553

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Eng. Number 63532322
September 3, 2015

Table of Contents

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Introduction

The purpose of this report is to summarize results of a structural analysis performed on the 126 ft monopole to reflect the change in loading by T-Mobile.

Supporting Documents

Tower Drawings	EEI Project #5543, dated October 14, 1999
Foundation Drawing	EEI Project #5543, dated October 14, 1999
Geotechnical Report	Applied Earth Technologies Project #9903A, dated November 23, 1999
Modifications	ATC Project #41045932, dated November 2, 2007

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:	B
Topographic Category:	1
Crest Height:	0 ft
Spectral Response:	Ss = 0.20, S_1 = 0.06
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					
126.0	131.0	9	48" x 12" Panel	Platform w/ Handrails	(12) 1 5/8" Coax	Sprint Nextel
		3	72" x 12" Panel			
123.0	123.0	2	DragonWave Horizon Compact	Side Arms	(6) 5/16" Coax (3) 1/2" Coax (2) 2" Conduit	Clearwire
		1	Dragonwave A-ANT-23G-1-C			
		3	NextNet BTS-2500			
		3	Argus LLPX310R			
		1	Dragonwave A-ANT-18G-2-C			
116.0	116.0	3	Andrew ETW200VS12UB	Low Profile Platform	(18) 1 5/8" Coax	T-Mobile
		6	Ericsson KRY 112 71			
		3	RFS APX16PV-16PVL-A			
		3	RFS APX16DWV-16DWVS-E-A20			
104.0	106.0	6	Powerwave LGP21901	Low Profile Platform	(4) 1.24" 4 AWG 6 (12) 1 5/8" Coax (3) 0.51" Hybrid	AT&T Mobility
		12	Powerwave LGP2140X			
		2	Raycap DC6-48-60-18-8F			
		3	Ericsson RRUS A2 B2			
		3	Ericsson RRUS-11			
		3	Ericsson RRUS 12			
		3	Ericsson RRUS E2 B29			
		3	Ericsson RRUS-32			
		3	Powerwave 7770.00			
		6	CCI OPA-65R-LCUU-H4			
98.0	98.0	3	RCU	Flush	(6) 1 5/8" Coax (1) 3/8" Coax	Metro PCS
		3	Kathrein 800 10504			
80.0	85.5	1	Antel BCD-87010__	Side Arm	(1) 7/8" Coax	Spok Holdings

Equipment to be Removed

Elevation[1] (ft)		Qty	Antenna	Mount Type	Lines	Carrier
Mount	RAD					
No loading considered as to be removed						

Proposed Equipment

Elevation[1] (ft)		Qty	Antenna	Mount Type	Lines	Carrier
Mount	RAD					
116.0	116.0	3	Kathrein Smart Bias Tee	Low Profile Platform	-	T-Mobile
		3	Andrew LNX-6515DS-VTM			

[1]Mount 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	79%	Pass
Base Plate	42%	Pass

Foundations

Reaction Component	Analysis Reactions	% of Usage
Moment (Kips-Ft)	2,617.5	75%
Axial (Kips)	35.1	7%
Shear (Kips)	27.3	93%

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.

The foundation and anchorages for this tower have factors of safety exceeding 2.0 with respect to wind.

Deflection and Sway*

Antenna Elevation (ft)	Antenna	Carrier	Deflection (ft)	Sway (Rotation) (°)
123.0	Dragonwave A-ANT-18G-2-C	Clearwire Corporation	1.500	1.353
	Dragonwave A-ANT-23G-1-C			
116.0	Kathrein Smart Bias Tee	T-Mobile	1.336	1.325
	Andrew LNX-6515DS-VTM			

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

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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:

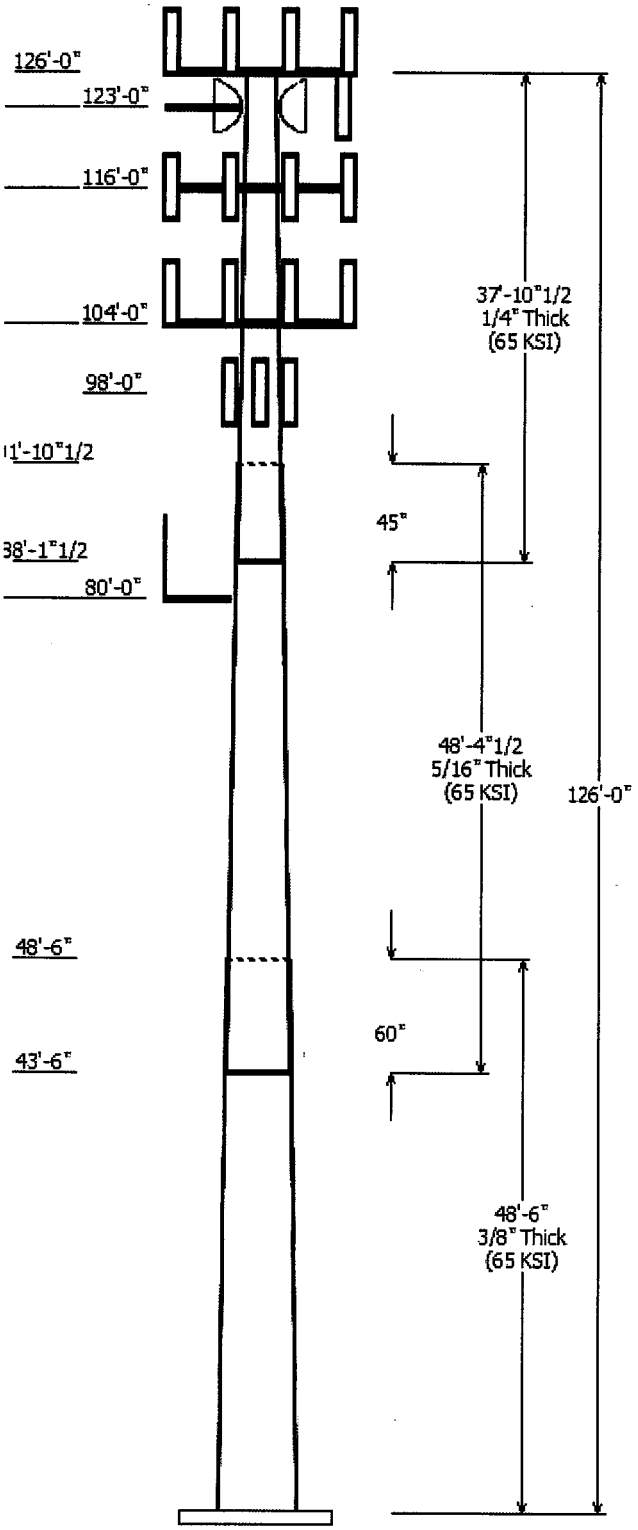
-- Information supplied by the client regarding the structure itself, antenna, mounts and feed line loading on the structure and its components, or other relevant information.

-- Information from drawings in the possession of American Tower Corporation, or generated by field inspections or measurements of the structure.

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. 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 American Tower Corporation, 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. A.T. Engineering Service, PLLC is not responsible for the conclusions, opinions and recommendations made by others based on the information we supply.



Job Information

Pole :	302469	Code:	ANSI/TIA-222-G
Description :	Monopole		
Client :	T-MOBILE	Struct Class :	II
Location :	Bridgeport CT 2, CT		
Shape :	18 Sides	Exposure :	B
Height :	126.00 (ft)	Topo :	1
Base Elev (ft):	0.00		
Taper:	0.23512 (in/ft)		

Sections Properties

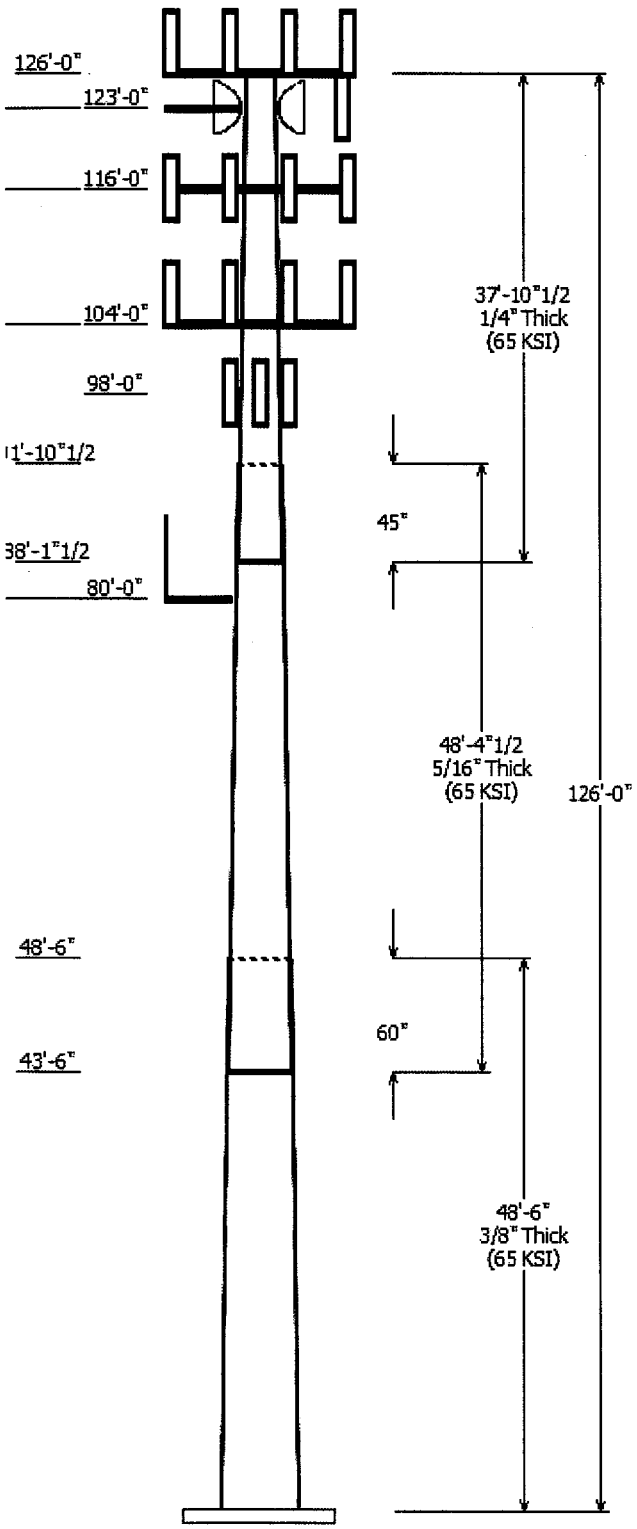
Shaft Section	Length (ft)	Diameter (in) Accross Flats Top	Bottom	Thick (in)	Joint Type	Overlap Length (in)	Taper (in/ft)	Steel Grade (ksi)
1	48.500	34.09	45.50	0.375		0.000	0.235121	65
2	48.375	24.52	35.89	0.313	Slip Joint	60.000	0.235121	65
3	37.875	17.00	25.90	0.250	Slip Joint	45.000	0.235121	65

Discrete Appurtenance

Attach Elev (ft)	Force Elev (ft)	Qty	Description
126.000	131.000	3	72" x 12" Panel
126.000	131.000	9	48" x 12" Panel
126.000	126.000	1	Flat Platform w/ Handrails
123.000	123.000	1	Dragonwave A-ANT-23G-1-C
123.000	123.000	1	Side Arms
123.000	123.000	2	DragonWave Horizon Compact
123.000	123.000	3	Argus LLPX310R
123.000	123.000	1	Dragonwave A-ANT-18G-2-C
123.000	123.000	3	NextNet BTS-2500
116.000	116.000	3	Andrew LNX-6515DS-VTM
116.000	116.000	3	Kathrein Smart Bias Tee
116.000	116.000	3	RFS APX16DWV-16DWVS-E-A20
116.000	116.000	6	Ericsson KRY 112 71
116.000	116.000	3	Andrew ETW200VS12UB
116.000	116.000	3	RFS APX16PV-16PVL-A
116.000	116.000	1	Round Low Profile Platform
104.000	106.000	12	Powerwave LGP2140X
104.000	106.000	3	Ericsson RRUS-11
104.000	104.000	1	Round Low Profile Platform
104.000	106.000	6	CCI OPA-65R-LCUU-H4
104.000	106.000	3	Powerwave 7770.00
104.000	106.000	3	Ericsson RRUS E2 B29
104.000	106.000	3	Ericsson RRUS A2 B2
104.000	106.000	3	Ericsson RRUS-32
104.000	106.000	3	Ericsson RRUS 12
104.000	106.000	6	Powerwave LGP21901
104.000	106.000	2	Raycap DC6-48-60-18-8F
98.000	98.000	3	RCU
98.000	98.000	3	Kathrein 800 10504
80.000	85.500	1	Antel BCD-87010__
80.000	80.000	1	Flat Side Arm

Linear Appurtenance

Elev (ft) From	To	Description	Exposed To Wind
0.000	80.000	7/8" Coax	No
0.000	98.000	1 5/8" Coax	Yes
0.000	98.000	3/8" Coax	Yes
0.000	104.0	0.51" Hybrid	Yes
0.000	104.0	1 5/8" Coax	Yes
0.000	104.0	1.24" (31.6mm) 4	No
0.000	116.0	1 5/8" Coax	No



0.000	116.0	1 5/8" Coax	No
0.000	123.0	1/2" Coax	No
0.000	123.0	2" Conduit	No
0.000	123.0	5/16" Coax	No
0.000	126.0	1 5/8" Coax	No

Load Cases

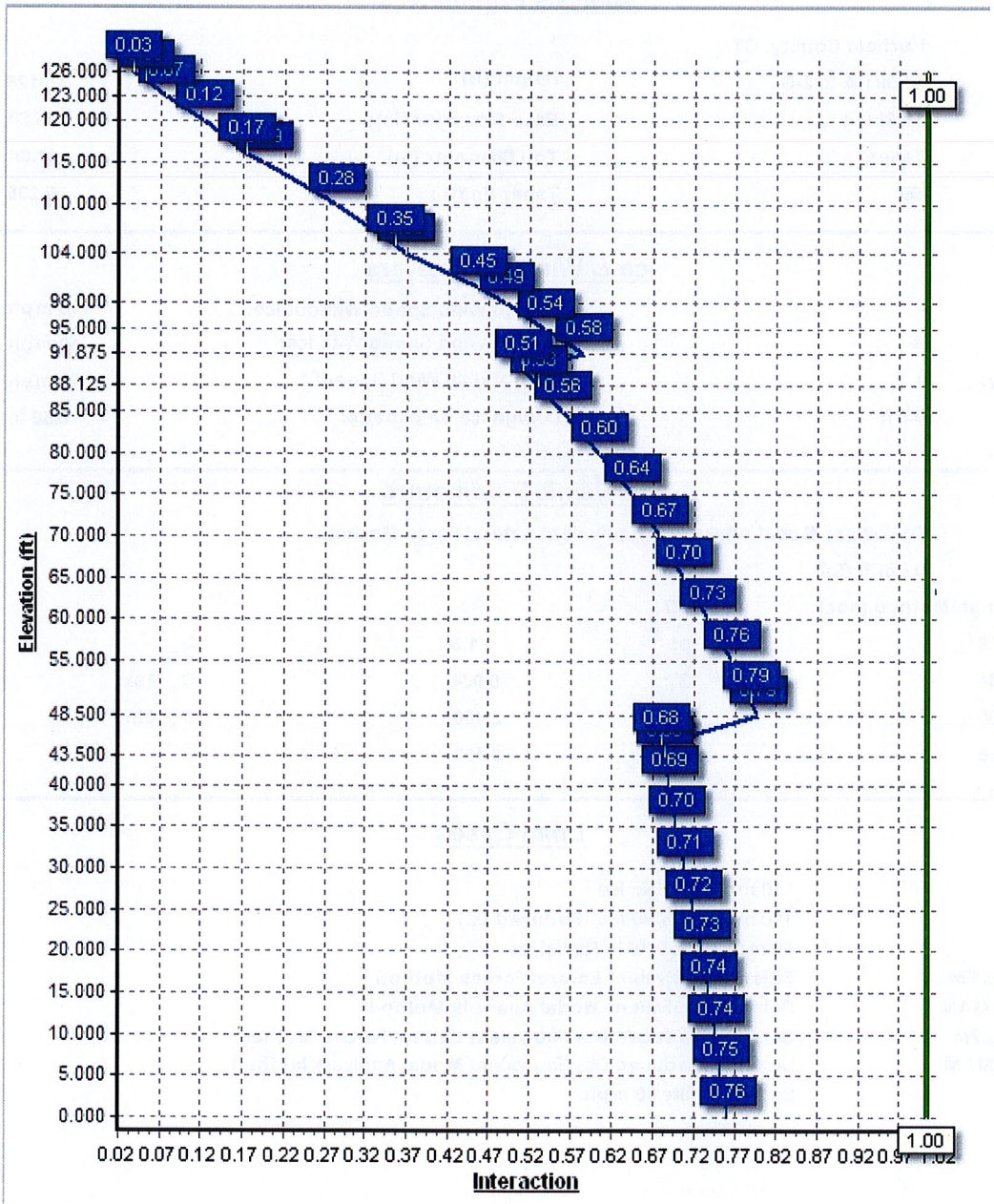
1.2D + 1.6W	110 mph with No Ice
0.9D + 1.6W	110 mph with No Ice (Reduced DL)
1.2D + 1.0Di + 1.0Wi	50 mph with 0.75 in Radial Ice
(1.2 + 0.2Sds) * DL + E	Seismic Equivalent Lateral Forces Method
(1.2 + 0.2Sds) * DL + E	Seismic Equivalent Modal Analysis Method
(0.9 - 0.2Sds) * DL + E	Seismic (Reduced DL) 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	2617.46	27.28	35.12
0.9D + 1.6W	2535.64	26.22	26.33
1.2D + 1.0Di + 1.0Wi	514.18	5.27	58.81
(1.2 + 0.2Sds) * DL + E ELFM	122.69	1.15	35.01
(1.2 + 0.2Sds) * DL + E EMAM	250.91	2.34	35.01
(0.9 - 0.2Sds) * DL + E ELFM	120.75	1.15	24.11
(0.9 - 0.2Sds) * DL + E EMAM	246.65	2.34	24.11
1.0D + 1.0W	475.30	4.89	29.32

Dish Deflections

Load Case	Attach Elev (ft)	Deflection (in)	Rotation (deg)
1.0D + 1.0W	123.00	17.998	1.353
1.0D + 1.0W	123.00	17.998	1.353


Elevation (ft)
126.000
123.000
120.000
115.000
110.000
104.000
98.000
95.000
91.875
88.125
85.000
80.000
75.000
70.000
65.000
60.000
55.000
48.500
43.500
40.000
35.000
30.000
25.000
20.000
15.000
10.000
5.000
0.000
0.02 0.07 0.12 0.17 0.22 0.27 0.32 0.37 0.42 0.47 0.52 0.57 0.62 0.67 0.72 0.77 0.82 0.87 0.92
Interaction
0.03
0.12
0.17
0.28
0.35
0.45
0.54
0.58
0.51
0.56
0.60
0.64
0.67
0.70
0.73
0.76
0.79
0.68
0.69
0.70
0.71
0.72
0.73
0.74
0.74
0.75
0.76
1.00
1.00

Site Number:	**302469**	**Code: ANSI/TIA-222-G**	
Site Name:	**Bridgeport CT 2, CT**	**Engineering Number: 63532322**	**9/3/2015 7:44:14 PM**
Customer:	**T-MOBILE**		

Analysis Parameters

Location:	**Fairfield County, CT**		
Code:	**ANSI/TIA-222-G**	**Height (ft):**	**126**
Shape:	**18 Sides**	**Base Diameter (in):**	**45.50**
Pole Type:	**Taper**	**Top Diameter (in):**	**17.00**
Pole Manfacturer:	**EEI**	**Taper (in/ft) :**	**0.235**

Ice & Wind Parameters

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

Seismic Parameters

Analysis Method: Equivalent Modal Analysis & Equivalent Lateral Force Methods

Site Class: D - Stiff Soil

Period Based on Rayleigh Method (sec): 2.27

T_L (sec):	**6**	**p:**	**1.3**	**C_s:**	**0.030**
S_s:	**0.204**	**S_1:**	**0.064**	**C_s Max:**	**0.030**
F_a:	**1.600**	**F_v:**	**2.400**	**C_s Min:**	**0.030**
S_{ds}:	**0.218**	**S_{d1}:**	**0.102**		

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**
(1.2 + 0.2Sds) * DL + E ELFM	**Seismic Equivalent Lateral Forces Method**
(1.2 + 0.2Sds) * DL + E EMAM	**Seismic Equivalent Modal Analysis Method**
(0.9 - 0.2Sds) * DL + E ELFM	**Seismic (Reduced DL) Equivalent Lateral Forces Method**
(0.9 - 0.2Sds) * DL + E EMAM	**Seismic (Reduced DL) Equivalent Modal Analysis Method**
1.0D + 1.0W	**Serviceability 60 mph**

Site Number: 302469 Code: ANSI/TIA-222-G

Site Name: Bridgeport CT 2, CT Engineering Number: 63532322 9/3/2015 7:44:14 PM

Customer: T-MOBILE

Shaft Section Properties

Sect Info	Length (ft)	Thick (in)	Fy (ksi)	Slip Joint Type	Slip Joint Len (in)	Weight (lb)	Bottom Dia (in)	Bottom Elev (ft)	Bottom Area (in²)	Bottom Ix (in⁴)	Bottom W/t Ratio	Bottom D/t Ratio	Top Dia (in)	Top Elev (ft)	Top Area (in²)	Top Ix (in⁴)	Top W/t Ratio	Top D/t Ratio	Taper (in/ft)
1-18	48.500	0.3750	65		0.00	7,744	45.50	0.00	53.71	13817.4	19.98	121.33	34.09	48.50	40.14	5766.3	14.62	90.92	0.235121
2-18	48.375	0.3125	65	Slip	60.00	4,881	35.89	43.50	35.29	5646.6	18.84	114.87	24.52	91.88	24.01	1778.4	12.43	78.47	0.235121
3-18	37.875	0.2500	65	Slip	45.00	2,168	25.90	88.13	20.36	1692.8	16.86	103.62	17.00	126.00	13.29	471.1	10.58	68.00	0.235121
				Shaft Weight		14,793													

Discrete Appurtenance Properties

Attach Elev (ft)	Description	Qty	No Ice Weight (lb)	No Ice EPAa (sf)	No Ice Orientation Factor	Ice Weight (lb)	Ice EPAa (sf)	Ice Orientation Factor	Distance From Face (ft)	Vert Ecc (ft)
126.00	48" x 12" Panel	9	30.00	5.070	0.78	160.46	6.033	0.78	0.000	5.000
126.00	72" x 12" Panel	3	45.00	8.130	0.79	232.60	9.405	0.79	0.000	5.000
126.00	Flat Platform w/ Handrails	1	2000.00	42.400	1.00	3,398.91	63.044	1.00	0.000	0.000
123.00	Argus LLPX310R	3	28.60	4.290	0.73	133.67	5.169	0.73	0.000	0.000
123.00	Dragonwave A-ANT-18G-2-C	1	27.10	4.690	1.00	110.86	5.940	1.00	0.000	0.000
123.00	Dragonwave A-ANT-23G-1-C	1	15.00	1.610	1.00	52.15	2.353	1.00	0.000	0.000
123.00	DragonWave Horizon	2	10.60	0.430	0.50	39.98	0.654	0.50	0.000	0.000
123.00	NextNet BTS-2500	3	35.00	1.820	0.50	90.59	2.349	0.50	0.000	0.000
123.00	Side Arms	1	560.00	8.500	1.00	1,019.33	15.472	1.00	0.000	0.000
116.00	Andrew ETW200VS12UB	3	11.00	0.470	0.50	28.62	0.692	0.50	0.000	0.000
116.00	Andrew LNX-6515DS-VTM	3	51.30	11.430	0.84	306.72	13.050	0.84	0.000	0.000
116.00	Ericsson KRY 112 71	6	13.20	0.680	0.50	37.20	0.942	0.50	0.000	0.000
116.00	Kathrein Smart Bias Tee	3	3.31	0.090	0.50	9.79	0.240	0.50	0.000	0.000
116.00	RFS APX16DWV-16DWVS-E-	3	40.70	6.590	0.66	174.68	7.680	0.66	0.000	0.000
116.00	RFS APX16PV-16PVL-A	3	39.60	6.040	0.66	164.59	7.081	0.66	0.000	0.000
116.00	Round Low Profile Platform	1	1500.00	21.700	1.00	2,132.47	40.442	1.00	0.000	0.000
104.00	CCI OPA-65R-LCUU-H4	6	57.00	6.080	0.78	211.78	7.083	0.78	0.000	2.000
104.00	Ericsson RRUS 12	3	50.00	3.150	0.67	117.23	4.269	0.67	0.000	2.000
104.00	Ericsson RRUS A2 B2	3	22.00	2.060	0.67	74.69	2.638	0.67	0.000	2.000
104.00	Ericsson RRUS E2 B29	3	60.00	3.150	0.67	151.02	3.835	0.67	0.000	2.000
104.00	Ericsson RRUS-11	3	51.00	2.790	0.67	136.91	3.442	0.67	0.000	2.000
104.00	Ericsson RRUS-32	3	77.00	3.310	0.67	170.77	4.546	0.67	0.000	2.000
104.00	Powerwave 7770.00	3	35.00	5.510	0.77	163.94	6.522	0.77	0.000	2.000
104.00	Powerwave LGP2140X	12	19.00	1.080	0.50	50.75	1.517	0.50	0.000	2.000
104.00	Powerwave LGP21901	6	5.50	0.230	0.50	17.36	0.418	0.50	0.000	2.000
104.00	Raycap DC6-48-60-18-8F	2	31.80	1.280	1.00	120.48	2.826	1.00	0.000	2.000
104.00	Round Low Profile Platform	1	1500.00	21.700	1.00	2,124.66	40.210	1.00	0.000	0.000
98.00	Kathrein 800 10504	3	17.60	3.340	0.78	94.72	4.255	0.78	0.000	0.000
98.00	RCU	3	1.00	0.160	0.50	10.44	0.350	0.50	0.000	0.000
80.00	Antel BCD-87010__	1	26.50	2.900	1.00	150.22	6.507	1.00	0.000	5.500
80.00	Flat Side Arm	1	150.00	6.300	1.00	218.62	8.606	1.00	0.000	0.000
	Totals	99	8519.93			19,362.18			Number of Loadings :	31

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	126.00	12	1 5/8" Coax	1.98	0.82	N	0.00	N	Sprint Nextel
0.00	123.00	3	1/2" Coax	0.63	0.15	N	0.00	N	Clearwire Corporation
0.00	123.00	2	2" Conduit	2.38	3.65	N	0.00	N	Clearwire Corporation
0.00	123.00	6	5/16" Coax	0.31	0.05	N	0.00	N	Clearwire Corporation
0.00	116.00	12	1 5/8" Coax	1.98	0.82	N	0.00	N	T-Mobile
0.00	116.00	6	1 5/8" Coax	1.98	0.82	N	0.00	N	T-Mobile

0.00	104.00	3	0.51" Hybrid	0.51	0.14	N	0.00	Y	AT&T Mobility
0.00	104.00	12	1 5/8" Coax	1.98	0.82	N	3.96	Y	AT&T Mobility
0.00	104.00	4	1.24" (31.6mm) 4	1.24	1.17	N	0.00	N	AT&T Mobility
0.00	98.00	6	1 5/8" Coax	1.98	0.82	N	1.98	Y	Metro PCS
0.00	98.00	1	3/8" Coax	0.44	0.08	N	0.00	Y	Metro PCS
0.00	80.00	1	7/8" Coax	1.09	0.33	N	0.00	N	Spok Holdings, Inc.

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		0.3750	45.500	53.708	13,817.4	19.98	121.33	77.9	598.1	0.0	0.0
5.00		0.3750	44.324	52.309	12,765.4	19.43	118.20	78.5	567.2	0.0	901.9
10.00		0.3750	43.149	50.910	11,768.2	18.88	115.06	79.2	537.2	0.0	878.1
15.00		0.3750	41.973	49.510	10,824.3	18.33	111.93	79.8	507.9	0.0	854.3
20.00		0.3750	40.798	48.111	9,932.2	17.77	108.79	80.5	479.5	0.0	830.5
25.00		0.3750	39.622	46.712	9,090.6	17.22	105.66	81.1	451.9	0.0	806.7
30.00		0.3750	38.446	45.313	8,297.9	16.67	102.52	81.8	425.1	0.0	782.9
35.00		0.3750	37.271	43.914	7,552.7	16.11	99.39	82.4	399.1	0.0	759.0
40.00		0.3750	36.095	42.514	6,853.5	15.56	96.25	82.6	374.0	0.0	735.2
43.50	Bot - Section 2	0.3750	35.272	41.535	6,390.7	15.17	94.06	82.6	356.9	0.0	500.5
45.00		0.3750	34.920	41.115	6,198.9	15.01	93.12	82.6	349.6	0.0	390.2
48.50	Top - Section 1	0.3125	34.722	34.128	5,105.2	18.18	111.11	80.0	289.6	0.0	895.2
50.00		0.3125	34.369	33.779	4,949.8	17.98	109.98	80.3	283.7	0.0	173.3
55.00		0.3125	33.193	32.612	4,454.7	17.32	106.22	81.0	264.3	0.0	564.8
60.00		0.3125	32.018	31.446	3,993.8	16.66	102.46	81.8	245.7	0.0	544.9
65.00		0.3125	30.842	30.280	3,565.8	15.99	98.69	82.6	227.7	0.0	525.1
70.00		0.3125	29.667	29.114	3,169.5	15.33	94.93	82.6	210.4	0.0	505.3
75.00		0.3125	28.491	27.948	2,803.8	14.67	91.17	82.6	193.8	0.0	485.4
80.00		0.3125	27.315	26.782	2,467.3	14.00	87.41	82.6	177.9	0.0	465.6
85.00		0.3125	26.140	25.616	2,158.9	13.34	83.65	82.6	162.7	0.0	445.8
88.13	Bot - Section 3	0.3125	25.405	24.888	1,979.8	12.92	81.30	82.6	153.5	0.0	268.5
90.00		0.3125	24.964	24.450	1,877.3	12.68	79.89	82.6	148.1	0.0	286.2
91.88	Top - Section 2	0.2500	25.023	19.657	1,524.2	16.24	100.09	82.3	120.0	0.0	281.1
95.00		0.2500	24.288	19.074	1,392.5	15.72	97.15	82.6	112.9	0.0	205.9
98.00		0.2500	23.583	18.514	1,273.5	15.22	94.33	82.6	106.4	0.0	191.9
100.0		0.2500	23.113	18.141	1,198.1	14.89	92.45	82.6	102.1	0.0	124.7
104.0		0.2500	22.172	17.395	1,056.2	14.23	88.69	82.6	93.8	0.0	241.8
105.0		0.2500	21.937	17.208	1,022.6	14.06	87.75	82.6	91.8	0.0	58.9
110.0		0.2500	20.762	16.275	865.1	13.23	83.05	82.6	82.1	0.0	284.8
115.0		0.2500	19.586	15.343	724.7	12.40	78.34	82.6	72.9	0.0	269.0
116.0		0.2500	19.351	15.156	698.6	12.24	77.40	82.6	71.1	0.0	51.9
120.0		0.2500	18.410	14.410	600.4	11.57	73.64	82.6	64.2	0.0	201.2
123.0		0.2500	17.705	13.850	533.1	11.08	70.82	82.6	59.3	0.0	144.2
125.0		0.2500	17.235	13.477	491.2	10.75	68.94	82.6	56.1	0.0	93.0
126.0		0.2500	17.000	13.290	471.1	10.58	68.00	82.6	54.6	0.0	45.5
											14,793.2

Load Case: 1.2D + 1.6W — 110 mph with No Ice — 25 Iterations

Gust Response Factor : 1.10
Dead Load Factor : 1.20
Wind Load Factor : 1.60

Wind Importance Factor : 1.00

Applied Segment Forces Summary

		Shaft Forces		Discrete Forces				Linear Forces		Sum of Forces			
Seg Elev (ft)	Description	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		244.2	0.0					0.0	0.0	244.2	0.0	0.0	0.0
5.00		484.3	1,082.3					0.0	317.3	484.3	1,399.6	0.0	0.0
10.00		476.1	1,053.7					0.0	317.3	476.1	1,371.0	0.0	0.0
15.00		467.9	1,025.1					0.0	317.3	467.9	1,342.5	0.0	0.0
20.00		459.7	996.6					0.0	317.3	459.7	1,313.9	0.0	0.0
25.00		451.5	968.0					0.0	317.3	451.5	1,285.3	0.0	0.0
30.00		448.6	939.4					0.0	317.3	448.6	1,256.8	0.0	0.0
35.00		454.7	910.9					0.0	317.3	454.7	1,228.2	0.0	0.0
40.00		393.1	882.3					0.0	317.3	393.1	1,199.6	0.0	0.0
43.50	Bot - Section 2	234.9	600.6					0.0	222.1	234.9	822.7	0.0	0.0
45.00		240.0	468.2					0.0	95.2	240.0	563.4	0.0	0.0
48.50	Top - Section 1	240.3	1,074.2					0.0	222.1	240.3	1,296.3	0.0	0.0
50.00		313.1	208.0					0.0	95.2	313.1	303.2	0.0	0.0
55.00		483.8	677.7					0.0	317.3	483.8	995.1	0.0	0.0
60.00		486.0	653.9					0.0	317.3	486.0	971.3	0.0	0.0
65.00		487.0	630.1					0.0	317.3	487.0	947.5	0.0	0.0
70.00		588.3	606.3					0.0	317.3	588.3	923.7	0.0	0.0
75.00		681.7	582.5					132.1	317.3	813.8	899.9	0.0	0.0
80.00	Appertunance(s)	665.8	558.7	444.5	0.0	780.6	211.8	133.8	317.3	1,244.0	1,087.9	0.0	0.0
85.00		529.5	534.9					135.4	315.4	664.9	850.3	0.0	0.0
88.13	Bot - Section 3	321.9	322.2					85.4	197.1	407.3	519.3	0.0	0.0
90.00		240.8	343.4					51.5	118.3	292.3	461.6	0.0	0.0
91.88	Top - Section 2	316.1	337.4					51.7	118.3	367.8	455.6	0.0	0.0
95.00		381.1	247.1					86.7	197.1	467.8	444.2	0.0	0.0
98.00	Appertunance(s)	263.4	230.2	327.9	0.0	0.0	67.0	83.7	189.2	675.1	486.4	0.0	0.0
100.00		234.7	149.7					0.0	114.1	234.7	263.8	0.0	0.0
104.00	Appertunance(s)	187.4	290.2	4,452.9	0.0	6,659.4	3,661.9	0.0	228.3	4,640.3	4,180.4	0.0	0.0
105.00		184.8	70.6					0.0	39.1	184.8	109.8	0.0	0.0
110.00		300.2	341.8					0.0	195.7	300.2	537.5	0.0	0.0
115.00		175.4	322.8					0.0	195.7	175.4	518.5	0.0	0.0
116.00	Appertunance(s)	140.0	62.3	3,580.6	0.0	0.0	2,420.3	0.0	39.1	3,720.6	2,521.7	0.0	0.0
120.00		192.1	241.5					0.0	85.7	192.1	327.2	0.0	0.0
123.00	Appertunance(s)	132.9	173.1	1,280.6	0.0	0.0	976.9	0.0	64.3	1,413.6	1,214.3	0.0	0.0
125.00		78.0	111.6					0.0	23.6	78.0	135.2	0.0	0.0
126.00	Appertunance(s)	25.7	54.7	4,593.0	0.0	11,373.9	2,886.0	0.0	11.8	4,618.7	2,952.5	0.0	0.0
								Totals:		27,445.0	35,186.1	0.00	0.00

Site Number: 302469 Code: ANSI/TIA-222-G

Site Name: Bridgeport CT 2, CT Engineering Number: 63532322 9/3/2015 7:44:15 PM

Customer: T-MOBILE

Load Case: 1.2D + 1.6W 110 mph with No Ice 25 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	-35.12	-27.28	0.00	-2,617.46	0.00	2,617.46	3,765.29	1,882.65	6,978.46	3,494.42	0.00	0.00	0.759
5.00	-33.60	-26.95	0.00	-2,481.05	0.00	2,481.05	3,697.80	1,848.90	6,673.37	3,341.64	0.14	-0.26	0.752
10.00	-32.11	-26.62	0.00	-2,346.29	0.00	2,346.29	3,628.68	1,814.34	6,371.97	3,190.72	0.56	-0.53	0.744
15.00	-30.64	-26.28	0.00	-2,213.20	0.00	2,213.20	3,557.92	1,778.96	6,074.51	3,041.77	1.26	-0.81	0.736
20.00	-29.21	-25.95	0.00	-2,081.78	0.00	2,081.78	3,485.52	1,742.76	5,781.22	2,894.91	2.26	-1.09	0.728
25.00	-27.80	-25.61	0.00	-1,952.04	0.00	1,952.04	3,411.48	1,705.74	5,492.34	2,750.25	3.56	-1.38	0.718
30.00	-26.42	-25.27	0.00	-1,823.98	0.00	1,823.98	3,335.81	1,667.90	5,208.12	2,607.93	5.16	-1.67	0.708
35.00	-25.08	-24.91	0.00	-1,697.64	0.00	1,697.64	3,258.50	1,629.25	4,928.79	2,468.06	7.07	-1.98	0.696
40.00	-23.78	-24.58	0.00	-1,573.10	0.00	1,573.10	3,158.60	1,579.30	4,623.93	2,315.40	9.31	-2.28	0.687
43.50	-22.90	-24.38	0.00	-1,487.07	0.00	1,487.07	3,085.84	1,542.92	4,412.25	2,209.40	11.06	-2.51	0.681
45.00	-22.28	-24.17	0.00	-1,450.51	0.00	1,450.51	3,054.65	1,527.33	4,323.05	2,164.74	11.87	-2.60	0.678
48.50	-20.93	-23.93	0.00	-1,365.90	0.00	1,365.90	2,457.75	1,228.87	3,470.74	1,737.95	13.86	-2.83	0.795
50.00	-20.55	-23.69	0.00	-1,330.00	0.00	1,330.00	2,439.67	1,219.84	3,409.59	1,707.33	14.76	-2.93	0.788
55.00	-19.43	-23.28	0.00	-1,211.56	0.00	1,211.56	2,378.35	1,189.18	3,208.11	1,606.44	18.03	-3.29	0.763
60.00	-18.34	-22.85	0.00	-1,095.18	0.00	1,095.18	2,315.40	1,157.70	3,010.48	1,507.48	21.68	-3.66	0.735
65.00	-17.29	-22.41	0.00	-980.93	0.00	980.93	2,249.69	1,124.84	2,815.52	1,409.85	25.71	-4.03	0.704
70.00	-16.27	-21.86	0.00	-868.86	0.00	868.86	2,163.06	1,081.53	2,601.80	1,302.84	30.13	-4.40	0.675
75.00	-15.30	-21.08	0.00	-759.55	0.00	759.55	2,076.43	1,038.21	2,396.52	1,200.04	34.93	-4.77	0.641
80.00	-14.20	-19.83	0.00	-653.38	0.00	653.38	1,989.80	994.90	2,199.68	1,101.47	40.11	-5.13	0.601
85.00	-13.33	-19.16	0.00	-554.22	0.00	554.22	1,903.17	951.59	2,011.27	1,007.13	45.66	-5.47	0.558
88.13	-12.79	-18.74	0.00	-494.36	0.00	494.36	1,849.03	924.51	1,897.79	950.31	49.31	-5.69	0.528
90.00	-12.32	-18.43	0.00	-459.22	0.00	459.22	1,816.54	908.27	1,831.29	917.01	51.57	-5.82	0.508
91.88	-11.86	-18.05	0.00	-424.67	0.00	424.67	1,456.00	728.00	1,478.84	740.52	53.88	-5.94	0.582
95.00	-11.40	-17.58	0.00	-368.26	0.00	368.26	1,417.09	708.55	1,396.21	699.14	57.83	-6.14	0.535
98.00	-10.94	-16.89	0.00	-315.52	0.00	315.52	1,375.51	687.75	1,315.06	658.51	61.75	-6.35	0.488
100.00	-10.65	-16.66	0.00	-281.74	0.00	281.74	1,347.79	673.89	1,262.31	632.09	64.44	-6.49	0.454
104.00	-7.00	-11.59	0.00	-208.44	0.00	208.44	1,292.34	646.17	1,160.06	580.89	69.96	-6.72	0.365
105.00	-6.89	-11.41	0.00	-196.86	0.00	196.86	1,278.48	639.24	1,135.17	568.43	71.37	-6.78	0.352
110.00	-6.35	-11.07	0.00	-139.81	0.00	139.81	1,209.18	604.59	1,014.77	508.14	78.58	-7.01	0.281
115.00	-5.84	-10.84	0.00	-84.47	0.00	84.47	1,139.88	569.94	901.12	451.23	86.01	-7.19	0.193
116.00	-3.79	-6.84	0.00	-73.63	0.00	73.63	1,126.02	563.01	879.21	440.26	87.52	-7.23	0.171
120.00	-3.48	-6.61	0.00	-46.28	0.00	46.28	1,070.57	535.29	794.22	397.70	93.60	-7.32	0.120
123.00	-2.46	-5.05	0.00	-26.44	0.00	26.44	1,028.99	514.50	733.32	367.21	98.21	-7.37	0.074
125.00	-2.33	-4.96	0.00	-16.33	0.00	16.33	1,001.27	500.64	694.07	347.55	101.29	-7.40	0.049
126.00	0.00	-4.62	0.00	-11.37	0.00	11.37	987.41	493.71	674.85	337.93	102.84	-7.41	0.034

Load Case: 0.9D + 1.6W — 110 mph with No Ice (Reduced DL) — 24 Iterations

Gust Response Factor : 1.10
Dead Load Factor : 0.90
Wind Load Factor : 1.60
Wind Importance Factor : 1.00

Applied Segment Forces Summary

		Shaft Forces		Discrete Forces				Linear Forces		Sum of Forces			
Seg Elev (ft)	Description	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		223.9	0.0					0.0	0.0	223.9	0.0	0.0	0.0
5.00		441.9	811.7					0.0	238.0	441.9	1,049.7	0.0	0.0
10.00		430.2	790.3					0.0	238.0	430.2	1,028.3	0.0	0.0
15.00		418.5	768.8					0.0	238.0	418.5	1,006.8	0.0	0.0
20.00		406.8	747.4					0.0	238.0	406.8	985.4	0.0	0.0
25.00		395.0	726.0					0.0	238.0	395.0	964.0	0.0	0.0
30.00		387.9	704.6					0.0	238.0	387.9	942.6	0.0	0.0
35.00		388.3	683.1					0.0	238.0	388.3	921.1	0.0	0.0
40.00		332.0	661.7					0.0	238.0	332.0	899.7	0.0	0.0
43.50	Bot - Section 2	196.7	450.5					0.0	166.6	196.7	617.1	0.0	0.0
45.00		199.0	351.2					0.0	71.4	199.0	422.6	0.0	0.0
48.50	Top - Section 1	198.9	805.6					0.0	166.6	198.9	972.2	0.0	0.0
50.00		257.3	156.0					0.0	71.4	257.3	227.4	0.0	0.0
55.00		393.7	508.3					0.0	238.0	393.7	746.3	0.0	0.0
60.00		389.3	490.5					0.0	238.0	389.3	728.5	0.0	0.0
65.00		383.7	472.6					0.0	238.0	383.7	710.6	0.0	0.0
70.00		535.0	454.7					0.0	238.0	535.0	692.7	0.0	0.0
75.00		681.7	436.9					132.1	238.0	813.8	674.9	0.0	0.0
80.00	Appertunance(s)	665.8	419.0	444.5	0.0	780.6	158.8	133.8	238.0	1,244.0	815.9	0.0	0.0
85.00		529.5	401.2					135.4	236.5	664.9	637.7	0.0	0.0
88.13	Bot - Section 3	321.9	241.7					85.4	147.8	407.3	389.5	0.0	0.0
90.00		240.8	257.5					51.5	88.7	292.3	346.2	0.0	0.0
91.88	Top - Section 2	316.1	253.0					51.7	88.7	367.8	341.7	0.0	0.0
95.00		381.1	185.3					86.7	147.8	467.8	333.2	0.0	0.0
98.00	Appertunance(s)	250.2	172.7	327.9	0.0	0.0	50.2	83.7	141.9	661.9	364.8	0.0	0.0
100.00		193.7	112.3					0.0	85.6	193.7	197.9	0.0	0.0
104.00	Appertunance(s)	159.6	217.7	4,452.9	0.0	6,659.4	2,746.4	0.0	171.2	4,612.5	3,135.3	0.0	0.0
105.00		184.8	53.0					0.0	29.4	184.8	82.3	0.0	0.0
110.00		300.2	256.4					0.0	146.8	300.2	403.1	0.0	0.0
115.00		175.4	242.1					0.0	146.8	175.4	388.9	0.0	0.0
116.00	Appertunance(s)	140.0	46.7	3,580.6	0.0	0.0	1,815.2	0.0	29.4	3,720.6	1,891.3	0.0	0.0
120.00		192.1	181.1					0.0	64.3	192.1	245.4	0.0	0.0
123.00	Appertunance(s)	132.9	129.8	1,280.6	0.0	0.0	732.7	0.0	48.2	1,413.6	910.7	0.0	0.0
125.00		78.0	83.7					0.0	17.7	78.0	101.4	0.0	0.0
126.00	Appertunance(s)	25.7	41.0	4,593.0	0.0	11,373.9	2,164.5	0.0	8.9	4,618.7	2,214.3	0.0	0.0
								Totals:		26,387.7	26,389.6	0.00	0.00

Site Number: 302469 Code: ANSI/TIA-222-G

Site Name: Bridgeport CT 2, CT Engineering Number: 63532322 9/3/2015 7:44:17 PM

Customer: T-MOBILE

Load Case: 0.9D + 1.6W 110 mph with No Ice (Reduced DL) 24 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	-26.33	-26.22	0.00	-2,535.64	0.00	2,535.64	3,765.29	1,882.65	6,978.46	3,494.42	0.00	0.00	0.733
5.00	-25.17	-25.89	0.00	-2,404.53	0.00	2,404.53	3,697.80	1,848.90	6,673.37	3,341.64	0.14	-0.25	0.727
10.00	-24.02	-25.57	0.00	-2,275.07	0.00	2,275.07	3,628.68	1,814.34	6,371.97	3,190.72	0.54	-0.52	0.720
15.00	-22.90	-25.24	0.00	-2,147.25	0.00	2,147.25	3,557.92	1,778.96	6,074.51	3,041.77	1.23	-0.78	0.713
20.00	-21.80	-24.93	0.00	-2,021.03	0.00	2,021.03	3,485.52	1,742.76	5,781.22	2,894.91	2.19	-1.06	0.705
25.00	-20.72	-24.62	0.00	-1,896.39	0.00	1,896.39	3,411.48	1,705.74	5,492.34	2,750.25	3.45	-1.34	0.696
30.00	-19.67	-24.30	0.00	-1,773.32	0.00	1,773.32	3,335.81	1,667.90	5,208.12	2,607.93	5.00	-1.62	0.686
35.00	-18.64	-23.98	0.00	-1,651.81	0.00	1,651.81	3,258.50	1,629.25	4,928.79	2,468.06	6.86	-1.92	0.675
40.00	-17.64	-23.70	0.00	-1,531.89	0.00	1,531.89	3,158.60	1,579.30	4,623.93	2,315.40	9.03	-2.22	0.667
43.50	-16.97	-23.52	0.00	-1,448.95	0.00	1,448.95	3,085.84	1,542.92	4,412.25	2,209.40	10.73	-2.43	0.662
45.00	-16.49	-23.35	0.00	-1,413.67	0.00	1,413.67	3,054.65	1,527.33	4,323.05	2,164.74	11.51	-2.53	0.659
48.50	-15.47	-23.15	0.00	-1,331.94	0.00	1,331.94	2,457.75	1,228.87	3,470.74	1,737.95	13.45	-2.75	0.773
50.00	-15.16	-22.94	0.00	-1,297.21	0.00	1,297.21	2,439.67	1,219.84	3,409.59	1,707.33	14.33	-2.85	0.766
55.00	-14.30	-22.60	0.00	-1,182.49	0.00	1,182.49	2,378.35	1,189.18	3,208.11	1,606.44	17.50	-3.20	0.742
60.00	-13.45	-22.25	0.00	-1,069.49	0.00	1,069.49	2,315.40	1,157.70	3,010.48	1,507.48	21.05	-3.56	0.716
65.00	-12.63	-21.91	0.00	-958.22	0.00	958.22	2,249.69	1,124.84	2,815.52	1,409.85	24.97	-3.92	0.686
70.00	-11.84	-21.40	0.00	-848.70	0.00	848.70	2,163.06	1,081.53	2,601.80	1,302.84	29.28	-4.28	0.657
75.00	-11.11	-20.60	0.00	-741.72	0.00	741.72	2,076.43	1,038.21	2,396.52	1,200.04	33.95	-4.64	0.624
80.00	-10.28	-19.36	0.00	-637.93	0.00	637.93	1,989.80	994.90	2,199.68	1,101.47	39.00	-4.99	0.585
85.00	-9.62	-18.68	0.00	-541.15	0.00	541.15	1,903.17	951.59	2,011.27	1,007.13	44.40	-5.33	0.543
88.13	-9.22	-18.27	0.00	-482.77	0.00	482.77	1,849.03	924.51	1,897.79	950.31	47.96	-5.54	0.513
90.00	-8.86	-17.96	0.00	-448.52	0.00	448.52	1,816.54	908.27	1,831.29	917.01	50.16	-5.67	0.494
91.88	-8.51	-17.58	0.00	-414.84	0.00	414.84	1,456.00	728.00	1,478.84	740.52	52.41	-5.79	0.567
95.00	-8.17	-17.11	0.00	-359.89	0.00	359.89	1,417.09	708.55	1,396.21	699.14	56.26	-5.98	0.521
98.00	-7.83	-16.44	0.00	-308.55	0.00	308.55	1,375.51	687.75	1,315.06	658.51	60.08	-6.19	0.475
100.00	-7.60	-16.25	0.00	-275.67	0.00	275.67	1,347.79	673.89	1,262.31	632.09	62.69	-6.32	0.442
104.00	-4.97	-11.33	0.00	-204.01	0.00	204.01	1,292.34	646.17	1,160.06	580.89	68.08	-6.55	0.355
105.00	-4.88	-11.15	0.00	-192.68	0.00	192.68	1,278.48	639.24	1,135.17	568.43	69.45	-6.60	0.343
110.00	-4.48	-10.82	0.00	-136.95	0.00	136.95	1,209.18	604.59	1,014.77	508.14	76.48	-6.83	0.274
115.00	-4.10	-10.60	0.00	-82.86	0.00	82.86	1,139.88	569.94	901.12	451.23	83.73	-7.01	0.188
116.00	-2.67	-6.68	0.00	-72.26	0.00	72.26	1,126.02	563.01	879.21	440.26	85.20	-7.04	0.167
120.00	-2.44	-6.46	0.00	-45.53	0.00	45.53	1,070.57	535.29	794.22	397.70	91.13	-7.14	0.117
123.00	-1.71	-4.95	0.00	-26.13	0.00	26.13	1,028.99	514.50	733.32	367.21	95.62	-7.19	0.073
125.00	-1.62	-4.86	0.00	-16.23	0.00	16.23	1,001.27	500.64	694.07	347.55	98.63	-7.21	0.048
126.00	0.00	-4.62	0.00	-11.37	0.00	11.37	987.41	493.71	674.85	337.93	100.14	-7.22	0.034

Site Number: 302469 | Code: ANSI/TIA-222-G |

Site Name: Bridgeport CT 2, CT | Engineering Number: 63532322 | 9/3/2015 7:44:17 PM

Customer: T-MOBILE

Load Case: 1.2D + 1.0Di + 1.0Wi | 50 mph with 0.75 in Radial Ice | 24 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

		Shaft Forces		Discrete Forces				Linear Forces		Sum of Forces			
Seg Elev (ft)	Description	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		56.1	0.0					0.0	0.0	56.1	0.0	0.0	0.0
5.00		111.1	1,412.4					0.0	549.5	111.1	1,961.9	0.0	0.0
10.00		108.8	1,413.8					0.0	577.3	108.8	1,991.0	0.0	0.0
15.00		106.2	1,394.6					0.0	591.6	106.2	1,986.2	0.0	0.0
20.00		103.6	1,368.7					0.0	601.5	103.6	1,970.2	0.0	0.0
25.00		101.0	1,339.3					0.0	609.3	101.0	1,948.6	0.0	0.0
30.00		99.5	1,307.7					0.0	615.6	99.5	1,923.3	0.0	0.0
35.00		100.0	1,274.5					0.0	621.1	100.0	1,895.6	0.0	0.0
40.00		85.7	1,240.2					0.0	625.8	85.7	1,866.0	0.0	0.0
43.50	Bot - Section 2	50.9	848.4					0.0	440.6	50.9	1,289.0	0.0	0.0
45.00		51.6	575.9					0.0	189.4	51.6	765.3	0.0	0.0
48.50	Top - Section 1	51.6	1,321.2					0.0	443.3	51.6	1,764.5	0.0	0.0
50.00		66.9	313.4					0.0	190.5	66.9	503.9	0.0	0.0
55.00		102.6	1,019.8					0.0	637.3	102.6	1,657.2	0.0	0.0
60.00		101.9	987.6					0.0	640.5	101.9	1,628.1	0.0	0.0
65.00		100.9	954.9					0.0	643.5	100.9	1,598.5	0.0	0.0
70.00		99.5	921.9					0.0	646.3	99.5	1,568.2	0.0	0.0
75.00		97.9	888.5					37.5	648.9	135.4	1,537.4	0.0	0.0
80.00	Appertunance(s)	96.1	854.8	94.5	0.0	226.2	366.6	38.3	651.4	228.9	1,872.8	0.0	0.0
85.00		76.8	820.9					39.1	651.7	115.9	1,472.6	0.0	0.0
88.13	Bot - Section 3	46.8	497.1					24.9	408.4	71.7	905.5	0.0	0.0
90.00		35.1	448.9					15.1	245.5	50.1	694.3	0.0	0.0
91.88	Top - Section 2	46.2	441.4					15.2	245.8	61.4	687.1	0.0	0.0
95.00		55.9	416.1					25.5	410.2	81.4	826.4	0.0	0.0
98.00	Appertunance(s)	45.0	388.6	55.1	0.0	0.0	326.7	24.8	394.6	124.8	1,109.8	0.0	0.0
100.00		52.9	253.6					0.0	201.7	52.9	455.3	0.0	0.0
104.00	Appertunance(s)	43.7	490.8	816.4	0.0	1,095.4	7,108.2	0.0	403.9	860.1	8,002.9	0.0	0.0
105.00		50.9	120.4					0.0	39.1	50.9	159.6	0.0	0.0
110.00		83.1	579.0					0.0	195.7	83.1	774.7	0.0	0.0
115.00		48.8	548.6					0.0	195.7	48.8	744.4	0.0	0.0
116.00	Appertunance(s)	39.3	107.1	644.8	0.0	0.0	4,437.2	0.0	39.1	684.1	4,583.5	0.0	0.0
120.00		54.1	413.0					0.0	85.7	54.1	498.8	0.0	0.0
123.00	Appertunance(s)	37.7	297.7	242.0	0.0	0.0	1,967.4	0.0	64.3	279.6	2,329.3	0.0	0.0
125.00		22.2	192.8					0.0	23.6	22.2	216.4	0.0	0.0
126.00	Appertunance(s)	7.3	94.8	791.2	0.0	1,730.7	5,521.8	0.0	11.8	798.6	5,628.4	0.0	0.0
								Totals:		5,301.92	58,816.6	0.00	0.00

Site Number: 302469 | Code: ANSI/TIA-222-G |

Site Name: Bridgeport CT 2, CT | Engineering Number: 63532322 | 9/3/2015 7:44:18 PM

Customer: T-MOBILE

Load Case: 1.2D + 1.0Di + 1.0Wi — 50 mph with 0.75 in Radial Ice — 24 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	-58.81	-5.27	0.00	-514.18	0.00	514.18	3,765.29	1,882.65	6,978.46	3,494.42	0.00	0.00	0.163
5.00	-56.85	-5.21	0.00	-487.81	0.00	487.81	3,697.80	1,848.90	6,673.37	3,341.64	0.03	-0.05	0.161
10.00	-54.85	-5.15	0.00	-461.75	0.00	461.75	3,628.68	1,814.34	6,371.97	3,190.72	0.11	-0.10	0.160
15.00	-52.86	-5.09	0.00	-435.99	0.00	435.99	3,557.92	1,778.96	6,074.51	3,041.77	0.25	-0.16	0.158
20.00	-50.89	-5.03	0.00	-410.53	0.00	410.53	3,485.52	1,742.76	5,781.22	2,894.91	0.44	-0.21	0.156
25.00	-48.93	-4.97	0.00	-385.37	0.00	385.37	3,411.48	1,705.74	5,492.34	2,750.25	0.70	-0.27	0.154
30.00	-47.01	-4.91	0.00	-360.51	0.00	360.51	3,335.81	1,667.90	5,208.12	2,607.93	1.02	-0.33	0.152
35.00	-45.11	-4.85	0.00	-335.96	0.00	335.96	3,258.50	1,629.25	4,928.79	2,468.06	1.39	-0.39	0.150
40.00	-43.24	-4.79	0.00	-311.73	0.00	311.73	3,158.60	1,579.30	4,623.93	2,315.40	1.83	-0.45	0.148
43.50	-41.94	-4.75	0.00	-294.98	0.00	294.98	3,085.84	1,542.92	4,412.25	2,209.40	2.18	-0.49	0.147
45.00	-41.18	-4.71	0.00	-287.85	0.00	287.85	3,054.65	1,527.33	4,323.05	2,164.74	2.34	-0.51	0.146
48.50	-39.41	-4.67	0.00	-271.36	0.00	271.36	2,457.75	1,228.87	3,470.74	1,737.95	2.73	-0.56	0.172
50.00	-38.90	-4.63	0.00	-264.36	0.00	264.36	2,439.67	1,219.84	3,409.59	1,707.33	2.91	-0.58	0.171
55.00	-37.24	-4.55	0.00	-241.22	0.00	241.22	2,378.35	1,189.18	3,208.11	1,606.44	3.56	-0.65	0.166
60.00	-35.61	-4.48	0.00	-218.45	0.00	218.45	2,315.40	1,157.70	3,010.48	1,507.48	4.28	-0.72	0.160
65.00	-34.01	-4.40	0.00	-196.06	0.00	196.06	2,249.69	1,124.84	2,815.52	1,409.85	5.08	-0.80	0.154
70.00	-32.43	-4.32	0.00	-174.06	0.00	174.06	2,163.06	1,081.53	2,601.80	1,302.84	5.95	-0.87	0.149
75.00	-30.89	-4.20	0.00	-152.46	0.00	152.46	2,076.43	1,038.21	2,396.52	1,200.04	6.91	-0.95	0.142
80.00	-29.02	-3.97	0.00	-131.24	0.00	131.24	1,989.80	994.90	2,199.68	1,101.47	7.94	-1.02	0.134
85.00	-27.55	-3.86	0.00	-111.37	0.00	111.37	1,903.17	951.59	2,011.27	1,007.13	9.04	-1.09	0.125
88.13	-26.64	-3.78	0.00	-99.32	0.00	99.32	1,849.03	924.51	1,897.79	950.31	9.77	-1.13	0.119
90.00	-25.95	-3.73	0.00	-92.22	0.00	92.22	1,816.54	908.27	1,831.29	917.01	10.22	-1.16	0.115
91.88	-25.26	-3.67	0.00	-85.22	0.00	85.22	1,456.00	728.00	1,478.84	740.52	10.67	-1.18	0.132
95.00	-24.43	-3.59	0.00	-73.75	0.00	73.75	1,417.09	708.55	1,396.21	699.14	11.46	-1.22	0.123
98.00	-23.32	-3.46	0.00	-62.98	0.00	62.98	1,375.51	687.75	1,315.06	658.51	12.24	-1.26	0.113
100.00	-22.87	-3.41	0.00	-56.07	0.00	56.07	1,347.79	673.89	1,262.31	632.09	12.78	-1.29	0.106
104.00	-14.88	-2.37	0.00	-41.35	0.00	41.35	1,292.34	646.17	1,160.06	580.89	13.88	-1.34	0.083
105.00	-14.72	-2.32	0.00	-38.98	0.00	38.98	1,278.48	639.24	1,135.17	568.43	14.16	-1.35	0.080
110.00	-13.95	-2.23	0.00	-27.36	0.00	27.36	1,209.18	604.59	1,014.77	508.14	15.60	-1.39	0.065
115.00	-13.21	-2.17	0.00	-16.20	0.00	16.20	1,139.88	569.94	901.12	451.23	17.08	-1.43	0.047
116.00	-8.64	-1.37	0.00	-14.03	0.00	14.03	1,126.02	563.01	879.21	440.26	17.38	-1.44	0.040
120.00	-8.14	-1.31	0.00	-8.54	0.00	8.54	1,070.57	535.29	794.22	397.70	18.59	-1.45	0.029
123.00	-5.82	-0.97	0.00	-4.61	0.00	4.61	1,028.99	514.50	733.32	367.21	19.51	-1.46	0.018
125.00	-5.61	-0.94	0.00	-2.67	0.00	2.67	1,001.27	500.64	694.07	347.55	20.12	-1.47	0.013
126.00	0.00	-0.80	0.00	-1.73	0.00	1.73	987.41	493.71	674.85	337.93	20.43	-1.47	0.005

Site Number: 302469 | Code: ANSI/TIA-222-G |

Site Name: Bridgeport CT 2, CT | Engineering Number: 63532322 | 9/3/2015 7:44:19 PM

Customer: T-MOBILE

Load Case: 1.0D + 1.0W | Serviceability 60 mph | 23 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

		Shaft Forces		Discrete Forces				Linear Forces		Sum of Forces			
Seg Elev (ft)	Description	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		41.6	0.0					0.0	0.0	41.6	0.0	0.0	0.0
5.00		82.2	901.9					0.0	264.5	82.2	1,166.3	0.0	0.0
10.00		80.0	878.1					0.0	264.5	80.0	1,142.5	0.0	0.0
15.00		77.8	854.3					0.0	264.5	77.8	1,118.7	0.0	0.0
20.00		75.6	830.5					0.0	264.5	75.6	1,094.9	0.0	0.0
25.00		73.5	806.7					0.0	264.5	73.5	1,071.1	0.0	0.0
30.00		72.1	782.9					0.0	264.5	72.1	1,047.3	0.0	0.0
35.00		72.2	759.0					0.0	264.5	72.2	1,023.5	0.0	0.0
40.00		61.7	735.2					0.0	264.5	61.7	999.7	0.0	0.0
43.50	Bot - Section 2	36.6	500.5					0.0	185.1	36.6	685.6	0.0	0.0
45.00		37.0	390.2					0.0	79.3	37.0	469.5	0.0	0.0
48.50	Top - Section 1	37.0	895.2					0.0	185.1	37.0	1,080.3	0.0	0.0
50.00		47.9	173.3					0.0	79.3	47.9	252.6	0.0	0.0
55.00		73.2	564.8					0.0	264.5	73.2	829.2	0.0	0.0
60.00		72.4	544.9					0.0	264.5	72.4	809.4	0.0	0.0
65.00		71.4	525.1					0.0	264.5	71.4	789.6	0.0	0.0
70.00		99.5	505.3					0.0	264.5	99.5	769.7	0.0	0.0
75.00		126.8	485.4					25.8	264.5	152.6	749.9	0.0	0.0
80.00	Appertunance(s)	123.8	465.6	82.6	0.0	145.2	176.5	26.3	264.5	232.7	906.5	0.0	0.0
85.00		98.5	445.8					26.8	262.8	125.2	708.6	0.0	0.0
88.13	Bot - Section 3	59.9	268.5					17.0	164.2	76.8	432.8	0.0	0.0
90.00		44.8	286.2					10.3	98.6	55.0	384.7	0.0	0.0
91.88	Top - Section 2	58.8	281.1					10.3	98.6	69.1	379.7	0.0	0.0
95.00		70.9	205.9					17.3	164.2	88.2	370.2	0.0	0.0
98.00	Appertunance(s)	46.5	191.9	61.0	0.0	0.0	55.8	16.8	157.7	124.3	405.3	0.0	0.0
100.00		36.0	124.7					0.0	95.1	36.0	219.8	0.0	0.0
104.00	Appertunance(s)	29.7	241.8	828.0	0.0	1,238.3	3,051.6	0.0	190.2	857.7	3,483.7	0.0	0.0
105.00		34.4	58.9					0.0	32.6	34.4	91.5	0.0	0.0
110.00		55.8	284.8					0.0	163.1	55.8	447.9	0.0	0.0
115.00		32.6	269.0					0.0	163.1	32.6	432.1	0.0	0.0
116.00	Appertunance(s)	26.0	51.9	665.8	0.0	0.0	2,016.9	0.0	32.6	691.8	2,101.4	0.0	0.0
120.00		35.7	201.2					0.0	71.4	35.7	272.7	0.0	0.0
123.00	Appertunance(s)	24.7	144.2	238.1	0.0	0.0	814.1	0.0	53.6	262.9	1,011.9	0.0	0.0
125.00		14.5	93.0					0.0	19.7	14.5	112.7	0.0	0.0
126.00	Appertunance(s)	4.8	45.5	854.1	0.0	2,115.0	2,405.0	0.0	9.8	858.9	2,460.4	0.0	0.0
								Totals:		4,915.89	29,321.7	0.00	0.00

Site Number: 302469 | Code: ANSI/TIA-222-G |

Site Name: Bridgeport CT 2, CT | Engineering Number: 63532322 | 9/3/2015 7:44:20 PM

Customer: T-MOBILE

Load Case: 1.0D + 1.0W | Serviceability 60 mph | 23 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	-29.32	-4.89	0.00	-475.30	0.00	475.30	3,765.29	1,882.65	6,978.46	3,494.42	0.00	0.00	0.144
5.00	-28.15	-4.83	0.00	-450.87	0.00	450.87	3,697.80	1,848.90	6,673.37	3,341.64	0.03	-0.05	0.143
10.00	-27.00	-4.77	0.00	-426.74	0.00	426.74	3,628.68	1,814.34	6,371.97	3,190.72	0.10	-0.10	0.141
15.00	-25.88	-4.71	0.00	-402.89	0.00	402.89	3,557.92	1,778.96	6,074.51	3,041.77	0.23	-0.15	0.140
20.00	-24.78	-4.66	0.00	-379.33	0.00	379.33	3,485.52	1,742.76	5,781.22	2,894.91	0.41	-0.20	0.138
25.00	-23.71	-4.60	0.00	-356.06	0.00	356.06	3,411.48	1,705.74	5,492.34	2,750.25	0.65	-0.25	0.136
30.00	-22.65	-4.54	0.00	-333.06	0.00	333.06	3,335.81	1,667.90	5,208.12	2,607.93	0.94	-0.30	0.135
35.00	-21.63	-4.49	0.00	-310.34	0.00	310.34	3,258.50	1,629.25	4,928.79	2,468.06	1.29	-0.36	0.132
40.00	-20.62	-4.44	0.00	-287.91	0.00	287.91	3,158.60	1,579.30	4,623.93	2,315.40	1.69	-0.42	0.131
43.50	-19.94	-4.40	0.00	-272.38	0.00	272.38	3,085.84	1,542.92	4,412.25	2,209.40	2.01	-0.46	0.130
45.00	-19.47	-4.37	0.00	-265.78	0.00	265.78	3,054.65	1,527.33	4,323.05	2,164.74	2.16	-0.47	0.129
48.50	-18.38	-4.34	0.00	-250.47	0.00	250.47	2,457.75	1,228.87	3,470.74	1,737.95	2.52	-0.52	0.152
50.00	-18.13	-4.30	0.00	-243.96	0.00	243.96	2,439.67	1,219.84	3,409.59	1,707.33	2.69	-0.53	0.150
55.00	-17.29	-4.24	0.00	-222.46	0.00	222.46	2,378.35	1,189.18	3,208.11	1,606.44	3.29	-0.60	0.146
60.00	-16.48	-4.18	0.00	-201.27	0.00	201.27	2,315.40	1,157.70	3,010.48	1,507.48	3.95	-0.67	0.141
65.00	-15.69	-4.11	0.00	-180.38	0.00	180.38	2,249.69	1,124.84	2,815.52	1,409.85	4.69	-0.74	0.135
70.00	-14.91	-4.02	0.00	-159.81	0.00	159.81	2,163.06	1,081.53	2,601.80	1,302.84	5.50	-0.81	0.130
75.00	-14.16	-3.88	0.00	-139.69	0.00	139.69	2,076.43	1,038.21	2,396.52	1,200.04	6.38	-0.87	0.123
80.00	-13.26	-3.64	0.00	-120.17	0.00	120.17	1,989.80	994.90	2,199.68	1,101.47	7.33	-0.94	0.116
85.00	-12.55	-3.52	0.00	-101.95	0.00	101.95	1,903.17	951.59	2,011.27	1,007.13	8.35	-1.00	0.108
88.13	-12.11	-3.44	0.00	-90.96	0.00	90.96	1,849.03	924.51	1,897.79	950.31	9.01	-1.04	0.102
90.00	-11.73	-3.38	0.00	-84.51	0.00	84.51	1,816.54	908.27	1,831.29	917.01	9.43	-1.07	0.099
91.88	-11.35	-3.31	0.00	-78.17	0.00	78.17	1,456.00	728.00	1,478.84	740.52	9.85	-1.09	0.113
95.00	-10.98	-3.22	0.00	-67.82	0.00	67.82	1,417.09	708.55	1,396.21	699.14	10.58	-1.13	0.105
98.00	-10.57	-3.10	0.00	-58.15	0.00	58.15	1,375.51	687.75	1,315.06	658.51	11.30	-1.16	0.096
100.00	-10.35	-3.06	0.00	-51.95	0.00	51.95	1,347.79	673.89	1,262.31	632.09	11.79	-1.19	0.090
104.00	-6.89	-2.14	0.00	-38.46	0.00	38.46	1,292.34	646.17	1,160.06	580.89	12.81	-1.23	0.072
105.00	-6.79	-2.10	0.00	-36.32	0.00	36.32	1,278.48	639.24	1,135.17	568.43	13.06	-1.24	0.069
110.00	-6.35	-2.04	0.00	-25.81	0.00	25.81	1,209.18	604.59	1,014.77	508.14	14.39	-1.29	0.056
115.00	-5.91	-2.00	0.00	-15.61	0.00	15.61	1,139.88	569.94	901.12	451.23	15.76	-1.32	0.040
116.00	-3.83	-1.26	0.00	-13.61	0.00	13.61	1,126.02	563.01	879.21	440.26	16.03	-1.33	0.034
120.00	-3.56	-1.22	0.00	-8.56	0.00	8.56	1,070.57	535.29	794.22	397.70	17.15	-1.34	0.025
123.00	-2.55	-0.93	0.00	-4.90	0.00	4.90	1,028.99	514.50	733.32	367.21	18.00	-1.35	0.016
125.00	-2.44	-0.92	0.00	-3.03	0.00	3.03	1,001.27	500.64	694.07	347.55	18.57	-1.36	0.011
126.00	0.00	-0.86	0.00	-2.11	0.00	2.11	987.41	493.71	674.85	337.93	18.85	-1.36	0.006

Equivalent Lateral Forces Method Analysis

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

Spectral Response Acceleration for Short Period (S_s):	0.20
Spectral Response Acceleration at 1.0 Second Period (S_1):	0.06
Long-Period Transition Period (T_L):	6
Importance Factor (I_E):	1.00
Site Coefficient F_a:	1.60
Site Coeffiecient F_v:	2.40
Response Modification Coefficient (R):	1.50
Design Spectral Response Acceleration at Short Period (S_{ds}):	0.22
Design Spectral Response Acceleration at 1.0 Second Period (S_{d1}):	0.10
Seismic Response Coefficient (C_s):	0.03
Upper Limit C_s	0.03
Lower Limit C_s	0.03
Period based on Rayleigh Method (sec):	2.27
Redundancy Factor (p):	1.30
Seismic Force Distribution Exponent (k):	1.89
Total Unfactored Dead Load:	29.32 k
Seismic Base Shear (E):	1.15 k

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):	0.20
Spectral Response Acceleration at 1.0 Second Period (S_1):	0.06
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}):	0.22
Desing Spectral Response Acceleration at 1.0 Second Period (S_{d1}):	0.10
Period Based on Rayleigh Method (sec):	2.27
Redundancy Factor (p):	1.30

Load Case (1.2 + 0.2Sds) * DL + E ELFM Seismic Equivalent Lateral Forces Method

Segment	Height Above Base (ft)	Weight (lb)	a	b	c	Saz	Horizontal Force (lb)	Vertical Force (lb)
34	125.50	55	1.875	1.902	1.112	0.401	19	47
33	124.00	113	1.830	1.681	1.031	0.369	36	96
32	121.50	198	1.757	1.352	0.906	0.319	55	169
31	118.00	273	1.658	0.968	0.751	0.254	60	234
30	115.50	85	1.588	0.742	0.654	0.211	15	72
29	112.50	432	1.507	0.518	0.551	0.164	62	370
28	107.50	448	1.376	0.240	0.407	0.097	38	384
27	104.50	91	1.300	0.121	0.336	0.062	5	78
26	102.00	432	1.239	0.044	0.285	0.037	14	370
25	99.00	220	1.167	-0.024	0.231	0.011	2	188
24	96.50	350	1.109	-0.065	0.192	-0.008	-2	299
23	93.44	370	1.039	-0.098	0.152	-0.026	-8	317
22	90.94	380	0.984	-0.113	0.124	-0.038	-12	325
21	89.06	385	0.944	-0.120	0.105	-0.045	-15	329
20	86.56	433	0.892	-0.122	0.084	-0.051	-19	371
19	82.50	709	0.810	-0.114	0.057	-0.054	-33	607
18	77.50	730	0.715	-0.091	0.033	-0.048	-30	625
17	72.50	750	0.626	-0.062	0.018	-0.031	-20	642
16	67.50	770	0.542	-0.032	0.009	-0.008	-5	659
15	62.50	790	0.465	-0.004	0.006	0.016	11	676
14	57.50	809	0.394	0.020	0.007	0.036	25	693
13	52.50	829	0.328	0.039	0.010	0.050	36	710
12	49.25	253	0.289	0.048	0.013	0.055	12	216
11	46.75	1,080	0.260	0.053	0.016	0.058	54	925
10	44.25	470	0.233	0.058	0.019	0.060	24	402
9	41.75	686	0.208	0.062	0.022	0.060	36	587
8	37.50	1,000	0.167	0.066	0.028	0.060	52	856
7	32.50	1,023	0.126	0.070	0.034	0.059	52	877
6	27.50	1,047	0.090	0.071	0.038	0.057	52	897
5	22.50	1,071	0.060	0.072	0.041	0.056	52	917
4	17.50	1,095	0.036	0.070	0.041	0.053	51	938
3	12.50	1,119	0.019	0.063	0.037	0.049	48	958
2	7.50	1,143	0.007	0.049	0.028	0.040	40	979
1	2.50	1,166	0.001	0.021	0.011	0.020	20	999

Flat Platform w/ Han	126.00	2,000	1.890	1.980	1.140	0.412	715	1,713
48" x 12" Panel	126.00	270	1.890	1.980	1.140	0.412	96	231
72" x 12" Panel	126.00	135	1.890	1.980	1.140	0.412	48	116
NextNet BTS-2500	123.00	105	1.801	1.543	0.979	0.349	32	90
Dragonwave A-ANT-18G	123.00	27	1.801	1.543	0.979	0.349	8	23
Argus LLPX310R	123.00	86	1.801	1.543	0.979	0.349	26	73
DragonWave Horizon C	123.00	21	1.801	1.543	0.979	0.349	6	18
Side Arms	123.00	560	1.801	1.543	0.979	0.349	169	480
Dragonwave A-ANT-23G	123.00	15	1.801	1.543	0.979	0.349	5	13
Round Low Profile Pl	116.00	1,500	1.602	0.784	0.673	0.219	285	1,285
RFS APX16PV-16PVL-A	116.00	119	1.602	0.784	0.673	0.219	23	102
Andrew ETW200VS12UB	116.00	33	1.602	0.784	0.673	0.219	6	28
Ericsson KRY 112 71	116.00	79	1.602	0.784	0.673	0.219	15	68
RFS APX16DWV-	116.00	122	1.602	0.784	0.673	0.219	23	105
Kathrein Smart Bias	116.00	10	1.602	0.784	0.673	0.219	2	9
Andrew LNX-6515DS-VT	116.00	154	1.602	0.784	0.673	0.219	29	132
Raycap DC6-48-60-18-	104.00	64	1.288	0.104	0.325	0.057	3	54
Powerwave LGP21901	104.00	33	1.288	0.104	0.325	0.057	2	28
Ericsson RRUS 12	104.00	150	1.288	0.104	0.325	0.057	7	128
Ericsson RRUS-32	104.00	231	1.288	0.104	0.325	0.057	11	198
Ericsson RRUS A2 B2	104.00	66	1.288	0.104	0.325	0.057	3	57
Ericsson RRUS E2 B29	104.00	180	1.288	0.104	0.325	0.057	9	154
Powerwave 7770.00	104.00	105	1.288	0.104	0.325	0.057	5	90
CCI OPA-65R-LCUU-H4	104.00	342	1.288	0.104	0.325	0.057	17	293
Round Low Profile Pl	104.00	1,500	1.288	0.104	0.325	0.057	74	1,285
Ericsson RRUS-11	104.00	153	1.288	0.104	0.325	0.057	8	131
Powerwave LGP2140X	104.00	228	1.288	0.104	0.325	0.057	11	195
Kathrein 800 10504	98.00	53	1.143	-0.042	0.215	0.003	0	45
RCU	98.00	3	1.143	-0.042	0.215	0.003	0	3
Flat Side Arm	80.00	150	0.762	-0.104	0.044	-0.053	-7	128
Antel BCD-87010__	80.00	26	0.762	-0.104	0.044	-0.053	-1	23
		29,322	71.305	29.024	25.487	7.742	2,356	25,114

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	125.50	55	1.875	1.902	1.112	0.401	19	47
33	124.00	113	1.830	1.681	1.031	0.369	36	96
32	121.50	198	1.757	1.352	0.906	0.319	55	169
31	118.00	273	1.658	0.968	0.751	0.254	60	234
30	115.50	85	1.588	0.742	0.654	0.211	15	72
29	112.50	432	1.507	0.518	0.551	0.164	62	370
28	107.50	448	1.376	0.240	0.407	0.097	38	384
27	104.50	91	1.300	0.121	0.336	0.062	5	78
26	102.00	432	1.239	0.044	0.285	0.037	14	370
25	99.00	220	1.167	-0.024	0.231	0.011	2	188
24	96.50	350	1.109	-0.065	0.192	-0.008	-2	299
23	93.44	370	1.039	-0.098	0.152	-0.026	-8	317
22	90.94	380	0.984	-0.113	0.124	-0.038	-12	325
21	89.06	385	0.944	-0.120	0.105	-0.045	-15	329
20	86.56	433	0.892	-0.122	0.084	-0.051	-19	371
19	82.50	709	0.810	-0.114	0.057	-0.054	-33	607
18	77.50	730	0.715	-0.091	0.033	-0.048	-30	625
17	72.50	750	0.626	-0.062	0.018	-0.031	-20	642
16	67.50	770	0.542	-0.032	0.009	-0.008	-5	659
15	62.50	790	0.465	-0.004	0.006	0.016	11	676
14	57.50	809	0.394	0.020	0.007	0.036	25	693
13	52.50	829	0.328	0.039	0.010	0.050	36	710
12	49.25	253	0.289	0.048	0.013	0.055	12	216

11	46.75	1,080	0.260	0.053	0.016	0.058	54	925
10	44.25	470	0.233	0.058	0.019	0.060	24	402
9	41.75	686	0.208	0.062	0.022	0.060	36	587
8	37.50	1,000	0.167	0.066	0.028	0.060	52	856
7	32.50	1,023	0.126	0.070	0.034	0.059	52	877
6	27.50	1,047	0.090	0.071	0.038	0.057	52	897
5	22.50	1,071	0.060	0.072	0.041	0.056	52	917
4	17.50	1,095	0.036	0.070	0.041	0.053	51	938
3	12.50	1,119	0.019	0.063	0.037	0.049	48	958
2	7.50	1,143	0.007	0.049	0.028	0.040	40	979
1	2.50	1,166	0.001	0.021	0.011	0.020	20	999
Flat Platform w/ Han	126.00	2,000	1.890	1.980	1.140	0.412	715	1,713
48" x 12" Panel	126.00	270	1.890	1.980	1.140	0.412	96	231
72" x 12" Panel	126.00	135	1.890	1.980	1.140	0.412	48	116
NextNet BTS-2500	123.00	105	1.801	1.543	0.979	0.349	32	90
Dragonwave A-ANT-18G	123.00	27	1.801	1.543	0.979	0.349	8	23
Argus LLPX310R	123.00	86	1.801	1.543	0.979	0.349	26	73
DragonWave Horizon C	123.00	21	1.801	1.543	0.979	0.349	6	18
Side Arms	123.00	560	1.801	1.543	0.979	0.349	169	480
Dragonwave A-ANT-23G	123.00	15	1.801	1.543	0.979	0.349	5	13
Round Low Profile Pl	116.00	1,500	1.602	0.784	0.673	0.219	285	1,285
RFS APX16PV-16PVL-A	116.00	119	1.602	0.784	0.673	0.219	23	102
Andrew ETW200VS12UB	116.00	33	1.602	0.784	0.673	0.219	6	28
Ericsson KRY 112 71	116.00	79	1.602	0.784	0.673	0.219	15	68
RFS APX16DWV-	116.00	122	1.602	0.784	0.673	0.219	23	105
Kathrein Smart Bias	116.00	10	1.602	0.784	0.673	0.219	2	9
Andrew LNX-6515DS-VT	116.00	154	1.602	0.784	0.673	0.219	29	132
Raycap DC6-48-60-18-	104.00	64	1.288	0.104	0.325	0.057	3	54
Powerwave LGP21901	104.00	33	1.288	0.104	0.325	0.057	2	28
Ericsson RRUS 12	104.00	150	1.288	0.104	0.325	0.057	7	128
Ericsson RRUS-32	104.00	231	1.288	0.104	0.325	0.057	11	198
Ericsson RRUS A2 B2	104.00	66	1.288	0.104	0.325	0.057	3	57
Ericsson RRUS E2 B29	104.00	180	1.288	0.104	0.325	0.057	9	154
Powerwave 7770.00	104.00	105	1.288	0.104	0.325	0.057	5	90
CCI OPA-65R-LCUU-H4	104.00	342	1.288	0.104	0.325	0.057	17	293
Round Low Profile Pl	104.00	1,500	1.288	0.104	0.325	0.057	74	1,285
Ericsson RRUS-11	104.00	153	1.288	0.104	0.325	0.057	8	131
Powerwave LGP2140X	104.00	228	1.288	0.104	0.325	0.057	11	195
Kathrein 800 10504	98.00	53	1.143	-0.042	0.215	0.003	0	45
RCU	98.00	3	1.143	-0.042	0.215	0.003	0	3
Flat Side Arm	80.00	150	0.762	-0.104	0.044	-0.053	-7	128
Antel BCD-87010__	80.00	26	0.762	-0.104	0.044	-0.053	-1	23
		29,322	71.305	29.024	25.487	7.742	2,356	25,114

Load Case (0.9 - 0.2Sds) * DL + E ELFM — **Seismic (Reduced DL) Equivalent Lateral Forces Method**

Segment	Height Above Base (ft)	Weight (lb)	a	b	c	Saz	Horizontal Force (lb)	Vertical Force (lb)
34	125.50	55	1.875	1.902	1.112	0.401	19	47
33	124.00	113	1.830	1.681	1.031	0.369	36	96
32	121.50	198	1.757	1.352	0.906	0.319	55	169
31	118.00	273	1.658	0.968	0.751	0.254	60	234
30	115.50	85	1.588	0.742	0.654	0.211	15	72
29	112.50	432	1.507	0.518	0.551	0.164	62	370
28	107.50	448	1.376	0.240	0.407	0.097	38	384
27	104.50	91	1.300	0.121	0.336	0.062	5	78
26	102.00	432	1.239	0.044	0.285	0.037	14	370
25	99.00	220	1.167	-0.024	0.231	0.011	2	188
24	96.50	350	1.109	-0.065	0.192	-0.008	-2	299
23	93.44	370	1.039	-0.098	0.152	-0.026	-8	317

22	90.94	380	0.984	-0.113	0.124	-0.038	-12	325
21	89.06	385	0.944	-0.120	0.105	-0.045	-15	329
20	86.56	433	0.892	-0.122	0.084	-0.051	-19	371
19	82.50	709	0.810	-0.114	0.057	-0.054	-33	607
18	77.50	730	0.715	-0.091	0.033	-0.048	-30	625
17	72.50	750	0.626	-0.062	0.018	-0.031	-20	642
16	67.50	770	0.542	-0.032	0.009	-0.008	-5	659
15	62.50	790	0.465	-0.004	0.006	0.016	11	676
14	57.50	809	0.394	0.020	0.007	0.036	25	693
13	52.50	829	0.328	0.039	0.010	0.050	36	710
12	49.25	253	0.289	0.048	0.013	0.055	12	216
11	46.75	1,080	0.260	0.053	0.016	0.058	54	925
10	44.25	470	0.233	0.058	0.019	0.060	24	402
9	41.75	686	0.208	0.062	0.022	0.060	36	587
8	37.50	1,000	0.167	0.066	0.028	0.060	52	856
7	32.50	1,023	0.126	0.070	0.034	0.059	52	877
6	27.50	1,047	0.090	0.071	0.038	0.057	52	897
5	22.50	1,071	0.060	0.072	0.041	0.056	52	917
4	17.50	1,095	0.036	0.070	0.041	0.053	51	938
3	12.50	1,119	0.019	0.063	0.037	0.049	48	958
2	7.50	1,143	0.007	0.049	0.028	0.040	40	979
1	2.50	1,166	0.001	0.021	0.011	0.020	20	999
Flat Platform w/ Han	126.00	2,000	1.890	1.980	1.140	0.412	715	1,713
48" x 12" Panel	126.00	270	1.890	1.980	1.140	0.412	96	231
72" x 12" Panel	126.00	135	1.890	1.980	1.140	0.412	48	116
NextNet BTS-2500	123.00	105	1.801	1.543	0.979	0.349	32	90
Dragonwave A-ANT-18G	123.00	27	1.801	1.543	0.979	0.349	8	23
Argus LLPX310R	123.00	86	1.801	1.543	0.979	0.349	26	73
DragonWave Horizon C	123.00	21	1.801	1.543	0.979	0.349	6	18
Side Arms	123.00	560	1.801	1.543	0.979	0.349	169	480
Dragonwave A-ANT-23G	123.00	15	1.801	1.543	0.979	0.349	5	13
Round Low Profile Pl	116.00	1,500	1.602	0.784	0.673	0.219	285	1,285
RFS APX16PV-16PVL-A	116.00	119	1.602	0.784	0.673	0.219	23	102
Andrew ETW200VS12UB	116.00	33	1.602	0.784	0.673	0.219	6	28
Ericsson KRY 112 71	116.00	79	1.602	0.784	0.673	0.219	15	68
RFS APX16DWV-	116.00	122	1.602	0.784	0.673	0.219	23	105
Kathrein Smart Bias	116.00	10	1.602	0.784	0.673	0.219	2	9
Andrew LNX-6515DS-VT	116.00	154	1.602	0.784	0.673	0.219	29	132
Raycap DC6-48-60-18-	104.00	64	1.288	0.104	0.325	0.057	3	54
Powerwave LGP21901	104.00	33	1.288	0.104	0.325	0.057	2	28
Ericsson RRUS 12	104.00	150	1.288	0.104	0.325	0.057	7	128
Ericsson RRUS-32	104.00	231	1.288	0.104	0.325	0.057	11	198
Ericsson RRUS A2 B2	104.00	66	1.288	0.104	0.325	0.057	3	57
Ericsson RRUS E2 B29	104.00	180	1.288	0.104	0.325	0.057	9	154
Powerwave 7770.00	104.00	105	1.288	0.104	0.325	0.057	5	90
CCI OPA-65R-LCUU-H4	104.00	342	1.288	0.104	0.325	0.057	17	293
Round Low Profile Pl	104.00	1,500	1.288	0.104	0.325	0.057	74	1,285
Ericsson RRUS-11	104.00	153	1.288	0.104	0.325	0.057	8	131
Powerwave LGP2140X	104.00	228	1.288	0.104	0.325	0.057	11	195
Kathrein 800 10504	98.00	53	1.143	-0.042	0.215	0.003	0	45
RCU	98.00	3	1.143	-0.042	0.215	0.003	0	3
Flat Side Arm	80.00	150	0.762	-0.104	0.044	-0.053	-7	128
Antel BCD-87010__	80.00	26	0.762	-0.104	0.044	-0.053	-1	23
		29,322	71.305	29.024	25.487	7.742	2,356	25,114

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

Segment	Height Above Base (ft)	Weight (lb)	a	b	c	Saz	Horizontal Force (lb)	Vertical Force (lb)
34	125.50	55	1.875	1.902	1.112	0.401	19	47

33	124.00	113	1.830	1.681	1.031	0.369	36	96
32	121.50	198	1.757	1.352	0.906	0.319	55	169
31	118.00	273	1.658	0.968	0.751	0.254	60	234
30	115.50	85	1.588	0.742	0.654	0.211	15	72
29	112.50	432	1.507	0.518	0.551	0.164	62	370
28	107.50	448	1.376	0.240	0.407	0.097	38	384
27	104.50	91	1.300	0.121	0.336	0.062	5	78
26	102.00	432	1.239	0.044	0.285	0.037	14	370
25	99.00	220	1.167	-0.024	0.231	0.011	2	188
24	96.50	350	1.109	-0.065	0.192	-0.008	-2	299
23	93.44	370	1.039	-0.098	0.152	-0.026	-8	317
22	90.94	380	0.984	-0.113	0.124	-0.038	-12	325
21	89.06	385	0.944	-0.120	0.105	-0.045	-15	329
20	86.56	433	0.892	-0.122	0.084	-0.051	-19	371
19	82.50	709	0.810	-0.114	0.057	-0.054	-33	607
18	77.50	730	0.715	-0.091	0.033	-0.048	-30	625
17	72.50	750	0.626	-0.062	0.018	-0.031	-20	642
16	67.50	770	0.542	-0.032	0.009	-0.008	-5	659
15	62.50	790	0.465	-0.004	0.006	0.016	11	676
14	57.50	809	0.394	0.020	0.007	0.036	25	693
13	52.50	829	0.328	0.039	0.010	0.050	36	710
12	49.25	253	0.289	0.048	0.013	0.055	12	216
11	46.75	1,080	0.260	0.053	0.016	0.058	54	925
10	44.25	470	0.233	0.058	0.019	0.060	24	402
9	41.75	686	0.208	0.062	0.022	0.060	36	587
8	37.50	1,000	0.167	0.066	0.028	0.060	52	856
7	32.50	1,023	0.126	0.070	0.034	0.059	52	877
6	27.50	1,047	0.090	0.071	0.038	0.057	52	897
5	22.50	1,071	0.060	0.072	0.041	0.056	52	917
4	17.50	1,095	0.036	0.070	0.041	0.053	51	938
3	12.50	1,119	0.019	0.063	0.037	0.049	48	958
2	7.50	1,143	0.007	0.049	0.028	0.040	40	979
1	2.50	1,166	0.001	0.021	0.011	0.020	20	999
Flat Platform w/ Han	126.00	2,000	1.890	1.980	1.140	0.412	715	1,713
48" x 12" Panel	126.00	270	1.890	1.980	1.140	0.412	96	231
72" x 12" Panel	126.00	135	1.890	1.980	1.140	0.412	48	116
NextNet BTS-2500	123.00	105	1.801	1.543	0.979	0.349	32	90
Dragonwave A-ANT-18G	123.00	27	1.801	1.543	0.979	0.349	8	23
Argus LLPX310R	123.00	86	1.801	1.543	0.979	0.349	26	73
DragonWave Horizon C	123.00	21	1.801	1.543	0.979	0.349	6	18
Side Arms	123.00	560	1.801	1.543	0.979	0.349	169	480
Dragonwave A-ANT-23G	123.00	15	1.801	1.543	0.979	0.349	5	13
Round Low Profile Pl	116.00	1,500	1.602	0.784	0.673	0.219	285	1,285
RFS APX16PV-16PVL-A	116.00	119	1.602	0.784	0.673	0.219	23	102
Andrew ETW200VS12UB	116.00	33	1.602	0.784	0.673	0.219	6	28
Ericsson KRY 112 71	116.00	79	1.602	0.784	0.673	0.219	15	68
RFS APX16DWV-	116.00	122	1.602	0.784	0.673	0.219	23	105
Kathrein Smart Bias	116.00	10	1.602	0.784	0.673	0.219	2	9
Andrew LNX-6515DS-VT	116.00	154	1.602	0.784	0.673	0.219	29	132
Raycap DC6-48-60-18-	104.00	64	1.288	0.104	0.325	0.057	3	54
Powerwave LGP21901	104.00	33	1.288	0.104	0.325	0.057	2	28
Ericsson RRUS 12	104.00	150	1.288	0.104	0.325	0.057	7	128
Ericsson RRUS-32	104.00	231	1.288	0.104	0.325	0.057	11	198
Ericsson RRUS A2 B2	104.00	66	1.288	0.104	0.325	0.057	3	57
Ericsson RRUS E2 B29	104.00	180	1.288	0.104	0.325	0.057	9	154
Powerwave 7770.00	104.00	105	1.288	0.104	0.325	0.057	5	90
CCI OPA-65R-LCUU-H4	104.00	342	1.288	0.104	0.325	0.057	17	293
Round Low Profile Pl	104.00	1,500	1.288	0.104	0.325	0.057	74	1,285
Ericsson RRUS-11	104.00	153	1.288	0.104	0.325	0.057	8	131
Powerwave LGP2140X	104.00	228	1.288	0.104	0.325	0.057	11	195
Kathrein 800 10504	98.00	53	1.143	-0.042	0.215	0.003	0	45
RCU	98.00	3	1.143	-0.042	0.215	0.003	0	3
Flat Side Arm	80.00	150	0.762	-0.104	0.044	-0.053	-7	128
Antel BCD-87010__	80.00	26	0.762	-0.104	0.044	-0.053	-1	23

	29,322	71.305	29.024	25.487	7.742	2,356	25,114

Analysis Summary

Load Case	Reactions Shear FX (kips)	Shear FZ (kips)	Axial FY (kips)	Moment MX (ft-kips)	Moment MY (ft-kips)	Moment MZ (ft-kips)	Max Usage Elev (ft)	Interaction Ratio
1.2D + 1.6W	27.28	0.00	35.12	0.00	0.00	2617.46	48.50	0.79
0.9D + 1.6W	26.22	0.00	26.33	0.00	0.00	2535.64	48.50	0.77
1.2D + 1.0Di + 1.0Wi	5.27	0.00	58.81	0.00	0.00	514.18	48.50	0.17
(1.2 + 0.2Sds) * DL + E ELFM	1.15	0.00	35.01	0.00	0.00	122.69	48.50	0.05
(1.2 + 0.2Sds) * DL + E EMAM	2.34	0.00	35.01	0.00	0.00	250.91	48.50	0.09
(0.9 - 0.2Sds) * DL + E ELFM	1.15	0.00	24.11	0.00	0.00	120.75	48.50	0.04
(0.9 - 0.2Sds) * DL + E EMAM	2.34	0.00	24.11	0.00	0.00	246.65	48.50	0.09
1.0D + 1.0W	4.89	0.00	29.32	0.00	0.00	475.30	48.50	0.15

Code Rev.	G	Date	9/3/2015
		Engineer	VC
		Site #	302469
Moment	2617.5 k-ft	Carrier	T-Mobile
Axial	35.1 k		

Base/Flange Plate	Plate Type	*Baseplate*	
	Pole Diameter	45.5	in
	Pole Thickness	0.375	in
	Plate Diameter	60	in
	Plate Thickness	1.75	in
	Plate Fy	60	ksi
	Weld Length	0.3125	in
	ϕ_s Resistance	1212.48	k-in
	Applied	503.98	k-in
Stiffeners	#	*12*	*Show*
	Thickness	0.5	in
	Length	6	in
	Height	12	in
	Chamfer	2	in
	Offset Angle	0	°
	Fy	50	ksi
Bolts	#	*12*	
	Bolt Circle	54	in
	(R)adial / (S)quare	R	
	Diameter	2.25	in
	Hole Diameter	2.75	in
	Type	A615-75	
	Fy	75	ksi
	Fu	100	ksi
	ϕ_s Resistance	259.82	k
	Applied	196.68	k
Reinforcement ●	#	*0*	
Extra Bolts O	#	*0*	

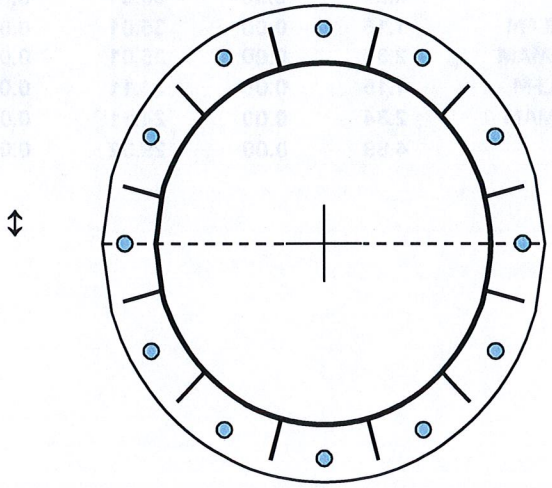
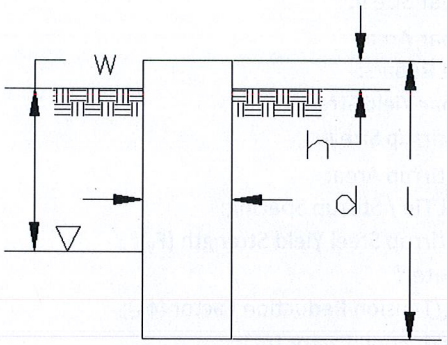


Plate Stress Ratio:
0.42 (Pass)

Bolt Stress Ratio:
0.76 (Pass)

Site Name:	Bridgeport CT 2, CT	*Program Last Updated:*	*5/13/2014*
Site Number:	302469	*American Tower Corporation*	
Engineer:	V. Chung		
Engineering Number:	63532322		
Date:	09/03/15		



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

Analyze or Design a Foundation?	Analyze	
Foundation Mapped:	N	
Moment (M):	2617.5	k-ft
Shear/Leg (V):	27.3	k
Axial Load (P):	35.1	k
Uplift/Leg (U):	0.0	k
Tower Type (GT / SST / MP):	MP	
Diameter of Caisson (d):	6.0	ft
Caisson Embedment (L-h):	18.0	ft
Caisson Height Above Ground (h):	1.0	ft
Depth Below Ground Surface to Water Table (w):	99.0	ft
Unit Weight of Concrete:	150.0	pcf
Unit Weight of Water:	62.4	pcf
Tension Skin Friction/Compression Skin Friction:	1.00	
Pullout Angle:	30.0	degrees

Engineer Notes
All foundations and anchorages have a factor of safety greater than or equal to 2.0

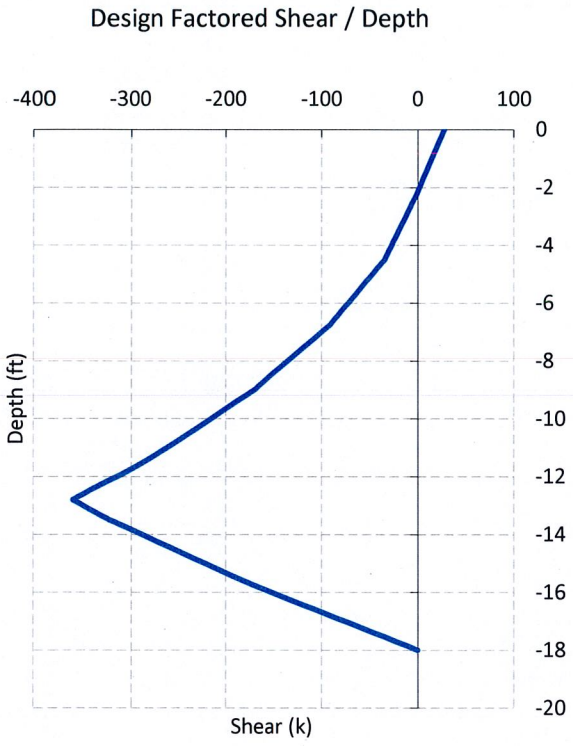
Soil Mechanical Properties

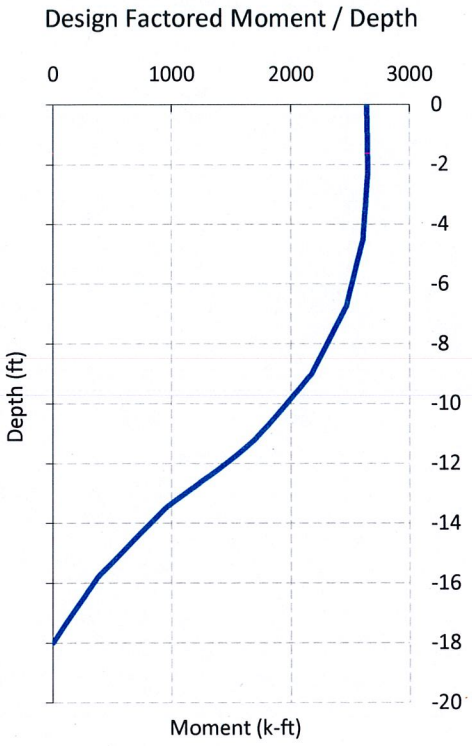
Depth (ft) Top	Depth (ft) Bottom	γ_{Soil} (pcf)	Cohesion (psf)	ϕ (degree)	Ultimate Skin Friction (psf)	Ultimate Bearing Pressure (psf)
0.0	2.0	120	0	0	0	0
2.0	19.0	130	0	45	942	22000

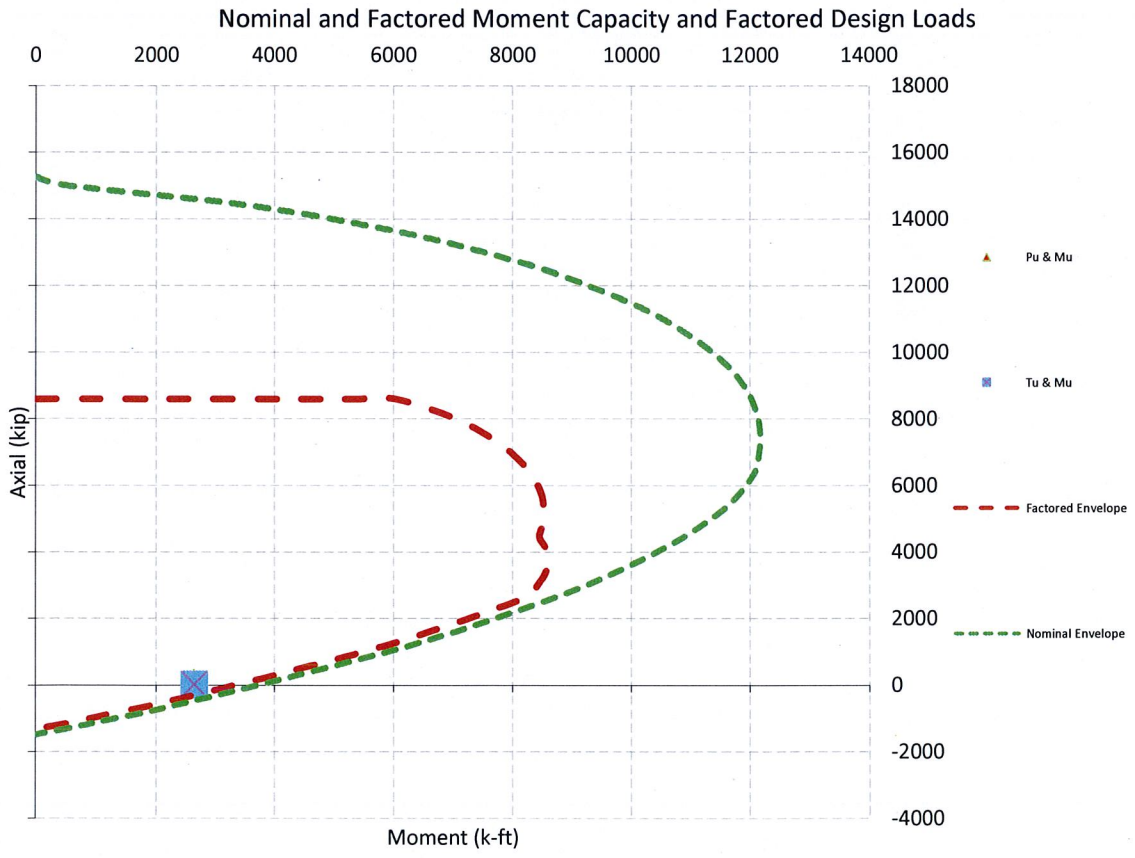
Required Embedment:	16.6	ft - OK, Caisson Embedment Satisfactory
Volume of Concrete:	537.2	ft^3 = 19.9 yd^3
Weight of Concrete (Buoyancy Effect Considered):	80.6	k
Average Soil Unit Weight:	128.9	pcf
Skin Friction Resistance:	284.1	k
Compressive Bearing Resistance:	622.0	k
Pullout Weight (Minus Concrete Weight):	489.6	k
Nominal Uplift Capacity per Leg ($\phi_s T_n$):	273.5	k
Nominal Compressive Capacity per Leg ($\phi_s P_n$):	679.6	k
P_u:	48.0	k
$T_u/\phi_s T_n$:	0.00	Result: OK
$P_u/\phi_s P_n$:	0.07	Result: OK
Total Lateral Resistance:	1828.8	k
Inflection Point (Below Ground Surface):	12.8	ft
Design Overturning Moment At Inflection Point (M_D):	2994.1	k-ft
Nominal Moment Capacity ($\phi_s M_n$):	4678.3	k-ft
$M_D/\phi_s M_n$:	0.64	Result: OK
ϕ_s:	0.75	

Caisson Strength Capacity

Concrete Compressive Strength (f'_c):	4000	psi
Vertical Steel Rebar Size #:	11	
Vertical Steel Rebar Area:	1.56	in^2
# of Vertical Steel Rebars:	16	
Vertical Steel Rebar Yield Strength (F_y):	60	ksi
Horizontal Tie / Stirrup Size #:	5	
Horizontal Tie / Stirrup Area:	0.31	in^2
Design Horizontal Tie / Stirrup Spacing:	12.0	in
Horizontal Tie / Stirrup Steel Yield Strength (F_y):	60	ksi
Rebar Cage Diameter:	64.0	in
Strength Bending/Tension Reduction Factor (ϕ_B):	0.90	ACI318-05 - 9.3.2.1
Strength Shear Reduction Factor (ϕ_V):	0.75	ACI318-05 - 9.3.2.3
Strength Compression Reduction Factor (ϕ_V):	0.65	ACI318-05 - 9.3.2.2
Steel Elastic Modulus:	29000	ksi
Design Moment (M_u):	2654.8	k-ft
Nominal Moment Capacity ($\phi_B M_n$):	3528.7	k-ft - ACI318-005 - 10.2
$M_u/\phi_B M_n$:	0.75	Result: OK
Design Shear (V_u):	361.0	k
Nominal Shear Capacity ($\phi_V V_n$):	387.9	k - ACI318-05 - 11.3.1.1 or 11.5.7.2
$V_u/\phi_V V_n$:	0.93	Result: OK
Design Tension (T_u):	0.0	k
Nominal Tension Capacity ($\phi_T T_n$):	1347.8	k - ACI318-05 - 10.2
$T_u/\phi_T T_n$:	0.00	Result: OK
Design Compression (P_u):	48.0	k
Nominal Compression Capacity ($\phi_P P_n$):	7154.3	k - ACI318-05 - 10.3.6.2
$P_u/\phi_P P_n$:	0.01	Result: OK
Bending Reinforcement Ratio:	0.006	ACI318-05 - 10.8.4 & 10.9.1
$M_u/\phi_B M_n + T_u/\phi_T T_n$:	0.75	Result: OK


Design Factored Shear / Depth
-400
-300
-200
-100
0
100
0
-2
-4
-6
-8
-10
-12
-14
-16
-18
-20
Depth (ft)
Shear (k)


Design Factored Moment / Depth
0
1000
2000
3000
0
-2
-4
-6
-8
-10
-12
-14
-16
-18
-20
Depth (ft)
Moment (k-ft)


Nominal and Factored Moment Capacity and Factored Design Loads
0
2000
4000
6000
8000
10000
12000
14000
18000
16000
14000
12000
10000
8000
6000
4000
2000
0
-2000
-4000
Axial (kip)
Moment (k-ft)
Pu & Mu
Tu & Mu
Factored Envelope
Nominal Envelope