Alex Murshteyn, Site Acquisition Consultant
c/o Cellco Partnership d/b/a Verizon Wireless
Centerline Communications, LLC
750 West Center Street, Floor 3
West Bridgewater, MA 02379
Mobile: (508) 821-0159
AMurshteyn@centerlinecommunications.com

November 12, 2019

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

RE: Notice of Exempt Modification // Site: West Haven SW CT (ATC: 243036)
668 Jones Hill Rd, West Haven, CT 06516
N 41.2564 // W 72.9724

Dear Ms. Bachman:

Cellco Partnership d/b/a Verizon Wireless currently maintains 12 antennas at the 134-foot level on the existing 149-foot monopole tower, located at 668 Jones Hill Rd, West Haven, CT. The Council approved Verizon Wireless use of the tower in 2008. The tower is owned by American Tower. The property is owned by Robert E. Newkirk. Verizon Wireless now intends to remove 9 of its existing antennas to replace with 6 and install them on side-by-side mounts for the LTE (700/850/1900/2100 MHz) replacements for its PCS/AWS/LTE upgrade. Additionally, Verizon Wireless will replace all of its remote radio head units (RRUs) with 6 new RRUs and remove and upgrade certain cabling; altogether updating leased equipment rights, as reflected by the final configuration outlined in the structural analysis and proposed hereby.

Please accept this letter as notification pursuant to Regulations of Connecticut State Agencies §16-50j-73, for construction that constitutes an exempt modification pursuant to R.C.S.A. § 16-50j-72(b)(2). In accordance with R.C.S.A. § 16-50j-73, a copy of this letter is being sent to City of West Haven's chief elected official, Mayor Nancy R. Rossi, Fred A. Messore, its Commissioner of Planning and Development, the ground owner Robert E. Newkirk, as well as American Tower, which is the tower owner.

The planned modifications to the facility fall squarely within those activities explicitly provided for in R.C.S.A. § 16-50j-72(b)(2). Enclosed to accommodate this filing are construction drawings dated November 5, 2019, structural analysis dated October 17, 2019 and antenna mount analysis dated October 4, 2019 by A.T. Engineering Service, PLLC, as well as radio

frequency (RF) analysis table showing worst-case RF emission calculation by Verizon Wireless RF Design Engineering.

1. The proposed modifications will not result in an increase in the height of the existing structure.

2. The proposed modifications will not require the extension of the site boundary.

3. The proposed modifications will not increase noise levels at the facility by six decibels or more, or to levels that exceed state and local criteria.

4. The operation of the new antennas will not increase radio frequency emissions at the facility to a level at or above the Federal Communications Commission safety standard.

5. The proposed modifications will not cause a change or alteration in the physical or environmental characteristics of the site.

6. The existing structure and its foundation can support the proposed loading, as shown in the attached structural and mount analyses by A.T. Engineering Service, PLLC, dated October 17 and October 4, 2019, respectively.

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

Sincerely,

Alex Murshteyn, Site Acquisition Consultant
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Centerline Communications, LLC
750 West Center Street, Floor 3
West Bridgewater, MA 02379
Mobile: (508) 821-0159
AMurshteyn@centerlinecommunications.com

Attachments

cc: Nancy R. Rossi, Mayor - as elected official
Fred A. Messore, Commissioner, Planning and Development - as P&Z official
Robert E. Newkirk - as ground owner
American Tower Corporation - as tower owner

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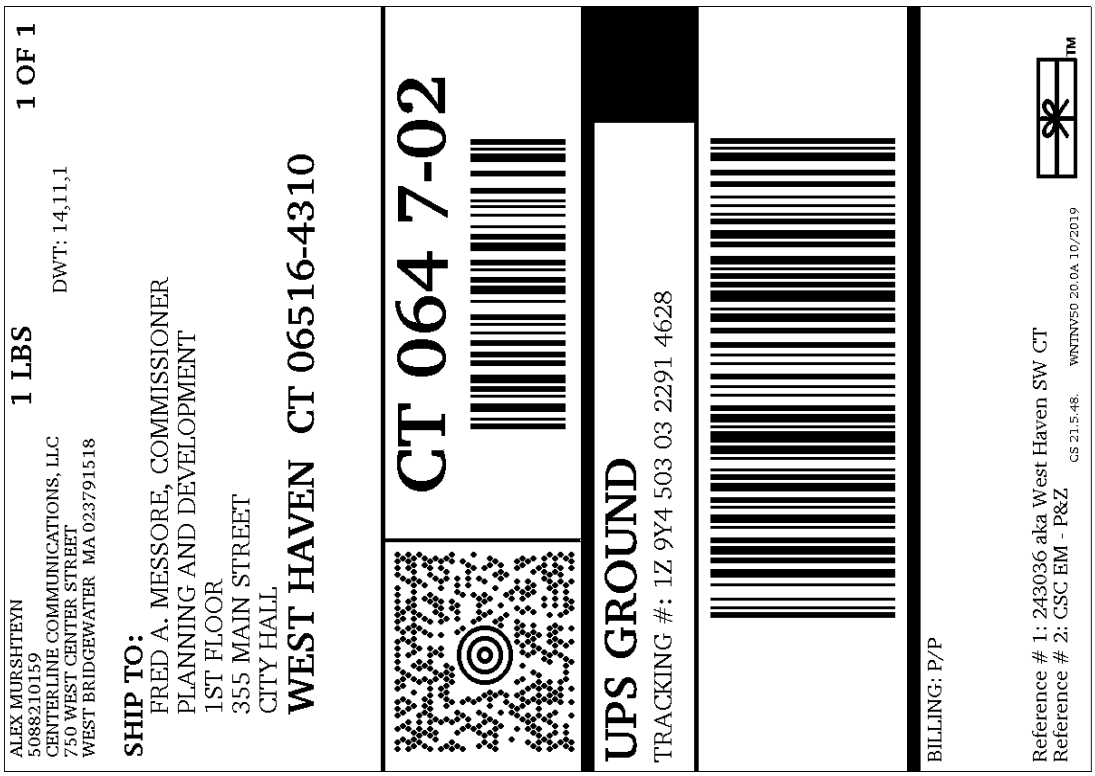

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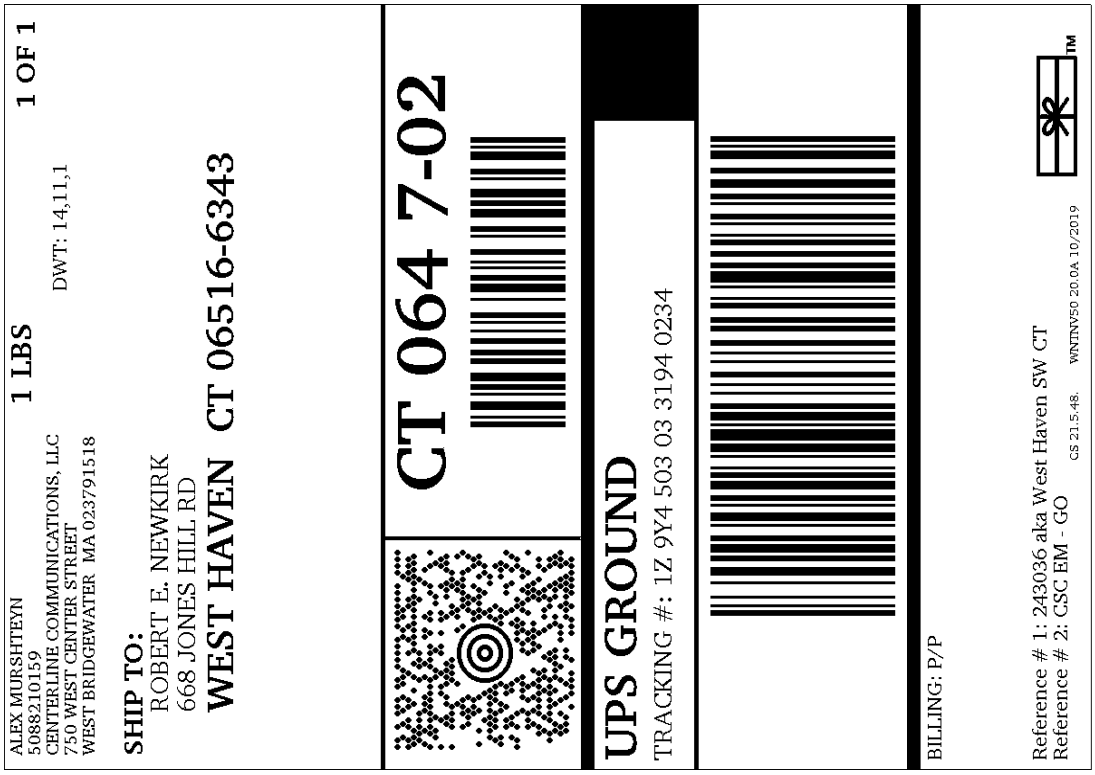

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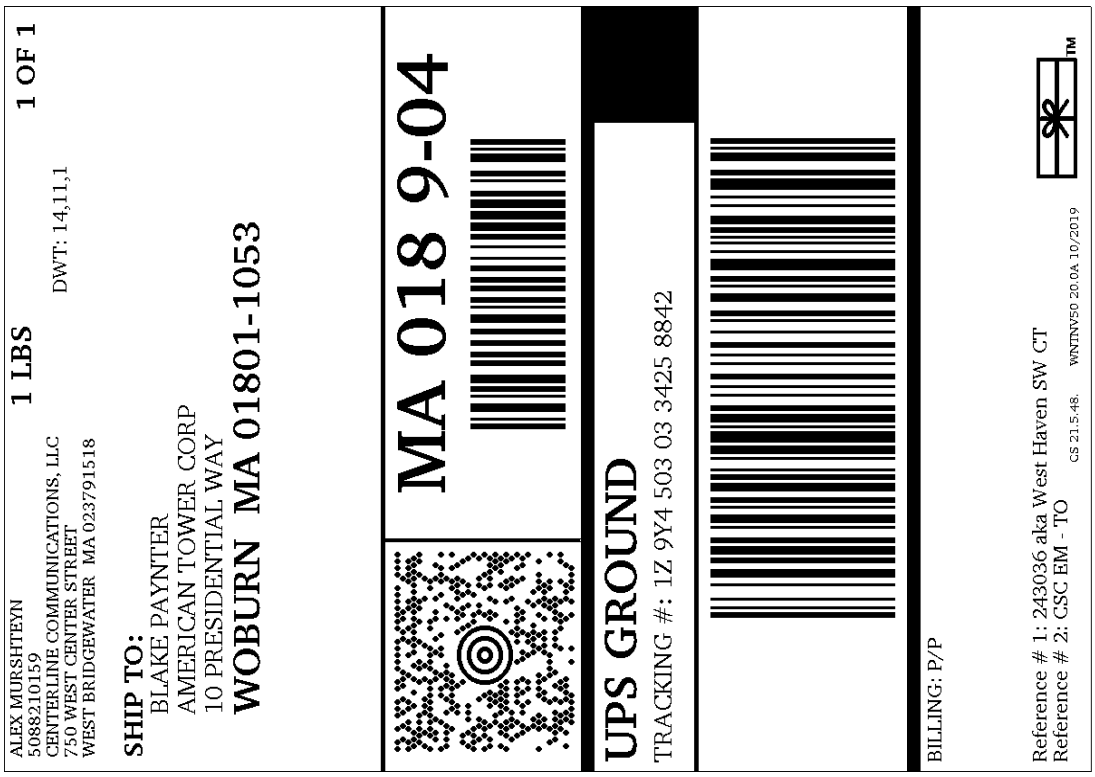

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Electric Transmission Upgrade Projects
Frequently Asked Questions

Melanie Bachman,
Executive Director

Decisions

Printable Version

DOCKET NO. 293 – Omnipoint Communications, Inc. application for a Certificate of Environmental Compatibility and Public Need for the construction, maintenance and operation of a wireless telecommunications facility at one of two locations off of Route 162, West Haven, Connecticut.	} } }	Connecticut Siting Council May 11, 2005

Decision and Order

Pursuant to the foregoing Findings of Fact and Opinion, the Connecticut Siting Council (Council) finds that the effects associated with the construction, operation, and maintenance of a telecommunications facility including effects on the natural environment; ecological integrity and balance; public health and safety; scenic, historic, and recreational values; forests and parks; air and water purity; and fish and wildlife are not disproportionate either alone or cumulatively with other effects when compared to need, are not in conflict with the policies of the State concerning such effects, and are not sufficient reason to deny the application and therefore directs that a Certificate of Environmental Compatibility and Public Need, as provided by General Statutes § 16-50k, be issued to Omnipoint Communications, Inc. (T-Mobile), hereinafter referred to as the Certificate Holder, for a telecommunications facility at the Alternate Site, located at 668 Jones Hill Road, West Haven, Connecticut. The Council denies certification of the Prime Site, located at 600 Jones Hill Road, West Haven, Connecticut.

The facility shall be constructed, operated, and maintained substantially as specified in the Council's record in this matter, and subject to the following conditions:

1. The tower shall be constructed as a monopole, no taller than necessary to provide the proposed telecommunications services, sufficient to accommodate the antennas of T-Mobile and other entities, both public and private, but such tower including antennas shall not exceed a height of 153 feet above ground level. The monopole shall be designed with an engineered yield point of sufficient height to prevent the tower from encroaching upon adjacent property in the event of a tower failure.
2. The tower and compound location shall be relocated 100 feet to the southwest.

3. The Certificate Holder shall prepare a Development and Management (D&M) Plan for this site in compliance with Sections 16-50j-75 through 16-50j-77 of the Regulations of Connecticut State Agencies. The D&M Plan shall be served on the City of West Haven for comment, and all parties and intervenors as listed in the service list, and submitted to and approved by the Council prior to the commencement of facility construction and shall include:

   a. a final site plan(s) of site development to include specifications for the tower, tower foundation, antennas, equipment building, access road, utility line, and landscaping; and
   b. construction plans for site clearing, water drainage, and erosion and sedimentation control consistent with the 2002 Connecticut Guidelines for Soil Erosion and Sediment Control, as amended.

4. The Certificate Holder shall, prior to the commencement of operation, provide the Council worst-case

modeling of electromagnetic radio frequency power density of all proposed entities' antennas at the closest point of uncontrolled access to the tower base, consistent with Federal Communications Commission, Office of Engineering and Technology, Bulletin No. 65, August 1997. The Certificate Holder shall ensure a recalculated report of electromagnetic radio frequency power density is submitted to the Council if and when circumstances in operation cause a change in power density above the levels calculated and provided pursuant to this Decision and Order.

5. Upon the establishment of any new State or federal radio frequency standards applicable to frequencies of this facility, the facility granted herein shall be brought into compliance with such standards.

6. The Certificate Holder shall permit public or private entities to share space on the proposed tower for fair consideration, or shall provide any requesting entity with specific legal, technical, environmental, or economic reasons precluding such tower sharing.

7. The Certificate Holder shall provide reasonable space on the tower for no compensation for any Town of West Haven public safety services (police, fire and medical services), provided such use can be accommodated and is compatible with the structural integrity of the tower.
8. If the facility does not initially provide wireless services within one year of completion of construction or ceases to provide wireless services for a period of one year, this Decision and Order shall be void, and the Certificate Holder shall dismantle the tower and remove all associated equipment or reapply for any continued or new use to the Council before any such use is made.
9. Any antenna that becomes obsolete and ceases to function shall be removed within 60 days after such antennas become obsolete and cease to function.
10. Unless otherwise approved by the Council, this Decision and Order shall be void if the facility authorized herein is not operational within one year of the effective date of this Decision and Order or within one year after all appeals to this Decision and Order have been resolved. Any request for extension of this period shall be filed with the Council not later than sixty days prior to the expiration date of this Certificate and shall be served on all parties and intervenors as listed in the service list and the City of West Haven. Any proposed modifications to this Decision and Order shall likewise be so served.
11. In accordance with Section 16-50j-77 of the Regulations of Connecticut State Agencies, the Certificate Holder shall provide the Council with written notice two weeks prior to the commencement of site construction activities. In addition, the Certificate Holder shall provide the Council with written notice of the completion of site construction and the commencement of site operation.

Pursuant to General Statutes § 16-50p, the Council hereby directs that a copy of the Findings of Fact, Opinion, and Decision and Order be served on each person listed below, and notice of issuance shall be published in The New Haven Register and the West Haven News.

By this Decision and Order, the Council disposes of the legal rights, duties, and privileges of each party named or admitted to the proceeding in accordance with Section 16-50j-17 of the Regulations of Connecticut State Agencies.

The parties and intervenors to this proceeding are:

Applicant	**Its Representative**
Omnipoint Communications, Inc	Stephen J. Humes, Esq. McCarter & English, LLP CityPlace I, 185 Asylum Street Hartford, CT 06103

Content Last Modified on 5/18/2005 11:16:18 AM

AMERICAN TOWER®
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Structural Analysis Report

Structure	:	**149 ft Monopole**
ATC Site Name	:	**WEST HAVEN & RT 162 CT, CT**
ATC Asset Number	:	**243036**
Engineering Number	:	**12984003_C3_04**
Proposed Carrier	:	**VERIZON WIRELESS**
Carrier Site Name	:	**WEST HAVEN SW CT**
Carrier Site Number	:	**469425**
Site Location	:	**668 Jones Hill Road** **West Haven, CT 06516-6311** **41.256400, -72.972400**
County	:	**New Haven**
Date	:	**October 17, 2019**
Max Usage	:	**100%**
Result	:	**Pass**

Prepared By:
Kyle MacPetrie
Structural Engineer

Reviewed By:

STATE OF CONNECTICUT
ESHA KAUSHAL MODI
32595
LICENSED
PROFESSIONAL ENGINEER

Authorized by "EOR"
Oct 21 2019 6:55 AM cosign

COA: PEC.0001553

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Table of Contents

Introduction

The purpose of this report is to summarize results of a structural analysis performed on the 149 ft monopole to reflect the change in loading by VERIZON WIRELESS.

Supporting Documents

Tower Drawings	Sabre Job #06-08204, dated August 19, 2005
Foundation Drawing	Sabre Job #06-10095, dated October 12, 2005
Geotechnical Report	EBI Project #61051509, dated July 12, 2005

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:	97 mph (3-Second Gust, V_{asd}) / 125 mph (3-Second Gust, V_{ult})
Basic Wind Speed w/ Ice:	50 mph (3-Second Gust) w/ 3/4" radial ice concurrent
Code:	ANSI/TIA-222-G / 2015 IBC / 2018 Connecticut State Building Code
Structure Class:	II
Exposure Category:	B
Topographic Category:	1
Crest Height:	0 ft
Spectral Response:	Ss = 0.19, 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

Elev.[1] (ft)	Qty	Antenna	Mount Type	Lines	Carrier
151.0	3	DragonWave Horizon Compact	SitePro1 RMQP-3XX Low Profile Platform	(3) 1 1/4" Hybriflex Cable (1) 1.7" (43.2mm) Hybrid (4) 1/2" Coax (1) 2" conduit	CLEARWIRE CORPORATION
	1	DragonWave A-ANT-23G-1-C			
	6	Alcatel-Lucent RRH2x50-08			
	3	Alcatel-Lucent 1900 MHz 4X45 RRH			
	3	Nokia 2.5G MAA - AAHC(64T64R)			
	2	DragonWave A-ANT-11G-2-C			
	3	RFS APXVFRR12X-C-I20			
143.0	3	Ericsson KRY 112 144/2	Platform with SitePro1 HRK12-3HD Handrail Kit	(2) 1 1/4" Hybriflex Cable (15) 1 5/8" Coax (3) 1 5/8" (1.63"-41.3mm) Fiber	T-MOBILE
	3	Ericsson AIR32 B66Aa/B2a			
	3	Ericsson Air 3246 B66			
	3	RFS APXVAARR24_43-U-NA20			
	3	Ericsson KRY 112 489/1			
	3	Ericsson Radio 4449 B12,B71			
134.0	1	RFS DB-T1-6Z-8AB-0Z	Low Profile Platform	(1) 1 5/8" (1.63"-41.3mm) Fiber (12) 1 5/8" Coax	VERIZON WIRELESS
	3	Andrew DB854DG65ESX			
125.0	3	Ericsson Radio 4415 B30	Platform with Handrails	(2) 0.39" (10mm) Fiber Trunk (2) 0.39" (9.8mm) Cable (4) 0.78" (19.7mm) 8 AWG 6 (1) 3" conduit	AT&T MOBILITY
	3	Ericsson 8843 Rev 2			
	3	Ericsson RRUS 4449 B5, B12			
	6	Kathrein Scala 80010966			
	2	Raycap DC6-48-60-0-8F (24" Height)			
	1	Raycap DC6-48-60-0-8F			
	3	CCI CCI-HPA-65R-BUU-H8			
115.0	3	RFS APXV18-206517S-C	Flush	(6) 1 5/8" Coax	METRO PCS INC
106.0	1	Generic 3' Dish w/ Radome	Side Arm	(1) 0.28" (7mm) RG-6	OTHER
	1	Proxim 5054-R-LR			

Equipment to be Removed

Elev.[1] (ft)	Qty	Antenna	Mount Type	Lines	Carrier
137.0	3	Alcatel-Lucent RRH2x40-AWS	-	-	VERIZON WIRELESS
134.0	3	Commscope LNX-6514DS-A1M			
	3	Antel BXA-185085/12CF ___			
	6	RFS FD9R6004/2C-3L			
	3	Amphenol Antel BXA-171063-12BF-EDIN-X			

Proposed Equipment

Elev.[1] (ft)	Qty	Antenna	Mount Type	Lines	Carrier
134.0	3	Samsung B2/B66A RRH-BR049	Low Profile Platform	-	VERIZON WIRELESS
	3	Samsung B5/B13 RRH-BR04C			
	6	JMA Wireless MX06FRO660-02			

[1] Contracted elevations are shown for appurtenances within contracted installation tolerances. Appurtenances outside of contract limits are shown at installed elevations.

Structure Usages

Structural Component	Controlling Usage	Pass/Fail
Anchor Bolts	59%	Pass
Shaft	100%	Pass
Base Plate	48%	Pass

Foundations

Reaction Component	Original Design Reactions	Factored Design Reactions*	Analysis Reactions	% of Design
Moment (Kips-Ft)	2,840.0	3,834.0	2,951.3	77%
Shear (Kips)	26.3	35.5	25.1	71%
* The design reactions are factored by 1.35 per ANSI/TIA-222-G, Sec. 15.5.1				

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

Deflection and Sway*

Antenna Elevation (ft)	Antenna	Carrier	Deflection (ft)	Sway (Rotation) (°)
149.0	DragonWave A-ANT-23G-1-C	CLEARWIRE CORPORATION	2.127	1.654
	DragonWave A-ANT-11G-2-C			
134.0	Samsung B2/B66A RRH-BR049	VERIZON WIRELESS	1.698	1.601
	Samsung B5/B13 RRH-BR04C			
	JMA Wireless MX06FRO660-02			
106.0	Generic 3' Dish w/ Radome	Other	1.001	1.193

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

AMERICAN TOWER®
CORPORATION

Standard Conditions

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

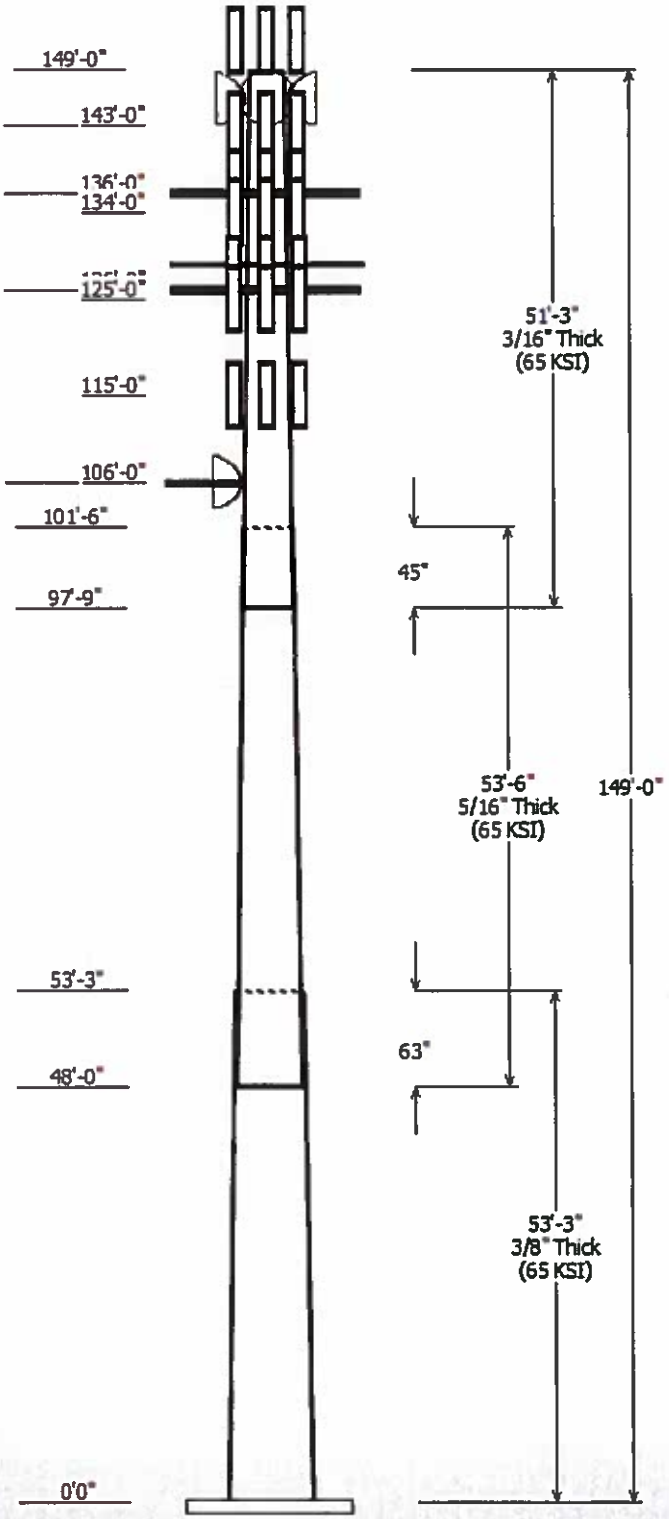
- Information supplied by the client regarding antenna, mounts and feed line loading
- Information from drawings, design and analysis documents, and field notes in the possession of A.T. Engineering Service, PLLC

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

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

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

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



Job Information

Client :	VERIZON WIRELESS
Pole :	243036
Code:	ANSI/TIA-222-G
Location :	WEST HAVEN & RT 162 CT, CT
Description :	Tower Model Verified: 12/13/2012
Struct Class :	II
Shape :	18 Sides
Exposure :	B
Height :	149.00 (ft)
Topo :	1
Base Elev (ft):	0.00
Taper:	0.234964 in/ft

Sections Properties

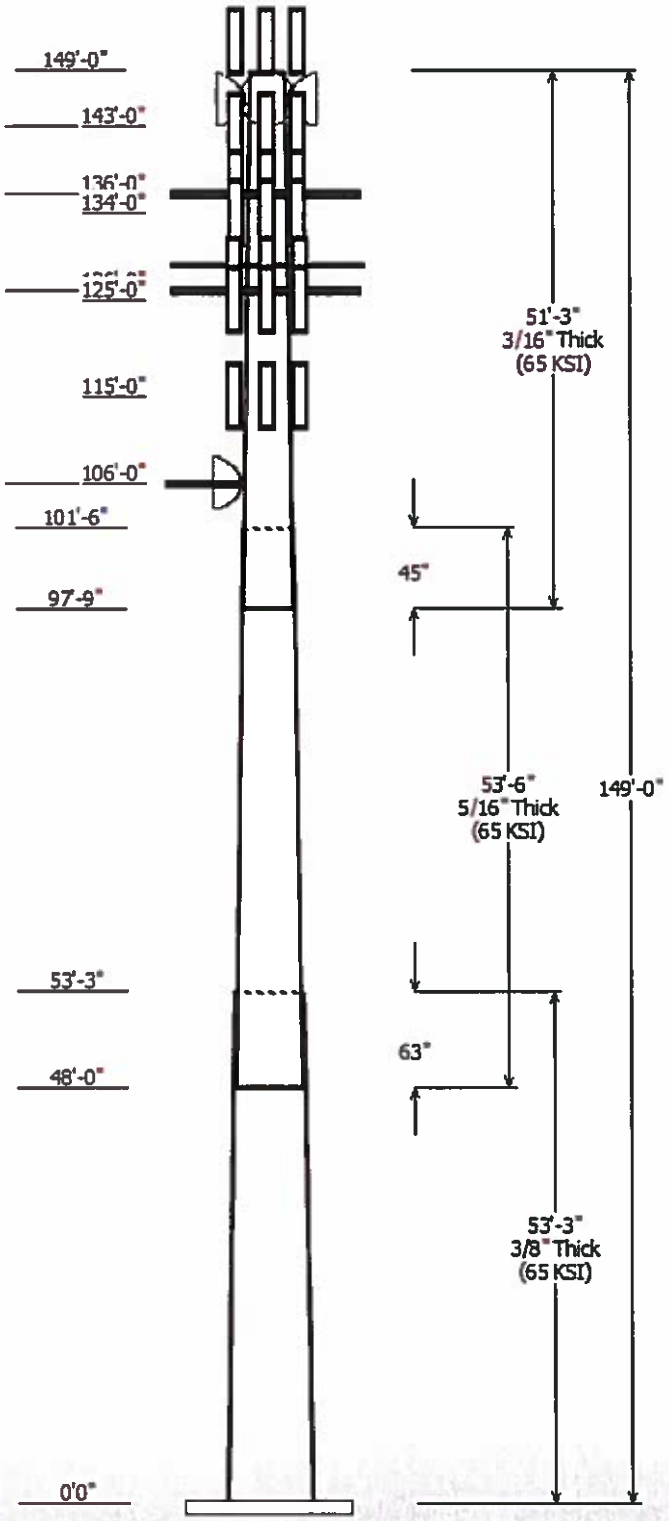
Shaft Section	Length (ft)	Diameter (in) Accross Flats Top	Bottom	Thick (in)	Joint Type	Overlap Length (in)	Shape	Steel Grade (ksi)
1	53.250	39.49	52.01	0.375		0.000	18 Sides	65
2	53.500	28.78	41.35	0.313	Slip Joint	63.000	18 Sides	65
3	51.250	18.00	30.04	0.188	Slip Joint	45.000	18 Sides	65

Discrete Appurtenance

Attach Elev (ft)	Force Elev (ft)	Qty	Description
149.000	151.000	3	RFS APXVFRR12X-C-I20
149.000	148.000	2	DragonWave A-ANT-11G-2-C
149.000	151.000	3	Nokia 2.5G MAA -
149.000	151.000	3	Alcatel-Lucent 1900 MHz 4X45
149.000	151.000	6	Alcatel-Lucent RRH2x50-08
149.000	148.000	1	DragonWave A-ANT-23G-1-C
149.000	148.000	3	DragonWave Horizon Compact
149.000	149.000	1	SitePro1 RMQP-3XX Low
143.000	143.000	1	Platform with SitePro1 HRK12-
143.000	143.000	3	RFS APXVAARR24_43-U-NA20
143.000	143.000	3	Ericsson Air 3246 B66
143.000	143.000	3	Ericsson AIR32 B66Aa/B2a
143.000	143.000	3	Ericsson Radio 4449 B12,B71
143.000	144.000	3	Ericsson KRY 112 489/1
143.000	143.000	3	Ericsson KRY 112 144/2
136.000	136.000	1	Round Low Profile Platform
134.000	134.000	6	JMA Wireless MX06FRO660-02
134.000	137.000	3	Andrew DB854DG65ESX
134.000	136.000	1	RFS DB-T1-6Z-8AB-0Z
134.000	134.000	3	Samsung B5/B13 RRH-BR04C
134.000	134.000	3	Samsung B2/B66A RRH-BR049
126.000	126.000	1	Round Platform w/ Handrails
125.000	125.000	6	Kathrein Scala 80010966
125.000	126.000	3	CCI CCI-HPA-65R-BUU-H8
125.000	125.000	3	Ericsson RRUS 4449 B5, B12
125.000	125.000	3	Ericsson 8843 Rev 2
125.000	125.000	3	Ericsson Radio 4415 B30
125.000	126.000	2	Raycap DC6-48-60-0-8F (24" Hei
125.000	125.000	1	Raycap DC6-48-60-0-8F
115.000	115.000	3	RFS APXV18-206517S-C
106.000	106.000	1	Flat Side Arm
106.000	106.000	1	Generic 3' Dish w/ Radome
106.000	106.000	1	Proxim 5054-R-LR

Linear Appurtenance

Elev (ft) From	To	Description	Exposed To Wind
4.000	106.0	0.28" (7mm) RG-6	No
4.000	115.0	1 5/8" Coax	No
4.000	125.0	0.39" (10mm)	No
4.000	125.0	0.39" (9.8mm)	No
4.000	125.0	0.78" (19.7mm) 8	No



4.000	125.0	3" conduit	No
4.000	134.0	1 5/8" (1.63"-	No
4.000	134.0	1 5/8" Coax	No
4.000	143.0	1 5/8" Coax	No
4.000	144.0	1 5/8" Coax	No
4.000	148.0	1/2" Coax	No
4.000	151.0	1.7" (43.2mm)	No
4.000	151.0	1/2" Coax	No
0.000	151.0	1 1/4" Hybriflex	No
0.000	148.0	2" conduit	No
0.000	144.0	1 1/4" Hybriflex	Yes
0.000	143.0	1 5/8" (1.63"-	No

Load Cases

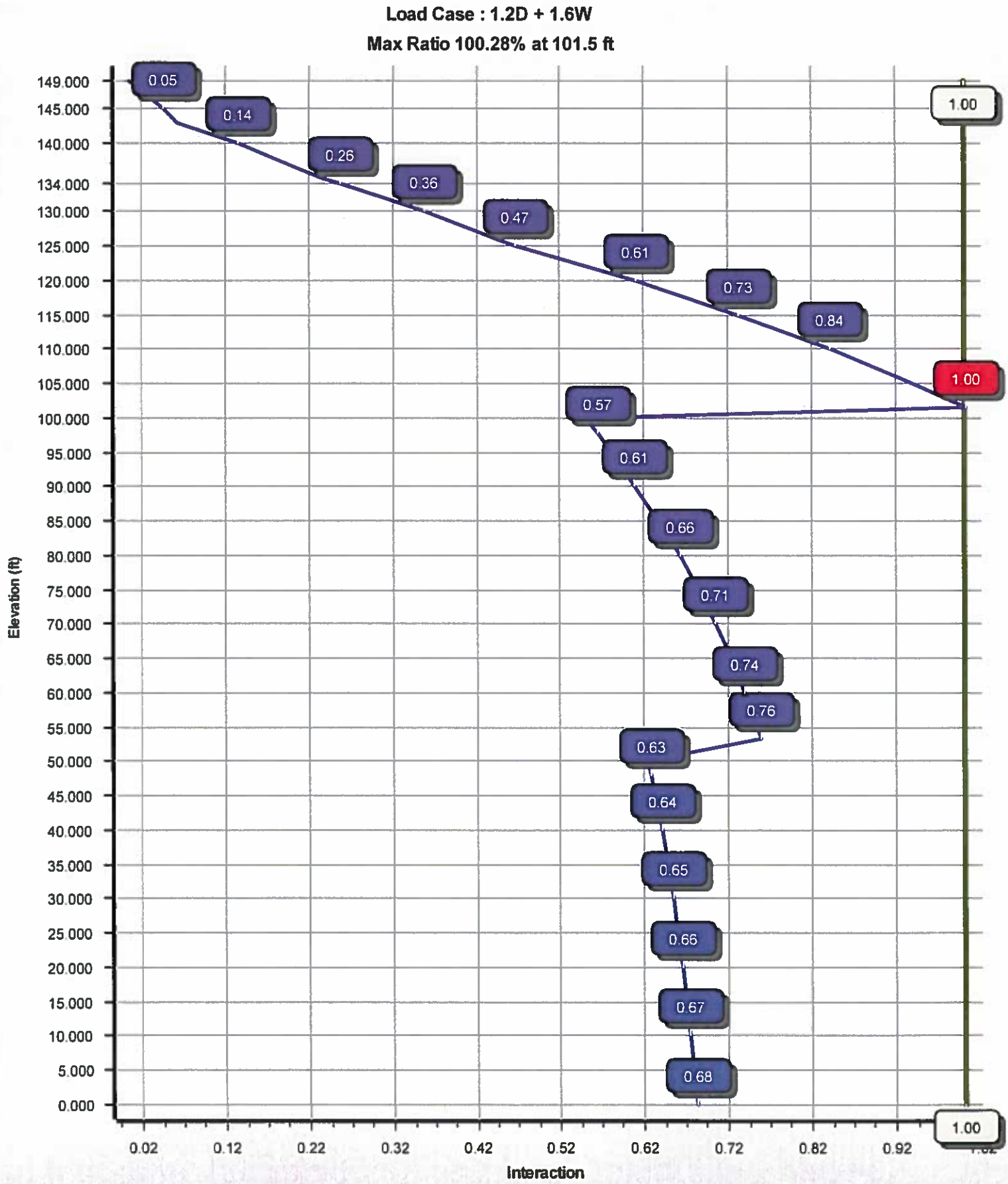
1.2D + 1.6W	97 mph with No Ice
0.9D + 1.6W	97 mph with No Ice (Reduced DL)
1.2D + 1.0Di + 1.0Wi	50 mph with 0.75 in Radial Ice
(1.2 + 0.2Sds) * DL + E	Seismic Equivalent Lateral Forces Method
(1.2 + 0.2Sds) * DL + E	Seismic Equivalent Modal Analysis Method
(0.9 - 0.2Sds) * DL + E	Seismic (Reduced DL) 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	2951.31	25.12	46.46
0.9D + 1.6W	2898.41	25.10	34.84
1.2D + 1.0Di + 1.0Wi	1184.11	11.22	76.28
(1.2 + 0.2Sds) * DL + E ELFM	155.19	1.17	46.65
(1.2 + 0.2Sds) * DL + E EMAM	322.63	2.47	46.65
(0.9 - 0.2Sds) * DL + E ELFM	151.65	1.16	32.34
(0.9 - 0.2Sds) * DL + E EMAM	314.77	2.47	32.34
1.0D + 1.0W	625.27	5.37	38.76

Dish Deflections

Load Case	Attach Elev (ft)	Deflection (in)	Rotation (deg)
1.0D + 1.0W	106.00	12.009	1.193
1.0D + 1.0W	149.00	25.519	1.654
1.0D + 1.0W	149.00	25.519	1.654


Load Case : 1.2D + 1.6W
Max Ratio 100.28% at 101.5 ft
Elevation (ft)
149.000
145.000
140.000
134.000
130.000
125.000
120.000
115.000
110.000
105.000
100.000
95.000
90.000
85.000
80.000
75.000
70.000
65.000
60.000
55.000
50.000
45.000
40.000
35.000
30.000
25.000
20.000
15.000
10.000
5.000
0.000
0.05
0.14
0.26
0.36
0.47
0.61
0.73
0.84
1.00
0.57
0.61
0.66
0.71
0.74
0.76
0.63
0.64
0.65
0.66
0.67
0.68
1.00
0.02
0.12
0.22
0.32
0.42
0.52
0.62
0.72
0.82
0.92
Interaction

Site Number: 243036 Code: ANSI/TIA-222-G

Site Name: WEST HAVEN & RT 162 CT, CT Engineering Number:12984003_C3_04 10/17/2019 10:23:36 AM

Customer: VERIZON WIRELESS

Analysis Parameters

Location :	New Haven County, CT	Height (ft) :	149
Code :	ANSI/TIA-222-G	Base Diameter (in) :	52.01
Shape :	18 Sides	Top Diameter (in) :	18.00
Pole Type :	Taper	Taper (in/ft) :	0.235
Pole Manfacturer :	Sabre	Rotation (deg) :	0.00

Ice & Wind Parameters

Structure Class:	II	Design Wind Speed Without Ice:	97 mph
Exposure Category:	B	Design Wind Speed With Ice:	50 mph
Topographic Category:	1	Operational Wind Speed:	60 mph
Crest Height:	0 ft	Design Ice Thickness:	0.75 in

Seismic Parameters

Analysis Method:	Equivalent Modal Analysis & Equivalent Lateral Force Methods				
Site Class:	D - Stiff Soil				
Period Based on Rayleigh Method (sec):	2.96				
T_L (sec):	6	p:	1	C_s:	0.030
S_s:	0.188	S_1:	0.062	C_s Max:	0.030
F_a:	1.600	F_v:	2.400	C_s Min:	0.030
S_{ds}:	0.201	S_{d1}:	0.099		

Load Cases

1.2D + 1.6W	97 mph with No Ice
0.9D + 1.6W	97 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: 243036 Code: ANSI/TIA-222-G

Site Name: WEST HAVEN & RT 162 CT, CT Engineering Number:12984003_C3_04 10/17/2019 10:23:36 AM

Customer: VERIZON WIRELESS

Shaft Section Properties

Sect Info	Length (ft)	Thick (in)	Fy (ksi)	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	53.250	0.3750	65		0.00	9,787	52.01	0.00	61.46	20701.4	22.69	138.69	39.49	53.25	46.56	9004.7	16.81	105.33	0.234964
2-18	53.500	0.3125	65	Slip	63.00	6,276	41.35	48.00	40.71	8664.4	21.57	132.34	28.78	101.50	28.24	2892.7	14.48	92.11	0.234964
3-18	51.250	0.1875	65	Slip	45.00	2,473	30.04	97.75	17.77	2000.7	26.49	160.22	18.00	149.00	10.60	424.9	15.16	96.00	0.234964
				Shaft Weight		18,536													

Discrete Appurtenance Properties

Attach Elev (ft)	Description	Qty	Ka	Vert Ecc (ft)	No Ice Weight (lb)	No Ice EPAa (sf)	No Ice Orientation Factor	Ice Weight (lb)	Ice EPAa (sf)	Ice Orientation Factor
149.00	DragonWave Horizon Compact	3	0.80	-1.000	10.60	0.720	0.50	33.09	1.288	0.50
149.00	DragonWave A-ANT-23G-1-C	1	1.00	-1.000	15.00	1.610	1.00	50.33	2.367	1.00
149.00	Alcatel-Lucent RRH2x50-08	6	0.80	2.000	52.90	1.700	0.50	112.16	2.562	0.50
149.00	Alcatel-Lucent 1900 MHz 4X45	3	0.80	2.000	60.00	2.320	0.67	140.59	3.400	0.67
149.00	Nokia 2.5G MAA - AAHC(64T64R)	3	0.80	2.000	103.60	4.200	0.64	216.34	5.540	0.64
149.00	DragonWave A-ANT-11G-2-C	2	1.00	-1.000	27.00	4.690	1.00	124.46	5.964	1.00
149.00	RFS APXVFRR12X-C-I20	3	0.80	2.000	46.00	4.990	0.71	171.02	6.857	0.71
149.00	SitePro1 RMQP-3XX Low Profile	1	1.00	0.000	1,680.00	21.700	1.00	3,084.50	40.144	1.00
143.00	Ericsson KRY 112 144/2	3	0.75	0.000	9.70	0.480	0.50	23.84	0.952	0.50
143.00	Ericsson KRY 112 489/1	3	0.75	1.000	15.40	0.560	0.50	32.92	1.084	0.50
143.00	Ericsson Radio 4449 B12,B71	3	0.75	0.000	74.00	1.640	0.50	129.77	2.481	0.50
143.00	Ericsson AIR32 B66Aa/B2a	3	0.75	0.000	132.20	6.510	0.71	291.20	8.692	0.71
143.00	Ericsson Air 3246 B66	3	0.75	0.000	180.00	7.940	0.69	2,873.87	10.199	0.69
143.00	RFS APXVAARR24_43-U-NA20	3	0.75	0.000	127.90	20.240	0.63	519.00	23.934	0.63
143.00	Platform with SitePro1 HRK12-	1	1.00	0.000	2,350.00	42.400	1.00	3,980.96	71.827	1.00
136.00	Round Low Profile Platform	1	1.00	0.000	1,500.00	21.700	1.00	2,142.65	40.744	1.00
134.00	Samsung B2/B66A RRH-BR049	3	0.80	0.000	84.40	1.880	0.50	147.51	2.775	0.50
134.00	Samsung B5/B13 RRH-BR04C	3	0.80	0.000	70.30	1.880	0.50	126.89	2.775	0.50
134.00	RFS DB-T1-6Z-8AB-0Z	1	0.80	2.000	44.00	4.800	1.00	168.52	6.206	1.00
134.00	Andrew DB854DG65ESX	3	0.80	3.000	18.50	5.250	0.65	149.40	6.230	0.65
134.00	JMA Wireless MX06FRO660-02	6	0.80	0.000	46.00	9.870	0.71	283.21	12.584	0.71
126.00	Round Platform w/ Handrails	1	1.00	0.000	2,000.00	27.200	1.00	3,275.49	51.262	1.00
125.00	Raycap DC6-48-60-0-8F	1	0.75	0.000	32.80	1.360	1.00	89.88	2.011	1.00
125.00	Raycap DC6-48-60-0-8F (24"	2	0.75	1.000	32.80	1.470	1.00	137.97	2.156	1.00
125.00	Ericsson Radio 4415 B30	3	0.75	0.000	43.00	1.650	0.50	84.39	2.484	0.50
125.00	Ericsson 8843 Rev 2	3	0.75	0.000	75.00	1.650	0.50	135.95	2.484	0.50
125.00	Ericsson RRUS 4449 B5, B12	3	0.75	0.000	71.00	1.970	0.50	134.29	2.886	0.50
125.00	CCI CCI-HPA-65R-BUU-H8	3	0.75	1.000	68.00	12.980	0.67	320.31	16.496	0.67
125.00	Kathrein Scala 80010966	6	0.75	0.000	114.60	17.360	0.63	429.91	20.982	0.63
115.00	RFS APXV18-206517S-C	3	1.00	0.000	26.40	5.160	0.68	116.61	7.463	0.68
106.00	Proxim 5054-R-LR	1	1.00	0.000	6.00	1.320	1.00	36.21	2.054	1.00
106.00	Generic 3' Dish w/ Radome	1	1.00	0.000	100.00	6.100	1.00	276.10	7.259	1.00
106.00	Flat Side Arm	1	1.00	0.000	150.00	6.300	1.00	220.76	8.678	1.00
Totals	Num Loadings:33	86			12,926.40			35,742.99		

Linear Appurtenance Properties

Load Case Azimuth (deg) : 174

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	151.00	3	1 1/4" Hybriflex Cable	1.54	1.00	N	0	0.00	0.00	0	0.00	N	CLEARWIRE
4.00	151.00	1	1.7" (43.2mm) Hybrid	1.70	1.78	N	0	0.00	0.00	0	0.00	N	CLEARWIRE
4.00	151.00	3	1/2" Coax	0.63	0.15	N	0	0.00	0.00	0	0.00	N	CLEARWIRE
0.00	148.00	1	2" conduit	2.38	3.65	N	0	0.00	0.00	0	0.00	N	CLEARWIRE
4.00	148.00	1	1/2" Coax	0.63	0.15	N	0	0.00	0.00	0	0.00	N	CLEARWIRE

0.00	144.00	2	1 1/4" Hybriflex Cable	1.54	1.00	N	2	0.00	0.00	96	0.00	Y	T-MOBILE
4.00	144.00	3	1 5/8" Coax	1.98	0.82	N	0	0.00	0.00	0	0.00	N	T-MOBILE
0.00	143.00	3	1 5/8" (1.63"-41.3mm)	1.63	1.61	N	0	0.00	0.00	0	0.00	N	T-MOBILE
4.00	143.00	12	1 5/8" Coax	1.98	0.82	N	0	0.00	0.00	0	0.00	N	T-MOBILE
4.00	134.00	1	1 5/8" (1.63"-41.3mm)	1.63	1.61	N	0	0.00	0.00	0	0.00	N	VERIZON WIRELESS
4.00	134.00	12	1 5/8" Coax	1.98	0.82	N	0	0.00	0.00	0	0.00	N	VERIZON WIRELESS
4.00	125.00	2	0.39" (10mm) Fiber	0.39	0.06	N	0	0.00	0.00	0	0.00	N	AT&T MOBILITY
4.00	125.00	2	0.39" (9.8mm) Cable	0.39	0.07	N	0	0.00	0.00	0	0.00	N	AT&T MOBILITY
4.00	125.00	4	0.78" (19.7mm) 8 AWG	0.78	0.59	N	0	0.00	0.00	0	0.00	N	AT&T MOBILITY
4.00	125.00	1	3" conduit	3.50	7.58	N	0	0.00	0.00	0	0.00	N	AT&T MOBILITY
4.00	115.00	6	1 5/8" Coax	1.98	0.82	N	0	0.00	0.00	0	0.00	N	METRO PCS INC
4.00	106.00	1	0.28" (7mm) RG-6	0.28	0.03	N	0	0.00	0.00	0	0.00	N	Other

Segment Properties (Max Len : 5.ft)

Seg Top Elev (ft)	Description	Thick (in)	Flat Dia (in)	Area (in^2)	Ix (in^4)	W/t Ratio	D/t Ratio	F'y (ksi)	S (in^3)	Z (in^3)	Weight (lb)
0.00		0.3750	52.010	61.456	20,701.4	22.69	138.69	74.7	784.0	0.0	0.0
5.00		0.3750	50.835	60.058	19,320.3	22.14	135.56	75.4	748.6	0.0	1,033.7
10.00		0.3750	49.660	58.659	18,002.0	21.59	132.43	76.0	714.0	0.0	1,009.9
15.00		0.3750	48.485	57.261	16,745.1	21.03	129.29	76.7	680.2	0.0	986.1
20.00		0.3750	47.310	55.863	15,548.1	20.48	126.16	77.3	647.3	0.0	962.3
25.00		0.3750	46.136	54.465	14,409.6	19.93	123.03	78.0	615.2	0.0	938.5
30.00		0.3750	44.961	53.066	13,328.0	19.38	119.90	78.6	583.9	0.0	914.8
35.00		0.3750	43.786	51.668	12,301.9	18.83	116.76	79.3	553.4	0.0	891.0
40.00		0.3750	42.611	50.270	11,329.9	18.27	113.63	79.9	523.7	0.0	867.2
45.00		0.3750	41.436	48.871	10,410.6	17.72	110.50	80.6	494.9	0.0	843.4
48.00	Bot - Section 2	0.3750	40.731	48.032	9,883.6	17.39	108.62	80.9	477.9	0.0	494.6
50.00		0.3750	40.261	47.473	9,542.3	17.17	107.36	81.2	466.8	0.0	600.4
53.25	Top - Section 1	0.3125	40.123	39.485	7,906.5	20.88	128.39	76.8	388.1	0.0	960.8
55.00		0.3125	39.712	39.078	7,664.0	20.64	127.08	77.1	380.1	0.0	233.9
60.00		0.3125	38.537	37.912	6,998.6	19.98	123.32	77.9	357.7	0.0	654.9
65.00		0.3125	37.362	36.747	6,373.0	19.32	119.56	78.7	336.0	0.0	635.1
70.00		0.3125	36.187	35.582	5,785.7	18.66	115.80	79.5	314.9	0.0	615.3
75.00		0.3125	35.012	34.417	5,235.7	17.99	112.04	80.2	294.5	0.0	595.5
80.00		0.3125	33.838	33.251	4,721.7	17.33	108.28	81.0	274.8	0.0	575.6
85.00		0.3125	32.663	32.086	4,242.5	16.67	104.52	81.8	255.8	0.0	555.8
90.00		0.3125	31.488	30.921	3,796.9	16.00	100.76	82.6	237.5	0.0	536.0
95.00		0.3125	30.313	29.756	3,383.6	15.34	97.00	82.6	219.9	0.0	516.2
97.75	Bot - Section 3	0.3125	29.667	29.115	3,169.7	14.98	94.93	82.6	210.4	0.0	275.4
100.0		0.3125	29.138	28.591	3,001.5	14.68	93.24	82.6	202.9	0.0	355.7
101.5	Top - Section 2	0.1875	29.161	17.242	1,828.7	25.66	155.52	71.2	123.5	0.0	233.6
105.0		0.1875	28.338	16.753	1,677.4	24.89	151.14	72.1	116.6	0.0	202.4
106.0		0.1875	28.103	16.613	1,635.7	24.67	149.89	72.4	114.6	0.0	56.8
110.0		0.1875	27.164	16.054	1,476.0	23.78	144.87	73.4	107.0	0.0	222.3
115.0		0.1875	25.989	15.354	1,291.4	22.68	138.61	74.7	97.9	0.0	267.2
120.0		0.1875	24.814	14.655	1,122.9	21.57	132.34	76.0	89.1	0.0	255.3
125.0		0.1875	23.639	13.956	969.8	20.47	126.08	77.3	80.8	0.0	243.4
126.0		0.1875	23.404	13.816	940.9	20.25	124.82	77.6	79.2	0.0	47.3
130.0		0.1875	22.464	13.257	831.2	19.36	119.81	78.6	72.9	0.0	184.2
134.0		0.1875	21.524	12.698	730.4	18.48	114.80	79.7	66.8	0.0	176.6
135.0		0.1875	21.290	12.558	706.5	18.26	113.54	79.9	65.4	0.0	43.0
136.0		0.1875	21.055	12.418	683.2	18.04	112.29	80.2	63.9	0.0	42.5
140.0		0.1875	20.115	11.859	595.0	17.15	107.28	81.2	58.3	0.0	165.2
143.0		0.1875	19.410	11.439	534.0	16.49	103.52	82.0	54.2	0.0	118.9
145.0		0.1875	18.940	11.160	495.8	16.05	101.01	82.5	51.6	0.0	76.9
149.0		0.1875	18.000	10.600	424.9	15.16	96.00	82.6	46.5	0.0	148.1
											18,536.1

Load Case: 1.2D + 1.6W — 97 mph with No Ice — 26 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

Seg Elev (ft)	Description	Shaft Forces Wind FX (lb)	Shaft Forces Dead Load (lb)	Discrete Forces Wind FX (lb)	Discrete Forces Torsion MY (lb-ft)	Discrete Forces Moment MZ (lb-ft)	Discrete Forces Dead Load (lb)	Linear Forces Wind FX (lb)	Linear Forces Dead Load (lb)	Sum of Forces Wind FX (lb)	Sum of Forces Dead Load (lb)	Sum of Forces Torsion MY (lb-ft)	Sum of Forces Moment MZ (lb)
0.00		199.3	0.0					0.0	0.0	199.3	0.0	0.0	0.0
5.00		394.1	1,240.5					0.0	130.4	394.1	1,370.9	0.0	0.0
10.00		385.0	1,211.9					0.0	328.6	385.0	1,540.5	0.0	0.0
15.00		375.9	1,183.4					0.0	328.6	375.9	1,511.9	0.0	0.0
20.00		366.8	1,154.8					0.0	328.6	366.8	1,483.4	0.0	0.0
25.00		357.7	1,126.3					0.0	328.6	357.7	1,454.8	0.0	0.0
30.00		352.7	1,097.7					0.0	328.6	352.7	1,426.3	0.0	0.0
35.00		354.8	1,069.2					0.0	328.6	354.8	1,397.7	0.0	0.0
40.00		358.7	1,040.6					0.0	328.6	358.7	1,369.2	0.0	0.0
45.00		288.5	1,012.1					0.0	328.6	288.5	1,340.6	0.0	0.0
48.00	Bot - Section 2	181.8	593.5					0.0	197.1	181.8	790.7	0.0	0.0
50.00		192.7	720.5					0.0	131.4	192.7	852.0	0.0	0.0
53.25	Top - Section 1	183.4	1,153.0					0.0	213.6	183.4	1,366.6	0.0	0.0
55.00		247.0	280.7					0.0	115.0	247.0	395.7	0.0	0.0
60.00		364.4	785.9					0.0	328.6	364.4	1,114.5	0.0	0.0
65.00		361.5	762.1					0.0	328.6	361.5	1,090.7	0.0	0.0
70.00		357.6	738.4					0.0	328.6	357.6	1,066.9	0.0	0.0
75.00		352.9	714.6					0.0	328.6	352.9	1,043.1	0.0	0.0
80.00		347.4	690.8					0.0	328.6	347.4	1,019.3	0.0	0.0
85.00		341.2	667.0					0.0	328.6	341.2	995.5	0.0	0.0
90.00		334.3	643.2					0.0	328.6	334.3	971.8	0.0	0.0
95.00		254.7	619.4					0.0	328.6	254.7	948.0	0.0	0.0
97.75	Bot - Section 3	162.4	330.5					0.0	180.7	162.4	511.2	0.0	0.0
100.00		121.4	426.9					0.0	147.9	121.4	574.7	0.0	0.0
101.50	Top - Section 2	159.4	280.3					0.0	98.6	159.4	378.9	0.0	0.0
105.00		142.5	242.9					0.0	230.0	142.5	472.9	0.0	0.0
106.00	Appurtenance(s)	155.0	68.1	555.2	0.0	0.0	307.2	0.0	65.7	710.3	441.0	0.0	0.0
110.00		274.1	266.8					0.0	262.7	274.1	529.5	0.0	0.0
115.00	Appurtenance(s)	296.0	320.6	436.0	0.0	0.0	95.0	0.0	328.4	732.0	744.0	0.0	0.0
120.00		286.1	306.3					0.0	298.9	286.1	605.2	0.0	0.0
125.00	Appurtenance(s)	168.0	292.1	3,308.2	0.0	925.7	1,868.4	0.0	298.9	3,476.1	2,459.3	0.0	0.0
126.00	Appurtenance(s)	135.2	56.7	1,156.4	0.0	0.0	2,400.0	0.0	47.5	1,291.7	2,504.2	0.0	0.0
130.00		212.0	221.1					0.0	190.1	212.0	411.2	0.0	0.0
134.00	Appurtenance(s)	129.7	212.0	2,174.2	0.0	1,403.6	1,007.5	0.0	190.1	2,304.0	1,409.6	0.0	0.0
135.00		50.8	51.6					0.0	33.8	50.8	85.4	0.0	0.0
136.00	Appurtenance(s)	124.1	51.0	943.0	0.0	0.0	1,800.0	0.0	33.8	1,067.0	1,884.8	0.0	0.0
140.00		170.5	198.3					0.0	135.2	170.5	333.4	0.0	0.0
143.00	Appurtenance(s)	118.2	142.7	4,268.6	0.0	27.8	4,761.1	0.0	101.4	4,386.8	5,005.2	0.0	0.0
145.00		136.9	92.3					0.0	27.0	136.9	119.3	0.0	0.0
149.00	Appurtenance(s)	90.3	177.7	2,514.8	0.0	1,510.8	3,272.4	0.0	38.8	2,605.1	3,488.9	0.0	0.0
								Totals:		25,241.4	46,508.8	0.00	0.00

Site Number: 243036 Code: ANSI/TIA-222-G

Site Name: WEST HAVEN & RT 162 CT, CT Engineering Number:12984003_C3_04 10/17/2019 10:23:41 AM

Customer: VERIZON WIRELESS

Load Case: 1.2D + 1.6W 97 mph with No Ice 26 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	-46.46	-25.12	0.00	-2,951.31	0.00	2,951.31	4,132.29	2,066.14	8,772.59	4,392.82	0.00	0.00	0.683
5.00	-45.01	-24.89	0.00	-2,825.70	0.00	2,825.70	4,073.39	2,036.69	8,449.37	4,230.97	0.11	-0.20	0.679
10.00	-43.38	-24.65	0.00	-2,701.27	0.00	2,701.27	4,012.85	2,006.43	8,128.58	4,070.33	0.42	-0.40	0.675
15.00	-41.78	-24.41	0.00	-2,578.03	0.00	2,578.03	3,950.68	1,975.34	7,810.43	3,911.02	0.96	-0.61	0.670
20.00	-40.21	-24.18	0.00	-2,455.97	0.00	2,455.97	3,886.87	1,943.43	7,495.19	3,753.17	1.71	-0.82	0.665
25.00	-38.67	-23.95	0.00	-2,335.07	0.00	2,335.07	3,821.43	1,910.71	7,183.08	3,596.88	2.69	-1.04	0.659
30.00	-37.16	-23.71	0.00	-2,215.33	0.00	2,215.33	3,754.35	1,877.17	6,874.35	3,442.28	3.90	-1.27	0.654
35.00	-35.67	-23.47	0.00	-2,096.76	0.00	2,096.76	3,685.64	1,842.82	6,569.23	3,289.50	5.36	-1.50	0.647
40.00	-34.22	-23.22	0.00	-1,979.41	0.00	1,979.41	3,615.29	1,807.64	6,267.96	3,138.64	7.05	-1.73	0.640
45.00	-32.81	-23.00	0.00	-1,863.32	0.00	1,863.32	3,543.30	1,771.65	5,970.78	2,989.83	9.00	-1.98	0.633
48.00	-31.98	-22.86	0.00	-1,794.33	0.00	1,794.33	3,499.33	1,749.66	5,794.53	2,901.57	10.28	-2.13	0.628
50.00	-31.08	-22.71	0.00	-1,748.62	0.00	1,748.62	3,469.68	1,734.84	5,677.92	2,843.18	11.20	-2.23	0.624
53.25	-29.67	-22.53	0.00	-1,674.83	0.00	1,674.83	2,730.90	1,365.45	4,467.29	2,236.97	12.77	-2.39	0.760
55.00	-29.21	-22.37	0.00	-1,635.40	0.00	1,635.40	2,712.29	1,356.15	4,390.67	2,198.60	13.66	-2.48	0.755
60.00	-28.00	-22.10	0.00	-1,523.56	0.00	1,523.56	2,658.02	1,329.01	4,173.50	2,089.85	16.42	-2.78	0.740
65.00	-26.82	-21.82	0.00	-1,413.07	0.00	1,413.07	2,602.11	1,301.05	3,959.12	1,982.50	19.49	-3.08	0.723
70.00	-25.66	-21.54	0.00	-1,303.95	0.00	1,303.95	2,544.56	1,272.28	3,747.77	1,876.67	22.87	-3.38	0.705
75.00	-24.52	-21.26	0.00	-1,196.24	0.00	1,196.24	2,485.39	1,242.69	3,539.70	1,772.48	26.58	-3.69	0.685
80.00	-23.41	-20.97	0.00	-1,089.95	0.00	1,089.95	2,424.57	1,212.29	3,335.13	1,670.04	30.60	-4.00	0.663
85.00	-22.33	-20.68	0.00	-985.09	0.00	985.09	2,362.12	1,181.06	3,134.31	1,569.49	34.95	-4.31	0.637
90.00	-21.28	-20.39	0.00	-881.68	0.00	881.68	2,297.27	1,148.64	2,936.51	1,470.44	39.63	-4.62	0.609
95.00	-20.27	-20.14	0.00	-779.74	0.00	779.74	2,210.70	1,105.35	2,718.30	1,361.17	44.63	-4.93	0.582
97.75	-19.72	-19.99	0.00	-724.36	0.00	724.36	2,163.09	1,081.54	2,601.88	1,302.87	47.52	-5.11	0.565
100.00	-19.12	-19.86	0.00	-679.38	0.00	679.38	2,124.13	1,062.07	2,508.52	1,256.12	49.96	-5.25	0.550
101.50	-18.70	-19.71	0.00	-649.60	0.00	649.60	1,105.19	552.59	1,317.56	659.76	51.63	-5.34	1.003
105.00	-18.20	-19.57	0.00	-580.61	0.00	580.61	1,087.53	543.77	1,259.48	630.68	55.62	-5.56	0.939
106.00	-17.75	-18.90	0.00	-561.03	0.00	561.03	1,082.34	541.17	1,242.93	622.39	56.79	-5.65	0.919
110.00	-17.12	-18.69	0.00	-485.44	0.00	485.44	1,060.92	530.46	1,177.04	589.40	61.68	-6.02	0.841
115.00	-16.33	-18.00	0.00	-392.00	0.00	392.00	1,032.68	516.34	1,095.47	548.55	68.20	-6.44	0.732
120.00	-15.66	-17.74	0.00	-302.01	0.00	302.01	1,002.79	501.40	1,014.98	508.24	75.14	-6.82	0.611
125.00	-13.59	-14.03	0.00	-212.39	0.00	212.39	971.28	485.64	935.83	468.61	82.45	-7.15	0.468
126.00	-11.24	-12.47	0.00	-198.36	0.00	198.36	964.78	482.39	920.18	460.77	83.95	-7.21	0.443
130.00	-10.82	-12.24	0.00	-148.49	0.00	148.49	938.12	469.06	858.24	429.76	90.07	-7.42	0.358
134.00	-9.71	-9.79	0.00	-98.13	0.00	98.13	910.42	455.21	797.47	399.33	96.34	-7.59	0.257
135.00	-9.62	-9.73	0.00	-88.34	0.00	88.34	903.33	451.67	782.47	391.82	97.93	-7.62	0.237
136.00	-7.89	-8.43	0.00	-78.61	0.00	78.61	896.18	448.09	767.56	384.35	99.53	-7.66	0.214
140.00	-7.57	-8.23	0.00	-44.87	0.00	44.87	866.91	433.46	708.75	354.90	105.97	-7.76	0.136
143.00	-3.20	-3.21	0.00	-20.15	0.00	20.15	844.27	422.14	665.60	333.29	110.85	-7.81	0.064
145.00	-3.10	-3.06	0.00	-13.74	0.00	13.74	828.85	414.43	637.31	319.13	114.12	-7.83	0.047
149.00	0.00	-2.61	0.00	-1.51	0.00	1.51	787.55	393.77	574.90	287.88	120.66	-7.84	0.005

Load Case: 0.9D + 1.6W — 97 mph with No Ice (Reduced DL) — 26 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

Seg Elev (ft)	Description	Shaft Forces Wind FX (lb)	Shaft Forces Dead Load (lb)	Discrete Forces Wind FX (lb)	Discrete Forces Torsion MY (lb-ft)	Discrete Forces Moment MZ (lb-ft)	Discrete Forces Dead Load (lb)	Linear Forces Wind FX (lb)	Linear Forces Dead Load (lb)	Sum of Forces Wind FX (lb)	Sum of Forces Dead Load (lb)	Sum of Forces Torsion MY (lb-ft)	Sum of Forces Moment MZ (lb)
0.00		199.3	0.0					0.0	0.0	199.3	0.0	0.0	0.0
5.00		394.1	930.3					0.0	97.8	394.1	1,028.2	0.0	0.0
10.00		385.0	908.9					0.0	246.4	385.0	1,155.3	0.0	0.0
15.00		375.9	887.5					0.0	246.4	375.9	1,133.9	0.0	0.0
20.00		366.8	866.1					0.0	246.4	366.8	1,112.5	0.0	0.0
25.00		357.7	844.7					0.0	246.4	357.7	1,091.1	0.0	0.0
30.00		352.7	823.3					0.0	246.4	352.7	1,069.7	0.0	0.0
35.00		354.8	801.9					0.0	246.4	354.8	1,048.3	0.0	0.0
40.00		358.7	780.5					0.0	246.4	358.7	1,026.9	0.0	0.0
45.00		288.5	759.0					0.0	246.4	288.5	1,005.5	0.0	0.0
48.00	Bot - Section 2	181.8	445.2					0.0	147.9	181.8	593.0	0.0	0.0
50.00		192.7	540.4					0.0	98.6	192.7	639.0	0.0	0.0
53.25	Top - Section 1	183.4	864.8					0.0	160.2	183.4	1,024.9	0.0	0.0
55.00		247.0	210.5					0.0	86.2	247.0	296.8	0.0	0.0
60.00		364.4	589.5					0.0	246.4	364.4	835.9	0.0	0.0
65.00		361.5	571.6					0.0	246.4	361.5	818.0	0.0	0.0
70.00		357.6	553.8					0.0	246.4	357.6	800.2	0.0	0.0
75.00		352.9	535.9					0.0	246.4	352.9	782.3	0.0	0.0
80.00		347.4	518.1					0.0	246.4	347.4	764.5	0.0	0.0
85.00		341.2	500.2					0.0	246.4	341.2	746.7	0.0	0.0
90.00		334.3	482.4					0.0	246.4	334.3	728.8	0.0	0.0
95.00		254.7	464.6					0.0	246.4	254.7	711.0	0.0	0.0
97.75	Bot - Section 3	162.4	247.9					0.0	135.5	162.4	383.4	0.0	0.0
100.00		121.4	320.2					0.0	110.9	121.4	431.0	0.0	0.0
101.50	Top - Section 2	159.4	210.2					0.0	73.9	159.4	284.1	0.0	0.0
105.00		142.5	182.2					0.0	172.5	142.5	354.7	0.0	0.0
106.00	Appurtenance(s)	155.0	51.1	555.2	0.0	0.0	230.4	0.0	49.3	710.3	330.8	0.0	0.0
110.00		274.1	200.1					0.0	197.0	274.1	397.1	0.0	0.0
115.00	Appurtenance(s)	296.0	240.5	436.0	0.0	0.0	71.3	0.0	246.3	732.0	558.0	0.0	0.0
120.00		286.1	229.8					0.0	224.1	286.1	453.9	0.0	0.0
125.00	Appurtenance(s)	168.0	219.1	3,308.2	0.0	925.7	1,401.3	0.0	224.1	3,476.1	1,844.5	0.0	0.0
126.00	Appurtenance(s)	135.2	42.5	1,156.4	0.0	0.0	1,800.0	0.0	35.6	1,291.7	1,878.2	0.0	0.0
130.00		212.0	165.8					0.0	142.6	212.0	308.4	0.0	0.0
134.00	Appurtenance(s)	129.7	159.0	2,174.2	0.0	1,403.6	755.6	0.0	142.6	2,304.0	1,057.2	0.0	0.0
135.00		50.8	38.7					0.0	25.3	50.8	64.0	0.0	0.0
136.00	Appurtenance(s)	124.1	38.2	943.0	0.0	0.0	1,350.0	0.0	25.3	1,067.0	1,413.6	0.0	0.0
140.00		170.5	148.7					0.0	101.4	170.5	250.1	0.0	0.0
143.00	Appurtenance(s)	118.2	107.0	4,268.6	0.0	27.8	3,570.8	0.0	76.0	4,386.8	3,753.9	0.0	0.0
145.00		136.9	69.2					0.0	20.3	136.9	89.5	0.0	0.0
149.00	Appurtenance(s)	90.3	133.3	2,514.8	0.0	1,510.8	2,454.3	0.0	29.1	2,605.1	2,616.7	0.0	0.0
									Totals:	25,241.4	34,881.6	0.00	0.00

Load Case: 0.9D + 1.6W — 97 mph with No Ice (Reduced DL) — 26 Iterations

Gust Response Factor :1.10
Dead Load Factor :0.90
Wind Load Factor :1.60
Wind Importance 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	-34.84	-25.10	0.00	-2,898.41	0.00	2,898.41	4,132.29	2,066.14	8,772.59	4,392.82	0.00	0.00	0.668
5.00	-33.73	-24.82	0.00	-2,772.90	0.00	2,772.90	4,073.39	2,036.69	8,449.37	4,230.97	0.10	-0.19	0.664
10.00	-32.49	-24.55	0.00	-2,648.79	0.00	2,648.79	4,012.85	2,006.43	8,128.58	4,070.33	0.42	-0.39	0.659
15.00	-31.27	-24.27	0.00	-2,526.06	0.00	2,526.06	3,950.68	1,975.34	7,810.43	3,911.02	0.94	-0.60	0.654
20.00	-30.07	-24.00	0.00	-2,404.69	0.00	2,404.69	3,886.87	1,943.43	7,495.19	3,753.17	1.68	-0.81	0.649
25.00	-28.90	-23.74	0.00	-2,284.67	0.00	2,284.67	3,821.43	1,910.71	7,183.08	3,596.88	2.64	-1.02	0.643
30.00	-27.74	-23.47	0.00	-2,165.98	0.00	2,165.98	3,754.35	1,877.17	6,874.35	3,442.28	3.83	-1.24	0.637
35.00	-26.61	-23.20	0.00	-2,048.61	0.00	2,048.61	3,685.64	1,842.82	6,569.23	3,289.50	5.25	-1.47	0.630
40.00	-25.50	-22.92	0.00	-1,932.62	0.00	1,932.62	3,615.29	1,807.64	6,267.96	3,138.64	6.91	-1.70	0.623
45.00	-24.43	-22.68	0.00	-1,818.04	0.00	1,818.04	3,543.30	1,771.65	5,970.78	2,989.83	8.81	-1.93	0.615
48.00	-23.80	-22.53	0.00	-1,750.00	0.00	1,750.00	3,499.33	1,749.66	5,794.53	2,901.57	10.08	-2.08	0.610
50.00	-23.11	-22.36	0.00	-1,704.95	0.00	1,704.95	3,469.68	1,734.84	5,677.92	2,843.18	10.97	-2.18	0.606
53.25	-22.05	-22.19	0.00	-1,632.28	0.00	1,632.28	2,730.90	1,365.45	4,467.29	2,236.97	12.51	-2.34	0.738
55.00	-21.69	-22.00	0.00	-1,593.45	0.00	1,593.45	2,712.29	1,356.15	4,390.67	2,198.60	13.38	-2.43	0.733
60.00	-20.76	-21.70	0.00	-1,483.45	0.00	1,483.45	2,658.02	1,329.01	4,173.50	2,089.85	16.08	-2.72	0.718
65.00	-19.85	-21.40	0.00	-1,374.94	0.00	1,374.94	2,602.11	1,301.05	3,959.12	1,982.50	19.08	-3.01	0.701
70.00	-18.97	-21.10	0.00	-1,267.93	0.00	1,267.93	2,544.56	1,272.28	3,747.77	1,876.67	22.38	-3.30	0.683
75.00	-18.10	-20.80	0.00	-1,162.43	0.00	1,162.43	2,485.39	1,242.69	3,539.70	1,772.48	26.00	-3.60	0.663
80.00	-17.25	-20.49	0.00	-1,058.45	0.00	1,058.45	2,424.57	1,212.29	3,335.13	1,670.04	29.93	-3.90	0.641
85.00	-16.42	-20.18	0.00	-956.00	0.00	956.00	2,362.12	1,181.06	3,134.31	1,569.49	34.17	-4.20	0.616
90.00	-15.62	-19.88	0.00	-855.08	0.00	855.08	2,297.27	1,148.64	2,936.51	1,470.44	38.74	-4.51	0.589
95.00	-14.85	-19.63	0.00	-755.69	0.00	755.69	2,210.70	1,105.35	2,718.30	1,361.17	43.62	-4.81	0.562
97.75	-14.43	-19.47	0.00	-701.71	0.00	701.71	2,163.09	1,081.54	2,601.88	1,302.87	46.43	-4.98	0.546
100.00	-13.97	-19.34	0.00	-657.90	0.00	657.90	2,124.13	1,062.07	2,508.52	1,256.12	48.81	-5.12	0.531
101.50	-13.65	-19.19	0.00	-628.89	0.00	628.89	1,105.19	552.59	1,317.56	659.76	50.43	-5.21	0.967
105.00	-13.26	-19.05	0.00	-561.72	0.00	561.72	1,087.53	543.77	1,259.48	630.68	54.32	-5.41	0.904
106.00	-12.93	-18.36	0.00	-542.67	0.00	542.67	1,082.34	541.17	1,242.93	622.39	55.46	-5.51	0.885
110.00	-12.44	-18.14	0.00	-469.21	0.00	469.21	1,060.92	530.46	1,177.04	589.40	60.22	-5.86	0.809
115.00	-11.84	-17.43	0.00	-378.53	0.00	378.53	1,032.68	516.34	1,095.47	548.55	66.57	-6.27	0.703
120.00	-11.32	-17.16	0.00	-291.38	0.00	291.38	1,002.79	501.40	1,014.98	508.24	73.32	-6.64	0.586
125.00	-9.86	-13.52	0.00	-204.64	0.00	204.64	971.28	485.64	935.83	468.61	80.43	-6.95	0.448
126.00	-8.13	-12.03	0.00	-191.12	0.00	191.12	964.78	482.39	920.18	460.77	81.89	-7.01	0.424
130.00	-7.81	-11.81	0.00	-142.99	0.00	142.99	938.12	469.06	858.24	429.76	87.84	-7.21	0.342
134.00	-7.04	-9.40	0.00	-94.35	0.00	94.35	910.42	455.21	797.47	399.33	93.94	-7.37	0.244
135.00	-6.97	-9.35	0.00	-84.95	0.00	84.95	903.33	451.67	782.47	391.82	95.48	-7.41	0.225
136.00	-5.70	-8.11	0.00	-75.60	0.00	75.60	896.18	448.09	767.56	384.35	97.04	-7.44	0.203
140.00	-5.46	-7.92	0.00	-43.16	0.00	43.16	866.91	433.46	708.75	354.90	103.30	-7.54	0.128
143.00	-2.32	-3.08	0.00	-19.38	0.00	19.38	844.27	422.14	665.60	333.29	108.04	-7.58	0.061
145.00	-2.25	-2.93	0.00	-13.23	0.00	13.23	828.85	414.43	637.31	319.13	111.21	-7.60	0.044
149.00	0.00	-2.61	0.00	-1.51	0.00	1.51	787.55	393.77	574.90	287.88	117.57	-7.62	0.005

Load Case: 1.2D + 1.0Di + 1.0Wi — 50 mph with 0.75 in Radial Ice — 26 Iterations

Gust Response Factor :1.10 | Ice Dead Load Factor :1.00 | Wind Importance Factor :1.00
Dead Load Factor :1.20 | Ice Importance Factor :1.00
Wind Load Factor :1.00

Applied Segment Forces Summary

Seg Elev (ft)	Description	Shaft Forces Wind FX (lb)	Shaft Forces Dead Load (lb)	Discrete Forces Wind FX (lb)	Discrete Forces Torsion MY (lb-ft)	Discrete Forces Moment MZ (lb-ft)	Discrete Forces Dead Load (lb)	Linear Forces Wind FX (lb)	Linear Forces Dead Load (lb)	Sum of Forces Wind FX (lb)	Sum of Forces Dead Load (lb)	Sum of Forces Torsion MY (lb-ft)	Sum of Forces Moment MZ (lb)
0.00		63.8	0.0					0.0	0.0	63.8	0.0	0.0	0.0
5.00		126.6	1,617.9					164.1	151.5	290.6	1,769.4	0.0	0.0
10.00		124.3	1,624.7					161.4	352.5	285.6	1,977.3	0.0	0.0
15.00		121.7	1,608.4					158.3	354.0	280.0	1,962.4	0.0	0.0
20.00		119.1	1,584.4					155.1	355.1	274.2	1,939.5	0.0	0.0
25.00		116.5	1,556.5					151.8	355.9	268.3	1,912.4	0.0	0.0
30.00		115.2	1,526.1					148.5	356.6	263.6	1,882.7	0.0	0.0
35.00		116.2	1,494.0					148.6	357.2	264.7	1,851.2	0.0	0.0
40.00		117.8	1,460.6					151.2	357.7	269.0	1,818.3	0.0	0.0
45.00		94.9	1,426.2					153.0	358.2	247.9	1,784.3	0.0	0.0
48.00	Bot - Section 2	59.9	840.2					92.3	215.1	152.2	1,055.3	0.0	0.0
50.00		63.6	886.5					61.7	143.5	125.2	1,030.0	0.0	0.0
53.25	Top - Section 1	60.6	1,419.2					100.4	233.3	161.0	1,652.5	0.0	0.0
55.00		81.7	423.3					54.9	125.7	136.6	549.0	0.0	0.0
60.00		120.8	1,184.4					156.7	359.3	277.5	1,543.7	0.0	0.0
65.00		120.2	1,152.3					156.3	359.6	276.5	1,511.9	0.0	0.0
70.00		119.3	1,119.8					155.5	359.9	274.7	1,479.7	0.0	0.0
75.00		118.1	1,086.9					154.2	360.2	272.3	1,447.1	0.0	0.0
80.00		116.7	1,053.7					152.7	360.5	269.4	1,414.2	0.0	0.0
85.00		115.0	1,020.2					150.9	360.7	265.9	1,380.9	0.0	0.0
90.00		113.1	986.4					148.8	361.0	261.9	1,347.4	0.0	0.0
95.00		86.5	952.4					146.4	361.2	232.9	1,313.6	0.0	0.0
97.75	Bot - Section 3	55.3	510.7					79.4	198.8	134.7	709.5	0.0	0.0
100.00		41.4	574.0					64.4	162.7	105.7	736.6	0.0	0.0
101.50	Top - Section 2	54.5	377.4					42.6	108.5	97.1	485.9	0.0	0.0
105.00		48.7	464.1					99.5	253.2	148.2	717.3	0.0	0.0
106.00	Appurtenance(s)	53.2	131.0	120.9	0.0	0.0	493.0	28.2	72.4	202.3	696.4	0.0	0.0
110.00		94.4	510.8					111.4	289.3	205.8	800.2	0.0	0.0
115.00	Appurtenance(s)	102.4	614.5	104.7	0.0	0.0	285.5	136.4	361.9	343.5	1,261.9	0.0	0.0
120.00		99.6	589.1					133.0	332.5	232.6	921.6	0.0	0.0
125.00	Appurtenance(s)	58.7	563.5	690.3	0.0	198.4	4,295.4	129.4	332.7	878.4	5,191.6	0.0	0.0
126.00	Appurtenance(s)	47.5	110.6	361.9	0.0	0.0	3,275.5	25.4	54.3	434.9	3,440.4	0.0	0.0
130.00		74.8	429.1					100.2	217.4	175.0	646.5	0.0	0.0
134.00	Appurtenance(s)	46.0	412.6	462.1	0.0	282.5	2,753.6	97.7	217.5	605.8	3,383.6	0.0	0.0
135.00		18.1	101.3					24.0	40.6	42.1	141.9	0.0	0.0
136.00	Appurtenance(s)	44.3	100.3	294.0	0.0	0.0	2,142.7	23.9	40.6	362.2	2,283.6	0.0	0.0
140.00		61.1	387.6					93.9	162.7	154.9	550.2	0.0	0.0
143.00	Appurtenance(s)	42.6	280.5	1,028.9	0.0	8.9	15,201.1	68.6	122.1	1,140.2	15,603.6	0.0	0.0
145.00		49.6	182.3					22.5	33.9	72.1	216.2	0.0	0.0
149.00	Appurtenance(s)	32.8	349.9	651.0	0.0	355.9	5,487.8	0.0	38.8	683.8	5,876.5	0.0	0.0
								Totals:		11,233.2	76,286.3	0.00	0.00

Load Case: 1.2D + 1.0Di + 1.0Wi 50 mph with 0.75 in Radial Ice 26 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	-76.28	-11.22	0.00	-1,184.11	0.00	1,184.11	4,132.29	2,066.14	8,772.59	4,392.82	0.00	0.00	0.288
5.00	-74.49	-11.04	0.00	-1,127.99	0.00	1,127.99	4,073.39	2,036.69	8,449.37	4,230.97	0.04	-0.08	0.285
10.00	-72.50	-10.85	0.00	-1,072.82	0.00	1,072.82	4,012.85	2,006.43	8,128.58	4,070.33	0.17	-0.16	0.282
15.00	-70.52	-10.67	0.00	-1,018.57	0.00	1,018.57	3,950.68	1,975.34	7,810.43	3,911.02	0.38	-0.24	0.278
20.00	-68.57	-10.48	0.00	-965.25	0.00	965.25	3,886.87	1,943.43	7,495.19	3,753.17	0.68	-0.33	0.275
25.00	-66.64	-10.30	0.00	-912.83	0.00	912.83	3,821.43	1,910.71	7,183.08	3,596.88	1.07	-0.41	0.271
30.00	-64.75	-10.12	0.00	-861.32	0.00	861.32	3,754.35	1,877.17	6,874.35	3,442.28	1.55	-0.50	0.267
35.00	-62.88	-9.94	0.00	-810.70	0.00	810.70	3,685.64	1,842.82	6,569.23	3,289.50	2.12	-0.59	0.264
40.00	-61.05	-9.75	0.00	-760.99	0.00	760.99	3,615.29	1,807.64	6,267.96	3,138.64	2.79	-0.68	0.259
45.00	-59.26	-9.56	0.00	-712.24	0.00	712.24	3,543.30	1,771.65	5,970.78	2,989.83	3.55	-0.77	0.255
48.00	-58.20	-9.44	0.00	-683.58	0.00	683.58	3,499.33	1,749.66	5,794.53	2,901.57	4.06	-0.83	0.252
50.00	-57.16	-9.35	0.00	-664.70	0.00	664.70	3,469.68	1,734.84	5,677.92	2,843.18	4.41	-0.87	0.250
53.25	-55.51	-9.21	0.00	-634.32	0.00	634.32	2,730.90	1,365.45	4,467.29	2,236.97	5.03	-0.93	0.304
55.00	-54.95	-9.13	0.00	-618.20	0.00	618.20	2,712.29	1,356.15	4,390.67	2,198.60	5.38	-0.97	0.301
60.00	-53.39	-8.93	0.00	-572.54	0.00	572.54	2,658.02	1,329.01	4,173.50	2,089.85	6.45	-1.08	0.294
65.00	-51.87	-8.73	0.00	-527.88	0.00	527.88	2,602.11	1,301.05	3,959.12	1,982.50	7.64	-1.19	0.286
70.00	-50.38	-8.52	0.00	-484.25	0.00	484.25	2,544.56	1,272.28	3,747.77	1,876.67	8.94	-1.30	0.278
75.00	-48.92	-8.31	0.00	-441.65	0.00	441.65	2,485.39	1,242.69	3,539.70	1,772.48	10.37	-1.42	0.269
80.00	-47.50	-8.10	0.00	-400.09	0.00	400.09	2,424.57	1,212.29	3,335.13	1,670.04	11.91	-1.53	0.259
85.00	-46.11	-7.89	0.00	-359.59	0.00	359.59	2,362.12	1,181.06	3,134.31	1,569.49	13.58	-1.64	0.249
90.00	-44.76	-7.68	0.00	-320.15	0.00	320.15	2,297.27	1,148.64	2,936.51	1,470.44	15.36	-1.76	0.237
95.00	-43.44	-7.47	0.00	-281.78	0.00	281.78	2,210.70	1,105.35	2,718.30	1,361.17	17.26	-1.87	0.227
97.75	-42.73	-7.35	0.00	-261.25	0.00	261.25	2,163.09	1,081.54	2,601.88	1,302.87	18.36	-1.93	0.220
100.00	-41.99	-7.25	0.00	-244.71	0.00	244.71	2,124.13	1,062.07	2,508.52	1,256.12	19.28	-1.99	0.215
101.50	-41.50	-7.18	0.00	-233.83	0.00	233.83	1,105.19	552.59	1,317.56	659.76	19.91	-2.02	0.392
105.00	-40.78	-7.04	0.00	-208.71	0.00	208.71	1,087.53	543.77	1,259.48	630.68	21.42	-2.10	0.369
106.00	-40.08	-6.87	0.00	-201.67	0.00	201.67	1,082.34	541.17	1,242.93	622.39	21.87	-2.13	0.361
110.00	-39.28	-6.74	0.00	-174.18	0.00	174.18	1,060.92	530.46	1,177.04	589.40	23.71	-2.26	0.333
115.00	-38.01	-6.44	0.00	-140.50	0.00	140.50	1,032.68	516.34	1,095.47	548.55	26.16	-2.41	0.293
120.00	-37.09	-6.25	0.00	-108.32	0.00	108.32	1,002.79	501.40	1,014.98	508.24	28.76	-2.55	0.250
125.00	-31.94	-5.17	0.00	-76.89	0.00	76.89	971.28	485.64	935.83	468.61	31.50	-2.67	0.197
126.00	-28.52	-4.60	0.00	-71.72	0.00	71.72	964.78	482.39	920.18	460.77	32.06	-2.69	0.185
130.00	-27.87	-4.43	0.00	-53.33	0.00	53.33	938.12	469.06	858.24	429.76	34.34	-2.76	0.154
134.00	-24.52	-3.67	0.00	-35.34	0.00	35.34	910.42	455.21	797.47	399.33	36.69	-2.83	0.115
135.00	-24.38	-3.63	0.00	-31.67	0.00	31.67	903.33	451.67	782.47	391.82	37.28	-2.84	0.108
136.00	-22.12	-3.16	0.00	-28.04	0.00	28.04	896.18	448.09	767.56	384.35	37.88	-2.85	0.098
140.00	-21.57	-2.99	0.00	-15.39	0.00	15.39	866.91	433.46	708.75	354.90	40.28	-2.89	0.068
143.00	-6.05	-1.06	0.00	-6.41	0.00	6.41	844.27	422.14	665.60	333.29	42.10	-2.90	0.026
145.00	-5.83	-0.98	0.00	-4.28	0.00	4.28	828.85	414.43	637.31	319.13	43.32	-2.91	0.020
149.00	0.00	-0.68	0.00	-0.36	0.00	0.36	787.55	393.77	574.90	287.88	45.75	-2.91	0.001

Load Case: 1.0D + 1.0W | Serviceability 60 mph | 25 Iterations

Gust Response Factor :1.10 | Wind Importance Factor :1.00
Dead Load Factor :1.00
Wind Load Factor :1.00

Applied Segment Forces Summary

Seg Elev (ft)	Description	Shaft Forces Wind FX (lb)	Shaft Forces Dead Load (lb)	Discrete Forces Wind FX (lb)	Discrete Forces Torsion MY (lb-ft)	Discrete Forces Moment MZ (lb-ft)	Discrete Forces Dead Load (lb)	Linear Forces Wind FX (lb)	Linear Forces Dead Load (lb)	Sum of Forces Wind FX (lb)	Sum of Forces Dead Load (lb)	Sum of Forces Torsion MY (lb-ft)	Sum of Forces Moment MZ (lb)
0.00		42.7	0.0					0.0	0.0	42.7	0.0	0.0	0.0
5.00		84.3	1,033.7					0.0	108.7	84.3	1,142.4	0.0	0.0
10.00		82.4	1,009.9					0.0	273.8	82.4	1,283.7	0.0	0.0
15.00		80.4	986.1					0.0	273.8	80.4	1,259.9	0.0	0.0
20.00		78.5	962.3					0.0	273.8	78.5	1,236.1	0.0	0.0
25.00		76.5	938.5					0.0	273.8	76.5	1,212.3	0.0	0.0
30.00		75.5	914.8					0.0	273.8	75.5	1,188.6	0.0	0.0
35.00		75.9	891.0					0.0	273.8	75.9	1,164.8	0.0	0.0
40.00		76.8	867.2					0.0	273.8	76.8	1,141.0	0.0	0.0
45.00		61.7	843.4					0.0	273.8	61.7	1,117.2	0.0	0.0
48.00	Bot - Section 2	38.9	494.6					0.0	164.3	38.9	658.9	0.0	0.0
50.00		41.2	600.4					0.0	109.5	41.2	710.0	0.0	0.0
53.25	Top - Section 1	39.2	960.8					0.0	178.0	39.2	1,138.8	0.0	0.0
55.00		52.8	233.9					0.0	95.8	52.8	329.7	0.0	0.0
60.00		78.0	654.9					0.0	273.8	78.0	928.7	0.0	0.0
65.00		77.3	635.1					0.0	273.8	77.3	908.9	0.0	0.0
70.00		76.5	615.3					0.0	273.8	76.5	889.1	0.0	0.0
75.00		75.5	595.5					0.0	273.8	75.5	869.3	0.0	0.0
80.00		74.3	575.6					0.0	273.8	74.3	849.4	0.0	0.0
85.00		73.0	555.8					0.0	273.8	73.0	829.6	0.0	0.0
90.00		71.5	536.0					0.0	273.8	71.5	809.8	0.0	0.0
95.00		54.5	516.2					0.0	273.8	54.5	790.0	0.0	0.0
97.75	Bot - Section 3	34.8	275.4					0.0	150.6	34.8	426.0	0.0	0.0
100.00		26.0	355.7					0.0	123.2	26.0	478.9	0.0	0.0
101.50	Top - Section 2	34.1	233.6					0.0	82.1	34.1	315.7	0.0	0.0
105.00		30.5	202.4					0.0	191.7	30.5	394.1	0.0	0.0
106.00	Appurtenance(s)	33.2	56.8	118.8	0.0	0.0	256.0	0.0	54.8	152.0	367.5	0.0	0.0
110.00		58.6	222.3					0.0	218.9	58.6	441.2	0.0	0.0
115.00	Appurtenance(s)	63.3	267.2	93.3	0.0	0.0	79.2	0.0	273.7	156.6	620.0	0.0	0.0
120.00		61.2	255.3					0.0	249.1	61.2	504.3	0.0	0.0
125.00	Appurtenance(s)	35.9	243.4	707.8	0.0	198.1	1,557.0	0.0	249.1	743.8	2,049.4	0.0	0.0
126.00	Appurtenance(s)	28.9	47.3	247.4	0.0	0.0	2,000.0	0.0	39.6	276.4	2,086.9	0.0	0.0
130.00		45.4	184.2					0.0	158.4	45.4	342.7	0.0	0.0
134.00	Appurtenance(s)	27.8	176.6	465.2	0.0	300.3	839.6	0.0	158.4	493.0	1,174.7	0.0	0.0
135.00		10.9	43.0					0.0	28.2	10.9	71.1	0.0	0.0
136.00	Appurtenance(s)	26.5	42.5	201.8	0.0	0.0	1,500.0	0.0	28.2	228.3	1,570.7	0.0	0.0
140.00		36.5	165.2					0.0	112.6	36.5	277.9	0.0	0.0
143.00	Appurtenance(s)	25.3	118.9	913.3	0.0	6.0	3,967.6	0.0	84.5	938.6	4,171.0	0.0	0.0
145.00		29.3	76.9					0.0	22.5	29.3	99.4	0.0	0.0
149.00	Appurtenance(s)	19.3	148.1	538.1	0.0	323.2	2,727.0	0.0	32.3	557.4	2,907.4	0.0	0.0
									Totals:	5,400.68	38,757.3	0.00	0.00

Load Case: 1.0D + 1.0W Serviceability 60 mph 25 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	-38.76	-5.37	0.00	-625.27	0.00	625.27	4,132.29	2,066.14	8,772.59	4,392.82	0.00	0.00	0.152
5.00	-37.61	-5.32	0.00	-598.41	0.00	598.41	4,073.39	2,036.69	8,449.37	4,230.97	0.02	-0.04	0.151
10.00	-36.32	-5.26	0.00	-571.83	0.00	571.83	4,012.85	2,006.43	8,128.58	4,070.33	0.09	-0.09	0.150
15.00	-35.06	-5.20	0.00	-545.53	0.00	545.53	3,950.68	1,975.34	7,810.43	3,911.02	0.20	-0.13	0.148
20.00	-33.82	-5.15	0.00	-519.51	0.00	519.51	3,886.87	1,943.43	7,495.19	3,753.17	0.36	-0.17	0.147
25.00	-32.60	-5.10	0.00	-493.77	0.00	493.77	3,821.43	1,910.71	7,183.08	3,596.88	0.57	-0.22	0.146
30.00	-31.41	-5.04	0.00	-468.30	0.00	468.30	3,754.35	1,877.17	6,874.35	3,442.28	0.83	-0.27	0.144
35.00	-30.24	-4.98	0.00	-443.09	0.00	443.09	3,685.64	1,842.82	6,569.23	3,289.50	1.13	-0.32	0.143
40.00	-29.10	-4.93	0.00	-418.17	0.00	418.17	3,615.29	1,807.64	6,267.96	3,138.64	1.49	-0.37	0.141
45.00	-27.98	-4.88	0.00	-393.53	0.00	393.53	3,543.30	1,771.65	5,970.78	2,989.83	1.90	-0.42	0.140
48.00	-27.31	-4.85	0.00	-378.90	0.00	378.90	3,499.33	1,749.66	5,794.53	2,901.57	2.18	-0.45	0.138
50.00	-26.60	-4.81	0.00	-369.21	0.00	369.21	3,469.68	1,734.84	5,677.92	2,843.18	2.37	-0.47	0.138
53.25	-25.46	-4.78	0.00	-353.57	0.00	353.57	2,730.90	1,365.45	4,467.29	2,236.97	2.70	-0.51	0.167
55.00	-25.13	-4.74	0.00	-345.21	0.00	345.21	2,712.29	1,356.15	4,390.67	2,198.60	2.89	-0.53	0.166
60.00	-24.20	-4.68	0.00	-321.52	0.00	321.52	2,658.02	1,329.01	4,173.50	2,089.85	3.47	-0.59	0.163
65.00	-23.28	-4.62	0.00	-298.13	0.00	298.13	2,602.11	1,301.05	3,959.12	1,982.50	4.12	-0.65	0.159
70.00	-22.39	-4.55	0.00	-275.05	0.00	275.05	2,544.56	1,272.28	3,747.77	1,876.67	4.84	-0.71	0.155
75.00	-21.52	-4.49	0.00	-252.28	0.00	252.28	2,485.39	1,242.69	3,539.70	1,772.48	5.62	-0.78	0.151
80.00	-20.66	-4.43	0.00	-229.82	0.00	229.82	2,424.57	1,212.29	3,335.13	1,670.04	6.47	-0.84	0.146
85.00	-19.83	-4.37	0.00	-207.68	0.00	207.68	2,362.12	1,181.06	3,134.31	1,569.49	7.39	-0.91	0.141
90.00	-19.02	-4.30	0.00	-185.85	0.00	185.85	2,297.27	1,148.64	2,936.51	1,470.44	8.38	-0.98	0.135
95.00	-18.22	-4.25	0.00	-164.33	0.00	164.33	2,210.70	1,105.35	2,718.30	1,361.17	9.44	-1.04	0.129
97.75	-17.80	-4.22	0.00	-152.64	0.00	152.64	2,163.09	1,081.54	2,601.88	1,302.87	10.05	-1.08	0.125
100.00	-17.32	-4.19	0.00	-143.15	0.00	143.15	2,124.13	1,062.07	2,508.52	1,256.12	10.57	-1.11	0.122
101.50	-17.00	-4.16	0.00	-136.86	0.00	136.86	1,105.19	552.59	1,317.56	659.76	10.92	-1.13	0.223
105.00	-16.60	-4.13	0.00	-122.30	0.00	122.30	1,087.53	543.77	1,259.48	630.68	11.76	-1.17	0.209
106.00	-16.23	-3.99	0.00	-118.17	0.00	118.17	1,082.34	541.17	1,242.93	622.39	12.01	-1.19	0.205
110.00	-15.79	-3.94	0.00	-102.23	0.00	102.23	1,060.92	530.46	1,177.04	589.40	13.04	-1.27	0.188
115.00	-15.17	-3.79	0.00	-82.52	0.00	82.52	1,032.68	516.34	1,095.47	548.55	14.42	-1.36	0.165
120.00	-14.66	-3.74	0.00	-63.56	0.00	63.56	1,002.79	501.40	1,014.98	508.24	15.89	-1.44	0.140
125.00	-12.63	-2.95	0.00	-44.67	0.00	44.67	971.28	485.64	935.83	468.61	17.44	-1.51	0.108
126.00	-10.55	-2.62	0.00	-41.72	0.00	41.72	964.78	482.39	920.18	460.77	17.75	-1.52	0.102
130.00	-10.20	-2.58	0.00	-31.23	0.00	31.23	938.12	469.06	858.24	429.76	19.05	-1.56	0.084
134.00	-9.04	-2.05	0.00	-20.62	0.00	20.62	910.42	455.21	797.47	399.33	20.37	-1.60	0.062
135.00	-8.97	-2.04	0.00	-18.56	0.00	18.56	903.33	451.67	782.47	391.82	20.71	-1.61	0.057
136.00	-7.41	-1.77	0.00	-16.52	0.00	16.52	896.18	448.09	767.56	384.35	21.05	-1.62	0.051
140.00	-7.13	-1.73	0.00	-9.43	0.00	9.43	866.91	433.46	708.75	354.90	22.41	-1.64	0.035
143.00	-2.99	-0.67	0.00	-4.23	0.00	4.23	844.27	422.14	665.60	333.29	23.44	-1.65	0.016
145.00	-2.89	-0.64	0.00	-2.89	0.00	2.89	828.85	414.43	637.31	319.13	24.13	-1.65	0.013
149.00	0.00	-0.56	0.00	-0.32	0.00	0.32	787.55	393.77	574.90	287.88	25.52	-1.65	0.001

Equivalent Lateral Forces Method Analysis

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

Spectral Response Acceleration for Short Period (S_s):	0.19	
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}):	0.20	
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):	2.96	
Redundancy Factor (p):	1.00	
Seismic Force Distribution Exponent (k):	2.00	
Total Unfactored Dead Load:	38.76	k
Seismic Base Shear (E):	1.16	k

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

Segment	Height Above Base (ft)	Weight (lb)	W_z (lb-ft)	C_{vx}	Horizontal Force (lb)	Vertical Force (lb)
39	147.00	180	3,898	0.010	12	224
38	144.00	99	2,062	0.006	6	123
37	141.50	203	4,072	0.011	13	252
36	138.00	278	5,292	0.014	17	345
35	135.50	71	1,297	0.003	4	88
34	134.50	71	1,287	0.003	4	88
33	132.00	335	5,838	0.016	18	416
32	128.00	343	5,615	0.015	18	425
31	125.50	87	1,368	0.004	4	108
30	122.50	492	7,390	0.020	23	611
29	117.50	504	6,963	0.019	22	625
28	112.50	541	6,845	0.018	21	671
27	108.00	441	5,147	0.014	16	547
26	105.50	112	1,241	0.003	4	138
25	103.25	394	4,201	0.011	13	489
24	100.75	316	3,205	0.009	10	392
23	98.88	479	4,682	0.013	15	594
22	96.38	426	3,957	0.011	12	528
21	92.50	790	6,759	0.018	21	980
20	87.50	810	6,200	0.017	19	1,004
19	82.50	830	5,647	0.015	18	1,029
18	77.50	849	5,102	0.014	16	1,053
17	72.50	869	4,569	0.012	14	1,078

16	67.50	889	4,051	0.011	13	1,103
15	62.50	909	3,550	0.010	11	1,127
14	57.50	929	3,071	0.008	10	1,152
13	54.13	330	966	0.003	3	409
12	51.63	1,139	3,035	0.008	9	1,412
11	49.00	710	1,705	0.005	5	880
10	46.50	659	1,425	0.004	4	817
9	42.50	1,117	2,018	0.005	6	1,385
8	37.50	1,141	1,605	0.004	5	1,415
7	32.50	1,165	1,230	0.003	4	1,444
6	27.50	1,189	899	0.002	3	1,474
5	22.50	1,212	614	0.002	2	1,503
4	17.50	1,236	379	0.001	1	1,533
3	12.50	1,260	197	0.001	1	1,562
2	7.50	1,284	72	0.000	0	1,592
1	2.50	1,142	7	0.000	0	1,417
DragonWave Horizon C	149.00	32	706	0.002	2	39
DragonWave A-ANT-23G	149.00	15	333	0.001	1	19
Alcatel-Lucent RRH2x	149.00	317	7,047	0.019	22	394
Alcatel-Lucent 1900	149.00	180	3,996	0.011	12	223
Nokia 2.5G MAA - AAH	149.00	311	6,900	0.019	22	385
DragonWave A-ANT-11G	149.00	54	1,199	0.003	4	67
RFS APXVFRR12X-C-I20	149.00	138	3,064	0.008	10	171
SitePro1 RMQP-3XX Lo	149.00	1,680	37,298	0.100	117	2,083
Ericsson KRY 112 144	143.00	29	595	0.002	2	36
Ericsson KRY 112 489	143.00	46	945	0.003	3	57
Ericsson Radio 4449	143.00	222	4,540	0.012	14	275
Ericsson AIR32 B66Aa	143.00	397	8,110	0.022	25	492
Ericsson Air 3246 B6	143.00	540	11,042	0.030	35	670
RFS APXVAARR24_43-U-	143.00	384	7,846	0.021	25	476
Platform with SitePr	143.00	2,350	48,055	0.129	150	2,914
Round Low Profile Pl	136.00	1,500	27,744	0.075	87	1,860
Samsung B2/B66A RRH-	134.00	253	4,546	0.012	14	314
Samsung B5/B13 RRH-B	134.00	211	3,787	0.010	12	262
RFS DB-T1-6Z-8AB-0Z	134.00	44	790	0.002	2	55
Andrew DB854DG65ESX	134.00	56	997	0.003	3	69
JMA Wireless MX06FRO	134.00	276	4,956	0.013	15	342
Round Platform w/ Ha	126.00	2,000	31,752	0.085	99	2,480
Raycap DC6-48-60-0-8	125.00	33	513	0.001	2	41
Raycap DC6-48-60-0-8	125.00	66	1,025	0.003	3	81
Ericsson Radio 4415	125.00	129	2,016	0.005	6	160
Ericsson 8843 Rev 2	125.00	225	3,516	0.009	11	279
Ericsson RRUS 4449 B	125.00	213	3,328	0.009	10	264
CCI CCI-HPA-65R-BUU-	125.00	204	3,188	0.009	10	253
Kathrein Scala 80010	125.00	688	10,744	0.029	34	853
RFS APXV18-206517S-C	115.00	79	1,047	0.003	3	98
Proxim 5054-R-LR	106.00	6	67	0.000	0	7
Generic 3' Dish w/ R	106.00	100	1,124	0.003	4	124
Flat Side Arm	106.00	150	1,685	0.005	5	186
		38,757	371,959	1.000	1,163	48,063

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

Segment	Height Above Base (ft)	Weight (lb)	W_z (lb-ft)	C_{vx}	Horizontal Force (lb)	Vertical Force (lb)
39	147.00	180	3,898	0.010	12	155
38	144.00	99	2,062	0.006	6	85
37	141.50	203	4,072	0.011	13	175
36	138.00	278	5,292	0.014	17	239
35	135.50	71	1,297	0.003	4	61

34	134.50	71	1,287	0.003	4	61
33	132.00	335	5,838	0.016	18	288
32	128.00	343	5,615	0.015	18	295
31	125.50	87	1,368	0.004	4	75
30	122.50	492	7,390	0.020	23	423
29	117.50	504	6,963	0.019	22	434
28	112.50	541	6,845	0.018	21	465
27	108.00	441	5,147	0.014	16	379
26	105.50	112	1,241	0.003	4	96
25	103.25	394	4,201	0.011	13	339
24	100.75	316	3,205	0.009	10	271
23	98.88	479	4,682	0.013	15	412
22	96.38	426	3,957	0.011	12	366
21	92.50	790	6,759	0.018	21	679
20	87.50	810	6,200	0.017	19	696
19	82.50	830	5,647	0.015	18	713
18	77.50	849	5,102	0.014	16	730
17	72.50	869	4,569	0.012	14	747
16	67.50	889	4,051	0.011	13	765
15	62.50	909	3,550	0.010	11	782
14	57.50	929	3,071	0.008	10	799
13	54.13	330	966	0.003	3	284
12	51.63	1,139	3,035	0.008	9	979
11	49.00	710	1,705	0.005	5	610
10	46.50	659	1,425	0.004	4	567
9	42.50	1,117	2,018	0.005	6	961
8	37.50	1,141	1,605	0.004	5	981
7	32.50	1,165	1,230	0.003	4	1,002
6	27.50	1,189	899	0.002	3	1,022
5	22.50	1,212	614	0.002	2	1,042
4	17.50	1,236	379	0.001	1	1,063
3	12.50	1,260	197	0.001	1	1,083
2	7.50	1,284	72	0.000	0	1,104
1	2.50	1,142	7	0.000	0	982
DragonWave Horizon C	149.00	32	706	0.002	2	27
DragonWave A-ANT-23G	149.00	15	333	0.001	1	13
Alcatel-Lucent RRH2x	149.00	317	7,047	0.019	22	273
Alcatel-Lucent 1900	149.00	180	3,996	0.011	12	155
Nokia 2.5G MAA - AAH	149.00	311	6,900	0.019	22	267
DragonWave A-ANT-11G	149.00	54	1,199	0.003	4	46
RFS APXVFRR12X-C-I20	149.00	138	3,064	0.008	10	119
SitePro1 RMQP-3XX Lo	149.00	1,680	37,298	0.100	117	1,445
Ericsson KRY 112 144	143.00	29	595	0.002	2	25
Ericsson KRY 112 489	143.00	46	945	0.003	3	40
Ericsson Radio 4449	143.00	222	4,540	0.012	14	191
Ericsson AIR32 B66Aa	143.00	397	8,110	0.022	25	341
Ericsson Air 3246 B6	143.00	540	11,042	0.030	35	464
RFS APXVAARR24_43-U-	143.00	384	7,846	0.021	25	330
Platform with SitePr	143.00	2,350	48,055	0.129	150	2,021
Round Low Profile Pl	136.00	1,500	27,744	0.075	87	1,290
Samsung B2/B66A RRH-	134.00	253	4,546	0.012	14	218
Samsung B5/B13 RRH-B	134.00	211	3,787	0.010	12	181
RFS DB-T1-6Z-8AB-0Z	134.00	44	790	0.002	2	38
Andrew DB854DG65ESX	134.00	56	997	0.003	3	48
JMA Wireless MX06FRO	134.00	276	4,956	0.013	15	237
Round Platform w/ Ha	126.00	2,000	31,752	0.085	99	1,720
Raycap DC6-48-60-0-8	125.00	33	513	0.001	2	28
Raycap DC6-48-60-0-8	125.00	66	1,025	0.003	3	56
Ericsson Radio 4415	125.00	129	2,016	0.005	6	111
Ericsson 8843 Rev 2	125.00	225	3,516	0.009	11	193
Ericsson RRUS 4449 B	125.00	213	3,328	0.009	10	183
CCI CCI-HPA-65R-BUU-	125.00	204	3,188	0.009	10	175
Kathrein Scala 80010	125.00	688	10,744	0.029	34	591
RFS APXV18-206517S-C	115.00	79	1,047	0.003	3	68

Proxim 5054-R-LR	106.00	6	67	0.000	0	5
Generic 3' Dish w/ R	106.00	100	1,124	0.003	4	86
Flat Side Arm	106.00	150	1,685	0.005	5	129
		38,757	371,959	1.000	1,163	33,327

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

Calculated Forces

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-46.65	-1.17	0.00	-155.19	0.00	155.19	4,132.29	2,066.14	8,772.59	4,392.82	0.00	0.00	0.047
5.00	-45.05	-1.17	0.00	-149.36	0.00	149.36	4,073.39	2,036.69	8,449.37	4,230.97	0.01	-0.01	0.046
10.00	-43.49	-1.18	0.00	-143.49	0.00	143.49	4,012.85	2,006.43	8,128.58	4,070.33	0.02	-0.02	0.046
15.00	-41.96	-1.19	0.00	-137.58	0.00	137.58	3,950.68	1,975.34	7,810.43	3,911.02	0.05	-0.03	0.046
20.00	-40.45	-1.19	0.00	-131.64	0.00	131.64	3,886.87	1,943.43	7,495.19	3,753.17	0.09	-0.04	0.045
25.00	-38.98	-1.20	0.00	-125.68	0.00	125.68	3,821.43	1,910.71	7,183.08	3,596.88	0.14	-0.06	0.045
30.00	-37.54	-1.20	0.00	-119.70	0.00	119.70	3,754.35	1,877.17	6,874.35	3,442.28	0.21	-0.07	0.045
35.00	-36.12	-1.20	0.00	-113.70	0.00	113.70	3,685.64	1,842.82	6,569.23	3,289.50	0.28	-0.08	0.044
40.00	-34.74	-1.20	0.00	-107.69	0.00	107.69	3,615.29	1,807.64	6,267.96	3,138.64	0.38	-0.09	0.044
45.00	-33.92	-1.20	0.00	-101.69	0.00	101.69	3,543.30	1,771.65	5,970.78	2,989.83	0.48	-0.11	0.044
48.00	-33.04	-1.20	0.00	-98.09	0.00	98.09	3,499.33	1,749.66	5,794.53	2,901.57	0.55	-0.11	0.043
50.00	-31.62	-1.19	0.00	-95.70	0.00	95.70	3,469.68	1,734.84	5,677.92	2,843.18	0.60	-0.12	0.043
53.25	-31.22	-1.19	0.00	-91.83	0.00	91.83	2,730.90	1,365.45	4,467.29	2,236.97	0.68	-0.13	0.052
55.00	-30.06	-1.18	0.00	-89.75	0.00	89.75	2,712.29	1,356.15	4,390.67	2,198.60	0.73	-0.13	0.052
60.00	-28.94	-1.18	0.00	-83.84	0.00	83.84	2,658.02	1,329.01	4,173.50	2,089.85	0.88	-0.15	0.051
65.00	-27.83	-1.17	0.00	-77.95	0.00	77.95	2,602.11	1,301.05	3,959.12	1,982.50	1.05	-0.17	0.050
70.00	-26.76	-1.16	0.00	-72.11	0.00	72.11	2,544.56	1,272.28	3,747.77	1,876.67	1.23	-0.18	0.049
75.00	-25.70	-1.15	0.00	-66.31	0.00	66.31	2,485.39	1,242.69	3,539.70	1,772.48	1.43	-0.20	0.048
80.00	-24.67	-1.13	0.00	-60.57	0.00	60.57	2,424.57	1,212.29	3,335.13	1,670.04	1.65	-0.22	0.046
85.00	-23.67	-1.12	0.00	-54.90	0.00	54.90	2,362.12	1,181.06	3,134.31	1,569.49	1.89	-0.23	0.045
90.00	-22.69	-1.10	0.00	-49.31	0.00	49.31	2,297.27	1,148.64	2,936.51	1,470.44	2.14	-0.25	0.043
95.00	-22.16	-1.09	0.00	-43.82	0.00	43.82	2,210.70	1,105.35	2,718.30	1,361.17	2.42	-0.27	0.042
97.75	-21.57	-1.08	0.00	-40.82	0.00	40.82	2,163.09	1,081.54	2,601.88	1,302.87	2.57	-0.28	0.041
100.00	-21.17	-1.07	0.00	-38.40	0.00	38.40	2,124.13	1,062.07	2,508.52	1,256.12	2.71	-0.29	0.041
101.50	-20.69	-1.05	0.00	-36.80	0.00	36.80	1,105.19	552.59	1,317.56	659.76	2.80	-0.29	0.074
105.00	-20.55	-1.05	0.00	-33.11	0.00	33.11	1,087.53	543.77	1,259.48	630.68	3.02	-0.30	0.071
106.00	-19.68	-1.03	0.00	-32.06	0.00	32.06	1,082.34	541.17	1,242.93	622.39	3.08	-0.31	0.070
110.00	-19.01	-1.01	0.00	-27.95	0.00	27.95	1,060.92	530.46	1,177.04	589.40	3.35	-0.33	0.065
115.00	-18.29	-0.99	0.00	-22.90	0.00	22.90	1,032.68	516.34	1,095.47	548.55	3.71	-0.36	0.059
120.00	-17.68	-0.97	0.00	-17.96	0.00	17.96	1,002.79	501.40	1,014.98	508.24	4.10	-0.38	0.053
125.00	-15.64	-0.88	0.00	-13.12	0.00	13.12	971.28	485.64	935.83	468.61	4.51	-0.40	0.044
126.00	-12.73	-0.74	0.00	-12.25	0.00	12.25	964.78	482.39	920.18	460.77	4.59	-0.40	0.040
130.00	-12.32	-0.72	0.00	-9.28	0.00	9.28	938.12	469.06	858.24	429.76	4.93	-0.41	0.035
134.00	-11.19	-0.66	0.00	-6.39	0.00	6.39	910.42	455.21	797.47	399.33	5.28	-0.43	0.028
135.00	-11.10	-0.66	0.00	-5.73	0.00	5.73	903.33	451.67	782.47	391.82	5.37	-0.43	0.027
136.00	-8.90	-0.54	0.00	-5.07	0.00	5.07	896.18	448.09	767.56	384.35	5.46	-0.43	0.023
140.00	-8.65	-0.53	0.00	-2.90	0.00	2.90	866.91	433.46	708.75	354.90	5.83	-0.44	0.018
143.00	-3.60	-0.23	0.00	-1.32	0.00	1.32	844.27	422.14	665.60	333.29	6.10	-0.44	0.008
145.00	-3.38	-0.22	0.00	-0.86	0.00	0.86	828.85	414.43	637.31	319.13	6.29	-0.44	0.007
149.00	0.00	-0.19	0.00	0.00	0.00	0.00	787.55	393.77	574.90	287.88	6.66	-0.44	0.000

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

Calculated Forces

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-32.34	-1.16	0.00	-151.65	0.00	151.65	4,132.29	2,066.14	8,772.59	4,392.82	0.00	0.00	0.042
5.00	-31.24	-1.17	0.00	-145.83	0.00	145.83	4,073.39	2,036.69	8,449.37	4,230.97	0.01	-0.01	0.042
10.00	-30.16	-1.17	0.00	-139.98	0.00	139.98	4,012.85	2,006.43	8,128.58	4,070.33	0.02	-0.02	0.042
15.00	-29.09	-1.18	0.00	-134.11	0.00	134.11	3,950.68	1,975.34	7,810.43	3,911.02	0.05	-0.03	0.042
20.00	-28.05	-1.18	0.00	-128.21	0.00	128.21	3,886.87	1,943.43	7,495.19	3,753.17	0.09	-0.04	0.041
25.00	-27.03	-1.18	0.00	-122.30	0.00	122.30	3,821.43	1,910.71	7,183.08	3,596.88	0.14	-0.05	0.041
30.00	-26.03	-1.18	0.00	-116.39	0.00	116.39	3,754.35	1,877.17	6,874.35	3,442.28	0.20	-0.07	0.041
35.00	-25.05	-1.18	0.00	-110.47	0.00	110.47	3,685.64	1,842.82	6,569.23	3,289.50	0.28	-0.08	0.040
40.00	-24.08	-1.18	0.00	-104.55	0.00	104.55	3,615.29	1,807.64	6,267.96	3,138.64	0.37	-0.09	0.040
45.00	-23.52	-1.18	0.00	-98.65	0.00	98.65	3,543.30	1,771.65	5,970.78	2,989.83	0.47	-0.10	0.040
48.00	-22.91	-1.18	0.00	-95.11	0.00	95.11	3,499.33	1,749.66	5,794.53	2,901.57	0.54	-0.11	0.039
50.00	-21.93	-1.17	0.00	-92.76	0.00	92.76	3,469.68	1,734.84	5,677.92	2,843.18	0.58	-0.12	0.039
53.25	-21.64	-1.17	0.00	-88.97	0.00	88.97	2,730.90	1,365.45	4,467.29	2,236.97	0.67	-0.13	0.048
55.00	-20.85	-1.16	0.00	-86.92	0.00	86.92	2,712.29	1,356.15	4,390.67	2,198.60	0.71	-0.13	0.047
60.00	-20.06	-1.15	0.00	-81.13	0.00	81.13	2,658.02	1,329.01	4,173.50	2,089.85	0.86	-0.15	0.046
65.00	-19.30	-1.14	0.00	-75.38	0.00	75.38	2,602.11	1,301.05	3,959.12	1,982.50	1.02	-0.16	0.045
70.00	-18.55	-1.13	0.00	-69.67	0.00	69.67	2,544.56	1,272.28	3,747.77	1,876.67	1.20	-0.18	0.044
75.00	-17.82	-1.12	0.00	-64.02	0.00	64.02	2,485.39	1,242.69	3,539.70	1,772.48	1.39	-0.19	0.043
80.00	-17.11	-1.10	0.00	-58.43	0.00	58.43	2,424.57	1,212.29	3,335.13	1,670.04	1.60	-0.21	0.042
85.00	-16.41	-1.08	0.00	-52.92	0.00	52.92	2,362.12	1,181.06	3,134.31	1,569.49	1.83	-0.23	0.041
90.00	-15.73	-1.07	0.00	-47.50	0.00	47.50	2,297.27	1,148.64	2,936.51	1,470.44	2.08	-0.24	0.039
95.00	-15.36	-1.06	0.00	-42.17	0.00	42.17	2,210.70	1,105.35	2,718.30	1,361.17	2.35	-0.26	0.038
97.75	-14.95	-1.04	0.00	-39.27	0.00	39.27	2,163.09	1,081.54	2,601.88	1,302.87	2.50	-0.27	0.037
100.00	-14.68	-1.03	0.00	-36.93	0.00	36.93	2,124.13	1,062.07	2,508.52	1,256.12	2.63	-0.28	0.036
101.50	-14.34	-1.02	0.00	-35.38	0.00	35.38	1,105.19	552.59	1,317.56	659.76	2.72	-0.28	0.067
105.00	-14.25	-1.02	0.00	-31.82	0.00	31.82	1,087.53	543.77	1,259.48	630.68	2.93	-0.30	0.064
106.00	-13.65	-0.99	0.00	-30.80	0.00	30.80	1,082.34	541.17	1,242.93	622.39	2.99	-0.30	0.062
110.00	-13.18	-0.97	0.00	-26.84	0.00	26.84	1,060.92	530.46	1,177.04	589.40	3.25	-0.32	0.058
115.00	-12.68	-0.95	0.00	-21.97	0.00	21.97	1,032.68	516.34	1,095.47	548.55	3.60	-0.34	0.052
120.00	-12.26	-0.93	0.00	-17.23	0.00	17.23	1,002.79	501.40	1,014.98	508.24	3.98	-0.37	0.046
125.00	-10.84	-0.84	0.00	-12.59	0.00	12.59	971.28	485.64	935.83	468.61	4.37	-0.38	0.038
126.00	-8.83	-0.71	0.00	-11.75	0.00	11.75	964.78	482.39	920.18	460.77	4.45	-0.39	0.035
130.00	-8.54	-0.69	0.00	-8.90	0.00	8.90	938.12	469.06	858.24	429.76	4.78	-0.40	0.030
134.00	-7.76	-0.64	0.00	-6.13	0.00	6.13	910.42	455.21	797.47	399.33	5.12	-0.41	0.024
135.00	-7.70	-0.63	0.00	-5.49	0.00	5.49	903.33	451.67	782.47	391.82	5.21	-0.41	0.023
136.00	-6.17	-0.52	0.00	-4.86	0.00	4.86	896.18	448.09	767.56	384.35	5.29	-0.42	0.020
140.00	-5.99	-0.51	0.00	-2.78	0.00	2.78	866.91	433.46	708.75	354.90	5.65	-0.42	0.015
143.00	-2.50	-0.22	0.00	-1.27	0.00	1.27	844.27	422.14	665.60	333.29	5.91	-0.42	0.007
145.00	-2.34	-0.21	0.00	-0.83	0.00	0.83	828.85	414.43	637.31	319.13	6.09	-0.43	0.005
149.00	0.00	-0.19	0.00	0.00	0.00	0.00	787.55	393.77	574.90	287.88	6.45	-0.43	0.000

Equivalent Modal Analysis Method

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

Spectral Response Acceleration for Short Period (S_s):	0.19
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}):	0.20
Desing Spectral Response Acceleration at 1.0 Second Period (S_{d1}):	0.10
Period Based on Rayleigh Method (sec):	2.96
Redundancy Factor (p):	1.00

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

Segment	Height Above Base (ft)	Weight (lb)	a	b	c	Saz	Horizontal Force (lb)	Vertical Force (lb)
39	147.00	180	1.840	1.725	1.047	0.344	41	224
38	144.00	99	1.765	1.385	0.919	0.296	20	123
37	141.50	203	1.705	1.139	0.822	0.258	35	252
36	138.00	278	1.621	0.846	0.699	0.210	39	345
35	135.50	71	1.563	0.669	0.621	0.177	8	88
34	134.50	71	1.540	0.605	0.592	0.165	8	88
33	132.00	335	1.483	0.461	0.523	0.136	30	416
32	128.00	343	1.395	0.274	0.426	0.093	21	425
31	125.50	87	1.341	0.181	0.373	0.069	4	108
30	122.50	492	1.278	0.091	0.317	0.043	14	611
29	117.50	504	1.175	-0.017	0.237	0.006	2	625
28	112.50	541	1.077	-0.082	0.173	-0.023	-8	671
27	108.00	441	0.993	-0.112	0.128	-0.043	-13	547
26	105.50	112	0.948	-0.119	0.107	-0.051	-4	138
25	103.25	394	0.908	-0.122	0.090	-0.056	-15	489
24	100.75	316	0.864	-0.120	0.074	-0.060	-13	392
23	98.88	479	0.832	-0.117	0.064	-0.062	-20	594
22	96.38	426	0.791	-0.110	0.051	-0.063	-18	528
21	92.50	790	0.728	-0.095	0.036	-0.059	-31	980
20	87.50	810	0.652	-0.071	0.021	-0.048	-26	1,004
19	82.50	830	0.579	-0.045	0.012	-0.029	-16	1,029
18	77.50	849	0.511	-0.020	0.008	-0.006	-4	1,053
17	72.50	869	0.447	0.002	0.006	0.016	9	1,078
16	67.50	889	0.388	0.022	0.007	0.035	21	1,103
15	62.50	909	0.333	0.037	0.010	0.048	29	1,127
14	57.50	929	0.281	0.049	0.014	0.056	35	1,152
13	54.13	330	0.249	0.055	0.017	0.059	13	409
12	51.63	1,139	0.227	0.059	0.020	0.060	46	1,412
11	49.00	710	0.204	0.062	0.023	0.061	29	880
10	46.50	659	0.184	0.065	0.025	0.061	27	817
9	42.50	1,117	0.154	0.068	0.030	0.060	45	1,385
8	37.50	1,141	0.120	0.070	0.034	0.059	45	1,415
7	32.50	1,165	0.090	0.071	0.038	0.057	45	1,444
6	27.50	1,189	0.064	0.072	0.041	0.056	44	1,474

5	22.50	1,212	0.043	0.071	0.042	0.054	44	1,503
4	17.50	1,236	0.026	0.067	0.040	0.052	43	1,533
3	12.50	1,260	0.013	0.059	0.034	0.048	40	1,562
2	7.50	1,284	0.005	0.044	0.025	0.038	33	1,592
1	2.50	1,142	0.001	0.018	0.010	0.019	14	1,417
DragonWave Horizon C	149.00	32	1.890	1.980	1.140	0.377	8	39
DragonWave A-ANT-23G	149.00	15	1.890	1.980	1.140	0.377	4	19
Alcatel-Lucent RRH2x	149.00	317	1.890	1.980	1.140	0.377	80	394
Alcatel-Lucent 1900	149.00	180	1.890	1.980	1.140	0.377	45	223
Nokia 2.5G MAA - AAH	149.00	311	1.890	1.980	1.140	0.377	78	385
DragonWave A-ANT-11G	149.00	54	1.890	1.980	1.140	0.377	14	67
RFS APXVFRR12X-C-I20	149.00	138	1.890	1.980	1.140	0.377	35	171
SitePro1 RMQP-3XX Lo	149.00	1,680	1.890	1.980	1.140	0.377	422	2,083
Ericsson KRY 112 144	143.00	29	1.741	1.283	0.879	0.280	5	36
Ericsson KRY 112 489	143.00	46	1.741	1.283	0.879	0.280	9	57
Ericsson Radio 4449	143.00	222	1.741	1.283	0.879	0.280	42	275
Ericsson AIR32 B66Aa	143.00	397	1.741	1.283	0.879	0.280	74	492
Ericsson Air 3246 B6	143.00	540	1.741	1.283	0.879	0.280	101	670
RFS APXVAARR24_43-U-	143.00	384	1.741	1.283	0.879	0.280	72	476
Platform with SitePr	143.00	2,350	1.741	1.283	0.879	0.280	439	2,914
Round Low Profile Pl	136.00	1,500	1.575	0.702	0.636	0.184	184	1,860
Samsung B2/B66A RRH-	134.00	253	1.529	0.574	0.577	0.159	27	314
Samsung B5/B13 RRH-B	134.00	211	1.529	0.574	0.577	0.159	22	262
RFS DB-T1-6Z-8AB-0Z	134.00	44	1.529	0.574	0.577	0.159	5	55
Andrew DB854DG65ESX	134.00	56	1.529	0.574	0.577	0.159	6	69
JMA Wireless MX06FRO	134.00	276	1.529	0.574	0.577	0.159	29	342
Round Platform w/ Ha	126.00	2,000	1.352	0.198	0.384	0.074	98	2,480
Raycap DC6-48-60-0-8	125.00	33	1.330	0.164	0.363	0.065	1	41
Raycap DC6-48-60-0-8	125.00	66	1.330	0.164	0.363	0.065	3	81
Ericsson Radio 4415	125.00	129	1.330	0.164	0.363	0.065	6	160
Ericsson 8843 Rev 2	125.00	225	1.330	0.164	0.363	0.065	10	279
Ericsson RRUS 4449 B	125.00	213	1.330	0.164	0.363	0.065	9	264
CCI CCI-HPA-65R-BUU-	125.00	204	1.330	0.164	0.363	0.065	9	253
Kathrein Scala 80010	125.00	688	1.330	0.164	0.363	0.065	30	853
RFS APXV18-206517S-C	115.00	79	1.126	-0.054	0.203	-0.009	0	98
Proxim 5054-R-LR	106.00	6	0.957	-0.118	0.111	-0.049	0	7
Generic 3' Dish w/ R	106.00	100	0.957	-0.118	0.111	-0.049	-3	124
Flat Side Arm	106.00	150	0.957	-0.118	0.111	-0.049	-5	186
		38,757	79.601	36.571	30.013	8.465	2,474	48,063

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)
39	147.00	180	1.840	1.725	1.047	0.344	41	155
38	144.00	99	1.765	1.385	0.919	0.296	20	85
37	141.50	203	1.705	1.139	0.822	0.258	35	175
36	138.00	278	1.621	0.846	0.699	0.210	39	239
35	135.50	71	1.563	0.669	0.621	0.177	8	61
34	134.50	71	1.540	0.605	0.592	0.165	8	61
33	132.00	335	1.483	0.461	0.523	0.136	30	288
32	128.00	343	1.395	0.274	0.426	0.093	21	295
31	125.50	87	1.341	0.181	0.373	0.069	4	75
30	122.50	492	1.278	0.091	0.317	0.043	14	423
29	117.50	504	1.175	-0.017	0.237	0.006	2	434
28	112.50	541	1.077	-0.082	0.173	-0.023	-8	465
27	108.00	441	0.993	-0.112	0.128	-0.043	-13	379
26	105.50	112	0.948	-0.119	0.107	-0.051	-4	96
25	103.25	394	0.908	-0.122	0.090	-0.056	-15	339

24	100.75	316	0.864	-0.120	0.074	-0.060	-13	271
23	98.88	479	0.832	-0.117	0.064	-0.062	-20	412
22	96.38	426	0.791	-0.110	0.051	-0.063	-18	366
21	92.50	790	0.728	-0.095	0.036	-0.059	-31	679
20	87.50	810	0.652	-0.071	0.021	-0.048	-26	696
19	82.50	830	0.579	-0.045	0.012	-0.029	-16	713
18	77.50	849	0.511	-0.020	0.008	-0.006	-4	730
17	72.50	869	0.447	0.002	0.006	0.016	9	747
16	67.50	889	0.388	0.022	0.007	0.035	21	765
15	62.50	909	0.333	0.037	0.010	0.048	29	782
14	57.50	929	0.281	0.049	0.014	0.056	35	799
13	54.13	330	0.249	0.055	0.017	0.059	13	284
12	51.63	1,139	0.227	0.059	0.020	0.060	46	979
11	49.00	710	0.204	0.062	0.023	0.061	29	610
10	46.50	659	0.184	0.065	0.025	0.061	27	567
9	42.50	1,117	0.154	0.068	0.030	0.060	45	961
8	37.50	1,141	0.120	0.070	0.034	0.059	45	981
7	32.50	1,165	0.090	0.071	0.038	0.057	45	1,002
6	27.50	1,189	0.064	0.072	0.041	0.056	44	1,022
5	22.50	1,212	0.043	0.071	0.042	0.054	44	1,042
4	17.50	1,236	0.026	0.067	0.040	0.052	43	1,063
3	12.50	1,260	0.013	0.059	0.034	0.048	40	1,083
2	7.50	1,284	0.005	0.044	0.025	0.038	33	1,104
1	2.50	1,142	0.001	0.018	0.010	0.019	14	982
DragonWave Horizon C	149.00	32	1.890	1.980	1.140	0.377	8	27
DragonWave A-ANT-23G	149.00	15	1.890	1.980	1.140	0.377	4	13
Alcatel-Lucent RRH2x	149.00	317	1.890	1.980	1.140	0.377	80	273
Alcatel-Lucent 1900	149.00	180	1.890	1.980	1.140	0.377	45	155
Nokia 2.5G MAA - AAH	149.00	311	1.890	1.980	1.140	0.377	78	267
DragonWave A-ANT-11G	149.00	54	1.890	1.980	1.140	0.377	14	46
RFS APXVFRR12X-C-I20	149.00	138	1.890	1.980	1.140	0.377	35	119
SitePro1 RMQP-3XX Lo	149.00	1,680	1.890	1.980	1.140	0.377	422	1,445
Ericsson KRY 112 144	143.00	29	1.741	1.283	0.879	0.280	5	25
Ericsson KRY 112 489	143.00	46	1.741	1.283	0.879	0.280	9	40
Ericsson Radio 4449	143.00	222	1.741	1.283	0.879	0.280	42	191
Ericsson AIR32 B66Aa	143.00	397	1.741	1.283	0.879	0.280	74	341
Ericsson Air 3246 B6	143.00	540	1.741	1.283	0.879	0.280	101	464
RFS APXVAARR24_43-U-	143.00	384	1.741	1.283	0.879	0.280	72	330
Platform with SitePr	143.00	2,350	1.741	1.283	0.879	0.280	439	2,021
Round Low Profile Pl	136.00	1,500	1.575	0.702	0.636	0.184	184	1,290
Samsung B2/B66A RRH-	134.00	253	1.529	0.574	0.577	0.159	27	218
Samsung B5/B13 RRH-B	134.00	211	1.529	0.574	0.577	0.159	22	181
RFS DB-T1-6Z-8AB-0Z	134.00	44	1.529	0.574	0.577	0.159	5	38
Andrew DB854DG65ESX	134.00	56	1.529	0.574	0.577	0.159	6	48
JMA Wireless MX06FRO	134.00	276	1.529	0.574	0.577	0.159	29	237
Round Platform w/ Ha	126.00	2,000	1.352	0.198	0.384	0.074	98	1,720
Raycap DC6-48-60-0-8	125.00	33	1.330	0.164	0.363	0.065	1	28
Raycap DC6-48-60-0-8	125.00	66	1.330	0.164	0.363	0.065	3	56
Ericsson Radio 4415	125.00	129	1.330	0.164	0.363	0.065	6	111
Ericsson 8843 Rev 2	125.00	225	1.330	0.164	0.363	0.065	10	193
Ericsson RRUS 4449 B	125.00	213	1.330	0.164	0.363	0.065	9	183
CCI CCI-HPA-65R-BUU-	125.00	204	1.330	0.164	0.363	0.065	9	175
Kathrein Scala 80010	125.00	688	1.330	0.164	0.363	0.065	30	591
RFS APXV18-206517S-C	115.00	79	1.126	-0.054	0.203	-0.009	0	68
Proxim 5054-R-LR	106.00	6	0.957	-0.118	0.111	-0.049	0	5
Generic 3' Dish w/ R	106.00	100	0.957	-0.118	0.111	-0.049	-3	86
Flat Side Arm	106.00	150	0.957	-0.118	0.111	-0.049	-5	129
		38,757	79.601	36.571	30.013	8.465	2,474	33,327

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

Calculated Forces

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-46.65	-2.47	0.00	-322.63	0.00	322.63	4,132.29	2,066.14	8,772.59	4,392.82	0.00	0.00	0.085
5.00	-45.05	-2.45	0.00	-310.29	0.00	310.29	4,073.39	2,036.69	8,449.37	4,230.97	0.01	-0.02	0.084
10.00	-43.49	-2.43	0.00	-298.03	0.00	298.03	4,012.85	2,006.43	8,128.58	4,070.33	0.05	-0.04	0.084
15.00	-41.96	-2.40	0.00	-285.89	0.00	285.89	3,950.68	1,975.34	7,810.43	3,911.02	0.10	-0.07	0.084
20.00	-40.45	-2.37	0.00	-273.88	0.00	273.88	3,886.87	1,943.43	7,495.19	3,753.17	0.19	-0.09	0.083
25.00	-38.98	-2.34	0.00	-262.02	0.00	262.02	3,821.43	1,910.71	7,183.08	3,596.88	0.30	-0.12	0.083
30.00	-37.53	-2.31	0.00	-250.31	0.00	250.31	3,754.35	1,877.17	6,874.35	3,442.28	0.43	-0.14	0.083
35.00	-36.12	-2.28	0.00	-238.76	0.00	238.76	3,685.64	1,842.82	6,569.23	3,289.50	0.59	-0.17	0.082
40.00	-34.73	-2.25	0.00	-227.37	0.00	227.37	3,615.29	1,807.64	6,267.96	3,138.64	0.78	-0.19	0.082
45.00	-33.91	-2.23	0.00	-216.13	0.00	216.13	3,543.30	1,771.65	5,970.78	2,989.83	1.00	-0.22	0.082
48.00	-33.03	-2.21	0.00	-209.44	0.00	209.44	3,499.33	1,749.66	5,794.53	2,901.57	1.14	-0.24	0.082
50.00	-31.62	-2.16	0.00	-205.03	0.00	205.03	3,469.68	1,734.84	5,677.92	2,843.18	1.25	-0.25	0.081
53.25	-31.21	-2.16	0.00	-198.00	0.00	198.00	2,730.90	1,365.45	4,467.29	2,236.97	1.42	-0.27	0.100
55.00	-30.06	-2.13	0.00	-194.22	0.00	194.22	2,712.29	1,356.15	4,390.67	2,198.60	1.53	-0.28	0.099
60.00	-28.93	-2.11	0.00	-183.58	0.00	183.58	2,658.02	1,329.01	4,173.50	2,089.85	1.84	-0.32	0.099
65.00	-27.82	-2.10	0.00	-173.02	0.00	173.02	2,602.11	1,301.05	3,959.12	1,982.50	2.19	-0.35	0.098
70.00	-26.74	-2.10	0.00	-162.51	0.00	162.51	2,544.56	1,272.28	3,747.77	1,876.67	2.58	-0.39	0.097
75.00	-25.69	-2.12	0.00	-151.99	0.00	151.99	2,485.39	1,242.69	3,539.70	1,772.48	3.01	-0.43	0.096
80.00	-24.66	-2.14	0.00	-141.40	0.00	141.40	2,424.57	1,212.29	3,335.13	1,670.04	3.48	-0.47	0.095
85.00	-23.65	-2.18	0.00	-130.69	0.00	130.69	2,362.12	1,181.06	3,134.31	1,569.49	3.99	-0.51	0.093
90.00	-22.67	-2.22	0.00	-119.80	0.00	119.80	2,297.27	1,148.64	2,936.51	1,470.44	4.55	-0.55	0.091
95.00	-22.14	-2.24	0.00	-108.72	0.00	108.72	2,210.70	1,105.35	2,718.30	1,361.17	5.15	-0.59	0.090
97.75	-21.55	-2.26	0.00	-102.55	0.00	102.55	2,163.09	1,081.54	2,601.88	1,302.87	5.50	-0.62	0.089
100.00	-21.15	-2.28	0.00	-97.46	0.00	97.46	2,124.13	1,062.07	2,508.52	1,256.12	5.80	-0.64	0.088
101.50	-20.66	-2.30	0.00	-94.04	0.00	94.04	1,105.19	552.59	1,317.56	659.76	6.00	-0.65	0.161
105.00	-20.53	-2.31	0.00	-86.01	0.00	86.01	1,087.53	543.77	1,259.48	630.68	6.49	-0.68	0.155
106.00	-19.66	-2.33	0.00	-83.70	0.00	83.70	1,082.34	541.17	1,242.93	622.39	6.63	-0.70	0.153
110.00	-18.99	-2.35	0.00	-74.39	0.00	74.39	1,060.92	530.46	1,177.04	589.40	7.24	-0.75	0.144
115.00	-18.26	-2.36	0.00	-62.64	0.00	62.64	1,032.68	516.34	1,095.47	548.55	8.07	-0.82	0.132
120.00	-17.65	-2.35	0.00	-50.85	0.00	50.85	1,002.79	501.40	1,014.98	508.24	8.96	-0.88	0.118
125.00	-15.61	-2.26	0.00	-39.09	0.00	39.09	971.28	485.64	935.83	468.61	9.91	-0.94	0.100
126.00	-12.70	-2.10	0.00	-36.83	0.00	36.83	964.78	482.39	920.18	460.77	10.11	-0.95	0.093
130.00	-12.29	-2.07	0.00	-28.44	0.00	28.44	938.12	469.06	858.24	429.76	10.93	-0.99	0.079
134.00	-11.16	-1.95	0.00	-20.18	0.00	20.18	910.42	455.21	797.47	399.33	11.77	-1.02	0.063
135.00	-11.07	-1.95	0.00	-18.22	0.00	18.22	903.33	451.67	782.47	391.82	11.98	-1.03	0.059
136.00	-8.87	-1.69	0.00	-16.28	0.00	16.28	896.18	448.09	767.56	384.35	12.20	-1.04	0.052
140.00	-8.62	-1.65	0.00	-9.53	0.00	9.53	866.91	433.46	708.75	354.90	13.08	-1.06	0.037
143.00	-3.59	-0.79	0.00	-4.58	0.00	4.58	844.27	422.14	665.60	333.29	13.75	-1.07	0.018
145.00	-3.37	-0.75	0.00	-3.00	0.00	3.00	828.85	414.43	637.31	319.13	14.20	-1.07	0.013
149.00	0.00	-0.69	0.00	0.00	0.00	0.00	787.55	393.77	574.90	287.88	15.10	-1.08	0.000

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

Calculated Forces

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-32.34	-2.47	0.00	-314.77	0.00	314.77	4,132.29	2,066.14	8,772.59	4,392.82	0.00	0.00	0.079
5.00	-31.24	-2.44	0.00	-302.44	0.00	302.44	4,073.39	2,036.69	8,449.37	4,230.97	0.01	-0.02	0.079
10.00	-30.16	-2.41	0.00	-290.23	0.00	290.23	4,012.85	2,006.43	8,128.58	4,070.33	0.05	-0.04	0.079
15.00	-29.09	-2.38	0.00	-278.15	0.00	278.15	3,950.68	1,975.34	7,810.43	3,911.02	0.10	-0.07	0.078
20.00	-28.05	-2.35	0.00	-266.24	0.00	266.24	3,886.87	1,943.43	7,495.19	3,753.17	0.18	-0.09	0.078
25.00	-27.03	-2.31	0.00	-254.50	0.00	254.50	3,821.43	1,910.71	7,183.08	3,596.88	0.29	-0.11	0.078
30.00	-26.02	-2.28	0.00	-242.93	0.00	242.93	3,754.35	1,877.17	6,874.35	3,442.28	0.42	-0.14	0.078
35.00	-25.04	-2.24	0.00	-231.54	0.00	231.54	3,685.64	1,842.82	6,569.23	3,289.50	0.58	-0.16	0.077
40.00	-24.08	-2.21	0.00	-220.33	0.00	220.33	3,615.29	1,807.64	6,267.96	3,138.64	0.76	-0.19	0.077
45.00	-23.51	-2.19	0.00	-209.30	0.00	209.30	3,543.30	1,771.65	5,970.78	2,989.83	0.97	-0.22	0.077
48.00	-22.90	-2.16	0.00	-202.75	0.00	202.75	3,499.33	1,749.66	5,794.53	2,901.57	1.11	-0.23	0.076
50.00	-21.92	-2.12	0.00	-198.43	0.00	198.43	3,469.68	1,734.84	5,677.92	2,843.18	1.21	-0.24	0.076
53.25	-21.64	-2.11	0.00	-191.55	0.00	191.55	2,730.90	1,365.45	4,467.29	2,236.97	1.39	-0.26	0.094
55.00	-20.84	-2.08	0.00	-187.86	0.00	187.86	2,712.29	1,356.15	4,390.67	2,198.60	1.48	-0.27	0.093
60.00	-20.06	-2.06	0.00	-177.47	0.00	177.47	2,658.02	1,329.01	4,173.50	2,089.85	1.79	-0.31	0.092
65.00	-19.29	-2.04	0.00	-167.19	0.00	167.19	2,602.11	1,301.05	3,959.12	1,982.50	2.13	-0.34	0.092
70.00	-18.54	-2.04	0.00	-156.97	0.00	156.97	2,544.56	1,272.28	3,747.77	1,876.67	2.51	-0.38	0.091
75.00	-17.81	-2.05	0.00	-146.76	0.00	146.76	2,485.39	1,242.69	3,539.70	1,772.48	2.92	-0.42	0.090
80.00	-17.09	-2.07	0.00	-136.50	0.00	136.50	2,424.57	1,212.29	3,335.13	1,670.04	3.38	-0.45	0.089
85.00	-16.40	-2.11	0.00	-126.14	0.00	126.14	2,362.12	1,181.06	3,134.31	1,569.49	3.87	-0.49	0.087
90.00	-15.72	-2.14	0.00	-115.61	0.00	115.61	2,297.27	1,148.64	2,936.51	1,470.44	4.41	-0.53	0.085
95.00	-15.35	-2.16	0.00	-104.90	0.00	104.90	2,210.70	1,105.35	2,718.30	1,361.17	5.00	-0.58	0.084
97.75	-14.93	-2.19	0.00	-98.95	0.00	98.95	2,163.09	1,081.54	2,601.88	1,302.87	5.33	-0.60	0.083
100.00	-14.66	-2.20	0.00	-94.03	0.00	94.03	2,124.13	1,062.07	2,508.52	1,256.12	5.62	-0.62	0.082
101.50	-14.32	-2.22	0.00	-90.73	0.00	90.73	1,105.19	552.59	1,317.56	659.76	5.82	-0.63	0.150
105.00	-14.23	-2.22	0.00	-82.97	0.00	82.97	1,087.53	543.77	1,259.48	630.68	6.29	-0.66	0.145
106.00	-13.62	-2.25	0.00	-80.75	0.00	80.75	1,082.34	541.17	1,242.93	622.39	6.43	-0.68	0.142
110.00	-13.16	-2.26	0.00	-71.76	0.00	71.76	1,060.92	530.46	1,177.04	589.40	7.02	-0.73	0.134
115.00	-12.65	-2.27	0.00	-60.45	0.00	60.45	1,032.68	516.34	1,095.47	548.55	7.82	-0.79	0.122
120.00	-12.23	-2.26	0.00	-49.10	0.00	49.10	1,002.79	501.40	1,014.98	508.24	8.68	-0.85	0.109
125.00	-10.81	-2.17	0.00	-37.80	0.00	37.80	971.28	485.64	935.83	468.61	9.61	-0.91	0.092
126.00	-8.80	-2.03	0.00	-35.63	0.00	35.63	964.78	482.39	920.18	460.77	9.80	-0.92	0.086
130.00	-8.51	-2.00	0.00	-27.53	0.00	27.53	938.12	469.06	858.24	429.76	10.58	-0.96	0.073
134.00	-7.73	-1.89	0.00	-19.54	0.00	19.54	910.42	455.21	797.47	399.33	11.40	-0.99	0.057
135.00	-7.67	-1.88	0.00	-17.65	0.00	17.65	903.33	451.67	782.47	391.82	11.61	-1.00	0.054
136.00	-6.14	-1.63	0.00	-15.77	0.00	15.77	896.18	448.09	767.56	384.35	11.82	-1.00	0.048
140.00	-5.97	-1.60	0.00	-9.24	0.00	9.24	866.91	433.46	708.75	354.90	12.67	-1.02	0.033
143.00	-2.49	-0.77	0.00	-4.46	0.00	4.46	844.27	422.14	665.60	333.29	13.31	-1.03	0.016
145.00	-2.33	-0.73	0.00	-2.91	0.00	2.91	828.85	414.43	637.31	319.13	13.75	-1.04	0.012
149.00	0.00	-0.69	0.00	0.00	0.00	0.00	787.55	393.77	574.90	287.88	14.62	-1.04	0.000

Analysis Summary

	Reactions						Max Usage	
Load Case	Shear FX (kips)	Shear FZ (kips)	Axial FY (kips)	Moment MX (ft-kips)	Moment MY (ft-kips)	Moment MZ (ft-kips)	Elev (ft)	Interaction Ratio
1.2D + 1.6W	25.12	0.00	46.46	0.00	0.00	2951.31	101.50	1.00
0.9D + 1.6W	25.10	0.00	34.84	0.00	0.00	2898.41	101.50	0.97
1.2D + 1.0Di + 1.0Wi	11.22	0.00	76.28	0.00	0.00	1184.11	101.50	0.39
(1.2 + 0.2Sds) * DL + E ELFM	1.17	0.00	46.65	0.00	0.00	155.19	101.50	0.07
(1.2 + 0.2Sds) * DL + E EMAM	2.47	0.00	46.65	0.00	0.00	322.63	101.50	0.16
(0.9 - 0.2Sds) * DL + E ELFM	1.16	0.00	32.34	0.00	0.00	151.65	101.50	0.07
(0.9 - 0.2Sds) * DL + E EMAM	2.47	0.00	32.34	0.00	0.00	314.77	101.50	0.15
1.0D + 1.0W	5.37	0.00	38.76	0.00	0.00	625.27	101.50	0.22

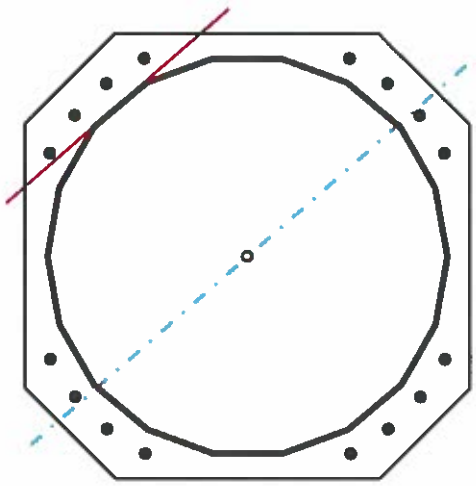
Base Plate & Anchor Rod Analysis

Pole Dimensions		
Number of Sides	18	-
Diameter	52.01	in
Thickness	0.375	in
Orientation Offset	0	°

Base Reactions		
Moment, Mu	2951.3	k-ft
Axial, Pu	46.5	k
Shear, Vu	25.1	k
Neutral Axis	41	°

Report Capacities		
Component	Capacity	Result
Base Plate	48%	Pass
Anchor Rods	59%	Pass
Dwyidag	-	-

Base Plate		
Shape	Square	-
Width	59	in
Thickness	2 3/4	in
Grade	Other	
Yield Strength, Fy	60	ksi
Tensile Strength, Fu	80	ksi
Clip	12	in
Orientation Offset	0	°
Anchor Rod Detail	d	η=0.5
Clear Distance	3	in
Applied Moment, Mu	1523.8	k
Bending Stress, ϕMn	3183.1	k



Original Anchor Rods		
Arrangement	Cluster	-
Quantity	16	-
Diameter, ø	2 1/4	in
Bolt Circle	59	in
Grade	A615-75	
Yield Strength, Fy	75	ksi
Tensile Strength, Fu	100	ksi
Spacing	6.0	in
Orientation Offset	0	°
Applied Force, Pu	152.8	k
Anchor Rods, ϕPn	259.8	k

Calculations for Monopole Base Plate & Anchor Rod Analysis

Reaction Distribution

Reaction	Shear Vu	Moment Mu	Factor
-	k	k-ft	-
Base Forces	25.1	2951.3	1.00
Anchor Rod Forces	25.1	2951.3	1.00
Additional Bolt (Grp1) Forces			
Additional Bolt (Grp2) Forces			
Dywidag Forces			
Stiffener Forces			

Geometric Properties

Section	Gross Area	Net Area	Individual Inertia	Threads per Inch	Moment of Inertia
-	in^2	in^2	in^4	#	in^4
Pole	60.5227	3.3624	0.1582		20173.34
Bolt	3.9761	3.2477	0.8393	4.5	22623.84
Bolt1					
Bolt2					
Dywidag					
Stiffener					

Base Plate		
Shape	Square	-
Width, W	59	in
Thickness, t	2.75	in
Yield Strength, Fy	60	ksi
Tensile Strength, Fu	80	ksi
Base Plate Chord	27.856	in
Detail Type	d	-
Detail Factor	0.50	-
Clear Distance	3	-

Anchor Rods		
Anchor Rod Quantity, N	16	-
Rod Diameter, d	2.25	in
Bolt Circle, BC	59	in
Yield Strength, Fy	75	ksi
Tensile Strength, Fu	100	ksi
Applied Axial, Pu	152.8	k
Applied Shear, Vu	0.1	k
Compressive Capacity, ϕPn	259.8	k
Tensile Capacity, ϕRnt	0.588	OK
Interaction Capacity	0.589	OK

External Base Plate		
Chord Length AA	31.179	in
Additional AA	0.000	in
Section Modulus, Z	58.947	in^3
Applied Moment, Mu	1523.8	k-ft
Bending Capacity, ϕMn	3183.1	k-ft
Capacity, Mu/ϕMn	0.479	OK
Chord Length AB	30.372	in
Additional AB	0.000	in
Section Modulus, Z	57.423	in^3
Applied Moment, Mu	1284.1	k-ft
Bending Capacity, ϕMn	3100.8	k-ft
Capacity, Mu/ϕMn	0.414	OK
Bend Line Length	0.000	in
Additional Bend Line	0.000	in
Section Modulus, Z	0.000	in^3
Applied Moment, Mu	0.0	k-ft
Bending Capacity, ϕMn	0.0	k-ft
Capacity, Mu/ϕMn		

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

AMERICAN TOWER®
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Antenna Mount Analysis Report

ATC Site Name	:	**WEST HAVEN & RT 162 CT , CT**
ATC Site Number	:	**243036**
Engineering Number	:	**12984003_C8_02**
Mount Elevation	:	**134 ft**
Carrier	:	**Verizon Wireless**
Carrier Site Name	:	**469425**
Carrier Site Number	:	**West Haven SW**
Site Location	:	**668 Jones Hill Road** **West Haven , CT 06516** **41.25640278, -72.97236111**
County	:	**New Haven**
Date	:	**October 4, 2019**
Max Usage	:	**87%**
Result	:	**Pass**

Prepared By:
Trevor Ridilla
Structural Engineer I

Reviewed By:

STATE OF CONNECTICUT
ESHA KAUSHAL MODI
32598
LICENSED
PROFESSIONAL ENGINEER

Authorized by "EOR"
Oct 4 2019 4:21 PM cosign

COA: PEC.0001553

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Table of Contents

Introduction

The purpose of this report is to summarize results of the antenna mount analysis performed for Verizon Wireless at 134 ft.

Analysis

Basic Wind Speed:	97 mph (3-Second Gust, Vasd) / 125 mph (3-Second Gust, Vult)
Basic Wind Speed w/ Ice:	50 mph (3-Second Gust) w/ 3/4" radial ice concurrent
Codes:	ANSI/TIA-222-G / 2015 IBC / 2018 Connecticut State Building Code
Structure Class:	II
Exposure Category:	B
Topographic Category:	1
Crest Height:	0 ft
Spectral Response:	Ss = 0.188, S_1 = 0.062
Site Class:	D - Stiff Soil - Default
Live Loads:	Lm = 500 lbs, Lv = 250 lbs

Conclusion

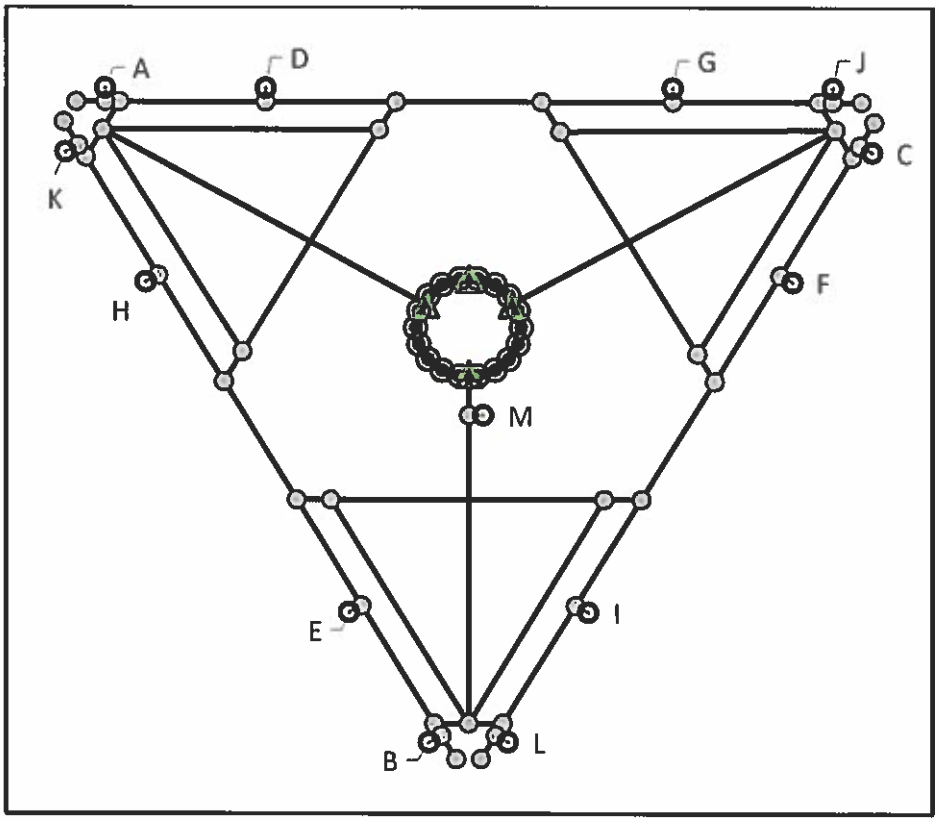
Based on the analysis results, the antenna mount meets the requirements per the applicable codes listed above. The mount can support the equipment as described in this report.

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.

Application Loading

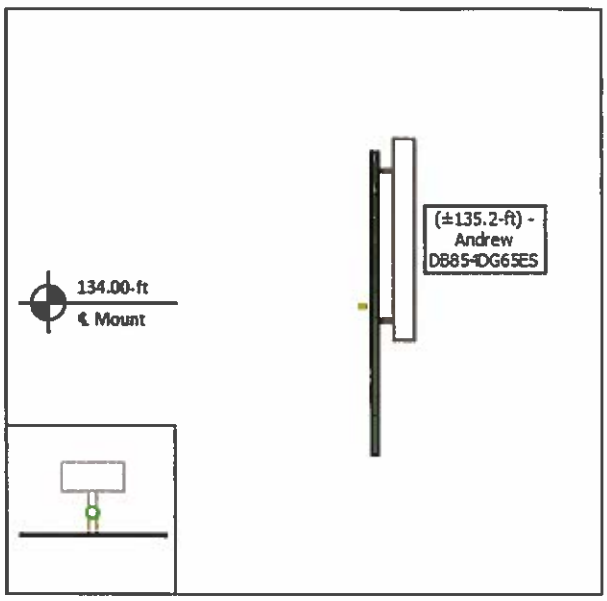
Mount Centerline (ft)	Antenna Centerline (ft)	Qty	Antenna Model
134.0	136.0	3	Andrew DB854DG65ESX
		6	JMA Wireless MX06FRO660-02
		1	RFS DB-T1-6Z-8AB-0Z
		3	Samsung B2/B66A RRH- BR049
		3	Samsung B5/B13 RRH-BR04C

Mount Layout

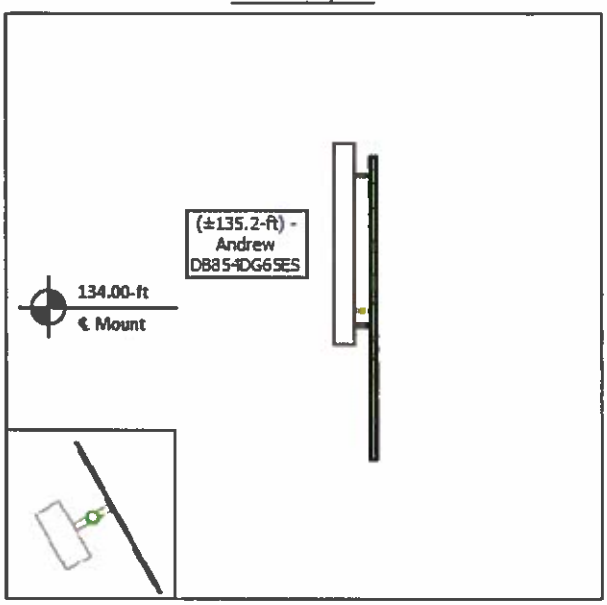


Equipment Layout

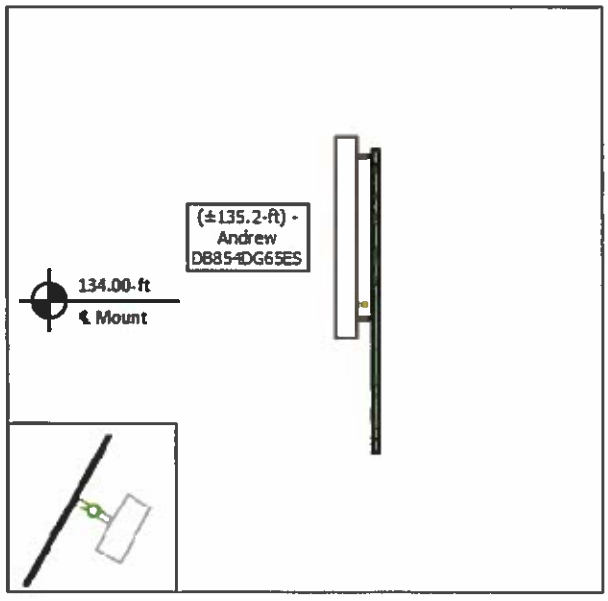
Mount Pipe A



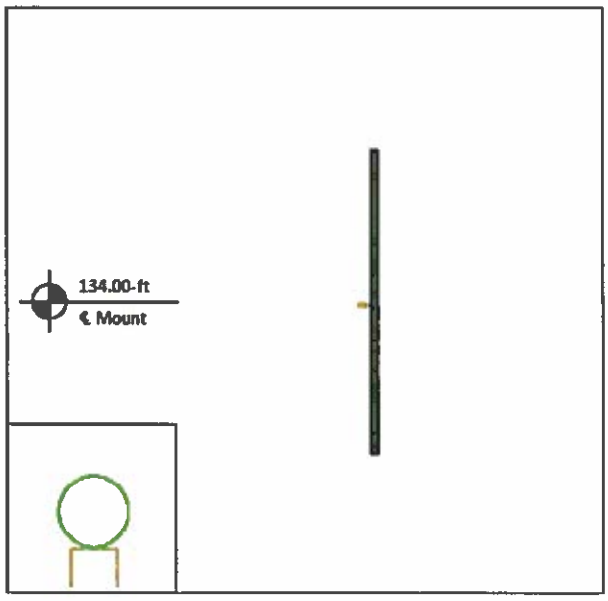
Mount Pipe B



Mount Pipe C

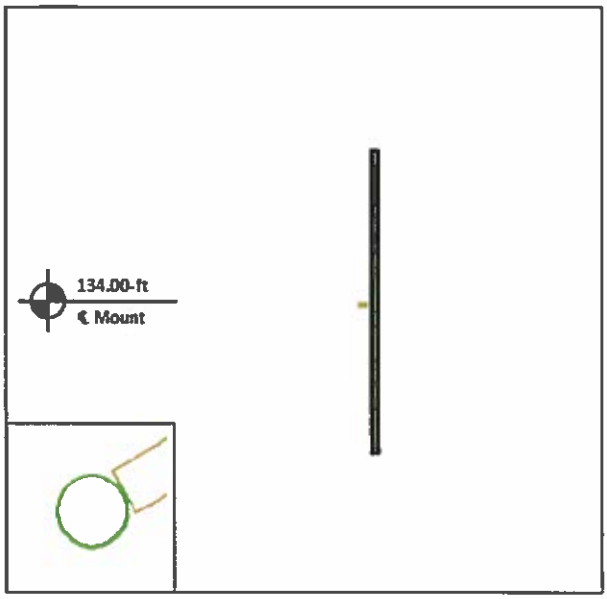


Mount Pipe D

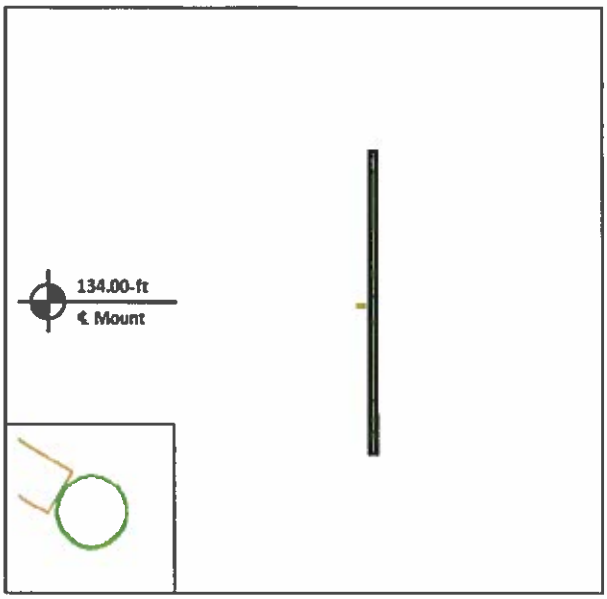


Equipment Layout Cont'd.

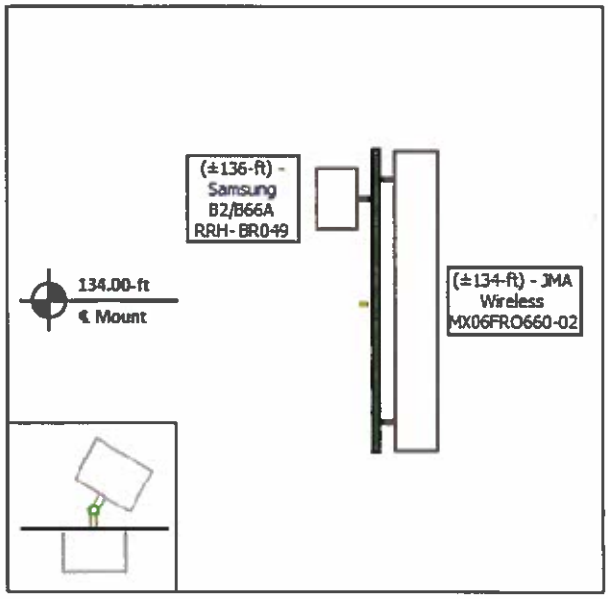
Mount Pipe E



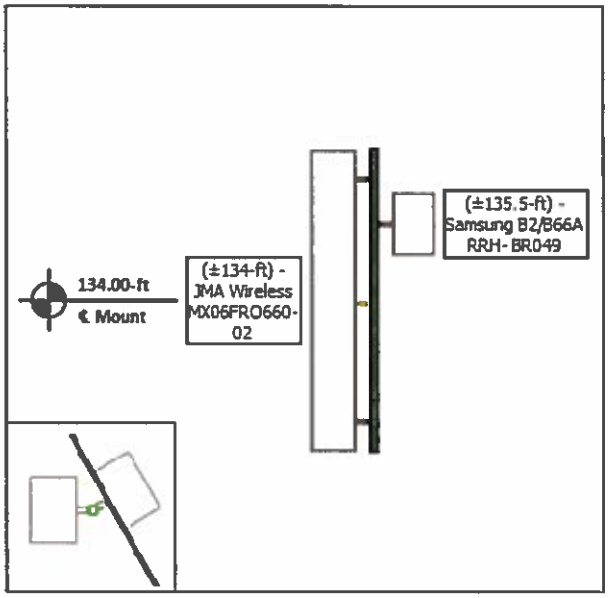
Mount Pipe F



Mount Pipe G

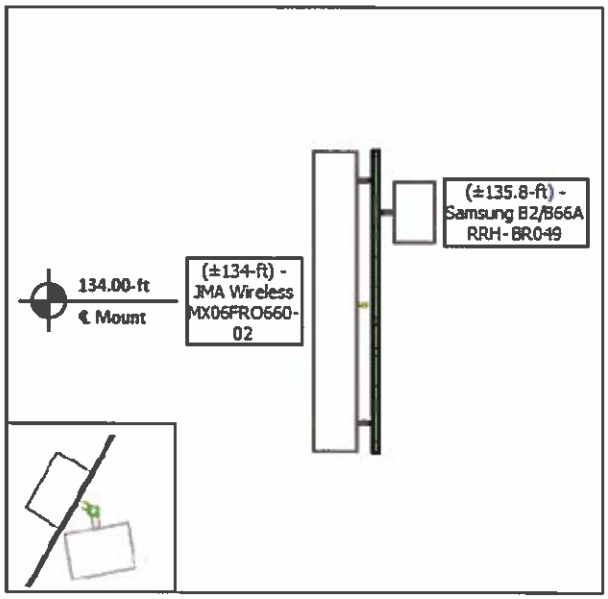


Mount Pipe H

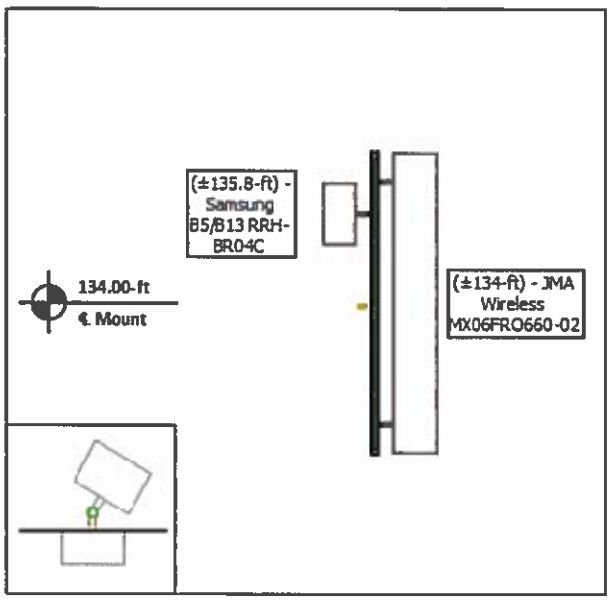


Equipment Layout Cont'd.

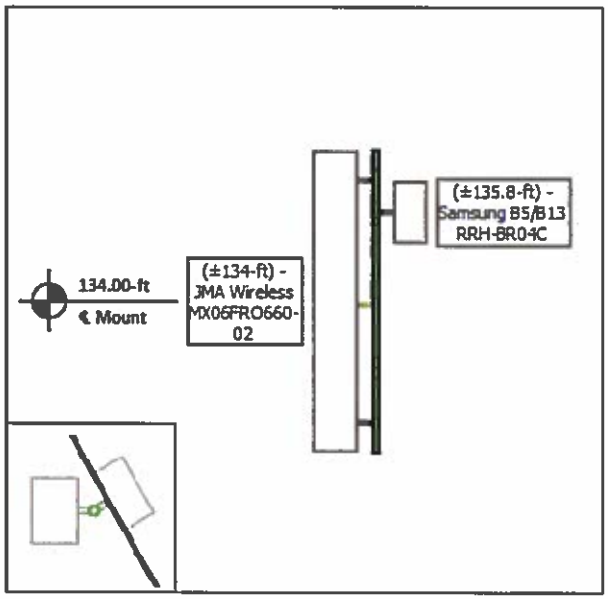
Mount Pipe I



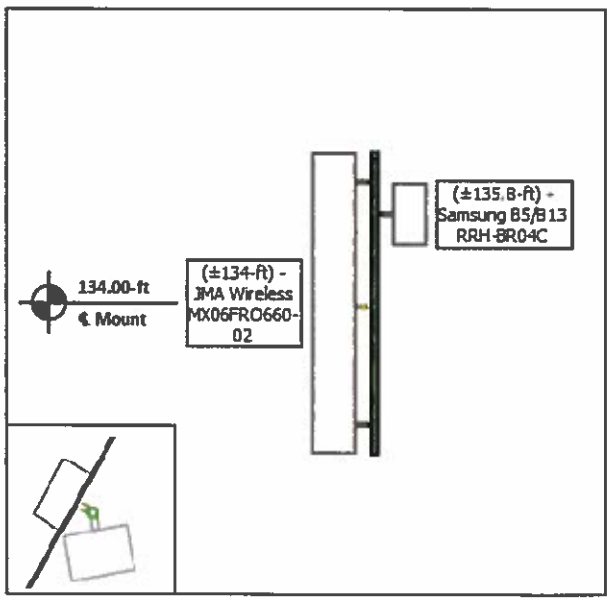
Mount Pipe J



Mount Pipe K

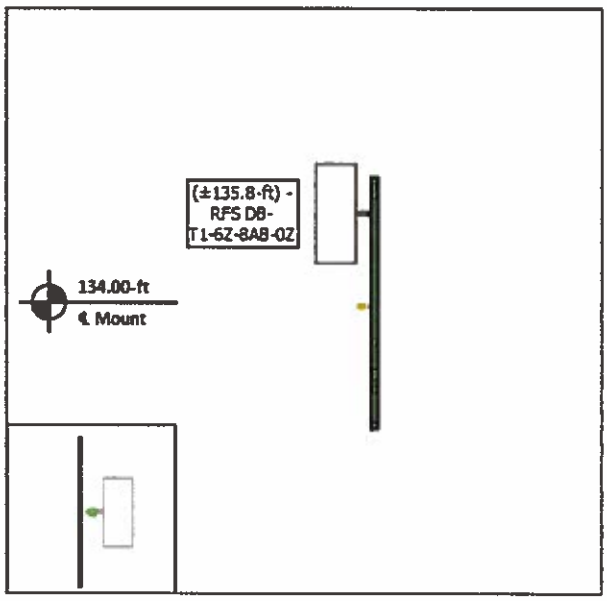


Mount Pipe L



Equipment Layout Cont'd.

Mount Pipe M



Standard Conditions

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

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

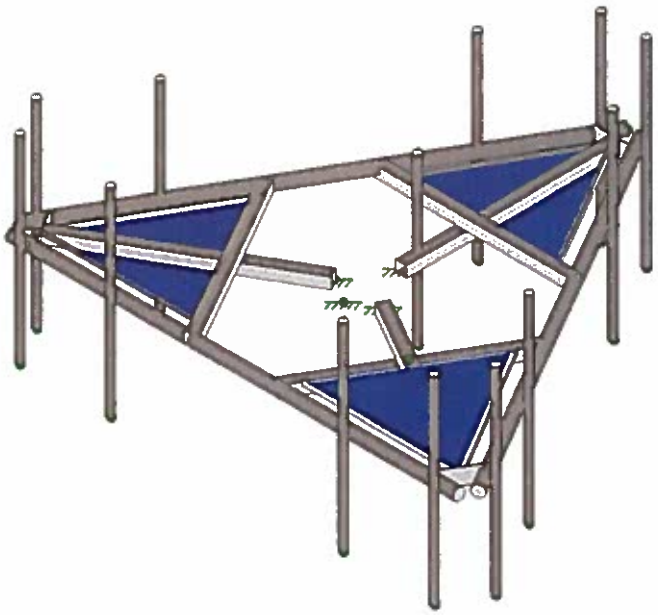
It is the responsibility of the client to ensure that the information provided to A.T. Engineering Service, PLLC and used in the performance of our engineering services is correct and complete.

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

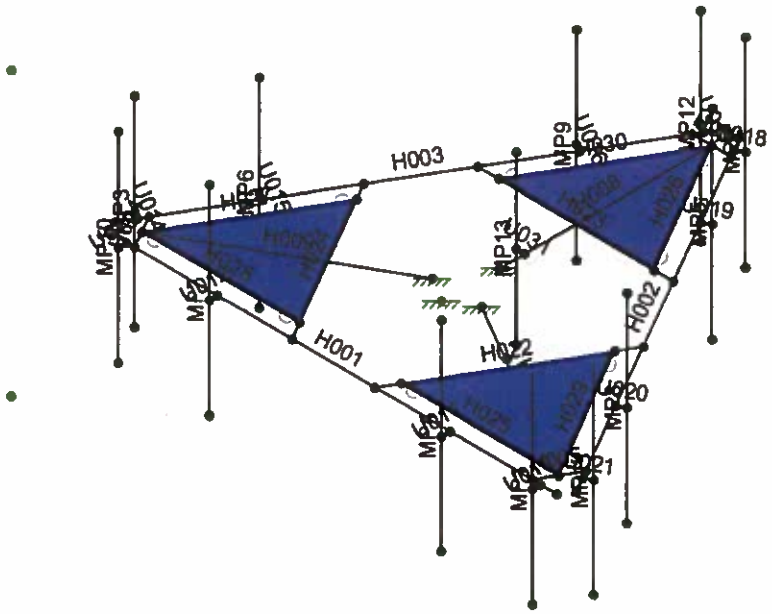
All connections are to be verified for condition and tightness by the installation contractor preceding any changes to the appurtenance mounting system and/or equipment attached to it.

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

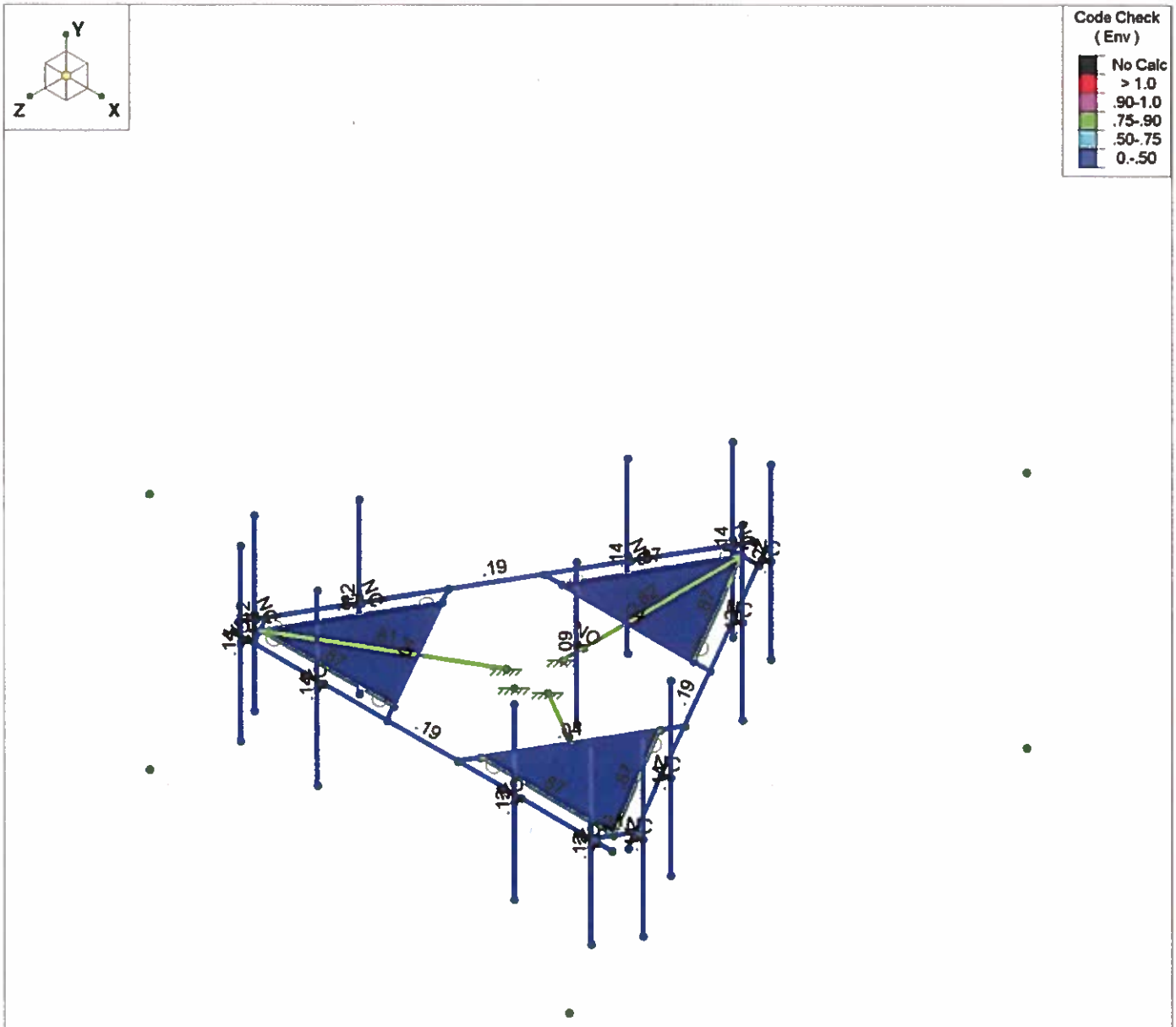
All services are performed, results obtained, and recommendations made in accordance with generally accepted engineering principles and practices. A.T. Engineering Service, PLLC is not responsible for the conclusions, opinions and recommendations made by others based on the information supplied herein.



American Tower Corp.		SK - 1
Trevor.Ridilla	243036, WEST HAVEN & RT 162 CT	Oct 4, 2019 at 9:36 AM
12984003_C8_02	3D Rendering	R3D. VERIZON WIRELESS @ 243...

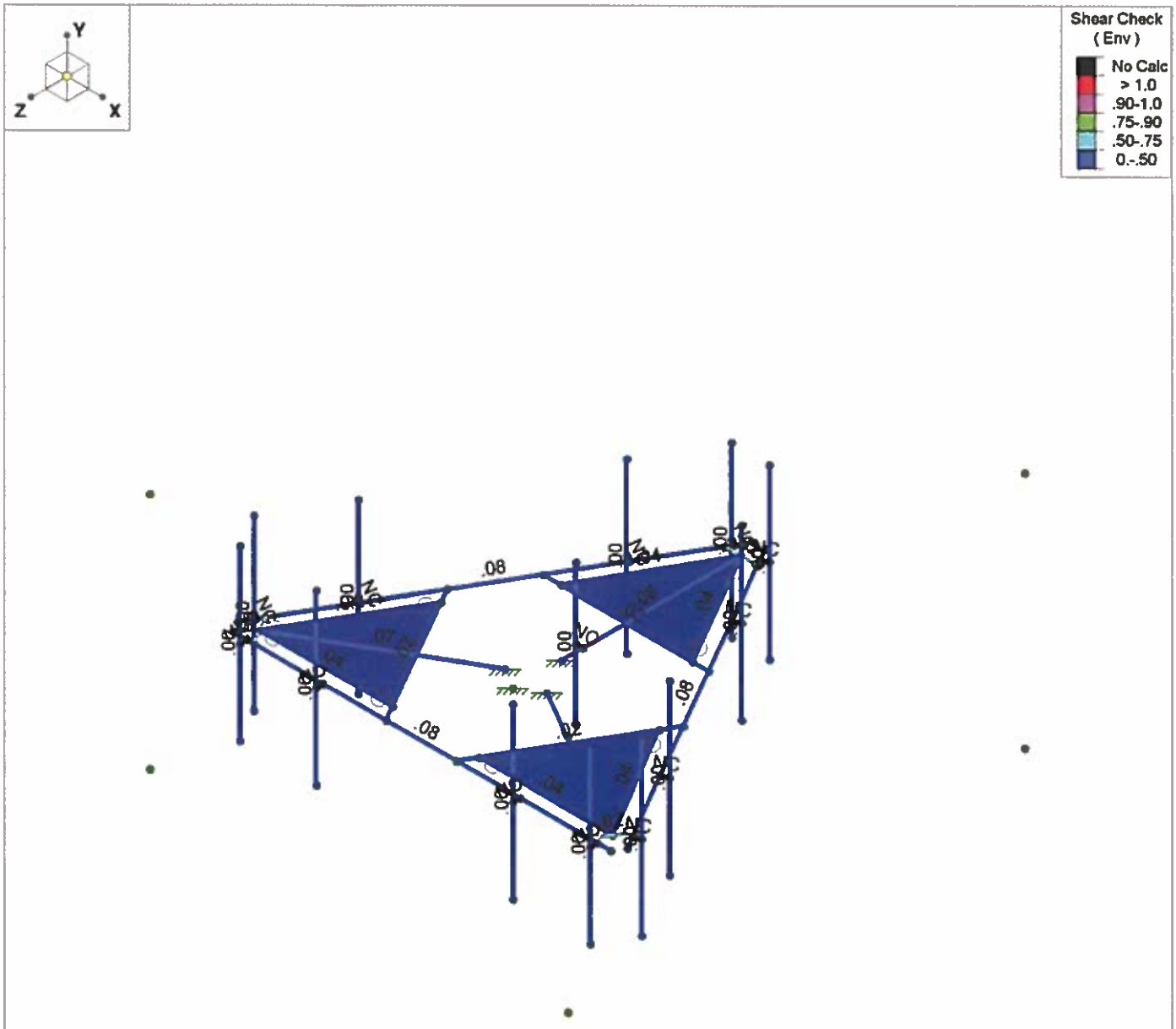


American Tower Corp.		SK - 2
Trevor.Ridilla	243036, WEST HAVEN & RT 162 CT	Oct 4, 2019 at 9:36 AM
12984003_C8_02	Member Labels	R3D. VERIZON WIRELESS @ 243...



Member Code Checks Displayed (Enveloped)
Results for LC 1, 1.4D

American Tower Corp.		SK - 3
Trevor.Ridilla	243036, WEST HAVEN & RT 162 CT	Oct 4, 2019 at 9:36 AM
12984003_C8_02	Unity Bending Checks	R3D. VERIZON WIRELESS @ 243...



Member Shear Checks Displayed (Enveloped)
Results for LC 1, 1.4D

American Tower Corp.		SK - 4
Trevor.Ridilla	243036, WEST HAVEN & RT 162 CT	Oct 4, 2019 at 9:36 AM
12984003_C8_02	Shear Checks	R3D: VERIZON WIRELESS @ 243

Hot Rolled Steel Properties

	Label	E [psi]	G [psi]	Nu	Therm (/1...	Density[lb...	Yield[psi]	Ry	Fu[psi]	Rt
1	A36	2.9e+7	1.115e+7	.3	.65	490	36000	1.5	58000	1.2
2	A572-50	2.9e+7	1.115e+7	.3	.65	490	50000	1.1	65000	1.1
3	A500 Gr. B [RND]	2.9e+7	1.115e+7	.3	.65	527	42000	1.4	58000	1.3
4	A500 Gr. B [SQR]	2.9e+7	1.115e+7	.3	.65	527	46000	1.4	58000	1.3
5	A1085	2.9e+7	1.115e+7	.3	.65	490	50000	1.1	65000	1.1
6	A53 Gr. B	2.9e+7	1.115e+7	.3	.65	490	35000	1.6	60000	1.2
7	A992	2.9e+7	1.115e+7	.3	.65	490	50000	1.1	65000	1.1
8	SAE J429 Gr. 2	2.9e+7	1.115e+7	.3	.65	490	57000	1.1	74000	1.1

Member Primary Data

	Label	I Joint	J Joint	K Joint	Rotate(d...	Section/Shape	Type	Design List	Material	Design Rul...
1	H001	N002	N005			PIPE_3.5	Beam	None	A53 Gr. B	Typical
2	H002	N003	N006			PIPE_3.5	Beam	None	A53 Gr. B	Typical
3	H003	N004	N007			PIPE_3.5	Beam	None	A53 Gr. B	Typical
4	H004	N011	N010			PL6x0.25	Beam	None	A572-50	Typical
5	H005	N012	N008			PL6x0.25	Beam	None	A572-50	Typical
6	H006	N013	N009			PL6x0.25	Beam	None	A572-50	Typical
7	H007	N014	N019			HSS4x4x4	Beam	None	A500 Gr. ...	Typical
8	H008	N015	N017			HSS4x4x4	Beam	None	A500 Gr. ...	Typical
9	H009	N016	N018			HSS4x4x4	Beam	None	A500 Gr. ...	Typical
10	U010	N020	N032			(2) 1/2 U-Bolts	Beam	None	A36	Typical
11	U011	N023	N033			(2) 1/2 U-Bolts	Beam	None	A36	Typical
12	U012	N026	N034			(2) 1/2 U-Bolts	Beam	None	A36	Typical
13	U013	N029	N035			(2) 1/2 U-Bolts	Beam	None	A36	Typical
14	U014	N022	N036			(2) 1/2 U-Bolts	Beam	None	A36	Typical
15	U015	N025	N037			(2) 1/2 U-Bolts	Beam	None	A36	Typical
16	U016	N028	N038			(2) 1/2 U-Bolts	Beam	None	A36	Typical
17	U017	N031	N039			(2) 1/2 U-Bolts	Beam	None	A36	Typical
18	U018	N021	N040			(2) 1/2 U-Bolts	Beam	None	A36	Typical
19	U019	N024	N041			(2) 1/2 U-Bolts	Beam	None	A36	Typical
20	U020	N027	N042			(2) 1/2 U-Bolts	Beam	None	A36	Typical
21	U021	N030	N043			(2) 1/2 U-Bolts	Beam	None	A36	Typical
22	H022	N044	N048			HSS4x4x4	Beam	None	A500 Gr. ...	Typical
23	H023	N045	N049			HSS4x4x4	Beam	None	A500 Gr. ...	Typical
24	H024	N046	N047			HSS4x4x4	Beam	None	A500 Gr. ...	Typical
25	H025	N014	N053			L2x2x3	Beam	None	A36	Typical
26	H026	N015	N054			L2x2x3	Beam	None	A36	Typical
27	H027	N016	N055			L2x2x3	Beam	None	A36	Typical
28	H028	N016	N050		270	L2x2x3	Beam	None	A36	Typical
29	H029	N014	N051		270	L2x2x3	Beam	None	A36	Typical
30	H030	N015	N052		270	L2x2x3	Beam	None	A36	Typical
31	U031	N056	N057			(2) 1/2 U-Bolts	Beam	None	A36	Typical
32	MP1	MP1t	MP1b			PIPE_2.0	Column	None	A53 Gr. B	Typical
33	MP2	MP2t	MP2b			PIPE_2.0	Column	None	A53 Gr. B	Typical
34	MP3	MP3t	MP3b			PIPE_2.0	Column	None	A53 Gr. B	Typical
35	MP4	MP4t	MP4b			PIPE_2.0	Column	None	A53 Gr. B	Typical
36	MP5	MP5t	MP5b			PIPE_2.0	Column	None	A53 Gr. B	Typical
37	MP6	MP6t	MP6b			PIPE_2.0	Column	None	A53 Gr. B	Typical
38	MP7	MP7t	MP7b			PIPE_2.0	Column	None	A53 Gr. B	Typical
39	MP8	MP8t	MP8b			PIPE_2.0	Column	None	A53 Gr. B	Typical

Member Primary Data (Continued)

	Label	I Joint	J Joint	K Joint	Rotate(d...	Section/Shape	Type	Design List	Material	Design Rul...
40	MP9	MP9t	MP9b			PIPE_2.0	Column	None	A53 Gr. B	Typical
41	MP10	MP10t	MP10b			PIPE_2.0	Column	None	A53 Gr. B	Typical
42	MP11	MP11t	MP11b			PIPE_2.0	Column	None	A53 Gr. B	Typical
43	MP12	MP12t	MP12b			PIPE_2.0	Column	None	A53 Gr. B	Typical
44	MP13	MP13t	MP13b			PIPE_2.0	Column	None	A53 Gr. B	Typical

Basic Load Cases

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Joint	Point	Distributed	Area(Member)	Surface...
1	Dead	DL		-1			25			
2	Ice	IL					25	31		3
3	Wind -Z	WLZ					25		1	
4	Wind -X	WLX					25		1	
5	Wind -Z (Ice)	WL-Z					25	31	1	
6	Wind -X (Ice)	WL-X					25	31	1	
7	Wind -Z (Working)	WLZP1					25		1	
8	Wind -X (Working)	WLXP1					25		1	
9	Lv (1)	LL					1			
10	Lv (2)	LL					1			
11	Lv (3)	LL					1			
12	Lv (4)	LL					1			
13	Lv (5)	LL					1			
14	Lv (6)	LL					1			
15	Lv (7)	LL					1			
16	Lv (8)	LL					1			
17	Lv (9)	LL					1			
18	Lv (10)	LL					1			
19	Lv (11)	LL					1			
20	Lv (12)	LL					1			
21	Lv (13)	LL					1			
22	Lv (14)	LL					1			
23	Lv (15)	LL					1			
24	Lv (16)	LL					1			
25	Lv (17)	LL					1			
26	Lv (18)	LL					1			
27	Lv (19)	LL				1				
28	Lv (20)	LL				1				
29	Lm (1)	LL				1				
30	Lm (2)	LL				1				
31	Lm (3)	LL				1				
32	Lm (4)	LL				1				
33	Lm (5)	LL				1				
34	Lm (6)	LL				1				
35	Lm (7)	LL				1				
36	Lm (8)	LL				1				
37	Lm (9)	LL				1				
38	Lm (10)	LL				1				
39	Lm (11)	LL				1				
40	Lm (12)	LL				1				
41	Lm (13)	LL				1				
42	BLC 3 Transient Area Loa...	None						39		
43	BLC 4 Transient Area Loa...	None						40		
44	BLC 5 Transient Area Loa...	None						39		
45	BLC 6 Transient Area Loa...	None						40		
46	BLC 7 Transient Area Loa...	None						39		
47	BLC 8 Transient Area Loa...	None						40		

Load Combinations

	Description	Solve	PDelta	SRSS	BLC	Fa	BLC	Fa	B	Fa	B	Fa	B	Fa	B	Fa	B	Fa	B	Fa	B	Fa
1	1.4D	Yes	Y		DL	1.4																
2	1.2D + 1.6Wo [0°]	Yes	Y		DL	1.2	WLX	.001	W	1.6												
3	1.2D + 1.6Wo [30°]	Yes	Y		DL	1.2	WLX	.8	W	1												
4	1.2D + 1.6Wo [60°]	Yes	Y		DL	1.2	WLX	1	W	.8												
5	1.2D + 1.6Wo [90°]	Yes	Y		DL	1.2	WLX	1.6	W	.001												
6	1.2D + 1.6Wo [120°]	Yes	Y		DL	1.2	WLX	1	W	-.8												
7	1.2D + 1.6Wo [150°]	Yes	Y		DL	1.2	WLX	.8	W	-1												
8	1.2D + 1.6Wo [180°]	Yes	Y		DL	1.2	WLX	.001	W	-1.6												
9	1.2D + 1.6Wo [210°]	Yes	Y		DL	1.2	WLX	-.8	W	-1												
10	1.2D + 1.6Wo [240°]	Yes	Y		DL	1.2	WLX	-1	W	-.8												
11	1.2D + 1.6Wo [270°]	Yes	Y		DL	1.2	WLX	-1.6	W	.001												
12	1.2D + 1.6Wo [300°]	Yes	Y		DL	1.2	WLX	-1	W	.8												
13	1.2D + 1.6Wo [330°]	Yes	Y		DL	1.2	WLX	-.8	W	1												
14	0.9D + 1.6Wo [0°]	Yes	Y		DL	.9	WLX	.001	W	1.6												
15	0.9D + 1.6Wo [30°]	Yes	Y		DL	.9	WLX	.8	W	1												
16	0.9D + 1.6Wo [60°]	Yes	Y		DL	.9	WLX	1	W	.8												
17	0.9D + 1.6Wo [90°]	Yes	Y		DL	.9	WLX	1.6	W	.001												
18	0.9D + 1.6Wo [120°]	Yes	Y		DL	.9	WLX	1	W	-.8												
19	0.9D + 1.6Wo [150°]	Yes	Y		DL	.9	WLX	.8	W	-1												
20	0.9D + 1.6Wo [180°]	Yes	Y		DL	.9	WLX	.001	W	-1.6												
21	0.9D + 1.6Wo [210°]	Yes	Y		DL	.9	WLX	-.8	W	-1												
22	0.9D + 1.6Wo [240°]	Yes	Y		DL	.9	WLX	-1	W	-.8												
23	0.9D + 1.6Wo [270°]	Yes	Y		DL	.9	WLX	-1.6	W	.001												
24	0.9D + 1.6Wo [300°]	Yes	Y		DL	.9	WLX	-1	W	.8												
25	0.9D + 1.6Wo [330°]	Yes	Y		DL	.9	WLX	-.8	W	1												
26	1.2D + 1.0Di + 1.0...	Yes	Y		DL	1.2	IL	1	W	.001	W	1										
27	1.2D + 1.0Di + 1.0...	Yes	Y		DL	1.2	IL	1	W	.5	W	.866										
28	1.2D + 1.0Di + 1.0...	Yes	Y		DL	1.2	IL	1	W	.866	W	.5										
29	1.2D + 1.0Di + 1.0...	Yes	Y		DL	1.2	IL	1	W	1	W	.001										
30	1.2D + 1.0Di + 1.0...	Yes	Y		DL	1.2	IL	1	W	.866	W	-.5										
31	1.2D + 1.0Di + 1.0...	Yes	Y		DL	1.2	IL	1	W	.5	W	-.8										
32	1.2D + 1.0Di + 1.0...	Yes	Y		DL	1.2	IL	1	W	.001	W	-1										
33	1.2D + 1.0Di + 1.0...	Yes	Y		DL	1.2	IL	1	W	-.5	W	-.8										
34	1.2D + 1.0Di + 1.0...	Yes	Y		DL	1.2	IL	1	W	-.8	W	-.5										
35	1.2D + 1.0Di + 1.0...	Yes	Y		DL	1.2	IL	1	W	-1	W	.001										
36	1.2D + 1.0Di + 1.0...	Yes	Y		DL	1.2	IL	1	W	-.8	W	.5										
37	1.2D + 1.0Di + 1.0...	Yes	Y		DL	1.2	IL	1	W	-.5	W	.866										
38	1.2D + 1.0Ev + 1.0...	Yes	Y		DL	1.2	ELY	1	E	1	E	1										
39	0.9D + 1.0Ev + 1.0...	Yes	Y		DL	1.2	ELY	1	E	1	E	1										
40	1.2D + 1.5Lv(1)	Yes	Y		DL	1.2	9	1.5														
41	1.2D + 1.5Lv(2)	Yes	Y		DL	1.2	10	1.5														
42	1.2D + 1.5Lv(3)	Yes	Y		DL	1.2	11	1.5														
43	1.2D + 1.5Lv(4)	Yes	Y		DL	1.2	12	1.5														
44	1.2D + 1.5Lv(5)	Yes	Y		DL	1.2	13	1.5														
45	1.2D + 1.5Lv(6)	Yes	Y		DL	1.2	14	1.5														
46	1.2D + 1.5Lv(7)	Yes	Y		DL	1.2	15	1.5														
47	1.2D + 1.5Lv(8)	Yes	Y		DL	1.2	16	1.5														
48	1.2D + 1.5Lv(9)	Yes	Y		DL	1.2	17	1.5														
49	1.2D + 1.5Lv(10)	Yes	Y		DL	1.2	18	1.5														
50	1.2D + 1.5Lv(11)	Yes	Y		DL	1.2	19	1.5														
51	1.2D + 1.5Lv(12)	Yes	Y		DL	1.2	20	1.5														
52	1.2D + 1.5Lv(13)	Yes	Y		DL	1.2	21	1.5														
53	1.2D + 1.5Lv(14)	Yes	Y		DL	1.2	22	1.5														
54	1.2D + 1.5Lv(15)	Yes	Y		DL	1.2	23	1.5														
55	1.2D + 1.5Lv(16)	Yes	Y		DL	1.2	24	1.5														
56	1.2D + 1.5Lv(17)	Yes	Y		DL	1.2	25	1.5														

Load Combinations (Continued)

	Description	Solve	PDelta	SRSS	BLC	Fa	BLC	Fa	B	Fa	B	Fa	B	Fa	B	Fa	B	Fa	B	Fa	B	Fa	B	Fa
57	1.2D + 1.5Lv(18)	Yes	Y		DL	1.2	26	1.5																
58	1.2D + 1.5Lv(19)	Yes	Y		DL	1.2	27	1.5																
59	1.2D + 1.5Lv(20)	Yes	Y		DL	1.2	28	1.5																
60	1.2D + 1.5Lm(1) +...	Yes	Y		DL	1.2	29	1.5	W	.001	W	1												
61	1.2D + 1.5Lm(1) +...	Yes	Y		DL	1.2	29	1.5	W	.5	W	.866												
62	1.2D + 1.5Lm(1) +...	Yes	Y		DL	1.2	29	1.5	W	.866	W	.5												
63	1.2D + 1.5Lm(1) +...	Yes	Y		DL	1.2	29	1.5	W	1	W	.001												
64	1.2D + 1.5Lm(1) +...	Yes	Y		DL	1.2	29	1.5	W	.866	W	-.5												
65	1.2D + 1.5Lm(1) +...	Yes	Y		DL	1.2	29	1.5	W	.5	W	-.8												
66	1.2D + 1.5Lm(1) +...	Yes	Y		DL	1.2	29	1.5	W	.001	W	-.5												
67	1.2D + 1.5Lm(1) +...	Yes	Y		DL	1.2	29	1.5	W	-.5	W	-.8												
68	1.2D + 1.5Lm(1) +...	Yes	Y		DL	1.2	29	1.5	W	-.8	W	-.5												
69	1.2D + 1.5Lm(1) +...	Yes	Y		DL	1.2	29	1.5	W	-1	W	.001												
70	1.2D + 1.5Lm(1) +...	Yes	Y		DL	1.2	29	1.5	W	-.8	W	.5												
71	1.2D + 1.5Lm(1) +...	Yes	Y		DL	1.2	29	1.5	W	-.5	W	.866												
72	1.2D + 1.5Lm(2) +...	Yes	Y		DL	1.2	30	1.5	W	.001	W	1												
73	1.2D + 1.5Lm(2) +...	Yes	Y		DL	1.2	30	1.5	W	.5	W	.866												
74	1.2D + 1.5Lm(2) +...	Yes	Y		DL	1.2	30	1.5	W	.866	W	.5												
75	1.2D + 1.5Lm(2) +...	Yes	Y		DL	1.2	30	1.5	W	1	W	.001												
76	1.2D + 1.5Lm(2) +...	Yes	Y		DL	1.2	30	1.5	W	.866	W	-.5												
77	1.2D + 1.5Lm(2) +...	Yes	Y		DL	1.2	30	1.5	W	.5	W	-.8												
78	1.2D + 1.5Lm(2) +...	Yes	Y		DL	1.2	30	1.5	W	.001	W	-.5												
79	1.2D + 1.5Lm(2) +...	Yes	Y		DL	1.2	30	1.5	W	-.5	W	-.8												
80	1.2D + 1.5Lm(2) +...	Yes	Y		DL	1.2	30	1.5	W	-.8	W	-.5												
81	1.2D + 1.5Lm(2) +...	Yes	Y		DL	1.2	30	1.5	W	-1	W	.001												
82	1.2D + 1.5Lm(2) +...	Yes	Y		DL	1.2	30	1.5	W	-.8	W	.5												
83	1.2D + 1.5Lm(2) +...	Yes	Y		DL	1.2	30	1.5	W	-.5	W	.866												
84	1.2D + 1.5Lm(3) +...	Yes	Y		DL	1.2	31	1.5	W	.001	W	1												
85	1.2D + 1.5Lm(3) +...	Yes	Y		DL	1.2	31	1.5	W	.5	W	.866												
86	1.2D + 1.5Lm(3) +...	Yes	Y		DL	1.2	31	1.5	W	.866	W	.5												
87	1.2D + 1.5Lm(3) +...	Yes	Y		DL	1.2	31	1.5	W	1	W	.001												
88	1.2D + 1.5Lm(3) +...	Yes	Y		DL	1.2	31	1.5	W	.866	W	-.5												
89	1.2D + 1.5Lm(3) +...	Yes	Y		DL	1.2	31	1.5	W	.5	W	-.8												
90	1.2D + 1.5Lm(3) +...	Yes	Y		DL	1.2	31	1.5	W	.001	W	-.5												
91	1.2D + 1.5Lm(3) +...	Yes	Y		DL	1.2	31	1.5	W	-.5	W	-.8												
92	1.2D + 1.5Lm(3) +...	Yes	Y		DL	1.2	31	1.5	W	-.8	W	-.5												
93	1.2D + 1.5Lm(3) +...	Yes	Y		DL	1.2	31	1.5	W	-1	W	.001												
94	1.2D + 1.5Lm(3) +...	Yes	Y		DL	1.2	31	1.5	W	-.8	W	.5												
95	1.2D + 1.5Lm(3) +...	Yes	Y		DL	1.2	31	1.5	W	-.5	W	.866												
96	1.2D + 1.5Lm(4) +...	Yes	Y		DL	1.2	32	1.5	W	.001	W	1												
97	1.2D + 1.5Lm(4) +...	Yes	Y		DL	1.2	32	1.5	W	.5	W	.866												
98	1.2D + 1.5Lm(4) +...	Yes	Y		DL	1.2	32	1.5	W	.866	W	.5												
99	1.2D + 1.5Lm(4) +...	Yes	Y		DL	1.2	32	1.5	W	1	W	.001												
100	1.2D + 1.5Lm(4) +...	Yes	Y		DL	1.2	32	1.5	W	.866	W	-.5												
101	1.2D + 1.5Lm(4) +...	Yes	Y		DL	1.2	32	1.5	W	.5	W	-.8												
102	1.2D + 1.5Lm(4) +...	Yes	Y		DL	1.2	32	1.5	W	.001	W	-.5												
103	1.2D + 1.5Lm(4) +...	Yes	Y		DL	1.2	32	1.5	W	-.5	W	-.8												
104	1.2D + 1.5Lm(4) +...	Yes	Y		DL	1.2	32	1.5	W	-.8	W	-.5												
105	1.2D + 1.5Lm(4) +...	Yes	Y		DL	1.2	32	1.5	W	-1	W	.001												
106	1.2D + 1.5Lm(4) +...	Yes	Y		DL	1.2	32	1.5	W	-.8	W	.5												
107	1.2D + 1.5Lm(4) +...	Yes	Y		DL	1.2	32	1.5	W	-.5	W	.866												
108	1.2D + 1.5Lm(5) +...	Yes	Y		DL	1.2	33	1.5	W	.001	W	1												
109	1.2D + 1.5Lm(5) +...	Yes	Y		DL	1.2	33	1.5	W	.5	W	.866												
110	1.2D + 1.5Lm(5) +...	Yes	Y		DL	1.2	33	1.5	W	.866	W	.5												
111	1.2D + 1.5Lm(5) +...	Yes	Y		DL	1.2	33	1.5	W	1	W	.001												
112	1.2D + 1.5Lm(5) +...	Yes	Y		DL	1.2	33	1.5	W	.866	W	-.5												
113	1.2D + 1.5Lm(5) +...	Yes	Y		DL	1.2	33	1.5	W	.5	W	-.8												

Load Combinations (Continued)

	Description	Solve	PDelta	SRSS	BLC	Fa	BLC	Fa	B	Fa	B	Fa	B	Fa	B	Fa	B	Fa	B	Fa	B	Fa	B	Fa
114	1.2D + 1.5Lm(5) +...	Yes	Y		DL	1.2	33	1.5	W	.001	W	-.5												
115	1.2D + 1.5Lm(5) +...	Yes	Y		DL	1.2	33	1.5	W	-.5	W	-.8												
116	1.2D + 1.5Lm(5) +...	Yes	Y		DL	1.2	33	1.5	W	-.8	W	-.5												
117	1.2D + 1.5Lm(5) +...	Yes	Y		DL	1.2	33	1.5	W	-1	W	.001												
118	1.2D + 1.5Lm(5) +...	Yes	Y		DL	1.2	33	1.5	W	-.8	W	.5												
119	1.2D + 1.5Lm(5) +...	Yes	Y		DL	1.2	33	1.5	W	-.5	W	.866												
120	1.2D + 1.5Lm(6) +...	Yes	Y		DL	1.2	34	1.5	W	.001	W	1												
121	1.2D + 1.5Lm(6) +...	Yes	Y		DL	1.2	34	1.5	W	.5	W	.866												
122	1.2D + 1.5Lm(6) +...	Yes	Y		DL	1.2	34	1.5	W	.866	W	.5												
123	1.2D + 1.5Lm(6) +...	Yes	Y		DL	1.2	34	1.5	W	1	W	.001												
124	1.2D + 1.5Lm(6) +...	Yes	Y		DL	1.2	34	1.5	W	.866	W	-.5												
125	1.2D + 1.5Lm(6) +...	Yes	Y		DL	1.2	34	1.5	W	.5	W	-.8												
126	1.2D + 1.5Lm(6) +...	Yes	Y		DL	1.2	34	1.5	W	.001	W	-.5												
127	1.2D + 1.5Lm(6) +...	Yes	Y		DL	1.2	34	1.5	W	-.5	W	-.8												
128	1.2D + 1.5Lm(6) +...	Yes	Y		DL	1.2	34	1.5	W	-.8	W	-.5												
129	1.2D + 1.5Lm(6) +...	Yes	Y		DL	1.2	34	1.5	W	-1	W	.001												
130	1.2D + 1.5Lm(6) +...	Yes	Y		DL	1.2	34	1.5	W	-.8	W	.5												
131	1.2D + 1.5Lm(6) +...	Yes	Y		DL	1.2	34	1.5	W	-.5	W	.866												
132	1.2D + 1.5Lm(7) +...	Yes	Y		DL	1.2	35	1.5	W	.001	W	1												
133	1.2D + 1.5Lm(7) +...	Yes	Y		DL	1.2	35	1.5	W	.5	W	.866												
134	1.2D + 1.5Lm(7) +...	Yes	Y		DL	1.2	35	1.5	W	.866	W	.5												
135	1.2D + 1.5Lm(7) +...	Yes	Y		DL	1.2	35	1.5	W	1	W	.001												
136	1.2D + 1.5Lm(7) +...	Yes	Y		DL	1.2	35	1.5	W	.866	W	-.5												
137	1.2D + 1.5Lm(7) +...	Yes	Y		DL	1.2	35	1.5	W	.5	W	-.8												
138	1.2D + 1.5Lm(7) +...	Yes	Y		DL	1.2	35	1.5	W	.001	W	-.5												
139	1.2D + 1.5Lm(7) +...	Yes	Y		DL	1.2	35	1.5	W	-.5	W	-.8												
140	1.2D + 1.5Lm(7) +...	Yes	Y		DL	1.2	35	1.5	W	-.8	W	-.5												
141	1.2D + 1.5Lm(7) +...	Yes	Y		DL	1.2	35	1.5	W	-1	W	.001												
142	1.2D + 1.5Lm(7) +...	Yes	Y		DL	1.2	35	1.5	W	-.8	W	.5												
143	1.2D + 1.5Lm(7) +...	Yes	Y		DL	1.2	35	1.5	W	-.5	W	.866												
144	1.2D + 1.5Lm(8) +...	Yes	Y		DL	1.2	36	1.5	W	.001	W	1												
145	1.2D + 1.5Lm(8) +...	Yes	Y		DL	1.2	36	1.5	W	.5	W	.866												
146	1.2D + 1.5Lm(8) +...	Yes	Y		DL	1.2	36	1.5	W	.866	W	.5												
147	1.2D + 1.5Lm(8) +...	Yes	Y		DL	1.2	36	1.5	W	1	W	.001												
148	1.2D + 1.5Lm(8) +...	Yes	Y		DL	1.2	36	1.5	W	.866	W	-.5												
149	1.2D + 1.5Lm(8) +...	Yes	Y		DL	1.2	36	1.5	W	.5	W	-.8												
150	1.2D + 1.5Lm(8) +...	Yes	Y		DL	1.2	36	1.5	W	.001	W	-.5												
151	1.2D + 1.5Lm(8) +...	Yes	Y		DL	1.2	36	1.5	W	-.5	W	-.8												
152	1.2D + 1.5Lm(8) +...	Yes	Y		DL	1.2	36	1.5	W	-.8	W	-.5												
153	1.2D + 1.5Lm(8) +...	Yes	Y		DL	1.2	36	1.5	W	-1	W	.001												
154	1.2D + 1.5Lm(8) +...	Yes	Y		DL	1.2	36	1.5	W	-.8	W	.5												
155	1.2D + 1.5Lm(8) +...	Yes	Y		DL	1.2	36	1.5	W	-.5	W	.866												
156	1.2D + 1.5Lm(9) +...	Yes	Y		DL	1.2	37	1.5	W	.001	W	1												
157	1.2D + 1.5Lm(9) +...	Yes	Y		DL	1.2	37	1.5	W	.5	W	.866												
158	1.2D + 1.5Lm(9) +...	Yes	Y		DL	1.2	37	1.5	W	.866	W	.5												
159	1.2D + 1.5Lm(9) +...	Yes	Y		DL	1.2	37	1.5	W	1	W	.001												
160	1.2D + 1.5Lm(9) +...	Yes	Y		DL	1.2	37	1.5	W	.866	W	-.5												
161	1.2D + 1.5Lm(9) +...	Yes	Y		DL	1.2	37	1.5	W	.5	W	-.8												
162	1.2D + 1.5Lm(9) +...	Yes	Y		DL	1.2	37	1.5	W	.001	W	-.5												
163	1.2D + 1.5Lm(9) +...	Yes	Y		DL	1.2	37	1.5	W	-.5	W	-.8												
164	1.2D + 1.5Lm(9) +...	Yes	Y		DL	1.2	37	1.5	W	-.8	W	-.5												
165	1.2D + 1.5Lm(9) +...	Yes	Y		DL	1.2	37	1.5	W	-1	W	.001												
166	1.2D + 1.5Lm(9) +...	Yes	Y		DL	1.2	37	1.5	W	-.8	W	.5												
167	1.2D + 1.5Lm(9) +...	Yes	Y		DL	1.2	37	1.5	W	-.5	W	.866												
168	1.2D + 1.5Lm(10) ...	Yes	Y		DL	1.2	38	1.5	W	.001	W	1												
169	1.2D + 1.5Lm(10) ...	Yes	Y		DL	1.2	38	1.5	W	.5	W	.866												
170	1.2D + 1.5Lm(10) ...	Yes	Y		DL	1.2	38	1.5	W	.866	W	.5												

Load Combinations (Continued)

	Description	Solve	PDelta	SRSS	BLC	Fa	BLC	Fa	B	Fa	B	Fa	B	Fa	B	Fa	B	Fa	B	Fa	B	Fa	B	Fa
171	1.2D + 1.5Lm(10) ...	Yes	Y		DL	1.2	38	1.5	W	1	W	.001												
172	1.2D + 1.5Lm(10) ...	Yes	Y		DL	1.2	38	1.5	W	.866	W	-.5												
173	1.2D + 1.5Lm(10) ...	Yes	Y		DL	1.2	38	1.5	W	.5	W	-.8												
174	1.2D + 1.5Lm(10) ...	Yes	Y		DL	1.2	38	1.5	W	.001	W	-.5												
175	1.2D + 1.5Lm(10) ...	Yes	Y		DL	1.2	38	1.5	W	-.5	W	-.8												
176	1.2D + 1.5Lm(10) ...	Yes	Y		DL	1.2	38	1.5	W	-.8	W	-.5												
177	1.2D + 1.5Lm(10) ...	Yes	Y		DL	1.2	38	1.5	W	-1	W	.001												
178	1.2D + 1.5Lm(10) ...	Yes	Y		DL	1.2	38	1.5	W	-.8	W	.5												
179	1.2D + 1.5Lm(10) ...	Yes	Y		DL	1.2	38	1.5	W	-.5	W	.866												
180	1.2D + 1.5Lm(11) ...	Yes	Y		DL	1.2	39	1.5	W	.001	W	1												
181	1.2D + 1.5Lm(11) ...	Yes	Y		DL	1.2	39	1.5	W	.5	W	.866												
182	1.2D + 1.5Lm(11) ...	Yes	Y		DL	1.2	39	1.5	W	.866	W	.5												
183	1.2D + 1.5Lm(11) ...	Yes	Y		DL	1.2	39	1.5	W	1	W	.001												
184	1.2D + 1.5Lm(11) ...	Yes	Y		DL	1.2	39	1.5	W	.866	W	-.5												
185	1.2D + 1.5Lm(11) ...	Yes	Y		DL	1.2	39	1.5	W	.5	W	-.8												
186	1.2D + 1.5Lm(11) ...	Yes	Y		DL	1.2	39	1.5	W	.001	W	-.5												
187	1.2D + 1.5Lm(11) ...	Yes	Y		DL	1.2	39	1.5	W	-.5	W	-.8												
188	1.2D + 1.5Lm(11) ...	Yes	Y		DL	1.2	39	1.5	W	-.8	W	-.5												
189	1.2D + 1.5Lm(11) ...	Yes	Y		DL	1.2	39	1.5	W	-1	W	.001												
190	1.2D + 1.5Lm(11) ...	Yes	Y		DL	1.2	39	1.5	W	-.8	W	.5												
191	1.2D + 1.5Lm(11) ...	Yes	Y		DL	1.2	39	1.5	W	-.5	W	.866												
192	1.2D + 1.5Lm(12) ...	Yes	Y		DL	1.2	40	1.5	W	.001	W	1												
193	1.2D + 1.5Lm(12) ...	Yes	Y		DL	1.2	40	1.5	W	.5	W	.866												
194	1.2D + 1.5Lm(12) ...	Yes	Y		DL	1.2	40	1.5	W	.866	W	.5												
195	1.2D + 1.5Lm(12) ...	Yes	Y		DL	1.2	40	1.5	W	1	W	.001												
196	1.2D + 1.5Lm(12) ...	Yes	Y		DL	1.2	40	1.5	W	.866	W	-.5												
197	1.2D + 1.5Lm(12) ...	Yes	Y		DL	1.2	40	1.5	W	.5	W	-.8												
198	1.2D + 1.5Lm(12) ...	Yes	Y		DL	1.2	40	1.5	W	.001	W	-.5												
199	1.2D + 1.5Lm(12) ...	Yes	Y		DL	1.2	40	1.5	W	-.5	W	-.8												
200	1.2D + 1.5Lm(12) ...	Yes	Y		DL	1.2	40	1.5	W	-.8	W	-.5												
201	1.2D + 1.5Lm(12) ...	Yes	Y		DL	1.2	40	1.5	W	-1	W	.001												
202	1.2D + 1.5Lm(12) ...	Yes	Y		DL	1.2	40	1.5	W	-.8	W	.5												
203	1.2D + 1.5Lm(12) ...	Yes	Y		DL	1.2	40	1.5	W	-.5	W	.866												
204	1.2D + 1.5Lm(13) ...	Yes	Y		DL	1.2	41	1.5	W	.001	W	1												
205	1.2D + 1.5Lm(13) ...	Yes	Y		DL	1.2	41	1.5	W	.5	W	.866												
206	1.2D + 1.5Lm(13) ...	Yes	Y		DL	1.2	41	1.5	W	.866	W	.5												
207	1.2D + 1.5Lm(13) ...	Yes	Y		DL	1.2	41	1.5	W	1	W	.001												
208	1.2D + 1.5Lm(13) ...	Yes	Y		DL	1.2	41	1.5	W	.866	W	-.5												
209	1.2D + 1.5Lm(13) ...	Yes	Y		DL	1.2	41	1.5	W	.5	W	-.8												
210	1.2D + 1.5Lm(13) ...	Yes	Y		DL	1.2	41	1.5	W	.001	W	-.5												
211	1.2D + 1.5Lm(13) ...	Yes	Y		DL	1.2	41	1.5	W	-.5	W	-.8												
212	1.2D + 1.5Lm(13) ...	Yes	Y		DL	1.2	41	1.5	W	-.8	W	-.5												
213	1.2D + 1.5Lm(13) ...	Yes	Y		DL	1.2	41	1.5	W	-1	W	.001												
214	1.2D + 1.5Lm(13) ...	Yes	Y		DL	1.2	41	1.5	W	-.8	W	.5												
215	1.2D + 1.5Lm(13) ...	Yes	Y		DL	1.2	41	1.5	W	-.5	W	.866												

Envelope Joint Reactions

	Joint		X [lb]	LC	Y [lb]	LC	Z [lb]	LC	MX [lb-ft]	LC	MY [lb-ft]	LC	MZ [lb-ft]	LC
1	N001	max	0	215	0	215	0	215	0	215	0	215	0	215
2		min	0	1	0	1	0	1	0	1	0	1	0	1
3	N017	max	153.975	17	2390.69	26	1072.502	14	13152.543	32	387.305	23	351.246	147
4		min	-153.973	11	660.447	20	-1072.347	8	3564.065	14	-387.291	5	-508.747	129
5	N018	max	867.358	18	2146.597	30	545.472	12	-1801.57	18	195.533	12	-3030.002	18
6		min	-867.515	12	604.697	24	-546.087	6	-6643.377	36	-195.506	6	-11142.373	36
7	N019	max	866.54	16	2146.054	34	544.117	16	-1721.37	22	191.914	22	11323.225	28

Envelope Joint Reactions (Continued)

	Joint		X [lb]	LC	Y [lb]	LC	Z [lb]	LC	MX [lb-ft]	LC	MY [lb-ft]	LC	MZ [lb-ft]	LC
8		min	-866.391	10	604.566	16	-544.724	10	-6323.113	28	-191.937	4	3075.539	22
9	Totals:	max	1641.553	17	6682.871	37	1721.356	14						
10		min	-1641.553	11	1870.468	14	-1721.356	8						

Envelope AISC 15th(360-16): LRFD Steel Code Checks

	Mem...	Shape	Code Check	Loc[in]	LC	Sh...	Loc[in]	Dir	LC	phi...	phi...	phi...	phi...	Cb	Eqn
1	H001	PIPE_...	.188	94.5	32	079	10.125		106	37...	78...	79...	79...	1.261	H...
2	H002	PIPE_...	.188	94.5	36	079	10.125		109	37...	78...	79...	79...	1.261	H...
3	H003	PIPE_...	.188	94.5	28	079	10.125		125	37...	78...	79...	79...	1.262	H...
4	H004	PL6x0...	.208	7.05	31	.619	7.05	y	36	21...	67...	35...	54...	1.197	H...
5	H005	PL6x0...	.208	7.05	33	.619	7.05	y	28	21...	67...	35...	54...	1.2	H...
6	H006	PL6x0...	.208	7.05	27	.619	7.05	y	32	21...	67...	35...	54...	1.197	H...
7	H007	HSS4...	.805	76.919	27	.071	76.919	y	148	11...	13...	16...	16...	1.714	H...
8	H008	HSS4...	.818	76.919	30	.081	76.919	y	35	11...	13...	16...	16...	1.73	H...
9	H009	HSS4...	.806	76.919	37	.071	76.919	y	132	11...	13...	16...	16...	1.714	H...
10	H022	HSS4...	.037	35.55	49	.024	0	y	155	13...	13...	16...	16...	1.299	H...
11	H023	HSS4...	.037	35.55	50	.024	0	y	159	13...	13...	16...	16...	1.299	H...
12	H024	HSS4...	.037	35.55	51	.024	0	y	139	13...	13...	16...	16...	1.299	H...
13	H025	L2x2x3	.873	28.499	52	.039	56.997	y	52	75...	23...	55...	10...	1.312	H...
14	H026	L2x2x3	.873	28.499	53	.039	56.997	y	53	75...	23...	55...	10...	1.312	H...
15	H027	L2x2x3	.873	28.499	54	.039	0	y	54	75...	23...	55...	10...	1.312	H...
16	H028	L2x2x3	.868	28.364	55	.040	0	z	55	76...	23...	55...	10...	1.312	H...
17	H029	L2x2x3	.868	28.364	56	.040	0	z	56	76...	23...	55...	10...	1.312	H...
18	H030	L2x2x3	.868	28.364	57	.040	0	z	57	76...	23...	55...	10...	1.312	H...
19	MP1	PIPE_...	.125	36	71	.003	36		2	61...	32...	18...	18...	1.559	H...
20	MP2	PIPE_...	.125	36	83	.003	36		6	61...	32...	18...	18...	1.559	H...
21	MP3	PIPE_...	.125	36	95	.003	36		11	61...	32...	18...	18...	1.524	H...
22	MP4	PIPE_...	.123	36	107	.003	36		4	61...	32...	18...	18...	1.499	H...
23	MP5	PIPE_...	.123	36	119	.003	36		9	61...	32...	18...	18...	1.56	H...
24	MP6	PIPE_...	.123	36	131	.003	36		12	61...	32...	18...	18...	1.606	H...
25	MP7	PIPE_...	.144	36	143	.003	36		11	61...	32...	18...	18...	1.557	H...
26	MP8	PIPE_...	.144	36	155	.003	36		5	61...	32...	18...	18...	1.559	H...
27	MP9	PIPE_...	.144	36	167	.003	36		6	61...	32...	18...	18...	1.526	H...
28	MP10	PIPE_...	.141	36	179	.003	36		11	61...	32...	18...	18...	1.483	H...
29	MP11	PIPE_...	.141	36	191	.003	36		5	61...	32...	18...	18...	1.556	H...
30	MP12	PIPE_...	.141	36	203	.003	36		6	61...	32...	18...	18...	1.5	H...
31	MP13	PIPE_...	.091	30	215	.002	30		5	89...	32...	18...	18...	1.653	H...

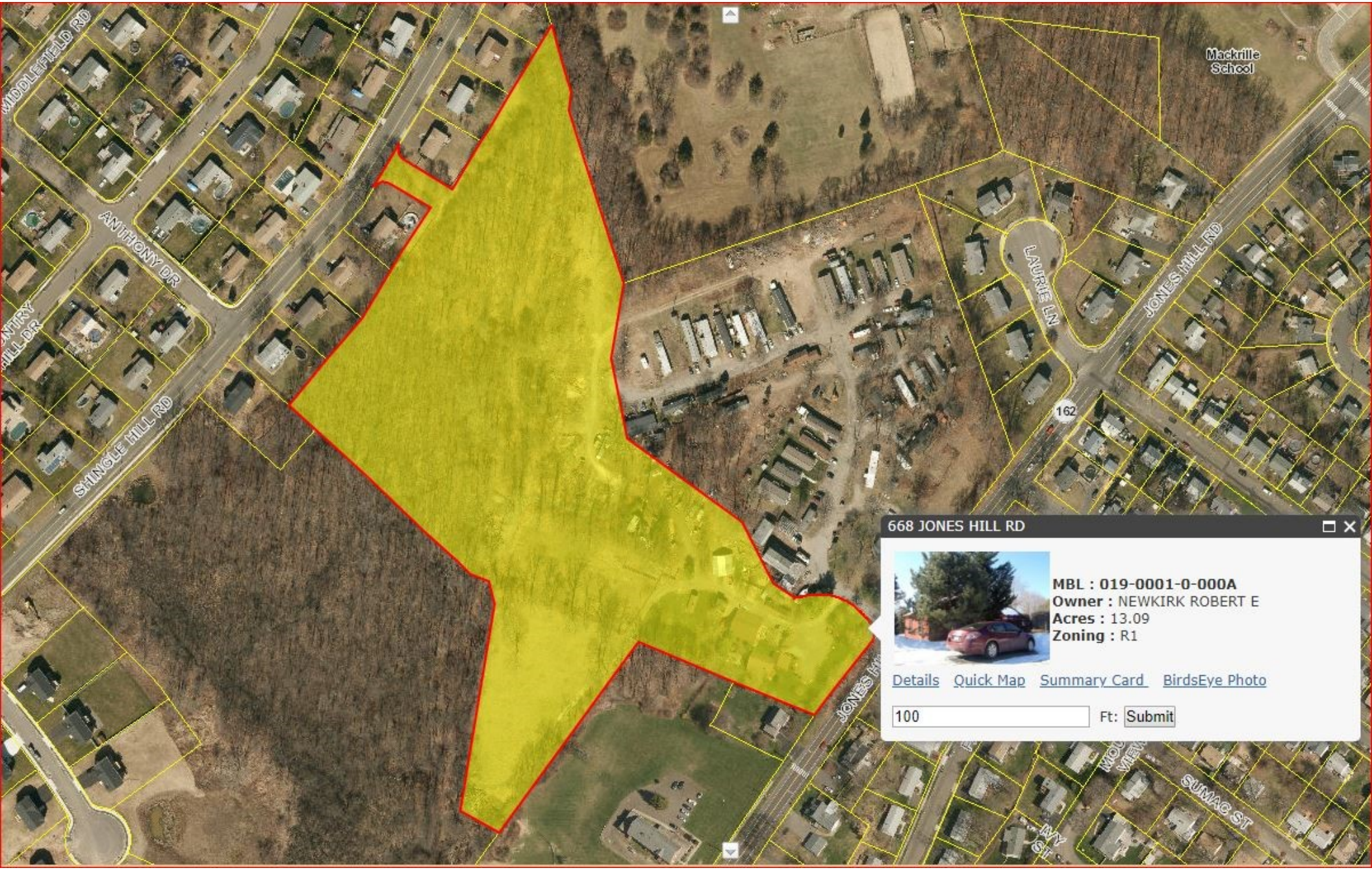
Site Name: West Haven SW CT
Cumulative Power Density

Operator	Operating Frequency	Number of Trans.	ERP Per Trans.	Total ERP	Distance to Target	Calculated Power Density	Maximum Permissible Exposure*	Fraction of MPE
	(MHz)		(watts)	(watts)	(feet)	(mW/cm^2)	(mW/cm^2)	(%)
VZW PCS	1970	4	1462	5846	134	0.1171	1.0	11.71%
VZW Cellular	869	1	627	626.86	134	0.0126	0.579333333	2.17%
VZW Cellular	880	4	495	1980.88	134	0.0397	0.586666667	6.76%
VZW AWS	2145	4	1566	6264.08	134	0.1255	1.0	12.55%
VZW 700	746	4	623	2493.76	134	0.0499	0.497333333	10.04%
Total Percentage of Maximum Permissible Exposure								43.23%

*Guidelines adopted by the FCC on August 1, 1996, 47 CFR Section 1.13101 based on NCRP Report 86, 1986 and generally on ANSI/IEEE C95.1-1992

MHz = Megahertz
mW/cm^2 = milliwatts per square centimeter
ERP = Effective Radiated Power

Absolute worst case maximum values used, including the following assumptions:
1. closest accessible point is distance from antenna to base of pole;
2. continuous transmission from all available channels at full power for indefinite time period; and,
3. all RF energy is assumed to be directed solely to the base of the pole.


Mackrille School
MIDDLEFIELD RD
ANTHONY DR
SHINGLE HILL RD
LAURIE LN
JONES HILL RD
162
668 JONES HILL RD
MBL : 019-0001-0-000A
Owner : NEWKIRK ROBERT E
Acres : 13.09
Zoning : R1
Details
Quick Map
Summary Card
BirdsEye Photo
100
Ft:
Submit
SUMAC ST
IVY ST

City of West Haven, CT

Property Listing Report

Map Block Lot	019-0001-0-000A	Building #	1	Section #	1	Account	00022558

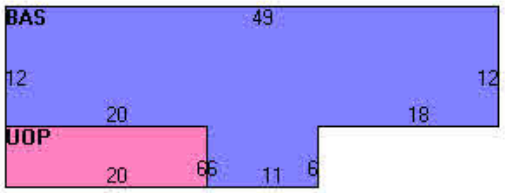
Property Information

Property Location	668 JONES HILL RD
Owner	NEWKIRK ROBERT E
Co-Owner	
Mailing Address	668 JONES HILL RD WEST HAVEN CT 06516
Land Use	3220 STORE MDL-94
Land Class	C
Zoning Code	R1
Census Tract	1547

Street Index	
Acreage	13.09
Utilities	Public Water,Public Sewer
Lot Setting/Desc	Above Street
Additional Info	

Photo

Sketch



Primary Construction Details

Year Built	1998
Stories	1
Building Style	Store
Building Use	Comm/Ind
Building Condition	F
Occupancy	1
Extra Fixtures	
Bath Style	
Kitchen Style	
AC Type	None
Heating Type	None
Heating Fuel	Coal or Wood

Bedrooms	
Full Bathrooms	
Half Bathrooms	
Total Rooms	
Roof Style	Gable
Roof Cover	Asph/F Gls/Cmp
Interior Floors 1	Hardwood
Interior Floors 2	
Exterior Walls	Wood on Sheath
Exterior Walls 2	
Interior Walls	Wall Brd/Wood
Interior Walls 2	

(*Industrial / Commercial Details)

Building Desc.	STORE MDL-94
Building Grade	Low Cost
Heat / AC	NONE
Frame Type	WOOD FRAME
Baths / Plumbing	LIGHT
Ceiling / Wall	NONE
Rooms / Prtns	AVERAGE
Wall Height	8
First Floor Use	

Report Created On 11/12/2019

City of West Haven, CT

Property Listing Report

Map Block Lot	019-0001-0-000A	Building #	1	Section #	1	Account	00022558

Valuation Summary

(Assessed value = 70% of Appraised Value)

Item	Appraised	Assessed
Buildings	149600	104720
Extras	0	0
Improvements		
Outbuildings	36500	25550
Land	397600	213140
Total	583700	343410

Outbuilding and Extra Features

Type	Description
W/IMPROVEMENTS	1764 S.F.
SCREEN HOUSE	600 S.F.
GAZEBO	240 S.F.
W/LIGHTS ETC	360 S.F.
SHED FRAME	120 S.F.

Sub Areas

Subarea Type	Gross Area (sq ft)	Living Area (sq ft)
First Floor	654	654
Porch, Open, Unfinished	120	0
Total Area	774	654

Sales History

Owner of Record	Book/ Page	Sale Date	Sale Price
NEWKIRK ROBERT E	1043/1000	10/16/1997	0

Report Created On 11/12/2019

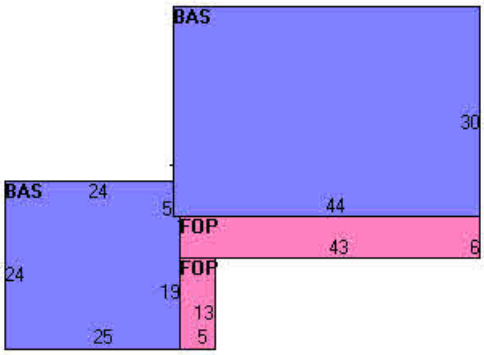
City of West Haven, CT

Property Listing Report

Map Block Lot	019-0001-0-000A	Building #	2	Section #	1	Account	00022558

Photo

Sketch



Primary Construction Details

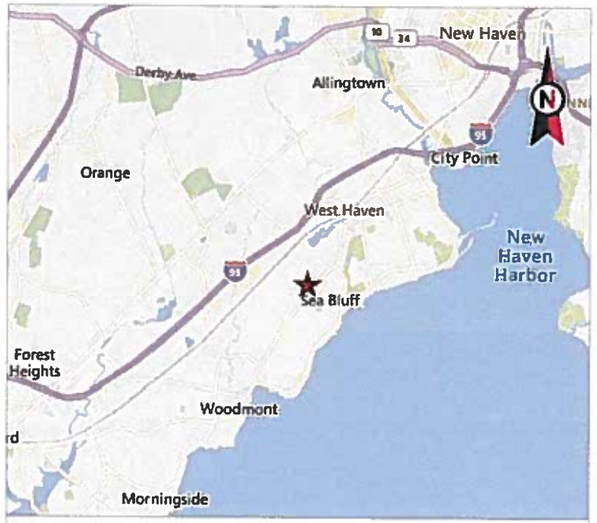
				(*Industrial / Commercial Details)	
Year Built	1998	Bedrooms	2 Bedrooms	Building Desc.	Single Fam MDL-01
Stories	1	Full Bathrooms	1	Building Grade	Average
Building Style	Ranch	Half Bathrooms	1	Heat / AC	NONE
Building Use	Residential	Total Rooms	5	Frame Type	WOOD FRAME
Building Condition	A	Roof Style	Gable	Baths / Plumbing	LIGHT
Occupancy	1	Roof Cover	Asph/F Gls/Cmp	Ceiling / Wall	NONE
Extra Fixtures		Interior Floors 1	Hardwood	Rooms / Prtns	AVERAGE
Bath Style	Average	Interior Floors2	Carpet	Wall Height	8
Kitchen Style	Average	Exterior Walls	Wood on Sheath	First Floor Use	
AC Type	Central	Exterior Walls 2			
Heating Type	Forced Air-Duc	Interior Walls	Drywall/Sheet		
Heating Fuel	Oil	Interior Walls 2			

Sub Areas

Subarea Type	Gross Area (sq ft)	Living Area (sq ft)
Porch, Open, Finished	323	0
First Floor	1915	1915

Subarea Type	Gross Area (sq ft)	Living Area (sq ft)
Total Area	2238	1915

Report Created On



VICINITY MAP

AMERICAN TOWER®

ATC SITE NAME: WEST HAVEN
ATC SITE NUMBER: 243036
VERIZON SITE NAME: WEST HAVEN SW CT
VERIZON SITE NUMBER:469425
SITE ADDRESS: 668 JONES HILL ROAD WEST HAVEN, CT 06516

VERIZON WIRELESS
ANTENNA AMENDMENT DRAWINGS

LOCATION MAP

COMPLIANCE CODE

ALL WORK SHALL BE PERFORMED AND MATERIALS INSTALLED IN ACCORDANCE WITH THE CURRENT EDITIONS OF THE FOLLOWING CODES AS ADOPTED BY THE LOCAL GOVERNMENT AUTHORITIES. NOTHING IN THESE PLANS IS TO BE CONSTRUED TO PERMIT WORK NOT CONFORMING TO THESE CODES.

1. INTERNATIONAL BUILDING CODE (IBC)
2. NATIONAL ELECTRIC CODE (NEC)
3. LOCAL BUILDING CODE
4. CITY/COUNTY ORDINANCES

UTILITY COMPANIES

POWER COMPANY: UNITED ILLUMINATING
PHONE: (203) 499-3333

TELEPHONE COMPANY: FRONTIER COMMUNICATIONS
PHONE: (800) 376-6843

811 Know what's below. Call before you dig.

PROJECT SUMMARY

SITE ADDRESS:

668 JONES HILL ROAD
WEST HAVEN, CT 06516
COUNTY: NEW HAVEN

GEOGRAPHIC COORDINATES:

LATITUDE: 41.25640278
LONGITUDE: -72.97236111
GROUND ELEVATION: 135' AMSL

PROJECT TEAM

TOWER OWNER:

AMERICAN TOWER
10 PRESIDENTIAL WAY
WOBURN, MA 01801

ENGINEER:

ATC TOWER SERVICES, LLC
3500 REGENCY PKWY STE 100
CARY, NC 27518

PROPERTY OWNER:

NEWKIRK ROBERT E
668 JONES HILL RD
WEST HAVEN, CT 06516

APPLICANT:

VERIZON WIRELESS
20 ALEXANDER DRIVE, 2ND FLOOR
WALLINGFORD, CT 06492

PROJECT DESCRIPTION

THE PROPOSED PROJECT INCLUDES MODIFYING GROUND BASED AND TOWER MOUNTED EQUIPMENT AS INDICATED PER BELOW:

REMOVE (9) PANELS AND (3) RRUs

INSTALL (6) PANELS, (6) RRUs, AND (3) SIDE-BY-SIDE MOUNTING BRACKETS

EXISTING (3) PANELS, (1) OVP, (12) 1-5/8" COAX CABLES AND (1) 1-5/8" HYBRID CABLE TO REMAIN

PROJECT NOTES

1. THE FACILITY IS UNMANNED.
2. A TECHNICIAN WILL VISIT THE SITE APPROXIMATELY ONCE A MONTH FOR ROUTINE INSPECTION AND MAINTENANCE.
3. THE PROJECT WILL NOT RESULT IN ANY SIGNIFICANT LAND DISTURBANCE OR EFFECT OF STORM WATER DRAINAGE.
4. NO SANITARY SEWER, POTABLE WATER OR TRASH DISPOSAL IS REQUIRED.
5. HANDICAP ACCESS IS NOT REQUIRED.

PROJECT LOCATION DIRECTIONS

FROM BOSTON - TAKE I 95 SOUTH INTO CT AND FOLLOW TO EXIT # 42 . TAKE RIGHT ONTO RT 162 AND FOLLOW INTO WEST HAVEN - STAY ON RT 162 AND FOLLOW TO 668 JOHNS HILL ROAD

SHEET INDEX

SHEET NO:	DESCRIPTION:	REV:	DATE:	BY:
G-001	COVER SHEET	0	11/05/19	AZ
G-002	GENERAL NOTES	0	11/05/19	AZ
C-101	DETAILED SITE PLAN	0	11/05/19	AZ
C-102	TOWER ELEVATION	0	11/05/19	AZ
C-501	RF SCHEDULE AND ANTENNA INSTALLATION	0	11/05/19	AZ
C-502	CONSTRUCTION DETAILS	0	11/05/19	AZ
R-601	SUPPLEMENTAL			

AMERICAN TOWER®
A.T. ENGINEERING SERVICE, PLLC
3500 REGENCY PARKWAY
SUITE 100
CARY, NC 27518
PHONE: (919) 468-0112
COA: PEC.0001553

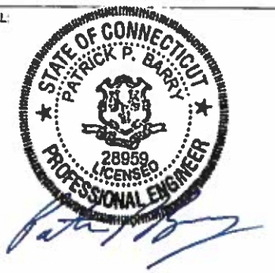
REV.	DESCRIPTION	BY	DATE
0	FOR CONSTRUCTION	AZ	11/05/19

ATC SITE NUMBER:
243036

ATC SITE NAME:
WEST HAVEN
& RT 162 CT

SITE ADDRESS:
668 JONES HILL ROAD
WEST HAVEN, CT 06516

SEAL:



Authorized by "EOR"
Now [illegible] verizon

DRAWN BY:	AZ
APPROVED BY:	PPB
DATE DRAWN:	11/05/19
ATC JOB NO:	12984003
CUSTOMER ID:	WEST HAVEN SW CT
CUSTOMER #:	469425

COVER SHEET

SHEET NUMBER:	REVISION:
G-001	0

GENERAL CONSTRUCTION NOTES:

1. ALL WORK SHALL CONFORM TO ALL CURRENT APPLICABLE FEDERAL, STATE, AND LOCAL CODES, INCLUDING ANSI/EIA/TIA-222, AND COMPLY WITH ATC CONSTRUCTION SPECIFICATIONS.
2. CONTRACTOR SHALL CONTACT LOCAL 811 FOR IDENTIFICATION OF UNDERGROUND UTILITIES PRIOR TO START OF CONSTRUCTION.
3. CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING ALL REQUIRED INSPECTIONS.
4. ALL DIMENSIONS TO, OF, AND ON EXISTING BUILDINGS, DRAINAGE STRUCTURES, AND SITE IMPROVEMENTS SHALL BE VERIFIED IN FIELD BY CONTRACTOR WITH ALL DISCREPANCIES REPORTED TO THE ENGINEER.
5. DO NOT CHANGE SIZE OR SPACING OF STRUCTURAL ELEMENTS.
6. DETAILS SHOWN ARE TYPICAL; SIMILAR DETAILS APPLY TO SIMILAR CONDITIONS UNLESS OTHERWISE NOTED.
7. THESE DRAWINGS DO NOT INCLUDE NECESSARY COMPONENTS FOR CONSTRUCTION SAFETY WHICH SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR.
8. CONTRACTOR SHALL BRACE STRUCTURES UNTIL ALL STRUCTURAL ELEMENTS NEEDED FOR STABILITY ARE INSTALLED. THESE ELEMENTS ARE AS FOLLOWS: LATERAL BRACING, ANCHOR BOLTS, ETC.
9. CONTRACTOR SHALL DETERMINE EXACT LOCATION OF EXISTING UTILITIES, GROUNDS DRAINS, DRAIN PIPES, VENTS, ETC. BEFORE COMMENCING WORK.
10. INCORRECTLY FABRICATED, DAMAGED, OR OTHERWISE MISFITTING OR NONCONFORMING MATERIALS OR CONDITIONS SHALL BE REPORTED TO THE VERIZON WIRELESS REP PRIOR TO REMEDIAL OR CORRECTIVE ACTION. ANY SUCH REMEDIAL ACTION SHALL REQUIRE WRITTEN APPROVAL BY THE VERIZON WIRELESS REP PRIOR TO PROCEEDING.
11. EACH CONTRACTOR SHALL COOPERATE WITH THE VERIZON WIRELESS REP, AND COORDINATE HIS WORK WITH THE WORK OF OTHERS.
12. CONTRACTOR SHALL REPAIR ANY DAMAGE CAUSED BY CONSTRUCTION OF THIS PROJECT TO MATCH EXISTING PRE-CONSTRUCTION CONDITIONS TO THE SATISFACTION OF THE VERIZON WIRELESS CONSTRUCTION MANAGER.
13. ALL CABLE/CONDUIT ENTRY/EXIT PORTS SHALL BE WEATHERPROOFED DURING INSTALLATION USING A SILICONE SEALANT.
14. WHERE EXISTING CONDITIONS DO NOT MATCH THOSE SHOWN IN THIS PLAN SET, CONTRACTOR SHALL NOTIFY THE VERIZON WIRELESS REP IMMEDIATELY.
15. CONTRACTOR SHALL ENSURE ALL SUBCONTRACTORS ARE PROVIDED WITH A COMPLETE AND CURRENT SET OF DRAWINGS AND SPECIFICATIONS FOR THIS PROJECT.
16. CONTRACTOR SHALL REMOVE ALL RUBBISH AND DEBRIS FROM THE SITE AT THE END OF EACH DAY.
17. CONTRACTOR SHALL COORDINATE WORK SCHEDULE WITH LANDLORD AND TAKE PRECAUTIONS TO MINIMIZE IMPACT AND DISRUPTION OF OTHER OCCUPANTS OF THE FACILITY.
18. CONTRACTOR SHALL FURNISH VERIZON WIRELESS WITH A PDF MARKED UP AS-BUILT SET OF DRAWINGS UPON COMPLETION OF WORK.
19. PRIOR TO SUBMISSION OF BID, CONTRACTOR SHALL COORDINATE WITH VERIZON WIRELESS REP TO DETERMINE WHAT, IF ANY, ITEMS WILL BE PROVIDED. ALL ITEMS NOT PROVIDED SHALL BE PROVIDED AND INSTALLED BY THE CONTRACTOR. CONTRACTOR WILL INSTALL ALL ITEMS PROVIDED.
20. PRIOR TO SUBMISSION OF BID, CONTRACTOR SHALL COORDINATE WITH VERIZON WIRELESS REP TO DETERMINE IF ANY PERMITS WILL BE OBTAINED BY CONTRACTOR. ALL REQUIRED PERMITS NOT OBTAINED BY VERIZON WIRELESS MUST BE OBTAINED, AND PAID FOR, BY THE CONTRACTOR.
21. CONTRACTOR SHALL INSTALL ALL SITE SIGNAGE IN ACCORDANCE WITH VERIZON WIRELESS SPECIFICATIONS AND REQUIREMENTS.
22. CONTRACTOR SHALL SUBMIT ALL SHOP DRAWINGS TO VERIZON WIRELESS FOR REVIEW AND APPROVAL PRIOR TO FABRICATION.
23. ALL EQUIPMENT SHALL BE INSTALLED ACCORDING TO MANUFACTURER'S SPECIFICATIONS AND LOCATED ACCORDING TO VERIZON WIRELESS SPECIFICATIONS, AND AS SHOWN IN THESE PLANS.
24. THE CONTRACTOR SHALL SUPERVISE AND DIRECT THE PROJECT DESCRIBED HEREIN. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR ALL THE CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES AND PROCEDURES AND FOR COORDINATING ALL PORTIONS OF THE WORK UNDER THE CONTRACT.
25. CONTRACTOR SHALL NOTIFY VERIZON WIRELESS REP A MINIMUM OF 48 HOURS IN ADVANCE OF POURING CONCRETE OR BACKFILLING ANY UNDERGROUND UTILITIES, FOUNDATIONS OR SEALING ANY WALL, FLOOR OR ROOF PENETRATIONS FOR ENGINEERING REVIEW AND APPROVAL.
26. CONTRACTOR SHALL BE RESPONSIBLE FOR SITE SAFETY INCLUDING COMPLIANCE WITH ALL APPLICABLE OSHA STANDARDS AND RECOMMENDATIONS AND SHALL PROVIDE ALL NECESSARY SAFETY DEVICES INCLUDING PPE AND PPM AND CONSTRUCTION DEVICES SUCH AS WELDING AND FIRE PREVENTION, TEMPORARY SHORING, SCAFFOLDING, TRENCH BOXES/SLOPING, BARRIERS, ETC.
27. THE CONTRACTOR SHALL PROTECT AT HIS OWN EXPENSE, ALL EXISTING FACILITIES AND SUCH OF HIS NEW WORK LIABLE TO INJURY DURING THE CONSTRUCTION PERIOD. ANY DAMAGE CAUSED BY NEGLECT ON THE PART OF THIS CONTRACTOR OR HIS REPRESENTATIVES, OR BY THE ELEMENTS DUE TO NEGLECT ON THE PART OF THIS CONTRACTOR OR HIS REPRESENTATIVES, EITHER TO THE EXISTING WORK, OR TO HIS WORK OR THE WORK OF ANY OTHER CONTRACTOR, SHALL BE REPAIRED AT HIS EXPENSE TO THE OWNER'S SATISFACTION.
28. ALL WORK SHALL BE INSTALLED IN A FIRST CLASS, NEAT AND WORKMANLIKE MANNER BY MECHANICS SKILLED IN THE TRADE INVOLVED. THE QUALITY OF WORKMANSHIP SHALL BE SUBJECT TO THE APPROVAL OF THE VERIZON WIRELESS REP. ANY WORK FOUND BY THE VERIZON WIRELESS REP TO BE OF INFERIOR QUALITY AND/OR WORKMANSHIP SHALL BE REPLACED AND/OR REWORKED AT CONTRACTOR EXPENSE UNTIL APPROVAL IS OBTAINED.
29. IN ORDER TO ESTABLISH STANDARDS OF QUALITY AND PERFORMANCE, ALL TYPES OF MATERIALS LISTED HEREINAFTER BY MANUFACTURER'S NAMES AND/OR MANUFACTURER'S CATALOG NUMBER SHALL BE PROVIDED BY THESE MANUFACTURERS AS SPECIFIED.

STRUCTURAL STEEL NOTES:

1. STRUCTURAL STEEL SHALL CONFORM TO THE LATEST EDITION OF THE AISC "SPECIFICATION FOR THE DESIGN, FABRICATION AND ERECTION OF STRUCTURAL STEEL FOR BUILDINGS."
2. STRUCTURAL STEEL ROLLED SHAPES, PLATES AND BARS SHALL CONFORM TO THE FOLLOWING ASTM DESIGNATIONS:
   - A. ASTM A-572, GRADE 50 - ALL W SHAPES, UNLESS NOTED OR A992 OTHERWISE
   - B. ASTM A-36 - ALL OTHER ROLLED SHAPES, PLATES AND BARS UNLESS NOTED OTHERWISE.
   - C. ASTM A-500, GRADE B - HSS SECTION (SQUARE, RECTANGULAR, AND ROUND)
   - D. ASTM A-325, TYPE SC OR N - ALL BOLTS FOR CONNECTING STRUCTURAL MEMBERS
   - E. ASTM F-1554 07 - ALL ANCHOR BOLTS, UNLESS NOTED OTHERWISE
3. ALL EXPOSED STRUCTURAL STEEL MEMBERS SHALL BE HOT-DIPPED GALVANIZED AFTER FABRICATION PER ASTM A123. EXPOSED STEEL HARDWARE AND ANCHOR BOLTS SHALL BE GALVANIZED PER ASTM A153 OR B695.
4. ALL FIELD CUT SURFACES, FIELD DRILLED HOLES AND GROUND SURFACES WHERE EXISTING PAINT OR GALVANIZATION REMOVAL WAS REQUIRED SHALL BE REPAIRED WITH (2) BRUSHED COATS OF ZRC GALVILITE COLD GALVANIZING COMPOUND PER ASTM A780 AND MANUFACTURER'S RECOMMENDATIONS.
5. DO NOT DRILL HOLES THROUGH STRUCTURAL STEEL MEMBERS EXCEPT AS SHOWN AND DETAILED ON STRUCTURAL DRAWINGS.
6. CONNECTIONS:
   - A. ALL WELDING TO BE PERFORMED BY AWS CERTIFIED WELDERS AND CONDUCTED IN ACCORDANCE WITH THE LATEST EDITION OF THE AWS WELDING CODE D1.1.
   - B. ALL WELDS SHALL BE INSPECTED VISUALLY. 25% OF WELDS SHALL BE INSPECTED WITH DYE PENETRANT OR MAGNETIC PARTICLE TO MEET THE ACCEPTANCE CRITERIA OF AWS D1.1. REPAIR ALL WELDS AS NECESSARY.
   - C. INSPECTION SHALL BE PERFORMED BY AN AWS CERTIFIED WELD INSPECTOR.
   - D. IT IS THE CONTRACTORS RESPONSIBILITY TO PROVIDE BURNING/WELDING PERMITS AS REQUIRED BY LOCAL GOVERNING AUTHORITY AND IF REQUIRED SHALL HAVE FIRE DEPARTMENT DETAIL FOR ANY WELDING ACTIVITY.
   - E. ALL ELECTRODES TO BE LOW HYDROGEN, MATCHING FILLER METAL, PER AWS D1.1, UNLESS NOTED OTHERWISE.
   - F. MINIMUM WELD SIZE TO BE 0.1875 INCH FILLET WELDS, UNLESS NOTED OTHERWISE.
   - G. PRIOR TO FIELD WELDING GALVANIZING MATERIAL, CONTRACTOR SHALL GRIND OFF GALVANIZING ½" BEYOND ALL FIELD WELD SURFACES. AFTER WELD AND WELD INSPECTION IS COMPLETE, REPAIR ALL GROUND AND WELDED SURFACES WITH ZRC GALVILITE COLD GALVANIZING COMPOUND PER ASTM A780 AND MANUFACTURERS RECOMMENDATIONS.

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SUITE 100
CARY, NC 27518
PHONE: (919) 468-0112
COA: PEC.0001553

REV.	DESCRIPTION	BY	DATE
0	FOR CONSTRUCTION	AZ	11/05/19

ATC SITE NUMBER:
243036

ATC SITE NAME:
WEST HAVEN
& RT 162 CT

SITE ADDRESS:
668 JONES HILL ROAD
WEST HAVEN, CT 06516

SEAL:

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DRAWN BY:	AZ
APPROVED BY:	PPB
DATE DRAWN:	11/05/19
ATC JOB NO:	12984003
CUSTOMER ID:	WEST HAVEN SW CT
CUSTOMER #:	469425

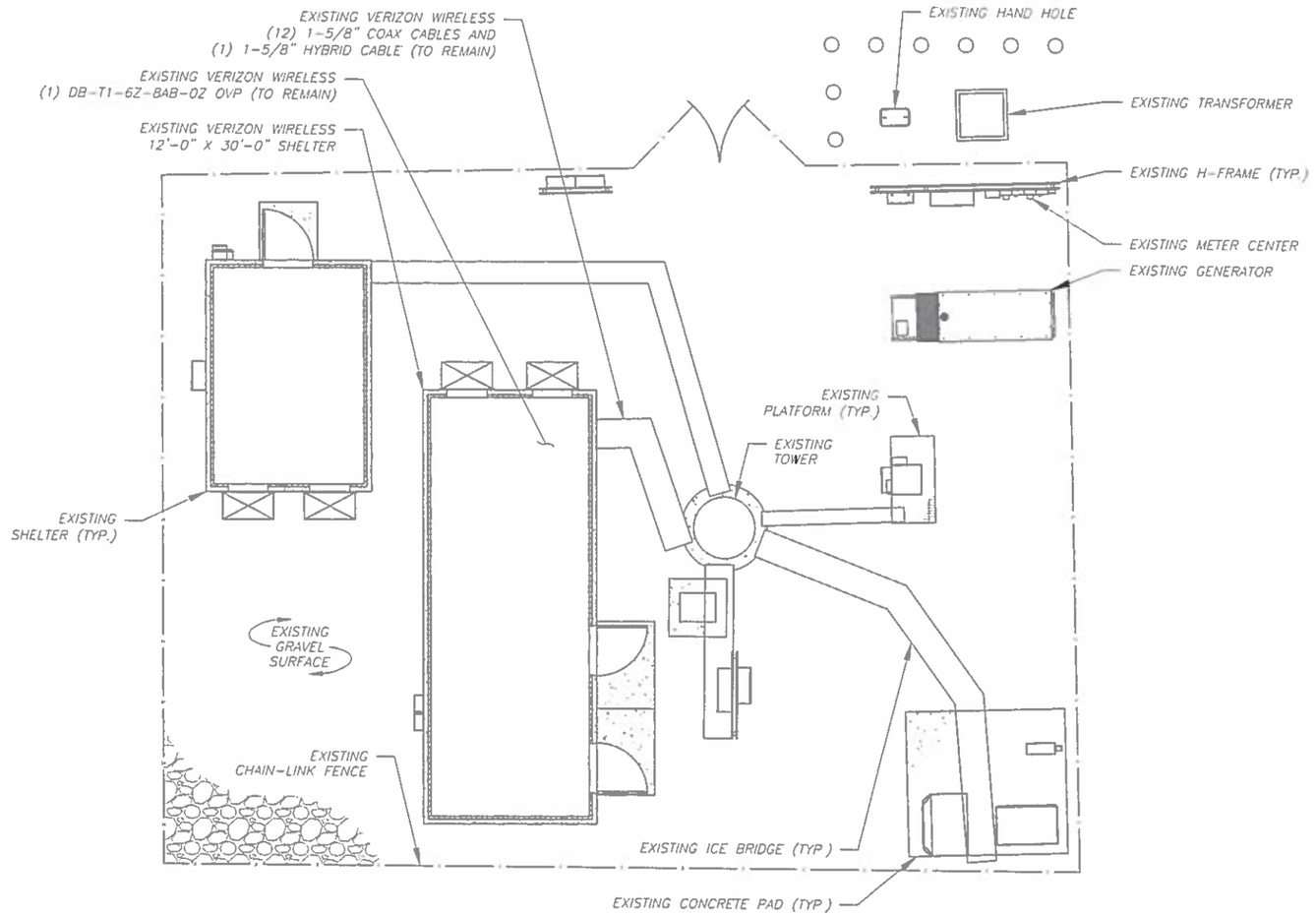
GENERAL NOTES

SHEET NUMBER:	REVISION:
G-002	0

SITE PLAN NOTES:

1. THIS SITE PLAN REPRESENTS THE BEST PRESENT KNOWLEDGE AVAILABLE TO THE ENGINEER AT THE TIME OF THIS DESIGN. THE CONTRACTOR SHALL VISIT THE SITE PRIOR TO CONSTRUCTION AND VERIFY ALL EXISTING CONDITIONS RELATED TO THE SCOPE OF WORK FOR THIS PROJECT.

2. ICE BRIDGE, CABLE LADDER, COAX PORT, CABLE SUPPORTS, AND CABLES ARE SHOWN FOR REFERENCE ONLY. CONTRACTOR SHALL CONFIRM THE EXACT LOCATION OF ALL PROPOSED AND EXISTING EQUIPMENT AND STRUCTURES DEPICTED ON THIS PLAN. BEFORE INSTALLING NEW CABLE SUPPORT STRUCTURES, COAX PORTS, OR ANY OTHER EQUIPMENT, CONTRACTOR SHALL VERIFY ALL ASPECTS OF THE COMPONENTS MEET THE ATC SPECIFICATIONS.



1 DETAILED SITE PLAN

0 10' 20'

SCALE: 1"=10' (11X17)
1"=5' (22X34)

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REV.	DESCRIPTION	BY	DATE
0	FOR CONSTRUCTION	AZ	11/05/19

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243036

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& RT 162 CT

SITE ADDRESS:
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WEST HAVEN, CT 06516

SEAL:

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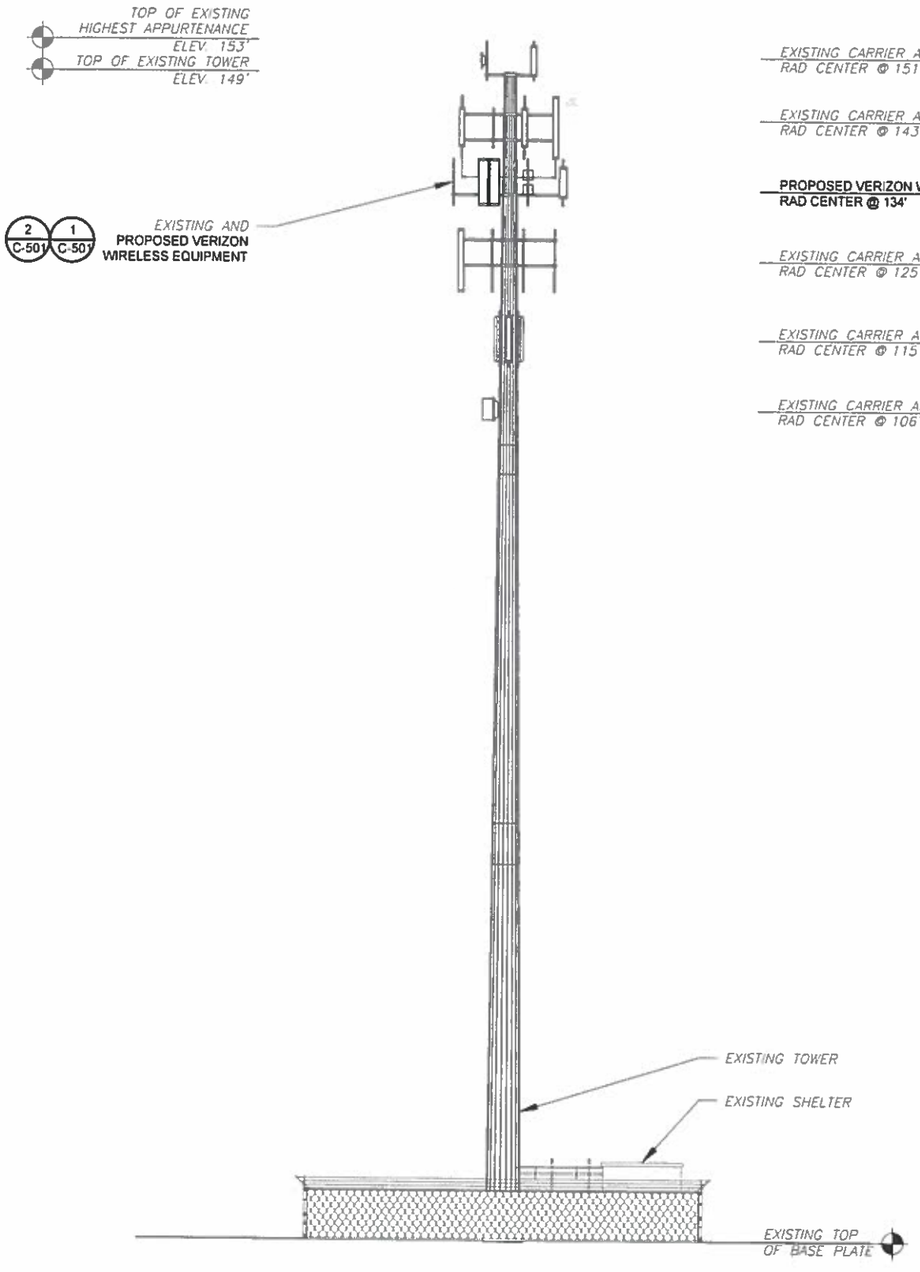
DRAWN BY:	AZ
APPROVED BY:	PPB
DATE DRAWN:	11/05/19
ATC JOB NO:	12984003
CUSTOMER ID:	WEST HAVEN SW CT
CUSTOMER #:	459425

DETAILED SITE PLAN

SHEET NUMBER:	REVISION:
C-101	0

PER MOUNT ANALYSIS COMPLETED BY AMERICAN TOWER CORPORATION, DATED 10/04/19, THE EXISTING MOUNT CAN ADEQUATELY SUPPORT THE PROPOSED LOADING



2 TOWER ELEVATION
SCALE: NOT TO SCALE

TOWER NOTE:
1. IT IS THE CONTRACTOR'S RESPONSIBILITY TO CONFIRM WITH THE AMERICAN TOWER CONSTRUCTION MANAGER THAT THEY HAVE THE MOST RECENT VERSION OF THE STRUCTURAL ANALYSIS BEFORE COMMENCING WORK. EXISTING AND PROPOSED TOWER APPURTENANCES, MOUNTS, AND ANTENNAS ARE SHOWN BASED ON THE STRUCTURAL ANALYSIS.
2. ATC DID NOT CONFIRM EXISTING SITE CONDITIONS INCLUDING, BUT NOT LIMITED TO, ANTENNA HEIGHTS, ANTENNA AZIMUTHS AND MOUNT CONFIGURATIONS.
3. TOWER ELEVATIONS ARE MEASURED FROM TOP OF BASE PLATE TO MATCH STRUCTURAL ANALYSIS. ELEVATIONS DO NOT REFLECT TRUE ABOVE GROUND LEVEL (A.G.L.)

ANTENNA NOTES:
1. ALL ANTENNAS TO BE FURNISHED WITH DOWNTILT BRACKETS. CONTRACTOR TO COORDINATE REQUIRED MECHANICAL DOWNTILT FOR EACH ANTENNA WITH VERIZON RF ENGINEER.
2. ANTENNA CENTERLINE HEIGHT IS ABOVE GROUND LEVEL (AGL).
3. CONTRACTOR SHALL VERIFY ANTENNA TYPE, AZIMUTH, DOWNTILT, AND ANTENNA NUMBER PER SECTOR WITH CONSTRUCTION MANAGER PRIOR TO CONSTRUCTION.
4. ALL PERSONNEL WORKING ON THE TOWER MUST COMPLY WITH VERIZON'S RF EMISSIONS GUIDELINE POLICY.
5. CHECK WITH RF ENGINEER FOR LATEST ANTENNA TYPE AND AZIMUTH.
6. CONTRACTOR SHALL NOT INSTALL SHRINK WRAP UNTIL AFTER CABLES HAVE BEEN SWEPT.
7. THE USE OF ALTERNATE GROUNDING MEANS (SUCH AS LYNCOLE XIT) SHALL COMPLY WITH O.C.E.I. CONSTRUCTION SPECIFICATIONS AND BUILDING PRACTICES.

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REV.	DESCRIPTION	BY	DATE
0	FOR CONSTRUCTION	AZ	11/05/19

ATC SITE NUMBER:
243036

ATC SITE NAME:
WEST HAVEN
& RT 162 CT

SITE ADDRESS:
668 JONES HILL ROAD
WEST HAVEN, CT 06516

SEAL:

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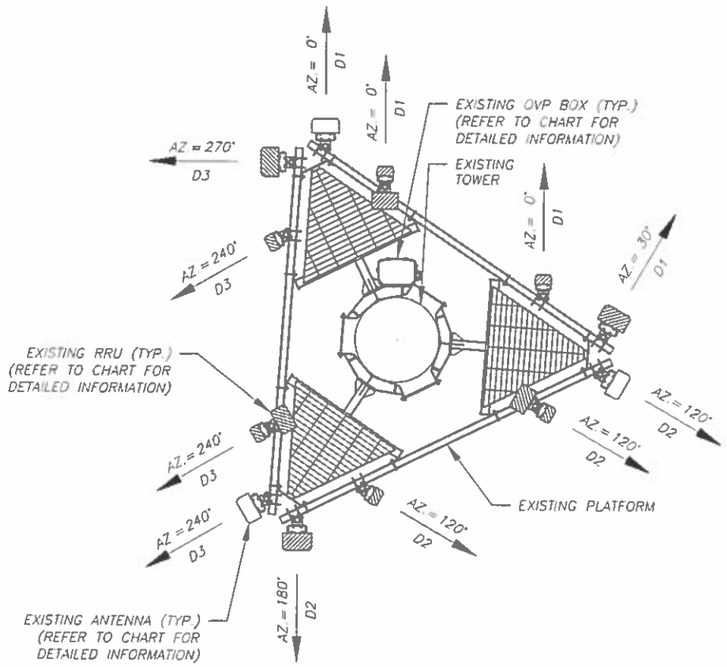
DRAWN BY:	AZ
APPROVED BY:	PPB
DATE DRAWN:	11/05/19
ATC JOB NO:	12984003
CUSTOMER ID:	WEST HAVEN SW CT
CUSTOMER #:	469425

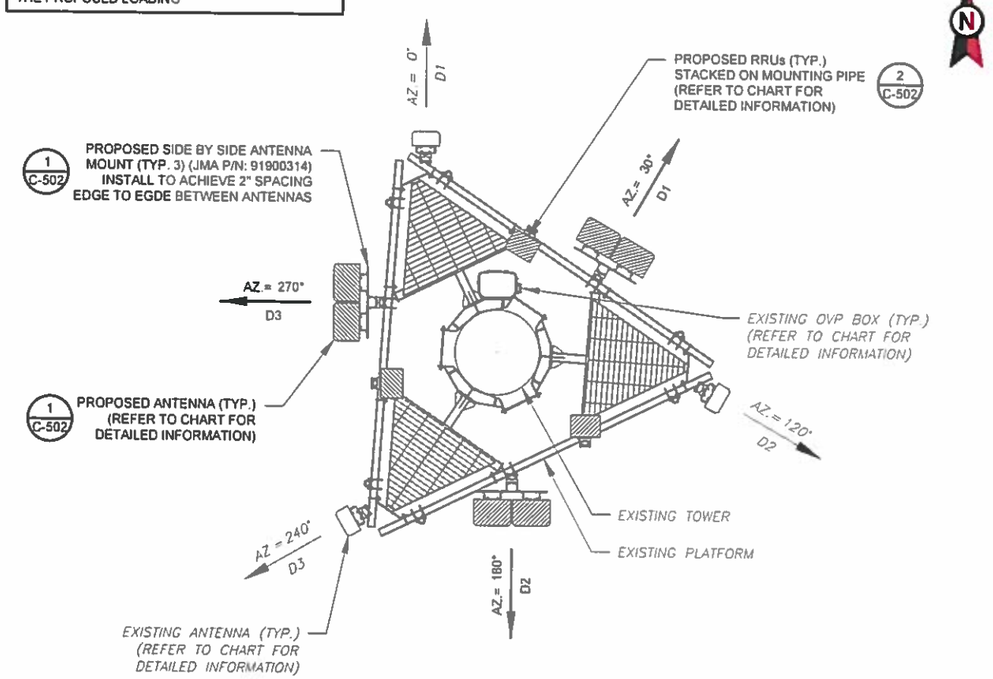
TOWER ELEVATION

SHEET NUMBER:	REVISION:
C-102	0



1 CURRENT ANTENNA PLAN

PER MOUNT ANALYSIS COMPLETED BY AMERICAN TOWER CORPORATION, DATED 10/04/19, THE EXISTING MOUNT CAN ADEQUATELY SUPPORT THE PROPOSED LOADING



2 FINAL ANTENNA PLAN

EXISTING ANTENNA SCHEDULE

LOCATION			ANTENNA SUMMARY				NON ANTENNA SUMMARY	
SECTOR	RAD	AZ	POS	ANTENNA	BAND	STATUS	ADDITIONAL TOWER MOUNTED EQUIPMENT	STATUS
D1	134'	0°	A1	DB854DG65ESX	850 CDMA	RMN	–	–
			A2	BXA-171063-12BF-EDIN-X	2100 LTE	RMV	RRH2X40-AWS	RMV
			A3	BXA-185085/12CF	2100 LTE	RMV	–	–
		30°	A4	LNX-6514DS-A1M	700 LTE	RMV	–	–
D2	134'	120°	B1	DB854DG65ESX	850 CDMA	RMN	–	–
			B2	BXA-171063-12BF-EDIN-X	2100 LTE	RMV	RRH2X40-AWS	RMV
			B3	BXA-185085/12CF	2100 LTE	RMV	–	–
		180°	B4	LNX-6514DS-A1M	700 LTE	RMV	–	–
D3	134'	240°	C1	DB854DG65ESX	850 CDMA	RMN	–	–
			C2	BXA-171063-12BF-EDIN-X	2100 LTE	RMV	RRH2X40-AWS	RMV
			C3	BXA-185085/12CF	2100 LTE	RMV	–	–
		270°	C4	LNX-6514DS-A1M	700 LTE	RMV	–	–

NOTES

1. BASED ON APPROVED ATC APPLICATION 12984003, DATED 10/07/19. CONFIRM WITH VERIZON WIRELESS REP FOR APPLICABLE UPDATES/REVISIONS AND MOST RECENT RFDS FOR NSN CONFIGURATION (CONFIG). GC TO CAP ALL UNUSED PORTS.
2. ATC HAS NOT YET VERIFIED ANY EXISTING ANTENNA CONFIG OR MOUNT CONFIG. CONTRACTOR TO VERIFY MOUNT CONFIG HAS SUFFICIENT SPACE FOR PROPOSED LESSEE EQUIPMENT (EQUIP) (I.E. CLEARANCES, MOUNT PIPE, SUFFICIENT LENGTH, ETC.)
3. ALL PROPOSED EQUIP INCLUDING ANTENNAS, COAX, ETC. SHALL BE MOUNTED IN ACCORDANCE WITH THE TOWER STRUCTURAL ANALYSIS ON FILE WITH ATC'S CM.
4. CONFIRM SPACING OF PROPOSED EQUIP DOES NOT CAUSE TOWER CONFLICTS NOR IMPEDE TOWER CLIMBING PEGS.
5. POSITIONS START WITH FIRST PIPE ON THE LEFT SIDE (AS VIEWED FROM BEHIND THE MOUNT).

FINAL ANTENNA SCHEDULE

LOCATION			ANTENNA SUMMARY				NON ANTENNA SUMMARY	
SECTOR	RAD	AZ	POS	ANTENNA	BAND	STATUS	ADDITIONAL TOWER MOUNTED EQUIPMENT	STATUS
D1	134'	0°	A1	DB854DG65ESX	850 CDMA	RMN	-	-
		30°	A2	-	-	-	B2/B66A RRH-BR049 B5/B13 RRH-BR04C	ADD
			A3	(2) MX06FRO660-02	700/850/1900 LTE	ADD	-	-
		0°	A4	-	-	-	-	-
D2	134'	120°	B1	DB854DG65ESX	850 CDMA	RMN	-	-
		180°	B2	-	-	-	B2/B66A RRH-BR049 B5/B13 RRH-BR04C	ADD
			B3	(2) MX06FRO660-02	700/850/1900 LTE	ADD	-	-
		120°	B4	-	-	-	-	-
D3	134'	240°	C1	DB854DG65ESX	850 CDMA	RMN	-	-
		270°	C2	-	-	-	B2/B66A RRH-BR049 B5/B13 RRH-BR04C	ADD
			C3	(2) MX06FRO660-02	700/850/1900 LTE	ADD	-	-
		240°	C4	-	-	-	-	-

EXISTING FIBER DISTRIBUTION/OVP BOX		EXISTING CABLING SUMMARY		
MODEL NUMBER	STATUS	COAX	HYBRID	STATUS
(1) DB-T1-6Z-8AB-0Z	RMN	(12) 1-5/8"	(1) 1-5/8"	RMN
–	–	–	–	–

STATUS ABBREVIATIONS
RMV: TO BE REMOVED
RMN: TO REMAIN
REL: TO BE RELOCATED
DSC: TO BE DISCONNECTED & REMAIN
ADD: TO BE ADDED

3 EQUIPMENT SCHEDULES

CABLE LENGTHS FOR JUMPERS
FIBER DISTRIBUTION/OVP TO RRU: 15'
RRU TO ANTENNA: 10'

FINAL FIBER DISTRIBUTION/OVP BOX		FINAL CABLING SUMMARY		
MODEL NUMBER	STATUS	COAX	HYBRID	STATUS
(1) DB-T1-6Z-8AB-0Z	RMN	(12) 1-5/8"	(1) 1-5/8"	RMN
-	-	-	-	-

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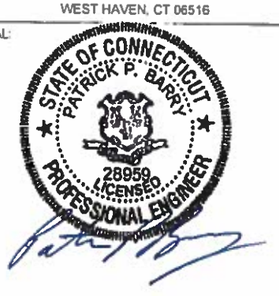
REV.	DESCRIPTION	BY	DATE
0	FOR CONSTRUCTION	AZ	11/05/19

ATC SITE NUMBER:
243036

ATC SITE NAME:
WEST HAVEN
& RT 162 CT

SITE ADDRESS:
668 JONES HILL ROAD
WEST HAVEN, CT 06516

SEAL:



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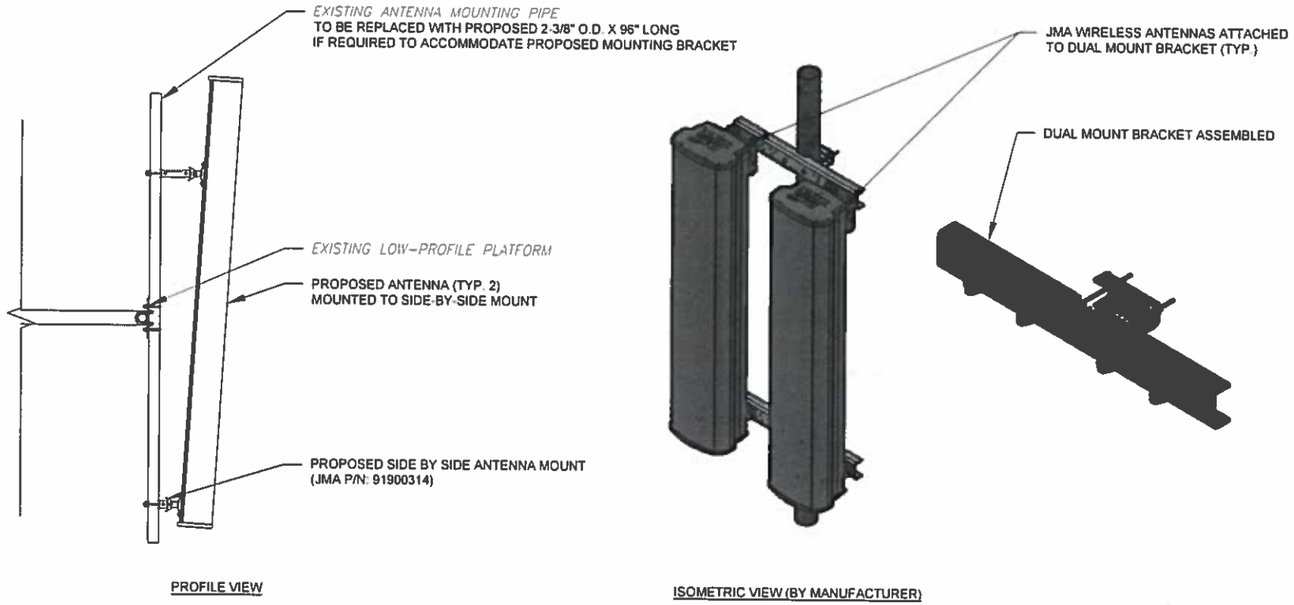
DRAWN BY:	AZ
APPROVED BY:	PPB
DATE DRAWN:	11/05/19
ATC JOB NO:	12984003
CUSTOMER ID:	WEST HAVEN SW CT
CUSTOMER #:	469425

RF SCHEDULE AND ANTENNA INSTALLATION

SHEET NUMBER:	REVISION:
C-501	0

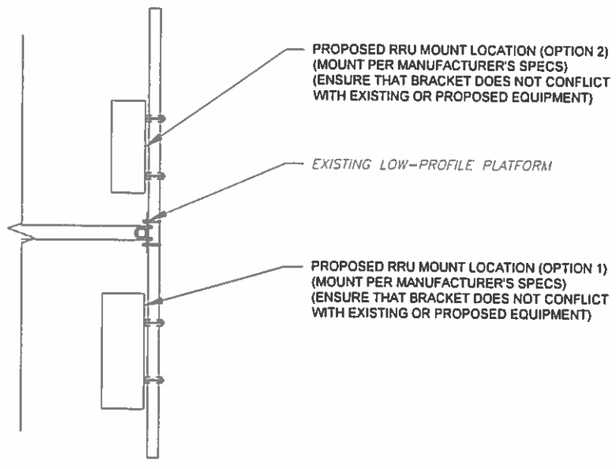


PROFILE VIEW

ISOMETRIC VIEW (BY MANUFACTURER)

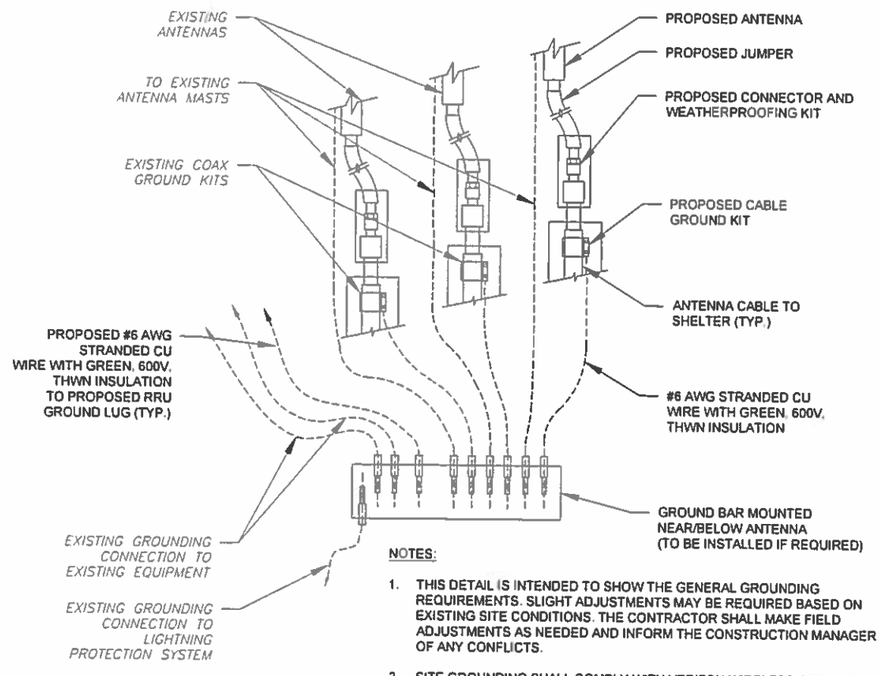
1 PROPOSED ANTENNA MOUNTING DETAIL - TYPICAL

SCALE: NOT TO SCALE



2 PROPOSED RRU MOUNTING DETAIL - TYPICAL

SCALE: NOT TO SCALE



NOTES:

1. THIS DETAIL IS INTENDED TO SHOW THE GENERAL GROUNDING REQUIREMENTS. SLIGHT ADJUSTMENTS MAY BE REQUIRED BASED ON EXISTING SITE CONDITIONS. THE CONTRACTOR SHALL MAKE FIELD ADJUSTMENTS AS NEEDED AND INFORM THE CONSTRUCTION MANAGER OF ANY CONFLICTS.
2. SITE GROUNDING SHALL COMPLY WITH VERIZON WIRELESS GROUNDING STANDARDS, LATEST EDITION, AND COMPLY WITH VERIZON WIRELESS GROUNDING CHECKLIST, LATEST VERSION. WHEN NATIONAL AND LOCAL GROUNDING CODES ARE MORE STRINGENT THEY SHALL GOVERN.

3 TYPICAL ANTENNA GROUNDING DIAGRAM

SCALE: NOT TO SCALE

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3500 REGENCY PARKWAY
SUITE 100
CARY, NC 27518
PHONE: (919) 468-0112
COA: PEC.0001553

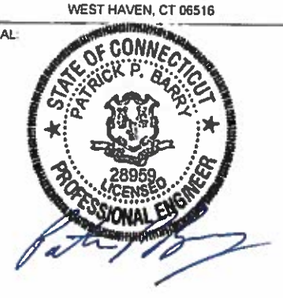
REV.	DESCRIPTION	BY	DATE
0	FOR CONSTRUCTION	AZ	11/05/19

ATC SITE NUMBER:
243036

ATC SITE NAME:
WEST HAVEN
& RT 162 CT

SITE ADDRESS:
668 JONES HILL ROAD
WEST HAVEN, CT 06516

SEAL:



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DRAWN BY:	AZ
APPROVED BY:	PPB
DATE DRAWN:	11/05/19
ATC JOB NO:	12984003
CUSTOMER ID:	WEST HAVEN SW CT
CUSTOMER #:	469425

CONSTRUCTION DETAILS

SHEET NUMBER:	REVISION:
C-502	0

AMERICAN TOWER®
CORPORATION

Antenna Mount Analysis Report

ATC Site Name	:	WEST HAVEN & RT 162 CT , CT
ATC Site Number	:	243036
Engineering Number	:	12984003_C8_02
Mount Elevation	:	134 ft
Carrier	:	Verizon Wireless
Carrier Site Name	:	469425
Carrier Site Number	:	West Haven SW
Site Location	:	668 Jones Hill Road West Haven , CT 06516 41.25640278, -72.97236111
County	:	New Haven
Date	:	October 4, 2019
Max Usage	:	87%
Result	:	Pass

Prepared By:
Trevor Ridilla
Structural Engineer I

Reviewed By:

STATE OF CONNECTICUT
ESHA KAUSHAL BODDI
32599
LICENSED
PROFESSIONAL ENGINEER

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Oct 4 2019 4:21 PM cosign

COA: PEC.0001553

Introduction

The purpose of this report is to summarize results of the antenna mount analysis performed for Verizon Wireless at 134 ft.

Analysis

Basic Wind Speed:	97 mph (3-Second Gust, Vasd) / 125 mph (3-Second Gust, Vult)
Basic Wind Speed w/ Ice:	50 mph (3-Second Gust) w/ 3/4" radial ice concurrent
Codes:	ANSI/TIA-222-G / 2015 IBC / 2018 Connecticut State Building Code
Structure Class:	II
Exposure Category:	B
Topographic Category:	1
Crest Height:	0 ft
Spectral Response:	Ss = 0.188, S_1 = 0.062
Site Class:	D - Stiff Soil - Default
Live Loads:	Lm = 500 lbs, Lv = 250 lbs

Conclusion

Based on the analysis results, the antenna mount meets the requirements per the applicable codes listed above. The mount 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.

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NOTE: THIS SHEET WAS CREATED BY OTHERS AND PROVIDED AT THE REQUEST OF THE CUSTOMER WITHOUT EDIT. PLEASE REFERENCE THE MOUNT ANALYSIS REPORT FOR COMPLETE MOUNT ANALYSIS CALCULATIONS AND DETAILS. SUPPLEMENTAL PAGES INCLUDED IN THE CONSTRUCTION DRAWINGS ARE FOR REFERENCE ONLY. GENERAL CONTRACTOR IS TO VERYIFY THEY HAVE THE MOST RECENT MOUNT ANALYSIS PRIOR TO CONTRUCTION.

SUPPLEMENTAL

SHEET NUMBER:	REVISION:
R-601	0