



STATE OF CONNECTICUT  
*CONNECTICUT SITING COUNCIL*

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**VIA ELECTRONIC MAIL**

August 17, 2022

Jack Andrews  
Zoning Manager  
Centerline Communications, LLC  
10130 Donleigh Drive  
Columbia, MD 21046  
[jmandrews@clinellc.com](mailto:jmandrews@clinellc.com)

RE: **EM-AT&T-023B-220725-** AT&T notice of intent to modify an existing telecommunications facility located at 14 Canton Springs Road, Canton, Connecticut.

Dear Mr. Andrews:

The Connecticut Siting Council (Council) is in receipt of your correspondence of August 16, 2022 submitted in response to the Council's August 11, 2022 notification of an incomplete request for exempt modification with regard to the above-referenced matter.

The submission renders the request for exempt modification complete and the Council will process the request in accordance with the Federal Communications Commission 60-day timeframe.

Thank you for your attention and cooperation.

Sincerely,

Melanie A. Bachman  
Executive Director

MAB/RDM/emr

**From:** John Andrews <[jmandrews@clinellc.com](mailto:jmandrews@clinellc.com)>  
**Sent:** Tuesday, August 16, 2022 2:33 PM  
**To:** Robidoux, Evan <[Evan.Robidoux@ct.gov](mailto:Evan.Robidoux@ct.gov)>  
**Cc:** CSC-DL Siting Council <[Siting.Council@ct.gov](mailto:Siting.Council@ct.gov)>  
**Subject:** RE: Council Incomplete Letter for EM-AT&T-023B-220725 (14 Canton Springs Road, Canton)

EXTERNAL EMAIL: This email originated from outside of the organization. Do not click any links or open any attachments unless you trust the sender and know the content is safe.

Evan: Your Council Incomplete letter said that I needed to submit a Revised Structural. I received it this morning. I have attached my cover letter with the electronic copy. A hard copy will be sent this afternoon. Thanks for your assistance in this matter.



**John Andrews Jr.** | Project Manager  
10130 Donleigh Drive, Columbia, MD 21046  
Centerline Communications  
750 W Center St, Suite 301 | West Bridgewater, MA 02379  
Mobile: 443.677.0144  
[jmandrews@clinellc.com](mailto:jmandrews@clinellc.com) | [www.centerlinecommunications.com](http://www.centerlinecommunications.com)



August 16, 2022

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

**RE: EM-AT&T-023B-220725-** AT&T notice of intent to modify an existing telecommunications facility located at 14 Canton Springs Road, Canton, Connecticut.

Dear Ms. Bachman,

I was advised that the Structural Report submitted with the above referenced Exempt Modification request lacked information concerning another carrier's equipment, and to submit an original and an electronic copy of the corrected Report. Accordingly, enclosed please find a hard copy of the new Structural Report dated August 15, 2022. An electronic copy has been forwarded to Evan Robidoux and the Council this afternoon.

If you have any questions, please feel free to contact me; I can be reached at 443-677-0144 or via email at [jmandrews@clinellc.com](mailto:jmandrews@clinellc.com). Thank you for your kind cooperation in this matter.

Respectfully Submitted,

A handwritten signature in blue ink, appearing to read 'Jack Andrews', is written over a circular blue stamp or watermark.

Jack Andrews  
Zoning Manager, Centerline Communications  
10130 Donleigh Drive  
Columbia, MD 21046  
443-677-0144



**AMERICAN TOWER®**  
CORPORATION

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## Structural Analysis Report

**Structure** : 140 ft Monopole  
**ATC Site Name** : CANTON CT,CT  
**ATC Site Number** : 411256  
**Engineering Number** : 13757774\_C3\_05  
**Proposed Carrier** : AT&T MOBILITY  
**Carrier Site Name** : MRCTB055481  
**Carrier Site Number** : CTL01022  
**Site Location** : 14 CANTON SPRINGS ROAD  
Canton, CT 06019-2401  
41.8229, -72.8952  
**County** : Hartford  
**Date** : August 15, 2022  
**Max Usage** : 53%  
**Result** : Pass

Prepared By:

Steven Nedrud  
Structural Engineer I

Reviewed By:



**COA : PEC.0001553**



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## Introduction

The purpose of this report is to summarize results of a structural analysis performed on the 140 ft Monopole to reflect the change in loading by AT&T MOBILITY.

## Supporting Documents

<b>Tower Drawings</b>	EEI Project Drawing #GS51426, dated May 21, 1999
<b>Foundation Drawing</b>	EEI Project Drawing #F4960-140, dated May 21, 1999
<b>Geotechnical Report</b>	Clarence Welti Project #Banm Tower Site, dated November 23, 1998

## 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.

<b>Basic Wind Speed:</b>	116 mph (3-second gust)
<b>Basic Wind Speed w/ Ice:</b>	50 mph (3-second gust) w/ 1.50" radial ice concurrent
<b>Code:</b>	ANSI/TIA-222-H / 2015 IBC / 2018 Connecticut State Building Code
<b>Exposure Category:</b>	B
<b>Risk Category:</b>	II
<b>Topographic Factor Procedure:</b>	Method 1
<b>Topographic Category:</b>	1
<b>Crest Height (H):</b>	0 ft
<b>Crest Length (L):</b>	0 ft
<b>Spectral Response:</b>	$S_s = 0.18, S_i = 0.05$
<b>Site Class:</b>	D - Stiff Soil - Default

## 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](mailto: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**

Elev. <sup>1</sup> (ft)	Qty	Equipment	Mount Type	Lines	Carrier
148.0	1	Generic 18' Omni	Stand-Off	(2) 7/8" Coax	TOWN OF CANTON
130.0	3	Ericsson RRUS 8843 B2, B66A	Triangular Platform with Handrails	(10) 7/8" Coax	AT&T MOBILITY
	3	Kathrein Scala 840370799			
	3	Ericsson RRUS 4449 B5, B12			
120.0	3	Samsung MT6407-77A	Triangular Platform with Handrails	(6) 1 5/8" Coax (2) 1 5/8" Hybriflex (1) 1/2" Coax	VERIZON WIRELESS
	6	Commscope SBNHH-1D65B			
	3	Andrew LNX-6514DS-A1M			
	2	Raycap RCMDC-3315-PF-48			
	6	Samsung B5/B13 RRH-BR04C			
	3	Samsung B2/B66A RRH-BR049			
	3	Samsung RT4401-48A			
	1	Generic GPS			
	1	VZW Unused Reserve (17102.97 sqin)			
100.0	3	Ericsson 4460 BAND 2/25	Triangular Platform with Handrails	(3) 1.99" (50.7mm) Hybrid	T-MOBILE
	3	Ericsson 4480 BAND 71			
	3	Ericsson AIR 6419 B41			
	3	RFS APXVAALL24 43-U-NA20			
90.0	1	PCTEL GPS-TMG-HR-26N	Triangular Platform with Handrails	(4) 1 1/4" Hybriflex Cable (1) 1/2" Coax	SPRINT NEXTEL
	3	Alcatel-Lucent 1900 MHz 4X45 RRH			
	3	Alcatel-Lucent 800 MHz RRH			
	3	Alcatel-Lucent TD-RRH8x20-25 w/ Solar Shield			
	3	RFS APXVSP18-C-A20			
	3	Generic 12" x 12" Junction Box			
80.0	3	JMA Wireless MX08FRO665-21	Triangular Platform with Handrails	(1) 1.60" (40.6mm) Hybrid	DISH WIRELESS L.L.C.
	3	Fujitsu TA08025-B604			
	3	Fujitsu TA08025-B605			
	1	Commscope RDIDC-9181-PF-48			

**Equipment to be Removed**

Elev. <sup>1</sup> (ft)	Qty	Equipment	Mount Type	Lines	Carrier
130.0	6	CCI DTMABP7819VG12A	-	(2) 0.39" (10mm) Fiber Trunk (6) 0.78" (19.7mm) 8 AWG 6 (2) 3" conduit (2) 7/8" Coax	AT&T MOBILITY
	3	Raycap DC6-48-60-0-8F			
	2	CCI HPA-65R-BUU-H8			
	3	Kathrein Scala 800-10121			
	1	Andrew SBNHH-1D65A (33.5 lbs)			
	3	Ericsson RRUS 32 (50.8 lbs)			

### Proposed Equipment

Elev. <sup>1</sup> (ft)	Qty	Equipment	Mount Type	Lines	Carrier
132.0	3	Ericsson Air 6449 B77D	Triangular Platform with Handrails	(3) 0.41" (10.3mm) Fiber (4) 0.82" (20.8mm) 8 AWG 6 (2) 0.92" (23.4mm) Cable (2) 2" conduit	AT&T MOBILITY
130.0	2	Raycap DC6-48-60-18-8F			
	3	Ericsson RRUS 4478 B14			
	3	Ericsson RRUS 32 B30			
	1	Raycap DC9-48-60-24-8C-EV			
	3	CCI DMP65R-BU8D			
128.0	3	Ericsson AIR 6419 B77G			

<sup>1</sup> Contracted elevations are shown for appurtenances within contracted installation tolerances. Appurtenances outside of contract limits are shown at installed elevations.

Install proposed lines inside the pole shaft.

### Structure Usages

Structural Component	Controlling Usage	Pass/Fail
Anchor Bolts	43%	Pass
Shaft	48%	Pass
Base Plate	34%	Pass

### Foundations

Reaction Component	Original Design Reactions	Factored Design Reactions*	Analysis Reactions	% of Design
Moment (Kips-Ft)	3921.8	5294.4	2823.6	53%
Shear (Kips)	38.7	52.2	27.8	53%

\* The design reactions are factored by 1.35 per ANSI/TIA-222-H, Sec. 15.6.2

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) (°)
132.0	Ericsson Air 6449 B77D	AT&T MOBILITY	1.255	1.020
130.0	Ericsson RRUS 4478 B14			
	Raycap DC6-48-60-18-8F			
	Ericsson RRUS 32 B30			
	Raycap DC9-48-60-24-8C-EV			
	CCI DMP65R-BU8D			
128.0	Ericsson AIR 6419 B77G	1.184		

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



## **Standard Conditions**

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

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

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

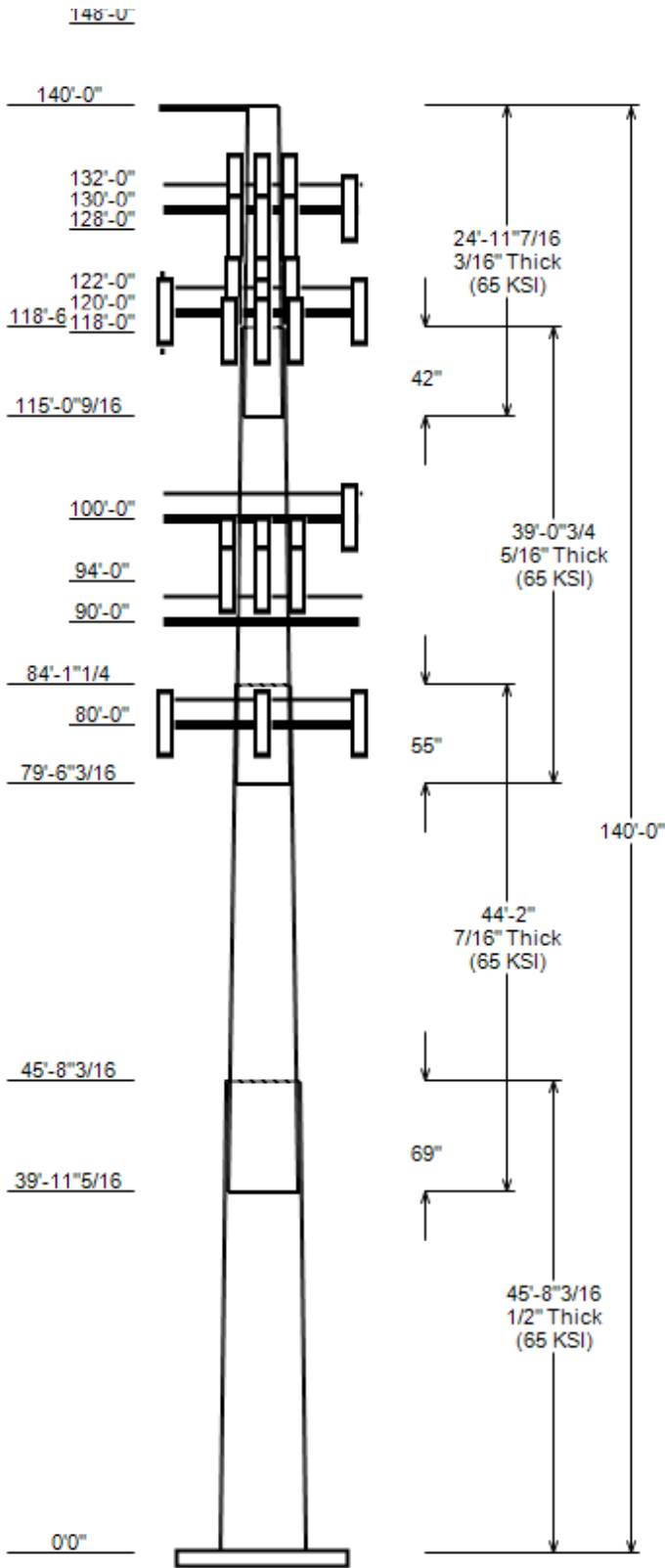
All assets of American Tower Corporation, its affiliates, and subsidiaries (collectively “American Tower”) are inspected at regular intervals. Based upon these inspections and in the absence of information to the contrary, American Tower assumes that all structures were constructed in accordance with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

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

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

Asset : 411256, CANTON CT  
 Client : AT&T MOBILITY  
 Code : ANSI/TIA-222-H

Height : 140 ft  
 Base Width : 51  
 Shape : 18 Sides



**SITE PARAMETERS**

**Nominal Wind:** 116 mph wind with no ice **Topo Category:** 1  
**Ice Wind:** 50 mph wind with 1.5" radi **Topo Method:** Method 1  
**Base Elev (ft):** 0.00 **Taper :** 0.24900 (in/ft) **Topo Feature:**  
**Structure Class:** II **Exposure :** B **S<sub>s</sub> :** 0.177 **S<sub>1</sub> :** 0.054

**SECTION PROPERTIES**

Shaft Section	Length (ft)	Diameter (in)		Thick Joint (in)	Type	Overlap Length (in)	Shape	Steel Grade (ksi)
		Across Flats Top	Across Flats Bottom					
1	45.682	39.62	51.00	0.500		0.000	18 Sides	65
2	44.164	30.92	41.93	0.438	Slip Joint	68.910	18 Sides	65
3	39.060	22.96	32.69	0.312	Slip Joint	55.060	18 Sides	65
4	24.956	18.00	24.22	0.188	Slip Joint	42.380	18 Sides	65

**DISCRETE APPURTENANCE**

Attach Elev (ft)	Force Elev (ft)	Qty	Description
148.0	140.0	1	Generic 18' Omni
140.0	140.0	1	Stand-Off
132.0	132.0	3	Ericsson Air 6449 B77D
130.0	130.0	2	Raycap DC6-48-60-18-8F
130.0	130.0	3	Ericsson RRUS 8843 B2, B66A
130.0	130.0	3	Ericsson RRUS 4449 B5, B12
130.0	130.0	3	Ericsson RRUS 4478 B14
130.0	130.0	3	Ericsson RRUS 32 B30
130.0	130.0	1	Raycap DC9-48-60-24-8C-EV
130.0	130.0	3	Kathrein Scala 840370799
130.0	130.0	3	CCI DMP65R-BU8D
130.0	130.0	1	Generic Flat Platform with Han
128.0	128.0	3	Ericsson AIR 6419 B77G
122.0	122.0	3	Samsung MT6407-77A
120.0	120.0	1	Generic GPS
120.0	120.0	3	Samsung RT4401-48A
120.0	120.0	3	Samsung B2/B66A RRH-BR049
120.0	120.0	6	Samsung B5/B13 RRH-BR04C
120.0	120.0	2	Raycap RCMD-3315-PF-48
120.0	120.0	3	Andrew LNX-6514DS-A1M
120.0	120.0	6	Commscope SBNHH-1D65B
120.0	120.0	1	Generic Flat Platform with Han
120.0	120.0	1	VZW Unused Reserve (17102.97 s
118.0	118.0	3	Samsung Outdoor CBRS 20W RRH -
100.0	100.0	3	Ericsson 4460 BAND 2/25
100.0	100.0	3	Ericsson 4480 BAND 71
100.0	100.0	3	Ericsson AIR 6419 B41
100.0	100.0	3	RFS APXVAALL24 43-U-NA20
100.0	100.0	1	Generic Flat Platform with Han
94.0	98.0	3	Alcatel-Lucent RRH2x50-08
94.0	98.0	3	Alcatel-Lucent 800 MHz RRH
94.0	98.0	3	Alcatel-Lucent 1900 MHz 4X45 R
94.0	98.0	3	Alcatel-Lucent TD-RRH8x20-25 w
94.0	98.0	3	RFS APXVSP18-C-A20
94.0	94.0	3	Commscope DT465B-2XR
90.0	90.0	3	Generic 12" x 12" Junction Box
90.0	90.0	1	Generic Round Platform with Ha
80.0	80.0	1	Commscope RDIDC-9181-PF-48
80.0	80.0	3	Fujitsu TA08025-B604
80.0	80.0	3	Fujitsu TA08025-B605
80.0	80.0	3	JMA Wireless MX08FRO665-21
80.0	80.0	1	Generic Flat Platform with Han

**JOB INFORMATION**

Asset : 411256, CANTON CT  
 Client : AT&T MOBILITY  
 Code : ANSI/TIA-222-H

Height : 140 ft  
 Base Width : 51  
 Shape : 18 Sides

**LINEAR APPURTENANCE**

Elev From (ft)	Elev To (ft)	Description	Exp To Wind
0.0	148.0	7/8" Coax	No
0.0	130.0	7/8" Coax	No
0.0	130.0	2" conduit	No
0.0	130.0	0.92" (23.4mm) Cable	No
0.0	130.0	0.82" (20.8mm) 8 AWG 6	No
0.0	130.0	0.41" (10.3mm) Fiber	No
0.0	120.0	1/2" Coax	No
0.0	120.0	1 5/8" Hybriflex	No
0.0	120.0	1 5/8" Coax	Yes
0.0	100.0	1.99" (50.7mm) Hybrid	No
0.0	94.0	1" (25.4mm) Hybrid	No
0.0	94.0	1 1/4" Hybriflex Cable	No
0.0	80.0	1.60" (40.6mm) Hybrid	No

**LOAD CASES**

1.2D + 1.0W	116 mph wind with no ice
0.9D + 1.0W	116 mph wind with no ice
1.2D + 1.0Di + 1.0Wi	50 mph wind with 1.5" radial ice
1.2D + 1.0Ev + 1.0Eh	Seismic
0.9D - 1.0Ev + 1.0Eh	Seismic (Reduced DL)
1.0D + 1.0W	60 mph Wind with No Ice

**REACTIONS**

Load Case	Moment (kip-ft)	Shear (Kip)	Axial (Kip)
1.2D + 1.0W	2823.62	27.81	56.69
0.9D + 1.0W	2790.53	27.79	42.51
1.2D + 1.0Di + 1.0Wi	832.29	8.08	86.31
1.2D + 1.0Ev + 1.0Eh	154.48	1.42	56.63
0.9D - 1.0Ev + 1.0Eh	152.28	1.42	39.45
1.0D + 1.0W	671.01	6.65	47.27

**DISH DEFLECTIONS**

Load Case	Attach Elev (ft)	Deflection (in)	Rotation (deg)
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ASSET: 411256, CANTON CT  
CUSTOMER: AT&T MOBILITY

CODE: ANSI/TIA-222-H  
ENG NO: 13757774\_C3\_05

### ANALYSIS PARAMETERS

<b>Location:</b>	Hartford County,CT	<b>Height:</b>	140 ft
<b>Type and Shape:</b>	Taper, 18 Sides	<b>Base Diameter:</b>	51.00 in
<b>Manufacturer:</b>	EEI	<b>Top Diameter:</b>	18.00 in
<b>K<sub>d</sub> (non-service):</b>	0.95	<b>Taper:</b>	0.2490 in/ft
<b>K<sub>e</sub>:</b>	0.99	<b>Rotation:</b>	0.000°

### ICE & WIND PARAMETERS

<b>Exposure Category:</b>	B	<b>Design Wind Speed w/o Ice:</b>	116 mph
<b>Risk Category:</b>	II	<b>Design Wind Speed w/Ice:</b>	50 mph
<b>Topo Factor Procedure:</b>	Method 1	<b>Operational Wind Speed:</b>	60 mph
<b>Topographic Category:</b>	1	<b>Design Ice Thickness:</b>	1.50 in
<b>Crest Height:</b>	0 ft	<b>HMSL:</b>	340.00 ft

### SEISMIC PARAMETERS

<b>Analysis Method:</b>	Equivalent Lateral Force Method		
<b>Site Class:</b>	D - Stiff Soil	<b>Period Based on Rayleigh Method (sec):</b>	2.20
<b>T<sub>L</sub> (sec):</b>	6	<b>P:</b>	1
<b>S<sub>s</sub>:</b>	0.177	<b>S<sub>1</sub>:</b>	0.054
<b>F<sub>a</sub>:</b>	1.600	<b>F<sub>v</sub>:</b>	2.400
<b>S<sub>ds</sub>:</b>	0.189	<b>S<sub>dt</sub>:</b>	0.086
		<b>C<sub>s</sub>:</b>	0.030
		<b>C<sub>s</sub> Max:</b>	0.030
		<b>C<sub>s</sub> Min:</b>	0.030

### LOAD CASES

1.2D + 1.0W	116 mph wind with no ice
0.9D + 1.0W	116 mph wind with no ice
1.2D + 1.0Di + 1.0Wi	50 mph wind with 1.5" radial ice
1.2D + 1.0Ev + 1.0Eh	Seismic
0.9D - 1.0Ev + 1.0Eh	Seismic (Reduced DL)
1.0D + 1.0W	60 mph Wind with No Ice

ASSET: 411256, CANTON CT  
 CUSTOMER: AT&T MOBILITY

CODE: ANSI/TIA-222-H  
 ENG NO: 13757774\_C3\_05

**SHAFT SECTION PROPERTIES**

Sect Info	Length (ft)	Thick (in)	Fy (ksi)	Joint Type	Slip Joint len (in)	Weight (lb)	Bottom						Top							
							Dia (in)	Elev (ft)	Area (in <sup>2</sup> )	Ix (in <sup>4</sup> )	W/t Ratio	D/t Ratio	Dia (in)	Elev (in)	Area (in <sup>2</sup> )	Ix (in <sup>4</sup> )	W/t Ratio	D/t Ratio	Taper (in/ft)	
1-18	45.68	0.5000	65		0.00	11,054	51.00	-0.002	80.14	25,821.9	16.57	102.00	39.62	45.68	62.08	12,003.7	12.56	79.24	0.2491	
2-18	44.16	0.4375	65	Slip	68.91	7,510	41.93	39.936	57.61	12,528.3	15.49	95.83	30.92	84.10	42.33	4,970.9	11.05	70.68	0.2491	
3-18	39.06	0.3125	65	Slip	55.06	3,627	32.69	79.520	32.12	4,254.0	17.04	104.61	22.96	118.58	22.46	1,456.0	11.55	73.48	0.2491	
								115.04								424.9				
4-18	24.96	0.1875	65	Slip	42.38	1,057	24.22	4	14.30	1,043.1	21.36	129.15	18.00	140.00	10.60		15.52	96.00	0.2491	
Shaft Weight						23,248														

**DISCRETE APPURTENANCE PROPERTIES**

Attach Elev (ft)	Description	Qty	Ka	Vert Ecc (ft)	No Ice			Ice		
					Weight (lb)	EPAA (sf)	Orientation Factor	Weight (lb)	EPAA (sf)	Orientation Factor
148.00	Generic 18' Omni	1	1.00	-8.000	55.00	5.400	1.00	189.59	11.745	1.00
140.00	Stand-Off	1	1.00	0.000	100.00	3.000	1.00	148.44	4.557	1.00
132.00	Ericsson Air 6449 B77D	3	0.75	0.000	81.60	4.028	0.65	183.26	5.387	0.65
130.00	Ericsson RRUS 4478 B14	3	0.75	0.000	59.40	2.021	0.67	119.97	2.952	0.67
130.00	Ericsson RRUS 32 B30	3	0.75	0.000	60.00	2.743	0.67	132.61	3.897	0.67
130.00	Kathrein Scala 840370799	3	0.75	0.000	105.80	13.661	0.65	358.69	17.334	0.65
130.00	CCI DMP65R-BU8D	3	0.75	0.000	95.70	17.871	0.63	431.18	21.508	0.63
130.00	Generic Flat Platform with Han	1	1.00	0.000	2500.00	42.400	1.00	4253.47	63.101	1.00
130.00	Ericsson RRUS 4449 B5, B12	3	0.75	0.000	71.00	1.969	0.50	134.62	2.890	0.50
130.00	Ericsson RRUS 8843 B2, B66A	3	0.75	0.000	72.00	1.639	0.50	132.50	2.473	0.50
130.00	Raycap DC6-48-60-18-8F	2	0.75	0.000	20.00	1.260	1.00	71.97	1.910	1.00
130.00	Raycap DC9-48-60-24-8C-EV	1	0.75	0.000	16.00	4.788	1.00	143.43	6.240	1.00
128.00	Ericsson AIR 6419 B77G	3	0.75	0.000	66.10	3.797	0.65	161.68	5.095	0.65
122.00	Samsung MT6407-77A	3	0.75	0.000	81.60	4.709	0.61	181.57	6.199	0.61
120.00	VZW Unused Reserve (17102.97 s	1	0.75	0.000	1037.80	118.77	0.90	1745.86	199.805	0.90
120.00	Generic Flat Platform with Han	1	1.00	0.000	2500.00	42.400	1.00	4239.80	62.939	1.00
120.00	Andrew LNX-6514DS-A1M	3	0.75	0.000	38.80	8.173	0.69	211.11	10.933	0.69
120.00	Commscope SBNHH-1D65B	6	0.75	0.000	50.70	8.173	0.69	222.58	10.944	0.69
120.00	Raycap RCMDC-3315-PF-48	2	0.75	0.000	21.40	2.512	0.50	99.41	3.532	0.50
120.00	Samsung B5/B13 RRH-BR04C	6	0.75	0.000	70.30	1.875	0.50	126.32	2.759	0.50
120.00	Samsung B2/B66A RRH-BR049	3	0.75	0.000	84.40	1.875	0.50	146.88	2.759	0.50
120.00	Samsung RT4401-48A	3	0.75	0.000	18.60	0.996	0.50	45.05	1.666	0.50
120.00	Generic GPS	1	1.00	0.000	10.00	0.900	1.00	38.66	1.526	1.00
118.00	Samsung Outdoor CBRS 20W RRH -	3	0.75	0.000	4.40	0.892	0.50	21.99	1.516	0.50
100.00	Ericsson 4460 BAND 2/25	3	0.75	0.000	109.00	2.564	0.67	193.84	3.576	0.67
100.00	RFS APXVAALL24 43-U-NA20	3	0.75	0.000	122.80	20.243	0.63	496.65	23.803	0.63
100.00	Generic Flat Platform with Han	1	1.00	0.000	2500.00	42.400	1.00	4205.06	62.529	1.00
100.00	Ericsson AIR 6419 B41	3	0.75	0.000	83.30	6.322	0.63	228.56	7.945	0.63
100.00	Ericsson 4480 BAND 71	3	0.75	0.000	81.00	2.878	0.67	154.06	3.956	0.67
94.00	Alcatel-Lucent RRH2x50-08	3	0.75	4.000	52.90	1.701	0.50	109.45	2.524	0.50
94.00	Commscope DT465B-2XR	3	0.75	0.000	58.00	9.098	0.69	250.79	11.741	0.69
94.00	Alcatel-Lucent TD-RRH8x20-25 w	3	0.75	4.000	70.00	4.046	0.50	160.18	5.313	0.50
94.00	Alcatel-Lucent 800 MHz RRH	3	0.75	4.000	53.00	2.134	0.50	123.43	3.067	0.50
94.00	Alcatel-Lucent 1900 MHz 4X45 R	3	0.75	4.000	60.00	2.322	0.50	136.90	3.353	0.50
94.00	RFS APXVSP18-C-A20	3	0.75	4.000	57.00	8.024	0.69	221.61	10.686	0.69
90.00	Generic Round Platform with Ha	1	1.00	0.000	2500.00	27.200	1.00	4037.88	50.409	1.00
90.00	Generic 12" x 12" Junction Box	3	0.75	0.000	10.00	1.200	0.50	49.55	1.889	0.50
80.00	Fujitsu TA08025-B604	3	0.75	0.000	63.90	1.962	0.50	118.76	2.827	0.50
80.00	JMA Wireless MX08FRO665-21	3	0.75	0.000	64.50	12.489	0.64	306.29	15.133	0.64
80.00	Generic Flat Platform with Han	1	1.00	0.000	2500.00	42.400	1.00	4171.16	62.129	1.00
80.00	Fujitsu TA08025-B605	3	0.75	0.000	75.00	1.962	0.50	133.93	2.827	0.50
80.00	Commscope RDIDC-9181-PF-48	1	0.75	0.000	21.90	1.867	0.50	75.43	2.714	0.50
Totals	Num Loadings: 42				108	19,948.90		40,520.27		

**LINEAR APPURTENANCE PROPERTIES**

Load Case Azimuth (deg) : \_

Elev From (ft)	Elev To (ft)	Qty	Description	Coax Dia (in)	Coax Wt (lb/ft)	Max Flat	Dist Between Coax/ Rows	Dist Between Rows (in)	Dist Between Cols (in)	Azimuth (deg)	Dist From Face (in)	Exposed To Wind	Carrier
0.00	148.00	2	7/8" Coax	1.09	0.33	N	0	0	0	0	0	N	TOWN OF CANTO

ASSET: 411256, CANTON CT  
 CUSTOMER: AT&T MOBILITY

CODE: ANSI/TIA-222-H  
 ENG NO: 13757774\_C3\_05

Elev From (ft)	Elev To (ft)	Qty	Description	Coax Dia (in)	Coax Wt (lb/ft)	Flat	Max Coax/ Row	Dist Between Rows(in)	Dist Between Cols(in)	Azimuth (deg)	Dist From Face (in)	Exposed To Wind	Carrier
0.00	130.00	10	7/8" Coax	1.09	0.33	N	0	0	0	0	0	N	AT&T MOBILITY
0.00	130.00	4	0.82" (20.8mm) 8 AWG	0.82	0.62	N	0	0	0	0	0	N	AT&T MOBILITY
0.00	130.00	3	0.41" (10.3mm) Fiber	0.41	0.09	N	0	0	0	0	0	N	AT&T MOBILITY
0.00	130.00	2	2" conduit	2.38	3.65	N	0	0	0	0	0	N	AT&T MOBILITY
0.00	130.00	2	0.92" (23.4mm) Cable	0.92	0.89	N	0	0	0	0	0	N	AT&T MOBILITY
0.00	120.00	6	1 5/8" Coax	1.98	0.82	N	6	1	1	90	1	Y	VERIZON WIREL
0.00	120.00	2	1 5/8" Hybriflex	1.98	1.3	N	0	0	0	0	0	N	VERIZON WIREL
0.00	120.00	1	1/2" Coax	0.63	0.15	N	0	0	0	0	0	N	VERIZON WIREL
0.00	100.00	3	1.99" (50.7mm) Hybrid	1.99	1.9	N	0	0	0	0	0	N	T-MOBILE
0.00	94.00	3	1 1/4" Hybriflex Cabl	1.54	1	N	0	0	0	0	0	N	SPRINT NEXTEL
0.00	94.00	1	1" (25.4mm) Hybrid	1	0.65	N	0	0	0	0	0	N	SPRINT NEXTEL
0.00	80.00	1	1.60" (40.6mm) Hybrid	1.6	2.34	N	0	0	0	0	0	N	DISH WIRELESS

SEGMENT PROPERTIES

(Max Len: 5.ft)

Seg Top Elev (ft)	Description	Thick (in)	Flat Dia (in)	Area (in <sup>2</sup> )	Ix (in <sup>4</sup> )	W/t Ratio	D/t Ratio	F'y (ksi)	S (in <sup>3</sup> )	Z (in <sup>3</sup> )	Weight (lb)
0.00		0.5000	51.000	80.141	25,821.90	16.57	102.00	81.9	997.2	0.0	0.0
5.00		0.5000	49.754	78.164	23,958.00	16.14	99.51	82.4	948.4	0.0	1,346.7
10.00		0.5000	48.509	76.187	22,186.00	15.70	97.02	82.6	900.8	0.0	1,313.1
15.00		0.5000	47.263	74.211	20,503.70	15.26	94.53	82.6	854.5	0.0	1,279.4
20.00		0.5000	46.018	72.234	18,908.50	14.82	92.04	82.6	809.3	0.0	1,245.8
25.00		0.5000	44.772	70.258	17,398.40	14.38	89.54	82.6	765.4	0.0	1,212.2
30.00		0.5000	43.527	68.281	15,970.90	13.94	87.05	82.6	722.7	0.0	1,178.5
35.00		0.5000	42.281	66.304	14,623.60	13.50	84.56	82.6	681.2	0.0	1,144.9
39.94	Bot - Section 2	0.5000	41.051	64.351	13,369.10	13.07	82.10	82.6	641.5	0.0	1,098.2
40.00		0.5000	41.036	64.328	13,354.40	13.06	82.07	82.6	641.0	0.0	24.9
45.00		0.5000	39.790	62.351	12,160.80	12.62	79.58	82.6	602.0	0.0	2,042.7
45.68	Top - Section 1	0.4375	40.495	55.623	11,276.60	14.91	92.56	82.6	548.5	0.0	273.9
50.00		0.4375	39.420	54.129	10,392.40	14.48	90.10	82.6	519.3	0.0	806.3
55.00		0.4375	38.174	52.400	9,427.70	13.97	87.25	82.6	486.4	0.0	906.2
60.00		0.4375	36.928	50.670	8,524.60	13.47	84.41	82.6	454.7	0.0	876.8
65.00		0.4375	35.683	48.941	7,681.20	12.97	81.56	82.6	424.0	0.0	847.4
70.00		0.4375	34.437	47.211	6,895.30	12.47	78.71	82.6	394.4	0.0	818.0
75.00		0.4375	33.192	45.482	6,164.90	11.97	75.87	82.6	365.8	0.0	788.5
79.52	Bot - Section 3	0.4375	32.067	43.920	5,551.30	11.51	73.30	82.6	341.0	0.0	686.9
80.00		0.4375	31.946	43.752	5,488.00	11.46	73.02	82.6	338.4	0.0	125.1
84.10	Top - Section 2	0.3125	31.549	30.981	3,819.20	16.39	100.96	82.1	238.4	0.0	1,040.9
85.00		0.3125	31.326	30.760	3,737.90	16.26	100.24	82.3	235.0	0.0	94.1
90.00		0.3125	30.080	29.525	3,305.40	15.56	96.26	82.6	216.4	0.0	512.8
94.00		0.3125	29.084	28.536	2,984.50	15.00	93.07	82.6	202.1	0.0	395.1
95.00		0.3125	28.835	28.289	2,907.60	14.86	92.27	82.6	198.6	0.0	96.7
100.00		0.3125	27.589	27.054	2,543.10	14.16	88.28	82.6	181.6	0.0	470.8
105.00		0.3125	26.343	25.819	2,210.40	13.45	84.30	82.6	165.3	0.0	449.8
110.00		0.3125	25.098	24.583	1,908.00	12.75	80.31	82.6	149.7	0.0	428.8
115.00		0.3125	23.852	23.348	1,634.60	12.05	76.33	82.6	135.0	0.0	407.7
115.04	Bot - Section 4	0.3125	23.841	23.337	1,632.30	12.04	76.29	82.6	134.8	0.0	3.5
118.00		0.3125	23.105	22.607	1,483.80	11.63	73.94	82.6	126.5	0.0	372.7
118.58	Top - Section 3	0.1875	23.337	13.776	932.70	20.54	124.46	77.2	78.7	0.0	71.2
120.00		0.1875	22.982	13.565	890.50	20.20	122.57	77.6	76.3	0.0	66.3
122.00		0.1875	22.484	13.268	833.40	19.73	119.91	78.2	73.0	0.0	91.3
125.00		0.1875	21.736	12.824	752.30	19.03	115.93	79	68.2	0.0	133.2
128.00		0.1875	20.989	12.379	676.70	18.33	111.94	79.8	63.5	0.0	128.6
130.00		0.1875	20.491	12.083	629.30	17.86	109.28	80.4	60.5	0.0	83.2
132.00		0.1875	19.992	11.786	584.10	17.39	106.63	80.9	57.5	0.0	81.2
135.00		0.1875	19.245	11.341	520.40	16.69	102.64	81.8	53.3	0.0	118.0
140.00		0.1875	18.000	10.600	424.90	15.52	96.00	82.6	46.5	0.0	186.7

Totals: 23,248.1

Load Case: 1.2D + 1.0W	116 mph wind with no ice	24 Iterations
Gust Response Factor:	1.10	
Dead load Factor:	1.20	
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	-56.69	-27.81	0.00	-2,823.6	0.00	2,823.62	5,907.57	1,406.47	6,415.71	6,125.97	0	0	0.471
5.00	-54.79	-27.57	0.00	-2,684.6	0.00	2,684.57	5,798.21	1,371.78	6,103.18	5,862.82	0.08	-0.15	0.468
10.00	-52.93	-27.34	0.00	-2,546.7	0.00	2,546.71	5,660.34	1,337.09	5,798.45	5,577.22	0.32	-0.31	0.466
15.00	-51.11	-27.11	0.00	-2,410.0	0.00	2,410.02	5,513.49	1,302.40	5,501.53	5,290.13	0.73	-0.47	0.465
20.00	-49.34	-26.88	0.00	-2,274.5	0.00	2,274.49	5,366.64	1,267.71	5,212.41	5,010.63	1.31	-0.63	0.464
25.00	-47.60	-26.65	0.00	-2,140.1	0.00	2,140.10	5,219.78	1,233.02	4,931.09	4,738.71	2.05	-0.79	0.461
30.00	-45.90	-26.43	0.00	-2,006.8	0.00	2,006.84	5,072.93	1,198.33	4,657.58	4,474.38	2.98	-0.96	0.458
35.00	-44.24	-26.19	0.00	-1,874.7	0.00	1,874.71	4,926.08	1,163.64	4,391.87	4,217.63	4.08	-1.14	0.454
39.94	-42.68	-26.06	0.00	-1,745.3	0.00	1,745.31	4,780.98	1,129.37	4,137.01	3,971.41	5.35	-1.31	0.449
40.00	-42.61	-25.95	0.00	-1,743.8	0.00	1,743.75	4,779.22	1,128.95	4,133.97	3,968.47	5.36	-1.31	0.449
45.00	-39.91	-25.75	0.00	-1,614.0	0.00	1,614.02	4,632.37	1,094.26	3,883.87	3,726.90	6.84	-1.49	0.442
45.68	-39.51	-25.63	0.00	-1,596.4	0.00	1,596.45	4,132.51	976.18	3,532.26	3,395.74	7.05	-1.52	0.480
50.00	-38.30	-25.39	0.00	-1,485.8	0.00	1,485.79	4,021.55	949.97	3,345.15	3,214.87	8.5	-1.68	0.472
55.00	-36.92	-25.13	0.00	-1,358.8	0.00	1,358.85	3,893.05	919.62	3,134.83	3,011.61	10.36	-1.87	0.461
60.00	-35.59	-24.86	0.00	-1,233.2	0.00	1,233.22	3,764.55	889.26	2,931.34	2,814.98	12.42	-2.07	0.448
65.00	-34.29	-24.59	0.00	-1,108.9	0.00	1,108.92	3,636.06	858.91	2,734.68	2,624.99	14.69	-2.26	0.433
70.00	-33.03	-24.31	0.00	-986.0	0.00	985.99	3,507.56	828.56	2,544.85	2,441.64	17.16	-2.45	0.414
75.00	-31.81	-24.04	0.00	-864.4	0.00	864.43	3,379.07	798.20	2,361.84	2,264.93	19.84	-2.65	0.392
79.52	-30.77	-23.88	0.00	-755.9	0.00	755.86	3,263.02	770.79	2,202.43	2,111.04	22.42	-2.81	0.368
80.00	-26.93	-21.42	0.00	-744.3	0.00	744.29	3,250.57	767.85	2,185.66	2,094.86	22.71	-2.83	0.364
84.10	-25.49	-21.22	0.00	-656.4	0.00	656.38	2,289.83	543.72	1,534.13	1,468.57	25.21	-2.98	0.460
85.00	-25.31	-21.09	0.00	-637.4	0.00	637.37	2,277.57	539.84	1,512.29	1,450.16	25.77	-3.02	0.452
90.00	-21.47	-19.69	0.00	-531.9	0.00	531.94	2,193.54	518.16	1,393.28	1,340.00	29.05	-3.24	0.408
94.00	-19.63	-18.14	0.00	-449.8	0.00	449.83	2,120.11	500.81	1,301.58	1,251.35	31.84	-3.41	0.370
95.00	-19.45	-17.99	0.00	-431.7	0.00	431.69	2,101.75	496.48	1,279.14	1,229.65	32.55	-3.45	0.362
100.00	-14.46	-14.31	0.00	-341.8	0.00	341.76	2,009.97	474.80	1,169.88	1,124.05	36.27	-3.64	0.312
105.00	-13.76	-14.00	0.00	-270.2	0.00	270.21	1,918.19	453.11	1,065.49	1,023.18	40.17	-3.81	0.272
110.00	-13.10	-13.68	0.00	-200.2	0.00	200.21	1,826.40	431.43	965.98	927.05	44.24	-3.96	0.224
115.00	-12.47	-13.50	0.00	-131.8	0.00	131.78	1,734.62	409.75	871.35	835.67	48.46	-4.08	0.166
115.04	-12.46	-13.42	0.00	-131.2	0.00	131.18	1,733.81	409.56	870.54	834.88	48.5	-4.09	0.165
118.00	-11.92	-13.24	0.00	-91.5	0.00	91.53	1,679.55	396.74	816.91	783.11	51.05	-4.14	0.125
118.58	-11.82	-13.17	0.00	-83.9	0.00	83.91	957.75	241.77	505.52	456.08	51.55	-4.15	0.199
120.00	-6.49	-6.35	0.00	-65.2	0.00	65.15	947.86	238.07	490.14	444.39	52.79	-4.17	0.154
122.00	-6.07	-5.96	0.00	-52.4	0.00	52.45	933.73	232.86	468.95	428.12	54.54	-4.21	0.130
125.00	-5.86	-5.79	0.00	-34.6	0.00	34.58	911.97	225.06	438.05	404.01	57.2	-4.26	0.093
128.00	-5.43	-5.43	0.00	-17.2	0.00	17.20	889.55	217.25	408.19	380.29	59.89	-4.29	0.052
130.00	-0.88	-1.03	0.00	-6.3	0.00	6.34	874.24	212.05	388.88	364.72	61.68	-4.3	0.018
132.00	-0.51	-0.66	0.00	-4.3	0.00	4.29	858.63	206.84	370.03	349.33	63.48	-4.3	0.013
135.00	-0.38	-0.47	0.00	-2.3	0.00	2.33	834.67	199.04	342.63	326.65	66.18	-4.3	0.008
140.00	0.00	-0.44	0.00	0.0	0.00	0.00	787.53	186.03	299.32	287.86	70.69	-4.31	0.000



Load Case: 0.9D + 1.0W	116 mph wind with no ice	23 Iterations
Gust Response Factor: 1.10		
Dead load Factor: 0.90		
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	-42.51	-27.79	0.00	-2,790.5	0.00	2,790.53	5,907.57	1,406.47	6,415.71	6,125.97	0	0	0.463
5.00	-41.07	-27.51	0.00	-2,651.6	0.00	2,651.58	5,798.21	1,371.78	6,103.18	5,862.82	0.08	-0.15	0.460
10.00	-39.66	-27.24	0.00	-2,514.0	0.00	2,514.01	5,660.34	1,337.09	5,798.45	5,577.22	0.32	-0.3	0.458
15.00	-38.28	-26.98	0.00	-2,377.8	0.00	2,377.79	5,513.49	1,302.40	5,501.53	5,290.13	0.72	-0.46	0.457
20.00	-36.92	-26.72	0.00	-2,242.9	0.00	2,242.90	5,366.64	1,267.71	5,212.41	5,010.63	1.29	-0.62	0.455
25.00	-35.60	-26.46	0.00	-2,109.3	0.00	2,109.32	5,219.78	1,233.02	4,931.09	4,738.71	2.03	-0.78	0.452
30.00	-34.31	-26.20	0.00	-1,977.0	0.00	1,977.02	5,072.93	1,198.33	4,657.58	4,474.38	2.94	-0.95	0.449
35.00	-33.05	-25.94	0.00	-1,846.0	0.00	1,846.00	4,926.08	1,163.64	4,391.87	4,217.63	4.03	-1.12	0.445
39.94	-31.87	-25.80	0.00	-1,717.8	0.00	1,717.84	4,780.98	1,129.37	4,137.01	3,971.41	5.28	-1.29	0.440
40.00	-31.81	-25.67	0.00	-1,716.3	0.00	1,716.29	4,779.22	1,128.95	4,133.97	3,968.47	5.29	-1.29	0.440
45.00	-29.78	-25.47	0.00	-1,588.0	0.00	1,587.95	4,632.37	1,094.26	3,883.87	3,726.90	6.74	-1.47	0.433
45.68	-29.47	-25.34	0.00	-1,570.6	0.00	1,570.57	4,132.51	976.18	3,532.26	3,395.74	6.96	-1.5	0.470
50.00	-28.55	-25.07	0.00	-1,461.2	0.00	1,461.18	4,021.55	949.97	3,345.15	3,214.87	8.38	-1.65	0.462
55.00	-27.50	-24.79	0.00	-1,335.8	0.00	1,335.81	3,893.05	919.62	3,134.83	3,011.61	10.21	-1.84	0.451
60.00	-26.48	-24.50	0.00	-1,211.9	0.00	1,211.88	3,764.55	889.26	2,931.34	2,814.98	12.25	-2.03	0.438
65.00	-25.49	-24.21	0.00	-1,089.4	0.00	1,089.39	3,636.06	858.91	2,734.68	2,624.99	14.48	-2.23	0.423
70.00	-24.54	-23.91	0.00	-968.4	0.00	968.35	3,507.56	828.56	2,544.85	2,441.64	16.92	-2.42	0.404
75.00	-23.61	-23.63	0.00	-848.8	0.00	848.78	3,379.07	798.20	2,361.84	2,264.93	19.55	-2.6	0.383
79.52	-22.82	-23.47	0.00	-742.1	0.00	742.06	3,263.02	770.79	2,202.43	2,111.04	22.09	-2.77	0.359
80.00	-19.96	-21.05	0.00	-730.7	0.00	730.69	3,250.57	767.85	2,185.66	2,094.86	22.38	-2.79	0.356
84.10	-18.88	-20.86	0.00	-644.3	0.00	644.31	2,289.83	543.72	1,534.13	1,468.57	24.84	-2.94	0.448
85.00	-18.73	-20.71	0.00	-625.6	0.00	625.62	2,277.57	539.84	1,512.29	1,450.16	25.39	-2.97	0.441
90.00	-15.85	-19.35	0.00	-522.1	0.00	522.09	2,193.54	518.16	1,393.28	1,340.00	28.62	-3.19	0.398
94.00	-14.49	-17.82	0.00	-441.4	0.00	441.35	2,120.11	500.81	1,301.58	1,251.35	31.36	-3.35	0.361
95.00	-14.35	-17.65	0.00	-423.5	0.00	423.53	2,101.75	496.48	1,279.14	1,229.65	32.07	-3.39	0.353
100.00	-10.64	-14.05	0.00	-335.3	0.00	335.27	2,009.97	474.80	1,169.88	1,124.05	35.72	-3.58	0.304
105.00	-10.12	-13.74	0.00	-265.0	0.00	265.02	1,918.19	453.11	1,065.49	1,023.18	39.56	-3.75	0.265
110.00	-9.61	-13.43	0.00	-196.3	0.00	196.32	1,826.40	431.43	965.98	927.05	43.57	-3.9	0.218
115.00	-9.14	-13.25	0.00	-129.2	0.00	129.19	1,734.62	409.75	871.35	835.67	47.71	-4.02	0.161
115.04	-9.14	-13.16	0.00	-128.6	0.00	128.60	1,733.81	409.56	870.54	834.88	47.75	-4.02	0.160
118.00	-8.73	-12.99	0.00	-89.7	0.00	89.70	1,679.55	396.74	816.91	783.11	50.25	-4.07	0.121
118.58	-8.66	-12.93	0.00	-82.2	0.00	82.22	957.75	241.77	505.52	456.08	50.75	-4.08	0.192
120.00	-4.76	-6.22	0.00	-63.8	0.00	63.80	947.86	238.07	490.14	444.39	51.97	-4.1	0.149
122.00	-4.46	-5.83	0.00	-51.4	0.00	51.36	933.73	232.86	468.95	428.12	53.69	-4.14	0.125
125.00	-4.30	-5.67	0.00	-33.9	0.00	33.87	911.97	225.06	438.05	404.01	56.31	-4.18	0.089
128.00	-3.99	-5.32	0.00	-16.9	0.00	16.86	889.55	217.25	408.19	380.29	58.95	-4.21	0.049
130.00	-0.64	-1.01	0.00	-6.2	0.00	6.23	874.24	212.05	388.88	364.72	60.71	-4.22	0.018
132.00	-0.37	-0.64	0.00	-4.2	0.00	4.22	858.63	206.84	370.03	349.33	62.48	-4.23	0.013
135.00	-0.28	-0.46	0.00	-2.3	0.00	2.29	834.67	199.04	342.63	326.65	65.14	-4.23	0.007
140.00	0.00	-0.44	0.00	0.0	0.00	0.00	787.53	186.03	299.32	287.86	69.57	-4.24	0.000

ASSET: 411256, CANTON CT  
 CUSTOMER: AT&T MOBILITY

CODE: ANSI/TIA-222-H  
 ENG NO: 13757774\_C3\_05

Load Case: 1.2D + 1.0Di + 1.0Wi	50 mph wind with 1.5" radial ice		23 Iterations
Gust Response Factor: 1.10	Ice Dead Load 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	-86.31	-8.08	0.00	-832.3	0.00	832.29	5,907.57	1,406.47	6,415.71	6,125.97	0	0	0.151
5.00	-84.02	-8.02	0.00	-791.9	0.00	791.88	5,798.21	1,371.78	6,103.18	5,862.82	0.02	-0.04	0.150
10.00	-81.74	-7.97	0.00	-751.8	0.00	751.77	5,660.34	1,337.09	5,798.45	5,577.22	0.1	-0.09	0.149
15.00	-79.48	-7.91	0.00	-711.9	0.00	711.93	5,513.49	1,302.40	5,501.53	5,290.13	0.22	-0.14	0.149
20.00	-77.25	-7.86	0.00	-672.4	0.00	672.38	5,366.64	1,267.71	5,212.41	5,010.63	0.39	-0.19	0.149
25.00	-75.07	-7.80	0.00	-633.1	0.00	633.10	5,219.78	1,233.02	4,931.09	4,738.71	0.61	-0.23	0.148
30.00	-72.93	-7.75	0.00	-594.1	0.00	594.10	5,072.93	1,198.33	4,657.58	4,474.38	0.88	-0.28	0.147
35.00	-70.83	-7.69	0.00	-555.4	0.00	555.37	4,926.08	1,163.64	4,391.87	4,217.63	1.2	-0.34	0.146
39.94	-68.80	-7.65	0.00	-517.4	0.00	517.40	4,780.98	1,129.37	4,137.01	3,971.41	1.58	-0.39	0.145
40.00	-68.76	-7.62	0.00	-516.9	0.00	516.94	4,779.22	1,128.95	4,133.97	3,968.47	1.58	-0.39	0.145
45.00	-65.58	-7.57	0.00	-478.8	0.00	478.82	4,632.37	1,094.26	3,883.87	3,726.90	2.02	-0.44	0.143
45.68	-65.15	-7.54	0.00	-473.7	0.00	473.66	4,132.51	976.18	3,532.26	3,395.74	2.08	-0.45	0.155
50.00	-63.56	-7.48	0.00	-441.1	0.00	441.11	4,021.55	949.97	3,345.15	3,214.87	2.51	-0.5	0.153
55.00	-61.77	-7.41	0.00	-403.7	0.00	403.72	3,893.05	919.62	3,134.83	3,011.61	3.06	-0.55	0.150
60.00	-60.01	-7.34	0.00	-366.7	0.00	366.68	3,764.55	889.26	2,931.34	2,814.98	3.67	-0.61	0.146
65.00	-58.30	-7.26	0.00	-330.0	0.00	330.00	3,636.06	858.91	2,734.68	2,624.99	4.34	-0.67	0.142
70.00	-56.63	-7.19	0.00	-293.7	0.00	293.69	3,507.56	828.56	2,544.85	2,441.64	5.08	-0.73	0.137
75.00	-55.01	-7.11	0.00	-257.8	0.00	257.75	3,379.07	798.20	2,361.84	2,264.93	5.87	-0.78	0.130
79.52	-53.59	-7.06	0.00	-225.6	0.00	225.64	3,263.02	770.79	2,202.43	2,111.04	6.64	-0.83	0.123
80.00	-47.26	-6.38	0.00	-222.2	0.00	222.22	3,250.57	767.85	2,185.66	2,094.86	6.72	-0.84	0.121
84.10	-45.48	-6.32	0.00	-196.0	0.00	196.04	2,289.83	543.72	1,534.13	1,468.57	7.46	-0.88	0.153
85.00	-45.25	-6.28	0.00	-190.4	0.00	190.38	2,277.57	539.84	1,512.29	1,450.16	7.63	-0.89	0.151
90.00	-39.56	-5.80	0.00	-159.0	0.00	158.97	2,193.54	518.16	1,393.28	1,340.00	8.6	-0.96	0.137
94.00	-35.67	-5.37	0.00	-134.9	0.00	134.92	2,120.11	500.81	1,301.58	1,251.35	9.43	-1.01	0.125
95.00	-35.43	-5.33	0.00	-129.6	0.00	129.55	2,101.75	496.48	1,279.14	1,229.65	9.65	-1.02	0.122
100.00	-26.68	-4.31	0.00	-102.9	0.00	102.92	2,009.97	474.80	1,169.88	1,124.05	10.75	-1.08	0.105
105.00	-25.60	-4.21	0.00	-81.4	0.00	81.35	1,918.19	453.11	1,065.49	1,023.18	11.91	-1.13	0.093
110.00	-24.55	-4.11	0.00	-60.3	0.00	60.29	1,826.40	431.43	965.98	927.05	13.12	-1.18	0.079
115.00	-23.54	-4.05	0.00	-39.7	0.00	39.72	1,734.62	409.75	871.35	835.67	14.38	-1.22	0.061
115.04	-23.53	-4.03	0.00	-39.5	0.00	39.54	1,733.81	409.56	870.54	834.88	14.39	-1.22	0.061
118.00	-22.72	-3.97	0.00	-27.6	0.00	27.64	1,679.55	396.74	816.91	783.11	15.15	-1.23	0.049
118.58	-22.57	-3.95	0.00	-25.4	0.00	25.35	957.75	241.77	505.52	456.08	15.3	-1.24	0.079
120.00	-12.62	-1.89	0.00	-19.7	0.00	19.73	947.86	238.07	490.14	444.39	15.67	-1.24	0.058
122.00	-11.82	-1.77	0.00	-16.0	0.00	15.95	933.73	232.86	468.95	428.12	16.19	-1.25	0.050
125.00	-11.45	-1.71	0.00	-10.6	0.00	10.65	911.97	225.06	438.05	404.01	16.98	-1.27	0.039
128.00	-10.61	-1.60	0.00	-5.5	0.00	5.52	889.55	217.25	408.19	380.29	17.78	-1.28	0.027
130.00	-1.80	-0.36	0.00	-2.3	0.00	2.33	874.24	212.05	388.88	364.72	18.32	-1.28	0.008
132.00	-1.06	-0.25	0.00	-1.6	0.00	1.61	858.63	206.84	370.03	349.33	18.85	-1.28	0.006
135.00	-0.78	-0.17	0.00	-0.9	0.00	0.87	834.67	199.04	342.63	326.65	19.66	-1.28	0.004
140.00	0.00	-0.16	0.00	0.0	0.00	0.00	787.53	186.03	299.32	287.86	21.01	-1.28	0.000

Load Case: 1.0D + 1.0W	60 mph Wind with No Ice	22 Iterations
Gust Response Factor: 1.10		
Dead load Factor: 1.00		
Wind Load Factor: 1.00		

**CALCULATED FORCES**

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	Phi Pn (kips)	Phi Vn (kips)	Phi Tn (ft-kips)	Phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-47.27	-6.65	0.00	-671.0	0.00	671.01	5,907.57	1,406.47	6,415.71	6,125.97	0	0	0.118
5.00	-45.75	-6.59	0.00	-637.8	0.00	637.75	5,798.21	1,371.78	6,103.18	5,862.82	0.02	-0.04	0.117
10.00	-44.26	-6.53	0.00	-604.8	0.00	604.80	5,660.34	1,337.09	5,798.45	5,577.22	0.08	-0.07	0.116
15.00	-42.80	-6.47	0.00	-572.2	0.00	572.16	5,513.49	1,302.40	5,501.53	5,290.13	0.17	-0.11	0.116
20.00	-41.37	-6.41	0.00	-539.8	0.00	539.82	5,366.64	1,267.71	5,212.41	5,010.63	0.31	-0.15	0.115
25.00	-39.98	-6.35	0.00	-507.8	0.00	507.78	5,219.78	1,233.02	4,931.09	4,738.71	0.49	-0.19	0.115
30.00	-38.62	-6.29	0.00	-476.0	0.00	476.03	5,072.93	1,198.33	4,657.58	4,474.38	0.71	-0.23	0.114
35.00	-37.29	-6.23	0.00	-444.6	0.00	444.58	4,926.08	1,163.64	4,391.87	4,217.63	0.97	-0.27	0.113
39.94	-36.02	-6.20	0.00	-413.8	0.00	413.80	4,780.98	1,129.37	4,137.01	3,971.41	1.27	-0.31	0.112
40.00	-35.99	-6.17	0.00	-413.4	0.00	413.43	4,779.22	1,128.95	4,133.97	3,968.47	1.27	-0.31	0.112
45.00	-33.77	-6.12	0.00	-382.6	0.00	382.59	4,632.37	1,094.26	3,883.87	3,726.90	1.62	-0.35	0.110
45.68	-33.47	-6.09	0.00	-378.4	0.00	378.42	4,132.51	976.18	3,532.26	3,395.74	1.67	-0.36	0.120
50.00	-32.51	-6.03	0.00	-352.1	0.00	352.12	4,021.55	949.97	3,345.15	3,214.87	2.02	-0.4	0.118
55.00	-31.42	-5.96	0.00	-322.0	0.00	321.98	3,893.05	919.62	3,134.83	3,011.61	2.46	-0.44	0.115
60.00	-30.37	-5.90	0.00	-292.2	0.00	292.16	3,764.55	889.26	2,931.34	2,814.98	2.95	-0.49	0.112
65.00	-29.34	-5.83	0.00	-262.7	0.00	262.68	3,636.06	858.91	2,734.68	2,624.99	3.49	-0.54	0.108
70.00	-28.34	-5.76	0.00	-233.5	0.00	233.54	3,507.56	828.56	2,544.85	2,441.64	4.07	-0.58	0.104
75.00	-27.37	-5.70	0.00	-204.7	0.00	204.74	3,379.07	798.20	2,361.84	2,264.93	4.71	-0.63	0.099
79.52	-26.53	-5.66	0.00	-179.0	0.00	179.02	3,263.02	770.79	2,202.43	2,111.04	5.32	-0.67	0.093
80.00	-23.26	-5.07	0.00	-176.3	0.00	176.28	3,250.57	767.85	2,185.66	2,094.86	5.39	-0.67	0.091
84.10	-22.08	-5.03	0.00	-155.5	0.00	155.46	2,289.83	543.72	1,534.13	1,468.57	5.98	-0.71	0.116
85.00	-21.96	-4.99	0.00	-151.0	0.00	150.95	2,277.57	539.84	1,512.29	1,450.16	6.12	-0.71	0.114
90.00	-18.75	-4.67	0.00	-126.0	0.00	125.99	2,193.54	518.16	1,393.28	1,340.00	6.89	-0.77	0.103
94.00	-17.17	-4.30	0.00	-106.5	0.00	106.53	2,120.11	500.81	1,301.58	1,251.35	7.55	-0.81	0.093
95.00	-17.05	-4.26	0.00	-102.2	0.00	102.23	2,101.75	496.48	1,279.14	1,229.65	7.72	-0.82	0.091
100.00	-12.75	-3.39	0.00	-80.9	0.00	80.94	2,009.97	474.80	1,169.88	1,124.05	8.61	-0.86	0.078
105.00	-12.18	-3.32	0.00	-64.0	0.00	63.99	1,918.19	453.11	1,065.49	1,023.18	9.53	-0.9	0.069
110.00	-11.64	-3.24	0.00	-47.4	0.00	47.41	1,826.40	431.43	965.98	927.05	10.5	-0.94	0.058
115.00	-11.11	-3.20	0.00	-31.2	0.00	31.20	1,734.62	409.75	871.35	835.67	11.5	-0.97	0.044
115.04	-11.11	-3.18	0.00	-31.1	0.00	31.06	1,733.81	409.56	870.54	834.88	11.51	-0.97	0.044
118.00	-10.65	-3.14	0.00	-21.7	0.00	21.67	1,679.55	396.74	816.91	783.11	12.11	-0.98	0.034
118.58	-10.57	-3.12	0.00	-19.9	0.00	19.86	957.75	241.77	505.52	456.08	12.23	-0.98	0.055
120.00	-5.75	-1.50	0.00	-15.4	0.00	15.41	947.86	238.07	490.14	444.39	12.52	-0.99	0.041
122.00	-5.39	-1.41	0.00	-12.4	0.00	12.41	933.73	232.86	468.95	428.12	12.94	-1	0.035
125.00	-5.21	-1.37	0.00	-8.2	0.00	8.18	911.97	225.06	438.05	404.01	13.57	-1.01	0.026
128.00	-4.83	-1.28	0.00	-4.1	0.00	4.07	889.55	217.25	408.19	380.29	14.21	-1.02	0.016
130.00	-0.79	-0.24	0.00	-1.5	0.00	1.50	874.24	212.05	388.88	364.72	14.63	-1.02	0.005
132.00	-0.46	-0.16	0.00	-1.0	0.00	1.02	858.63	206.84	370.03	349.33	15.06	-1.02	0.003
135.00	-0.34	-0.11	0.00	-0.6	0.00	0.55	834.67	199.04	342.63	326.65	15.7	-1.02	0.002
140.00	0.00	-0.10	0.00	0.0	0.00	0.00	787.53	186.03	299.32	287.86	16.77	-1.02	0.000

**EQUIVALENT LATERAL FORCES METHOD ANALYSIS**

(Based on ASCE7-16 Chapters 11, 12 and 15)

Spectral Response Acceleration for Short Period ( $S_S$ ):	0.177
Spectral Response Acceleration at 1.0 Second Period ( $S_1$ ):	0.054
Long-Period Transition Period ( $T_L$ – Seconds):	6
Importance Factor ( $I_e$ ):	1.000
Site Coefficient $F_a$ :	1.600
Site Coefficient $F_v$ :	2.400
Response Modification Coefficient (R):	1.500
Design Spectral Response Acceleration at Short Period ( $S_{ds}$ ):	0.189
Design Spectral Response Acceleration at 1.0 Second Period ( $S_{d1}$ ):	0.086
Seismic Response Coefficient ( $C_s$ ):	0.030
Upper Limit $C_s$ :	0.030
Lower Limit $C_s$ :	0.030
Period based on Rayleigh Method (sec):	2.200
Redundancy Factor ( $\rho$ ):	1.000
Seismic Force Distribution Exponent ( $k$ ):	1.850
Total Unfactored Dead Load:	47.280 k
Seismic Base Shear (E):	1.420 k

**1.2D + 1.0Ev + 1.0Eh Seismic**

Segment	Height Above Base (ft)	Weight (lb)	$W_z$ (lb-ft)	$C_{vx}$	Horizontal Force (lb)	Vertical Force (lb)
39	137.5	190	1,737	0.010	14	235
38	133.5	120	1,039	0.006	8	149
37	131	83	690	0.004	6	102
36	129	115	933	0.005	8	142
35	126.5	176	1,379	0.008	11	218
34	123.5	181	1,353	0.008	11	223
33	121	123	887	0.005	7	152
32	119.2878	100	701	0.004	6	123
31	118.2878	85	586	0.003	5	105
30	116.5222	442	2,974	0.017	24	547
29	115.0222	5	30	0.000	0	6
28	112.5	525	3,310	0.019	27	650
27	107.5	546	3,165	0.018	26	676
26	102.5	567	3,009	0.017	25	702
25	97.5	617	2,982	0.017	24	763
24	94.5	126	574	0.003	5	156
23	92	526	2,286	0.013	19	652
22	87.5	677	2,679	0.015	22	838
21	84.5521	123	459	0.003	4	153
20	82.0521	1,176	4,131	0.024	34	1,455
19	79.7578	142	474	0.003	4	176
18	77.2578	846	2,658	0.015	22	1,047
17	72.5	964	2,694	0.016	22	1,194
16	67.5	994	2,432	0.014	20	1,230
15	62.5	1,023	2,171	0.012	18	1,266
14	57.5	1,053	1,914	0.011	16	1,303
13	52.5	1,082	1,662	0.010	14	1,339
12	47.8412	958	1,239	0.007	10	1,186
11	45.3412	298	349	0.002	3	369
10	42.5	2,218	2,305	0.013	19	2,746
9	39.9701	27	25	0.000	0	33
8	37.4701	1,272	1,046	0.006	9	1,574
7	32.5	1,321	835	0.005	7	1,635
6	27.5	1,354	628	0.004	5	1,676

Segment	Height Above Base (ft)	Weight (lb)	W <sub>z</sub> (lb-ft)	C <sub>vx</sub>	Horizontal Force (lb)	Vertical Force (lb)
5	22.5	1,388	444	0.003	4	1,718
4	17.5	1,422	285	0.002	2	1,760
3	12.5	1,455	157	0.001	1	1,801
2	7.5	1,489	62	0.000	1	1,843
1	2.5	1,522	8	0.000	0	1,884
Generic 18' Omni	140	55	520	0.003	4	68
Stand-Off	140	100	945	0.005	8	124
Ericsson Air 6449 B77D	132	245	2,075	0.012	17	303
Raycap DC6-48-60-18-8F	130	40	330	0.002	3	50
Ericsson RRUS 8843 B2, B66A	130	216	1,780	0.010	15	267
Ericsson RRUS 4449 B5, B12	130	213	1,755	0.010	14	264
Ericsson RRUS 4478 B14	130	178	1,469	0.008	12	221
Ericsson RRUS 32 B30	130	180	1,483	0.008	12	223
Raycap DC9-48-60-24-8C-EV	130	16	132	0.001	1	20
Kathrein Scala 840370799	130	317	2,616	0.015	21	393
CCI DMP65R-BU8D	130	287	2,366	0.014	19	355
Generic Flat Platform with Handrails	130	2,500	20,603	0.118	168	3,094
Generic Flat Platform with Handrails	120	2,500	17,764	0.102	145	3,094
Generic Flat Platform with Handrails	100	2,500	12,672	0.073	103	3,094
Generic Flat Platform with Handrails	80	2,500	8,382	0.048	68	3,094
Ericsson AIR 6419 B77G	128	198	1,588	0.009	13	245
Samsung MT6407-77A	122	245	1,794	0.010	15	303
Generic GPS	120	10	71	0.000	1	12
Samsung RT4401-48A	120	56	396	0.002	3	69
Samsung B2/B66A RRH-BR049	120	253	1,799	0.010	15	313
Samsung B5/B13 RRH-BR04C	120	422	2,997	0.017	24	522
Raycap RCMDC-3315-PF-48	120	43	304	0.002	2	53
Commscope SBNHH-1D65B	120	304	2,162	0.012	18	377
Andrew LNX-6514DS-A1M	120	116	827	0.005	7	144
VZW Unused Reserve (17102.97 sqin)	120	1,038	7,374	0.042	60	1,285
Samsung Outdoor CBRS 20W RRH -Clip-on Antenna	118	13	91	0.000	1	16
Ericsson 4460 BAND 2/25	100	327	1,658	0.010	14	405
Ericsson 4480 BAND 71	100	243	1,232	0.007	10	301
Ericsson AIR 6419 B41	100	250	1,267	0.007	10	309
RFS APXVAALL24 43-U-NA20	100	368	1,867	0.011	15	456
Alcatel-Lucent RRH2x50-08	94	159	717	0.004	6	196
Alcatel-Lucent 800 MHz RRH	94	159	719	0.004	6	197
Alcatel-Lucent 1900 MHz 4X45 RRH	94	180	814	0.005	7	223
Alcatel-Lucent TD-RRH8x20-25 w/ Solar Shield	94	210	949	0.006	8	260
RFS APXVSPP18-C-A20	94	171	773	0.004	6	212
Commscope DT465B-2XR	94	174	786	0.004	6	215
Generic 12" x 12" Junction Box	90	30	125	0.001	1	37
Generic Round Platform with Handrails	90	2,500	10,425	0.060	85	3,094
Commscope RDIDC-9181-PF-48	80	22	73	0.000	1	27
Fujitsu TA08025-B605	80	225	754	0.004	6	278
Fujitsu TA08025-B604	80	192	643	0.004	5	237
JMA Wireless MX08FRO665-21	80	194	649	0.004	5	240
		47,277	174,040	1.000	1,418	58,517

**0.9D - 1.0Ev + 1.0Eh Seismic (Reduced DL)**

Segment	Height Above Base (ft)	Weight (lb)	W <sub>z</sub> (lb-ft)	C <sub>vx</sub>	Horizontal Force (lb)	Vertical Force (lb)
39	137.5	190	1,737	0.010	14	164
38	133.5	120	1,039	0.006	8	103
37	131	83	690	0.004	6	71
36	129	115	933	0.005	8	99
35	126.5	176	1,379	0.008	11	152
34	123.5	181	1,353	0.008	11	156
33	121	123	887	0.005	7	106
32	119.2878	100	701	0.004	6	86
31	118.2878	85	586	0.003	5	73

Segment	Height Above Base (ft)	Weight (lb)	W <sub>z</sub> (lb-ft)	C <sub>vz</sub>	Horizontal Force (lb)	Vertical Force (lb)
30	116.5222	442	2,974	0.017	24	381
29	115.0222	5	30	0.000	0	4
28	112.5	525	3,310	0.019	27	453
27	107.5	546	3,165	0.018	26	471
26	102.5	567	3,009	0.017	25	489
25	97.5	617	2,982	0.017	24	532
24	94.5	126	574	0.003	5	109
23	92	526	2,286	0.013	19	454
22	87.5	677	2,679	0.015	22	584
21	84.5521	123	459	0.003	4	106
20	82.0521	1,176	4,131	0.024	34	1,014
19	79.7578	142	474	0.003	4	123
18	77.2578	846	2,658	0.015	22	729
17	72.5	964	2,694	0.016	22	831
16	67.5	994	2,432	0.014	20	857
15	62.5	1,023	2,171	0.012	18	882
14	57.5	1,053	1,914	0.011	16	908
13	52.5	1,082	1,662	0.010	14	933
12	47.8412	958	1,239	0.007	10	826
11	45.3412	298	349	0.002	3	257
10	42.5	2,218	2,305	0.013	19	1,913
9	39.9701	27	25	0.000	0	23
8	37.4701	1,272	1,046	0.006	9	1,097
7	32.5	1,321	835	0.005	7	1,139
6	27.5	1,354	628	0.004	5	1,168
5	22.5	1,388	444	0.003	4	1,197
4	17.5	1,422	285	0.002	2	1,226
3	12.5	1,455	157	0.001	1	1,255
2	7.5	1,489	62	0.000	1	1,284
1	2.5	1,522	8	0.000	0	1,313
Generic 18' Omni Stand-Off	140	55	520	0.003	4	47
Ericsson Air 6449 B77D	140	100	945	0.005	8	86
Raycap DC6-48-60-18-8F	132	245	2,075	0.012	17	211
Ericsson RRUS 8843 B2, B66A	130	40	330	0.002	3	34
Ericsson RRUS 4449 B5, B12	130	216	1,780	0.010	15	186
Ericsson RRUS 4478 B14	130	213	1,755	0.010	14	184
Ericsson RRUS 32 B30	130	178	1,469	0.008	12	154
Raycap DC9-48-60-24-8C-EV	130	180	1,483	0.008	12	155
Kathrein Scala 840370799	130	16	132	0.001	1	14
CCI DMP65R-BU8D	130	317	2,616	0.015	21	274
Generic Flat Platform with Handrails	130	287	2,366	0.014	19	248
Generic Flat Platform with Handrails	130	2,500	20,603	0.118	168	2,156
Generic Flat Platform with Handrails	120	2,500	17,764	0.102	145	2,156
Generic Flat Platform with Handrails	100	2,500	12,672	0.073	103	2,156
Generic Flat Platform with Handrails	80	2,500	8,382	0.048	68	2,156
Ericsson AIR 6419 B77G	128	198	1,588	0.009	13	171
Samsung MT6407-77A	122	245	1,794	0.010	15	211
Generic GPS	120	10	71	0.000	1	9
Samsung RT4401-48A	120	56	396	0.002	3	48
Samsung B2/B66A RRH-BR049	120	253	1,799	0.010	15	218
Samsung B5/B13 RRH-BR04C	120	422	2,997	0.017	24	364
Raycap RCMDC-3315-PF-48	120	43	304	0.002	2	37
Commscope SBNHH-1D65B	120	304	2,162	0.012	18	262
Andrew LNX-6514DS-A1M	120	116	827	0.005	7	100
VZW Unused Reserve (17102.97 sqin)	120	1,038	7,374	0.042	60	895
Samsung Outdoor CBRS 20W RRH –Clip-on Antenna	118	13	91	0.000	1	11
Ericsson 4460 BAND 2/25	100	327	1,658	0.010	14	282
Ericsson 4480 BAND 71	100	243	1,232	0.007	10	210
Ericsson AIR 6419 B41	100	250	1,267	0.007	10	215
RFS APXVAALL24 43-U-NA20	100	368	1,867	0.011	15	318
Alcatel-Lucent RRH2x50-08	94	159	717	0.004	6	137
Alcatel-Lucent 800 MHz RRH	94	159	719	0.004	6	137
Alcatel-Lucent 1900 MHz 4X45 RRH	94	180	814	0.005	7	155
Alcatel-Lucent TD-RRH8x20-25 w/ Solar Shield	94	210	949	0.006	8	181
RFS APXVSPP18-C-A20	94	171	773	0.004	6	147
Commscope DT465B-2XR	94	174	786	0.004	6	150
Generic 12" x 12" Junction Box	90	30	125	0.001	1	26
Generic Round Platform with Handrails	90	2,500	10,425	0.060	85	2,156
Commscope RDIDC-9181-PF-48	80	22	73	0.000	1	19

Segment	Height Above Base (ft)	Weight (lb)	W <sub>z</sub> (lb-ft)	C <sub>vx</sub>	Horizontal Force (lb)	Vertical Force (lb)
Fujitsu TA08025-B605	80	225	754	0.004	6	194
Fujitsu TA08025-B604	80	192	643	0.004	5	165
JMA Wireless MX08FRO665-21	80	194	649	0.004	5	167
		47,277	174,040	1.000	1,418	40,764

**1.2D + 1.0Ev + 1.0Eh Seismic**

**CALCULATED FORCES**

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (fr-kips)	Mu Mx (ft-kips)	Resultant Moment (ft-kips)	Phi Pn (kips)	Phi Vn (kips)	Phi Tn (kips)	Phi Mn (kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-56.63	-1.42	0.00	-154.48	0.00	154.48	5,907.57	1,406.47	6,416	6,125.97	0.00	0.00	0.04
5.00	-54.79	-1.43	0.00	-147.37	0.00	147.37	5,798.21	1,371.78	6,103	5,862.82	0.00	-0.01	0.04
10.00	-52.99	-1.44	0.00	-140.22	0.00	140.22	5,660.34	1,337.09	5,798	5,577.22	0.02	-0.02	0.04
15.00	-51.23	-1.44	0.00	-133.05	0.00	133.05	5,513.49	1,302.40	5,502	5,290.13	0.04	-0.03	0.03
20.00	-49.51	-1.44	0.00	-125.85	0.00	125.85	5,366.64	1,267.71	5,212	5,010.63	0.07	-0.03	0.03
25.00	-47.83	-1.45	0.00	-118.63	0.00	118.63	5,219.78	1,233.02	4,931	4,738.71	0.11	-0.04	0.03
30.00	-46.20	-1.44	0.00	-111.40	0.00	111.40	5,072.93	1,198.33	4,658	4,474.38	0.16	-0.05	0.03
35.00	-44.62	-1.44	0.00	-104.18	0.00	104.18	4,926.08	1,163.64	4,392	4,217.63	0.22	-0.06	0.03
39.94	-44.59	-1.45	0.00	-97.05	0.00	97.05	4,780.98	1,129.37	4,137	3,971.41	0.29	-0.07	0.03
40.00	-41.85	-1.43	0.00	-96.97	0.00	96.97	4,779.22	1,128.95	4,134	3,968.47	0.30	-0.07	0.03
45.00	-41.48	-1.43	0.00	-89.83	0.00	89.83	4,632.37	1,094.26	3,884	3,726.90	0.38	-0.08	0.03
45.68	-40.29	-1.42	0.00	-88.86	0.00	88.86	4,132.51	976.18	3,532	3,395.74	0.39	-0.08	0.04
50.00	-38.95	-1.41	0.00	-82.73	0.00	82.73	4,021.55	949.97	3,345	3,214.87	0.47	-0.09	0.04
55.00	-37.65	-1.40	0.00	-75.68	0.00	75.68	3,893.05	919.62	3,135	3,011.61	0.57	-0.10	0.04
60.00	-36.38	-1.39	0.00	-68.68	0.00	68.68	3,764.55	889.26	2,931	2,814.98	0.69	-0.11	0.03
65.00	-35.15	-1.37	0.00	-61.74	0.00	61.74	3,636.06	858.91	2,735	2,624.99	0.81	-0.13	0.03
70.00	-33.96	-1.35	0.00	-54.89	0.00	54.89	3,507.56	828.56	2,545	2,441.64	0.95	-0.14	0.03
75.00	-32.91	-1.33	0.00	-48.13	0.00	48.13	3,379.07	798.20	2,362	2,264.93	1.10	-0.15	0.03
79.52	-32.73	-1.33	0.00	-42.10	0.00	42.10	3,263.02	770.79	2,202	2,111.04	1.24	-0.16	0.03
80.00	-27.40	-1.20	0.00	-41.45	0.00	41.45	3,250.57	767.85	2,186	2,094.86	1.26	-0.16	0.03
84.10	-27.25	-1.20	0.00	-36.52	0.00	36.52	2,289.83	543.72	1,534	1,468.57	1.40	-0.17	0.04
85.00	-26.41	-1.18	0.00	-35.45	0.00	35.45	2,277.57	539.84	1,512	1,450.16	1.43	-0.17	0.04
90.00	-22.63	-1.07	0.00	-29.56	0.00	29.56	2,193.54	518.16	1,393	1,340.00	1.61	-0.18	0.03
94.00	-21.17	-1.02	0.00	-25.29	0.00	25.29	2,120.11	500.81	1,302	1,251.35	1.76	-0.19	0.03
95.00	-20.41	-1.00	0.00	-24.27	0.00	24.27	2,101.75	496.48	1,279	1,229.65	1.80	-0.19	0.03
100.00	-15.14	-0.80	0.00	-19.29	0.00	19.29	2,009.97	474.80	1,170	1,124.05	2.01	-0.20	0.03
105.00	-14.46	-0.78	0.00	-15.27	0.00	15.27	1,918.19	453.11	1,065	1,023.18	2.23	-0.21	0.02
110.00	-13.81	-0.75	0.00	-11.37	0.00	11.37	1,826.40	431.43	966	927.05	2.45	-0.22	0.02
115.00	-13.81	-0.75	0.00	-7.62	0.00	7.62	1,734.62	409.75	871	835.67	2.69	-0.23	0.02
115.04	-13.26	-0.73	0.00	-7.59	0.00	7.59	1,733.81	409.56	871	834.88	2.69	-0.23	0.02
118.00	-13.14	-0.72	0.00	-5.44	0.00	5.44	1,679.55	396.74	817	783.11	2.83	-0.23	0.02
118.58	-13.02	-0.71	0.00	-5.03	0.00	5.03	957.75	241.77	506	456.08	2.86	-0.23	0.03
120.00	-7.00	-0.41	0.00	-4.01	0.00	4.01	947.86	238.07	490	444.39	2.93	-0.23	0.02
122.00	-6.47	-0.38	0.00	-3.20	0.00	3.20	933.73	232.86	469	428.12	3.03	-0.24	0.01
125.00	-6.25	-0.37	0.00	-2.06	0.00	2.06	911.97	225.06	438	404.01	3.18	-0.24	0.01
128.00	-5.87	-0.35	0.00	-0.95	0.00	0.95	889.55	217.25	408	380.29	3.33	-0.24	0.01
130.00	-0.88	-0.06	0.00	-0.26	0.00	0.26	874.24	212.05	389	364.72	3.43	-0.24	0.00
132.00	-0.43	-0.03	0.00	-0.15	0.00	0.15	858.63	206.84	370	349.33	3.53	-0.24	0.00
135.00	-0.19	-0.01	0.00	-0.06	0.00	0.06	834.67	199.04	343	326.65	3.68	-0.24	0.00
140.00	0.00	-0.01	0.00	0.00	0.00	0.00	787.53	186.03	299	287.86	3.93	-0.24	0.00

**0.9D - 1.0Ev + 1.0Eh Seismic (Reduced DL)**

**CALCULATED FORCES**

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (fr-kips)	Mu Mx (ft-kips)	Resultant Moment (ft-kips)	Phi Pn (kips)	Phi Vn (kips)	Phi Tn (kips)	Phi Mn (kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-39.45	-1.42	0.00	-152.28	0.00	152.28	5,907.57	1,406.47	6,416	6,125.97	0.00	0.00	0.03
5.00	-38.17	-1.43	0.00	-145.18	0.00	145.18	5,798.21	1,371.78	6,103	5,862.82	0.00	-0.01	0.03
10.00	-36.91	-1.43	0.00	-138.05	0.00	138.05	5,660.34	1,337.09	5,798	5,577.22	0.02	-0.02	0.03
15.00	-35.69	-1.43	0.00	-130.91	0.00	130.91	5,513.49	1,302.40	5,502	5,290.13	0.04	-0.03	0.03

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 (kips)	Phi Mn (kips)	Total Deflect (in)	Rotation (deg)	Ratio
20.00	-34.49	-1.43	0.00	-123.75	0.00	123.75	5,366.64	1,267.71	5,212	5,010.63	0.07	-0.03	0.03
25.00	-33.32	-1.43	0.00	-116.58	0.00	116.58	5,219.78	1,233.02	4,931	4,738.71	0.11	-0.04	0.03
30.00	-32.18	-1.43	0.00	-109.42	0.00	109.42	5,072.93	1,198.33	4,658	4,474.38	0.16	-0.05	0.03
35.00	-31.09	-1.43	0.00	-102.27	0.00	102.27	4,926.08	1,163.64	4,392	4,217.63	0.22	-0.06	0.03
39.94	-31.06	-1.43	0.00	-95.23	0.00	95.23	4,780.98	1,129.37	4,137	3,971.41	0.29	-0.07	0.03
40.00	-29.15	-1.41	0.00	-95.14	0.00	95.14	4,779.22	1,128.95	4,134	3,968.47	0.29	-0.07	0.03
45.00	-28.89	-1.41	0.00	-88.10	0.00	88.10	4,632.37	1,094.26	3,884	3,726.90	0.37	-0.08	0.03
45.68	-28.07	-1.40	0.00	-87.13	0.00	87.13	4,132.51	976.18	3,532	3,395.74	0.38	-0.08	0.03
50.00	-27.13	-1.39	0.00	-81.09	0.00	81.09	4,021.55	949.97	3,345	3,214.87	0.46	-0.09	0.03
55.00	-26.23	-1.38	0.00	-74.14	0.00	74.14	3,893.05	919.62	3,135	3,011.61	0.56	-0.10	0.03
60.00	-25.34	-1.36	0.00	-67.26	0.00	67.26	3,764.55	889.26	2,931	2,814.98	0.67	-0.11	0.03
65.00	-24.49	-1.35	0.00	-60.44	0.00	60.44	3,636.06	858.91	2,735	2,624.99	0.80	-0.12	0.03
70.00	-23.65	-1.33	0.00	-53.71	0.00	53.71	3,507.56	828.56	2,545	2,441.64	0.93	-0.13	0.03
75.00	-22.93	-1.31	0.00	-47.08	0.00	47.08	3,379.07	798.20	2,362	2,264.93	1.08	-0.14	0.03
79.52	-22.80	-1.30	0.00	-41.18	0.00	41.18	3,263.02	770.79	2,202	2,111.04	1.22	-0.15	0.03
80.00	-19.09	-1.18	0.00	-40.55	0.00	40.55	3,250.57	767.85	2,186	2,094.86	1.24	-0.15	0.03
84.10	-18.98	-1.17	0.00	-35.72	0.00	35.72	2,289.83	543.72	1,534	1,468.57	1.37	-0.16	0.03
85.00	-18.40	-1.15	0.00	-34.67	0.00	34.67	2,277.57	539.84	1,512	1,450.16	1.40	-0.16	0.03
90.00	-15.76	-1.04	0.00	-28.90	0.00	28.90	2,193.54	518.16	1,393	1,340.00	1.58	-0.18	0.03
94.00	-14.75	-1.00	0.00	-24.72	0.00	24.72	2,120.11	500.81	1,302	1,251.35	1.73	-0.19	0.03
95.00	-14.22	-0.97	0.00	-23.73	0.00	23.73	2,101.75	496.48	1,279	1,229.65	1.77	-0.19	0.03
100.00	-10.55	-0.79	0.00	-18.86	0.00	18.86	2,009.97	474.80	1,170	1,124.05	1.97	-0.20	0.02
105.00	-10.08	-0.76	0.00	-14.92	0.00	14.92	1,918.19	453.11	1,065	1,023.18	2.19	-0.21	0.02
110.00	-9.62	-0.73	0.00	-11.12	0.00	11.12	1,826.40	431.43	966	927.05	2.41	-0.22	0.02
115.00	-9.62	-0.73	0.00	-7.45	0.00	7.45	1,734.62	409.75	871	835.67	2.64	-0.22	0.01
115.04	-9.24	-0.71	0.00	-7.42	0.00	7.42	1,733.81	409.56	871	834.88	2.64	-0.22	0.01
118.00	-9.15	-0.70	0.00	-5.32	0.00	5.32	1,679.55	396.74	817	783.11	2.78	-0.23	0.01
118.58	-9.07	-0.70	0.00	-4.92	0.00	4.92	957.75	241.77	506	456.08	2.81	-0.23	0.02
120.00	-4.87	-0.40	0.00	-3.92	0.00	3.92	947.86	238.07	490	444.39	2.88	-0.23	0.01
122.00	-4.51	-0.37	0.00	-3.13	0.00	3.13	933.73	232.86	469	428.12	2.97	-0.23	0.01
125.00	-4.36	-0.36	0.00	-2.01	0.00	2.01	911.97	225.06	438	404.01	3.12	-0.23	0.01
128.00	-4.09	-0.34	0.00	-0.93	0.00	0.93	889.55	217.25	408	380.29	3.26	-0.23	0.01
130.00	-0.61	-0.05	0.00	-0.25	0.00	0.25	874.24	212.05	389	364.72	3.36	-0.24	0.00
132.00	-0.30	-0.03	0.00	-0.14	0.00	0.14	858.63	206.84	370	349.33	3.46	-0.24	0.00
135.00	-0.13	-0.01	0.00	-0.06	0.00	0.06	834.67	199.04	343	326.65	3.61	-0.24	0.00
140.00	0.00	-0.01	0.00	0.00	0.00	0.00	787.53	186.03	299	287.86	3.86	-0.24	0.00



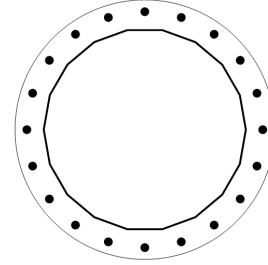
ANALYSIS SUMMARY

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 + 1.0W	27.81	0.00	56.69	0.00	0.00	2823.62	45.68	0.48
0.9D + 1.0W	27.79	0.00	42.51	0.00	0.00	2790.53	45.68	0.47
1.2D + 1.0Di + 1.0Wi	8.08	0.00	86.31	0.00	0.00	832.29	45.68	0.16
1.2D + 1.0Ev + 1.0Eh	1.45	0.00	56.63	0.00	0.00	154.48	84.10	0.04
0.9D - 1.0Ev + 1.0Eh	1.43	0.00	39.45	0.00	0.00	152.28	84.10	0.03
1.0D + 1.0W	6.65	0.00	47.27	0.00	0.00	671.01	45.68	0.12

**BASE PLATE ANALYSIS @ 0 FT**

**PLATE PARAMETERS (ID# 11034)**

Diameter:	66	in
Shape:	Round	
Thickness:	2.25	in
Grade:	A871-60	
Yield Strength:	60	ksi
Tensile Strength:	75	ksi
Rod Detail Type:	d	
Clear Distance	3.5	in
Base Weld Size:	0.125	in
Orientation Offset:	-	°
Analysis Type:	Plastic	
Neutral Axis:	252	°



**ANCHOR ROD PARAMETERS**

Class	Arrangement	Quantity	Diameter (in)	Circle (in)	Grade	Fy (ksi)	Fu (ksi)	Spacing (in)	Offset (°)
Original [ID# 8077]	Radial	20	2.25	60	A615-75	75	100	-	-

**ANCHOR ROD GEOMETRY AND APPLIED LOADS --- ORIGINAL (20) 2.25"Ø [ID 8077]**

Position	Radians	X (in)	Y (in)	Moment Arm (in)	Inertia (in <sup>4</sup> )	Axial Load (k)	Shear Load (k)
1	0.314	28.53	9.27	23.209	1750.184	99.20	1.30
2	0.628	24.27	17.63	16.862	924.254	99.20	1.78
3	0.942	17.63	24.27	8.865	256.065	99.20	2.10
4	1.257	9.27	28.53	0.000	0.839	99.20	2.20
5	1.571	0.00	30.00	-8.865	256.065	-87.87	2.10
6	1.885	-9.27	28.53	-16.862	924.256	-87.87	1.78
7	2.199	-17.63	24.27	-23.209	1750.184	-87.87	1.30
8	2.513	-24.27	17.63	-27.283	2418.373	-87.87	0.68
9	2.827	-28.53	9.27	-28.688	2673.599	-87.87	0.00
10	3.142	-30.00	0.00	-27.283	2418.373	-87.87	0.68
11	3.456	-28.53	-9.27	-23.209	1750.183	-87.87	1.30
12	3.770	-24.27	-17.63	-16.862	924.256	-87.87	1.78
13	4.084	-17.63	-24.27	-8.865	256.066	-87.87	2.10
14	4.398	-9.27	-28.53	0.000	0.839	99.20	2.20
15	4.712	0.00	-30.00	8.865	256.065	99.20	2.10
16	5.027	9.27	-28.53	16.862	924.254	99.20	1.78
17	5.341	17.63	-24.27	23.209	1750.185	99.20	1.30
18	5.655	24.27	-17.63	27.283	2418.374	99.20	0.68
19	5.969	28.53	-9.27	28.688	2673.599	99.20	0.00
20	6.283	30.00	0.00	27.283	2418.374	99.20	0.68

ASSET: 411256, CANTON CT  
 CUSTOMER: VERIZON WIRELESS

CODE: ANSI/TIA-222-H  
 ENG NO: 13726548

**REACTION DISTRIBUTION**

Component	ID	Moment Mu (k-ft)	Axial Load Pu (k)	Shear Vu (k)	Moment Factor
Pole	51"ø x 0.5" (18 Sides)	2823.6	56.69	27.81	1.000
Bolt Group	Original (20) 2.25"ø	2823.6	-	27.81	1.000
<b>TOTALS</b>		<b>2823.62</b>	<b>56.69</b>	<b>27.81</b>	

**COMPONENT PROPERTIES**

Component	ID	Gross Area (in <sup>2</sup> )	Net Area (in <sup>2</sup> )	Individual Inertia (in <sup>4</sup> )	Moment of Inertia (in <sup>4</sup> )	Threads/in
Pole	51"ø x 0.5" (18 Sides)	78.9231	-	-	25165.81	-
Bolt Group	Original (20) 2.25"ø	3.9761	3.2477	0.8393	26744.39	4.5

**EXTERNAL BASE PLATE BEND LINE ANALYSIS @ 0 FT**

**POLE PROPERTIES**

Flat-to-Flat Diameter: 51.12 in  
 Point-to-Point Diameter: 51.91 in  
 Flat Width: 9.015 in  
 Flat Radians: 0.349 rad

**PLATE PROPERTIES**

Neutral Axis: 252 °  
 Bend Line Lower Limit: 5.519 rad  
 Bend Line Upper Limit: 0.136 rad

Bend Line	Chord Length (in)	Additional Length (in)	Section Modulus (in <sup>3</sup> )	Applied Moment Mu (k-in)	Moment Capacity φMn (k-in)	Ratio
Flat	37.477	0.00	47.432	773.9	2561.3	0.302
Corner	36.377	0.00	46.039	635.4	2486.1	0.256
Circumferential	40.765	0.00	51.593	958.6	2786.0	0.344

**PLASTIC ANCHOR ROD ANALYSIS**

Class	Group Quantity	Rod Diameter (in)	Applied Axial Load Pu (k)	Applied Shear Load Vu (k)	Compressive Capacity φPn (k)	Ratio
Original	20	2.25	99.1	2.2	243.6	0.425